



*PART FIVE*

*Community Development Plans*

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## URBAN DEVELOPMENT PROGRAM

### Inventory

For the purposes of this integrated regional development plan, urban areas are core areas such as Moshi Town, the regional center; Same, Sanya Juu, and Mkuu, which, together with Moshi Town, serve as district centers; and the 15 division centers. The 15 division centers also serve as the centers of the divisions in which they are located.

The different urban areas will be characterized as follows from the standpoint of their roles in the development of the region as a whole.

#### 1) Regional center

As the regional center, Moshi Town should be developed as an administrative, educational, cultural, and commercial center with government and administrative offices, higher technical education and practical training facilities, and facilities for distribution of the region's produce.

#### 2) District centers

The district centers will be characterized as administrative centers on the level below the regional center, as areas where most of the production infrastructure is to be provided, as the locations of warehouses and other commercial facilities and facilities for processing agricultural produce, and as centers for provision of medical and health and other social services.

#### 3) Division centers

The division centers will be characterized as centers for the facilities important to the everyday lives of the people, including administrative services, commercial facilities, medical and health facilities, and facilities for the collection of farm produce for marketing.

### Designation of Urban Areas

Towns	District	Service population	
		1975	1995
Moshi Town	Moshi	365,900	608,500
Same	Pare	192,300	346,100
Sanya Juu	Hai	160,500	263,600
Mkuu	Rombo	146,300	237,800

Division Centers	Division	Service population	
		1975	1995
Masama	West Hai	47,626	68,819
Machame	Central Hai	63,052	87,991
Kibosho	Central Hai	74,902	95,495
Uru	East Hai	89,754	132,084
Kirua	West Vonjo	58,267	90,856
Marang	East Vonjo	88,154	131,970
Mengwe	Mengwe	34,970	47,265
Mashati	Mashati	34,039	49,015
Usseri	Usseri	44,302	71,517
Ugweno	Ugweno	29,266	49,441
Usangi	Usangi	36,214	60,287
Mwenbe	Mwenbe/Mbanga	15,932	19,539
Makanya	Chome/Suji	18,036	29,746
Manba	Manba/Vunta	36,588	61,221
Gonja	Gonja	26,734	44,716

### Setting of Future Urban Population

	1975	1985	1995
Moshi Town	50,000	100,000	150,000
Same	15,000	32,500	50,000
Sanya Juu	5,000	15,000	25,000
Mkuu	5,000	15,000	25,000
Division centers	5,000	17,500	30,000
Totals	80,000	180,000	280,000

### Land-use Requirements, 1995

(Unit: ha)	Moshi Town	Same	Sanya Juu	Mkuu
C.B.D.	206	27	9	7
Residential areas	1,021	245	171	150
Public facilities areas	1,107	303	229	200
Industrial areas	724	36	14	12
Open spaces	205	469	176	154
Others	2,761	350	116	102
Totals	6,024	1,430	715	625

### Employment Schedule for Urban Areas

The following table gives figures for anticipated levels of employment in different industrial categories in urban areas of the Kilimanjaro Region in 1985 and 1995 as based on anticipated employment for the whole region. These figures are based on the following assumptions:

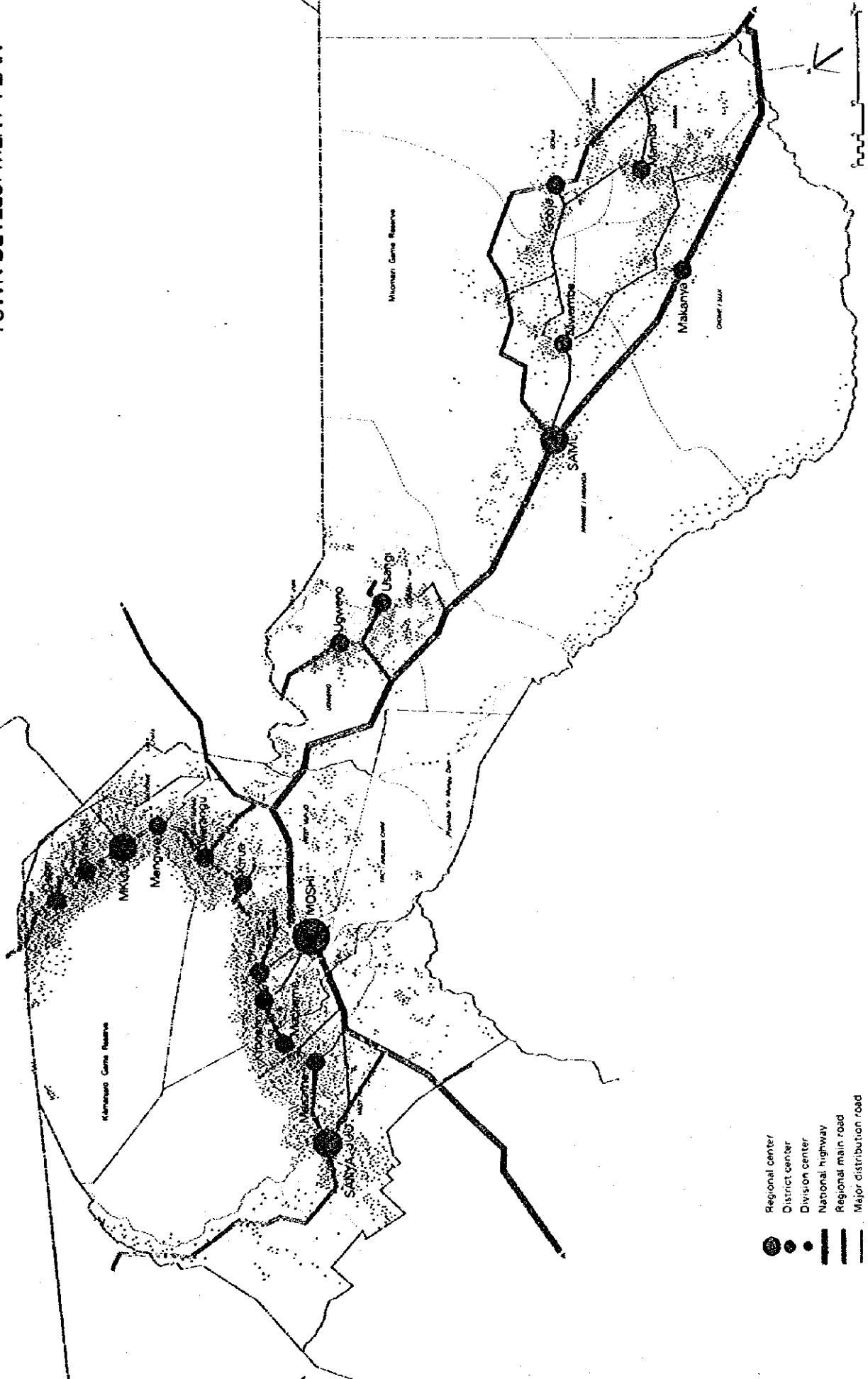
- 1) Employment in primary industries (agriculture and mining) is entirely in rural areas.
- 2) Employment in manufacturing is split 50 – 50 between urban and rural areas.
- 3) Employment in service industries is divided between urban and rural areas in a ratio of 60:40.
- 4) 80% of the remaining employment is in urban areas, and 20% in rural areas.
- 5) Employment is divided between the towns in the same proportions as population.

	Urban areas		Rural areas	
	1985	1995	1985	1995
Primary sector	—	—	308,030	411,960
Secondary sector	16,900	29,010	14,250	24,630
Tertiary sector	34,590	47,110	10,050	21,210
Totals	51,490	76,120	332,330	457,800
Rates of employment	28.6%	27.2%	32.8%	38.9%

The following table gives the anticipated employment figures for each town in 1985.

	Secondary	Tertiary	Totals
Moshi Town	9,400	18,900	28,300
Same	3,060	6,230	9,290
Sanya Juu	1,400	2,970	4,370
Mkuu	1,400	2,970	4,370
Division centers	1,640	3,520	5,160

# TOWN DEVELOPMENT PLAN



# MOSHI TOWN

## Development Policy

- 1) Prevention of overcrowding and development as an educational, cultural, and administrative town with an abundance of greenery.
- 2) Alteration of the present radial pattern of development from the heart of the town to a ring pattern around it with the construction of a peripheral loop road.
- 3) Giving the part of the town lying between the Rau and Karanga rivers, i.e., the present township boundaries, a quiet atmosphere with plenty of greenery, allowing only educational, administrative, recreational, commercial, and small industrial facilities and housing to be located there, and locating factories, distribution facilities, new housing developments, including housing for workers, and other facilities east of the Rau River as a second urban core.
- 4) Development of this second urban core as a production community, i.e., as a mixed-use area with both factories and other production facilities and social services for some independence from the first core, the basic unit being approximately 4,000 persons.
- 5) Emphasis on development of the first core up to 1985 and then construction of the second core in the period 1985-1995, with relocation of the railroad and improvement of infrastructure.

## Population Distribution Plan, 1985

	Area (ha)	Population	Gross density (persons/ha)
Residential areas	782	62,300 (62.3%)	80.0
Low-density	390	12,900 (12.9%)	33.1
Medium-density	104	9,100 ( 9.1%)	87.5
High-density	288	40,300 (40.3%)	140.0
Industrial areas	248	17,200 (17.2%)	69.4
Central areas	206	10,800 (10.8%)	52.4
Public facility area	987	9,700 ( 9.7%)	9.8
Totals or average	2,223	100,000	45.0

## Population Distribution Plan, 1995

	Area (ha)	Population	Gross density (persons/ha)
Residential areas	1,021	78,400 (52.3%)	76.8
Low-density	524	17,200 (11.5%)	32.8
Medium-density	151	12,800 ( 8.5%)	84.8
High-density	346	48,400 (32.3%)	140.0
Industrial areas	724	46,600 (31.1%)	64.4
Small-scale industrial areas	248	17,600 (11.7%)	71.0
Industrial areas	476	29,000 (19.4%)	61.0
Central areas	206	10,500 ( 7.0%)	51.0
Public facility areas	1,107	14,500 ( 9.6%)	13.1
Totals or average	3,306	150,000	45.4

## Housing Requirements

	Number of households		Totals
	1976-85	1986-95	
Residential areas	10,950	4,000	14,950
Low-density	2,100	1,100	3,200
Medium-density	2,100	900	3,000
High-density	6,750	2,000	8,750
Industrial areas	2,500	7,400	9,900
Industry	0	7,300	7,300
Small-scale industry	2,500	100	2,600
Totals	13,450	11,400	24,850

## Public Facilities Schedule

	Present	By 1985	By 1995
<b>Administrative facilities</b>			
Rdd office	1	1	1
Ddd office	1	1	1
Municipal office	1	1	1
<b>Medical care facilities</b>			
Regional hospital	1	1	1
Division hospitals	2	2	2
Health centers	1	2	2
Dispensaries	*	24	36
<b>Educational &amp; cultural facilities</b>			
Colleges	2	3	3
Secondary schools	2	4	4
Technical secondary schools	1	3	4
Vocational schools	1	2	3
Primary schools	10	24	36
Regional library	1	1	1
Art hall	--	1	1
<b>Communications facilities</b>			
Head post office	1	1	1
Subdepartmental post office	--	3	6
Regional telephone exchange	1	1	1
<b>Commercial &amp; trade facilities</b>			
Wholesale facility	1	1	1
Shopping centers	3	6	10
Shops	*	96	144
Regional trading center	1	1	1
Trading subcenter	--	--	1
<b>Public open space</b>			
Park	1	1	1
Sports grounds	1	1	2
Cemeteries	2	3	3
<b>Other facilities</b>			
Police station	1	1	1
Police posts	*	5	6
Fire station	*	1	1
Regional bus terminal	1	1	1
Assembly hall	1	1	1
Extension office	1	1	1
Slaughterhouse	*	1	1

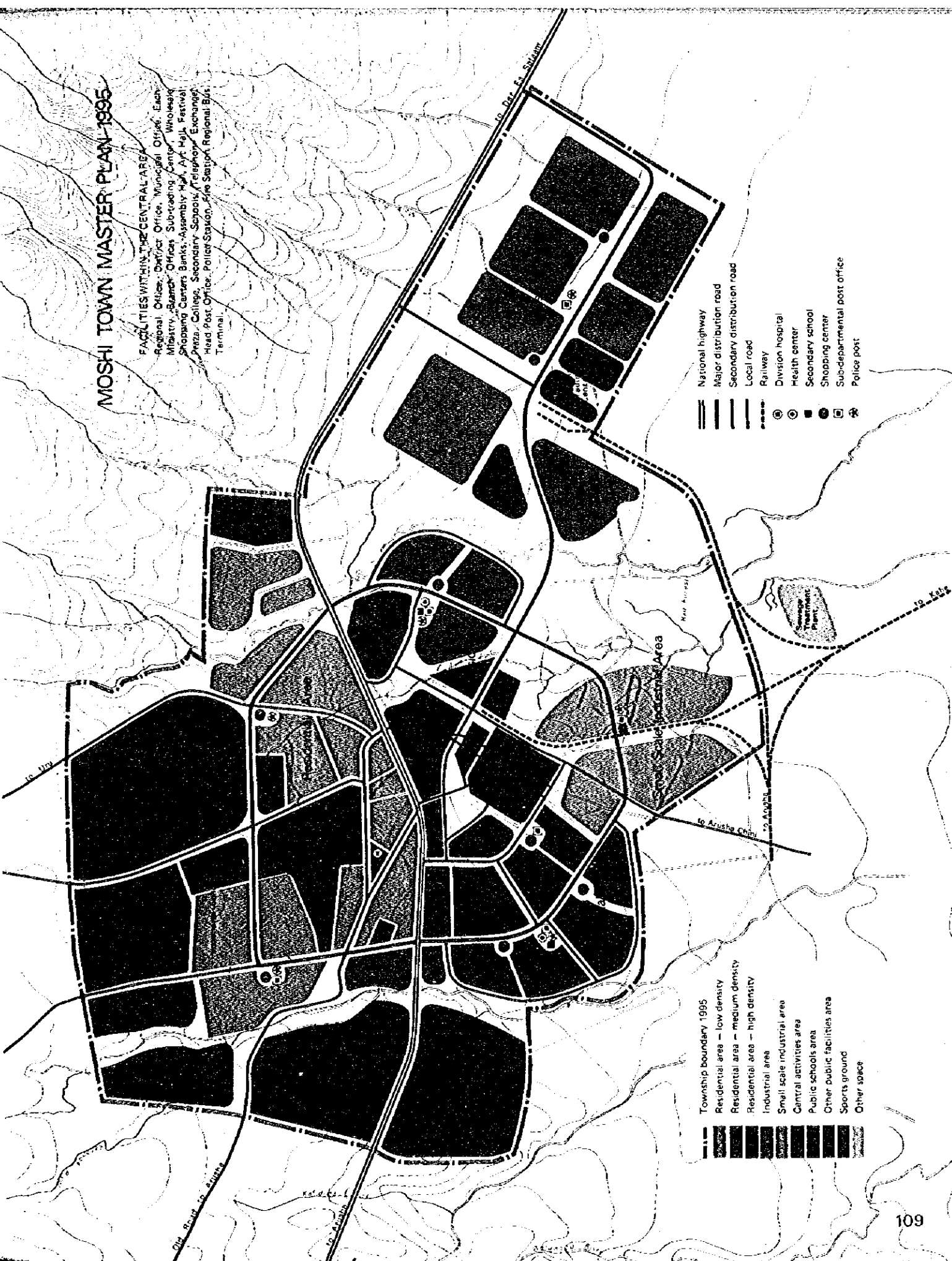
\* For lack of data, this figure is unknown.



# MOSHI TOWN MASTER PLAN 1995

## FACILITIES WITHIN THE CENTRAL AREA

- Regional Office, District Office, Municipal Office, Each
- Ministry, Branch Office, Sub-reading Center, Wholesale
- Shopping Centers Banks, Assembly Hall, Art Hall, Festival
- Pizza, College, Secondary School, Telegraph Exchange
- Head Post Office, Polling Station, Fire Station, Regional Bus Terminal



- Township boundary 1995
- Residential area - low density
- Residential area - medium density
- Residential area - high density
- Industrial area
- Small scale industrial area
- Central activities area
- Public schools area
- Other public facilities area
- Sports ground
- Other space

- National highway
- Major distribution road
- Secondary distribution road
- Local road
- Railway
- Division hospital
- Health center
- Secondary school
- Shopping center
- Sub-departmental post office
- Police post

# VILLAGE MODERNIZATION PROGRAM

## Purpose of Village Modernization

The purpose of this village modernization program is to serve as a guideline for the development of villages in rural areas, which will account for 80% of the future population of the Kilimanjaro Region. At the present time there is considerable disparity between the 419 villages of the region with respect to the state of provision of social infrastructure.

Generally speaking, however, the biggest gaps in terms of degree of modernization are those between the different zones of the region, the ascending order of modernization being: lowland and footland areas, upper lowland areas, and highland areas. It is therefore as a guideline for narrowing these gaps and creating better living environments for all rural areas in the region that this program is proposed.

## Stages of Modernization Process

The following four stages are envisioned for the process of modernization of villages in the Kilimanjaro Region.

Stage-1: Provision of agricultural, livestock raising, forestry, fishery, and other production infrastructure.

Stage-2: Complete provision of the social infrastructure that is absolutely necessary for human settlement, including roads, water supply, compulsory education facilities, and basic medical and health facilities.

Stage-3: Provision of higher-level social infrastructure for a higher standard of rural life, including electricity, telephone service, postal facilities, and bus service.

Stage-4: Formation of a multidimensional network of a higher order between rural communities with respect to transportation, distribution of goods, communications, and other aspects of life.

## Application of the Program to Each Village

The following table gives the target years for successive attainment of each stage by most villages in each zone:

Zones	Stage-1	Stage-2	Stage-3	Stage-4
Kilimanjaro highland areas		1980	1985	1990
Kilimanjaro upper lowland areas	1980	1985	1990	1995
North Pare mountains		1980	1985	1995
South Pare mountains	1980	1985	1995	
Lowland areas	1980	1985	1995	

## Standardization of Village Size

Since unregistered villages, of which there are still 81 in the Kilimanjaro Region, or 20% of the total number of villages, are generally very large in terms of both area covered and number of households and this will cause problems in connection with the village community improvements that are to be made, it will be necessary to continue efforts to achieve a higher percentage of registration. Moreover, in view of the fact that even some of the registered villages are unwieldy, it would be advisable to set standards for village size and reorganize such registered villages.

## Implementation of Urgent Projects for Attaining Civil Minimums by 1980.

As short-term tactics, the five following categories of work should be given implementation priority during the period 1977-80 in order to fulfill the minimal living environment requirements of villages throughout the Kilimanjaro Region:

- 1) Complete provision of educational facilities — no more villages without schools and no more long walks to and from school.
- 2) Complete provision of first-aid medical care facilities — establishment of a dispensary in each village or in accordance with other standards.
- 3) Complete provision of water for household use.
- 4) Provision of multi-purpose stores as distribution service bases.
- 5) Provision and improvement of inter-village feeder roads.

## Key Development Measures

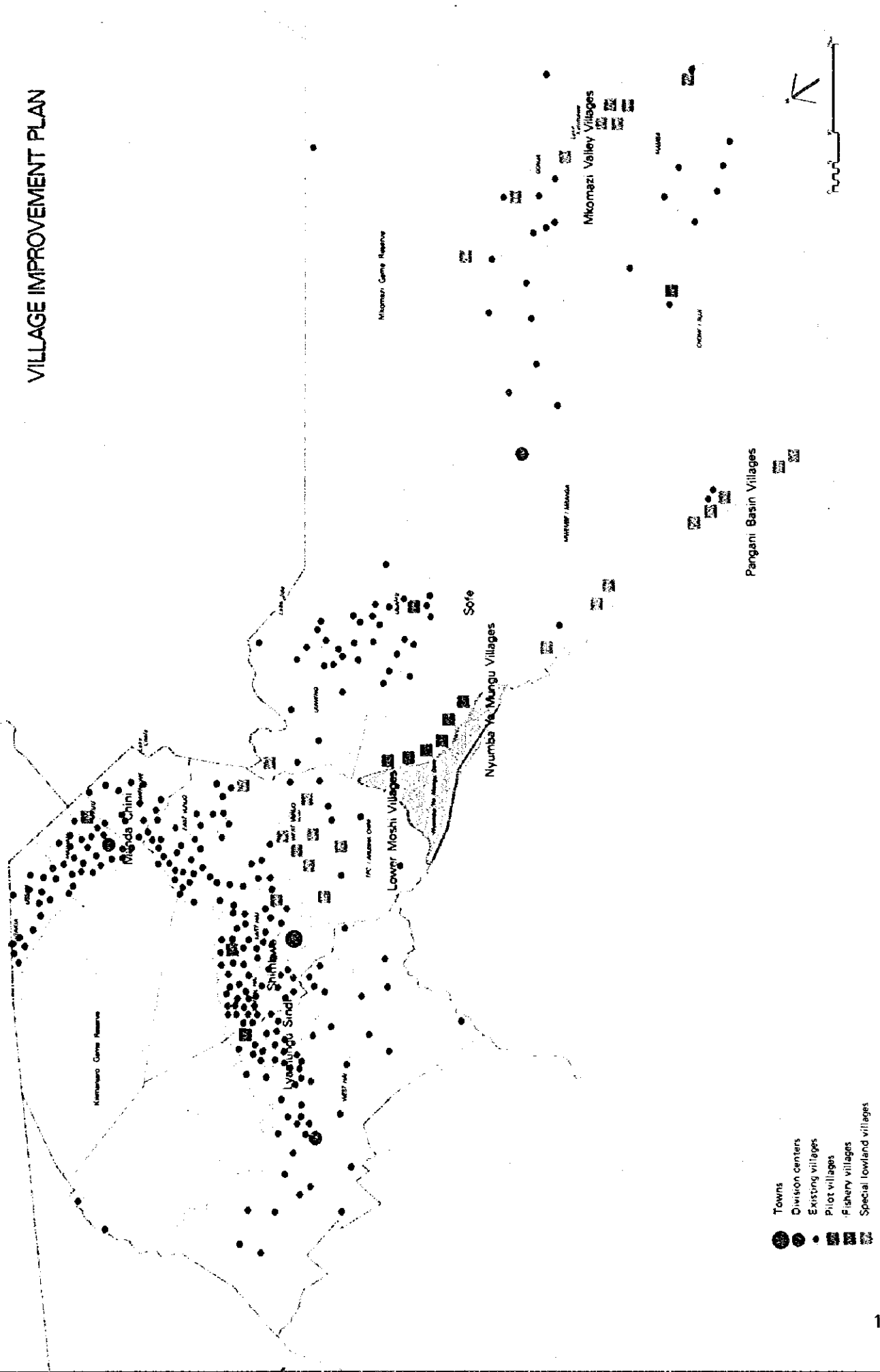
As medium-term strategy, the following six measures will be implemented for expansion of farmland to accommodate population growth and for improvement of the rural social infrastructure:

- 1) Provision of social infrastructure according to different standards and targets for high-density rural areas, medium-density rural areas and low-density rural areas.
- 2) Formation of village centers and subcenters for each of the 419 villages in the region for the sake of village socioeconomic and physical integrity.
- 3) Village in-fill: Reorganizing and upgrading of farmland, development of hitherto unused small plots of land and planning for intensive land use in villages with high population density in Kihamba land areas so as to make it possible to accommodate a maximum amount of the natural population growth of such areas.
- 4) Village Expansion: Doubling of cultivated acreage in villages of medium population density, mainly in upper lowland and footland areas, on the basis of land improvement and provision of irrigation facilities so as to be able to absorb not only the natural population growth of such areas but also the overflow population from highland areas.
- 5) Villagization: Realization, through administrative guidance, of village formation in lowland areas of low population density and scattered population distribution for the sake of efficient allocation of public services and promotion of community cohesiveness on the basis of the Lower Moshi, Pangani Basin and Mkomazi Valley lowland rural development projects.
- 6) Group relocation of scattered rural populations of very low densities of under 20 persons/km<sup>2</sup> in other areas where the population density is high enough for efficient provision of social infrastructure.

## Construction of Pilot Villages

Construction of pilot villages by 1982 for improvement of the production and social infrastructures and imparting better definition to villages.

# VILLAGE IMPROVEMENT PLAN



- Towns
- Division centers
- Existing villages
- Pilot villages
- Fishery villages
- Special lowland villages



# PILLOT VILLAGES

## Purpose of the Projects

One pilot village will be constructed in each of the five communities on the district level (Hai, Moshi, Rombo, north Pare, and south Pare) as a forerunner of the village modernization program. Each pilot village should encompass a whole registered village and should comprise a viable sphere in social, economic, ecological, and physical terms.

Among these five pilot villages should be represented all of the production types — agriculture, forestry, livestock raising, etc. — all of the stages of development in the village modernization process, and all of the development types — infill, expansion and villagization. These pilot villages will also serve as experiments in village modernization and as enlightening examples for other villages of what can be achieved by self-reliance in village-building.

## Projected Development Components

Items	Lyamungu Sinde	Shmbwe Juu	Manda Chini	Sofe	Mgwasi
1) Land management					
Land improvement and remodelling	▲	▲	○	△	○
Riparian flood and drainage improvements	△	△	▲	○	△
Development of ponds and boreholes	▲	▲	○	▲	○
Afforestation	△	△	△	○	▲
Ground surface greenification	▲	▲	△	▲	△
2) Agriculture					
Agricultural water sources	△	△	○	△	○
Irrigation	△	△	○	△	○
Farmland reclamation	▲	▲	△	▲	△
Soil improvement	▲	▲	△	▲	▲
Farmland reorganization	○	○	▲	○	▲
Development of common farming	▲	▲	○	▲	○
3) Livestock and forestry					
Development of grassland	▲	▲	○	▲	○
Development of common livestock raising	▲	▲	○	▲	○
Wider use of oxen	▲	▲	○	▲	○
4) Small-scale industries					
Cottage industries	○	○	△	△	△
Village workshops	△	△	▲	▲	▲
Community service industries	○	○	▲	▲	▲
5) Public utilities					
Domestic water supply	▲	▲	○	▲	○
Electricity supply	○	○	▲	△	▲
6) Roads					
Construction of inter-village feeder roads	▲	▲	○	△	○
Improvement of village roads	○	○	▲	▲	▲
7) Communications and transportation					
Telephone service	○	○	△	△	△
Postal service	△	△	▲	△	▲
Bus service	○	○	▲	△	▲
8) Public facilities					
Educational facilities	▲	▲	△	△	○
Medical care services	▲	▲	○	△	○
Distribution facilities	○	○	△	△	△
9) Housing					
Guidance for raising the standard of housing	○	○	△	△	△

Key: ○ Absolutely necessary    △ Necessary    ▲ Less necessary

## Development Guidelines

Each of the five pilot villages has been selected as being as representative as possible of its area so that it can truly serve as a pilot for the development of most of the other villages in the area in terms of the specific construction methods as well as of the overall results.

Except for Sofe, all of the pilot villages are in areas in which water resource development will be investigated and hence in agricultural development priority areas.

### Lyamungu Sinde Village

Since the Machame area is one of the more advanced areas in the region in terms of agricultural development and social infrastructure, its further development should be promoted so that it may serve as model area for attainment of Stage-4 of the villages modernization process. Production will be diversified by promoting livestock raising, forestry, and small-scale manufacturing on the basis of the agricultural infrastructure, and the social infrastructure will be improved by providing better roads, telephone service, bus service, electricity and water supply by private connections.

### Shmbwe Juu Village

This village will be constructed as an experimental effort for Kihamba land renewal by increasing agricultural intensity and population density still further, to approx. 1,500 persons/km<sup>2</sup> ("very high density rural area") — through provision of more social infrastructure and other measures in an area which is already densely populated and in which coffee and banana cultivation is already quite intensive.

### Manda Chini Village

This cooperative agricultural village will be constructed to serve as a model for systematic village reorganization and provision of social infrastructure for the purpose of accommodating the rural population overflow from the highland block of the same district (approx. 500 persons) and checking the sprawl phenomenon with respect to land use.

### Sofe Village

This pilot village on the edge of the north Pare mountain block will be developed as a model for accommodation of natural population growth within the block by filling in areas already substantially developed, extending development to new land, providing such social infrastructure as roads, water supply, and public facilities, and also actively undertaking afforestation of sloped land within the village for conservation purposes.

### Mgwasi Village

This experimental village oriented toward cooperative agriculture will be built as a model for systematic village reorganization and provision of social infrastructure for the purpose of accommodating not only the natural population growth of the Pare District but also the overflow from other districts since this block has a greater remaining development potential than the other blocks in the region.



## SPECIAL LOWLAND VILLAGES

### Description of the Projects

These are projects for the comprehensive development of certain lowland rural areas in the region, with the emphasis on agricultural development, except in the case of the Nyumba ya Mungu project. Most of these projects will be located in areas for which no general social infrastructure development programs are envisaged. Accordingly, these project areas will be treated as special development areas in which social infrastructure will be provided in the context of development of agriculture.

### Development Strategy

All 4 project areas are extremely deficient in terms of public facilities, village roads, domestic water supply, and other aspects of social infrastructure. Present settlement in these areas consists of people who have migrated from highland areas in recent years and of farmers who have come to participate in the construction of Ujimaa villages and is extremely scattered, the population density being only about 20 persons/km<sup>2</sup>. Among the reasons why there is only such scattered settlement are the lack of adequate agricultural infrastructure and the failure as yet to come up with suitable village settlement plans. The development strategy for overcoming these problems in the context of agricultural development of these areas will be as follows:

- 1) Movement to these areas or population equal to the full population carrying capacity of the newly developed farmland;
- 2) Construction of housing for farm families near the center of each project site of within commuting distance of the fields;
- 3) Provision in the midst of such housing of a village center offering all of the services indispensable to day-to-day life;
- 4) Efficient investment in public facilities in such village centers; and
- 5) Building of feeder roads between the villages to facilitate the formation of intervillage communities and commercial distribution.

### Socioeconomic Surveys Required

While the agricultural project team is still carrying out the technical survey, the following socioeconomic surveys will be undertaken in the first half of 1978:

- Population survey
- Survey of farm families
- Existing land-use survey
- Land ownership survey
- Public building and housing survey
- Traffic survey
- Systematic collection and filing of other statistical information regarding each village

### Village Master Plans

After these socioeconomic surveys are completed, a master plan consisting of the following components will be prepared for each project:

- 1) Land-use plan, including population distribution and density and public facility distribution;
- 2) Infrastructure plans such as those for roads, electricity supply, water supply, stormwater drainage, sewerage, telephone service, and so on;
- 3) Site plan for settlement areas, including village center facilities, residential lots, and village streets; and
- 4) Public facilities (i.e., village office, primary school, dispensary, multi-purpose store) and model housing architectural plan.

### Manpower Requirements Schedule

The following are the total manpower requirements for the four projects during the period 1978 – 84 in man-years, as personnel to participate jointly with the agricultural project team in surveying, planning, design work, and supervision and direction of construction:

Village planner	7
Civil engineer(s)	13
Utility engineer(s)	13
Architect(s)	5
Administrator	7
Totals	45

	Lower Moshi	Mkomazi valley	Pangani basin	Nyumba ya Mungu	Totals
Period of development	1978-82	1978-84	1978-84	1978-82	-
Population, 1975	14,273	12,080	3,735	7,351	37,439
Population, 1985	19,265	16,310	16,000	9,921	51,575
Natural increase	4,992	4,230	1,305	2,570	13,097
Social increase or decrease (-)	-2,665	-310	10,960	0	-
Population capacity	16,600	16,000	16,000	-	-
Agricultural development (ha)	3,320	3,200	3,200	0	9,720
Settlement area (ha)	332	320	320	200	1,172
Proposed no. of villages	11	8	8	6	33
Construction of public facilities					
Village offices (A)	11	8	8	6	33
Primary schools (A)	5	0	6	6	17
Primary schools (B)	6	8	2	0	16
Dispensaries (A)	5	3	3	3	14
Dispensaries (B)	6	5	5	3	19
Multi-purpose stores (A)	6	4	4	6	20
Model housing developments (A)	11	8	8	6	33

Remarks: (A) New construction up to 1980 (B) Improvement of existing facilities (1981-84)

## SOCIAL SERVICE

### Concept of Social Service – What is its Investment Impact?

In the past the emphasis in regional development planning has been placed on productive industries, and investment in medical care, education, and other social services has been considered of little importance. This is because investment in production brings immediate tangible results in terms of raising income. If, however, one considers the need to improve the quality of life of the people as a whole, it is obvious that one cannot afford to make light of social service. Then again, considering education alone, it should be clear that over the long run investment in it has a much greater economic impact than direct investment in production, to say nothing of the social impact. In this respect it is very encouraging to note that Tanzania has set the achievement of universal primary education by 1977 as a national policy.

Any attempt to develop one part of the social system to a considerable extent beyond the rest of the system is doomed to failure, as the history of Tanzania itself has shown. In colonial days the sole criterion of policy choice was growth in the production process, improvement of the other five processes of the social system – the consumption process, the protection process, the learning process, the decision-making process, and the interaction process – which are more important in terms of improvement of people's lives, being kept to a bare minimum so as to be able to maximize growth in the production process, and it is only natural that people were not able to accept the idea of balanced growth of the whole of the social system.

The social system is not production equipment. As already mentioned, it is extremely important that the gap between the other five processes of the social system and the production process be closed if the project objective of "greater welfare" is to be achieved. In the concept of "social service" society is viewed not from the angle of production but from the standpoint of the lives of the people. It should be kept in mind, moreover, that improvement of the learning process, and of the other four processes as well for that matter, which is the main purpose of social service, can make a big, although indirect, contribution to improvement of the production process.

In this section will be presented 5-year plans for five different aspects of social service in the Kilimanjaro Region: medical and health care, primary education, secondary education, adult education, and family life improvement service, the short-range (1980) and long-range (1995) targets for each of these kinds of services being given in the following table.

### Social Service Improvement Targets

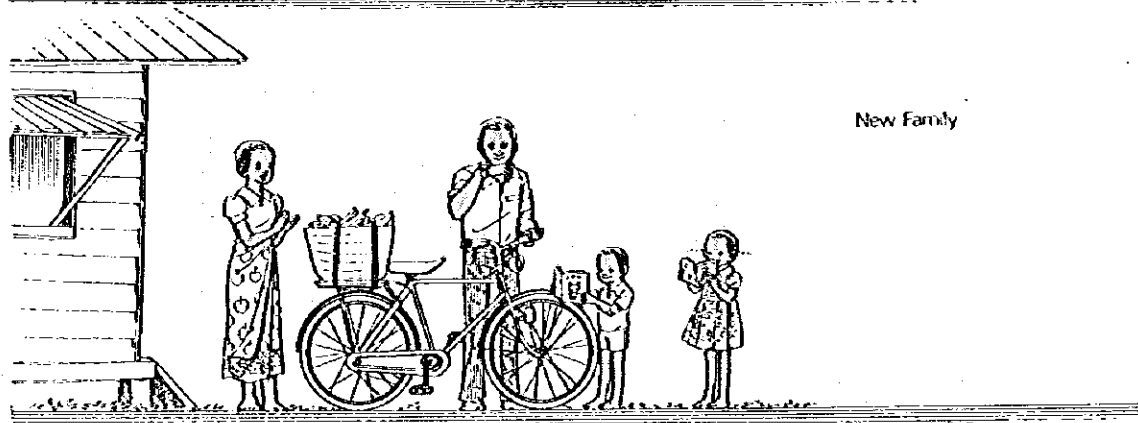
Medical and health		1980	1995
Input	Preventive		
	Pop./qualified personnel	969	663
	Pop./health center	92,900	69,300
	B. C. G. immunization	100%	100%
	Curative		
	Pop./medical doctor ratio	18,600	13,500
	Pop./hospital bed	475	300
	Pop./mobile clinic	25,500	14,500
	Pop./dispensary	5,870	4,180
	Output	Crude death rate	1.2%
Infant mortality		11.8%	11.1%
Life expectancy		52	55

Education		1980	1995	
Input	Primary			
	Pupil/teacher ratio	49.6	40.0	
	Pop./school	1,635	2,100	
	Enrollment	100%	100%	
	Secondary			
	Student/teacher ratio	25.0	25.0	
	Pop./school ratio	34,100	43,800	
	Enrollment	15%	25%	
	Adult			
	Participation	35%	100%	
	Pop./adult education center	255,500	76,300	
	Pop./tutor ratio	2,600	3,700	
	Output	Average years of education	3.45	5.8
		Literacy	75%	95%

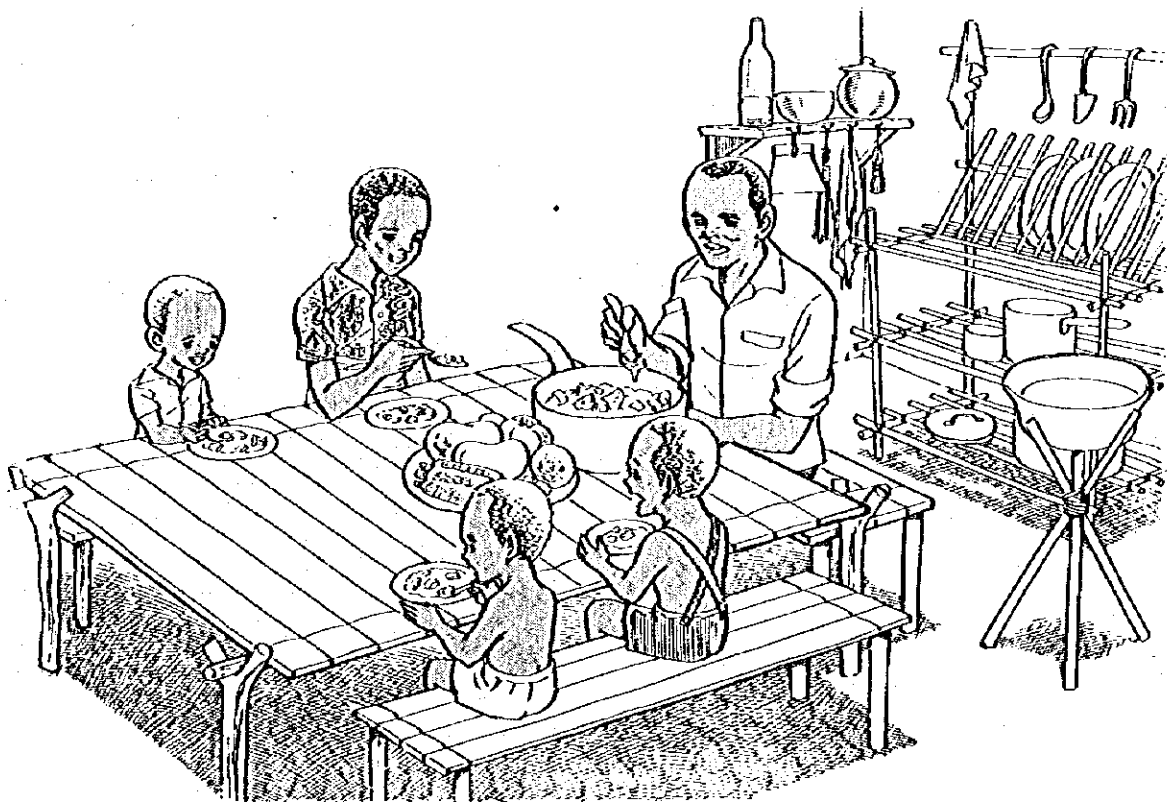
Family life		1980	1995
Input	Mobile clinic teams	4	0
	Pop./health center	255,500	76,300
	Pop./qualified personnel	9,100	4,400
	Pop./field volunteer	487	483
Output	Awareness of services	90%	100%
	Use of services	50%	80%
	Natural pop. growth rate	2.9%	1.5%
	Protein & carotie deficiency	2.5%	0%



New Family Life



Wholesome, Tasty Meal



## MEDICAL AND HEALTH SERVICE

### Thinking Behind System of Provision of Medical and Health Services With 1995 as Long-range Target Year

The tables below give minimal targets with respect to number of facilities and amount of manpower. Since the Kilimanjaro Region is superior to other regions in terms of accessibility of social service facilities, expansion of existing medical and health facilities and boosting of their personnel strengths would seem to be a better strategy in terms of investment efficiency than that of providing new hospitals. Also, the manpower figures should be considered only as rough standards in view of the fact that manpower allocation will have to be considered case by case. Another urgent necessity for improvement of the quality of medical and health service is greater provision of public utilities. Particularly important in terms of better exchange of medical and health information is telephone service, which ought to be provided all of the medical and health facilities in the initial phase.

### Number and Location of Medical Facilities

Types	Number	Location
Regional hospital	1	Moshi Town
District hospitals	3	Same, Sanya Juu and Mkuu
Mobile clinics	4	Four towns
Division hospitals	20	One per division center*
Health centers	21	One per division center**
Dispensaries	419	One per village center

\* Plus the following: Moshi Town x 2, Same x 1, Sanya Juu x 1 and Mkuu x 1.

\*\* Plus the following: Moshi Town x 2, Same x 2, Sanya Juu x 1 and Mkuu x 1.

### Manpower Requirement for Medical Facilities

	Medical doctor	Medical assistant	Medical aid	Nurse-A	Nurse-B	Midwives
Regional hospital	8	8	10	10	20	0
District hospital	6	6	5	8	20	0
Mobile clinic	3	3	10	6	12	0
Division hospital	4	4	0	5	12	0
Health center	1	2	3	3	6	0
Dispensary	0	0	1	0	1	1

### Priorities of Improvement or Provision of Public Utilities

	Hospital	Health center	Dispensary
Electricity	by 1982	by 1982	by 1995
Treated water	by 1982	by 1985	by 1995
Telephone	by 1982	by 1982	by 1995
All-weather road	by 1982	by 1985	by 1995

### Medical and Health Service System

The overall level of medical and health service can be raised by achieving organic linkage between individual facilities and individual personnel in what ought to be considered a unified medical and health service system. Here let us consider the differing functions of the various facilities and the kind of relationship of mutual cooperation between them that is desirable.

Facility Functions	Regional hospital	District hospital	Division hospital	Health center	Dispensary	Mobile clinic
<b>Curative services</b>						
Diagnosis	△	△	△	△	●	△
Dispensing of medicine	△	△	△	△	△	△
Operations	●	●	△			
In-patient case	●	●	●	△		
<b>Preventive services</b>						
Dispensing of medicine	△	△	△	●	●	●
Preventive injections	△	△	△	●	●	●
Sterilization	△	△	●			
<b>Social education</b>						
Nutrition	△			△	●	●
Hygiene	△			△	△	△
Childbirth	△			△	●	●
Birth control	△			△	●	●

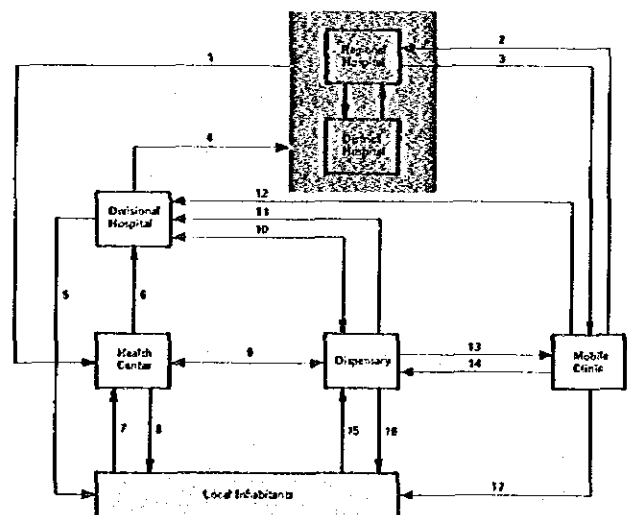
● Main functions

△ Other necessary functions

### Long-term Medical and Health Service Goals

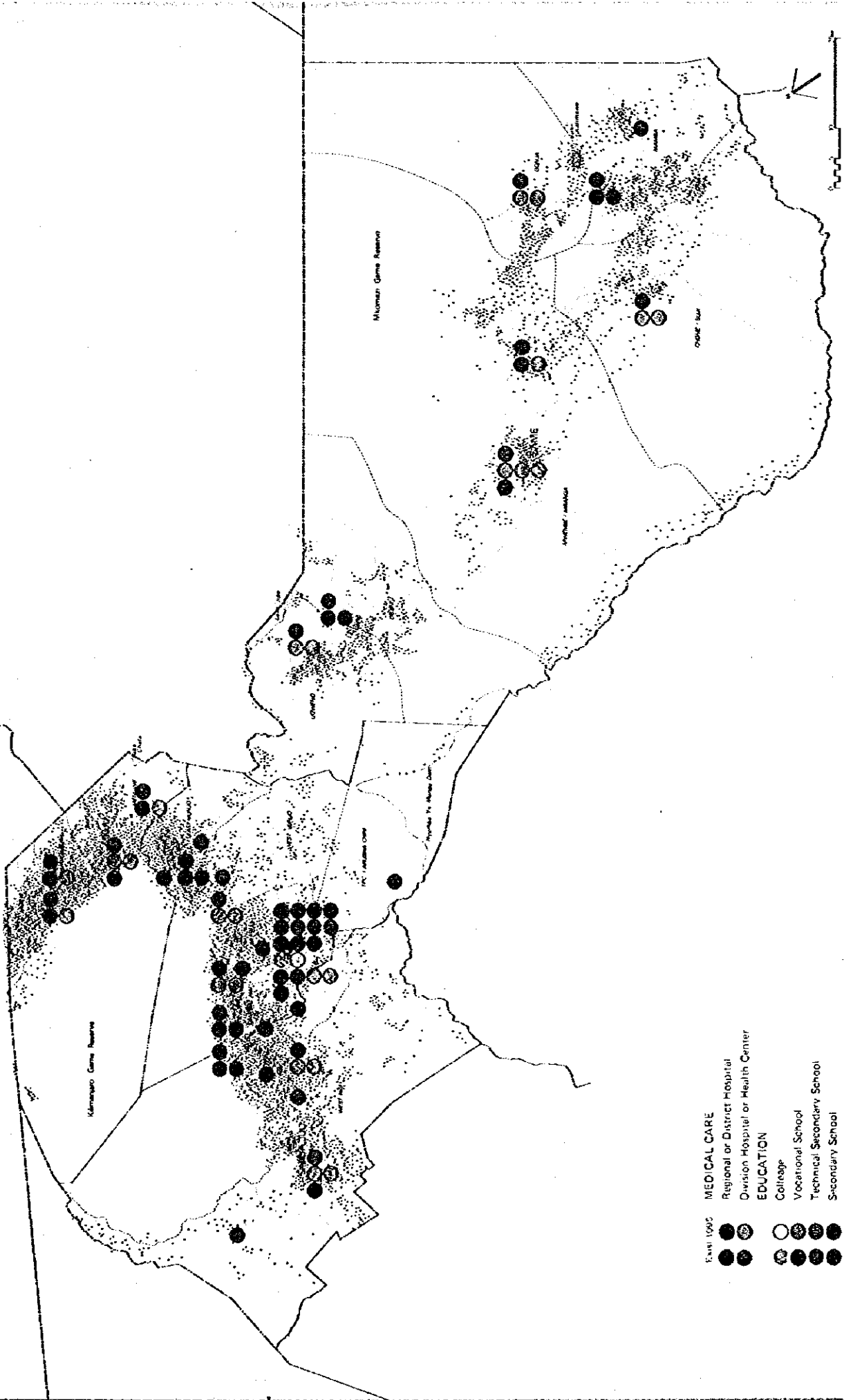
	1976	1980	1985	1995
<b>Number of facilities</b>				
Hospitals	11	11	16	24
Hospital beds	1,440	2,150	3,000	4,850
Health centers	10	11	14	21
Dispensaries	114	174	228	348
<b>One facility for every-persons</b>				
Hospital	81,300	93,000	74,600	60,700
Hospital bed	621	475	400	300
Health center	89,400	93,000	82,500	69,300
Dispensary	7,840	5,870	5,230	4,180

### Medical and Health Service Information System



1. Order to give preventive injections. 2. Information on progress being made in the spreading of medical care education. 3. Instruction on what to emphasize in the way of social education. 4. Report on state of medical care service and information concerning serious patients. 5. Diagnosis and sterilization. 6. Report on state of medical care service. 7. Preventive injections. 8. Social education library. 9. Report on occurrence of infectious disease. 10. Technical medical care guidance. 11. Report on state of health of local inhabitants and information concerning serious patients. 12. Transportation of emergency patients. 13. Request for ambulance. 14. Technical medical care guidance. 15. Request for ambulance. 16. Medicine, diagnosis and social education. 17. Social education and ambulance.

# SOCIAL FACILITIES DISTRIBUTION PLAN



## EDUCATION

### Inventory of Primary Education

An increase of 63,000 pupils is expected in the next five years as children presently in standards III-VII, whose numbers are relatively few, leave school. Additional investments will have to be made to keep up with the increase.

The two main inputs of primary education are teachers and classrooms. In view of budgetary limitations, the authorities has made it a policy to rely on local voluntary labor for the construction of classrooms and living quarters for teachers and their families, and this policy is unlikely to change for ten years at least. The standard of facilities in the Kilimanjaro Region is relatively high, the primary school being one of the finer buildings in the village.

### Development Levels of Primary Education

	1976	1980	1995
No. of pupils	148,572	211,572	—
No. of teachers	2,994	4,266	—
No. of schools	599	625	—
No. of classrooms	3,358	4,787	—
Pupil/teacher ratio	49.6	49.6	40.0
Pupil/classroom ratio	44.2	44.2	40.0
No. of villages without a school	26	0	*

\* 2 km accessibility for all pupils

### Goals with Respect to Primary Education

Let us consider the goals with respect to primary education in the Kilimanjaro Region for the year 1995. With a decline in the population growth rate, the need for additional investment in facilities and for additional teaching personnel with a view to maintaining the present pupil/teacher and pupil/classroom ratios should not be all that great. A figure of 40:1 for both these ratios seems to be appropriate for 1995. The main policy task will therefore be improvement of quality rather than coping with considerable quantitative increase.

- 1) **Facilities:** Besides provision of libraries, physical education facilities, and school lunch facilities, it should be made possible for all pupils to have textbooks, notebooks, and pencils or other writing implements.
- 2) **Accessibility:** There ought to be a primary school within 2 km of the home of each pupil, and this will entail the building of some new schools. In cases where the number of pupils living farther than 2 km from school is small, however, school buses or other means of transportation should be considered rather than building new schools.
- 3) **Quality of teachers:** As already mentioned, the quality of teachers is determined by the length of their training. By 1995 the rate of advancement from primary to secondary school should be somewhat higher than it is now, and hopefully it will be possible to require entrants to the teacher training programme to have completed secondary school (Form-VI) instead of just primary school as is presently required and also to readopt a 2-year training period.

### Analysis of the Present Condition of Secondary Education

At present 8,200 students are enrolled in 30 secondary schools in the Kilimanjaro Region, which compares very favorably with the national enrollment of 38,327 in public secondary schools and 14,930 in private secondary schools in 1975 as determined by the Ministry of National Education.

Since 15, or half of these secondary schools in the Kilimanjaro Region are concentrated in the Moshi District, it can appropriately be considered the center of secondary education in the region.

One of the indices of the level of secondary education is the ratio of Form-I students to Standard-VII pupils, which stood at 14.3% in the region in 1976, although it must be kept in mind that not all secondary school entrants are from the Kilimanjaro Region.

### The Third 5-year Plan for Secondary Education

The number of Standard-VII leavers is expected to increase at a fairly fast pace in the next several years, and even if the 1976 ratio of Form-I students to Standard-VII pupils of 14.3% is just maintained instead of rising, the number of secondary school students will continue to rise.

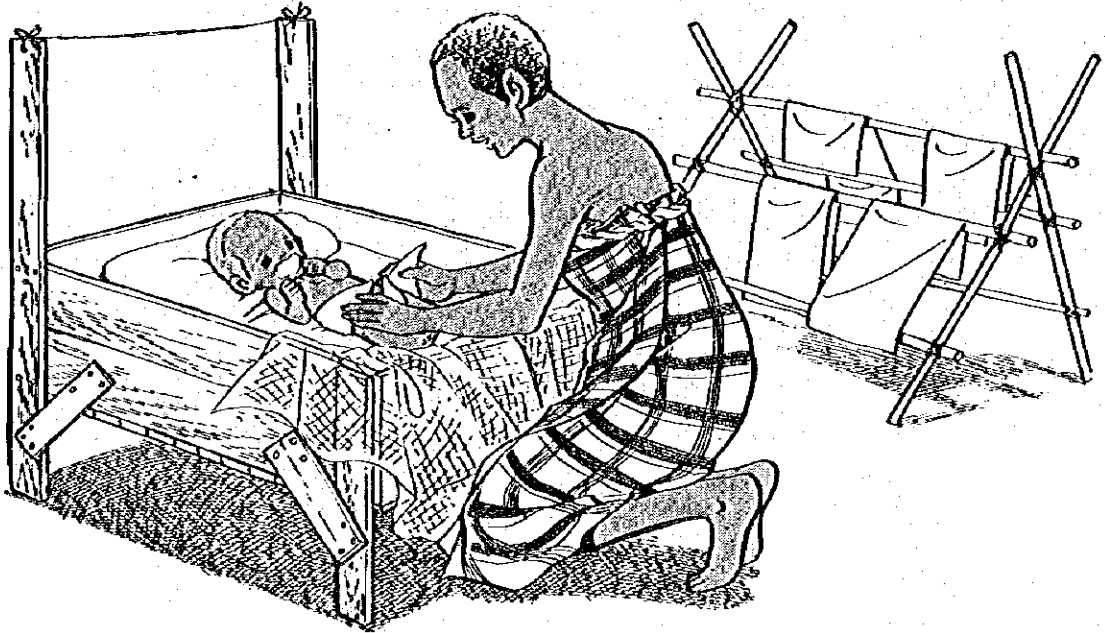
It is proposed here that this ratio be maintained up until 1980. Moreover, in order to improve the level of secondary education the ratio of Form-V students to Form-IV students should be raised from 9.8% to 23.6%. It is not necessary, however, to consider the construction of new schools for the purpose of attaining this target level, for it should be possible to achieve it merely by improving existing secondary schools.

In Tanzania secondary schools are expected to accept not only local students but also those from outside the region. Already the Kilimanjaro Region has a relatively large secondary education capacity, which is a good thing from the standpoint of efficiency of investment in education, for a single unit of investment can be expected to improve the education process far more in a region which has reached a relatively high stage of overall development, as the Kilimanjaro Region has, than in a region in a lower stage of overall development, the assumption, which is a valid one, being that a higher level of other processes in the social system will make improvement of any one process easier.

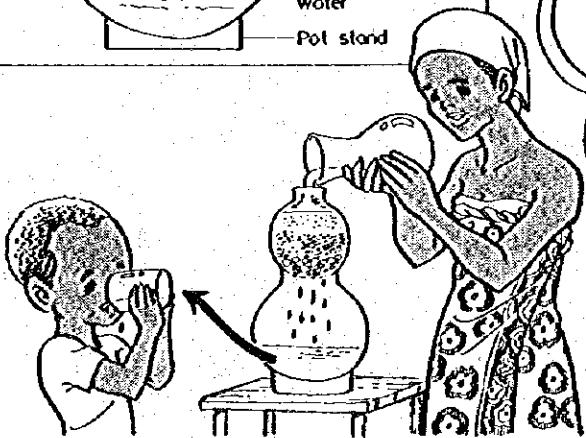
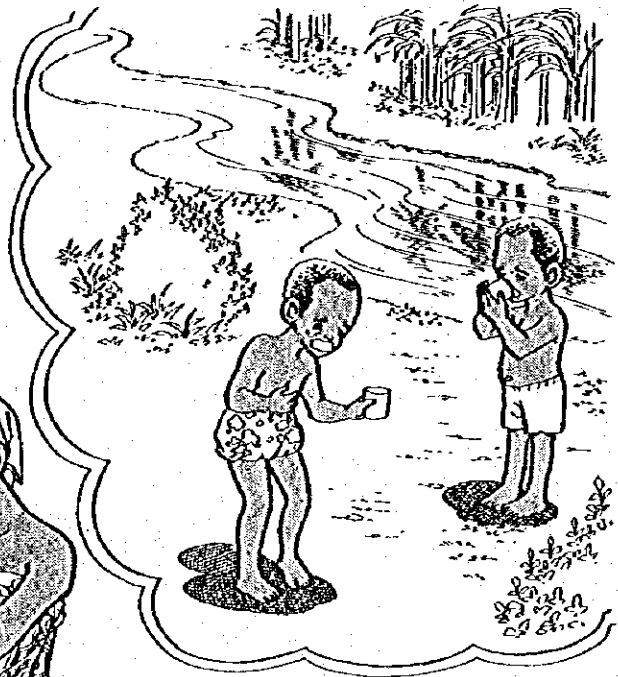
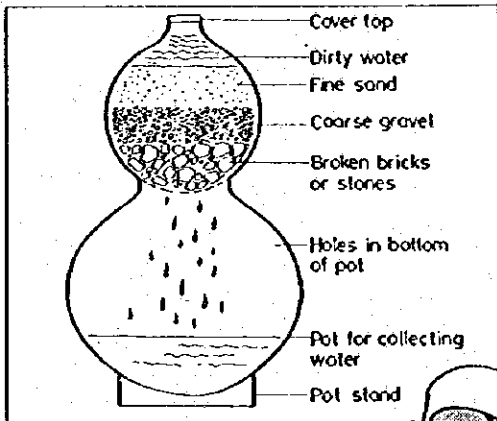
### Development Levels of Secondary Education

	1976	1980	1995
No. of students	8,191	11,679	—
No. of teachers	316	456	—
No. of schools	30	30	—
No. of classrooms	260	376	—
Form I student/Standard VII pupil ratio	14.3	14.3	25.0
Form V student/Form IV student ratio	9.8	23.6	25.0
Student/teacher ratio	25.6	25.6	20.0
Student/classroom ratio	31.5	31.0	30.0
No. of schools by type	—	Form I-IV 24 Form I-VI 6	—

New Method of Child Care



Home Made Filter



# FAMILY LIFE SERVICE

## General

In the past adult education has chiefly signified literacy education. In the present plan, however, the concept of adult education has been widened to include community life improvement service and family life improvement service.

## Community Life Improvement Service

Four elements involved here, are: 1) literacy education, 2) community development planning, 3) co-operative education, and 4) technical training.

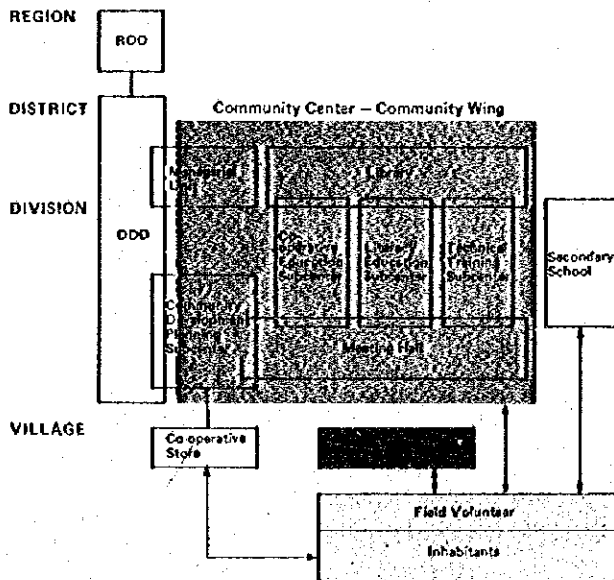
What is meant here by community development planning is planning for the organization of efforts to provide local residents construction tools, materials, and technical guidance upon request.

Construction of primary schools depends to a considerable extent on voluntary labor furnished by local residents, who themselves benefit therefrom.

Hopes must be pinned on such voluntary labor all the more because of the fact that public financial resources are not sufficient to satisfy all of the social service needs of the population.

As for literacy education, lowering the illiteracy rate to 25% by 1980 and 5% by 1995 would seem to be realistic goals. Once all the people have learned to read and write, literacy education will no longer be necessary, and even before that, say as early as 1990, when the illiteracy rate gets to be fairly low, it will be possible for school education to replace literacy education. Nevertheless, it will be necessary to increase the number of tutors somewhat up until at least 1980. Community centers should be thought of as the main places for the offering of such education.

## Community Life Improvement Service System



## Family Life Improvement Service

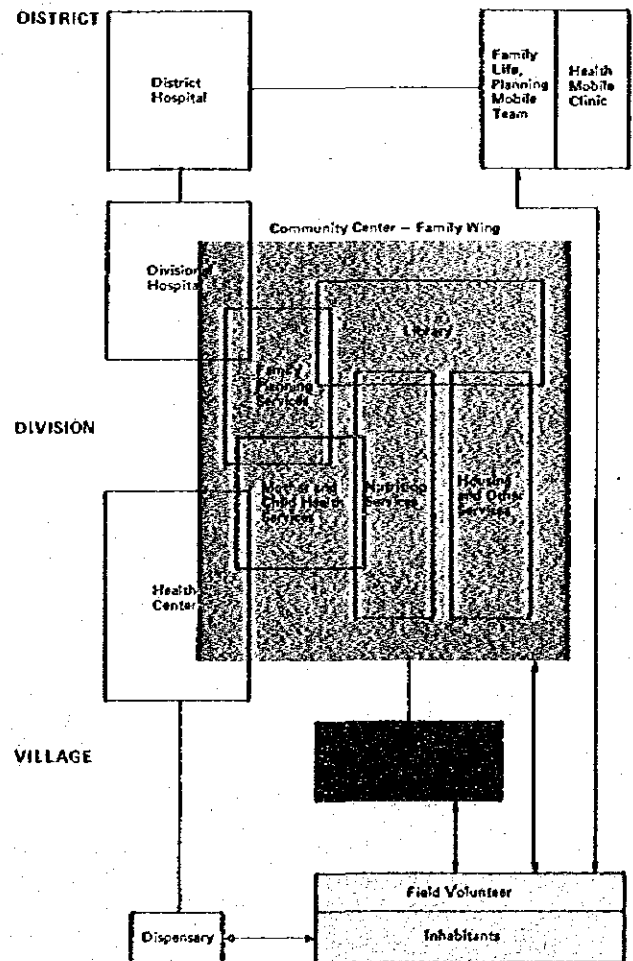
Family life improvement service relates to the entire scope of the life of the people, the goal being the achievement of a healthy, safe life for all of a satisfactory cultural level. Four elements involved here, are: 1) family planning, 2) nutrition, 3) childbirth and child care, and 4) health and improvement of housing.

The goals of family planning are the health and welfare of families and mothers, the liberation of women, and the securing of human rights, a by-product being the holding down of population growth.

An important factor in the implementation of family planning is adequate investigation and survey work. Since family planning touches on the inner life of families and of the community, it can be successful only if it takes into account the cultural and social features of the community.

Two pillars in the promotion of family life planning will be the community centers as bases or "staging grounds" and the mobile teams, which will make it possible to reach all of the people. Needless to say, it will also be necessary to obtain the cooperation of the dispensaries, the TANU offices in the villages, and so on, and another important factor will be the extent to which the field volunteers, who will be given intensive training at the outset, will be able to promote their activities on the village level.

## Family Life Improvement Service System







*PART SIX*

*Regional Infrastructure Development Plans*

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## ROAD NETWORK

### Long-term Road Plan

Roads are an indispensable element of the infrastructure necessary for regional development. Moreover, they must, at the same time as fulfilling their individual purposes, ensure the efficient functioning of the network that they form collectively.

The future road network of the Kilimanjaro Region will consist of the following classifications:

#### 1) National highways

These roads will provide access to neighboring regions and countries.

#### 2) Regional main roads

Besides forming the skeleton of the regional road network, these roads will serve as supplementary routes for long-distance travel.

#### 3) Major distribution roads

These are main roads which will connect division centers with other major points in each district.

#### 4) Secondary distribution roads

Complementing upper echelon roads, these roads will connect village industrial centers and traffic nodal points.

#### 5) Local roads

These roads will serve traffic between neighboring villages and within villages.

The growth of this network must be in harmony with the economic development of the region, and particularly land-use, city, and village planning and planning of projects in other sectors. Moreover, although for the time being the emphasis will be on improvement of "feeder roads," i.e., roads of the "regional main" class and below as the best means of coping with present road transportation problems, it will be necessary to improve national highways as well later on.

The table below is a forecast of growth in motor vehicle ownership in the region.

	(base year) 1975	1980	1985	1995
Motor vehicles per 1,000 person	4.05	6.58	9.99	24.1
No. of motor vehicles	3,500	6,700	11,900	35,100
Index	100	191	340	1,003

### Construction and Improvement of Roads

Priority should be given to regional main roads and major distributor roads, particularly in areas with a low percentage of all-weather roads, so as to boost agricultural production by making it easier to ship produce to market. Such road construction and improvement will involve a total road mileage of 464.8 km, the work to be carried out at the regional, district, and division levels after upgrading of the existing organization responsible for it. And for greater efficiency, use should be made of modern road building machinery.

### Project List for Road Construction and Improvement Up to 1980/81

District	Name of road	Length (km)
Hai	Lyamungu-Masama	13.0
	Kibohehe-Masama	9.0
Moshi	Bowa la Ngombe - Kikafuchini	28.8
	Marangu-Men gwe	11.0
	Marangu-Kirua	11.4
	Kibosho-Lyamungu	7.9
	Kawawa	12.8
	Moshi-Uru-Kibosho	15.0
	Moshi-Uru	9.0
	Rau-Kishumund	6.5
Rombo	Kahe-Sirigi	10.0
	Kahe-Uchira	12.0
	Kahe-Make	9.0
	Mengwe-Tarakia	40.0
	Lower Lombo	48.0
	Mkuu-Lower area	8.0
Pare	Mengwe-Lower area	7.5
	Same-Gonja-Mkomazi	99.8
	Mwanga-Ugweno	21.0
	Kikweni-Usangi	9.6
	Same-Marua	27.5
	Kisiwani-Msindo	16.0
	Gonja-Bombo	20.0
Lembeni-Kilomeni	12.0	

### Road Construction and Improvement (km)

	1980	1985
Regional main roads	213.7	125.0
Major distribution roads	93.8	167.0
Secondary distribution roads	157.3	130.0
Totals	464.8	422.0

### Road Rehabilitation and Maintenance

Rehabilitation and maintenance of roads is sorely needed in the region in view of the fact that up until now it has been extremely inadequate. Since the government will not be able to look after the total mileage of approximately 3,000 km, however, it is to be hoped that many people will volunteer to undertake work of this kind on a large scale. The organization for carrying out such work should therefore be such as to facilitate this kind of volunteer participation, and use should be made of construction machinery for greater work efficiency.





### Long-term Bus Service Plan

Bus service is an extremely important means of transportation for the residents of the region. Unfortunately, however, there are many problems with respect to bus service in the region, including the fact that the bus routes do not cover the whole region adequately, the number of runs per day is not always adequate, and the buses do not run on time.

Since it would be difficult to improve the situation in terms of buses run by individual operator-owners, it will be necessary to expand public bus service.

In the future the bus network will have to be reorganized on the basis of the following functional classifications:

#### 1) Long-distance routes

These are routes linking Moshi Town with Tanga, Dar es Salaam, and other towns outside the region. As in the past, they are to be serviced by the National Transport Company, E.A.R.C., and private bus companies.

#### 2) Regional main routes

These are routes linking Moshi Town with the district centers of the Hai, Rombo, and Pare Districts.

#### 3) Feeder service routes

These are routes commencing at district centers and other nodal points and threading together a number of villages within comparatively limited areas.

In addition, bus stations and bus stops will have to be provided along the lines of the following functional classification:

- Central bus station;
- Main bus stations;
- Major bus stops; and
- Minor bus stops.

### Long-term Railway Plan

The main problem presently confronting railways is a decline in transport capacity, due mainly to the poor state of maintenance of locomotives. Since exports of farm produce grown in the region and imports of basic materials for production and consumer goods are expected to increase substantially in the years ahead, an effort will have to be made to bring railway transport capacity up to a level that will make it possible to deal with this increase.

Over the long run, the way to accomplish this is to operate longer trains more frequently, and this will require solution of problems relating to the running of locomotives and wagons and to the condition of tracks. The following are some of the specific improvements that will have to be made:

- Introduction of diesel locomotives.
- Increase of number of wagons especially introduction of wagons designed for special purposes.
- Provision of signal yards and extension of length of stations.
- Improvement of stretches with sharp gradient or short curve radius.
- Improvement of rails and rail beds.
- Safety measures, including provision of signals.

### Bus Service Improvement

A public bus corporation should be established to play a central role in the reorganization of the bus service network of the region. For the time being, it should operate six main route buses and fourteen feeder service buses. Furthermore, an effort should be made to improve service by providing more and better bus stations and bus stops.

#### Projection of Number of Buses in Service

	(passengers)	1980	1985
Main route buses	(60)	6	18
Feeder service buses	(25)	6	18
	(10)	8	16
<b>Totals</b>		<b>20</b>	<b>52</b>

#### Rehabilitation of Railways

The existing locomotives and wagons will have to be put in a better state of maintenance in order to raise their rates of operation and thereby put a stop to the decline in transport capacity. At the same time, track and other repairs will have to be carried out.

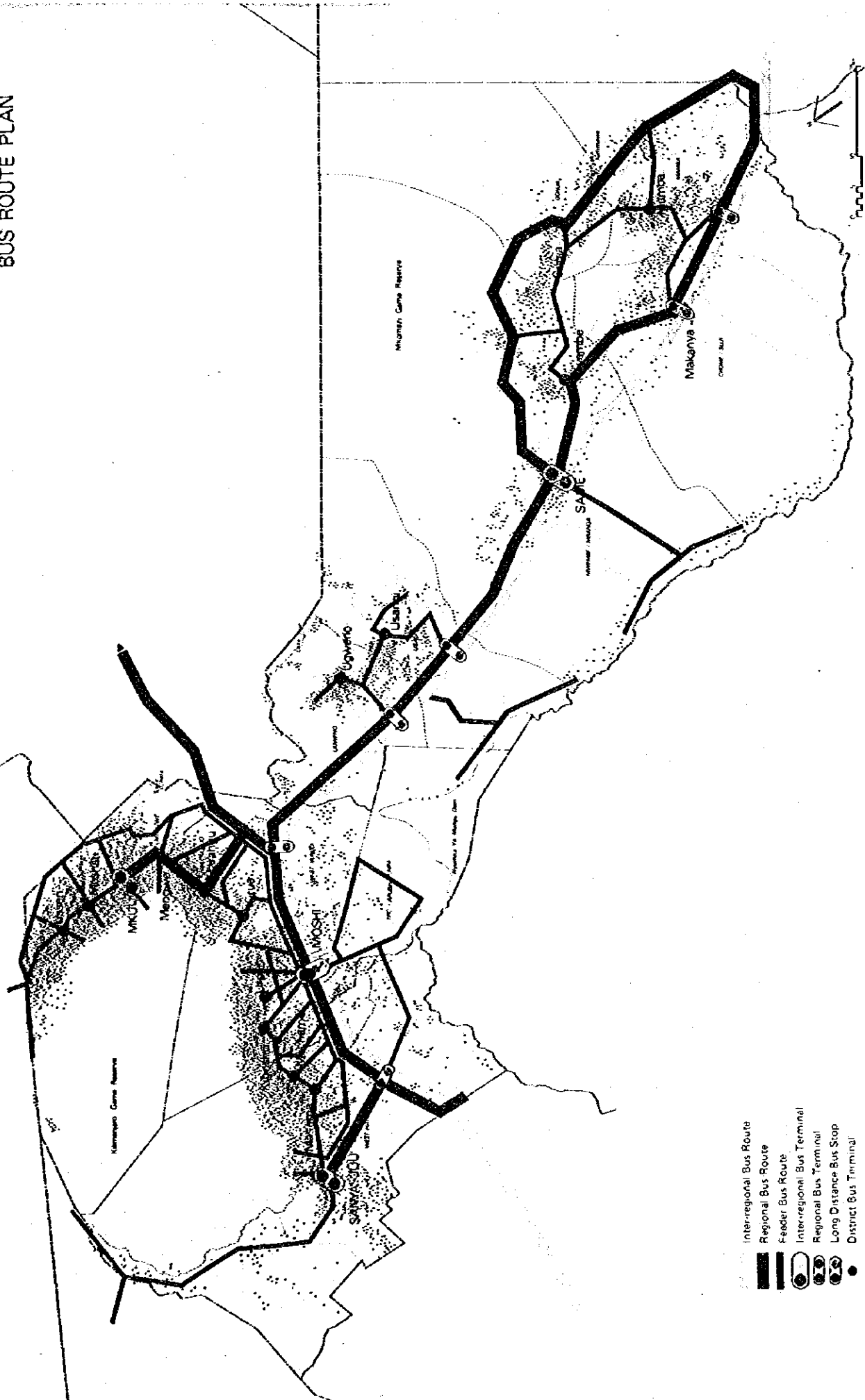
#### Railway Service

	1980	1985
Locomotive availability (%)	57	75
Number of Diesel locomotives	—	8
Passengers (1,000p)	150	234
Freight (1,000t)	170	288



Bus Station

# BUS ROUTE PLAN



# COMMUNICATIONS

## Long-term Postal Service Plan

Not only is postal service a means of conveying information for the people of the region but it includes an important banking function. Still, more departmental and subdepartmental post offices will have to be provided for complete adequacy. The target for 1995 is one post office for every 14,000 persons, with a particularly dense distribution in infrastructural development areas. Furthermore, the frequency of collection and delivery will be raised.

### Postal Service Targets

	1975	1980	1985	1995
Post offices	34	50	68	104
Pop. per post office (1,000)	25.4	20.4	17.5	14.0
Average area serviced by each post office (km <sup>2</sup> )	389	264	194	127

## Long-term Telecommunications Plan

Telecommunications are indispensable in the modernization of industry. They are also important in terms of administration and everyday life. Besides qualitative improvement of telecommunications services, an effort must be made to correct the imbalance between different areas with respect to their provision. The basic orientation of future provision of such services will be particularly dense location of exchanges in infrastructural development areas, mostly at division centers.

Also to be pushed are wider use of telex and introduction of a radio telephone system for sparsely populated areas.

### Telecommunications Targets

	1975	1980	1985	1995
Telephones per 100 persons	0.42	0.60	0.89	2.07
Telephones (1,000)	36	61	106	301
Exchanges	10	17	26	45
Pop. per exchange (1,000)	86.5	60.1	45.9	32.3
Area per exchange (km <sup>2</sup> )	1,321	777	508	294
Automated exchanges	2	2	4	5

## Postal Service Improvement

For the time being, plans call for the provision of four new departmental post offices and thirteen new subdepartmental post offices for improvement of postal service in the region.

### Upgrading of Subdepartmental Post Offices to Departmental Post Offices

Moshi District:	Kilimanjaro Road Langasani
Pare District:	Gonja Ugweno

## Establishment of Sub Post Offices

Moshi District:	Kisomachi
Hai District:	Engare Nairobi Rundugai
Rombo District:	Mengwe Tarakea
Pare District:	Uchama, Kilomeni, Kwakoa, Mwenbe, Vudee, Suji, Bombo, Mtii

## Establishment of Subdepartmental Post Offices

	By 1980	By 1985
New departmental P.O.'s	4	6
New subdepartmental P.O.'s	8	12
Total	12	18

## Telecommunications Service Improvement

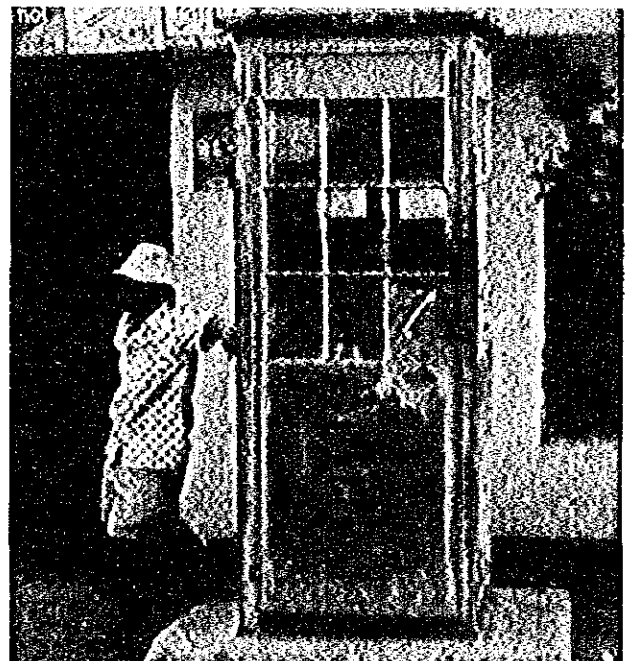
For qualitative improvement of telecommunications service in the region and expansion of the telecommunications network, the Moshi head office and the Kilimanjaro Airport exchange will be provided with addition equipment, and seven new exchanges will be established.

### Establishment of Telephone Exchanges

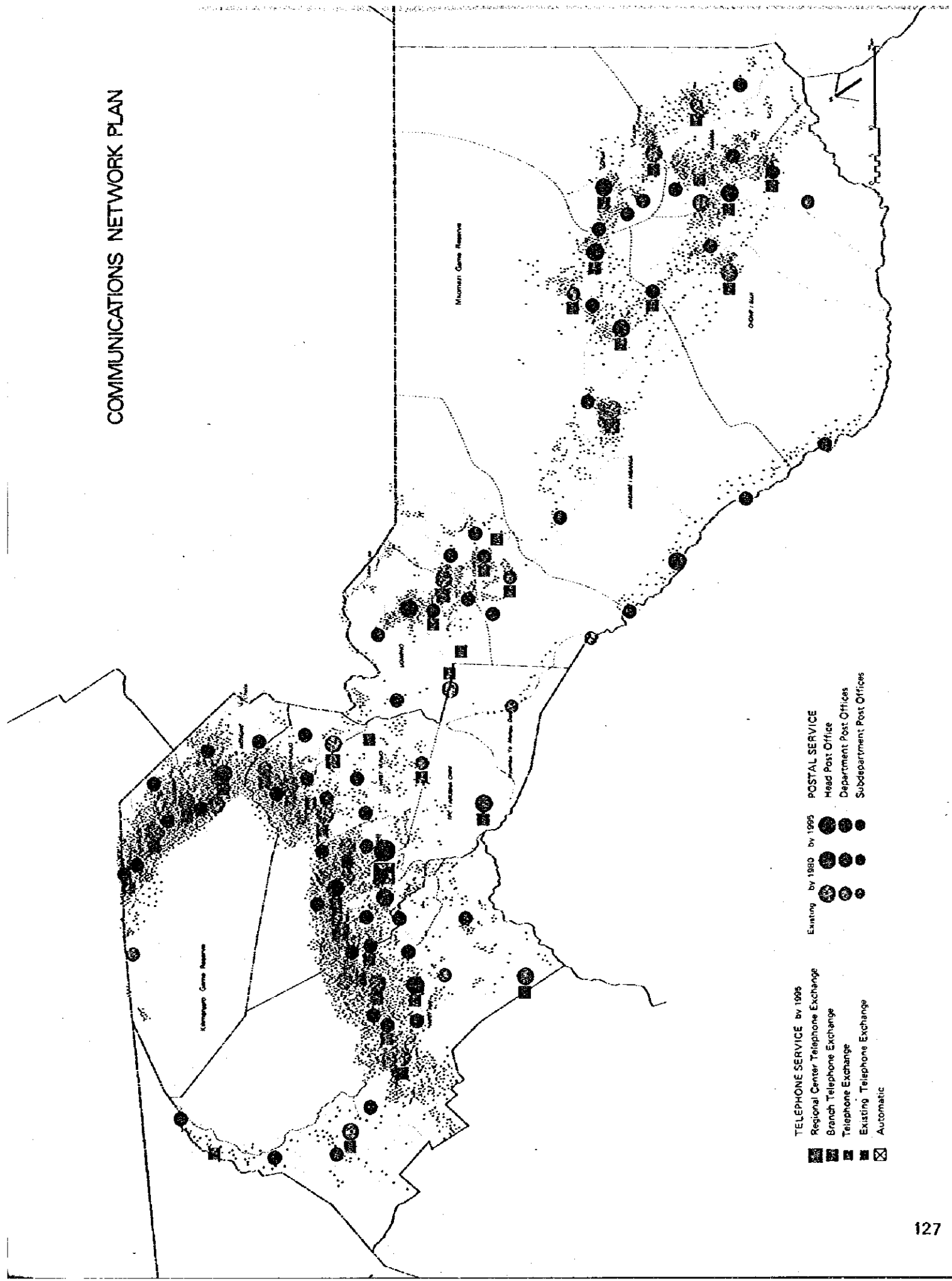
Moshi District:	Old Moshi
Rombo District:	Mwika Tarakia
Pare District:	Usangi Uguweno Hedaru Gonja

## Expansion of Telecommunications Facilities

	By 1980	By 1985
New exchanges	7	9
Newly automated exchanges	0	2



# COMMUNICATIONS NETWORK PLAN



# WATER SUPPLY

## Planning Policy

- 1) Planning targets in terms of rate of service coverage  
In accordance with national policy, 1990 is the target year for achieving 100% clean water service coverage. The interim targets are 66.7% by 1980 and 89.2% by 1985.
- 2) Planning targets in terms of serviced population  
**PHASE-I (1970 – 1980)**  
In this phase water development plan emphasis to be placed on agricultural districts with high population density, i.e., areas of existing population concentration.  
**PHASE-II (1981 – 1990)**  
Reorganization of the existing systems in line with re-distribution of population in areas of existing population concentration and water development for areas of medium and low population density.

## Water Development Plan

- 1) Projection of population serviced with piped water  
The planned water-supplied population is based on the assumption that clean water will be 100% supplied in all districts by 1990, which will require a 50% speed-up of construction.

### Population supplied with clean water (persons)

	1967	1975	1980	1995
Urban	—	36,000	68,550	200,000
Rural	22,500	305,140	612,790	1,256,000
Total	—	341,140	681,340	1,456,000

### Percentage of population supplied with clean water (%)

	1967	1975	1980	1990	1995
Urban	0	55.4	75.3	100.0	100.0
Rural	—	38.1	65.8	100.0	100.0
Total	—	39.4	66.7	100.0	100.0

## Rural Water Supply

- 1) Long-term Rural Water Development Plan
  - A system of domestic water points within 500 m walking distance will be provided in high- and medium-density areas by 1980 and in low-density areas later on.
  - A system of cluster connections within a walking distance of 250 m will be provided in Sanya Juu and Mkuu after 1980, in each division center after 1985, and in high-density areas after 1990.
  - A system of private connections will be provided in Sanya Juu and Mkuu after 1985 and in division centers after 1990.
- 2) Proposed Projects  
The principal projects as given below are proposed on the basis of the "Development Plan for Up to 1995."

- Distribution Pipeline Construction Project (including w/c)

Total length (km) of pipeline construction will be:

	(1976–1980)	(1981–1985)
Main pipelines	1,022	733
Minor pipelines	—	15
		(Sanya Juu and Mkuu)

- Simple Treatment Plants (rural water)  
Simple chlorination and filter units will be provided in Sanya Juu, Mkuu and the 15 division centers, where most public facilities and utilities will be located.
- Facilities for Regular Water Analysis  
Mobile laboratories and central laboratories serving the Kilimanjaro and Arusha regions.

## Urban Water Supply

### 1) Long-term Urban Water Development Plan

- The urban population water supply rate is to be raised to 100% by 1990.

	1980	1985	1990
Moshi	77.9%	87.5%	100%
Same	67.8%	89.3%	100%

- Purified water shall be supplied to the towns of Moshi and Same.
- The water supply areas in these towns shall be expanded, step by step, along with expansion of town area.

### 2) Proposed Projects

The projects below, as selected on the basis of the long-term plan, are necessary for urban water supply.

Gravity feeder pipes	14.4 km	5.0 km
Main distribution pipes	15.0 km	6.3 km
Local distribution pipes	50.0 km	21.0 km
Treatment plant	23,000 cu. m capacity	—
Water reservoir	—	2,000 cu. m capacity

## Some Financial Aspects

The present situation in which the entire cost of both systems is borne by those serviced with urban water will make for too great a financial burden on urban residents (12.8 sh./1,000 gal. vs. no charge at all for those benefiting from rural water supply). On the other hand, if the present urban water supply rate of 10 sh./1,000 gal. remains effective up to 1980/81, it will be necessary to charge 1.2 sh./1,000 gal. for rural water supply.

It is obvious that as water supply is expanded and the cost of water supply operations rises, such operations will become an increasingly large burden on the government budget. Hence the need to adopt such a policy of having people serviced with rural water foot the bill for it.

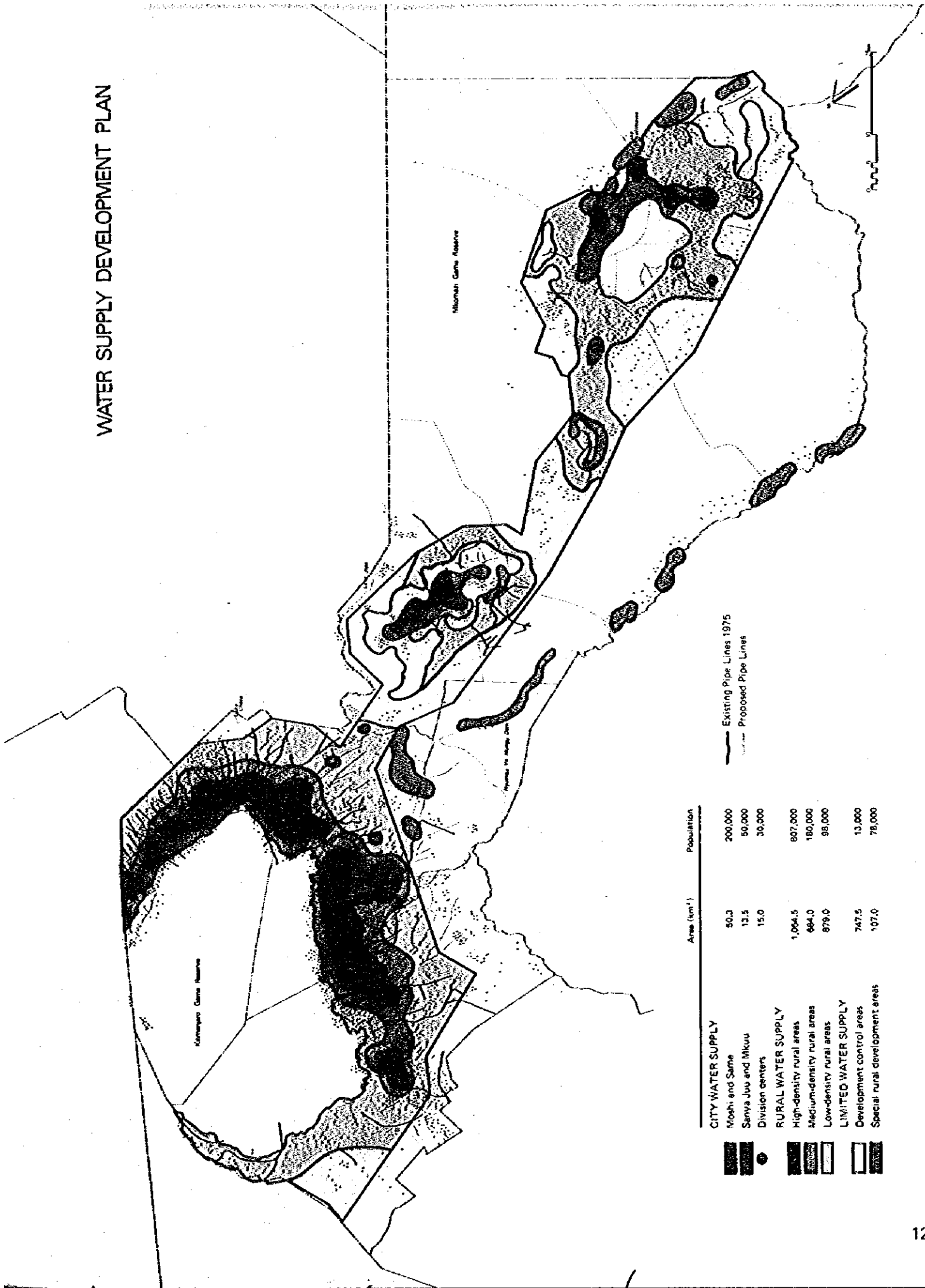
The following two points should be emphasized in the context of such a policy:

- Setting of appropriate rates for urban water supply systems (presently revenue-producing); and
- Gradual enhancement of the quality of rural water supply system (presently non-revenue-producing) to the level of urban water supply systems and establishment and hiking of rural water supply rates.

The prime costs of 1,000 gal. of water in the urban and rural systems will be 4.3 sh. and 3.7 sh., respectively, if depreciation costs are incorporated and if the two systems are financially independent of one another.



# WATER SUPPLY DEVELOPMENT PLAN



# ELECTRICITY

## Planning Policy

### 1) Energy supply for public services

A stable energy supply to public services has been difficult to maintain because of poor maintenance and operation and the uneconomicalness of diesel equipment, the replacement of which by electrical power is strongly desired.

### 2) Promotion of Industries

### 3) Improvement of living standards

It is expected that the desire for a higher living standard will result from an increase in individual economic capability in the future and will bring about a considerable increase in demand for electricity.

## Power Development Plan

### 1) Power demand

In order to determine the scope of construction for the power supply system, power demand has been roughly estimated as follows.

#### Annual Power Demand (million KWH)

1980	1985	1995
33.11	55.12	78.33

#### Maximum Demand (KW)

1980	1985	1995
11,640	11,640	16,534

### 2) Projected rates domestic electrification

Year	1975	1980	1985	1990	1995
Population supplied with power	16,175	28,300	77,900	125,400	231,000
Rate (%)	1.9	2.8	6.5	9.3	15.9

### 3) Power development plan for up to 1995

- Power shall be supplied to all 4 towns and 15 division centers. Domestic power shall be individually distributed to each house.
- The range of agricultural areas to be electrified shall be expanded, step by step.
- The majority of electric power for rural areas shall be consumed in the above 15 division centers.
- For individual projects (unpredictable at present), power distribution shall be based on the primary orientation set by the planning strategy.
- The power distribution areas shall be Moshi (including Hai and Rombo) and Pare, and the latter shall be further divided into North Pare and South Pare.

## Proposed Projects

### 1) Transmission lines and substations

	1977-80	1981-85
Transmission line	Moshi-Machame (20) (33)	Machame-Sanya Juu
Substation	Machame substation (33/11 2MVA)	Sanya Juu substation (33/11 2MVA)
Transmission line	Maranga-Mengue (16)	Mengue-Mkuu (10)
Substation	Marangu substation (33/11 2MVA)	Mkuu substation (33/11 2MVA)
Transmission line	Nyumba ya Mungu-North Pare (30) (11)	

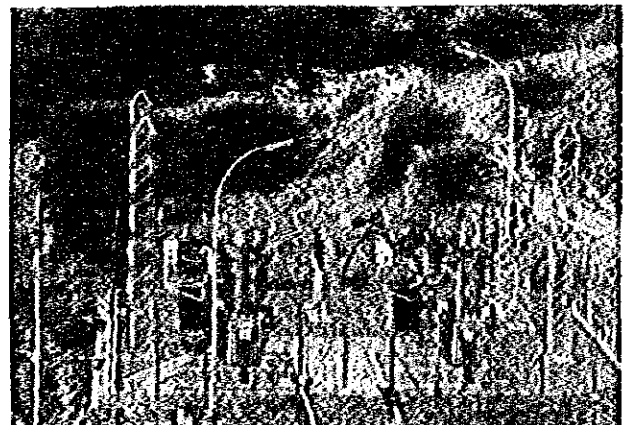
### 2) Distribution network (km)

	1977-80	1981-85
Town areas	55.8	156.6
Rural areas	72.4	199.3

## Some Financial Aspects

In 1976 the cost of 1,000 KWH of electricity supplied to the Kilimanjaro Region was 360.2 sh., and the revenue therefrom was 471.0 sh., for a surplus of 96.1 sh. It is expected to be 386.3 sh. in 1980/81 and 232.4 sh. in 1985/86.

In 1975 annual electricity consumption per customer in the household category was 1,120 KWH at a cost of 392 sh./1,000 KWH. The average household consumer therefore had an electricity expenditure of 438.7 sh. in that year. One suspects that electricity consumption in the home is considerably greater among higher income groups since this represents a substantial outlay. In the future people in lower income groups can be expected to enter the ranks of household electricity consumers, and this will have the effect of lowering per-consumer annual consumption to, say, about 300 KWH. This being so, the average household electricity consumer will probably have an electricity expenditure of about 116 sh. in 1980/81 and 70 sh. in 1985/86. Since the former figure will represent only about 1.5% of the average family budget in 1980, it should not constitute a very great burden.





## SEWAGE

Sewage service quite justifiably is generally given a lower priority than water supply, but some investment will be called for during the period of the Third 5-year Plan, the amount increasing as time goes on.

Sewage disposal service will have to be promoted particularly in the following areas of Moshi and Same towns:

- Densely populated areas that are turning into slums
- Areas in which urban facilities are concentrated and high-class residential areas
- Peripheral residential sprawl areas

1) The total population is to be serviced by a sewage disposal system by 1995.

	1975	1980	1985	1990	1995
<b>Moshi Town</b>					
Population serviced	15,000	32,800	65,000	108,000	150,000
% of total	30	47.5	65	82.5	100
<b>Same Town</b>					
Population serviced	0	5,400	16,300	32,600	50,000
% of total	0	25	50	75	100

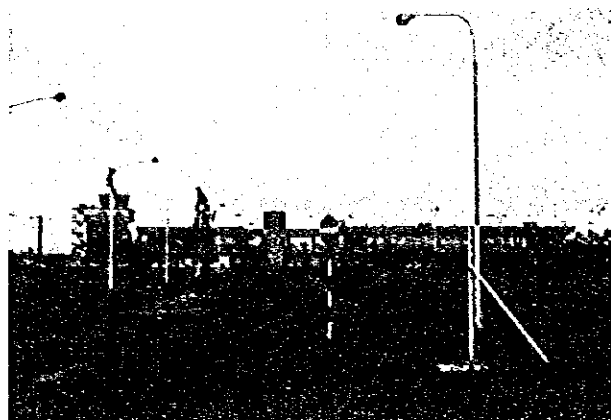
2) The most economical and effective purification system should be employed.

Moshi Town	Soil permeation treatment plant (12.8 ha)
Same Town	Facultative and maturation lagoon (5.4 ha)

3) Extension of the sewer network should be effectively geared to growth of high-density areas in the towns.

### Area Covered by Sewer Network (ha)

	1975	1980	1985	1990	1995
Moshi Town	375	820	1,625	2,700	3,750
Same Town	0	134	406	816	1,250



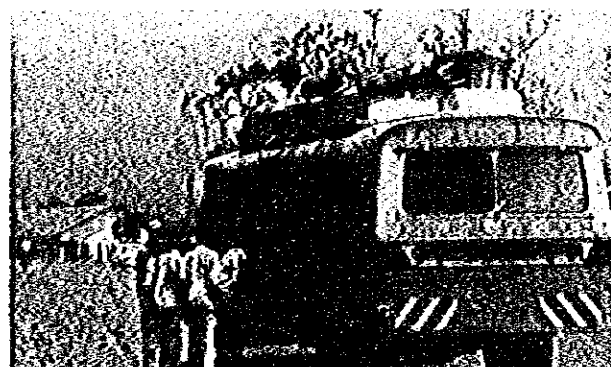
**Kilimanjaro International Airport**

Completed in 1971 with Italian assistance, this is one of the two international airports in Tanzania. Located midway between Moshi and Arusha, it boasts a 3,600 m runway and other modern airport facilities.



**Railways**

Most of the region's cargo is carried by railway, three lines—the Tanga, Uai, and Arusha lines—converging on Moshi Town.



**Bus Service**

Most of the passenger transportation in and to and from the region is accounted for by bus service, the international, interregional, and major regional routes being serviced by public companies and rural routes by private companies.



*PART SEVEN*

*Implementation Plans*

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## FINANCE

### Third and Fourth 5-year Development Investment Plans

The Tables below give figures for development expenditures called for by the Third and Fourth 5-year Development Investment Plans for different sectors and project classifications.

#### Development and Recurrent Expenditures in Kilimanjaro Region by Sector 1977/78—1985/86 (1,000 sh.)

	77/78-80/81		81/82-85/86	
	D	R	D	R
Agriculture	61,175	3,296	89,315	4,810
Livestock	8,130	—	11,947	—
Water res. deopt.	8,400	—	—	—
Manufacturing	9,395	11,512	9,680	15,439
Conservation	26,730	20,296	8,150	25,370
Tourism	18,371	2,910	15,397	4,850
	(3,680)	(—)	(—)	(—)
Transportation	220,384	106,717	387,109	151,103
	(214,765)	(30,672)	(331,968)	(24,360)
Communications	21,199	19,565	56,150	34,135
	(4,319)	(—)	(12,812)	(—)
Town development	143,374	14,254	261,650	56,050
	(123,632)	(4,754)	(243,272)	(14,350)
Village development	9,107	—	9,107	—
Public utilities	107,034	55,655	153,495	76,954
	(88,627)	(12,884)	(101,510)	(16,561)
Social service	45,775	213,675	67,975	354,864
Totals	678,984	448,381	1,072,059	733,625
	(603,735)	(297,599)	(896,993)	(441,099)

Remarks: D: Development Expenditures  
R: Recurrent Expenditures

Notes: The figures in parentheses indicate the amount borne by the government, the difference between them and the figures immediately above them representing the amount to be borne by those benefiting from such spending. This latter amount can be considered recurrent revenue, with recurrent expenditures being partly covered to that full amount and further covered to the amount deficient by other government funds. If there is a surplus in the recurrent account, it can be applied to development expenditures, making the government burden that much lighter.

#### Development Expenditures by Project Classification

	(1,000 sh.)					
	1977/78	1978/79	1979/80	1980/81	1977/78-1980/81	1981/82-1985/86
DPA	12,000	21,302	16,045	12,949	62,296	43,004
	( 11.6)	( 12.6)	( 8.0)	( 6.3)	( 9.1)	( 4.0)
EI	80,177	106,736	142,561	151,369	479,843	783,126
	( 76.9)	( 62.7)	( 71.3)	( 73.5)	( 70.7)	( 73.1)
SI & AS	12,131	41,733	41,473	41,508	136,845	245,929
	( 11.6)	( 24.7)	( 20.7)	( 20.2)	( 20.2)	( 22.9)
Total	104,308	168,771	200,079	205,826	678,984	1,072,059
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

Remarks: DPA : Directly Productive Activities  
EI : Economic Infrastructure  
SI & AS : Social Infrastructure & Administration and Security

#### Macroeconomic Feasibility of Third and Fourth 5-Year Development Plans

At the present time the rate of operation of enterprises in the Kilimanjaro Region is low. Accordingly, the Third 5-year Development Investment Plan is designed to improve the economic climate through large-scale government investment, particularly in directly productive activities and economic infrastructure, raise the rate of operation of enterprises, and induce private and parastatal investment. This last objective, however, can be achieved only after the rate of operation of enterprises rises above a certain "normal" level. That is why we have assigned a value of less than 0.1

for the inducement effect of government investment as a whole in the period covered by the Third 5-year Development Plan, which will not begin to emerge until the latter half of that period and will not become widespread until the period covered by the Fourth 5-year Development Plan. With this built-in mechanism for autonomous economic development, however, the effect of government investment of inducing private and parastatal investment should become quite pronounced in the course of implementation of this latter plan. Here we have assumed a value of approximately 1.0.

On the basis of this reasoning we have determined the macro-economic coefficients indicated in Table-3 below.

#### Macro-economic Coefficients for the Third and Fourth 5-year Development Plans (1,000 shillings)

	1977/78-1980/81	1981/82-1985/86
Government investment (Z)	678,984	1,072,059
Private, parastatal and other investment (I)	50,359	986,058
Total investment (Z + I)	729,343	2,058,117
ΔG.R.P.	276,267	717,479
Marginal capital coefficient	2.6	2.9
(Z + I)/G.R.P. (%)	12.8	21.5
I/Z	0.074	0.92

Notes: While the GRP of the macroframe is for the calendar year, the figures here for GRP are based on GRP figures recalculated for the fiscal year.

The marginal capital coefficient should be somewhat higher than the figures given here if one takes into account investment plans presently being implemented and investments not taken into account in the present development plans.

Not only are these coefficients plausible, but both development plans can be considered feasible from a macroeconomic viewpoint. They are designed, in the first four years, to effect, through large-scale government investment, principally in directly productive activities and economic infrastructure, an improvement in the economic environment, a rise in the rate of operation of enterprises, and an increase in potential inducement of private and parastatal investment and, in the last five years, to activate such inducement of investment, put the economy on a growth course, and set the stage for even greater future development through government investment in social infrastructure.

## The Third and Fourth 5-Year Development Plans and Public Finance

### 1) Financial feasibility of the third and fourth 5-year development plans of the Kilimanjaro region

The table below gives figures for the development and recurrent expenditures foreseen by the Third and Fourth Development Plans of the Kilimanjaro Region.

	1977/78	1978/79	1979/80	1980/81	1977/78 - 1980/81	1981/82 - 1985/86
Development expenditures (thousands of sh.)	97,664	149,459	175,314	187,013	603,735	896,993
Recurrent expenditures (thousands of sh.)	143,154	138,535	144,134	147,234	570,055	785,419
Recurrent expenditures/Development expenditures	1.47	0.93	0.82	0.81	0.95	0.88
% of total expenditures to be borne by those directly benefiting	10.9	21.0	22.1	22.6	20.1	25.9

After taking a big jump in 1974/75 to 13.1%, the tax burden rate (taxes/GRP) of the Kilimanjaro Region continued to rise in 1975/76, reaching 15%. This is still, however, a fairly low level in comparison to the national average of 2.3%. Hence our assumption that it will rise to the national level early in the period covered by the Third 5-year Development Plan. Since the tax outflow of the region can be calculated on this assumption, the tax reflux rate can also be obtained as the ratio of the sum of development and recurrent expenditures to the tax outflow.

	1977/78	1978/79	1979/80	1980/81	1977/78 - 1980/81	1981/82 - 1985/86
Tax outflow (thousands of sh.)	296,930	315,790	336,030	357,190	1,305,940	2,197,880
Tax reflux rate (%)	81.1	90.9	96.1	92.2	90.1	76.5

$$\text{Tax reflux rate} = \frac{\text{Development expenditures} + \text{recurrent expenditures}}{\text{Tax outflow}}$$

If regional development plans on the regional level can be successfully implemented with a reflux rate of less than 100%, the Kilimanjaro Region Integrated Development Plan should be considered amply feasible from a financial standpoint.

### 2) Financial feasibility of development plans for all of Tanzania along the lines of the third and fourth 5-year development plans of the Kilimanjaro region

Assuming that other regions as well should draft plans along the lines of these development plans for the Kilimanjaro Region, one has to consider whether or not such plans would be financially feasible.

The table below gives figures for the ratio of expenditures to GRP that will result from implementation of these two development plans for the Kilimanjaro Region as well as past figures for the ratio of the government budget for the entire country to GDP.

	77/78	78/79	79/80	80/81	77/78 - 80/81	81/82 - 85/86
(Development expenditures + recurrent expenditures)/GRP	18.7	20.9	21.9	21.2	20.7	17.6
Budget/GDP	20/71	21/72	22/73	23/74	24/75	25/76
Tax burden rate	31.7	27.2	28.5	33.8	39.2	35.9
Government bonds/GDP	23.1	20.7	21.3	23.1	26.4	22.8
Borrowings from domestic banks/GDP	1.6	0.8	1.6	1.5	1.8	1.5
External sources/GDP	3.9	2.0	0.9	4.0	4.4	1.6
External sources/GDP	3.1	3.7	4.5	5.2	6.6	10.0

Although the figures for the ratio of development and recurrent expenditures to GRP are those for the Kilimanjaro Region, they can also be considered as those for the ratio of the budgets for such plans for the whole country to GDP in the absence of national project expenditures and general administrative expenditures of the Central Government itself.

As one can see from the table, it would be possible for such development plans for the whole country to be financed with tax revenues, and the Central Government will be able to use approx. 10% of tax revenues in 1977/78 - 1980/81 and approx. 25% in 1981/82 - 1985/86 for national projects and general administration (these figures can be derived from "1-Reflux rate"). Add to that income from government bonds and domestic bank loans, and almost all of the Central Government's national projects and general administration expenditures are covered at least as far as the Fourth 5-year Development Plans are concerned.

One can therefore conclude that development plans for all of the regions of Tanzania modelled after the Third and Fourth 5-year Development Plans of the Kilimanjaro Region are financially feasible.

### 3) The third and fourth 5-year development plans and Tanzania's foreign exchange position

The Kilimanjaro Region receives 4 - 6% of the Central Government's foreign exchange allocations in the form of public and parastatal investments.

Since, however, it is up to the Central Government to determine foreign exchange allocations, for the most part the amounts of foreign exchange that will be needed for the different projects included in the Third and Fourth 5-year Development Plans of the Kilimanjaro Region have not been indicated. Let us therefore consider the economic feasibility of these plans in terms of acquisition of the necessary foreign exchange on the assumption that Kilimanjaro Region will continue to receive the same percentage of total Central Government foreign exchange allocations and from the standpoint of the total foreign exchange needs of the plans rather than the needs of individual projects.

As we have already seen, the Third and Fourth 5-year Development Plans of the Kilimanjaro Region, although ambitious, are nevertheless economically feasible. In the period of the Fifth 5-year Development Plan the economic growth rate should be even higher, and although economic feasibility will depend on the period of depreciation of the facilities in which the foreign exchange is invested, a period of ten years would be long enough for the plans to be economically feasible, and a still longer period would, of course, make them still more feasible.

Moreover, the economic growth of the region will make it more than able to pay off the foreign exchange debts that it will incur through the investments envisioned in the development plans, particularly in terms of its coffee production.

As for the country as a whole, similar development plans for all of its regions should also be economically feasible, as we have already seen, particularly since the debt service rate will be only about 2 – 4%. Since, however, the deficit in the current account of the country's balance of payments is growing, although the overall balance has been maintained after a fashion thanks to surpluses in the capital account, and the ratio of funds obtained from abroad to GDP is rising, reaching 10% in 1975/76, it will be necessary to strive for introduction of foreign exchange in the form of grants from many different quarters and, where this is not possible, to shop for soft loans as the next best thing.

## ADMINISTRATION

Generally speaking, it is necessary to build a strongly centripetal system of public administration in the early stages of national construction for the sake of nurturing strong self-awareness and unity of the state.

On the other hand, in later stages an agricultural country such as Tanzania should concentrate on rural development since agriculture will continue to be the mainstay of its economic strength. The basic strategy of rural development should be the strengthening of the regional economy through local market integration and development of a suitable corresponding production system.

Accordingly, the public administration system is a network centering on a line system (chain of command) supported by a trunk-line transportation system, road and communications networks, and so forth, and local public administration must be incorporated as a partial system within this unitary system.

At the same time, since the strengthening of regional economic autonomy is basic to regions development and the local economic system needs to maintain its autonomy, the local administrative system must not impair such autonomy.

In order to avoid conflict between local economic autonomy and local administration, the maintenance of the economic circulation and coordination between local and central administration must not be placed in a competitive relationship to one another. Moreover, the fruits of rural development made possible by the proper functioning of the economic circulation should be evaluated as representing partial attainment of national goals.

The emphasis of the national unity movement should be placed on party organization and activities, and this will result in enlargement of the economic circulation, a result which will be integrated with national goals by the administrative process.

One must not forget that local public administration as a whole is a combination of:

- Motivation of party organization as organization for promotion of movements.
- Autonomy of economic organization as organization for efficiency.
- Unity of administration organization as organization for integration.

The requirements of public administration for achievement of the goals of the Third and Fourth 5-year Development Plans are, in the context of the total system outlined above, simplification of regional administrative organization, improvement and integration of two-way communication between all levels of the administrative hierarchy as well as development of an effective feed-back mechanism, and systemization of self-help.





## MANPOWER

As evidenced by the fact that education is the largest single item of all governmental appropriations and the fact that expenditures for education and training may exceed 20% of the total national budget, manpower development is one of the most important national policies of the country. However, the availability of regional facilities for technical education and training of skills to meet regional needs is very limited. Vocationalization of secondary education and expansion of industrial vocational training programs are being carried out by the Ministry of National Education and the Ministry of Labour and Social Welfare, respectively. This is expected to gradually mitigate the shortage of such institutions for training of middle-level manpower. On the other hand, high-level manpower development is the responsibility of the Central Government, and in this respect only one additional technical college is being provided. The supply of high-level manpower can therefore be expected to be tight in the foreseeable future.

As often pointed out elsewhere in the present report, the biggest problem is underemployment of young people in the region, particularly of primary school leavers in rural areas. This is fundamentally a matter of industrial development. The present development plan anticipates a decline of the unemployment rate from 9.4% in 1975 to 7.0% in 1980 and 3.0% in 1985.

### Manpower Requirements

There are a number of development projects proposed in the present report. Training programs are incorporated in those of main industries such as agriculture and manufacturing. However, the high-level manpower necessary for the implementation of these projects will be provided mostly by educational and training institutes at the national level. The manpower requirements of these projects are summarized as follows:

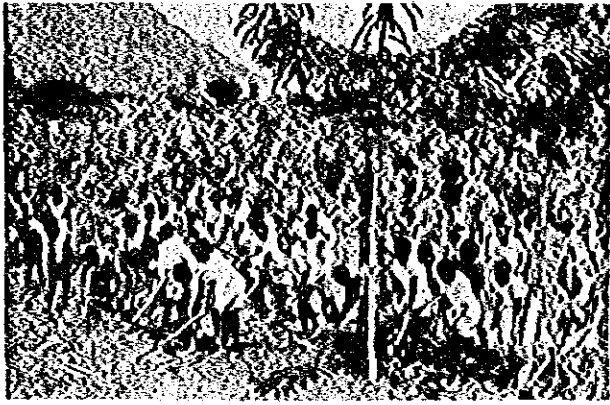
	Category A	Category B	Category C	Others
Nature conservation	0	8	14	2,600
Agriculture	21	33	104	194
Roads	5	0	117	112
Village development	7	1		
Social service	122	436	923	222
(Education)	(112)	(410)	(890)	(0)
Tourism	1	4	0	100
Industry	8	23	84	1,356
<b>Total</b>	<b>168</b>	<b>500</b>	<b>1,240</b>	<b>4,584</b>
	<b>(112)</b>	<b>(410)</b>	<b>(890)</b>	<b>(0)</b>

The above classification of manpower is based on the occupational categories used in the high- and middle-level manpower survey. There are:

Category A	Top-level administration and managers, professionals	University degree and above
Category B	Sub-professionals and technical occupations	Technical college and equivalents
Category C	Highly skilled labourers and skilled office workers	Secondary schools (Form IV)
Others	Semi-skilled labourers	Primary schools

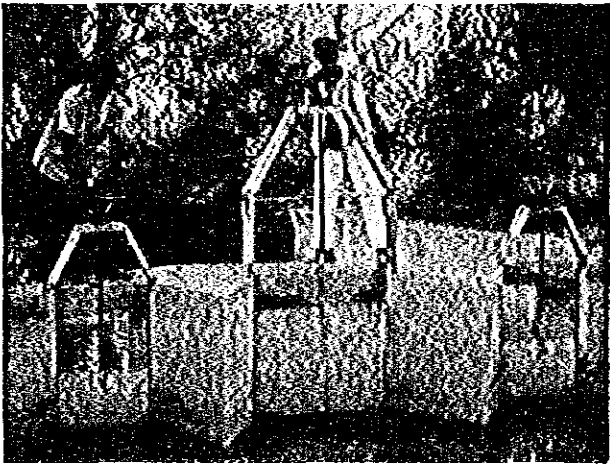
Regarding Category C, the Ministry of Manpower Development is of the opinion that there will not be much of a shortage in the supply of manpower as the personnel employed in this category are secondary school leavers with several years experience in their jobs. As for education, 18% and 27% shortages of secondary school and higher grade primary school teachers who belong to Categories A and B are foreseen in the ministry's five-year plan. The region may face similar shortages as the supply of teachers of these categories is the responsibility of the Central Government. The supply sources of other occupations of Categories A and B are educational and training institutes at the national level. According to the forecast of manpower requirements by the ministry, surpluses are anticipated in the supply of management personnel, hydrologists, soil scientists, forest officers and foresters. On the other hand, in many occupations new personnel requirements will only be able to be met partially: civil engineers — 74%, irrigation engineers — 74%, hydro-geologists — 53%, village planners — 50%, architects — 45%, medical doctors — 69%, mechanical engineers — 45%, agricultural field officers — 55%, agricultural engineers — 55%, veterinary field officers — 69%, medical assistants — 69%, and mechanical engineering technicians — 85%. On the basis of these placement estimates, there will be a deficiency of 16 experts in Category A and 27 experts in Category B in connection with the proposed projects.





#### Agricultural Experience for Youngsters

These primary school children are getting valuable practical experience in farming techniques.



#### Sluice

This sluice is playing a part in the development of the regions agriculture in the context of the Pangani Basin Irrigation program. Water supply being essential in both social and economic terms, multipurpose utilization of hydrological resources is being promoted, a fine example of which is the Nyumba ya Mungu Dam.



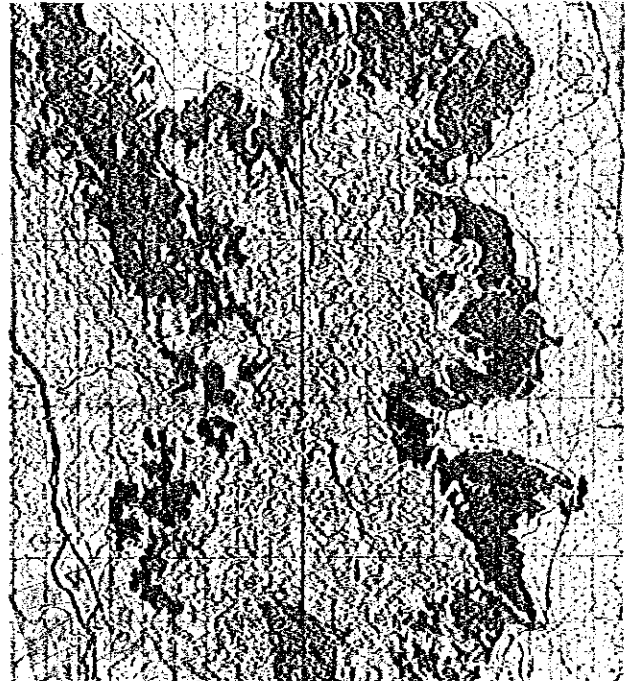
#### Road Construction

Local feeder roads are being built in rural areas as an important element in the improvement of living standards in terms of facilitation of cultural, economic, and other interaction.

#### The Swahili Language and Swahili Culture

The word "swahili" derives from an Arabic word signifying "coast." It came to be used to indicate the new language and culture that arose along the east African coastline as a result of the historical meeting between Arabs who came south in the 8th century to taken up permanent residence there and the indigenous Bantu tribes.

The Swahili language is based on various Bantu languages with a good amount of admixture of Arabic, and the Swahili culture is a mixture of Islamic culture and the indigenous coastal cultural, both having penetrated quite far inland after their littoral beginnings. The term "Swahili" also signifies the people whose language and culture it has become.



#### North Pare Mountains Area



#### District Hospital

District hospitals such as this one in the Rombo District serve as bases for mobile clinics and as district medical care and health centers, meeting the personnel and supply needs of and supervising division hospitals, health centers, and dispensaries.