S. NIARÉ

7090

ECA/UNDAT/Lusaka/49

31 ~~May~~ March, 1977

ORIGINAL: English

UNITED NATIONS
ECONOMIC COMMISSION FOR AFRICA

United Nations Multinational
Inter-Disciplinary Development
Advisory Team for Eastern and
Southern Africa (UNDAT)

17 ECA

Report on the Pre-feasibility Study on Integrated Rural Development of the Mbeya and Rukwa Regions, Tanzania; and the Northern Province (ISOKA, KASAMA and MBALA Districts) of Zambia.

TABLE OF CONTENTS

CHAPTER 2 : REVIEW OF ON-GOING PROGRAMMES AND PROJECTS; SECTION B: ZAMBIA

NORTHERN PROVINCE

APPENDICES:

CHAPTER I

INTRODUCTION

Terms of Reference and Objectives of the Study

1. At the Third Meeting of the UNDAT Committee of Officials held in Mbabane on 21 - 24 April 1976 the Lusaka UNDAT (III) tabled proposals suggesting that scope existed for multinational cooperation in creating and developing rural settlements between Zambia's Northern Province and Tanzania' Mbeya and Rukwa Regions, all of which fall within the hinterland of the international Tanzania - Zambia Railway (TAZARA)[1]. (In this report where reference is made to these areas collectively or part of this area the phrase "project area" will be used). At the Second Ministerial Council Meeting held immediately following the Officials' meeting on April 26 - 28 the above recommendation was approved and UNDAT was directed to carry out further surveys in the project area. [2] Subsequently at the UNDAT Supervisory Committee Meeting held in Lusaka on July 15 and 16, 1976 the officials adopted the Zambia - Tanzania project area for inclusion in the work programme priorities for the 1976/1977 period and accordingly recommended that:[3]

a) ..... a survey be undertaken of the on-going rural reconstruction programme in the Mbeya Region of Tanzania and the Northern Province of Zambia in order to:

(i) identify the resource base and other factors which might be relevant to deciding on the location of specific settlements and the related agricultural projects;

(ii) evaluate the on-going programmes in the project area in order to facilitate the formulation of future projects;

(iii) identify possible sources of domestic and external resources that would be required for the implementation of the projects that will be recommended;

---

[1] See Document ECA/UNDAT/Lusaka - 35

[2] See Document ECA/UNDAT/Lusaka - 45

[3] See Document ECA/UNDAT/Lusaka - 48

(iv) ascertain the possibility of exchanging experiences between the two countries (in relation to the "project area").

2. The above directives by the governing councils of the Lusaka based UNDAT (III) thus became the terms of reference for the pre-feasibility study undertaken in the "project area" by the Economic Commission for Africa and the Lusaka UNDAT (III). In the context of these terms the team concerned itself primarily with the study of rural development and agriculture with particular reference to strategy and the application of the strategy, the natural and the human resources, the agricultural productive sectors of agronomy, livestock and fisheries; the related sectors of forestry and rural industries were also studied, and in addition the economic and social services and infrasturctures were studied to the extent that they are component parts of rural and regional development. 4/

3. Although no changes or modifications were made by the team on the officials' or ministerial directives cited above the team thought the following observations should be put on record in respect of the study and report presented herein. The team focussed its attention on the identification of the resource base in the 'project area', as well as on the evaluation of on-going projects and the areas of experiential exchange between the government officials manning the various institutions and agencies in the"project area". However, the team did not look into the question of domestic and external resources for the implementation of recommended projects; the team held the view that this belongs to the later phases of the study specifically in relation to the feasibility study or detailed study of recommended projects.

4. The team approached the study on the basis that it was designed to contribute to the co-ordinated multi-national rural settlement objectives which in the spirit of the documents cited above are presumed as:

4/ See Appendix 5 for the study matrix

a) Long-range Objectives:

(i) To promote an integrated social and economic development of the rural sector of Mbeya and Rukwa Regions of Tanzania, on one hand, and the Northern Province of Zambia on the other hand.

(ii) To assist the Governments of Tanzania and Zambia in plan preparation and implementation of complementary multinational integrated rural development programmes for the creation of viable rural settlementsin the "project area".

b) Immediate objectives:

To prepare a pre-feasibility study on integrated rural development potential in the "project area" in cooperation with the government of Tanzania and Zambia, as a first step towards the implementation of the long-range objective mentioned above.

Composition of the Team.

5. The study was carried out by the ECA Headquarters Staff (Addis Ababa and the Lusaka UNDAT (III) staff which was composed of:

Mr. D.J. Njau (Team Leader)	Agro-Economist, Lusaka UNDAT (III)
Mr. S.S. Sangweni	Rural Sociologist Lusaka UNDAT (III)
Mr. S. Niare	Chief - Integrated Rural Development Section ECA Headquarters, Addis Ababa.
Mr. L. Debleian	Agro Economist, ECA/FAO Joint Agricultural Division, ECA Headquarters, Addis Ababa.
Mrs. N.A. Okella	Sociologist, Training and Research Centre for Women, ECA, Headquarters, Addis Ababa.

Definition of the Study.

6. The geographical area which the team regarded as comprising the "project area " is as follows:-

a) Tanzania:

a) The Mbeya Region, in particular comprising the Districts of Mbeya and Rungwe.

b) Rukwa Region, only Sumbawanga District falls within the "project area".

b) Zambia:

The Northern Province, particularly the Isoka, Mbala and Kasama Districtc, constitute the "project area" in Zambia.

6. The team felt that for purposes of this study the boundaries of the "project area" should follow administrative lines, no attempt being made to seek ecological or other physical boundaries. The team further recognised the fact that though the multinational aspects of the study are centred around the "TAZARA" transport axis, for practical considerations it would not be necessary to attempt to define the "TAZARA" area in any rigid terms. This was further confirmed in the field by government officials' approach which in general terms recognises the rural areas as both those immediately along the "TAZARA" corridor, and those constituting the hinterland of the "TAZARA". The parts of the "project area" visited by the mission are within these limits.

Methodology

7. The study lasted approximately from the 22nd November 1976 to December 15, 1976. During this time the team held briefing sessions and interviews with the relevant officials at the Central Government level, at the Provincial/Regional headquarters level and at District levels. A number of projects were visited also and talks and interviews were held with the personnel manning them, and in the case of rural settlement discussions were held with the settlers or villagers through interpretation of the senior officials accompanying the team. [5]/ The team wish to put it on record that the Governments of Tanzania and Zambia, at all levels, were very cooperative and laid on excellent arrangements, providing their own transport locally, for the team to visit Government officials and the relevant projects. They also provided the team with a great deal of data in the form of statistical records, plan documents, research reports, policy papers, etc.

5/

CHAPTER 2

REVIEW OF ON-GOING DEVELOPMENT AND PROGRAMMES.

Section A: Tanzania, Mbeya and Rukwa Regions.

8. Development projects and programmes in Mbeya and Rukwa Regions of Tanzania are affected by the overall national development policies which are based primarily on Arusha Declaration and subsequent enactments and Party pronouncements. Some of these policies are:

- non-discrimination on the bases of sex;
- land belongs to the State and every body is entitled to a place to cultivate;
- man is the centre of development, therefore, every project and programme must have man as the main beneficiary;
- rural development through involving the people at large and self-reliance;
- in order to enable the government to provide essential services to everybody, rural people should live together in planned self-governing villages;
- rural projects should have an integrated approach as far as possible.

In order to give the people the opportunity to decide on their own development programmes, the central government machinery for planning was decentralised in 1972 and personnel sent out to the region and districts to help the people plan their priorities within the the framework of national policies.

The Projects Visited.

9. The team visited six types of development projects in Mbeya and Rukwa Regions. In Mbeya the team was shown projects dealing with the development of tea, rice, livestock, research and training, and villages. In Rukwa the team visited a beef ranch, small-scale development in the Capital Sumbawanga, and villages.

10. According to the Second Five Year Plan the State farms are not to be seen solely in terms of the output they contribute directly, they are also supposed to provide an opportunity for the support for Ujamaa activities. Some of the major objectives therefore are:-

a) to develop a cadre with experience in the problems of farm management;

b) to serve as models, introducing innovation in crops and

c) to provide certain services such as farm machinery, workshop, and transport facilities.

Project in Mbeya.

11. The Kitulo Dairy Farm is situated 80 km from Mbeya town. The area is on the high Usangu plateau X/, which has some 1,000.000 acres which can be used for livestock development. At the moment some 8,000 acres have been improved and it is intended to increase this to 55,000 acres. The farm originally started as a Wool Sheep Project under UNDP in 1965. This project is now under the Tanzania Dairy Company and include three separate projects i.e. Wool Sheep, beef and dairy. To date there are 667 Fresian dairy cows and 1,000 heifers donated by USA Heifer International are being added to the dairy - the target is to ultimately have 8,000 in twenty years. Currently the daily milk production of 1,000 litres is delivered and consumed in Mbeya town, where there is a processing plant with a capacity of 3,000 litres a day.

12. Some 100 villages around the project are being established. It is hoped that these villages will benefit from the project from which they can purchase improved animals for dairy. E ch village will consist of 250 families. It is estimated 125,000 milking cows would eventually be in the hands of villagers. The price of an in-calf heifers sold to the villagers is estimated at Shs. 1800/-. Already Zabu/Fresian in-calf heifers of the F2 and F3 generation are sold to neighbouring villagers. The big advantage here is that the people in this area are already a cattle rearing people. It is to be expected that when this project is finalised, together with the villages, there will be a considerable large amount of milk produced from the area. It is interesting to note that currently Tanzania imports approximately 50 million shillings worth of milk and milk products annually. This goes a long way to show the potential this project has in just the internal demand, which is bound to grow each year.

X-/ The plateau is approximately 1 million acres at an average altitude of 8,000-9,000 feet OD. So far only 55,000 acres are used by the Mitulo complex. Average rainfall is 60.65 ins per year.

13. There are also 1,436 beef cattle at Kitulo. This project has been inherited from another company. It is now intended to continue with the project in as far as it will obtain added steers produced from the dairy project. This project has a tremendous potential, and with the completion of the Canning factory at Mbeya this should allow a serious re-examination of the need to expand this project. Currently the project supplies 4 carcases per fortinight to the Mbeya Hotel, 3 carcases per week to Tukuyu town. Everything points out to a big future for beef production in this area but one is left in doubt as to whether this potential is being treated seriously. The area is absolutely ideal for beef production, land is not considered a limiting factor, but in the absence of a comprehensive plan for the project, it is doubtful if the potential can be fully exploited. It is seriously recommended that a re-examination of this project be undertaken so as to map out a firm policy to maximise the potential. The presence of the canning factory and the TAZARA railway all add to the need of an immediate re-examination of this project.

14. As stated elsewhere the Wool sheep project was the original project for Kitulo having been established by UNDP in 1965. Currently there are about 5,500 sheep producing an average of 200 bales of wool a year (1 bale = 250 kg.) most of the wool is sold to England at £80 per bale. Mutton is sold locally at Shs. 7.50 per kg. The government is said to be thinking of putting up a wool factory. However, it is interesting to note that it is considered unwise to involve the villagers in sheep rearing because sheep rearing is considered to be too sophisticated for the villagers. At the moment the world demand for wool is causing some restraint to expansion and until this situation improve there is no plan to expand.

15. The Mission was not satisfied with the condition of the whole Kitulo Complex. It would appear that a thorough re-examination of the total complex is urgently required to facilitate a clear and meaningful policy that will guide the operations of the complex. At the moment there seems to be no indication of either performances or targets for the three enterprises.

It would appear that the project has changed hands so much that even the original plan has been completely ignored and the added enterprises have been established almost ad-hockly. It would be useful, both due to the great potential of the Kitulo area and the huge market potential for beef and milk both internally and externally, to re-examine the complex so as to maximise the potential that this complex obviously has for the development of the area around it as well as for the overall national development.

16. The Mbarali Irrigation Scheme was originally started by the government in 1958 with the sole purpose of increasing food production. The scheme started as a pilot scheme with 500 acres. A grant by the British Government funded the scheme until 1964 when the government took over. Due to lack of funds very little progress was done. In 1968 the Chinese government did surveys of the area and agreed to continue the scheme. The project has now been expanded to 8,000 areas plus 1,200 acres prepared for the villagers near the scheme. River water available for irrigation is sufficient for 9,200 acres. It is expected that by 1978 the whole farm consisting of 8,000 acres will be under production. Currently there are 4,000 acres of rice and 600 acres of maize, beans, sorgums and fruits. The scheme has its own rice mill, a poultry unit with capacity of producing 50,000 broilers a year with all the feed produced at the scheme. There is also a small hydro-electric power station for the scheme. The whole scheme is now under NAFCO, a parastatal of the government, and once the preparation of the whole farm is completed the Chinese experts will leave. In 1974 the scheme produced 2,015.000 kg of paddy and 4,652,170 kg in 1975. Depending on variety the scheme has attained yields of up to 62 bags (75kg bags) per acre.

17. There are 3 villages near the complex with 750 families. The scheme has provided the villages with irrigation canals and sells them seed and machinery service. There is a full time extension officer for the area. Rice yields in the villages are low, about 15-20 bags per acre, but with improved rice husbandary i.e. fertilizer use, early planting, bird control and good seed, they should be able to get yields of up to 30 bags per acre.

18. The scheme is very efficiently managed and so far it produces 20% of national rice production constituting one of the largest projects in the country. If other areas of the Rufiji valley could thus be exploited, Tanzania could very well become self sufficient in rice as well as an exporter of rice. The Chinese, it must be admitted, are very efficient in canal irrigation.

19. The Rungwe Tea Scheme a small holder tera production in Rungwe District, is improving tremendously. Both communal tea farms and individual farms, produces tea that is processed at the local factory. Rungwe is one of the oldest tea growing area of Tanzania. Currently with the good world market the policy is to consolidate the family holdings involving the increasing of the size of the holdings and also encouraging establishment of more communally owned farms.

20. Small holder tea growing in Tukuyu started in 1960/61 with 6 farmers owning a total of 0.3 hectares. In 1975 there were 9,930 farmers growing tea on approximately 4,000 hectares, of those 800 hectares were worked on communally by Ujamaa villages. By the end of 1975 over 1.6 million kgs of green tea leaves were harvested and processed at the local factory. The future of this crop in the area is immense.

21. Kitumba Tea Factory was started by the Tanzania Tea Authority in 1974 to serve an area of about 30 square miles inhabited by the small holder tea growers. The factory has an initial capacity of 55,000 kgs of processed tea per day - with possibilities of extending the capacity if need be. So far the factory has processed the following quantities of green leaves received from the small holder growers, the Prison farms in and around Tukuyu and the two Mission farms in the area.

Season	Target Kgs	Actual Kgs
1973/74	3,950,949	2,634,889
1974/75	5,439,574	4,323,616
1975/76	5,904,761	4,671,189

22. Currently, using a World Bank Loan, all roads in the area have been upgraded to all weather roads. This will greatly help to increase production and render the delivery of green leaves to the factory much more efficiently. About 50% of the processed tea is sold direct to UK, another 40% through tea auctions in Mombasa, Kenya and the remaining 20% through the Tanzania Tea Blenders Company. There is the posibility of using locally produced coal instead of petroleum products.

This will greatly help in reducing production costs of the factory thereby giving a much higher return to the farmers.

23. Green leaves are presently collected from 10,500 farmers registered with the factory. The amount of green leaves collected each time is entered against the name of the farmer and at the end of every month each registered farmer receives the equivalent of 70 cents for every kilogram of green leaves he sent to the factory (the price is 90 cents per kg. but 20 cents is deducted for loan repayment to Tanzania Rural Development Bank). With regards to the green leaves collected from Ujamaa fields, the payments is made to the Village Council which decides whether to share out the proceeds or re-invest in village development. The principle of Ujamaa cultivation requires that if the proceeds are distributed, each member of the village should receive a portion of the proceeds in accordance with his/her contribution. However, the information received from Nditu Ujamaa Village indicates that not much of the proceeds has been shared out so far.

24. Uyole Agricultural Centre.

Investigations for the development of Uyole Agricultural project started in 1968 under the Ministry of Agriculture with assistance from Nordic countries - Denmark, Finland, Iceland (joined 1975), Norway and Sweden. In 1972, the project was established as a joint Nordic/Tanzania venture under the name of Uyole Agricultural Institute. In March 1976 the Institute was re-established as a Public Corporation with the name of Uyole Agricultural Centre in order to make it more self-reliant on decision making, programme planning and execution.

25. Finances under the agreement signed between the Nordic countries and Tanzania, the Nordic countries agreed to provide assistance amounting to Shs. 75.1 million to be divided as follows:-

a) a grant to cover 80% of the investments in buildings, equipment, site and farm development (Sh.16.3 million).
b) consultancy services for constructional design and building s supervision (Sh.7.0 million).
c) personnel assistance programme involving a total of 145 man-years for five years (Sh.26.9 millions).

e) Nordic administration costs (Sh.2.4 million).

The government of Tanzania on the other hand was to meet the remaining 20 per cent of the capital costs and all recurrent expenditures. This amounted to T. Sh 7,754,745.15 during 1975-1976 financial year. Although present agreement ended on 31 December 1976, the Nordic assistance is expected to continue untill 1981.

26. Centre's Activities Training at full capacity, the training section will contain 500 students. However, this number has not been attained. The training activities started in June 1975 with 161 students enrolled for a 2 years certificate course in Veterinary (56 students), Agriculture (61 students) and Agri-Home Economics (44 students of whom 28 females were enrolled for pure home economics.) In March 1976, the certificate course in Agri-Home Economics was discountinued by the Ministry of Agriculture and most of the students taking home economics transfered to agriculture. Only 16 students were allowed to finish their original course. The Ministry has given a directive that there should be no more specialisation at the certificate level. A general multipurpose course covering all subjects needed for rural development will henceforth be offered to all students registered for the certificate course. In November 1976, there was a body of 334 students consisting of 260 men and women.

27. Diploma in serve courses commenced in October 1975 with 33 students enrolled for animal production, 32 students for crop production and 12 students for agri-homes economics.

TABLE I

Distribution of Students by Course and Sex as on July 1975 and June 1976

Course	July 1975			June 1976		
CERTIFICATE	M	F	T	M	F	T
Veterinary Science	48	8	56	37	6	43
Agriculture	61	0	61	59	0	59
Agri-Home Economics	10	34	44	9	28	37
Multipurpose Course 1976/77						
Stream I				23	8	31
Stream II				24	5	29
DIPLOMA						
Animal Production	28	5	33	25	5	30
Crop Production	26	6	32	25	6	31
Agri-Home Economics	0	12	12	0	12	12
Intake 1976/77						
Animal Production				27	3	30
Crop Production				31	1	31
TOTAL	173	65	238	260	74	334

Source: Report of the Activities of the Uyole Agricultural Centre, 1975/76.

Qualifications for enrollment for the Certificate Course is completion of secondary education while Diploma course students are either in-serve or ex Form VI leavers. Refresher courses are also offered for those in the field. All students are expected to spend sometime on field study before completing the course - certificate students in the villages while diploma students at district level. Teaching departmentd consist of Agricultural Science, Agro-Economics, Agronomy, Animal Production, Food Industry, Horticulture, Land Use, Veterinary Science, and Audio-visual Aids laboratory.

28. Research. The aim of this section is to carry out research applicable to farmers in Mbeya, Iringa, Rukwa and Ruvuma regions. Altogether more than 80 research extension projects have been undertaken covering

mainly at the farm level extension worker and his farmers. These research activities have covered:

a) Agronomy: to find out which crop varieties are best adapted to the different zones of the southern highlands and to work out improved management practices for maize, finger millet, sorghum, wheat and sunflower. Trials on barley and new crops such as soya beans, chikenpeas and lepins were also studied.

b) Horticulture: observation plots for field testing and demonstration of good crop husbandary in legumes, tubers, vegetables, fruits and berries have been laid out in several villages in conjuction with regional and district agricultural officers.

c) Pasture and forage: Work has concentrated on improved natural pastures, grass lays, animal forage crops and root crops. The main objectives were to determine how to promote pasture production through the use of improved and high yielding grasses and fertilizers and the growing of grasses in mixture with legumes.

d) Agricultural Engineering: research has concentrated mainly on storage facilities for produce - modifications and improvements necessary to local produce storage facilities for potatoes. Analysis of the suitability and costs of available local building materials for the farm was also undertaken.

e) Farm management and Agro-economics: Some of the main activities have included:

(i) Farm managements survey in the Ufipa Plateau - completed in October 1975;

(ii) Analysis of input data for the Uyole farm for the main produce findings for 1974-1975 available;

(iii) Examination of relative costs of mechanization using animal power-preliminary results available;

(iv) Study of the production and marketing of fruits and vegetables in Mbeya region - analysis not yet completed.

f) Plant protection: Field experiments have been carried out on maize, beans, cabbages and tomatoes. The objectives were to investigate the damage caused by pests and diseases.

g) Animal production: Because the facilities for research on this topic were not yet completed, the department has not undertaken

h) Soil Science and chemical laboratory: The department has concentrated so far on soil surveys, pot experiments and assisting with teaching bevause the laboratory has not been completed.

29. Agricultural Experiment stations: The centre has six substations conducting trials and observations at Mbimba, Iringa, Suluti, Migalula, Igeri and Miyao. Expenses connected with operations of these substations amounted to T.Sh. 6000,000 in 1975-1976

30. Extension Unit: The main objective of this department has been to function as a link between the research at the centre and the field especially the government extension services in order to transmit findings and obtain information on problems existing in the field. This objective is achieved through seminars, field days, field walks and visits to district and regional officers. Demonstration plots are also run in cooperation with goverment extension officers.

31. Production activities: The centre engages in the production of crops (mainly cereals and fodder) and livestock at Uyole farm. The farm was originally started as part and parcel of the research services of the centre in order to test out technology advocated for general adoption by farmers in the southern highlands area. But following the call by TANU of national self-reliance its activities were expaded to include:-

a) a poultry project ecomprising 800 layers and the production of 6,000 broilers every year.
b) a vegetable project for consumption by students, for use in training laboratories and for sale.
c) a land development project in which 100 hactares were developed in to arable land and planted with beans, barley wheat.
d) a food industry project (production of bread, butter making, food processing, etc.) will also be introduced as soon as the facilities are ready.

Estimated costs for self-reliance projects during 1975 was T.Shs. 705,012. Actual costs on the other hand was T.Shs. 590.000 and estimated income T.Sh.629,400.

32. Party Branch activities: The TANU branch at the Centre which started operating in 1975 with 90 registered members had 240 members at the time of the visit. Among activities undertaken by the branch with assistance from administration included:-

a) education for illitrate workers for six months - 52 workers qualified at the end of 1975;

b) establishment of a cooperative shop;

c) cultivation of 35 hectars on Ujamaa basis;

d) construction of a primary school on self-help basis. First phase completed 1975.

33. The Centre has, despite disabilities caused by inavailability of certain facilities, done an excellent job at importing necessary techniques and knowledge to those engaged in rural development. The elimination of specialization at the certificate level will in particular ensure that the "bwana shamba" (male or female) who is attached to any village will be able to help solve most of the basic problems of the farm families and not only agricultural problems. In addition this change will help speed up integration of women in all sectors by eliminating any lingering attitude and beliefs which still confine women to home economics inspite of contrary amptitudes.

34. We beleive that the following research areas could also be examined in order to encourage a package approach to improvement of rural life.

a) The section dealing with research on farm management and agro-economics should at all times take into consideration how the division of labour and family resources among members of the family effect farm management and agro-economics, including the use of modern technology for better crop production, processing, and storage.

b) Research could also be instituted on health and nutritional status of young children in villages which have been operating as Ujamaa Villages for several years in order to ascertain whether additional action need to be taken by Village Councils on behalf of those vulnerable members of the society.

Projects in Rukwa Region.

35. Ranching in Sumbawanga. Unlike dairy, the area is very much suited to ranching. The traditional herd for Sumbawanga is approximately 200,000 and the potential for expansion is still immense. A National Agricultural Company (NACO) operates four ranches in the areas. The Prisons' Department also operates a ranch near Sumbawanga town. Targets have not been reached despite availability of funds mainly because of poor transport facilities. It has not been easy to transport livestock from other regions of the North i.e. Shinyanga. and Dodoma Regions.

36. Malonge State Ranch. situated 15 miles from Sumbawanga, is owned by the National Ranching Co., (a subsidiary of the Tanzania Livestock Development Authority). It was started in 1968 for fattening and breeding of livestock to satisfy local demand and for export to neighbouring Zambia. Total capacity of the ranch is 9,000 A.U. utilizing about 48,000 acres. Currently there are a total of 2,400 animals of which 870 constitute the breeding herd. Boran bulls crossed with the local Ankole give very good offsprings. Brucelosis limits the use of ranch bulls in the surrounding villages, however, the ranch sells steers to villages around it for exenization; so far 60 steers have been thus disposed of.

37. The main bottlenecks of this enterprise and similar ones in the area are:-

a) lack of transport facilities - this has affected the supply of stock from other areas which have abundant stock - the animals are usually brought in when they are 3 to 4 years old. Despite availability of funds the Ranch has not been able to obtain animals from their sole supplier - The Tanzania Livestock Marketing Company (TLMC) since 1973. This situation is serious.

b) Disease problems - the presence of foot and mouth disease limits the Ranch capability of exporting meat to Zambia. The Ranch exported meat to Zambia from 1973 to 1975 when it stopped after having a total of about Shs. 1,059,000 = worth of chilled boneless beef. It would appear that there is tremendous potential market both locally, in Zambia and neighbouring Zaire; provided, of course, the major constraint of disease and communication are effectively dealt with.

Ujamaa Villages:

38. Given Tanzania's population distribution, the idea that agricultural mobilization can only be brought about effectively by concentrating people on villages comes as no surprise. Economists of the capatilist world acclaim it because of economies of scale - the reduction in the cost of providing infrastructure and supplying of communal services. Tanzanian socialism adds to this the most important dimension of all: that by living together people will not only be able to improve their productive and distributive efficiency, but will be able to learn a new way of life - working together, sharing their produce communally, marketing cooperatively, and living democratically at the village level. The first clear philosophical articulation came in 1962, with the publication of Nyerere's "Ujamaa - the basis of African Socialism". Nyerere urges that by tradition Africans, have always been socialists. Their socialism or Ujamaa was governed by three fundamental principles:

a) people worked together and lived together;

b) all the basic goods were held in common - no one could go hungry while others hearded food, or denied shelter if others had some to spare;

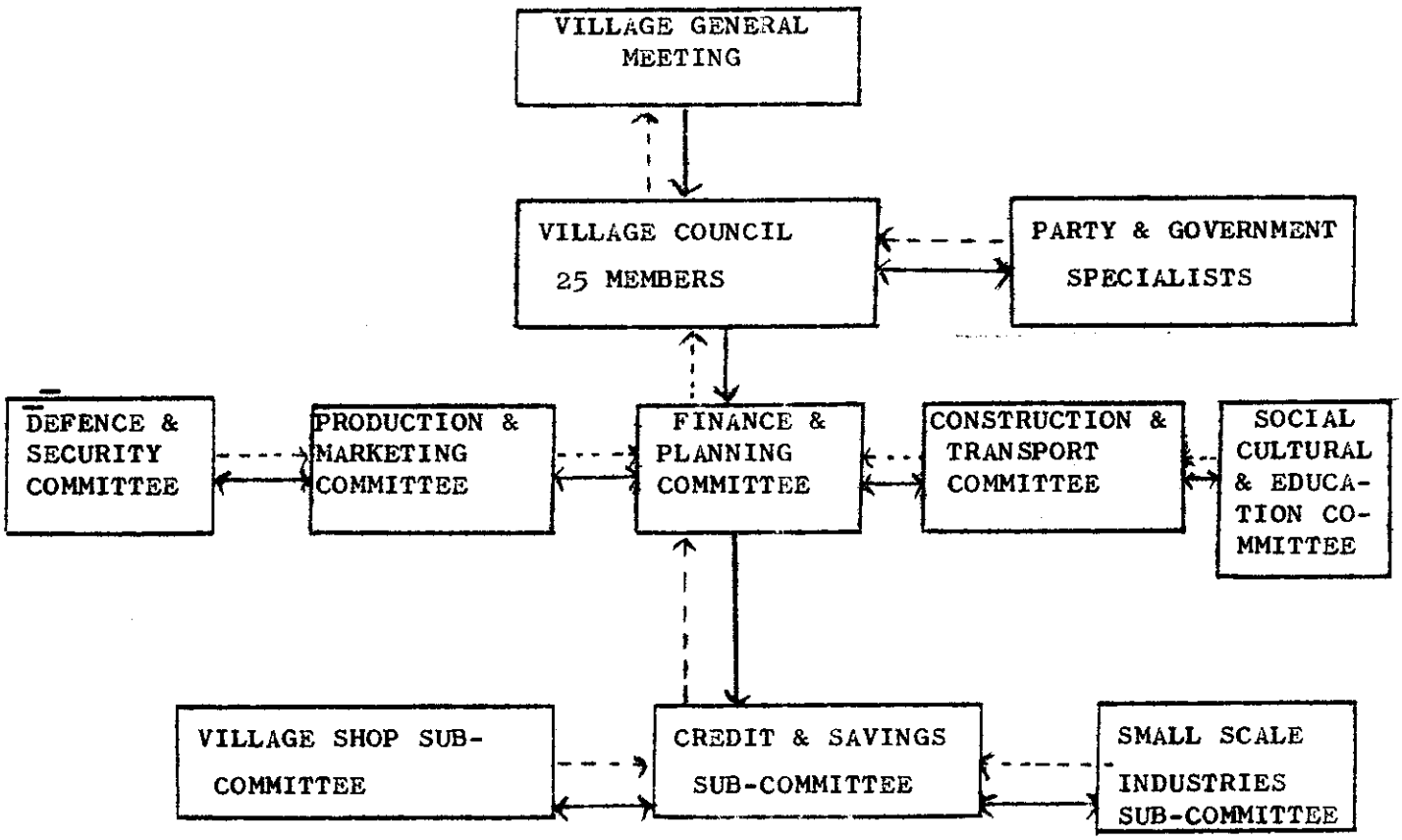
c) everyone, even guests had an obligation to work. It is against this background that Tanzania has embarked on the creation of a society based on communal effort of hard work and self-reliance.

39. The programme of getting all rural Tanzanians in villages has now been completed. The government has now embarked on a programme of consolidating these villages into properly and legally established multi-purpose Ujamaa villages. For this purpose the villages and Ujamaa Villages (Registration, Designation and Administration) Act* was passed in August, 1975.[6]/ This act empowers every village to manage all the affairs of the village through its democratically established village council (see Village Government Chart, Diagram 1).

6/ See villages and Ujamaa Villages (Reg. Designation and Administration) Act. Appendix 3.

DIAGRAM 1

THE VILLAGE GOVERNMENT



Each Committee of the Village Council has not more than 5 members

Line of Authority

Line of Cooperative relationship and Feed back

40. The Villages Visited The team visited a total of five villages; one in Mbeya and four villages in Rukwa. Most of the villages were registered villages.

41. Administration: Each village is administered by the Village Council and operated as a multi-purpose co-operative union. The Councils carry out their functions through Committees such as finance and planning, production and marketing, education, culture and social welfare, works and transport, and security and defence. The main activities of the villages were connected with the following:

(i) agriculture and animal production;

(ii) small-scale industries;

(iii) provision of essential and social services.

42. Agriculture and animal production: Every family is allotted at least one acre of land for the purpose of building dwelling houses and for other domestic purposes. This land is used by many families to grow vegetables and fruits for consumption within the family. In addition each family had, subject to availability of arable land, a piece of farm land within the village according to need and ability to develop. These farms varied between 5 and 10 acres, produce most of the food crops and were cultivated as a family venture subject to the overall direction of the Village Council on the type of crop to be grown and inputs required. However, the produce from this farm could also be used by the family to meet other obligations so long as an adequate amount is reserved for food.

43. Individual residents of the village also had allotted to them plots within the block farming area for the purpose of growing crops for sale. All operations on the block farms have to be undertaken at the same time in order to make the delivery of extension service easy. Individual residents however take care of their own plots.

44. Since the main aim of agricultural development in Tanzania is to modernize agriculture and create a framework in which the advantage of large-scale production can be reaped without the negative social consequence of capitalist agriculture, all the villages visited had large village communal farms varying from 150 acres in Sandulula to 1,000 acres in Ikozi planted with maize and beans. Although the principle is to have the proceeds from the communal farm distributed to residents according to individual contributions so far the proceeds have been ploughed back in to village development programmes such as extension of the village school, purchase of agricultural implements, and vehicles for transportation.. All the marketing and purchase of agricultural inputs for individual farms and the village farm are organized by the Village Council under its authority to function as a cooperative union. Individual residents may not own heavy agricultural implements such as tractors, harvesters, harrows etc, but may own ox-plough for cultivation of their own farms. The villages visited used hired tractors, village ploughs and individually owned ploughs for the cultivation of communal farms depending on available village resources.

45. Livestock is presently held by individual families although herding is done communally. Some villages for example, Ikozi and Sandulula have some village stock of drought animals and plan to purchase dairy cattle for the benefit of the village. Individual families may not sell their livestock except through the Village Council.

46. Small-Scale Industries and Businesses: The villagers participate on a communal basis in carying small-scale industries and business depending on the skills available in each village. These include shops, iron works, carpentry, chicken-keeping and brick-making. Individually operated small-scale industries or businesses were not very visible, but the team was informed that some villagers, women in particular, participate in individual industries such as basketry and pottery which were sold to the other residents of the villages. (see Table II).

TABLE II

Government Assistance Towards Small Scale Industries in Villages by Regions. (In Shillings).

Regio	1974/75	1975/76
Arusha	500,000	900,000
Dar-es-Salaam	1,000,000	1,200,000
Dodoma	-	-
Iringa	245,000	230,000
Kigoma	100,000	440,000
Kilimanjaro	746,000	650,000
Lindi	281,000	365,000
Mara	185,000	740,000
Mbeya	116,000	413,000
Morogoro	156,000	490,000
Mtwara	200,000	240,000
Mwanza	200,000	345,000
Coast	600,000	-
Ruvuma	-	215,000
Shinyanga	120,000	240,000
Singida	750,000	240,000
Rukwa	340,000	425,000
Tabora	325,000	561,000
Tanga	500,000	937,000

47. Provision of Essential and Social Services: One of the major activities of the villagers has been towards the provision of essential and social amenities in the village through self help projects and with assistance from the government. Each of the villages visited had a primary school, a grinding mill, a village shop and either piped water on stand taps located at various points or water wells. Some villages have clinics while others have first aid boxes depending on the plans made by the central government regarding staffing. One village - Kasense in Rukwa - has in addition a maternity ward. The majority have day care centres where children between ages 3 and 6 years are looked after while the mothers are at work.

48. Division of labour: The division of labour is organized by the village council with the approval of the village assembly. It is the Council which decides which activities should be undertaken communally and how an individual's contribution in one activity relates to those of other residents in various activities. For example, the contribution of the day-care centre's attendant is usually considered equivalent to those of other members who work in the communal farm. The Council also intiates activities for selfhelp and assignes residents according to individual's abilities.

49. Training and Extension services: Academic, political, economic and social education is provided by extension workers of the different ministries, organizations and party functionaires. A great deal of emphasis is laid on education for Ujamaa and self-reliance. This is achieved through communal school gardens and other village communal and self-help activities. Every village school has its own farm and students could be seen engaged in communal gardening.

50. The aim of the Party and government is to be able to provide extension workers of all disciplines stationed in every registered village to assist villagers with their activities. However, this has not been achieved due to the constraint on available man-power except probably agriculture which had a "bwana shamba" (agricultural assistant) stationed in almost every village visited. Other extension workers were available at the ward and/or district levels. Although by policy, women villagers are supposed to get training together with men, their training in specific family duties are presently taken care by the Department of Ujamaa and Cooperatives and Ukoja wa Wanawake wa Tanzania (the women's organisation).

However, both of these organizations in the regions visited did not have personnel trained in home science stationed at the village and ward levles. This meant that the district home science officers had to cover all the villages in her district - a task difficult to perform efficiently.

51. Because the government is aware of this obstacle to the developmnt of the villages it has recently embarked on the following corrective measures:-

a) certificate level workers, except in a few specializing training institutions, will now be given a multi-purpose training course consisting of agriculture, nutrition, home science and animal husbandary.

b) folk development colleges are being established for the training of "bwana Kazi [x]/ selected by the villagers amongthemselves;

c) re-training of "bwana Shamba" on the principles of Ujamaa and cooperatives, other extensions services offered to the villagers include:

a) agricultural inputs at a subsidized price e.g. fertilizers, improved seeds, etc.;

b) tractor hire service at subsidized rates. In January 1975[xx]/ there were for example in Mbeya Region 226 tractors owned by Rural Development Fund. Co-operative Unions, government and private individuals. The region has proposed to purchase for the Third Plan period 70 tractors, 10 tractor planters, 20 paddy trashers, 25 trailers, 150 ox-carts and 3200 ox-ploughs in order to mechanize block farming;

c) loan and credit facilities (see Table III)

d) organization of marketing.

---

[x]/ These are persons selected by the villages to train in specific needs of the villages. On completion of the course they become supervisors of these activities within the village.

[xx]/ Mbeya Region, Draft Integrated Regional Development Plan 1975.

TABLE III

TANZANIA RURAL DEVELOPMENT BANK LOAN DISBURSEMENT TO VILLAGES.

Region	1972/73 Shs.	No. of Villages
Arusha	68,600,00	1
Iringa	937,400,00	31
Mbeya	1,249,000,00	4
Morogoro	24,700,00	1
Singida	72,000,00	1
Tabora	15,826,800,00	12
TOTAL	18,178,500,00	50
	1973/74	
Iringa	616,726.00	28
Lindi	26,738,00	1
Mara	238,384,00	4
Mbeya	1,712,082,00	7
Mwanza	22,798,00	1
Ruvuma	246,900,00	1
Tabora	11,405,489,00	12
Tanga	573,960,00	2
TOTAL	14,842,877,00	56
	1974/75	
Iringa	2,783,766.00	37
Tabora	57,278,901.00	8
Mbeya	7,815,455.00	8
Shinyanga	6,165,013.00	2
Arusha	90,650.00	1
Tanga	877,724.00	5
Rukwa	3,912,622.00	4
Singida	1,248,630.00	1
Lindi	107,406.00	1
Mara	102,720,00	4
Dodoma	52,850.00	2
Ruvuma	11,865.00	1
TOTAL	83,766,132.00	74

TABLE III contiued.

Region	1975/76	No. of villages
	Shs.	
Iringa	3,912,779.00	48
Mbeya	7,928,755.00	11
Rukwa Rukwa	3,912,622.00	4
Kigoma	1,815,499.00	9
Singida	2,860,980.00	3
Tabora	57,754,311.00	9
Shinyanga	7,758,643.00	4
Arusha	130,000.00	3
Lindi	411,575.00	4
Dodoma	1,377,300.00	3
Ruvuma	13,865.00	1
Mara	51,360.00	2
Tanga	18,750.00	1
Mwanza	5,341,128.00	12
West Lake	77,640.00	3
TOTAL	93,365,307.00	117

Appraisel of the Rural Development Strategy.

52. It is not possible to appraise the progress or otherwise of the plan period as the plan had to be extended beyond 1974.* The Third Five Year Plan is being drafted and may be out in 1977. However, it is true to say that a clear policy of emphasis on regional planning and rural development, set out in the previous plan, has been established as the mainstay of Tanzania integrated development strategy. Since the introduction of Ujamaa strategy the progress to settle scattered population in planned villages has been very encouraging. Although the figures available cannot be regarded as absolutely reliable, they give a very fair picture of progress so far made in establishing these villages. By the end of 1968 there were reported to be about 180 villages in the country with a total population of some 58,500 persons.

A year later the figures were 650 villages with 300,000 persons. Thus in about twelve months the number of people living in villages had increased from a mere 0.5% to 2.5% of the total population. Today the Ujamaa strategy is no longer viewed as one possible path to development; it is accepted as the only practical way to integrated rural development in Tanzania. By the end of 1976, 90 per cent of the population are in Ujamaa villages, 50% of which are fully fledged registered multi-purpose cooperative societies. (see Table IV and V.)

53. The creation of these villages has not been an easy exercise and indeed seems far from complete in terms of what is envisaged. However, it is remarkable to note that the rather ardous and humanly problematic intial phase of physically villagising 90% of the population has been achieved in the stipulated time. But even in purely quantitative terms there is a great deal to be known about the Ujamaa rural development strategy before any meaningful evaluation is possible, e.g. the ideal size of the village, the setting, the use and division of available labour, the rates of returns per person (male, female and children) per day, the work loads and their corresponding rewards, the nature and range of the village economic activities. With so many unknowns it is prudent at this stage to withhold judgement. The advantages of cooperative effort and of economies of scale leave no doubt as to the ultimate success of this type of rural development strategy for a country as large as Tanzania with uneven distribution of both natural resources* and population. The"Ujamaa" rural development strategy appears to demonstrate the need and the role of a properly formulated institutional framework as a base and cornerstone for a rural development strategy

---

* It is true that Tanzania is an enormous country, approaching the size of Nigeria, yet the amount of arable land is severely limited. Much of it including large part os the interior consists of tsetse-infested grassland, bushland, or swamps. Most of the good arable land is found in a few geographical areas on the country's perimeter - the Kilimanjaro zone, the Usambara, the Lake Victoria region, Tanga, Iringa, Mbeya and parts of Ruvuma region.

TABLE IV

NUMBER OF ESTABLISHED VILLAGES BY REGIONS

JUNE 1976

Region	Registered Villages	Total Villages	Total Villagers	Total population	% of total population in villages
Arusha	209	319	558,540	825,030	71
Dar-es-Salaam	10	52	44,027	532,510	8
Dodoma	322	392	793,519	878,590	90
Iringa	464	475	804,391	912,580	88
Kigoma	145	194	448,908	550,020	82
Kilimanjaro	239	535	807,500	575,500	92
Lindi	257	315	386,664	497,490	78
Mara	270	332	685,673	740,570	93
Mbeya	438	581	988,937	959,960	103
Morogoro	233	397	763,800	828,120	92
Mtwara	456	459	680,869	904,340	75
Mwanza	432	617	1,446,113	1,339,240	108
Coast	62	303	552,900	599,460	92
Rukwa	156	385	346,800	370,800	94
Ruvuma	156	277	378,511	505,730	75
Shinyanga	217	386	906,340	1,139,180	80
Singida	164	276	424,744	528,390	80
Tabora	127	398	553,770	609,760	91
Tanga	86	499	729,914	983,650	74
West Lake	163	492	735,300	797,220	92
TOTAL	4,869	7,684	13,067,220	15,378,140	85

Source: Prime Minister's Office, June 1976, Dodoma.

TABLE V

INCREASE OF VILLAGES BY REGIONS - REGISTERED VILLAGES IN BRACKET

1971 - 1976

Region	1971	1972	1973	1974	1975	1976
Arusha	59(1)	92(8)	95(8)	110(9)	180(9)	319(209)
Dar-es-Salaam	-	-	-	25(14)	53(14)	52(10)
Dodoma	246(2)	299(66)	336(66)	354(66)	388(66)	392(322)
Iringa	651(24)	630(80)	659(80)	619(98)	464(101)	475(464)
Kigoma	132	129(1)	129(1)	123(3)	193(3)	194(145)
Kilimanjaro	11	24(1)	24(2)	14(2)	16(4)	535(239)
Kindi	572	262(2)	589(2)	339(3)	315(15)	315(251)
Mara	376(10)	376(33)	271(34)	111(42)	303(48)	332(270)
Mboya	493(6)	713(6)	715(7)	534(15)	933(19)	581(438)
Morogoro	113(1)	116(1)	118(1)	96(1)	397(6)	397(233)
Mtwara	748	1,088(2)	1,103(9)	1,052(8)	773(118)	459(456)
Mwanza	127	211(14)	284(14)	153(14)	606(27)	617(432)
Coast	121(26)	185(48)	188(55)	238(47)	298(47)	303(62)
Rukwa	-	-	-	121(4)	385(10)	385(156)
Ruvuma	205	205(3)	242(3)	180(4)	315(10)	277(156)
Shinyanga	150	123(8)	108(9)	134(11)	369(14)	386(217)
Singida	201	263(5)	263(5)	317(5)	258(11)	276(164)
Tabora	81	148(14)	174(14)	156(11)	324(11)	398(127)
Tanga	132(1)	245(13)	245(13)	255(18)	302(29)	499(86)
West Lake	46(8)	83(18)	85(18)	77(18)	72(18)	492(163)
TOTAL	4,464(79)	5,556(323)	5,628(342)	5,008(393)	6,944(580)	7,684(4869)

Source: Prime Minister's Office, June 1975 & June 1976, Dodoma.

CHAPTER 3

REVIEW OF ON-GOING PROGRAMMES AND PROJECTS

Section B: Zambia, Northern Province

55. The Intensive Development Zone (IDZ) is the major rural development programme currently being implemented in the "project area"; associated with it and in a sense meant to be complementary to the IDZ, but planned and administered by a different agency, is the Village Re-grouping Programme. A new programme not yet implemented, but with the plans almost complete and awaiting approval by the end of 1976, is the Village Agricultural Programme (VAP). These programmes are designed to promote integrated rural development. Spread in different localities throughout the eight Districts of the Northern Province are several settlement schemes and commodity development projects designed to promote the production of selected crops, e.g. rice, maize, tobacco, coffee and vegetables. In addition there is the Misamfu Research Station, a regional unit of the Mount Makulu Central Research Station near Lusaka; this provides the technical research information required to back up all the above programmes and projects. The Intensive Development Zone Programme, the village Re-grouping programme and the Village Agricultural Programme as well as some of the settlement schemes visited in the "project area" are discussed below. A general appraisal of all these is entered at the end of the discussion.

The Intensive Development Zone Programme

56. It was pointed out in Chapter III that as a national programme, formulated in the Second National Development Plan 1972-76, it is in the Northern Province that the IDZ programme has been implemented more than anywere in the country. But even here the programme is confined to the Isoka, Mbala and Kasama Districts, which constitute the overall Intensive Development Zone in the Province. This triangular IDZ area, (with its apices at Mbala, Nakonde and Kasama townships), totalling 51,305 sq.km., has a combination of factors on the basis of which the Provincial Development Committee selected it in 1973:-

(a) The area has fairly good climatic and soil conditions suitable for the cultivation of important cash crops viz. maize, wheat, rice, beans, and coffee, as well as subsistence crops i.e. cassava, millet and groundnuts;[7]

---

(7)

Livestock (cattle) thrives well also; Isoka District has 37,550 cattle; Mbala District 14,250 cattle and Kasama District 11,350 cattle; there is a total of 63,150 cattle in the IDZ area out of the Provincial total of 81,600 cattle.

(b) The population density within the zone averages 5.5 people per sq.km, a figure higher than the Provincial 3.8 per sq.km.*; this is an indication of the favourable natural conditions in the area.

(c) A net work of international, national and provincial communications traverses the zone; the Tanzania-Zambia Railway (TAZARA) runs through the interior of the area; the Tanzania-Zambia Highway runs along the eastern part of the zone, while the Mbala-Kasama-Mpika Provincial Road boarders the western part of the zone. A good inter-district road runs across the northern part of the zone while a good net-work of feeder and access roads connects the interior of the zone to the main roads.

57. It is within this area where an estimated fourteen potential intensive development zones have been identified by the Provincial Development Committee and where presently the programme is in the process of implementation on three such sub-zones at:-

(a) The Mambwe IDZ Area Development Programme - Mbala District

(b) (i) The Ikumbi Coffee Development Project and

(ii) The Ikumbi IDZ Area Development - Isoka District

(c) The Mulema Rice Development Project - Kasama District

All the projects were visited by the mission and an account is given below.

58. The IDZ programme is implemented under two approaches, which are indicative of the kind of emphasis placed on the developmental activities executed in a given sub-zone:

(a) The "Area Programme" is essentially an integrated rural development programme aimed at promoting a range of agricultural production, supported by a related service and infrastructural development programme. The Mambwe IDZ area programme falls under this category.

(b) The "Sector Projects" single a particular crop with a favourable potential for production and of actual interest to the area; farmers are involved in the production of such a crop with intensive technical assistance and other supportive services. The Ikumbi Coffee Project and the Mulema Rice Project fall under this category.

Administration and Management of the IDZ Programme in the North Province

59. The administrative structures that were called for at the national level in the original IDZ plans have not actually been set up as envisaged(8). An Inter-Ministerial Committee and the Central IDZ Unit would have been the major policy making and advisory bodies as well as the chief mechanisms through which in-puts of the various relevant substantive ministries would be co-ordinated at the national level. An IDZ Planning and Control Unit exists within the Ministry of Rural Development and seems to be the only body controlling and co-ordinating IDZ activities nationally; there is however no apparent consultation inter-ministerially at the central level.

60. At the provincial level (the Northern Province) it is remarkable that the IDZ operations have evolved more or less decentralised administrative structures which seem to provide the necessary inter-ministerial co-ordination. After several experimental administrative committees have been tried a three-tier system of plan and policy formulation for IDZ has emerged:

(a) Zone Level Administration: The actual implementation of the programme at the zonal level is executed largely through the governmental agencies operating in the District; the Departments concerned have been co-operative in this respect. However, to co-ordinate and monitor the activities of the staff belonging to different government agencies an IDZ Senior Executive Officer was appointed in 1976. A cadre of senior professional staff i.e. Crop, Animal and Extension officers as well as Economists are responsible for supervising the implementation of the programme.

(b) District IDZ Committees have each been established at Isoka and Mbala Districts where the programme is largely concentrated at the moment; their membership is composed of District Departmental Heads i.e. Agriculture, Education, Community Development, Fisheries, etc. In Kasama District the programme is essentially confined to the rice development project at the moment and is run in co-ordination with the Department of Agriculture.

(c) The Provincial IDZ Committee is the highest and main decision making body. The Chairman of the IDZ Committee is the Cabinet Minister, but functionally the Provincial Permanent Secretary runs the Committee; its membership includes the District Governors and District Secretaries (Isoka, Mbala and Kasama) as well as the Provincial Agricultural Officer, Provincial Marketing Officer and Provincial Water Engineer. The Secretary of the Committee is the IDZ Co-ordinator who also has the function of a Liaison Officer.

61. The IDZ programme in the Province is in fact directly under the Provincial Permanent Secretary. The actual planning is carried out by the IDZ Planning Team composed of the relevant Heads of Department within the Ministry of Rural Development and other Ministries; furthermore, since 1976 the IDZ programme came under the purview of the Provincial Planning Committee and the District Development Committee; and through these Committees it is possible to involve during the planning stages the Ward Development and Village Productivity Committees at the grass roots level. In essence therefore the Provincial IDZ Committee approves the plans and receives progess reports emanating from the District level bodies. The IDZ Cor-ordinator has the main responsibility of promoting the implementation of the IDZ plans at the Provincial level. The funding of the IDZ comes from the central Government allocations which are provided for capital and recurrent expenditure; bilateral assistance for the IDZ programme in the Northern Province has also been obtained from the Danish International Development Aid mainly in the form of senior Professional Staff viz. Animal, Crop, and Extension Specialists, as well as the Economists.

Table VI

AGE AND SEX DISTRIBUTION IN MAMBWE IDZ AREA

	0-14			15-49			49			Total		
	Male	Fem.	Tot.	Male	Fem.	Tot.	Male	Fem.	Tot.	Male	Fem.	Total
POLLING DISTR.10 KAKA	1461	1535	2996	821	1422	2243	332	252	584	2614	3209	5823
POLLING DISTR.11 MWAMBA	879	883	1762	421	780	1201	186	149	335	1486	1812	3298
POLLING DISTR.12 PENZA	179	212	391	90	181	271	51	43	94	320	436	756
POLLING DISTR.13 KAWAMA	545	529	1074	311	413	724	127	142	269	983	1084	2067
POLLING DISTR.14 KAWIMBE	724	711	1435	419	591	1010	180	183	363	1323	1485	2808
TOTAL	3788	3870	7658	2062	3387	5449	876	769	1645	6726	8026	14752

Source: Population Census 1969, Central Statistical Office, Lusaka.

The Mambwe IDZ Area Development Programme(9)

62. The Mambwe IDZ area, with a population of 14,750 people,* settled on some 89 villages, over a surface area approximately 670 km^2 has been under IDZ operation since 1974; the area is one of the Province's most densely populated at 22 per km^2. (Table I gives the population structure of the area). During the period September 1974 to September 1976 a little more than K197,560 has been spent in implementing infrustructural and sectoral development projects in the area as shown in Table VII below.

(9) Fore details see Mambwe IDZ Area, Mbala District. "Development Plan 1975-76". Northern Province IDZ Programme, Ministry of Rural Development, Lusaka.

* 1969 Census figures.

Table VII

Project	Expenditure (K) 1974	1975	1976(a)	Total
Livestock Development	2,796	-	-	2,976
Improvement of mixed farming system	-	9,190	9,100	18,290
General Extensions	1,530	6,085	14,545	22,160
Research	1,050	-	-	1,050
Ox-training(b)	-	-	2,890	2,890
Expansion of sheep keeping(b)	-	3,770	2,845	6,615
Improvement of marketing	-	19,500	6,905	26,405
Improvement of water supply	-	9,000	23,085	32,085
Improvement of infra-structure	24,916	4,000	53,330	82,246
Improvement of credit and supply facilities plus transport	2,500	530	-	3,030
	32,792	52,075	112,700	197,567

(a) Up to September

(b) Not much has been spent on these projects because of the outbreak of Foot and Mouth Disease and East Coast Fever.

The programme has shown a satisfactory absorptive capacity because an expenditure of approximately K208,800 had been estimated for.

63. The major sectoral projects, outlined in the 1975/76 plan, consist of a wide range of agricultural activities designed to improve "mixed farming" in the area; under this project emphasis is placed on livestock development (cattle and sheep) and crop development (mainly maize and legumes). These are backed up by an intensive extension service as well as the complementary services like the provision of market facilities, credit and supply facilities, credit and supply facilities, construction of access roads and improvement of water supplies. In addition rural service centres are also being developed.

64. The improvement of "mixed farming" project is fairly wide in its coverage. While it is envisaged to reach nearly 500 farmers who practice mixed farming in the area, it has been initially confined to about 75 farmers (about 15-20 per cent) located near the Agricultural Camps. The range of agricultural activities designed to upgrade mixed farming include, under animal husbandry, the

improvement of pastures, the supply of mineral supplements to the 75 farmers owning a 1500 herd of cattle and financing the construction of overnight paddocks for the cattle and the calves. It has, however, not been possible to introduce the ox-training and sheep development schemes because of the outbreak of foot and mouth disease and the East Coast Fever, but efforts have been made in improving and streamlining the veterinary services, highlighted by the construction of dipping tanks. In agronomy the major effort is on intensifying the cultivation of maize and legumes on the 75 farm units totalling 75 ha; this has been highlighted by the introduction of a 6 year crop rotation system including maize, beans and groundnuts, millet and pasture grasses. A simpler 2 year crop rotation system is also to be introduced to some 300 farm steads.

65. Reported progress on crop development and extension services seems satisfactory. Some eight farmers have been set up as demonstration farmers; these have demonstrated that with correct husbandry methods up to 40 bags per ha. of maize can be produced, compared to the average 15 bags per ha. (90 kg. bags) for the area. Growth in maize production has shown a positive trend; the number of registered farmers known to be following recommended scientific methods has grown from 100 in 1974 (baseline) to over 160 in 1976. Fertilizer consumption has grown from about 450 bags (50 kg. bags) to 1,450 bags during the same period. Maize production (i.e. marketed surplus) has also grown from a little over 900 bags to 6,000 bags; beans are also widely grown now but no production statistics are available for this because all the surplus is marketed through informal channels, reportedly at very high prices. On the whole there are indications of an emergence of commercial farmers, albeit on a small scale.

The Ikumbi Coffee Development Project

66. The project is aimed at reviving and promoting small-holder coffee production over an 8,000 ha. area around Nakonde township, in the Isoka District. Coffee growing in this area has a long history dating back to the 1950's when up to 200 farmers were involved in coffee production. Because of the distant and uncertain markets at as diverse buying points as in Tanzania, Malawi and Rhodesia, as well as the bad prices because of transport and customs charges, the farmers in the area have never had enough incentive to grow coffee

1974 when "RUCOM", a parastatal specialising in the promotion of rural industries, took over the responsibility of buying coffee cherries from the area the market prospects of the crop have taken a new turn, and there is renewed interest on the part of the farmers in growing coffee as a cash crop.

67. The coffee development project focusses on three major operations viz., (i) the introduction of irrigated coffee production; (ii) the improvement of dry-land (rainfed) coffee production and (iii) the improvement of the related extension services. At the time of the mission there were nearly 150 farmers with coffee plots (rainfed) on some 52 ha. spread around 20 villages in the area; it is these farmers that the IDZ programme aims at upgrading through extension services and supply of technical in-puts, mostly fertilizers. By 1976 about 80 growers with a total of 40 ha. under coffee were already receiving assistance from the programme; and a sum of + K19,300 had been spent on upgrading the coffee plots. A few of these farmers visited by the team showed enthusiasm on coffee growing; but it seems there is a lot of technical guidance required and the staff does not appear adequate for this.

68. The project has embarked on opening new farms, both irrigated and rainfed; about 48 new farmers have been set up on a 8.5 ha. irrigated block farm (at Musesengoma) where each farmer is to have an average .25 ha. plot. Because of the terrain and the low flow of the stream supplying the water a diesel-water pumping engine together with steel-piping for reticulating irrigation water has been installed. This outlay has cost K38,885, a per capita investment of K4,320 per ha. and a further K10,000 is planned for the required improvements in 1977. At another site some 22 new farmers have been set up on a 4.1 ha. block farm where they will grow rainfed coffee; two further block farm sites are planned for the near future.

69. The project management has expressed satisfaction generally about the progress of coffee development in the area. The 1976 production figures show a total of 4,166 tons of parchment coffee, 3,326 tons of good quality coffee and about 21 bags of poor quality coffee; this production is from 44 coffee growers. All this is presumably a result of the fertilizer in-puts complemented by extension services. Some serious reservations, however, ought to be raised concerning the

obviously been very costly to install and yet the irrigation water is still said to be inadequate. Perhaps these funds could have been more profitably spent on strengthening extension services for rain-fed coffee. Even if viable it seems irrigated coffee will place very heavy demands on the management capacity of the growers who generally have no experience with coffee growing. (see more comments in paragraph 97).

The Ikumbi IDZ Area Development Plan 1976-1979

70. A broader plan for "area development" for Ikumbi has been prepared and awaits approval and allocation of funds so it can start in 1977. The plan is very similar to the Mambwe IDZ Area Development programme and it is proposed to adopt the same extension and marketing modules for the Ikumbi area. The total area of the Ikumbi IDZ area development programme is a little over 760 km^2 and has a population of 12,970 inhabitants, and a population density of about 17 people per km^2.(See Table VIII for the population age and sex composition).

Table VIII

Population Age and Sex Distribution in Ikumbi IDZ Area

Age Group	Male	Female	Total
0-14	3,286	3,348	6,634
15-49	2,126	2,881	5,007
50	760	662	1,422
Total	6,172	6,891	13,063

Source: Population Census 1969, Central Statistical Office, Lusaka.

71. The programme activities are summarised below; coffee and wheat production both of which are already operational are incorporated in the sector projects. It is notable that in the wheat trials conducted throughout the Northern Province, Ikumbi area (Old Fife) had the highest yields, 3,249 kg/ha. or 36 90 kg. bags, followed by Mbala (Kleinhan's Farm) with 2961 kg/ha. or 33 90 kg. bags. Both these areas are said to have the ideal high altitude for rainfed wheat; wheat growing in Ikumbi could be a good complementary crop to coffee as the wheat straw could be used for mulching.

The proposed projects are:

A. Directly Productive Projects
   (i) Coffee development
   (ii) Wheat development
   (iii) Cattle development
   (iv) Sheep development
   (v) Forest development

B. Service Projects
   (i) Agricultural services (extension, training and marketing)
   (ii) Improvement of water supply

C. Complementary Projects
   (i) Improvement of Infrastructures.

An estimated K99,988 is to be spent on these projects in 1977.

The Mulema IDZ Rice Production Project

72. The Chambeshi River flood plain, in the Kasama District (East)where the project is located, is about 700 sq.km. in area; its significance lies in the fact that within it there is an estimated 30,000 ha. of virgin land said to be endowed with excellent natural conditions for rice growing. The good potential of rice production in the plain is also confirmed by the fact that already about 70 per cent of the total rice production in the Northern Province comes from the Mulema rice project where a little over 500 ha. of land is under paddy rice. In the 1974/75 crop year the Northern Province produced a total of 4,800 bags (80 kg. bags) of which 3,050 bags were produced on the Chambeshi flood plain.

73. Although rice production in the Northern Province as a whole started a long time ago under traditional subsistence methods it was only in 1971 that the crop was first given official technical and other official assistance by government. The Mulema Rice Development Project was brought under the IDZ programme in 1974 at the request of the Department of Agriculture and in support of the rice development scheme which the Department had initiated. The project has been operating on a pilot basis so far; and is essentially aimed at developing replicable

cultivation methods for the eventual expansion of the project to the other parts of the plain. The project consists of four activities:-

(a) rice development

(b) extension and training

(c) marketing

(d) infrastructual development.

Expenditure on supporting activities during the 1974/76 period is given below:

	Expenditure			
Project	1974	1975	1976	Total
Unspecified	1,725	5,251	-	6,976
Extension	-	-	10,080	10,080
Marketing	-	-	2,000	2,000
Construction of roads	-	-	5,000	5,000
Total:	1,725	5,251	17,080	
Grand Total:				24,056

Source: Zambia - Ministry of Rural Development. 1976 Northern Province IDZ Programme

Mulema Rice Development Plan. Kasama, 49 p.

CHAPTER 3

The projected expenditure estimates for the period 1977/79 are given in Table IX (all figures are in Zambian Kwacha).

TABLE IX

Activity	Costs 1977	% of Costs 1977	Costs 1978	% of Costs 1978	Costs 1979	% of Costs 1979	Costs 1977-79	% of Total Costs
Rice Dev. Project	17,000	19	9,750	23	-	-	26,750	20
Extn. and Tr. Proj.	25,350	29	28,100	66	3,500	61	56,950	42
Marketing Project	36,200	41	-	-	200	41	36,400	26
Infrastructure Proj.	9,500	11	4,500	11	2,000	35	16,000	12
TOTAL	88,050	100	42,350	100	5,700	100	136,100	100

Source: Zambia - Ministry of Rural Development. 1976 Northern Province, IDZ Programme Maluma Rice Development Plan, Kasama.

74. A great deal of effort has been put in setting up communal plots where all the plots are located in the same vicinity so that they can be efficiently reached by extension services and where better control of production is possible. The farmers have also been provided with fertilizer and seed at subsidised rates. There are plans also to introduce drought oxen, though there is the problem of grazing when the plain is flooded in summer. For a total of K19,120, extension staff housing, supplies and produce storage sheds as well as access roads have been constructed in the project area during the 1974/76 period. The construction of access roads is particularly critical as most parts of the plain remain inaccessible even long after the floods have receded.

75. Though it may be pre-mature to make any definitive evaluation of the project it is a correct assessment that the early indications are that the project is sucessful. The number of farmers involved in rice growing has risen from 223 in 1974 to 520 in 1976; similarly production has increased from 1500 bags (80 kg bags) produced from 114 ha in 1974 to 6,600 bags produced from 506 ha in 1976. (see Table X) These are impressive figures indeed.

TABLE X

MULEMA RICE DEVELOPMENT PLAN: NUMBER OF FARMERS, AREA CULTURATED AND PRODUCTION (1970-1976)

Season	No. of Farmers	Area (ha)	Production (T)
1970/71	178	65	81.5
1971/72	182	110	96.5
1972/73	187	100	98.8
1973/74	223	114	172.0
1974/75	355	375	245.0
1975/76	520	506	376.0

considering that this produce comes from hitherto subsistence cultivators who are hardly emergent commercial farmers and yet are suddenly in command of K36.00 per bag of rice. Plans for the coming years envisage the introduction of better and more profitable farming methods. There are prospects also of introducing wheat and beans as alternate crops after harvesting the rice crop.

Other Rural Development Activities in the Northern Province.

76. Besides the IDZ programme outlined above there are numerous other rural development programmes carried out in the Northern Province, most under the auspices of the Department of Agriculuture and to a limited extent under the Department of Community Development and other Government agencies. These are either carried out in co-ordination with IDZ in the operational areas or independently. The Department of Community runs a literacy programme and a village re-grouping scheme. The Department of Agriculture runs several rice, coffee, tobacco, fish and livestook ranching projects, some of which are as follows:-

In the "project area" Districts.

(a) Isoka District

Nkumbi Coffee Scheme

Kampungu Rice Production Scheme

Katyetye Rice Production Scheme

Katukauchi Rice Production Scheme

Nsalola Rice Production Scheme

Ilola Rice Production Scheme

(b) Kasama District

Ngoli Coffee Scheme

Chamfubu Settlement

Mutema/Mumba Rice Production Scheme

Nkolemfumu Rice Production Scheme

Malola Vegetable Scheme

Mkonge Tobacco Scheme

Mbensume Ranch

(c) Mbala District

Mbala wheat project (new)

Ranch

Mpulungu Rice Production Scheme

In the Other Districts:

(d) Chinsali District

Lubu Settlement Scheme

Nashingu Rice Production Scheme

Mutembule Coffee Scheme.

(e) Mporokoso District

Kapatu Settlement Scheme

Kalungwishi Ranch

(f) Mpika District

Kopa Rice Production Scheme

Malashi Coffee Scheme

Malashi Vegetable Production Scheme

Chintu Vegetable Scheme

(g) Luwingu District

Chifwile Settlement Scheme

Chifwenga Rice Production Scheme

(h) Kaputa District

Nsama Service Centre project

77. It is not possible to give an assessment of all these projects in this report as they were not all visited by the mission. However, in order to give an indication of the kind of impact some of these have made or are making on the rural development scene in the "project area" a brief account is given below of the Ngoli Coffee Project, the Mkonge Tobacco Scheme and the Chamfubu Settlement Scheme which were visited or observed by the mission.

A new approach to rural development, hardly implemented as yet but very advanced in planning, and officially known as the "Village Agricultural Programme", is also discussed for what it seems to offer in addition or even in contrast to the IDZ programme. The Department of Community Developments Village re-grouping programme is also described briefly.

The Mkonge Family Farms - Tobaccp Scheme

78. According to the Second National Development Plan it is state policy to "establish only such agricultural settlements as are based upon increased productivity and the prospect of self-reliance. In most cases, this presupposes the provision of resident management services". Among others such schemes are to include those meant to encourage "people from the subsistence sector to establish more productive units ..... " and "medium or small-scale commercial farming projects, including out-growers schemes based on State enterprises. [10]/

79. The tobacco scheme is the only one in the Northern Province and it is run jointly by the Department of Agriculture and the Tobacco Board of Zambia (TBZ). The scheme started operating in 1973 and seems to have been a fair success. Though tobacco is the main cash crop, maize and some vegetables are also grown by the settlers. When the scheme started in 1973 it had three farmers, but by 1976 it had grown to a total of 58 farmers; there have been only 3 withdrawals over this period. Recruitment has been at the rate of 10 to 15 settlers annually. All the settler-farmers, except the original 3, are recruited locally. Measures like inviting the prospective settlers to public meetings when the settlers receive their seasonal payment for tobacco and maize sales have been very effective inpopularising the scheme. There are very promising prospects for expansion; there is room for 300 farmers eventually.

80. In order to initiate the settlers to the managerial techniques the settlers are initially allocated 0.4 ha for tobacco and 0.8 ha for maize; however, the individual farms are each pegged for gradual expansion to 12 ha as the farmers gain in managerial experience. The settelers have to destump and clear the land on their own; the management (TBZ) provides a tractor for ploughing at a rental of K37.00 per ha, for ploughing and K23.75 per ha for rigding and harrowing. Planting and reaping, both very llabour intensive operations, are carried out by the settlers, often through "work-parties"; there is a stricking co-operative spirit on the settlement. There are plans to introduce oxen on the scheme.

The technical staff posted by the TBZ on the estate consists of the Manager, 2 section Managers and 4 Section Managers; these provide all the required technical advice to the settlers.

81. Production on the estate has been satisfactory. During the 1975/76 season a yield of 13,957 Kg. tobacco were harvested from 17 ha cultivated by 42 farmers. The crop grossed a little over K13,360 and after deductions for loans, fertilizers, rentals, etc. a net profit of over K7,000 was left for the farmers. The maize production yield from 21 ha average 4 tons per ha grossed K4,208 and netted K3,680 for the 42 farmers

82. A site has been set aside on the estate for the development of a service centre; a shop stocking basic household consumer goods serves the 356 population on the settlement. Arrangements were nearly completed during the visit for the construction of a lower primary school for the 113 school going children.

The Chamfubu Settlement Scheme.

83. This is a fairly new settlement scheme, started by the Department of Rural Development in 1975. Presently there are 14 settlers, each cultivating initialy 1.21 ha of land cleared by the Government. The total land allocated to the settlers ranges from 10.1 ha - 12.5 ha and the scheme has a maximum capacity for 70 settlers. The settlers, who join the scheme voluntarily, come from various parts of the Province. The main crops grown on the scheme are maize and beans; a total of 415 bags (90 kg bags) were produced from 8.9 ha during the 1975/76 cropping season. Technical advice is provided by the resident scheme manager and an ox-trainer also resident on the settlement. The Ministry has provided six pairs of oxen, a harrow, plough and an ox-cart for use by the settlers. A 12.5 ha plot is provided for the development of the service centre; however, at the moment no services exist on the settlement except a nearby clinic and a school some 8 km away at Chisangaponde.

84. Although it is too early to make any appraisal of the scheme one stricking fact about the scheme is that it has not had a good start. Apparently the settlers have had problems concerning the supply of food in the first year or so of theiraarrival; though there is a mill nearby it is not of much use to the settlers before they are able to produce their own grain. Water is presently supplied through a furrow from a nearby source which dries up in winter; transport in the area is also a serious problem.

Considering all these problems the settlers that were spoken to by the mission seemed to be determined to make the best of it and their morale was not as low as might be expected. There is obviously a good potential in this area and when these problems are solved it is expected that more settlers will want to come. The importance of planning for the services and supplies, especially in the early stages of the settlement, cannot be over-emphasised; the settlement can hardly take off without the basic services and supplies, particularly in a remote place like the Chamfubu settlement.

The Ngoli Irrigated Coffee Scheme.

85. The scheme, run by the Projects Division of the Ministry of Rural Development, was started in 1967 at a cost of K500,000; it reportedly had serious management problems in the early years of its life. However, the present management, headed by a tea/coffee expert with extensive experience in estate management, has put the scheme on a sound operational footing. With correct fertilization and irrigation programme the farm produced 21.7 tons of saleable coffee in 1975, compared to 2.4 tons in 1974. A lower yield of 16 tons in 1976 is attributed to a disease attack and the difficulty in getting treatment chemicals in good time: In 1977, the forecast is for 23 tons. Still the management rates these yields as low because of the insufficient tree population on the estate; in the past there was apparently no proper gapping done to maintain an adequate tree stand.

86. The total area of the estate is 548 ha, and presently only 37.8 ha (94 acres) of this is under coffee plantation. The farm runs on a K80,000 capital and recurrent expenditure budget annually. The plan is to expand the plantation at the rate of 10 ha (25 acres) annually until it is 200 ha (500 acres); with proper management it is envisaged that the plantation should produce an optimal ± 2.5 tons saleable coffee per ha i.e. approximately 500 tons saleable coffee per annum. Though there are no firm plans for producing other crops maize has been grown on 12 ha field yielding 55.7 tons of grain in 1975/76 and potatoes were grown on a .4 ha yielding 10.5 tons. There is a good prospect of growing potatoes seed and this is worthwhile investigating. There is ample water for gravity irrigation for the whole estate supplied by the perenial Kawulukutu River.

87. Though the main objective of the scheme at the moment is to run the estate profitably and produce coffee in order to boost the budding coffee industry in the Northern Province, the management is also fully cognizant of the rôle the scheme must play in rural development, both in the short term and in the long run.

The immediate contribution the scheme is making to rural development is that of providing labour; the farm presently employs 30 permanent labourers, and in additional 80 casual labourers during the picking season. In 1977 the figure is anticipated to grow to 150 casual labourers. When fully expanded the plantation will provide labour for an estimated 400 labourers. But even more significant is the planned out-growers' scheme. Already some 9 (nine) out-grower farmers have been set up on the estate, each .4 ha for coffee and .4 ha for maize and other crops. There is an enormous potential for this as there is more than 200 ha of irrigable land available on the estate. The lay out provides room for up to 7 out-grower villages to be settled on the estates in future. The major constraint at the moment is finance, but attempts are in process to interest the commercial banks in the project; some loans could also be arranged with the Agricultural Finance Company. On the whole there are very firm indications that as the financial constraints get solved the outgrower's scheme will have a big impact on coffee production in the area and will also have a significant contribution to make to the rural development of the neighbouring villages. (Even before any detailed feasibility study is made on this scheme strikes a very sharp contrast to the Ikumbi Irrigated coffee Project; the IDZ funds would best be spent on developing the out-grower scheme on the Ngoli Coffee Scheme. See comments on paragraph .....97.....)

Village re-Grouping.

88. This programme aims at bringing together the usually scattered small villages so that they can be economically and effectively reached by the Government services required to stimulate development. Though the programme is not confined to any proclaimed areas it is also carried out concurrently and as a complement to other programmes like the "IDZ". The programme is under the charge of the Department of Community Development; but since it is essentially concerned with bringing the rural population to centres where services and infrastructures can be provided it is implemented in co-ordination with the Department of Agriculture, Health, Education, Public Works, etc. who provide funds for the services and infrastructure.

89. The approach adopted in involving the villagers is consultation with the leaders i.e. chiefs, headmen, and other natural leaders, and ultimately the villagers themselves. In the "project area" village re-grouping has been carried out at Ikaka, a village in the "Mumbwe IDZ" area and at Senga Hill (South of Mbala township on the Mbala - Kasama Road.) At this latter place some five villages with 500 families have been re-grouped.

There is a housing scheme element associated with the re-grouping exercise; under the scheme the villagers are subsidised with iron, timber, window frames and are provided with plans for constructing solid houses. But this seems to be overdone, even to the extent of giving an impression that the programme breeds dependence rather than self-help.

90. On the whole there is very little progress evident on village re-grouping in the project area; the official view is that progress has been influenced by the physical factors and the population trands in different districts and even villages. Where land is vast and water is abudant the population trendsto be sparse and reluctant to regroup; on the other hand in areas with favourable soil and where the population is dense and land scarce the people are willing to regroup. But there is also remarkable tendency of the villages to re-locate along the main roads viz. the Mbala-Kakama Road; the Nakonde-Mbala Road, etc. There is no doubt as to the need for rationalising the villages location in the Northern Province because of the sparse nature of the population there; and if the regrouping programme can be strengthened it would contribute a great deal in this area.

The Village Agricultural Programme.

91. The "Village Agricultural Programme", "VAP", is the latest programme initiated by the Ministry of Rural Development. It is conceived as a rural development scheme that will lay the basic foundations of village infrastructures and agricultural development in the Northern Province. [11]/ As a strategy the programme is a policy instrument through which Government hopes to reach the Provinces 75,000 odd subsistance cultivators who must be brought up to the level of the other 6,000 small scale farmers already in the category of emergent commercial farmers. Though the programme will eventually encompas the entire Province the immediate plan is to confine it to Kasama, Isoka and Mbala Districts; an area that coincides also with the IDZ prospective area. It is worth noting that though the two programmes are planned differently and have a somewhat different clientelle, their objectives are not entirely unrelated. In fact the officials recognise the two as complementary and some of the senior officials, like the Provincial Agricultural Officer, who is the Chairman of the VAP Planning Committee, are members of both the planning Committees. However, the final details of the complementarity do not seem to have been precisely difined as yet;

11. See the initial planning document: "Village Agricultural Programme - Northern Province. Department of Agriculture. Kasama, June 1976

but it is officially anticipated that once the subsistence cultivators have been upgraded to the level of the emmergent commercial farmers by the "VAP" the "IDZ" will take over and intensify the process through its "area development programme" which necessarily requires a certain level of village concentration and infrastructural development for its optimal operation. The preliminary plan documents emphasise the need for constant evaluation of the programme in order to determine its viability in the project area and its replicability elsewhere in the country.

92. An aspect of the "VAP" which seems pertinent to the peculiar rural problems of the Northern Province is its intention to deal with the major problem of the sparse population in most districts. (The whole of the Northern Province had total population of 545.096 over a 142,304 sq. km area which gave a density of 3.8 inhabitants per km^2 according to the 1969 census). Whether the programme will be able to tackle this effectively remains to be seen. The policy objectives of the plan put strong emphasis on developing the selected villages as growth centres. An important component of the programme is therefore its settlement aspect that calls for the expansion of the villages to be selected; equal emphasis is also placed in developing agricultural land surrounding the village into viable and productive land. It is envisaged that selected villages will have population ranges of between 150-200 or grouos of 5-10 villages; the programme will handle a maximum of 20 villages during a cycle of 4 years. The planning documents point out that it is not intended to physically move any villages from where they are located; there will be a lot of planned development around the existing villages. It may be difficult though to exclude any displacement of villages altogether in a programme of this nature.

93. The main projects the programme will bring to the villages are processing and marketing of agricultural produce, mechanical and animal traction for farm operations, development of transport and farm implements, deployment of farm in-puts and services, horticulture and rural housing schemes. A stricking feature of those proposed projects is the package of subsidy incentives offered to both the individuals and the villages who may wish to adopt them. For instance, in support of the traction project the plan proposes a 50 per cent subsidy for the purchase of drought animals by a prospective farmer; a 50 per cent subsidy is also to be allowed on the purchase of harvesting equipment (ox yokes and chains) and implements (ploughs, hurrows and planters) on the basis of one piece of implement for every .5 ha of cleared or stumped land.

Similarly no less than 50 per cent subsidy is proposed for the purchase of fertilizers, seeds and pesticides up to a period of 3 years on the first 12 ha registered farm land. On the whole an annual expenditure ranging between K14,000 and K25,000 over a five year period is budgeted for investment on agricultural development projects; nearly K475,000 is to be spent on the overall Village Agricultural Programme during the 1976-1980 period.

APPRAISAL of the On -going Rural Development Projects in the Northern Province - Zambia

94. An in-depth performance evaluation of the rural development programme described above is not possible at this stage as the mission did not spend long enough time to collect data necessary for such an evaluation; furthermore, most of the programmes and projects are hardly more than two years in operation and therefore have not had time to indicate any useful results. The following comments, however, attempt to make a critique of the policies, and in some cases, the rationale behind some of the projects.

95. Most of the mission's time was spent visiting the IDZ programme in the "project area"; we would therefore like to make the following observations regarding the theoretical aspects of the IDZ programme. The basis of the objectives of the IDZ programme as outlined in the various Government documents are valid and indeed pertinent to the rural development problems of Zambia. The choice of Isoka, Kasama and Mbala Districts as the main zone in which to focus the programme activities initially is also particularly appropriate in the context of the "TAZARA" for which the zone is a natural hinterland. There is a lot to be said for the "sector development" and "area development" operational approaches adopted in implementing the programme in the field. It was evident to the mission that a great deal of field activity in the zone is that generated by the "IDZ" programme; a lot of it naturally agricultural in its orientation. The impact of these activities has been quantified in terms of yields mentioned in the description of some of the projects earlier in this report. Some of these results confirm the potential of the programme as an instrument of rural development. It is doubtful, however, whether the "spread effects" assumed in the IDZ programme will show themselves in the near future on the neighbouring areas not covered by the "IDZ". This is not because of any particular weakness inherent in the "IDZ" programme as such but it is peculiarly a doubt ascribed to similar rural development programmes elsewhere in Africa. The problem is that there is no known formular of working out when the "spread effects" should start showing or taking root.

Experience elsewhere has shown that rural people hardly ever adopt development from the neighbours on whom development resources have been concentrated. It is commendable therefore that it is the overall Government policy that those areas not yet covered by the "IDZ" programme should continue to recieve the normal government services. Indeed this has been very aptly demonstrated in the Northern Province by the fact that the Ministry of Agriculture has continued with its concerted campaign of promoting food production throughout the Province; hence the record breaking maize production of 68,000 bags (90 kg bags) in 1973/74, 112,000 bags in 1974/75 and 180,400 bags in 1975/76. The policy also correctly envisages that as the zones reach the acceptable levels of technical competence they will be passed back to the normal government agencies as the programme continues into new areas.

96. The Mambwe "IDZ" Area gives an overview of what the "area development" programme is likely to achieve. An excellent net-work of access roads exists already in the area; similarly the development of water supply has progressed satisfactorily. Expenditure on these infrastructures has been high and justifiably so. But it was the view of the mission that expenditures on other infrastructures were out of proportion with the incentives these utilities are supposed to represent to the people. A K6000,00 outlay on what appeared to be a very sophisticated dipping tank, built mostly of materials imported to the area (timber, iron and cement) appeared unnecessarily expensive; at least local wood, and there is plenty of it, could have been used. The storage sheds constructed in a few villages are quite solid structures also; but the impression is that they could have been cheaper in their construction. It is quite conceivable that in a few years time the communities will face very heavy maintenance bills if they are to keep the structures at their present standards. These structures raise the immediate question of the replicability of the programme elsewhere and confirm the doubts raised earlier on the "spread effects" assumptions. The idea of providing these essential facilities is impeccable, but it seems also relevant in rural development to maintain the balance between motivation and self-reliance. It was the mission's view that the Mambwe area has an excellent potential and the choice of project activities is correctly addressed to this potential; but the mission felt that there was still need for more effective methods of mobilising and articulating the people with the programme if it is to remain self-sustaining when the "IDZ" committees presently manned by Government Officials pull out.

There is obviously a political aspect to this problem; but even this is clearly defined in the Party's and Governments directives on the role of the Ward Development Committees and the Village Productivity Committees. The "IDZ" committees must look into the problem of bringing a more functional interplay between the "IDZ" programme and these institutions.

97. The Ikumbi Coffee Project ought to be looked at in relation to the Ngoli Irrigated Coffee Scheme which offers some very instructive lessons on certain aspects of coffee production development in the Northern Province. Coffee production in the Ikumbi area obviously has a compelling historical background and there are valid reasons for resuscitating coffee production in the area. Indeed, the efforts made to bring under production the old rain-fed family coffee plots are commendable and should be stepped up; there is particularly need to increase the extension staff and give them more technical training on coffee production. But the mission has some very serious reservations with the irrigation component of this project; it is debatable whether irigated coffee is at all appropriate in this area of the Northern Province . The irrigation project at Musesengoma is not economic as it stands and it is far from being efficiently managed. There is not enough water for irrigation and the heavy investment on the pumping and piping equipment, amounting to K4,320 per ha, must have very serious diseconomies. The planned further expenditure to improve the water supply does not seem to have any justification economically and there are no clear indications on how it will improve the water supply. But an even more serious constraint is the farmers themselves. Coffee growing is a new crop to them, and so is irrigation; these two husbandaries require sophisticated management even for experienced farmers, let alone a peasant farmer who has never grown the crop before. Even as a family undertaking coffee growing is labour intensive and coffee plots are ideally located very close to the homestead; farmer with plots on the block-farm at Musesengoma leave far from it and must therefore find it difficult to allocate adequate time and labour on their irrigated coffee. It was therefore the mission's conclusion that this was not a suitable area to locate an irrigated coffee project. The Ngoli Irrigated Coffee Project presents a sharp contrast. The area where the farm is located has a good supply of water from a perenial source and the terrain lands itself ideally to gravity irrigation. The farm has a good potential for viability and a good prospect for bringing in out-growers at a much less cost than at the Ikumbi project.

98. The Mulema Rice Project has given some good indications of a successful pilot project but the "IDZ" pilot project is on a comparatively small scale; the entire flood plain has some 700 sq. km of land; there is still need therefore for a comprehensive survey of the floodplain in order to get detailed information of its potential for rice as well as for other alternate crops like beans and wheat. The "IDZ" planning Committee and the Provincial Department of Agriculture have fully recognised the need for such a survey which should include:-

(a) A climatological and hydrological survey to determine the water conditions on the flood-plain;
(b) A survey to determine the required/suitable drainage infrastructure for the efficient control of flood water;
(c) A soils survey
(d) A socio-economic survey of the population in the area
(e) A survey of existing communications and services and the required improvements.

The Chamfubu Settlement Scheme and the Mkhonge Family Farms Tobacco Scheme offer some good lessons on the role of such schemes in rural development in the Northern Province. The Mkhonga Tobacco Scheme is obviously a well planned scheme; its success has derived mainly from the fact that tobacco is a good cash crop with a reliable market; but without the imaginative management that has very aptly adopted itself to the level of the settler's background the scheme could not be this successful. The provision of services like the school, consumer supply store, recreation, etc. is as important as providing the in-put requirements for production on a settlement scheme. On the other hand at Chamfubu Settlement Scheme much effort has been placed on the establishment of production facilities and very little attention paid to the provision of essential services. The morale of the settlers is bound to be low and they cannot be expected to go into production effectively.

99. The "Village Agricultural Programme is undoubtedly addressed to the basic and pertinent rural development tasks in the Province; agriculture in the Province must be upgraded from the axe and hoe agriculture to at least the level of "ox-plough agriculture" if agricultural production is to meanigfully move forward. Secondly measures must be undertaken to stabilise the villages or settlements in most parts of the Province.. It remains to be seen whether the proposed policy and projects are appropriate instruments for tackling this task; it is not possilbe to evaluate the programme as it has hardly started.

However, the mission felt the following observations were pertinent:-

(a) There is need to carefully define the complementary role that the Village Agricultural Programme and the Intensive Development Zone Programme will play in transforming the broad base of subsistence agriculture into commercial agriculture. There is the danger that the two programmes might end up executing the same functions in the same area, this would result in duplicating of efforts and waste of resources. If the complimentary role is to be valid the IDZ programme will have to substantially reformulate its working methods as well as the phasing and objectives of the programmes.

(b) The policy on grants and subsidies that feature prominently in both programmes needs to be reviewed; the subsidy elements in the projects promoted under the programmes are not likely to build self-reliance on the part of the rural population exposed to these projects. A great deal of effort is required in formulating methods of mobilising the rural people through strengthening and making institutions like the Productivity Committees carry as much of the programme as possible. Even at the advanced stages of its planning the Village Agricultural Programme is very much the story of the Government Officials manning its planning committees.

(c) The focus on the individual family, which is prominently pronounced in the "VAP", may be a correct approach under the circumstances of the sparsely populated settlements in the Province; but a balance must be maintained between promoting both the individual family farmstead and village units necessary for the foundation of viable service and infrastructural development.

(d) The choice of Mbala, Isoka and Kasama Districts as the initial operational area of the "VAP" is commendable; the good soils, climate and an excellent network of communications in this area present good conditions that will facilitate the implementation of the programme. It is important therefore that a survey of potential programme areas within this

Several such areas exist along the main communication axis in the "project area"; e.g. the Nakonde-Kayombe-Ngoli-Kasama Road (this coincides also with the "TAZARA"); the Nakonde - Mbala Road; the Mbala-Kasama Road, on which the Senga Hill complex of villages has been identified; and the Kasama-Isoka Road.

CHAPTER 4

AREAS OF POSSIBLE CO-OPERATION AND LIMITATIONS IN THE STUDY AREA

Control of Animal Disease

100. Both the Southern Highlands of Tanzania and the Northern Province of Zambia have tremendous potential for livestock development, particularly range beef production in Tanzania and feed lot beef production on the Zambia side. The major problem for the two areas is animal disease, particularly Foot and Mouth disease, East Coast Fever and Trypanosomiases.(Rabies is yet another disease that is very difficult to control across the border without a concerted and cooperative effort on the part of Tanzania and Zambia across the border) Here, therefore, is an important area where the two countries could effectively co-operate in order to boost their respective livestock development.

101. There is an urgent need for the two countries to co-ordinate their efforts in the control and eradication of animal diseases. Without this co-ordination whatever efforts are done individually will be futile as the movement of livestock across the border is difficult to control. Currently meat is cheaper in Tanzania than in Zambia and since the ZCSB does not have the exclusive monopoly of purchasing and slaughtering livestock the unofficial movement of livestock from Tanzania to Zambia will be difficult to control; with the consequent difficulty of controlling disease outbreak. In both areas, the field staff have expressed the need for this co-ordination. Frequent contact between the two areas is recommended. Currently buerocracy hinders this close contact despite the ease and willingness of those concerned to do so.

102. The creation of a bilateral disease free zone across the border needs detailed study and urgent implementation. The creation of a Disease Free Area between the countries is another useful area of co-operation. The success of such an undertaking will not only improve the quality of the beef that is produced in each country but will enhance the safe movements of livestock across the border and promote trade. The cost of such operation can be very substantial(12)

---

(12) Economic Aspects of Intensive Beef Cattle Feeding in Kenya, W. Scharfer-Kehnert, IBRD/PMEA, Nairobi, Kenya, March 1971.

for one country to manage, hence the need for a joint-venture in this area. The creation of a Disease Free Zone entails the creation of an area where all the major known diseases of livestock have been controlled to the extent that they are virtually non-existent[13]. All these proposals require an in-depth study to enable the governments to formulate relevant policy and programmes. The time spent in the area did not allow much deeper study as would have been desirable. Both Tanzania and Zambia plan to expand livestock production, this could be achieved by greater co-ordination and joint implementation of the major disease control measures. There is an urgent need in this area for an indepth study in order to recommend to the Governments the need for formulating integrated livestock development plans, facilitate regional co-ordination in the control of animal disease and promote livestock production for consumption and trade.

Research in Agriculture

103. The areas under study have so much in common to the extent that it is possible to co-ordinate research on problems that are common to both areas, which can be investigated most efficiently and economically by co-ordinated joint effort. Also on those that require long-term investigation or more intensive study than can be undertaken individually e.g. wheat and coffee breeding, or those that require highly specialised and expensive equipment or the services of such specialists as can only be justified on a bilateral effort e.g. research on fisheries in Lake Tanganyika. Exchange of research information and documentation particularly on such crops as rice, wheat, maize, oil seeds, tobacco and coffee should be encouraged. There appears much to be gained by both countries in maintaining a continuing surveillance of their research findings. In addition both countries should undertake to fully benefit from agricultural research conducted on tropical crops at international institutions, for example the (IRRI) International Rice Institute in the Philippines and (IITA) the International Institute for Tropical Agriculture in Nigeria. Because of their tropical location their research findings

---

(13) Prospects for Production, Marketing and Trade in Livestock and Livestock Products in Eastern Africa to 1985 Vol.II UNECA/FAO, Addis Ababa, Oct. 1972.

should be useful to both Zambia and Tanzania.

104. Other areas where the Mission would wish to see more joint effort and close co-ordination between the two countries are in Animal Science Research, Research on Beef and dairy cattle, goats, sheep, poultry and pigs, animal health and disease control, animal nutrition and feeding, animal husbandry, production systems and market practices. As President Kaunda* rightly pointed out - "While Zambia cannot afford to undertake all forms of research it needs, there are certain vital areas and problems unique to this country where local research is imparative". This is also true of Tanzania, and it is therefore necessary to identify those areas and problems that are common to the two countries and conduct joint research on them for the mutual benefit of the two countries. One such area is Food Technology research where studies can be carried out on food preservation, diet improvement and canning of fruits and vegetables and the use of agricultural waste. Agricultural Engineering research is yet another area which offers scope for joint participation, here joint-studies ought to be undertaken on the use of tools, machinery and power for small holder production, structures and equipment for farm processing and storage, water supplies for domestic and livestock use, soil and water use and farm roads and transport. This call for joint participation in Research is not new. A recommendation of this nature was presented and fully endorsed in 1973, by the East and Central African States Conference of Ministers of Foreign Affairs[14] in which both Tanzania and Zambia participated. The establishment of an Agricultural Research Consultative Committee was strongly recommended to deal with all pertinent areas of research co-operation.

---

*Forword, Zambia Journal of Science & Technology NCSR VOL.1 No.1 Jan. 1976.

(14) East and Central African States Conference. Meetings of Sectoral Committees Conference of Ministers of Foreign Affairs 19-24 Nov. 1973 Dar es Salaam United Republic of Tanzania, P.9 Appendix II Resolution I.

105. Equally important is the need to develop production oriented research in livestock development both for beef and dairy. Both areas under study have tremendous potential for livestock production with the added advantage of the Northern Province of Zambia being capable of producing beef using intensive beef cattle feed lots. Potential on the Tanzanian side is mainly on an extensive range management basis. In the course of agricultural development in Zambia, maize production can consistently exceed the needs of human consumption, and so increasing amounts of maize may need to be exported. Here is the opportunity to conduct pilot projects to determine the profitability of converting this excess maize into livestock products by feeding it to beef cattle under intensive management. The results of such an experiment would be valuable for areas of the Southern Highlands in Tanzania where similar possibilities exist. There is need for basic economic research on this to determine the feasibility of this exercise, and bearing in mind the high demand of beef in the line of rail, the Copperbelt and even Lusaka, there may be a case worthy of investigation.

106. Yet another important area of co-ordinated effort is in soil Science Research. It is true that each country has substantial knowledge of its soils but this achievement is still insufficient, as for example no really satisfactory and definite substitute appears to have been found for the "Chitemene" as a means of maintaining soil fertility[15]; this system is practiced both in Tanzania and in the Northern Province of Zambia - there is therefore urgent need for more joint research in this area.

107. Extension Services and Training: In relation to cooperation in research activities as outlined above there is great scope and infact need to promote exchange of experience and contact among the extension or field staff engaged in various aspects of rural development. It was the feeling of the mission that such contacts and experiential exchanges need not be hindered by the fact that differences exist in rural development policies and strategies between the two countries;

---

(15) W.B. Banage, "Research Priorities for East Africa," R.A. Garrer, Ed. E.A. Publishing House, Nairobi, 1966, pp. 36-46.

for instance in the area of coffee production there is a lot that the Tanzanian and Zambian extension staff could mutually benefit from through international contacts; similarly in the area of controlling animal diseases common to both countries i.e. ECF and Foot-and-mouth disease, valuable experiences on control techniques could be exchanged to the mutual benefit of the two countries. In fact contacts of this nature were very strongly endorsed by the senior Regional/Provincial Staff and the Extension/field staff of both countries; the areas that need immediate consideration for such contacts are coffee production, rain-fed wheat; control of E.C.F.; Rabies and Foot-and-mouth disease. The most ideal forms of these contacts would be through seminars and workshops; it is also necessary to explore the possibility of arranging short spells of training for selected specialised junior extension staff either at the Research Stations or Training Institutions for the high value cash crops like wheat, coffee, rice all of which are, common to both countries in the "project area".

Joint Fishing Industry in Lake Tanganyika

108. Freshwater Fisheries is a resource to both Tanzania and Zambia and promises considerable potential for the development of their respective rural economy, but in both countries expansion of production has been slow[16]. In Zambia the demand for fish, both fresh and processed, has been increasing tremendously, and a great deal of the demand has to be met by importation. The estimated demand in Zambia is about 60,000 ton per year of which about 24,000 tons are imported for human consumption and 40,000 tons form the total fish produced in Zambia. Of the 40,000 tons produced 6,000 tons are from Lake Tanganyika. It is estimated that Zambia has a fishing potential of 20,000 metric tons per year on her part of Lake Tanganyika. In Tanzania the potential of this resource in Lake Tanganyika is largely unknown, but it is evidently much greater than is being presently exploited[17]. In 1969 production of freshwater fish in Tanzania was 123,174 tons of which 42,000 tons were produced from Lake Tanganyika.

---

(16) "President Kaunda has time and gain expressed great concern over the lukewarm performance of the fish industry" - Zambia Daily Mail, Feb., 10th 1977.

(17) "There is an estimated 2.5 million tons of fish in Lake Tanganyika - this figure presents nothing more than intelligent

From the above it is evident that both countries have a tremendous scope to exploit the lake for their mutual benefit. Currently each country is investing fairly small sums of money in the industry and the constraints on further development are more or less the same in the two countries namely:-

(a) Poor Fishing Techniques - Use of outdated and unsuitable equipment. Lack of modern fishing and processing techniques.

(b) Transport - Poor access roads to the landing sites hence poor distribution to the potential market areas. This not only affects distribution but it also increases loss of catch by spoilage. Coupled with this is poor storage facilities. In Zambia the three factors of difficult access, poor processing and lack of storage have been estimated to be responsible for spoilage of more than 20% of the fish catch.

(c) Marketing - In both countries there are no substantial organised markets consequently the prices for both dried and fresh/frozen fish have varied from place to place; for instance, the price of dried "dagaa" or "Kapenta" varies as much as 5 times from Mpulungu on the Lakeshore to the copperbelt towns*; this is equally true between Kigoma and Dar es Salaam although the magnitude there is rather less than 5 times.

The pressing need is for answers to two major questions:

(a) What is the size of this joint resource and (b) what are the potential markets? It is safe to say, given the available information, that the potential market both domestic and for export is much greater for both countries than their present production.

109. Having observed thus far, it is quite clear that there is room for joint participation in undertaking research on Lake Tanganyika to ascertain (i) the productive potential of the lake (ii) the species composition and (iii) the total population. Equally true

---

*"In Zambia fishermen sell "kapenta" at 16 ngwee/kg. while the marketeers resell at 75 ngwee/kg." Zambian Daily Mail Feb.10th 1977.

there is scope for setting up a substantial joint fishing industry at the lake preferably at Mpulungu for the mutual benefit of the two countries**. These are valid observations but will need in-depth studies to work out the economics and the mechanics that will be involved before a firm proposition is put to the two governments. Since this Report is addressed to both governments it is hoped that, if acceptable in principle, a follow up study can be initiated***.

110. Border Trade in the "project area" is prevalent, both directions. The officials spoken to stated that almost all of this takes place through unofficial routes and is therefore unrecorded. But it is known that it involves both live cattle and carcases, maize, beans and manufactured goods, mostly music records, phenograms, soap and cigarettes. Apparently cattle from the Tanzanian side are sold to the Zambia border butcheries where they fetch a good price; but the unofficial cattle movement in either direction, is further exacerbated by the customary requirement of cattle exchanges as a form of dowry when marriage takes place. The people inhabiting the project area along the international border belong to the same cultural group (Mambwe) and therefore social intercourse among them takes place freely. The manufactured items from the Zambian side also find a ready market on the Tanzanian counter-part in exchange for beans and maize. The trade also involves money exchange deals. Though it is virtually impossible to quantify the dimensions of this border trade phenomenon it was obvious to the mission from talks with the officials that it is significant and is obviously a very vital source of supply for the border area inhabitants. The mission also felt that it would be an unrealistic approach to seek preventative means against the trade, nor would the border patrols or surprise controls ever stop the practice. There is, however, urgent need to bring the practice under very effective control, more especially as it has direct adverse implications on foreign exchange and currency control as well as on control of the prevalent animal diseases in the border area viz. E.C.F., and Foot-and-mouth disease. The mission, therefore, recommends that the two

**An estimate of the Zambian demand in 1970 put the "kapenta" imports from Tanzania at 22,000 tons (fresh weight equiv.)African Dev. 1211.

***A joint UNDP-Tanzania programme is currently underway to develop the fish wealth of Lake Tanganyika, at the moment virtually unexploited. A total of approximately US$1million will be utilized over a period of 5 years in the first phase of the Programme which entails establishing village fishing units, improving port facilities at Kigoma and

countries should take cooperative action in seeking measures to normalise and record border trade movements. There is need to make available to these areas the consumer goods that are presently traded unofficially.

CONCLUSIONS AND RECOMMENDATIONS:

111. From the areas of cooperation suggested above it is clear that considerably broad scope exist for the two countries to collaborate in rural development. The suggested cooperative ventures can be tackled ad hoc by relevant specialised agencies of the two Governments cooperating on problems pertinent to the agencies concerned; for instance the animal disease control will need the cooperation of the Veterinary Departments of the two countries; similarly experiential exchange in coffee production will essentially involve Agricultural Departments and possibly Research Stations personnel of the two countries. It is, however, desirable that an all embracing consultative body be set up between the two countries for monitoring these activities and maintaining on a permanent basis the contacts between the Central, Regional/Provincial Government officials of the two countries.

112. The mission, therefore, recommends that ECA/Lusaka/UNDAT (III) should as a matter of urgency proceed to convene a meeting of relevant Central and Provincial/Regional officials from Governments of Tanzania and Zambia; the meeting should consider and set up a Liaison Committee as recommended in document ECA/Lusaka/UNDAT/35[18] and in addition discuss in detail and commit to action recommended areas of possible cooperation in the project area as detailed out in this chapter. With regard to the latter, UNDAT should continue to initiate action, whether ad hoc or otherwise, and cooperate with the countries in obtaining bilateral aid for implementing those of the recommended areas of cooperation given priority by the two Governments.

---

(18) See paragraph 54 (a) of the same document.

113. In addition ECA/Lusaka/UNDAT/(III) should, in collaboration with the relevant staff of the Government Departments and other parastatal agencies, arrange to undertake detailed/feasibility studies pertaining to the development of the following commodities in which unassessed potentials exist for further agricultural/rural development in the project area:-

(a) Zambia — Northern Province

1. Livestock Development
2. Chambeshi Flats Rice Development
3. Maize, Finger Millet and Sorghum Development
4. Coffee Development
5. Wheat Development
6. Oil seed Development
7. Fruit and Vegetable Development
8. Seed Bean Development
9. Seed Potatoe Development

(b) Tanzania — Mbeya Region

1. Beef, Dairy and Wool Sheep Development
2. Rufiji Basin Rice Development
3. Wheat Development
4. Seed Potatoe Development

Rukwa Region

1. Livestock Development - Beef
2. Maize Development
3. Sorghum and Finger Millet Development
4. Seed Bean Development
5. Fruit and Vegetable Development

(c) Zambia/Tanzania

1. Joint Fishery Development in Lake Tanganyika.

114. A socio-economic Survey of selected+ rural villages should be undertaken in conjunction with the above studies in order to determine the extent possible for promoting an integrated rural development within the frame work of the respective rural development strategies of the two Governments and in relation to the "TAZARA" and other related communications infrstructures in the project area.

+Villages included here would be those where potential exists for the development of the commodities mentioned in paragraph 113 and those considered priority areas by the two Governments.

APPENDIX I

Background Information on Tanzania.

Physical: 1. Tanzania lies just south of the Equator and between the Great Lakes (Lakes Victoria and Nyasa) and the Indian Ocean. It has a land area of about 364,900 sq. miles. It is a land of great physiographic diversity, albeit its dominant geographic feature is flat to undulating plains and plateaus. The rolling plains lie at altitudes from a few hundred feet in the coastal zone to more than 6000 feet on the Serengeti Plain, the Southern Highlands, and the Ufipa. There are imposing mountain masses of Mt. Kilimanjaro (over 19,000 ft.) and Mt Meru in the North, the Usambaras in the North west, and the Uporoto of the Southern highlands. But for the most part, the altitude of the central plateau is approximately 4000 feet. The great Rift Valley of Africa forks just north of Lake Nyasa, forming the Eastern and Western Rifts. The Eastern branch extends northerly from the Zambia border, including Mbeya, Rukwa, Dodoma, Lake Manyara and Lake Natron . The Western branch follows Lake Tanganyika and the western borders of Ruwanda. Between these lies the immense central plateau with an altitude of 3,000 to 5,000 feet. Much of this plateau is covered with bushes and thicket; and large areas are infested with tsetse fly that has acted as a barrier to agricultural development.

2. 2. On the map, the nation appears to have plentiful water supplies; but it has a few permanent rivers. Most of the rivers flow into the Indian Ocean or Great Lakes. Many of them cease to flow during the dry season. Tributaries of the Congo river systems arise in Tanzania and flow westward to the Atlantic and other river tributaries flow northwards to join the Nile. The watersheds of these river systems are separated by the large depression of the Central Plateaux which has no outlet. Only the Rufiji, flowing into the Indian Ocean, and the Kagera, flowing into Lake Victoria, are navigable by anything larger than a canoe.

Climate: 3. Generally, Tanzania has a tropical, sub-humid to semi-arid climate, mitigated by the variations of altitude which influence both rainfall and temperatures. There are three major climate belts; (1) The Norhtern Coastal belt, about 100 miles wide from Dar-es-Salaam to the Kenyan border, In this belt there are two rainy seasons - with yearly average rainfall ranging from 40 inches to 75 inches; (2) The region bordering Lake Victoria with a yearly rainfall of 30 to 40 inches. in the Eastern part of the lake, and 75 to 80 inches in the western side, well distritubed all the year round; (3) The south eastern coastal belt, the

In the highlands, the major rainfall occurs between December and April and amounts to 30 to 50 inches yearly. The great plateau and South eastern coastal regions have average rainfall of 10 to 30 inches, occuring mostly from December to May.

4. In general the climate is controlled by two mon-soons. These monsoonal air currents flow westward over the vast expanses of the Indian Oceans. Except for higher land ,and elevations which receive higher rainfall. these Indian Ocean monsoons do not deposit much water over the flat plateaus and other flatland areas In Western Tanzania, the rainfall is derived largely from inflow of the westerlies from the South Atlantic across the Congo, that meet Indian Ocean monsoons, and thus deposit some rainfall west of the 30th Meridian.

5. Variable rainfall exerts a profound influence on land ,use and population distribution. Population is generally concentrated in areas of heavier rainfall; and is relatively sparse in most areas and not more than 30 inches throughout the year. These areas include the rangelands of the Nomadic Masai. A wide range of crops is produced in different rainfall zones, ranging from tobacco, sisal and groundnuts in areas with 20 to 30 inches of rainfall, to a wide range of food crops, tree and plantation crops (such as cashew nuts, cotton, sisal, coffee and tea) in regions with 30 to 75 inches annual rainfall.

The Land. 5 Tanzania has a wide range of soil conditions. A classification of land capabilities has been developed as a guide to developmental programme and is as follows:-

Group 1. Soils unsuited for cropping (steep, rocky, etc.) these are limited to game or extensive type of livestock grazing.

Group 2. Generally unsuited to cropping; except for limited cropping with sorghum, millet, castor and groundnuts. Best suited to ranching and game.

Group 3. Fertile soils, but limited rainfall; permitting cropping to sisal, sorghum, cotton, beans, maize, wheat, pastures; and irrigated coffee at higher altitudes.

Group 4. Soils of inherent low fertility; occuring principally over the central plateau; the southeast; and much of the lake Victoria region.

They have moderate productivity under skillful management; and are now used regularly for such crops as cotton, sorghum, groundnuts, tobacco, cashew, cassava and simsim; but areas of land not well suited for cropping are used as extensive rangelands for livestock development.

Group 5. Soils of low medium fertility; receiving somewhat more rainfall than those of Group 4; and thus having greater potential. Utilized for sisal, maize, groundnuts, sorghum and cotton, cassava, cashew, beans and castor. Where cropping is not practiced, the land is utilized for extensive livestock production.

Group 6. Soils of medium to high fertility. These soils occur at higher altitudes and receive rainfall generally in excess of 40 inches yearly. Virtually all the commercially coffee and wheat crops are grown on these soils, and are well suited to a wide range of food and export crops, as well as to forest and timber, and to pastures and forages for livestock production.

Group 7. Soils of low fertility in areas of high rainfall, such as the western shores of Lake Victoria, shore areas of southern Lake Tanganyika, and areas adjoining Lake Nyasa. These soils are used for bananas, robusta coffee, tea and timber. In general these areas are densely populated.

Group 8. These soils occur in widely distributed areas of substantial size throughout the country. They are alluvial soils of stream valleys and often require flood control, drainage or special management to develop their full potential. The soils depth and internal moisture supplies make alluvial soils much more productive than would otherwise be indicated by mean annual rainfall of the regions. They support a very wide range of annual and perennial crops, including major food and cash crops. Some alluvial soils are well situated for irrigation.

Vegetation:

Vegetation cover may also be grouped in 8 major types as follows:-

Type 1. Vegetation produced under occupation by man - annual and pere-

These coincide with areas of dense population, including areas around Dar-es-Salaam, Tauga - Moshi - Arusha, Mwanza to Shinyanga, West lake, Kigoma, Mbeya-Tukuyu-Kyela, Mtwara-Masasi and Morogoro areas. Scattered settlement and cultivation occur in the Njombe Mbozi and Sumbawanga areas. These areas occupy about 15% of the land surface of Tanzaniaa

Type 2. Open Woodlands - including Miombo, Acacia and Brachystegia types, that occupy much of the west, southeast, north and northeast. Much of the areas are fly infested and this has been a constraint to occupation and development. These areas form about 50% of the land area of Tanzania.

Type 3. Thicket and bushland - occupying the more arid regions, between forest and woodland areas; and between woodland and bushland. Principally these are found in the rain-shadow area of the northern highlands, and extending westwards and southwest.

Type 4. Wooded grassland - with scattered trees or bushes covering less than 50% of the ground surface. These areas are most extensive in alluvial zones along streams throughout most of the sub-humid regions of the country.

Type 5. Grasslands - these include those areas with grass and herbs occupying 80% or more of the ground surface. They occur on seasonally flooded grasslands, and thicket and bushland, where woody growth has been destroyed by fire.

Type 6. Forests - include the upland and lowland rain forest, lowland dry evergreen forest, deciduous forest and ground water forest. The latter occurs in climatic areas (dry) unfavourable to rain forest. Forest areas are not extensive in the amount of land covered, but have significant economic importance. The upland forest occur in the northern highland, and in the southern highlands from Mbeya to Morogoro. The lowland rain forests occur west of Lake Victoria, and in the Coastal areas of the Southeast.

Type 7. Permanent Swamps - These areas occur along the Malagarasi, Wembere and Kafufu rivers. Lesser areas occur on the Kilombere river. Their principal uses are, at the moment, for livestock and fish.

Type 8. Desert and Semi-Desert area - There are localised and are produced by salt pans in poorly drained areas, or on alpine areas. In addition, there are areas that receive less than 10 inches of rainfall that are not true desserts since they have a rather complete vegetative cover throughout the wet season. These are used mainly for extensive livestock grazing and wildlife.

7. In all Tanzania has extensive areas of underdeveloped land that has the potential value for farming, or ranching. Acquisition of information on the most appropriate land use, the application of modern science and technology and the control of tsetse fly should pave the way for rapid agrarian revolution in Tanzania.

The People:

8. Tanzania is predominantly an agricultural nation, although a strong programme of industrialization has been initiated. x/ The last decennial population census held in 1976 showed a total national population of 11,958,654 persons. Currently the total national population is estimated at 14 to 15 million. The natural growth rate of population based on the 1967 census suggest an annual growth of about 2.5 to 2.8 per cent. The economically active portion of the total population is reported to be 90% engaged in agriculture and related natural resources. Population is unevenly distributed over the nation influenced partly by employment opportunities in urban areas. The government has moved to achieve more decentralization of urban and industrial development so as to foster the interaction between rural areas and urban centres by designating certain regional centres for rapid development - these are Dar-es-Salaam, Tanga, Moshi, Arusha, Mwanza, Tabora, Mbeya, Mtwara, Morogoro and Dodoma where a new capital is being established. The Central government has very successfully been decentralised to the twenty regions throughout the country.

x/ See Table I

PRODUCTION IN SELECTED INDUSTRIES-PRODUCTION INDICES

(Base: 1966 - 100)

	1966	1967	1968	1969	1970	1971	1972
Textiles	100	103.3	201.7	323.2	408.0	468.1	624.2
Beer (i)	-	100.0	134.0	142.4	165.8	231.6	278.5
Cigarettes	100	99.8	104.3	114.0	126.8	142.7	160.3
Cement (i)	-	100.0	106.4	114.1	120.4	122.1	161.3
Petroleum	100	138.7	137.6	135.3	147.7	154.7	164.8
Iron Sheets	100	110.7	110.6	146.1	145.9	182.4	173.5
Enamelware	100	72.4	92.0	105.7	102.5	104.8	80.4
Blankets	100	104.1	103.9	105.8	120.6	118.4	131.6
Fishnets	100	99.1	116.5	135.8	178.0	262.4	210.1
Aluminium	100	57.2	77.8	187.1	101.3	128.5	135.1
Sisal Ropes	100	146.4	161.8	181.2	197.5	223.9	218.5
Pyrethrum Extract	100	143.3	93.6	87.2	54.2	87.2	100.5
Wheat Flour	100	103.9	106.4	104.3	106.9	123.9	117.6
Canned Meat	100	103.9	73.3	75.1	85.7	89.8	52.4
Batteries (ii)	-	..	100.0	203.5	271.1	433.2	659.4
Shoes (ii)	-	-	100.0	147.7	140.9	107.4	165.9

Source: Bank of Tanzania Economic Bulletin Vol. V No. 3. Dec. 1973.

(i) Base: 1967 - 100

(ii) Base: 1968 - 100

The Strategy for Rural Development. "UJAMAA"

9. The transition to independence in 1961 was reasonably peaceful and orderly with Tanganyika emerging as a unified nation, untorn by any strife that might have left internal dissension and exhausted resources. Consequently, the government has been extremely stable, and able to devote the talent, energies, and resources to guiding the operation and development of the economy. Right from the beginning Tanzania chose a socialist form of society, and has put great emphasis on "man" with consequent elimination of all forms of "exploitation". Tanzania is a non-aligned nation and has successfully developed friendly relations with both the Communist world as well as the west. Both financial and technical assistance has flowed from countries with diverse political systems. The leadership has emphasised the goal of self reliance, within the socialist framework. No panacea is offered, hard work is strongly emphasised, as the prerequisite to achievement of development goals.

10. The Arusha Declaration of 1967* was a reiteration of Tanzania's socialism, and pronouncement of several important points including:-

a) A great self-reliance and reduced dependence on foreign aid;

b) Rejection of emphasis on industrialization as the solution to under development;

c) Improvement of the lot of the farmers by increasing their share of the fruits of their labour;

d) A code for "leaders", in effect outlawing practices that would lead to conflicting interests between responsibilities and performance.

11. This was soon followed by the full partial nationalization of the major areas of the economy with further action to create more equitable distribution of income, including:-

a) Reduction of salaries of high ranking government official and political leaders;

b) Strengthening of the standards of the cilvil service;

c) Establishment of uniform consumer prices for basic food items;

* The Arusha Declaration was proclaimed by Tanzania African National Union - the only political party - in February 1967. It enunciates the party policy of socialism and self-reliance and is the most important turning point in Tanzania's contemporary histroy.

d) Increasing taxes on higher incomes; and

e) Directing emphasis of the capital expenditures programme into the rural areas.

12. The Presidential Paper "Socialism and Rural Development", of September 1967, set forth the principles of Ujamaa that govern traditional African rural life, highlighting the recognition of each individual's role in the family, sharing of goods held in common, and the obligation for each to work. "A nation of Ujamaa Villages where people co-operate directly in small groups and where these groups co-operate together in joint enterprises", was offered as the alternative to adoption of "the incentives and the ethics of the capitalist system".

13. National development has been guided by the economic and social goals set forth in national development plans. The first Five-year Plan covered the period of 1963-68. It had an overall growth of 6.7%, while the realised rate was 4.4 per cent - still well above the population growth rate 2.7 per cent. The major reasons for short fall were:-

a) The severe drop in the price of sisal in the world market;

b) Shortage of manpower skilled enough to prepare and implement projects;

c) some administrative inflexibility in responding to changing economic factors;

d) Heavy investment in large settlement schemes that proved unproductive, and

e) Limitations in capacity to absorb available external capital.

14. The growth rate of the dominant agricultural sector was low - only a little more than 1%. Two major factors were, again, the fall of the price of sisal, and the comulative effects of drought in the last two years of the period 1967 and 1968. The dual strategy for agricultural development included a "transformation approach"*. emphasizing radical changes in farming through the development of new large-scale units, settlement, irrigation and flood control and mechanisation; and also and "improvement approach" that provided extension service, marketing and production services for the small farmers. In general the transformation approach was not particularly successful mainly due to the heavy capital investments and the realised diversion of scarce man-power.

However, the success of the improvement approach is shown by the growth of marketed output by the peasant producers at the rate of 7.3% per year

TABLE II.

Tanzania: Gross Domestic Product. (Shs. million)

Outside Monetary Economy.	1972	1973	1974
Agriculture, Forestry, Fishing & Hunting	2,201	2,415	2,792
Building & Construction	75	82	95
Ownership of Dwellings	678	730	859
Other Services	-	-	-
Total Product Outside Monetary Economy	2,954	3,227	3,746
Monetary Economy.			
1. Agriculture, Forestry fishing & hunting	1,826	2,132	2,743
Mining and Quarrying	111	134	162
Manufacturing & Repairing	1,107	1,331	1,487
Building & Construction	494	536	585
Electricity & water	100	109	119
Transport, Storage & Communications	889	1,004	1,163
Whole sale & retail Trade	1,273	1,520	1,842
Banking, Insurance & Real Estate	226	383	480
Ownership of Dwellings & rents	-	-	-
Other services	-	53	58
TOTAL Enterprises	6,026	7,202	8,639
2. Private Household (Domestic Services)	55	60	70
3. General Government			
Public Administration & Defence	698	854	1,076
Education	306	216	242
Health	-	116	140
Other services	61	68	82
Total product in Monetary Economy (1+2+3)	7,146	8,516	10,249
Total GDP at Factor Cost (Monetary 'Non-Monetary)	10,100	11,743	13,995

TABLE III

TANZANIA - BASIC DATA

(1 Shilling - 14US cents)

Per Capital GDP Shs. 600.00

Population - Estimated 15.1 million (1976 Estimates)

Rate of population growth 2.7% per annum.

Dar es Salaam city	300,000 persons
Zanzibar	200,000 persons
Tanga	65,000 persons
Mwanza	36,000 persons

FOREIGN TRADE

(in Million Shillings)

	1971	1972	1973	1974	1975
Exports	1,908	2,313	2,581	2,861	2,764
Imports	2,726	2,878	3,479	5,377	5,694
Trade Balance	- 818	-565	-898	-2,516	2,930

Main Exports (in Million Shillings)

	1971	1972	1973	1974	1975
Coffee	227.4	383.0	495.3	375.1	483.0
Cotton	224.8	336.4	333.1	472.6	296.7296
Sisal	133.8	144.8	221.6	463.3	301.4
Cloves (Zanzibar)	179.0	240.3	233.3	88.4	329.9
Cashew Nuts	148.1	173.0	174.0	-	-
Petroleum Products	143.3	216.0	87.0	-	-
Manufactured Products	136.6	172.0	192.0	-	-
Other exports	307.4	268.0	326.0	-	-
Re-exports	56.8	116.0	178.2	-	-
Minerals	134.3	130.6	170.8	-	-
Exports to Kenya & Uganda	196.6	133.1	170.2	-	-

Main Imports in Million Shillings

	1971	1972	1973	1974	1975
Machinery		569	607	774	1,116.2
Metals	403.8	428	499	660.6	623.8
Transport Equipment	369.8	310	398	504	617
Food, Beverages & Tobacco	83.9	176	129.2	1,013.3	739.3

Intra Community Trade in Million Shillings

	1971	1972	1973	1974	1975
Balance with Kenya	-136.3	-208	-184.6	-227.5	-237.1
Balance with Uganda	-114.6	-198.4	-169.1	-201.5	-231.4

Foreign Reserve Position in Million Shillings.

1974 = 993.4

1975 = 1,017.0

Source: Bank of Tanzania

Per year. The structure of agriculture also changed in important directions. The dominance of cotton, sisal and coffee were reduced from 70% of the marketed crops in 1963 to 57% in 1968. On the other hand the share of tea, tobacco, pyrethrum sugar and cashew increased from 12.5% to 26% with the major food crop marketings remaining at about 17%, but much of this activity did not enter the reporting system. There was tremendous expansion of production by the small holder crops such as cotton and tobacco (the value of tobacco exports increased from Shs 1 million to Shs 40 million) - (1 shilling = 14 US cents), - (see table IV and V).

15. The second Five Year Plan 1969 - 1974 was developed in the context of the Arusha Declaration with greater emphasis on regional as opposed to national planning. It was basically designed to implement the declared socio-political principles in agriculture. It emphasised the distribution of the benefits of economic growth to the rural areas, capital support of agricultural growth especially in Ujamaa Villages, low prices of basic foods in urban areas, the organisation of the people into co-operative Ujamaa villages as a means by which the government can significantly assist larger numbers. Considerable emphasis was placed on benefitting the villagers by the application of modern science and technology for achieving greater productivity per man and per acre.

TABLE IV

TANZANIA PRODUCTION OF MAJOR EXPORTS CROPS.

Commodity	Metric Tons						
	1966/67	1967/68	1968/69	1969/70	1970/71	1971/72	1972/73
Cotton	78,971	70,972	51,450	69,541	76,598	65,469	77,083
Coffee	51,939	40,176	51,545	46,140	49,669	45,834	51,595
Sisal*	225,084	220,093	196,892	209,303	202,180	181,104	156,850
Tea*	6,800	7 ,158	7 ,923	8,777	8,492	10,457	12,706
Cashew Nuts	82,000	75,300	117,000	113,500	111,200	121,500	122,000
Pyrethrum	4,423	6,692	4,709	3,758	2,310	4,271	4,271

* For Sisal and Tea figures relate to calender year - therefore 1966/77 refers to calender year 1966.

APPENDIX 2

Description of the Project Area: Mbeya and Rukwa Regions, Tanzania

Physical Parameters

1. Size of the Area: Located in South-western Tanzania the Mbeya and Rukwa Regions[1] are among the largest administrative areas of the country. The Mbeya Region is covering 60 350 km^2. In 1967 it had a total population of 753,800 inhabitants and density of 12.5 inh./Km^2. The estimated population in 1975 is 940,500. From a recent BRALUP study[2] the Rukwa Region is covering 68,500 km^2 and has a total population of 390,500 inhabitants. The density is 5.7 inh/km^2.

Table I

Regions	Population	Area Km^2
Mbeya	940,500	60,350
Rukwa	390,500	68,500
Total	1,331,000	128,850

Climate

2. Rainfall: As elsewhere in Tanzania, agricultural practices in the Mbeya and Rukwa regions are greatly influenced by the seasonal rainfall distribution. The rain belt shows a north-south seasonal movement linked to the average pressure and wind conditions. Apart from the very complex meteorological factors, relief provides a further complication.

In the Mbeya Region, the average annual rainfall distribution is as follows:

Table II

Kyela	Tukuyu	Igogwe	Ilembo	Mbeya	Vwawa	Chunya	Rukwa/ Usangu
2900mm	2500mm	1800mm	1270mm	900mm	1325mm	775mm	750mm

The highest rainfall occurs in the Kyela - Tukuyu areas, with some 2900mm per year at Kyela, and 2500mm at Tukuyu, and the heaviest

---

(1) Until 1974 the Mbeya Region included Sumbawanga District. Since a new Region has been created comprising of Mpanda and Sumbawanga districts.

(2) Rukwa Rural Integrated Development Programme, January 1976.

rains come in February-March-April. The Rukwa and Usangu plains are comparatively more dry.

3. Temperature: The variation in mean monthly temperatures is generally small. The factors influencing the temperature regime are:

- the altitude;
- the hot season produced in the southern area by the apparent movement of the sun;
- the cover cloud during the rains that tends to reduce maximum temperature and to raise minimum temperature;
- the atmospheric pressure and winds; the south-east monsoon is cooler than the north-east one, and the lowest temperatures occur in July and August. Table III shows the mean Temperature for Mbeya (degree centigrade), recorded in 1969 (average for several years).

TABLE III

Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Mean Maximum Temperature											
23.4	23.4	23.0	23.7	22.6	21.1	21.6	23.1	25.5	26.5	26.3	24.3
Mean Minimum Temperature											
13.4	13.6	13.5	12.3	9.9	7.4	5.9	7.2	10.3	11.7	13.1	13.6

4. Winds: The country is seasonally under the influence of two major airstreams: a south-easterly one during the northern hemisphere summer, and a north-easterly one during the southern hemisphere high sun period. These airstreams determine rainfall over the country.

Surface wind speeds are fairly low. Marked relief variation may create higher winds locally.

Relief and Geology

5. The main characteristic for Mbeya and Rukwa Regions is the diversion of the rift in two directions, the north-west arm from Lake Nyasa to Lake Rukwa and the north-east arm through the Usangu-Ruaha alluvial Lowlands. Around the arms of the rift valleys lie the high mountains and plateaux. These are: Mbeya Range (with Mbeya Peak 3090 m); Elton Plateau; Burdali, Umalila and Mbozi Mountains; Ufipa Plateau, which is a corridor between the western (Lake Tanganyika) and eastern (Rukwa Valley) arm of the rift Valley; Mwese Highlands and Miyombo Woodlands. The Rungwe Mountain is the highest mountain in Mbeya Region. It has resulted from the outpouring of lavas on the low ground of the rift valleys.

6. The oldest rocks of the country form part of a central shield (Precambrian). Along the south-western edge of this shield, lies a zone of complex, high-grade, strongly-folded metamorphic rocks and intrusive granite. This zone, corresponding in part with the Study Area in Tanzania, is structurally younger than the Central shield. Lastly, in the rift troughs, are found a variety of terrestrial deposits; volcanic activity caused the accumulation of alkaline volcanoes in the Neogene north of Lake Nyasa.

Water Resources

7. Until recently major survey of river discharge in Tanzania concentrated on the four main rivers draining into the Indian Ocean. The Rufiji, which is the largest of Tanzania's rivers drains a large part of the Southern Highland Zone including the Northern part of Mbeya Region. It offers huge potential for development both for hydro-electric and for irrigation and feasibility studies are underway. To Lake Nyasa flow the Songwa, Kiwira, Mbaka and Lufirio. To Lake Rukwa flow the rivers Rukwa, Songwe, Mbalizi, Nkana. From the Mporoto and Mbeya range, flows the Great Ruaha river and its tributaries.

Soils

The following categories and individual soil types (Calton's classification) are recognized in Mbeya and Rukwa Regions:

(a) Eluvial, quasi-regional leached soils occurring on well drained humid sites:

- Skeletal to montmorillonoid, soils mostly comprising recently deposited alluvium at the head of Lake Nyasa

(b)
- Illuvial, quasi-regional soils in which transported leached minerals or direct products of rock decomposition in situ accumulate:
- Skeletal montmorillonoid soils, including the Mbuga, or black cotton, soils occurring in poorly drained valley bottoms. Characteric extensive sites are the Lake Rukwa trough and the upper great Ruaha
- Sesquioxidic - Kaolinoid, highly leached old soils equivalent to the laterized red soils. They are lacking in plant nutrients, except where a forest cover gives a deep organic layer. They are found on broad plateau surface in Sumbawanga and in Chunya

(c) Catenas, Associations of soils, both eluvial and illuvial:

- Kaolinoid red-earth, non-calcareous bottomland sequence:

in Rukwa Region; illuvial sesquioxides dominant also in in Rukwa Region (North and East of the Lake Rukwa).

(d) Complex associations in which the soil development has been interrupted by geological or geomorphological phenomena:
- Pumice Layered soils, largely found around Mbeya town
- Sesquioxide catena partly overlain by volcanic ash in Mbozi District.

9. Alluvial soils are in general fertile. In Kyela area these soils support good rice crops, bananas, sweet potatoes, beans, maize, groundnuts, yams, cocoa and cashew nut trees. In Rukwa cotton is grown, and rice is being widely planted in the Usangu plains on similar soils. But flooding is an obstacle to the utilization of soils and flood control and drainage must be carried out.

10. In the Umalila the soils are thick and partly volcanic. They support crops of wheat, peas and pyrethrum. In the medium high ground of Mbeya, Rungwe and Mbozi, the main crop is coffee while tea is mainly found in Tukuyu.

11. The volcanic soils to the east of Igoma and on the edge of Kitulo Plateau produce good crops of maize, wheat, potatoes, vegetables, pyrethrum and barley. They are also known as being good grazing areas.

12. The Rukwa Valley zone and Ufipa Plateau are suitable for both extensive grain farming, ranching, mixed farming systems and intensive farming.

13. The Mwese Highlands Zone is suitable for intensive mixed farming and particularly tobacco.

Vegetation

14. Upland forest is found in Rungwe District. However the main categories of plant associations are:

(a) Woodlands: composed of trees of lesser height than in forest and with a less closed canopy. The ground cover is grass (Andropagon spp., Panicum maximum, Eragrostis spp., etc.). Most of the Ufipa Plateau is natural woodland which has been changed into grassland by man's activity as cultivator, cattle herder and iron maker. With moderate rainfall, low evaporation and good mixtures of soils this Plateau is suitable for extensive grain farming, ranching, and intensive mixed farming. It is defined to the east and west by escarpments falling down to Rukwa Valley and Lake

Tanganyika; to the south it continues into Mbeya Region and into Zambia. The Mwese Highlands have good and reliable rainfall and the natural vegetation of woodlands is replaced by pastures and cultivations in areas where people have settled. The tse-tse infested Miyombo Woodlands between 1,000 and 1,500 m cover most of Mpanda and Chunya Districts.

(b) Wooded grassland and Grassland:
These types of vegetation are dominated by grass and herbs with low trees or bushes. They cover half of the area between Lake Rukwa, Lake Tanganyika, and the top of Lake Nyasa. The Grassland occurs principally in valleys, especially with seasonal flooding.

Socio-Economic Parameters

15. Population distribution: At the last population census of 1967 Mbeya Region had a total population of 753,800 persons. The population distribution was as follows:

Table IV

District	Population	Area (km^2)	Density
Chunya	53,618	27 070	2.0
Mbeya	192,687	18,520	10.4
Mbozi	147,489	9,580	15.4
Rungwe	268,968	4,310	62.4
Kyela	91,003	870	104.2
Region	753,765	60,350	12.5

Mbeya district is densely populated along the Tanzam Highway. The Usangu plains are well populated south of the Great Ruaha, while the northern parts have few population. In Mbozi district there is some concentration in the south-eastern part along the Tanzam Highway. In the northern part along Lake Rukwa, and along the border with Zambia population is less dense. Highly cultivated areas include Uanji, Umalila, Unyakyusa, Unyiha and Mporoto. But large areas of unused country are found in many places of the region.

16. For Rukwa Region the population distribution is shown in the following table:

APPENDIX 2

Table V

Agro-economic Zones	Population	Area km^2	Density
Rukwa Valley	52,000	10,000	4.8
Ufipa Plateau	194,000	15,000	13.0
Lake Tanganyika shore	42,000	7,500	5.6
Miyombo Woodlands	98,000	35,000	2.8
Mwese Highlands	4,500	1,000	4.5
Total	390,500	68,500	5.7

Ufipa Plateau is the most populous zone in Rukwa Region (49% of region, and density of 13.0 inh/km^2).

17. Population Structure: Table VI shows the population by sex, age group and by district (population census, 1967)

Table VI

	MALE				FEMALE				
Region & District.	Below 15 years	15 to 49 years	50 years and above	not stated	Below 15 years	15 to 49 years	50 and above	not stated	Total
Mbeya:									
Chunya	11535	11088	3583	--	12115	12532	2751	--	53,604
Mbeya	44335	40968	8272	8	44455	47360	7158	2	192,558
Mbozi	38224	25552	6246	35	36183	34694	6518	17	147,469
Rungwe/ Kyela	82975	64992	21392	88	81729	88101	20338	18	359,800
Rukwa:									
Sumba-wanga	53770	42542	10025	24	52287	46337	10336	20	215,341
Mpanda	12865	11256	4665	24	12587	15129	4280	--	60,806

Source: Bureau of Statistics

18. Population changes: The following table (VII) shows considerable variations in the rate of growth in different districts during the period 1948/1967:

APPENDIX 2

- 7 -

Table VII

District (inclusive towns)	Annual growth rate %		
	1948/1957	1957/1967	1948/1967
Chunya	-0.1	3.4	1.8
Mbeya	2.1	3.8	3.0
Mbozi	3.0	4.1	3.5
Rungwe/Kyela	1.6	2.9	2.3
Sumbawanga	3.3	4.0	
Mpanda	3.2	1.9	
Towns (only)			
Mbeya	9.1	6.0	7.5
Tukuyu	13.4	1.4	7.4
Chunya	-0.3	3.7	2.0

Source: Bureau of Statistics

The reasons for population changes are: migration between districts local famine, closing of mines, etc. However, it seems like the total population is not very much affected by the immigration from neighbouring countries and regions and the emigration to the coast regions. The major migration streams flow from rural to urban areas. Large squatter areas are found around the towns.

19. Household characteristics: In table VIII are shown the household characteristics, mainly for Mbeya Region:

Table VIII

District	Households	Average size	Sex ratio (males to females)
Chunya	12,132	4.4	97
Mbeya town	3,098	4.0	101
Mbeya (excl. town)	36,931	4.9	92
Mbozi	27,999	5.3	90
Rungwe	54,554	4.9	88
Kyela	23,427	3.9	88
Rukwa Valley	-	5.98	-
Ufipa Plateau	-	5.5	-
Lake Tanganyika Shore	-	4.8	-
Mwese Highlands	-	5.97	-
Miyombo Woodlands	-	5.7	-

There are generally more women than men as men emigrate to other regions to find temporary employment. On the other hand at most ages males usually have a greater probability of dying.

Agriculture and Livestock

20. Farming economy: There is no sufficiently detailed and reliable information (except in part for the recent BRALUP study on Rukwa Region) on the factors relevant to an examination of farming systems, such as farming methods and techniques, farm unit size, farm inputs,etc.

In Rungwe District tea is the leading export crop followed by coffee and pyrethrum. The economy is highly export oriented with export crops accounting for 80 per cent. In addition food crops entering the local market are of great variety and large amounts such as paddy, millet, bananas, citrus fruits, etc. The Rungwe district agricultural income is classified as a medium income, with high population density.

21. In Mbozi District Coffee is the main export crop followed by pyrethrum. Small quantities of millet, beans and bananas are sold locally. As for Mbeya district the main export crops are pyrethrum and coffee, and the crops marketed locally are: paddy, sweet and Irish potatoes, vegetables and bananas. Like Rungwe, Mbeya and Mbozi have a medium district agricultural income (as their population density is lower).

22. In the Chunya, Sumbawanga and Mpanda districts the productivity is very low. Chunya grows small quantities of cotton and tobacco for export and even smaller quantities of maize, millet and groundnuts for local market. Sumbawanga markets a wide range of food crops: millet, beans, wheat, Irish potatoes, onions, etc. In Mpanda tobacco, maize and groundnuts are the main crops sold.

23. In the following table (IX) the farming economy is shown for the main agricultural systems of the Rukwa Region (average Peasant Income in 1974 (shs./household/year)).

Table X cont'd.

	Coffee (1 ha)	Maize (1 ha)
Harvesting	500.00 shs.	200.00 shs.
Baging & storage (40 bags)		240.00 shs.
Transportation	25.00 shs.	
Depreciation of equipment	50.00	
	4257.80 shs.	1900.00 shs.
Farm income	10250.00 Shs.	4050.00 shs.
Net income	5992.20 Shs.	2150.00 Shs.

It is assumed that the coffee farm is already established and the farmer is a well advanced one. For maize all work is done by hand.

25. Production and yields of food and cash crops:

(a) Maize is the main staple food in the Mbeya Region and the bulk is grown in Mbeya and Mbozi Districts. Planting starts in November-December. In the Rukwa Region maize is also the main grain produced in Mwese Highlands and Miyombo Woodlands. Ufipa Plateau and Rukwa Valley produce maize as well as finger millet. It is difficult to obtain an accurate and detailed picture of the pattern of grain production. In 1974 the hectarage was estimated at 86,000 ha. of maize in the Mbeya Region and the Plan target was to increase the maize area by 11,000 ha. The estimate of total regional yield was 32,075 tons in the Rukwa Region. It is estimated that only between 1/7 and 1/11 of the marketed maize in Tanzania passes through the co-operatives. Maize has high priority in the Plan and Government provides incentives in the form of loans, subsidies on fertilizers, improved seeds etc.

(b) Finger Millet and Sorghum are grown for the purpose of food and for brewing. The cultivation starts the end of the rainly season by cutting down branches of several trees. These are left to dry and before the next rains fire is set to the dry stacks and millet is sown in the remaining ash. This type of finger millet cultivation is widespread in the Mbeya and Rukwa Regions and across the border in the Northern Province of Zambia (chitemene). In the Mbeya Region the hectarage in 1974 was estimated to 24,000 ha. and the Plan target was to increase this by 6500 ha. The estimate of total regional yield was 41,479 tons in the Rukwa Region.

(c) Rice is the most prominent crop in the Usangu zone. It is cultivated under irrigation. The cultivation is concentrated in a 15 km wide belt north of and along the Tanzam highway. The Mbeya Region is by far the most paddy producer in Tanzania. In the Kyela Zone the dominating cash crop is rice. Mbarali irrigation scheme makes a very significant contribution. In Rukwa Region, the estimate yield was 5045 tons of paddy in 1974 (Lake Tanganyika Shore and Rukwa Valley).

(d) Wheat: The Sumbawanga area has been selected since a few years as the second major point of wheat expansion, after the Arusha area. The State farm at Milundukwa, 64 km north-east of Sumbawanga was started in 1967. The farm was meant to act as a nucleus for small-holders. It is hoped that the building of new roads in the region will help to solve transport problem and open up market possibilities in Zambia. Some wheat is also grown in the high altitude zone of Mporoto and Umalila.

(e) Beans is also an important staple food which is grown at all altitudes. Many areas harvest two crops a year, the first one being interplanted with maize. Mbeya and Mbozi Districts are the main production areas in Mbeya Region where the hectarage was estimated to 25,000 ha. in 1974; the Plan target was to increase this hectarage by 7,000 ha. and to constitute incentives such as seasonal loans and subsidies for fertilizers as well as to provide improved seed. In Rukwa Region, Ufipa Plateau is the main area for beans with an estimated yield of 5240 tons (1974).

(f) Groundnut is grown in some areas such as in Ufipa Plateau, Miyombo Woodlands, Rukwa Valley and in the eastern part of Usangu. Its cultivation will be concentrated in the Usafa area (Mbeya Region).

(g) Sweet Potatoes and Cassava are root crops. They are planted in small plots around homesteads.

(h) Vegetables and fruits: In the Mbeya Region the present hectarage is estimated to 5,000 ha. for vegetables (cabbages, tomatoes, onions, spinach, peas, etc.). The hectarage is estimated at 4,000 ha. for fruits (mainly mangoes and citrus). The potentials for these crops are great, but the products marketing is a problem. Bananas are widespread particularly in the Tukuyu District where they are inter-planted with coffee; and sometimes the banana fields are too dense in

(i) Tobacco is produced in planned villages in Mpanda and Chunya districts. The present area is estimated at 2,000 ha. and the planned increase is by about 1300 ha.

(j) Cotton is grown mainly in the Lake Basin (Namkukwe-Galula-Mwambani). Estimated hectarage: 3200. Plan target: to increase by 2800 ha.

(k) Coffee: The Coffee and Tea zone is represented in the highlands (5000/6000 ft.), mainly in Tukuyu and Mbozi areas. Coffee in Tukuyu is on a declining trend (poor husbandry and plant disease). In Mbozi it is in expansion and the best quality is found in the high ground valley with deep, fertile clay loams. The coffee research station in the area is of great importance. The Plan objectives are: expansion from the estimated 5400 ha. to 7400 ha., increased input incentives and extension work.

(l) Tea is restricted to the Tukuyu area with high rainfall and moderate temperature where it is doing very well. The present 2300 ha. are planned to expand by 1500 ha. during the Plan period.

(m) Pyrethrum is found in the high altitude zone of Mporoto and Umalila lying north of the Mount Rungwe (6000-8000 ft.). The Plan objectives are: expansion from the estimated 6500 ha. to 10,100 ha., increased yields by concentrated efforts by extension workers, loans and subsidies on inputs. An extraction plant is being built at Iringa. The main constraint is the poor roads which are not passable during the wet season.

26. Livestock: The Mbeya and Rukwa Regions are one of the major cattle production potential areas in Tanzania. The following figures show the latest estimate of livestock population, by District, in Mbeya Region:

Table XI

District	Cows	Bulls	Oxen	Heifers	Total
Chunya	9,610	1,123	1,431	8,681	20,845
Kyela	14,170	4,091	5,783	8,254	32,334
Mbeya	-	-	-	-	335,000
Mbozi	47,177	16,984	13,671	25,491	103,323
Rungwe	28,478	8,035	395	5,707	42,615
Total					534,117

APPENDIX 2

Table XII

District	Goats	Sheep	Pigs	Poultry	Total
Kyela	728	767	5,211	23,603	62,643
Chunya	4160	1427	729	38,296	65,457
Mbeya	40000	26000	2,000	50,000	453,000
Mbozi	8922	10026	8,057	177,260	307,588
Rungwe	6669	5000	3,573	23,879	81,736
Total	60479	43220	19,570	313,038	970,424

27. The livestock priorities in the Second National Development Plan were as given below:

Chunya: beef/drauft oxen; goats; poultry/egg; local dairying

Mbeya: draft oxen/beef; dairying; poultry/eggs; sheep/goats

Mbozi: beef; poultry/eggs; dairying for local consumption; drauft oxen; pigs

Rungwe: dairying for local consumption; poultry/eggs; sheep/goats; beef

Sumbawanga: beef/drauft oxen; sheep/goats; poultry/eggs; dairying for local consumption; pigs

28. In the Phase I Dairy Development and Animal Health Project Loan application to the IBRD the following projects concerned with Mbeya Region have been proposed:

- Large Scale dairy farms (Kitulo, Iwambi, Saleh Haji)
- Large Scale dairy and beef (Rukwa, Mbeya)
- Small holder dairy development projects
- New meat factory in Mbeya
- Foot and Mouth disease free zone phase I Mbeya Region 1977/78
- Tse-tse eradication in Chunya
- Dips where farmers are motivated for the dipping regime
- Dairy in Mbeya
- Slaughter house in Mbeya (IDA credit)
- Ranches under FMD campaign (the NACO Kitulo ranch, and the Mbeya DDC ranch funded under IDA credit)
- Five Ujamaa dairy farms (25-50 cows per farm)

29. In the 3rd Five Year Plan the investment targets in Mbeya Region are to reach 75 dips and 33 veterinary centres in 1980, from the present figures of 27 dips and 19 veterinary centres (1974). 18 bull centres are proposed by 1980, which means 30,000 heads of cattle per centre.

30. The livestock priorities in Mbeya Region will be in the 3rd Five Year Plan as follows:

(a) Heavily populated areas of Tukuyu, Kyela, part of Mbozi and south-western part of Mbeya: upgrading of the indigenous cattle by bull-camps, introduction of A.I and increasing the number of dairy cattle together with stall feeding during the dry seasons, and more effort on disease preventive measures.

(b) Usangu, Rukwa basin, northern and western Mbozi, and Bulambia: increased beef and small livestock production on village group ranching basis.

(c) Tse-Tse infested areas of Chunya District: goat ranching.

(d) As for pig production there has not been any definite plan though there exists a high demand within the region. At Iwambi Farm, Uyole Farm, Mbarali Irrigation Scheme, Mbimba Experimental Unit, and Tukuyu, pig production is underway.

(e) Small herds of sheep and goats are found all over the region, but very little has been done so far for improvement. A goat ranch is proposed in Chunya as mentioned in addition to another goat ranch elsewhere in the region.

(f) Improvement of poultry is another plan target and a new poultry unit is proposed in Mbeya for ordering and rearing of chicks.

31. In Rukwa Region the average number of livestock per household is shown in the following table.

Table XIII

	Cattle	Sheep	Goats	Pigs	Poultry
Rukwa Valley	10	-	4	-	8
Ufipa Plateau	4	-	-	-	-
Lake Tanganyika Shore	-	-	0.20	-	-
Mwese Highlands	1	-	2	-	7
Miyombo Woolands	-	-	-	-	11

Source: BRALUP Survey of Peasant Producers in Rukwa.

In this Region meat and milk production targets in the R.I.D.P. (village production 1990) are in tons:

Table XIV

	Milk	Beef	Mutton	Goats	Pigs	Poultry
Rukwa Valley	8200	2300	-	1600	-	660
Ufipa Plateau	11000	7000	2200	2100	3100	2600
Lake Tanganyika Shore	-	-	-	1200	-	470
Mwese Highlands	890	160	10	60	70	50
Miyombo Woodlands	-	1000	-	1400	800	1200

Forestry

32. Forests are potentially important national resources in Mbeya and Rukwa Regions. They cover about 40% of the regional areas and there are over a million acres of forest reserves in the Mbeya - Sumbawanga areas.

The main targets for these resources are:

- to maintain the existing forests
- to undertake further tree planting
- and to improve the organisation of timber exploitation and marketing

In Mbeya Region there are 2 soft wood plantations: Kawetire forest (1200 ha.); and Kiwira, forest (2800 ha.).

33. The estimated annual production of the 4000 ha. is: 100,000-125,000 cubic metres. These forests in addition to the indigenous forests (of which the Miombo forests dominate) provide base for the establishment of new wood processing plants in Mbeya.

The main projects in Mbeya Region are:

- Soft wood plantation for firewood and charcoal production (Mbeya, Mbozi, Rungwe)
- Regional tree planting and nurseries in Ujamaa Villages
- Increase of forest reserves
- Water catchment reserves

Fisheries

34. Lakes Tanganyika, Nyasa and Rukwa have big fishing potentials. Lake Tanganyika supports a fishery for "dagaa" a small fish of the sardine family. They make up most of the export trade. They are sent to Zambia after being sun-dried on beaches. Production seems to be capable of considerable expansion. On Lake Nyasa fishing is only at subsistence level. Lake Rukwa presents special problem of shallowness

Table XV

LAKES	1971		1972		1973	
	Tons	Value(Shs)	Tons	Value(Shs)	Tons	Value(Sh)
Lake Nyasa	2200	1,150,000	2060	1,260,000	2170	2,560,000
Lake Rukwa	12040	5,280,000	9780	3,830,000	6990	2,560,000

35. Fishing is hampered by the lack of organised production and marketing and by inadequate communications.

The following development projects are proposed in the Mbeya Region:

- research in Lake Nyasa and Lake Rukwa (national project)
- industrial fishing in Lake Rukwa and Lake Nyasa DDC projects
- fish control units
- establishment of village fishing units

Agro-Industries and Other Industries

36. The main processing activities based on agricultural produce are: tea processing plants, coffee pulping factories; rice mills; maize mills; sawmills; livestock industries (abattoirs, hides and skins). The main requirements of the urban population are in the Mbeya town where are found small scale industries such as: grain mills, bakeries, car repair workshops, bricks and tiles manufacture, cold store, etc. A cement factory is also planned in Mbeya District. In Sumbawanga town the expansion of small scale industries is also encouraged on a co-operative basis; repair of motorvehicles, blacksmith, woodworks, shoe-making, sowing.

37. Other small scale industries existing or planned in the Mbeya and Rukwa Regions include: carpentry, tinsmiths, weaving, processing of honey and beewax, basket and carpet production, oil industry, charcoal, pottery, cannery for fruits and vegetables, fish processing industries, etc.

In the mining sector raw materials such as coal, mica, lime, salt, etc. are produced.

Trade

38. As already mentioned the following agricultural products found in the Mbeya - Rukwa Regions rank among the items of Tanzania's external trade: coffee, tea, fish and meat, the latter being of special interest to the Tanzania-Zambia economic co-operation.

Infrastructure

39. Communication and Transport: A considerable investment in road improvements was achieved by Central Government over the Second Five Year Plan. The main projects were:

- the Tunduma-Sumbawanga road
- the Uyole-Itungi Port road
- the Dar es Salaam-Tunduma road (Tan-Zam)

The latter will have a major impact on the Region if improvements are made in the road network linking it with other parts of the Region.

Road transportation will continue to play a leading role in the region's haulage systems.

In Mbeya Region the lengths of trunk and main roads distributed by district are:

Table XVI

Mbeya	Chunya	Rungwe/Kyela	Mbozi
469 km	380 km	681 km	320 km

40. The present condition of the roads is very poor. However, the planning guideline for the 3rd Development Plan for an average improvement cost per km. has been fixed at 15,000 shs. This will not be enough for any proper improvement. Local authorities have prepared priority lists. The total cost for Mbeya Region is 20,925,000 shs. for 1185 km.

41. Railway: The Tazara Railway came into operation in 1975. This of great importance to the development of the Region. The implementation of rural development projects along the railway line is therefore of first priority.

Aerodromes: They are located at Mbeya and Chunya.

42. Health: At the beginning of the 2nd Five-Year Plan Mbeya Region had 12 hospitals (5 Government and 7 Voluntary Agencies), providing a total of 975 beds. To date this situation has greatly improved and can be seen in the table below:

Table XVII

	Hospital Beds				Rural Health Centres		Dispensaries			
District	Gvt.	VA	Total	Pop/bed	No	Pop/RHC	Gvt.	VA	Total	Pop/bed
Chunya	110	-	110	590	1	65,000	16	3	19	3,400
Mbeya	218	8	399	606	3	60,000	15	5	20	13,450
Mbozi	140	-	140	1,343	2	94,000	18	2	20	9,400
Rungwe	135	218	353	941	3	110,000	18	2	20	16,600
Kyela	86	-	86	1,302	1	112,000	10	2	12	9,400
Region	689	399	2,088	864	10	94,000	77	14	91	10,600

In addition there is a psychiatric clinic in Mbeya with 24 beds and a leprosarium in Rungwe with 36 beds.

The present national target for health facilities are:

1 Hospital bed per 1,000 inhabitants

1 Rural Health Centre per 50,000 inhabitants

1 Dispensary per 10,000 inhabitants

The major bottleneck in reaching these targets are finance and manpower. It is the intension of the government to intensify the training of Rural Dispensary Assistants, Village Midwives and Nursing Assistants. Also to reduce the cost more self-reliance will have to be done by the people themselves and this is currently seen in most of the villages that the team visited.

43. Education: In 1968, 40% of children in Standard 1 age attended school (National average 45%). 80 new classrooms were added in the period 1969/70. In 1973 the enrolment rate to standard I was 46%. The government has decided that all efforts must be made so that by 1977 the Nation should achieve universal primary education. How exactly this is going to be done remains to be seen; the most realistic time period would have been 1985.

44. Rural Water Supply: The government has decided that by 1990 all the people in the rural areas should be provided with piped water. In order to reach this target it is planned that by the end of the 3rd Development Plan 30% of the rural population should be able to get clean piped water. The Plan covers the period of 1975-1980.

45. Power: Kiwira Dam and Hydroelectric Station is very important for the industrial development prospects of the Region especially in the new Cement factory that is being constructed in Mbeya. Research on water reserves in the Region are underway.

46. Housing: The main towns benefiting from investment during the Second Five-Year Plan were Mbeya and Mbozi (about 3 million Shs. in minimum Standard). Emphasis is also on village planning all over the country. The achievement of the extension of improved rural housing techniques of a kind which can be adopted by the rural population with a minimum of capital cost, is one of the main government housing policies.

Institutions and Services

47. Administrative set-up: The District is the basic administrative unit in Tanzania. It is the area on which local government, the organisation of TANU (Tanganyika African National Union), and the Parliamentary constituencies are all based. The Central Government reaches out into the country through the Regional Administration which is under the Vice-President's Office. Each Region is headed by a Regional Commissioner and each District by an Area Commissioner. These officers are also the TANU Secretaries for the Region or District.

48. The Central Government departments are present at regional and at district level. The main extension agencies concerned with development in the rural areas like Agriculture, Veterinary, Rural Development and Health have field staff at Regional and District level. The officers most involved in regional planning are: the Regional Development Director, the Regional Planning Officer, the Regional District Agricultural Development Officers, the Regional Livestock Development Officer, the Regional Ujamaa and Ushirika Development Officer.

49. There is a wide range of actions which are taken by the Government in support of agricultural production aims. These actions such as extension advice, co-ordinated credit extension, co-operative

APPENDIX 3

Background Information on Zambia

Ecological and Agro-Economic Background

1. Zambia has a surface area of 753,000 Km. Though she has limited areas of good soils the country has a reliable 4-5 months rainy season; the country has an adequate ecological potential not only to feed itself but also to be a net exporter of surplus agricultural produce. The following major ecological zones exist in the country.

(a) The Northern High Rainfall Zone comprises as its major parts the Northern, Luapula, Copperbelt and the North Wastern Provinces. The zone has the highest rainfall in the country an annual 1000-1500 mm between November and April. The soils, however, are generally heavily leached sandveld soils, free draining, and with⅔ a poor physical and chemical structure add low fertility. The shifting cultivation practised almpst througout the zone has evolved in response to these conditions.

The long rainy season would seem to favour annual crops with a long growing season; but because of the rather high rainfall, low sunshine hours and the reduced temperatures the zone is less favourable for crops grown elsewhere in Zambia, such as maize, tobacco and cotton. On the other hand the frost free winters make the zone ideal for horticultural production, though the high humidity rate in the wet season causes the danger of rust and fungal diseases. The zone is also said to have a better potentiml for the production of timber and perenial tree crops. Large areas of river valley, flood plains and lake basin agriculture occur, particularly in Luapula and Northern Provinces; here a semi-permanent hoe system of agriculture based on cassava and millet cultivation is practised. In addition rice grown in small holdings, but under scientific methods has been introduced in the recent years in Luapula and the Northern Provices. Similarly maize, beans and groundnuts are increasing in importance in the zone.

Livestock production is limited by tsetse-fly which occurs over most parts of the zone; cattle are, however, important in parts of the Northern Province particularly the parts bordering Tanzania and Malawi.

(b) The Western Semi-Arid Plains comprise most of the Western Province and part of the North-West Province; it is the driest area of the country with an average rainfall ranging from 1000 mm in the North to 600 mm in the South. Great diurnal temperature ranges occur in this zone, and frost also occurs during the winter season. The extremes of heat, frost and aridity are the main constraints to plant growth. The region is generally an extensive sand covered plain the majority of which is covered with infertile sands only suitable for grazing; fertile sands confined to the edges of plains and valleys support some form of permanent agriculture. Since most of the zone is tsetse-fly free a predominantly cattle economy has developed in the area.

(c) The Southern, Central and Eastern Plateaux Areas dominated by the former line of rail contain generally the most fertile soils in Zambia; with lesser rainfall than the Northern zone the area is characterised by acacia woodland and open savannah. Where sand-veld soils occur the best tobacco, maize and livestock commercial farms of the country are found. On the red loams of the Eastern Province cotton, maize and groundnuts are grown extensively. Permanent traditional farming systems, both subsistence and semi-commercial, have developed in this zone; these are characterised by the use of oxen or tractors for the traction of the implements.

(d) The Luangwa - Zambezi Rift Valley should in fact be regarded as the peripherial area of the plateau area; it has a rainfall of less than 750 mm in the Zambezi and Lake Kariba areas and 1200 mm in the Luangwa Valley and a hot humid climate for most of the year. Either sides of the valley are dominated by broken escarpment and hilly country. Isolated pockets of good soil occur in the valley, mainly deep chestnut sands and shallow heavy clay loams. However, the zone is generally of minor significance agriculturally. Sorghum and millet are the main crops grown.

On the whole though some parts of the country contain land of poor quality and others are inaccessible, there are many areas with a good potential and land availability in the country is not a serious constraint.

Land Tenure

2. Land holding in the country falls under three categories viz. State Land, Reserve Land and Trust Land. All land is vested in the President on behalf of the State. Freehold titles under which State Land was originally held have now been replaced by leasehold titles for terms of 100 years. Tenure in the Reserve and Trust Lands is customary and is regulated by customary law, in contrast to State Land which is controlled by statutory law. However, even on the Reserves or Trust Lands land may not be occupied or utilised without the authority of the State or its lawful agency i.e. Chiefs, Town or Rural Councils or Parastatals.

The Rural Population and Agricultural Performance

3. Zambia has a population of 4.7 million of which some 35 per cent live in the urban areas spread around 10 towns of over 50,000. As a result of rural emigration virtually all the net-population growth takes place in urban areas most of which are located along the old line of rail between Livingstone and the Copperbelt; it is also along this axis that about 85 per cent of the country's economic activity is found. About 3 million of the population reside in the rural areas where the average density is about 4 per km. or nearly 140 ha. of land per rural family. The typical settlement in most parts of the country is a dispersed one. There has been a marked tendency within the rural Provinces for the population to migrate towards the major lines of communications and townships; as a result some nucleated/linear patterns of settlement are discernible along the main District and Provincial roads.

4. Zambia's GNP per capita at $380 is reckoned as one of the highest in the region. The country has also a large value in foreign trade largely from minerals; although recent declines of the copper prices in the world markets have had an adverse effect on the economy this is having a salutory effect of directing more effort towards developing the agricultural sector. Mining currently accounts for 43 per cent of the GNP of nearly $1.95 million and 98 per cent of exports. Agriculture accounts for just under 8 per cent of the GNP and a rather negligible percentage of exports, mainly tobacco, confectionary groundnuts and maize. Agricultural products account for 10 percent of the imports worth over $53 million in 1973. Average incomes in mining are in the region of $2,300 (K1,500) which is approximately 15 times those of traditional agriculture; urban incomes are generally 4 times the rural average. It is against this background that Government has in

the past few years embarked on a broad policy of up-grading agriculture so that it should become a base for diversifying Zambia's exports.

5. The dualistic agricultural sector is characteristically composed of an economically important group of some 800 commercial farmers 65 percent of whom are expatriates on large estate and company farms; on the other hand some 600,000 small-holder and broadly subsistence farmers cultivate the Reserve and Trust Lands. In between these is a group of Zambian emergent farmers, not yet so economically dominant but significant in terms of their potential development into commercial farmers. The commercial farmers and state farms are usually large farms, ideally located for accessibility to markets, and are intensively capitalised; these produce most of the marketed surplus in cereals, vegetables, dairy produce, beef, poultry and eggs for the urban markets, and tobacco for export. Similary the emergent farmers, variously located on State Land or Reserves and Trust Land close to the line of rail and other good transport connections, produce the same crops as commercial crops as commercial farmers plus cotton. An estimated 55 percent by value of marketed domestic production (35 percent demand) is derived from commercial and emergent farmers. Gross annual sales from the commercial farms are in the range K25,000-K35,000 (about £40,000) while emergent farmers range from K1,000-K3,000.

6. About half of the 600,000 small holders are essentially subsistence farmers using hand tools and traditional technology; the other half, located along the old line of rail Provinces, and the Eastern Province, and lately those located near the main roads in the Northern Province, are market oriented and produce mostly maize, cotton, groundnuts and livestock. Their economic importance lies in the fact that they contribute an estimated 85 percent cereals total production (about 80 percent of all maize) and 90 percent of domestic cattle slaughtered.

The Strategy and the Major Policy Measures for Promoting Rural Development

7. The Government's major objectives in agriculture and rural development are stated in the Party Manifesto[1] and elaborated in the development plan[2]; significant among these are:-

---

(1) UNIP-NATIONAL Policies for the Next Decade - 1974-1984. Freedom House. Lusaka. pp. 28-32.

(2) Second National Development Plan - Jan. 1972-Dec. 1976 pp. 61-84.

(a) to improve rural standards of living and to create a self-reliant and progressive rural society;

(b) to create new employment and income opportunities in the rural areas, as well as to improve services and infrastructures related to increased rural productivity in order to integrate the rural population into the cash economy and counteract rural-urban migration;

(c) to achieve self-sufficiency in food production, particularly maize, groundnuts, millet, fruits, vegetables and other essential food products;

(d) to increase production of raw materials such as cotton, tobacco, kenof, barley, and oil seeds in order to create a base for local agro-industries and new employment and income opportunities.

8. The Creation of "Intensive Development Zones" in those areas of the country with a high natural potential is one of the policy instruments designed to facilitate the achievement of the rural development objectives. Within these areas which should become focal points for the concentration of rural development resources, i.e. manpower and finance, priority is to be given to infrastructure and integrated services (extension, health, education, etc.) thus leading directly to increased productivity. Each such zone is to be the focal point of development in each Province. Some ten "IDZ's" were envisaged for the plan period.

9. The Intensive Development Zones (IDZ) programme is one of the most important rural development programmes and contains the core elements of the country's rural development strategy. Unfortunately the programme has not been implemented to the full extent called for in the plan documents. Of between four to ten IDZs originally envisaged in the Second National Development Plan (SNDP) only three zones have been identified, each in the Northern Province, North Western Province and the Eastern Province. Of these it is in the Northern Province where some "area development programmes" and "sector development projects" have been planned and implemented[3]; in the Eastern Province a plan costed at more than K10 million (US$16 million) was elaborated

---

[3] See Chapter 3, paragraphs 2-19.

with bilateral assistance; however, the project has hardly been off the ground.

10. It is worth noting that in spite of the set-backs in the "IDZ's" take-off, the programme, as outlined in the plan document and other ministerial working papers is lucid, and in many respects impeccable, and pertinently addressed to the rural development problems of the country. Similarly, even if it had taken-off as expected the four past years would have been hardly adequate for it to reach maturity and yield all the expected results. However, the programme does not seem to have achieved even the least that should have been expected of it in the country as a whole i.e. to prepare ground for the initial steps towards "take-off". The evaluation of the programme as such has therefore been hardly possible as there no significant material has been generated, but several reasons have been advanced for the failure of the programme to get off the ground(4). The shortage of administrative and technical staff that should man the projects generated by the programme is a major constraint, particularly at the local implementation levels where knowledge of the local cultural and physical environment is essential. There is obviously need for experimentation and adjustment in order to evolve appropriate management models. Furthermore, the IDZ areas can hardly become the focal points for the concentration of rural development resources without creating political, administrative and technical problems in relation to the non-designated areas. The pay-off and even the "spread-effects" from a programme of this nature cannot be immediate; and therefore great flexibility is required to enable the programme to be initiated in as many parts of the country as possible.

11. Village re-grouping and resettlement in relation to the "IDZ's", but not necessarily confined to these areas, is also given prominence in the Party manifesto and policy pronouncements. Through these measures large village units are to be established in order to facilitate the provision of technical and social services such as electricity, medical, educational and recreational facilities. Much emphasis is also given to the development of small to medium sized family farms

---

(4) IBRD Report "Republic of Zambia, Agricultural and Rural Sector Survey - Volume II, Annex 2 pp. 9 - 11; and Mid Term Review, 1974, p.45.

as basic units of the new settlements; in addition communal or cooperative activity is to be encouraged wherever appropriate.

12. Decentralisation of Government services and planning functions to the Provinces and Districts also features prominently in the plan as a policy instrument to give more responsibility and involvement to the Provincial and District Governmental institutions in planning and co-ordinating more efficiently all government services in the rural areas. To this end the rural population is to be involved in contributing to the rural development plans through the Village Productivity and Ward Development Committees(5); these committees are meant to provide a feed-back link to the District and Provincial Governmental bodies.

13. A deliberate policy of pricing and subsidies is also provided for so that Government can use these devices as incentives for the rural producers to grow high priority commodities. Prices and subsidies are therefore fixed in relation to priorities attached to different commodities and are also relative to the profitability of different crops. Pricing policy also takes account of the terms of trade between the rural, industrial and other sectors.

Achievements of Objectives in the Rural Sector

14. An appraisal of the performance of the rural sector based on agricultural production in the past four year plan-period i.e. 1972-76 is handicapped by lack of adequate data from the rural sector as a whole, but particularly from the traditional sector where the 600,000 family units come from. The only reliable statistical information is that based on the marketed part of production. Looked at against the broad objectives of the overall improvement of the living conditions in the rural areas and the diversification of the economy by increasing the share of the sector on the GDP it can be said there have been some modest achievements. It is, however, to be stressed that on the basis of the known resources in the country and the past experiences the rural sector has a huge potential which is far from being fully exploited. The general picture of the rural sector's performance is discussed in the next paragraphs(6).

(5) See "Village Productivity and Ward Development Committees" - Republic of Zambian Government Printer. Lusaka 1971.

(6) See "Mid Term Review of the Second National Development Plan - performance of the Zambian Economy 1972-74" Lusaka Dec.1974.Chap.II.

15. Of the 8.5 percent targeted growth rate for the plan period 1972-76 the sector has realised an overall growth of 7 percent for crops and 10 percent for livestock; it is estimated that the growth rate would have been still higher but for the two bad years, 1973 and 1974. The relative share of the commercial sector in the marketed part of production has declined, suggesting a greater participation by the traditional sector in the marketed produce. On the other hand there is as yet no visible impact on the standard of living of the people in the rural areas. As much as the 70 percent of the population primarily dependant on agriculture shares less than 10 percent of the GDP; the agricultural sector as a whole still accounts for 13-14 percent of imports and contributes only 1 percent of exports. Some of the major problems which have prevented a satisfactory performance of the sector have been cited as the shortage of technical personnel to man the various projects in the traditional sector and the insufficient credit facilities available to this sector. It is pointed out also that because of the restricted financial resources some of the most important programmes and projects like the "IDZ's", the mixed farming development, training, research, marketing schemes, irrigation, livestock development, and adult literacy failed to show any satisfactory performance.

16. Commodities show a mixture of satisfactory and poor performance during the plan period. Achievements have been made in commodities whose importance is directly related to the self-sufficiency objectives; notable among these is sugar production where with a steady annual growth rate of 13 percent a production figure of 95 thousand tons was reached in 1976 making the country self-sufficient in sugar for the first time. Maize production, except for the bad years in 1973/74, has maintained a steady growth that has kept pace with the growing consumption of grain caused by the growth of the urban population. Although wheat production is far from approaching self-sufficiency at the consumption level of around 125,000 tons, the production of 1,000 tones in 1975 and 2,000 tones in 1976 has demonstrated the possibility of growing this food grain. Recent trials on rainfed wheat in the Northern Province have revealed an even higher potential than has ever been realised. Rice production showed a rather encouraging growth rate of 30 percent, but production still fell far below the target of 2.7 thousand tones fixed for the end of plan; an immense potential has been located in the Luapula Province and the Northern Province. Performance in tobacco, cotton and oil seeds production has been unsatisfactory. Groundnuts targets did not come up

to expectations, though production has been maintained at the base level of 6,000 tones. However, notable progress was achieved with the introduction of sunflower, realising a rich harvest of 9.75 thousand tonnes in 1975 and an expected 14,000 tones during 1976. Significantly, more than half of sunflower production is from the traditional farmers. Coffee production has also not come anywhere near the projected demand of 110 tones.

17. Livestock production has been satisfactory. On the basis of available marketed data figures (1975) both the poultry and pig industries have shown an annual growth rate of 20 percent, which is higher than the plan targets. Poultry in particular seems to have done well with levels of self-sufficiency achieved in breeding stocks and production of eggs and broilers. Egg production increases from 54 million in 1968 to 130 million in 1974 were achieved; the targeted figure was 155 million by 1976. Poultry feed shortages in the latter half of 1976 upset the production rates.

18. Beef production is far from satisfactory when viewed in terms of the actual rate of production of cattle in the country, the available resources, the potential for development and demand for beef in the country. Though targets are said to have been reached in some aspects of the sector, these targets were apparently low and actually underestimated the real potential in the country. The commercial sector appears to have achieved satisfactory performance with 13.5 percent off-take and 7 percent per annum increase in herd size. In the traditional sector on the other hand, marginal increase in marketed off-take has been achieved, though at the expense of reduced rate of herd increase which declined from 4 percent per annum in the 1960's to just under 2 percent in 1976. A rather significant development is that an estimated 20 percent of the total commercial off-take is in fact bred and partly reared in the traditional sector, then sold to the commercial sector for fattening and resale.

19. An area of livestock which has been the poorest during the plan period is the dairy industry; a number of commercial farmers, who have been the main suppliers of milk, have changed to beef production because of the unfavourable prices for milk. However, prices were increased during 1976 and the effect of this is yet to be seen. Targets of total production from State, parastatal and commercial farming which had been anticipated to be as high as 35 million litres by

20. Programmes and policies in connection with Extension and Farmer Training, Research, Agricultural Finance and Cooperatives, Water Resources, etc. as provided for in the development plan have also not achieved as much as had been anticipated. The main policy objective in connection with Extension Services had been to bring the service to full strength i.e. from an establishment of 939 in 1970 to 1722 in 1976. By 1974 the total extension service staff stood at 832, and it was hardly feasible to add a bare 200 persons during the 1974 - 76 period.

21. Progress in animal research has been described as less than satisfactory, though crop research reached some notable successes. There is dire need for more research on priority areas like oil - seeds, cotton, rice and wheat among the crops; pasture development and animal breeding are also a high priority in livestock development.

22. Marketing and storage development reached some partial progress; the activities of parastatal organisations like the National Agricultural and Marketing Board, the Tobacco Board of Zambia, the Dairy Produce Board and the Cold Storage Board of Zambia have been introduced in many parts of the country. However, a great deal of strengthening and consolidation of these vital agricultural service organisations is still required, particularly in the rural provinces far removed from the "line of rail". The Cooperative organisations have performed a vital role in the marketing of the traditional farmers' produce, particularly in the Eastern, Southern and Northern Provinces; but there is need to strengthen the running of the member cooperative organisations at local levels.

23. In Agricultural Finance the plan had projected for the provision of long and medium term loans by the Agricultural Finance Company and the Commercial Banks to approved farmers for certain programmed development projects. These provisions were particularly meant for the small farmers and the fisherman. At mid-term review (1974) the picture was unsatisfactory; a sum of K8-9 million had been advanced for agricultural loans annually, of this about K1 million had to be written off as a bad debt. The share of the small/medium cultivators was hardly 10 percent, with defaults of not less than 90 percent. A significant development in farmer finance has been the increase of the role played by the Commercial Banks; advances from the Banks rose from K4.4 million in 1971 to K10.8 million in 1972, a 7 percent growth. Currently the

Commercial Banks provide more than 50 percent of total farmer credit, mostly for financing crop marketing, basic processing and in-put manufacture. However, only 10 percent of current small and medium term lendings are to farmers on the Reserve Land, and the other 10 percent to small holders close to the line of rail.

APPENDIX 4

Description of the Project Area: The Northern Province of Zambia
Physical Parameters.

1. **Size of the Area:** The Northern Province is the largest administrative area of Zambia with 147,810 km^2 (approximately 1/5 of the country). It is occupied by 545,000 inhabitants (1969 census) at the very low overall density of 3.7 per km^2. It is limited to the north by the Mbeya and Rukwa Regions of Tanzania; to the west by Luapula Province, to the east by the Eastern Province, and to the South by the Eastern and Central Provinces.

2. Zambia being located in the heartland of south-central Africa, the Northern Province is remote from the sea and was negleted for a long time; the limited development of the country was over-concentrated along the solitary central line of railway. Kasama, the provincial capital, is 860 km distant from Lusaka by road. Nakonde town which is located at the border with Tanzania is 805 km distant from Mbeya and 927 km from Lusaka.

Climate

3. **Rainfall:** The rainfall of Zambia is of various origins. However, it originates mainly from the southward movement of the equatorial low pressure belt in the summer months in association with apparent migration of the overhead sun. The tree principal airstreams in the rainy season are: the Zaire air, the south-east trades of the Indian Ocean, and the north-east monsoon. The rainy season lasts from November to March or April. The main annual rainfall decreases in amount from north to south. The northern half of the country has annual totals ranging from 1015 to 1520 mm. There are substantial variations from year to year in the amount and duration of rainfall. The average length of the rainy season is 190 days in the Northern Province and the end of the rains comes in early May in the Mbala area.

Table I shows annual rainfall data at 3 selected stations within the Province.

TABLE I

Stations	1964/1965	1965/1966	1966/67	10 years' Average
Kasama	1121.9	1257.3	1272.3	1195.6
Mbala	1110.2	-	1225.8	1136.4
Mpika	880.4	928.1	708.7	1087.4

In the following table is shown the monthly distribution of rainfall at Misamfu Regional Research Station (near Kasama).

Table II

Years	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.
1964/1965	1.3	1.0	123.4	210.0	296.7	191.0	230.9	11.7	-	-	-	-
1965/1966	-	3.3	139.2	341.4	302.0	149.6	180.6	28.4	16.5	-	-	-
1966/1967	7.9	7.9	162.8	218.4	177.3	229.9	241.8	146.0	1.8	-	-	-

Table III: Comparison of the 1975/76 rainfall at Kasama with the 1940/70 average.

Table III

Years	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Total
1975/76	0.5	140.0	246.8	273.0	404.7	259.1	127.9	1.3	1453.7
30 years Average	35.0	147.0	259.5	271.2	226.7	162.0	30.2	12.5	1144.6

Table IV: Monthly distribution of rainfall at Misamfu Regional Research Station with indication of days with rain.

Table IV

Year	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Ju.	Jul	Au	Se	Oc.	Total
1973/1974	106.39	259.48	331.48	212.87	275.07	134.87	203.21	-	Tr.	-	-	19.85	1543.22
Days With Rain (+traces)	24	25	29	21	21	11	14	-	1	-	-	3	159

4. Temperature and winds: There are three seasons:

- the cool dry season (May to August)
- the hot dry season (August to October)
- and the warm wet season (October to April)

Table V shows the mean Temperature at Misamfu Regional Station (degree centigrade), recorded in 1964/65, 1965/66 and 1966/67:

APPENDIX 5

- 3 -

Table V

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	August
					Mean Maximum Temparature							
1964 1965	28.3	25.6	26.7	25.8	25.3	27.0	26.4	26.9	24.0	23.4	22.9	25.8
1965 1966	29.2	29.3	27.8	25.2	25.5	25.6	24.8	24.7	25.3	23.3	24.0	26.2
1966 1967	27.6	29.5	27.8	25.9	27.0	26.2	25.5	25.0	24.1	23.4	22.2	24.0
					Mean Minimum Temperature							
1964 1965	14.7	18.8	17.3	16.7	16.8	16.3	15.4	13.9	10.0	9.1	8.8	9.2
1965 1966	12.8	15.4	17.2	16.9	16.8	18.1	16.7	15.0	13.0	9.9	7.6	9.4
1966 1967	13.03	14.5	15.7	16.7	17	17.3	16.4	15.8	11.9	10.6	7.8	9.9

In October which is the hottest month the mean daily maximum temperatures are:

$30^{\circ}C$ to $32^{\circ}.5C$ (most of the areas of Northern Province)

$25^{\circ}.5C$ to $30^{\circ}C$ (highest altitude to the north)

In July (the coolest month) the mean daily minimum temperature:

$10^{\circ}C$ to $12^{\circ}.5C$ (most of the areas)

$70^{\circ}C$ to $10^{\circ}C$ (in some areas of Mbala and Kasama Districts)

5. In the cool dry season winds are light and predominantly from east and south-east. From August onwards winds strengthen and back gradually to the north-east. At the rainy season there is a greater variation in wind direction. However, winds from the north-west become dominant over the north. They are usually light but there may be heavy squalls associated with thunderstorms.

Relief, Drainage, and geology

6. The relief consists of a series of plateaux. The highest of these plateau surfaces lies in the Mbala District (1500 to 1800 m). Most of the plateaux lie between 1200 and 1500 m and the lowest of them lie between 900 and 1200 m.

7. Zambia is drained by parts of the Zambezi system (covering three quarters of the total area) and the Zaire system (one quarter). The latter comprises the basins of the Chambeshi, the Luapula and Lake Tanganyika in the Northern and Luapula Provinces. The Chambeshi River

follows a north-east to south-west course with a gentle gradient and extensive swamps (dambos). It tumbles over a series of shallow rapids as it approaches the Bangweulu Swamps. The drainage into Lake Tanganyika consists mainly of the Lufubu River and some short streams with many rapids and waterfalls. Most small streams dry up during the dry season while flow is reduced to a small fraction of wet season discharge in many larger streams.

8. The oldest rock system, the Basement Complex, which is found most extensively in the east and south-east of the country occupies a large part of the Northern Province. The main rock types are gueisses, schists and quartzites. The Basement complex has been extensively intruded by granites. Katanga sediments which were deposited in the Pre-cambrian era occur extensively in the Northern Province. Finally recent deposits of alluvium are extensive along the upper Chambeshi River.

Soils

9. Rainfall is the main climatic factor which affects soil characteristics in Zambia. In northern Zambia where annual rainfall is up to 1250 mm most of the areas are covered by strongly leached sandveldt soils. According to the average rainfall the Northern Province can be divided into three zones with different soil groups:

(a) Medium low rainfall zone (600-800 mm). This zone includes the eastern and north-eastern corners of Mbala, Kasama and Chinsali Districts, and the north-western half of Isoka District (area between Isoka and Nakonde, and northern sector of the Chambeshi Flood Plain). The Lunzua series of red loams and clays cover most of the zone. These soils are derived from granite/gabbro complexes and basement schists. They are remarkably fertile and most of them are already under cultivation. The area is well suited to growing maize, beans, groundnuts, soyabeans or sunflower. Barley, wheat and tobacco can also be grown on the clays as well as coffee (although the rainfall is marginal for this crop). High cost vegetables or seed potatoes could be grown on the highest ground to the west of Nakonde. The dambos to the east of the Great North Road should give good rice yields on the heavier soils during the rainy season, and wheat in the dry season.

(b) Medium high rainfall zone (800-1000 mm). This zone comprises most Northern and Luapula Provinces. It has a high proportion of less fertile, acid loamy sands derived from the granites, quartzites and sandstones. But there are also quite considerable areas of red loams and clays belonging to the Mululwe and Lunzua series. The best soils are the Mululwe and Kaombe series. The latter is restricted to a few small sites close to Mpika. The Mululwe series occur in a belt of ground lying north-east to south-west through Mpika and Kaole. The main areas where the Lunzua series are found are: the rectangular area extending from Mbala south to Chiwembe, Kasama and Malole; scattered areas from Chambeshi to Shiwa Ngandu and Mpika; extensive areas from Mpika southwards to the Northern/Central Province border.

Where the ground is sufficiently level the Mululwe and Lunzua series are good for maize, groundnuts, beans, soyabeans, sunflower and coffee. On the sandy loams derived from the Katanga shales, maize, groundnuts, beans, oriental tobacco or sunflower may be grown, together with the staple crops. Citrus, mangoes and avocado pears grow well on the edges on the Chambeshi Flood Plain. Rice is certainly the best crop for cultivation on the flood plain's clay soils.

(c) High rainfall zone (1000-1300 mm). This zone includes Luwingu District, half of Mporokoso District, the south-west quarter of Kasama and the extreme west of Mpika Districts. There is a similar range of soils to that of the preceding zone, but they are more leached. With fairly heavy applications of fertilizers good crops of maize, groundnuts, beans, etc., can be grown on these soils.

Vegetation

10. The Northern Province is covered mostly by Miombo Woodland which is characterised by Brachystegia, Jubelnardia and Isoberlinia species. There are also grasslands line dambos, streams and rivers.

Socio-economic parameters

11. The population distribution by district (August 1969 Census) is shown in table VI that follows (figures rounded):

APPENDIX 5

- 6 -

Table VI

District	Population	Area (km^2)	Density
Isoka	77,700	13,843	5.6
Mbala	95,633	16,553	5.8
Chinsali	58,014	15,537	3.7
Kasama	107,817	20,909	5.1
Mporokoso	67,390	23,456	2.9
Luwingu	79,164	10,891	7.3
Mpika	59,378	41,093	1.4
Province	545,096	142,304	3.8

Source: Central Statistical Office

All districts have a low population density, particularly Mpika and Mporokoso Districts. High densities of population are associated with the fishing communities bordering the lakes and also around administrative centres along the main road between Kasama and Mbala. The new rail-link passes through relatively sparsely populated areas, except around Kasama, Mpika and the Tunduma/Nakonde border area.

12. Population structure: Table VII shows the census of African population by district, age and sex, June 1963.

Table VII

		MALES			FEMALES		
Districts	Total Number of persons	Born Before 1918	Born During 1918-1941	Born After 1941	Born Before 1918	Born During 1918-1941	Born After 1941
Mbala	90894	4987	10988	27940	4552	14798	27629
Chinsali	71201	3966	8162	22095	3895	10709	22374
Isoka	81796	4139	10956	24758	3628	14207	24108
Kasama	113171	7239	14214	32982	7292	17305	34139
Luwingu	80593	4770	3058	24276	4393	13185	24911
Mpika	60181	3674	6171	18011	3584	9485	19256
Mporokoso	65167	3915	7092	19633	3741	9800	20981
Total	563003	32690	66646	169695	31085	89489	173398

Source: Central Statistical Office

13. Population changes: In table VIII are shown the 1963 and 1969 Census figures for the northern Province.

Table VIII

District	June 1963 Census	August 1969 Census	% change over 1963 Census
Chinsali	71,000	57,000	- 19.7
Isoka	82,000	78,000	- 4.9
Kasama	114,000	108,000	- 5.3
Luwingu	81,000	78,000	- 3.7
Mbala	91,000	94,000	+ 3.3
Mpika	60,000	58,000	- 3.3
Mporokoso	65,000	68,000	+ 4.6
Total	564,000	541,000	- 4.1

The main characteristic is a drop of 4.1% while the country recorded an increase of 17.3%. In comparison the percentage changes for the other Provinces were:

Central Province:	+ 40.2	Southern Province:	+ 7.1
Copperbelt:	+ 49.8	North-Western Prov:	+ 7.6
Eastern Province:	+ 6.0	Western Province:	+14.9
Luapula Province:	- 5.3		

14. According to the 1969 census the African population of Zambia had an annual rate of growth of 2.7 per cent. The intercensal period witnessed a growth of urban population of about 60 per cent, an annual rate of about 9 per cent. There has been for a long time high figures of migration from the Northern Province to the Copperbelt in particular. This trend is changing since only a few years as a result of increasing economic difficulties in the copper market.

Agriculture and Livestock

15. Farming economy: The poor sandvelt and ferrallitic soils and low rural population density have given rise in the Northern Province to culture based on shifting cultivation with long fallow rotations, the bush - fallow ash-cultures (or chitemene). Top branches of trees are lopped over an area of about 1.5 ha. and piled into large heaps. These are left to dry and burnt and the seeds (mainly Finger Millet) are sown in the ash. After a few years with falling yield, a new area is treated in the same way. The traditional farming systems are based on

this shifting cultivation (or on the perennial crop cassava). Traditionally people live in small Kin groups, frequently moving their settlement which is a formless group of 5 to 20 room, thatch and wattle dwelling huts, with a number of storage bins, hen coops, and 1 or 2 "kraals".

16. Various development programmes have given rise to non-substence farmers. These include:

- Co-operatives and individual farmers where maize is the main cash crop
- Early development schemes (Mungwe Development Area)
- Settlement Schemes involving blocks of farms
- Direct production schemes (Ngoli Coffee Scheme)

17. In table IX are indicated the cropping patterns (1969/70) of sample farms and co-operatives in Northern Province[1].

Table IX

	Maize	Millet	Sorghum/ Rice	ground nuts	Beans	Irish Potat. cassa. sweet Pot.	Vegetable Fruits
Individual Farmers (average)	2.80 ha.	0.75 ha.	-	3.60 ha.	0.65ha.	0.10	0.30
Co-operative (average)	2.40 ha.	2.00 ha.	-	0.40 ha.	1.20ha.	-	-

18. Crops currently grown: Table X gives the proportion of crops grown in each district.

District	Maize	Millet	Sorghum	Rice	Ground nuts	Beans	Total Cereals	Total Legumes
Mpika	63.8	17.0	-	0.7	10.1	8.4	81.5	19.5
Chinsali	45.7	31.2	0.1	-	9.6	13.2	77.1	22.9
Isoka	62.7	15.3	0.1	0.04	8.0	13.9	78.1	21.9
Kasama	91.6	2.3	0.2	0.7	2.0	3.2	94.8	5.2
Luwingu	61.1	11.6	-	-	14.0	13.3	72.8	27.2

(1) Land Resource Study, J.E. Mansfield.

(a) Maize is the major crop in non-subsistence schemes. It is intercropped with cassava in some chitemene systems. The following yield can be expected under present standards and management: 18 to 25 bags of 90 kg. per hectare (maximum: 49/ha.). Once yields fall at a certain level new land is opened up.

Table XI: Production of maize (in bags of 90 kg.)

Table XI

	1972/1973		1973/1974		1974/1975		1975/1976	
District	Total	Market-able	Total	Market-able	Total	Market-able	Total	Market-able
Kasama	31,400	21,465	39,300	29,256	53,200	39,286	68,000	53,000
Mbala	14,300	10,523	14,900	9,930	25,700	17,619	28,000	20,000
Isoka	16,400	10,954	17,000	10,882	29,700	22,382	36,000	30,000
Chinsali	8,200	3,060	10,600	4,200	14,200	7,993	15,000	11,000
Mpika	12,200	6,538	8,300	3,321	20,700	13,300	21,000	16,000
Luwingu	5,600	3,784	8,400	5,529	10,600	6,439	11,000	8,000
Mporokoso	4,300	2,710	6,000	3,173	8,900	4,785	10,000	6,500
Kaputa	500	-	800	85	900	175	1,000	500
Total	93,500	59,034	105,300	66,828	163900	11,979	190,000	145000

Prince: (1976): 6.30K/bag (or 6.25K+empty bag)

Maintenance of soil fertility is the main problem regarding maize cultivation. Experiments on this issue are underway at Misamfu Regional Station. Improved cultivars are being made available to the emergent farmer in Zambia.

(b) Finger Millet is the major crop of the chitemene (shifting agriculture) system. Although considered essentially as a subsistence crop it is also grown as a cash crop. From the study already mentioned above the average yield for sample individual and co-operative farmers was 8.4 bags/ha. In demonstration plots (1969/70) the average yield of fertilized finger millet was 12.5 bags/ha. Except under chitemene average yields will be around 3.7 to 4.9 bags without fertilizer.

(c) Sorghum is grown in very small areas.

(d) Rice is grown in the Chambeshi Flood Plain in particular. Yield: 10 bags/ha. (or 900 kg./kg.) under present cultivation conditions.

In the following table is shown the production of rice in the Province:

Rice (in bags 80 kg.)

Table XII

District	1972/1973 Total	1972/1973 Marketable	1973/1974 Total	1973/1974 Marketable	1974/1975 Total	1974/1975 Marketable	1975/1976 Total	1975/1976 Marketable
Kasama	1,500	1,105	1,700	1,516	3,300	3,520	5,520	5,010
Mbala	10	2	120	107	300	283	400	350
Isoka	-	-	-	-	20	-	60	-
Chinsali	220	190	150	128	400	358	1,000	800
Mpika	-	-	10	6	-	-	30	25
Luwingu	50	22	300	260	900	705	1,200	1,000
Mporokoso	100	81	50	6	50	2	20	10
Kaputa	100	-	100	43	100	2	900	100
Total	1,980	1,400	2,430	2,066	5,070	4,400	9,130	7,295

(e) Wheat: Experiments are underway for this crop and good yields have been obtained in some trials (Mbala, and Isoka Districts). This crop seems to be a promising crop for the highest areas.

(f) Groundnuts are grown by individual farmers and co-operatives. They are the most popular legumes grown in the Province. However, their development is currently limited by "pops". The average yield can be estimated to 5 to 12.5 bags per ha.

Table XIII: Production of groundnuts (in bags 80 kg.)

Table XIII

District	1972/1973 Total	1972/1973 Marketable	1973/1974 Total	1973/1974 Marketable	1974/1975 Total	1974/1975 Marketable	1975/1976 Total	1975/1976 Marketable
Kasama	400	33	550	19	850	12	1,850	30
Mbala	300	-	350	-	400	-	400	50
Isoka	200	7	200	-	450	-	800	50
Chinsali	200	26	400	6	400	3	400	-
Mpika	250	-	300	-	400	-	400	20
Luwingu	150	10	170	4	200	2	350	30
Mporokoso	150	-	170	-	200	-	350	-
Kaputa	50	-	50	-	50	-	150	-
Total	1,700	70	2,190	29	2,950	17	4,100	200

(g) Beans (Phaseolus vulgaris) Their importance as subsistence crop has declined in recent years. Selected varieties are developed as cash crops. The yield can be increased by closer spacing of the plant population. In demonstration plots in Kasama (1969/70) the average yield of 10.9 bags per ha. was obtained. Yield of 1,500 kg./ha can be obtained.

Table XIV: Beans (in bags 90 kg.)

Table XIV

	1972/1973		1973/1974		1974/1975		1975/1976	
District	Total	Market-able	Total	Market-able	Total	Market-able	Total	Market-able
Kasama	700	46	1,000	19	1,200	23	1,450	120
Mbala	300	-	800	-	1,500	403	3,500	400
Isoka	390	2	600	12	800	3	1,000	50
Chinsali	420	38	500	8	550	11	600	60
Mpika	330	1	400	-	500	-	550	30
Luwingu	200	8	200	2	300	-	300	20
Mporokoso	200	1	250	2	300	14	400	20
Kaputa	100	-	100	-	100	-	100	-
Total	2,640	103	3,850	43	5,160	454	7,900	700

(h), Cassava is a major crop in semi permanent subsistence farming system. It is perhaps the largest farm produce in Northern Province and presents an immediate source of income. Cassava can be processed to flour, starch and chips.

Experiment plots at Misamfu Station have given the following results in 1973/74: the fertilized plot outyielded the unfertilized by 1218 kg/ha. (28 474 kg-27256 kg) under continuous cassava cultivation.

(i) Sunflower: Experiments are underway at Misamfu Station to test the responses to various nutrients. The mean yield was 997 kg/ha in 1974.

(j) Soyabeans: A variety trial with reduced number of varieties were conducted at Mismfu with two dates of sowing (December and January). The yield figures obtained reached the national average (1330 kg/ha and 1354 kg/ha).

(k) Fruits and vegetables: Mature citrus at Misamfu has had no supplementary irrigation in recent years. Bananas and mangoes are grown in the Province and there are vegetable production Schemes at Mbala, Malashi, Chintu, Malole and Lukupa - Potatoes are a very profitable crop, especially in the highest altitude. The main problems concerning vegetable growing are of storage and marketing.

(l) Tobacco: Reasonable yields of flue - crude virgina tobacco can be achieved, but curing and conditioning difficulties are a major constraint. With careful management tobacco can be grown successfully.

(m) Coffee: Considerable research has already been conducted at Misamfu Station under supplementary irrigation. Planned production should be possible for the internal market. Coffee is grown on the Ngoli District Production Scheme.

Livestock

19. Cattle: Cattle population in the Northern Province is estimated to 90,000 heads which are owned by traditional farmers. The Northern Province is just coming up in livestock. Cattle are mainly concentrated in tsetse fly free areas adjacent to the Tanzanian border. Control measures against cattle diseases, especially East Coast fever are increasingly effective. But as the border with Tanzania is not very fenced it is feared that problems come from neighbouring countries. Foot and mouth disease is likely to come through Sumbawanga. But at present East Coast fever is the major problem.

20. Ranches were established at Mbesuma and Mbala in order to augment cattle numbers. Woodland grazing was the main constraint. The traditional herd feeds on natural grazing. The Northern Province Intensive Development Zone programme includes an important component on mixed farming, ex-training and sheep project. A state-run dairy unit has been established near Kasama to supply fresh milk (80 Friesian - type heifers and 9 Jersey-type heifers and cows in 1970). This unit makes the most use of planted pastures: star grass, rhodes grass and Stylosanthes, with maize, or maize with velvet beans, for storage.

21. Sheep and goats: Goats can provide both meat and milk. At Kasama some difficulties occurred with a scheme of sheep and lambs (lamb tape-worm). A well-planned research programme can greatly expand the contribution of goats and sheet towards solving the problem of meat shortage.

22. Pigs: Local pigs supply cheap meat. The market for fresh pork appears limited at present.

23. Poultry: In 1970/1971 there were 22 units of 100-125 birds each in the Northern Province.

Table XV: Poultry in Northern Province, 1970/1971

Table XV

District	Number of Farmers	Number of Units	Overall Laying flock	Estimated Egg Production (dz)
Kasama	12	13	2,700	40,500	3,000
Mbala	6	6	1,200	18,000	1,250
Isoka	0	0	300	4,500	200
Chinsali	1	2	650	9,750	800
Mpika	0	0	500	7,500	800
Luwingu	1	1	800	12,000	500
Mporokoso	-	-	200	3,000	300
Total	20	22	6,350	95,250	6,900

Marketing and shortage of trained staff require investigation and planning.

Forestry

24. The dry evergreen forest which was in the past widespread on the Chambeshi Plain and occurred on the Mbala Plateau was cut for timber exploitation, cultivation or to make charcoal for iron smelting. It is replaced by open fire-hardy chipya. The main objectives of the Plan are the establishment of forests to protect against erosion and dessiccation, to maintain the flow of rivers, and the achievement of self-sufficiency in timber. In establishing forest reserves considerable delays were experienced particularly in the Northern Province during the First National Plan. The Second National Plan put emphasis on increasing national self-sufficiency in timber and forest products. For the remoter rural areas the emphasis is on maximum self-sufficiency in saw timber and poles, linked to the development of small sawmills and forest industries in many districts.

Fishing

25. Fishing is of considerable importance and demand for fish is increasing rapidly. The total fish production in Zambia rose from 12,000 short tons in 1952 to 34,000 short tons in 1964. The three

major river systems and their associated lakes have different types of fish. In the Northern and Luapula Province fishing takes place along the Chambeshi and Luapula river systems, the lakes of Bangweulu, Mweru and Mweru-Wantipa where the most important fish is tilapia (bream). Lake Tanganyika provides two species of freshwater sardines (Ndagaa spp) locally named Kapenta, and three perch species which feed on the former. This industry is centred at Mpulungu. The Northern and Luapula Provinces contribute about 75% of national production. Industrial - size fishing craft and professional gear are used only on Lake Tanganyika which has the highest fishing potential with an estimated 20,000 metric tons per year in the Zambian part alone.

Estimated Fish Production in Zambia (in metric tons)

	1972	1973	1974
Lake Tanganyika	5,750	4,084	3,621
Lake Mweru-Wantipa	6,630	8,113	5,992
Lake Mweru	7,265	6,122	6,201
Lake Bangweulu	7,090	8,947	8,708
Lukanga Swamp	3,000	2,220	2,145
Kafue River	5,380	4,080	4,500
Lake Kariba	1,300	1,962	1,759
Zambezi River	3,000	2,000	3,500
	39,415	37,528	36,426

The principal objectives for fisheries development are:

- to increase production
- to establish an effective marketing organisation
- to improve fishing equipment and techniques
- to produce better quality fish as a valuable protein source.

Rural Industries

26. In the Second National Development Plan (1972-1976) expansion of the manufacturing sector has been given top priority, with provisions to link industrialisation directly with the major social objective of the Plan: to attack the disparities between rural and urban population. Until 1969 there was little activity in industrial development in rural areas. The main institutions for Financial, Technical, and Managerial Assistance are Rucom Industries, Ltd. and Industrial Finance Company Ltd. However, there is no credit

institution at present with branches in rural areas and equipped to satisfy small-scale rural interpreneurs' needs (building materials, agricultural implements, furniture, coffee processing, poultry equipments, etc.).

27. The range of type of rural manufacturing activity is very limited in the rural provinces of Zambia. Moreover, in contrast to some other developing countries, small handicraft and traditional cottage industries do not constitute a large group. A greater assistance in enterpreneurial extension services is required.

Trade

28. Zambia's main economic activity is on copper production which provides over 90% of its exports. External trade is concentrated on a few industrialised countries. The Second National Development Plan has pointed out the need for greater country-wise diversification of external trade and extension of trade relations with various economic groupings. To this end "Government will devote special attention to establishing closer economic relations with the countries of the East and Central African sub-regions. Trade promotion with these countries can be carried out on the bases of commodity-by-commodity negotiations, bilateral trade agreements, collection and dissemination of trade information, establishment of a trade promotion centre and special conventions aimed at facilitating border trade". The development plan of distributive trade emphasises the necessity of careful marketing research, definition of the location, type and size of transport and warehouse facilities.

Infrastructures

29. Communication and transport: The national road density is 50m/km^2, which is high by African standard. Historically the Great North Road was the main routeway through the country. Actually it is the key to Zambia's road and rail network. It has been tarred since a few years and at the same time the Tazara railway has been built. This new line of rail, in addition to carrying the country's external traffic through Dar es Salaam is also of great importance for local freight and should foster rural development.

30. Various ministries and agencies share responsibilities for meeting the Zambian Government's transport policy objectives. The Ministry of Power, Transport and Works is responsible for providing services

flow. With the decentralisation policy the Rural Councils are also responsible for a large number of rural road projects. They may implement investment proposals of local importance. During the Second National Development Plan (1972-76) 28% of the total public investment was allocated to transport, out of which the construction of the Tanzania-Zambia Railway accounted for over 50%.

31. There is a high transport demand as distances between agricultural production and consumption centres are very long. The National Agricultural Marketing Board (NAMBOARD) has to secure transport of farm produce and inputs. NAMBOARD uses the railway whenever possible, however transport by road is more important. As the agency responsible for implementing agricultural policy related to essential products and for operating Government uniform pricing system NAMBOARD plays a very complex rôle.

32. A serious shortage of plant and vehicles hampers road maintenance, the cost of which was estimated in 1974 at K230 per km. for paved roads, K190 per km for gravel roads and K60 per km for earth roads.

The Investment Programme (SNDP) concerning the Northern Province was as follows:

Province and local Authorities	Roads	Building Workshop & Maint. Camps	Other	Total
23200K	1666,000K	223,000K	191,000K	2321,000K

Medical Facilities

33. In the expansion and development of health services during the Second National Development Plan the guiding principle, in the rural areas, is "the planning of health services so that by the end of this decade every citizen will be within a few kilometers of a health centre or a sub-centre". During the First National Development Plan priority was given to preventive and rural health services. The basic unit, the rural health centre, provides all services except full-scale hospitalisation. The district hospital provides fully-qualified doctor services. In 1971 there were 56 district hospitals in the country. In 1969 the Northern Province had an average of 1.18 treatment centres per 10,000 inhabitants. The average for all Zambia was 1.28 per 10,000.

The investment programme for the Northern Province during the

- Enlargement of Mbala and Kasama hospitals: 700,000 K
- Improvement of Mpika, Isoka, Luwingu, Chinsali and Lukupa hospitals: 744,000 K
- New Scheme at Mporokoso: 722,000 K

34. Educational facilities: Number of students in primary Schools:

	1964	1967	1968
- Total Northern Province	50,316	75,583	85,459
- Total Zambia	378,639	539,353	608,893

Number of students in Secondary Schools:

	1967	1968
- Northern Province	3,702	4,659
- Total Zambia	34,139	42,388

The main objectives of primary education in the Plan are:

- to provide new lower primary streams to keep pace with population growth
- to provide sufficient new upper primary consistant with national aspirations.

Special attention is given to the upper primary sector concentrating on social studies, environmental science (including agriculture), homecraft and manual craft training. A pilot project is designed to determine the potential for an integrated, inter-ministerial approach to education for rural development.

Adult education centres have been planned for Mbala and Kasama.

35. Rural water supply: Rural water supply development has made notable progress in Zambia. 54% of the rural population is served by wells or boreholes. The Department of Water Affairs is responsible for organisation and technical skill. Government policy emphasizes the digging of wells on a self-help basis. The standard costs are:

- hand-dug well: 1,000K
- boreholes: 3,000K

Small dam reservoirs are also constructed for various uses. Wells and boreholes are fitted with hand-pumps made by the Department of Water Affairs. Construction of water supplies in Zambia varies between 660 and 770 units per year. During the SNDP supplies or major extensions were to be undertaken in the following centres situated in the Northern Province: Isoka, Mporokoso, Chinsali, Luwingu, Mpika and Mangwe.

36. Power: The rural areas along the Tazara can benefit from the new transmission line of Mpika and the extension of Kasama hydrostation is planned. The SNDP investments in the field of energy are, concerning the Northern Province:

- Kasama hydro-eslectric scheme (extension): 500,000 K
- Mpika transmission line 3,500,000 K
- Luapula Extension and inter-connection of Mporokoso and Luwingu areas
- Diesel Station in rural areas (Isoka and Chinsali)

37. Housing: The standard of accommodation in most villages of the Northern Province is low. The SNDP aims at correcting the inbalances between urban and rural housing and a massive campaign of village improvement has been launched. Rural populations are mobilized to build improved houses with burnt bricks, to provide latrines, etc. In Mbala District one of the major activities of the Community Development Officers is on mobilization for self-help group housing. All departments are involved in this village regrouping programme. Iron sheets are supplied to the villagers free of charge. At Isoka for example the target was 24 villages.

Institutions and services

38. Administrative set-up: Zambia is administered through 8 provinces and more than 30 rural districts. Like in Tanzania the district is the basic administrative unit. It is headed by a District Governor assisted by a district development Council. The Province is headed by a Province Minister assisted by a provincial development council. The Governing Party, UNIP is organised at national, provincial, district and village levels. Village Productivity Committees, Ward Councils and Ward development committees are being formed to fulfil the socio-economic objectives of the country. In the Northern Province the officers involved in regional and district planning and development are: the Provincial Agricultural Officer, the Planning Officer, the Animal Husbandry Officer, the District Agricultural, livestock, co-operatives, community development officers.

39. Extension, training and research: The following programmes and projects are included in the SNDP:

- Zambia College of Agriculture, Mpika:	1,500,000K
- Ox-assisted cultivation (national)	175,000K
- Staff housing (national):	8,462,000K
- poultry development (national):	310,000K
- vehicles (national):	1,038,000K
- development and improvement of small-stock (national)	80,000K
- National sheep and goat scheme:	91,000K

In the field of research the Misamfu Centre is one of the 9 Regional Research Stations of Zambia.

The Red Locust Control Services Headquarters which is an international Organisation is established in Mbala.

40. Community development: The main programme provides for all field activities and adult literacy training.

41. Credit, co-operatives and marketing: The Agricultural Finance Company is the only Credit institution in the Province. It finances small and commercial farmers and started in 1970 with small scale farmers until 2 years ago when it was more directed towards emergent farmers. Seasonal, medium and long term loans are granted. Application is made through the Ward development committee. Until recently the repayment rate was very low (below 50%).

42. The Northern Co-operative Union (NCU) formed by primary Co-operative Societies fulfills the following functions: distribution of farm inputs to primary co-operative societies, selling farm equipment such as grounding mills, buying farmer's produce, training, etc. National Agricultural Marketing Board a(NAMBOARD) operates in the Northern Province through NCU. Its national activities include: grain handling and storage, input storage, rural marketing, fruit and vegetable marketing, etc.

APPENDIX 5

STUDY MATRIX

Intergrated Rural Development Survey of Mbeya Rukwa Regions in Tanzania and Northern Zambia

I. Objectives and Strategy

1. General Observations
2. Regional Development Objectives
3. Regional Development Strategy

II. Directly Productive Sector

A. Agriculture

General Objectives and Stratgy
Food and Export Crops
Food self-sufficiency and surplus production
Farming in general - State, Co-operatives, Villages;
Commercial Private.
Rural Settlement in relation to agric. production
intensive and Extensive production
Extension service - Farmer training and Research
Input programmes - Seed, Fertilizer, Insecticide
Farm tools, oxenizantion and mechanisation
Irrigation programmes and potential
Storage and Vermin Control programmes
Export potential (current if any and potential)

B. Livestock

General objectives and Strategy
Beef Production - Ranches, Parastatals, Communal, Private/Commercial
Dairy Production
Sheep, Goats, Poultry and small animals.

C. FISHERIES

General Objectives and strategy
Processing and marketing
Boats and equipment
Fish farming, Research, Training and Extension

D. Forestry

General objectives and Strategy - Forest Programmes

Bee keeping and Game

E. Industry

General; Aims and constraints for Ind. development

Small scale industries existing and potential

Mining - Past, Present and Future prospects

III. ECONOMIC INFRASTRUCTURE

Marketing - Food Crops

Exports

Distribution

Communication - Transport and Power

Roads - Strategy of a Road Development programme

Financial Institution

Commercial banks

Rural Development banks

Credit and Savings Societies

IV. Social Infrastructures

General Observations

Health - Curative and Prentive programmes

Water - Essential to development

Education - UPE, Secondary, Technical, Adult

Culture and Sports

V. Organisation and Financing

Regional Development Plans

Regional Planning Organisation

Development Financing

Regional Development Budget.

APPENDIX 6

List of Government Officials and Parastatal Organisations, Managers Interviewed and the Institutions, Projects and Villages visited during the Study in Tanzania and Zambia

I. Tanzania

Government Officials and Parastatal Organisations Managers.

Dar-es-Salaam

Dr. S. Taki -- Senior Economist (and Liaison Officer for UNDAT Affairs) Ministry of Finance and Planning (Co-ordinated the field trip in Tanzania)

Dr. S.A. Madallali - Managing Director, Tanzania Livestock Development Authority

Dr. R. Chiomba - General Manager - NACO (National Ag. Company)

Dr. A.B. Chagula - Senior Veterinary Officer

Mr. C.B.C. Mukondya - Senior Agricultural Officer

Dodoma

Prime Minister's Office

Mr. G. Neema, - Principal Secretary, Prime Ministers Office

Mr. A.S. Kauzeni - Commissioner for Co-operatives and Ujamaa, Prime Minister's Office

Ujamaa Villages - Chamwino Ujamaa Village

- Msanga Ujamaa Village

Mbeya Region

Regional Commissioner's Office - Regional Administration - Box 754Mbeya

Mr. R.S. Wambura - Regional Commissioner

Mr. M.D. Ndimbo - Regional Development Director (Acting)

Mr. E.N. Mbuya - Regional Planning Officer

Mr. K.M. Simba - Assistant Planning Officer

Mr. J.E. Nanento - Regional Agricultural Development Officer

Dr. R.O. Mosha - Regional Livestock Development Officer

Mr. J.R. Kisyombe - Regional Ujamaa and Ushirika Development Officer.

Mbeya District Administration

Mr. M. Magobe - District Planning Officer
Mr. J.E. Mkuchu - District Agricultural Development Officer
Mr. K.B. Mangwaha, Ujamaa and Co-operatives Development Officer

Rungwe District Administration - Tukuyu, District Headquarters

- District Party Chairman
- District Development Director - Mr. Mgalula
-
-

Projects and Villages and Institutions

1. Kitulo Dairy Farm, (Mbeya District) a DAFCO Project.

Contacts: Mr. C. Lauridsen, Regional Farm Manager
Mr. W. Mpayo, Project Manager

2. Mbarali Irrigation Scheme - Rice Production Project (Mbeya District); NAFCO Project

Contacts: Mr. C.F. Kirschstein, Project Manager

3. Katumba Tea Factory - Rungwe District

Contact: Mr. Mgalula - District Development Director.

4. Uyole Agricultural Research and Training Centre - Mbeya

Contacts: Dr. P.P. Kimiti Principal
Mr. H. Brenner - Deputy Principal
Mr. J.S. Kidunda - Agro-Economics
Mr. I. Swai - Agronomy
Mr. E.N.B. Kwiligwa - Land Use
Mr. C.W. Rombulow - Poarse - Land Use
Mr. H. Brenner - Agricultural Co-operation and Extension

5. Ndithu Ujamaa Village - Near Tukuyu, Rungwe District

Contact: Mr. Mgalula - District Development Director

6. Inyala Ujamaa Village - Tazara Village in Mbeya District

Rukwa Region

Regional Commissioner's Office - Regional Administration Box 128 Sumbewenga

Mr. Baruti, Regional Commissioner
Mr. R. Lukindo - Regional Development Director
Mr. E.F. Msinjakweli - Acting Regional Co-operative Development Officer
Dr. E.S. Munuo - Regional Livestock Development Officer
Mr. A.P. Saruma, Regional Agricultural Development Officer
Mr. C.I. Rwechungura - Regional Planning Officer
Mr. L. Selya - Regional Manpower Management Officer
Mr. M.L. Lupembe - Administrative Officer

Parastatal Projects and Villages Visited

1. Malonje (NARCO) State Ranch - Near Sambawanga
2. Kizombwe Ujamaa Village - Sumbawanga District
3. Kasense Ujamaa Village - "M "
4. Sandulula Ujamaa Village - " "
5. Ikozi Ujamaa Village - " "
6. Kalambazite Ujamaa Village - " "

II. Zambia

Lusaka.

Mr. A. Hamamba - Director, Department of Agriculture, Ministry of Rural Development
Mr. N.M. Mukutu, - Deputy Director of Agriculture (Extension)
Mr. Linden - Planning Officer, Intensive Development Zone Programme
Mrs. Kashangula - Home Economics Senior Officer, Ministry of Rural Development

Northern Province

Isoka District

Isoka - District Capital

Mr. J.K. Chadukwa - Assistant District Secretary
Mr. Muliwa - District Agricultural Officer
Mr. Mumbi - District Rural Information Services Officer
Mr. I.A. Mwenda - District Community Development Officer

Nakonde Agricultural Camp - (Old Fife)

Mr. Katende - Officer in Charge

Mr. Nyirenda - I.D.Z. Officer

Mr. Kabangula - Extension Officer, (Coffee)

Villages and Projects

1. Some Coffee growing farmers in the Ikumbi Area
2. Musesengoma Irrigated Coffee Project - Ikumbi Area

Mbala - District

Mbala - District Capital

Mr. A.D. Musawa - District Governor

Mr. W. Simbotwe - District Secretary

Mr. A. Kayombo, Rural District Secretary

Mr. Sikazwa, Deputy Secretary

Mr. J.M.R. Chintu - District Agricultural Officer, Box 46, Mbala

Mrs. M. Lombe - Livestock Officer

Mr. E.M. Bwalya - District Rural Information Services

Mr. J.B. Katongo - Co-ordinator, IDZ Programme

Mr. Zulu - District Officer, Agricultural Finance Company Ltd.

Mr. Mutale - District Co-operative Officer

Mr. Simfukwe - Assistant Secretary, Northern Co-operative Union

Mr. Chileshe, Acting Manager, Northern Co-operative Union

Mr. J.M. Bwalinde, Provincial Fisheries Officer

Mr. Simbule - Acting Provisional Veterinary Officer

Mr. Sangando - Tsetse Control Officer

Mr. B. Phiri - Community Development Officer

Mr. C.W. Mwaunuka - Fisheries Officer, Fisheries Dept., Mpulungu Port, on Lake Tanganyika.

Other Organisations

Dr. Materu - Director, International Red Locust Control, Organisation of Central and Southern Africa.

Villages, Farms and Projects

1. Mambwe Intensive Development Zone–Mbala District
   - Kawe Village
   - Kawane Village
   - Mwamba Village
   - Kawimba Mission
   - Kaka Village
2. - Senga Hill
3. - Nondo

2. Private Farms - (Commercial Farmers)

Mr. Chikoko's Farm (466 acres) - fruit, vegetables and grain crops
Mr. Kunsonama's Farm (465 acres) - fruit, grain crops (wheat and maize)
Mr. Klynhan's Farm - maize, potatoes and wheat

Kasama District

Kasama - Provincial Capital

Mr. S.R. Mwiko - Assistant Secretary, Provincial Cabinet Minister's Office
Mr. C.G. Ngambi - Provincial Agricultural Officer
Mr. Sichilombe - Deputy Provincial Agric. Officer
Mr. Kvaale - Planning Officer - Rural Development (Village Agricultural Programme)
Mr. F.H. Nseluke - Rice Officer
Mr. O. Idon - Rice specialist - (Advisor)
Mr. Mwale - Animal Husbandary Officer
Mr. Trowren–Agronomist - Misamfu Research Station
Mr. P.J. Papa - Manager - North Co-operative Union
Mr. Kasempa - Provincial Marketing Manager, NAMBOARD
Mr. S.N. Sibanda, Provincial Manager, Agricultural Finance Company

Projects and Villages

1. Ngoli Coffee Scheme (irrigated)

Contact: Mr. K.K. Baroah - Project Manager
Mr. Matonga - Senior Field Supervisor

2. Chamfubu Settlement Scheme

Contact: Mr. Simpane - Manager

4. Chambeshi Valley Flats - Rice Projects

Chifulo Village

Mulema Village

Sampa Village

Bwebe Village

Mamba Village