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# African National Congress (SA)



**ANC  
DEVELOPMENT  
CENTRE,  
DAKAWA TANZANIA.**

## **REVISED 1984 DEVELOPMENT PLAN**

### **Volume I**

- \* 1984 Development Plan**
- \* Present Status**
- \* 1990 Land Use Plan**
- \* 1990 Development Control Plan**

**AUGUST 1990**

**Sumar Varma & Associates Chartered Architects & Planners P.O. Box 486 Dar es salaam Tanzania**





# **AFRICAN NATIONAL CONGRESS (SA)**

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DAKAWA - TANZANIA**

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## **VOLUME I**

- 1984 DEVELOPMENT PLAN
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**AUGUST 1990**



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## PREAMBLE

### THE REVISED 1984 DEVELOPMENT PLAN

In 1983, it was agreed that a new community for about 5000 people should be developed for the African National Congress of South Africa (ANC) in an abandoned farmland with an area of about 28 sq. km. at Dakawa, about 60km. north west of Morogoro town in central Tanzania.

Later the same year, Norplan A/S. of Oslo, Norway was commissioned to prepare a Development Plan for this new community, and in September 1984, Norplan A/S submitted their report.

The 1984 Development Plan was conceived as a Community Development Centre for about 5000 inhabitants and about 800 houses with supporting facilities such as agriculture, industry education and infrastructure services to be developed over a period of 5 - 10 years

Since 1984, Dakawa has been developing on the lines proposed in the Development Plan. Several projects have been undertaken since, and these are detailed later in this report.

In December, 1989 the African National Congress appointed Sumar Varma & Associates, Chartered Architects & Planners of Dar es Salaam, Tanzania, to provide consultancy services for the Development Centre.

In early 1990, with the unbanning of the African national Congress, and the unprecedented political changes in South Africa, it became necessary to revise the 1984 Development Plan, and in May 1990, ANC instructed Sumar Varma and Associates to undertake the revision of the 1984 Development Plan.

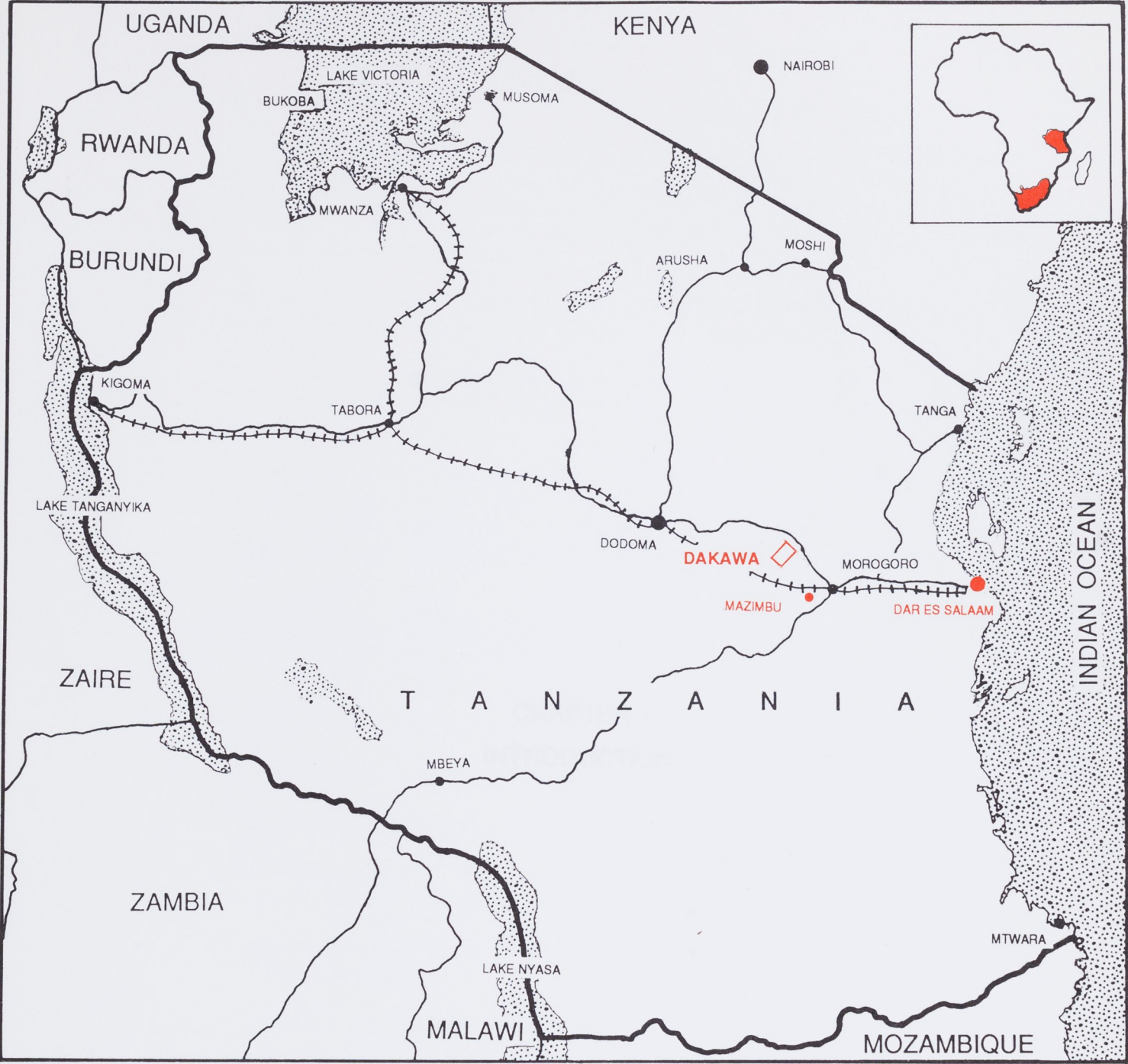
The revision therefore commences with a review of the concept and objectives of the 1984 Development Plan. It examines and records existing facilities carried out to date and finally, in the light of current changes in South Africa, proposes future developmental directions for the ANC Development Centre.

ANC personnel at Dakawa have provided continuous assistance, guidance and background data in the preparation of this proposal for the revision, for which Sumar Varma and Associates wish to record their grateful appreciation.

SUMAR VARMA & ASSOCIATES

AUGUST 1990





MAP OF TANZANIA

|                          |              |
|--------------------------|--------------|
| <u>DISTANCES :</u>       |              |
| DAR ES SALAAM - MOROGORO | 200 KM       |
| MOROGORO - DAKAWA        | 60KM         |
| TOTAL                    | <u>260KM</u> |

## 1.1 INTRODUCTION

From 1964 to 1978, considerable progress has been achieved in the establishment of the Centre of Development in the implementation of various projects as contained in the 1964 Development Plan. Related activities in agriculture, industry, education, health, housing, community services and recreation have been established to support the present population of about 1200 persons.

The objective of the 1964 plan was to provide a settlement with adequate facilities for displaced South Africans and prepare them for the mobile African town.

The objective of the proposed 1984 Development Plan is to continue to provide the settlement with the necessary related facilities, and to maintain and improve existing facilities.

However, the revised plan anticipates a required settlement of 2500 persons with emphasis on education & training - and other related community facilities. The 1984 Development Centre of Development is intended to provide a high standard of education and vocational training for students who have been trained and/or retrained in South Africa.

The total number of students expected to attend educational and training institutions in Development Centre in Upington is estimated at 1400.

## CHAPTER 1 INTRODUCTION.

### 1.2 BRIEF DESCRIPTION OF THE 1964 DEVELOPMENT PLAN

The Revised 1984 Development Plan is divided into 3 volumes as follows:

- Preparation of the physical development plan for the 1964 plan at scale 1:12500.
- Preparation of overall community infrastructure plan at scale 1:12500 showing roads, water distribution, sewage and solid waste disposal and the social development.
- Preparation of designs for the school, high school, training college, at scales 1:12500 and 1:12500.
- Preparation of layout for population, employment, and recreation.

The objective of the Revised 1984 Development Plan is to continue to provide the settlement with the necessary related facilities, and to maintain and improve existing facilities.

### 1.3 THE LAYOUT OF THE REVISED DEVELOPMENT PLAN

The Revised Development Plan is divided into 3 volumes as follows:

Volume 1

- 1984 Development Plan
- Physical Map
- 1984 Development Plan
- 1984 Development Plan



## 1.1 INTRODUCTION

From 1984 to 1989, considerable progress has been achieved in the establishment of the Centre at Dakawa and in the implementation of various proposals as contained in the 1984 Development plan. Related activities in agriculture, industry, education/vocational training, community services and infrastructure have been established to support the present population of about 1200 inhabitants.

The objectives of the 1984 plan were to provide a settlement with adequate facilities for displaced South Africans and prepare them for the eventual return home.

The objective of this Revised 1984 Development Plan is to continue to provide the settlement with the necessary related facilities, and to maintain and improve existing facilities.

However, the revised plan anticipates a reduced population of 2500 inhabitants with emphasis on education & training and other related supporting facilities. The ANC Development Centre at Dakawa intends to provide primary and secondary school education and vocational training for students who have been denied such opportunities in South Africa.

The total number of students expected to attend educational and training institutions at Development Centre in Dakawa is estimated at 1100.

## 1.2 BRIEF DESCRIPTION OF REVISED 1984 DEVELOPMENT PLAN

The Revised 1984 Development Plan comprises of the following:

- Preparation of the physical development plan for the Dakawa site at scale 1:12500m
- Preparation of overall community infrastructure plan at scale 1:12,500m. showing access roads, water distribution, sewage and solid waste disposal and electrical distribution.
- Preparation of designs for the social, educational centres and villages at scale 1:5000m, 1:2500m and 1:1250m.
- Preparation of forecast on population, employment and economic activity.

The objectives of the Revised 1984 Development Plan have been achieved with continuous cooperation, participation and support of the ANC representatives.

## 1.3 THE LAYOUT OF THE REVISED 1984 DEVELOPMENT PLAN

The Revised Development Plan is divided into 3 volumes as follows:

### Volume I

- 1984 Development Plan
- Present status
- 1990 Land use plan
- 1990 Development control plan

Volume II

- Drawings
- 1984 Development Plan
- Existing Development
- Revised 1984 Development Plan

Volume III

- Project Packages



# THE 1984 DEVELOPMENT PLAN

Prepared by M. H. Høyer, Oslo, Norway



## CHAPTER 2

### THE 1984 DEVELOPMENT PLAN.

#### LAYOUT PLAN

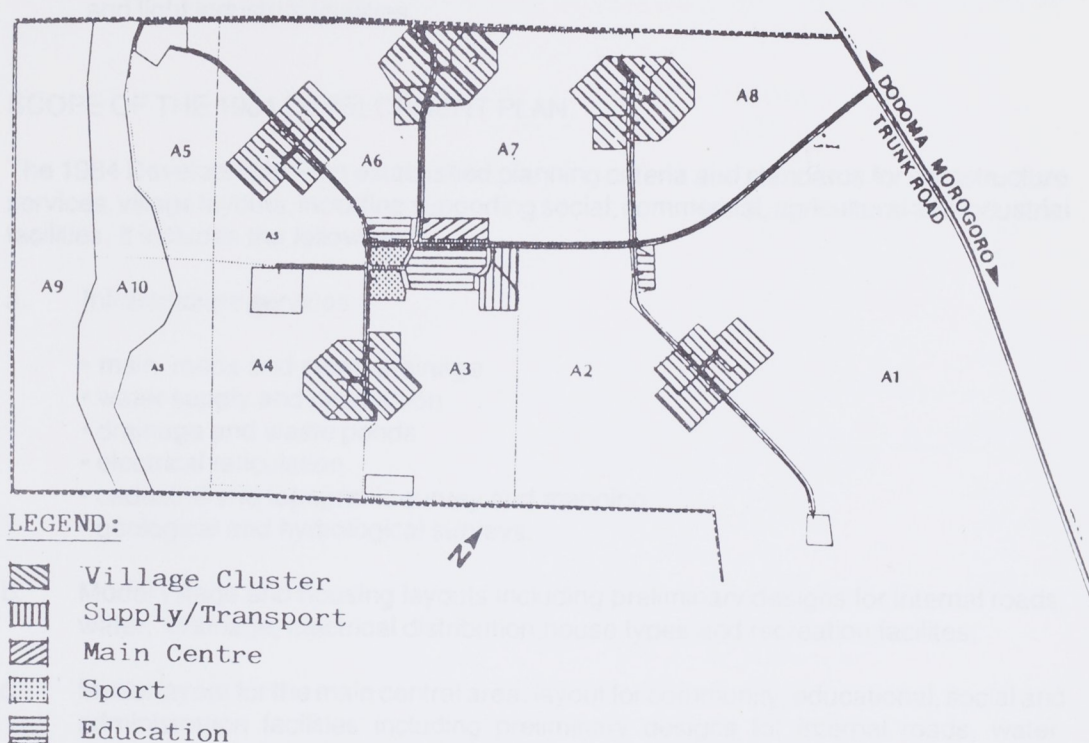
#### THE 1984 DEVELOPMENT PLAN

The 1984 Development Plan, prepared by M. H. Høyer, Oslo, Norway, is a comprehensive plan for the development of the village of ...

#### The 1984 Development Plan consists of

1. A general statement of the village's development goals and objectives.
2. A detailed plan for the village's development, including a map of the village and a description of the proposed development.
3. A description of the village's current development and a plan for its future development.
4. A description of the village's development on the basis of the village's development goals and objectives.

2.0 THE 1984 DEVELOPMENT PLAN  
(Prepared By M/S Norplan A/S, Oslo, Norway)



LAYOUT PLAN

2.1 BRIEF DESCRIPTION

The final detailed Development Plan, prepared by M/S Norplan A/S of Oslo, Norway was completed in September 1984 and is contained in the "ANC DEVELOPMENT CENTRE, DAKAWA, Development Plan, Volumes 1, 2, and 3".

The 1984 Development Plan comprises of:

- a. Overall land use plan of the Dakawa site to accomodate about 5000 persons requiring resettlement;
- b. Preparation of plans for overall community infrastructure services showing roads, drainage, water, sewerage, solid waste disposal and electrical supply system;
- c. Preparation of designs for the villages, town centre, educational, industrial and agricultural centres;
- d. Preparation of forecast on population, employment and economic activities;

The development plans and housing types were prepared in consultation with ANC technical and administrative representatives at Mazimbu.



The land use plan constituted development of 10 residential villages to accommodate 350 - 500 persons each, grouped in pairs with each pair sharing common communal and light industrial facilities.

## 2.2 SCOPE OF THE 1984 DEVELOPMENT PLAN.

The 1984 Development Plan established planning criteria and standards for infrastructure services, village layouts, including supporting social, commercial, agricultural and industrial facilities. It includes the following:

- a. Infrastructure services
  - main roads and storm drainage
  - water supply and distribution
  - drainage and waste ponds
  - electrical reticulation
  - cadastral and topographic survey and mapping.
  - geological and hydrological surveys.
- b. Model village and housing layouts including preliminary designs for internal roads, water, drainage, electrical distribution, house types and recreation facilities;
- c. Model layout for the main central area, layout for community, educational, social and administration facilities including preliminary designs for internal roads, water, drainage, electrical distribution, schools and vocational training centre;
- d. Agricultural centre layout including proposal for types of farming, dairy and ranching activities;
- e. Proposals for establishment of local municipal administration;
- f. Proposals for project packages;

## 2.3 PLANNING CRITERIA

### 2.3.1 Preliminary

The basic planning criteria had been originally developed by ANC technical staff on the basis of their experience gained at the ANC Mazimbu Camp and on the perceived needs and wishes of the future community at Dakawa

One of the principles of the planning criteria was for the supply of goods and services which were required in accordance with the needs of the community and the detailed specifications worked out by ANC and its Consultants, instead of those of the manufacturer and suppliers.

### 2.3.2 Population

In 1984 ANC estimated that the population of Dakawa will consists of the following inhabitants:

|                                       | Children<br>without<br>Parents | Children<br>with<br>Parents | Total |
|---------------------------------------|--------------------------------|-----------------------------|-------|
| a. Creche                             | 150                            | 150                         | 300   |
| b. Nursery                            | 300                            | 300                         | 600   |
| c. Lower primary                      | 200                            | 200                         | 400   |
| d. Higher primary                     | 200                            | 200                         | 400   |
| e. Secondary                          | 400                            | 400                         | 800   |
|                                       | 1250                           | 1250                        | 2500  |
| f. Village adults/working people      |                                |                             | 2400  |
| g. Vocational Training Centre (VTC)   |                                |                             | 200   |
| h. Student Orientation Centre (SOC)   |                                |                             | 250   |
| i. Total inhabitants at Dakawa Centre |                                |                             | 5350  |

### 2.3.3 Educational & Training Facilities

The main educational needs at Dakawa centre were planned to be

- Primary schools
- Secondary school
- Vocational Training centre
- Student orientation centre

In addition to the above facilities, successful students on completion of secondary school were to pursue higher education on scholarships endowed by various friendly countries.

### 2.3.4 Adult Population

The main adult population residing at Dakawa were to be deployed in:

- Community and administration services
- Construction of Dakawa centre
- small scale industrial sector.
- agriculture sector.

### 2.3.5 Sports, Cultural and Graphics Centre

The sports, cultural and graphics centres were intended to supplement extra curricular activities in the school and also to provide social and cultural amenities for the inhabitants of the Dakawa centre.



### 2.3.6 Community Administration, Rehabilitation and Health Centre

The Community administration complex was to provide administration facilities to implement the construction and subsequent operational nucleus of the Dakawa centre.

The administration centre was intended to oversee other communal activities such as:

- a. Rehabilitation centre meant for people suffering from effects of torture, alcohol and drug related problems.
- b. Health centre intended for village inhabitants.
- c. Supply centre to provide wholesale and retail distribution of consumer goods and food stuff for the inhabitants.
- d. Industrial and agricultural development to provide meaningful employment and supplement the Centres needs and requirements.
- e. Fire fighting, sewage and waste disposal units.

### 2.3.7 Infrastructural Services

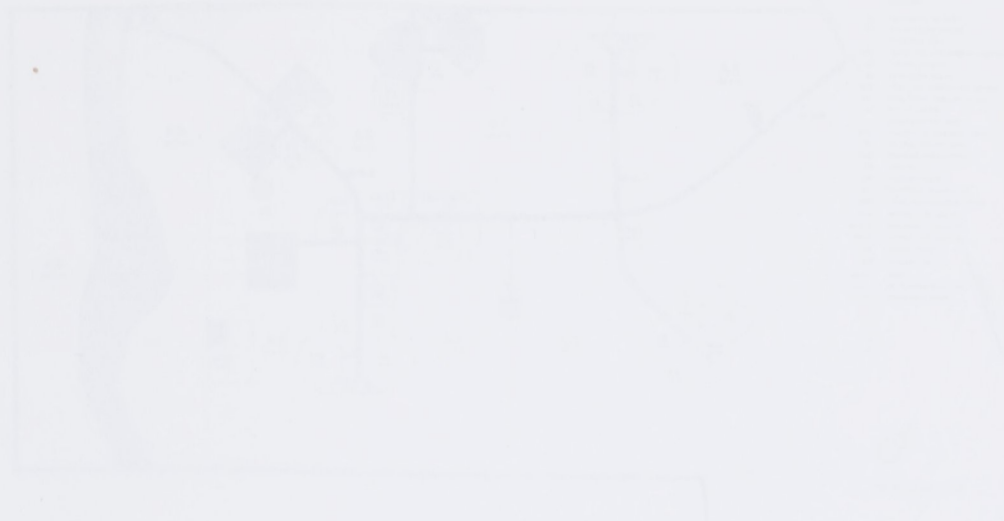
Detailed surveys and designs were carried out for the following infrastructure services in accordance with discussions held with ANC.

- a. Roads and storm water drainage
- b. Water requirement at:
  - i) 135 lts/person/day for normal consumption.
  - ii) 12 hrs. maximum day consumption for emergency storage
  - iii) 10 lts/sec. for 2 hrs. for fire fighting
  - iv) 25% of daily consumption for equalising storage

Preliminary studies were also carried out for supply for water irrigation purposes, possibly from waste stabilisation ponds, and storm water storage ponds.

- c. Electrical reticulation of 2000 KVA, calculated at peak demand and a figure to be used to determine total installed capacity.
- d. Waste sewerage comprising of single septic tanks and soak pits for housing villages and conventional sewer system for main central area and the agricultural centre, and proposed location of waste stabilisation ponds.
- e. Telecommunication requirements were proposed for external connection of minimum 10 lines and local exchange connection of 71 lines intercommunicating various facilities within the Development Centre.
- f. Preliminary studies for solid waste collection and disposal system were carried out.

## 3.0 IMPLEMENTATION OF 1984 DEVELOPMENT PLAN AND CURRENT STATUS



### CHAPTER 3

## IMPLEMENTATION OF 1984 DEVELOPMENT PLAN AND CURRENT STATUS

### 3.1 INTRODUCTION

The development of the 1984 Development Plan was a result of the implementation of the 1981 Development Plan and the current status of the 1984 Development Plan.

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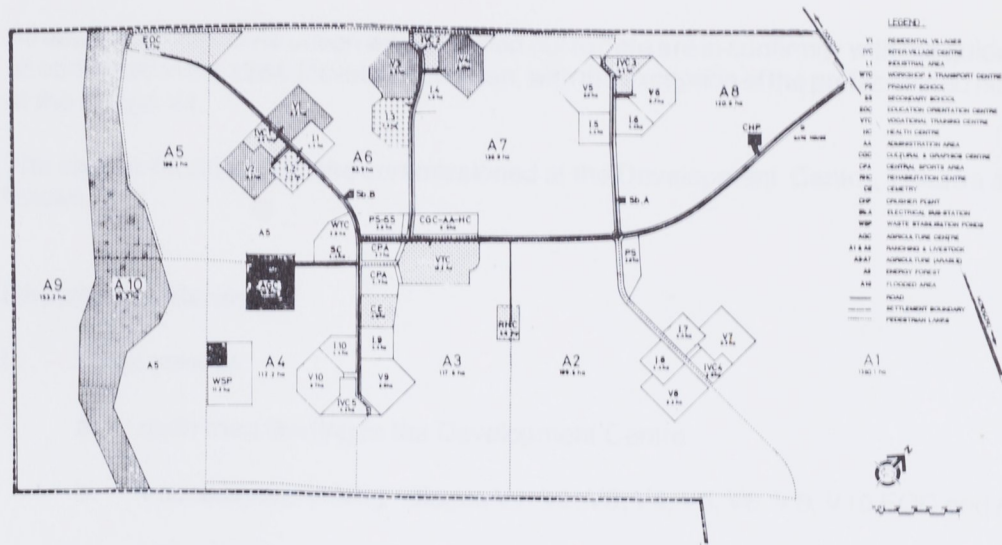
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### 3.0 IMPLEMENTATION OF 1984 DEVELOPMENT PLAN AND CURRENT STATUS



#### LAYOUT PLAN

#### 3.1. INTRODUCTION

The development of the Dakawa site as the ANC Development Centre commenced prior to finalisation of the 1984 development plan.

Temporary settlement of about 200 to 300 "pioneer" inhabitants existed at the time the 1984 Development Plans were under preparation.

The inhabitants were accommodated either in tents or prefabricated timber houses with communal ablution which still exist in the area known as village V4.

There have been other prefabricated timber houses in groups of 2 & 4 erected at other parts of the Dakawa site.

The physical implementation of the 1984 Development Plan commenced in mid 1984 with the development of infrastructure services and temporary residential facilities.

At present the Development Centre at Dakawa supports a community of about 1200 inhabitants engaged in various activities including technical training, administration, agricultural, industrial and communal activities. However, the designed capacity of the existing residential accommodation is for about 600 - 900 inhabitants.



### 3.2 CURRENT STATUS

Since the initial pioneer settlement in 1983 various phases of the 1984 Development Plan have been designed and built. For other phases detailed designs have been completed but construction has not commenced.

All designing and construction works carried out to date are in conformity with the guidelines as contained in the 1984 Development Plan, with the exception of the prefabricated housing at the village V4.

The various facilities built and commissioned at the Development Centre, Dakawa are as follows:

#### 3.2.1 Infrastructure Services

##### I Road network

- a. main road leading to the Development Centre.
- b. 4 access road linking villages V1, V2, V3, V4, V5, V6, V9, V10 EOC and AGC.
- c. Internal roads for village V2
- d. Internal roads for village V1
- e. Stone crusher plant for construction of Development Centre.
- f. Access road to main administration office block at RHC site and staff houses at VTC (under implementation).

##### II. Drainage

- a. Majority of the storm water drainage channels including reservoir for storm water storage at the Ranch area.

##### III. Water Supply

- a. Temporary water source for villages and centres.
- b. Drilling of 2 bore holes at Wami river for permanent water supply.
- c. 2 Nos 85 cu. m elevated water storage tanks at V1 and V3.
- d. Water distribution to villages V1, V2, V3, V4, IVC3, EOC, VTC AGC and RHC site.
- e. Underground storage tank of 200 cum capacity at EOC, (under implementation)
- f. Domestic water distribution for village V2, V4, EOC and VTC, IVC 1, IVC2, IVC 3, I.2 and I.3.

- Domestic water distribution for village V1 and staff houses at VTC (under implementation.)
  - h. Water supply for houses (PP) and paddocks at the ranch area from existing water line at the settlement and a bore hole in the ranch area (under implementation)
  - i. Water distribution for VTC houses 16 (under implementation).
- IV. Sewerage
- a. Septic tanks and soakage pits constructed at village V2, EOC, VTC and IVC 1.
  - b. Main sewage lines laid from main central area leading to proposed sewage ponds including pumping station.
  - c. Pit latrines erected for prefabricated houses at village V4.
  - d. Waste disposal ponds and main sewer line from village V1 (under implementation).
  - e. Main sewer lines at village V1 and staff houses (16) at VTC (under implementation.)
- V. Main Power Supply
- a. Commissioning of 2 nos. 33KV high tension substation each of 2000 KVA capacity (one damaged due to short circuit).
  - b. 33 KV high tension power line from national grid.
  - c. 11 KV high tension power line and including low voltage distribution lines complete with 7 transformers for village V2, V4, EOC, IVC1, IVC2, visitors camp at IVC3, I.3 and crusher plant.
  - d. Standby generators with total capacity of 200 KVA.
  - e. 500KVA electrical power supply from national grid allocated for Dakawa Centre.
  - f. Low voltage overhead distribution lines complete with transformer for village V1, and ranch area (under implementation).
  - g. Low voltage underground distribution line complete with transformer for main central area (under implementation).
  - h. Low voltage electrical distribution for main administration office block at RHC site and VTC staff houses (under implementation).
  - i. High tension overhead electrical line complete with transformer for houses (PP) at the ranch (under implementation).

### 3.2.2 Villages, Administration, Training, Industrial and Agricultural Facilities

#### I Villages

- a. Villages V4 consisting of 90 prefabricated timber houses accommodating 360 inhabitants with water and electricity distribution but with communal ventilated pit latrines.
- b. Villages V2 consisting of 75 detached/semidetached houses including infrastructure services accommodating 450 inhabitants.
- c. Village V1 consisting of 20 detached/semidetached houses for 100 inhabitants and infrastructure services for 400 to 500 inhabitants (under implementation).

#### II Inter Village Centre (IVC)

- a. Creche for 60 infants at IVC 1
- b. Nursery school for 120 children at IVC 1
- c. Hall/kitchen for creche/nursey school at IVC 1
- d. 4 nos staff houses at IVC 1 for 20 inhabitants.
- e. 9 nos portable cabins for 16 visitors, at IVC3 complete with infrastructure services.
- f. Clinic in prefabricated timber cabins at IVC 2.
- g. Rehabilitation Centre (RHC) in prefabricated timber houses at IVC 2.
- h. Village supply centre at IVC 2.
- i. Prefabricated Hall at IVC 2.

#### III Educational/Technical Institutions

- a. Education Orientation Centre (formerly SOC)
  - i) 2 nos class room blocks.
  - ii) 4 nos dormitory blocks
  - iii) Administration block
  - iv) Main dining hall and kitchen
  - v) Sports facilities (Under Implementation).
  - vi) 9 nos detached and semidetached staff houses
- b. Vocational Training Centre
  - i) 2 nos workshop blocks
  - ii) 1 no. dormitory block
  - iii) Administration block



- iv) 1 classroom block
- v) Main dining/kitchen blocks (under implementation).
- iv) 16 nos detached and semidetached staff houses (under implementation)

#### IV Industrial Centre

- i) Leather/cobblery workshop at I.2.
- ii) Garment factory at I.2.
- iii) 4 nos Residential houses at I.2.
- iv) Mechanical workshop at I.3 .
- v) Precast concrete prefabrication unit at I.3.
- vi) Consturciton adminstration offices offices at I.3.
- vii) Joinery workshop (excluding machinery ) at I.3.
- viii) 2 nos residential houses at I.3
- x) Main construction materials stores at I.3.
- xi) Textile printing workshop at IVC 2.

#### V. Main Administration Centre

- i) Permanent administration offices at site earmarked as RHC complete with water supply line.
- ii) 4 nos prefabricated timber houses at the site earmarked as RHC.
- iii) Access road and main electric line (under implementation)

#### VI Agricultural Activity

- i) Farming on 400 hectres mainly maize and sunflower.
- ii) Temporary dairy shed for 25 dairy cows
- iii) Temporary farm machinery workshop
- iv) Deployment of various commercial farm machinery
- v) Ranching (100 Beef cattle) complete with fencing of ranch area.
- vi) 6 units of prefabricated timber houses at farm machinery workshop area.
- vii) Part of Phase I of AGC which includes machinery hall, open air store, washing place, maize cob drying, heavy machinery hall, workshop, canteen and offices (under implementation).
- viii) Vegetable oil expeller acquired but not commissioned.

#### VII Communal Facilities

- i) Cemetry has been established, 500m east of AGC
- ii) Main library (under implementation)

### 3.3 DETAIL DESIGNS.

In addition to the execution of various facilities described above and stipulated in the 1984 Development Plan, detail designs for the following projects have been carried out.

- a. Infrastructure services for village V.3 including roads, drainage, main sewage collection and pumping to stabilization ponds, electrical reticulation and water distribution.

- b. Rehabilitation of damaged high tension 33KV/11KV, 2000KVA substation. A.
- c. Infrastructure services for agricultural centre including roads, drainage, main sewage collection, electrical reticulation and water distribution.
- d. Detailed designs for primary school.

Note: Detailed studies and designs for the Agriculture Centre were carried out in March 1987 by M/S Norplan A/S. (Appendix 12) and the 1984 Development Plan. However, the studies are reviewed in this Revised 1984 Development Plan taking into consideration practical experience in farming and other facilities developed at Mazimbu.

### 3.4 MAINTENANCE OF PRESENT FACILITIES AND SERVICES.

ANC have maintained various services commissioned at the Dakawa Centre. The present emphasis is placed on the maintenance of the civil works to ensure year round accessibility of the Centre.

This has been made possible due to the availability of machinery and equipment necessary to carry out maintenance of roads, drainage and culverts.

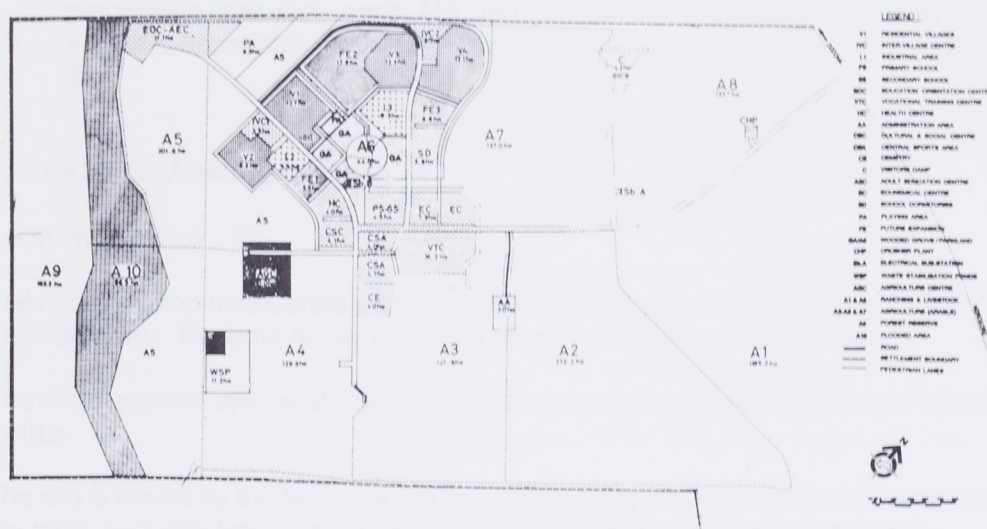
Maintenance of other installations and works such as water distribution, and prefabricated timber houses are being carried out but on relatively smaller scale due to lack of resources.

The students completing training course in building trades at VTC are not adequate to meet manpower requirements for maintenance of all the ANC projects.

ANC has experienced that maintenance of temporary houses & shelters made of prefabricated materials is more costly than the maintenance of conventional building since the life of such materials is limited and at times entails replacement of prefabricated elements.

## RE





## LAYOUT PLAN

## 4.1 INTRODUCTION

The objective of this chapter is to revise the 1984 Development Plan of ANC Development Centre at Dakawa, in the light of the unbanning of ANC and unprecedented political changes taking place in South Africa since early 1990.

Due to the nature of African National Congress as a liberation movement, its aspirations of providing education, training and residential accommodation for its members have always been constrained. This situation has been further aggravated by the ANC's inability to predict with any degree of certainty, the number of people and the duration of their stay in exile vis-a-vis provision of adequate facilities to meet the demand.

The Revised Development Plan puts emphasis on the provision of primary and secondary education, vocational training, residential accomodation for students with supporting social and cultural facilities and infrastructure services.

The total number of students expected to attend educational institutions is planned as follows:

|    |   |     |
|----|---|-----|
| a. | Primary and secondary school students     | 500 |
| b. | Adult students in secondary school        | 200 |
| c. | Vocational Training Centre (VTC) students | 200 |

Additional residential accommodation is planned to alleviate the overcrowding of existing accommodation and to provide accommodation for additional teachers and technical training staff and other support staff.

The proposals and plans presented in this Revised Development Plan have been prepared in consultation with ANC representatives, who have provided M/S Sumar Varma & Associates with all relevant data, policy guidelines and technical information.

## 4.2 PHYSICAL CHARACTERISTICS

### 4.2.1 Location and Size

The ANC Development Centre is situated about 60km north-west of Morogoro town along the Morogoro - Dodoma highway in an area commonly known as Dakawa.

The site measures approx. 2,800 hectares (28 sq. km ) roughly 4 kilometer by 7 kilometers in size.

The site is bound by the Morogoro - Dodoma highway on the east, Wami Prison farm on the north east with farms and abandoned farmland in the north and north east.

On the west lies the Mbigili sisal estate and Mabana village is on the south.

### 4.2.2 Topography

The site is approx. 400 meters above sea level in an undulating plain of the upper Wami River. It is predominantly flat with an average gradient of between 0.4% and 0.5% gradually draining towards the south east.

The major land drainage as proposed in the 1984 Development Plan have been implemented with the exception of two channels in the southern part of the site. This has greatly reduced floods deposits of vegetable solid in certain parts of the development centre.

### 4.2.3 Vegetation

The site, a formally abandoned farmland has light scattered bush and thorn trees in the north and west and a medium thicket in the south east, at the area designated for ranching.

Approximately 400 hectares of land have been cleared and farming has been reinvigorated by ANC in the south/west with maize and sunflower crops.

### 4.2.4 Hydro geological Conditions

The hydro geological conditions of the Development Centre are based on the following:

Hydrological investigations as prepared by M/S NORPLAN A/S, Jan 1990. (Ref. Handing Over Report - RD3).



The geophysical investigation was carried out by the hydrogeology unit under Morogoro Regional Water Engineer.

a. Geology.

Dakawa Development Centre's Area belongs to the Mkata-Wami basin which is an elongated tectonical valley bounded by major faults.

Soils on the basin are dark coloured with mainly five texture sediments, clays loam and clayey and loamy sands which could rarely be distinguished from alluvium deposits by the river Magole and Wami. The deposits were derived mainly from Western mountain ranges the Nguru, Ukaguru and Usagara Mountains.

Boreholes drilled within the area of the Development Centre indicated unconsolidated formation to the depth of 70metres

surface - geo-electric surveys were carried out with the following results.

- i) The resistivity of the first layer varies from 2.5 to 400 ohm meters, which revealed wet clay or hard clays.
- ii) The resistivity of the transition zone ranges widely from 4 to 13 ohm meters which indicated sand formation with saline to fresh water depending on the nature of the aquifer.
- iii) The geo-electric survey conducted indicated that the depth to basement is deeper than 100 meters.
- iv) The V.E.S carried out on the Eastern side of the area along Wami basin indicated less brackish nature of water.

So based on the above observation it was suggested to drill deep well of 60m depth on the Eastern part of the Centre.

b) Hydrology.

From the information available with Morogoro Water supply on hydrological conditions, the general water level ranges from 3m to 10m deep for shallow and 60m-70m deep for deep confined aquifers. Coarse sand and gravels are the water bearing zones.

Investigations carried by Maji, Norplan and Sumar Varma and Associates to this extent give information to determine estimates for main water source and supply.

c. Chemical and Geophysical Investigations.

The boreholes drilled produced saline water with varying degrees of salinity from moderate to high, sometimes necessitating abandoning of boreholes. Two boreholes have been drilled at Wami river with results indicating water suitable for Domestic use.



#### 4.2.5 Climate

The annual mean maximum temperature is between 27°C to 31°C during the hot months of December, January and February. Day temperatures may exceed those of coastal tropical and intermediate tropical zones. The nights are cooler.

During the cool months from May to August annual mean temperature ranges from 15°C to 19°C. The nights can be cold and sometimes chilly, but indoor heating is not required.

Prevailing winds are north east - trade winds between November and April and south east monsoon winds between May and October.

The average mean annual rainfall recorded is between 1100mm and 1400mm.

#### 4.3 DEVELOPMENT AREAS

The Revised 1984 Development Plan anticipates a population of about 2500 inhabitants, primarily engaged in educational and training activities and administration facilities.

The revision focuses on providing primary, secondary, and adult secondary school education and expanding the vocational training facilities to develop manpower potential of the inhabitants.

The 1984 Development Plan was conceived as a community of about 5000 inhabitants, and about 800 houses, spread out in ten villages covering an area of about 218 ha. (2.18sq.km.)

Each village was surrounded by supporting facilities such as inter village centre and industrial areas linked together by a road network and allowing the future growth around the perimeters of the villages. Surrounding open areas of about 2582 ha. (25.82 sq.km) were intended for farming and ranching.

The present population of about 1200 inhabitants consist of students at the Education Orientation Centre (EOC) formerly Student Orientation Centre (SOC), Vocational Training Centre (VTC), and people engaged in administration, construction, industrial and agriculture activities.

The present inhabitants are mainly accommodated in two villages, V2 and V4, EOC, VTC and small numbers at the other centres such as I.2, IVC 1, I.3 and AGC.

The Revised Development Plan is based on a reduced population of about 2500 inhabitants, requiring only four villages, of which three have been partly developed (village V1, 2 & 4). Several other facilities such as Vocational Training Centre, creche, and nursery school have also been developed, or are under construction.

In view of the changing circumstances in South Africa, the revision puts emphasis on the educational & training facilities as required by ANC.

The Revised land use plan therefore takes into account the developed area and concentrates future developments around existing area to achieve compactness. The Revised Plan brings together various residential, educational, social and other facilities within walking distances to improve communication and cohesion in the community.

Existing road network will form the main arteries of communications. An additional road will complete the network. Future growth, beyond the current plan for 2500 inhabitants may take place in areas previously marked for village 9 and 10 where a road already exists and areas earmarked for future expansion (FE).

The Revised Plan provides thick vegetation along roads and pedestrian walkways which screens various areas while separating vehicular traffic from pedestrian traffic.

The central open area surrounded by wooded grove totaling 48 ha. will be landscaped to provide recreation grounds and enhance leisure time of the inhabitants.

The agricultural activities will in principal remain as described in the 1984 Development Plan with variations in types of crops to be grown and animal husbandry.

#### 4.4 AGRICULTURE

Detail studies for agricultural activities together with a comprehensive agricultural centre are described in Chapter 7.

The agriculture facilities at Dakawa are aimed at providing basic training and employment in agricultural activity and to produce agricultural products to meet the ANC requirement for Dakawa and Mazimbu.

Dakawa has adequate land capacity to make agricultural activities economically viable.

Agricultural activities at the ANC Development Centre are planned to operate in close cooperation and co-ordination with the Mazimbu Camp facilities.

##### 4.4.1 Crop Husbandry

Currently maize and sunflower are under cultivation in an area of about 400 hectares. The present yield of these crops indicate additional input is required to achieve increased yield. Also more land should be cultivated to achieve self sufficiency and to supplement Mazimbu's requirements. Whereas the 1984 Development Plan recommended various crops at Dakawa, practical experience and soil conditions indicate that only , maize, sorghum, sunflower, legumes, roots and tuber are more favourable.

Experience has also shown that with adequate water supply fresh vegetable for daily consumption could be grown. Inducement should be given to inhabitants by providing farm inputs such as technical advice, hand implements, seeds, fertilisers etc. to enable them cultivate vegetable gardens in their backyards and surrounding areas.

Various farm machinery is deployed at present for cultivation of crops. The total arable land designated for farming is about 788 hectares of which 400 hectares are under cultivation.

##### 4.4.2 Animal Husbandry and Poultry

At present 10 dairy cows are reared in a temporary shed which has a total capacity of 24 dairy cows.



Another 100 beef cattle for ranching are allocated from the ANC Mazimbu Camp. The ranch has been mostly fenced and water source and distribution are being developed at present for the ranch and houses at the ranch.

A modern poultry is planned for Dakawa in the Revised 1984 Development Plan to meet Dakawa and Mazimbu requirements.

The extent of animal husbandry is limited to rearing of Beef and dairy cattle at Dakawa but with abattoir facilities to be provided at Mazimbu.

#### 4.5 POPULATION AND PLANNING CRITERIA

##### 4.5.1 Population

The Revised 1984 Development Plan is intended to accomodate a total population of about 2500 inhabitants.

The eventual future population of Dakawa Development Centre cannot be determined with precision or any certainty, as it will depend on future development within South Africa and subsequent policies and requirements of the ANC.

The Dakawa Development Centre is not to be regarded as a traditional refugee camp where inhabitants reside in exile and engage in simple activities and supported by external sources.

The Revised 1984 Development plan emphasises ANC needs to provide education and supporting facilities for students.

It is anticipated that about 1080 children and adult of various ages will benefit from educational facilities to be provided at Dakawa. In addition about 1420 persons will be engaged in the technical, teaching, administrative, agricultural, industrial and communal activities.

The students attending studies at Dakawa will be mainly without families, with the exception of a few children residing with parents who will be engaged in various other activities at the centre.

ANC anticipates that the population of 2500 inhabitants will consist of the following:

|                                     | Children/adults<br>in dormitories | Children with<br>parents | Total |
|-------------------------------------|-----------------------------------|--------------------------|-------|
| Creche                              | -                                 | 60                       | 60    |
| Nursery school                      | -                                 | 120                      | 120   |
| Primary and Secondary<br>School     | 500                               | -                        | 500   |
| Adult Secondary school              | 200                               | -                        | 200   |
| Vocational training School<br>(VTC) | 200                               | -                        | 200   |



|  |     |     |      |
|--|-----|-----|------|
| Total students                             | 900 | 180 | 1080 |
| Adult/staff engaged<br>in other activities | -   | -   | 1420 |
| Total Inhabitants                          |     |     | 2500 |

#### 4.5.2 Planning Criteria

The original guidelines of the planning criteria were developed by ANC technical staff in view of their experiences at Mazimbu and also the need and aspirations for resettlement of the future community at Dakawa. These have been followed during the construction of existing facilities.

The ANC has also experienced in the past that due to urgent needs to resettle inhabitants, accommodation made out of temporary materials such as prefabricated timber units have proved expensive to maintain. As such materials, of such specification are discouraged by ANC for use at Dakawa.

#### 4.6 EDUCATIONAL AND TECHNICAL INSTITUTIONS.

There is a need for primary and secondary school education at the Dakawa Development Centre. There is further need to expand the existing Vocational Training Centre and accommodation at Education Orientation Centre to reduce overcrowding of the present facilities.

In addition African National Congress intends to provide adult education at secondary school level to reduce illiteracy and to enable adults to pursue further education.

##### 4.6.1 CRECHE

The Creche is primarily meant for infants whose parents are engaged at the Development centre.

There is at present a Creche operating at IVC 1, originally intended for village V.1 and V.2. The present Creche has a total capacity to care for 60 infants. However, there are presently 35 infants attending the Creche. The average age for admission to Creche is from 2 to 3 years.

It is envisaged that the present facilities will be able to meet the requirements of the Revised Development Plan. Therefore, additional facility is not proposed.

##### 4.6.2 Nursery School

A nursery School is under construction at the Dakwa Development Centre. In the Revised Development Plan 120 children will require nursery school education when the total population of 2500 inhabitants is attained.

The nursery school may also provide education for children without parents. However, they will not be accommodated within the nursery school.

African National Congress will arrange for guardians to provide communal accommodation for children without parents.

Nursery school education is for 2 years from the age of 4 upto 6 years of age.

#### 4.6.3 Primary and Secondary School (PS-SS).

ANC plans to provide primary and secondary school education for 500 students at the Dakawa Development Centre.

The primary and secondary school education will be provided primarily for students selected from South Africa who would otherwise be denied the opportunity within South Africa due to lack of adequate facilities.

The primary and secondary school facilities will be combined at one centre with common administration facilities. The boarding accommodation will be provided near the school with common dining and kitchen facilities both for the primary and secondary school students.

The curriculum for primary school education will be based on continuous studies of 5 years for children between the age of 7 and 12 years. At present in South Africa the primary school education is divided into 2 years of lower primary school and 3 years of higher primary school.

The secondary school education will be for 5 years for students from the age of 13 to 18 years. The secondary school education will be in two levels, a lower secondary school and a higher secondary school equivalent to "O" Level secondary school education.

#### 4.6.4 Adult Education Centre (AEC)

There is a growing need among adults to complete formal secondary school education, as the majority of the South Africans are unable to pursue secondary school education due to apartheid policies regarding education.

The adult secondary school education at Dakawa is not to be regarded as a conventional part time adult education classess. At Dakawa Development Centre 200 adults will have the opportunity to complete full time school education. Successful students may also continue to pursue higher education.

#### 4.6.5 Vocational Training Centre (VTC)

The Vocational Training Centre has been established at Dakawa to train 40 candidates in electrical, plumbing, masonry and joinery to supplement construction of the Development Centre. The desire and need to attain vocational training is on the increase among the ANC members.

ANC may increase the present facilities to introduce new courses at the Vocational Training Centre such as mechanics and tailoring.

The Vocational Training Centre is planned to train a total 200 students in various trades.



ANC have also planned to increase residential accommodation for both the staff and students within the centre.

The expansion of the Vocational Training Centre will be adjacent to the existing facilities which are situated as designed in the 1984 Development plan.

Vocational Training is intended for candidates who are 16 year of age and above.

The types and duration of the future courses at the VTC were worked out by ANC on the basis of the need to supplement manpower for construction requirements and other needs.

#### 4.6.6 Education Orientation Centre(EOC)

The Education Orientation Centre was established at Dakawa since 1982 when it was known as Student Orientation Centre (SOC).

The purpose of EOC is to assess capabilities and potential of students and adults arriving at Dakawa.

The initial time of assessment of students is minimum 6 months after which period they are placed in various institutions, schools and centres.

With the unbanning of African National Congress it is anticipated that assessment of ANC members to be selected to pursue educational and training opportunities will be carried out within South Africa.

The present EOC has four classrooms and four dormitory blocks in addition to the supporting facilities such as offices, kitchen/dining. There are at present over 200 persons of various ages and sex attending orientation courses at EOC.

However the present facilities are not adequate as they are designed to accommodate only 128 students of different ages or 64 adults.

As ANC plans to assess the students in South Africa, the EOC facilities in future will supplement as adult secondary school facilities. ANC is, therefore, planning to increase dormitory accommodation at EOC to accommodate a total of 200 adults.

#### 4.6.7 Cultural and Social Centre (CSC)

A Cultural and Social Centre at Dakawa is planned to provide extra curricular activities and facilities for various educational and training institutions. The Cultural and Social Centre is also intended to bring closer the Dakawa community by providing cultural, social and recreation amenities to other inhabitants.

The Cultural and Social Centre complex will consist of :

1. Small multipurpose auditorium including for indoor sports
2. Main lending library
3. Silk screen workshop



4. Art studio for graphic arts/sculptors.
5. Photographic, video and sound studio
6. Mini supermarket and shop for Handicrafts etc.
7. Recreation facilities

#### 4.7 ECUMENICAL CENTRE

The African National Congress plans to provide facilities for religious activities at the Centre. These will be provided at the Ecumenical Centre, designed to accommodate different denominations.

The Ecumenical Centre is planned to accommodate a total of 100 persons in one congregation.

#### 4.8 CENTRAL SPORTS AREA.

The central sports area at Dakawa is intended primarily to be shared by primary and secondary schools and Vocational Training Centre students. Sports fields of international standards are intended to supplement Educational and training centres sporting activities. The Central Sports Area will also be used as main play grounds for the Development Centre's adults inhabitants and will enhance the meeting of sports enthusiasts.

CHAPTER 5  
ADULT POPULATION

## 5.0 ADULT POPULATION

### 5.1 INTRODUCTION

It is estimated that about 1420 adults will be residing at the Development Centre.

Many of the adults will be engaged in providing educational and technical training, commercial and administration services, while others will be involved in agricultural and industrial activities at the Development Centre.

Of the 1420 adults it is estimated 50% are married couples, ANC and police are married women may engage in part time employment or voluntary work.

In the Revised Development Plan, teaching and training institutions will be the major employment areas followed by community administration, Agriculture, light industry, commercial services, construction and maintenance units.

### 5.2 PHYSICAL EMPLOYMENT AT PARAKA DEVELOPMENT CENTRE

#### 5.2.1 Community Administration

The main administrative offices of the Centre are provided for in the main building which will be the main administrative offices of the Centre. The main administrative offices will be the main administrative offices of the Centre. The main administrative offices will be the main administrative offices of the Centre. The main administrative offices will be the main administrative offices of the Centre.

## CHAPTER 5 ADULT POPULATION

The following are the major employment units at the Community Administration Centre.

- a. Main Community Administration building.
- b. Main building for the Development Centre.
- c. Administration of the Centre.
- d. Administration of the Centre.
- e. Administration of the Centre.
- f. Administration of the Centre.
- g. Administration of the Centre.
- h. Administration of the Centre.
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- n. Administration of the Centre.
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- r. Administration of the Centre.
- s. Administration of the Centre.
- t. Administration of the Centre.
- u. Administration of the Centre.
- v. Administration of the Centre.
- w. Administration of the Centre.
- x. Administration of the Centre.
- y. Administration of the Centre.
- z. Administration of the Centre.

#### 5.2.2 Light Industrial Development

ANC have established a permanent and light industrial building which will be the main industrial building of the Centre.

## 5.0 ADULT POPULATION

### 5.1 INTRODUCTION

It is estimated that about 1420 adult will be residing at the Development Centre.

Many of the adults will be engaged in providing educational and technical training, communal and administration services, while others will be involved in agricultural and industrial activities at the Development Centre.

Of the 1420 adults it is assumed 50% are married couples. ANC anticipates that married women may engage in part time, full time employment or vocational, handicraft activities.

In the Revised Development Plan, teaching and training institutions will be the major employment areas followed by community administration, agriculture, light industry, communal services, construction and maintenance units.

### 5.2 PHYSICAL EMPLOYMENT AT DAKAWA DEVELOPMENT CENTRE

#### 5.2.1 Community Administration

The main administration offices at Dakawa is intended to receive and accommodate various members at the Development Centre. The main administration centre will also administer the construction and day to day operations of development centre. There are various departments within the community administration structure that are responsible for administration of the Development Centre.

The following are the major departments within Community administration centre.

- a. Main Community Administration for students and inhabitants
- b. Health Centre for the Development Centre inhabitants and surrounding villages.
- c. Administration of Educational and Training Institutions.
- d. Administration of main supply stores, infrastructure services and building maintenance unit.
- e. Administration of fire fighting ,sewage and solid waste management unit.
- f. Administration of main production units such as light industries, agriculture and workshops.

#### 5.2.2 Light Industrial Development.

ANC have established a garment and leather factory, textile printing workshop and precast concrete building component unit to supplement construction of the Development Centre.



ANC intends to introduce light industries for agricultural produce such as:

- Vegetable Oil Mill
- Milling of Agriculture produces.
- Animal and chicken feed mill.

#### 5.2.3 Agriculture

The Dakawa Development Centre has a potential for Agriculture activities to provide employment and supplement food requirement for both Mazimbu and Dakawa

It is estimated that about 100 persons will be involved in fully developing agricultural potential of the Dakawa Development Centre.

#### 5.2.4 Health Centre

There is small clinic established at present in a prefabricated timber cabins at village V4. The facilities at the clinic are not adequate to meet the demands of the future population of the Development Centre and nearby villages.

The nearest referral hospital is at Morogoro about 60km from Dakawa.

The Revision of Development Plan takes into account the need to provide permanent Health Centre capable of providing preventive and curative medical facilities for the inhabitants of the Development Centre and nearby villages at Magole, Mbigili and surrounding farms.

- Out-patient and in-patient departments
- Maternity clinic with pre and post natal facilities
- Emergency theatre for minor accidents
- Pharmacy , laboratory

In addition there will be 2 emergency ambulance vans stationed at the Health Centre to provide emergency transport to Morogoro town referral hospital.

The Health Centre will be managed by an ANC doctor, medical assistants, nurses and visiting specialists.

#### 5.2.5 In - Transit

The Development Centre will also have provision of accomodating about 300 adults who would be awaiting to pursue further higher education abroad or awaiting return to South Africa upon completion of Secondary School education and Vocational training at the Development Centre and at mazimbu.

## 5.2 THE REVISED LAND USE PLAN

### 5.1 INTRODUCTION

The revised land use plan is based on revised requirements of the Defense Center and focuses on maintaining existing facilities and services and providing additional and better facilities to meet the priority of existing facilities and services.

As shown in Chapter 2, the land use plan is based on the requirements of the Defense Center. There are other services in the area that will require to be upgraded to meet the requirements.

The land use plan is based on the requirements of the Defense Center and the 1984 Development Plan.

### 5.2 VILLAGES AND RESIDENTIAL AREAS

At present, Village VI is the largest and most of Village VI is under development. The land use plan for Village VI has been designed to meet the requirements of the Defense Center and the 1984 Development Plan.

The villages are designed to provide a total of 100 to 150 houses to provide a total of 400 to 500 residents.

## CHAPTER 6

## THE REVISED LAND USE PLAN

As shown in Chapter 2, the land use plan is based on the requirements of the Defense Center and the 1984 Development Plan.

The land use plan for Village VI is based on the requirements of the Defense Center and the 1984 Development Plan.

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### 6.1 VILLAGES

The land use plan for Village VI is based on the requirements of the Defense Center and the 1984 Development Plan.

The land use plan for Village VI is based on the requirements of the Defense Center and the 1984 Development Plan.

## 6.0 THE REVISED LAND USE PLAN

### 6.1 INTRODUCTION

The revised land use plan is based on revised requirements of the Dakawa Centre and focuses on maintaining existing facilities and services and providing educational and training institutions within the proximity of existing facilities and services.

As described in Chapter 3 various infrastructure services have been established at Dakawa. There are other services at present such as water and electricity that will require to be upgraded to meet future demand.

The basic principles of planning and technical specifications will be maintained as described in the 1984 Development Plan.

### 6.2 VILLAGES AND RESIDENTIAL AREAS

At present village V2 is developed and part of village V1 is under implementation. The infrastructure services for village V3 have been designed in detail. Village V4 has been established with prefabricated timber houses.

The villages are designed to accommodate between 80 to 100 houses to provide accommodation for 400 to 500 inhabitants.

It is anticipated that Dakawa Centre will require to provide accommodation in villages for 1600 inhabitants including children with parents.

ANC have adopted an average plot size of 400 sq.m as proposed in the 1984 Development Plan for residential houses.

The cluster of village V1, V2, V3 and V4 in the Revised 1984 Development Plan is intended to merge into a residential belt with one access road proposed in the outer periphery together with pedestrian and cyclist lanes interconnecting villages with other centres.

There will be in addition about 13 hectares for individual garden patches between village V1 and V3 boundaries.

There will also be common communal green areas and playing fields intended for every 80 to 100 houses.

Existing prefabricated houses at Village V4 will be replaced in future with permanent houses. In the meantime, these will be used for emergency accommodation. At present studies will be carried out to improve sewage collection from the pit latrines erected at V4.

#### 6.2.1 House Types

ANC have developed various two and three bedroom detached and semidetached house plans.

The average area of the houses range from 67 sq.m for 2 bedroom semidetached houses and approx. 85sq.m for 3 bedroom semidetached houses.



### 6.3 EDUCATION AND TRAINING FACILITIES

#### 6.3.1 Creche

A creche has been established at Inter village centre (IVC 1) near village V2.

The Creche is capable of accommodating 60 children. It is envisaged that the present Creche will be able to meet the requirements of the revised population.

#### 6.3.2 Nursery School

A Nursery School is under construction and is expected to be in operation by the end of 1990. The Nursery School is near the Creche and is intended to share a common kitchen with the Creche. The designed capacity of the Nursery School is to provide nursery education for 120 children.

#### 6.3.3 Primary and Secondary School (PS/SS)

The primary and secondary school facilities will be combined as one complex.

The primary and secondary school will be located opposite the central sports area along the main road.

The primary and secondary school facilities will consist of 20 classrooms for 25 students each. In addition there will be science laboratories, geography, history and art room.

A reference library cum reading room, teachers room and other supporting facilities will be provided.

The primary and the secondary school classrooms and other teaching areas will be separated by a common administration block forming a link between the two schools.

The residential accommodation for primary and secondary school students will be on the north east of the school between villages and the school.

The students will reside in dormitories with 8 bedrooms and a common room per block. There will be a maximum of 4 students accommodated in each room. 2 dormitory blocks will share an ablution block.

The common dining room and kitchen will be provided adjacent to the dormitories.

A total of 16 blocks of dormitories will be required for the students and one wardens house each for primary school and secondary school students will be provided.

The design for primary and secondary school facilities and the dormitories have been developed by ANC technical staff.

#### 6.3.4 Vocational Training Centre (VTC)

A Vocational Training Centre has been established with present intake of 40 students.

The present vocational training centre will be expanded to provide training facilities for 200 students. Additional courses in mechanics and tailoring may be introduced.

Two workshop blocks, construction sheds and one classroom blocks are to be added at the Vocational Training Centre site to cater for increased number of students and additional courses.

There is at present one dormitory block established at VTC for 16 trainees. In addition 12 dormitory blocks will be required for a total of additional 184 trainees intended to receive vocational training at Dakawa.

ANC has embarked upon providing housing for Vocational Training Centre staff at the Development Centre, Dakawa. 16 staff houses are under implementation at present

#### 6.3.5 Adult Education Centre (AEC) and Education Orientation Centre (EOC)

The Adults Secondary School Education (AEC) facilities will be introduced at the present Education Orientation Centre (EOC).

Facilities at EOC will be expanded by adding two classroom blocks with two classroom each and science laboratories and other supporting facilities.

The adult students residential accommodation will be expanded by adding 9 dormitory blocks of 8 bedrooms with one common room per block. There will be a total of 2 adults accommodate in each bedroom.

The recreation facilities such as sports grounds are located at site between the EOC and village V1, whereby the village community can share and participate in the sporting activities.

#### 6.3.6 Central Sports Area. (CSA)

A central sports area meant to supplement facilities for school and training centre will be designed and located west of VTC and south of the primary and secondary school.

The central sports area will comprise of sports fields for soccer, rugby, basket ball, tennis, volley ball, hockey, athletic field etc. Gymnasium and indoor games will be accommodated at the Cultural and Social Centre multipurpose auditorium.

The African National Congress encourages sporting activities among its member. There will be a seating stand erected to accommodate 200 spectators for soccer and small stands for 20 persons will be provided for smaller fields. 8.7 hectares have been earmarked for the central sports area.



#### 6.3.7 Cultural and Social Centre (CSC)

The cultural and social centre will be situated adjacent to the primary and secondary school. The cultural and social centre will consist of multipurpose auditorium for 600 persons, recreation facilities such as bar, terraces, silk screen workshop, studios for art, sound and video and shops for selling handcrafts. A mini-supermarket will also be built adjacent to the culture and social centre to enable the inhabitants of the Dakawa Centre and nearby villages buy their necessities. Approx 1000sq.m of built-up area will be required to provide facilities at the cultural and social centre.

#### 6.4 COMMUNITY ADMINISTRATION CENTRE

There is an administration block constructed at the site previously meant for rehabilitation centre, south east of the Vocational Training Centre. The administration block is intended to house heads of various departments of the Community Administration Centre.

The main supply store, fire station, fuel depot, sewage and solid waste management unit will be situated at the present industrial area, I.3 together with the existing workshop for vehicles. The present construction stores will be converted into main supply store when the Revised 1984 Development Plan is implemented in full. However, a containerised cold store is required for storage of fresh produce such as meat and vegetables that will be supplied from Mazimbu Camp.

A fire fighting tender and sewage and solid waste disposal vehicles are required to provide these essential services.

The construction department and support staff of main community administration will continue to operate from the offices at I.3

#### 6.5 LIGHT INDUSTRIAL DEVELOPMENT

There are garment and leather industries established at present. These light industries at industrial area I.2 will continue to provide employment at the Development Centre. ANC does not intend to expand the capacity of these industries.

The prefabrication of precast concrete building materials at industrial area I.3 will continue for construction of development centre. However upon completion these production units will be reviewed.

ANC intends to establish a vegetable oil mill, milling of agricultural produce etc. These small scale industries will be located at the agricultural centre and are primarily intended to supplement the needs for both Dakawa and Mazimbu.

#### 6.6 ENVIRONMENTAL PROGRAMME

ANC will enhance environmental awareness by providing education in environmental protection for the inhabitants of the Development Centre.



ANC plans to convert an existing open barn at EOC into a tree and plant nursery to encourage afforestation facilities and environmental programmes.

The Revised 1984 Development Plan has put emphasis on bringing closer the various existing and proposed facilities by constructing pedestrian and cyclist lanes interconnecting these facilities. The communication roads and lanes will be planted with shade and other trees merging into a thick wooded grove and landscaped parkland forming the focal point of the Residential Village and Education and Social Centres. The wooded grove is intended to provide meeting grounds for Recreation purpose to enhance social harmony amongst the inhabitants at the Development Centre. At present there are few social facilities at the Development Centre whereby the inhabitants can socialise and intergrate in recreational activities.

When developed the grove will have wooded parkland and grassed area covering approx. 47.7 ha. There will only be pedestrian walkways and cyclist lane within and passing through the grove to reduce communicating distances for the inhabitants.

## 6.7 INFRASTRUCTURE SERVICE.

The Revision of 1984 Development plan takes into consideration the existing Infrastructure Services which have been built and commissioned and those which need to be upgraded and extended to meet the future demand when the Development Centre has been fully developed.

### 6.7.1 Water Supply.

#### I. Main Water Supply and Distribution.

With the intended total population of 2500 inhabitants the Development Centre will require about 607,500 litres of water per day for domestic consumption. The total requirement is based on average consumption of 135 litres per day per person with peak factor of 1.8

Based on hydrological survey carried out by M/S Norplan A/S, two boreholes have been drilled at the Wami River bed about 12km from development areas of the Dakawa Centre intended to provide permanent source of water for domestic consumption. The preliminary water tests carried out indicate that water from the bore hole is suitable for domestic use. Further test to establish safe yield and microbiological tests are in progress.

A 150mm dia. Water line is planned to be laid from the borehole and connected to the existing main water distribution line along the Development Centres main road when all tests are finalised and found positive. The design of water line takes into consideration for unforeseen increase of inhabitants population from 2500 to 5000 inhabitants.

At present the Development Centre is provided with water from a temporary source from boreholes west of EOC. There is also an old local water authority water line running across the Development Centre from the nearby Mandera Village. However,

water from this source cannot be utilized for Dakawa Development Centre as it was designed with a capacity to serve three villages i.e. Mandera, Mbigili and Mabana Villages.

There are at present 2 elevated storage tanks of 85 cu.m each at village V1 & V3 and ground water storage tank of 200 cu.m capacity being built at EOC.

To meet the future requirements, additional three elevated water tanks of 325 cu. m capacity are intended to be built to meet the total storage requirement of 695 cu. m. These water storage excludes water for Agriculture Centre.

Domestic water storage requirement for the Development Centres Domestic need is based on the following:

- 12 hrs emergency storage capacity 304 cum
- 10 lt/sec for 2 hrs fire fighting requirements 72 cum
- 25 % of maximum daily consumption for equalising storage. 152 cum
- Total water storage requirements 529 cum.

In addition a ground water storage tank of 200 cu.m capacity and elevated water tank of 100 cu.m capacity will be built at the Agricultural Centre to meet the AGC. Water requirements.

The total present and future water storage capacity of the Development Centre will be:

|               | Location    | Capacity | Status  |
|---------------|-------------|----------|---------|
| i. Elevated   | V1          | 85 cu.m  | Built   |
| ii. Elevated  | V3          | 85 cu.m  | Built   |
| iii. Elevated | VTC         | 240 cu.m | Planned |
| iv. Elevated  | School      |          |         |
|               | Dormitories | 85 cu.m  | Planned |
| v. Elevated   | AGC         | 100 cu.m | Planned |
| vi. Ground    | AGC         | 200 cu.m | Planned |
| vii. Ground   | EOC         | 200 cu.m | Built   |
| Total:        | 7           | 898 cu.m |         |

## II Secondary Water Source.

There is an existing borehole near EOC (Plot 18) which is at present the temporary water source for the Development Centre. On establishing the main water supply from Wami river bed the temporary water supply from the EOC borehole will be maintained as an emergency source.

There are two water lines for the Ranch area under construction. One line is intended for paddocks where water is pumped from the borehole drilled at the ranch area. The other line is meant for the houses at the ranch and extended from the existing local water authority line.



### III. Farm Irrigation Water Source

Water for irrigation activities is intended to be drawn from waste stabilisation ponds presently under construction about 200 m south of AGC

The waste stabilisation ponds will yield a maximum of 330 cum/ day of treated waste water for irrigation when the Development Centre is fully developed.

The waste stabilisation ponds have been designed taking into consideration future need of water for irrigation purposes.

There is an existing storm water storage pond of about 1000sq. m east of village V7 in the ranch area which can be utilised for irrigation purposes.

Additional storm water storage ponds is intended to be built south of the main Administration office block to supplement future supply for irrigation.

#### 6.7.2 Road Network.

The majority of the main Access roads have been built in accordance with the 1984 Development Plan.

Due to revised 1984 land use plan resulting into scaling down of development areas only one access road is planned to be built in the Revised Development Plan.

The Revised 1984 Development Plan has put emphasis on bringing closer the various villages and village centres by proposing pedestrian walkways combined with bicycle lanes interconnecting the Development Centre facilities. The pedestrian walkways are also intended to reduce walking distance between various villages and centres.

The technical specification for the construction of the roads and pedestrian walkways will remain as proposed in the 1984 Development Plan.

The following access road and pedestrian walkways with bicycles lanes are intended to be built.

- 5m wide access road will link village V1 & V3 on the North to the existing access road leading to main central area.
- 3m wide pedestrian walkways and bicycle lane will inter link various villages with Centres on the periphery and within the wooded grove.

In addition 5m wide internal village roads for village V3 will be built.

Existing road network is built with murrum wearing course on the surface. The murrum wearing course is showing some good results but requires regular replacement and grading.

Future access roads, and pedestrian walkways will be constructed with similar materials.



Pedestrian footpaths to buildings within villages or other centres are proposed to be laid with precast concrete slabs.

#### 6.7.3 Storm Water Drainage

The revised 1984 development plan has placed emphasis on maintenance of storm water channels to provide year round accessibility.

The present storm water channels in the proposed grove and parkland will be modified to form a landscape feature at the grove.

There will be a trapezoidal open water channel constructed at the north of Primary/ Secondary School and ecumenical center draining stagnant water away from the area.

There will be an additional storm water storage pond built at the south of the main administration block.

#### 6.7.4 Sewage Systems

With the identified water source for Domestic water supply, proposed villages and activity centres will be provided with the water closet sanitary facilities. These will be connected to the sewer system leading to the waste stabilisation ponds.

In view of main sewerage system, 4 pumping stations in addition to the existing ones are intended to be built to serve villages V3 & V4, Industrial area I.3 and student dormitory area.

The main administration office block at former RHC site will be connected to the main sewer at the VTC.

Cesspit emptier vehicles are also intended to be deployed at the Development Centre to facilitate emptying of existing septic tanks at village V2, EOC, IVC 1 and I.1.

The cesspit emptier vehicle will also be used at present to empty the communal ventilated pit latrines at village V4.

Studies are planned to be carried out to improve sewage disposal from the ventilated pit latrines at the village V4.

#### 6.7.5 Solid Waste Management

Solid waste collection & disposal is intended to be administered and managed by the main community Administration Centre.

The collection of solid waste (garbage) will be carried out by refuse disposal vehicle on a regular basis.

It is estimated that minimum of 1,250 kg per day of solid waste will be generated by the Development Centre inhabitants i.e about 5kg/person/day.

The inhabitants of the Development Centre will be made aware of the environmental pollution aspects so that communal solid waste is stored in proper bins and areas awaiting collection.

The location of solid waste disposal tipping site will be studied taking into consideration existing borrow pits vis a vis ground water pollution.

#### 6.7.6 Energy Source

##### i) Mains Electrical Power

At present ANC have commissioned a 33KV high tension line from the Electrical main line along Dodoma -Morogoro highway.

Two 33KV, 2000KVA substations to meet the Development Centre requirements are also commissioned as designed in the 1984 Development Plan.

The present electricity supply for the Development Centre is limited to maximum 500KVA. The 500 KVA is sufficient to meet the present and future demand for the Dakawa Development Centres anticipated developments for up to middle of 1992.

To meet the future requirement of the Revised Development Plan, electrical power of peak load of 1500 KVA will be required for the Development Centre.

ANC intends to pursue with the local authority with anticipation of increasing the present limit of 500 KVA to the required level.

The following 3 transformers are planned to be installed:-

- Village V3, 11/0.4 KV, 315 KVA
- Primary and secondary school dormitory 11/0.4 KV, 100 KVA
- Agriculture Centre 11/0.4 KV, 200 KVA

11KV low voltage overhead and underground distribution lines are required to be extended from the existing overhead lines to provide power, lighting within village V3, Primary and Secondary School students dormitory area, Agricultural Centre, VTC & EOC extensions.

ANC have acquired and maintained several generators with a total capacity of 200 KVA. The generators are at present providing emergency lighting during power cuts.

The ANC inhabitants are provided with electrical cookers for domestic use.

##### II) Oil Products.

Gasoline, diesel oil, are presently in use at Dakawa Development Centre mainly for transportation, agricultural machinery and equipment and stand-by generators. Kerosene is used for cooking and lighting on emergency basis. At times, their availability is irregular thus making them unreliable sources of energy. In order to



maintain the regular supply, storage tanks are intended to be built to supplement present fuel depot at industrial area I.3.

### III) Solar Energy.

Energy source derived from solar power cells would have been ideal due to tropical location of the Development Centre.

The capital and maintenance costs for solar powered equipment is higher and prohibits replacement of conventional powered equipment such as from electricity mains, petroleum fuels etc.

At present the ANC has decided to install a solar powered water pump to pump water from a borehole to the Ranch area, and also study the efficiency of the equipment.

### IV Methane Gas.

Tanzania has discovered methane gas reserve to meet commercial exploitation.

Methane gas is an efficient source of energy for heating and cooking.

ANC intends to use methane gas for cooking in kitchens located at Education and Training Institutions, VTC and students dormitories (SD).

### V. Wind-Power.

The 1984 Development Plan proposed utilisation of wind powered turbine for pumping water.

The normal wind speed in the Dakawa area is low.

In the Revised 1984 Development Plan power from wind turbine is not considered as a suitable alternative source of Energy.

### VI. Bio-Gas Energy.

Bio gas production in Tanzania is at an experimental stage. Experiments carried out in Arusha and other parts of the country indicate satisfactory results of bio gas production on small scale.

At the Development Centre Dakawa, development of bio-gas production to supplement methane gas for cooking will be considered when the Agricultural Centre and ranch are fully developed.

### 6.7.7 Telecommunication.

Preliminary map studies have been carried out by the telecommunication authority who have proposed a Radio link to establish external telecommunication at the Development Centre.



A low capacity 2 megabit per sec. digital UHF Radio (2 hop link) with 30 channel capacity will be needed to meet requirements of the future community at the Development Centre.

The low capacity UHF Radio will be equipped with Multiplex and speech plus 1 duplex equipment to provide one telex, telegraphic line and telephone/telefax facilities.

Other auxiliary equipment such as towers, antenna, power supply (solar) and spares and accessories will be installed. Training for maintenance of equipment will be required.

There will be a local or internal telephone distribution lines connected from main switchboard or local exchange. The main telephone exchange unit and antenna tower will be installed and an airconditioned accommodation will be provided for the radio and local exchange equipment.

The local exchange will be capable of handling :-

|   |                 |
|---|-----------------|
| • Village accommodation (V1, V2, V3 & V4) | 20 lines        |
| • EOC                                     | 2 lines         |
| • Agriculture Centre                      | 3 lines         |
| • Main administration offices             | 8 lines         |
| • Industrial area at I.1                  | 3 lines         |
| • Creche and Nursery School               | 2 lines         |
| • Primary and Secondary School            | 3 lines         |
| • Support administration offices at I.3   | 5 lines         |
| • Health Centre                           | 1 line          |
| • Cultural and Social Centre              | 3 lines         |
| • Vocational Training Centre              | 3 lines         |
| • Total                                   | <u>53 Lines</u> |

The internal distribution for the local exchange will be over-head telephone lines which will be laid to meet the telephone authorities requirements.

## 6.8 MAINTENANCE

The Revised Development Plan puts emphasis on establishing a comprehensive maintenance programme for all facilities and services at the Dakawa Development Centre.

ANC has decided to form an independent department to carry out maintenance of various facilities and services. The maintenance department will operate in cooperation with the construction department.

At present all maintenance works are carried out by the construction department.

African National Congress intends to engage qualified personnel supported by technical staff selected from the candidates completing vocational training. Maintenance programme will be prepared on the following basis :-

#### 6.8.1 Infrastructure

##### i) Roads and Storm Drainage Channels

Grading of roads and cleaning of drainage channels to be carried out three times a year and before the rains. In addition the murram surface course to be relayed once a year.

##### ii) Water and Electricity Distribution

Periodic checking and monitoring including necessary maintenance of water and electricity installations to be carried out on monthly basis or when reported. Solar powered water pump installed will require to be cleaned by wiping twice a week the solar cell panels.

Maintenance of High tension electrical installation will be reported and carried out in consultation with the local electricity authorities.

##### iii) Sewage

The sewage installation such as septic tanks, ventilated pit latrines will be emptied by cess pit emptiers as and when required. The main stabilisation ponds will be checked and cleaned regularly. The final treated waste water will be used for irrigation.

##### iv) Telecommunications

The maintenance of the telecommunications installation will be reported and carried out by the local telecommunications authority.

The solar powered equipment to be installed will require to be cleaned by wiping twice a week the solar cell panels.

#### 6.8.2 Building

The electrical, plumbing and drainage installations within the Buildings will be periodically checked and maintenance carried out as and when required. The internal wall surfaces will be repainted every 3 years.

All educational and training institutions together with supporting dormitories, dining hall, kitchens, residential houses will be fumigated once a year.

## CHAPTER 7

### AGRICULTURAL ACTIVITY



## 7.0 AGRICULTURAL ACTIVITY.

### 7.1 INTRODUCTION

This chapter reviews the 1984 agricultural proposal by M/S Norplan A/S of Oslo, Norway.

This chapter further takes into consideration discussions held with the ANC farm manager and ANC agriculture adviser Mr Finn Flensted Nielsen and proposes the revised 1984 Agriculture proposals.

The Revision of agricultural proposal is contained in three parts.

- a. The 1984 (& 1987) agricultural proposal by M/S NORPLAN A/S.
- b. Present status.
- c. Revised of 1984 agriculture proposal.

### 7.2. THE 1984 AGRICULTURE PROPOSAL BY M/S. NORPLAN A/S.

#### 7.2.1 Brief Description

The 1984 agriculture proposal by M/S Norplan, A/S was based on meeting the requirements of a population of 5000 inhabitants for the Dakawa Development Centre.

An agriculture expert from MS Norplan A/S had made two visits, one in dry season in 1983 and the other in rainy season in 1984 and had consultations with ANC farm manager, which enabled preparation of the Agriculture proposal.

#### 7.2.2 Agriculture Farmland

Of the 2800 hectares of land at Dakawa about 2600 hectares were found to be suitable for Agricultural activity.

The 2600 hectares were divided as follows.

- |                                     |          |
|-------------------------------------|----------|
| • Horticulture and crop production. | 867 ha.  |
| • Live stock (A8)                   | 120 ha.  |
| • Ranching (A7)                     | 1373 ha. |
| • Fuel energy forest (A9)           | 153 ha.  |
| • Riverbank Area (A10)              | 96 ha.   |

The proposal of various crops recommended to be grown at the Development Centre was based on preliminary results of the soil conditions and prevailing climatic conditions.

### 7.2.3 Production Characteristics

Dakawa Development Centre is characterised by two rainy seasons, short rains between December and January and long mansoon rains between March and June. The period from July to November is considered as a dry period.

The agricultural planning was based on rainfed crops and the dry period crop's improved by irrigation.

Crop rotation, shifting, cultivation, single, multiple cropping, and inter cropping principles were recommended.

### 7.2.4 Crop Production

A Wide range of crops and fruit trees were recommended to be grown at the Development Centre. The length of cropping season, fertiliser applications, chemical components, silage and cropping system, plant protection, harvesting and storage were considered in preparation of recommended crops.

The following crops were recommended:

- a) Cereals: Wheat, Maize, Sorghum, Rice.
- b) Legumes: Beans, Cowpeas, Soyabeans and Groundnuts.
- c) Oil Crops: Sunflower
- d) Rootcrops: Cassava, Sweet Potatoes and Irish Potatoes.
- e) Vegetables: Chinese Cabbage, White Cabbage, Lettuce, Spinach, Onions, Sweet Pepper, Cucumber, Carrots, Spring Beans, Tomato, Eggplant and Green Peas.
- f) Fruits: Bananas, Citrus, Mangoes, Pawpaw, Avacado, Pear, Guava and Pine-apple.
- g) Cash Crop: Cotton.

### 7.2.5 Mechanisation

It was proposed that various farm mechnery and equipment will be required to achieve fully the farm crop production.

Farm machinery and equipment workshop was intended to be built at the Agriculture Centre.

The following farm machinery were Required:

- 6 tractors of 100 HP
- 9 tractors of 50-75 HP

- 2 bulldozers (for bush clearing)
- 4 pairs, tractor hoes for weeding
- 3 silage highlift trailers
- 1 grader
- 6-8 high capacity planting machine (for short season)
- 4 combine harvesters
  - 3 high capacity 12 metre wide sprayers
  - 1 mobile water tank (2000 lt. capacity)
  - 6 harrows 6 metre wide
  - 6 trailers (6-8 tonnes)
  - 1 manual threshing machine
  - 1 hay press baler machine
  - 4-5 Knapsack sprayers for berries
  - 2 precision sowing machines for vegetable sowing
  - 2 grass/silage harvesters
  - 3 fertiliser machines
  - 2 fencing machines
  - tools/accessories e.g. spades, rakes, forks etc.

The machinery and equipment would be heavy duty for large scale farming.

In addition irrigation methods were required for vegetable farming and animal husbandry.

Building of earth dam at Magole river bed south of village V1 and V2 was to be studied.

#### 7.2.6 Animal Husbandry & Production.

Animal husbandry and production was based mainly on Development Centres meat, egg and milk requirements.

The animal husbandry was further encouraged by the possibility of utilising vast tract of land for ranching on the east and south east of the Development Centre.

Cattle, goats, sheep, pigs and broilers were intended to be raised for meat production.



200 Holstein-freisen dairy cows were to be reared for milk production.

5000 egg layers were intended to be raised to meet the egg requirements.

50000 boilers will be raised in 5 cycles per annum to meet the poultry meat requirement.

#### 7.2.7 Agriculture Centre.

Agriculture Centre covering an area of about 10 hectares was to be established to provide comprehensive agricultural facilities.

The Agricultural Centre was intended to accommodate:

- Administration Building, Canteen
- Workshop, garage for farm machinery/equipment
- Stores for fertilisers, chemicals, seeds hay & straws, processed grains Crops and vegetables.
- Poultry for 5000 egg layers and 50,000 broilers
- Pig sty
- Dairying facilities for 200 dairy cows including a dip
- Slaughter houses
- Residential houses

#### 7.2.8 Manpower.

The Agricultural activities at the Development Centre was intended to be headed by a Farm Director Supported by Farm Deputy Director, Agronomist, Veterinarian and Assistant Director for various units such as crops, poultry, ranch, dairy, workshops, stores etc.

A total of 300-600 inhabitants were intended to be engaged in Agricultural activities.

### 7.3 CURRENT DEVELOPMENT

#### 7.3.1 Introduction

Since the preparation of 1984 Development Plan, several agricultural proposals have been made and various developments taken place.

Agricultural activity has been implemented in relation to gradual growth in population at the Development Centre.

The following are current developments in realising the present agricultural potential of the Dakawa Centre.

### 7.3.2 Agricultural Farmland

Of the total of 2600 hectares earmarked for agricultural activity the Centre has gradually developed upto:

- 400 hectares for cultivation of crops.
- Most of the ranching area has been fenced.
- Various vegetable gardens developed by individuals in their backyards.

### 7.3.3 Production Characteristics and Crop Production

The production planning at present has been based on reinfed crops.

From the statistics made available by ANC from 1987 to 1989, Maize, Sorghum and Sunflower have been cultivated.

The total farmland cultivated for Maize, Sunflower & Sorghum has increased from between 199.4 hectares in 1987 to 400 hectares in 1989.

The total hectares for which yield is recorded in metric tons is as follows:

|           | 1987 |        | 1988  |        | 1989  |        |
|-----------|------|--------|-------|--------|-------|--------|
|           | ha.  | yield. | ha.   | yield. | ha.   | yield. |
| Maize     | 96.0 | 233    | 126.1 | 237    | 229.2 | 433    |
| Per ha.   |      | 2.4    |       | 1.9    |       | 1.9    |
| Sunflower | 51.6 | 67     | 53.3  | 69     | 40.5  | 81.0   |
| Per ha.   |      | 1.3    |       | 1.3    |       | 2      |
| Sorghum   | 52.0 | 119.6  | 52.0  | 104    | -     | -      |
| Per ha.   |      | 2.3    |       | 2      |       | -      |

### 7.3.4 Farm Machinery

The Development Centre acquired various Agricultural farm machinery and equipment to implement the Agricultural programme.

The currently operational machinery and equipment are as follows:

- Tractor above & below 100 HP 11 (6+5)
- Disc plough 5 disc 2
- Disc harrow, trailed 2
- Cultivators (light) 1

|  |              |
|--|--------------|
| • Planter 8 & 4 rows                   | 3 (1+2)      |
| • Inter row cultivators 8, 6, & 4 rows | 3 (one each) |
| • Bom sprayer, trailed & lift type     | 3 (2+1)      |
| • Forage harvester                     | 1            |
| • Slasher                              | 1            |
| • Trailer 4 & 2 wheeled                | 5 (1+4)      |
| • Baler round                          | 1            |

There are at present other farm machinery at the Development Centre which are non-operative due to lack of spare parts and resources.

#### 7.3.5 Animal Husbandry & Production.

The meat supplies for Development Centre at present is supplemented from the Mazimbu camp. There is an established piggery, poultry & dairy farm unit including slaughter house at the Mazimbu camp.

ANC have embarked upon rearing 100 beef cattle for ranching and 10 dairy cows for milk at Dakawa.

A temporary dairy shed for 24 cows has been built.

There is a temporary water line under implementation for the ranch and the borehole including pumping by solar pump for the bore hole.

With the construction of main drainage channels to divert stormwater, a water reservoir of about 1000 sq.m. has been developed in the ranching area.

#### 7.3.6 Agricultural Centre.

The infrastructural designs for the Agricultural Centre covering 10 hectares have been completed including roads, water, electricity distribution and sewage collection.

Phase I of the AGC which includes machinery hall, open air store, washing place maize cob drying, heavy machinery hall, workshop canteen and offices are under implementation.

The following equipment/machinery have been acquired to be installed at the Agriculture Centre.

- Milling machine
- Threshing machine
- Vegetable oil expeller



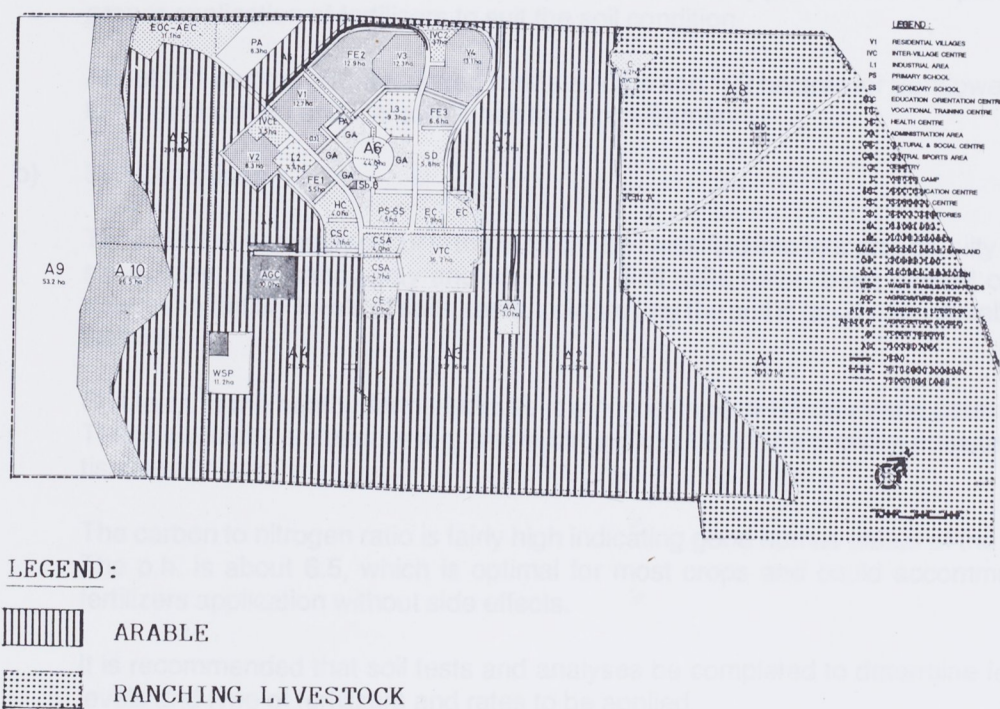
7.3.7 Manpower.

Due to inability to predict with certainty the permanence of inhabitants, ANC have experienced constraints in deploying manpower at the Development Centre. ANC have stationed a permanent farm manager from within the ANC Organisation to head the Agricultural activities at the Dakawa Development Centre.

The farm manager has received guidance and expertise from an expatriate Agricultural Consultant as proposed in the 1984 Development Plan.

The farm manager is also assisted by about 20-25 full time ANC technical staff in Agricultural activity and further assistance is received from the Mazimbu camp.

7.4 REVISED 1984 AGRICULTURAL PROPOSAL.



LEGEND :

- ARABLE
- RANCHING LIVESTOCK

LAYOUT PLAN

7.4.1 Introduction.

In the Revised 1984 Development Plan, agricultural proposal is based on the African National Congress' intention to supplement some of the agricultural facilities and activities existing at Mazimbu for Dakawa inhabitants and to develop Dakawa Agriculture potential for both Mazimbu and Dakawa inhabitants.

The population at Mazimbu has reached the designed capacity of 3500 inhabitants. The Dakawa centre will accommodate 2500 inhabitants when fully developed.

The revised proposal for agriculture is based on meeting the total requirements for 6000 inhabitants and also to provide training and experience in commercial agriculture.

#### 7.4.2 Agricultural Farmlands & Soil Condition.

##### a) Agricultural Farmland.

As described in item 7.3.2, about 400 hectares of arable land at Dakawa have been cultivated, where Maize, Sunflower and Sorghum have been planted.

Although there has been an expansion in total land area cultivated from 199.4 hectares in 1987 to 400 hectares in 1989, crop yields per unit area of land for Sorghum and Maize has shown a marked decline.

It is proposed that to increase the crop yields to match yields of the nearby farms, further input will be required such as improved husbandry practices and in particular proper application of fertilisers to suit the soil condition.

About 251 hectares will be required for Maize crop and 199 hectares for Sunflower crop to meet Mazimbu and Dakawa inhabitants requirements.

##### b) Soil Conditions.

The soils that generally occur in the area can be classified into four groups, silty sand, sandy clay, silty sandy clay and silty clay. Soil tests have been carried out to determine fertility levels of soils, tests indicate that the soil is good and workable for farming.

Soil tests at the nearby farms indicate low percentage of Nitrogen and potassium. These elements are usually required in large quantities in the growing meristematic tissues of plant.

The carbon to nitrogen ratio is fairly high indicating good humus status of the area. The p.h. is about 6.5, which is optimal for most crops and could accommodate fertilizers application without side effects.

It is recommended that soil tests and analyses be completed to determine fertility levels and type of fertilizers and rates to be applied.

At present, production of Maize and Sunflower which are the main food crops will require 120 kg per hectre of Tripple Superphosphate (TSP) and 190kg per hectre of Nitrogen sodium phosphorus and potassium (NPK) mixture for maize and 170kg per hectre of NPK for sunflower. Total fertilizer required during the first year will be 16 tons of TSP and 81 tons of NPK. Fertilizer's input should be doubled in the second year to meet food requirements for Mazimbu.



### 7.4.3 Production Characteristic and Crop Production.

#### a) Production Characteristics.

It is proposed that crop production be limited to the use of rainfed Agriculture at the Development Centre. For continuous maintenance of soil fertility, crop rotation should be adopted to include a sequence of Maize, Sorghum and Legumes which should be rotated with Sunflower after every 4 years. As irrigation farming is capital intensive, single cropping followed by a period of fallow is proposed to be the common farming system.

#### b) Crops.

##### i Maize:

Maize shall be grown as a major cereal to meet food requirements. At an average yield of 3.6 tons per hectre 125.5 hectares will produce maize grain to meet Dakawa's requirement and when the area is doubled, Mazimbu's needs will also be met.

##### ii Sorghum:

Production of sorghum will be for compounding animal feeds. Sorghum being drought resistant crop, it will do well under Dakawa's soil and weather conditions. With an average yield of 3 tons per hectre area of 70 hectares will be put under sorghum production annually.

##### iii Rice:

Upland rice which does not need flooding can be grown successfully at Dakawa using rains at river basin area. At a yield of 3.5 tons/ha of milled rice, some 30 hectares of land will be put annually under rice cultivation.

##### iv Wheat:

Wheat will not grow successfully at Dakawa as it needs higher altitude and cooler temperatures.

##### v Legumes:

Beans, cowpeas and soyabeans can be grown with fairly good yields at Dakawa. Soils at Dakawa being predominantly clay will not favour successful production of goundnut. About 40 hectares will be required for cultivation of legumes with an avarage annual yield of 40 tons of seed beans for centres consumption.

##### vi Root Crops:

Cassava and sweet potatoes will grow in silty sand and sandy clay soils and not clay which forms a hard pan and hence difficult to uproot the crop (tubers) when harvesting. The production of round potatoes (irish potatoes) is not recommended for Dakawa because the weather is not cool nor altitude high enough for its optimal growth.



vii Sunflower:

Sunflower will be grown mainly for production of edible oil. In order to produce 68 tons of cooking oil required to meet both Dakawa and Mazimbu, and an average yield of 1.5 tons per hectre 199 hectres of land will be cultivated annually. The byproduct which remains after pressing out oil, the cake will be utilised to feed livestock.

viii Cotton:

Although cotton can be grown in Dakawa, its production is not recommended as it is very labour intensive involving several weedings, sprays and harvesting/grading.

ix Vegetables:

The production of vegetable usually entails use of substantial capital and a large amount of labour input in order to realise good returns. Moreover vegetables are highly susceptible to serious damage from pests and diseases. Their quality deteriorates fast if proper handling involving such practices as cold storage and drying are not correctly carried out. ANC has decided that production of vegetables at Dakawa be limited to small plots managed by individuals at the Centre. One acre of plots will be offered to individuals as an incentive to inhabitants interested in growing vegetables. In addition seeds, fertilizers, equipment and technical advice will be made available for use of individuals.

Any surplus vegetables grown by the inhabitants may be bought to supplement community kitchen/canteen requirements.

#### 7.4.4 Mechanisation.

With only a few additions to the present farm machinery inventory agricultural production at Dakawa can be regarded as sufficient to meet anticipated production targets. However, in order to effectively implement the cropping pattern proposed it is recommended that all other machinery and equipment which are out of order be rehabilitated. Additional farm machinery and equipment such as refrigerated truck and a 2-row disc ridger should be added. Sunflower can be sown using a maize planter and the maize sheller can be used to thresh sunflower.

A disc ridger will be essential for making ridges to grow root crops (cassava and sweet potatoes).

#### 7.4.5 Animal Husbandry and Production.

- a) The objectives of animal production will be to meet the population's animal product requirements to include meat, milk and eggs.

Piggery for pork will be at Mazimbu where the unit is currently located and developed.

b) Individual Units

i Meat Production

The Centre has 100 beef of the traditional Zebu. Since the Zebu are small in size, taking a long time to reach maturity when bulls average 400-600 kgs and females being 350 kgs, about 1000 heads of cattle will be required to be raised in the ranch. About 500 goats will also be raised. Replacements will be made at 190 heads of cattle per annum during 2nd and 3rd year through purchases. From the 4th year the replacement will be from herd breeding programme. Slaughters of Beef Cattle will rise from 344 heads of cattle in the 3rd year to 425 heads of cattle in the 4th year and stabilise to 446 heads beginning the 5th year.

Goats have an added advantage of having a short growth cycle and hence faster meat producing capacity. Their ability to produce twins or even triplets is another benefit which favours increased meat output.

Raising of sheep in the ranch should, however not be encouraged as sheep is susceptible to disease's thus requiring greater care and attention when raising for commercial purpose.

ii Dairy

In order to meet milk requirements of the Centre's population about 125 dairy cows will be raised at AGC. Replacement of dairy cattle to make up for loss through deaths and culling will be at the rate of 29 heads of cattle from 2nd and 3rd year. It is anticipated that from the 4th year replacement can be achieved from within the herd at the centre. ANC have gained experience in raising exotic dairy cattle at Mazimbu. At an average milk yield of 15 litres of milk/cow/day it will meet milk requirements of the centre.

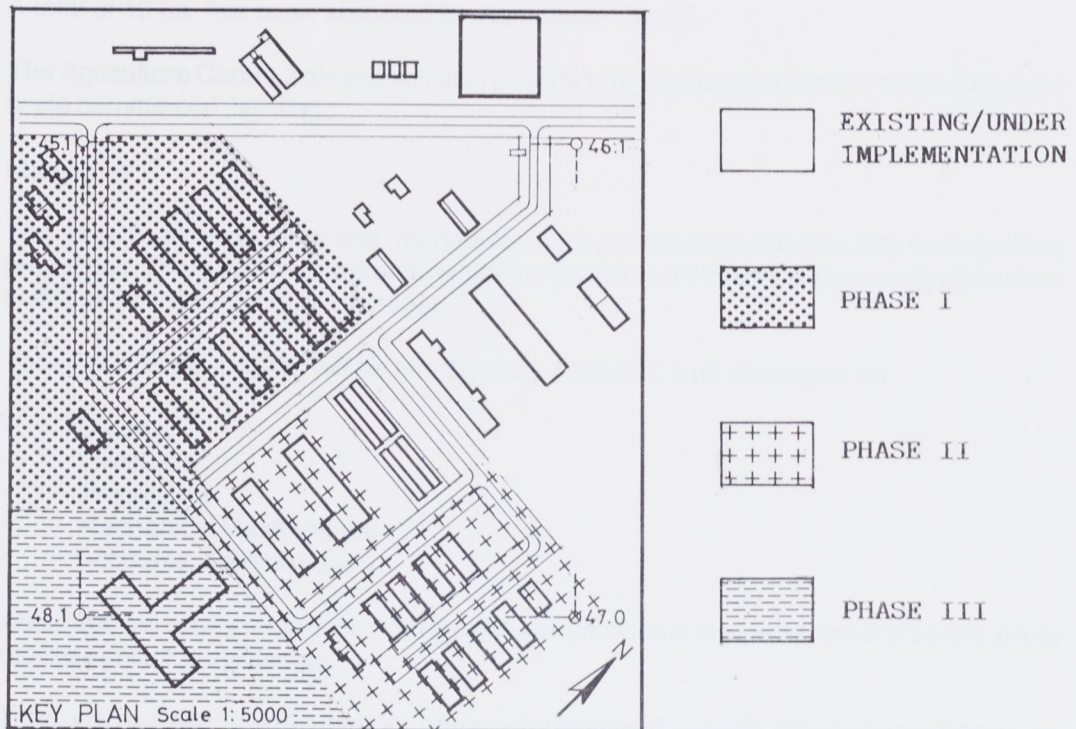
iii Poultry Production

There is a modern poultry supported by a slaughter house intended to be established at the AGC to meet Dakawa inhabitants requirements. The poultry unit will rear 140,000 finished broilers per year in four to five cycles for meat production. The egg production will be from a flock of 6,000 layers raised in two batches of 3000 each in the first six months and the other 3000 in the second half of the year. Culling of the first and subsequent batches will be carried out after a period of 18 months of each batch. A feed processing plant will be established to supplement feed requirements of the Poultry units.

The overall meat consumption for Dakawa & Mazimbu inhabitants will consist of 27 kg of poultry meat, 15 kg of pork (from mazimbu) and 10 kg of Beef per annum/inhabitant i.e. 52 kgs per annum/inhabitant.



#### 7.4.6 Agriculture Centre.



#### LAYOUT PLAN

The Agriculture Centre is intended to provide all supporting facilities and accommodation to implement Agriculture potential of the Development Centre.

The layout of the Agriculture Centre was prepared by M/s Norplan A/S of Oslo - Norway in consultation with ANC representative and as contained in 1984 Development Plan.

The main activities at the Agriculture Centre will be:

- Administration of agriculture activities,
- Mechanical workshop for farm machinery and equipments including welding workshop/garage yard.
- Fuel depot, workshop, machinery and equipment yard.
- Poultry unit including poultry slaughter house
- Dairy facilities
- Separate storage facilities for fertilisers, chemicals, seed, grain produce, manure etc.
- Feed mill for poultry, and animal husbandry.
- Vegetable oil mill.

ANC intends to develop the facilities at the AGC over a period of 2 years. Most of the facilities in Phase I such as machinery hall, open air store, washing place, heavy machinery hall, workshop, offices and canteen are under implementation.



The detail designs for infrastructure services have been completed.

A total of 10 ha. has been allocated for Agriculture Centre.

The Agriculture Centre activities will also provide training opportunities for managing large scale commercial farming.

#### 7.4.7 Manpower

The organisation structure and manpower input are reduced considerably to streamline production. There are 5 main departments or units which are intended to manage agriculture activities headed by a farm manager.

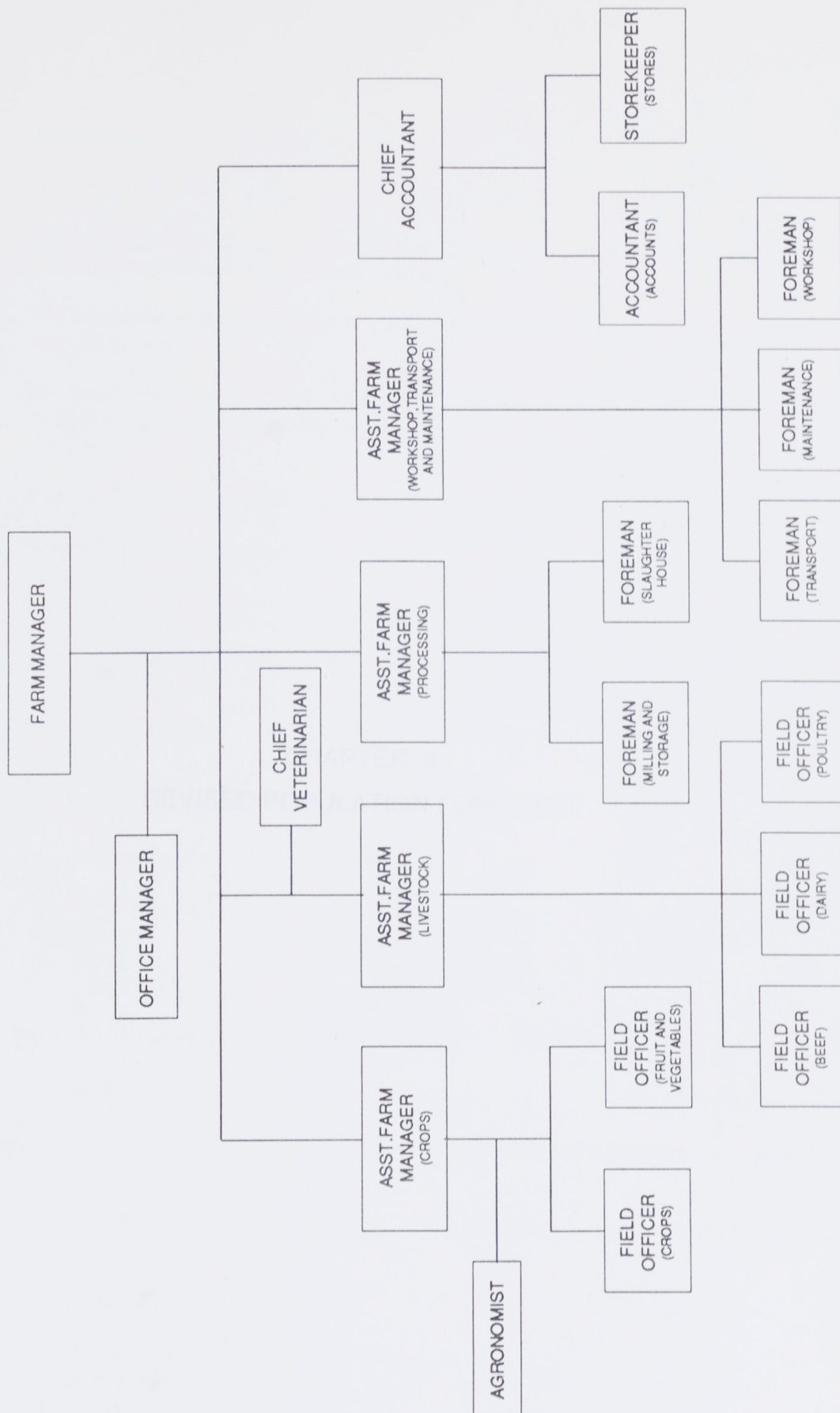
The departments or units will be managed by Assistant farm managers for:

- Crops
- Livestock
- Processing
- Mechanical Maintenance
- Accounts, Administration

About 100 persons will be involved in agricultural activities at the Development Centre to fully realise agricultural potential.

There will be additional 100 persons engaged during peak season. However manpower requirement during peak operations will be supplemented by Development Centre's other inhabitants or by the nearby villagers. This will also provide training opportunities to the inhabitants.

# ANC DAKAWA AGRICULTURAL CENTRE ORGANISATIONAL CHART



## 8.0 REVISED POPULATION FORECAST

### 8.1 GENERAL

African National Congress have advised that a total population of 2500 individuals will reside at the Dekane Development Centre

The breakdown of different age groups and sex have been derived in accordance with AWC representatives.

The breakdown of different age groups and sex in this table has been derived from the 1994 Development plan and the community facilities contained therein.

### 8.2 THE CHILDREN AND STUDENT POPULATION

#### 8.2.1 Schools and Training Institution

|                  | Age Group | Children 0-14 | Unifed School 15-19 | Total |
|------------------|-----------|---------------|---------------------|-------|
| • Oncho          | 2-3 yrs   | 10            |                     | 10    |
| • Nursery School | 4-5 yrs   | 10            |                     | 10    |
| • Primary School | 6-11 yrs  | 10            |                     | 10    |
| • VTC Students   | 16-19 yrs |               | 10                  | 10    |
| • Adult Sec Educ | 20-24 yrs |               | 10                  | 10    |
| • Total          |           | 10            | 10                  | 20    |

## CHAPTER 8

## REVISED POPULATION FORECAST

#### 8.2.2 Student Accommodation in Dormitories

##### a) Proposed

The student accommodation will be provided in the form of dormitories with private sanitation rooms.

| Location            | Male Students | Female Students | Total Capacity |
|---------------------|---------------|-----------------|----------------|
| Primary Sec School  | 10            | 10              | 20             |
| Adult Sec Education | 10            | 10              | 20             |
| VTC                 | 10            | 10              | 20             |
| Total               | 30            | 30              | 60             |



## 8.0 REVISED POPULATION FORECAST

### 8.1 GENERAL

African National Congress have estimated that a total population of 2500 inhabitants will reside at the Dakawa Development Centre.

The breakdown of different age groups and sex have been derived in consultation with ANC representatives.

The breakdown of different age groups and sex forms the basis for preparation of Revised 1984 Development plan and the community facilities contained there in.

### 8.2 THE CHILDREN AND STUDENT POPULATION

#### 8.2.1 Schools and Training Institution

|                                | Age Group    | Children in Villages | Children/Adults in Dormitories | Total |
|--------------------------------|--------------|----------------------|--------------------------------|-------|
| • Creche                       | 2-3 yrs.     | 60                   | -                              | 60    |
| • Nursery School               | 4-6 yrs.     | 120                  | -                              | 120   |
| • Primary and Secondary School | 7-18 yrs.    | -                    | 500                            | 500   |
| • VTC Students                 | from 16 yrs. | -                    | 200                            | 200   |
| • Adult Sec Educ               | -            | -                    | 200                            | 200   |
| • Total                        | -            | 180                  | 900                            | 1080  |

#### 8.2.2 Students Accommodation in Dormitories.

##### a) Proposed

The students accommodation in dormitories is based on 8 bedrooms per block with a common room.

| Location             | Bed/Block | No. of Blocks | Total Capacity |
|----------------------|-----------|---------------|----------------|
| Primary/Sec. School  | 32        | 16            | 512            |
| Adult Sec. Education | 16        | 13            | 208            |
| VTC                  | 16        | 13            | 208            |
| Total                | 64        | 42            | 928            |

b) Existing

| Location                   | Bed/Block | No of Blocks | Total Capacity |
|----------------------------|-----------|--------------|----------------|
| EOC/Adult<br>Sec Education | 16        | 4            | 64             |
| VTC                        | 16        | 1            | 16             |
| Total                      | 32        | 5            | 80             |

### 8.3 POPULATION IN VILLAGES

The inhabitants residing in villages will be grouped in 80-100 families per village based on 1984 Development Plans.

The following inhabitants will constitute the total village population:

- Adult population engaged in various activities at the Development Centre and mothers/wives. 1420
- Creche and nursery school pupils residing with families in the villages 180
- Total 1600

#### 8.3.1 Population Per Village

The population of the village is based on the assumption that married/unmarried household will comprise of 5 inhabitants sharing common facilities in a household

The total household per village is assumed at 80 households.

|                     |    | Adults | Children | Total |
|---------------------|----|--------|----------|-------|
| Married household   | 40 | 80     | 120      | 200   |
| Unmarried household | 40 | 200    |          | 200   |
| Total               | 80 | 280    | 120      | 400   |

#### 8.3.2 Village to be Developed

Based on 80 households per village with a total population of 400 inhabitants per village at Dakawa Development Centre will require a total of 4 villages to accommodate 1600 inhabitants comprised of married /unmarried adults and children.

The total of 320 permanent houses will require to be built to accommodate 1600 inhabitants based on 5 inhabitants per dwelling.

### 8.3.3 Exsiting residential House

#### a) Permanant Detached and Semi-Detached Houses.

| Location                             | No of Units | Inhabitants |
|--------------------------------------|-------------|-------------|
| Village V2                           | 74          | 370         |
| EOC /Adult sec<br>education          | 9           | 45          |
| I.2                                  | 4           | 20          |
| I.3                                  | 2           | 10          |
| VTC (Under implementation)           | 16          | 80          |
| Village V1 (under<br>implementation) | 20          | 100         |
| TOTAL                                | 125         | 625         |

#### b) Temporary

2 rooms prefabricated timber houses to provide temporary accommodation at village V4 and other centres.

| Location   | No of Units | Inhabitants |
|------------|-------------|-------------|
| Village V3 | 90          | 360         |
| AGC        | 6           | 24          |
| RHC        | 4           | 16          |
| TOTAL      | 100         | 400         |

## 8.4 SERVICE AND EMPLOYMENT POTENTIAL

Of adult population of 1420 persons not engaged in studies at educational and training institutions, following will be employed in various administration and services section.

#### a) Of the total adult population of 1420 persons it is estimated that 50% will be married couples i.e.

|                  |   |     |
|------------------|---|-----|
| Married couples  | = | 710 |
| Unmarried/single | = | 710 |



b) Different Services and Employment Potential

|  |      |
|--|------|
| • Manager's and senior Administrators                            | 30   |
| • Administration support staff                                   | 170  |
| • Secretaries  | 20   |
| • Medical Health   | 15   |
| • Day Care Centre/Nursery School                                 | 10   |
| • Teachers/Training staff including support staff                | 100  |
| • Dormitory staff  | 30   |
| • Canteen/Kitchen  | 45   |
| • Social/Culture   | 10   |
| • Mechanics/Drivers  | 25   |
| • Fire fighting squad  | 5    |
| • Maintenance  | 50   |
| • Industries   | 100  |
| • Farming/AGC  | 100  |
| • Married women on part time<br>employment/Handicraft activities | 355  |
| • Others   | 50   |
| • TOTAL  | 1115 |

