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Appraisal of Kigoma Rural Development Project Tanzania

July 15, 1974

Agriculture and Rural Development Department

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CURRENCY EQUIVALENTS

US$1.00	=	Tanzania Shilling 7.14 (Tsh)
Tsh1.00	=	US$0.14

WEIGHTS AND MEASURES

Metric System

1 hectare (ha)	=	10,000 m^2 = 2.46 acres
1 kilometer (km)	=	0.62 miles
1 square kilometer (km^2)	=	0.39 sq. miles = 100 ha
1 kilogram (kg)	=	2.20 pounds
1 liter (l)	=	0.26 gallons
1,000 kg = 1 metric ton	=	0.98 long ton

ABBREVIATIONS

KILIMO	=	Ministry of Agriculture
MAJI	=	Ministry of Water and Power
MAJI/K	=	Regional Water Engineers - Kigoma
NBC	=	National Bank of Commerce
NMC	=	National Milling Corporation
TANU	=	Tanganyika African National Union
TCA	=	Tanzania Cotton Authority
TRDB	=	Tanzania Rural Development Bank
Union	=	Kigoma Regional Cooperative Union

Government Fiscal Year

July 1 - June 30

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

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SUMMARY AND CONCLUSIONS

i. Tanzania places high priority on agriculture and rural development, in keeping with the needs of the 90% of its population who live in rural areas and mainly work in traditional agriculture. Government policies aim at gradually narrowing the sizable gap in rural and urban incomes. Particular emphasis is being placed on the poorer regions. To facilitate rural development, Government in 1972 decentralized into 18 regional administrations the principal responsibility for planning and implementing development projects within each region. Directly productive and social investments and the need for developing collective and self-help activity through ujamaa villages are being stressed.

ii. The project would aim, over a five-year period, to improve the production, incomes and living standards of some 250,000 people, about one-half of the rural population of Kigoma region, one of the poorest in Tanzania. A principal objective would be to double the annual per capita incomes of villagers under the project, from US$20 to US$40 (compared to rural per capita income of US$85 for Tanzania as a whole), through simple improvements in agricultural practices and the provision of inputs to about 135 newly-established and existing ujamaa villages. The project would also aim to provide a marketing and credit system, extension-related agricultural research and social services. Maize, beans, cotton and groundnuts would be farmed in the villages on the basis of "block" farms in which each family would be responsible for a particular plot.

iii. The project would consist of: (a) land-clearing of tsetse bush, simple feeder roads and improved social services (including water supplies, health services and schools) for villages; (b) loans to creditworthy village primary cooperative societies for crop inputs and productive infrastructure such as godowns, maize mills and simple fish-catching and processing equipment; (c) loans to the regional cooperative union (Union) for godowns and vehicles; (d) expanding the region's rural training centers, establishing a livestock pilot project and an agricultural trials and training center and providing vehicles, aerial photography and simple radio-telephone communications within the region; (e) technical assistance by way of resident staff and provision for short-term consulting services; (f) Government proposes to prepare comprehensive rural development projects in other regions and provision has been made for a project preparation team to prepare rural development projects in three other regions and to assist in the early phases of the evaluation of the Kigoma project.

iv. The project would constitute a major part of the regional government's development activities and would be implemented through departments of the regional administration. The Regional Development Director (RDD) would be responsible for overall project planning and implementation. The regional government's annual plan for village development under the project would be submitted to IDA for discussion and agreement. The regional government's

technicians would examine the viability of villages to be included under the project according to agreed-upon criteria. Government would also discuss with IDA its annual program for all village development in the region. The Tanzanian Rural Development Bank (TRDB), lending channel for a number of earlier IDA projects, would be the channel for lending to the Union and village primary societies. The Union would transport, warehouse and deliver production inputs and marketable surplus under the project.

v. The proposed IDA credit of US$10.0 million would cover 75% of the project's total cost. Under parallel financing the United Nations Capital Development Fund (UNCDF) would provide a grant of US$1.5 million, to go towards the costs of the water supply and health components. The IDA credit and UNCDF grant would together cover the foreign exchange cost and two-thirds of the local cost, or 86% of total costs. Government would channel funds to TRDB at 4% annually under a subsidiary loan agreement satisfactoy to IDA. Interest rates would be in accordance with general government policy for agricultural credit; existing rates are 8-1/2 percent for short-term (seasonal) credit and 7-1/2 for medium- and long-term credit. These rates are currently under review.

vi. Imported fertilizers, pesticides, sprayers, radio-telephone equipment, and aerial photography (US$1.4 million) would be purchased through international competitive bidding in accordance with Bank/IDA guidelines. In evaluation of bids, local manufacturers would be allowed a preference margin of 15% or the existing rate of import duty whichever is lower. Orders of less than US$30,000 would be procured in accordance with Government procedures, which are satisfactory. Vehicles would be required in small lots over the disbursement period and would therefore be purchased under local competitive bidding from local agents of well-represented foreign suppliers who are equipped with essential service facilities. Classrooms, houses, village water supply supplies, godowns, dispensaries, other building, tsetse clearing, and access roads, are of small scale, varied design and are geographically scattered; they would be constructed by force account and local competitive bidding.

vii. After 8 years, incremental marketable surplus at producer prices from villages under the project is projected at about T Sh 30 million (US$4.2 million). Gross annual direct foreign exchange earnings would be about US$4.8 million.

viii. Allowing for use of self-help village labor for most land clearance and village housing and for certain other village structures, notably school buildings, the full capital cost of village settlement (including allowance for regional infrastructure expenditures) would be approximately US$75,000 generated as a result of increased agricultural production, would approximately double village and family income from agriculture over an 8-year period of village development. The economic rate of return to the project is estimated at 22%.

ix. The project has greater than usual risks stemming from the economically unproven nature of ujamaa villages and the need to create a completely new marketing and distribution network to service project villages. Technical assistance would be provided under the project to strengthen village planning, agriculture, and the marketing and credit system, which should reduce the risk. This, and the project's potential for improving markedly the incomes of large numbers of rural poor in a disadvantaged region of the country at relatively low cost, make the risks worth taking.

x. Six IDA credits totalling US$62.1 million have been previously approved for agricultural projects in Tanzania (one each in agricultural credit, tea, tobacco and cotton and two for livestock). A recently approved loan provided US$21 million for a cashewnut project. In addition, an education credit in 1971 provided US$3.3 million for agricultural training. Performance under these projects has been mixed.

xi. The project would be suitable for an IDA credit of US$10 million to the Tanzanian Government.

I. INTRODUCTION

1.01 Tanzania places high priority on agriculture and rural development in its development strategy, in keeping with the needs of over 90% of its population who live in rural areas and are mainly engaged in traditional peasant agriculture. Incomes of the rural majority have traditionally been much lower than those of the small urban sector and Government's long-term aim is to narrow this gap. Particular emphasis is being placed on the poorer regions and on the development of collective and self-help activity through ujamaa (in Swahili, literally "familyhood") villages (para. 2.05). In order to facilitate rural development, Government in 1972 decentralized principal responsibility for planning and implementing development projects to 18 regional administrations.

1.02 Since mid-1972 the newly-regionalized administration in Kigoma region has been organizing the development of the rural areas by encouraging the formation of ujamaa villages. The proposed project would provide directly-productive and improved social infrastructure in selected new and existing villages. The project would also aim to strengthen the marketing and collection system in the region through improved organization and management. The project would directly affect about 250,000 people, roughly one-half of the rural population of the region.

1.03 Six IDA credits totalling US$62.1 million have been approved thus far for agricultural projects in Tanzania. These include one for agricultural credit, two for livestock and one each for tobacco, tea and cotton. A recently approved loan provided US$21 million for a cashewnut project. In addition, an education credit in 1971 provided US$3.3 million for agricultural training. Performance under the projects has been mixed. Management and staffing has been a continuing problem. In reference to cotton loans extended under the now completed credit project, a need was found for improved supervision of cooperative society loan records and input distribution. The first livestock project has progressed satisfactorily and is nearing completion, and the second credit has only recently become effective. The development of the tobacco project has been disappointing and slower than expected and has encountered difficulties due to inadequate services (mainly water) in the new settlement areas and the premature introduction of collective cultivation under the ujamaa system. There are recent signs that implementation of this project is now proceeding more satisfactorily. The smallholder tea project is also encountering problems with farmer recruitment, and the planting program is about two years behind schedule. Weak management and other difficulties have slowed progress, and it is expected that the project will be rephased. The cashewnut loan was only recently signed and is not yet effective.

1.04 The loan application was prepared by the Government assisted by the IBRD Resident Mission East Africa (RMEA). This report is based on the findings of an appraisal mission to Tanzania in October/November 1973 consisting of Messrs. D. Martinusen, S. MacLeod, D. Pickering and D. Turnham (IDA) and G. Gerhardsen, R. Hennion and C. Pineo (consultants) and an updating

mission in March 1974 consisting of Messrs. D. Martinusen, S. MacLeod and D. Turnham. Under parallel financing the United Nations Capital Development Fund (UNCDF) would provide a grant of US$1.5 million to go towards the costs of the water supply and health components of the project.

II. BACKGROUND

A. The Economy of Tanzania

2.01 Tanzania has an average population density of under 15 per km^2, but most of its 14.0 million people are concentrated in a few areas. The population is increasing at about 2.7% a year. Overall growth of production remains modest, particularly in agriculture whose growth in recent years has not kept pace with population growth. Per capita GNP is estimated at US$110 (World Bank Atlas 1973).

2.02 Tanzania's socialist development philosophy aims at reducing inequalities in income distribution through emphasis on smallholder agriculture and rural development, and through State ownership of important industries, services and large-scale agricultural enterprises. Growth has been behind the Second Five-Year Plan (1969-1974) targets. Due to recent favorable export prices for coffee, cotton, sisal, diamonds and meat, Tanzania's balance of payments has improved but the full effects of the recent dramatic increase in oil prices have yet to be felt.

B. The Agricultural Sector

General Background

2.03 Agriculture accounts for roughly 40% of Tanzania's GDP with half of the sector subsistence production. About 80% of total exports come from agriculture, mainly coffee, cotton, sisal and cashews. Most of the population (94%) live in rural areas, usually in small isolated communities, and 90% of the economically active population are engaged in agriculture.

2.04 Most production is from smallholdings, using family labor. Large-scale agriculture in estates produce sisal, coffee, tea and wheat; state farms mainly produce wheat, rice, sisal and livestock. Estate production has diminished in importance particularly as sisal has declined, and the state farm program remains small. Tanzania's national herd, the second largest in Africa, is grazed extensively over the 40% of the country which is free from tsetse fly infestation. It is largely managed along traditional lines. There is limited use of oxen for cultivation, mainly in the western cotton areas. In years of normal rainfall Tanzania is largely self-sufficient in staples, although some imports of wheat and maize occur in most years; imports of staples have been particularly heavy in recent months.

Ujamaa Villages

2.05 The Arusha Declaration of 1967 reaffirmed Tanzania's commitment to a socialist society and identified the ujamaa village as a means of effecting self-reliance and a community approach to development. The ujamaa village was seen as a vehicle for providing economies of scale in delivering improved agricultural techniques and inputs and social services, thereby improving the lives of rural people. Development of ujamaa villages was intended to be voluntary, although because of the excessive zeal among some local officials, this has not always been adhered to in practice. The precise pattern of development within each ujamaa village was to be left to villagers themselves to decide. Villages would eventually become registered as multi-purpose cooperative societies with powers to own land and to borrow. The Tanganyika African National Union (TANU), Tanzania's only political party, has called on all rural people to support Ujamaa. Government has provided considerable assistance to newly-developed ujamaa villages, chiefly by way of transport of villagers' effects and local building materials for houses and provision of water supplies and other social services. Special support has been con centrated in several poorer regions (including Kigoma). By late 1973, some 2 million persons were members of 5,600 ujamaa villages throughout Tanzania. The extent of collective activity varies among villages and the precise workings of ujamaa are still evolving. Government's initial objective was that all ujamaa productive activity should be communal; early difficulties with communal agriculture have caused the block farm approach, in which each family is responsible for a particular plot, to be the most likely form of production for the foreseeable future.

C. Agricultural Marketing and Pricing

2.06 For most major traded crops, Tanzania operates a single marketing channel with a parastatal (state-owned or controlled marketing board or corporation) as the principal focus of the system. The cooperatives (primaries and regional cooperative unions) act as agents of the parastatals in collecting marketable surplus and selling processed products in the regions. The number of parastatals and their crop responsibility has changed frequently in recent years; currently, for maize and beans the relevant parastatal is the National Milling Corporation (NMC), for cotton, the Tanzania Cotton Authority (TCA), and for groundnuts, the General Agricultural Products Export Corporation.

2.07 In collecting produce from the regions, parastatals typically take title to the goods and make payment when the goods are delivered to the warehouses of the regional cooperative union or directly to the parastatal's own warehouses. The Unions, borrowing from the National Bank of Commerce for working capital, provide for cash payments to producers through member primary cooperative societies.

2.08 Producer prices, the parastatals' buying and selling prices are set by the Central Government under approval of the Economic Committee of the Cabinet. Producer prices for a particular harvest are set in advance of the planting season and, starting with 1973-74, are uniform, within low and high priority zones, over the entire country. Parastatals' buying prices vary among regions according to differences in costs of collection and handling; their selling prices are uniform. Producers may sell small quantities of food crops outside official channels, often at prices considerably in excess of official producer prices. Unofficial and illegal trading in food crops also continues. At present, official consumer prices for maize, meal and flour are maintained at low levels, in relation to the parastatal's (i.e., NMC's) full costs, and the NMC, which would otherwise incur losses on operations in maize, is compensated by Government on an ad hoc basis. For cotton, on the other hand, operations are sufficiently buoyant to support a 10% ad valorem export tax (partially offset by subsidies to producers for purchased inputs). Input prices are also set centrally but are not on a uniform country-wide basis. Input subsidy schemes are undertaken from time to time to familiarize producers in their use and to increase agriculture production. The Tanzania Cotton Authority currently provides a subsidy of 50% of the cost of inputs used in cotton production.

2.09 Performance among cooperative unions and primary societies varies enormously. Scarcity of skilled manpower to manage, keep the books of, and supervise cooperatives remains a big problem in both Unions and primaries. The shortage of people at all levels who can maintain proper accounts and interpret their results is particularly great. Management of cooperative unions' transport and handling is also a general problem. Cooperatives are discussed further in Annex 1.

D. Agriculture Credit (Annex 2)

2.10 The Tanzania Rural Development Bank (TRDB) was founded in 1971, the fourth of a succession of rural credit institutions and the third in the decade following independence. TRDB provides long, medium and short-term credit to farmers through cooperative societies; it also administers special funds on behalf of Government, and is the main credit channel for IDA funds. The standard rates of interest set by Government (currently under review) and charged by TRDB are 8-1/2% on short and medium-term loans and 7-1/2% on long-term loans. Societies on-lend to members at the same rate. At the end of March 1973, TRDB loans to societies totalled T Sh 122 million. TRDB is a satisfactory channel for continued lending of IDA funds.

III. THE PROJECT AREA

A. The Economy of Kigoma Region

Location, Climate and Ecology (Annex 3)

3.01 Kigoma region, covering an area of 37,000 km^2, lies to the extreme west of Tanzania (Map 10941). The region is bounded by Burundi to the north-west and Zaire to the west, across Lake Tanganyika. Kigoma port, served by the Kigoma-Dar es Salaam branch of East African railways, is the main access to the sea for land-locked Burundi and is also an important base for shipments to and from Rwanda and Zaire. A weekly air service and telephone link operate between Kigoma town and Dar es Salaam.

3.02 The region's elevations range from 1,050 meters to 2,300 meters above sea level. Annual rainfall varies between 600 and 1,600 mm, and the annual mean maximum and minimum temperatures range from 28°C to 12°C. A single rainy season lasts for six to seven months from November to early May followed by a prolonged dry season. Precipitation is reliable and allows a wide range of crops to be grown, with some double planting of short-season crops.

3.03 Climate and topography, together with the effects of past and present human settlement, give rise to three distinct ecological zones (Map 10942):

(a) The Highland Zone (altitude 1,500 to 1,750 m, and annual rainfall 1,000 to 1,600 mm) is located above the tsetse fly belt and contains most of the region's cattle. Cattle are more a store of wealth and status than for production; annual offtake is low. Maize, beans and bananas and, in the higher, wetter areas, coffee are the most important crops. The zone is overpopulated. Soils are depleted and erosion is a problem.

(b) The Intermediate Zone (Altitude 1,200 to 1,500 m, and annual rainfall 850 to 1,100 mm) is below the highland zone and contains areas of tsetse fly infestation. Population is much less dense than in the highland zone and until recently it had few settlements. Cattle are much less common than in the highland zone.

(c) The Miombo Zone (altitude 1,000 to 1,200 m, and annual rainfall 600 to 1,000 mm) covers much of the east and southeast. Tsetse infestation throughout the zone has tended to restrict migration from higher population density areas. A distinct sub-zone is formed between the interior mountains and Lake Tanganyika, extending inland at river mouths. Fishing is the principal activity and population is dense along the northern shore, but, due to steep slopes, is sparse along the southern shore.

History, Demography and Economic Activity

3.04 Kigoma is populated by Bantu peoples, principally the Ha (70% of the total) and the Rundi, who are mostly migrants from Burundi. Kigoma is an area of comparatively late settlement, and with a tradition of relatively free movement from and to other regions of Tanzania and with Burundi. Tusi pastoralists moved into the highland region during the 19th century and remained the dominant group in terms of wealth and political leadership until the late colonial period. Settlement of white colonists and farmers was discouraged or prevented although a number of missions were opened, especially in the highlands. Communications to the Kigoma port railhead remained poor, thus discouraging the development of commercial crops away from the immediate vicinity of Kigoma town. The number of Asian traders remained small, and almost entirely confined to Kigoma-Ujiji township. The region's only commercial bank branch is in Kigoma town.

3.05 The Kigoma region is divided into three districts: Kibondo, Kasulu and Kigoma (Map 10942). The region's population is estimated at about 550,000 in 1973. Over 90% of the population is rural, mainly settled in the highland and intermediate zones. Kigoma-Ujiji township, with a population of about 30,000, is the only sizable urban center.

3.06 Until recently the region experienced a sizable outmigration of young men for low-paying and arduous work on estates in other regions. This movement is evidence of the traditional lack of opportunities in Kigoma to earn cash income. In 1967 the percentage of labor in paid employment (2.6%) was the lowest of any region. Employment has been overwhelmingly in agriculture of a low productivity kind. Seed was mainly of unimproved varieties; cultivation was by hand (mainly by women); and almost no fertilizer or other inputs were applied. Families shifted their dwellings every few years as fertility declined. Per capita incomes of most of the rural population are still very low, in the order of US$20 per year.

3.07 The lack of industry and the backwardness of agriculture are, to some extent, related to the isolation of the Region. Historically, the most active attempts to spur development in Tanzania were directed to more accessible regions. Even today, the administrative centers of Kasulu and Kibondo districts have no power supply or telecommunications link with Kigoma town. A simple request for a spare part, from anywhere in the region to Kigoma town, for example, must go through the mails or, as often required, by a special jeep trip. According to the 1967 Census, Kigoma region was second to last in Tanzania in literacy levels and in adult population with no schooling (over 80% of the total). Since the building of the railway in 1914 until recently little attempt was made to develop Kigoma region.

B. Regional Government and Administration (Annex 4)

3.08 With effect from March 1972, Regional and District administrations in Tanzania were reorganized and strengthened to promote rural development programs more effectively. The chief political officer in the Region, the

Regional Commissioner (appointed by the President), was given cabinet rank. The Regional Development Director (RDD), as head of the regional civil services, is now equivalent to the Principal Secretary of a central government ministry. The most important effect of the changes was to make all civil servants working in a region in principle responsible to the RDD of that region and not, as before, to central ministries in Dar es Salaam.

3.09 The philosophy behind the decentralization has been that more effective rural development would be promoted if decisions taken at local level were to reflect more closely local views. In turn, local views and support for government programs would be sought through the political process, working through local level development committees. Thus, much more than in the past, the local level political structure, from the ten-family cell basic TANU unit through Ward level, District and ultimately Regional Commissioner, interacts with the civil service in program identification, preparation and subsequent implementation.

3.10 Once approved, responsibility for carrying out the programs rests with the Regional Development Director, supported by the District Development Directors, in respect of the district programs.

3.11 For all of Tanzania the percentage of the budget channeled through the regions is still small (in 1973/74, 13% of the development budget and 20% of recurrent expenditures). However, these percentages are growing as regional planning and management capabilities are further developed. For Kigoma region the recurrent budget allocation for 1973-74, at T Sh 27 million, was up almost 30% on 1972/73 and the development budget, at about T Sh 15 million, was up almost 100%, due partly to a carry-over of unfinished work from the previous year. The regions have no taxing powers of their own and are bound by national regulatory, pricing and licensing policies.

3.12 In Kigoma region initial problems have centered around staff shortages and inexperience with the new roles. The extra strain caused by launching Operation Kigoma (para. 3.13) and delivery problems on supplies and spare parts have caused some delays in implementation. Overall, however, the new focus at the regional and district levels of responsibility for planning and implementing projects has now been largely effected and should lead to more active development efforts in the Region than in the past.

Operation Kigoma

3.13 Between July 1972 and November 1973 some 76 ujamaa villages containing about 24,000 families -- roughly one quarter of the region's rural population -- were established under Operation Kigoma (para. 2.05). The rate of starting new villages and settling families into them has since increased. Usually, villagers are drawn from isolated homesteads scattered in the vicinity of the ujamaa site. The latter is often based on an older village nucleus of perhaps 30-50 families, sometimes with certain facilities already available -- e.g., road connections and a school. Settlement takes place largely during the slack season after harvesting and before land preparation; in the ujamaa

village, villagers build their own houses largely from mud and bamboo; apart from some transport of bamboo and poles provided by Government in some cases, the houses involve no cash cost. Villagers moving into villages started during 1972 have succeeded in clearing and planting house plots of 0.4 ha (1 acre), building houses and rough clearing perhaps half of their initial acreage in village "block farms" for maize, beans, cotton and groundnuts. The initial favoring of wholly-communal block farm has been replaced by a system of individual plots in contiguous groups under the particular crop. Thus, each "block" of a particular crop contains a number of individual plots, each farmed by a particular family. Initial problems were faced in village siting, and in shortages of transport, spares and skilled manpower of all types. The provision of social infrastructure to the new villages lags considerably behind their establishment.

C. Rural Infrastructure

Education (Annex 5)

3.14 About 32% of Kigoma region's school age population (35,260 pupils; 35% of whom females) attended primary school in 1972, an increase in absolute numbers of almost 50% in 5 years. The provision of universal free primary education by 1989 is a national goal which, as achieved, will require large increases in the national budget for education. Large numbers of adults in Kigoma region are registered in village adult education classes "under the trees" but attendance has been irregular and measurable results to date unspectacular. The Region's existing primary education facilities are below standard. Tools for school gardens and the few school work shops are non-existent; textbooks and desks are worn and in short supply and teachers' houses and classrooms are often in a poor state of repair.

3.15 In order to provide education that is more relevant to the Region's overwhelmingly rural population the regional education authorities plan in the future to give more attention to teaching practical subjects (e.g., farming, carpentry, masonry and smithery). Priority will be given to providing short courses for teachers in teaching practical subjects and in equipping practical workshops in rural primary schools. The courses for teachers could be provided at the Region's rural training centers, involving some expansion of these centers for this and other purposes. Priority will also be given to providing textbooks and desks for existing and new classrooms and for teachers' houses. Additional classrooms, also required as the percentage of school attenders rises, will also be necessary. New ujamaa villages are often located near existing schools which would be expanded as the villages' populations increase.

Village Water Supplies (Annex 6)

3.16 Provision of clean water at convenient public points in villages is an important government objective and an important part of its ujamaa village program. In Kigoma the office of the regional water engineer (Maji/K)

has been engaged under Operation Kigoma in providing village water supply systems to newly-established ujamaa villages. Much of the Region is well-endowed with perennial streams, but villagers (usually women) have to walk 3 to 5 km for water from a source that is in varying degrees contaminated; the time so spent is often at the expense of productive work in the fields. The principal focus of Maji/K to date has been on providing pumped supplies which deliver water to 10 to 20 public hydrants located at convenient points throughout the village. The new pumped system if properly installed provides water that is cleaner and safer than the former source (usually a stream). It also saves much time for villagers compared to their former walk to the water source. Despite shortages of transport and materials Maji/K has developed to the point where it can now install 10-12 such systems per year. This rate is, however, much slower than the rate of opening new villages and there is now a large backlog of newly-established villages having no improved water supply at all.

3.17 No charge is levied in Tanzania for water delivered to public hydrants. This, coupled with a preference for pumped systems, will result in very large claims on the budget for both capital and recurrent costs. There is need to utilize more cost-effective methods of water supply. For example, simple dugwells, sealed and equipped with handpumps, where adequate shallow groundwater exists, provide clean water at convenient points at a fraction of the cost of pumped systems.

Public Health (Annex 7)

3.18 In 1972, national priorities in health services were reordered to give greater attention to preventative medicine and health services in rural areas. The rural treatment system would consist of (a) a rural health center with 5 outlying dispensaries per 50,000 population to cover all non-hospital needs of families and (b) rural hospitals at regional and district levels to provide major curative services. Government's quantitative goals for dispensaries and rural hospitals have largely been met, although the spread is uneven and some districts are below national norms. For the rural health centers, however, more than half of the program is still to be completed. The supply of trained staff is a problem but newly-established schools should provide a rapid increase during the next several years in numbers of medical aides and rural medical aides, the personnel who operate, respectively, the rural health centers and dispensaries.

3.19 For Kigoma region, the development of the rural health service is on a par with rural Tanzania as a whole. As well as more rural health centers, however, some additional dispensaries will be needed as the population is resettled in new ujamaa villages. The staffing constraint will be eased by the newly-created training school in Kigoma for rural medical aides. More needs to be done on preventative medicine. For example, currently nothing is yet being done to introduce improved methods of excreta disposal, a first step in dealing with the internal parasite problem.

D. Agriculture and Fisheries

Agriculture (Annex 3)

3.20 With the exception of the densely-populated areas in the Highlands, traditional agriculture is based on shifting cultivation. Maize, beans, cassava and such minor crops as sweet potatoes, sorghum, pigeon peas and groundnuts are most commonly grown in mixed stand and in varying combinations throughout the Region. Bananas and plantains also form an important part of the diet--raw, cooked or fermented and consumed as beer. They are normally planted close to living quarters where they receive organic manuring in the form of domestic refuse and compound sweepings. No other crops are normally so treated.

3.21 No data are available on traditional cropping patterns. Local opinion and field observations point to maize, bean, cassava mixtures as the most common staple crop grouping, with a length of cropping ranging upwards from about three years depending on fertility and topography. Inorganic fertilizers have rarely been used in the past but during the last two seasons have been increasingly introduced by Government free of charge or subsidized (e.g., by the Tanzania Cotton Authority) to promote their use. Although improved seed of maize and groundnuts are apparently appreciated, their distribution to date has been limited to selected ujamaa villages created since 1972. The regional government intends that inputs in future be provided on credit, thereby avoiding a large budget drain when use of such inputs becomes widespread.

3.22 The circumstances outlined above prevent an accurate estimate of yields and production under traditional practices. Cash incomes are derived mainly from sales of crops grown surplus to subsistence needs; however arabica coffee in the Highland Zone, oil palm products mainly in Kigoma District, and cotton in the Intermediate Zone, are also of some importance.

3.23 Achievement of improvements to traditional practices has been seriously hampered by three factors. First, little or no research work has been carried out in Kigoma Region so that extension staff have at best very generalized and only partially proven recommendations to put across to farmers. Second, the numbers and quality of farmer contact extension workers have been inadequate to make a real impact on the farm population. Third, the pattern of settlement throughout the Region tends towards a scatter of population with relatively few nucleated villages. This makes contact with farmers difficult and severely limits the impact of extension workers.

3.24 Marketable surplus in the region has been extremely small. The Kigoma regional cooperative union, the official channel for handling marketable surplus, is small and weak both financially and managerially.

Fisheries (Annex 8)

3.25 Fisheries in Kigoma region, mainly on Lake Tanganyika, involves some 10,000 fishermen operating about 7,000 canoes from 35 fishing villages. The most important species caught is dagaa, a small, sardine-like fish that is dried and traded widely throughout Tanzania and neighboring countries. Some improvements in catching technique have been introduced in recent years by way of pressurized lamps for attracting fish during night fishing (the principal form), and beach seines. In addition, three purse seine units (each costing about US$70,000) have begun operating out of Kigoma harbor. A recently commenced FAO/UNDP fisheries project centered in Kigoma will experiment with other simple improvements for traditional fishermen, as well as with improved dagaa drying techniques (currently a problem in the wet season when catches are greatest). Some of these techniques will be available within two to three years; some credit will be necessary so that villagers can adopt them.

IV. THE PROJECT

A. Brief Description

4.01 The Project, over a five-year disbursement period, would continue to support village development already started under Operation Kigoma and of new villages to be established during the project period. Most of the rural population of the region (some 500,000 people) would benefit in some measure from the project; about half would be directly involved, as residents of about 135 project villages. The main objective of the project would be to double present annual per capita income in the project villages from the equivalent of about US$20 to US$40. Through support for agricultural and cooperative development, regional infrastructure, farmer and staff training and technical assistance, the project would also develop a marketing and credit system, strengthen village-level extension and introduce a program of adaptive agricultural research. These services are increasingly necessary as ujamaa development in Kigoma region moves forward from the initial settlement phase to the stage at which village ujamaa communities are to fully sustain themselves on a permanent basis through economic activity. In addition, the level of social services would be improved through provision of education, health facilities and village water supplies. The project would consist of:

1. Investments in eligible villages for public water supplies, education and health facilities, tsetse clearing and feeder roads;

2. Loans to eligible and creditworthy villages for: (a) production-infrastructure including godowns, maize mills, fish catching and processing equipment and (b) seasonal production inputs;

3. Loans to the regional cooperative union for facilities such as godowns, offices, and transport equipment;

4. Investments in regional supporting services, including: (a) construction and rehabilitation of rural training centers; (b) a small regional radio-telephone system; (c) a livestock pilot project; (d) aerial photography of areas to be developed; and (e) a regional agricultural trials and training center;

5. Technical assistance to include (a) a financial controller, an operations manager and a training supervisor for the regional cooperative union, a land-use planner and trials and training officers for the agricultural trials and training center together with training; (b) backup support such as housing and transport; and (c) a project special fund for use by project management for specific problem-solving;

6. Monitoring and evaluation; and,

7. Project preparation for rural development projects in other regions.

The regional government would have overall responsibility for project implementation. The Tanzania Rural Development Bank would be the channel for credit under the project.

B. Detailed Features

Village Infrastructure

4.02 To be eligible for financing under the project, a Village Site Feasibility Report (VSFR) would have had to be prepared (para. 5.04) demonstrating that the village is appropriately sited in relation to various factors including available agricultural land and water. To assist in this, the project would provide for the aerial photography of about two-thirds of the Region.

Water Supply Systems

4.03 Water supply systems under the project would bring potable water year round to public points located so that villagers would generally not have to walk more than 200-300 m for water. The regional water engineer's office (Maji/k) would design for a particular site the type of system that would provide adequate year-round supplies of clean water at minimum cost. Where adequate shallow groundwater exists a number of dug wells, generally

of less than 10 m depth, covered and fitted with handpumps, would be constructed. In some cases gravity delivery, direct from a water source, may be possible. Where handpumps or gravity feed are not possible a diesel-powered pump system may be required. This is generally a more expensive system to build and has higher operational costs. At negotiations assurances were obtained that village water supply systems would be designed according to minimum cost specifications, taking into account the alternative systems described above.

4.04 Government policy in Tanzania is to provide domestic water free of charge except if the supply is through a house connection. As part of the project preparation component of the project (para 4.17) a study would be undertaken to examine the fiscal implications of the water supply component and appropriate methods and procedures for allocating and financing the cost of such services. IDA and Government would exchange views on the study's findings and recommendations. Assurances on the study and exchange of views were obtained at negotiations. Village water supply is discussed further in Annex 6.

4.05 Village-level education facilities financed under the project would include tools and practical workshops, textbooks and desks, teachers' houses, and classrooms according to regional priorities for primary education (para. 3.15). The facilities would also be used for adult education. When a new village is started a single classroom would be built in the first year for first grade. An additional classroom would be built in each subsequent year until the full primary school, covering seven standards (or grades), would be completed. Where new villages are established near existing schools they would be rehabilitated and also expanded as necessary. Facilities would be provided in accord with Government's national education norms (para 3.14 and Annex 5).

4.06 Local level health care facilities including rural health centers and simple dispensaries would be provided where health coverage is below national standards for rural areas. Dispensaries are generally of two rooms, stocked with a limited range of medicines and manned by dispensary assistants who have had some training in a regional hospital. The project would also include provision for about 10% of project villages of pit privy slabs and with instruction in their installation and use, as a pilot phase of a program of improved excreta disposal. Many low-lying areas are infested with tsetse fly which transmits sleeping sickness. Where a village is located in such an area, the project would support tsetse clearing of bush in and around the village site, using simple tools and labor-intensive methods (on a partial self-help basis). Feeder roads would join those villages (probably less than half) not already connected to the existing road system. They would be simple tracks, capable of handling loaded lorries, mainly in the dry season.

[illegible] to Villages for Productive Purposes

4.07 Creditworthy villages under the project would be able to borrow from TRDB through the regional cooperative union (para. 5.10) for productive infrastructure, including godowns and maize mills. Villages that are wholly

or partly dependent on fishing could borrow for improved catching methods (e.g., beach seines) or processing equipment (e.g., simple equipment for drying dagaa during the wet season). Some of the loans would be for catching or processing improvements expected to be proven by the UNDP fisheries project (para. 3.25).

4.08 Creditworthy villages would also borrow from the regional cooperative union which in turn would borrow from TRDB (paras. 5.08 to 5.10) for incremental production inputs including fertilizers, pesticides and, in the case of cotton, ultra low volume (ULV) sprayers. To be eligible for credit a village must be registered as a cooperative society and have in residence a qualified bookkeeper and agricultural extension officer. A new village would not normally be eligible for credit before its third season.

Loans and Equity Contribution to Regional Cooperative Union for its own Facilities

4.09 The regional cooperative union (Union) would distribute production inputs to project villages and purchase, collect and deliver the villages' marketed surplus to the relevant parastatal for marketing or further processing. Once villages are eligible for credit, their marketed surplus and requirements of production inputs are expected to grow rapidly under the project (para. 6.03) and requirements of the Union for godowns, offices and lorries would increase correspondingly. It is expected that the Union would borrow for a core fleet of about 15 lorries, together with necessary service facilities and spare parts. The Union would hire additional transport (from parastatals, the regional government and private sources) during peak periods. Government, as part of its share of project cost, would also make an equity contribution or long-term loan (para. 5.12) as required to cover expected losses during the first four years of the project, estimated at about T Sh 1.2 million (US$170,000).

Regional Supporting Services

4.10 A new rural training center would be constructed in Kigoma and the existing centers at Kasulu and Kibondo would be improved and expanded under the project. The three centers would house various training activities accompanying the project, including courses for village officials, teachers and government officers, as well as courses on a variety of rural affairs subjects currently conducted at the existing centers. Courses would also be held for supervisors, tradesmen and operators involved in the construction and operation of water supply systems.

4.11 The project would also include a simple radio-telephone hookup between regional headquarters in Kigoma town and each district headquarters and between each district headquarters and several major villages within each district.

4.12 A regional agricultural trials and training center would be established under the project at a central location that is typical of much of the Region's agriculture, perhaps near Kasulu town. The center annually would provide to

about 25 primary school leavers, having some farming experience, a combination of classroom and practical training of about one year's duration, that would equip each student to work as an agricultural field assistant in an assigned village. The center would also conduct field trials to test the suitability under regional conditions of seeds and agronomic practices recommended by the national agricultural research center at Ukiriguru. The project would cover the necessary land preparation, physical structures, equipment, housing and staff. Assurances were obtained at negotiations that selection of the site, based on a detailed soil and topographic survey made available to IDA, would be carried out and actual construction started within six months of credit signing, with construction to be completed within 12 months thereafter. Located adjacent to the agricultural trials and training center would be a livestock pilot project whose purpose would be to investigate and demonstrate livestock management systems appropriate to the Region and to introduce breeding stock (from types such as the Boran) for the gradual upgrading of the local Ankole cattle. The project would also include funds for a small number of vehicles and lorries to enable the regional administration to carry out its increased activity resulting from the project.

Technical Assistance

4.13 In order to strengthen the regional cooperative union (Union) the project would provide an operations manager, a financial controller and a training supervisor. The operations manager would set up and initially operate the Union's distribution, collection, transport, scheduling, storage and handling, quality control and physical planning activities, and train staff. The financial controller would carry out similar functions relating to the Union's accounting, financial reporting, budgeting, credit appraisal and collection, internal auditing, and cash management activities (para. 5.11). Staff training would be a major responsibility for both. The training supervisor would work closely with the RDD's office in establishing a simple village-level bookkeeping control system and in training school leavers from the Region to become village-employed bookkeeper/business managers. He would also assist in initial training and continuing supervision of the Union's Society Credit Officers and in general training and credit matters.

4.14 The land-use planner would advise and assist in the layout of villages, with particular reference to the siting and alignment of block farms on the basis of aerial photography and ground surveys. He would also be responsible for supervision and on-the-job training of regional land-use planning staff. The training officer at the agricultural training and trials center would be principally responsible for planning and conducting training courses at the center, drawing on the assistance of the land-use planner and others. The trials officer would be in charge of the center's trials program which would also involve village level observations and demonstrations located at suitable sites in the Region. The project would finance inputs required for other demonstrations and would also cover during training the subsistence and training costs of village-level bookkeepers and agricultural field assistants.

4.15 Recommended terms of reference and required qualifications for staff to be financed under the project are in Annex 9. The project would also finance required housing and vehicles for these staff. During negotiations assurances were obtained that within six months of effectiveness the operations manager and financial controller would be hired with experience and qualifications acceptable to IDA and on terms and conditions acceptable to IDA; in addition, Government would hire competent and experienced persons as the training supervisor of the Union, the land-use planner and the trials and training officers.

4.16 A number of problems would inevitably arise in a project of this type which cannot be precisely identified in advance. A project special fund would therefore be included for use at the discretion of the Regional Development Director for consulting services and technical assistance in solving specific problems of project implementation. The fund could be used, for example, to send staff to similar projects elsewhere in Tanzania or nearby countries for insights in solving particular problems or for bringing in specialists for short periods. The management of spare parts and vehicle maintenance in the region is a problem; regional staff could be sent to appropriate courses or, alternatively, a consultant could be brought in for advice and training. Expenditures in excess of US$30,000 equivalent in any one fiscal year or over US$10,000 equivalent in any one contract would require prior IDA approval.

Regional Planning, Project Preparation and Evaluation

4.17 The project would provide support for the further development of Tanzania's rural development program through finance for a team of experts, to be attached to the Prime Minister's Office, to assist the regional staff of other regions in project preparation of rural development projects and regional plans, including examining their policy and fiscal implications. It is expected that three regions would be covered over a two-year period. The program would be directed by a coordinator who would work out of Dar es Salaam. The team would liaise closely with RMEA. With the help of the specialist staff and local expertise, the coordinator would also be responsible for implementing a system of monitoring and evaluation of the Kigoma project. Details of the proposal are further described in Annex 10.

C. Project Costs (Annex 11)

4.18 Total project cost, over a five-year disbursement period, is estimated at T Sh 95 million (US$13.3 million), of which US$8.0 million (60%) would be the estimated foreign exchange component. Details are summarized in the following table:

	Local	Foreign	Total	Local	Foreign	Total	Foreign Exchange
		TSh '000			US$ '000		%
Village Infrastructure							
Water Supply	6,206	6,459	12,665	869	905	1,774	51
Health	868	682	1,550	122	96	218	44
Education	7,100	8,334	15,434	994	1,167	2,161	54
Feeder Roads	766	192	958	107	27	134	20
Tsetse Clearing	716	126	842	100	18	118	15
SUB-TOTAL	15,656	15,793	31,449	2,192	2,213	4,405	
Loans to Villagers							
Seasonal Inputs Revolving Fund	1,541	6,165	7,706	216	863	1,079	80
Mid-Term Credit for Production Infrastructure	2,354	3,120	5,474	330	437	767	57
SUB-TOTAL	3,895	9,285	13,180	546	1,300	1,846	
Loans and Equity Contribution to Regional Cooperative Union	2,108	3,590	5,698	295	503	798	63
Regional Infrastructure							
Regional Training Centers	990	778	1,768	139	109	248	44
Radio-Telephone Hookup	154	196	350	22	27	49	56
Agric. Trial/Training Center and Livestock Pilot Project	498	375	873	70	53	123	43
Vehicles	140	420	560	20	58	78	75
Demonstrations	43	171	214	6	24	30	80
Aerial Photography	180	1,620	1,800	25	227	252	90
SUB-TOTAL	2,005	3,560	5,565	282	498	780	
Technical Assistance	1,768	4,124	5,892	248	577	825	70
Project Preparation and Evaluation	1,481	4,444	5,925	208	622	830	75
TOTAL	26,913	40,796	67,709	3,771	5,713	9,484	
Contingency Allowances							
Physical	1,126	1,762	2,888	158	246	404	
Price	9,545	14,467	24,012	1,337	2,026	3,363	
Total Project Cost	37,584	57,025	94,609	5,266	7,985	13,251	60

Costs are based on November 1973 prices, with fertilizer prices updated to February 1974. Price contingencies of 14% for 1974, 11% for 1975 and 7-1/2% per year thereafter have been added to all costs. A physical contingency of 5% has been added to all costs except seasonal credit production inputs.

D. Financing

4.19 Financing of project costs would be shared as follows:

	T Sh (million)	US$ (million)	%
IDA	71	10.0	75
Government of Tanzania	13	1.8	14
UNCDF	11	1.5	11
	95	13.3	100

The proposed IDA credit of US$10.0 million would be on standard terms to Government and would cover 75% of total costs. Under parallel financing the United Nations Capital Development Fund (UNCDF) would provide a grant of US$1.5 million, to go towards the costs of the water supply and health components. The IDA credit and UNCDF grant would together cover the foreign exchange cost and two-thirds of local costs, or 86% of total costs. Funds for credit to cooperatives (i.e., the regional cooperative union and village primary societies) would be made available by Government to TRDB at 4% annually for 25 years including 5 years' grace under a subsidiary loan agreement acceptable to IDA, the execution of which would be a condition of effectiveness. Because village primary societies are new and have little or no savings, TRDB would on-lend up to 100% of project costs. Villages would pay an interest rate of 8-1/2% for seasonal inputs and 7-1/2% for economic infrastructure, the prevailing interest rates throughout Tanzania. Government is currently reviewing these interest rates. TRDB would lend to the Union for its own facilities and for on-lending to villages for seasonal inputs and village infrasture. TRDB in some cases would also lend direct to village primary societies for village productive infrastructure. Where the Union on-lends to villages it would not take an interest margin but would cover its costs from its levies on handling villages' produce and inputs. Government would retain funds for all other parts of the project.

E. Procurement

4.20 Requirements for fertilizers, pesticides and ULV sprayers (about US$1.1 million) would be bulked with similar items required under other IDA-financed projects in Tanzania. These items together with aerial photography and radio equipment (about $0.3 million) would be procured through international competitive bidding in accordance with Bank/IDA Guidelines for

procurement. Bulking of orders for vehicles and spare parts (about $0.48 million) would not be practicable since they will be purchased in small lots as required over a period of about five years. Purchases would be made following competitive bidding by local agents of well represented foreign suppliers who are equipped with essential service facilities. In the evaluation of bids local manufacturers would be allowed a preference margin of 15% or the existing rate of customs duties, whichever is lower. Orders of US$30,000 or less would be handled in accordance with existing government procedures which are satisfactory.

4.21 Contracts for construction of classrooms, houses, water supply systems, godowns, dispensaries and other buildings, which are all small, of varied design and geographically scattered, would not be a sufficient size to attract international bidders and would be constructed by a combination of local competitive bidding and force account. In evaluating bids domestic contractors would be allowed a 7-1/2% preference.

F. Disbursement

4.22 Disbursement of funds from the credit would be on the following basis:

A. UNCDF would disburse 75% of total expenditures for water supply systems and health facilities.

B. IDA would disburse against the following:

(a) 90% of civil works for education facilities, feeder roads and tsetse clearing, and housing;

(b) 100% of foreign expenditures or 90% of local expenditures for the incremental cost of seasonal inputs;

(c) 90% of amounts disbursed to the Union as sub-loans for vehicles and spares and other collecting and marketing facilities and to project villages as sub-loans for productive infrastructure;

(d) 100% of foreign expenditures or 90% of local expenditures for aerial photography, radio telephone system, vehicles and spares (other than for the Union), equipment and seasonal inputs for trials and equipment for the rural training centers, classrooms and the pilot livestock program; and,

(e) 100% of foreign expenditures and 90% of local expenditures for project preparation, evaluation and technical assistance and related equipment and expenditures from the project special fund.

Disbursements against A and (a), (b), (d) and (e) of B would be fully documented. In the case of disbursements against certificate of expenditure (i.e., (c) of B above) documentation would not be submitted to IDA for review but would be available for inspection during IDA project supervision. The incremental cost of seasonal inputs in (b) above would be the amounts spent in a particular year over and above amounts spent in previous years under the project. Any funds remaining in the credit account on completion of the project would be used, at IDA discretion, on further development in Kigoma region. An estimated schedule of IDA disbursements is shown as Annex 12.

G. Accounts and Audit

4.23 TRDB and Government would maintain separate accounts for disbursements and subloans under the project. Both sets of accounts would be audited by independent auditors acceptable to IDA, and the accounts and auditors' reports would be submitted to IDA within six months of the close of each financial year. Auditing of the cooperatives in the Region is the responsibility of the audit and supervision fund of the Prime Minister's Office. During negotiations assurances were obtained that audits of cooperatives participating under the project would be completed within six months of the close of each financial year and that to facilitate this, auditors, reporting to the office of the Registrar of Cooperatives in Dar es Salaam, would be established within the Region prior to any lending to cooperatives under the project.

H. Ecological and External Effects

4.24 The fertilizers and insecticides to be used in the project would have only a small effect on the local ecology given normal precautions in their use. Endosulphan insecticide is toxic to humans and appropriate safety instructions would be included in all staff and farmer training. The existence of an erosion hazard following from village formation and land consolidation has been fully recognized. Village site selection, based on the Village Site Feasibility Report (para 5.04), together with subsequent housing and farm layout will be in accordance with sound soil and water conservation principles laid down and monitored by project land use planning personnel.

V. ORGANIZATION AND MANAGEMENT

Regional Government

5.01 The project would constitute a major part of the regional government's development activities and would be implemented through departments of the regional administration. The Regional Development Director (RDD)

would be responsible for overall project planning and implementation. The Tanzanian Rural Development Bank (TRDB) would be the channel for lending under the project.

Village Planning

5.02 The regional government would coordinate planning for the number and location of new villages started in a particular year. The final decisions on new villages and on public investments in existing villages would be embodied in the district and regional plans and budgets as finalized through the annual budget process (Annex 4).

5.03 In order to ensure that new and existing villages to be financed under the project are suitably sited in relation to agricultural land, water and other factors, each site would be studied by relevant district and regional functional managers and specialists to determine the site's economic feasibility. The study team would generally consist of specialists in agriculture, public works, land planning, water, livestock and finance, supplemented, as necessary, by specialists in education, forestry and health.

5.04 Each team would prepare a village site feasibility report (VSFR), a detailed assessment of the site's agricultural potential, water and infrastructure availability, village development plan and cost estimates and a signed opinion on the overall feasibility of the site and its maximum sustainable size. The land planner (para. 4.14) and agriculturalists would use the results of special aerial photographic surveys (para. 4.02). Each team would examine the extent, location and quality of arable land adjacent to the proposed site and estimate the site's maximum carrying capacity, taking into account time taken in walking from homes to block farms. The water engineer would examine alternative means of providing village water and estimate their costs. To facilitate this, where appropriate, one or two dug wells would be sunk, as part of the VSFR exercise, to determine the availability of groundwater. VSFRs would not be forwarded to IDA but would be available in Kigoma for review during supervision.

5.05 Government would annually prepare and make available to IDA by March of each year for discussion and agreement an annual development plan for village investments and training to be financed under the project during the following fiscal year. Government would also supply to IDA for comment its annual village development plans covering all villages in the Region. Village planning procedures and a pro forma VSFR are described further in Annex 13. During negotiations assurances were obtained that the procedures outlined in paras. 5.02 through 5.05 and in Annex 13 would be followed in identifying, selecting, planning and implementing investments in project villages.

Agriculture

5.06 Each project village would have had an agricultural field assistant stationed permanently at the village for at least one season before it could borrow under the project. About 80 agricultural extension workers currently

work in the Region and would be supplemented by those trained at the regional trials and training center which would be set up under the project (para. 4.12). The field assistants would work with village committees in organizing demonstration plots and in advising villagers on agricultural practices.

5.07 After a village reaches a stage where it would be able to utilize purchased inputs (generally not before its third season of development) it would apply for loans from the regional cooperative union (Union). The village to be eligible for loans, would, among other things, have to become a registered multi-purpose cooperative society and have hired a bookkeeper (para. 4.08). The village (assisted by the field assistant and village bookkeeper) would decide on the amount of loan it would apply for and on-lending arrangements with its members. During harvest the village (as a cooperative society) would deduct, from harvest payments to members, outstanding loans for inputs.

The Regional Cooperative Union (Union)

5.08 The Union would submit a loan request to TRDB to cover the requests for seasonal inputs by villages which the Union has approved. TRDB would procure (para. 4.20) the inputs for approved loans and would arrange for their shipment to Kigoma. The Union would receive the inputs at Kigoma and arrange for unloading, storage, documentation, making up of village lots, and transport (generally around September-November) to the villages.

5.09 During and immediately following harvest (generally May-July) the Union would buy and collect the villages' crops. To effect this the Union would make small cash advances to the villages during harvest. The Union would deduct these advances before making subsequent payments to villages for crop purchases. The absence of any form of banking or other financial network in the Region's rural areas requires the Union to get involved in sizeable credit operations.

5.10 The Union would also borrow medium term from TRDB for its own needs (e.g., trucks) and for on-lending to villages for production infrastructure (e.g., village godowns). Trading and lending procedures under the project are further described in Annex 14.

5.11 The Union would be strengthened by the hiring of an operations manager and a financial controller to set up operating and financial systems, initially operate them and train staff in their use (para. 4.13). The financial controller would screen loan requests from villages in preparing its loan requests to TRDB. He would also monitor the Union's overall financial position, reporting at least monthly to TRDB and, with diagnosis and recommendations, to the Union's management and the Regional Development Director. A training supervisor would also be hired whose principal responsibility would be training village-level bookkeepers and providing other assistance on credit matters.

5.12 In order to place the Union on a firmer financial footing the Government would effect a financial reorganization of the Union. The reorganization would combine a capital contribution by Government (to be used to repay

part of the Union's outstanding borrowings from the government-owned National Bank of Commerce (NBC)) and a partial write-off and/or rescheduling of remaining principal and interest by NBC. The objective of the reorganization would be to provide the Union with a level of debt service payments that it can carry in light of anticipated margins, volumes and expenses; specifying exactly what this amount is must await completion of the Union's audited accounts. The financial reorganization would be followed by subsequent measures such as a capital contribution (or suitably-deferred long-term loan) by Government sufficient to cover losses, during the first four years of the project, as and if they arise; these are currently projected at about T Sh 1.2 million (US$170,000) (para 6.08). During negotiations assurances were obtained that within six months of effectiveness Government would carry out a financial reorganization of the Union and, in accordance with good financial practice, would take such other measures as might be required from time to time ensure that the Union can service its debts.

Tanzania Rural Development Bank

5.13 The Tanzania Rural Development Bank (TRDB), with which IDA has considerable experience in several projects (para 2.10), would be the lending channel for loans to the Union (and ultimate on-lending to the villages). TRDB opened an office in Kigoma in 1972 and plans to increase the number of credit supervisors stationed there as the volume of business expands. TRDB would not lend until the operations manager and financial controller were hired, the union's books had been satisfactorily audited and the financial reorganization of the Union had been effected. TRDB would lend direct to the Union for agricultural inputs, which the Union would on-lend to its member village/cooperative societies, and for the Union's own needs (e.g., for transport equipment). TRDB would also lend direct to villages or through the Union for village infrastructure. TRDB's appraisal of the Union's periodic loan requests would include examining the individual loan requests of villages to the Union.

5.14 The Union also borrows for working capital needs (chiefly for inventories and cash advances) from the National Bank of Commerce, the official source of such credit in Tanzania. Since these total borrowings affect the Union's ultimate creditworthiness TRDB would also continuously monitor the Union's overall financial situation. Assurances were obtained from TRDB at negotiations that it would strengthen its office in Kigoma as the project requires and follow lending procedures as outlined in paras. 5.13 and 5.14 and in Annex 14.

5.15 Margins, allowed primary societies and Unions in selling and buying prices, affect their respective debt-servicing abilities (para. 6.08). During negotiations assurances were obtained that Government and IDA would discuss from time to time the adequacy of these margins having regard to the financial viability of primary societies and the Union, and reasonable incentives for producers.

VI. PRODUCTION, MARKETS, FARMER BENEFITS AND FINANCIAL RESULTS

Production, Yields and Marketable Surplus

6.01 The following projected crop yields for the principal crops at full development compared with yields under tradiitonal agriculture without the project are based on limited field experiments carried out in Kigoma region (paras 3.21 and 3.22) and on field trials and experience under similar ecological conditions elsewhere in Tanzania and neighboring countries. Yield increases from existing low levels would be facilitated under the project by the training of farmer contact extension workers, further trials and demonstration of recommended practices on farmers' plots, provision of a credit and inputs delivery system at the village level, and by the principle of individual responsibility for plots within the block farms in each ujamaa village. The latter factor is of particular significance in promoting the transfer of recommended practices because of the ease of access to farmers for both extension advice and input supply.

	Traditional (without project)	At Full Village Development (Yr. 8)
	(kg/ha)	
Maize	600	1,460
Beans	280	600
Seed cotton	390	990
Groundnuts	390	600

6.02 A sizeable portion of a typical village's production of food crops under the project would be expected to go for subsistence, at consumption levels above those under traditional settlement and assumed to increase at 3% per capita per year during the project period. The production, subsistence consumption and marketable surplus of an average 350 family village at Year 8 of its development is projected as follows:

	Maize	Beans	Seedcotton	Groundnuts
Village production (tons)	287	122	155	52
Subsistence consumption (tons)	174	74	-	22
Marketable surplus (tons)	113	48	155	30

6.03 Marketed surplus prior to the project by families under the project is not known but would have been slight. Marketable surplus for the total project is projected as follows:

	Project Year					
	2		5		8	
	Tons (000s)	Value (T Sh mil.)	Tons (000s)	Value (T Sh mil.)	Tons (000s)	Value (T Sh mil.)
Maize	1.5	0.5	8.4	2.9	10.0	3.5
Beans	1.0	0.9	4.9	4.1	4.7	3.9
Seedcotton	1.1	1.4	10.7	13.9	14.3	18.8
Groundnuts	-	-	0.7	1.0	2.6	3.6
Total value		2.8		21.9		29.9

Assuming 85% of the cotton was exported, the project's annual gross direct foreign exchange earnings at Year 8 would be about US$4.8 million. Crop budgets together with projections of buildup of input needs, cropped areas, and marketed surplus are presented in Annex 15.

Markets and Prices

6.04 Tanzania currently produces about 400,000 bales of cotton lint annually of which some 85% is exported, mainly to Asian countries. Project output of cotton would be less than 1/20 of 1% of world production and would have no significant impact on world prices.

6.05 Domestic requirements of maize, for which Tanzania has been a net importer during most years, are projected to continue to grow rapidly. Beans and groundnuts are marketed domestically. For all three, projected marketable surplus under the project at full development is expected to account for a small proportion of the increase in domestic requirements above present levels. A discussion of market prospects for crops expected to be grown by project villages appears in Annex 16.

Farmer Benefits

6.06 Incomes of farmers prior to joining the project are not precisely known but are believed to be near subsistence level and are estimated at T Sh 700 (US$100) per family or T Sh 140 (US$20) per capita. By Year 8 of the project, incomes from agriculture are projected to double from T Sh 115 (US$16) to T Sh 230 (US$32) per capita; total income (including estimated off-farm income) would double over a 12-year period from US$20 to US$40 per capita.

Financial Results

6.07 Financial models for both a village primary cooperative society and for the Union have been prepared on the basis of projected volumes, operating costs and margins and are shown in Annex 14. At projected volumes and margins

the primary society (Annex 14 Table 10) is able to meet its operating costs and debt-service obligations and earn a small surplus which could be used to cover any bad debts. The projected volumes of marketed surplus handled by the primary society could fall by 40% and it could still cover its expenses and debt service obligations.

6.08 The Union (Annex 14 Tables 1-9) is projected to incur losses during its first four years under the project (mainly of a "start up" nature) but thereafter to earn surpluses. The financial viability of both the primary societies and the Union depend on volumes handled and the amount of society and Union margins or levies. In particular, any substantial increase in the level of bad debts (a perennial problem for a number of cooperative unions in Tanzania) would place the Union in a loss position. The level of levies is largely set by Government (para. 2.08 and Annex 14) and would be discussed from time to time with Government (para. 5.15).

Government Revenues and Outlays

6.09 The major marketed project output would be cotton, on which an export tax at the rate of 10% ad valorem is levied, and approximately T Sh 30,000 per annum would be recovered from a village at full development through this and other minor tax proceeds. On the other side, large increases in government recurrent expenditures can be expected; recurrent expenses of Government in project villages at full development would be about T Sh 80,000 per annum. This includes the operation and maintenance of a primary school (at T Sh 50,000 per annum), a village water supply (T Sh 6,500 per annum), and a share of rural medical facilities (T Sh 10,000 per annum), together with the salary of a village agricultural assistant and other minor items. Supervision and overhead staff servicing for these facilities at district and regional levels might add an additional 20 - 25% to the in-village costs, bringing the total to about T Sh 100,000 per annum.

6.10 Not all these costs are strictly incremental to the project, since Government now supports a considerable number of schools and medical facilities in the Region, some of which would be available in project villages. Incremental government outlays under the project might be roughly two-thirds of ernment servants; allowing for their payments of income tax, project expenditures, on balance, would result in a net current account deficit of roughly T Sh 30,000 per village per annum. The gradual implementation of Government norms for provision of social services to rural areas would result in similar increases in Government recurrent costs, with or without the project. To the extent that provision of similar levels of social services is attained elsewhere in Tanzania, Government will need to consider ways in which additional revenue can be raised, either in the villages or from other sources, to cover these additional outlays or to provide similar services at lower cost.

VII. ECONOMIC ANALYSIS

7.01 The 135 villages to be supported under the project would receive varying types of assistance, depending on facilities already available in the village and how far development proceeds during the disbursement period. The economic analysis (Annex 16) examined a representative model village, settled at the beginning of the project period, with no previously existing village facilities. An attempt was made to include in the calculation of costs, estimates for all expenditures taking place in the village relating directly to quantifiable benefits, together with a share of complementary investments supported under the project at regional level (including technical assistance outlays). Directly quantifiable benefits under the project would be derived from improvements in village agriculture as calculated from the farm budgets, with the assumption that without the project farmers would cultivate a similar area using traditional practices.

7.02 On the basis of these assumptions, the economic rate of return would be 22%. This relatively high rate is due essentially to the very low initial level of agricultural productivity among peasant farmers in the Kigoma region, and the opportunity to reach them in an effective way for the first time, with the concentration of population into the ujamaa villages, In this regard, it is important to allow for the effect of the substantial investments in village social infrastructure provided under the project, since, without the early prospect of such services being available, it is unlikely that many villages would attract settlers in the first place or could retain them through the settlement period. Moreover, the long-run development of ujamaa villages will require on the part of villagers higher general levels of education and health which the social services under the project would help to bring about. There is on this account a plausible case for associating the social elements with the productive elements under the project in a truly integrated way, but it is not possible to evaluate the package in its entirety using rate of return criteria because of the difficulty in quantifying direct benefits from the use of the social service facilities. This question is further considered in Annex 16. However, even if the direct benefits due to social services no more than paid for the costs of providing them, the rate of return under the project would still be 18%. Total capital costs per village are roughly US$75,000 (including an allocation of regional level capital expenditures), less than US$50 per capita. About US$50,000 or two-thirds are for social service facilities.

7.03 A relatively high rate of return should be read in the context of the high risks associated with: the experimental and untried nature of ujamaa settlement in Kigoma region, particularly as regards agricultural development; and the need to develop a complete input delivery, credit and marketing system within the region, to serve the project villages, beginning from a situation in which the capacity to provide these services is virtually zero.

7.04 Either directly, because of a failure in village management, or indirectly, because of inefficiencies in marketing or overall administration, the major risk to the project relates to a failure of agricultural production

at the village level. One possible outcome would be where all inputs are provided, but agricultural yields are less than predicted. If gross yields are 20% below those expected, the effect would be to reduce the anticipated rate of return to 5%; with a loss of 25% the project becomes economically worthless. A second type of failure would be where some villages fail entirely and fall apart, while others perform according to expectations. While more disruptive socially perhaps, this type of failure is less serious in terms of impact on the overall rate of return because some inputs are saved. Thus, if 30% of project villages fail after the third year of settlement, the rate of return under the project could still be 15%. Technical assistance, strengthening of institutions and training would be provided under the project to reduce these risks and the project's potential to improve the incomes of large numbers of poor in a poor region makes the risks worth taking.

7.05 The estimated pre-project income among the bulk of the village families that would benefit directly under the project is the equivalent of US$20 per capita. This compares with an estimated household income for Tanzania as a whole of perhaps US$90-100 capita or 4 to 5 times higher. The project is therefore directed toward meeting the needs of a relatively poor part of the population of Tanzania.

7.06 It is further anticipated as a result of improved agricultural practices under the project that agricultural labor input per farm family would increase by 25%.

VIII. RECOMMENDATIONS

8.01 During negotiations assurances were obtained from Government that:

(a) Village water supply systems would be designed according to a least-cost approach as outlined in para 4.03; further, it would undertake a study under the project into the fiscal implications of the water supply component and appropriate methods of financing the cost of water supply and would consult with IDA on the findings of the study (para 4.04);

(b) within six months of signing, it would select a suitable site and commence construction for the regional trials and training center, as outlined in para 4.12;

(c) within six months of the credit's effectiveness the operations manager, financial controller and training superviser of the regional cooperative union, and the land use planner and trials and training officers would be hired, as outlined in para 4.15;

(d) it would follow auditing procedures as described in para 4.23;

(e) it would plan project villages and consult with IDA as outlined in paras. 5.02 through 5.05;

(f) within six months of effectiveness it would carry out a financial reorganization of the Union, as outlined in para 5.12; and,

(g) it would discuss with IDA from time to time the adequacy of cooperative levies (para. 5.15).

8.02 During negotiations, assurances were obtained from TRDB that it would strengthen its Kigoma branch office as necessary and follow lending practices and procedures as outlined in para 5.14.

8.03 A condition of effectiveness of the credit would be that a subsidiary loan agreement satisfactory to IDA between Government and TRDB had been executed (para. 4.19).

8.04 The project would be suitable for an IDA credit of US$10 million.

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KIGOMA RURAL DEVELOPMENT PROJECT

Cooperatives

Introduction

1. Cooperatives exist in large numbers throughout Tanzania. By the end of July 1973, there were 2,200 registered cooperatives, including the Cooperative Union of Tanganyika, the Savings and Credit League, 25 cooperative unions, 1,518 cooperative marketing societies, 265 cooperative production and marketing societies, 314 savings and credit societies, and 78 cooperative consumer societies. The existing cooperative structure is in the process of change. The present 25 cooperative unions are to be consolidated and reduced to 18, one for each region. In addition, cooperative societies are to be closely integrated within the program of ujamaa village development, wherein ujamaa villages are expected eventually to become multipurpose cooperative societies, ultimately providing the full range of productive, marketing, financial and consumer services to their members. The existing 265 cooperative production and marketing societies are, in fact, ujamaa villages that have already undergone this transformation. Moreover, it is expected that ujamaa villages, and subsequently their counterparts the multipurpose cooperative societies, will absorb most existing cooperative marketing societies.

2. The cooperative movement of Tanzania has a considerable history. Voluntary "growers associations" existed as early as the 1920's. In 1932, in the Kilimanjaro area, the first agricultural cooperatives were registered to promote coffee as a cash crop for peasant farmers. The movement soon became very popular and spread quickly to other areas where commercial peasant farming was relatively advanced and involved a wide range of economic activities. By 1952, there were 172 registered societies and by 1961 their numbers had increased to 857. Thus, cooperatives grew up spontaneously in the regions of Moshi, Arusha, Bukoba, Mwanza, Ruvuma, Rungwe and Iringa. Shortly after independence, the Government decided that cooperatives should be established in all parts of the country where they were previously absent. In subsequent years, the Government exercised an increasing degree of supervision and control. The Government, for example, now sets many of the margins within which the cooperatives have to operate, controls the hiring and firing of all union officials with a salary above T Sh 650 a month, has assumed direct responsibility for the management of three unions (Dodoma, Mbeya and Bukoba), controls all cooperative education, has assumed virtually all responsibilities for inspection of cooperative societies, has transferred to the unions special tasks previously performed by the private sector and has moved to link inextricably the cooperative movement with ujamaa village development. The cooperative movement has thus evolved from a spontaneous effort designed to provide the benefits inherent in economies of scale to its member farmers, into a program initiated, supervised and controlled by Government.

3. The principal responsibility of the cooperative unions, apart from various consumer, financial, transport and other services they might perform, is to move the marketable surplus of virtually all scheduled crops in virtually all regions of the country from the primary societies to the appropriate marketing boards. Affiliated primary societies, in turn, assist the unions in this task by acting as their collecting agents. The cooperatives have been assigned sole buying rights for most crops. However, agricultural production has sometimes suffered from such monopolistic practices, because the cooperatives have often been marked by poor management, petty corruption and low marketing efficiency. Problems arise, in particular, from an acute shortage of management and accounting skills, an absence of personal accountability within the system and the frequent allocation of unrealistic costings and margins.

Legislation, Organization, and Supervision

4. The first Cooperative Societies Ordinance, stipulating the legal basis for all cooperatives, was enacted in 1932. It was subsequently repealed and replaced by the Cooperative Societies Ordinance of 1968. This legislation is soon to be amended in order to specify the process and criteria by which ujamaa villages are to become multipurpose cooperative societies. As the amended legislation would reflect, it has been suggested that the registration of primary societies would observe three stages, whereby the ujamaa village would be: (i) a probationary multipurpose cooperative society, with full legal status, but with unlimited liability and dependence on the directives of the Registrar of Cooperatives; (ii) a fully registered multipurpose cooperative society, with complete legal independence and status and limited liability; and (iii) in addition, a full-fledged community with powers to mete laws and impose justice.

5. The cooperative structure in Tanzania consists of an apex organization, The Cooperative Union of Tanganyika (CUT), regional cooperative unions, and constituent primary cooperative societies. CUT's functions as a representative of the cooperative movement--exercised by agreement with the unions, not by law--appear to have been eroded in recent years. CUT has provided and does still provide advisory, educational and legal services to the country's cooperatives. However, many of its functions have been transferred to the Government, e.g., CUT's education wing, the Cooperative Education Center, has been absorbed by the Cooperative College at Moshi and many of its legal and advisory activities appear to be shifting to the Prime Minister's Office.

6. Following the Government reorganization of July 1971, the Rural Development Division, headed by the Commissioner for Rural Development, was established to deal with matters relating to cooperatives. The Division contains two principal subdivisions, one on Ujamaa and Cooperatives, and the other on Rural Development Operation and Control, each headed by the respective assistant commissioner (see Chart 1). This central cadre is supported in each

of the 18 Regional Administrative Governments by an ujamaa and cooperative functional manager and his staff. Regional staff consists of ujamaa and cooperative development trainees, assistants and officers, all of whom provide advice, supervision and inspection to ujamaa villages and cooperative societies, both from headquarters and in the field. The Commissioner of Rural Development also serves as The Registrar of Cooperatives, responsible for the registration of all cooperatives. At the regional level, the Regional Development Directors have recently been named Assistant Registrars of Cooperatives and have been charged with registration of all multipurpose cooperative societies within their respective regions. Other institutions within the Prime Minister's Office dealing with the cooperatives include The Unified Cooperative Services Commission and the Audit and Supervision Fund. The former is charged with the recruitment, appointment (including promotions and transfers) and termination of all cooperative personnel earning T Sh 650 per month or more. The latter is responsible for the audit and supervision of the financial records and the preparation of financial statements of all registered cooperatives.

7. The Audit and Supervision Fund currently has a network of 7 zonal offices distributed throughout the country, which it plans to expand into 18 regional offices by December 1974. Total staff consists of 135 personnel, of which only 9 are qualified accountants. Approximately 10 percent of the staff is expatriate, projected to be phased out by June 1976, as qualified Tanzanian staff become available following the necessary training at either the Cooperative College at Moshi or the Institute of Development Management at Morogoro. Only about 50 staff members are currently qualified to audit and supervise the financial accounts of primary societies and but a fraction of these the financial accounts of the cooperative unions. Each staff member could audit approximately 10 societies per month if the accounts were properly maintained, but most societies are insolvent and their books in total disarray, requiring the accounts first to be reconstructed before they can be audited. To simplify and standardize accounting practices at the society level, a simplified, uniform bookkeeping system for ujamaa villages is in the final stages of preparation. In summary, problems of audit and supervision of the cooperatives can be expected to persist throughout the country during the next five years. Financial accounts of both primary societies and cooperative unions are rarely prepared adequately for audit and supervision. Moreover, neither the quality nor quantity of staff of the Audit and Supervision Fund is sufficient to respond satisfactorily to the large task required.

Education and Training

8. The extensive network of ujamaa villages and cooperatives, and the supporting programs and institutions, draw upon a large number and variety of personnel, all of whom require training and education. The only national institutions qualified to provide such services are the Cooperative College at Moshi and the Institute of Development Management at Morogoro, still under construction. The Cooperative College currently offers diploma, final

inspectors, and induction courses to a total of 272 students. The Institute of Development Management presently has 240 students enrolled in a four-year diploma accountancy course, to be doubled upon completion of building construction. In addition, rural training centers, correspondence courses, and regional educational programs contribute to education and training at the local level.

9. Under the first cooperative education plan, 287 staff and leaders of primary societies were trained, including 81 society secretaries. An ujamaa village secretaries' and treasurers' course was offered to 242 personnel. About 278 staff of the cooperative unions participated in different courses of two to ten weeks' duration. To upgrade staff of the Ujamaa and Cooperative Development Division, a basic inspectors' course was given to 270 personnel and a final inspectors' course of six months to a smaller number of qualified staff. About 50 persons from the cooperative unions, the parastatals and Government completed the cooperative diploma course. Finally, a series of brief courses to cooperative members and leaders were given to over 20,000 persons in 1970 and 12,000 in 1971. In 1970 and 1971, respectively, 712 and 1,052 individuals successfully completed cooperative correspondence courses.

10. Past efforts have, however, only begun to address the pressing needs to train and educate staff of the primary cooperative societies, the cooperative unions, and the Rural Development Division. The ujamaa and cooperative education plan (1973-1979) therefore proposes to establish over the next two years five more zonal cooperative colleges as branches of the Cooperative College at Moshi. The Zonal Colleges will each have an eventual capacity of 150 students, will each require at least six teachers, and will provide courses for primary societies' secretaries, basic and final management and administration, and basic and final inspectors. Between 1973/74 and 1978/79, it is estimated that 6,900 staff and leaders of ujamaa villages and 6,300 of other primary societies will be trained. In addition, training for approximately 650 union accountants and assistants and 1,100 senior and junior bookkeepers is projected over the period.

11. Finally, substantial cooperative technical assistance is currently being provided by the five Nordic countries. Of the 30 experts now operating under an agreement originally signed in 1968, six are working within the Rural Development Division to establish systems for wholesaling and transport, credit financing, management accounting, promotion and supervision and consumer and retail activities, 11 are working on the specific problems of 11 regional cooperative unions, and the remainder are working in the Cooperative and Zonal Colleges. It is intended that the systems developed at the center (transport and primary society bookkeeping systems are near completion) will be both integrated into the cooperative college curriculum and incorporated within the operations of the cooperative unions.

Kigoma Region Cooperative Organization

12. In Kigoma region, a staff attached to the regional and district Ujamaa and Cooperative Development Offices of approximately 100 personnel provides support, advice, and supervision to ujamaa villages and cooperative societies. The staff is divided as follows: 7 in the regional office, 32 in the Kigoma district office, 33 in the Kasula district office, and 30 in the Kibondo district office. Of these, 8 personnel are employed in the 2 rural training centers in Kasulu and Kibondo, both of which fall under the administration of the Ujamaa and Cooperative Development Office. In addition, there are currently 57 rural development assistants (RDAs) who operate at the village level to mobilize and educate the rural populations in ujamaa principles, to assist villages resettlement, and to coordinate the various government activities. Moreover, approximately 15 cooperative inspectors (CIs) now operate out of the district offices to supervise and inspect the financial performance of the primary societies. However, very few are adequately trained, particularly in accountancy and bookkeeping techniques, a fact which has contributed to the adverse financial situation of the region's cooperative system.

13. The posts of both RDAs and CIs are now to be transformed into that of ujamaa and cooperative development assistant (UCDA). The task of the UCDA will be to mobilize, organize, and train villagers in the skills of forming and managing ujamaa villages and to promote, supervise and counsel ujamaa cooperative societies. RDAs are to be upgraded through correspondence courses and subsequent coursework at the zonal cooperative colleges to fulfill the tasks expected of UCDAs. The Government plans to post eventually one UCDA in each ujamaa village.

14. There are at present in Kigoma region 6 consumer cooperative societies, 5 savings and credit societies, 14 cooperative marketing societies, and 1 cooperative producer society. The 15 marketing and producer societies affiliated with the Kigoma Regional Cooperative Union are estimated to represent a membership of approximately 5,000 (out of a rural population of about 100,000 families). The marketing societies handle a variety of crops, particularly paddy, cotton and palm oil, most of which is channeled through the Union (see Table 1). The societies, however, are generally poorly managed and the majority are insolvent. Moreover, the bulk of agricultural surplus produced by their members, particularly maize and beans, is marketed outside the cooperative system.

15. The cooperative system within the region is now undergoing substantial transformation, as ujamaa villages are established and as multipurpose primary cooperative societies are subsequently formed. The majority of existing marketing cooperatives are expected to be absorbed by the multipurpose cooperative societies, wherever the respective memberships overlap. It is planned that a network of multipurpose primary societies would emerge, whose firm financial and operational management would be assured from the outset, and which would eventually take on the full range of marketing, savings, credit, and consumer functions.

Primary Society Registration

16. Several measures, of which registration procedures are the most important, have been planned to assure the viability of the new multipurpose primary societies. For a ujamaa village to be fully registered as a multipurpose primary cooperative society, the following steps must be taken: (a) an individual constitution and by-laws must be prepared and approved by the villagers; (b) an application form must be prepared and an entrance fee paid; (c) an economic feasibility report must be prepared by the Ujamaa and Cooperative Development Office; (d) The District Development Committee must approve each application; and (e) all material must be forwarded to the Regional Development Director, who, in his capacity as Assistant Registrar of Cooperatives, would approve final registration. The economic feasibility report must examine size of the village (minimum size is presently 150 families), planned and potential economic activities, quality of leadership, and proven ability to implement programs. At the beginning of each year the District Development Director and his staff determine which ujamaa villages within the respective district might be eligible for registration during the year; and the registration procedures are subsequently initiated by the district office of Ujamaa and Cooperative Development. There are currently three ujamaa villages registered and 12 in the process of registration.

17. Under the project additional measures are proposed to assure the viability of project villages. As a condition for lending by TRDB, each village would be required to have a qualified bookkeeper and agricultural field assistant (AFA). To fulfill the bookkeeping requirements, a UCDA, with the requisite training, would be placed in each creditworthy village for up to two years. During this period he would help to train a bookkeeper, who would be selected by the Village Development Committee (VDC) and paid from the income of the primary society. A Standard VII education would be required. In addition, both the village bookeeper and the UCDA would be trained in elementary bookkeeping, in courses following the curriculum to be laid down by the credit and training supervisor of the Union, to be held in the rural training centers. The curriculum would follow wherever possible that of the zonal cooperative colleges. The training in bookkeeping and accounting procedures should be sufficient for preparation of ledger accounts, trial balances and monthly income statements. Training of the AFAs would be provided within the program of the proposed Agricultural Trials and Training Center.

Kigoma Regional Cooperative Union

18. The Kigoma Regional Cooperative Union was registered (No. 1463) in 1965 under the Cooperative Societies Ordinance. It acts primarily to market the produce of its 15 affiliated primary societies. It also provides transport services, including the distribution of beer and cooking oil within the region. The Union's total fixed assets, including two lorries and a Landrover, currently do not exceed T Sh 150,000. All office and storage space is rented. At present, it has a staff of eight personnel, excluding those required for transport, although an additional five posts have recently been allocated.

19. The Union's procedures for organization and management follow the instructions recently issued by the Rural Development Division. These instructions attempt to improve the quality and delineate the activities of the membership, management committee, and management, and in particular, to prevent the corruption that has undermined parts of the cooperative movement in the past, including the Kigoma Cooperative Union. The General Meeting of the Union, in which generally two to three members of each affiliated society participate, usually convenes once a year to review outstanding Union issues and policy and, in particular, to discuss management's recommendations on prices and wholesaling costs for crops handled by the Union in the coming year. The Union has an Executive Committee, which meets every month, consisting of the general manager, a chairman elected by the General Meeting every three years, and a vice-chairman elected each year. In addition, there is a Management Committee, which meets every three months, consisting of ten Members, one-third of whom must resign or stand for reelection each year. All committee members must be approved first by both TANU (Tanzania's political party) and the regional administration before standing for elections. At present, the posts of chairman and vice-chairman and four positions on the management committee are vacant, following a recent reorganization of the Union.

20. The Union's past financial performance has been poor. The last audited accounts for the Union were for the financial year ending April 30, 1972. At that date the Union was suffering a negative balance of T Sh 509,775, as compared to T Sh 932,000 for fiscal 1970/71 and T Sh 736,250 for fiscal 1969/70. In fiscal year 1971/72 current liabilities amounted to T Sh 1.5 million, of which about T Sh 1 million represented bank overdrafts, and current assets amounted to only T Sh 980,000, at least part of which is of questionable value. In fiscal year 1972/73, it is estimated that interest charges alone amounted to T Sh 137,000 and that the NBC overdraft at year's end was almost T Sh 2 million and that outstanding obligations from affiliated societies were approximately T Sh 1.8 million. This persistent insolvency appears to result from two principal causes: (a) a continuing rise in debt balances from primary societies and concomitant increases in the Union's NBC overdraft, arising from unrepaid cash advances for crop purchases; and (b) a perennial operating deficit.

21. To improve the Union's performance several measures are recommended prior to and during project implementation: (a) the completed audit of the Union's 1972/73 financial statement by time of negotiations; (b) the partial or total write-off and/or rescheduling of the Union's persistent outstanding debt; (c) the substantial strengthening of Union organization and management, including hiring of a new general manager, operations manager, financial controller, credit and training supervisor (see Annex 9), and society credit officers; (d) the establishment of new trading and lending procedures (see Annex 14), in particular, carefully controlling the advancement of cash for crop purchases; and (e) the imposition of similar trading and lending procedures for all non-project affiliated societies, including hiring of society bookkeepers.

22. Critical to the efficient disbursement, supervision, and control of NBC cash advances would be the SCOs proposed under the project. In the past, cash has been advanced through the Union to affiliated primary societies for crop purchases without adequate control or supervision. This has resulted in large increasing debts from the societies to the Union and from the Union to NBC. To prevent such problems in the future, new lending procedures are proposed which rely heavily on the SCOs. The SCOs would control the advancement of cash and supervise its use during regular visits to primary societies. In addition, they would regularly report on the financial situation of their respective societies to Union management, and ultimately to NBC and TRDB. To prepare qualified individuals to undertake these functions effectively, the following training is proposed. Form IV leavers would be recruited for training at the Institute of Financial Management, where they would undertake a program similar to that now followed by TRDB's credit supervisors. The course involves 18 months of training in management, economics, accountancy, and related subjects, to which might be added some training in relevant crops by the appropriate marketing boards. Once working for the Union, SCOs should receive salaries commensurate with their high qualifications. The Unified Cooperative Services Commission, or other government entity, might participate in the training and subsequent remuneration of SCOs.

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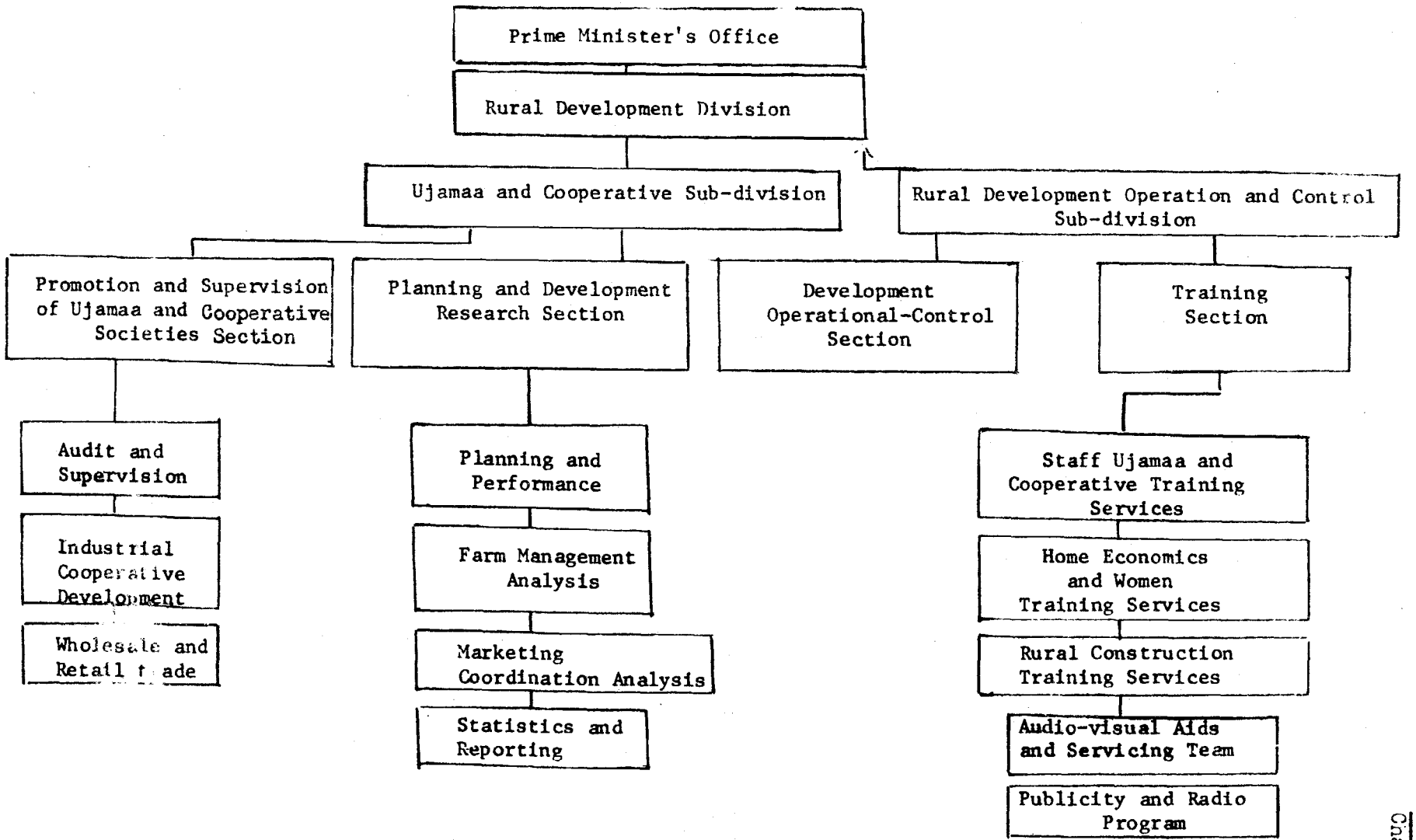
ORGANIZATIONAL CHART OF RURAL DEVELOPMENT DIVISION



ANNEX 1
Chart 1

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KIGOMA RURAL DEVELOPMENT PROJECT

Kigoma Regional Cooperative Union

Affiliated Primary Societies and Produce Handled

Type of Produce	Kigoma/Ujiji	Kaseke	Ukaranga	Nguruka Uvinza	Mgambo	Mwandiga	Kalya	Ilagala	Kibondo	Kasulu Coffee	Manyoru	Makere	Buhoro	Ruhita
Paddy				X	X	X	X							
Cotton				X	X		X	X	X	X		X	X	X
Coffee										X	X	X	X	
Maize						X			X	X				
Palm Oil	X	X	X			X								
Palm Kernel	X	X	X			X								
Bees Wax				X						X				
Pidgeon Peas						X		X				X		
Beans						X			X	X	X	X	X	X
Groundnuts				X					X					
Simsim				X		X								
Millet (White)									X			X		
Cassawa														
Castor Seed						X								
Sun flower														
Cashew nuts	X													

SOURCE: Regional Administration

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KIGOMA RURAL DEVELOPMENT PROJECT

Kigoma Regional Cooperative Union

Union Produce Purchases - 1971-72

Crop	Volume (tons)	Value (Tsh 000's)
1. Paddy	755	572
2. Bees Wax	49	441
3. Cotton	325	328
4. Palm Kernels	592	302
5. Yellow Beans	141	92
6. Palm Oil	23	68
7. Pidgeon Peas	175	67
8. Groundnuts	42	50
9. Coffee	3	45
10. Mixed Beans	71	39
11. Millet	98	29
12. Maize	35	14
13. Sim Sim	10	14
14. Castor Seeds	1	1
15. Cashewnuts	1	1
	2321	2063

SOURCE: Audited Accounts of Kigoma Cooperative Union.

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KIGOMA RURAL DEVELOPMENT PROJECT

The Tanzania Rural Development Bank (TRDB)

Resources of TRDB

1. TRDB has an authorized capital of T Sh 100 million, divided in 100 equal shares, to be subscribed exclusively by the Government. The initial subscribed share capital of T Sh 25 million, representing the tangible assets transferred from NDCA (TRDB's predecessor), was raised through successive Government contributions and finally reached T Sh 47 million by the end of 1972. General reserves as of December 31, 1972 were about T Sh 0.7 million, as compared to about 1.7 million at the end of the previous year. This reduction was mainly due to the loss of almost T Sh 1 million recorded for the half-year ending December 1972.

2. Other resources of TRDB comprise short-term deposits of T Sh 26.2 million, 1/ as well as medium and long-term loans totalling approximately T Sh 37 million. Besides a number of IDA credits, the latter include a National Bank of Commerce overdraft of T Sh 3.3 million, loans from SIDA for grain storage facilities and trucks, and a loan from the ICO for the local purchase of seasonal inputs. The bulk of TRDB's funds available for lending to date have originated from the five IDA credits extended to Tanzania for agricultural projects over the last seven years.

Credit No.	Purpose	Date of Credit Agreement	Credit Amount (US$ million)	Amount Disbursed as of Feb. 28, 1973 (US$ million)
80-TA	General Agriculture Credit	Jan. 1966	5.00	5.00
132-TA	Beef Ranching Development	Oct. 1968	1.30	1.20
217-TA	Small Farmer Flue-Cured Tobacco	Oct. 1970	9.00	0.55
287-TA	Smallholder Tea	Mar. 1972	10.80	0.65
382-TA	Livestock Development	May 1973	18.50	-
Total			44.60	7.40

As of December 31, 1972, IDA funds represented almost 80% of TRDB's medium- and long-term liabilities with a total of T Sh 28.5 million.

1/ Including T Sh 20 million reserved by the Lint and Seed Marketing Board for cotton purchases.

3. TRDB is also expected to receive special funds from the Government, bearing the name of "soft window," to be administered separately from ordinary capital resources and used for the purpose of extending loans on concessionary terms to finance special development projects. To date, this procedure has not been used by TRDB.

Lending Operations

4. TRDB provides short and medium-term loans generally at an interest rate of 8-1/2% and long-term loans at 7-1/2%. Maturities are usually based on the productive capacity and estimated life of the assets to be financed and a rough distinction can be made between the following categories:

(a) Short-term loans for agricultural inputs due for repayment within 12 months from the date of disbursement.

(b) Medium-term loans repayable over a period of five years. These loans are mainly for farm implements and machinery, trucks, piggeries, poultry farms, fishing boats and equipment and small-scale industries.

(c) Long-term loans with a maturity of up to 15 years. These cover major investments such as produce godowns, buildings, coffee pulperies, tea factories, ranches, etc.

5. As a matter of policy, TRDB does not normally finance more than 75% of total project cost and a loan for any single project should not exceed 10% of the Bank's net worth. Eligible borrowers are mainly the Cooperative Union and Societies, the District Development Corporations, the ujamaa villages and registered associations. Crop financing remains the prerogative of the National Bank of Commerce and the various agricultural produce Marketing Boards.

6. TRDB's outstanding loans as of December 31, 1972 amounted to T Sh 134 million, of which 121 million or 90% were with Cooperative Societies. The composition of the outstanding cooperative loan portfolio at the time was as follows:

Table 1

Short-term loans	:	T Sh 69 million or 57%
Medium-term loans	:	T Sh 34 million or 28%
Long-term loans	:	T Sh 18 million or 15%

Short-term loans cover seasonal inputs for a number of crops; tobacco, tea, coffee, and cotton currently represent about 95% of the short-term outstanding portfolio. Tobacco is by far the most important crop for TRDB with a share of about 40%. The medium-term loan portfolio is heavy geared toward vehicles (usually trucks), which account for almost 85% of the medium-term funds outstanding, and the remainder is equally shared by tractors and spray equipment.

Long-term loans in the past have mainly been for the construction of godowns, buildings, coffee pulperies, tea factories and coffee rehabilitation. These items represented about 85% of the long-term outstanding portfolio at the end of 1972.

7. Four of the eighteen regions--Iringa, Tabora, Mbeya and Mwanza--currently hold almost 60% of the total outstanding loan portfolio, while other regions such as Central, Kigoma and Morogoro are hardly represented at all. Investments from IDA funds represent about 20% of the total amount outstanding and are largely in the form of short-term loans for tea, coffee and cotton inputs.

Arrears Situation and Credit Recovery

8. The accumulation of overdues has been a constant feature of TRDB's operations over the last three years, and at the end of December 1972, these amounted to T Sh 35.6 million, or 26.5% of the loan portfolio. This situation arose mainly from bad debts on medium and long-term loans inherited by TRDB from its predecessors; overdues on the loans extended by TRDB itself were only 7% of the outstanding amount in February 1973.

9. Pursuant to IDA's request that a statement of measures to reduce the amount of arrears be prepared, TRDB recently submitted a detailed proposal for rescheduling and writing off a number of bad debts. The proposal received IDA's approval and loans amounting to T Sh 9.9 million were rescheduled, while a balance of T Sh 4.4 million was written off. This combined with a large collection of overdues totalling T Sh 7.2 million during the first quarter of 1973, reduced total arrears to T Sh 11.3 million (that is, 9% of the new outstanding portfolio), fully covered by the provision for bad debts.

10. Along with the above measures, TRDB expressed its intention to improve credit recovery in the future. This would be achieved through a series of measures including claims against stocks held by the delinquent unions, repossession of vehicles, seizure of cattle, etc. In some cases, TRDB would seek to obtain a lien on crop sales to the National Agricultural Product Marketing Board (NAPB) or on fees paid by NAPB to the Unions for the rental of godowns. TRDB also plans to take court action against societies which refuse to pay in spite of their good liquidity position. The determination of TRDB to recover its overdues is beyond doubt, but its success hinges upon the backing which the Government will be willing to provide.

Organizational Structure and Management

11. The major element affecting TRDB's structure has been the regionalization of the country. TRDB's former 58 field offices were replaced by 18 regional offices, each having a regional representative and a credit supervisor. The responsibilities of the new regional offices include pre-investment studies, project appraisal and supervision, technical assistance and the maintenance of permanent contacts with borrowers, regional representatives of Ministries and branches of the National Bank of Commerce.

As a result of this reorganization, the operations of TRDB will undoubtedly gain in effectiveness, and some improvements in credit recovery may be expected. On the other hand, the staffing and operation of such offices will be an additional burden on TRDB's already strained financial resources, since the regional allocation of staff has been made irrespective of the nature of the Bank's involvement in any given region. The overall increase in staff was from 90 before the regionalization to about 180 today. A recent development, which should have a positive bearing on TRDB's future operations, was the appointment of six UNDP specialists who will reinforce Management's skill in a number of key areas: namely, farm management, rural credit, marketing, livestock and agricultural machinery. All six specialists have now joined TRDB and are expected to play a key role in project appraisal.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Agriculture in Kigoma Region

Climate, Soils and Ecology

1. A variable land form characterizes the region with elevations ranging from 1,050 m to 2,300 m above sea level. Most of the region forms part of the Central Plateau, an immense, undulating peneplain with a profile of gentle slopes and shallow valleys with large areas of swamp bordering the main water courses. Elevation increases gradually to the northwest, then abruptly into the Kibondo and Kasulu highlands which border Burundi. The Malagarasi River, which rises in the highlands north of Kigoma and forms the Tanzania-Burundi boundary for about 160 km, drains most of Kigoma Region.

2. Annual rainfall in the region is between 500 and 1,100 mm (Table 1) and the annual mean maximum and minimum temperatures range from 28° to 12°C respectively. A single rainy season lasts for six to seven months from November to early May followed by a prolonged dry season. The Malagarasi swamp, Lake Tanganyika and the highlands act as climate modifiers and, in the highlands, this results in higher annual rainfall and slightly lower annual maximum and minimum temperatures than those that prevail in lower lying areas. Precipitation is reliable and allows a wide range of crops to be cultivated with some double planting of short-season crops.

3. Climate and topography, together with the effects of past and present human settlement, give rise to three distinct agro-ecological zones (Map 10942):

(a) The Highland Zone. A continuation of the Burundi mountains, which follows the northwestern boundary of the region, is the wettest of the three. The Zone has a rolling to hilly physiography with incised seasonal streams and rivers. Elevation ranges from 1,500 m to 2,300 m, becoming higher, hillier and generally more dissected near the Burundi border. Annual rainfall is normally above 1,000 mm being highest on the northern slopes. For the most part, soils are well drained, dark red to reddish brown sandy clay loams. Hill crests often have shallow soils and there is severe rill and gully erosion in areas of high population pressure. The climax vegetation has long since been eradicated, but there are some remnants of *Brachystegia* woodland, and higher levels were probably under broad-leaved forest. Medium to tall *Hyparrhenia-Sporobolus* grassland covers much of the

Zone and in the north there are areas of Hyparrhenia-Combretum bushed grassland. Glades in the highland forests were probably the first settled areas of Kigoma region, but most of the Zone has now been degraded by over-cultivation and soils are heavily depleted of phosphorous and nitrogen. The Zone covers roughly 510,000 ha of which perhaps 20% is cultivable. Little unoccupied land suitable for cultivation remains and holdings are small (about 1 ha). A wide range of crops is grown, of which maize, beans, and bananas are the most important. Coffee is grown in the higher, wetter areas. Most of the region's cattle are concentrated in the Highland Zone.

(b) The Intermediate Zone lies between the densely populated highlands and the almost uninhabited Miombo woodlands. The Zone is narrow and has an undulating physiography with occasional hills and a predominance of perennial streams and rivers. Elevation ranges from 1,200 m to 1,500 m with an annual rainfall of 850 mm to 1,100 mm.

Soils that are dusky red to darkish red sandy clay loams predominate and there is slight gully erosion on the steeper slopes. Overall, the Zone is sparsely populated though out-migration from the Highland Zone has concentrated in some localized areas. A climax vegetation of Brachystegia Julbernardia woodland covers much of the Zone with a tall understory of Panicum maximum and Hyparrhenia spp. Soils are moderately fertile but significant responses to phosphorous and nitrogen applications are expected. The Zone covers roughly 300,000 ha of which an estimated 50% is cultivable. Settlement, however, has been restricted by the incidence of tsetse fly, Glossina morsitans, which is common in the uncleared Brachystegia woodland. There are also a number of endemic sleeping sickness areas (Map 10942). Holding sizes are larger than in the Highland Zone (1.5 to 2.0 ha) with a larger proportion of the cultivated areas left to fallow after four to five years of cropping. Most of the population live in scattered homesteads and until recently, there were few nucleated villages.

Maize and cassava are the major subsistence crops; beans, bananas, groundnuts, sweet potatoes and a range of other vegetable crops are also grown and in recent years cotton has been promoted by Government staff. In the Intermediate zone cattle and small stock ownership is less common than in the Highland Zone.

(c) The Miombo Zone covers most of the east and southeast areas of the region and is characterized by an almost featureless, gently undulating peneplain with occasional small hills and large areas of swampy depressions. Streams and rivers from the highland areas converge to form wide, shallow river valleys; in this Zone perennial water supplies are less accessible. The ranges in elevation are from 1,000 m to 1,200 m. Few climatic recordings have been made in this Zone, but annual precipitation is expected to vary between 600 mm and 1,000 mm and is known to be reliable.

Soil on the upper slopes and crests go from being deep, well drained dusky red sandy loams to sandy clay loams lying over dark red clay loams. The lower slopes and depressions have imperfectly drained dark grey to black clays. *Brachystegia Julbernardia* woodland with an understory of tall *Panicum maximum* and *Hyparrhenia* spp. covers most of the Zone, but there are some unforested alluvial pockets that have attracted human settlement. Soils of the Miombo belt are typically deficient in nitrogen and phosphorous, but the region has large areas of a typical, tall, thick trunked woodland with soils of moderate to good fertility offering a sound potential for agriculture.

Tsetse infestation throughout the Zone has restricted migration from areas of high population pressure, although some villages have been established during previous regional resettlement programs, and there are scattered settlements along the line of rail. Traditionally, the Zone has been important for honey gathering, hunting and fishing.

CROP PRODUCTION

4. Maize, cassava, beans and bananas are the staple foods in the project area, supplemented by such minor crops as sweet potatoes, sorghum, pigeon peas and groundnuts. Cash incomes for farmers are largely derived from sales of these crops surplus to consumption needs; however, coffee, oil palm products and cotton are of localized importance and also make a small contribution to the economy. Flue-cured tobacco is also under investigation as a cash crop at two sites in the Kigoma district.

5. Data on crop production and marketing are extremely limited. Results of a crop yield survey carried out during the 1972 National Agricultural Census are not yet available. A small proportion of production passes through cooperative marketing channels (no more than about 2,500 tons per year) and a larger, uncontrolled and unquantified export trade is carried out by private traders to neighboring Burundi and Zaire.

INSTITUTIONS

Ministry of Agriculture (Kilimo)

6. Responsibility for agricultural development rests mainly with the Ministry of Agriculture (Kilimo) whose regional staff is divided into crop production and animal health and tsetse control departments controlled by regional functional managers at the Senior Field Officer level. In late 1973 technical staffing of the two departments totalled some 241 located as indicated below:

		District			
	Regional	Kigoma	Kasulu	Kibondo	Total
Crop Production					
Senior Field Officer (SFO)	1	-	-	-	1
Field Officer (FO)	3	2	2	2	9
Assistant Field Officer (AFO)	6	28	23	17	74
Field Assistant (FA)	-	6	14	17	37
Sub-total	10	36	39	36	121
Animal Health and Tsetse Control					
Senior Field Officer (SFO)	1	-	-	-	1
Field Officer (FO)	-	-	-	1	2
Assistant Field Officer (AFO)	3	8	7	9	27
Field Assistant (FA)	-	22	35	33	90
Sub-total	4	30	42	43	120

7. Over 50% of total technical staff in Kilimo, i.e., the FA grade, have received little or no formal technical training. They are mainly primary school leavers who have been given some in-service instruction in specific activities, such as maize production, or dip operation. Except where specific functions, such as dip operation, are called for their present usefulness is generally very limited. Of the remainder almost 42% are in the AFO grade, a level of staff based on two to three years of technical training after secondary school. Most are strangers to the region and thus are initially unfamiliar with its people and agricultural conditions. They are usually young men whose lack of local background compounds their overall lack of experience, further limiting their usefulness as agents for agricultural development. Fortunately, at the FO and SFO level, the region has a number of experienced and dedicated men capable of providing support and guidance to lower level staff. However, numbers are small in relation to the task and their impact is lessened by difficulties of communications and

the lack of firm information on which to base recommendations to farmers and hence instructions to subordinate staff. The project would seek to utilize the skill and experience of such staff much more fully by the introduction of training and trials programs (see below) and the development of technical backup services for field workers.

Tanzania Cotton Authority (TCA)

8. In addition to the regional cooperative union and the Tanzania Rural Development Bank (TRDB) which are described in Annexes 1 and 2 respectively, one other institution, the Tanzania Cotton Authority (TCA), plays a potentially highly significant role in the agricultural development of the region. Established in March 1973 as the successor to the Lint and Seed Marketing Board, TCA is charged, inter alia, with responsibility for promoting the development and improvement of the country's cotton industry. This responsibility includes organization of seed supplies, marketing of seed cotton, ginning, seed crushing and the regulation and control of the marketing and export of cotton lint.

9. Because it is a new organization with considerably wider scope than its predecessor, TCA has had to recruit additional senior personnel from a number of other agencies including Kilimo. It is still substantially understaffed, particularly at the field level, and in areas such as Kigoma where the crop has been of comparatively minor importance.

10. TCA operates a scheme whereby insecticides, sprayers and fertilizers are distributed to farmers at 50% of delivered cost. Limited supplies of knapsack sprayer and DDT/Sevin insecticide together with some 270 tons of Sulphate of Ammonia were provided for the 1973/74 planting season. Plans for distribution and demonstration were being drafted late in 1973 but arrangements for distribution and sale were far from finalized at that time.

11. To summarize, although Kilimo has a comparatively large number of staff in the region, most are either inadequately trained, inexperienced or both. Bad communications and lack of firm recommendations for improved practices compound the problem of providing ujamaa villages with extension staff capable of servicing the needs of villagers. A further complication is the present inability of TCA to support its expansion plans for cotton to any meaningful extent. These facts combine to dictate that initial plans for agricultural development must be based on simple measures that can be seen to pay off and that can be understood and transmitted to farmers by village-level extension workers who have received only limited technical training, as explained below in more detail.

TRAINING NEEDS

12. It is anticipated that national plans for training general agriculturists at AFO level will result in a yearly outturn of about 300 by 1978. Competition from other regions, projects and agricultural parastatal organizations such as TCA, is likely to be such that Kigoma region would receive

no more (and probably less) than 5% of outturn, or at most 10-15 AFO's per year. Because of the low level of general education in Kigoma, comparatively few pupils progress to secondary education and hence eligibility for AFO training. Therefore, such AFO's as may be posted to Kigoma are likely to come from other regions and be unfamiliar with its social and agricultural conditions. Thus unfamiliarity is apparent in AFO's recently posted to the region, to the extent that they require a period of at least one year of acclimatization to Kigoma conditions before becoming effective extension workers. The problem of staff shortage and orientation could be overcome by a limited regional training program of village level workers as outlined below.

The Kigoma Training and Trials Center

13. The primary objective would be to train village level extension workers of the FA grade in the rudiments of crop husbandry as they apply under Kigoma conditions. Primary school leavers who are natives of Kigoma would be selected for an initial nine to ten month course at the Kigoma Training and Trials Center. The Center, which would be provided under the project, would be centrally located, at the site typical of the Intermediate agro-ecological zone. The training wing would have a capacity of 25 boarding students and be staffed by one FO and two AFOs with experience of Kigoma conditions. Teaching staff would be seconded from the regional establishment, would continue to be responsible to the regional functional manager, and would be assisted from time to time by the staff of the trials wing of the Center on such topics as fertilizer responses.

14. Training would consist of simple classroom work on the elements of crop production, pest and disease control, agricultural mensuration and extension methods, together with extensive practical work during which classroom lessons would be put into effect in the field. The Center would have a training farm made up of a number of units of crop sequences recommended for ujamaa village block farms that would be operated by groups of students. The curriculum for basic training of FA's would be developed by regional staff in consultation with education specialists from the Department of Manpower Development in Kilimo's Dar es Salaam office.

15. Successful completion of the basic course of training would result in appointment to the FA grade and posting to an ujamaa village. To the extent possible, newly qualified FA's would spend their first crop season helping more experienced staff. Thereafter each would assume responsibility for promotion of agricultural development in an ujamaa village.

16. Subsequent to their basic training, FA's would receive specific in-service courses on subjects such as cotton spraying and maize cultural practices. These courses would be given by Training Center staff to all village extension personnel on a district-by-district basis. Courses would be timed such that participants would apply their lessons immediately on

returning to their villages. Additionally, the Center would be used for short residential courses such as seed cotton grading, seed multiplication and land use planning for Kilimo and TCA staff during the two to three month period between FA courses. Field Assistants who had proved themselves worthy of further training should be considered for acceptance at Central Agricultural Training Institutes (CATI) operated by Kilimo on a national basis. Successful completion of CATI courses would result in promotion to AFO level with prospects of further advancement.

17. Because of the urgent need to train village level extension staff, establishment of the Training and Trials Center would receive high priority. Regional authorities would undertake to select and provisionally set aside a suitable 250-ha site in the Intermediate agro-ecological zone preferably in Kasulu district. Site selection would be on the basis of a topographic and detailed soil survey which would be made available to IDA within three months of credit signing.

18. As the national training program gathers momentum and the need for regional basic training lessens, the purpose of the training wing would change toward provision of residential short courses for established staff and farmers. Such courses would include orientation for new staff and topics of particular regional significance based on results obtained at the trials wing of the Center.

RESEARCH REQUIREMENTS

19. Kigoma region comes under the jurisdiction of Kilimo's Western Research Station at Ukiriguru some 30 km south of Mwanza, and 350 km northeast of Kigoma. The region has received little attention in the field of crop research and since 1966/67 has not been included in any territorial or district trial programs. Since no comprehensive investigations to test variety and yield responses have been conducted throughout the region's main agro-economic zones, the Western Research Center's published trials results that refer to Kigoma are not representative of the region as a whole. Nevertheless, the marked responses which have been obtained from improved cultural practices, new varieties and fertilizer applications in similar ecological areas in Tanzania and elsewhere in eastern Africa indicate the considerable scope for crop production development in the region.

The Kigoma Training and Trials Center

20. Because there is a dearth of information on all crops currently cultivated, it is important that initial investigations should focus sharply on crops of major economic and nutritional significance. The trials wing of the Training and Trials Center proposed for inclusion under the project would concentrate primarily on the maize, cotton, bean, and groundnut crops.

Work would be directed towards testing the applicability of recommendations from the Ukiriguru Research Station to Kigoma region conditions by field trials at the proposed Center and at selected sites in the region. In addition, the Center would be used as the Kigoma location for any relevant territorial or related trial programs operated from Ukiriguru. Research requirements for the different crops are outlined below.

Maize

21. Of the several composite varieties bred in Tanzania for cultivation above about 900 m altitude, Ukiriguru Composite A (UCA) significantly out-yielded the local variety in Kigoma by over 55% in the 1966/67 territorial trials. Although no further trials have been carried out since this time, considerable quantities of UCA seed have been distributed to farmers in the region. Performance has apparently been satisfactory as the variety appears to be widely acceptable. Future trials should test new varieties developed at Ukiriguru against Local and UCA.

22. The apparent superiority of UCA over Local on farmers' farms should be further refined by observations on varieties of response to such basic treatments as planting date, spacing, number of weedings and stem borer control. Additionally, fertilizer response studies should be initiated with particular reference to the economics of application and the forms of nitrogenous and phosphate fertilizers best suited to the predominantly acid and phosphate-deficient soils encountered over much of the Intermediate and Miombo zones.

Cotton

23. Current recommendations for planting the UK64 variety in early mid-December are based on trials carried out in the mid-1960s. District variety trials should be reintroduced together with time of planting, spacing and weeding observations. The present recommendation for pest control using DDT, Sevin and Dimethoate and conventional knapsack sprayers in a six-to-eight spray regime is likely to be superseded shortly. Trials at Ukiriguru have indicated the superiority of endosulfan applied using ultra low volume (ULV) techniques through battery-powered hand sprayers. This recommendation is incorporated in project proposals, but before widespread application by farmers, the trial wing of the proposed Center would carry out investigations with particular reference to type and timing of insect attack with a view to formulating optimal spraying regimes. Although a chlorinated hydrocarbon, endosulfan does not accumulate in the body and is thus less hazardous to human health than is DDT.

24. No broad cotton fertilizer trials have been conducted in the region. Although research on this matter is required, general indications from trials in comparable situations elsewhere in Tanzania indicate significant response to nitrogenous and phosphate fertilizers. These should be

investigated under Kigoma conditions particularly to test the feasibility of prolonging maturation by nitrogenous manuring and thus utilizing the potentially long growing season by developing large framed plants with heavy yielding capabilities.

Beans

25. There have been no field trials in Kigoma on beans despite their nutritional and economic importance. It is not intended that an elaborate program should be launched, rather, the Trials Officer should consult with appropriate specialists of the Ukiriguru Research Center to design a program of trials relevant to the needs of the region. This might include time of planting, spacing, fertilizer response, and insect control investigations together with some limited variety testing. However, experience elsewhere in this field on beans for local consumption points to strong preferences for indigenous types and a need to concentrate on increasing their potential productivity.

Groundnuts

26. The groundnut crop appears to have a promising future in the Intermediate and Miombo zones of the region where it is already a popular minor crop. The local, Mwitunde-type variety has the benefit of a degree of Rosette resistance, but is inferior to the larger seeded Bukene type, recently introduced, on the grounds of kernel quality and yield. Again, the trials program for the crop would be designed in consultation with specialists at Ukiriguru with particular reference to the needs of the project. In addition to varietal testing it would need to focus on time of planting, spacing, seed dressing, incidence and control of Cercospora leaf spot, and response to fertilizer, particularly phosphates and possibly sulphur. As in other fertilizer investigations, the economic aspects of application under farmers' conditions would be closely examined before formulation of recommendations and their transmittal to extension staff.

Crop Sequences

27. Although trials of this nature would be unlikely to provide meaningful results within the life of the project, it is nonetheless imperative that they should be initiated without delay. Their importance stems from the fact that ujamaaization is founded on permanent settlement and prolonged cropping. Soil-carrying capacity under these circumstances is unknown, but field observations clearly indicate the need to establish viable crop sequences. Design of investigations should draw on work already underway at Ukiriguru. As for other activities at the Center, emphasis should be on simplicity and strict adherence to the needs of the region.

The Trials Wing

28. As indicated above, field trials would be initiated at the Training and Trials Center proposed for inclusion under this project (paragraph 20). They would be complemented to the extent possible by outstation trials at locations in the different districts of the region in order to provide fully meaningful results. The trials wing would be headed by a professional officer with experience of agronomic research in Tanzania and preferably elsewhere. Discussions in Dar es Salaam during appraisal indicated the probable availability of such personnel with in-service training at the Maize and Wheat Improvement Center (CIMMYT) in Mexico. The Trials Officer would be assisted at the Center by three AFO's. The proposed program of outstation trials would be formulated in consultation with the District and Regional Agricultural Managers. The Trials Officer would be professionally responsible to the officer in charge of the Ukiriguru Research Station, although his administrative and day-to-day supervision would be provided by the Regional Development Director through the Regional Agricultural Manager.

Seed Multiplication

29. In addition to the investigational work proposed, the trials wing would also undertake to provide nucleus stocks of improved seed of maize and groundnuts for distribution and further multiplication at established ujamaa villages, as indicated below (paragraphs 52, 53, 54). It would also provide newly established villages under the project with initial seed requirements for proposed demonstrations.

CROP PRODUCTION IN UJAMAA VILLAGES

30. Villages established under Operation Kigoma by late 1973 were just beginning to develop crop production plans at that time. One acre (0.4 ha) house plots had been cleared and planted and block farms were at different stages of clearing in readiness for planting with crops such as maize, beans and cotton in the 1973/74 crop season. Experience in 1972/73 with communal farms had, with very few exceptions, proved unsatisfactory. Crops had been planted late and poorly tended, and yields were disappointing in consequence. As a result most village development councils, with the concurrence of district and regional authorities, opted to change their block farm operations from a communal to an individual basis. In practice this meant the allocation of a one acre plot to each family on each of the block farms proposed for operation by the village. Villagers would then clear, plant and harvest their individual plots and be free to dispose of any surplus over subsistence through the village primary cooperative society. In most cases plot allocation had been made on the basis of contiguous blocks conforming to the 10 family cells.

31. Most commonly in 1973/74 two such block farms were to be planted, one with maize and/or maize and beans, and the other with cotton. Attainment of the initial targetted block farm plantings of two acres per family appeared unlikely in many cases because of the heavy clearing required and understandable preoccupation with house plots and house building. This problem, however, should diminish over time as villages become established and calls on labor for activities such as water carrying and village establishment are lessened.

Project Proposals

32. The organization outlined above, i.e., individual plots on block farms, would be followed in villages financed under the project, but the initial clearing target would be no more than one and one half acres, instead of two acres of block farm per family.

Cropping Sequence

33. A suitable cropping sequence has still to be established for the area. For planning purposes in the two lowland zones, where the bulk of resettlement is to be expected, a sequence of cotton then maize followed by late planted beans, groundnuts, and a four-year bush or cassava fallow is proposed. Farmers would, at full development, thus operate their one acre house plots plus one acre each of cotton, maize/beans and one-half to one acre of groundnuts with a possible cassava fallow to follow or a total of three-and-one-half to four acres (1.4 to 1.6 ha).

Block Farms

34. All villages that are to be financed under the project would be the subjects of satisfactory Village Site Feasibility Reports (VSFR), which are described in detail in Annex 13. From the viewpoint of cropping activities this would mean an adequate supply of land of a quality and topography suitable for sustained cropping within ready walking distance (say 2 km) of the village living area. Thus a 350-family village would have at least 1,000 ha (350 x 7 ac) of such land in reasonably contiguous blocks. Block farms would be demarcated by the land-use planning staff of Kilimo. It would be allocated by the village development council or an appropriate committee, probably in 10-acre blocks to cell leaders who would then sub-allocate to the individuals within their cells.

Labor Availability

35. Local opinion has it that farmers in traditional settlements operate about three to four acres, usually in plots scattered round the homestead. These estimates are supported by a limited survey carried out

in 1968. 1/ The average family size is about five persons, probably equivalent to a little over two working adult equivalents per family. The size of traditional holdings is probably largely governed by labor availability during peak seasons, such as land preparation, weeding and harvest of the staple maize and bean crops. Introduction of additional crops as proposed under the project would tend to spread labor needs more uniformly, providing more total employment and significantly increased returns to labor. An approximate estimate of labor requirements for a typical family following proposed project practices is provided in Table 2. This indicates the probability that labor would be available when needed in the crop year with a surplus for clearing and non-agricultural activities.

Cropping Practices Proposed under the Project

36. Earlier sections have indicated the paucity of relevant research data and the generally low level of technical assistance at the village. These considerations together with the fact that most ujamaa villages and their inhabitants have had limited exposure to modern agricultural technology, suggest the need for careful introduction of improved cropping practices. These would be designed to increase productivity, marketable surplus and hence cash income at minimum risk to farmers. In no cases are there specific recommendations for improved practices based on series of field trials carried out in the Kigoma Region. The practices proposed are extrapolated from experience elsewhere. It may be argued with validity that farmers organized with a fair degree of political fervour in a 10-family cell basis, and cultivating the same crop on contiguous plots are much more readily accessible than most small-scale producers and are therefore likely to be highly responsive to innovations. This could lead to higher production than has been estimated. Experience over the first years of the project together with the results of field trials and demonstrations will provide the basis for revision of present production estimates.

Demonstrations

37. Although it is claimed that most farmers in the region are now generally aware of the benefits of modern inputs, such as improved seed fertilizer and insecticides, field observations indicate a need for demonstrations to show farmers how to maximize input effects. For this reason, provision is made under the Project for the supply of inputs for demonstrations in ujamaa villages, preferably by selected farmers, under the supervision of extension staff. Demonstration would be based on packages of practices and inputs as defined by crops below.

1/ Agricultural Economy of Kigoma Region by A. A. Moody, Agricultural Economics Dept., Western Research Centre, Ukiriguru, Mwanza 1968, Mimeographed.

Maize

38. Considerable quantities of UCA seed are already in the region. Stage I is defined as the use of such seed with no other refinements, thus differentiating between traditional maize cultivation using the local variety. A yield increase owing to variety approximating 25% is assumed, from 535 to 675 lb shelled grain per acre (600-750 kg/ha). Stage II would involve timely planting, use of UCA seed, spacing at three plants per stand at three feet on three-foot ridges, two or three weedings, and dusting with DDT 5% dust against stem borer (Busseola spp). Yields under this regime are estimated at about 1,000 lb shelled grain per acre (1,100 kg/ha) an increment of 325 lb/ac (48%) over Stage I.

39. Stage III would differ from Stage II in the introduction of nitrogen and phosphate fertilizer. Calcium Ammonium Nitrate (CAN) plus Di Ammonium Phosphate (DAP) would be applied, each at 56 lb/ac (63 kg/ha). This is the level proposed for planning purposes but it may well need to be amended following field trials and changes in price relationships during the course of the project. Proposed application levels are estimated to result in yields of 1,700 lb shelled grain per ac (1,900 kg/ha), an increment of 700 lb/ac (70%) over Stage II.

40. Details of estimated effects of these treatments are given in Annex 15 Table 1. Salient points of interest are summarized below on an acreage (ha) basis.

Maize	Level of Husbandry			
	Traditional	Stage I	Stage II	Stage III
Yield (lb/ac)	535	675	1,020	1,700
(kg/ha)	(600)	(720)	(1,140)	(1,900)
Gross Return (T Sh)	85	108	163	272
(per ha)	(210)	(267)	(403)	(672)
Material Cost (T Sh)	7	8	17	95
(per ha)	(17)	(20)	(42)	(235)
Labor Cost (mandays)	45	50	60	66
(per ha)	(111)	(123)	(148)	(163)
Net Return Excluding Labor (T Sh)	78	100	146	177
(per ha)	(193)	(247)	(361)	(437)
Return to Labor (T Sh/manday)	1.76	2.00	2.43	2.68

41. For planning purposes the rate of uptake of the different stages of maize cultivation has been estimated as follows:

Project Year	No. of Villages in Different Stages I	II	III	Total No. of Villages
2	5	10	5	20
3	5	25	15	45
4	5	35	30	70
5	5	45	45	95

It is recognized that there will be variations in uptake by different farmers in any one village. The foregoing assumption implies this fact.

Beans

42. Nothing specific has been established by field trials for improving bean yields in the Kigoma region. It is known that a late (April/May) planted sole crop of local yellow beans yields at least double that of an early (November/December) planting. This is due largely to reduced competition and improved seed setting. Project proposals include one basic recommendation for beans on block farms. This is for planting through maize, spacing at two feet on three-foot ridges, and two or three weedings, depending on whether or not the previous maize crop has received fertilizer with the latter being the factor differentiating between Stages II and III.

43. Details of the effects of these treatments are given in Annex 15 Table 2. They may be summarized on an acreage (ha) basis as follows:

Beans	Level of Husbandry Traditional	Stage I	Stage II
Yield (lb/ac)	250	500	600
(kg/ha)	(280)	(560)	(670)
Gross Return (T Sh)	95	190	228
(per ha)	(235)	(470)	(565)
Material Cost (T Sh)	8	14	14
(per ha)	(20)	(35)	(35)
Labor Costs (mandays)	24	45	50
(per ha)	(60)	(111)	(123)
Net Return Excluding Labor (T Sh)	87	176	214
(per ha)	(215)	(435)	(551)
Return to Labor (T Sh/manday)	3.62	3.92	4.28

Rate of uptake is assumed to be the same as for maize, since the crops would be grown in association.

Cotton

44. Recommendations proposed for improving cotton yields are based on experience in the Western Cotton Growing Area of Tanzania and in locations elsewhere having similar soil, climatic and pest problems. Farmers in Kigoma Region growing UK64 cotton without insectidal control, planted in January at suboptimal spacing, without fertilizer, improperly thinned and inadequately weeded obtain yields approximating 350 lb of seed cotton per acre (390 kg/ha), under the Traditional system. Under these conditions the proportion of first grade (AR) to second grade (BR) seed cotton approximates 55:45. Mid-December planting at the recommended spacing of two feet on three-foot ridges, application of CAN and DAP each at 90 lb/ac, thinning to two plants per stand, two or three weedings, and insect control by six sprays at seven to ten day intervals is estimated to give yields approximating 1,000 lb of seed cotton per acre (1,120 kg/ha), the recommended Advanced level of production. Under these conditions, because of control of insect pests, mainly boll worms, the proportion of AR to BR grade of seed cotton is estimated at 80:20. Current control measures are based on use of DDT, Sevin and Dimethoate applied from a conventional knapsack sprayer. Project proposals are based on experience in Tanzania and elsewhere using Endosulfan applied through battery powered ultra low volume (ULV) sprayers. One such sprayer would be adequate for five acres of cotton, or two for each 10-family unit cell.

45. Details of the effects of these treatments are given in Annex 15, Table 3. They may be summarized on an acreage (ha) basis as follows:

Seed Cotton	Level of Husbandry	
	Traditional	Advanced
Yield (lb/ac)	350	1,000
(kg/ha)	(390)	(1,120)
Gross Return (T Sh)	177	602
(per ha)	(437)	(1,487)
Meterial Cost (T Sh)	1	243
(per ha)	(2)	(600)
Labor Costs (mandays)	62	83
(per ha)	(153)	(205)
Net Return Excluding Labor (T Sh)	176	359
(per ha)	(435)	(887)
Return to Labor (T Sh/manday)	2.84	4.33

46. For planning purposes the rate of uptake of the different stages of cotton cultivation has been estimated as follows:

Project Year	No. of Villages in Different Stages: Traditional	Advanced	Total No. of Villages
2	10	10	20
3	15	30	45
4	15	55	70
5	15	80	95

As for maize, it is recognized that there will be variation in uptake by different farmers in any one village.

Groundnuts

47. Groundnuts are presently a popular but comparatively minor crop in the Intermediate and Miombo agro-ecological zones. No trial results are available but conditions in the region are sufficiently similar to those in other groundnut growing areas to permit realistic assumptions for planning purposes as to the effects of a simple package of recommended practices. The traditional Mwitunde variety, suitable only for oil, late and frequently interplanted at suboptimal spacing without fertilizer, is estimated to yield 350 lb of shelled nuts per acre (390 kg/ha). The Bukene variety, of confectionery quality has been introduced within the past five years. It is popular with farmers because of its higher yield potential and larger kernels which earn a premium price. Planted as a sole crop at a spacing approximating nine inches on three-foot ridges with a dressing of single superphosphate of 112 lb/acre (125 kg/ha), it is assumed that this variety would yield 700 lb of kernels per acre (780 kg/ha), i.e., double the yield from the assumed traditional practices.

48. Full details of the two types of groundnut production are given in Annex 15 Table 4. They are summarized on an acreage (ha) basis below:

Groundnuts	Level of Husbandry: Traditional	Advanced
Yield (lb/ac)	350	700
(kg/ha)	(390)	(790)
Gross Return (T Sh)	198	1,433
(per ha)	(489)	(1,369)
Material Costs (T Sh)	26	93
(per ha)	(64)	(230)
Labor Inputs (mandays)	54	87
(per ha)	(133)	(215)
Net Return Excluding Labor (T Sh)	172	340
(per ha)	(425)	(839)
Return to Labor (T Sh/manday)	3.19	3.91

49. It is not intended that improved practices for groundnuts would be introduced until Year Four of the project when a program of demonstrations would be mounted. By this time several years of trials would have been conducted at the proposed trials wing of the regional Training and Trials Center. The results of these investigations may dictate a different form of recommendation; however, the relative orders of magnitude of benefits are likely to be larger rather than smaller than those assumed above. For planning purposes it is estimated that 11 of the longest established villages would adopt improved practices for groundnuts by project Year Five.

Supply of Inputs

50. With the exception of supplies of improved seed, inputs would be provided on credit through each village cooperative via the regional cooperative union by the Tanzania Rural Development Bank (TRDB). Such credit would not be made available until the village had demonstrated its eligibility for credit by registration as a primary cooperative society. Further details on village and individual eligibility criteria, and the mechanics of input procurement and distribution, and credit administration are in Annex 14.

51. Cotton seed is currently distributed at no charge by TCA. It is assumed that this arrangement will continue, with the costs of the operation reflected in producer price.

52. Improved maize seed, currently Ukiriguru Composite A, has been provided free by the Regional Administration using the Regional Development Fund to purchase foundation stocks from State farm in other regions that were subsequently bulked on block farms in newly established ujamaa villages. This procedure would be modified under the project such that the proposed Training and Trials Center would multiply breeders' seed to provide nucleus stocks for further multiplication on isolation blocks in ujamaa villages. Seed would be changed every three years so that a 350 family village would need to set aside a six-acre (2.45 ha) multiplication block for this purpose. Assuming a seed yield of 1,500 lb/ac (1,675 kg/ha) this area would supply sufficient seed to plant the village block farm (350 acres).

53. Improved groundnut seed would similarly be produced in the village from nucleus material supplied by the Training and Trials Center. It has been assumed that farmers would grow an average of 0.5 acres of groundnuts. Thus, assuming a seed rate of 70 lb/ac and replacement every three years, a 350-family village would require some 4,100 lb of seed per year. With improved groundnuts yielding 700 lb of seed per acre, some six acres of groundnuts would need to be planted for seed each year.

54. Seed multiplication at the village level would be organized by the Field Assistant in consultation with the village development council. The past practice of seed production on a communal farm should be resisted because of the difficulty of obtaining labor when needed. Rather, the village should pay labor to work the seed farms--which would need to be isolated from other crops because of the risk of outcrossing--exchanging the seed with farmers for an equivalent quantity of commercial grain or kernels, and utilizing this material to finance the operation.

LIVESTOCK DEVELOPMENT AND TSETSE CONTROL

55. Animal production in Kigoma region is severely restricted by tick-borne diseases, trypanosomiasis and internal parasites such as liver fluke. Most of the livestock population is concentrated above 1,500 m in the Highland Agro-ecological Zone above the wooded habitat of the tsetse flies (Glossina morsitans) which trasmit trypanosomiasis. About two-thirds of the cattle population is located in the highland area of Kasulu District. Livestock census results for 1955, 1961 and 1971 show an apparent increase in cattle numbers at the expense of sheep and goats. 1973 census figures are in course of preparation.

Year	Cattle	Sheep	Goats
1955	55,800	30,500	106,900
1961	65,100	39,200	151,000
1971	78,000	25,200	108,500

56. Cattle are almost entirely Ankole, well suited to extensive management but of poor carcass quality, slow maturing and with low reproduction rates. Herd size is small at two to five head, and cattle are kept mainly as prestige symbols. There is no tradition of using cattle for draft purposes and the numbers and beef quality of local animals are such that substantial numbers of Zebu slaughter stock are imported annually, as indicated in the following table showing recorded number of animals slaughtered in Kigoma Region.

Year	Sheep	Goats	Cattle			
			Total	Imported	Local	Local %
1969	792	3,732	5,262	2,132	3,130	60
1970	733	3,342	5,708	2,468	3,240	57
1971	948	4,461	5,938	2,559	3,379	57
1972	1,157	5,769	7,664	2,527	5,137	67

These data are collected during meat inspection and are almost certainly low estimates of actual slaughter, particularly of sheep and goats. Nevertheless, they still imply an extremely low off-take, below 5% in 1971, which is indicative of low calving and high calf mortality rates. The local Ankoles are probably slaughtered around six years of age at a weight of 200-250 kg, fetching T Sh 250-300 on the average in 1973.

57. The regional administration operates a regional network of dips to control ticks, and hence tick-borne diseases. Field staff with veterinary training provide a limited diagnostic and treatment service for other diseases in the three districts of the region. Dip establishment is on the basis of a cattle population of 500 within an 8-km radius. Below this level tick control is effected by stirrup pump sprays. In 1973, Kilimo operated 32 such dips and proposed construction and staffing of a further 20 in the 1973/74 financial year.

Tsetse Control

58. Despite the importance of tick-borne diseases, livestock development is most severely constrained by trypanosomiasis. As indicated in Map 10942 the presence of tsetse flies, and hence the disease, effectively contains the cattle population within less than 20% of the region. Chemotherapy is generally considered to be uneconomic for livestock. The effect of ujamaaization and the move from more densely populated, and hence cleared, areas into the Intermediate and Miombo zones will be to extend the fly-free area, since G. morsitans cannot breed and survive without bush cover. This process will take some years in each village, i.e., until the farming area has been totally cleared.

59. Because of the overall benefits of tsetse clearing on livestock and human health, the ongoing, satisfactory system of payments to villagers for this purpose would be continued under the project. Clearing costs vary according to the size and density of the tree and bush population. Kilimo experience indicates typical clearing costs approximating 40-50 mandays/ha in the Intermediate zone, rising to 50-60 mandays/ha in the Miombo zone. Payment at the full minimum daily rate would be prohibitively expensive and unwarranted, since farmers should not be paid to clear their own plots. On the other hand during the first period of establishment of an ujamaa village, farmers are unlikely to make even a small cash income since most are moving to a new locality, opening new farms and building a house. Payment of a token amount for clearing one or two acres per family in the first year provides cash for basic necessities, such as salt, and ensures an area of farmland for subsequent cropping. In 1973 such payments ranged between T Sh 5.00 and T Sh 15.00 per acre depending on the density of bush cover. These levels would be continued under the project.

60. Assessment of the rate, and of the need for tsetse clearing would be part of the Village Site Feasibility Report (VSFR) referred to earlier. Tsetse control staff of Kilimo would carry out a survey in the village area to assess the tsetse fly population and the amount of clearing involved. The field survey and report by an AFO trained in tsetse control assisted by two FA's, would take approximately 14 days for each village area. Such men are already in post in each district and are supervised by the Regional Tsetse Control Officer.

Pilot Livestock Project

61. Present tsetse-free areas are inadequate to support current cattle and human population, hence the erosion and overgrazing typical of the Highland zone. New ujamaa villages created in the Intermediate and Miombo Zones will have a greater chance of siphoning off surplus population from the highlands if they can hold out cattle-keeping possibilities to livestock owners. As indicated earlier, this can only occur following clearing, and the creation of areas free of tsetse fly. Additional attractions would be the provision of veterinary services and opportunities to upgrade local

stock. Apart from the obvious benefit of reducing the highlands cattle population, such a move would also permit the introduction of cattle into lowland farming systems. The benefits of mixed crop and livestock farming would be considerable from such standpoints as land utilization, soil fertility maintenance, and human nutrition.

62. It will be some years before cattle keeping will be practicable in many ujamaa villages, although action needs to be initiated in the near future to investigate stock and land management practice appropriate to the region with reference to both highland and lowland zones. Such investigations should also be related to attempts to upgrade the local Ankole cattle by crossbreeding with improved types such as the Boran.

63. The project would finance the initiation of a pilot project along these lines that would be located together with the proposed Training and Trials Center. A small herd of 30 improved Boran heifers with two bulls would be established at the Center. Its purpose would be twofold: first to investigate and demonstrate livestock management systems incorporating utilization of crop residues and fodder crops, and second, in the longer term, to produce breeding stock to be used for upgrading local Ankole cattle in ujamaa villages that had adequate grazing land and had undertaken to participate in livestock health and improvement programs. Implicit in these objectives is the need to demonstrate the benefits of a commercial orientation to cattle keeping in the region. Although the primary objective would be integration of cattle keeping and cropping to promote beef production, the possibility of training draft animals would also be investigated. It is unlikely that these activities would make much of an impact on ujamaa villages during the life of the project; however, the results obtained would provide the information necessary for preparation of subsequent investment proposals.

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KIGOMA RURAL DEVELOPMENT PROJECT

Mean Monthly Rainfall Records to December 1970

Station	Kigoma	Kasulu
Elevation above Mean Sea Level (m)	885	1,380
Recording Period (years)	32	39
	Rainfall (mm)	
January	127.7	165.1
February	120.4	158.3
March	151.4	178.8
April	151.5	197.8
May	52.3	53.3
June	5.6	3.7
July	1.9	0.5
August	2.4	2.1
September	14.7	21.1
October	53.8	66.5
November	131.5	135.3
December	151.9	176.2
Mean Annual Total	965.1	1,158.7

Source: East African Meteorological Department.

ANNEX 3
Table 2

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KIGOMA RURAL DEVELOPMENT PROJECT

Estimated Labor Needs and Availability per 3.5 Acre Farm (mandays)[1/]

Crop	Acreage	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Houseplot	1	8	6	7	7	5	-	-	-	5	8	8	6	60
Maize[2/]	1	8	6	-	5	5	2	-	-	10	10	14	6	66
Beans[2/]	1	-	-	10	5	5	6	6	-	-	10	8	-	50
Cotton	1	8	7	6	2	6	10	4	10	8	8	-	12	81
Groundnuts	0.5	9	8	7	-	10	15	18	-	-	-	10	10	87
Monthly Total		33	27	30	19	31	33	28	10	23	36	40	34	344
Labor Available[3/]		40	40	40	40	40	40	40	40	40	40	40	40	480
Net Surplus		7	13	10	21	9	7	12	30	17	4	NIL	6	136

1/ Assumes adoption of most labor-intensive techniques, i.e. at full development, and a mean six hours workday. In fact, the average workday would probably be divided between the houseplot and the block farm.

2/ Maize and beans are grown on the same land, i.e. beans are planted in maize fields about one month before maize harvest.

3/ Assumes two adult equivalents per family of five, working an average of 20 days per month.

Source: Annex 15 Tables 1 through 4 and mission estimates.

Note: Despite national adoption of the metric system, actual usage in the region is still with acres. Accordingly, the calculations in this table are based on acres.

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KIGOMA RURAL DEVELOPMENT PROJECT

Herd Projection for Boran Nucleus Herd

Herd Composition	Age in years	PROJECT YEAR 1	2	3	4	5	6	7	8	9	10	11	12 onward
Cows	3+			25	23	29	33	33	33	33	33	33	33
Heifers	2-3		27		10	9	7	7	7	7	7	7	7
Subtotal Breeding Females			27	25	33	38	40	40	40	40	40	40	40
Heifers	1-2	27		11	9	12	12	14	14	14	14	14	14
Heifers	0-1		11	9	12	12	14	14	14	14	14	14	14
Bulls in Service	2+	2	2	2	2	2	2	2	2	2	2	2	2
Bulls	1-2			11	8	12	11	14	14	14	14	14	14
Bulls	0-1		11	8	12	11	14	14	14	14	14	14	14
Total Numbers		29	51	66	76	87	93	98	98	98	98	98	98
Sales of Stock													
Culled Bulls					1				1			1	
Culled Cows	3+			1	1	3	4	6	6	6	6	6	6
Culled Heifers	2-3				1		1	1	1	1	1	1	1
Culled Heifers	1-2												
In Calf Heifers	2-3						4	4	6	6	6	6	6
Breeding Bulls	2+				11	8	12	11	14	14	14	14	14
Total Sales				1	14	11	21	22	28	27	27	28	27
Purchases													
In Calf Heifers	2-3	30											
Breeding Bulls	2+	2			1				1			1	
Total Purchases		32			1				1			1	
Births													
Heifer Calves		12	10	13	13	15	15	15	15	15	15	15	15
Bull Calves		12	9	13	12	15	15	15	15	15	15	15	15
Total Births		24	19	26	25	30	30	30	30	30	30	30	30
Deaths													
Cows	3+			1	1	1	1	1	1	1	1	1	1
Heifers	2-3	3											
Heifers	1-2												
Heifers	0-1		1	1	1	1	1	1	1	1	1	1	1
Bulls in Service	2+												
Bulls	1-2												
Bulls	0-1		1	1	1	1	1	1	1	1	1	1	1
Total Deaths		3	2	3	3	3	3	3	3	3	3	3	3
Technical Coefficients													
Calving Rate (%)			90	75	75	75	75	75	75	75	75	75	75
Mortality Rate (%)													
Cows	3+			3	3	3	3	3	3	3	3	3	3
Heifers	2-3		10 1/	3	3	3	3	3	3	3	3	3	3
Heifers	1-2			3	3	3	3	3	3	3	3	3	3
Heifers	0-1			10	10	10	10	10	10	10	10	10	10
Bulls in Service	2+												
Bulls	1-2			3	3	3	3	3	3	3	3	3	3
Bulls	0-1			10	10	10	10	10	10	10	10	10	10
Culling Rate (%)													
Cows	3+			5	5	10	15	20	20	20	20	20	20
Heifers	2-3				5	5	5	5	5	5	5	5	5
Heifers	1-2				5	5	5	5	5	5	5	5	5

1/ Includes loss in transit together with normal mortality.

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KIGOMA RURAL DEVELOPMENT PROJECT

GOVERNMENT AND ADMINISTRATION IN THE KIGOMA REGION

Regional Government After Decentralization

1. With effect from March 1972, Regional and District administations in Tanzania were reorganized and strengthened to promote rural development programs more effectively. Chart 8466 shows the main features of the new organogram. The chief political officer in the region, the Regional Commissioner (appointed by the President), has been given cabinet rank. The Regional Development Director (RDD), as head of the regional civil service, is now equivalent to the Principal Secretary of a central government ministry. The most important effect of the changes was to make all civil servants working in a region in principle responsible to the RDD of that region and not, as before, to central ministries in Dar es Salaam.

2. The new District authorities, helped by the Regional Secretariat, identify and prepare projects geared to the needs and potential of their areas and supervise their implementation. Programs and projects are reviewed and collated in the region and subsequently submitted in the form of budget proposals accompanying a regional plan to the Prime Minister's Office (which Office has responsibility for the overall planning of rural development). Following review and clearance at this level, regional proposals become a rural development program for the nation and eventually, with proposals from the central ministries and financing implications prepared by Treasury, part of the national plan. Following clearance of the plan and budget by the Economic Committee of the Cabinet, final authority resides in the National Assembly, which body approves separate regional as well as national budget estimates.

3. As indicated in the organogram, and detailed in the Organizational Guide 1/, the District Development Director is responsible for obtaining the participation and commitment of local communities and for ensuring that government staff work closely with the people in preparing, and executing the programs. He is assisted by three staff officers (for planning, finance and personnel) and by eight to ten district functional managers (functions or sectors as indicated in Chart 8466) in charge of technical and specialist services at district level.

1/ "The New Organization: A Management Guide." Government of Tanzania, January 1972.

4. Regional headquarters provides the link between district preparation and implementation and general government objectives and policies. The Regional Development Director thus maintains a flow of plans and record of achievement from the districts to the center, while attempting to ensure an appropriate flow of technical assistance and resources to the districts. Regional organization closely mirrors organization at district level but in general, regional staff are more senior and experienced than their district counterparts, Staff Officers assist the RDD in the tasks of coordination and control but are also expected to assist district officers with professional advice and guidance to the RDD and to district counterparts, though, in principle, operational responsibility is vested in the district level management. (An exception is the Regional Water Engineer who takes personal responsibility for the implementation of all water programs in the region.) Regional functional managers also liaise with the central departments to ensure that Districts get the resources needed to carry out their programs. In summary, with control exercised over the whole range of technical government services as these operate at local level, the use of integrated or comprehensive approaches, more in keeping with rural development objectives, is facilitated. The combination of authority, responsibility and accountability focused at the District and Regional level should lead to much more active promotional efforts than in the past, particularly in the more backward and isolated regions that were so easily neglected under the old system.

Experience in the Regions

5. Administrative structures in Kigoma region follow those described in the proceeding section; currently, there are approximately 120 higher level 1/ staff distributed over the Regional office (sited in Kigoma-Ujiji township) and the three district offices of Kigoma, Kasulu, and Kibondo. These are considerably below establishment staffing levels (which allow for about 200 posts), and at levels just below District Functional Manager -- i.e., among senior and middle level professional grades, only about one-half of the 60 established posts are filled.

6. As well as the requirements of the project in respect of additional functional specialists, discussed elsewhere in the Report, some strengthening in the accounting and planning sections at District level is particularly urgent. In Kasulu and Kibondo, the Planning Officer has no supporting staff in contrast to an establishment of six posts, while the District Finance Officers are in an even worse position, with zero staff in contrast to a post establishment of about 20.

7. In addition to staff shortages, with most of the new regional staff not familiar with conditions in the region, some time must elapse before regional planning and project preparation can become fully effective. Moreover, of necessity, relatively inexperienced or newly promoted staff now occupy

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1/ Higher Executive Grade Officer and above, including junior level professional staff.

many of the posts that carry major responsibility for plan and project preparation. Often the background of previous experience does not chime particularly well with the predominantly rural setting in Kigoma. In general, regional headquarters staff, having greater experience and seniority, are called upon to take a more directly executive and operational role than the job descriptions of para 4 might suggest. The differences are sharpest at district level, between old style civil service administration and the promotional and management orientation called for under the new system, and many district officers will at first need considerable help in coping with their more demanding new jobs.

8. Finally, the launching of Operation Kigoma, following hard after the initial decentralization and reorganization of government in the region, resulted in a very considerable additional strain on regional and district staff. In these special circumstances, it is no criticism of the administration that proper financial control and budgeting are hardly yet firmly established nor that planning, either at district or regional level, is still in its infancy. Difficulties are also occasioned by comparative remoteness from Dar es Salaam including tardy and uncertain delivery of vital spare parts and materials (especially for water supply systems, and water transport). These problems have resulted in significant delays in completing programs in respect of water supply, and school building and ujamaa development in general.

Regional Finances

9. At present, the proportion of government resource for development that is channeled through the regions is still relatively small. For 1973/74, the regions are expected to account for expenditures totalling T Sh 170 million or 13% of the capital resources available to government (excluding expenditures relating to the TanZam railway). Already, however, this is double the amount allocated in 1972/73, the first full year after decentralization, and the share is likely to grow as project preparation and management capabilities are further developed in the region. 1/

10. For Kigoma region, development expenditures totalling some T Sh 7 million were authorized for 1972/73, including a substantial increase from the original (pre-decentralization) budget estimate of T Sh 4.3 million. Of the total, T Sh 1.5 million remained unspent at the end of the period, due partly to the difficulties with supplies and transport mentioned under para 8 above. In addition, the sharp acceleration in regional construction activity levels, called under Operation Kigoma and associated programs, was difficult to accomplish in the few months available after start up.

1/ In respect of recurrent expenditures, the regional share is about one-fifth of government expenditures, and totalled about T Sh 460 million in 1972/73.

11. For the current fiscal year 1973/74, authorizations may exceed T Sh 15 million, an increase of more than 100% over expenditures in the previous year. Part of the increase, about one quarter of the total, is to take account of unfinished work from 1972/73 and the effect of rising costs. Major budget headings are as shown in Table 1.

Table 1: PROPOSED DEVELOPMENT EXPENDITURES 1973/74: KIGOMA REGION

	T Sh Million	Notes
Operation Kigoma expenses	3.0	Allocated by PMO quarterly
Regional Development Fund	0.9	Allocated 6 monthly, for small projects
Rural Water Supplies	4.3	Includes a request for 2.0 million to complete the 1972/73 program
Primary School Facilities	2.1	Includes a request for 0.9 million for cost increases
Agriculture and Forestry	0.8	
Rural Health Facilities	0.5	Includes 0.1 million supplementary request
Others, including Urban Programs	3.8	
TOTAL	15.4	

Sources: Regional authorities and published estimates.

12. For the recurrent budget, the approved estimates for 1973/74 total T Sh 26.6 million up from 20.7 million in 1972/73. Of the total, primary education, with a budget of T Sh 5.6 million, is the largest item, followed by regional administration 4.6 million, extension and other agricultural services 2.6 million and road maintenance 1.9 million. A noteworthy feature is the substantial increase in allocations for maintenance, repair and renewal of equipment and structures; including the road program, increasing from T Sh 2.3 million to T Sh 4.2 million.

13. Up to the present time, no powers have been granted to regional authorities in respect of taxation, nor local discretion or deviation in the application of national policies regarding regulatory practices, licensing, marketing of produce or pricing. All funds continue to be channeled to the Treasury in Dar es Salaam (some very minor sources for local revenue have in

fact been abolished). There is thus a somewhat lopsided ability to generate programs of expenditure on the part of regional government without the stimulus to economy in resource use likely to result from more reliance on local financing. For the longer term, as regional programs of expenditure, recurrent and capital, become more important, a degree of fiscal self-reliance at regional level should be considered. As discussed elsehwere (Annex 16), the introduction of user charges at village level for services could be one of the more promising avenues leading in this direction.

The Budgetary Process

14. The philosophy behind the decentralization scheme has been that more effective rural development would be promoted if decisions taken at local level were to reflect more closely the views of local people. In turn, local views and support for government programs would be sought through the political process, working through local level development committees. Thus, much more than in the past, the local level political structure, form the ten family cell basic TANU Unit through Ward level, District and ultimately Regional Commissioner, interacts with the civil service in program identification, preparation and subsequent implementation.

15. The process relating to the preparation of the regional development budget can be said to begin in the districts with meetings at Ward level of Development Committees, made up from village leaders of the basic TANU ten-family cell units, plus civil servants at Ward level -- agricultural technicians and rural development assistants, and chaired by the Ward Executive Officer. This group operates mainly at the very early stages of program identification, for example, in regard to possible sites for new ujamaa villages (see Annex 13). Their proposals, together with others from district and regional staff are considered by a District Development Planning Committee with the District Area Commissioner as Chairman and district functional managers together with a selection of Ward-level elected councilors as members. Subsequent draft plans are considered by a District Development Council and District Executive Committee of TANU before transmission to regional level bodies.

16. Based on the three district plans, a similar review process culminates in the transmission of a draft regional plan and accompanying budget through the Regional Executive Committee of TANU to the Prime Minister's office, in principle in March, i.e., four months prior to the commencement of the financial year in question. Subsequently, discussions with the Prime Minister's office take place, prior to finalizing the program. In practice, this procedure has not been fully established until this current year, due to the newness of the institutions and procedures.

17. Once approved, responsibility for carrying out the programs rests with the Regional Development Director, supported by the District Development Directors, in respect of the district programs. The district programs are not, however, separately identified in budget estimates, except for certain

items financed through foreign aid appropriations (e.g., rural health centers and rural water supply systems).

18. Accounts are the responsibility of the Regional Finance Officer, supported by district finance officers and the accounting sections of the functional managers. The system draws heavily on long-established procedures, centered around "votes" or "sub-votes" under which expenditures on specified objects to the defined limits are authorized. "Vote books" are kept in which expenditures falling under that particular authority to spend are recorded and spending agencies are issued with a "Warrant of Fund" as authorization instrument, detailing the votes or sub-votes and amounts made available thereunder. Funds may be issued for expenditures over periods of varying length within the accounting period; warrants are usually issued on a monthly basis from the office of the Regional Finance Officer. Transfers of funds within sub-votes may be authorized at regional level; transfers between sub-votes require treasury approval.

19. In principle, provided expenditures are conscientiously recorded under the relevant item and checked in sufficient detail, it would be possible to identify expenditures down to the level of particular activities in identified villages using these procedures. But to use the system for this purpose, as would be required under the project, (and as in principle is already required by government), a considerable strengthening of accountancy staff at district level would be necessary.

20. Not part of the accounting process, but related to it, are the Implementation Reports, prepared by the regional planning secretariat on a quarterly basis detailing progress through the year in meeting the objectives of the regional plan and expenditures authorised under the budget. The report for the final quarter of the year includes the Annual Implementation Report, which is close to a post mortem on the year's activities, including details of special difficulties and reasons for under or over-spending in relation to the original and supplementary estimates.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Education

National Education Policies

1. The national education goals of the government are to:

(a) Expand a revised scheme of a seven-year primary education (including academic and practical subjects) to 100% of the school-age population by 1989 (presently 37%; 40% in Standard I);

(b) Eradicate illiteracy through a massive campaign to be ended by 1975 and then provide facilities for a continuing adult education scheme, partly aided by part-time volunteer teachers;

(c) Establish in each ujamaa village a Community Education Center consisting of school premises, teacher's houses, workshops (domestic science, carpentry, masonry, smithery and a school farm), rural dispensary, day care center for children, and assembly hall.

2. Achieving these goals will be difficult and expensive to the national treasury. Education centers have been provided under several Bank-financed projects, the least expensive of which would have an investment cost of about T Sh230,000 (US$34,000) or about US$100 per pupil with recurrent costs of about T Sh 60,000 per year (US$25 per pupil). The goal of universal primary education would require annual capital outlays of T Sh 115 million (US$17 million) compared to the present annual development budget for primary education of about T Sh 15 million (about US$2 million). This fiscal burden may require reducing the rate of expansion of primary education or developing innovative and less expensive ways of disseminating basic education among the different age groups of the population. Additional thought may well be warranted as to whether the traditional formalized primary education is the best and most cost-effective way to help rural groups with the problems they are likely to face.

Education in Kigoma Region

3. Primary Education. About 32% of school age population (35,260 pupils about 35% of whom were females) attended primary schools in 1972, an increase in absolute numbers of about 50% in 5 years. The 861 primary teachers provided a teacher-pupil ratio of 1:45 which is approximately in line

with the national average. Most teachers are from regions other than Kigoma and have some knowledge of farming but little teacher training in craft skills. Primary teacher's salaries start at T Sh 320 per month, somewhat above the minimum wage and some 5 to 10 times the income of families whose children they are teaching.

4. Existing primary education facilities in the region are generally below standard with teacher's houses and classrooms often in a poor state of repair with variances depending to some extent on the interest of the head teacher. In order to obtain better housing teachers try to be transferred to other regions as the school construction program has fallen behind because of shortage of resources. The self-help contribution has been less than hoped for: furniture is scarce; there are desks for less than half the students and in some classrooms there are no desks; textbooks are insufficient and out of date with only a few having been received in the region during the last three years. There are no school libraries. In a few schools a room for practical training has been provided but without equipment or tools. Each school has a garden in which students work a few hours each day, using tools brought from home (when possible). School farms could be made more effective by adding equipment and teaching basic agricultural skills.

5. Adult Education. An extensive network of adult classes "under the trees" has been established in all villages. The main subjects taught are reading, writing, and political education, along with health and agriculture in some instances. The materials used are those prepared and printed in quantity for the UNESCO/UNDP experimental programs. Although registration is high, attendance in these classes that assemble three times a week is irregular and in cases where a literacy test has been given (after 15-month courses) the percentage of success seems to be about 10%.

6. The teaching staff is composed of certified school teachers and a number of volunteer teachers (who are paid T Sh 30 per month when funds are available from reserves) who have completed the Standard VII of primary schools. The volunteer teachers receive special training in seminars organized at the district rural training centers and/or through special courses organized in local schools.

7. Administration, Planning and Finance. Following decentralization, the administration of Primary Education and Adult Education is carried out at the regional and district levels by an education officer, an inspector, an adult education officer, and a supplies and statistics officer.

8. Estimates of capital and recurrent expenditures are prepared annually by the district and regional education officers and are included in the total regional budget request. The total regional allocation for FY72/73 for education was T Sh 8 million (recurrent and capital) of which about T Sh 3,700,000 was for teachers' salaries.

9. Requests and allocations are established on an annual basis without benefit of long-term planning and with no provision for future allocations.

10. Priorities. In coping with rapidly increasing primary student enrollments the regional budget requests in recent years have emphasized the building of additional classrooms and teachers' houses. By maintaining this priority, an academically poor network of conventional schools delivering a type of formal education not well suited to the needs of much of the rural population could result. Accordingly, regional authorities consider that future priorities will be oriented more to the practical needs of the rural population. The following priorities have been established:

(a) Initiating short special courses at the rural training centers to train some teachers in practical work such as carpentry, farming, masonry, and smithery. Local skilled artisans could be utilized for some of the training.

(b) Tools and workshops for practical training to be provided for schools having five or more classes (i.e., from Standard V). Workshops and tools could also be used in adult education.

(c) Desks, textbooks and copy books. Most existing schools require a complete issue.

(d) Teachers' houses.

(e) Additional classrooms and furniture.

11. The project would provide funds for tools, textbooks, desks, shops, additions to rural training centers, teachers' houses and classrooms in accordance with the above priorities. Cost estimates together with calculations of numbers of each of the above items required under the project are provided in Annex 11, Table 3.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

RURAL WATER SUPPLY

A. General

History

1. In 1970 the Ministry of Water Development and Power (known as Maji 1/) was established in Tanzania to consolidate with in one ministry the functions of rural water supply development and irrigation, in addition to providing urban water supply and power. The Ministry's main activity is water development: the power sector is limited to planning and control with implementation being the responsibility of the Tanzanian Electrical Supply Company TANESCO).

2. In 1972 the administrative and implementation responsiblities of the ministries in Tanzania were regionally decentralized and direct control of the rural and urban water supply programs passed to the appropriate regions. In the water sector today the principal tasks of the Ministry are:

(a) Providing overall direction through planning and control, setting guidelines and standards;

(b) Initiating, planning and executing national water projects, including those in major urban areas such as Dar es Salaam;

(c) Advising and assisting the regions in all technical matters;

(d) Procurement; and,

(e) Manpower development.

3. The regional administration, under the Regional Development Director (RDD) has full responsibility for the design, construction, operation and maintenance of all rural water supply projects. In the Kigoma region, the regional administration is also responsible for the operation and maintenance of the urban systems. The Regional Water Engineer, in his capacity as functional manager of water development, has direct control over the design, construction and operation of all water supply schemes. He deals with Maji

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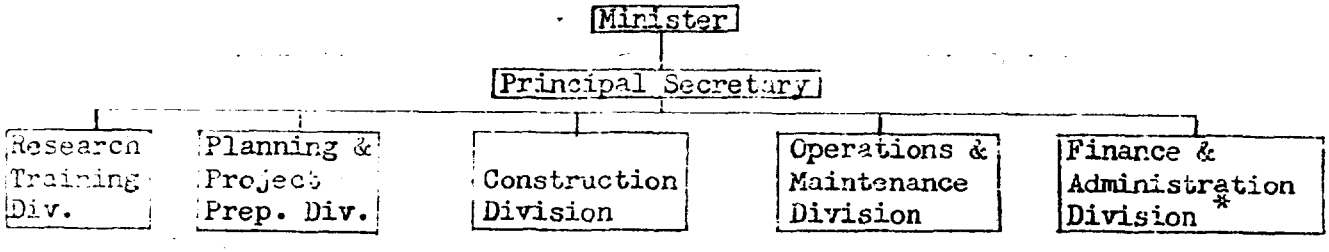
1/ In this annex Maji/K will be used for the Kigoma Regional Water Office.

headquarters through the office of the RDD except when he consults directly on technical matters.

4. Tanzania has embarked on an ambitious program of no more than twenty years to provide adequate and clean water for domestic use to all its people. Increasing emphasis is being placed on rural water supply systems. Of the 1973/74 budget allocated for urban and rural water supply construction, 43% was budgeted for rural water supplies. The promise of clean water is one of the key inducements for encouraging people to move into ujamaa villages to exploit the resources of the country collectively.

Organization

5. Since 1965 the organization of Maji has been reviewed by four different groups of consultants. Each study has resulted in reforms, keeping the Ministry in an almost constant state of change. The basic organization of Maji currently is as follows:



* Including Procurement.

6. In 1973, Maji including regional and district offices had about 7,000 permanent employees, the majority working on construction and maintenance. Of these, more than 220 were expatriates from 22 countries, who held senior positions at headquarters or in the regions as executive engineers, designing engineers, mechanical inspectors, and technical assistants (in planning, project preparation, construction, operation, and maintenance). Some of the expatriates were provided through bilateral technical assistance programs: the remainder are paid on a contract basis. Many of the expatriates have no counterparts working with them, so little advantage is taken of the possibility of providing Tanzanian technicians with in-service training.

7. Regionally, except for a research and training division, the Office of the Regional Water Engineer has the same basic organization as Maji headquarters. Under the new system of decentralization, the regional Maji office is dependent on the Regional Commissioner's Office (i.e., the central coordinating body in the region), with planning, finance and personnel being controlled by the Regional Development Director.

Funding

8. Capital for the water supply program comes from both national and external sources insofar as there has been external bilateral assistance by way of loans, grants and technical assistance (through provision of both advisers and regular staff). The exact distribution of development funds between the Ministry and the regions differs from year to year. Large scale projects are under the control of the Ministry, whereas, virtually all construction related to rural water supplies is carried out by the regions. This is illustrated by the distribution of the water development budget for 1973/1974 below. 1/

Water Development Budget - 1973/1974

Distribution of Funds	Ministry		Regions		Total	
	T Sh million	%	T Sh million	%	T Sh million	%
Rural supplies	3.1	5	5.9	95	63.0	100
Urban supplies	78.9	95	4.2	5	83.1	100
Proj. Prep.	20.4	86	3.3	14	23.7	100
Training	2.0	100	0	0	2.0	100
Total	104.4	61	67.4	39	171.8	100

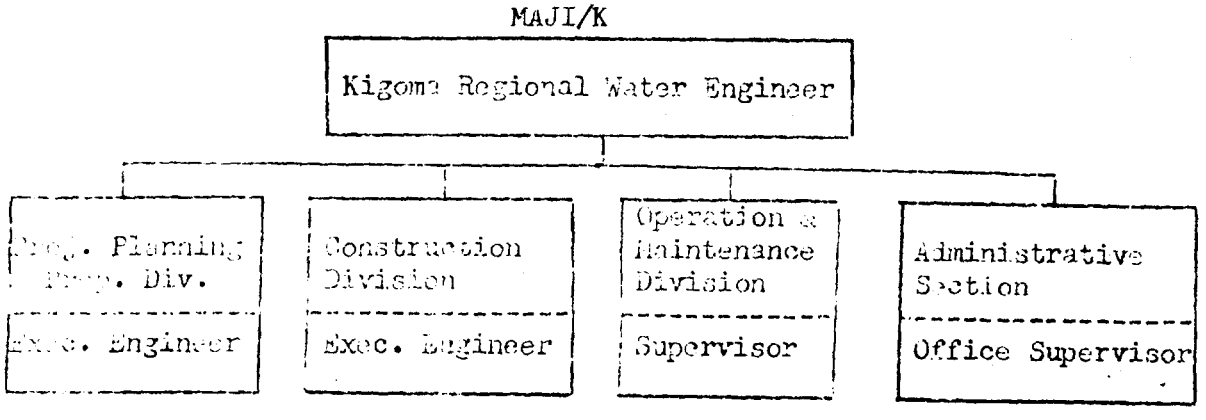
9. Revenue from all water supply systems collected from households with water connections goes to the national treasury. Funds for operation and maintenance of all systems, both urban and rural must come from the national treasury through an annual budget for recurrent expenditures. For 1973/74 recurrent expenditures were budgeted at T Sh 77 million, 54% by the regions and 46% by the Ministry. As the projects in operation in rural areas increases the recurrent expenditures (including 60% for personnel costs) will rise.

1/ Estimates of Public Development Expenditures 1973/74.

B. Kigoma Region

Organization and Staff

10. The Maji organization structure for the Kigoma region is similar to that of the Ministry in Dar es Salaam. Shown below is the structure including numbers of technical and non-technical staff for each division.



[illegible]	[illegible]	54	86	0
Non-technical	0	40	46	29

The regional staff totals 263, including personnel working on both urban (Kigoma, Kasulu and Kibondo) and rural systems and stationed at the regional depot in Kigoma and in the district offices in Kasulu and Kibondo. A considerably smaller depot is under construction in Kibondo while office and storage space for the Kasulu District is provided in the space used for the Kasulu town water supply system.

11. Except for pump operators, construction crews with foremen and works inspectors, the above staff all work in the Kigoma Regional Depot. When the Kibondo District Depot is completed, the operation and maintenance staff for that district, including supporting staff, equipment, and vehicles will be moved to the new depot, thus permitting closer supervision and maintenance for the Kibondo region.

12. Although the Regional Water Engineer is a Tanzanian, most of the technicians and supervisors are expatriates. Because only one of the expatriates is working with a Tanzanian counterpart, little advantage is being taken of in-service training possibilities.

Responsibilities of the Regional Office

13. The Maji/K office has overall responsibility for all phases of rural and urban water supplies. For urban supplies, this responsibility includes billing and collection for house-connected water services. operation and maintenance, and extensions of improvements to the systems serving Kigoma-Ujiji, Kasulu and Kibondo, where the approximate populations are 29,000 5,000 and 5,000 respectively.

14. For the rural systems, the responsibility includes field surveys and studies for proposed villages, preparing designs (which are later reviewed and approved by the Maji office in Dar es Salaam); ordering materials and supplies through Maji in Dar es Salaam; constructing new systems and extensions, and operations and maintenance of all systems in the Region.

Physical Plant and Equipment

15. The regional offices, stroehouse and workshops, are housed in a modern depot in Kigoma. The offices are adequate for the current staff, but practically no provision has been made for required additional personnel if there is a major expansion of the present program. Space is available within the compound for additional offices and working areas, although protected storage space for plastic pipe is needed.

Activities

16. Surveys and Investigations. To date village sites have been selected without paying adequate attention to the probable source of water supply. This has resulted in the construction of systems requiring two to three km of pipe from the intake to the village and in one system, an additional two km of pipe to reach the storage tank location. It has also resulted in systems pumping against a head of 100 m or more, requiring installation of expensive pumping equipment, longer and stronger pipes for the rising main and more costly operation and maintenance. Some of these problems could have been avoided had the Maji office participated in village site selection. (This involvement would be provided for under the project; Annex 13).

17. Once the site is selected and the decision made that a system will be installed, a survey is made by the design office of Maji/K, including a site plan with the necessary sections and details of the pipe, fittings and references to standard plans that have been prepared for intakes, pump houses and installations, storage tanks and public watering points. Lists of materials are compiled and a cost estimate is prepared. Requisitions are prepared for the pipe, fittings and other materials and forwarded to the Maji office in Dar es Salaam where the requisitions are filled from stock, from the local market, or ordered from outside when necessary. From three to nine months and sometimes a year is required to obtain all of the items required for one system.

18. Pumps and engines are not specified by the region but are selected at Dar es Salaam based on the characteristics indicated by the Maji/K office. To avoid the need for multiplicity of spare parts, the Maji office in Dar es Salaam is trying to standardize the pumps and engines to be utilized.

19. The engineers are handicapped by lack of data on stream flows and on the area's groundwater possibilities, although water is fairly plentiful in the Kigoma region from streams, a few rivers and some lakes. NORAD of the Norwegian government recently signed an agreement with Tanzania to conduct a meteorological survey of the Kigoma region including the gauging of flows in some of the larger rivers. A groundwater survey will not be done owing to the cost and the fact that the region's agriculture cannot utilize widespread groundwater irrigation at this time.

20. Design. The systems for Kigoma region are being designed based on experience and the guidance of a set of lecture notes, prepared at Ubungu training school. The lecture notes stress the design of pumped systems, paying almost no attention to seeking the lowest cost (capital and recurrent) system. Neither the merits of a hand-pumped shallow well nor the possibilities of developing protected wells are mentioned and little emphasis is placed on quality of water furnished at public watering points. Although designers specify gravel and sand packing around pipes to provide filtering action at the system's intake, lack of supervision during construction sometimes results in a direct connection from the source to the system.

21. A few gravity systems are being designed, however, the majority of systems designed to date are pumped systems using river water collected with perforated pipe laid in a bed of gravel and sand near the river. The water is pumped from a well lined with concrete rings to an elevated storage tank made of concrete blocks tied together with horizontal reinforcing bars placed in grooves cast in the concrete blocks. In most cases, the pumps utilized are centrifugal pumps that are driven by diesel engines.

22. Estimated Costs. Both capital and recurrent costs at a particular site vary widely according to the type of system installed. Where adequate groundwater supplies exist, digging a shallow well provides by far the

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

PUBLIC HEALTH COMPONENT

A. General

Tanzanian Priorities and Problems

1. Although their precise effect on economic growth is difficult to measure, short life expectancy and a high incidence of illness in Tanzania adversely affect the productivity of the labor force. In Tanzania, 41% of the population is affected by tuberculosis of the lung. Child mortality is high: one child in ten dies before reaching 5 years of age in rural areas, due to malnutrition, pneumonia or diarrhea. Infectious and parasitic diseases, including malaria, affect two thirds of the country's inhabitants.

2. In 1972, following a reorganization of the Ministry of Health, national priorities were switched toward preventive medicine and health services for rural areas. At the same time, the establishment of a Manpower Development and Training Division in the Ministry gave recognition to the cirtical importance of health education and training for medical staff in the short and medium term future.

3. The Government's strategy is to develop an economical rural based system organized around: (a) a Rural Health Center with 5 outlying dispensaries per 50,000 population, designed to cater for the entire health needs of the family except those which can be provided only in hospitals, and to organize preventive campaigns such as nutrition education, environmental sanitation, maternal and child health services and immunization. The centers consist of simple buildings for handling out-patients, maternal and child welfare clinics, maternity units, and holding beds. Rural dispensaries, designed to serve a population of approximately 10,000, cater for the more simple medical needs of the community. Each dispensary consists of an office, a store and a treatment room and is intended to be manned by a Rural Medical Aid, who would be a graduate of a three-year medical course; and (b) rural hospitals at regional and district levels, equipped to provide major curative services. These facilities are complemented by health services at the national level, provided in consultation hospitals in Dar es Salaam, Moshi and Mwanza and in three government hospitals specializing in tuberculosis, mental disease and obstetrics respectively.

4. Tanzania has surpassed its targets on a nationwide basis for dispensaries and for rural hospital beds (1 per 1,000 population), although these facilities are unevenly spread and below minimum targets in some districts. However, the number of Rural Health Centers increased during 1969-1972 to only 40% of the required number. Further development will be aimed at (a) achieving

the target for Rural Health Centers and (b) expanding rural facilities and dispensaries, as required for population growth and for equality of distribution. In 1972/73, 11 Rural Health Centers were built, bringing the total to 100. For 1973/74, the target is an additional 29 centers plus 100 more rural dispensaries (of which there are currently over 1500 in operation).

5. Tanzania can meet all its targets for rural health facilities within the next ten years, without having to increase the recent average rate of annual investment in this area. External aid will probably provide a substantial portion of investment requirements (up to 50%), as in the past. To finance the additional recurrent costs of operating the system, the Government has recently decided to increase its recurrent health budget by at least 10% p. a. (compared with 5.7% p. a., 1970/71-1972/73). This would raise the share of health in the total Government recurrent budget from 8% in 1972/73 to approximately 9.5% by 1980.

6. The strategy calls for medical auxiliaries to operate the country's health care facilities at all levels, under the overall supervision of physicians. Key auxiliary personnel are Medical Assistants (MAs) and Rural Medical Aides (RMAs) who are to operate, respectively, the rural health centers and the dispensaries. Together with Assistant Medical Officers, 1/ MAs also staff the hospitals substituting to a large extent for physicians.

7. The supply of auxiliary personnel has not been adequate for the proper staffing of Tanzania's health care facilities, despite a considerable expansion in recent years. In 1972 there were only 578 trained Rural Medical Aids and 335 Medical Assistants for the whole country. But the annual output of RMAs and MAs increased from 60 in 1965 to 150 in 1971 with the establishment of three new schools and it is intended that the combined yearly output would increase to a level of 480 per annum by 1978. Current shortages of Medical Officers are even more critical and in consequence the health care given by the auxiliaries in the rural areas has suffered from a lack of professional guidance. Of about 495 doctors now working in the country, less than 200 are citizens. Fifteen medical graduates from the Faculty of Medicine in Dar es Salaam qualified in 1972. With the goal of 700 citizen doctors by 1980, it has been decided to have an annual intake of 48 Tanzanians at the Faculty of Medicine in Dar es Salaam and 16 at other colleges within and outside of East Africa.

Funding

8. The development budget for 1973/74 was approved in an amount of T Sh 58 million (US$8.5 million), of which T Sh 23 million, or 40% of the total is allocated for regional expenditures (mainly for health centers and dispensaries). Total recurrent expenses increased from T Sh 152 million in 1972/73 to an estimated T Sh 206 million for 1973/74. (This is equivalent to a little over US$2.00 per person). Regional health services account for T Sh 119 million, or 58% of this.

1/ An assistant Medical Officer is an upgraded Medical Assistant.

B. Kigoma Region

Existing Facilities

9. On a population/hospital bed basis, Kigoma is well above the national standard of 1,000 per bed with an average of 730 per bed in the region as a whole. There are now four rural health centers operating in the region, with one addition scheduled for construction in the current fiscal year. In relation to rural population, there will still be over 100,000 people per health center, at the beginning of the disbursement period under the proposed project, more than twice as many as the targetting 1 to 50,000 national standard. 1/

10. There are 61 dispensaries currently operating at village level, (mostly in ujamaa villages), with an additonal 12 under construction from the 1972/73 program. Including the 12 under construction, rural population per dispensary will be 7,200 by mid 1974, ranging from 8,100 in the Kasulu district to 5,800 in Kigoma (rural) district. These ratios are well within the original national target of one dispensary per 10,000 of rural population, and within the 1974 national average one one per 8,800 of rural population. However, it has become clear that one dispensary per five villages or 10,000 people is not, in practice, enough to provide coverage for more scattered and remote elements of the rural population. Currently, additional facilities are allocated on a weighting system taking into account the ratios of population to dispensary at District level, the porportion or rural population residing in ujamaa village and share of population more than 10 km from any medical facility. For 1973/74, however, this weighting scheme did not give any additional dispensaries to Kigoma Region (100 new dispensaries were allocated).

11. This is currently a critical problem in the region, particularly with the considerable expansion over the past two years in physical facilities. Because of the shortage of doctors, the rural medical centers are operated largely by Medical Assistants and Rural Medical Aides, supported by a scattering of trained nurses, midwives and health auxiliaries.

12. The daily load on the health center staff is demonstrated by the number of outpatients attended by each staff member (excluding midwives) at three typical centers (assuming that each one handles the same number of outpatients during a six-day week):

Bitale	-	80 per staff member per day
Mabama	-	61 per staff member per day
Kakonko	-	60 per staff member per day

In addition, the in-patients must be attended and, theoretically, dispensaries supervised; however, lack of transport, even if staff were available, makes this practically impossible.

1/ However, there are two important Voluntary Agency health facilities in Kasulu district which perform some functions of a rural health center.

13. Staffing of the dispensaries is even more precarious. In the 14 dispensaries operating in Kigoma District during 1972, there were a total of six rural medical aids, ten auxiliaries and nine midwives. The 25 medical personnel attended a total of 376,655 people in 1972, an average of almost 50 per staff member per day. In Kasulu district it was reported that there were only 2 Rural Medical Aides in the 18 dispensaries operating in 1972, and in Kibondo, three for eighteen dispensaries, the other being operated by mid-wives and health auxiliaries. The intent is for each dispensary to have at least an RMA, a midwife and a health auxiliary.

14. There are one-year hospital training courses for nursing assistants, village mid-wives and six month courses for health auxiliaries. (Essentially a course for imparting first aid service information.)

15. To increase the supply of Rural Medical Aids, a training school was started in Kigoma in April 1973, with an expected annual output of 30 graduates per annum from 1976 onwards.

16. Ad hoc seminars and refresher courses are conducted in the rural training centers into subjects such as the treatment and prevention of malaria, gastro-enteritis, dysentery, leprosy and TB.

Administration/Supplies

17. The chief medical officers in the hospitals and health centers in Kigoma region are also the head administrators, resulting in a loss of valuable medical services and less than adequate administrative services. The regional hospital is supposed to supervise the district hospitals which in turn supervise the rural health centers and dispensaries and there is a need for trained administrative personnel at each level. Courses for training medical personnel in elements of administrative practice are needed.

18. Lack of transport also makes supervision and maintenance of the necessary links between the various levels of health service extremely difficult. The referral system is almost impossible to operate under current conditions. Furnishings and drug supplies in the medical centers and dispensaries are also scanty.

Preventive Services, Environmental Sanitation and Health Education

19. While the importance of preventive services is now widely recognized, health workers are still heavily engaged in curative medicine. The budget for preventive services has increased about two and a half times for 1973/74 from the 1972/73 level, but the total is still well under 10% of expenditures on curative services (and only 6% if rural health centers and clinics are added to the curative side).

20. Some health education principles are taught during adult education courses in ujamaa villages. However, these efforts need to be increased in order to teach people the advantages and proper use of good health practices.

21. Internal parasites (e.g., hookworm), are an important health problem in the region. The problem can be attacked effectively and cheaply by installing a concrete slab in each household pit privy. A hand-dug pit of a meter or more in depth, capped with a suitable slab with squat-type hole, is effective in combating the parasite cycle. Public education through the schools and adult education classes is necessary to teach villagers of the need for and use of the new method. Teaching must begin with teaching the village teachers and health attendants. Making slabs available, instructing teachers and village leaders in their use, and persuading villagers to install and use them will take time. However, without such an involvement there is a danger that health benefits as might otherwise flow from the provision of controlled-access water supplies will not be realized.

22. In regard to water itself however, surveillance of water quality being distributed in towns and villages is inadequate. Samples are taken from the source when a new system is to be installed and are sent to Dar es Salaam for chemical analysis, but little bacteriological analysis is being carried out. No routine tests are carried out. The Ministry of Water Development and Power is considering establishing a water quality laboratory in each regional water office. It is suggested that in Kigoma this might be installed at the hospital in combination with the laboratory there, thus strengthening that laboratory and not installing a separate facility with separate equipment and personnel.

Financing of Health Care

23. Following substantial capital outlays in 1972/73, the current program is modest, the major item being an additional rural health center, to cost T Sh 400,000. The effects of the 1972/73 capital program do, however, show up as a 51% increase in the recurrent budget, which increased from T Sh 3.3 million to T Sh 4.9 million. Details are shown in Table 1:

Table 1: Recurrent Expenditures on health care
Kigoma Region

	1972/73	1973/74
	------ T Sh million ---	
Medical Staff Salaries	**1.38**	**2.09**
Other Staff Salaries	**0.45**	**0.71**
Drugs and Hospital Supplies	0.77	0.86
Other Expenditures	0.66	1.28

24. Recalling that the region is still well below authorized staffing levels in respect of medical positions, the costs of medical care are already onerous. The recurrent costs, under present scales for dispensaries and rural health centers, should be about T Sh 14,000 and T Sh 130,000 per annum.

Project elements for health care:

25. In general, Kigoma region is not below average for the nation in respect of the rural health facilities and it is anticipated that the major effort for the next few years should be towards improving the quality of service, through more adequate staffing and furnishings for the existing facilities. However, the population movements with the settlement of new villages would justify additional dispensary facilities particularly as some settlements on the miombo woodland frontier would be relatively remote from existing services. Accordingly, provision has been included for construction of 10 new village dispensaries, to be sited in ujamaa villages accepted under the project.

26. Kigoma region is still well below national targets in respect of rural health centers. It is anticipated that the number of additional staff to man these centers will gradually improve over the project period, so justifying some additonal construction. On current expectations, some 30 new centers will be built each year over the next several years in the nation and by the close of disbursements under the project it is anticipated that the ratio of rural population to health centers will have falled to 60,000 to 1. On the basis of maintaining a regional pace of development in line with development in the nation as a whole, it is proposed to finance an additional three rural health centers under the project, to serve the needs of the project villages. To allow time for training and adequate staffing of existing facilities, expenditures under this component are phased to take place mainly in the last two years of the project.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Fisheries - Kigoma Region

Introduction

1. Tanzania is one of the largest producers of fish in Africa. Total fish production, although varying considerably from year to year, has greatly increased during the past decade. In 1970 the total fish catch was 188,600 tons live weight, of which 25,400 tons equivalent were exported, although in 1972 production declined to 157,000 tons. Production over the last decade has increased over three times, although some of this may be due to better reporting. Some 80-90% of the catch is taken in inland waters. Fish accounts nationally for perhaps a third of total animal protein intake, and consumption in 1970 was 13.1 kg per capita.

2. The fisheries industry is mostly carried out by artisanal fishermen operating with relatively primitive vessels and gear on a small scale and individual basis. The marine fisheries, carried out primarily around the islands of Zanzibar, Pemba and Mafia and in the inshore areas of mainland Tanzania, employs some 5,350 fishermen and 2,000 vessels using a wide range of gear to fish shrimp, lobster, snapper, shark and many marine invertebrates. On Lake Victoria, over 12,000 fishermen employing almost 3,800 canoes are active in pursuing inshore fisheries for tilapia and catfish with beach seines and gill nets. On Lake Tanganyika, some 10,500 fishermen engage in fisheries of dagaa, small sardine-like species, and of its predators, primarily Nile perch. Some 7,000 canoes with light attraction techniques and "lusenga" nets, as well as beach seine and gill nets, are used.

Fisheries Production in Kigoma Region

3. The fisheries of Kigoma region are carried out primarily on Lake Tanganyika. The lake has surface of 32,900 km^2, of which 13,500 km^2 or 41% belong to Tanzania, and an average depth of 700 m and maximum depth of 1,435 m. The total lake catch within Kigoma region has been growing in recent years and has been in the order of 45,000 to 50,000 tons in the last several years. Increases were due primarily to the growth of the fishing community together with introduction of synthetic fibers in fishing gear and other improvements. Maximum sustainable yield from the Kigoma waters of Lake Tanganyika is only now being studied but is estimated at double current production levels. The principal pelagic resources of the lake include four species of prey (all dagaa) and four of predator. The relative importance of dagaa varied from 43% of total catch in 1967 to 88% in 1970, 94% in 1971, and 68% in 1972. The fish resources of the lake and their environment are described in Appendix A.

4. The total number of fishermen along the Kigoma lakeshore, mostly located in some 35 villages, has increased from approximately 5,100 in 1970 to 10,500 in 1972, according to annual reports of the Fisheries Division. These fishermen operate about 7,000 dugout or planked canoes. About two-thirds of the fishermen catch dagaa mostly with a scoop net known as "lusenga", canoes and kerosene pressure lamps, but also, in recent years, with beach seine nets. The remaining one-third fish the predator species, principally with gill nets, but also with such other methods as line and hook and beach seine. As both dagaa and its predators are attracted by light, most fishing is carried out during the 22-23 relatively moonless nights, although bad weather reduces to about 18 the average nights of active fishing per month.

5. Natural conditions vary considerably along the lakeshore. While some villages are relatively well protected against the prevailing winds, most are exposed to the frequent rough weather and large waves. While parts of the lake's edge are smooth and gently sloping, others are steep and full of obstacles. For all villages, the natural setting determines the fishing methods and equipment to be used (e.g., scoop net, gill net, beach seine net, line and hook). Villages also vary according to their accessibility to roads, services, market outlets and extent of farming activity. In introducing new techniques the unique features of each village must be taken into account; this has not always been done in the past.

6. The traditional fishing methods, as well as natural conditions, vary considerably:

(a) The most common method --"lusenga" net, kerosene lamp and canoe-- involves the relatively small investment of about T Sh 1,000 and the participation of two fishermen. The average catch is approximately 5-7 tons per man per year. Notwithstanding the modest investment required, the equipment is often owned by middlemen who, according to some reports, exact as much as four-fifths of the catch. Although evidence is often conflicting and unclear, it would appear that a reform of the ownership and sharing patterns might induce a favorable impact on fishermen's welfare. Ujamaa fishing villages, for example, divide their profits by thirds and allocate evenly for miscellaneous village expenses, a special bank account, and the individual fishermen;

(b) Beach seine units consist of 3 boats, 3 kerosene lamps and 1 net costing approximately T Sh 8,600, and require about 20 men to haul in the net. Mechanized boats can be introduced, as they have been in the two ujamaa villages, to set the net, but problems of repair and maintenance must first be overcome. Beach seine units can be used for both night and daytime fishing, and smooth and shallow beaches, without obstructions, are most suitable; and

(c) Gill nets are designed for big fish and are used mostly in the river, swamps and delta area of the Malagarasi. Gill nets, which have been given by Government to six villages, are used almost exclusively by some villages while used in combination with dagaa fishing techniques in other villages.

7. Since 1969, 17 beach seine nets, 158 lamps, 3 mechanized boats, 32 canoes and 158 gill nets have been given to ujamaa villages by Government. Little if any information is available on the results obtained from this equipment. Moreover, it is unclear whether the recipient villages have been able to generate sufficient surplus to replace the equipment when it wears out.

8. In addition to traditional fishing practices, a small number of Mediterranean-type purse seine units have been introduced to Kigoma waters in recent years. They are similar to those now used extensively elsewhere on Lake Tanganyika (Burundi has 16, Zambia 4, and Zaire 24 units). Each unit consists of one purse seine net 300 m long and 110 m deep, one mechanized boat 15-18 m long and powered by a 100-140 hp engine, one netboat and 5 lightboats. Two units are owned and one rented by Kigoma Uvuvi Ltd. (KUL), a company established in August 1972 and owned jointly by the Kigoma Development Corporation, the Dar es Salaam Development Corporation and a private individual, and one unit is owned and operated by a Greek fisherman. The units belonging to KUL were purchased secondhand to T Sh 365,000 and T Sh 370,000 and the nets, also secondhand, were purchased for an additional T Sh 70,000 each. Each unit is manned by a crew of 30 and a skipper. Total annual operating costs are roughly estimated at T Sh 330,400 and annual yields at 500 tons per unit. Profits of these units rely heavily on catches of larger fish for the local market rather than on dagaa; because of the small size of the local market landed prices (and profits) drop sharply when large catches are delivered. Appendix B presents a comparison of the costs, yields and manpower requirements of the purse seine and more traditional techniques.

9. Some fisheries within Kigoma region are being or could be undertaken outside Lake Tanganyika. Fishing takes place in the marshes and lagoons of the Nguruka area, where six fishing villages are located, and in some of the rivers, primarily the Malagarasi River. It is estimated that some 2,000-3,000 fishermen may be engaged, mostly on a part-time and subsistence basis, in the annual production of approximately 3,000 tons. In addition, some subsistence fish farming has been practiced and although techniques are still in an embryonic stage and many problems (e.g., water supply and retention, selection of soil and species, fertilizing and feeding methods) must still be resolved, long-term prospects may be promising; more study and development work is required.

Fisheries Processing and Marketing

10. Virtually all dagaa is sun-dried. Traditional drying methods, however, are generally unsatisfactory. The fish is often stored in baskets for several hours before drying, thus adversely affecting the final quality; the

fish is placed directly on the sand for drying to which it adheres and which is difficult to remove; the climate of the humid rainy season induces spoilage before drying and rain at any time during the 24 hours necessary to complete drying destroys the fish's quality. Kigoma Uvuvi Ltd. have introduced some improvements in the processing of dagaa by using metal screens for drying and a closed building for weighing and storage. Other improved techniques merit testing under local conditions. Big fish, on the other hand, are now generally smoked in the villages before distribution. Possibilities of freezing and refrigerated railroad transport to consuming centers are currently under review.

11. No statistics are available on the quantity of dried dagaa produced each year. Estimates range between 6,000 and 12,000 tons. 1/ Some 650 tons of production was recorded for export to Zaire, Burundi and Zambia in 1972, although these countries recorded much higher corresponding import statistics, indicating a sizable illegal traffic. About 1,200 tons of dried dagaa were transported by rail from Kigoma to Dar es Salaam and other destinations. Of the 6,560 tons of big fish harvested in 1972, it is assumed that most was smoked and distributed throughout Tanzania.

12. Very little information is available on the marketing and distribution of fish within the region. It is not know, for example, what the current and potential markets for big fish and dagaa are or which geographic areas and income groups make up these markets. Likewise, many of the middleman's operations are unclear, relating, for example, to his operating procedures, his average captial and profit margins, and his ownership pattern. It is known, however, that marketing and distribution are complex, involving, inter-alia, a diversity of regional customs and difficulties in transport. Fish are usually taken when caught to a landing station for sale to fish traders. Fish are sold by piece, baskets or piles. In villages infrequently visited by traders or far from consuming centers, fishermen themselves undertake the processing of fish, but generally the fish are processed by the traders. Sun-dried or smoked fish, because they are easier to handle, have a wide distribution, being carried by traders over long distances to consuming centers by head load, bicycle, bus, lorry, boat and train. Fresh fish marketed in Kigoma are kept under running water, without ice or cold storage. At the close of market, the unsold fish are smoked to prevent spoilage and to improve appearance for marketing the following day. Individual traders sell between 5 and 25 pieces of big fish (1-3 kg each) per day in the market place.

13. About 1,175 tons of dried dagaa have been transported elsewhere in Tanzania, according to reports of the Fisheries Division. Most presumably traveled by rail, for which the charges to Dar es Salaam are T Sh 29.10 per 100 kg (2 bags) and to Tabora T Sh 11.25.

1/ The ratio of wet to dry dagaa has been reported to be as little as 3:1 and as much as 6:1, while 4.5:1 is perhaps the best estimate for a properly dried product.

14. The price of fish is obtained by bargaining and differs widely with a variety of factors, including quality and quantity, supply and demand. For example, during the rainy season, when productivity of the lake is highest and conditions for drying unfavorable, the price of dagaa can be three times that of the dry season. Moreover, the price of fresh dagaa caught by the purse seine units and sold in Kigoma varies from T Sh 0.20 to 0.75 per kg depending primarily on the quantities landed. According to some sources, the producer price of dried dagaa ranges form T Sh 60 to T Sh 200 per 50 kg bag, or T Sh 1.20 to T Sh 4.00 per kg. Because fish prices are not at present controlled and because a portion of the fishermen's catch is often paid to the middleman for use of boat or equipment, the middleman may reap far greater profits than the fisherman. Moreover, the fisherman has no way to check whether he receives correct payment for his share of the quantity originally delivered. In Kigoma town in October 1973, the retail price of dried dagaa was the equivalent of about T Sh 2.75 per kg. Prices of dried dagaa have reportedly been generally rising over the last five years. In comparison, the producer price of big fish ranges from T Sh 2 to T Sh 3 per kg and up, and observes considerable variation among species.

15. The larger predator species such as Nile perch have a lucrative export market if properly caught, handled, frozen, packed, stored and exported. The local "opportunity cost" of such species is therefore high. Apart from a small market in Dar es Salaam it is doubtful that many persons in Tanzania could afford to pay the prices that these larger species would be worth (assuming required processing and export marketing procedures could eventually be developed). Therefore, such fish have little roles in improving the nutrition levels of Tanzania's predominantly rural population. That role must continue to be performed by the much cheaper and well known dried dagaa.

Government Programs and Capabilities

16. Rapid and extensive development of the fisheries sector is a goal of the Government of Tanzania. Likewise, it is committed to the improved economic and social welfare of the fishing community and to ujamaa village development as the appropriate vehicle of such improvement. The Government has recently accelerated efforts to achieve these two objectives. First, it plans the development, probably through Kigoma Uvuvi Ltd., of an industrial fisheries project in Kigoma town, including additional purse seine units, a fish receiving station, a boat building yard and refrigeration facilities. Provision in the 1973/74 budget has been made for a demonstration unit (T Sh 153,000), a fish receiving station (T Sh 500,000), and a boatyard (T Sh 600,000). Management of Kigoma Uvuvi Ltd. requires strengthening even for its present level of operations. Management experienced in operating fishing enterprises, in conditions similar to Kigoma's is necessary. An incentive scheme for paying crews on fishing vessels should also be considered. Initial development should be modest pending results of the UNDP/FAO project's market, processing and catching studies and activities. Secondly, it plans to increase incomes of the lakeside fishermen through the introduction of improved techniques and equipment to ujamaa fishing villages. A 1973/74 budgetary allocation for a mobile service unit (T Sh 300,000) has been made as a beginning to such a program.

17. The conception and coordination of plans and policies for development of the fisheries in the Tanzanian waters of Lake Tanganyika warrant strengthening. A development strategy directed at both the modern and industrial sectors embodies potential conflicts, particularly at points of production and marketing. Maximum production and fishermen's welfare are not necessarily consistent. In addition, planning seldom demonstrates the consumer orientation required. Moreover, the different components and parties involved in a common development strategy require coordinating.

18. A UNDP/FAO Lake Tanganyika Fisheries Research and Development Project was recently approved to provide the basis for the optimum development of the lake's resources. The project's work program, already started, should gain considerable impetus when a project manager, to be stationed in Kigoma, is appointed. The information and technical assistance to be provided by the project should contribute significantly to properly planned and coordinated development. The project sets out to assess the lake's fish stocks in order to identify maximum sustainable yields and corresponding investment opportunities; to assist in improving the lake's fishery statistics services; to improve fishing methods, the exploitation of untapped resources, and the fish marketing structure; and to introduce improved fish processing methods. Under the project will be hired a project manager, fishery biologist, stock assessment specialist, fishery statistician, master fisherman, fisheries technologist, fish processing technologist, fish production and marketing economist, sociologist, marine engineers and consultants on boat construction, civil engineering, investment, and other services. The close coordination and consolidation of the work of the UNDP/FAO project with the operations of the regional fisheries staff would be highly desirable for project success and staff development.

19. Because so little information on the subject is available, the marketing part of the Project is of special significance. It will hopefully provide new information, inter-alia, on: i) The impact on the existing fishermen of industrial fisheries development; ii) The present and future market for dried, fresh and frozen fish and the subsequent ice production and refrigeration requirements, possibly using existing transport and refrigeration facilities to experiment with the processing and marketing of fresh and frozen fish; iii) Protein deficiency in the hinterland villages of the region and the use of fish as a means to improve nutrition levels, including reference to such specific operational considerations as identifying target groups, income levels of target groups, profit margins, price variations, consumer preferences, and preservation characteristics; and iv) The existing and recommended ownership and marketing patterns of artisanal fishermen and middlemen.

20. The project hopefully will also examine the income generating capabilities of the lakeside ujamaa village, including whether the equipment already granted by Government has generated sufficient income for replacement when worn out and existing and alternative systems to allocate the benefits of communal production.

21. Important experimentation will be undertaken of possible new equipment and techniques, including: i) Small purse seine units, including appropriate siting, chiromila nets, pelagic longlining, and gill netting; ii) Innovation and extension in the traditional sector through experimentation with lift nets, trimarans, catamarans, benthic longlines, improved benthic gill netting and handling, and the application of oars, sail and outboard engine to traditional fishing methods. The experiments in the traditional sector could best be carried out at the village level under village conditions and in conjunction with local fishery officers. The techniques of one region might be tested in another, e.g., light fishing in the southern part of the lake where it is currently practiced less.

22. Because poor processing methods render the fisherman victim of both the weather and the middleman, improvements in processing, particularly the drying of dagaa, will be given particular attention.

23. The Regional Fisheries Division has a sizable staff which, following upgrading and reorientation and in conjunction with the UNDP/FAO project, should provide the impetus for fisheries development on Lake Tanganyika. The Regional Fisheries Division is staffed by 67 personnel, of which 6 are assistants, 45 field assistants, 10 assistant field officers, and 6 field officers. There are 6 staff in Kasulu and Kibondo Districts, and 30 in Kigoma town. In addition in 8 fisheries stations along the coast of Lake Tanganyika are perhaps 20 staff, whose principal responsibilities are the collection of statistical information.

24. The training of regional fisheries staff has been primarily institutional, and although representing a range of professional levels and disciplines, has involved little field work. Emphasis has been more on the theoretical than the practical, more on biology than engineering and economics, more on statistical compilation than on new equipment and techniques. A wider range of disciplines in the training of fisheries personnel, and more interchange of personnel among regions, may be useful. Consequently, one of the principal constraints to regional fisheries development is the lack of technical knowledge and experience relating to a variety of new fishing methods and equipment. If an independent and dynamic fisheries services is to be established, capable of the required innovation and extension work, then the training and activities of regional fisheries staff must be given a more practical on-the-job focus. Two 8-m boats under construction in Mwanza, for training in purse seine fishing, represent a first step. In addition, a sizable training component is included within the UNDP/FAO project which will hopefully become more important as the project develops further.

25. Following government decentralization in 1972, Regional Administration was made responsible for planning and implementation of projects in the regions and the Ministries in Dar es Salaam for technical support. In the case of fisheries, some confusion continues to exist over the respective roles of the region and center on project preparation and investment. The roles of a

number of national parastatal organizations now being formed to service the fisheries sector (the proposed Tanzania Fisheries Development Corporation and its subsidiary, the Tanzanian Boat-building Corporation, the Tanzanian Fish Processing Corporation, and the National Cold Chain Operation) also require clarification.

Project for World Bank Support

26. A pilot fisheries component was proposed by the preparation report on the Kigoma Integrated Rural Development Program, submitted by the Government in May 1973 and amended in October 1973 during the visit of the Appraisal Mission. It was proposed that the component include:

(a) The introduction of small purse seine units to 14 lakeshore villages to be promoted and assisted through the services of a qualified fisherman;

(b) The construction of a boatyard in Kigoma town, with expatriate management and training;

(c) The improvement of lake fish carrier services; and

(d) The provision of simple, improved fishing gear, in the form of beach seine nets, small powered vessels, light attraction units and drying racks to lakeshore ujamaa villages.

Total estimated cost of the project as revised and expanded would be approximately US$0.8 million.

27. A fisheries credit fund, to finance ujamaa fishing villages with simple new techniques and equipment, has been included under the project. Such a component would serve to accelerate ujamaa village development and improve the welfare of its inhabitants. However, the proposals for additional purse seine units, a boatbuilding yard, and improved carrier facilities were felt to be either inappropriate or premature at the time and warranted further study and/or elaboration. In general, insufficient information existed upon which to make investment decisions that would have a profound and as yet unpredictable impact on the fisheries and fishing community of Lake Tanganyika. Specifically, it was determined that:

(a) The small purse seine units, requiring safe berthage and various services, must operate out of a harbor, probably Kigoma, and not from the scattered villages. They would thus make no contribution to ujamaa village development. Instead, they would employ only a limited number (about 30 each boat) of fishermen, who would be required to live in and work from an urban setting (Kigoma town);

(b) Little is currently known of the effect on fish prices of any marked increase in industrial fishing. A drop in prices (especially of dagaa), which is quite possible, would

THE RESOURCES AND ENVIRONMENT OF LAKE TANGANYIKA

1. The major pelagic resources of interest in the fishery development of Lake Tanganyika include four species of predators and three of prey. The predators are Lates augustiphous (called Nile perch, gombe, capitain and sometimes sangala), L. marine (called sangala), L. microlepis (called nonzi), and Luciolates stappersi (called makeke). The prey are the sardines Limnothrissa and Stolothrissa (both called dagaa) and juvenile Luciolates (called dagaa also). The sardines are quite short-lived, maturing in 6-12 months, while the predators are much longer-lived. The Benthic resources in greatest demand include Sangala and Boulengerichromis (kune), as well as several of lesser importance.

2. Lake Tanganyika is a meromictic lake (never mixes top to bottom). Below about 170 meters the lake is toxic and devoid of life, due to hydrogen sulfide, other products of decomposition, and an absence of oxygen. The water is very clear and gives the appearance of low productivity, but high temperatures (23-28C) and an interchange of nutrient salts between the dense toxic layers and the surface waters maintains high productivity levels. The lake temperature stratifies and develops a thermocline at 60-80 meters in the wet season, but is mixed above the toxic layers in the windy dry season.

3. Wind significantly affects the lake's productivity. The most consistently strong winds occur from July to October. These North-South winds produce a tilting of the temperature layers and turbulence at lee and windward shores. This turbulence probably brings nutrients into the well-lighted surface waters and substantially increases production of phytoplankton and zooplankton. The pelagic sardines enjoy a rapid growth in biomass during this period peak about October-November and then declining to a low in April-May. Areas of sufficient turbulence to increase local production may include at least the Zambia and Burundi ends of the lake, and embayments near Kalemie in Zaire and Karema in Tanzania. Little is known about turbulence-induced productivity in the lake, but the Kalemie and Karema areas appear to be conductive to an upwelling because of a more gradually sloping of the bottom.

4. The pelagic stocks off Kigoma seem to be holding up well, and the area should be able to sustain greater exploitation. Increased exploitation, however, should be carried out extremely cautiously. Purse seines, lift nets, chiromila nets, longlines and drifting gill nets all offer potential for increased harvest. In addition, the benthic fishery may be developed with longline, gill net, and with trawl in a few locations. Monofilament gill nets also offer possible gains in the clear waters of the lake.

5. Little is known of the homogeneity or heterogeneity of pelagic stocks. They may consist of one, a few, or many populations. They may be highly mobile or remain in one area for long periods. Stock heterogeneity, as well as estimates of growth, mortality, and biomass is of critical importance in assessing

effects of the expanded fisheries on traditional harvests. In addition, virtually nothing is known about the density of pelagic stock that could be fished outside Burundi, Zambia, Kalemie, and the area very near Kigoma. Indications suggest that fishable stocks exist in several areas of Tanzanian waters, although traditional fisheries are all limited to five km of the lake shore. Large areas of the coast are not fished because of inhabitable terrain on the steep, rocky shores. Moreover, little dagaa fishing occurs at night south of Kipili for reasons not well known, except that daylight beach seining is very successful there.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Rough Comparative Data on Lake Tanganyika Fishing Techniques

	Purse Seine (18 m, 3 light boats)	Beach Seine	Lusenga
1. Man hours/day	6	8 1/	6
2. Manpower Requirements	31	24 1/	2
3. Capital Costs			
a. Plank Canoes (dugout canoes)		2,400 TSh (3,600 TSh)	800 TSh (1,200 TSh)
b. Purse Seine Boats	419,300 TSh		
c. Net	80,000 TSh	6,000 TSh	150 TSh
d. Lamps	700 TSh	330 TSh	220 TSh
4. Depreciation			
a. Plank Canoes (dugout canoes)		4 years (8 years)	4 years (8 years)
b. Purse Seine Boats	10 years		
c. Net	5 years	3 years	2 years
d. Lamps	2 years	2 years	2 years
5. Annual field	600 tons	25 tons	6 tons
6. Annual Revenue 2/	1,050,000 TSh	43,750 TSh	10,500 TSh
7. Minus:			
a. Operating Costs	330,000 TSh		
b. Depreciation	58,350 TSh	2,750	400
8. Net Income	661,650 TSh	40,230 TSh	9,815 TSh
9. Net Income/Man	21,000 TSh	1,700 TSh	5,100 TSh

1/ Figures assume occasional second shift, with 25% additional manpower.
2/ Figures assume 1.75 TSh per kg.

ANNEX 8
APPENDIX B

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Recommended Qualifications and Responsibilities of Staff Financed Under the Project

1. Operations Manager of Regional Cooperative Union (Union)

- Would be directly responsible to the General Manager of the regional cooperative union.

Qualifications

- Bachelor's degree or equivalent work experience and at least ten years' successful work experience in handling logistical matters, at least three of which in a senior position.

- Must be capable of designing and instituting documents and procedures for the control of collection, transport, storage and transfer of large numbers of lots of a variety of goods.

- Must have experience in maintaining and operating road transport equipment.

- Experience in handling agricultural commodities would be useful.

- Work experience in a developing country (preferably Africa) essential.

Personal Characteristics

- Person must be adaptable.

- If candidate does not speak Swahili, some facility with languages would be necessary.

- Must be able to cooperate with a variety of other agencies to get the job accomplished.

- Must be capable of coping with ambiguities of roles and relationships.

- Must have an ability to train subordinates and delegate authority while retaining efficiency.

Duties and Responsibilities:

- Setting up as necessary and initially managing the Union's systems and procedures for: transport, warehousing, vehicle operation and maintenance, shipping, vehicle hire and leasing, quality grades and standards and control, forecasting and scheduling. The Operations Manager would give great attention to staff training. During the last six months of his stay the Operations Manager would be expected to be an adviser only, leaving actual operating to the person selected as his replacement.

- Planning the Union's facilities and equipment requirements.

- Liaising with villages, transport firms, parastatals, TRDB and regional government in handling crop inputs and outputs, vehicle use and repair, and other matters.

- Hiring transport from other parties to handle the Union's peak season requirements and leasing out the Union's own transport during slack periods.

- Working closely with the financial controller in the credit program to village primary societies.

- Staff training and occasional general training at the rural training centers.

- Reporting at least monthly to the Union's management and to the Regional Development Director (RDD) on progress, problems and issues, together with recommendations.

- Initiating requests for procurement for the Union's supplies, spares and equipment.

2. Financial Controller and Deputy General Manager

- Would be directly responsible to the General Manager of the regional cooperative union.

Qualifications:

- Qualified accountant (e.g., chartered accountant).

- At least ten years' successful work experience partly in a developing country of which three years would have been as financial controller or equivalent involving accounting, budgeting, credit management and collection, cash and inventory management and financial reporting.

Personal Characteristics:

- Same as for Operations Manager except that knowledge of Swahili less important.

Duties and Responsibilities:

- Setting up and initially operating the Union's systems and procedures for: bookkeeping and accounting; budgeting; financial and cash forecasting; credit management and collections; cash and inventory management; financial reporting; and internal auditing. The Financial Controller would give great attention to staff training. During the last six months of his assignment the Financial Controller would be expected to be an advisor only, leaving actual operating to his deputy.

- Liaising with villages, parastatals, TRDB, other banks and regional government.

- Working with the "Training Supervisor" in setting up Village-level standardized accounts and control systems, supervising their implementation; and from time to time, participating in training village bookkeepers and others.

- Screening and recommending action on all requests for credit from primary societies.

- Procurement.

- Reporting at least monthly to the Union management, the RDD, and, as required, TRDB, on the Union's overall financial situation; together with relevant projections and identification of problems or issues and their recommended solution.

- Reporting at least quarterly to IDA as required.

3. Training Supervisor

General:

The project would involve supporting, through providing infrastructure and loans, a large number of villages (estimated at 135 during the five year disbursement period). To qualify for loans the villages would first have had to become registered as "multipurpose primary cooperative societies" (ANNEX 14). In addition, each village (primary cooperative society) is projected to become a sizeable enterprise involved in handling members' crop sales and purchases of inputs, storage of inventories, record-keeping, handling large amounts of cash and other assets. Adequate business management and bookkeeping arrangements are therefore required. To qualify for loans a village requires a fulltime hired bookkeeper, probably from a village in the region and trained

in the region. Therefore, a training supervisor, a principal task of whom would be training and supervising village-level bookkeepers, is essential. He would report directly to the Financial Controller.

Qualifications:

- Bachelor's degree in commerce or equivalent, or a recognized accounting qualification.

- Experience in developing and instituting simple accounting and control systems, selecting successful candidates and supervising initial working performance.

- Experience in small enterprise management and organization: goal setting, simple personnel practices, commercial practice (e. g., contracts), planning and record-keeping and credit management.

- Some experience with cooperatives and with agriculture useful.

- Adequate experience in developing countries essential.

- He should be an active man and be willing to spend considerable amount of his time visiting villages.

Personal Characteristics:

- Same as Operations Manager of Union.

Duties and Responsibilities:

- Preparing a standard, simple bookkeeping and control system to be followed by the Region's primary cooperative societies. In this, he would liaise closely with the Regional Development Director's (RDD) office and would examine similar systems prepared elsewhere in Tanzania.

- In close cooperation with the RDD's office, establishing and implementing programs of classroom and on-the-job training to develop village-level bookkeepers. Course candidates would have completed Standard VII. Training might consist of two to four weeks' classroom instruction on the workings of the village standard set of accounts, followed perhaps by four months' on-the-job training under close supervision. Initially, the training supervisor would have to provide considerable on-the-job supervision; as the project developed he would be assisted by the Union's Society Credit Officers (SCO's) and by previously trained village-level bookkeepers and secretaries.

- Assisting in initial training and continuing supervision of the work of SCOs.

- Providing general assistance on the Union's credit matters.

- Acting as deputy to the Financial Controller, as required.

4. Land Use Planning Officer

Qualifications: Formal training in agriculture, soil science or land resource use, land surverying and photogrammetry. Previous experience in land resource work and associated land and agricultural planning would be essential.

Duties and Responsibilities:

- Undertake a photo analysis of the project area and prepare land use resource maps and inventory of the area.

- Prepare land use resource maps of proposed village areas for incorporation in Village Site Feasibility Reports (VSFR).

- Advise on the location of roads and other infrastructure proposed for ujamaa villages in VSFR.

- Give general guidance on land resource use with particular reference to soil and water conservation systems for ujamaa villages to the Regional Development Director and his staff.

- Concurrently with the above tasks, train Tanzanian staff in land use and associated techniques.

The Land Use Planning Officer would be directly responsible to the Regional Agricultural Functional Manager.

5. Senior Training Officer

Qualifications: Formal training in general agriculture with particular reference to small scale production of annual crops. Training experience under Tanzanian conditions, fluency in Swahili and exposure to conditions in Kigoma Region would be essential.

Duties and Responsibilities:

- In consultation with training specialists in the Manpower Development Department of Kilimo and the Regional Agricultural Manager to devise and develop suitable curricula for "induction" courses to be given to farmer contact extension personnel at the proposed Kigoma Region Training and Trials Center.

- In consultation with the Regional Agricultural Manager and the Trials Officer to devise and develop appropriate short courses for in-service training of extension personnel, and for village leaders in crop production and related subjects.

- Operation of the training wing of the proposed Training and Trials Center including student selection, discipline, supervision of subordinate staff and teaching of selected courses.

- Liaison with the Trials Officer in utilization of joint facilities at the proposed Training and Trials Center.

The Senior Training Officer would be directly responsible to the Regional Agricultural Functional Manager.

6. Trials Officer

Qualifications: Bachelor's degree in agriculture or related subject, with at least three years subsequent experience in field trial techniques under Tanzanian conditions utilizing simple statistical layouts.

Duties and Responsibilities:

- In consultation with the Director of the Ukiriguru Research Center and the Regional Agricultural Manager to formulate and carry out programs of field investigations on the major crops of Kigoma Region with particular reference to maize, cotton and groundnuts. To the extent possible, field trials should be replicated at suitable locations of the proposed Training and Trials Center and should be designed to provide information which is readily applicable by farmers in ujamaa villages.

- In consultation as above to advise on the form and content of demonstrations of improved practices to be carried out in ujamaa villages. Such demonstrations would be designed to popularize cultural practices of proven viability under farmer's conditions in Kigoma.

- Multiplication of nucleus stocks of seed of maize and groundnut varieties in consultation with the Regional Agricultural Manager.

The Trials Officer would be directly responsible to the Regional Agricultural Manager in administration matters and to the Director of the Ukiriguru Research Station on professional affairs.

7. General Manager, Kigoma Regional Cooperative Union

Qualifications: A senior civil servant or equivalent position in the private sector with at least 15 years experience in responsible posts and several years in a senior executive position in a major public corporation or private company.

In previous employment he would have undertaken senior administrative responsibility and would have a thorough understanding of business and/or cooperative procedures.

Duties and Responsibilities:

- Overall supervision of all operations of the regional cooperative union.

- Preparation and submission of draft policy statements and execution of policy directives from the board of the regional cooperative union.

- Preparation and submission of progress reports to the board of the regional cooperative union and such other agencies as may require them, e.g., IDA, TRDB, NBC.

- Supervision of Union relationships with primary cooperative societies.

The General Manager would be responsible to the Board of Management of the regional cooperative union.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Regional Planning, Project Preparation and Evaluation

Introduction

1. Following the decentralization of government (Annex 4), development of government's investment program will tend to depend more and more on the regional capability to prepare a stream of investment proposals within a coherent regional framework or plan. While staff at the center retain powers and functions relating to overall economic policies--including pricing, exchange, taxation and interest rate policies, the 18 regions have effectively taken over responsibility for all but 'national' projects (as for example, the relocation of the capital city). As detailed in Annex 4, relatively inexperienced or newly promoted staff now occupy many of the posts that carry major responsibility for plan and project preparation. Thus the need for additional skills relating to regional planning, project identification and preparation, while always urgent, has been accentuated as a consequence of the new policy emphasis. Accordingly, support for an intensified technical assistance effort for regional planning and project preparation, to include responsibility for the evaluation and monitoring of experience in Kigoma, would be included under the project.

2. Most of the new regions are heavily rural and agricultural in orientation, and the integrated rural development approach, based on ujamaa villages, is to be the general model. Hence, in these special circumstances, activities relating to rural development project preparation would emcompass the major task of regional planning. 1/ A team of three or four appropriately qualified and experienced personnel, to work in a region over a period of 6 to 8 months in association with regional staff, would be able to outline a regional plan, involving the identification and preliminary preparation of projects suitable for national or international financing. It is anticipated that the association of high level regional staff in close working relationship with technical assistance personnel would yield important training benefits.

3. A direct link between the technical assistance effort and the Kigoma project would be envisaged through the involvement of the technical assistance group with the early stage implementation in Kigoma region, including the establishment of a suitable monitoring/evaluation system. The Kigoma project is important to Tanzania as a first or pioneering effort paving the way for subsequent programs that explore the potential for achieving substantially increased incomes in cash and kind, among groups whose need for income can

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1/ Particularly since shaping or influencing development through fiscal means is ruled out by the limitations on regional authority.

reasonably be described as very great by any standard. The projects will cover the second stage in the development cycle of an ujamaa village--that stage where concern shifts from the process of resettlement and organizing of the village community to the process of developing the newly established community as a viable and self-reliant economic unit. There are great uncertainties in moving into this second phase and the full range of problems is likely to show up only as the program gets underway. Hence a flexible and innovative management response will be needed, and this would be facilitated by an organized system for documenting and monitoring the progress of the project. Such a facility would also ensure that the experience and problems in Kigoma are fully recorded for the benefit of Tanzania's programs more generally.

Staffing and Organization

4. Skills required in the preparation of such programs are those of an economist, an agriculturalist/land use planner, and a water engineer (who would be sufficiently broad-based to take responsibility for general engineering aspects of other physical structures). A specialist in cooperatives and marketing, including training aspects, would also be very desirable; it is anticipated that such a person would be supplied by the Tanzania Rural Development Bank (TRDB) or through short term consultancies. Other specialist skills required for short periods would cover education and training, sociological matters, health, fisheries and forestry. In addition, provision has been included for consultants to work primarily at national level, to contribute to the development of national policies in respect of a number of problems common to the regions such as: system of regional planning; training; the provision of health care, water and education; and possible fiscal solutions to the problems of financing the regional programs.

5. The Project Preparation Team Coordinator would ideally be a Bank Staff member of some years standing. He should have experience of procedures relating to project preparation and implementation, and also be familiar with the analysis of sectoral and national policy issues. His duties would include:

(a) Assisting government with the recruitment of staff for the technical assistance team, including consultants.

(b) Providing overall direction and guidance to the team, including specific work plans and schedules.

(c) Logistic support and, as necessary, liaison between central government agencies and technical assistance staff in the field.

(d) Initial responsibility for the monitoring and evaluation of the Kigoma project.

(e) General liaison between the Bank and the Tanzania government for matters relating to the technical assistance program, based on thorough knowledge of relevant practices and procedures of both the Bank and government.

It is anticipated that the coordinator would be subject to direction from the Prime Minister's office. In regard to operational matters relating to the Bank, he would liaise with the Bank's office in Nairobi.

6. All members of the permanent team must have experience in project preparation and/or implementation in rural areas in developing countries, preferably in Africa. Staff would be sufficiently senior as to be able to work closely with high level regional staff in the preparation of projects and regional plans, and provide guidance and advice to them.

7. The Economist should be experienced in practical economic planning, including regional planning, and familiar with sources and uses of economic data. He should also have experience of peasant farming systems, including marketing and credit problems. He should be able to present arguments and analyses cogently and lucidly, both in a verbal and written form. He would take a leading role in developing a regional strategy or overall plan and relating project preparation to such a plan. He would ensure that the regional proposals were in conformity with national guidelines and objectives for regional and rural development, and with local needs and sentiments. He would work closely with regional staff in collecting and collating local sources of data and in developing appropriate systems of economic intelligence for the region.

8. The Agriculturalist should have extensive experience of tropical farming systems, preferably in Africa. He should be thoroughly familiar with all aspects of advisory and extension services, including the application of research findings under field conditions, and replication of improve practices. A knowledge of Swahili would be a decided advantage. He should also be aware of the economic implications of his recommendations for agricultural programs and projects. He would take major responsibility for the identification and preparation of investment programs to assist the development of small farmers, including the establishment of appropriate regional organization, and local systems of training. He would liase very closely with personnel dealing with marketing of outputs and distribution of inputs to farmers.

9. The Engineer should be thoroughly experienced with work 'in the bush', involving flexibility and innovative ability in coping with adaption of local materials and structures, understanding of labor-intensive construction methods, and managing with uncertain supplies and periodic shortages. He would be responsible for ensuring that the engineering features of any proposed projects were basically sound and reasonable in relation to local needs and skills. He would also be able to provide rough costings as a basis for financial and economic assessment of the proposed investments.

10. It is anticipated that the first step under this program would be the appointment of the Coordinator, who would initially work closely with the Tanzanian government and IDA in Washington and Nairobi, to (a) recruit for the regional teams, (b) agree on a list of regions for the team to work in, and (c) locate suitable specialist assistance for design of the monitoring/evaluation of Kigoma project.

11. Finance would be included under the project for a two year program, sufficient for the regional teams to service three regions. While much of their work, and the work undertaken centrally, would be generally relevant to the rural areas of Tanzania, a large number of regions could not obtain the direct assistance of the team. Depending on experience with the technical assistance effort proposed, and on experience with Kigoma project in general, consideration could be given at a later stage to a more ambitious program of technical assistance relating to rural development.

The Monitoring/Evaluation of Kigoma Project

12. After consultation with central government agencies and the regional administration, the detailed design and initial implementation of the system would be undertaken in the region by the technical assistance team supplemented with specialist assistance, at the beginning of the project. A consultant analyst would take major responsibility for overall supervision, including field work, arranging for local supporting services and liaison with local researchers (if he were not himself a local researcher). It would be expected that he would be available from time to time over at least a five year period to supervise ongoing work and to take responsibility for the analysis of the results. He should have some years of experience in undertaking empirical research in rural areas in developing countries preferably in Africa. He would probably have published work to his credit. He might hold a senior appointment in an established university or research institute or recognized business enterprise specialized in research work.

13. Major inputs for the evaluation of the project are likely to take the form of an initial base-line survey, to establish conditions at the point of departure of the project, and a terminal survey, five years later. The evaluation should attempt to explain developments under the project, examining technical, economic, managerial, sociological and anthropological factors. The initial intensive phase of work would also provide the framework for an ongoing recording system at a more modest level, to be undertaken under the responsibility of the regional and district planning officers. At this level, the effort should focus on the needs of management for a form of early warning system, so that incipient problems can be rectified quickly or otherwise dealt with at minimum disturbance and cost. It is expected that this work would need to be supplemented from time to time with ad hoc special studies, dealing with specific problems. The planning officer would be assisted from time to time by the consultant analyst, some whose visits might well be timed to coincide with supervision missions. These data, together with other material, should enable a proper analysis and interpretation of experience under the project, including success in terms of initial objectives and in the light of problems subsequently encountered.

14. It would be inappropriate at this stage to attempt a detailed description of the proposed monitoring/evaluation activities. However, some of the high priority issues for investigation would be the following:

(a) Village development

Relating to a sample of villages (including some non-project villages), covering the major ecological zones i.e., the highlands, the intermediate zone, the miombo woodland (with tsetse infestation), and lakeshore fishing:

i. Progress in project relative to non-project villages, for various years following settlement of the project villages, having regard to - clearance and cultivation of the block farms (total acreage and acreage per family), adoption of improved techniques, use of fertilizers and other inputs, cropping patterns; yields and yield variation per cultivator and per village; use of credit, acquisition of infrastructure.

ii. demographic characteristics of selected villages - sex and age structure, composition of families, social or tribal structure, types of family; stability of village population, including movement into and out of the village area.

iii. Work activity, to include level of activity, seasonal variation, labor utilization per crop and cultivation technique; by age group and sex; off farm activities; availability of additional labor.

iv. Income and consumption, per village and per farm family, covering subsistence consumption and marketed surplus; off farm income; disposal of cash income (cattle purchase, bride price, consumer goods - effective of promixity of local market centers, role of village shop and the STC); savings.

v. Adequacy of nutrition - calorie, protein and vitamin deficiency; possible upgrading through the introduction of a dagaa dietary supplement. An ad hoc study of the spending patterns of the village elite today - e.g. school teachers, agricultural extension workers, village cooperative officers - might provide useful insights as to what might happen after incomes begin to rise under the project.

(b) Use of Village facilities

i. Water supplies - to include costs of maintenance and operation frequency of repair and periods in relative to periods out of service, for the different types of system (with particular reference to the dug well/hand pump vs the piped systems); estimation of time savings relative to use of traditional water sources; social attitudes to dug wells and other facilities; continuing use of traditional systems if any.

ii. Education - profile of village school teachers - social and geographic orgin, length of experience, marital status; relationship of these factors to stability in villages (also to include reference to the availability of teachers' houses in the villages); school attendance and non-attendance - relationship to the availability of school places and village size; effectiveness and intensity of use of the school workship, longevity of tools and facilities.

iii. Health Care: Intensity of use of dispensary - relationship to type of service provided (personnel available), and location; ditto for the rural medical center; costs of providing these services; development of and response to the public health program - including excreta disposal schemes.

(c) Intensive studies of villages which turn out to be extremely successful (say the best 1 or 2 of those at a particular stage of development) with a view to identifying causal factors for replication elsewhere. Ditto for extremely unsuccessful villages.

(d) Regional level studies

i. Motor transport - costs and operating efficiency of trucking operations, for use in determing the eventual needs and costings of the regional union, including mileages operated, length of daily runs, maintenance and repair costs, frequency of breakdown records.

ii. Performance of the local construction industry - availability of local contractors, length of time taken to complete contracts, use of skilled labor; construction costs of local materials vs cement blocks.

iii. Impact of village development on the region - activity of major market centers; private transport to and from villages; use of bus services; expansion of the banking system.

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KIGOMA RURAL DEVELOPMENT PROJECT

Cost Estimates (By Year)
(TSh '000s)

	I	II	III	IV	V	Total	US$ '000s
A. Village Infrastructure							
Water Supply (Table 2)	2,507	2,520	2,533	2,546	2,559	12,665	1,774
Health (Table 2)	-	110	410	540	490	1,550	217
Education (Table 3)	3,595	3,225	2,898	2,894	2,822	15,434	2,162
Feeder Roads (Table 4)	-	202	252	252	252	958	134
Tsetse Clearing (Table 4)	214	160	160	160	148	842	118
	6,316	6,217	6,253	6,392	6,271	31,449	4,405
B. Loans to Villages							
Seasonal Inputs Revolving Fund (Annex 15, Table 9)	-	630	1,851	2,567	2,658	7,706	1,079
Med.-Term Credit for Prod. Infrast. (Table 5)	-	1,059	1,396	1,426	1,593	5,474	767
Sub-Total	-	1,689	3,247	3,993	4,251	13,180	1,846
C. Loans and Equity Contribution to Regional Cooperative Union (Table 6)	967	1,431	1,052	811	1,437	5,698	798
D. Regional Infrastructure							
Rural Training Centers (Table 7)	670	1,050	48	-	-	1,768	248
Radio-Telephone Hookup	200	150	-	-	-	350	49
Livestock Pilot Project (Table 8))	257	500	114	2	-	873	123
Agric. Trials and Training Center (Table 8))					-		
Vehicles 1/	185	95	185	95	-	560	78
Demonstrations (Annex 15, Table 10)	-	43	53	58	60	214	30
Aerial Photography 2/	400	1,200	200	-	-	1,800	252
Sub-Total	1,712	3,038	600	155	60	5,565	780
E. Technical Assistance (Table 9)							
Salaries & Related Fringe Benefits	230	850	715	625	325	2,745	384
Housing, Vehicles & Equipment	505	480	125	125	125	1,360	190
Training	-	183	193	193	193	762	107
General Funds	205	205	205	205	205	1,025	144
Sub-Total	940	1,718	1,238	1,148	848	5,892	825
F. Project Preparation and Evaluation (Table 10)	475	2,615	2,100	400	335	5,925	830
TOTAL	10,410	16,708	14,490	12,899	13,202	67,709	9,484
Contingencies (Price 24,012 Physical 2,888)						26,900	3,767
TOTAL PROJECT COST						94,609	13,251

1/ For 2 lorries (@ TSh90,400) and 8 four-wheel drive vehicles (@ TSh47,400) to supplement existing transport in meeting increased supervision and materials movement by the regional administration during the project.

2/ The region encompasses 37,000 km^2, of which an estimated 2/3 (about 25,000 km^2) would require aerial photography. The cost for the photography, 3 sets of prints, simple viewing devices, and about 2 weeks training in Kigoma for staff in interpreting photographs, is estimated at TSh80 per km^2, for a total of TSh2,000,000.

January 31, 1974

ANNEX 11
Table 1

A. Water Supply

Typical Pumped System		(T Sh 000's)
Preparatory Work		6.5
Pumphouse Structure		8.8
Intake		1.0
Storage Tank		11.5
Transport		20.0
Plant Hire		6.5
Rising Main (100 m elev.; 2,000 m length)		25.8
Pump		28.5
Distribution System:		
Pipe (2,470 m)	36.9	
Hydrants	1.8	38.7
Sub-total		147.3
Supervision and Other Overheads		58.0
Total		205.3

Source: Maji and mission estimates

Typical Village Using Dugwells and Handpumps

1 dugwell with handpump	T Sh 1,510
For total village (assumes 15 wells)	T Sh 22,600

Phasing of Costs:

110 villages would require water systems during the project period. It is expected that half would be by pumped systems and half by dugwells with handpumps (Annex 6).

Per Year (years I through V)

11 villages with pumped systems (at T Sh 205,300)	T Sh 2,258,300
11 villages with dugwells and handpumps (at T Sh 22,600)	T Sh 248,600
Total	T Sh 2,506,900

Privy Program

This would cover 10 percent of families in project villages over the five-year project period.

- Total families in project villages (135 villages at 350) 47,250
- 10 percent of families would be 4,730
- Each slab would cost an estimated T Sh 27.40 (US$4.00)

Summary - Water Supply and Privy Program

	Year I	Year II	Year III	Year IV	Year V	Total
			(T Sh 000's)			
Water Supplies	2,507	2,507	2,507	2,507	2,507	12,535
Privy Program	--	13	26	39	52	130
Total	2,507	2,520	2,533	2,546	2,559	12,665

B. Health

1. Dispensaries and rural health centers (RHC) are the identified objects of expenditure. Dispensaries are estimated to cost T Sh 30,000/-, rural health centers, T Sh 400,000/-.

2. While Kigoma Region is not below average in respect of these facilities compared with other parts of Tanzania, the dispersion of population associated with the settlement of new villages would justify some additional health investments over the life of the project, as would improving standards for rural health care for Tanzania as a whole.

3. It is proposed to include 10 dispensaries and 3 RHC, with expected timing as follows:

	Year I	Year II	Year III	Year IV	Year V	Totals
Dispensaries						
Number	--	2	2	3	3	
Cost	--	60,000	60,000	90,000	90,000	300,000
RHC	--	50,000	350,000	450,000	400,000	1,200,000
		110,000	410,000	540,000	490,000	1,500,000

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KIGOMA RURAL DEVELOPMENT PROJECT

Education Cost Estimates and Phasing

1. 60 Existing Ujamaa Villages

i. Data for 73 of the Phase I and II ujamaa villages show primary schools to be distributed as follows in 1973:

Grades	Percent of All Schools
I - VII	34.2
I - VI	8.2
I - V	4.1
I - IV	9.6
I - III	12.3
I - II)	31.5
I - I)	

The backlog of classes over appropriate facilities can be calculated as:

Classrooms	83
Teachers' Houses	145

N.B.: -6 classrooms per I - VII complete school; with Grades I - II sharing a classroom.
-7 teachers per 7-standard school; 5 until Grade VII is added.
-1 house per teacher.

ii. Applied pro rata to 60 villages, the backlog is:

Classrooms	68
Teachers' Houses	85

The 60 villages will have received a share of the 1973/74 building program for the Region of 112 classrooms (@ 10,000) and 64 teachers' houses (@ 15,000). Assume one-half of all classrooms to be constructed in ujamaa villages and two-thirds of all teachers' houses.

After application pro rata to 60 villages, the backlog in these villages is reduced to 24 classrooms and 85 teachers' houses.

Over the project period, teachers' houses would be provided up to 5/6 of the level that would provide 1 house per teacher. This allows for the joint use by bachelor teachers of a single house. For 1974, the local need for housing equals the number of teachers required, for 60 villages equal to 229. Hence, at proposed standard, 1/6 of 229 = 38 from backlog. Hence, backlog of teachers' houses becomes 85-38 = 47.

iii. For rehabilitation to existing schools in 60 villages, we assume 20 percent of existing (permanent) classrooms need replacement--i.e. 25 in total in the 60 villages.

iv. Hence, total replacement/additions at beginning of project period in 60 villages would be:

Classrooms: 25 + 24 = 49

Teachers' Houses: 47

v. Phasing:

	No.	Year I	Year II	Year III	Year IV	Year V
Teachers' Houses	47	20	20	7	-	-
15,000 each, cost	705,000	300,000	300,000	105,000	-	-
Classrooms	24	10	10	4	-	-
	25	-	-	10	10	5
10,000 each, cost	490,000	100,000	100,000	140,000	100,000	50,000

N.B.: Phasing of rehabilitation in line with equalizing overall building program.

vi. Extensions to 60 schools over the Project period:

All Grade II and above will be completed for a single stream I - VII complete primary school. 1973/74 Grade I schools, completed through Grade VI.

From data for existing schools, applied pro rata to the 60, total additional classrooms will be: 137, and teachers' houses 163, less 1/6, 136.

Phasing:

	Total	Year I	Year II	Year III	Year IV	Year V
Teachers' Houses	136	23	30	32	27	24
15,000 each	2,040,000	345,000	450,000	480,000	405,000	360,000
Classrooms	137	26	34	32	26	19
10,000 each	1,370,000	260,000	340,000	320,000	260,000	190,000

N.B.: Phasing according to need.

vii. Workshops and tools are to be provided as the school reaches Grade VI. There may be a few workshop buildings in the 60 villages--we suppose--but tools are virtually non-existent.

Phasing:

	No.	Year I	Year II	Year III	Year IV	Year V
Workshops	58	20	12	7	10	9
@ 15,000	870,000	300,000	180,000	105,000	150,000	135,000
Tools	60	22	12	7	10	9
@ 30,000	1,800,000	660,000	360,000	210,000	300,000	[illegible],000

viii. Head teacher's offices and toilet blocks:

Rehabilitation is estimated for 23 offices and 35 toilet blocks:

Phasing:

	Total	Year I	Year II	Year III	Year IV	Year V
Offices	23	8	8	7	-	-
@ 3,000	69,000	24,000	24,000	21,000		
Toilet blocks	50	30	20	-	-	-
@ 2,400	120,000	72,000	48,000			

ix. Textbooks, desks and library: see Section 3.

2. Facilities in 75 New Villages

i. Under Phases I and II, about one-third were newly started schools, one-third completed schools and one-third partially completed. The new program for 75 villages is assumed to absorb 35 existing schools (from 104 existing, including 9 urban), and that 40 new schools will be started.

ii. Of new schools, we assume 8 will be started each year. Hence, classroom and teacher house needs are projected as follows:

	Total	Year I	Year II	Year III	Year IV	Year V
New Schools	40	8	8	8	8	8
Teachers' Houses	74	7	7	13	22	25
@ 15,000	1,110,000	105,000	105,000	195,000	330,000	375,000
Classrooms	88	8	8	16	24	32
@ 10,000	880,000	80,000	80,000	160,000	240,000	320,000

iii. Extension to existing (35) schools:

We assume 20 are complete Grades I - VII: 10 are Grades I - VI; and 5 are Grades I - V. We further assume that on coming under the program, schools will be 30 percent deficient in classrooms and 40 percent deficient in teachers' houses.

iv. Hence, for teachers' houses, total houses needed equals 35 X 7 = 245, minus 1/6 = 41, = 204;

Stock on hand, 20 X 7 X 0.6 = 84, plus 10 X 5 X 0.6 = 30, plus 5 X 4 X 0.6 = 12; total 126. Hence, the housing deficit is 78.

v. For classrooms, we have a need for 35 X 6 = 210, and stock on hand 20 X 6 X 0.7 = 84; plus 10 X 5 X 0.7; plus 5 X 4 X 0.7; total 133. Hence, the deficiency is 77 plus, for classes in need of rehabilitation, 20% of 133 = 27, hence the total of 104 classrooms.

vi. Phasing:

	Total	Year I	Year II	Year III	Year IV	Year V
Teachers' Houses	78	18	18	16	13	13
@ 15,000	1,170,000	270,000	270,000	240,000	195,000	195,000
Classrooms						
@ 10,000						
Additions	77	16	16	17	14	14
Rehabilitation	27	5	5	5	6	6
	104	21	21	22	20	20
	1,040,000	210,000	210,000	220,000	200,000	200,000

vii. Workshops and Tools:

Are supplied after Grade V

Phasing:

	Total	Year I	Year II	Year III	Year IV	Year V
Workshops	35	5	9	7	7	7
@ 15,000	525,000	75,000	135,000	105,000	105,000	105,000
Tools	----------as above----------					
@ 30,000	1,050,000	150,000	270,000	210,000	210,000	210,000

3. Other Elements

i. Desks, textbooks and library:

Desks supplied to new classrooms at 20 per room; for all other classrooms at one-third this rate for rehabilitation.

ii. Textbooks, sets as necessary and per classroom. Libraries to all schools.

Phasing:

	Total	Year I	Year II	Year III	Year IV	Year V
Desks:						
20 per new classroom						
@ 120/-	5,480	880	1,040	1,140	1,200	1,220
Rehabilitation	2,440	420	460	460	500	600
	7,920	1,300	1,500	1,600	1,700	1,820
Costs	950,400	156,000	180,000	192,000	204,000	218,400

Textbooks:

@ Set 7,613/-: Grade I - VI 5,544/-; I - V 3,545/-; I - VI 2,100/-; I - III 1,260/-: I - II 930/-; I 425.

	Total	Year I	Year II	Year III	Year IV	Year V
For 60 villages: 51 complete, 9 Grade I-VI	440,400	266,000	37,600	50,600	47,500	38,700
For 75 villages: 40 complete, 8 I-V, 8 I-IV, 8 I-III, 8 I-II, 8 I	342,050	52,500	60,500	69,280	76,060	83,710
	782,450	318,500	98,100	119,880	123,560	122,410

Library:

	Total	Year I	Year II	Year III	Year IV	Year V
	135	103	8	8	8	8
1,000	135,000	103,000	8,000	8,000	8,000	8,000

Education - Summary Costs and Phasing
(T. Sh.)

	Year I	Year II	Year III	Year IV	Year V	Total
	3,595,100	3,224,700	2,897,500	2,894,200	2,822,400	**15,433,900**
Teachers' Houses	1,020,000	1,125,000	1,020,000	930,000	930,000	5,025,000
Classrooms	650,000	730,000	840,000	800,000	760,000	3,780,000
Tools	810,000	630,000	420,000	510,000	480,000	2,850,000
Workshops	375,000	315,000	210,000	255,000	240,000	1,395,000
Desks	156,000	180,000	192,000	204,000	218,400	950,400
Textbooks	318,500	98,100	119,900	123,600	122,400	782,500
Toilet Block	105,600	81,600	33,600	33,600	33,600	288,000
Head Teacher's Office	57,000	57,000	54,000	30,000	30,000	228,000
Library	103,000	8,000	8,000	8,000	8,000	135,000

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KIGOMA RURAL DEVELOPMENT PROJECT

A. Feeder Roads

An average of 4 km of road upgrading to connect the village to the nearest road is provided for. The timing of the improvement would correspond with villages generating marketable surpluses and becoming eligible for credit under the project.

The work would be performed by gangs consisting of seven unskilled men plus a leader. The unskilled labor would be on a modified self-help basis, at T Sh. 5 per day, rather than the T Sh. 11.20 per day normal government rate. Unit cost would be T Sh. 2,527 per km.

Phasing and costs would be as follows:

	Year					
	I	II	III	IV	V	Total
Number of villages		20	25	25	25	95
Kms of road		80	100	100	100	380
Cost (T Sh.)		202,000	252,000	252,000	252,000	958,000

B. Tsetse Clearing

Assumptions

1. 350 family villages being settled at the rate of 15 per year for 5 years.
2. Clearing of two acres per family in years one and two of settlement for which payment required.
3. Average labor input for tsetse clearing is 20-25 man days/acre.
4. Payment range 1972/73 T Sh. 5-15 per acre (say T Sh. 15 per acre).
5. At T Sh. 30 per family, cost per village = T Sh. 10,500
   cost for 75 villages= T Sh.787,500
6. Add cost of one additional tsetse clearance survey team involving the following equipment:

1 x 4 wheel drive vehicle	T Sh.	50,000
Tentage		3,000
Survey equipment		1,000
		54,000

Summary, Tsetse Clearing	Years ---- T Sh.					
	I	II	III	IV	V	Total
Clearing	160.0	160.0	160.0	160.0	147.5	787.5
Equipment	54.0	-	-	-	-	54.0
	214.0	160.0	160.0	160.0	147.5	841.5

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KIGOMA RURAL DEVELOPMENT PROJECT

B. Estimated Medium/Long Term Credit Needs by Year and Type
For village productive infrastructure

	Project Year				
	2	3	4	5	Total
Number of Villages Receiving Credit	20	45	70	95	95
	T Sh.				
Hand Maize Shellers at T Sh. 3750 each 1/ (No. of Units)	75,000 (20)	93,750 (25)	93,750 (25)	93,750 (25)	356,250 (95)
Maize Mill, 20 HP engine, building and installation at T Sh. 22,800 installed (No. of Units)	228,000 (10)	342,000 (15)	342,000 (15)	456,000 (20)	1,368,000 (60)
Godowns at T Sh. 36,800 each 2/ (No. of Units)	736,000 (20)	920,000 (25)	920,000 (25)	920,000 (25)	3,496,000 (95)
Fishing Nets and Other Gear 3/	20,000	40,000	70,000	123,000	253,000
Totals	1,059,000	1,395,750	1,425,750	1,592,750	5,473,250

1/ Price of Treadle Maize Sheller delivered and installed.

2/ Each 350 family village is estimated to produce about five 7-ton lorry loads of marketed surplus (i.e., 60 bags of maize, 60 bags beans or 300 bags cotton) per week in the period September 1 to November 15. Each godown would be planned to hold 3 weeks' marketed surplus, equivalent to 15 lorry loads or about 115 tons (actual weight would generally be less where cotton is stored, due to its lower density. The estimated cost includes T sh. 600 for a simple portable platform scale and T sh. 150 for a simple strongbox, locked and cemented into the ground; together with simple office facilities.

3/ Twenty villages (about 50% of the region's fishing villages) are expected to qualify to borrow under the fisheries credit fund. The amount of credit was estimated on the following basis:

	T sh.
Beach seine net units (10 villages getting 1 unit each at T sh. 9,000)	90,000
Drying units (10 villages at T sh. 3,000)	30,000
Pressure lamps (10 villages receiving 30 lamps each @ T sh. 110)	33,000
Improved local boats, with gear (10 villages @ T sh. 10,000)	100,000
	253,000

ANNEX 11
Table 5

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KIGOMA RURAL DEVELOPMENT PROJECT

Loans and Equity Contribution to Kigoma Cooperative Union

	Project Year (T Sh)					
	I	II	III	IV	V	Total
A. Loans						
1. Lorries 1/		158,200	429,400	361,600	610,200	1,559,400
2. Four-wheel drive vehicles 1/	189,600	142,200	47,400	94,800	94,800	568,800
3. Spare parts 1/	47,400	80,750	124,850	114,100	181,900	549,000
4. Office and office equipment	200,000					200,000
5. Repair and maintenance shop	80,000					80,000
6. Godowns 2/						
a. Kigoma	70,000	70,000				140,000
b. Kibondo (Section I)	150,000	550,000				700,000
c. Kibondo (Section II)				150,000	550,000	700,000
sub-total	737,000	1,001,150	601,650	720,500	1,436,900	4,497,200
B. Equity Contribution	230,000	430,000	450,000	90,000	-	1,200,000
Total	967,000	1,431,150	1,051,650	810,500	1,436,900	5,697,200

1/ The 7-ton lorries and long-wheel base four-wheel drive vehicles to be financed are estimated to cost T Sh 90,400 and T Sh 47,400 respectively. A provision for spare parts equal to 25% of the cost of vehicles has been made.

2/ The Kigoma godown is calculated at 2,500 m^3 in size for a capacity of 2,000 tons. The Kibondo godown is calculated at 6,250 m^3 in size for a capacity of 5,000 tons. Both assume unit costs of T Sh 280 per ton capacity. Further information is contained in Annex 14.

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KIGOMA RURAL DEVELOPMENT PROJECT

Rural Training Centers
(TSh 000's)

		Total
1. New Center for Kigoma District:		
Classrooms		30
Workshops		310
Stores and multipurpose area		39
Kitchen		33
Administration block		36
Dormitories		117
Toilets, showers, laundry		24
Staff housing:		
Staff Houses (3)	240	
Supporting staff houses (3)	79	319
TOTAL COST		908
2. Rehabilitation and Expansion of Existing Centers at Kibondo and Kasulu:		
Extensions (at each site):		
Dormitories		117
Toilets, showers, laundry		24
Classroom		60
Extension of mess		22
Recreation block		38
Water tank and tower		11
Teachers' houses		51
Tools, equipment and reference books		72
Rehabilitation of existing facilities		35
TOTAL, each		430
TOTAL, for two schools		860
TOTAL of 1 & 2		1,768

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KIGOMA RURAL DEVELOPMENT PROJECT

Capital Cost of Training and Trials Center and Pilot Livestock Project
(Tsh)

Construction	No. of Spaces	Net Area Per Space (ft.^{2})	Total Net Area (ft.^{2})	Total Gross Area (ft.^{2})	Cost Per ft.^{2}	Construction Cost	Furnishing Cost Per Space	Total Furnishing Cost	Total Cost
Classroom (25 students)	1	500	500	550	60	33,000	5,000	5,000	38,000
Workshop and Laboratory	2	-	1,000	1,200	56	67,200	5,000	10,000	77,200
Storage	3	-	-	-	-	-	-	-	83,000
Kitchen and Kitchen Store	1	-	400	440	70	30,800	-	700	31,500
Office	1	-	400	440	60	26,400	-	5,000	31,400
Boarding Accommodation (25 students)	25	60	1,500	2,000	60	120,000	800	20,000	140,000
Ablutions	1	306	171	342	70	23,940	-	-	23,940
Staff Housing Grade A	2	-	-	-	-	-	-	-	160,000
Grade B	4	-	-	-	-	-	-	-	160,000
Subtotal Construction									745,040
Equipment									
Tractor									33,000
Plow									4,000
Cultivator									5,000
Trailer									10,000
Vehicle									28,000
Fencing									9,000
Other Equipment									3,000
Subtotal Equipment									92,000
Livestock									
In calf Improved Boran Heifers (x 30)									30,000
Improved Boran Breeding Bulls (x 6 over project)									6,000
Subtotal Livestock									36,000
Total Capital									873,000

ANNEX 11
Table 8

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KIGOMA RURAL DEVELOPMENT PROJECT

Technical Assistance

(TSh 000's)

	Unit Costs T Sh 000's	Year I	Year II	Year III	Year IV	Year V	Total
A. Salaries and related fringe benefits							
Financial Controller	180	30	180	180	150	50	590
Operations Manager	180	30	180	180	150	50	590
Credit and Training Supervision	180	30	180	180	150	50	590
Land-use planner	180	30	180	45	45	45	345
Sr. Agr. Training Officer	45	45	45	45	45	45	225
Trials and demonstrations Officer	45	45	45	45	45	45	225
Supporting staff (10)	3.6	20	40	40	40	40	180
sub-total		230	850	715	625	325	2,745
B. Housing, Vehicles and Misc. Equipment							
Housing: (4)	150	300	300				600
(2)	80	80	80				160
(95) 1/	5 1/		100	125	125	125	475
Vehicles (2)	47.4	95					95
Office and photo mosaics equip.		30					30
sub-total		505	480	125	125	125	1,360
C. Training Costs							
Maintenance on trials training center			28	28	28	28	112
Maintenance of vehicles			25	25	25	25	100
Student maintenance (agr. field assist.) 2/	TSh15/day		100	100	100	100	400
Student maintenance-bookeeper	"		30	40	40	40	150
sub-total			183	193	193	193	762
D. General		205	205	205	205	205	1,025
TOTALS		940	1,718	1,238	1,148	848	5,892

Footnotes

1/ Materials for houses of agricultural field assistants at village level; actual construction assumed to be by self-help.
2/ 25 students per year for 250 days per year.
3/ 25 students per year for 100 days each.

NOTE: Figures in parenthesis indicate members of units.

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KIGOMA RURAL DEVELOPMENT PROJECT

Project Preparation and Evaluation

	Unit Salary	Years - T. Sh. I	II	III	IV	V
Program Coordinator	280,000	100,000	280,000	280,000	180,000	-
Field Chief	280,000	20,000	280,000	260,000	-	-
Agriculturalist	250,000		250,000	250,000	-	-
Engineer	-		250,000	250,000	-	-
Consultants	20,000 (month)	50,000	400,000	300,000	50,000	-
Evaluation Specialist	-	20,000	80,000	40,000	40,000	60,000
Transport						
- International		80,000	250,000	190,000	20,000	10,000
Field Operations						
2 Four-Wheel Drive Vehicles		20,000	120,000	110,000	-	-
HQ Car + Driver		10,000	30,000	30,000	-	-
Consultant Subsistence	6,000 (month)	35,000	185,000	60,000	10,000	15,000
Housing Allowance	50,000 (year)	20,000	240,000	140,000	-	-
HQ Office Rental, Secretarial ass't. and supplies		60,000	100,000	40,000	-	-
Local Survey Costs		50,000	150,000	150,000	100,000	250,000
		475,000	2,615,000	2,100,000	400,000	335,000

Total T. Sh. = 5,925,000 US$ 830.000

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KIGOMA RURAL DEVELOPMENT PROJECT

Estimated Schedule of IDA Disbursements 1/

IDA Fiscal Year	End of Quarter	Disbursed During Quarter	Cumulative Amount Disbursed	Balance of Credit
		(US$ '000)		
1974/75	1	-	-	10,000
	2	-	-	10,000
	3	-	-	10,000
	4	340	340	9,660
1975/76	1	600	940	9,060
	2	600	1,540	8,460
	3	600	2,140	7,860
	4	430	2,570	7,430
1976/77	1	500	3,070	6,930
	2	500	3,570	6,430
	3	500	4,070	5,930
	4	510	4,580	5,420
1977/78	1	510	5,090	4,910
	2	510	5,600	4,400
	3	500	6,100	3,900
	4	510	6,610	3,390
1978/79	1	600	7,210	2,790
	2	600	7,810	2,190
	3	600	8,410	1,590
	4	590	9,000	1,000
1979/80	1	280	9,280	720
	2	280	9,560	440
	3	280	9,840	160
	4	160	10,000	-

1/ Allows for expected delays between expenditure and IDA disbursement.

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KIGOMA RURAL DEVELOPMENT PROJECT

Procedures for Selection of Villages

A. Background

1. In Kigoma region, the cycle of low productivity/poverty, low productivity has been particularly difficult to break. Agriculture, the mainstay of over 90% of the population, has been characterized by shifting cultivation generally at or near subsistence level. Because farms were small, scattered and periodically shifting (as fertility declined), providing improved techniques was difficult and expensive. Moreover, communications within the region have been poor, resulting in additional difficulties in the provision of extension, inputs or marketing services. Similarly, because the costs of providing social services to scattered and difficult to reach families is high, the level of those services provided to the rural population has remained low.

2. The national policy of bringing people together in ujamaa villages (cooperative arrangements stressing self-help and communal organization) is a means of breaking the low productivity-poverty cycle associated with traditional agriculture and simultaneously of improving the rural population's access to social services. By bringing people together into villages, Government hopes to be able to provide improved agricultural technology and inputs and social services at acceptable costs per capita.

3. Starting in July 1972, Government launched broad program "Operations" in three regions, including Kigoma, to provide resettlement of much of the rural population into ujamaa villages. By late 1973 "Operation Kigoma" had resulted in the establishment of 76 ujamaa villages into which about 24,000 families--roughly 25% of the rural population--had been settled. Government assisted in transporting villagers' belongings and building materials. During the first season after settlement, the villagers built their own houses and cleared and planted single acre house plots. In subsequent seasons villagers cleared or will clear village block farms for crops such as maize, cotton, groundnuts and beans, on the basis of one acre per household per block farm. The village itself should graduate to a multi-purpose production cooperative, with corporate status, which would have usufructuary rights to the land and be the borrowing-for-inputs vehicle.

4. Parallel discussions concerning the siting and timing of villages to be established under Operation Kigoma are held throughout the regional administration and Tanzania's only political party the Tanganyika African National Union (TANU). Decisions concerning which villages should be started and which should receive particular investments culminate in the annual budget

process (Annex 4). In about February of each year the region's proposals are forwarded to the Treasury in Dar es Salaam for consideration in the budget for the fiscal year starting July. The decisions concerning particular sites (to be started in a particular year) take into account the resolve of villagers to form ujamaa villages and such specific technical factors as soils, available water, existing settlement and accessibility. Unfortunately, sufficient attention has not always been paid to these technical factors and poor, or at least sub-optimal, siting resulted in some cases.

5. Villages started under Operation Kigoma vary in size from fewer than 100 families to almost 1,000; the average is between 300 and 500. At any given site some factors work toward favoring a larger village size while others favor a smaller size. Generally, factors favoring a larger village are economies of scale in water supply systems (especially pumped systems), education (the possibility of eventually having a full primary school), dispensary and support personnel (generally the agricultural field assistant and village bookkeeper). Where dugwells are used for water there is little advantage to a larger village size; for pumped systems, larger numbers of families result in a lower per family cost (Annex 6). The Tanzanian system of having a separate teacher for each school standard (grade) favors having a larger village in order to have enough children of school age to justify a complete school of seven standards of 45 students each. A village of 350 families generally can support a full seven standard (i.e. 7 grades) primary school. The collection and credit activities of the regional Cooperative Union and TRDB are also facilitated by fewer larger villages rather than a larger number of smaller ones.

6. On the other hand, the limited management capability of village leadership and the need for village cohesiveness (joint debt-burden and some communal work) and possible transition difficulties, argue for smaller villages. These factors, plus the fact that the economies of scale noted above become much less significant when there are more than 400 families, imply that very large villages (say, above 500 families) are probably questionable in most cases.

7. Under the project the process of site selection would be strengthened by preparing, for each project village, whether already in existence or to be started, a Village Site Feasibility Report (VSFR). Technical officers at the district level, supported as necessary by regional officers, would be responsible for preparing the VSFR. A study team would generally consist of specialists in agriculture, public works, land planning, water livestock and finance, supported as necessary by specialists in education, forestry and health. A pro-forma outline of a VSFR is attached as Appendix A. The preparation procedures and content of the VSFR are described in the following paragraphs.

B. Selection Procedures for New Villages

8. Examination of Aerial Photographs. During the first few months of the project implementation period, aerial phtographs would be taken of those parts of the region where village development under the project might be expected (report para 4.02). A complete set of prints (of scale 1:12,500) would be kept in the regional Lands Office. In analyzing a proposed site the evaluation team would first examine the relevant aerial photographs. The land planner and his staff would take the lead in interpreting the photographs and preparing sketch maps as necessary. This examination would provide:

(a) a reasonably accurate plotting of existing (if any) settlement, infrastructure, roads, trails and fields;

(b) a preliminary indication of the location and extent of land with soils and topography suitable for sustained cultivation under the project;

(c) in cases where a water supply system has not been developed, a preliminary indication of possible water sources and their likely ease or difficulty of development; and,

(d) an indication of special features such as erosion hazards. This step would enable the team to: (i) determine, with little time investment, those proposed villages that are obviously unsuitable; and (ii) for those sites meriting further study, locate the site precisely and indicate matters that are likely to be significant, thereby facilitating the field examination.

9. Field Examination. A field visit by the study team would be an integral part of the preparation of the VSFR for each project village (whether existing or new). The team would begin by assembling the data required to complete the questionnaire on the existing features (Appendix A attached). To assist in the analysis of the water supply component, the water engineer in those areas where a system of previously tried surface wells do not exist, would have arranged, where appropriate, for the prior sinking, at representative locations in the proposed site, of at least two dug wells, each to a depth of at least 5 meters. Also, to assist in analysis, a sketch map of the site would be prepared showing existing roads, settlement, water sources, buildings (godowns, etc.) and cultivated fields, and currently unclutivated areas having fertility adequate for development under the project.

10. Definition of Village Site or Sites. For any proposed village number of sites may be possible depending on terrain, existing settlement and structures, the location and amount of fertile land and the type and location of water supply. The team would not be restricted, at a particular location, to considering only the original proposal it was requested to

examine. Where several different sites could be readily identified, each would be sketched, its carrying capacity and costs calculated and its merits compared with alternative sites. Different sites would result in greater or lesser fertile land available for farming (depending on whether the house plots are located on the scarce good arable land or on the less-favored land). The sketch of each site would show the location of proposed house plots, water supply, roads and infrasturcture.

11. Carrying Capacity. In general, subject to general considerations listed in paras 5 and 6, the number of additional families that a particular site could support would depend on how much good arable land existed within easy walking distance of the village (usually within 3 km of the edge of the proposed settlement, depending on village layout and topography). It is expected that each family would generally cultivate 2.8 ha (7 acres) of good arable land, in addition to his 0.4 ha (1 acre) house plot, built up over several years. This would enable each family, at full development, in each year to operate 1.6 ha (4 acres) and have 1.2 ha (3 acres) in fallow; each 0.4 ha (1 acre) of a family's holdings (excluding house plot) would be cultivated 4 years out of 7 and lie fallow for the remainder (see Annex 3).

12. Cost Estimates. Cost estimates for investment costs and annual recurrent costs for each scheme would be prepared by the relevant functional specialists, taking into account recent experience and expected price changes. For each plan the water engineer would prepare a preliminary least-cost water system, taking into account the results of the dug-wells (para 9 above).

13. Evaluation of Alternative Schemes. The several sites would have different costs and, perhaps, carrying capacities. The team would compare the alternatives on the basis of the present value of the initial investment and annual recurrent costs of each. For each alternative, the present value costs would be the sum of the original investment cost plus 7 times the annual recurring costs. 1/ In general the plan having the lowest present value cost per family at full development would be selected. 2/

14. Recommendation. The team would make a signed recommendation covering: (a) whether any further development was warranted at the proposed site; (b) which site is preferable (generally the one having lowest present value cost per family); and, (c) the maximum sustainable size of the village in terms of supportable number of families.

1/ This is a short-cut approximation for a present-value calculation using a 15% discount factor. It assumes that public investments in Kigoma have an opportunity cost of 15%.

2/ The criterion of lowest present value cost per family may not give the theoretically optimal solution in all cases. It does not, for example, treat explicitly the tradeoff between reducing the cost of water supply by locating the village closer to the water source, at the expense of villagers having to walk farther to block farms. However, as long as the distance to block farms is reasonable (say within 3 km) this criterion should give reasonably good results plus having the important advantage of simplicity.

C. Selection Procedures for Existing Villages

15. The purposes in carrying out a VSFR exercise for already-existing villages for which investments or credits are proposed under the project are (a) to ensure that these villages would be viable for existing and proposed populations; and (b) to permit a detailed examination of the alternative ways of carrying out the proposed investments (e.g., water supply).

16. The same form of VSFR could be used for both new and existing villages. In the pro-forma VSFR (Appendix A attached), special care would be required in the calculation of "carrying capacity" under C-2, to ensure that existing families would have sufficient land at full development of the village block farms (at 2.8 ha per family).

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KIGOMA RURAL DEVELOPMENT PROJECT

PRO FORMA VILLAGE SITE FEASIBILITY REPORT (VSFR)

General

Name of village
District
Location
Distance by road from district headquarters

A. Examination of Aerial Photographs

1. Code number of relevant aerial photograph _____

2. Sketch map of existing features. This should be traced from the aerial photograph and should outline all relevant existing features including location of existing cultivated areas, areas of good fertility (not currently cultivated), and, if any, schools, dispensaries, settlement, roads, trails, godowns or other important features. The sketch map becomes "Exhibit 1" to the VSFR.

3. (Preliminary) estimate of arable land (in hectares and acres) not presently in cultivation and suitable for development under the project.

   Area within 3 km of edge of proposed village _____
   Area within 5 km of edge of proposed village _____

4. Description of existing or possible water sources: type, location.

5. Description of any special features or problems.

6. Preliminary conclusion (based on examination of aerial photographs). Here indicate whether the proposed site is suitable for further study and field visit. If the judgement is that the site is obviously unsuitable (e.g. because of insufficient arable land) state reasons.

B. Detailed Description of Existing Features at Site Proposed for Village Investments under IDA-Supported Project (to be filled in at field visit stage)

1. Existing Settlement (if any)

   a. Number of families
   b. Principal crops currently grown
   c. Numbers of livestock (by types)
   d. Existing cooperative organization (if any):

      - most recent balance sheet (or equivalent)
      - bank balances or other savings
      - value of transactions by year for 5 years
      - principal activities
      - names of officers, directors

   e. Names of village leaders, length of service.

2. Existing Infrastructure (if any)

   a. Schools:

      - number of classrooms
      - number of students by standard
      - number of teachers and teachers' houses
      - location in relation to existing settlement
      - qualitative assessment of condition of buildings, furniture and textbooks
      - adult education: numbers of classes, subjects, students; average attendance

   b. Water Supply:

      - nature of existing source (whether stream, well, spring, etc.)
      - distance in meters from center of settlement
      - difference in elevation from source to principal area of village and to site of possible storage tank
      - results of previous tests of water quality (if any)
      - results of present tests of water quality
      - results from dugwells (where applicable):

         - depth at which water struck
         - assessment of quantity, preferably in dry season (draw-down and recovery time)
         - assessment of quality

c. Health Facilities:

- existing structure, equipment and stocks
- qualitative assessment of condition of establishment
- existing staff
- length of time established
- distance in meters from present settlement
- during past year:

    - number of patients
    - principal ailments
    - numbers of lectures given
    - other activities

d. Marketing Facilities:

- location and nature of nearest buying point for crops
- distance from buying point in meters (or kilometers)
- location and nature of nearest source of agricultural inputs
- distance from input source in km
- location and nature of nearest source of consumer goods
- distance in km from nearest consumer goods source

e. Roads:

- distance to nearest main road
- condition of access road; special features
- whether passable during rainy season

f. Surrounding Area:

- population within 10 km
- population within 25 km

3. Agriculture

a. Existing situation:

- topography
- soil type
- cropping sequence
- area under crops (if any), by crop during each of last three seasons
- crop production (tons) by crop during each of last three seasons (where available)
- quantity marketed during last three crop seasons (where available)

- quantity of fertilizers, insecticides and improved seed used in each of last three years
- numbers of cattle, if any, with ownership pattern
- disease or pest problems
- area of forest; principal species

b. Potential:

- area within 3 km of the proposed village having soils and topography suitable for agricultural development under the project.

C. Definition of Village Site or Sites

1. Village Plan or Plans

At a particular location, often several alternative sites can be identified. Each will have a different development cost, annual recurrent costs, and perhaps, carrying capacity, depending on length of roads, water-supply configurations, location of household sites and block farms, etc. A separate sketch plan will be prepared for each alternative site identified. Each will be attached to the VSFR as Exhibit 2 (Scheme A, Scheme B, etc.).

2. Calculation of "Carrying Capacity" (for each identified site)

(1) Total area of suitably fertile land convenient to proposed or existing village site (say 3 km)

ha
ha

(2) Less: area required for new godowns, roads, schools, house-plots, etc.

(3) Less area required to allow 2.8 ha (7 acres) for each existing family

(4) Net new accessible cultivable area

(5) Area per family required for block farm (generally about 2.8 ha or 7 acres)

Maximum number of additional families that site can sustain under this particular site (4) + (5) _____ families.

Note: In the case of some existing villages, the figure for (4) may be zero (indicating no further settlement is feasible) or negative (indicating that the site already has more families than it can carry and thought should be given to encouraging some families to move elsewhere). In either case further investment in the site would not be warranted.

3. Cost Estimates (for each identified site)

(a) Investment Costs

Land clearing (number of hectares ___)
Access roads (if any)
Schools:
  Classrooms; number ___
  Teachers' houses
  Tools
  Furniture
  Textbooks
  Rehabilitation
Godown
House for field assistant
Dispensary or other health facility
Water supply (according to type of system recommended, taking into account lift and distance)
Other required public investment (e.g. cattle dips, erosion control, etc.)
Total cost.

(b) Recurrent Costs (average, per year) T Sh

Access road maintenance
Education
  Teachers' salaries
  Textbooks
  Tools replacement
  Maintenance on buildings
  Other (specify)
Dispensary or other health facility
  Salaries
  Medicines and other supplies
  Building maintenance

Water supply
  Salaries
  Fuel
  Maintenance
  Other
Other Staff - Salaries and other expenses
  Agricultural field officer or assistant
  Cooperative and ujamaa assistant
  Village bookkeeper
Other (specify)

Total, Recurrent Costs

D. Evaluation of Alternative Schemes

	SCHEMES				
	A	B	D	E	Etc.
1. Estimated investment cost					
2. Estimated annual recurrent cost					
3. Present value of recurrent cost (five times number 2) 1/					
4. Total present value of costs (1 + 3)					
5. Number of families expected to settle during first two years					
6. Present value of costs per family (4 ÷ 5)					
7. Numer of families at full development					
8. Present value of costs per family at full development (4 ÷ 7)					

E. Recommendation

1. Does the team recommend the site as suitable for any further development? Yes _____ No _____
2. Recommended scheme (from D above): _____
3. Maximum additional number of families site can sustain: _____
4. Signed: _____

_____

_____

_____

1/ Implicitly assumes opportunity cost of public funds of 15% per year.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Trading and Lending Procedures

Introduction

1. Under the project, the Kigoma Cooperative Union would be responsible for provision of agricultural inputs and the marketing of surplus produce generated by project villages. 1/ To complement these trading activities, it would also serve as a lending channel to project villages, supplying credit for the provision of agricultural inputs and cash advances for the purchase of marketable surplus. In addition, it would act as the onlending agent to provide credit for the economic infrastructure of its member villages.

2. The proposed increase of the Union's operations, relative to existing activities, is enormous. At present, the Union provides no inputs and handles negligible amounts of surplus outputs. It owns no storage or office space and has only two lorries. Its staff is small and inexperienced. In contrast, under the project total sales of marketable surplus are projected to reach T Sh 27 million by Year 5 (PY5) and T Sh 40 million by Year 12 (PY12) and even larger amounts of credit -- for seasonal inputs and crop purchases-- would also be required (see Table 1). Successful implementation of such operations would require significant strengthening and expansion of the Union. By the final year of the project (PY5) it would have to own and operate district and regional godowns, valued at about T Sh 1.5 million, 17 lorries and 12 four-wheel drive vehicles and repair and maintenance facilities to service them, together estimated at about T Sh 2.1 million, and new offices, expected to cost some T Sh 200,000. Debt repayment on this capital investment in the same year would amount to approximately T Sh 1 million. In addition, staff numbers would increase to 81, including new posts of operations manager, financial controller, and credit and training supervisor and personnel provided for the motor vehicle fleet.

3. At the level of the primary society, the volume of inputs handled would increase to T Sh 114,000 in Year 5 and T Sh 118,000 in Year 8, and the sale of marketable surplus to T Sh 294,000 in Year 5 and T Sh 332,000 in Year 8 of village development (see Table 10). Credit needs would expand in a similar manner. It is projected that a godown, valued at T Sh 36,800 would be constructed to meet storage requirements of each creditworthy village. A maize mill and maize sheller, estimated at T Sh 22,800 and T Sh 3,750 respectively, would also be provided to each creditworthy village. In addition, a bookeeper and godown attendant, as well as seasonal labor, would be employed during the harvest season to oversee the primary society's transactions.

1/ All villages eligible for credit under the project would already have been registered as multipurpose primary cooperative societies.

Chronology 1/

4. Procedures for the provision of credit for agricultural inputs would begin in December, almost one year before the inputs would be applied in the field. The Tanzanian Rural Development Bank (TRDB) would solicit input requirements from the regions. Under the project, central responsibility for the appraisal of primary societies would fall to the Union, whose society credit officers (SCO) would each be responsible for the appraisal and supervision of about 12 societies and would be distributed in Union branch offices throughout the three districts. In close cooperation with representatives of KILIMO, the Ujamaa and Cooperative Development Division, and TRDB the Union would evaluate the credit needs of its member primary societies and submit a request by February, when TRDB would enter into formal loan agreement with the Union for the amount of inputs indicated. In turn TRDB would place orders with appropriate suppliers in March for all purchases for which it is charged procurement, following preliminary tenders the previous December. In practice, TRDB would combine its procurement needs for inputs under the project with its procurement of similar items under other IDA projects. The agricultural inputs to be provided would include fertilizers (DAP, CAN, and SSP), pesticides (DDT, Endosulfan), and ULV sprayers and accompanying batteries (see Table 2). The suppliers would then provide for delivery of inputs to railhead Kigoma from August to September, according to the terms of the contract signed with TRDB. A Union representative would be at railhead to verify the receipt of goods. The Union would move the inputs to its regional godown in Kigoma town, where they would be made into village consignments and subsequently be delivered by Union transport to the respective societies. Efforts would be made to coordinate the delivery or inputs with the collection of outputs so as to minimize transport costs.

5. Upon receipt of the agricultural inputs, a representative of the primary society, normally the bookkeeper, would sign a document, which along with the invoice and other documentation would represent a contractual loan agreement between the society and the Union. The cost of the inputs to the society, and ultimately to the individual farmer, would include the per unit costs of insurance, handling, transport, interest charges and Union margin estimated at the beginning of the season (see Table 4). 2/ The appropriate amounts of inputs, as previously calculated for each crop by the village agricultural field assistant (AFA) and agreed to by the village development committee (or agriculture subcommittee), would then be distributed to each farmer involved and the full cost of the inputs provided would be debited to the farmer's account, as maintained by the society's bookkeeper. Finally, the farmer would apply the inputs, following the advice of the AFA.

1/ See Chart I.

2/ Only interest charges on the Union's buying price of the inputs, not its selling price, would be attributed to the society; any financing costs represented by the margin between buying and selling prices would be borne by the Union.

6. In general, starting in May, approximately one month before the principal purchase period, the village committee and AFA would estimate the yields by crop by month in order to submit a request through the society's bookkeeper to the Union for regular cash advances for the purchase of crops from farmers. The Union, drawing upon the same appraisal capabilities used in evaluating agricultural input needs, would evaluate the estimates and subsequently request a line of credit, at 6-1/2% interest, from the National Bank of Commerce (NBC) 1/ for the aggregate amount, together with other needs for working capital such as produce inventories. The Union would assume the full costs of this interest charge, unless it could be demonstrated that member societies had purposely withheld remaining cash balances beyond the end of the calendar year, at which point such societies would be charged all additional interest.

7. The appropriate amount of cash would be advanced to the respective societies about every three weeks during the approximately six months of harvest, at the time of the regular visit of the society credit officer (SCO). The SCO would use the occasion to review the society's books and inspect the godown. Cash would be disbursed for the following three weeks only after the SCO had verified that all was in order and that the amount requested was appropriate. The cash distributed by the SCOs would be transported in secured four-wheel drive vehicles and would be kept in small safes in the individual villages. The safe could be opened only with two keys, one held by the bookkeeper and one by the village secretary, both of whom would have to be present to open the safe at the beginning of the day and to close it at the end. The cash contained in the safe would be counted on both occasions and checked against the society's books. The operational costs incurred in providing the services of the SCO (as high as T Sh 1,000 per visit) would be covered by the Union's margin.

8. At time of harvest, the farmer would deliver his marketable produce to the society godown, where it would be graded, weighed and bagged, under the supervision of the godown attendant and bookkeeper. He would be credited the amount of his produce at the Union's buying price, as recorded by the bookkeeper. A portion of the value of the agricultural inputs provided him at the beginning of the season, which included the costs of Union service and interest charges, would be deducted and he would be paid on the spot the balance owed him from the cash advanced by the Union. It is suggested that a single system of repayment of input credit be introduced (e.g., that 50% of the value of the farmer's produce be deducted from each delivery to repay input credit until the full debt has been repaid, after which further deliveries would be paid the full value) to assure full repayment of the society's debt for seasonal inputs. Once delivered to the society godown, the produce would become the property of the society. The society would have produce in its godown whose value would be sufficient to repay the TRDB credit, for which

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1/ Under Tanzanian practice TRDB lends for farm inputs and NBC for crop purchases, thereby involving two institutions in the provision of short-term credit.

the farmers would already have been assessed, and to repay the NBC cash advance used in the purchase of the produce. The society would be responsible for assuring security of storage, such that all produce for which the farmer was paid remained intact in the village godown for collection by Union lorries.

9. The Union would be responsible for the collection of the agricultural produce from the society's godown and delivery to the Union's or parastatals' godowns. More than four weeks' produce would not normally be allowed to accumulate in the village godown, and in principle, collections would be made several times a week at full village development. All produce would normally be collected by the onset of the rains in mid-November. Although the society would not receive a storage fee, the mounting interest charges assumed by the Union on the NBC cash advance should be an incentive for the Union to collect the produce promptly from the primary societies. In addition, part of the contractual agreement signed when the inputs were supplied would be an obligation by the Union to collect all marketable surplus before the rainy season.

10. At time of collection, a receipt for produce collected would be given to the society's representative, and repayment of the input credit and cash advance would be considered completed for an amount equivalent to that of produce collected. The proportion of each kind of credit to be represented by the produce would again be calculated by a simple formula requiring 50% initial deductions to repay TRDB's input credit. Cash advances accordingly would only have been supplied for the net value of crops purchased (i.e., total produce anticipated during the three-week period valued at producer prices minus a specified percentage to repay input credits). Such a system of cash advances on a net rather than a gross basis (where repayment of input debt would be made separately and afterwards) would (a) introduce less total cash and, therefore, risk into the system, (b) provide for parallel rather than subsequent repayment of TRDB's input credit, and (c) involve fewer physical transactions. Therefore, the sub-borrower's responsibility would end for that equivalent of input credit and cash advance. It would then remain to the Union to repay its debts to TRDB and NBC. A primary society levy, which has been applied traditionally to cover the societies' expenses (see Table 4), would be imposed on the produce collected during the month.

11. The produce would be delivered variously to either the Union's district or regional godown, the godown of the National Milling Corporation (NMC), or one of the ginneries of the Tanzanian Cotton Authority (TCA). All cotton, representing about 60% of the value of total marketable surplus, would be transmitted directly to TCA custody. All beans, maize, and groundnuts collected during the 15-week peak of harvest in Kibondo district would be delivered to the Union's godown that is to be constructed in Kibondo. The remaining beans and maize, and the groundnuts from Kasulu and Kigoma districts would be delivered respectively to the NMC's and Union's godowns in Kigoma town. Inventories in the Union's Kigoma godown would be expected to turn over at least three times during the harvest season. Once the rainy season began and the Union's lorries were no longer required to collect produce from the primary societies, the produce stored in the Union's Kibondo godowns would be transferred to NMC's godown in Kigoma town.

12. The parastatal would be invoiced the value of any direct delivery, at the Union's selling price which would include transport, storage, financial and handling costs, as well as the Union's and society's levies (see Table 5). Payment would be made directly to the Union's NBC account, where deduction for NBC's cash advances would take place automatically. Likewise, the TRDB loan would be repaid as the Union was paid by the parastatals for the produce delivered with an automatic transfer of accounts being arranged by NBC and TRDB. The groundnuts retained in Union godowns eventually would be sold either to GAPEX (The General Agricultural Products Export Corporation) and delivered to railhead or marketed by the Union in the region, following authorization from GAPEX. It is roughly estimated that 25% of groundnuts handled by the Union would be marketed within the region (see Table 3).

Transport and Storage

13. Critical to the Union's trading activities is the transport and storage system, currently non-existent in any form, which must be built up under the project. The efficient handling of marketable surplus and agricultural inputs is essential. Several considerations weigh heavily in the design of an optimum system, with the foremost consideration the balance of storage to transport capacity where, in the case of the project, the extremes would range from no village godowns and a large fleet of vehicles for daily collections of produce to large village godowns with small transport capacity for delivery to market. In striking a satisfactory combination, several factors merit particular attention and require critical assumptions: (a) costs, both capital and operating, particularly considering the life of the capital good and vehicle fuel and maintenance operating costs, (b) benefits, particularly relating to off-season use, and (c) level of operations, particularly the godown's rate of turnover and the lorry's rate of use. The capital investment can provide various levels of service, depending on the assumptions made on, e.g., the percentage of downtime and the hours in use for vehicles (factors, in turn, affected by double shifting or more efficient handling) or the turnover of inventory for godowns. The design of a transport/storage system requires the critical review of these and other factors, including different combinations of both godowns and lorries. Hence, the system proposed within the project is merely indicative and makes no pretense to be an optimum solution for a complex situation still some years into the future.

14. One godown would be provided for each credit-worthy village under the project financed by a TRDB loan channeled through the Union, to be constructed in the second year of village development. It would be valued at approximately T Sh 36,800, including T Sh 3,500 for a small safe and weighing scale. The capacity has been calculated to accommodate one month's marketable surplus in a village's fifth year of development, or about 115 tons. Total turnover in PY 5 is estimated to be almost 6,000 bags for a typical 350 family village. The godown would include a storage building (144 m^3) with corrugated iron siding and concrete floor, adjoining concrete platform, security fencing and small office.

15. The Union is projected to have two godowns, one in Kibondo district with a capacity of about 5,000 tons (6,250 m^3) and costing approximately T Sh 1,400,000 and one in Kigoma town of about 500 tons (650 m^3) and costing about T Sh 140,000. Total turnover for each is projected in PY 9 to be roughly 7,500 and 3,000 tons respectively. The district godown would be constructed in two equal sections, during PY 1 and 2 and PY 4 and 5, and the regional godown would be constructed during PY 1 and 2. In projecting these godown requirements, it is assumed that TCA would construct its own godowns to accommodate all cotton delivered directly from the village prior to ginning, and that the 10,000 ton NMC godown currently under construction would accommodate all maize and beans delivered by the Union to Kigoma town. Moreover, it is assumed that all marketable surplus of beans, maize and groundnuts produced in Kibondo during peak season would be stored in the Union district godown until the beginning of the rainy season.

16. The volume of goods to be stored and transported under the project is estimated to involve considerable handling costs. Handling costs of marketable surplus are roughly estimated to be T Sh 8.70 per ton at the society level and T Sh 5.80 at the Union level. Because the volume of agricultural inputs would be as little as 10% that of marketed outputs, and because many of the inputs would hopefully be unloaded as outputs were loaded, the handling costs of inputs would be relatively insignificant.

17. Handling of marketable surplus, at the society level, involves the weighing, bagging and stacking of produce when received, and weighing and loading of bags when collected by Union lorries. In addition to the bookkeeper hired on a regular basis, a godown attendant would be hired full-time for five months to supervise the loading, unloading, weighing, counting and bagging of agricultural inputs and produce to and from the village godown. The attendant would be assisted by seasonal labor as necessary (see Table 10).

18. At both the Union's district and regional godowns, handling would involve the unloading, weighing, stacking and loading of agricultural inputs. In addition to the permanent storekeeper who would weigh or count the material handled for each godown, wage labor would be required.

19. The requirements for transport are expected to grow substantially under the project. The number of lorry loads (seven-ton lorries) of marketable surplus is expected to grow to 5,600 in project PY 5 and to 7,200 in PY 12. Lorry requirements during the harvest season are estimated to be 40 vehicles in PY 5 and 57 vehicles in PY 12 (see Table 7a).

20. Transport is expected to represent the most significant source of income and of expenditure to the Union. The Union's fleet of lorries is projected to grow to 17 by PY 5 and 26 by PY 12, and by PY 8 to require a maintenance and repair shop manned by 3 mechanics and a total transport staff of 46. Total running costs are estimated to be about T Sh .68 million

in PY 5 and T Sh 1.04 million in PY 12. Total investment in the fleet of lorries, including the repair and maintenance shop, spares, and replacements every five years, is expected to be T Sh 7.3 million over the 12-year period. Income derived from the Union lorries is expected to equal T Sh 1.8 million in PY 5 and T Sh 2.7 million in PY 12 while used to transport agricultural inputs and marketable surplus, based on a rate of T Sh 1.35 per revenue ton/mile revenue (see Table 7b). The transport revenue would be recovered in the price the Union sells the produce it handles to the parastatals. Income derived from the hire of Union lorries to the Government during the off-season is projected to be approximately T Sh 500,000 in PY 5 and T Sh 700,000 in PY 12.

21. Despite the relatively important part that the Union's fleet of lorries would play in the overall operations of the Union, substantial numbers of additional lorries would still have to be hired during peak harvest season. In PY 5 and PY 12 respectively 28 and 31 vehicles would be hired during peak harvest season by the Union, either from Government or private sources.

Lending Procedures

22. Four kinds of credit are to be provided under the project: (a) credit for the provision of seasonal inputs to the primary societies; (b) credit to the Union for working capital including cash advances to societies for the purchase of marketable surplus; (c) credit for investment in village economic infrastructure; (d) credit for investment in Union's building and equipment (see Table 9). The credit might be viewed alternatively as that for on-lending to member villages and as that for the Union's own account. Both NBC and TRDB would be sources of credit, the former for cash advances for crop purchases and the latter for the remainder, in accordance with national policy. It is proposed, however, that TRDB would be responsible for supervising the total lending program to and through the Union in order to assure integrated, comprehensive and continuous evaluation and control of the Union's financial status.

23. Credit arrangements under the project would rely heavily on both the Union and TRDB. The Union would assume primary responsibility for all trading and lending operations involving project villages. The reasons that this central role be accorded the Union are several:

(1) With three marketing boards, two lending institutions, and approximately 100 widely dispersed and relatively inaccessible primary societies involved, it is preferable to concentrate all contacts at the village level in one body (The Union), to simplify logistics and minimize costs;

(2) To undertake any of its assigned functions effectively, the Union must be significantly strengthened, including a network of personnel operating regularly at the village level, and the infrastructure to service member societies. This can only be justified economically if the Union assumes responsibility for the full range of credit and trading services to be provided;

(3) One institution intimately involved with the project must assume full responsibility for all credit provided to project villages and full responsibility for the financial viability of such villages. Because NBC would provide approximately 75% of working capital requirements from non-project sources, and the volume of project-related TRDB credit is thus relatively insignificant, only the Union is satisfactorily placed to undertake such comprehensive responsibilities; and

(4) The proposed system uses existing institutions and procedures and, in particular, supports the Government's efforts to build up the country's cooperative structures.

24. Thus all loans to villages for crop inputs, cash advances, and economic infrastructure would be channeled through the Union. The Union would develop its own appraisal capability and would undertake independent evaluation of the creditworthiness of member societies. The Union would assume responsibility, including full repayment obligations, for all debts it incurred. It would pass on to its member societies interest charges on seasonal inputs and economic infrastructure but would pay itself interest charges on cash advances for crop purchases (recovering credit costs of cash advances from its margin on trading those items). The Union would assume full responsibility for loan recovery from primary societies, and the societies in turn would assume full responsibility for loans to their member farmers. In both cases a fund to provide for bad debt, and ultimately supply working capital requirements, should be established from income derived from trading activities.

25. TRDB, for its part, would have no means for direct appraisal of individual primary societies, but rather would supervise and control closely the credit appraisal and onlending activities of the Union. TRDB would carefully monitor the Union's overall operations, including cash advances, inventories and other borrowings, with which TRDB would not be directly involved but which would be critical to the Union's ability to make timely repayments to TRDB. Total cash advances to primary societies through the Union for crop purchase would represent several times the value of total credit for agricultural inputs. Nonetheless, the ability to withhold new loans for inputs at the village level until outstanding crop loans had been fully repaid, and at the Union level to withhold new loans for capital investment or call prematurely old loans if the Union borrowed indiscriminately, would allow TRDB to enforce proper credit discipline in the region. Such a system would:

(a) Force a single financial institution (TRDB), acting indirectly as IDA's agent, to monitor continually the Union's total financial activities (involving crop loans, cash advances and inventories);

(b) Force credit discipline by requiring TRDB in effect to approve the crop loan requests of individual societies to the Union; and

(c) Introduce a sense of financial accountability at all levels of borrowing.

26. Different appraisal procedures would be required for each type of credit. Credit appraisal for agricultural inputs would be the primary responsibility of the Union, under the overall supervision of the regional staff of TRDB. Individual primary societies would be requested to submit preliminary requests in about December for seasonal inputs to be provided almost one year later. Each village, under the primary responsibility of its development committee and with the active assistance of its agricultural field assistant (AFA), would assess its needs and forward an application to the Union. The Union's society credit officers (SCOs) would then appraise the individual requests.

27. The basic factors requiring review in each appraisal would be (a) technical; (b) human; and (c) financial. Specific preconditions for the first input credit would be the installation of a village bookkeeper and agricultural field assistant and a satisfactory agricultural performance during the previous season. In addition, the following types of questions should be posed:

(a) Do the crop projections seem reasonable in light of past experience either in the village itself or under similar ecological conditions elsehwere? What are the projected yields by acre and by unit of input? Are they sufficient to induce the individual farmer to use the inputs, and to use them efficiently, and to repay with a satisfactory margin on initial investment?;

(b) Are the Chairman and his committee honest men of integrity, capable of strong and good leadership and receiving full village support? Are the AFA and bookkeeper adequately trained and competent to perform the services with which they have been charged? Are the villagers fully satisfied with the past performance and level of services of the society? How stable is the village, and what is the turnover of population? What percentage of past production has been channelled through the Union, and what percentage appears to be consumed locally or directed through non-authorized channels?; and

(c) Have all past debts been paid off, and have they been paid off promptly? What is the current level of the society's savings and what have been the uses of past savings? What

are the society's assets and do they appear to be satisfactorily operated and maintained? What has been the overall income of the entire village in past years?.

28. Finally, on the basis of the appraisal by the SCO in close cooperation with the appropriate Government authorities, and under the supervision of TRDB's regional staff, the Union would fix the credit needs of its member societies and subsequently submit a credit application to TRDB. Credit appraisal for subsequent seasons would be based most heavily on the agricultural performance and debt repayment of the previous season.

29. The advancement of cash for village crop purchase would require two stages of credit appraisal. First, a month before crop purchase, an assessment would be made of the total credit requirements for the purchase of crops during the full harvest season. Second, during the five months of crop purchase and collection, independent and regular evaluations of each society's position would be made each time additional cash was advanced to the society.

30. The appraisal of credit needs for cash advances would constitute an updating of the appraisal for input credit conducted earlier. NBC, or possibly TRDB on behalf of NBC, in close cooperation with KILIMO would survey the standing crops of a sample of villages to estimate the extent to which actual yields would meet the projections calculated at the time of appraisal of input requirements. These estimates would form the basis for assessing the total credit required for cash advances during the season. TRDB would be informed and asked to evaluate the working capital arrangements, or other forms of indebtedness, to be undertaken by the Union. Following agreement of both lending institutions, and in consultation with the Government authorities concerned, an appropriate line of credit would be opened.

31. To advance cash during the harvest season, the SCO would begin, before harvest time, by arranging with each member society a schedule of disbursements. He would then visit each society every three weeks or so to supply the cash required for crop purchases. Between each visit the society bookkeeper would be expected to maintain weekly cash return forms, indicating, inter alia, crop finance received and use of crop finance by crop, grade and quantity. The SCO would review these returns, the society's books, and cash on hand during his visit. In addition, he would inspect the quality and quantity of produce contained in the society's godowns. He would pay particular attention to checking that the society's cash on hand and inventory of crops purchased minus collections by Union lorries equalled total cash advances. He would also periodically check, inter alia, the accuracy of the society's scale and the grading of produce. Only after the SCO had verified that the previous cash advance had been properly disbursed, that it corresponded with the produce in the godowns or collected by the Union lorries, and that all was properly reflected in the society's books, would

the amount of the next cash advance be considered. Agreement would then be reached with the society authorities on whether the scheduled disbursement was appropriate or whether modifications were required; thereafter, the cash would be advanced accordingly. If irregularities were found in any of the society's financial statements, rather than withold credit for crop purchase, which in a monopolistic state-controlled marketing system would be politically impracticable and unpalatable, the Union or Government would temporarily replace the village bookkeeper with one of its own staff.

32. The SCOs would be required to submit weekly reports summarizing the financial position of villages visited and total cash advances during the week. On the basis of their reports, the Union's financial controllers would prepare weekly aggregate statements on its working capital position, which would include an indication of its total short-term borrowings, cash advances to societies, inventories, and deliveries to and receipts from parastatals. This statement would serve to guide Union's management on its on-lending operations and to inform TRDB and NBC of the Union's weekly cash flow. Specifically, it would provide TRDB the tool required to undertake the credit supervisory and control functions to which it would be assigned. It would enable TRDB to monitor several critical aspects of the Union's operations by:

(a) examining the difference between short-term borrowings and cash advances, it could determine whether the Union was accumulating excessive cash;

(b) comparing the Union's inventories and deliveries to parastatals with cash advances to societies, it could assess the efficiency of the Union's transport system and the timing of collections; and

(c) comparing deliveries to and receipts from parastatals, it could determine whether the Union is being repaid on schedule in order to retire its debt.

Thus, the weekly statements would provide the indicators necessary to assure that rapidly increasing Union indebtedness was matched by comparable increases in Union inventories and/or accounts receivables from parastatals. In addition to the statement, TRDB would monitor a sample of villages, by reviewing the SCO's weekly reports and by undertaking periodic field visits.

33. Credit for the economic infrastructure of member primary societies would also be channeleld through the Union. The credit appraisal techniques would be similar to those used for agricultural inputs and cash advances. Primary responsibility would again fall to the Union's SCOs because the TRDB branch office would not have sufficient staff to appraise the several hundred credit applications; but because the investments are relatively large and long-term, TRDB's regional staff would play a more active and direct role. Terms of the loans would be as follows:

Item	Unit Cost (T Sh)	Interest Charge	Repayment Period
Maize sheller	3,750	7.5%	4 years
Maize mills	22,800	7.5%	5 years
Fishing gear	various	7.5%	2 years
Village godowns	36,800	7.5%	15 years (including 2 years grace period)

(See Table 9).

34. It is expected that the economic lives of the sheller, mills, fishing gear, and godowns would be 6, 8, 2 and 15 years respectively, and that the shellers and mills would be replaced at the end of their economic lives, perhaps by further borrowings. The project would finance only the initial investments through PY 5.

35. The Union would receive credit for capital investment on its own account, in addition to credit for on-lending to member societies. Total capital investment would amount to about T Sh 1.4 million in PY 5. Any credit appraisal would begin by assessing the general financial position of the Union, both present and historical, including, inter alia, liquidity, debt-equity ratio, total revenue and expenditure and earnings. In addition, the integrity, experience, and competence of management would be reviewed. In particular, throughput and margins that might be assumed for the period of the loan would require examination. Revenue to service the indebtedness created by Union investment would derive primarily from the margins obtained on the handling of agricultural inputs and produce. Throughput would be a function of projected area under cultivation the percentage of the region's marketable surplus handled by the Union and projected yields, by crop. It would, in effect, represent the aggregate of estimates made in appraising input credit for individual villages (less subsistence requirements and any marketing by primary societies outside official channels). The margins would be estimated on the basis of existing margins. An assessment would first be made of the revenue accruing to the Union from its margins in the past and of the adequacy of the revenue to meet all operating expenses and to service all debt obligations. Where revenue appeared inadequate, modifications could be introduced in light of the average margins assumed by cooperative unions elsewhere in Tanzania or proposed increases under consideration by the Ujamaa and Cooperative Development Department. Following thorough appraisal, credit would then be provided on the following basis:

Items	Interest Charges	Repayment Period
Vehicles	8.5%	36 months
Buildings	7.5%	10 years (1 year grace period)

(see Table 8).

36. Vehicles would be considered to have three year economic lives, after which they would be replaced under regular TRDB credit arrangements. Only buildings and additional vehicles acquired through PY 5 would be financed under the project.

37. The marketable surplus anticipated and the procedures proposed under the project would require the delivery of large amounts of cash to the villages. The average village, for example, in its fifth year of development would receive about T Sh 35,000 (US$5,000) in cash every 3 weeks. Attempts must be made during project implementation, as experience is gained, to reduce this figure, and thereby the attendant risk. The periodic visits to villages by the SCO's could perhaps be increased in order to reduce the cash required per visit. Alternatively, some sort of savings scheme could be introduced to tap the accumulating cash of individual farmers, resulting from sale of marketable surplus. Or possibly a mobile banking system (e.g., weekly visits to villages) could be developed, replacing with notes and cheques the large amounts of cash currently proposed to pay individual farmers.

38. Attention must also be paid to consumption as well as production needs during project implementation. As disposable income increases under the project, the spending patterns and needs of villagers should be identified and the appropriate goods and services should be made available. Otherwise, villagers' incentive to meet the production levels anticipated under the project would be undermined.

Pricing and Costing 1/

39. The farm crops to be produced under the project require the involvement of three marketing boards: The National Milling Corporation (NMC) for maize and beans, the Tanzanian Cotton Authority (TCA) for cotton, and the General Agricultural Products Export Corporation (GAPEX) for groundnuts. These marketing boards, together with KILIMO, the Prime Minister's Office, and other Government Offices directly concerned, annually fix prices for each crop for the subsequent season. Two sets of prices are of particular significance to the regional cooperative unions: the producer price and the into-store price. The producer price represents that price paid the

1/ See Table 5.

farmer and has been fixed for the 1973/74 season at a uniform level throughout the country for maize, beans, and cotton, 1/ although it varies with the regional cooperative unions' wholesaling costs for groundnuts. Following certain assumptions on the quality of produce generated under the project, producer prices per bag for maize, beans, cotton, and groundnuts are estimated under the project to be T Sh 32, T Sh 76, T Sh 48.6, and T Sh 124 respectively. The into-store price represents a theoretical price paid by the appropriate marketing board when produce delivery is made to its stores in Dar es Salaam.

40. To the producer price are added the intermediate costs of bagging, shirinkage, cooperative levies and transport and financial charges. However, the costs assumed by the cooperatives for handling, storage and marketing are excluded and are instead reimbursed by the marketing boards through separate accounts. Into-store prices have been fixed for the 1973/74 season for maize, lint cotton, and groundnuts. Although an into-store price has also been recommended for beans, the regional cooperative unions are free to sell any beans they handle outside the authorized marketing board if they can obtain a higher price. In summary, therefore, the cooperative union is still permitted to fix, in accordance with its own costs, the producer price of groundnuts and the into-store price of beans, if a more favorable buying price can be found. For both maize and cotton, however, both the producer into-store price are fixed by the appropriate parastatal, yielding a standard margin for all regional cooperative unions which might or might not be adequate to cover their individual costs. Both the National Milling Cooperation (NMC) and the Tanzania Cotton Authority (TCA) are aware of this problem. NMC is currently reviewing the cooperative unions' demand with the intention to increase the into-store price for 1973/74 maize to reflect more accurately the unions' actual costings. Likewise, TCA claims to reimburse the unions for any costs not fully covered by the into-stores price if properly justified and documented.

41. The wholesaling costs per ton of the regional cooperative unions are fixed at the beginning of the agricultural season. Certain costs, if assumed by the union, are stipulated at specific rates by the appropriate parastatals. These include handling, storage, insecticide treatment, and marketing. The remaining costs are estimated by the unions' management in light of the previous season's experience, subsequently recommended by the annual meeting of the cooperative union, and ultimately approved by the Regional Development Director in his capacity as Assistant Registrar of Cooperatives. These costs include local transport, bags and twine, interest charges, insurance, shrinkage, and society and union levies. The society levy is designed to cover all costs assumed by the primary society, such as overheads, storage, and handling charges, as well as a provision for bad debt. The union levy, on the other hand, is intended to cover only overhead and provision for bad debt.

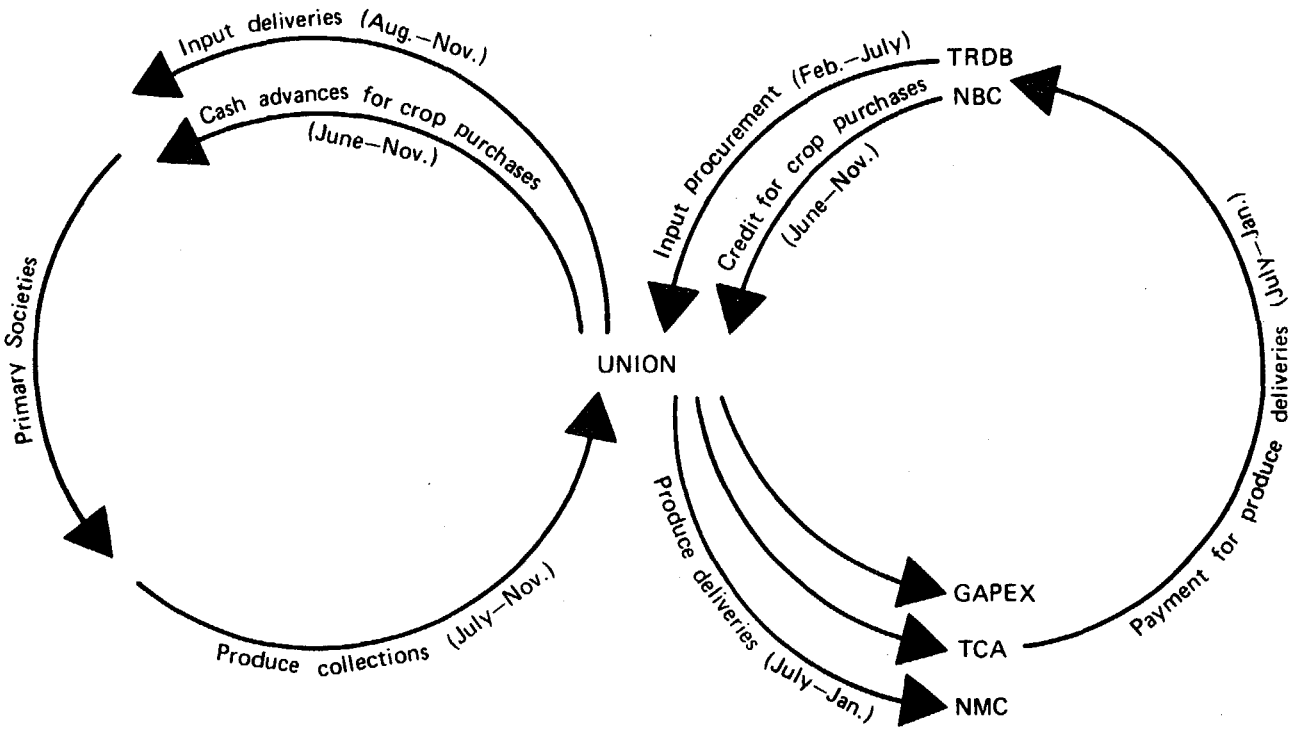
1/ Some variation has been introduced for maize, where prices differ between regions designated priority and non-priority.

42. Recent efforts to standardize the cooperative margins by fixing both producer and into-store prices nationwide arises from the substantial cost variances that have existed heretofore among different regional cooperative unions. For example, society levies for maize are estimated to vary as much as 400% shrinkage estimates for maize as much as 300%, cost of bags and twine for maize as much as 66% 1/ On the other hand, the effective introduction of fixed margins does not allow for the differences in variable costs that obviously exist among regions. For the time being, therefore, the movement toward fixed prices, both producer and into-store, proceeds, but with the growing realization that some flexibility will have to be retained to reflect regional differences.

43. Finally, Table 5 refers to the Union's sellingprice, which represents the actual value received from the appropriate marketing board for produce delivered. It constitutes the aggregate of all costs incurred by the union per ton of produce, from the purchase at the primary society through the variety of wholesaling activities to the delivery to the parastatal. The selling price also represents the total revenue accruing to the union for any ton of produce. It is to be distinguished from the into-store price, a theoretical value which does not reflect the full costs incurred by the union, which includes extra-regional transport costs not incurred by the Union, and which is used by the marketing boards for accounting purposes.

1/ An Appraisal of Marketing Costs for Crops Handled by NAPB for Use in Government's 1973/74 Price Review, P.M. Newhouse, Dar es Salaam 1972, pp. 60-67.

TANZANIA
KIGOMA RURAL DEVELOPMENT PROJECT
KIGOMA Cooperative Union Trading and Lending Cycles



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ANNEX 14
Chart 1

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

KIGOMA COOPERATIVE UNION

Annual Cash Flow 1/

Project Years

TSh (000's)

	PY1	PY2	PY3	PY4	PY5	PY6	PY7	PY8	PY9	PY10	PY11	PY12
I. Trading Activities												
A. Receipts												
1. Sale of Crops 2/		3,442	9,993	17,887	26,536	31,417	33,848	35,586	36,898	38,010	39,115	40,265
2. Sale of Inputs 3/		630	2,481	5,047	7,706	9,474	10,172	10,353	10,354	10,354	10,354	10,354
3. Hiring out Vehicles 4/		56	84	306	473	557	613	641	668	696	724	724
Total		4,128	12,558	23,240	34,715	41,448	44,633	46,580	47,920	49,060	50,193	51,343
B. Disbursements												
1. Purchase of Crops 5/		2,765	8,150	14,702	21,930	26,178	28,326	29,855	30,978	31,914	32,833	33,795
2. Purchase of Inputs 6/		527	2,073	4,221	6,443	7,925	8,515	8,669	8,824	8,824	8,824	8,824
3. Operating Costs 7/	134	886	1,876	2,950	4,160	4,670	4,978	5,198	5,389	5,568	5,740	5,873
4. Interest on Cash Advance 8/		22	58	99	145	170	185	199	209	218	228	237
5. Interest on Seasonal Inputs 9/		45	176	359	548	674	724	737	750	750	750	750
6. Debt Service on Union Investment 10/	99	283	576	784	987	1,155	1,299	1,232	1,062	923	785	646
7. Allowance for Bad Debts 11/	-	26	104	211	322	396	426	433	441	441	441	441
Total	233	4,554	13,013	23,326	34,535	41,168	44,453	46,323	47,653	48,638	49,601	50,566
Surplus (Deficit)	(233)	(426)	(455)	(86)	180	280	180	257	267	422	592	777
II. On-Lending Activities 12/												
A. Advances to Villages												
1. TRDB Credit for Village Infrastructure		1,059	1,396	1,426	1,613	631	636	380	409	669	724	837
2. TRDB Seasonal Credit		630	2,481	5,047	7,706	9,474	10,173	10,353	10,534	10,534	10,534	10,534
3. NBC Cash Advances for Crop Purchase		2,135	5,670	9,654	14,225	16,705	18,153	19,502	20,444	21,380	22,300	23,262
Total		3,824	9,547	16,127	23,544	26,810	28,962	30,235	31,387	32,583	33,558	34,633
B. Union Debt Service Obligations												
1. TRDB Credit for Village Infrastructure		118	314	559	870	1,098	1,207	1,185	1,154	1,159	1,145	1,180
2. TRDB Seasonal Credit		571	2,250	4,580	6,991	8,599	9,239	9,406	9,574	9,574	9,574	9,574
3. NBC Cash Advances for Crop Purchase		2,158	5,728	9,753	14,370	16,876	18,339	19,702	20,654	21,599	22,528	23,500
Total		2,847	8,292	14,892	22,231	26,573	28,785	30,293	31,382	32,332	33,247	34,254

1/ The following calculations include only disbursements and receipts relative to the project, although a relatively minor amount of the Union's operations will continue independent of the project.
The project year is considered to be the Government's fiscal year, from July 1 to June 30. Although the fiscal year of the Kigoma Cooperative Union is May 1 to April 30, in the interests of simplicity and consistency, all calculations are based on the Government's fiscal year.

2/ Source is Table 3.
3/ Source is Table 2.
4/ Source is Table 7.
5/ Source is Table 3.
6/ Source is Table 2.
7/ Source is Table 6.
8/ Derived from Table 9.
9/ Derived from Tables 2 and 9.
10/ Source is Table 8.
11/ Estimated at 5% of credit advanced for seasonal inputs.
12/ Source is Table 9. Note that figures represent annual cash flow and not year-end balance.

ANNEX 12
Table 1

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

KIGOMA COOPERATIVE UNION

Purchase and Sale of Agricultural Inputs

Project Years

				FY2		FY3		FY4		FY5		FY6		FY7		FY8		FY9		FY10		FY11		FY12	
A.	Purchase of Inputs 1/			Volume	Cost	Volume	Cost	Volume	Cost	Volume	Cost	Volume	Cost	Volume	Cost	Volume	Cost	Volume	Cost	Volume	Cost	Volume	Cost	Volume	Cost
	Item	Unit	Unit Costs T Sh																						
1.	DAP	Tons	1408.02	115	161,900	449	632,200	933	1,313,700	1,416	1,993,750	1,774	2,497,850	1,949	2,744,250	2,010	2,830,100	2,071	2,916,000	2,071	2,916,000	2,071	2,916,000	2,071	2,916,000
2.	CAN	Tons	1118.99	115	128,700	449	502,450	933	1,044,000	1,416	1,584,500	1,774	1,985,100	1,949	2,180,900	2,010	2,249,150	2,071	2,317,450	2,071	2,317,450	2,071	2,317,450	2,071	2,317,450
3.	5% DDT	Kgs.	1.98	21,000	41,600	56,000	110,900	91,000	180,200	126,000	249,500	133,000	263,350	133,000	263,350	133,000	263,350	133,000	263,350	133,000	263,350	133,000	263,350	133,000	263,350
4.	ULV Sprayer	each	133.10	350	46,600	1,225	163,050	2,100	279,500	2,975	395,950	3,325	442,550	3,325	442,550	3,325	442,550	3,325	442,550	3,325	442,550	3,325	442,550	3,325	442,550
5.	Battery sets of 16		23.70	350	8,300	1,575	37,350	3,325	78,800	5,075	120,300	6,300	149,300	6,650	157,600	6,650	157,600	6,650	157,600	6,650	157,600	6,650	157,600	6,650	157,600
6.	Endosulfan	liters	13.28	10,500	139,450	47,250	627,500	99,750	1,324,700	152,250	2,021,900	189,000	2,509,900	199,500	2,649,350	199,500	2,649,350	199,500	2,649,350	199,500	2,649,350	199,500	2,649,350	199,500	2,649,350
7.	SSP	Ton	772.12	-	-	-	-	-	-	100	77,200	100	77,200	100	77,200	100	77,200	100	77,200	100	77,200	100	77,200	100	77,200
	Total				526,550		2,073,450		4,220,900		6,443,100		7,925,250		8,515,200		8,669,300		8,823,500		8,823,500		8,823,500		8,823,500

B.	Sale of Inputs																								
	Item	Unit	Unit Costs T Sh																						
1.	DAP	Tons	1636.80	115	188,250	449	734,900	933	1,527,150	1,416	2,317,700	1,774	2,903,700	1,949	3,190,100	2,010	3,290,000	2,071	3,389,800	2,071	3,389,800	2,071	3,389,800	2,071	3,389,800
2.	CAN	Tons	1322.09	115	152,050	449	593,600	933	1,233,500	1,416	1,872,100	1,774	2,345,400	1,949	2,576,750	2,010	2,657,400	2,071	2,738,050	2,071	2,738,050	2,071	2,738,050	2,071	2,738,050
3.	5% DDT	Kgs.	2.45	21,000	51,450	56,000	137,200	91,000	222,950	126,000	308,700	133,000	325,850	133,000	325,850	133,000	325,850	133,000	325,850	133,000	325,850	133,000	325,850	133,000	325,850
4.	ULV Sprayer	each	162.80	350	57,000	1,225	199,450	2,100	341,900	2,975	484,350	3,325	541,300	3,325	541,300	3,325	541,300	3,325	541,300	3,325	541,300	3,325	541,300	3,325	541,300
5.	Battery sets	of 16	28.88	350	10,100	1,575	45,500	3,325	96,050	5,075	146,550	6,300	181,950	6,650	192,050	6,650	192,050	6,650	192,050	6,650	192,050	6,650	192,050	6,650	192,050
6.	Endosulfan	liters	16.30	10,500	171,150	47,250	770,200	99,750	1,625,900	152,250	2,481,700	189,000	3,080,700	199,500	3,251,850	199,500	3,251,850	199,500	3,251,850	199,500	3,251,850	199,500	3,251,850	199,500	3,251 850
7.	SSP	Tons	946.25	-	-	-	-	-	-	100	94,600	100	94,600	100	94,600	100	94,600	100	94,600	100	94,600	100	94,600	100	94,600
	Total				630,000		2,480,850		5,047,450		7,705,700		9,473,500		10,172,500		10,353,050		10,533,500		10,533,500		10,533,500		10,533,500

1/ Derived from Annex 15, Table 9 and from Table 4 of this annex.

2/ Unit costs derived from Table 4 of this annex.

ANNEX 14
Table 7

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

KIGOMA COOPERATIVE UNION

Purchase and Sale of Marketable Surplus 1/

Project Years

	FY2		FY3		FY4		FY5		FY6		FY7		FY8		FY9		FY10		FY11		FY12	
	Bags	Value	Bags	Value	Bags	Value	Bags	Value	Bags	Value	Bags	Value	Bags	Value	Bags	Value	Bags	Value	Bags	Value	Bags	Value
A. Volume and Value Bought																						
a. Maize	16,549	529,560	39,838	1,274,830	65,535	2,097,130	91,929	2,941,740	99,147	3,172,705	104,885	3,356,280	110,160	3,525,065	116,734	3,735,465	122,623	3,923,890	127,770	4,088,615	132,248	4,231,920
b. Beans	11,479	872,440	25,686	1,951,990	39,750	3,020,950	53,493	4,065,410	52,726	4,007,085	52,017	3,953,240	51,297	3,898,570	50,780	3,859,335	50,653	3,869,630	51,053	3,880,070	52,012	3,952,970
c. Cotton	29,441	1,363,280	105,289	4,923,620	197,724	9,305,020	295,115	13,945,670	359,443	17,077,700	378,780	18,089,175	392,895	18,816,615	406,195	19,487,495	419,185	20,127,760	431,761	20,731,600	444,715	21,353,565
d. Groundnuts	-	-	-	-	2,336	278,580	7,995	977,525	15,603	1,920,830	23,717	2,926,885	29,154	3,614,890	31,417	3,895,585	32,359	4,012,425	33,330	4,132,785	34,330	4,256,755
Total	57,450	2,765,300	170,800	8,150,450	305,350	14,701,700	448,550	21,930,350	526,900	26,178,300	559,400	28,325,600	583,500	29,855,150	605,130	30,977,900	624,800	31,913,700	643,900	32,833,050	663,380	33,795,200
	Tons	Value	Tons	Value	Tons	Value	Tons	Value	Tons	Value	Tons	Value	Tons	Value	Tons	Value	Tons	Value	Tons	Value	Tons	Value
B. Volume and Value Sold																						
a. Maize	1,429	773,400	3,441	1,862,250	5,662	3,064,250	7,943	4,298,750	8,566	4,635,900	9,062	4,904,350	9,517	5,150,600	10,086	5,458,550	10,595	5,734,000	11,039	5,974,300	11,426	6,183,750
b. Beans	1,012	1,036,950	2,266	2,366,600	3,506	3,661,650	4,718	4,927,500	4,650	4,856,450	4,588	4,791,700	4,525	4,725,900	4,479	4,677,850	4,468	4,666,400	4,503	4,702,950	4,587	4,790,650
c. Cotton	1,070	1,611,200	3,828	5,764,200	7,189	10,825,200	10,730	16,157,250	13,069	19,679,300	13,772	20,737,900	14,286	21,511,850	14,769	22,239,150	15,242	22,951,400	15,694	23,639,550	16,170	24,348,800
d. Groundnuts	-	-	-	-	206	336,200	706	1,152,200	1,376	2,245,650	2,092	3,414,150	2,572	4,197,500	2,771	4,522,250	2,854	4,657,750	2,940	4,798,100	3,028	4,941,700
Total	3,511	3,441,550	9,535	9,993,050	16,563	17,887,300	24,097	26,535,700	27,661	31,417,300	29,514	33,849,100	30,900	35,585,850	32,105	36,897,800	33,159	38,009,550	34,181	39,114,900	35,211	40,264,900

1/ Estimated that marketable produce of maize, cotton, groundnuts, and beans is bought from societies for TSh32, 48.6,76 and 124 per bag respectively and sold to the appropriate parastatal or marketed at TSh 541.20, 1,505.80, 1,632.00 and 1,044.60 per ton respectively. Difference represents all wholesaling costs borne by the primary societies and union. Difference in volume reflects produce shrinkage. Refer to Table 5 for calculation of selling price.

Table 4

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

KIGOMA COOPERATIVE UNION

Unit Costs of Wholesaling Agricultural Inputs
Costs (TSh)

	DAP (tons)	CAN (tons)	DDT (kg)	ULV Sprayer (each)	Batteries (Sets of 16)	Endosulfan (liters)	SSP (tons)
A. Cost FOB Kigoma	1,408.02	1,118.99	1.98	133.10	23.70	13.28	772.12
B. Wholesaling Costs							
1. Transport 1/	67.50	67.50	.01	.30	.02	.02	67.50
2. Insurance 2/	1.60	1.30	.02	.16	.03	.02	1.00
3. Interest 3/	119.68	95.11	.18	11.44	2.05	1.13	65.63
4. Handling 4/	10.00	10.00	.01	1.50	.20	.25	10.00
5. Union Levy 5/	30.00	30.00	.25	16.30	2.90	1.60	30.00
sub-total	228.78	203.91	.47	29.70	5.20	3.02	174.13
C. Cost to Society	1,636.80	1,322.90	2.45	162.80	28.90	16.30	946.25

1/ To calculate transport costs of agricultural inputs, several of which have no meaningful weight equivalent, a common measure of a bag of maize has been used. Assumed that about 60 bags, or approximately the equivalent of 5.5 tons, can be carried by a 7-ton lorry whose costs are TSh 1.35 per revenue ton mile. Roughly estimated that 10 bags of SSP, DAP, and CAN equal 1 ton, and that 1 maize bag is equal to 90 kg of DDT, 4 ULV sprayers, 50 sets of 16 batteries, 60 liters of endosulfan. Estimated that inputs must be transported, on the average, 50 miles, and although some of the lorries should be able to return with marketable surplus, transport costs have assumed responsibility for the full round-trip costs.

2/ Cost of insuring inputs while in the possession of the Union is estimated to be TSh 2 per TSh 2,000 value insured at selling price to society.

3/ Interest charges are estimated to be 8.5%; and loan is expected to be outstanding for 1 year.

4/ Handling charges derived from handling charges of a maize bag, based on the equivalent volumes cited in footnote 1.

5/ Union levy calculated to be TSh .03/kg for the fertilizers and 10% of the selling price for other inputs.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Kigoma Cooperative Union

Unit Costs of Wholesaling Marketable Surplus 1/

	Maize		Cotton		Groundnuts		Beans	
	Rate (TSh) 12/	TSh/Ton 2/	Rate (TSh)	TSh/Ton 2/	Rate (TSh)	TSh/Ton 2/	Rate (TSh)	TSh/Ton 2/
A. Producer Price	32 per bag	352.00	48.6 per bag	1,336.50	124 per bag	1,346.00	76 per bag	836.00
B. Society Levy 3/	.03 per kg	30.00	0.066 per kg.	66.00	.03 per kg.	30.00	.03 per kg.	30.00
C. Cooperatives' Wholesaling Costs								
1. Local transport 4/	1.35 @ 50 mi.	67.50	1.35 @ 50 mi.	67.50	1.35 @ 50 mi.	67.50	1.35 @ 50 mi.	67.50
2. Bags and twine 5/	4.65 per bag	51.00			4.65 per bag	51.00	4.65 per bag	51.00
3. Bank interest 6/	6.5% for 3 mo.	5.70	6.5% for 5 weeks	9.40	6.5% for 3 mo.	21.80	6.5% for 3 mo.	13.50
4. Cash Insurance 6/	2.0 per 2,000	.40	2.0 per 2,000	1.80	2.0 per 2,000	1.30	2.0 per 2,000	8.40
5. Inventory insurance 6/	3.0 per 2,000	.50	3.0 per 2,000	2.60	3.0 per 2,000	2.00	3.0 per 2,000	1.30
6. Handling charges 7/	-	-	-	-	-	5.80	-	-
7. Storage 8/	-	-	-	-	1.25/bag/week	56.10	-	-
8. Shrinkage 9/	4%	14.10	-	-	2%	26.90	2%	16.70
9. Marketing 10/	-	-	-	-	1.00 per bag	3.60	-	-
10. Union levy 11/	.02 per kg	20.00	0.22 per kg.	22.00	.02 per kg.	20.00	.02 per kg.	20.00
sub-total		159.20		103.30		256.00		178.40
D. Union's Selling Price 12/		541.20		1,505.80		1,632.00		1,044.40
E. Transport to Dar es Salaam 13/	750/ton	37.50			1250/ton	93.75	75.0/ton	37.50
F. Total Into-Store Price 14/		578.70				1,662.25		1,081.90

1/ The rates are calculated on average annual volume of marketable surplus handled by Union during first 12 years. They do not reflect the actual unit costs of the previous year, as they should in practice, and therefore do not reflect decreasing unit costs that would normally occur as volume handled increased.

2/ Each ton of maize, cotton, groundnuts and beans calculated to have 11, 27.5,11 and 11 bags respectively.

3/ Costs incurred by the primary society for handling, storage and shrinkage are not included under the separate categories and are only compensated through the general society levy.

4/ Transport costs based on estimate of Table 7 , pro rated per ton of produce. Because density of cotton is less than that of maize, beans or groundnuts, both transport and handling charges will be higher per ton. However, because distance cotton is to be transported is less than that for other crops, no differentiation by crop is made. Average distance calculated according to information contained in Table 7 . All local transport costs borne by Union.

5/ Cost assumes new bag costs TSh 4.65 and none used for maize, beans and groundnuts are returned for the following season while virtually all used for cotton are returned. Costs of bags will be borne by Union for maize, beans and groundnuts, but costs of bags for cotton, roughly estimated to be TSh 1.00/bag to account for wastage and increasing number required, are taken up by TCA.

6/ Both bank interest and insurance for cash advance for crop purchase considered to be borne by Union, for an average 1 month for cotton, 3 months for other crops. Period from receipt of farmers' produce until payment by appropriate parastatal expected to be 3 months for maize, beans and groundnuts, and 1 month for cotton. Although for 1/3 of this period produce is expected to remain in village godown, all inventory insurance charges assumed to be borne by Union.

7/ Handling charges include only costs of Union at both of its godowns for unloading, weighing, rebagging of 10% of the turnover and stacking when produce arrives and weighing and loading of produce to be delivered to the respective parastatal, based on FY5 as typical year. Union assumes handling charges only for groundnuts, as all other crops handled by relevant parastatals at their respective godowns.

8/ Rates as determined by the appropriate parastatal. Because NMC regional godowns under construction and storage facilities to be provided by TCA at local ginnery can be assumed to be used respectively for all maize, beans and cotton, Union would be responsible only for storage of groundnuts, for which it would be reimbursed by GAPEX. Groundnuts are estimated to remain in the Union's regional godowns an average of 1/month. All storage costs borne by primary society are again expected to be covered by society levy.

9/ Full costs borne by Union.

10/ Marketing costs when incurred by Union are reimbursed by appropriate parastatal at prescribed rates. Groundnuts are only commodity stored, and therefore marketed by the Union. Union is assumed to market 25% of the groundnuts it handles.

11/ Levies taken from The Lint and Seed Marketing Board directives for 1972/73 for cotton and from existing rates in Kigoma Region for maize and groundnuts. The existing rate of Sh0.05/kg for beans was considered unjustified and calculated instead in line with the maize and groundnut rates.

12/ The Union's selling price represents the price paid the Union by the appropriate parastatal when ownership of the produce is transferred to the parastatal.

13/ Cost of transport of produce from Kigoma to Dar es Salaam is responsibility of appropriate parastatal. Such transport costs are included in calculation of into-store price, and are adjusted here to reflect that an estimated 50% of maize and beans and 75% of groundnuts is expected to be transported outside the region. The railroad rate of Sh7.50 per 100 kg Kigoma-Dar es Salaam for maize has also been used for beans, whereas the transport rate for groundnuts is Sh12.5 per 100 kg.

14/ Union reimbursed for maize and beans by NMC and for groundnuts by GAPEX for any handling, storage, insecticide treatment and marketing costs incurred by the Union at rates stipulated by the appropriate parastatals. None of these are included in the "into-store price", which is a theoretical value that includes all other costs assumed by the Union plus the Kigoma-Dar es Salaam transport costs. For cotton, however, no into-store price has been indicated, because the procedures proposed under the project - whereby TCA instead of Union assumes responsibility for intermediate handling, storage and ginning - do not conform to normal practice and thereby render the concept of into-store price of little value.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

KIGOMA COOPERATIVE UNION

Operating Costs

Project Years

	PY1	PY2	PY3	PY4	PY5	PY6	PY7	PY8	PY9	PY10	PY11	PY12
A. Trading Costs												
1. Insurance (cash advances, inventories) 1/		6,300	17,900	31,700	47,100	55,950	60,650	64,300	66,900	69,250	71,550	73,950
2. Bags and twine 2/		130,350	304,700	500,450	713,400	778,750	839,900	886,350	925,050	956,200	986,500	1,016,450
3. Seasonal labor 3/		12,000	14,000	16,000	20,000	24,000	28,000	30,000	32,000	34,000	36,000	38,000
4. Primary society levy 4/		143,800	423,900	755,700	1,109,250	1,300,350	1,381,200	1,441,300	1,494,850	1,543,450	1,590,600	1,638,450
sub-total		292,450	760,500	1,303,850	1,889,750	2,159,050	2,309,750	2,421,950	2,518,800	2,602,900	2,684,650	2,766,850
B. Miscellaneous Overhead 5/												
1. Services (Audit, Legal, Postal, Educational)	500	7,300	21,100	41,500	65,000	74,000	95,500	104,800	110,800	116,450	120,300	124,100
2. Building and Equipment (Utilities, Maintenance supplies, Insurance) 6/		9,900	16,100	24,850	34,500	41,700	46,000	49,550	51,750	53,900	55,300	56,750
3. Meetings and Travel		6,000	16,800	33,000	51,000	66,000	75,000	82,500	87,000	91,500	94,500	97,500
sub-total	500	23,200	54,000	99,350	150,500	181,700	216,500	236,850	249,550	261,850	270,100	278,350
C. Transport Costs	38,100	326,600	797,650	1,268,700	1,835,200	2,039,900	2,162,300	2,244,600	2,326,900	2,409,200	2,491,500	2,533,700
D. Staff 7/												
1. Manager 8/ (TSh 2800/mo.)	8/16,800	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600	33,600
2. Operations manager and financial controller(1800/mo)	21,600 9/	43,200	43,200	21,600								
3. Training supervisor 8/	7,650 9/	15,250	15,250	15,250	15,250	15,250	15,250	15,250	15,250	15,250	15,250	15,250
4. Accountant (TSh 1,090/mo.)	13,100	13,100	13,100	13,100	13,100	13,100	13,100	13,100	13,100	13,100	13,100	13,100
5. Assistant accountant (TSh 700/mo.)		8,400	8,400	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800	16,800
6. Secretary (TSh 650/mo.)		7,800	7,800	7,800	15,600	15,600	15,600	15,600	15,600	15,600	15,600	15,600
7. Bookkeeper (TSh 500/mo.)		6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
8. Chief Clerk Accounts (400/mo.)		4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800
9. Education Secretary (TSh 550/mo.)		6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600	6,600
10. Typist (TSh 300-500/mo.)	6,000	13,200	13,200	13,200	13,200	13,200	13,200	13,200	13,200	13,200	13,200	13,200
11. Messenger (TSh 250/mo.)		3,000	3,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
12. Night watchman (TSh 250/mo.)		12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
13. Store keeper (TSh 500/mo.)		12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
14. Society Credit Officer (TSh 830/mo.)	30,000 9/	60,000	80,000	100,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
15. Mechanic (TSh 400/mo.)		4,800	4,800	9,600	9,600	14,400	14,400	14,400	19,200	19,200	19,200	19,200
sub-total	95,150	243,750	263,750	278,350	284,550	289,350	289,350	289,350	294,150	294,150	294,150	294,150
Total	133,750	886,000	1,875,900	2,950,250	4,160,000	4,670,000	4,977,900	5,197,750	5,389,400	5,568,100	5,740,400	5,873,050

1/ Assumed that insurance charges on each advances, produce to be marketed, and agricultural inputs are Sh2.00, Sh3.00 and Sh2.00 respectively per Sh2000 value insured (purchasing price). Union expected to assume full costs for the first two. Full reimbursement for insurance inputs contained within the selling price of the input.

2/ Cost of bags and twine estimated to be T Sh4.65 per bag, assuming no reuse. Assumed that bags for cotton are given at no charge by TCA, and that 11 bags per ton are required for the other crops, resulting in average cost per ton of volume handled by the Union of T Sh 51.15.

3/ Seasonal labor required to handle both agricultural inputs and marketable surplus in both of Union's godowns. Assumed wages are T Sh8.00 for a 10-hour working day and the following man-days required:

	Project Years										
	2	3	4	5	6	7	8	9	10	11	12
Total man-days	1500	1750	2000	2500	3000	3500	3750	4000	4250	4500	4750

4/ Union owes societies a levy of Sh0.066/kg for cotton and of Sh.03/kg for maize, beans and groundnuts marketed.

5/ Estimates are based on a 1967 survey of 22 cooperative unions, where costs per ton of produce for various union expenses are cited by crop. Adjustments of 23% are made for insurance, utilities, posts, legal, audit and supervision and office supplies, and of 12% for posho travel, and meetings, to account for price increases over the 1967-72 period. Although costs per ton will obviously decrease as volume of produce handled increases, unit costs cited here assume an average.

6/ Covers operating expenses only; debt-service covered elsewhere. Except for adjustments to account for the addition of godowns, insurance rate assumed constant at a cost equivalent to PY5.

7/ Following posts already exist: accountant, bookkeeper, 2 typists, messenger, and night watchman. Following additional positions are already authorized and being filled: assistant accountant, secretary, chief accounts clerk, education secretary, and storekeeper. Remaining posts are proposed to accommodate increased activities of Union under the project.

8/ Salary of newly appointed manager is calculated to be equivalent of senior district staff officer (AP4). The salaries of the operational manager and financial controller are estimated as equivalent to that of functional manager on ujamaa and cooperative development at regional level (AP2) and salary of credit and training supervisor to that of functional manager on ujamaa and cooperative development at district level (AP1). Any balance on annual salaries of the last 3 posts to be taken up by Government as capital investment.

9/ Operational manager, financial controller, and credit and training supervisor expected to begin January 1, 1975. Society credit officers expected to be hired [illegible] villages with which they are to be involved are eligible for credit and agricultural inputs.

ANNEX 14
Table 6

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

KIGOMA COOPERATIVE UNION

Buildup of Motor Vehicles

Categories	Project Years											
A. Lorry	PY1	PY2	PY3	PY4	PY5	PY6	PY7	PY8	PY9	PY10	PY11	PY12
1. Lorry loads of marketable produce 1/		720	1,945	3,375	4,910	5,630	6,010	6,290	6,535	6,750	6,960	7,170
2. Lorries required 2/		5	16	27	40	45	48	50	52	54	56	57
3. Union lorries required												
a. Total fleet 3/	2	3	7	11	17	20	22	23	24	25	26	26
b. Incremental 4/	0	1	4	4	6	3	2	1	1	1	1	0
c. Replaced 5/	0	1	1	0	1	4	4	6	3	2	1	1
d. Total credit needs	0	2	5	4	7	7	6	7	4	3	2	1
4. Non-Union lorries required												
a. Quantity		2	9	16	23	25	26	27	28	29	30	31
b. Costs (TSh) 6/		84,400	379,800	675,200	970,600	1,055,000	1,097,200	1,139,400	1,181,600	1,223,800	1,266,000	1,308,200
B. Four-wheel drive vehicle vehicle												
a. Total fleet	5	8	9	10	12	12	12	12	12	12	12	12
b. Incremental	4	3	1	1	2	0	0	0	0	0	0	0
c. Replaced	0	0	0	1	0	4	3	1	2	2	4	3
d. Total credit needs	4	3	1	2	2	4	3	1	2	2	4	3

1/ Estimated that 60 bags of maize, beans, or groundnuts, or 120 bags of cotton can be carried in one lorry-load, yielding an average 5 tons/lorry load. See Table 3 for the volume of marketable surplus requiring transport.

2/ Lorry requirements calculated on the basis of projected average lorry trips per week. Average time for one-way trip estimated to be:

Kasulu:	village to regional godown	3
	village to Kasulu ginnery	2
Kigoma:	village to regional godown	1.5
	or Kigoma ginnery	1.5
Kibondo:	village to district godown	1.5
	village to Kasulu ginnery	3
		2.5 average hours (@ 20MPH = 50 miles, average one-way trip).

3/ Calculated that Union will own slightly less than half the vehicles needed to meet its lorry requirements.

4/ Only vehicles incremental to total fleet through PY5 are to be financed by the project. Incremental vehicles beyond PY5 and vehicles replaced will be subject to TRDB credit on normal terms.

5/ Lorries and 4-wheel drive vehicles assumed to have respectively 3-year and 5-year economic lives, after which they, and spare parts representing 25% of their original value, are replaced, under regular TRDB financing. Lorries assumed to have residual value equalling 25% of original value.

6/ Cost of the hire of non-Union lorries assumed to be Sh 1.35/revenue ton mile - the same rate Union attributes to its own lorries - or Sh 42,200 7-ton lorry hired for harvest season (Sh 1.35 /revenue ton mile x 5 tons x 50 miles x 125 trips).

ANNEX Table

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

KIGOMA COOPERATIVE UNION

Union's Lorry Account 6/

Project Years

	PY2	PY3	PY4	PY5	PY6	PY7	PY8	PY9	PY10	PY11	PY12
A. Revenue											
1. Union transport income 1/											
a. Agricultural inputs 2/	16,050	62,500	129,550	203,200	252,450	276,300	284,550	292,800	292,800	292,800	292,800
b. Marketable surplus 3/	242,450	656,450	1,139,050	1,656,300	1,899,500	2,026,950	2,122,250	2,205,400	2,278,050	2,348,500	2,419,400
2. Hiring out of Union lorries 4/	55,700	83,550	306,350	473,450	557,000	612,700	640,550	668,400	696,250	724,100	724,100
Total	314,200	802,500	1,574,950	2,332,950	2,708,950	2,915,950	3,047,350	3,166,600	3,267,100	3,365,400	3,436,300
B. Expenditures											
1. Vehicle operating costs 5/	255,300	595,700	936,100	1,446,700	1,702,000	1,872,200	1,957,300	2,042,400	2,127,500	2,212,600	2,212,600
Net Income	58,900	206,800	638,850	886,250	1,006,950	1,043,750	1,090,050	1,124,200	1,139,600	1,152,800	1,223,700

Footnotes

1/ Rate of Sh67.50/ton allowed Union for transport of inputs and outputs in the margin between its buying and selling price.
2/ Derived from Tables 2 and 4.
3/ Derived from Tables 3 and 5.
4/ See Table 7, footnote 1.
5/ See Table 7, footnote 2.
6/ This is a "dummy" operating statement of Union's lorry operations, reflecting total income and expenditure accruing to Union lorries, and not cash-flow. This table reflects full accounting of Union operations, including revenue for transport services included in produce selling prices and including debt repayment. These calculations are not used as inputs for other tables.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Kigoma Cooperative Union
Capital Investment and Repayment

Project Years

Items	PY1	PY2	PY3	PY4	PY5	PY6	PY7	PY8	PY9	PY10	PY11	PY12
A. Receipts												
1. Lorries		158,200	429,400	361,600	610,200	542,400	452,000	497,200	293,800	226,000	158,200	67,800
2. Four wheel drive vehicles	189,600	142,200	47,400	94,800	94,800	189,600	142,200	47,400	94,800	94,800	189,600	142,200
3. Spare parts	47,400	80,750	124,850	114,100	181,900	205,600	171,150	170,050	114,100	91,500	92,600	58,150
4. Office and office equipment	200,000											
5. Repair and maintenance shop	80,000											
6. Kigoma godown	70,000	70,000										
7. Kibondo godown - Section I	150,000	550,000										
8. Kibondo godown - Section II				150,000	550,000							
Total	737,000	1,001,150	601,650	720,500	1,436,900	937,600	765,350	714,650	502,700	412,300	440,400	268,150
B. Disbursements												
1. Lorries 1/		61,950	230,100	371,700	548,650	592,850	628,250	584,050	486,750	398,250	265,500	177,000
2. Four wheel drive vehicles 1/	74,250	129,950	148,500	111,350	92,750	148,450	167,050	148,500	111,350	92,750	148,450	167,050
3. Spare parts 1/	18,550	50,150	99,050	125,200	164,800	196,400	218,700	214,100	178,300	147,150	116,800	94,850
4. Office and office equipment 2/	6,500	31,350	31,350	31,350	31,350	31,350	31,350	31,350	31,350	31,350		
5. Repair and maintenance shop 2/		2,600	12,550	12,550	12,550	12,550	12,550	12,550	12,550	12,550	12,550	
6. Kigoma godown 2/		2,250	13,200	21,900	21,900	21,900	21,900	21,900	21,900	21,900	21,900	10,950
7. Kibondo godown - Section I 2/		4,850	41,350	109,750	109,750	109,750	109,750	109,750	109,750	109,750	109,750	86,250
8. Kibondo godown - Section II 2/					4,850	41,350	109,750	109,750	109,750	109,750	109,750	109,750
Total	99,300	283,100	576,100	783,800	986,600	1,154,600	1,299,300	1,231,950	1,061,700	923,450	784,700	645,850

ANNEX 14
Table 8

1/ Cost of a 7-ton lorries calculated as Sh 90,400 and of 4-wheel drive vehicles as Sh 47,400; economic lifes estimated to be 3 years for lorries and 5 years for 4-wheel drive vehicles; lorries assumed to have residual value equal to 25% of purchase price. Repayment period calculated as 3 years interest charges as 8.5% on lorries, 4-wheel drive vehicles and spare parts. Assumed that spare parts equal to 25% of vehicle value are bought at time of vehicle purchase. Only incremental vehicles during the first five years are financed by the project. See Table 7a for schedule of vehicle build up.

2/ Godowns, office, and maintenance shop all calculated to have repayment period of 10 years, with one year grace period, and to have interest charge of 7.5%. Interest is paid during the grace period. Construction, and therefore disbursements, of each are spread over 2 years. Kigoma godown calculated at 650 m^3 in size for capacity of 500 tons. The Kibondo godown calculated at 6250 m^3, to be built in 2 sections, for capacity of 5000 tons. Both assume unit costs of TSh 280 per ton capacity.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

KIGOMA COOPERATIVE UNION

Outlending Activities

Project Years

	PY1	PY2	PY3	PY4	PY5	PY6	PY7	PY8	PY9	PY10	PY11	PY12
A. Advances to Villages 1/												
1. Village economic infrastructure 2/												
a. Village - Hand maize shellers		75,000	93,750	93,750	93,750		75,000	93,750	93,750	93,750		75,000
b. Village - Maize mills		228,000	342,000	342,000	456,000	456,000	342,000			228,000	342,000	342,000
c. Village - Godowns		736,000	920,000	920,000	920,000							
d. Village - Fishing net and gear		20,000	40,000	70,000	143,000	175,300	218,800	286,700	315,300	346,800	381,600	419,700
sub-total		1,059,000	1,395,750	1,425,750	1,612,750	631,300	635,800	380,450	409,050	668,550	723,600	836,700
2. Credit for seasonal inputs 3/		630,000	2,480,850	5,047,450	7,705,700	9,473,500	10,172,500	10,353,050	10,533,500	10,533,500	10,533,500	10,533,500
3. Cash advances for crop purchases 4/		2,135,300	5,670,000	9,654,250	14,224,650	16,704,850	18,153,100	19,502,100	20,444,400	21,380,200	22,299,600	23,261,700
Total		3,824,300	9,546,600	16,127,450	23,543,100	26,809,650	28,961,400	30,235,600	31,386,950	32,582,250	33,556,700	34,631,900
B. Union Debt Service Obligations												
1. Village economic infrastructure												
a. Village - Hand maize shellers		22,400	50,400	78,400	106,400	84,000	78,400	78,400	78,400	106,400	84,000	78,400
b. Village - Maize mills		56,400	140,900	225,400	338,100	450,800	478,900	394,400	309,900	253,600	225,400	225,400
c. Village - Godowns		27,600	89,700	194,100	307,300	386,000	430,200	430,200	430,200	430,200	430,200	430,200
d. Village - Fishing net and gear		11,150	33,450	61,300	118,650	177,300	219,500	281,550	335,300	368,750	405,650	446,250
sub-total		117,550	314,450	559,200	870,450	1,098,100	1,207,000	1,184,550	1,153,800	1,158,950	1,145,250	1,180,250
2. Seasonal credit		571,300	2,249,700	4,579,700	6,990,750	8,598,900	9,239,000	9,406,200	9,573,500	9,573,500	9,573,500	9,573,500
3. Cash advances for crop purchases		2,157,700	5,728,100	9,753,200	14,370,450	16,876,050	18,339,150	19,702,000	20,654,000	21,599,350	22,528,150	23,500,150
Total		2,846,550	8,292,250	14,892,100	22,231,650	26,573,050	28,785,150	30,292,750	31,381,300	32,330,800	33,246,900	34,253,900

1/ Table indicates total cash flow during each year and not merely at year end, when both credit for seasonal inputs and cash advances for crop purchase should have been repaid. On lending activities of Union require that cash change hands 4 times: (a) bank to Union, (b) Union to village, (c) village to Union, and (d) Union to Bank. For purposes of this cash flow analysis, only steps (b) and (c) have been shown, the first as a disbursement by the Union and the second as a receipt from the village. Receipts from village mill include not only repayment of principal but also interest, with the exception of cash advance.

2/ Estimated that average lives of maize sheller, maize mill, godown, and fishing equipment are 5 years, 8 years, 15 years and 3 years respectively, and assumed they are all replaced accordingly, financed by a regular credit from TRDB. Only the original economic infrastructure to be financed under the project. Although no credit provision has been made for replacement, investment in fishing equipment is expected to grow at 10% after PY5. Unit costs of maize sheller, maize mill, and godown assumed to be Sh3750, 22800, and 36800 respectively. Cost of fishing equipment estimated at Sh9000 for beach seine units, Sh3000 for drying units, Sh110 for pressure lamps, and Sh1000 for improved local boats.

	Interest Charge	Repayment Period
Maize sheller	7.5%	4 years
Maize mill	7.5%	5 years
village godown	7.5%	15 years (including 2 years grace period)

3/ Credit for seasonal inputs provided on FOR value, railhead Kigoma, and interest charges assessed accordingly. Table 2 indicates volume and value of inputs at Kigoma railhead upon which interest charges are assessed. Estimated that all interest charges on seasonal inputs are responsibility of recipient village and amount to no more than 1 year at 8.5% per year, although actual repayment of both interest and principal will most likely not be made until following fiscal year.

4/ Cash advance, provided through Union by NBC for purchase of crops, involves interest charge of 6.5% to be borne by Union. Cash advances estimated to be outstanding for, 5 weeks for cotton and 3 months for other crops (average interest rate of .01025). Cash advance is equal to crop purchased minus the credit for seasonal inputs.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Annual Cash Flow of Primary Society 1/
(model 350-family village)

	Village Years 2	3	4	5	6	7	8	9	10
A. Receipts									
1. Borrowings for input purchases 2/	49,900	77,850	113,700	113,700	117,900	117,900	117,900	117,900	117,900
2. Borrowings for crop purchases 3/	88,350	156,850	155,200	180,500	193,800	204,900	214,000	223,000	233,300
3. Society levy 4/	7,360	12,380	13,750	14,500	15,220	15,790	16,290	16,790	17,290
Total	145,610	247,080	282,650	308,700	326,920	338,590	348,190	357,690	368,490
B. Disbursements									
1. Crop purchases 5/	138,250	234,700	268,900	294,200	311,700	322,800	331,900	340,900	351,200
2. Salaries and wages 6/	2,850	3,200	4,000	4,150	4,200	4,250	4,280	4,300	4,320
3. Audit and supervision 7/	220	370	410	440	460	470	490	500	520
4. Godown debt repayment 8/	1,380	2,760	4,530	4,530	4,530	4,530	4,530	4,530	4,530
5. Maintenance and repair 9/		100	100	150	150	200	200	250	250
Total	142,700	241,130	277,940	303,470	321,040	332,250	341,400	350,480	360,820
Surplus	2,910	5,950	4,710	5,230	5,880	6,340	6,790	7,210	7,670
Cummulative		8,860	13,570	18,800	24,680	31,020	37,810	45,020	52,690

1/ Investment in and income from a maize sheller and maize mill to be purchased by each village in Years 2-3 have not been included here, as they are assumed to be self-liquidating.

2/ Cost of seasonal inputs to village includes margin and services provided by Union (see Table 5). Although TRDB is assumed to provide credit only on the FOR Kigoma price, it is expected that Union, rather than village, will bear any credit costs that might be incurred on the difference of its buying and selling price of inputs until the village's marketable surplus is purchased.

Note that seasonal inputs here include only those provided on credit, not any that might be provided by Government on subsidy.

Village input requirements are derived from Annex 3, Table 9.

3/ Cash advance represents the difference between the crops sold and seasonal inputs received by the society. Interest charges and insurance costs are borne by Union, unless the society retains balances after harvest it should return.

4/ Village levy was calculated on the following basis:

	Years of Village Development 1	2	3	4	5	6	7	8	9	10
a. Cotton										
i. volume (bags)		1,472	3,424	3,766	3,928	4,074	4,229	4,356	4,486	4,621
ii. levy (TSh 2.4/bag)		3,533	8,218	9,038	9,427	9,778	10,150	10,454	10,766	11,090
b. Maize, beans, nuts										
i. volume (bags)		1,401	1,524	1,724	1,859	1,990	2,065	2,138	2,205	2,271
ii. levy (TSh 2.73/bag)		3,825	4,161	4,707	5,075	5,438	5,637	5,837	6,020	6,200
Total levy (TSh)		7,358	12,379	13,745	14,502	15,216	15,787	16,291	16,786	17,290

Volume of marketable surplus is derived from Annex 3, Table 7 and the levy rates from Table 5:

5/ Derived from Annex 3, Table 7.

6/ Salaries and wages are calculated on the following basis:

Category	Years of Village Development (TSh) 1	2	3	4	5	6	7	8	9	10
a. Bookkeeper		1,400	1,400	2,100	2,100	2,100	2,100	2,100	2,100	2,100
b. Godown attendant		1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
c. Seasonal labor		450	850	950	1,050	1,100	1,150	1,180	1,200	1,220
Total		2,850	3,250	4,050	4,150	4,200	4,250	4,280	4,300	4,320

Bookkeeper's salary is expected to increase from Sh 200/mo. to Sh 300/mo. once he has completed his apprenticeship with the UCDA. The UCDA, while in the village during years 1-3, is expected to be on the Government's, not the village's, budget. The salary of the godown attendant is Sh 200/mo. for 5 months. Secretary, as an elected official, is considered to be unpaid. Seasonal labor calculated on following basis: in year 4, assumed to be roughly 60 lorry loads per village, which would take 6 men, working at Sh 0.75/hour, 1.3 hours each to unload and load, resulting in a total of Sh 350/year. In addition, to assist in the bagging of marketable produce, a task involving approximately 50 bags per day during harvest of year 4, seasonal labor to be hired for the 5 months of harvest at Sh 5.00/day, totalling Sh 600. Total seasonal labor in year 4 is therefore Sh 950. Seasonal labor for the remaining years of village development is calculated similarly on the basis of produce handled.

7/ Audit and supervision costs represent 3% of income derived from society levy.

8/ Terms of the TRDB credit for godowns are assumed to be 15 years repayment with 2 years grace and 7.5% interest charges. Godown's original cost is TSh 36,800, including storage building with currugated iron siding and concrete floor, adjoining concrete platform, security fencing and small office, as well as Sh 3,000 for a small safe and weighing scales.

9/ Repair and maintenance is on godown investment.

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KIGOMA RURAL DEVELOPMENT PROJECT

Crops Budgets and Production Models

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KIGOMA RURAL DEVELOPMENT PROJECT

Maize Acre Budgets

	Actual				Incremental		
	Traditional	Stage I	Stage II	Stage III	Stage I	Stage II	Stage III
Yield in lb shelled grain/ac /1	535	675	1,020	1,700	140	345	680
Gross Return/ac at Tsh 0.16/lb /2	85.60	108.00	163.20	272.00	22.40	55.20	108.80
Cost of Inputs							
A. Materials							
Seed at 12 lb/ac traditional & Stage I, 20 lb/ac for Stages II & III /3	2.88	3.36	5.60	5.60	0.48	2.24	-.-
DDT 5% dust at 4kg & Tsh 4.90/ac /4	-.-	-.-	4.90	4.90	-.-	4.90	-.-
Calcium Ammonium Nitrate at 56 lb/ac /5	-.-	-.-	-.-	33.05	-.-	-.-	33.05
Di Ammonium Phosphate at 56 lb/ac /5	-.-	-.-	-.-	40.92	-.-	-.-	40.92
Tools, including shelling charge /6	3.70	4.85	6.75	10.68	1.15	1.90	3.93
Sub-total Materials	6.58	8.21	17.25	95.15	1.63	9.04	77.90
B. Labor (man-day) /7							
Land preparation	25	27	30	30	2	3	-
Planting	1	1	2	2	-	1	-
Thinning & weeding	12	14	15	17	2	1	2
Dusting	-	-	3	3	-	3	-
Fertilizer application	-	-	-	2	-	-	2
Harvesting	6	7	8	10	1	1	2
Shelling /8	1	1	2	2	-	1	-
Sub-total Labor	45	50	60	66	5	10	6
Net Return excluding Labor (Tsh)	79.02	99.79	145.95	176.85	20.77	46.16	30.90
Return to Labor (Tsh/man-day)	1.76	2.00	2.43	2.68	4.15	4.62	5.15

/1 Mission estimates.
/2 Based on 1973 official farmgate price.
/3 Traditional based on local variety at Tsh 0.24/lb, Stages I, II and III based on Ukiriguru Composite A at Tsh 0.28/lb.
/4 Recommended application rate at farmgate price incorporating transport, insurance, handling and 10% Union levy.
/5 Calcium Ammonium Nitrate (CAN) at farmgate price of Tsh 1,322.09/ton; Di Ammonium Phosphate (DAP) at farmgate price of Tsh 1,636.80/ton. Both prices include transport, insurance, handling and 10% Union levy.
/6 Notional charge for tools constant at Tsh 0.50/ac. Charge for machine shelling at Tsh 1.20/200 lb bag rounded, includes attendant at Tsh 10.00/day.
/7 Joint mission and Ministry of Agriculture estimates.
/8 Includes transport to village sheller and assistance in machine shelling.

Note: Despite national adoption of the metric system, actual usage in the region is still with acres, pounds and feet. Accordingly, the calculations in this annex have used these units.

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KIGOMA RURAL DEVELOPMENT PROJECT

Bean Acre Budgets /1

	Actual			Incremental	
	Traditional /2	Stage I /3	Stage II /4	Stage II	Stage III
Yield in lb/ac /2 /3 /4	250	500	600	250	100
Gross Return in Tsh/lb /5 (official price of Tsh 0.38/lb; Tsh 76.00/200 lb bag)	95.00	190.00	228.00	95.00	38.00
Cost of Inputs					
A. Materials					
Seed /6	7.60	13.30	13.30	5.70	-.-
Tools (notional)	0.50	0.50	0.50	-.-	-.-
Sub-total Materials	8.10	13.80	13.80	5.70	-.-
B. Labor (man-day/ac) /7					
Land preparation and ridging	12	20	20	8	-
Planting	2	4	4	2	-
Weeding	6	12	16	6	4
Harvesting	4	9	10	5	1
Sub-total Labor	24	45	50	21	5
Net Return excluding Labor (Tsh/ac)	86.90	176.20	214.20	89.30	38.00
Return to Labor (Tsh/ man-day)	3.62	3.92	4.28	4.25	7.60

/1 Assuming one crop/ac/year.
/2 Assuming intercropping with maize, early planted.
/3 Assuming sole cropping planted March/April but no fertilizer on maize, i.e. Stages I & II of maize.
/4 As for /3 but with residual fertilizer effect from Stage III maize.
/5 Assuming local yellow seeded variety.
/6 Traditional seed rate 20 lb/ac; Intermediate and Advanced at 35 lb/ac. Seed cost Tsh 0.38/lb.
/7 Ministry of Agriculture and Mission estimates.

Note: Despite national adoption of the metric system, actual usage in the region is still with acres, pounds and feet. Accordingly, the calculations in this annex have used these units.

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KIGOMA RURAL DEVELOPMENT PROJECT

Cotton Acre Budgets

	Actual Traditional	Actual Advanced	Incremental
Yield in lb seed cotton/ac (UK 64) /1	350	1,000	650
Gross Return (Tsh) /2			
Grade AR at Tsh 1.50/kg (Tsh 0.679/lb)	130.71	543.20	
Grade BR at Tsh 0.65/kg (Tsh 0.294/lb)	46.31	58.80	
Total (Tsh/ac)	177.02	602.00	424.98
Cost of Inputs			
A. Materials			
Insecticide (Endosulfan at 6 liters/ac) /3	-.-	97.80	97.80
ULV sprayer set: 1 per 5 ac, replaced each 2 years /4	-.-	16.28	16.28
Batteries at 16/sprayer per year /5	-.-	5.78	5.78
Tools and cleaning materials /6	0.50	2.00 /6	1.50
Fertilizer: a) CNN at 90 lb/ac and Tsh 1,322.09/ton /7	-	53.12	53.12
b) DAP at 90 lb/ac and Tsh 1,636.90/ton /7	-	67.76	67.76
Sub-total Materials	0.50	242.74	242.24
B. Labor (man-days)			
Land preparation and ridging	28	34	6
Planting	2	2	-
Fertilizer application	-	2	2
Thinning and weeding	17	20	3
Insecticide application	-	2	2
Harvesting	12	20	8
Uprooting and burning stalks	3	3	-
Sub-total Labor	62	83	21
Net Return Excluding Labor (Tsh)	176.52	359.26	182.74
Return to Labor (Tsh/man-day)	2.85	4.33	8.71

1/ Based on Ministry of Agriculture surveys and mission judgments.
2/ Official producer prices with traditional cotton in the proportion of 55% AR to 45% BR and Advanced cotton in the proportion 80% AR to 20% BR.
3/ Endosulfan at Tsh 16.30/liter at one liter/ac in each of 6 applications.
4/ ULV sprayer, mask and gloves at Tsh 162.80 per set.
5/ U2 batteries at one set per 5 acres per season.
6/ Tsh 1.50 for paraffin to clean ULV sprayer.
7/ Fertilizers charged at delivered price plus union service charge of 10%.

Note: Despite national adoption of the metric system, actual usage in the region is still with acres, pounds and feet. Accordingly, the calculations in this annex have used these units.

ANNEX 3
Table

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Groundnut Acre Budgets

	Actual		
	Traditional	Advanced	Incremental
Yield (lb shelled nuts/ac)	350	700	350
Gross Returns (Tsh) /1	198.30	432.70	234.40
Cost of Inputs			
A. Materials (Tsh/ac)			
Seed /2	25.65	44.80	19.15
Fertilizer (SSP at 112 lb/ac) /3	-.-	47.31	47.31
Hand tools (national)	0.50	0.50	-.-
Sub-total Materials	26.15	92.61	66.46
B. Labor (man-days) /4			
Land preparation and ridging	12	20	8
Planting	2	4	2
Weeding	8	16	8
Fertilizer application	-	2	4
Harvesting	20	25	5
Shelling	12	20	6
Sub-total Labor	54	87	33
Net Return excluding Labor (Tsh/ac)	172.15	340.09	167.94
Return to Labor (Tsh/man-day)	3.19	3.91	5.09

/1 1973/74 official "into store" price is Tsh 1,715/ton for Grade I confectionery nuts and Tsh 1,515/ton for Grade II crushing grade nuts. In the absence of an official farmgate price this has been calculated taking account of freight, handling, insurance, shrinkage, interest on buying advances and Union levy. This approximates 84% of the "into store" price or Tsh 1,440.60 and Tsh 1,272.60/ton for Grades I and II, respectively. Traditional nuts are predominantly of the Mwitunde variety which is largely Grade II. Advanced nuts would be of the improved Bukene variety which could be expected to yield 67% Grade I and 33% Grade II nuts.

/2 Traditionally groundnuts would be planted at a seed rate of 45 lb/ac, Advanced at 70 lb/ac, at prices approximating official purchase prices for Grades II and I, respectively, i.e. Tsh 0.57 and Tsh 0.64/lb.

/3 Single Superphosphate (SSP) at Tsh 946.24/ton at farmgate.

/4 Ministry of Agriculture and Mission estimates.

Note: Despite national adoption of the metric system, actual usage in the region is still with acres, pounds and feet. Accordingly, the calculations in this annex have used these units.

ANNEX 15
Table 4

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KIGOMA RURAL DEVELOPMENT PROJECT

350 Family Village Production Model at Full Development

	House Plot /1	Block Farm: Traditional /2	Block Farm: Stage I /3	Block Farm: Stage II /4	Block Farm: Stage III /5	Total
1. Acreage of Crop						
Mixed	350	-	-	-	-	350
Maize	-	-	18	166	166	350
Beans	-	-	18	166	166	350
Cotton	-	55	-	-	295	350
Groundnuts	-	75	-	-	100	175
2. Production (lb.) /6						
Mixed	-	-	-	-	-	
Maize	105,000	-	12,150	169,320	282,200	568,670
Beans	70,000	-	9,000	83,000	99,600	261,600
Seed Cotton	-	19,250	-	-	295,000	314,250
Groundnuts	-	26,250	-	-	70,000	96,250

3. Subsistence (lb/yr) /8	
Mixed: assorted house plot crops, unquantified	?
Maize: at 200 lb/head x 5 = 1,000 lb/family + 20 lb for seed	357,000
Beans: at 80 lb/head x 5 = 400 lb/family + 35 lb for seed	152,250
Groundnuts: at 20 lb/head x 5 = 100 lb/family + 30 lb for seed	45,500
4. Marketable Surplus (lb) i.e. 2 - 3	
Maize: (57.34 tons)	211,670
Beans: (44.50 tons)	109,350
Seed Cotton: (125 tons)	268,750
Groundnuts: (22.66 tons)	50,750
5. Cash Value of Marketable Surplus (Tsh) /9	
Maize: at Tsh 0.16/lb	33,867
Beans: at Tsh 0.36/lb	41,553
Seed Cotton: at Tsh 481.60/acre	168,560
Groundnuts: at official market prices assuming sale of best nuts (Tsh 0.62/lb)	31,465
Total Cash Value (Tsh)	275,445

6. Cost of Seasonal Inputs /10	Fertilizer	Insecticide	Sprayer	Tools, etc.	Total
Maize	12,279	1,627	-	2,981	16,887
Beans	-	-	-	175	175
Cotton	35,660	28,851	6,508	618	71,637
Groundnuts	4,731	-	-	88	4,819
Total					93,518

7. Average Gross Cash Income/Family (5 ÷ 350) (Tsh)	787
8. Average Net Cash Income Per Family (5 - 6 ÷ 350) (Tsh)	520

350 Family Village Production Model at Full Development

Footnotes for table:

/1 House Plot cropped under traditional practices with maize, beans, cassava, bananas, sorghum, groundnuts and assorted vegetables such as okra.

/2 Traditional implies local seed, cultural practices and no fertilizer.

/3 Stage I implies improved maize seed grown as sole crop but incorporating few other recommended practices. Beans would be late planted with this crop (April/May) maturing in the dry season.

/4 Stage II implies use of improved seed of maize and cotton, improved agronomic practices and insecticide as appropriate. Beans would be grown in association with maize as described above.

/5 Stage III implies use of fertilizer in addition to other improved practices described above where recommendations exist.

/6 Production figures derived from acre budgets.

/7 See footnote /1, yield estimates can only be meaningfully made for maize and beans, at 300 and 200 lb, respectively per acre.

/8 Mission estimate.

/9 At prices used in acre budgets, i.e. farmgate.

/10 Cost of seasonal imputs derived from acre budgets. Seed costs deducted under subsistence section as income foregone.

Note: Despite national adoption of the metric system, actual usage in the region is still with acres, pounds and feet. Accordingly, the calculations in this annex have used these units.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Acreage and Production Build Up by Crops and Years

Average 350 Family Village

	Village Acres	Year 2 lb	Village Acres	Year 3 lb	Village Acres	Year 4 lb	Village Acres	Year 5 lb	Village Acres	Year 6 lb	Village Acres	Year 7 lb	Village Acres	Year 8 lb	Village Acres	Year 9 lb	Village Acres	Year 10 lb	Village Acres	Year 11 lb	Village Acres	Year 12 lb
MAIZE																						
House Plot /1	350	105,000	350	105,000	350	105,000	350	105,000	350	105,000	350	105,000	350	105,000	350	105,000	350)	/3	350)		350)	
Stage I	87.5	59,063	39	26,325	25	16,875	18	12,150	18	12,150	18	12,150	18	12,150	18	12,150	18)		18)		18)	
Stage II	175	178,500	195	198,900	175	178,500	166	169,320	129	131,580	92	93,840	55	56,100	19	19,380	19)		19)		19)	
Stage III	87.5	148,750	116	197,200	150	255,000	166	282,200	203	345,100	240	408,000	277	470,900	313	532,100	313)		313)		313)	
Total	700	491,313	700	527,425	700	555,375	700	568,670	700	593,830	700	618,990	700	644,150	700	669,630		688,689		709,350		730,630
BEANS																						
House Plot /1	350	70,000	350	70,000	350	70,000	350	70,000	350	70,000	350	70,000	350	70,000	350	70,000	350)	/3	350)		350)	
Stage I	87.5	43,750	39	19,500	25	12,500	18	9,000	18	9,000	18	9,000	18	9,000	18	9,000	18)		18)		18)	
Stage II	175	87,500	195	97,500	175	87,500	166	83,000	129	46,000	92	46,000	55	27,500	19	9,500	19)		19)		19)	
Stage III	87.5	52,500	116	69,600	150	90,000	166	99,600	203	121,800	240	144,000	277	166,200	313	187,800	313)		313)		313)	
Total	700	253,750	700	256,600	700	260,000	700	261,600	700	265,300	700	269,000	700	272,700	700	276,300		284,589		293,127		301,920
SEED COTTON																						
(a) Traditional /2	87.5	30,625	117	40,950	75	26,250	55	19,250	37	12,950	18	6,300	18)	/3	18)		18)		18)		18)	
(b) Advanced	87.5	87,500	233	233,000	275	275,000	295	295,000	313	313,000	332	332,000	332)		332)		332)		332)		332)	
Total	175	117,765	350	273,950	350	301,250	350	314,250	350	325,950	350	338,300	350)	348,449	350)	358,902	350)	369,670	350)	380,760	350)	392,182
GROUNDNUTS																						
(a) Traditional /2	-	-	-	-	157.5	55,125	75	26,250	35	12,250	35)	/3	35)		35)		35)		35)		35)	
(b) Advanced	-	-	-	-	17.5	12,250	100	70,000	140	98,000	140)		140)		140)		140)		140)		140)	
Total	-	-	-	-	175	67,375	175	96,250	175	110,250		113,558		116,964		120,472		124,086		127,810		131,644

/1 Mixed cropping in one acre house plot.
/2 Block farm cultivation.
/3 Production assumed to grow at 3% per year, after new techniques and inputs introduced under the project are completed.

Source: Table 5

Note: Despite national adoption of the metric system, actual usage in the region is still with acres, pounds and feet. Accordingly, the calculations in this annex have used these units.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Build Up of Marketable Surplus by Years

Average 350 Family Village /1

	Village Year 2			Village Year 3			Village Year 4			Village Year 5			Village Year 6		
	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus
MAIZE															
Volume (lb)	325,824	491,313	165,489	335,901	527,425	191,524	346,290	555,375	209,085	357,000	568,670	221,670	367,710/3	593,830	226,120
Value (Tsh)	52,132	78,610	26,478	53,744	84,388	30,644	55,406	88,860	33,454	57,120	90,987	33,867	58,834	95,013	36,179
BEANS															
Volume (lb)	138,956	253,750	114,794	143,253	256,600	113,347	147,683	260,000	112,317	152,250	261,600	109,350	156,818/3	265,300	108,482
Value (Tsh)	52,803	96,425	43,622	54,436	97,508	43,072	56,120	98,800	42,680	57,855	99,408	41,553	59,591	100,814	41,223
SEED COTTON															
Volume (lb)	-	117,765	117,765	-	273,950	273,950	-	301,250	301,250	-	314,250	314,250	-	325,950	325,950
Value (Tsh)	-	68,164	68,164	-	160,976	160,976	-	178,826	178,826	-	187,326	187,326	-	194,975	194,975
GROUNDNUTS															
Volume (lb)	-	-	-	-	-	-	44,013	67,375	23,362	45,500	96,250	50,750	46,865/3	110,250	63,385
Value (Tsh)	-	-	-	-	-	-	25,087	39,016	13,929	26,897	58,362	31,465	29,056	68,355	39,299
TOTAL SURPLUS AVAILABLE															
Total Bags /6			2,873			4,949			5,489			5,787			6,064
Total Value (Tsh)			138,264			234,692			268,889			294,211			311,676

	Village Year 7			Village Year 8			Village Year 9			Village Year 10			Village Year 11			Village Year 12		
	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus
MAIZE																		
Volume (lb)	378,741	618,990	240,249	390,104	644,150	254,046	401,807	668,630/4	266,823	413,861	688,689	274,828	426,277	709,350	283,073	439,065	730,630	291,565
Value (Tsh)	60,599	99,038	38,439	62,417	103,064	40,647	64,289	106,981	42,692	66,218	110,190	43,972	68,204	113,496	45,292	70,250	116,901	46,651
BEANS																		
Volume (lb)	161,522	269,000	107,478	166,368	272,700	106,332	171,359	276,300/4	104,941	176,499	284,589	108,090	181,794	293,127	111,333	187,248	301,920	114,672
Value (Tsh)	61,378	102,220	40,842	63,220	103,626	40,406	65,116	104,994	39,878	67,070	108,164	41,074	69,082	111,388	42,306	71,154	114,730	43,576
SEED COTTON																		
Volume (lb)	-	338,300/4	338,300	-	348,449	348,449	-	358,902	358,902	-	369,670	369,670	-	380,760	380,760	-	392,182	392,182
Value (Tsh)	-	203,050	203,050	-	209,142	209,142	-	215,416	215,416	-	221,878	221,878	-	228,535	228,535	-	235,391	235,391
GROUNDNUTS																		
Volume (lb)	48,271	113,558/4	65,287	49,719	116,964	67,245	51,210	120,472	69,262	52,747	124,086	71,339	54,329	127,810	73,481	55,959	131,644	75,685
Value (Tsh)	29,928	70,406	40,478	30,826	72,518	41,692	31,750	74,693	42,943	32,703	76,933	44,230	33,684	79,242	45,558	34,695	81,619	46,924
TOTAL SURPLUS AVAILABLE																		
Total Bags /6			6,294			6,494			6,691			6,892			7,099			7,312
Total Value (Tsh)			322,809			331,887			340,929			351,154			361,691			372,342

/1 Assume constant village size.
/2 Subsistence needs include seed requirements on block farms. Overall subsistence is assumed to increase by 3% per year over the project.
/3 Assume maximum sales of higher priced nuts grown under advanced practices.
/4 Techniques under the project are fully introduced, after which production assumed to grow 3% annually.
/5 Subsistence needs projected to grow at 3% annually.
/6 200 lb/bag assumed for maize, beans and shelled groundnuts; 80 lb/bag for seed cotton.

Note: Despite national adoption of the metric system, actual usage in the region is still with acres, pounds and feet. Accordingly, the calculations in this annex have used these units.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Build Up of Marketable Surplus by Years

Average 350 Family Village /1

	Village Year 2			Village Year 3			Village Year 4			Village Year 5			Village Year 6		
	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus
MAIZE															
Volume (lb)	325,824	491,313	165,489	335,901	527,425	191,524	346,290	555,375	209,085	357,000	568,670	221,670	367,710/5	593,830	226,120
Value (Tsh)	52,132	78,610	26,478	53,744	84,388	30,644	55,406	88,860	33,454	57,120	90,987	33,867	58,834	95,013	36,179
BEANS															
Volume (lb)	138,956	253,750	114,794	143,253	256,600	113,347	147,683	260,000	112,317	152,250	261,600	109,350	156,818/5	265,300	108,482
Value (Tsh)	52,803	96,425	43,622	54,436	97,508	43,072	56,120	98,800	42,680	57,855	99,408	41,553	59,591	100,814	41,223
SEED COTTON															
Volume (lb)	-	117,765	117,765	-	273,950	273,950	-	301,250	301,250	-	314,250	314,250	-	325,950	325,950
Value (Tsh)	-	68,164	68,164	-	160,976	160,976	-	178,826	178,826	-	187,326	187,326	-	194,975	194,975
GROUNDNUTS															
Volume (lb)	-	-	-	-	-	-	44,013	67,375	23,362	45,500	96,250	50,750	46,865/5	110,250	63,385
Value (Tsh)	-	-	-	-	-	-	25,087	39,016	13,929	26,897	58,362	31,465	29,056	68,355	39,299
TOTAL SURPLUS AVAILABLE															
Total Bags /6			2,873			4,949			5,489			5,787			6,064
Total Value (Tsh)			138,264			234,692			268,889			294,211			311,676

	Village Year 7			Village Year 8			Village Year 9			Village Year 10			Village Year 11			Village Year 12		
	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus	Subsistence/2	Production	Surplus
MAIZE																		
Volume (lb)	378,741	618,990	240,249	390,104	644,150	254,046	401,807	668,630/4	266,823	413,861	688,689	274,828	426,277	709,350	283,073	439,065	730,630	291,565
Value (Tsh)	60,599	99,038	38,439	62,417	103,064	40,647	64,289	106,981	42,692	66,218	110,190	43,972	68,204	113,496	45,292	70,250	116,901	46,651
BEANS																		
Volume (lb)	161,522	269,000	107,478	166,368	272,700	106,332	171,359	276,300/4	104,941	176,499	284,589	108,090	181,794	293,127	111,333	187,248	301,920	114,672
Value (Tsh)	61,378	102,220	40,842	63,220	103,626	40,406	65,116	104,994	39,878	67,070	108,144	41,074	69,082	111,388	42,306	71,154	114,730	43,576
SEED COTTON																		
Volume (lb)	-	338,300/4	338,300	-	348,449	348,449	-	358,902	358,902	-	369,670	369,670	-	380,760	380,760	-	392,182	392,182
Value (Tsh)	-	203,050	203,050	-	209,142	209,142	-	215,416	215,416	-	221,878	221,878	-	228,535	228,535	-	235,391	235,391
GROUNDNUTS																		
Volume (lb)	48,271	113,558/4	65,287	49,719	116,964	67,245	51,210	120,472	69,262	52,767	124,086	71,339	54,329	127,810	73,481	55,959	131,644	75,685
Value (Tsh)	29,928	70,406	40,478	30,826	72,518	41,692	31,750	74,693	42,943	32,703	76,933	44,230	33,684	79,242	45,558	34,695	81,619	46,924
TOTAL SURPLUS AVAILABLE																		
Total Bags /6			6,294			6,494			6,691			6,892			7,099			7,312
Total Value (Tsh)			322,809			331,887			340,929			351,154			361,691			372,542

/1 Assume constant village size.
/2 Subsistence needs include seed requirements on block farms. Overall subsistence is assumed to increase by 3% per year over the project.
/3 Assume maximum sales of higher priced nuts grown under advanced practices.
/4 Techniques under the project are fully introduced, after which production assumed to grow 3% annually.
/5 Subsistence needs projected to grow at 3% annually.
/6 200 lb/bag assumed for maize, beans and shelled groundnuts; 80 lb/bag for seed cotton.

Note: Despite national adoption of the metric system, actual usage in the region is still with acres, pounds and feet. Accordingly, the calculations in this annex have used these units.

TANZANIA

KIGOMA/AL DEVELOPMENT PROJECT

Regional Build Up arketable Surplus of Project Crops

Volume and Value /1

CROPS	No. of Villages	Village Year 2		Village Year 3		Village Year 4		Village Year 5		Village Year 6		Vile Year 7		Village Year 8		Village Year 9		Village Year 10		Village Year 11		Village Year 12		TOTAL	
		No. of Bags	Value Tsh	No. of Bags	Value Tsh	No. of Bags	Value Tsh	No. of Bags	Value Tsh	No. of Bags	Value Tsh	No. of s	Value Tsh	No. of Bags	Value Tsh	No. of Bags	Value Tsh	No. of Bags	Value Tsh	No. of Bags	Value Tsh	No. of Bags	Value Tsh	No. of Bags	Value Tsh
MAIZE																									
	20	16,549	529,560	19,152	612,880	20,909	669,080	21,167	677,340	22,612	723,580	24,0	768,780	25,405	812,960	26,682	853,840	27,483	879,440	28,307	905,840	29,157	933,020	261,448	8,366,300
	25	-	-	20,686	661,950	23,940	766,100	26,136	836,350	26,459	846,675	28,2	904,475	30,031	960,975	31,756	1,016,175	33,353	1,067,300	34,354	1,099,300	35,384	1,132,300	290,364	9,291,600
	25	-	-	-	-	20,686	661,950	23,940	766,100	26,136	836,350	26,4	846,675	28,265	904,475	30,031	960,975	31,756	1,016,175	33,353	1,067,300	34,354	1,099,300	254,980	8,159,300
	25	-	-	-	-	-	-	20,686	661,950	23,940	766,100	26,1	836,350	26,459	846,675	28,265	904,475	30,031	960,975	31,756	1,016,175	33,353	1,067,300	220,626	7,060,000
	95	16,549	529,560	39,838	1,274,830	65,535	2,097,130	91,929	2,941,740	99,147	3,172,705	104,8	3,356,280	110,160	3,525,065	116,734	3,735,465	122,623	3,923,890	127,770	4,080,615	132,248	4,231,920	1,027,418	32,877,200
BEANS																									
	20	11,479	872,440	11,335	861,440	11,232	853,600	10,935	831,060	10,848	824,460	10,7	816,840	10,633	808,120	10,494	797,560	10,809	821,480	11,135	846,120	11,467	871,520	121,113	9,204,640
	25	-	-	14,349	1,090,550	14,169	1,076,800	14,040	1,067,000	13,669	1,038,825	13,5	1,030,575	13,435	1,021,050	13,291	1,010,150	13,118	996,950	13,511	1,026,850	13,916	1,057,650	137,058	10,416,400
	25	-	-	-	-	14,349	1,090,550	14,169	1,076,800	14,040	1,067,000	13,6	1,038,825	13,560	1,030,575	13,435	1,021,050	13,291	1,010,150	13,118	996,950	13,511	1,026,850	123,142	9,358,750
	25	-	-	-	-	-	-	14,349	1,090,550	14,169	1,076,800	14,0	1,067,000	13,669	1,038,825	13,560	1,030,575	13,435	1,021,050	13,291	1,010,150	13,118	996,950	109,631	8,331,900
	95	11,479	872,440	25,684	1,951,990	39,750	3,020,950	53,493	4,065,410	52,726	4,007,085	52,0	3,953,240	51,297	3,898,570	50,780	3,859,335	50,653	3,849,630	51,053	3,880,070	52,012	3,952,970	490,944	37,311,690
SEED COTTON																									
	20	29,441	1,363,280	68,488	3,219,520	75,313	3,576,520	78,563	3,746,520	81,488	3,899,500	84,5	4,061,000	87,112	4,182,840	89,726	4,308,320	92,418	4,437,360	95,190	4,570,700	98,046	4,707,820	880,360	42,073,580
	25	-	-	36,801	1,704,100	85,610	4,024,400	94,141	4,470,650	98,204	4,683,150	101,8	4,874,375	105,719	5,076,250	108,890	5,228,550	112,158	5,385,400	115,523	5,546,950	118,988	5,713,375	977,894	46,707,200
	25	-	-	-	-	36,801	1,704,100	85,610	4,024,400	94,141	4,470,650	98,2	4,683,150	101,860	4,874,375	105,719	5,076,250	108,890	5,228,550	112,158	5,385,400	115,523	5,546,950	858,906	40,993,825
	25	-	-	-	-	-	-	36,801	1,704,100	85,610	4,024,400	94,1	4,470,650	98,204	4,683,150	101,860	4,874,375	105,719	5,076,250	108,890	5,228,550	112,158	5,385,400	743,383	35,446,875
	95	29,441	1,363,280	105,289	4,923,620	197,724	9,305,020	295,115	13,945,670	359,443	17,077,700	378,7	18,089,175	392,895	18,816,615	406,195	19,487,495	419,185	20,127,760	431,761	20,731,600	444,715	21,353,345	3,460,543	169,221,480
GROUNDNUTS																									
	20	-	-	-	-	2,336	278,580	5,075	629,300	6,339	785,980	6,5	809,560	6,725	833,840	6,926	858,860	7,134	884,600	7,348	911,160	7,569	938,480	55,981	6,930,360
	25	-	-	-	-	-	-	2,920	348,225	6,344	786,625	7,9	982,475	8,161	1,011,950	8,406	1,042,300	8,658	1,073,575	8,918	1,105,750	9,185	1,138,950	60,516	7,489,850
	25	-	-	-	-	-	-	-	-	2,920	348,225	6,3	786,625	7,924	982,475	8,161	1,011,950	8,406	1,042,300	8,658	1,073,575	8,918	1,105,750	51,331	6,350,900
	25	-	-	-	-	-	-	-	-	-	-	2,9	348,225	6,344	786,625	7,924	982,475	8,161	1,011,950	8,406	1,042,300	8,658	1,073,575	42,413	5,245,150
	95	-	-	-	-	2,336	278,580	7,995	977,525	15,603	1,920,830	23,7	2,926,885	29,134	3,614,890	31,417	3,895,585	32,559	4,012,425	33,330	4,132,785	34,330	4,256,755	210,241	26,016,260

/1 Prices calculated at Tsh 32.00 per bag for maize, Tsh 76.00 per bag for beans, Tsh 48.16 per seed cotton and Tsh 124.00 per bag for groundnuts. Seed cotton bags are calculated at 80 lb, all others at 200 lb.

Source: Table 5

Note: Despite national adoption of the metric system, actual usage in the region is still with acres, pounds and feet. Accordingly, the calculations in this Annex have used these units.

ANNEX 15
Table 8

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Credit and Input Needs by Volume and Cost /1

INPUT	Unit	Unit Cost Tsh	Village Year 2 Volume	Village Year 2 Cost Tsh	Village Year 3 Volume	Village Year 3 Cost Tsh	Village Year 4 Volume	Village Year 4 Cost Tsh	Village Year 5 Volume	Village Year 5 Cost Tsh	Total Village Needs Volume	Total Village Needs Cost Tsh
Diammonium Phosphate (DAP)	tons	1,636.80										
(a) on Maize			44	72,019	132	216,057	264	432,115	396	648,172	836	1,368,363
(b) on Cotton			71	116,213	317	518,866	669	1,095,019	1,020	1,669,536	2,077	3,399,634
Sub-Total DAP			115	188,232	449	734,923	933	1,527,134	1,416	2,317,708	2,913	4,767,997
Calcium Ammonium Nitrate (CAN)	tons	1,322.09										
(a) on Maize			44	58,172	132	174,516	264	349,032	396	523,548	836	1,105,268
(b) on Cotton			71	93,868	317	419,102	669	884,478	1,020	1,348,532	2,077	2,745,980
Sub-Total CAN			115	152,040	449	593,618	933	1,233,510	1,416	1,872,080	2,913	3,851,248
DDT 5% Dust	kg	2.45	21,000	51,450	56,000	137,200	91,000	222,950	126,000	308,700	294,000	720,300
ULV Spray Sets	No.	162.80	350	56,980	1,225	199,430	2,100	341,880	2,975	484,330	6,650	1,082,620
Battery Sets	No.	28.88	350	10,108	1,575	45,486	3,325	96,026	5,075	146,566	10,325	298,186
Endosulfan	liter	16.30	10,500	171,150	47,250	770,175	99,750	1,625,925	152,250	2,481,675	309,750	5,048,925
Single Superphosphate	tons	946.24	-	-	-	-	-	-	100	94,624	100	94,624
Credit Needs by Year				629,960		2,480,832		5,047,425		7,705,683		
Incremental Credit Requirement				629,960		1,850,872		2,566,593		2,658,258		

/1 Derived from Tables 1 through 5.

ANNEX 15
Table 9

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Volume and Cost of Input Needs for Demonstrations[1/]

Item	Unit	Unit Cost (Tsh)	Village Year 2 Vol.	Village Year 2 Cost (Tsh)	Village Year 3 Vol.	Village Year 3 Cost (Tsh)	Village Year 4 Vol.	Village Year 4 Cost (Tsh)	Village Year 5 Vol.	Village Year 5 Cost (Tsh)	Total Demonstrations Vol.	Total Demonstrations Cost (Tsh)
DAP	ton	1,636.80	5	8,184	7	11,458	7	11,458	7	11,458	26	42,558
CAN	ton	1,322.09	5	6,610	7	9,255	7	9,255	7	9,255	26	34,375
5% DDT	kg	2.45	400	980	500	1,225	500	1,225	500	1,225	1,900	4,655
ULV Sprayer	ea.	162.80	50	8,140	60	9,768	60	9,768	60	9,768	230	37,444
Battery Sets	ea.	28.88	50	1,444	60	1,733	60	1,733	60	1,733	230	6,643
Endosulfan	liter	16.30	1,080	17,604	1,200	19,560	1,200	19,560	1,200	19,560	4,680	76,284
SSP	ton	946.24	-	-	-	-	5	4,731	7	6,624	12	11,355
Total				42,962		52,999		57,730		59,623		213,314

1/ Assumes an overall coverage of five acres of demonstrations of recommended practices for each project crop per village.

TANZANIA

KIGOMA RURAL DEVELOPMENT PROJECT

Economic Analysis of the Project

Introduction

1. Conceptually, the ujamaa village may be thought of as a system through which "inputs" -- most clearly in the form of technical knowledge, accounting and management systems on one side, and physical inputs like human labor, fertilizer and insecticide on the other -- are, together with credit, combined to produce additional output, accruing largely in the form of cash income for villagers.

2. The project covers the investment requirements of 135 ujamaa villages at different stages of development. Hence the investment needed in particular villages during the disbursement period varies from social infrastructure and set-up costs in villages just becoming established, to mainly agricultural credit and services for already settled villages. For villages at the beginning stage, the rate of return to project investment would depend critically on government willingness to complete the program and provide the necessary services beyond the disbursement period.

3. Under these conditions, the assessment of the viability of the proposed project has been based on a model of the costs and benefits associated with investments in a typical or representative village, beginning from the establishment of the village and taking a horizon for estimation purposes of 15 years. The analysis is based on a village of 350 families which for simplicity is assumed to remain constant in size over the 15 year horizon. In addition to the economic rate of return, measuring the worth of the project to Tanzania as a whole, there is considerable interest in the impact on the Kigoma villagers who are the direct beneficiaries. The analysis begins from an assessment of the latter, economy-wide considerations being dealt with thereafter.

The Impact on Village Income and Employment

4. Incremental production benefits to villages under the project are calculated from the farm budgets (Annex 15), including additional production for subsistence as well as marketed surplus. Benefits are net of recurrent input costs, in the form of fertilizer, insecticides sprayers and interest on seasonal credit. The traditional or previllage farm is assumed to account for the same cultivated area per family as under the project (3.5 acres), of which 2.4 acres would be required for subsistence needs. The remaining 1.1 acres is valued on the basis of the traditional maize/bean intercropping (see Annex 15). It is assumed that without the project, production per family would have remained at the same level over the project horizon.

5. Family agricultural income would increase from an estimated T Sh 580 under traditional settlement and farming patterns to T Sh 1,130 per family during the eighth year following settlement of the ujamaa village. Total agricultural income would thus increase by 95%, while cash income (income surplus to subsistence needs) would increase more than threefold. A small allowance for off-farm productive activities (casual wage labor, beekeeping, charcoal-burning, etc.) should be made in arriving at total family income. It is unlikely that such an allowance would raise income to more than the equivalent of US$20 per capita under existing (pre-project) circumstances. Agricultural benefits under the project would therefore increase per capita incomes from US$20 per capita to US$35 per capita.

6. Any direct benefits from social services provided in the village -- i.e., education, water supply and health care facilities--would be additional to expected income from agriculture. Valuation of these benefits is however difficult. There does appear to be a strong demand for these services, and it is argued elsewhere that without the early prospect of such services becoming available, it is doubtful that villagers could be attracted into village settlements, or would remain through the initial period of settlement and land clearance, particularly in the tsetse fly areas. But the apparently strong demand for services on the part of villagers is not unaffected by the consideration that under present financing arrangements the benefit-cost ratio to them is practically infinite, since capital and recurrent costs are entirely borne by government.

7. The services are expensive to provide: capital costs are approximately T Sh 350,000 per village, and annual recurrent costs, approximately T Sh 80,000 (including an allowance for overhead supervision and management); allowing for capital recovery over a 15 year period and interest at 10%, the full annual capital and recurrent cost is T Sh 130,000, i.e., T Sh 370 per family or T Sh 75 per capita. The full cost of providing these services in relation to village income from production would thus be 29%. If direct benefits were equal to full costs, "income" from social services would account for 23% of total income. If direct benefits were only equal to recurrent operating costs, "income" from social services would be 15% of total income. On the basis of this assumption, the project would double total village income to US$45. 1/

8. On the traditional farm, labor input per family per annum is calculated at about 240 days; by Year 8 under the project, this would increase (because of the greater labor intensity per acre under improved husbandry) to about 300 days per annum (see Annex 3). But in contrast to the traditional farming cycle, heavily biased towards a maize/bean inter-cropping, labor demands under the project are spread more evenly over the calendar year (see Annex 3, Table 2). Thus despite higher overall usage of labor, labor

1/ Allowing a small margin in the pre-project situation for limited access to health and education facilities.

usage in the peak months of activity is very likely to be about the same under the project as for the traditional farm of equivalent size. This is an important consideration, since it is often the case under traditional cropping patterns and husbandry, that scarcity of family labor during the season of peak activity effectively checks overall expansion that would otherwise be possible given plentiful labor during the slack season.

9. Another influence on the cost benefit analysis and income/employment impact at village level concerns the cropping mix over the life of the project. The assumption that the cropping mix remains constant over the horizon of the project is conservative, since it denies to the village benefits that may be obtainable by modifying the cropping pattern. For example, on the basis of the structure of prices and costs assumed for the project, it could be expected, as a village gains in confidence and sophistication of operations, that a switch towards cotton would occur in respect of marketed outputs. Such a switch could increase net family income by over T Sh 100 at full development without increasing labor input.

Market Prospects for Project Outputs

10. Important considerations affecting future market prospects are: (i) trends in world and domestic markets; (ii) government protection and promotion policies; and (iii) trends in costs of collection, marketing and distribution of inputs and outputs. But because a substantial share of village production is not marketed beyond the village, the effects of market prospects are less than would be the case otherwise. At full development, over 60% of production of beans and maize is not marketed, and over 40% of production of groundnuts.

11. Prospects for cotton are by far the most important market consideration since cotton sales would account for more than 60% of projected agricultural cash income at full development. About 85% of the crop is exported; the 1973 export prices after accounting for prices to producers, distribution and marketing costs, were enough to provide for a substantial surplus (partly taken by government in the form of a 10% ad valorem export tax).

12. Domestic production of maize averaged 710,000 tons per annum over the 5 year period 1968-72. Only about one quarter of the crop is marketed, but commercial sales appear to be growing quite rapidly, possibly at 5% or 10,000 tons per annum. The cash market is supplied through unofficial channels as well as by the authorized parastatal agency and sales through the parastatal probably account for only about one half of the total. Imports, also controlled by the parastatal, have become increasingly important totalling 200,000 tons over the four years ending 1972 (including 135,000 tons in 1972). These were partly offset by marginal export sales totalling 78,000 tons over the same period. It seems likely that the parastatal agency would need to sell an additional 150,000 tons of domestically produced maize in ten years' time, to displace marginal imports and accommodate the growing cash market. Under the project, by Year 10, 15,000 tons of maize should be marketed or about 10% of this requirement.

13. At T Sh 1,100 per ton in 1973 for imports, the comparison with the Kigoma supply price of about T Sh 650 per ton is very favorable. But on the basis of self-sufficiency, other regions in Tanzania may be able to supply additional maize to the major Dar es Salaam market at costs marginally below those for Kigoma. This is difficult to assess because full costs are not properly accounted for by the various unions and societies; however, high transport charges within Kigoma region, added to rail freight of T Sh 75 per ton Kigoma-Dar es Salaam, tends to favor some other regions. By the same token of geographical isolation however, Kigoma producers have a decided advantage with respect to prospective additional sales within the region. The (small) urban population is growing quite rapidly, and with the secondary expansion of regional income created by the project itself, additional sales within the region might account for a third of the marketable surplus of maize produced under the project by Year 10. To the extent that marginal supplies for other markets are at a cost disadvantage relative to supplies from other regions, there is a case for switching production to other crops; however, it is probably premature to assume that additional supplies from other regions will be fact materialize.

14. Supplies of groundnuts and beans are at the present time almost entirely absorbed by the domestic market, despite reasonably favorable export prospects. Growth of the domestic market may absorb 80,000 tons in the case of pulses over the next ten years and 20,000 tons in the case of groundnuts. Incremental marketed production by Year 10 of the project would be 6,000 tons of beans and 4,000 tons of groundnuts--a relatively small proportion of the projected incremental requirements of the Tanzanian market. As in the case of maize, a large share of marketed produce is now sold outside the official marketing channel and this seems likely to continue.

15. With marketing and distribution costs already high, ranging over 80% of the producer price in the case of low unit value maize, a potentially serious problem would arise if further substantial increases in internal marketing and distribution costs occur. Within the region, where the bulk of these costs are incurred, provision has been included under the project for a reorganization of the Regional Union, accompanied by provision of technical assistance, equipment and other facilities to ensure cost-effective operations. However, the major non-regional cost for marketed crops is rail freight and some increase from current low levels may be expected within the horizon of the project.

16. The likely behavior of internal prices and costs generally are in part determined by overall prospects for the Tanzanian economy. So far as can be predicted at this point in time, the most important longer term consideration here would appear to be Tanzania's extremely weak energy y position and lack of mineral resources. Given a balance of payments already fairly heavily buttressed with licensing restrictions on the import side, the likelihood is for greater incentives to be provided by government, favoring the production of traded commodities (exports or import substitutes) such as maize and cotton to be produced under the project.

Economic Rate of Return Estimates

17. Prices for inputs and outputs reflect the situation as at January 1974, with adjustment for expected trends on the basis of commodity pri ce forecasts relating to 1980 and 1985; a shadow rate of exchange of T Sh 10 to US$1:00 in respect of foreign exchange receipts and outlays was used; and domestic costs are calculated net of indirect taxes and subsidies. On the basis of these assumptions, the economic rate of return to the project would be 22%.

18. There are indications that social service expenditures should be treated as a cost of production, necessarily incurred because the benefits of additional income through improved technical practices and marketing facilities in agriculture cannot be achieved except where people live in villages. There are great difficulties in reaching scattered homesteads, as is testified by the dismal developmental record of Kigoma region during the long scattered homestead period. Two possible assumptions would seem to be: (a) that social services just 'repay' their full operating and maintenance costs through direct benefits to villagers (i.e., repay recurrent and capital cost at zero interest); and (b) that direct benefits should bear some plausible relationship to other forms of income. Under assumption (a) the overall rate of return would be 18%. If direct benefits just repay recurrent costs incurred in providing social services they would amount to 15% of total village income at full development (see para 7); on this assumption, the overall rate of return would be 12%. Neither of these assumptions is very satisfactory; on the other hand, nor is an assumption that production benefits would be unaffected by the provision of these services.

19. For the rate of return, the least favorable type of outcome would be where all inputs, social and economic, were supplied on schedule, but yields are less than predicted. If gross yields are, on average, 10% lower than expected the rate of return would be 17% rather than 22%; with a 20% loss, the return would be 5%, and if a 25% loss occurs the project becomes economically worthless. A second, and not unlikely, type of failure would be where certain villages fail entirely and fall apart, while others perform according to expectations. This type of failure is, however, likely to be much less expensive than the first type (because some inputs are saved in the process) though it could be more disruptive socially. Thus, if 30% of project villages fail, the rate of return to the project could still be as high as 15%.

Government Recurrent Expenditures and their Recovery

20. Recurrent expenses of government in project villages at full development would be about T Sh 80,000 per annum. This includes the operation and maintenance of a primary school (at T Sh 50,000 per annum), a village water supply (T Sh 6,500 per annum) and a share of rural medical facilities (T Sh 10,000 per annum), together with the salary of a village agricultural assistant and other minor items. Supervision and overhead staff servicing

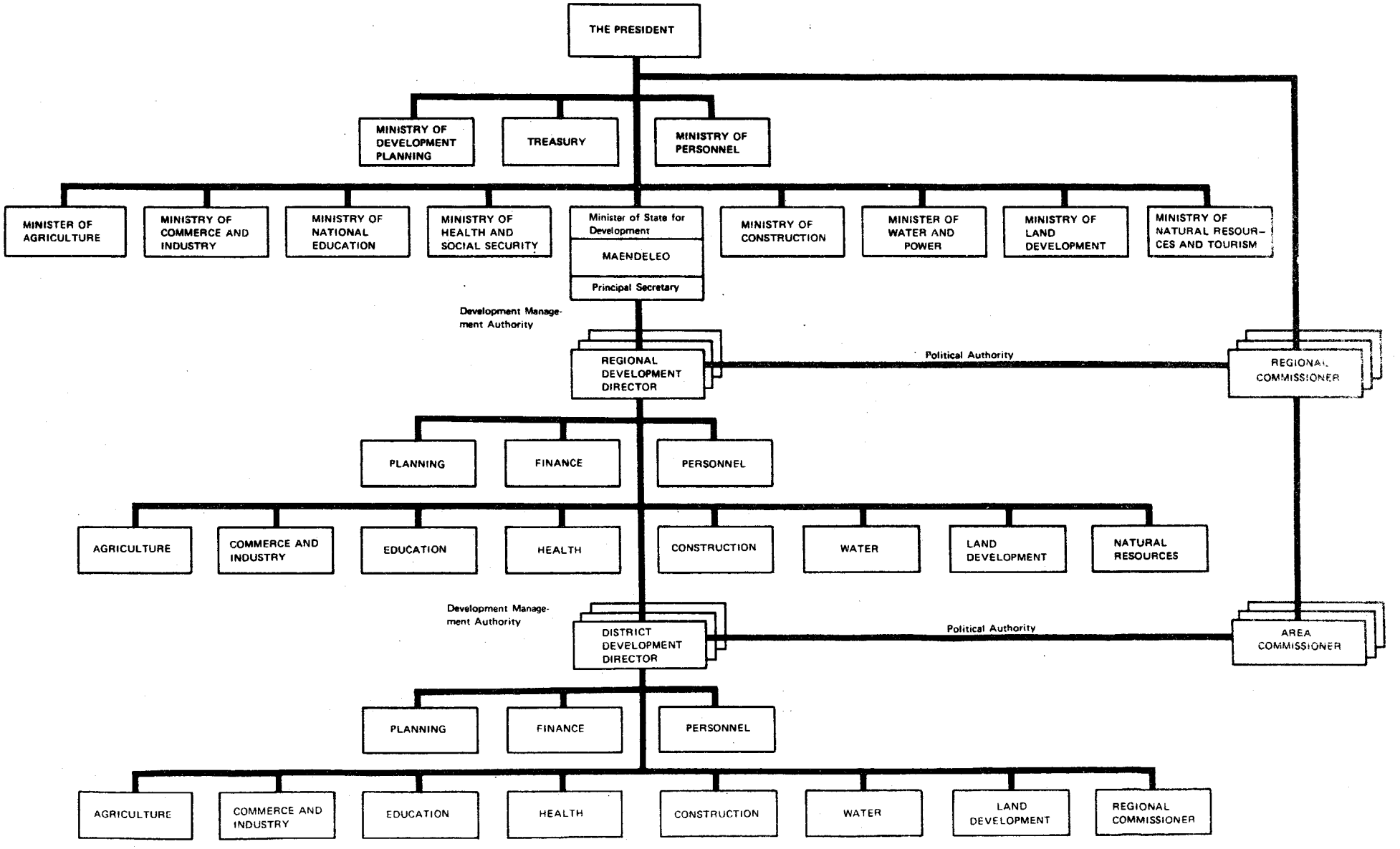
for these facilities at district and regional level might add an additional 20% to 25% to the in-village costs, bringing the total to about T Sh 100,000 per annum. The 135 villages included under the project therefore, commit government to expenditures of about T Sh 13.5 million per annum in the region. The total recurrent fbudget for Kigoma region for 1973/74 was about T Sh 26 million.

21. It is difficult to estimate the recurrent costs of servicing other ujamaa village development schemes, but it is unlikely that these would be below those estimated for Kigoma region. Government policy is for Tanzania's entire rural population of about 13 million people to become resident in ujamaa villages and to enjoy free water, primary education and basic health services. Numbers reportedly living in ujamaa villages might now number some 2 million and are increasing rapidly. Some of those in ujamaa villages now have schools, water supplies and health services, as do some resident in more developed areas not in villages. For a majority, however, perhaps 10 of the 13 million total, the situation would not be unlike that of Kigoma region, calling for extensive social and economic investments likely to generate substantial demands on the recurrent budget. At Kigoma levels of cost, supplying a population of 10 million with currently prescribed levels of services would generate a recurrent cost outlay of roughly T Sh 570 million per annum, or more than US$80 million. Total government recurrent expenditures for 1973/74 would probably be less than US$300 million of which less than one half would be for social and economic services.

22. The increase in current expenditure required for the provision of social services associated with the ujamaa program is therefore a large one. Perhaps more significant, assuming that the program goes ahead rapidly, a correspondingly large increase in tax revenues (government savings being already very small) would be required, which revenues already approach 20% of domestic product and include relatively heavy taxation of the small modern industrial and urban sector.

23. To a limited extent, development of village agriculture may provide additional tax revenue to government directly, so partly offsetting the recurrent costs. In Kigoma region, for example, a major crop would be cotton which currently attracts an export tax of 10% ad valorem, and roughly T Sh 30,000 per annum might be recovered through this and other tax proceeds. The amount of tax generated through this route, however, depends on the crops grown since some crops (non-food exports) are much more easily taxed than others. Assuming that the program will go ahead at a rapid pace, it is hard to avoid the conclusion that some form of additional taxation of villages, to support the services being provided to them is ultimately required. The issue of cost recovery would be an important subject of study for the proposed technical assistance team (Annex 10).

KIGOMA RURAL DEVELOPMENT PROJECT
OVERALL GOVERNMENT ORGANIZATION



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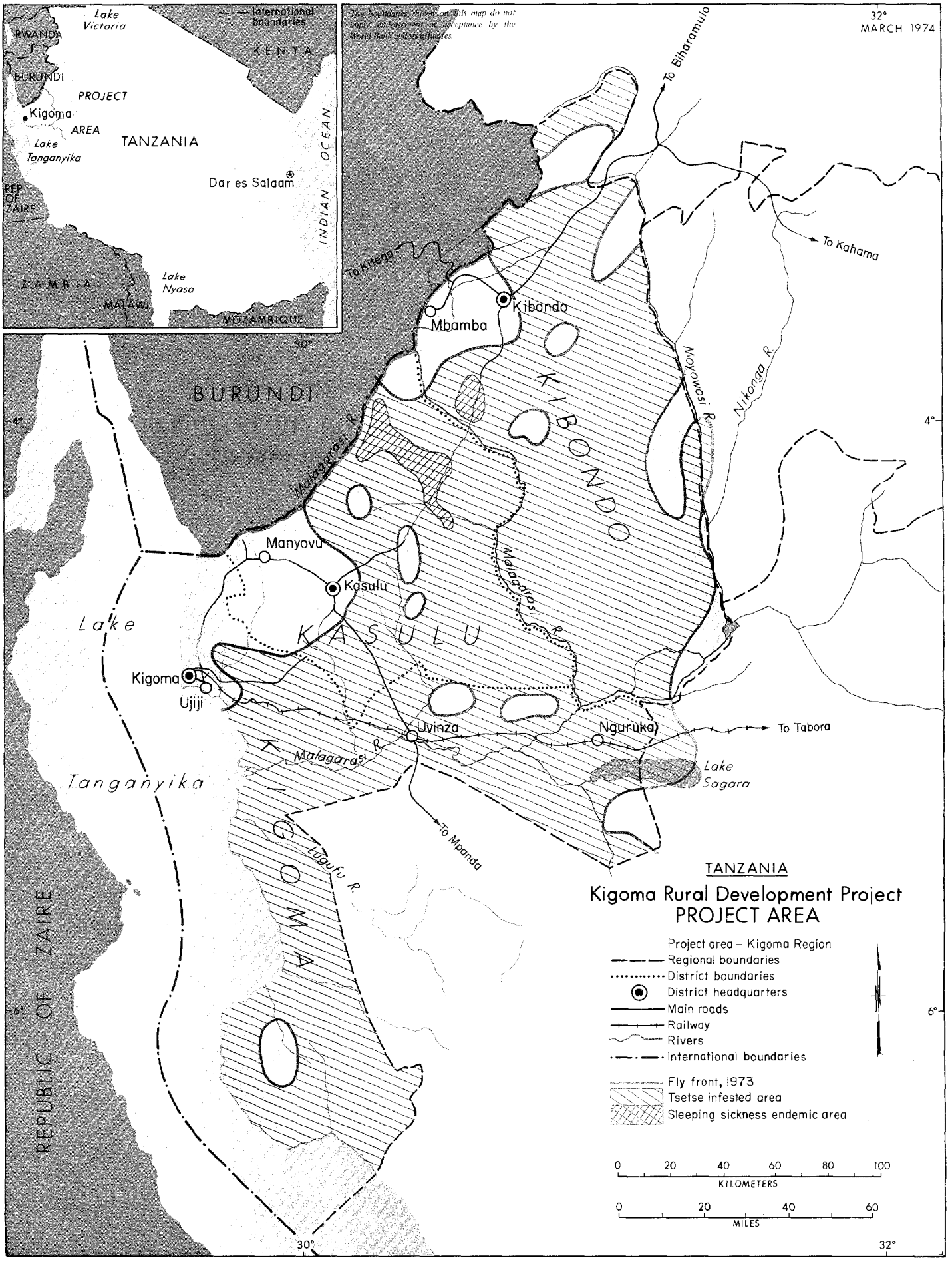
MARCH 1974
The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates.
International boundaries
Lake Victoria
RWANDA
KENYA
BURUNDI
PROJECT AREA
Kigoma
TANZANIA
Lake Tanganyika
Dar es Salaam
INDIAN OCEAN
REP. OF ZAIRE
ZAMBIA
Lake Nyasa
MALAWI
MOZAMBIQUE
To Kitega
To Biharamulo
To Kahama
Kibondo
Mbamba
KIBONDO
Nyovosi R.
Nikonga R.
Malagarasi R.
BURUNDI
Manyovu
Kasulu
KASULU
Lake Tanganyika
Kigoma
Ujiji
Uvinza
Nguruka
To Tabora
Lake Sagara
To Mpanda
Lugufu R.
KOMA
REPUBLIC OF ZAIRE
TANZANIA
Kigoma Rural Development Project
PROJECT AREA
Project area – Kigoma Region
Regional boundaries
District boundaries
District headquarters
Main roads
Railway
Rivers
International boundaries
Fly front, 1973
Tsetse infested area
Sleeping sickness endemic area
0 20 40 60 80 100
KILOMETERS
0 20 40 60
MILES
30°
32°
4°
6°

IBRD 10942

32°
MARCH 1974