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ZANZIBAR URBAN WATER SUPPLY DEVELOPMENT PROGRAMME 1990-2015

INSTITUTIONAL ARRANGEMENTS AND HUMAN RESOURCES DEVELOPMENT

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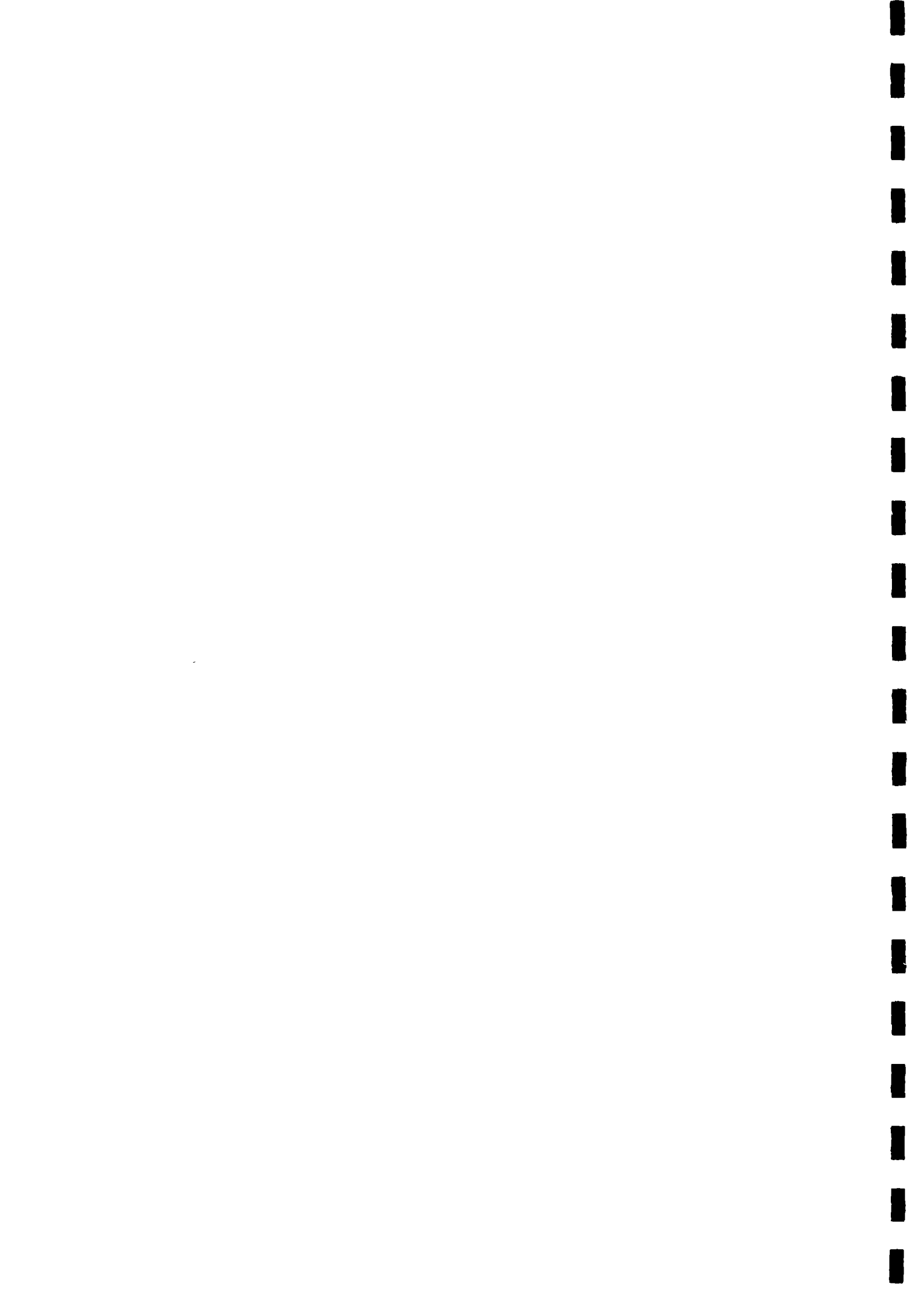
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## ABBREVIATIONS

ASP	Afro-Shirazi Party
CCM	Chama Cha Mapinduzi Party
DWD	Department of Water Development
ERP	Economic Recovery Programme
F.T.C	Full Technican Certificate
GOZ	Government of Zanzibar
IDM	Institute of Development Management
IFM	Institute of Finance Management
SMZ	Serikali ya Mapinduzi ya Zanzibar (Revolutionary Government of Zanzibar)
TANU	Tanganyika African National Union
UWS	Urban Water Supply
UWSA	Urban Water Supply Authorities
WRI	Water Resource Institute



## BACKGROUND OF INSTITUTIONAL STUDY

The Government of the United Republic of Tanzania requested the Finnish International Development Agency (FINNIDA) to assist in financing an Urban Water Supply Programme in Zanzibar. The preparation of the Zanzibar Urban Water Supply Development Plan for 1991 - 2015 took place during November 1989 - December 1990. The work was undertaken as a consultancy project by M/S Plancenter Ltd, in close cooperation with the Department of Water Development (DWD) of the Ministry of Water, Construction, Energy, Lands and Environment, Zanzibar.

The Plan covers three towns - Zanzibar Town on the island of Unguja and Chake Chake, Wete and Mkoani on the island of Pemba.

The "Institutional Arrangements and Human Resources Development"- report is complementary to the Urban Water Supply Development Plan, where the financial, institutional, water resources, environmental and physical components are integrated. Separate more detailed reports have been drafted on water resources and environmental impacts as well.

The terms of reference for the institutional sub-project were defined in the Project Document (September 1989) as follows:

- assessment of existing institutions
- programme of necessary institutional arrangements for each town recommending an organization able to successfully administer, maintain, operate, design and construct the urban water supply
- assessment of existing human resources
- programme of recruitment and training of human resources for each town in order to develop relevant knowledge, skills and expertise within the DWD staff and other relevant groups in management, planning, design, construction, operation and maintenance in the water supply field generally and in piped water schemes in particular through practical on-the-job training, seminars and training in Tanzania and abroad
- assessment of the role of communities in the urban water supply
- assessment of O&M and programme for development

Each aspect mentioned above was studied and is treated in this report. Additionally, a household survey was carried out in order to gather more comprehensive information on water problems faced by people, water use practices and people's willingness to contribute to the improvement of the water supply among many other water related issues. The report presents the preliminary results of the survey. However, it can be seen that the data is very valuable and worth analyzing in more detail before the planning of concrete actions for community participation and education.

The institutional study was carried out by Management Consultant, Ms. Tuire Nikulainen, M.Sc. (Sociology).



## EXECUTIVE SUMMARY

### Institutional Development

There are 12 ministries with about 28 000 posts in the GOZ at present. The Department of Water Development has 291 employees in Unguja and 220 in Pemba.

The autonomy of the DWD is insufficient to conduct water supply affairs effectively. The Urban Water Supply Authority is recommended be established. It should start as a section of the DWD, and later on it could be separated from the department to form a parastatal organization. The Authorities should be provided with a legal basis for operation and sufficient independence to carry out effectively the tasks entrusted to it.

Necessary inter-ministerial coordination in water issues is proposed to be implemented by a special body where the relevant parties are represented.

The new organizational charts with proposals for staffing patterns are suggested as well as guidelines for management system development.

### Human Resources Development

The DWD's possibilities for providing the staff with skills required in jobs are limited. There is a shortage of qualified administrative, financial and technical staff.

Manpower management and staff development functions are recommended be strengthened within the DWD. The creation of incentive schemes or other employee benefits is needed.

The strategies and measures for the planning and implementation of training are proposed. Training must cover each staff group and employee and foster chances for promotion within the urban water supply organization and support the employee's career development plans.

Training should be planned and implemented on a continuous basis in close cooperation with willing local training institutes in order to improve their capacity, too, in taking care of vocational training in future.

### Community Participation

There is no past experience of systematic community participation in water or sanitation sectors in Zanzibar. However, there is willingness among urban households to contribute to the improvement of water supply. Further studies are needed for developing functioning procedures for community participation for various parts of the urban areas. The degree of participation might also differ according to the degree of urbanization.



Additionally, the institutional capacity of the Urban Water Supply Section should be improved in terms of carrying out participatory activities.

Opinions about water charges vary in different town areas and differences also existed between Unguja and Pemba. About half of the households were willing to pay for a reliable water supply. About one fifth had no opinion about this matter or did not want to express it.

#### **Community Education**

The interaction between the beneficiaries and the water authorities is at present inadequate. Information on water issues seems also to be quite limited among the urban population.

Workable institutional mechanism within the Water Department should be created for consumer services and public information activities. The cooperation of various authorities in environmental and health education should be improved.

Mass media, especially radio, should be utilized more as communication means.





## 2 GENERAL BACKGROUNDS

### 2.1 Political System of the Isles of Zanzibar

The geographical position and natural resources and characteristics as well as the economic situation and population of the Islands of Zanzibar, will be described in other reports provided by the Urban Water Supply Programme. This review aims at pointing out some aspects which might help to understand the current administrative systems and cultural features of these Islamic islands.

#### Historical Review

Zanzibar has attracted foreigners for centuries, including explorers and conquerors. The reputation for good drinking water and favourable soils in addition to prevailing monsoon winds have made Zanzibar tempting and easily accessible. Sumerians, Assyrians, Indians, Egyptians, Phoenicians, Portugese, Arabs, Chinese and Malasians have all come to these islands. Zanzibar also has been a popular site for exploration trips.

Among the rulers there have been Portugese and Persians at different times. However, the modern political history of Zanzibar dates back to 1832 when the Sultan of Oman moved to Zanzibar and established the Sultanate of Zanzibar. During the period thereafter Zanzibar became the centre of the slave trade in East Africa. This came to an end when the Sultanate was proclaimed a British Protectorate in 1890. The British granted independence to their protectorate on the 10th of December 1963. On the 12th of January 1964 - after just one month of independence - the Afro-Shirazi Party (ASP) toppled the ruling Sultanate and its government. Thus ASP took a dominant role in the Zanzibarian political life.

Zanzibar united with Tanganyika on April 26, 1964 and the United Republic of Tanzania was established. In 1977 the Afro-Shirazi Party (ASP) merged with the Tanganika African National Union (TANU) on the mainland and the new party of Chama Cha Mapinduzi (CCM) was formed.

Before the Revolution Zanzibarian society was characterized by three social groups. Arabs were mostly owners of large clove and coconut plantations and occupied the majority of high posts in the administration. Asians formed the Zanzibarian commercial and middle class. Africans were mostly employed in agriculture as labourers, tenant farmers, peasants, etc. (Lofehie, M.F. Zanzibar; Backgrounds to Revolution, New Jersey 1965).

After the Revolution the Government adopted a policy of socialism which has set the guidelines for the economic and social development of Zanzibar.



## Political Systems

The Union Constitution concurs the right of autonomy on Zanzibar. Apart from Union matters (e.g. foreign policy, defence, customs and higher education) Zanzibar is responsible for all legislative and executive affairs. It has its own Constitution, President, House of the Representatives, Revolutionary Council and Cabinet, which together form the Zanzibar Revolutionary Government or SMZ. The strategies and development objectives are formulated by CCM, which has a decentralized regional organization as well as units in working places.

All important political bodies are situated in Zanzibar Town. However, each ministry has an office on Pemba as well.

The House of Representatives of Zanzibar consists of a maximum of 75 representatives elected for a period of five years. Fifty of the representatives are elected by the people, ten by the President, and ten from among the associations for parents, youth, women, cooperatives and workers, (two representatives each). There is also a quota of five seats for women who are selected by the House of Representatives.

The candidates are nominated by CCM. The Islands are divided into 50 election districts. Each district has two candidates of whom people elect one.

The President of Zanzibar is elected at the same time as the representatives (but on a separate day), for a five-year term. CCM nominates a candidate whom people vote for or against. The last elections were held in October 1990.

The President of the Union and the Zanzibarian members to the Union Parliament are elected a week after the election of the Zanzibarian political bodies in the same manner. The same person cannot be a member of the Union Parliament and the House of Representatives.

## **2.2 Guidelines of the Economic Recovery Programme**

The Government of Zanzibar (GOZ) adopted an Economic Recovery Programme (ERP) in 1988. It comprises a combination of short-term measures and a longer term strategy to revive the productive sectors of the economy of Zanzibar.

In addition to general orientations, the ERP also gives guidelines for the development of civil service and parastatal organizations, and takes measures for developing education and the water sector, among other fields.

The ERP as adopted includes the following major orientations:

- i) General policy orientations
  - improve government finances by increasing revenue, particularly by charging for selected



government services and reducing expenditures, especially on salaries (through retrenchment) and subsidies

- improve foreign exchange allocation, particularly by reducing rice imports
- encourage the private sector which is still restricted by unnecessary government regulations
- ensure that parastatal activity is run along commercial lines
- encourage agricultural producers by increasing incentives and relaxing current restrictions on marketing.

ii) Guidelines for the civil service review

- review of the size, composition and structure of the civil service
- management of the civil service
- identification of opportunities for reducing staffing levels and increasing staff productivity
- renewal of manpower budgeting and control
- development of personnel and training management
- review of staff development and training
- reform of salary structure

iii) The parastatal organizations are currently owned by the government, managed by boards of directors and meant to operate with greater autonomy and less GOZ support than central government departments. Recommendations for the improvement of the performance of parastatal bodies include:

- a clarification of individual parastatal objectives
- greater delegation of powers for the boards of directors and senior management
- improved monitoring of parastatal performance
- greater parastatal control over recruitment and staffing
- more realistic parastatal taxation by government



- pricing policies that allow for reasonable profitability
  - improved allocation of foreign exchange
  - improved financial reporting
- iv) Proposals for the development of education
- further donor assistance should be sought to improve the provision of educational materials and teacher training
  - alternate ways of introducing fees for education should be considered
  - the linkages between the Ministry of Education and other government departments involved in training and manpower planning should be reviewed and strengthened
- v) Proposals for the development of the water sector
- the emphasis must be on the improving of existing supplies
  - alternate ways of restoring water charges to domestic users and increasing water charges on industrial users should be investigated

### 2.3 Previous Studies Related to Institutional Issues and Training

A number of reports touching the development needs of the Zanzibarian administration as a rule or of the water sector in particular have been published in the 80's. A couple of studies on the development of the education sector have also been carried out during the same period. The most useful ones as background materials have been the following:

i)  
 Proposed Economic Recovery Programme,  
 Vol I General Strategies  
 Vol II Sectorial Policies  
 Vol III Public Investment Programme  
 Government of Zanzibar  
 Peat Marwick Mclintock in conjunction with Mokoro Ltd, August 1987.

ii)  
 Institutional Review of the Rural Water Supplies Project,  
 Volume I, Main Report  
 Dr. Ing. Walter International/Coopers & Librand, July 1988

iii)  
 Engineering and Management Studies, Zanzibar and Pemba Rural Water Supply, Part I, Main Report,  
 Draft Version February 1990  
 Dr. Ing. Walter International/M-Konsult





iv)  
Mission Report to the Islands of Zanzibar and Pemba 26th August - 8th September 1985, Miguel R. Solanes, United Nations, New York, January 1986.

v)  
Education in Zanzibar, A study on the development of the education sector, Ulf Goranson, SIDA, October 1986.

vi)  
Analysis of the Situation of Children and Women in Zanzibar, Unicef, April 1988.

The Economic Recovery Programme summarized above deals very thoroughly with the problems and development needs in governmental administration, parastatal organizations, economics and other sectors of society. The ERP gives solid guidelines for institution building and human resources development.

The Institutional Review of the Rural Water Supplies Project includes proposals for institutional arrangements, a legislative decision to establish the Zanzibar Water Supply Corporation and a ground water ordinance previously drafted in Solanes' report.

Solanes' report gives an excellent presentation of the Muslim way of thought concerning water issues as well as Zanzibarian regulations related to water. In addition the report points out major restrictions faced by the Water Department at that time.

The reports on education and the situation of women and children in Zanzibar have been useful as general background materials.



### 3 PRESENT ORGANIZATION AND STAFFING

#### 3.1 General Characteristics of the Civil Service

##### 3.1.1 Manpower and Structure of the Civil Service

The preliminary report of the 1988 Population Census estimated the size of labour force to be about 306,000 people in 1989. The number is increasing by three percent per year.

Some 15 percent of this labour force are registered in wage employment in the formal sector and about 95 per cent of them are employed by the GOZ. Around 85 per cent of the estimated work force are not registered as employees. They are occupied in the non-formal sector or unemployed. Accurate figures on employment are not currently available.

After the revolution in 1964 the Government's policy has been to provide basic services such as education, health, and water free of charge, and housing and energy at government subsidized prices to the people. During the last ten years there has been a decline of government revenues and the rapid expansion of labour force has coincided with few new work opportunities outside the formal sector. The GOZ has attempted to cope with the situation by generating posts in the civil service among other measures.

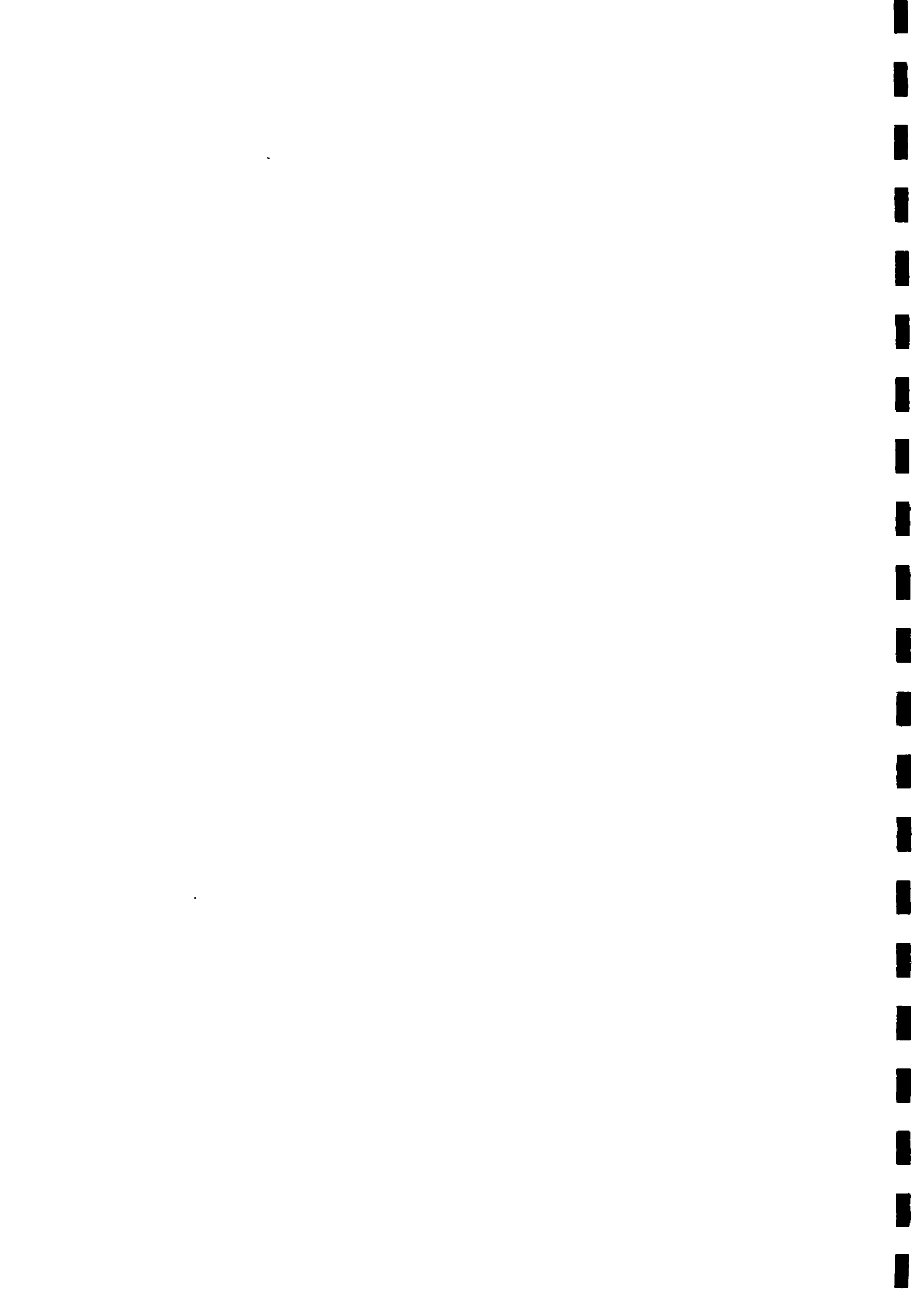
This has caused a remarkable increase in salary expenditures and exceeded the GOZ's ability to allocate sufficient funds for operational activities. Due to that the productivity of the civil service has decreased and resulted in a significant decline in the standard of service provided. The level of overstaffing is estimated informally to be over 30 per cent in many ministries. The number of permanent posts and their development during recent years are presented in Table 1.

Table 1 Size of the civil service 1984-90

Year	Total posts	Total staff in post	Vacancies
1984-85	20,146	17,742	2,404
1985-86	21,082	19,417	1,665
1986-87	21,694	20,151	1,543
1987-88	22,237	19,205	1,714
1988-89	27,873	24,271	3,448
1989-90	28,450	26,317	2,130

Source: ERP 1988; Department of Manpower Development and Administration

If the estimate of 30 per cent overstaffing is accurate it means that 7700 employees should be reduced in the government offices according to the ERP. The age of optional superannuation has been increased to 55 years from 50 years mandatory retirement age being presently 60 years. When turnover is also low, natural wastage is clearly not



sufficient to reduce staffing levels and thus the imbalance between salaries and other charges will remain if other measures are not found.

There are 12 ministries in the GOZ at present. A number of changes in portfolios and departmentalization have occurred over the last ten years.

The majority of qualified people left the country after the revolution. Until 1977 few persons were sent to study to the mainland or abroad. In the absence of appropriate training facilities in Zanzibar many unskilled employees were recruited to the civil service. Although the situation has improved by now and over 200 students are sent to receive training outside Zanzibar, skill shortages are to be found in most sectors of society. In addition, many of those that receive training are seeking employment outside the Islands, being attracted by better salaries and work opportunities.

### 3.1.2 Objectives and Action Programme Proposed by the Economic Recovery Programme

The Economic Recovery Programme (ERP) for Zanzibar adopted in 1988 by the Government dealt thoroughly with problems in the Civil Service and outlined measures needed to improve its performance and alleviate the impact of an expanding labour force and shortages of skills.

The implementation of proposed activities was appraised in April 1990. It was realized that very little progress has been made in the civil service in line with proposals for a couple of years. However, the goals and measures proposed in the ERP are still valid as an official statement of the GOZ and should direct the institutional development of the DWD as well.

Among other proposals the ERP suggested the civil service review which should focus on eight main areas including:

- Review of the size, composition and structure of the civil service
- Management of the civil service
  - \* reporting arrangements and the degree of communication within ministries
  - \* the extent to which Principal Secretaries delegate authority to more junior officers
  - \* the appropriateness of existing civil service rules and procedures (e.g. purchasing procedures)
  - \* the adequacy of existing approaches for managing resources such as staff, materials and equipment



- \* the extent to which output measures have been developed as a management tool for improving performance and productivity
- \* the efficiency of the government's planning machinery
- \* the capacity of managers to plan, implement and monitor capital projects
- Identification of opportunities for reducing staffing levels and increasing staff productivity
  - \* staff reduction
  - \* developing more efficient work practices
  - \* reorganizing sections and departments to prevent duplication in efforts
- Manpower budgeting and control
- Personnel and training management
  - \* the development of a professional staff and of training operations
- Staff development and training
  - \* the assessment of training needs
  - \* the review of the Civil Service Training Institute
- Pay scales
  - \* the development of a new and simplified salary structure

The programme for action presented above concerns the whole civil service, in which individual ministry has only limited influence over some issues. However, all relevant areas should be considered while developing the DWD's institutional arrangements, reorganizing and laying down guiding principles for reorganization of the water sector.

### 3.2 History of the Department of Water Development

The Town Water Works of Zanzibar were established about 70 years ago. During the colonial times water works consisted of water supply, harbour drainage and sewerage. The sector was headed by the District Engineer, who was answerable to the Director of the Public Works Department under Zanzibar Township Authority. The activities were regulated by the Zanzibar Town Water Works Rules introduced in 1935 and its amendments over the years. In 1963 Water Work Rules were supplemented with the Zanzibar Municipal Council By-Laws





(House Refuse Collection and Disposal, and Streets and Open Places).

Soon after the revolution 1964 the Public Works Department was converted into the Works, Roads and Technical Department and remained such until 1975, when the Department was split into the Ministry of Water and Power, the Ministry of Housing and Construction and the Ministry of Communication and Transport. In 1984 the Ministry of Water and Power was merged with the Ministry of Housing and Construction to create the Ministry of Water, Construction and Energy.

Two years later, drainage and sewerage functions were vested in Local Government and Town Councils established by the Local Government Act which was put into force in 1986.

After the parliamentary elections in October 1990, land use and environment affairs were transferred to the Ministry of Water, Construction and Energy. At the same time the name of the Ministry was changed into the Ministry of Water, Construction, Energy, Lands and Environment (MWCELE).

The Ministry of Water, Construction, Energy, Lands and Environment has, through the Department of Water Development, full responsibility for water production and delivery in rural and urban areas in Unguja and Pemba. The Ministry has a unit in Pemba and the Pemba Department of Water Development is under its administration. The Department works under the DWD in Unguja.

The departmentalization of the Ministry and the present organizational chart of the water supply are presented in Figures 1 and 2.



Figure 1 PRESENT ORGANIZATION OF THE WATER SUPPLY

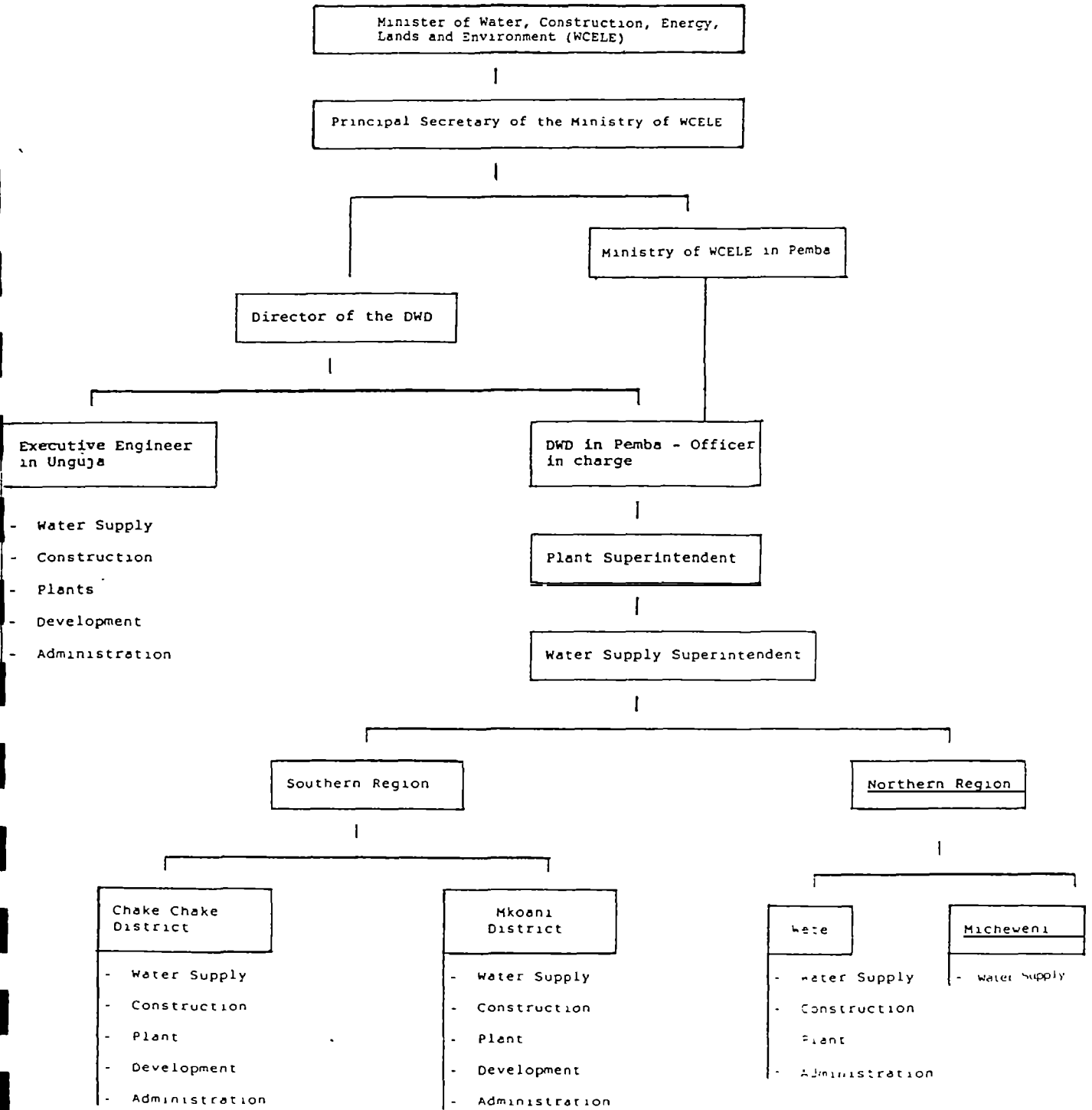




Figure 2 ORGANIZATIONAL CHART OF MINISTRY OF WATER, CONSTRUCTION, ENERGY, LANDS AND ENVIRONMENT

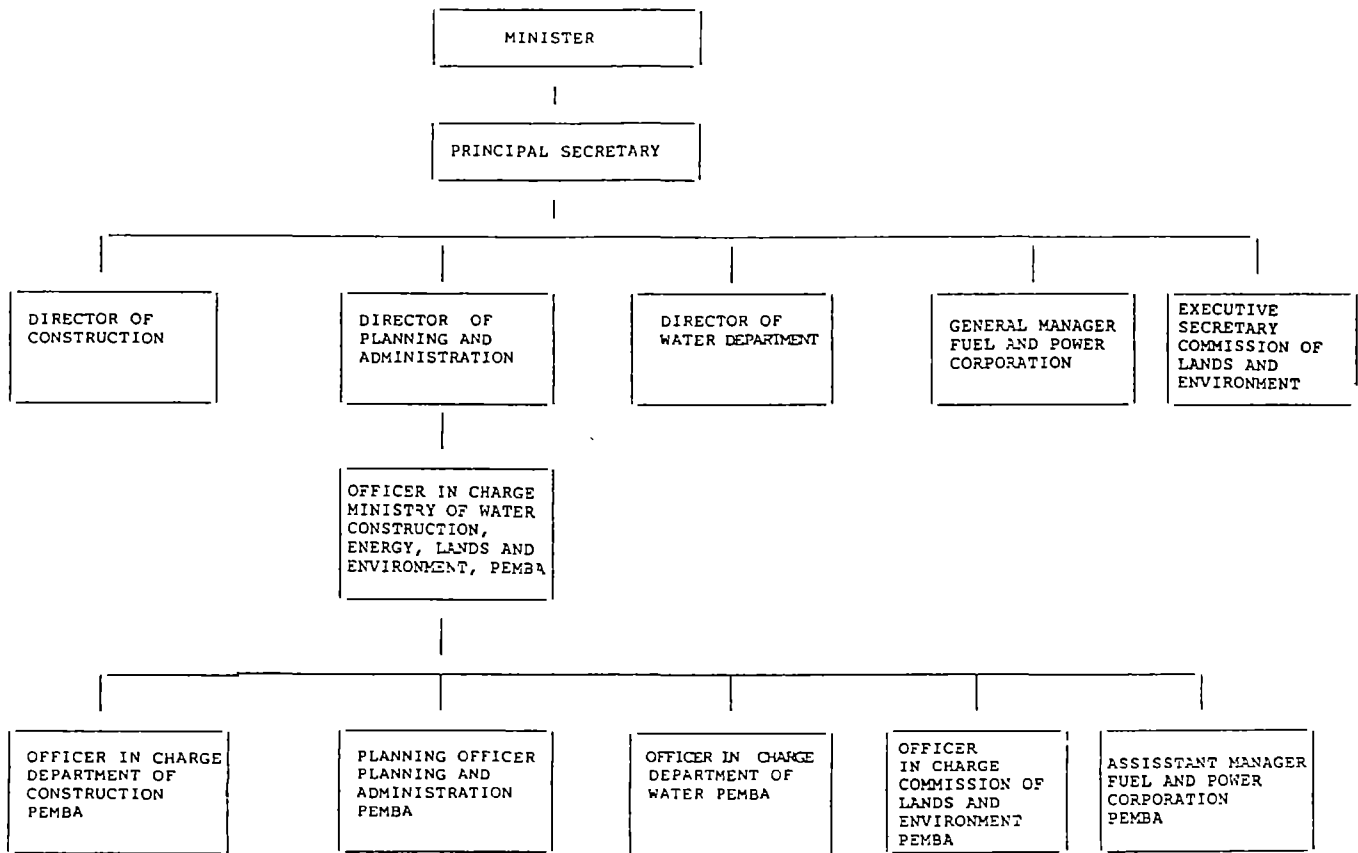
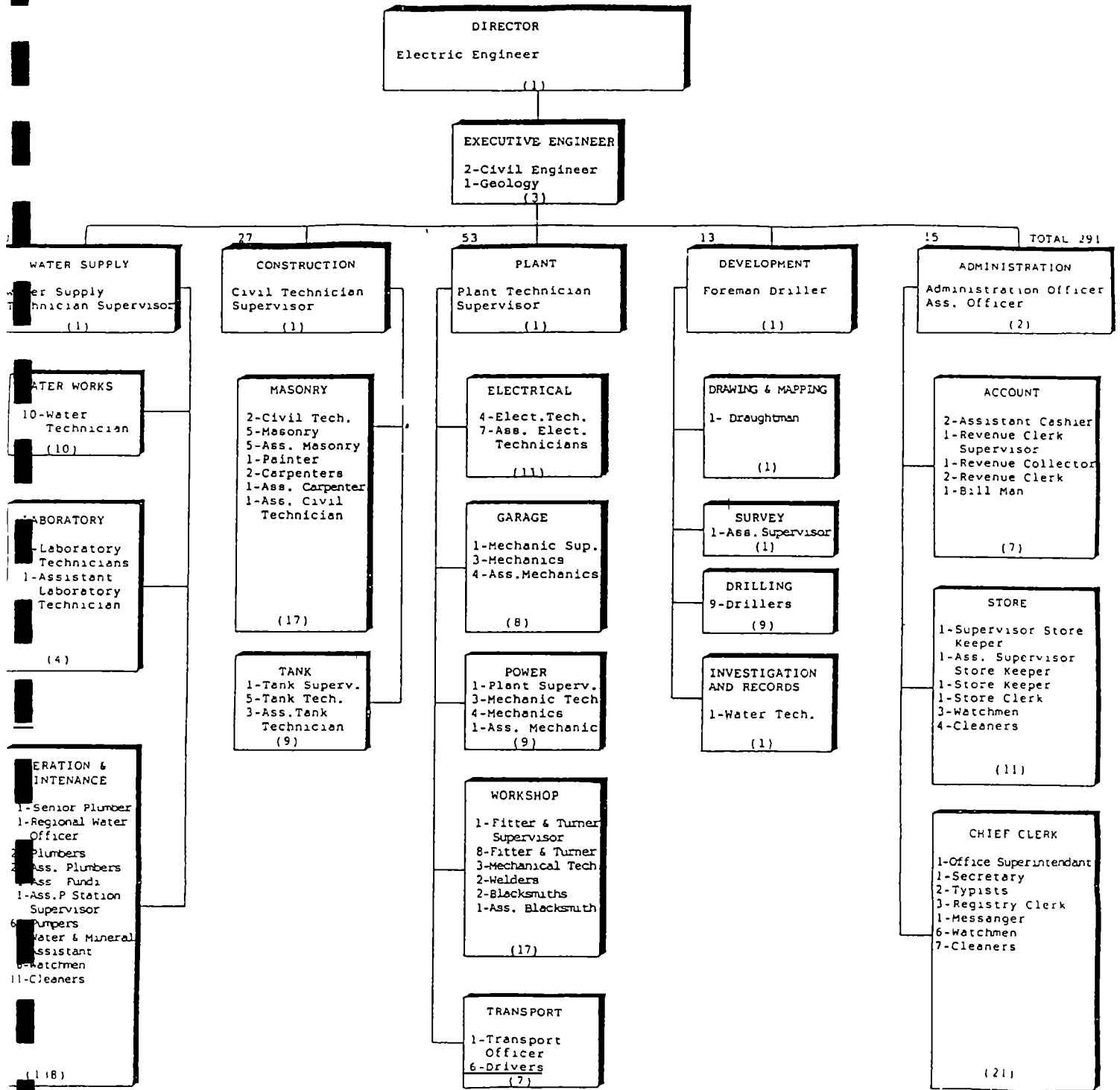




Figure 3 EXISTING ORGANIZATIONAL CHART OF DEPARTMENT OF WATER DEVELOPMENT - UNGUJA







The tasks of the sections described below have been collected by interviewing the superintendents. In the case of Pemba tasks were recently documented in writing. The duties are in principle equivalent on the both islands.

In addition to the major tasks of the sections, there is a general responsibility to report on activities at the request of the Department. In spite of this obligation the resources have been insufficient for any systematic monitoring, also in areas with an organized filing system. In actuality the great majority of man-hours is spent on simply keeping the system functioning. However, the inclusion of a monitoring function in the tasks of sections, indicates that a need for the development of control systems has been acknowledged.

### 3.5.1 Water Supply Section

The Water Supply Section is composed of sub-sections for Operation and Maintenance, Water Works, and the recently established Laboratory. The pumping stations are included in this section - a total of 14 for urban water supply and 8 for rural in Unguja, and respectively 5 and 3 in Pemba.

The Section is responsible for:

- day-to-day operation and maintenance of existing water schemes including repairs
- carrying out installation at the request of customers using materials supplied by them
- regulating the distribution of water by opening and closing lines
- carrying out surveys to define new water resources, preparing technical and financial plans, and designing new schemes
- conducting small projects and promoting community participation in rural areas.

The Pemba Office has also defined the tasks of pumping stations. It can be assumed that the following activities hold true in Unguja as well:

- to operate water pumps
- informing of deficiencies in pumping
- ensuring the security of the station
- cleaning pumping station areas
- planning any shifts in staff
- planning alternate ways of transporting diesel fuel to stations
- cooperation with plant technicians during plant operation.

In practice the activities of the Section have been concentrated on corrective maintenance and operation of existing networks.



### 3.5.2 Construction Section

The Construction Section consists of Masonry Construction and Water Tank Construction sub-sections. The section carries out all kinds of construction work, including repairs of office premises, pumping houses and tanks. The fields of activities are the following:

- carrying out all DWD building and civil work
- conducting surveys of construction sites
- painting and cleaning tanks according to maintenance regulations.

The section cooperates closely with the Water Supply Section and the Electrical sub-section, and is assisted by pumpers in the implementation of tasks. The work is done on the sites. There is no carpentry workshop.

### 3.5.3 Plants Section

The Section has five sub-sections: Electrical, Garage, Power, Transport and Workshop. It is accountable for the following:

- installation, maintenance and repair of power plant and electrical machinery
- installation and repair of pipes and pumps in boreholes along with the Drilling sub-section
- repair and maintenance of vehicles
- coordinating the movements of vehicles
- ordering and keeping records on spare parts and other equipment used by the section and procurement of them.

The workshop carries out turning and fitting, repairs pumps, machines, automobiles, etc, and prepares spare parts when possible.

### 3.5.4 Development Section

The Development Section is divided into the following sub-sections: Investigation and Records, Drilling, Surveys, and Drawing and Mapping. The section is responsible for:

- developing projects in all areas of water supply
- carrying out drilling, pumping tests and collecting test data
- keeping records on boreholes
- carrying out surveys of water sources
- drawing maps
- reporting on data collected to the management.

### 3.5.5 Administration Section

This section has the overall responsibility for manpower management, limited accounting functions and salary payments as well as upkeep of stores. Its sub-sections are:



Administration, Accounts and Supplies. Its activities include the following:

- keeping records on the daily activities of the employees and taking any necessary disciplinary actions
- handling all personnel matters and following up on the implementation of general service regulations and orders
- advising customers on administrative procedures
- taking care of limited financial activities including preparation of annual budget estimates and of payment vouchers, collection of revenue and banking, payment of salaries prepared by the Ministry, and maintenance of vote book
- keeping records on customers
- procurement of the items and equipment required from Zanzibar or the mainland
- keeping records on the tools and other equipment received and delivered, and following up on the use of them
- carrying the overall responsibility for the performance of the DWD.

### 3.6 Manpower of the Department of Water Development

#### 3.6.1 Manpower Inventory

The data on manpower was collected between March and June in 1990 and supplemented in August. The inventory was more time-consuming than expected. The basic data including only the most essential information on employees were to be collected from various sources. The form used is presented in Appendix 4.

The manpower inventory aimed at finding out the quantity and quality of the existing staff. In addition to this the inventory was considered a pilot effort for the future development of a sustainable personnel information system.

The data has been processed by computer separately for Unguja and Pemba. The data base was designed as a sub-consultancy by JJ Database Group from Zanzibar Town and put into the computer by the programme staff. The proposal for personnel records and user manuals will be completed later on.

Thus the data is presently still preliminary. It can now be seen that there are some typing errors in the basic data. This causes for example, minor differences in the total number of employees in various tables. Because they are of no significance to conclusions at this phase the corrections will be made before the establishment of personnel information system.

There are also few shortcomings in the Pemba data. The length of service was known only occasionally before 1980. During that year the daily wage earners were employed permanently and became more accurately registered. It is



likely, however, that most of them had already been working for the DWD for several years before that date. In Pemba there may be some other minor mistakes which could not have been identified accurately. It is nevertheless very obvious that they have no significant effect on the reliability as a whole.

### 3.6.2 General Characteristics

#### Gender

The great majority of the employees are male. In Unguja 14 percent of the staff are female and in Pemba 4 percent.

Women are mainly employed in clerical jobs or as cleaners. Apart from that, there are 4 female electrical technicians, 36 percent of the total number of electricians in Unguja.

A slightly greater proportion of women than men has been hired during the last five years.

#### Age

The age distribution of the staff is shown in Figure 12. The biggest age group in Unguja is 35-45 years of age and in Pemba 46-55 years of age.

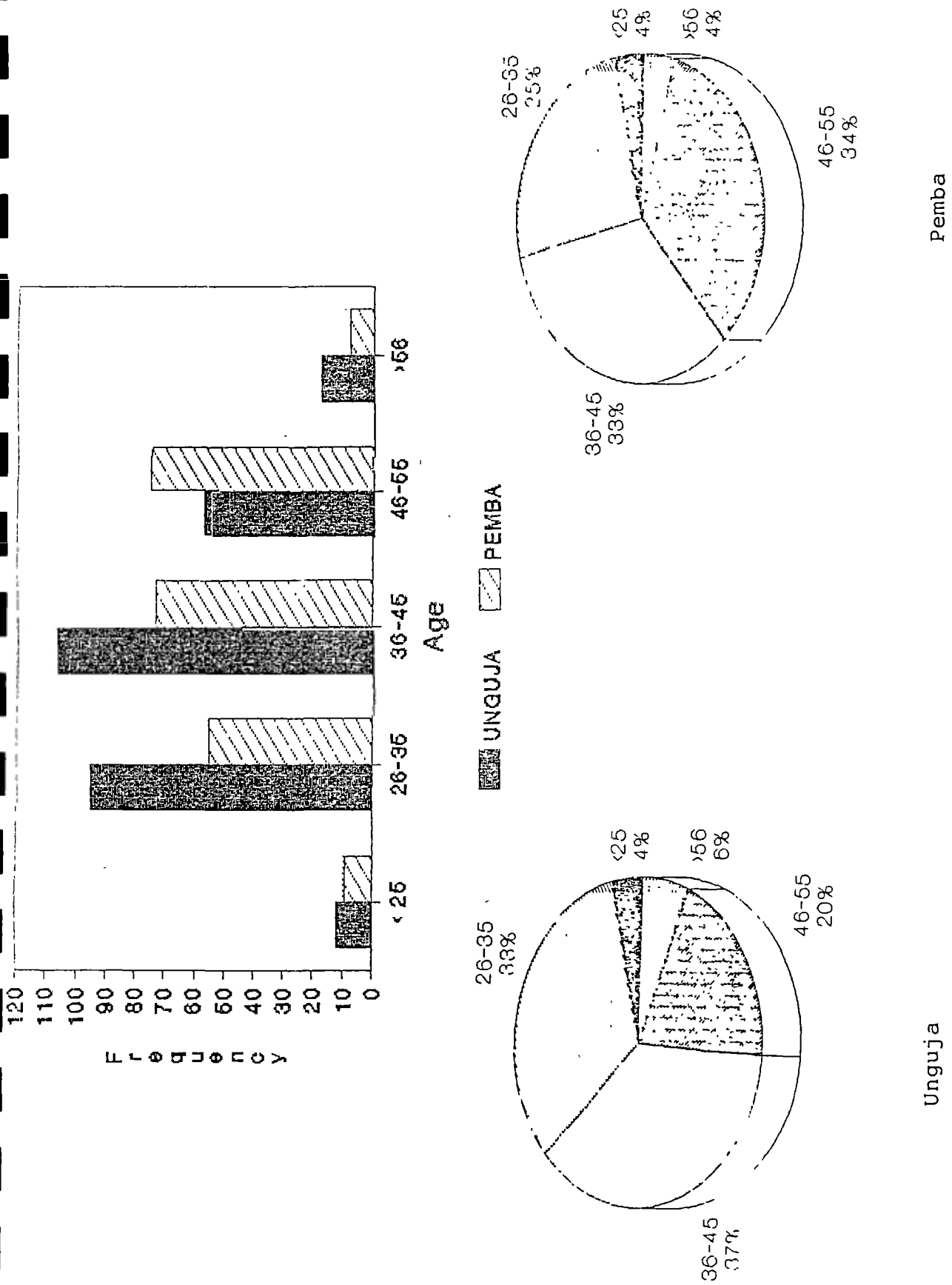
The proportions of employees under 25 years are 4 percent on both islands. The amount of over 56 years of age is equal to the size of the youngest group, though a bit higher in Unguja.

Seventy-four percent of the staff in Unguja and 62 percent in Pemba are aged 45 or under. The great majority of this personnel will consequently still be of working age in 2005.





Figure 5 THE AGE DISTRIBUTION OF THE PERSONNEL ON UNGUJA AND PEMBA





### Length of Service and Mobility

Data on the length of service is inaccurate as far as Pemba is concerned due to the reasons mentioned earlier.

Over one half of the employees in Unguja have been working with the DWD for 15 years or more and one quarter of them for more than 20 years. Some 80 percent of the staff have been employed by the department at least for 10 years. In Pemba the respective proportion is 75 percent.

**Table 3 Length of service for the DWD in Unguja**

Length of service	Male		Female		Total	
	No.	%	No.	%	No.	%
Under 5 years	24	10	6	17	30	10
5-10 years	20	8	5	14	25	9
10-15 years	72	28	13	37	85	30
15-20 years	66	26	10	29	76	26
More than 20 years	72	28	1	3	73	25
Total	254	100	35	100	289	100

**Table 4 Length of service for the DWD in Pemba**

Length of service	Male		Female		Total	
	No.	%	No.	%	No.	%
Under 5 years	30	14	3	33	33	15
5-10 years	21	10	-	-	21	10
10-15 years	149 *	71	6	67	155 *	71
15-20 years	3 *	2	-	-	3 *	1
More than 20 years	7 *	3	-	-	7 *	3
Total	210	100	9	100	219	100

\* The figures from 10 upwards are not reliable

Plumbers, pumpers and drivers are the occupational groups with the longest relative periods of employment. Amongst plumbers in Unguja more than 80 percent have worked with the DWD for over 15 years and 50 percent over 20. Half of the pumpers have a length of service longer than 15 years. Eight of the nine drillers in Unguja and two of the three in Pemba have served the DWD for 20 years or more.

According to the data only a small number of employees (some 22) had work experience in the service of another employer than the DWD or its predecessor. There are no statistics available on the growth of the staff over years, how many persons have left the department due to resignation, or on some other reason. When taking into account that work



opportunities outside the public sector have not been numerous, the mobility of labour force is more likely to occur through retirement than resignation. During the last year 12 new employees were employed in Unguja and 21 in Pemba.

### 3.6.3 Educational Level and Training

Tables 6 and 7 show the educational distribution of the staff. The figures reveal that lower educational levels are over-emphasized in staff composition. However, the educational level correlates remarkably with the age. The younger a person is the better the basic education he or she possesses.

The proportion of those without formal education is quite large, 31 percent of the staff in Unguja and 38 in Pemba. Unfortunately, the absence of formal education often indicates illiteracy or at least an insufficient ability to read, write and count. This problem has also been identified by the management of the DWD. The rate of no formally educated persons is largest in the following trade groups:

**Table 5 Proportion of persons with no formal education in various trade groups**

Job title	No. of employed		Proportion with no formal education	
	Unguja	Pemba	Unguja	Pemba
Pumpers	61	83	51	43
Plumbers	56	39	43	41
Cleaners	22	-	50	-
Labourers	-	23	-	57
Watchmen	15	2	53	-

**Table 6 Educational distribution by age in Unguja**  
(see also Figure 8. General Structure of Educational System, page 61)

Education	AGE					Total No.	Total %
	<25	26-35	36-45	46-55	>56		
No formal education	3	8	42	25	12	90	31
Std I-III		3	1	2	1	7	2
Std IV-VI		13	22	13	4	52	18
Std VII-VIII		14	23	17		54	19
Form I-III	5	18	17			40	14
Form IV	2	6	1			9	3
Form VI	1	3				4	2
F.T.C.	1	24				25	9
Diploma		2	1			3	1
Degree		2				2	0.5
Master Degree		2				2	0.5
<b>Total</b>	<b>12</b>	<b>95</b>	<b>107</b>	<b>57</b>	<b>17</b>	<b>288</b>	<b>100</b>
<b>Percentage</b>	<b>4</b>	<b>33</b>	<b>37</b>	<b>20</b>	<b>6</b>	<b>100</b>	



Table 7 Educational distribution by age in Pemba

Education	A G E					Total No.	Total %
	<25	26-35	36-45	46-55	>56		
No formal education		10	31	36	5	82	38
Std I-III		4	9	8	1	22	10
Std IV-VI		3	13	16	2	34	16
Std VII-VIII		9	13	13		35	16
Form I-III	4	16	7			27	12
Form IV	5	2				7	3
Form VI							
F.T.C.		8				8	4
Diploma		1				1	0.5
Degree		1				1	0.5
Master Degree							
Total	9	54	73	73	8	217	100
Percentage	4	25	34	34	3	100	

Of those without formal education, 58 percent in Unguja and 50 percent in Pemba are under 45 years old, the biggest uneducated age group being 36-45 years of age. This means that most of them will be still working for 15-20 years.

The proportion of higher educated persons is quite small at the moment and smaller in Pemba than Unguja, where the situation improved recently when 4 new technicians with the F.T.C. were employed last year. Only one person is qualified in administrative issues and no one has any higher educational background in economics or accountancy.

In 1989 there were 7 employees from Unguja on relatively long training leave for further studies in various technical fields. No figures from Pemba are available.

No information is available on the attendance in adult education or vocational courses. It is more likely that this indicates the absence of training rather than a lack of statistical data. When the length of service and the age distribution are taken into account as well a need for upgrading the knowledge of the staff at each organizational level, can be identified.





### 3.6.4 Retirement Projections

The mandatory retirement age is 60, but an employee has the option of retirement after the age of 55 years. Retirement benefits depend on the length of service and the salary level. The pension is paid on completion of a minimum of 10 years of permanent service. In addition to the pension, a gratuity is paid to all staff with a minimum length of service of ten years. The gratuity is a lump sum paid at the retirement and is followed by the monthly pension. Calculations are made according to the following formula:

Pension                    monthly salary x 12 x months of service x 3

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28800

Gratuity                    monthly salary x 12 x months of service x 25

---

4800

For instance, the pension for a person with a salary of Tshs 3000 after 20 years of service would be Tshs 900 per month. This makes 30 percent of the monthly salary. After 10 years permanent service the pension would be Tshs 450 or some 15 percent of the salary. The gratuity would be Tshs 45,000 after 20 years of service.

A salary register for each employee is kept by the register clerk of the MWCELE, and will accompany an employee if he or she changes an employer.

Because the majority of the DWD staff is middle-aged there will be very few persons of a mandatory retirement age in the near future (see Table 8 and 10). The picture changes when the possibility of optional retirement is taken into account as can be seen in Tables 9 and 11. Especially at the lower levels the natural wastage would be remarkable. In those trade groups, however, the pensions are small which does not attract the worker to leave his job when at the same time work opportunities outside of the government sector are not good.

In any case the use of this possibility for reducing employees in trade groups should be considered where there is overstaffing. It is also worth looking into whether vacant posts can be rearranged so that two or three lower level posts could be transferred to one post with a better salary and higher qualification requirements.



**Table 8 Mandatory retirement (at age 60) in various trade groups in Unguja for 1991-2000**

Job title	No. of employees	YEAR				
		1991	1992	1993	1994	1995-2000
Plumber	28				2	5
Senior plumber	1				1	
Plumber, ass.	27					3
Fundi, ass.	1				1	
Manson ass.	5					2
Fitter and turner, supervisor	1				1	
Plant technician, supervisor	1					1
Tank supervisor	2			1		
Driller	9	1				2
Driller, foreman	1					1
Pumper	61					8
Watchman	15					3
<b>Total</b>		<b>1</b>		<b>1</b>	<b>5</b>	<b>25</b>

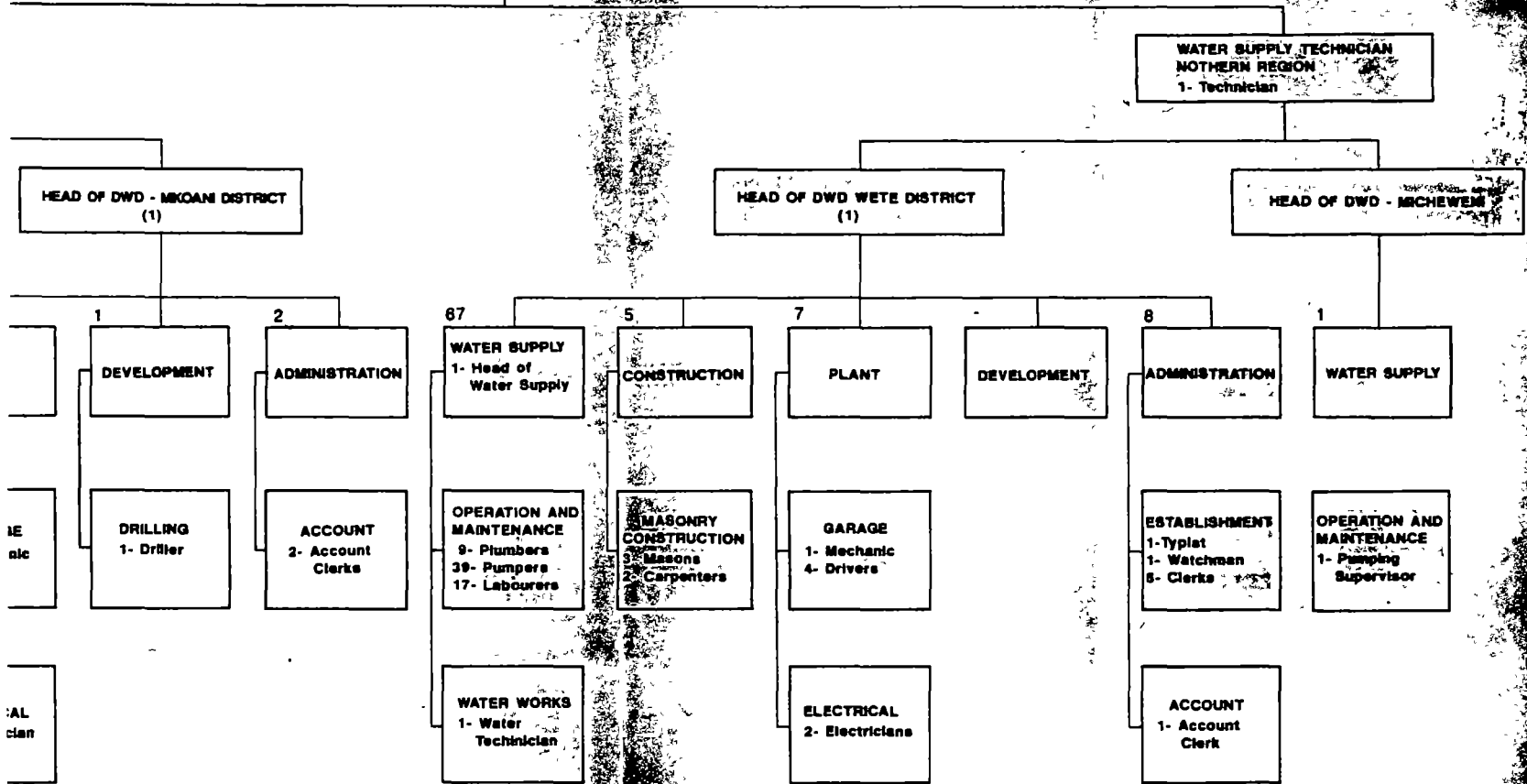
**Table 9 Optional retirement (at age 55) in various trade groups in Unguja for 1991-2000**

Job title	No. of employees	YEAR				
		1991	1992	1993	1994	1995-2000
Plumber	28	4	4	4	7	11
Senior Plumber	1	1	1	1	1	1
Plumber, ass.	27	4	4	4	4	7
Fundi, ass.	1	1	1	1	1	1
Fitter and turner, supervisor	1	1	1	1	1	1
Manson	5					2
Plant technical, supervisor	1					1
Tank supervisor	2	1	1	1	1	1
Driller	9	2	2	3	3	8
Driller, foreman	1	1	1	1	1	1
Pumper	61	4	4	4	7	23
Watchman	15	1	1	1	1	4
Fitter and turner	8					2
Blacksmith	2					1
Painter	1					1
Mechanic	8					1
Revenue clerk	2					1
Driver	6					1
Cleaner	22	1	1	1	1	3
<b>Total</b>		<b>21</b>	<b>21</b>	<b>22</b>	<b>28</b>	<b>71</b>



OFFICER IN CHARGE  
OF ENGINEERS  
PLANT SUPERINTENDENT  
WATER SUPPLY SUPERINTENDENT

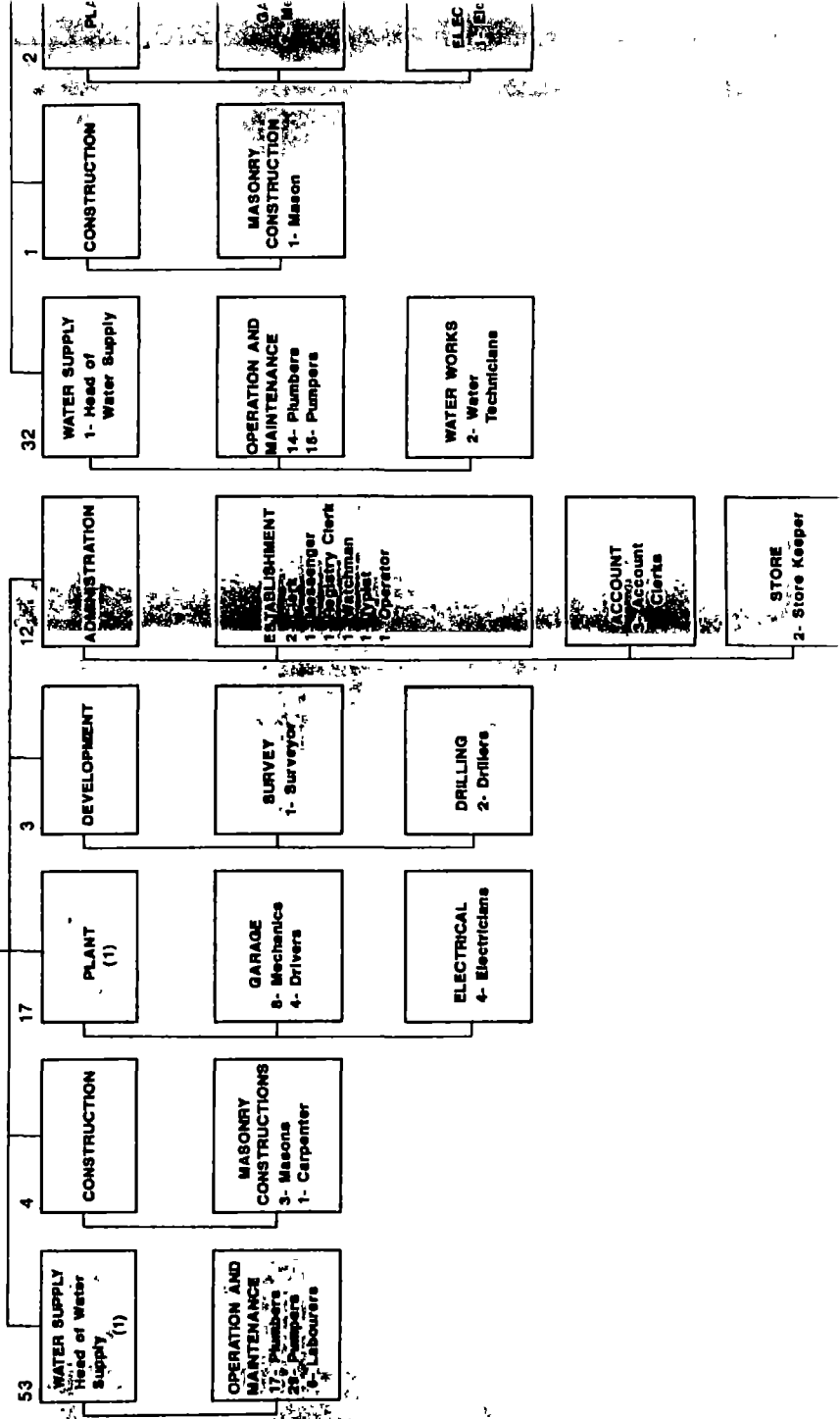
EXISTING ORGANIZATION  
DEPARTMENT OF WATER SUPPLY





WATER SUPPLY TECHNICIAN  
SOUTHERN REGION  
1- Water Technician

HEAD OF DWD CHAKE CHAKE DISTRICT







**Table 10 Mandatory retirement (at age 60) in various trade groups in Pemba for 1991-2000**

Job title	No. of employees	Y E A R				
		1991	1992	1993	1994	1995-2000
Plumber	39				1	5
Plumber, head	1					
Pump maintenance head	1		1			1
Pumper	82					14
Driller	3					1
Head of water supply district	1					1
Surveyor	1					1
Labourer	23					2
Driver	8					3
Registry clerk	1					1
<b>Total</b>			1		1	29

**Table 11 Optional retirement (at age 55) in various trade groups in Pemba for 1991-2000**

Job title	No. of employees	Y E A R				
		1991	1992	1993	1994	1995-2000
Plumber	39	3	4	5	6	19
Plumber, head	1	1	1	1	1	1
Pump maintenance head	1	1	1	1	1	1
Pumper	82	7	11	12	16	30
Driller	3			1	1	2
Head of water supply district	1				1	1
Surveyor	1	1	1	1	1	1
Labourer	23				1	6
Driver	8		1	2	2	4
Registry clerk	1	1	1	1	1	1
Pumping supervisor	1					1
Carpenter	3					1
Manson	7	3	3	3	3	5
Mechanic	10					2
Accounting clerk	6					1
Clerk	7					4
Operator	1					1
<b>Total</b>		17	23	27	34	83



### 3.6.5 Salary Structure

There are three salary scales in use for government employees. The OS-scale includes 4 grades and is used for operational services, the KU has 2 grades for auxiliary services and the MUS-scale 19 grades for civil service officers. The entry salary and qualifications for various positions are determined by the schemes of service approved by the Department of Manpower Development and Administration.

Salary increases are given in annual increments. It is also possible to move into a higher grade, when the principal secretary has approved the employee appraisal report as prepared by the department head. Final permission for grade changes from OS-1 to MUS-2 are issued by the Department of Manpower Development and Administration, and MUS-3 upwards by the Civil Service Commission. The Commission sets up trade tests which an employee must pass before getting transfer to upper grades.

Another salary structure called the MMU is in use for parastatal corporations. The scale includes 19 grades. Parastatal salaries are also controlled by the Government. The civil service and parastatal structures are nearly equivalent although the top end of the parastatal scales is a bit lower than in the civil service. This fact also affects the low staff turnover in both sectors. The placement of the DWD staff according to the amount of salary is shown in Figure 6.

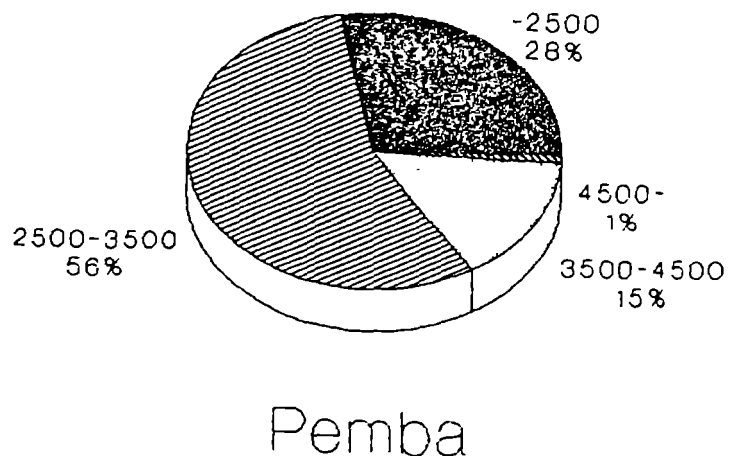
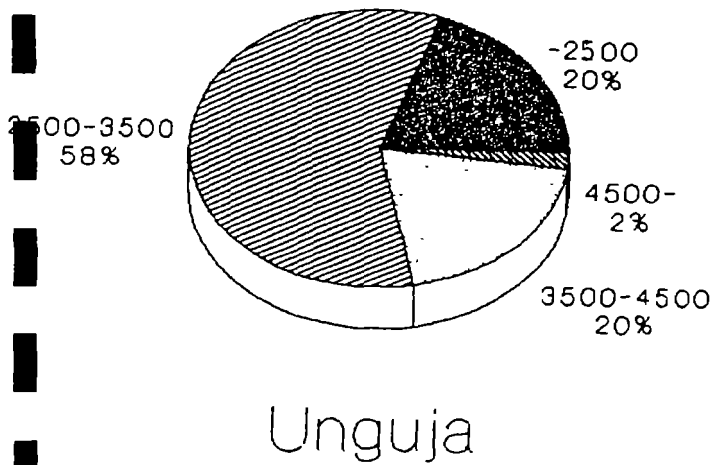
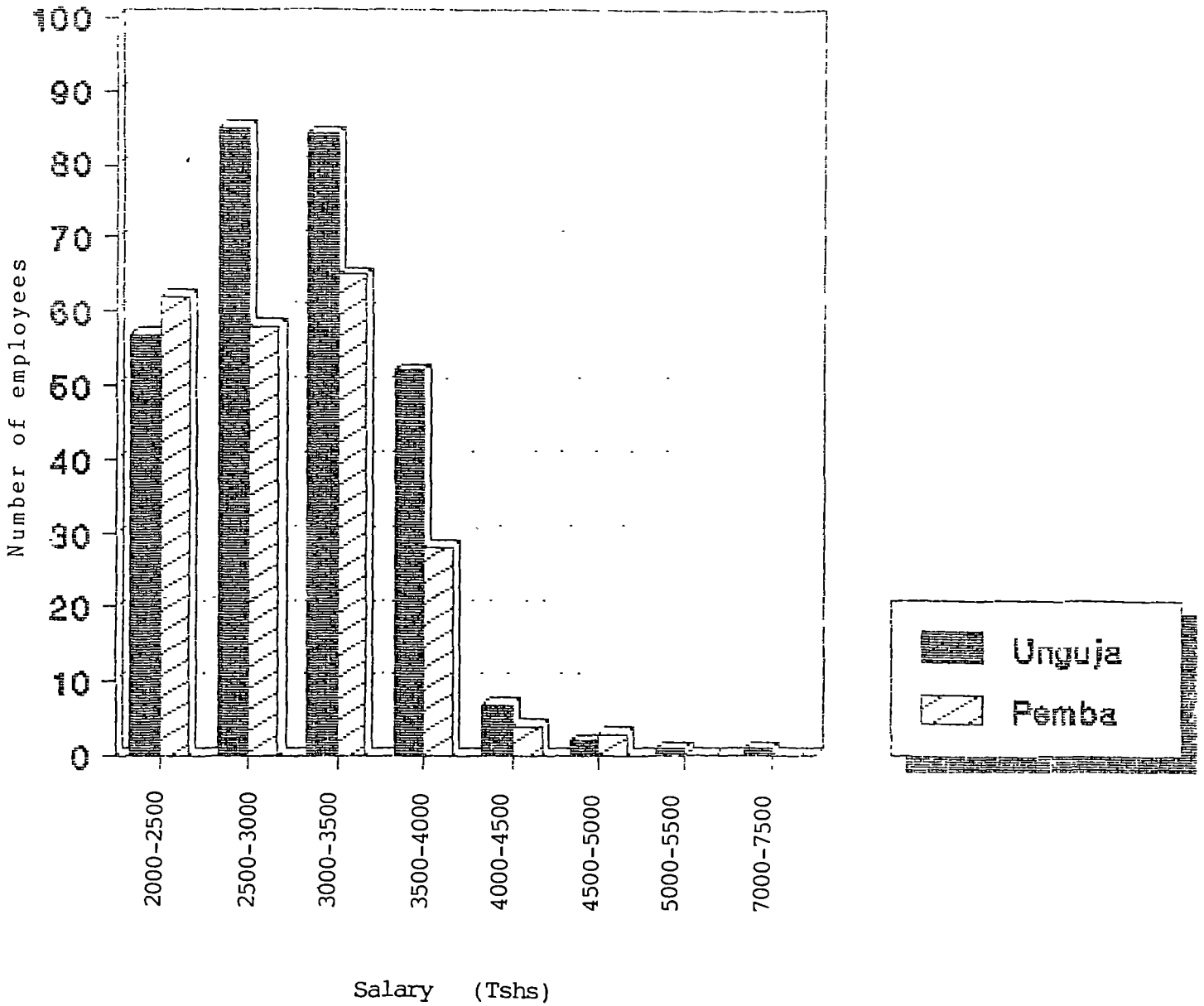
The level of salaries is slightly lower in Pemba compared with Unguja. There are more who earn under 2500 Tshs per month in Pemba as well as fewer obtaining more than 3500 Tshs per month. It is partly due to the labour structure favouring lower level of staff.

The distribution of staff into salary grades as based on levels of education is scattered. The range is greater on Unguja than Pemba at the top end of grades (see Tables 12 and 13) Although there seems to be a correlation between salary and education this is not very clear in higher wage groups. For instance, a person with no formal education may get the same salary as a person with a F.T.C. or even a Master's Degree.

It is difficult to identify the factors job placement within the scale is based on. It would be better if there were one grade for all jobs of a similar level.

The structure should be reviewed using job evaluation and job descriptions to determine relative values and relationships between different jobs. Progression through the system ought to be based on performance and merit. It is clear that the reform of scales for the whole civil service is a large task which may take time. In the meanwhile the development of some sort of bonus system or other incentives should be considered in order to motivate employees in improving their performance. These conclusions are in line with the recommendations of the ERP.







**Table 12 Distribution of Unguja staff into salary grades according to education**

Education	SALARY GRADES											
	OS-1	OS-2	OS-3	OS-4	KU-1	KU-2	MUS-1	MUS-2	MUS-3	MUS-4	MUS-5	MUS-15
No formal education	1	10	41	27			1	8	1	1		
Std I-III		1	3	2			1					
Std IV-VI		7	19	15			2	16	2	1		
Std VII-VIII	1	10	12	12		2	2	13	2			
Form I-III	3	4	2	6	6	8	3	8				
Form IV	1				4	2	1	1				
Form VI		1			1	1				1		
F.T.C.								21	4			
Diploma									1	1	1	
Degree									1	1		
Master's Degree											1	1
Total number of employees: 298												

**Table 13 Distribution of Pemba staff into salary grades according to education**

Education	SALARY GRADES											
	OS-1	OS-2	OS-3	OS-4	KU-1	KU-2	MUS-1	MUS-2	MUS-3	MUS-4	MUS-5	MUS-15
No formal education	2	8	38	17	1	4	7	6				
Std I-III		2	8	8		2	1	1				
Std IV-VI	3		10	4		4	1	8	4			
Std VII-VIII	2	1	9	7			5	5	4		2	
Form I-III	1	6	3	3	5	7	1	1				
Form IV					4	1	1	1	1			
Form VI												
F.T.C.									4	4		
Diploma											1	
Degree											1	
Master's Degree												1
Total number of employees: 219												

### 3.6.6 Staffing Patterns and Manning Ratios

The number of staff excluding director, executive engineers and district heads are in the various sections the following:





Table 14 Number of staff in the various sections in 1990

Section	Number of employees	
	Unguja	Pemba
Water Supply	153	153
Construction	27	10
Plant	53	26
Development	13	4
Administration	15	22
Total	261	215

The Water Supply section is the largest one in terms of the number of employees, particularly its Operation and Maintenance sub-section in which 138 persons work on Unguja and 147 on Pemba. The staff of this section consists mainly of plumbers and pumpers. Within this section the proportion of persons without any formal education is greater than the average, 46 percent in Unguja and 42 percent in Pemba. Considering the fact that there are 22 pumping stations in Unguja and 10 in Pemba, some amount of overstaffing is evident despite the fact that work is done in shifts.

Another clearly overstaffed sub-section is the Garage. There is one lorry on Pemba and 18 employees for it. On Unguja there are 4 functioning cars, and 15 persons taking care of them. The staffing composition of the various sections is presented in detail in Figures 3 and 4.

There are 68 different job titles for Unguja and 28 for Pemba. When the titles are categorized by education and/or skills required of jobholders, six main occupational groups can be identified:

- A Professional/technical  
- persons with a higher education in any technical field
- B Professional/administrative  
- persons with a higher education in administrative or financial issues
- C Technicians  
- persons with the Full Technician Certificate or its educational equivalent.
- D Craftsmen  
- skilled or semi-skilled workers qualified through schooling and/or experience
- E Clerical staff
- F Unskilled workers

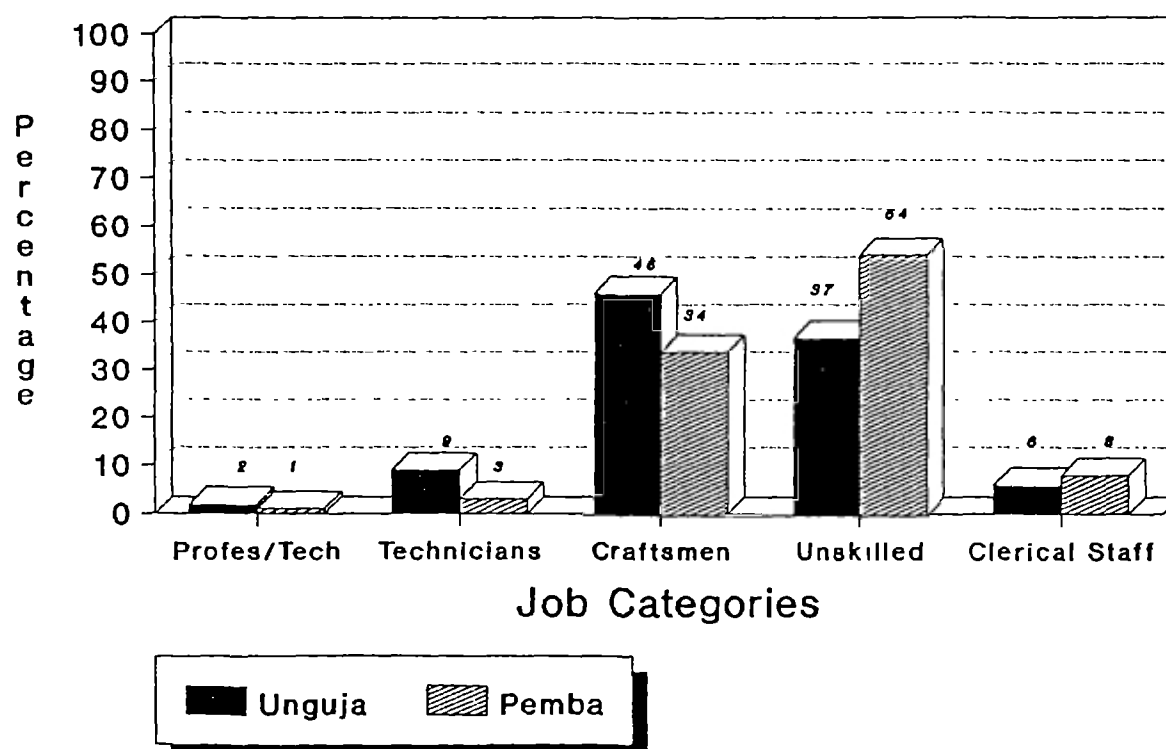
Manpower is distributed into these job categories as shown in Table below and as Figure 7, further illustrates.



Table 15 Distribution of staff by job categories in 1990

Job categories	UNGUJA		PEMBA	
	No. of empl.	% of empl.	No. of empl.	% of empl.
Professional/technical	5	2	2	1
Professional/administrative	1	0	0	0
Technician	25	9	8	3
Craftsman	134	46	74	34
Clerical staff	18	6	18	8
Unskilled	106	37	118	54
Total	289	100	220	100

Figure 7 . PROPORTIONS OF THE VARIOUS JOB CATEGORIES ON UNGUJA AND PEMBA





The two most predominant characteristics are the great proportion of unskilled workers, especially in Pemba and the total lack of persons with any higher educational background in economics or financial issues. The large proportion of clerical staff in Pemba is due to separate administrative units for each town. The number of high and medium-level technical personnel is much too low, some six percent of all water supply staff in Zanzibar.

The USAID/WASH team used a manning ratio of one employee to a population of 1600 served in Tanzania (the Environmental Sanitation Master Plan for Training and Education, September 1982) and suggested the following staffing pattern for the water sector labour force:

Engineers	4%
Technicians	14%
Skilled labour	28%
Clerical staff	22%
Unskilled labour	32%
Total	100%

The comparison with these target rates calculated for the mainland reveals that skilled and unskilled labourers are over-represented in Zanzibar and engineers, technicians and administrative staff under-represented.

When manning ratios are calculated according to job categories the Zanzibarian situation is as follows:

Table 16 Manning ratios according to job categories in 1990

Job categories	1 employee/100,000 persons	
	Unguja	Pemba
Professional	1.3	0.8
Technician	6.7	3.0
Craftsman	35.7	29.4
Clerical	4.8	6.8
Unskilled	28.3	44.5
Total	77.5	83.0



There is one employee to a population of 1204 served in Unguja to 1290 served in Pemba, calculated on the basis of 1988 census data.

Overall staffing in water works organizations is estimated to fall generally in the range of one employee per 600 to 1600 persons served depending on the level of service and the technology employed. One criterion for a well-developed waterworks system has been regarded as one employee per 1600 persons served. A commonly accepted range in developing countries is said to be one employee per 600 to 1000 population served. (Human Resources Development Handbook, WHO 1984). If attention is paid only to figures Zanzibar is doing quite well in this respect.

Zanzibar will in any case need to establish its own staffing criteria for the urban water supply labour force based on desired levels of service as well as on organizational structure developed and technology employed.

### 3.6.7 Population Projections for 1990-2015 and Levels of Service

The total population of Zanzibar Town is projected to increase from the present 190,000 inhabitants to 483,000 inhabitants by the year 2015. The population projections for various town subareas are seen below.

Table 17 Population projection for Zanzibar Town for 1990-2015

Town district	1988	1990	2000	2015
Stone Town	15,854	16,000	16,800	18,200
Centre and extension area	141,807	149,000	191,000	277,900
Urban fringe	18,570	25,000	67,500	187,000
Total urban area	176,231	190,000	275,000	483,000

The population projection for Pemba urban areas is summarized in the following table:





Table 18 Population projection for Wete, Chake Chake and Mkoani for 1990-2015

Town	1988	1990	2000	2015
Wete	19,196	20,080	30,000	54,800
Chake Chake	13,972	14,380	20,900	36,500
Mkoani	7,327	7,400	9,900	15,600
Total urban area	40,860	41,860	60,800	106,900

If the existing staff were divided into the present urban and rural water sectors in relation to the population served, the number of employees for each sector would be the following:

Zanzibar, urban	136 employees
Zanzibar, rural	154 employees
Total	290 employees
Pemba, urban	34 employees
Pemba, rural	186 employees
Total	220 employees

If the manning ratio were to be set at the level of one employee to 1400 people served in 2000 and one employee per 1600 in 2015, it will lead to the following amounts of total staff:

	Year		
	1990	2000	2015
Zanzibar Town	136	196	300
Pemba, urban	34	43	67
Total	170	239	367

There are also other factors which determine the optimum size of a water supply institution. Regardless of the population size, minimum labour force is needed to provide basic services and to maintain systems. Thus the personnel needed cannot be deduced only from the number of inhabitants, although it obviously gives a general measurement for an initial assessment of staff needs.

Current levels of service vary in accordance with housing areas. The development estimated is described in Table 19.

The service levels in terms of the type of connection will decline slightly in Zanzibar Town in the course of time.



This is due to the assumption that the growth in population will take place mainly in the fringe areas of the town and the inhabitants of the town centre decrease proportionally.

In Pemba the proportion of indoor taps will increase during the planning period, while yard taps and standpipes will decrease.

The service levels measured by the type of connection do not express the whole truth about the quality of service. In fact, the current water supply is also unreliable in areas with a high rate of indoor taps due to breakdowns in systems, insufficient pumping capacity and irregular power supply, among others.

One of the major aims of the programme is to guarantee sufficient water supply per capita without favouring a certain type of connection.

Table 19 Domestic water supply projection according to the type of connection

Type of connection	YEAR		
	1990 %	2000 %	2015 %
<hr/>			
Zanzibar Town			
<hr/>			
- Indoor tap	51.5	46.5	46.0
- Yard tap	32.0	33.5	32.5
- Standpipe	16.5	20.0	21.5
Total	100.0	100.0	100.0
<hr/>			
Pemba urban areas			
<hr/>			
- Indoor tap	30.9	32.3	41.0
- Yard tap	39.8	39.0	36.2
- Standpipe	29.3	28.7	22.8
Total	100.0	100.0	100.0
<hr/>			



### 3.7 Conclusions

#### Organization Structure

In principle the institutional set-up covers the essential areas of water supply activities. The regional organization of Pemba seems to lead to duplication and sometimes triplication of services (e.g. several administration units, garages or development sections) which could be performed centrally in a more effective and less resource-consuming way. One reason for this organizational pattern is probably the fact that communication facilities including vehicles and telephones are very poor in Pemba. However, there is a need to consider the pros and cons of centralization in activities which need not be carried out locally. This may also alleviate the acute problem of skill shortages.

In all likelihood not all the tasks mentioned in task descriptions are actually implemented at the moment. Activities focus on corrective maintenance which also determines to a great extent the attention other operations receive. Among the tasks there are very few duties aimed at minimizing breakdowns and ensuring that the components of a system work efficiently. It is obvious that the emphasis of activities should be moved towards preventive maintenance, enabling improved performance and decreased costs in the long run.

Corrective maintenance is characterized by a rapid response to an operational requirement. This kind of work orientation is reflected in other activities as well. No obligations for preparing plans of action or cost estimates for a short or longer period are mentioned among the tasks. Although the sections are responsible for reporting, the report content and delivery methods have not been specified. Without being connected to plans, monitoring and controlling tends to be sporadic and often somewhat useless because it is not used for directing operations.

Apart from what has already been described above, the Water Supply Section has been assigned "to prepare technical and financial plans, and to design new schemes". However, the fact is that no such work orders have been made for many years.

It can be concluded that a planning and controlling system for operations and finances should be introduced, and the duties of the sections clearly specified therein.

There are also some other factors as well which deserve more attention:

- Manpower management and staff development functions should be strengthened due to the great significance of the staff component in all development work.
- Financial and economic issues are institutionally undervalued in relation to their vital importance.



- Consumer services should be concentrated to create workable mechanisms for consumers interaction with the department. Cooperation between the operations of billing and revenue collection and of maintenance should be ensured.
- The coordination of transport is assigned to the Plant section. The task differs in nature, however, from the other activities of the section. A typical administrative duty like this should be undertaken by the Administration.
- The role of the Development and Investigation Section should be reviewed, and the duties of the department of water quality monitoring as well as the placement of the Laboratory in the institutional structure need to be thought over.
- The department has a right to issue drilling permits, assigning a coordinative role to the DWD in water affairs. There is a need to improve the coordination among various ministries and major water users; this intention should be consolidated via institutional means as well.

#### Staffing Patterns

The staffing of the DWD can be characterized as follows:

- a high rate of unskilled workers
- a lack of persons with higher education in economics or financial matters
- a large proportion of clerical staff
- a small ratio of high and medium level technical personnel

There is a need to establish a special staffing criteria for the urban water supply labour force based on the desired level of service, technology employed and the workload required.

The staffing pattern including a salary structure should be reviewed using job descriptions for determining duties and for characterizing the relationships between the different jobs. The scaling should be based on performance and merit.

Some sort of bonus system or incentive schemes should be developed in order to motivate employees to improve their performance.





4 INSTITUTIONAL ASSESSMENT

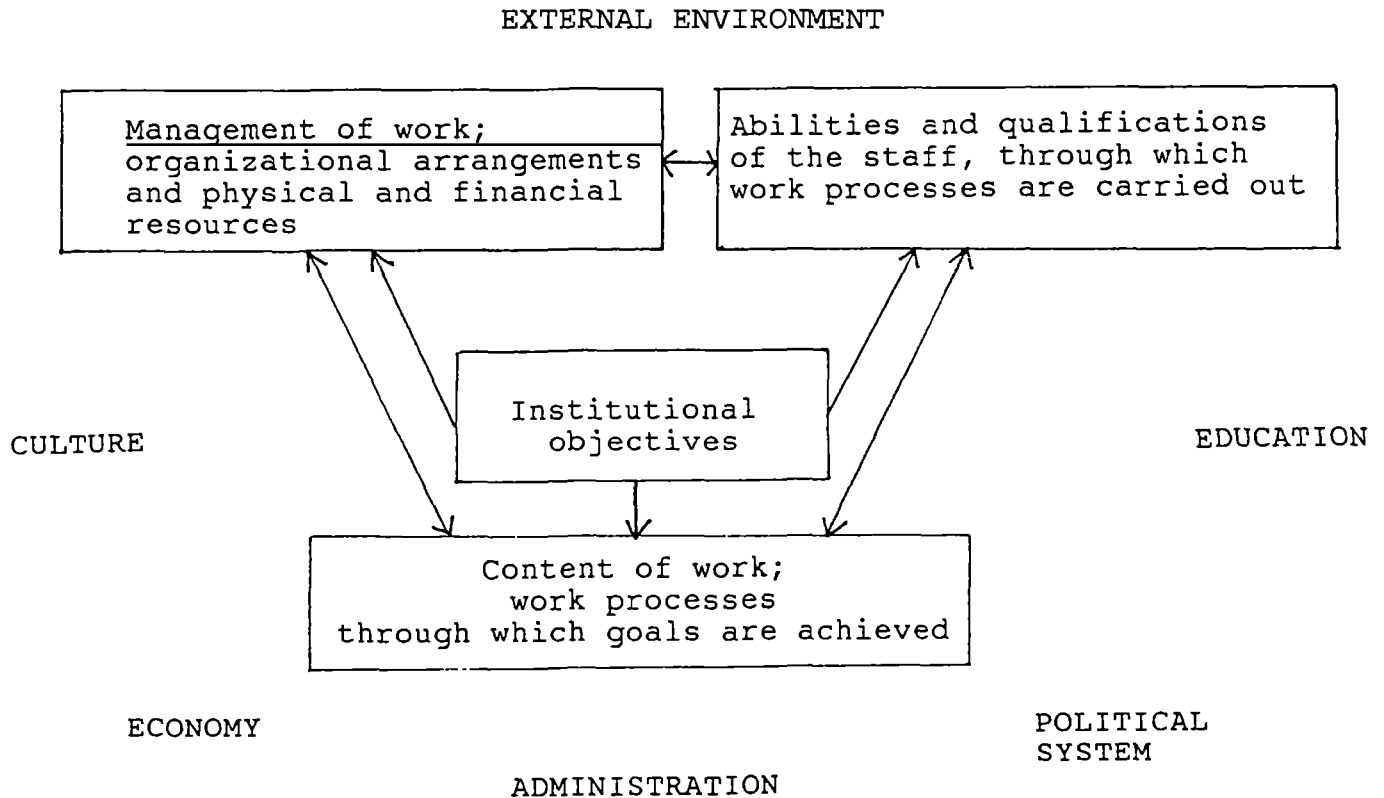
4.1 Purpose and Framework of the Study

The study focuses at diagnosing the DWD's organizational systems and the people behind them. It concentrates on problem identification in institutional areas and tries to find out the both strengths and the weaknesses in current management practices, as well as to assess the needs for management training. The results are to be used also in designing institutional improvement measures.

Institutional problems tend to cut across work units and functional sectors. The development of one area may be prevented due to deficiencies in another element of the system. The rehabilitation of the water supply network for example, may be hampered by the lack of maintenance management. The objectives, actual work processes and the management of work are continuously interacting in a dynamic process with one another. Any change in one element affects another. The whole system should act in accordance with its goals, which is a challenge for management.

In addition there are several external influencing factors which determine the life of an institution. It is important to identify them and to determine which of them can be influenced by the entity and to what extent. Consequently more effort should be directed at those aspects most vital to obtaining results for the institution.

The interactive relationships can be briefly described as follows:





## 4.2 Methods and Reliability of Results

The data used for this institutional assessment is based on the interviews of DWD staff, discussions with government officers in charge of manpower, administration and development as a whole and official documents such as the Economic Recovery Program (ERP) as well as previous reports on water supply.

The list of the documents used and the government offices consulted are presented in Appendices 6 and 7. The checklist which personnel interviews were based on can be found in Appendix 3.

The interviewees were selected from various administrative levels in conjunction with the DWD in Unguja and Pemba. All together 12 staff members on Unguja and 7 persons and a group of persons in Wete on Pemba were interviewed.

The interviews were conducted between March 30 and May 9, 1990 by the consultant and her counterpart in English and, when necessary, in Swahili. They lasted from half an hour to two hours. The notes and other observations of two interviewers were made separately and discussed carefully later on.

The strategy adopted was that people were allowed to freely express their opinions and ideas about the subject under discussion. The role of the interviewers was to make clarifying questions and to ensure that all aspects of the topic were dealt with.

The interviews focused on gathering information on employees' experiences of the situation including problems they regarded as crucial and possible changes for improving the work performance.

The facts concerning institutional management are based on available documents and on discussions with Zanzibari experts in the field.

Although the number of interviewees was relatively small, the responses as a whole undoubtedly reflect the general views of the staff and are sufficient for the level of analyses chosen for this study. As a rule, a minimum of three persons is required for an in-depth assessment of an institution. In this case a team of two was considered acceptable due to the need for rapid assessment and a focus only on basic outlines.

## 4.3 Criteria for Appraisal and Presentation of the Results

The results are presented by treating the various institutional factors respectively. The structure follows in its main features that of the WASH Technical Report No. 37, Guidelines for Institutional Assessment, Water and Wastewater Institutions, 1988. Some modifications have been made however. Only fundamental variables have been considered and they are applied to the degree of depth used in this study.



Each institutional area is examined against criteria explained in the beginning of each section. Conclusions drawn from the interview data are stated in the text. The description of managerial functions of the DWD is mainly based on the interview data. The classification of institutional aspects is as follows:

- Organizational Autonomy
- Interaction with External Institutions
- Objectives, Planning and Controlling
- Managing and Administrative Systems
- Consumer Orientation
- Technical Facilities and Capabilities
- Maintaining and Developing the Staff
- Motivation and Organizational Culture

Because these factors are interrelated, another kind of grouping could have been justified as well. This approach was concluded because it covers sufficiently the issues pointed out in the framework of the study.

The situation on Pemba has been treated separately only if it differs essentially from that on Unguja.

The institutional systems of the Urban and Rural Water Supplies were not distinguishable at the present time. However, this has no significance for conclusions at this phase.

#### 4.4 Results

##### 4.4.1 Institutional Position of the Department of Water Development

###### Organizational Autonomy and Scope of Authority

Criteria for Appraisal:

- Specification of the goals and tasks of the DWD in water policy, legislation or other regulations.
- Degree of autonomy to conduct DWD's affairs including the power to make decisions on institutional policy and goals, planning, budgeting, and organizational structure as well as the roles and responsibilities of divisions, and establishing and maintaining staffing.

While functioning under the Ministry of Water, Construction, Energy, Lands and Environment (MWCELE) the DWD has a governmental department status. Its resources depend on central government allocation as well as on priorities set by the supervisory ministry. The restrictions faced by the DWD due to this have also been reported earlier by Solanes (1985) and the Rural Water Supply Project (1988). Both reports recommended that the DWD be backed by a legislative body.

The Urban Water Supply system in Zanzibar Town has been operating for about 70 years. Practices applied presently



are based on Water Work Rules dating back to 1935 and have been gradually modified. They are still mainly valid, but without official power.

There are some initial efforts in progress to formulate politically accepted guidelines for developing water supply regulations, a system of water rights and groundwater use regulations. A committee appointed by the Minister of MWCELE is preparing a proposal for water policy.

The Urban and Rural Water Projects also intend to produce plans and development proposals. However, enabling legislation and rules for defining the powers and attributions of the DWD would be necessary in order to ensure that the project work would be sustained.

Clearly the DWD needs to be provided with basic legal tools for conducting its affairs and effectively meeting its responsibility. Its functions should be expanded from the day-to-day activities of maintenance and operation of existing networks to securing the long-term sustainability of the water supply as well.

On the basis of an official statement of the Zanzibar Government in 1982, water is free for domestic consumers while industrial and commercial users are charged for estimated water consumption. Charges are collected by the DWD but transferred to the State Treasury.

The ERP of Zanzibar Government has stated that water charges should be restored for domestic users as well. Although not yet realized, this intention is very positive and should be followed up by granting to the DWD authority to independently control the water charges generated and collected by it. All necessary efforts should be made to provide the DWD with sufficient funds for the required water supply development.

As a government department the DWD must follow the general procedures for the personnel administration. These rules regulate recruitment, promotion, salaries and other DWD personnel decisions. All staffing proposals are submitted through the MWCELE to the Department of Manpower, Administration and Development. The present salary structure does not, for example, allow for performance incentives or any reallocation of salaries.

The DWD should be provided with more freedom of movement in establishing staffing levels and levels of employee compensation, including salaries and benefits for increasing productivity and motivation.

The DWD's possibilities for training personnel depend on the Ministry of Education and the aid of donors. Because of a lack of skill in all sectors and a limited number of training opportunities, it is very difficult for the DWD to adequately train staff for different tasks. Only if the DWD could itself finance the training of staff, all obstacles would be eradicated.





Despite a number of serious external restrictions the DWD could improve its internal operations within the limits of available resources.

The matters in which the DWD is taking more independent action are the following:

- cutting off water supply due to failure in payment
- development and clarification of its organizational structure including departmental roles and responsibilities
- establishing internal action plans as well as criteria for work performance and controls
- developing work processes and practices
- improving communication systems
- developing staff through on-the-job-training

An adequate level of autonomy is an important prerequisite for the success of any organization. Actions should be taken to improve the DWD's situation in this regard.

#### Interaction with External Institutions

Criteria for Appraisal:

- Determination of the scope of authority of the DWD with regard to related sectors.
- Capacity to influence those institutions affecting the achievement of the DWD's goals.

The DWD's political, financial and legal performance is strongly associated with the political will and economy of Zanzibar. While preparing budget proposals the Ministry of Finance and its Price Commission play an important role through the approval taxes and rates. The power of the DWD over these matters may be very limited and is based on having a representative in budget deliberations and on unofficial contacts with the officials concerned. Unfortunately, according to budgetary statistics the DWD's efforts have not been very successful.

The DWD is accountable for water supply as a whole, but its functions cover urban water cycle management only in part. The municipality of Zanzibar Town and the town councils in Pemba have assumed accountability for urban drainage and sanitation. Before the local government reform in 1986, the DWD was in charge of sewerage systems as well. It would be worth considering the restoration of the previous situation due to the closely associated infrastructure of drain and water supply.

In addition several other ministries carry water related responsibilities.

The Department of Health Services under the Ministry of State undertakes the responsibility of water quality monitoring and controlling of water-borne diseases.



The Ministry of Agriculture, Natural Resources and Forestry is an important groundwater user through irrigation programmes. Although permits for drilling groundwater are issued by the DWD, more comprehensive cooperation would be needed for the preparation of future water demand projections and the protection of aquifers.

Tourism development has been stimulated by the ERP. Decisions made by the Ministry of Information, Culture and Tourism will have far-reaching consequences on the water supply in terms of water demand and wastewater issues. The same can be said about the Ministry of Industry.

The Commission of Lands and Environment has common interests with DWD, especially concerning pollution problems. Recently enacted land use acts could also be used for supporting the goals of the water sector if adopted by the Commission. In November 1990, the Commission was transferred to MWCELE from the Chief Minister's Office.

The DWD's ability to influence and anticipate plans and activities outside its organization seems to be rather limited, although its top management is well informed about external policy and financial issues.

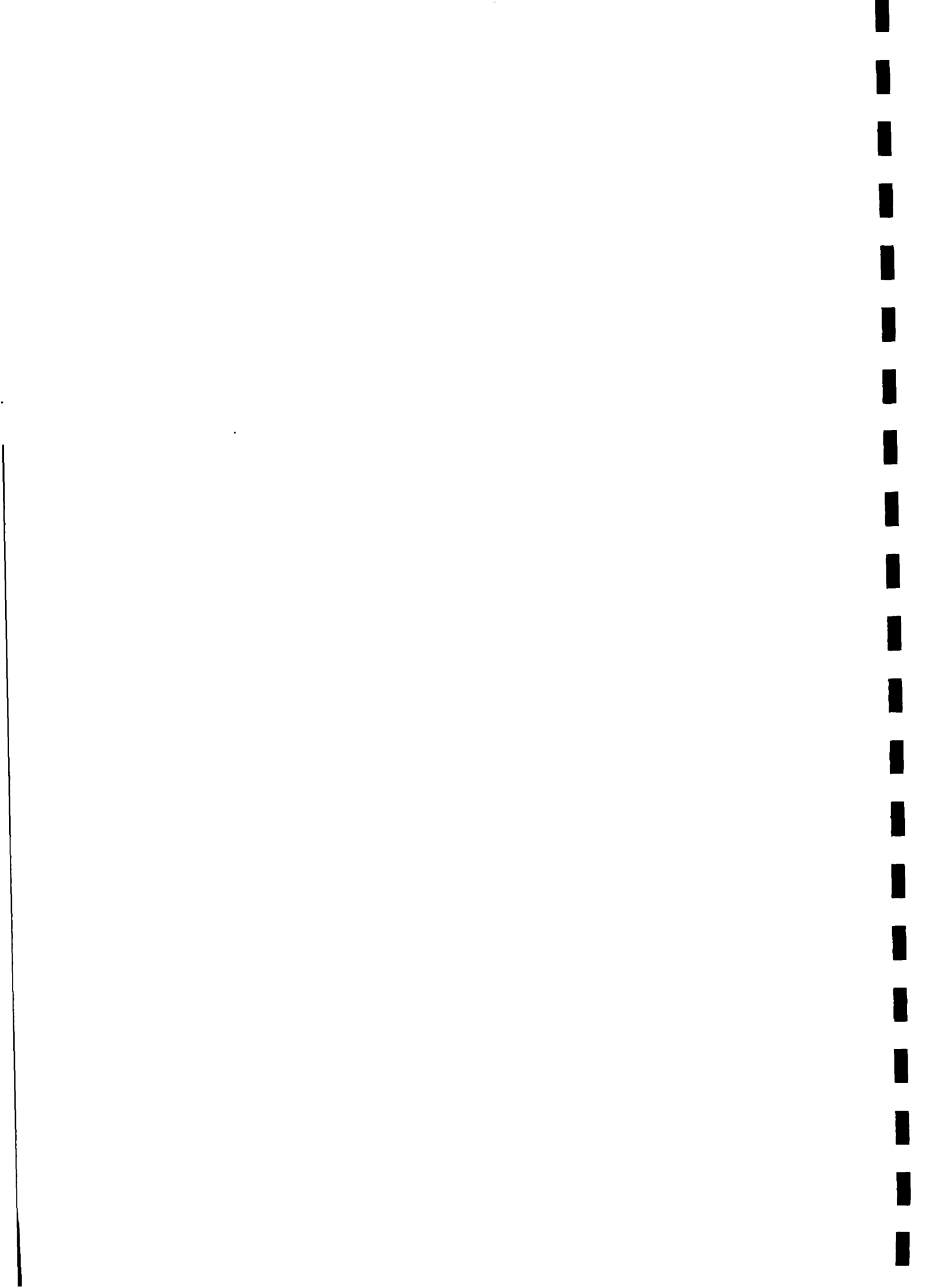
There are direct contacts with officials in water-related institutions. However, these contacts are informal in nature. The activities of the institutions concerned could be better co-ordinated in order that a coherent water policy could be implemented by the DWD. The DWD already has a coordinating role, indicated e.g., by the coming Sewerage and Drainage Project, in addition to the present water projects. A legal framework or institutional structure should be established to support these very positive efforts.

#### **4.4.2 Managerial Functions of the Department of Water Development**

Management is the organizing of people and resources to accomplish the work of an institution. Before considering the various elements of management it is necessary to point out the scarce financial resources of the DWD.

The situation of scarcity is reflecting on every sector and level of the DWD's activities including work processes, managerial practices, organizational culture and the work performance of the staff. Many impractical procedures and work methods become understandable as sincere efforts to adapt to the condition of the permanent lack of funds. The long-lasting state of affairs has influenced the work orientation of employees and has had an impact on the implementation of activities across the department both in Unguja and Pemba.

As mentioned, the managerial practices on Pemba are treated separately only if the situation seems to differ essentially from that prevailing in Unguja.



## Objectives, Planning and Controlling

### Criteria for Appraisal:

- Degree of acquaintance with DWD objectives
- Ability of the staff to set the objectives of each one's work in relation to the general objectives
- Capability of planning and controlling

The only written guidelines for the water supply are the Water Work Rules of 1935. They are applied on the basis of customs and practices more than the knowledge of their existence. It came out during the study that only a few were aware of the rules.

The annual and five-year plans of ministry activities are submitted to the Ministry of Finance. The DWD's plans are included in the plan of MWCELE prepared by the Planning Unit. (The governmental planning system as a whole is described and evaluated in the ERP). The plans made, however, appear to give few guidelines for programming or implementation. The financial plan i.e. (the budget) is not necessarily coherent with them and tends to subvert the wishes presented in the plans. Apart from that there is accurate planning concerning the development projects financed by donors.

The plans made, as well as their content, seemed to be unknown to the persons responsible for implementation. This indicates that the planning process should be further developed to serve as a guide for practical work performance.

Although there was inexperience among the staff in thinking in terms of objectives, some of them especially in Unguja expressed the DWD's tasks in goals and set targets for their own section in relation to more general aims. A sense of priorities was common but reflected personal views and vocational standpoints, rather than the consciousness of official statements.

Everything points to the conclusion that goals should be more regularly discussed with the staff so that they are understood and adopted at all levels. The supervisors are capable of setting goals and priorities for their work, but more coordination is needed to unify various activities of the DWD at lower levels parallel to one another.

The DWD needs to strengthen and develop the internal planning system for various activities. The section heads should be more involved in the preparation process of the annual budget proposals presently prepared by the Accountant in conjunction with the Director. The heads of the sections knew very little of the contemporary estimates of their sections. Cost-consciousness among them was consequently rather low.

The matter is however more complicated. On the one hand, the supervisors did not see any reason for making plans of action without knowing available funds. On the other hand, because of financial constraints known to everyone it was regarded as a waste of time to involve the staff in making plans for the



use of nonexistent resources. There seems to be a need to realize that in a state of scarcity it is even more important to utilize resources in a deliberate and planned manner.

Inadequate controls at the moment were identified by every interviewee and the significance of control systems was emphasized. There are registers and records on customers, stocks, boreholes and salaries, but at present they are inaccurate and not in a form suitable for management purposes of different kinds. Monitoring of operations and maintenance is lacking.

The operational and financial planning and monitoring system should be worked out in order to give the managers the basic tools to direct operations and appraise work performance and thus enable them to make corrective actions when necessary.

### Managing

Criteria for Appraisal:

- Division of duties
- Work planning, task assignment and follow-up
- Decision-making, degree of delegation
- Flow of information

### Unguja

The scheme of service in use defines qualification requirements, major responsibilities and salaries for key job holders. It was prepared by the DWD for purposes of government administration in July 1989.

The scheme gives a good starting point for developing job descriptions to cover all employees, in order to help to clarify each one's scope of activities, as well as to make more commonly known the responsibilities carried by others. The uncertainty of authority relations between various trade groups tends to rise decisions to the unnecessarily high level of hierarchy. The ambiguous division of duties also makes the controlling of work performance more difficult and discourages any sense of accountability for the job as a whole.

Shortages of skills suffered among DWD staff are another reason for the lack of clear delegation and task-oriented supervising style.

Further knowledge on how to keep an organization running needs to be provided. The supervisors interviewed wanted more support in carrying out their management responsibilities.

The DWD's decision-making is characterized by problem-solving efforts case by case. This reactive working style causes problems in the timing of activities and the coordination of schedules with related operations and leads to ineffective work performance, as well as the wasting of available resources. The behaviour developed becomes understandable in





the light of funds which are not even sufficient for dealing with major crises.

Administrative decisions are requested and given in writing. Decisions are not delayed within the DWD. Delays seem to originate from obligatory administrative links to the parent ministry or other government offices.

A fairly regular system of meetings exists. There are internal subsection meetings for the assignment of daily jobs, and meetings of the section heads. They are held whenever necessary and most often without an agenda. Minutes are kept occasionally. A majority of meetings are aimed at solving acute problems.

Implementation of the decisions made at a meeting should be followed up more systematically in order to increase their significance. In any case the meetings were considered necessary and proposals were made to broaden the variety of subjects treated to include policy matters and more common questions.

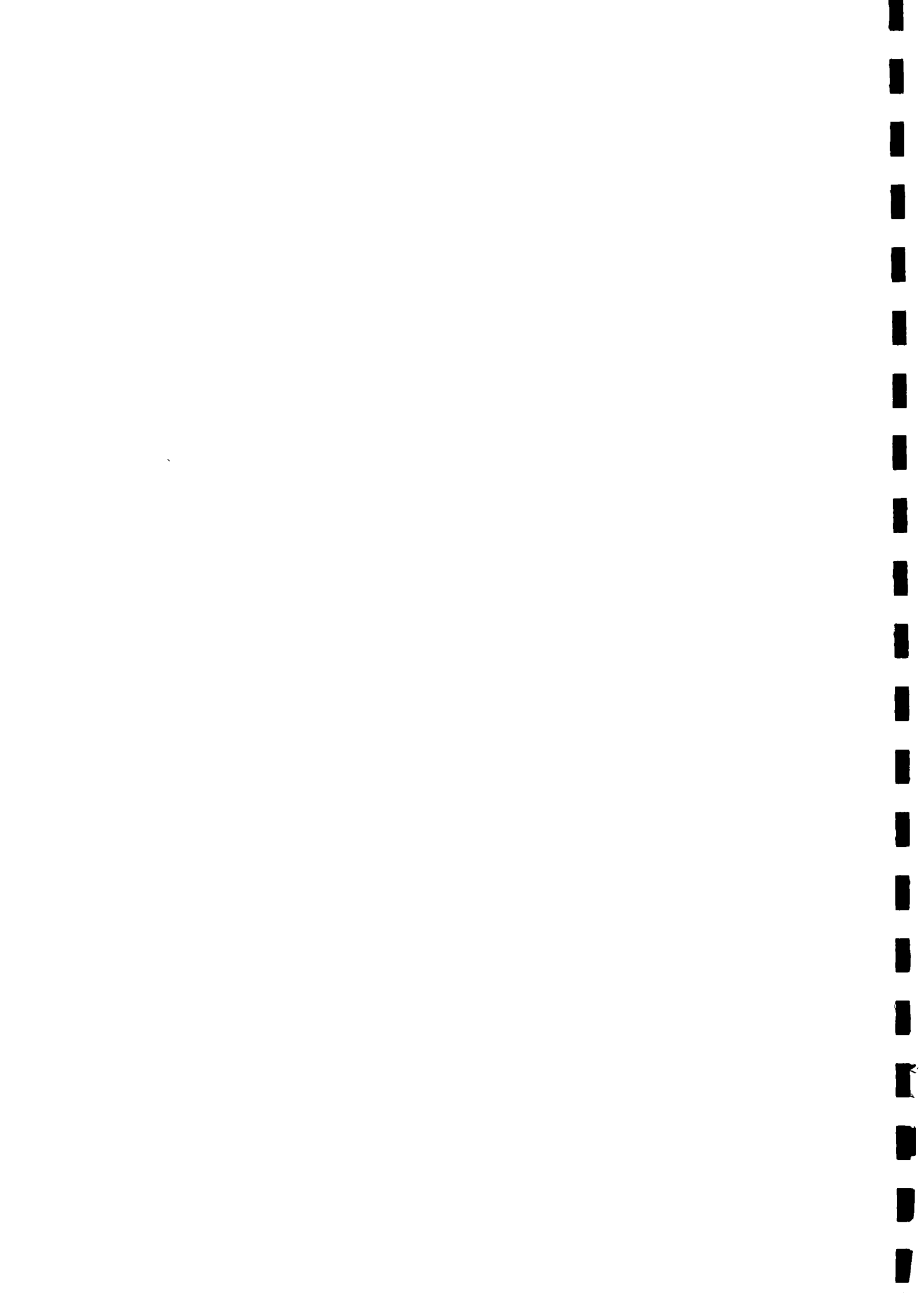
#### **Pemba**

The DWD on Pemba has a slightly different status compared with the DWD on Unguja due to the fact that the major central offices are situated on Unguja. In addition the director has the right to organize the tasks of his department as he sees best, and the structure of the regional organization has some special features as well. As a consequence a number of managerial procedures differ from those in use on Unguja.

The DWD of Pemba is administratively subordinate to the MWCELE on Pemba and functionally to the DWD on Unguja. The crucial factor in terms of effectiveness is that all fiscal management must be processed through the MWCELE. Because of the long distances between the towns and poor communication facilities (vehicles, telephones) the processing of minor fiscal matters separately causes several day's delays in operations. It would be good for the department to have more independence in carrying out its operational activities within the frame of the approved budget.

The DWD has elaborated the major tasks of the sections in writing. Job descriptions are prepared for the key job holders including main responsibilities and detailed descriptions of the tasks. With minor additions they would offer good guidelines for the appraisal of work performance.

Pemba has developed a regular system of meetings due to the distances and inadequate communication facilities between Chake Chake, Wete and Mkoani. The senior officers' meeting is held monthly. The questions discussed in meetings vary from more general issues to practical matters and problems as well as efforts to solve them. The minutes are kept on the basis of an agenda. The decisions made are followed up at the next meeting.



The meetings were regarded as a necessary means to enable more independent work performance for the regional offices and reduce hindrances caused by transport and telephone problems. However, the lack of funds available for travel allowances has been threatening the regularity of the meetings.

In other respects management practices resemble those executed on Unguja.

Contacts with the DWD on Unguja appear to be frequent even if without a formal structure.

#### **Additional Remarks**

On the basis of the interviews it can be concluded that the horizontal flow of information should be improved to fulfill the basic purposes of communication. This would help the management in clarifying the roles and tasks of various subsections and people, and in unifying activities and consolidating the sense of objectives and priorities among the staff. The role of supervisors should be strengthened by giving them more authority and requiring of them greater accountability for planning, controlling and managing.

The current practice of meetings gives a good basis for the establishment of a supervisory team chaired by the director. At the first phase the group could be in charge of the planning and implementing of necessary managerial measures.

A comprehensive management training programme for a longer period should be a means through which improved management systems are introduced.

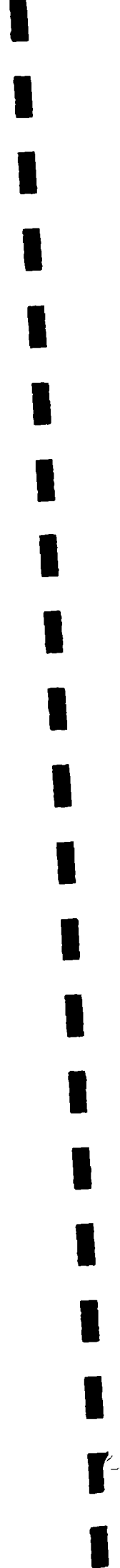
#### Administrative Systems

##### Criteria for Appraisal:

- The existence and use of key administrative systems (budgeting, financial management, personnel procurement, equipment records, store, supplies and inventory control)

Management systems as such are general in nature. The operating areas about which managerial information is needed are similar to any institution regardless of its mission or status. The content of systems should be tailored to meet the special needs and situations of each institution and devised according to its targets.

The current administrative systems of the DWD have been briefly dealt previously in various chapters. Financial management will be examined in more detail in the Programme's Economic Report. Requirements for management information systems in operations and maintenance will be determined in connection with technical solutions introduced by the Programme.



On the basis of information available at present it can be concluded that the existing systems are inadequate to regulate and guide the actions of management. Records of boreholes and stores among other registers, would need to be updated and further developed.

At present the basic personnel data has to be collected from different sources. No statistics on personnel costs exists.

Efforts to revise and develop management information systems are profitable only if the persons in charge are able to make use of them. The competence of the DWD in these issues should be improved. Thus an essential element of management training should be the designing and developing of these systems in cooperation with the staff concerned.

### Consumer Orientation

Criteria for Appraisal:

- Identifiable mechanisms for consumers to interact with the DWD

The Administration Section of the DWD refers customers in water problems to the proper officials or offices and gives advice on administrative procedures and requirements. The Account subsection has the responsibility for collection of payments from industrial consumers and for enforcing interruptions of water supply in the case of non-payment. Water users contact any DWD staff in general.

Interaction with clients takes place when there are problems in water supply or with documents. The atmosphere of interaction is consequently often one of conflict.

Very little could have been done to project a positive image of the DWD to consumers. Problems in water supply are common and the DWD is incapable of responding quickly enough to complaints. In addition, the inadequacy of rules regarding the rights and responsibilities of customers in relation to the water authorities hinders development of a workable mechanism for consumer services and education.

There is a need for improvement in public information activities. The DWD should meet the standards of a reliable water supply before attaining credibility in the eyes of its customers.

The results of the programme's household survey the revealed urban inhabitants' ideas of their contribution to water supply and expectations of services. Efforts should be made to invite consumer participation and create workable institutional means wherein on the one hand consumers can interact with the Water Authority and on the other hand the Water Authority educate them about water supply issues. The importance of this aspect will increase coherently with improvements in water supply.



## Technical Facilities and Capacities

### Criteria for Appraisal:

- Level of technology in use
- Condition of technical equipment and other physical facilities
- Competence in conducting the technical work required.

Every person interviewed touched in one way or another on the lack of basic physical prerequisites for reaching the desired targets. The situation in Pemba seems to be even worse than in Unguja in this respect. This problem deserves more detailed consideration because it seems to set the life style of the DWD on both islands.

According to the interviewees the water supply system has deteriorated technically to such an extent that any reasonable work performance is almost impossible. The most common opinions expressed can be summed up as follows:

- Mechanization, pipelines and other technical items are old and/or out-dated. Problems with machines and other equipment appear daily. Quite often all that can be checked is simply whether or not an engine is functioning. Anything more is beyond capacity due to a lack of spare parts, proper tools, materials, and on Pemba also the absence of a workshop.
- The DWD premises are impractical and many of them in bad condition especially on Pemba. The workshop building in Mabluu is too small and impractical for workshop activities. Its location in the middle of Zanzibar Town is unsuitable. The need for establishing a carpentry workshop was expressed.
- Not all offices are sufficiently equipped with telephones. Wete office has no telephone, for example, nor do a number of pumping stations. There are also shortages of stationery, typewriters, pencils etc.
- The lack of transport was considered a major reason for work not being done. Pumping stations are seldom situated within walking distance of the offices or employees' homes. The only way to announce breakdowns or to control work performance is all too often just by walking. In fact, most water supply work is done outside the office. Construction, repair, maintenance, and control all depend on the availability of vehicles to transport employees and equipment to work sites.
- Employees frequently work under bad conditions. Attention has not been paid to work protection. Defective machines and poor tools may cause risks which are increased by the lack of skills and unawareness of safety hazards. The workers should





also be provided with proper clothing to meet safety requirements.

There was general agreement among the interviewees that no technical improvement can be carried out without first conducting a comprehensive training programme.

Even now a number of engine breakdowns are due to unskilled labour. An estimated 60% of the staff working in pumping stations are not able to read or count. The Programme's manpower inventory clarifies this question further.

### Developing and Maintaining the Staff

#### Criteria for Appraisal:

- Provision of sufficient incentives, compensation, employee benefits and promotion opportunities.
- Establishment of mechanisms for promoting the transfer of skills through both formal and informal training.

The current personnel management procedures of the DWD are based on the Civil Service Rules and Regulations. The Scheme of Service which serves as a basis for determining the grade and level of appointment of posts within the civil service, was introduced by the Government in 1989. The DWD scheme was devised by the MWCELE in conjunction with the DWD and under the guidance of the Department of Manpower Development and Administration. The new salary scales based on the Scheme were introduced in July this year.

Despite increases, salaries did not catch up with the decline in wages which has taken place during recent years. The ERP reported that the wages of civil servants have decreased more than 50 percent in real terms during the last few years. There has been a ban on promotions within the civil service since 1981, but the freeze was reversed in July 1990.

Promotions are under the control of the Department of Manpower Development and Administration.

The general system of yearly increments has been linked in principle to work performance. The award process includes a kind of evaluation of actions performed in writing. The increment can be denied if considered necessary.

This means has not been used mainly due to a widely-held view that current salaries are more an aid for living than a compensation for the work done. Interviewees estimated that approximately 50 percent of the staff has another job in order to be able to handle family living costs. The practice is unauthorized but to some extent a silently accepted reality. The occurrence is not unique within the civil service and efforts should be made to reduce the need for it. Means to develop functioning sanctions for private activities should be scrutinized, if no better system can be evolved.



GOZ's personnel policy as illustrated by the ERP encourages the introduction of incentives if possible. A basic prerequisite for this is the generation of income to be used by the DWD.

The DWD would in principle already be capable of developing policies for recruitment, emoluments, promotions, etc., if only certain external preconditions are met. Though the Pemba office lacks administrative expertise at present the deficiency could be compensated for by the Administrative Officer in Unguja.

In spite of a shortage of means available, the DWD has tried to develop incentives. A person performing well during the year is rewarded by the DWD or Labour Union, or workers in charge of a relatively large and demanding task who complete it earlier than expected receive a bonus. However, a more sustainable system of personnel benefits should be created.

The DWD's possibilities for providing the staff required with skills in jobs are limited. Annual training proposals are based on needs for additional expertise identified by the DWD. The Ministry of Education makes the training plans and guarantees the funds only for a year at a time. This practice causes short-sighted planning also in functional ministries as well as an uncertainty of additional measures needed for alleviating skill shortages in the long run.

Due to the situation described above mechanisms to promote skill transfer within the DWD would be of a great importance. Though the supervisors regarded the introduction of subordinates to their tasks as one of their duties, more systematic measures would be needed to support their role as instructors. Various manuals could, for instance, be of great assistance.

As a rule staff training was understood to consist of short courses of at least 2-6 months. Alternate training arrangements such as seminars and demonstrations should be considered for increasing the accessibility and utilization of the DWD's professional know-how.

The present educational level of the staff and training has dealt with the greater detail in Chapter 3.6.

#### Motivation and Organizational Culture

##### Criteria for Appraisal:

- The set of values and norms which guide everyday actions
- Commitment of employees to the goals and activities of the DWD

The data gathered during this study is insufficient for comprehensively analyzing those cultural factors influencing the DWD's everyday actions. The subject is brought up here simply to emphasize the significance of cultural aspects



while considering alternative approaches in institutional development. However, some conclusions can be drawn on the internal atmosphere of the DWD and the level of motivation among the staff on the basis of the interviews.

The DWD functions despite many physical and financial constraints. The working atmosphere seems to be getting more positive in the course of the water supply projects. On the other hand it can also be claimed that even the affairs which could be put in order are neglected due to the feelings of despair. The big problem visible to everyone paralyzes activities where actions could still be taken despite difficult circumstances.

Despite the facts mentioned above, there are also highly motivated and enthusiastic workers. This was indicated by their ability to analyze problems, and to suggest improvements as well as in a willingness to obtain training. However, particularly among the unskilled labour force there are also employees who have not learned their duties.

In any case problems in motivation were mentioned by everyone interviewed. The major causes referred to were the following issues in order of frequency.

- low salaries
- poor and unsuitable equipment for carrying out duties properly
- no chances for promotion
- no training opportunities
- critical work conditions and the lack of work protection and proper clothing

The gradual deterioration in work conditions has undoubtedly also created practices and attitudes which do not promote effective and goal-oriented work performance. It is therefore important to bear in mind that not all responses to efforts to change the present status quo may be positive. When people are required to alter the way they operate, the process must be planned in such a manner that it enables their participation and gives enough time to adapt innovations.

#### 4.5 Conclusions and Recommendations

On the basis of this institutional assessment there are two types of measures which should be undertaken. On the one hand, the urban water supply should be provided with a legal basis for its operations and sufficient independence to achieve the set goals in an effective manner. This legal framework should later include the sewerage system due to the closely associated infrastructure of drainage and water supply. In addition, a coordinative body for water issues is needed.

On the other hand, those basic management systems fundamental to any well-functioning institution should be developed as well.



Activities are needed in both areas, but actions can be taken within the management sector even if legal preconditions have not been completely met. However, the desired organizational status is to be taken into account while developing managerial systems.

The following recommendations can be made on the basis of this institutional assessment. Further discussions are needed for specifying them in terms of plans for concrete action and the various activities involved therein.

- i) An interministerial water board should be established for coordinating drilling activities, forecasting water demands and monitoring the use of groundwater.
- ii) Water legislation and Water Policy should be introduced and Water Work Rules revised.
- iii) An Urban Water Supply Authority (UWSA) should be established under the Public Enterprise Decree, and entrust the UWSA with the necessary managerial authority and financial independence, as well as provide it with a legal basis for its operations.
- iv) The development of management systems should be commenced and connected with the reform of the organization. Management development is recommended to design a sequence as if it was a training programme. Learning, systems development and implementation should dovetail and build upon one another. Training should also be utilized as a means of developing applicable systems.

The following aspects should be taken into account in institution building:

- 1) Coordinative and cooperative activities between Unguja and Pemba
  - joint institutional policy
  - coordinated planning and budgeting
  - operational independence and financial responsibility
  - similarity of monitoring and controlling systems
  - joint personnel policy
  - joint specific facilities
  - joint use of available expertise (through consultancy)
- 2) Strengthening of management
  - establishment of an internal management team for Unguja and Pemba entrusted with following mandate:
    - \* preparation of institutional strategies and long-term plans





- \* handling of annual action plans and budget proposals
  - \* development of standards for institutional performance and the performance of individual sections
  - \* monitoring the financial and functional performance of the sections and making decisions about corrective actions
  - \* coordination of related activities of sections
  - \* approval of job descriptions prepared by the sections
  - \* outlining of proposals for manpower policy
  - \* handling of important personnel affairs
  - \* development of management procedures
- 3) Strengthening of the role of the section heads by increasing their responsibility for:
- preparation of annual action plans and budget proposals concerning his or her section
  - monitoring expenditures and physical resources assigned to the use of the section
  - preparing job descriptions for every employee together with the staff of the section
  - supervising and controlling work performance and taking corrective actions when necessary
  - follow up of the workload of subordinates
  - assessing training needs and making proposals for training to the Personnel Officer
  - making proposals for staff arrangements within the section
- 4) Strengthening of personnel functions and transfer of skills:
- appointment of Personnel Officer in Unguja and Personnel Officer in charge in Pemba
  - assignment of at least the following duties to these officers:
    - \* forecasting of manpower needs and preparation of manpower plans in conjunction with the management
    - \* maintaining a manpower register and producing manpower reports for the management
    - \* inspection of the implementation of manpower policy
    - \* preparation of proposals for personnel decisions
    - \* preparation of training plans for UWSA and development of a continuous system for the assessment of training needs
    - \* responsibility of training arrangements
- 5) A comprehensive training programme should be prepared for the staff of UWSA aiming at the development and consolidation of management systems and upgrading vocational skills:



- training should begin as soon as possible after the staff of UWSA is determined
- training should be based on skill analysis and job descriptions
- vocational training should coincide with the progress of construction and other technical activities of the project
- training materials and manuals prepared and used should be realistic or in any case very applicable to the carrying out of tasks in practice.



## 5 EDUCATIONAL SYSTEM OF ZANZIBAR

### 5.1 Administration and Financing of Education and Training

The responsibility for educational affairs is shared among several government offices. The division of duties between them is in principle clear, but in practice coordination seems to be problematic.

The Manpower Planning Department of the Permanent Planning Commission is responsible for undertaking national manpower surveys and manpower plans, which should ensure that the educational output matches the needs of the economy.

The sectorial ministries are accountable for assessing and monitoring the manpower needs of the formal and informal sectors. On the basis of the assessments the Manpower Planning Department ought to prepare the manpower plans which should be transferred to educational plans by the ministries responsible for the implementation of training. A number of problems originate from the fact that these manpower plans are not ready early enough for annual educational planning.

The Ministry of Education is primarily responsible for undergraduate education and coordinates participation in postgraduate training by providing information regarding courses available and choosing the students for postgraduate courses.

The Department of Manpower Development and Administration in the President's Office is responsible for training in the public sector while the Department of Labour in the Chief Minister's Office is accountable for vocational training and arranging occupational examinations (trade tests).

Education is free of charge in Zanzibar and financed through the national budget. However, in practice parents contribute to schools indirectly by providing children with items such as books, pencils and paper. Some 70% of budgetary expenditures is used for teacher's salaries and about 5% for teaching materials. At present, the Ministry employs some 3,600 teachers for 11,700 students.

Higher education is under the jurisdiction of the Union Government. That means that the GOZ pays indirectly for university education. Zanzibari students studying at the university receive the same advantages as Tanzanian students, whereas studies in any other higher institutions on the mainland must be sponsored by the GOZ or donors.

Admission of Zanzibaris and mainland students is coordinated through the Joint Admission Board. The members of the Board consist of representatives of institutions and ministries which coordinate higher education and manpower issues. The Ministry of Education of Zanzibar is one of the sixteen board members.



## 5.2 Basic and Higher Education

### Structure of the Educational System

The Zanzibarian educational system is based on the idea of universal basic education. Basic education is a fundamental right of every citizen and is supposed to be provided free of charge by the government. The present structure of the school system is briefly described on the next page (Figure 8).

Universal basic education from the age of seven was extended to 11 years in 1978. It consists of 8 years of primary schooling Standard I-VIII and 3 years of secondary education Forms I-III. There is no examination barrier between these stages, of which the latter forms the first cycle of secondary education. Upon completion of Form III students take an examination held for selection purposes. Successful students are able to continue to Form IV. At the end of Form IV the Tanzania National Examination is held. Successful students are eligible for admission to higher secondary education, where two options are available: advanced level general education, (Form V-VI) and technical education.

Higher education studies lead to the award of the First Degree, Advanced Diploma, Post-Graduate Diploma, and Higher Degree.

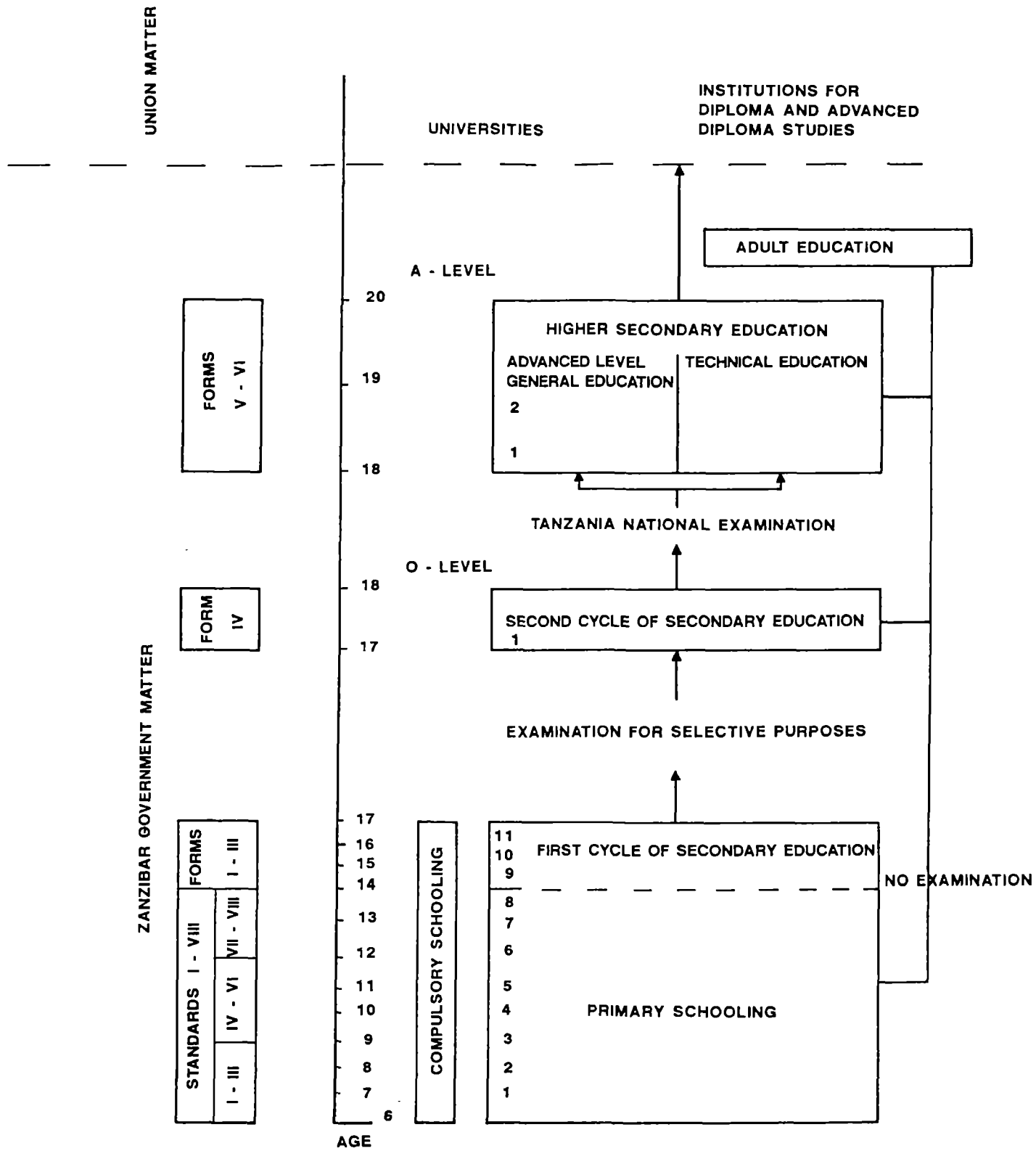
One of the major qualifications required for admission into institutions of higher education is the completion of an advanced level of secondary education. In addition applicants with equivalent qualifications (relevant diplomas and/or certificates) or candidates who pass entrance examinations are considered.

Higher education is mainly provided in semi-autonomous universities, colleges and institutes on the Tanzania mainland. Every year some students of all levels are sent for studies abroad. Most of those students have scholarships offered by donors.

The Higher Education Council of Zanzibar coordinates the admission of students to institutes of higher education. It was established in 1985 and consists of representatives from all ministries.









The educational institutions in Zanzibar, according to the type and level of education, were in 1986 the following:

**Table 20 Educational institutions in Zanzibar according to type and level of education**

Type of education	No. of institutions
Nursery schools	9
Primary schools Std I-VIII	49
Primary and lower secondary Std I-F III	74
Primary and lower secondary Std I-F IV	1
Lower secondary schools F I-III	1
Lower secondary schools F I-IV	7
Higher secondary schools F V-VI	2
Technical secondary school	1
Islamic secondary school	1
Teacher training college	1
Technical college	1
Language institute	1
<b>Total</b>	<b>148</b>

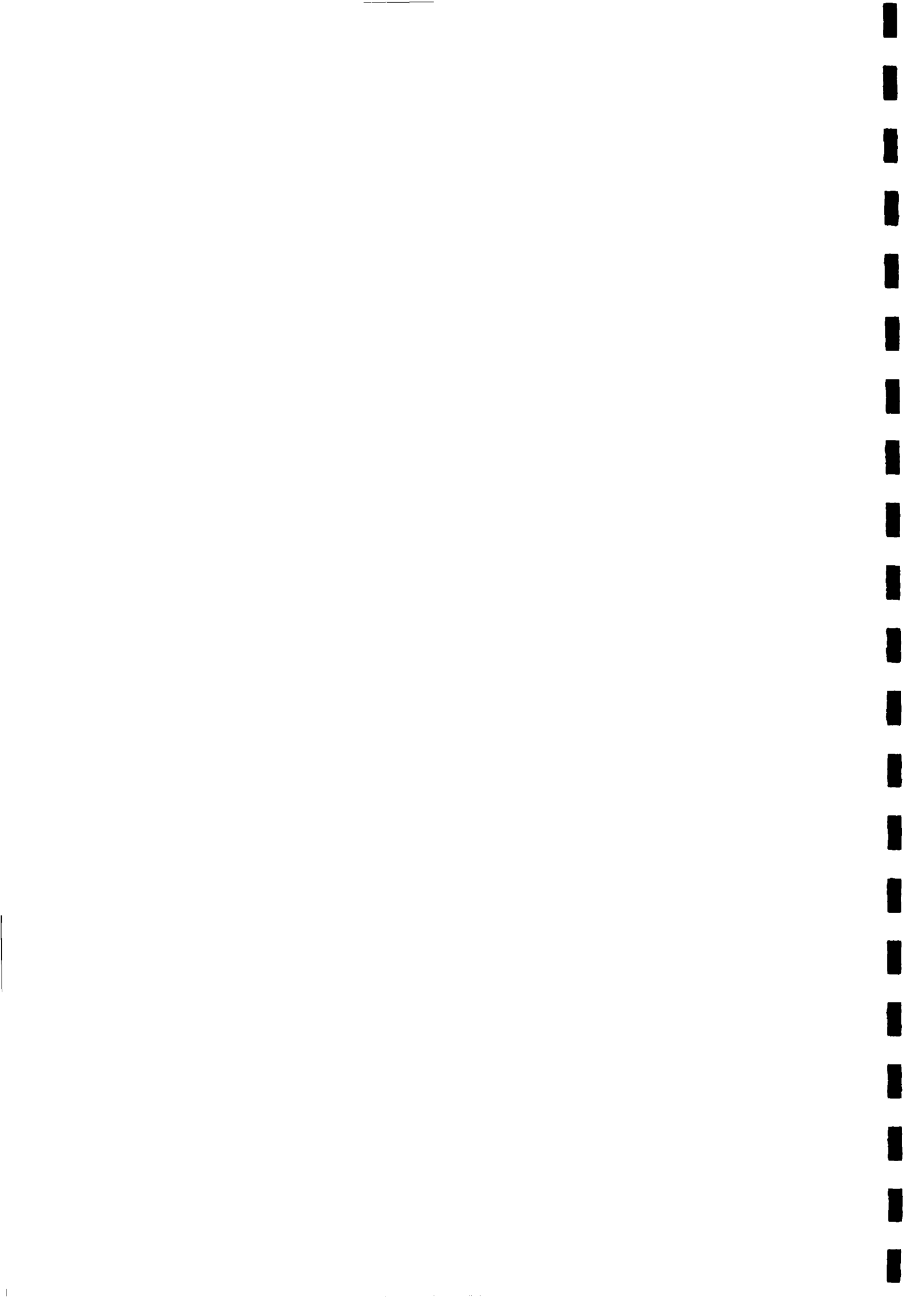
Source: Goranson, U., Education in Zanzibar 1986

There are a number of options for students after completing Form IV for proceeding with studies in Zanzibar. The options are an advanced level general education (Form V and VI) at the Lumumba School in Zanzibar Town and the Fidel Castro School on Pemba, technical education at the Karume Technical College, as well as Nkrumah Teacher Training College, the Institute for Kiswahili and Foreign Languages and the Medical School for nurses and midwives. Students are also able to choose studies in various institutions on the mainland. In addition, a new technical school is expected to start operations on Pemba in 1991.

#### Performance of the Educational System

The education sector of Zanzibar has been recently illustrated in documents such as Education in Zanzibar, SIDA report 1986, The Economic Recovery Programme 1988 and its 1990 revision, Analysis of the Situation of Children and Women in Zanzibar, 1988, and an internal draft of the Commission of Lands and Environment, 1990. The major findings of these reports are summarized in this chapter.

Only 60 % or 107,879 of the children attend compulsory school. Overall enrolment ratios for primary and secondary schooling are declining (Table 21).



**Table 21 Gross enrolment ratios (%)**

Education levels	1986	1987	1988	1989
Primary (Std I-VIII)	60.0	62.4	62.2	62.2
First cycle secondary (Form I-III)	38.9	40.0	38.9	35.3
Second cycle secondary (Form IV)	9.9	8.9	7.1	6.7

Source: ERP, 1990

The main reasons for decline in enrolment ratios are considered to be the shortages of teachers and schools as well as the attractions of alternative occupations for children, in addition to the negligent attitudes of parents towards schooling.

The expansion of the educational system in 1978 lead to severe economic difficulties. Since then there have been serious problems regarding the availability and quality of teachers. The Ministry of Education recently estimated that 30 % of primary school teachers and 42 % of secondary school teachers are untrained or unqualified.

Due to inadequate teaching at lower levels the children are not able to pass the examinations and qualify for Form IV and Form V.

**Table 22 Examination passes**

Year	Form IV intake	No.of passes (a)	Pass rate %	Form V intake (b)	No.of passes (b)	Pass rate %
1983-84	1,760	1,043	59.2	101	63	62.3
1984-85	1,795	1,068	59.5	86	62	72.9
1985-86	994	752	75.7	56	47	83.9
1986-87	766	730	95.3	54	47	87.0
1987-88	615	552	89.7	45	43	95.6
1988-89	487	468	96.0	n/a	n/a	n/a

Notes:

a) Two or more 'O' Levels

b) One or more 'A' Levels

Source: ERP, 1990



The decline in intake figures is partly due to a more rigorous enforcement of entry standards, but the reduction has occurred also in real terms.

In consequence of inadequate education facilities, there is a lack of Zanzibaris eligible for the institutes of higher education on the mainland and abroad. For instance the quota of five Zanzibari students in the Water Resource Institute has been under-utilized because of the lack of students meeting entrance requirements. In fact, all sectors in Zanzibar are suffering from skill shortages.

#### Development Plans

The Government is very aware of the problems described above and efforts have been made to cope with them. The Government has increased the in-service training and teaching material budgets remarkably. Development projects (supported by DANIDA) to expand and modernize Nkrumah Teacher Training College, to renovate schools and teacher's housing, and to develop technical education, are underway. In the future the curriculum for first cycle secondary education is planned to place a greater emphasis on practical subjects and preparation for employment, which existing teaching neglects to a great extent.

Remarkable policy changes have also taken place. The Ministry of Education plans to reduce the duration of basic education by one year, from 11 to 10, and add it to the second cycle of secondary education. This will give the children an opportunity an extra year to prepare for the National Examination and thus increase chances to proceed to higher secondary education.

Those who fail to pass the Form III or Form IV examinations are able to continue in private classes in order to take part in the examinations. Applications to these classes are made to the Ministry of Education.

Another policy change being proposed is that groups such as religious bodies or party branches are allowed to set up non-government schools for secondary education.

It should be clear that the positive impacts of the development efforts described above cannot be expected to appear immediately. It is also probable that the level of vocational qualifications in the water section is not higher than on the average in Zanzibar. Obviously, more quickly effective means of improving vocational skill must be considered in upgrading the skills of Urban Water Supply staff.





### 5.3 Adult Education

The Department of Adult Education in the Ministry of Education was established in 1978. Since 1989 the Department of Women and Youth Development in the Chief Minister's Office has also carried the responsibility of the duties related to adult education. Major tasks assigned to adult education are those of promoting literacy, self-employment, and improving the levels of knowledge of particular target groups in specific subjects through campaigns and mass-media.

However, illiteracy is still a problem for the population. The illiteracy rate in Zanzibar is 38% and does not seem to decline. According to the illiteracy census of 1987, 16% of men and 22% of women were not able to read, write and count. The ratio of 60% school attendance does not promise a better future in this regard. Literacy classes (supported by SIDA) were conducted a couple of years ago with some 8000 attendants, but obviously the measures have not been sufficient although the department in charge has continued efforts on a smaller scale.

The recently introduced idea of continuous training is extending the potential for adult education in Zanzibar. The Department of Labour, supported by UNDP/ILO, is establishing vocational training centers. These centers should provide those leaving school with relevant practical skills required by labour markets. Later on the centers will help employees upgrade their knowledge and renew their basic education.

The training of water sector staff could benefit from the above described educational system development. More sustainable training arrangements in the water sector could be a part of this general adult education system.

### 5.4 Zanzibari Students in the Mainland and Abroad

The Ministry of Education received 216 applications for higher studies on the mainland for the academic year 1988-89 and 192 applications for the year 1989-90. The number of accepted candidates was 62 in 1988-89 (49 men and 13 women) and 66 in 1989-90 (58 men and 8 women).

One hundred fourteen students are expected to complete their studies in 1990 and 1991 at various institutions on the mainland. The number of graduates and their fields of studies are presented in Table 23.



Table 23 Zanzibari students returning from the mainland in 1990-91

Institution and the field of studies	No. of students	Total
University of Dar Es Salaam		
B.Sc in Education	4	
B.A. in Education	4	
B.A. General	5	
Doctor of Dental Surgery	1	14
Institute of Development Management		
Manpower Management Officer Course	3	
Advanced Diploma in Economic Planning	2	
Basic Management Course	1	
Advanced Diploma in Certified Accountancy	1	7
Cooperative College Moshi		
Diploma in Cooperative Development	1	
Certificate in Cooperative Development	4	5
Dar Es Salaam Technical College		
Diploma in Mechanical Engineering	2	
Diploma in Civil Engineering	2	
Diploma in Electrical Engineering	1	5
Institute of Transportation		
Diploma in Transport Management	2	2
Social Welfare Institute		
Advanced Diploma in Social Work	2	
Certificate in Social Welfare	2	
Certificate in Labour Studies	1	
Diploma in Community Development	1	6
East African Statistical Training Centre		
Diploma in Statistics	2	2
Tanzania School of Journalist		
Diploma in Journalism	2	2
Institute of Regional Development Planning		
Certificate in Regional Planning	3	3
Dar Es Salaam School of Accountancy		
National Book-keeping Certificate	2	
Lower Standard Government Accountancy	3	5
Institute of Adult Education		
Diploma in Adult Education	3	3
Water Resources Institute		
Full Technician Certificate	5	5
Fisheries		
Diploma in Fisheries	1	1
Institute of Agriculture		
Certificate in General Agriculture	18	
Certificate in Animal Health Production	6	
Certificate in Tse-Tse Fly Control	1	
Certificate in Forestry	10	
Diploma in General Agriculture	1	
Diploma in Irrigation	1	
Diploma in Crop Production	9	
Diploma in Herbiculture	1	
Diploma in Meat Inspection	2	
Diploma in Dairy Husbandry	1	
Diploma in Forestry	4	54
Total		114

Source: Ministry of Education, 1990



There were 217 persons who preferred to study or proceed with their studies abroad in the academic year 1990-91. The studies were supposed to be carried out in 41 different countries among which the most popular were the United Kingdom, Saudi Arabia, the U.S.S.R., Sudan, Pakistan, Egypt and Libya. No information is available on how many of the applicants received sponsorship for the studies.

In the near future 142 students are expected to complete their studies abroad. Table 24 which follows also shows their fields of study.

Table 24 Zanzibari students returning from abroad in 1990-93

Field of studies	No. of students returning per year between 1990-93		
	1990-91	1991-92	1992-93
Engineering	12	14	4
Automotive Engineering		1	
Geology	1		
Geophysics		1	
Agriculture		1	
Botany, Zoology, Plant Pathology	7	1	
Veterinary			1
Medicine	12	5	2
Nursing		1	
Pharmacy		1	1
Mass Media, Journalism, Camera Technology	4	3	
Economics, Administration, International Policy		6	1
Tourism	2	2	
Science		3	
Sciences, Marine	1	2	
Social	1		
Domestic	5		
Computer	1		
Other Academic	3	7	
Education	1	8	2
Librarianship	2	1	
Languages	10	4	
Islamic Studies	7	1	
Total	69	62	11



## 5.5 Review of Training Institutes

This review is to identify training resources available in Zanzibar or on the Tanzanian mainland. The institutes chosen represent various disciplines. They have been assumed to be most likely relevant to the development efforts of human resources in the urban water supply sector.

Attention is also paid to the availability of consultancy services. The aim has been to find out possible partners for the development of staff training in the urban water supply.

The review is based on discussions with the relevant staff and heads of institutions and departments. Academic Prospectus if available were also collected for references.

### Training Institutes in Zanzibar

There are only a few vocational training institutes in Zanzibar. As far as technical training is concerned there are two options at the present time, Mikunguni Technical Secondary School and Karume Technical College. The former provides the latter with pupils to a great extent.

The Civil Service Training Institute trains the lower-level administrative staff.

**Mikunguni Technical Secondary School**, established in 1957 as a trade school, has presently three different trades:

- i) General mechanics/machine mechanics
- ii) Electrical installation (domestic and industrial)
- iii) Building construction (carpentry and masonry)

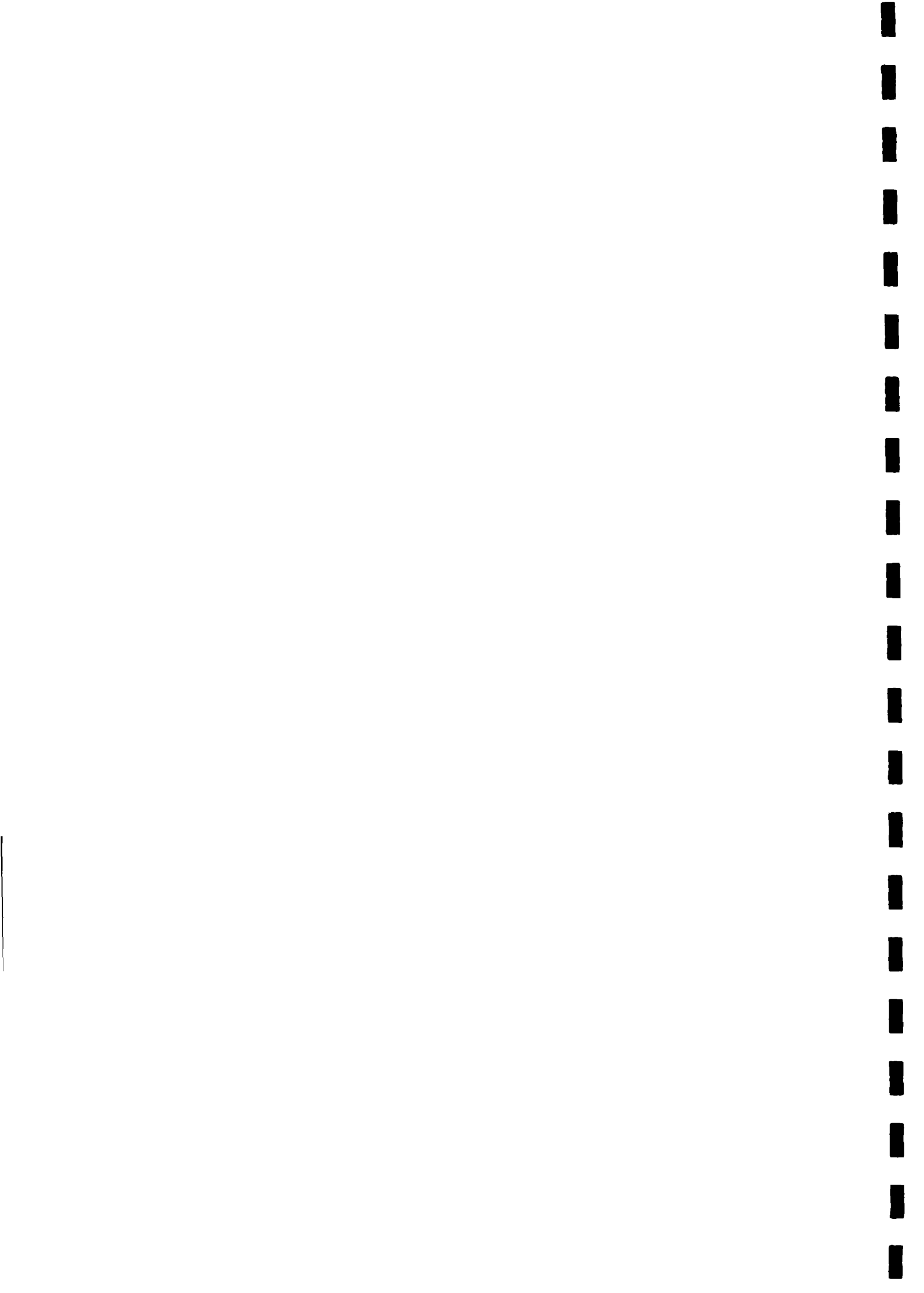
**Karume Technical College** established in 1966, has the following fields of studies:

- i) Civil Engineering
- ii) Mechanical Engineering
- iii) Automotive Engineering
- iv) Electrical Engineering
- v) Telecommunications/Electronics

The completion of studies takes three years and is awarded the Full Technician Certificate (F.T.C.)

The college can also offer consultancy services on a contract basis.

An additional alternative to vocational training is the **Gulioni School** in Zanzibar Town. By law each student completing his studies serves a compulsory term of one year in the National Service Programme in the Economic Youth Brigades (J.K.U.). Gulioni School gives some vocational training to the youth brigades, although its capacity is low, in the following trades:





- i) pipe-fitting
- ii) welding
- iii) plate manufacture
- iv) electrical installation
- v) motor vehicle mechanics
- vi) turning/milling

The programme of the planned new technical school in Pemba, **Dodeani Secondary School**, will cover the following subjects:

- i) carpentry
- ii) masonry
- iii) weaving
- iv) domestic science
- v) electrical installation
- vi) electronics

**The Civil Service Training Institute** was earlier a specialized secondary school. In 1984 it was transferred to the Department of Manpower Development. The major objectives of the Institute are to provide training for the lower level of clerical and accounting staff, as well as to conduct seminars or workshops for senior officers in the civil service.

The duration of courses varies from three months to one year. The Institute also offers evening classes.

#### Institutes for Higher Education on the Mainland

**The University of Dar Es Salaam** was established in 1970. Courses are offered within the faculties of Arts and Social Sciences, Commerce and Management, Education, Science, Law, Medicine, and Engineering. In addition, there are Institutes of Development Studies, Kiswahili Research, Production Innovation, Resource Assessment and Marine Sciences (located in Zanzibar).

The University also provides advisory and consultancy services in various fields.

The most relevant faculties from the point-of-view of the water sector are the Faculty of Engineering and the Faculty of Science where the following degrees are available:

- i) Faculty of Engineering:
  - Master and Bachelor of Science, Engineering
  - Doctor of Philosophy, Engineering
- ii) Faculty of Science
  - Diploma in Scientific Laboratory Technology
  - Diploma in Electronics and Instrumentation
  - Bachelor of Science
  - Bachelor of Science and Education
  - Bachelor of Science, Geology



Master of Science (Geology, Chemistry, Applied Science of Materials, Biology, Mathematics, Physics, Computer Science, Fisheries and Aquatic Sciences, Wildlife and Terrestrial Ecology, and Applied Zoology)

The current study costs vary with the field of study from Tanzanian shillings (Tshs) 255,000 to 326,000 per year.

**The Institute of Development Management (IDM)** is situated in Mzumbe Morogoro about 230 kilometres from Dar Es Salaam. It was established in 1970 and became an autonomous parastatal organ in 1972, subordinant to the Ministry of Labour and Manpower Development.

The main objectives of IDM are to train management personnel for various management jobs and to provide research and publications, as well as advisory and consultancy services.

There are four major teaching departments at the Institute: the Departments for Administrative Studies, Business Studies, Graduate Studies, and Short Courses and Consultancy.

The Institute has 15 degree programmes, standard diplomas and certificates in the following fields:

- i) Master's Degree in Business and Administration
- ii) Advanced Diploma in:
  - Economic Planning
  - Health Administration
  - Public Administration
  - Business Administration
  - Local Government Administration
  - Certified Accountancy
  - Accountancy and Finance
  - Material Management
- iii) Diploma in Law
- iv) Certificate in:
  - Basic Management
  - Manpower Management
  - Local Government Administration
  - Local Government Finance
  - Law for Primary Court Magistrates

The study costs varied from Tshs 190,000 to Tshs 250,000 per year for courses in the academic year 1989-1990.

The Department of Short Courses and Consultancy, established in 1988, has the following main activities:

- i) running of regular courses of intensive review programmes for the attainment of professional qualifications in Accountancy and Materials Management
- ii) training needs assessment

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- iii) developing and conducting tailor-made courses for organizations
- iv) assessing training effectiveness
- v) conducting consultancy assignments in all management areas

**The Institute of Finance Management (IFM)** was established in 1972 as a corporate body under the Ministry of Finance and Economic Planning. It is situated in Dar Es Salaam.

The major objectives of the Institute are to provide facilities for the study of and training regarding principles, procedures and techniques of banking, insurance, financial management and other related subjects, as well as offering consultancy services and carrying out research work in financial management. The Institute also arranges seminars, workshops and conferences on various subjects and produces publications.

During 1989-90 it had 14 long-term courses leading to the awards of Advanced Diploma, Postgraduate Diploma, Diploma or Certificate. The courses last from one to three years as follows:

- i) Postgraduate Diploma in:
  - Accountancy
  - Financial Management
  - Tax Management
- ii) Advanced Diploma in:
  - Accountancy
  - Banking
  - Insurance
  - Social Security Administration
  - Tax Management
- iii) Diploma in:
  - Banking
  - Social Security Administration
- iv) Certificate in:
  - Banking
  - Insurance
  - Social Security Administration

The IFM offers a package of short courses of one to two weeks duration. Tailored courses can also be designed, on request, to suit individual organizations.

The study fees vary from Tshs 138,000 to Tshs 203,000 for resident students per year in long-term courses.

**The Ardhi Institute** in Dar Es Salaam was established in 1972 and became a parastatal organization in 1974 under the Ministry of Lands, Housing and Urban Development. The Centre for Housing Studies was established at the Institute in 1979



for developing training, research and information services in the fields of housing, building and planning.

The Institute offers a three-year training programme at advanced diploma levels in Architecture, Building Economics, Land Management and Valuation, Land Surveying, Urban and Rural Planning and Environmental Engineering. Additionally it offers a two-year graduate diploma in Architecture and a certificate course in Land Surveying at Morogoro Campus.

The most relevant courses from the point-of-view of the water sector are the Advanced Diploma in Environmental Engineering and Advanced Diploma in Land Surveying.

The course on Environmental Engineering prepares candidates for jobs in the fields of waste disposal and sanitation as well as in other work related to environmental engineering.

The Land Surveying Programme is intended to provide a graduate surveyor with the understanding of the basic qualitative and quantitative concepts of land surveying.

Study fees for certificate courses this year are about Tshs 131,000 and for diploma courses between Tshs 315,000 and Tshs 330,000 per year.

**The Dar Es Salaam Technical College** was opened in 1957 with a commercial programme only. Since then many revisions of the syllabus have been carried out. The College is directly under the Ministry of Education.

At present the fields of studies leading to the award of F.T.C. are the following:

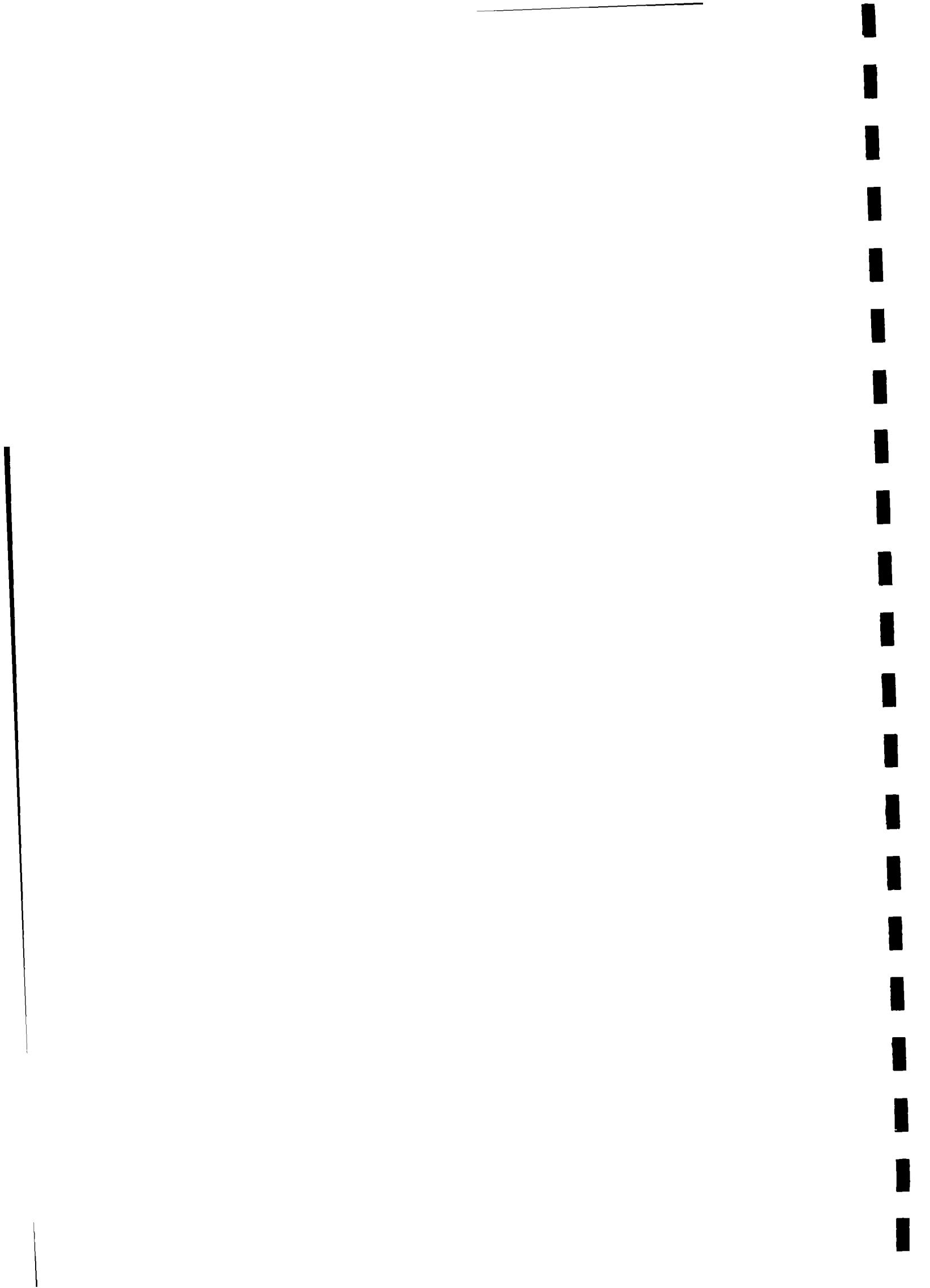
- i) Civil Engineering
- ii) Mechanical Engineering
- iii) Electrical Engineering
- iv) Electronics and Telecommunications
- v) Laboratory Technology

The College offers advanced diploma courses of three years in each engineering sector except laboratory technology. There is a technical teacher training unit in connection with the College. A two-year programme prepares teachers for technical secondary schools.

Advisory and consultancy services are available outside the terms, although they are not properly included in the college programme. The College also conducts evening classes.

**The Water Resource Institute (WRI)** in Dar Es Salaam, established in 1974, operates under the Ministry of Water and Energy.

The major objective of the Institute is to train middle-level technicians for supervisory positions in the various branches of water engineering.





The Full Technician Certificate Course (F.T.C.) is a three-year diploma level programme which provides three specialized options:

- i) Works (Civil Engineering)
- ii) Hydrology (Surface Water)
- iii) Hydrogeology (Groundwater)

The Water Laboratory Technician's Course is designed to train laboratory technicians for water analysis. The course also leads to the F.T.C.

Course programmes have recently been changed and development work is still going on (supported by SIDA). The aim is to make teaching methods more concrete.

The Institute is also conducting short courses in various water-related fields from 21 to 90 days in duration. Participants in courses of 21 days are awarded the Participant's Certificate of the Institute, while those taking part in the intensive trade courses, 60-90 days in duration, are awarded Grade Certificates depending on the entry level (Grade III, II or I).

Craftsmen's courses conducted by the Institute are as follows:

- Pipe Fitting/Plumbing
- Shallow wells, Prospecting and Construction
- Surveying and Drafting
- Pump Mechanics
- Fitting and Turning
- Hydrogeological Investigations (no Grade Course)
- Motor Vehicle Mechanics
- Masonry and Carpentry
- Water Analysis and Water Treatment
- Welding and Electrical Installation
- Hydrology and Meteorology
- Drilling

The Institute also designs and conducts Management and Supervision courses for water technicians with F.T.C. or with Grade I/II Trade Test Certificates with sufficient work experience in supervisory positions.

Short courses can be held in the Institute or in the field and cost about Tshs 6,000 per day.

F.T.C. programme currently costs Tshs 286,000.

The Institute also assesses training needs and prepares training programmes at the request of clients.

**The Dar Es Salaam School of Accountancy** was established as a department of the Ministry of Finance in 1974.

The major objective of the School is to conduct both short and long-term courses for lower and middle level government



accounting employees in order to improve their work performance.

The course programme of the School is as follows:

- National Book-keeping Certificate
- National Accountancy Diploma, Part I
- National Accountancy Diploma, Part II
- National Book-keeping Certificate/National Accountancy Diploma
- National Store-keeping Certificate
- National Diploma in Materials Management, Part I
- National Diploma in Materials Management, Part II
- Special Course in Material Management
- National Store-keeping/National Diploma in Materials Management
- Lower Standard Government Accountancy
- Basic Book-keeping Certificate
- Higher Standard Government Accountancy

Course fees including board and lodging are on the average Tshs 150,000 per course.

The School has established a consultancy unit which offers consultancy services, short courses and seminars in the fields of Finance, Accountancy and Materials Management.

## 5.6 Conclusions

The GOZ is pursuing to improve educational systems and quality of education. Several development projects are underway in the education sector. A great emphasis is placed on preparation for employment while renewing curricula and developing adult education.

The positive impacts of these development efforts cannot be expected to appear in a near future. Therefore more quickly effective means of improving vocational skills must be considered in upgrading the skills of urban water supply staff.

However, the training of water sector staff could benefit from the educational system development. Long-term training arrangements in the water sector should be a part of general adult education system.

Upgrading and supplementary training should be planned and implemented on a continuous basis in close cooperation with local training institutes. In the long-run this cooperation would improve the competence of institutes in carrying out supplementary training in various water or administration related fields. Obviously, these joint efforts could have a positive impact on the development of basic schooling programs in these institutes.

There is expertise available in Tanzania regarding water supply and management issues. Institutions are also very willing to cooperate with the Programme. Although some of the institutions did not have any arrangements for consultancy



services, teachers would be available for training courses outside the terms.

The relevant institutes for professional and higher education are Dar Es Salaam University, Water Resource Institute, Technical College, Ardhi Institute, Institute of Finance Management and School of Accountancy in Dar Es Salaam. The Institute of Development Management in Morogoro and Karume Technical College in Zanzibar Town are also relevant institutes.

Vocational courses and seminars for the upgrading of skills and the knowledge of craftsmen could be arranged in cooperation with Karume Technical College and Water Resource Institute and, as far as clerical staff is concerned, with the Civil Service Training Institute.



## 6 SOCIO-ECONOMIC ASPECTS OF URBAN WATER SUPPLY

### 6.1 Objectives of the Survey

The Urban Water Supply Programme decided to carry out a household survey in order to gather information for the basis of planning, institutional arrangements and patterns for community participation and educational programmes.

The survey was aiming at:

- identifying existing water supply systems
- finding out practices with regard to collecting, re-storing and handling water
- identifying equipment used for water supply by the households
- finding out water problems faced by people and their efforts to solve them
- estimating water consumption for various purposes
- identifying sanitary conditions and existing waste disposal systems
- finding out the present costs of water use and the willingness of people to pay for water
- studying the willingness of people to contribute to the improvement of the water supply and getting ideas about community participation
- getting some idea regarding the understanding of water and sources of water information.

### 6.2 Methodology and Sampling

The area of the survey was composed of Zanzibar Town on Unguja and Chake Chake, Wete and Mkoani on Pemba.

Based on the information available the towns were divided in advance into four categories by the Urban Water Supply Programme according to the major type of existing water connection:

- A) 100 % house connection
- B) majority of house connections and a few yard connections
- C) majority of yard/house connections and a few standpipes
- D) majority of yard connections or standpipes and a few house connections

The areas included in each category are shown in Maps 1, 2, 3 and 4. (Appendix 2 B)

The samples were taken according to these areas in proportion to the number of the households based on the 1988 Population Census data. The households selected for interviewing within an area were chosen at random. The total number of the sample is 200 households for Zanzibar Town and 100 households altogether for the towns on Pemba.

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The interviews were conducted and the interviewers trained by Yubo-Group from Zanzibar. It also conducted a pilot survey of 10 households on the basis of which the questionnaire was modified. The group also processed the data collected by computers in accordance with the directions given by the Programme.

### 6.3 Implementation of the Survey and Reliability of the Results

The following is an appraisal of the Water Project Household Survey authored by those responsible for carrying out the survey.

#### Interviewers

The interviewers were Karume Technical College students, 10 for Unguja, and 8 for Pemba. For Unguja, four of the interviewers were female, and six were male. For Pemba, four were female and four were male. Their ages ranged from 18 to 20 years old, and their education was "A" Level.

#### Training

Interviewer training was held in two three-hour sessions. The training included the examination of each question in both Swahili and English, where each question was clarified and a common understanding reached. Topics of thoroughness, accuracy collecting and professionalism were also covered as it related to data. The interviewers also conducted "mock" interviews by interviewing each other during the training.

After the training a pilot survey was done, and each interviewer interviewed one household. A debriefing was held after the pilot survey to discuss any problems with the interview process or questions. The survey data from the pilot survey was not used in the final analysis.

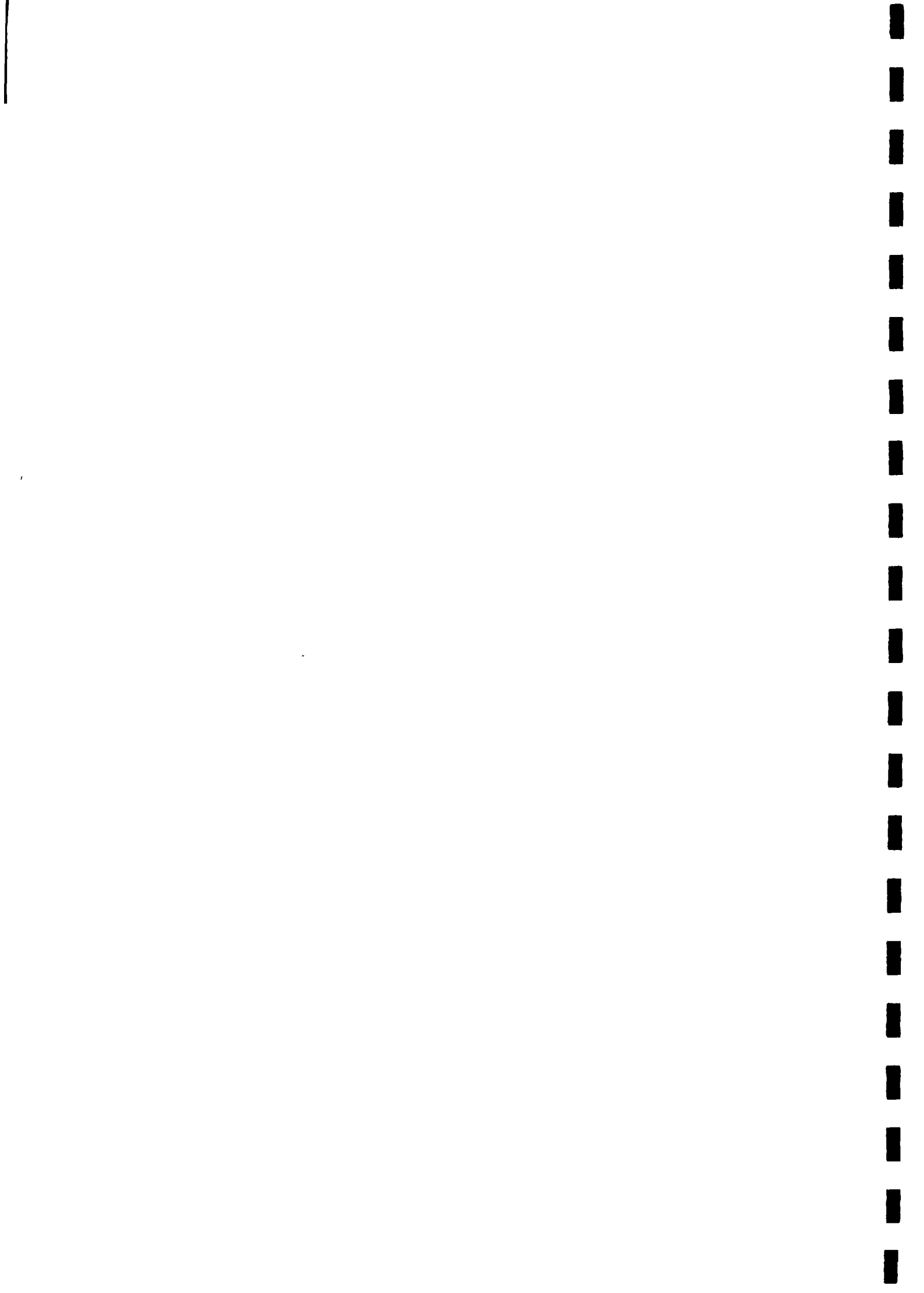
#### Actual Survey

The samples were taken by choosing the first house by sight (no particular criteria used), then every fifth house.

The number of samples for each area is:

Area	Unguja	Pemba
A	40	0
B	46	60
C	73	40
D	40	0

The interviews were done from June 4 to June 7 on Unguja and July 4 to July 7 on Pemba (1990), and were conducted in the morning and afternoon.



There were no problems reported by the interviewers. They all said that they were very well received and that the interviewees were polite and pleasant, and seemingly happy to participate.

The questions that were answered by the least number of people were:

Q14	Do you have a roof tank	-	possibly blanks mean "No"	
Q15_1	Capacity of ground tank	-	possible difficulty in estimating	
Q19	What kind of connection	-	possibly blanks mean "don't know"	
Q21	Which ways tried to solve problems	-	}	
Q28	Who fetches water	-		possible difficulty
Q44	Amount of water consumed	-	}	
Q64	Number of affected people	-		in estimating
Q67	Source of information	-		
Q69	Source of income	-		

There was a potential misunderstanding in the question "Would you be willing to pay for a reliable water supply". The interviewees might have thought that they would be receiving a connection for that payment if they didn't already have one. The Swahili translation was very careful on this point, however.

Neither the age nor the gender of the interviewers seemed to be a source of concern. They were polite and performed their tasks in a professional manner, and were in return treated as professionals. The general feeling of the interviewers was that they were given accurate data.

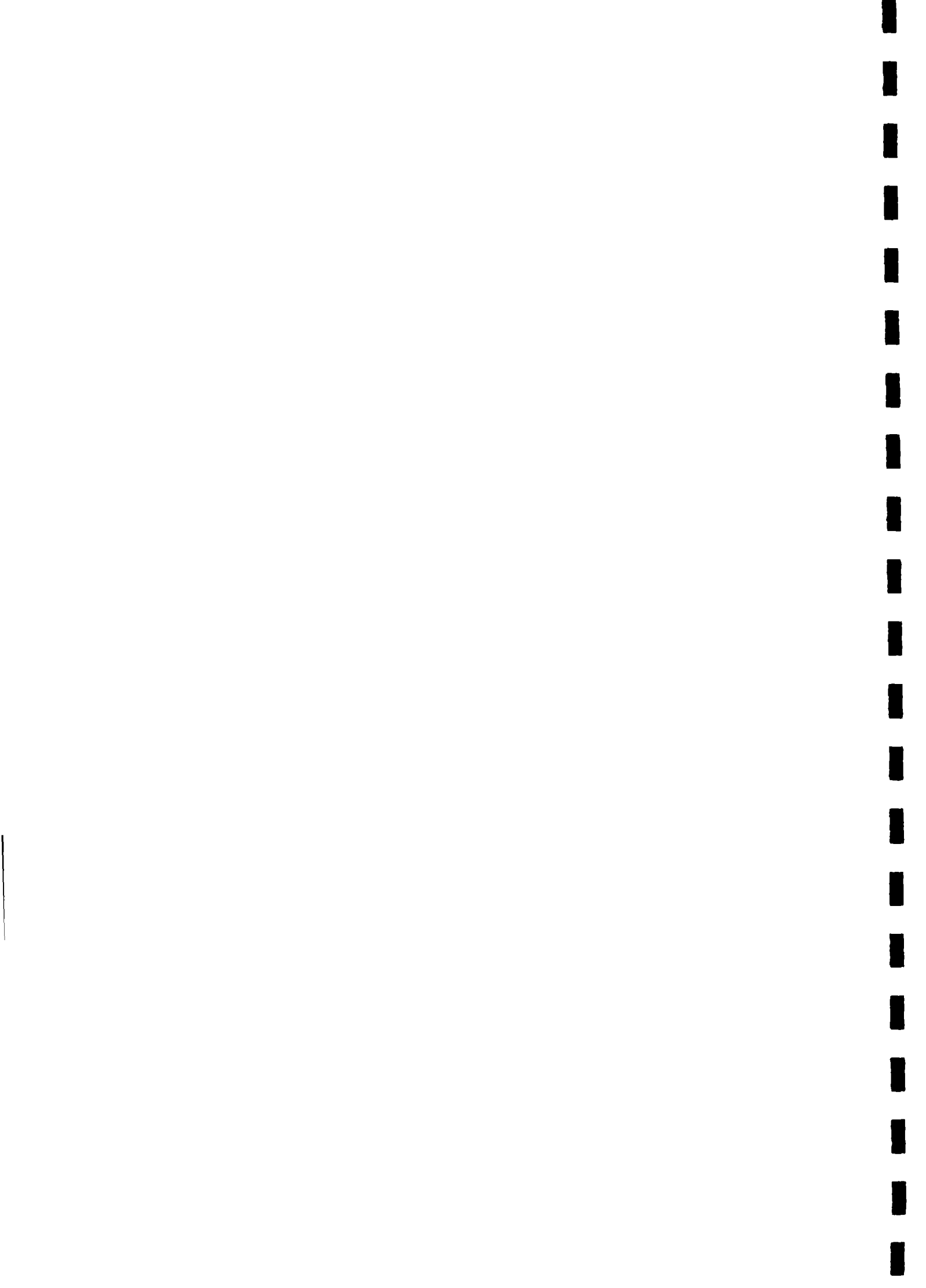
#### Data Analysis

The dBaseIII+ database program was used for the survey data analysis. There were no limitations on its processing capabilities. The data entry was a source of error, especially since many of the answers had to be translated from Swahili into English, but the person performing the data entry was extremely conscientious so the amount of error has been found to be small.

The statistical methods used were only very simple calculations: frequencies, percentages, standard deviations, and cross-tabulations.

#### Conclusion

From those involved in the interview process and in the data analysis, the overall impression of the reliability of the results is that they accurately reflect the views of people in urban areas of Unguja and Pemba.



## 6.4 Presentation of Preliminary Results

The time has been too short for analyzing the data collected thoroughly. The survey includes much more useful information than only that presented here. It will be utilized later on before planning detailed measures for promoting community participation and education in the urban areas of Zanzibar. This general description of the data is however adequate enough for the purposes of the present phase, which is primarily that of looking for guidelines.

It is important to realize that the area categories being used in the tables are based on the assumed major type of water connection in that area. Thus the division is not basically geographical although almost identical. The capital letters in tables refer to these categories, explained in detail in Chapter 6.2.

For this reason Tibirinzi from Chake Chake is located along with Mkoani. Tibirinzi however turned out to be an area of contrasts. On one hand, there are few apartment blocks with house connections near the centre of Chake Chake. On the other hand, in the fringe areas most households have standpipes or yard taps. Thus in those tables wherein variables are classified by the type of connection, responses will obviously describe the opinions of people in the Tibirinzi apartment block area as far as house connections are concerned.

### 6.4.1 Socio-Economic Characteristics of the Sample Households

The interviews were conducted mainly during the daytime due to which 70 percent of the respondents were women. More than half of them regarded themselves as the family head. The respective figure among male respondents was 83 percent.

#### Size of Households

About 40 percent of the households in Zanzibar Town and over a half in Pemba towns had five to eight members. The average size of a family was seven on the both islands. (See Figures 9, 10 and 11). When people living in the same household though not nuclear family members are taken into account the average size of households increases to eight in Zanzibar Town but remains at seven in Pemba towns.

The proportion of children in the sample households was quite small an average of 3 per family on Unguja and 3.6 on Pemba. The average mean deviation was 2.5 on both islands.



Figure 9

*Size of Families in Unguja and Pemba Urban Areas*

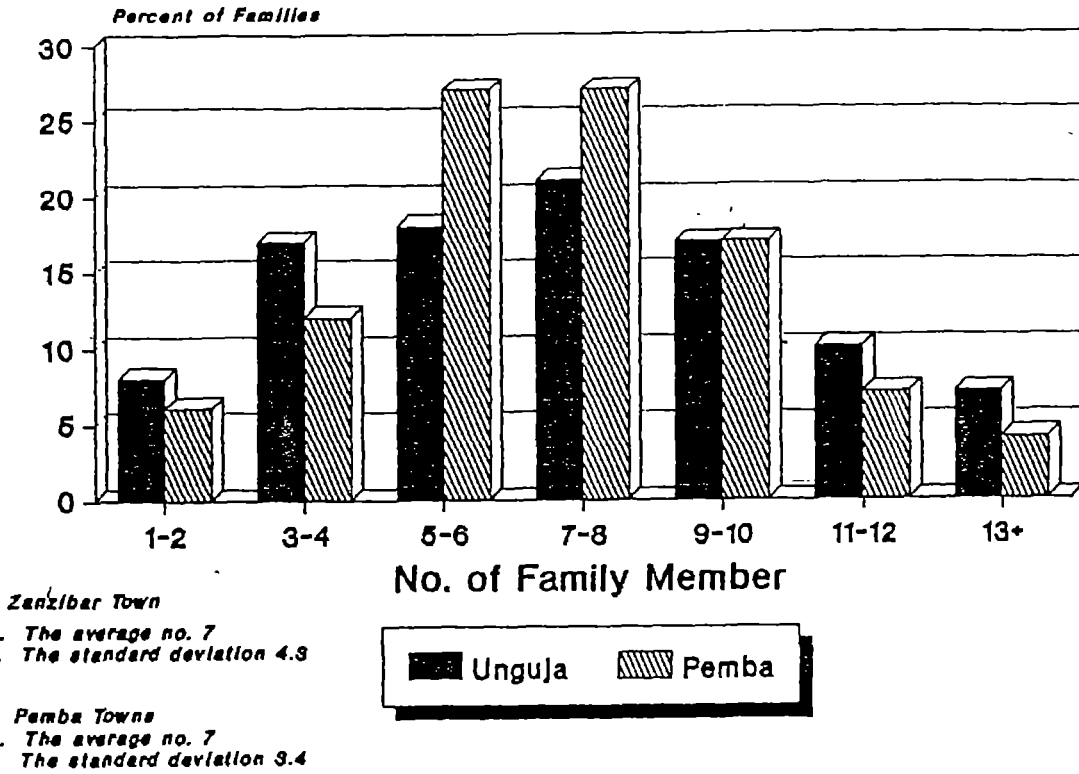


Figure 10

*Size of Households in the Various Areas of Zanzibar Town*

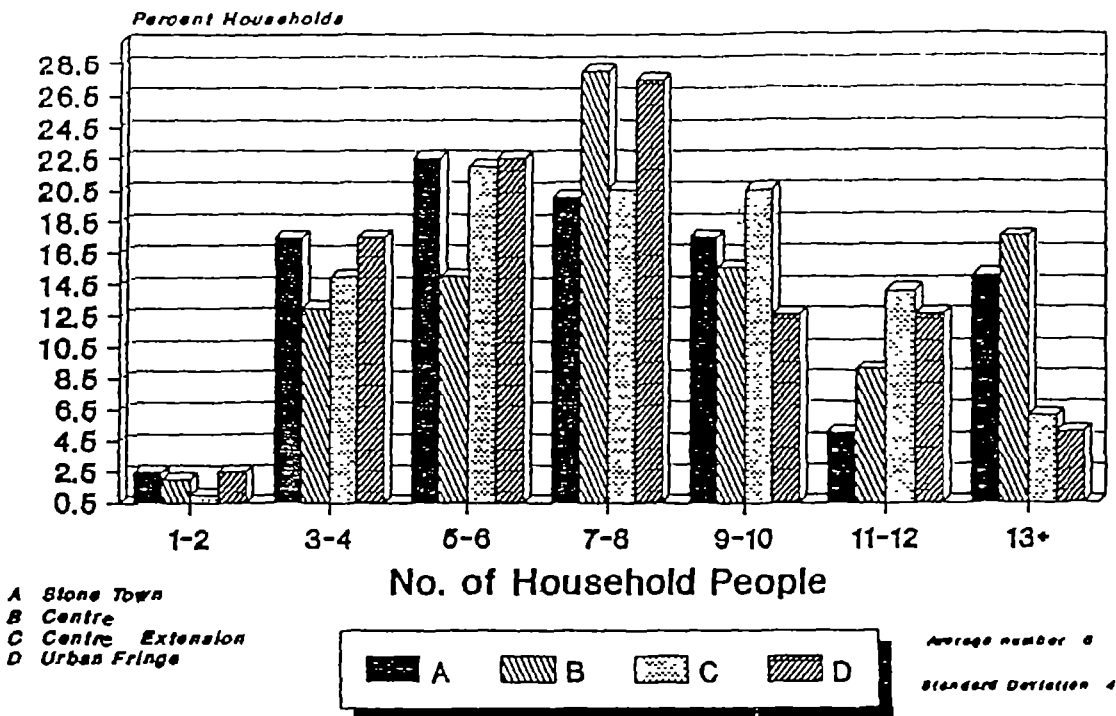
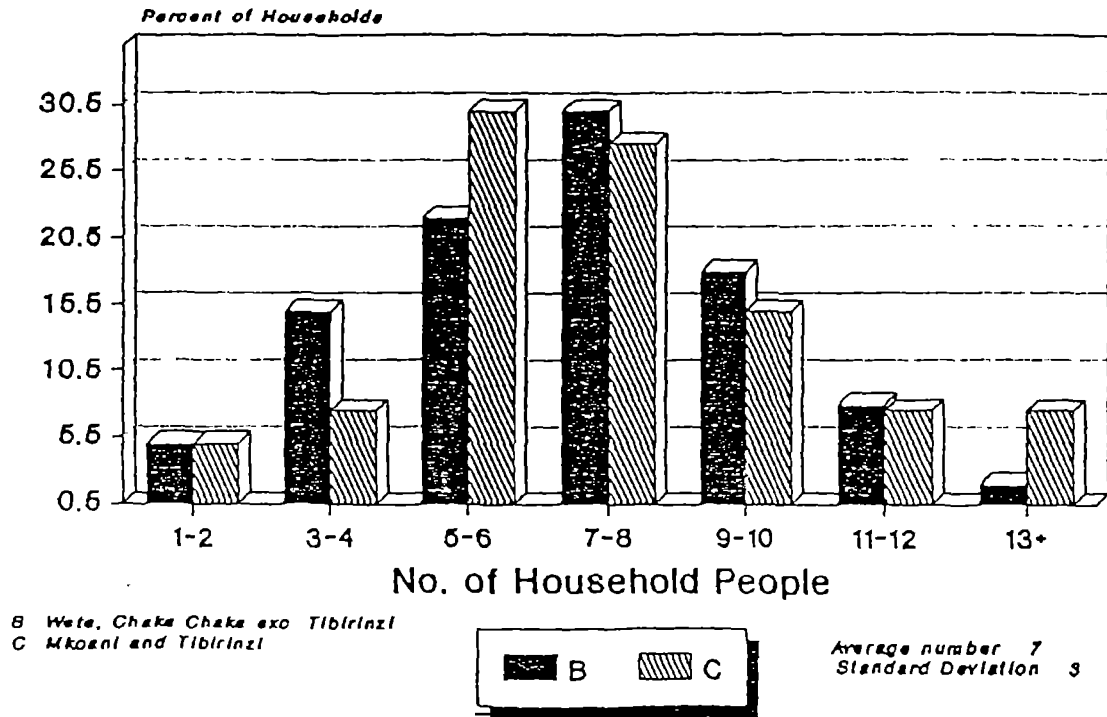






Figure 11 *Size of the Households in Various Pemba Town Areas*



### Type of Housing

The most typical type of dwelling in Zanzibarian urban areas was as expected, the detached house. About, one fifth of the houses were apartment blocks in Zanzibar Town, mainly due to the tightly built Stone Town area.

The average number of persons per room is often used as a rough measure for the level of housing. The situation in Zanzibar is presented below (Table 27). The kitchen is included in the number of rooms, all people living in a house or flat are counted (not only nuclear family members).

The average numbers do not vary very much, but people seem to live most closely together in the centre of Zanzibar Town.

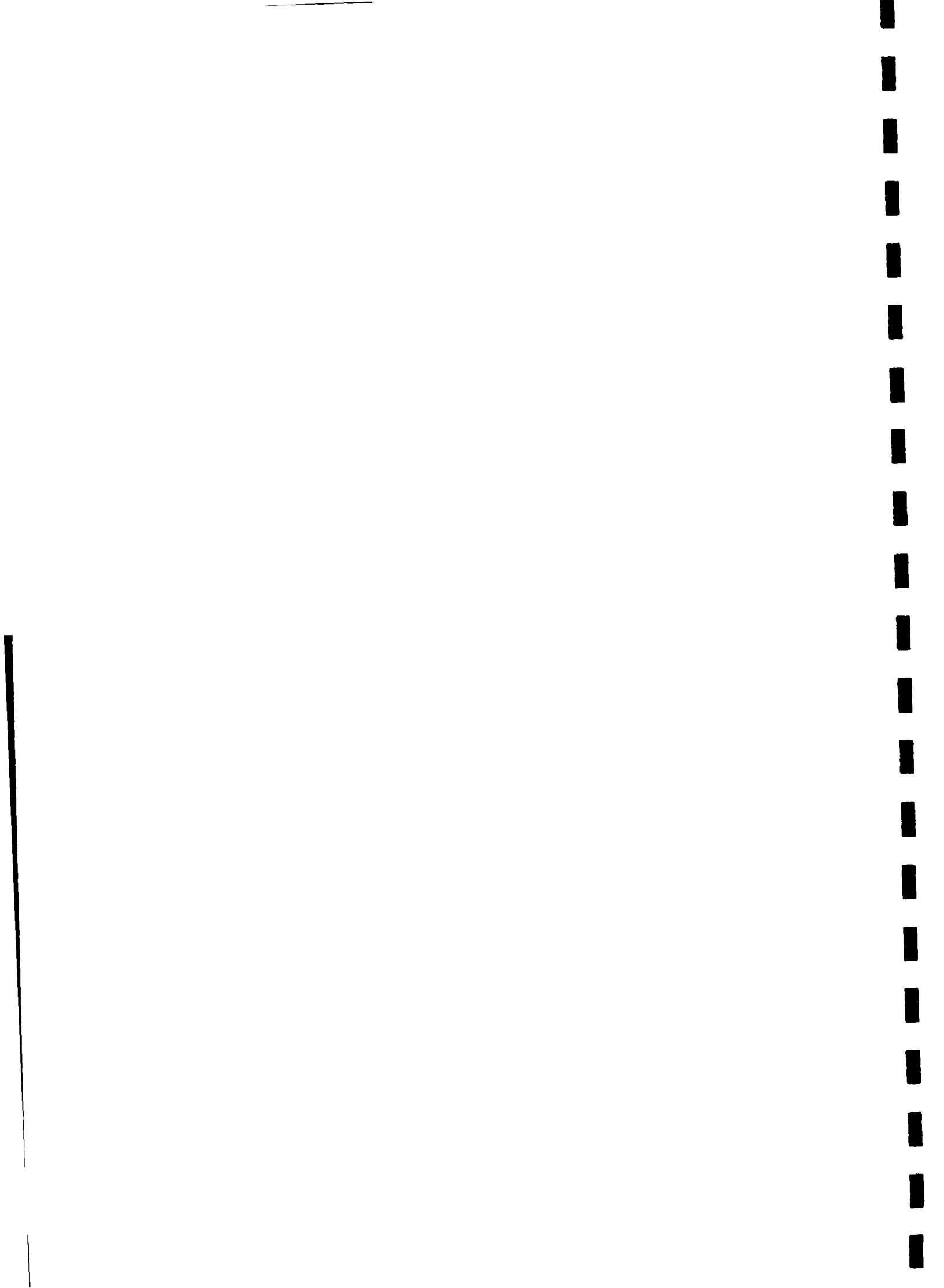


Table 25 Distribution of housing type by area in Zanzibar Town

Type of dwelling	A R E A S				Total %
	Stone Town (A) %	Centre (B) %	Extension (C) %	Urban fringe (D) %	
Apartment block	90	11	1	-	21
Detached house	10	85	87	90	72
Hut	-	4	10	5	6
Other	-	-	2	5	1
Total	100	100	100	100	100 (N = 198)

Table 26 Distribution of housing type by area in Pemba towns

Type of dwelling	Wete and Chake Chake excl. Tibirinzi (B) %	Mkoani and Tibirinzi (C) %	Total %
	Apartment block	-	
Detached house	97	72	87
Hut	1.5	3	2
Other	1.5	10	5
Total	100	100	100 (N = 100)

Table 27 Average number of persons per room on Unguja and Pemba urban areas

Area	Average number of persons per room	
Zanzibar Town		
Stone Town (A)		1.5
Centre (B)		2.2
Extension (C)		1.8
Urban fringe (D)		1.7
Wete and Chake		
Chake excl. Tibirinzi (B)		1.6
Mkoani and Tibirinzi (C)		1.6



### Sources of Livelihood

The major sources of family livelihood were classified according to the following categories:

- A) Agriculture, farming  
- farmers and agricultural labourers
- B) Agriculture, fishing
- C) Service sector, public  
- government employees, teachers, doctors, police, hospital work, jail work, office job, etc.
- D) Service sector, private  
- restaurant workers, drivers (if not own business), shop assistants, hotel workers, etc.
- E) Business  
- businessmen, shopkeepers, vendors, taxi drivers, tailors, carpenters etc.
- F) Labourers  
- employees, labourers, seasonal construction workers, factory workers, industry workers, etc. whose employer not stated
- G) Unemployed or supported by relatives
- H) Other or unknown  
- housewives, pensioners or no response

In addition, some 22 percent of the sample households in Zanzibar Town and 25 percent in the Pemba towns had one or two other jobs. It can be assumed that cash incomes per month are estimated taking into account all jobs. Otherwise the following tables have been calculated according to the major occupation.

Table 28 Major source of livelihood in Zanzibar Town

Source of livelihood	A R E A S				Total %
	Stone Town (A) %	Centre (B) %	Extension (C) %	Urban fringe (D) %	
Agriculture/farming	5	13	9	18	11
Agriculture/fishing	-	-	1	-	-
Service/public	-	20	35	31	24
Service/private	-	4	2	-	2
Business	28	37	27	33	31
Labourers, employer unknown	-	-	1	3	1
Unemployed or assisted	57	9	7	10	18
Other or unknown	10	17	18	5	14
Total	100	100	100	100	100

(N = 195)



Table 29 Major source of livelihood in Pemba towns

Source of livelihood	Wete and Chake Chake excl. Tibirinzi (B) %	Mkoani and Tibirinzi (C) %	Total %
Agriculture/farming	63	61	62
Agriculture/fishing	-	-	-
Service	15	18	16
Service/private	-	-	-
Business	19	9	15
Labourers, employer unknown	-	-	-
Unemployed or assisted	2	3	2
Other or unknown	1	9	5
Total	100	100	100

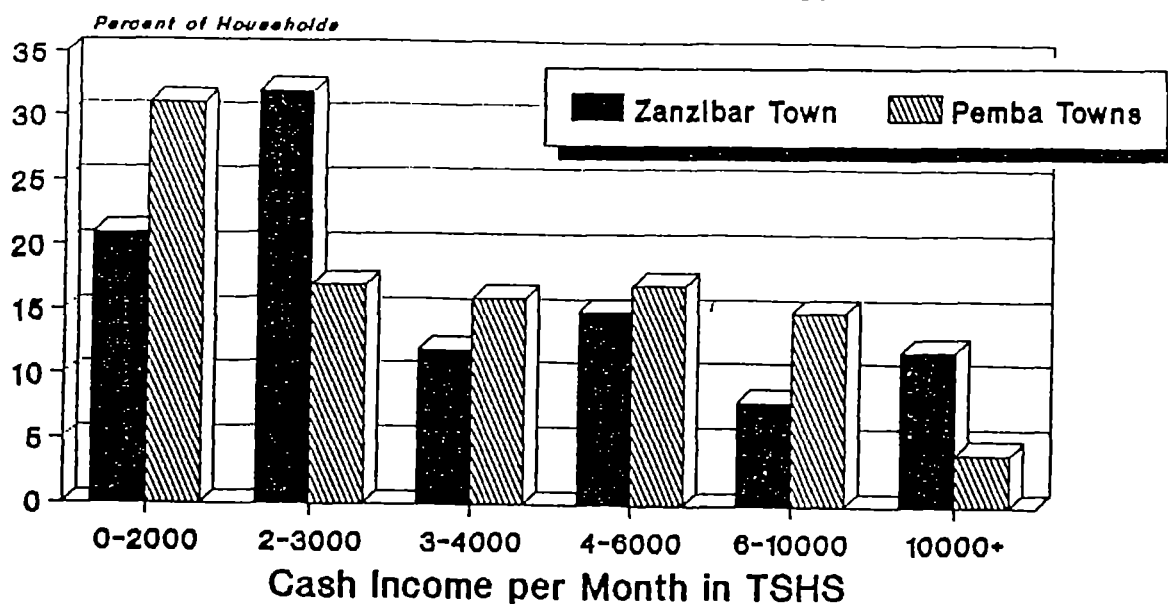
(N = 92)

Over 60 percent of the urban households on Pemba get their living from agriculture, while in Zanzibar Town the sources of livelihood are widely distributed across various occupational fields. One third is in some kind of business and one fourth in civil service, these two categories make up the biggest occupational groups.

#### Cash Income per Month

The question of monthly cash income was responded to by 65 percent of the households in Zanzibar Town and 50 percent of Pemba. The distribution based on this data is as follows:

Figure 12 *Cash Income per Month of Urban Households in Zanzibar*







The average income per month among the respondents by the occupational field are shown in Table 30 below. The variation among each occupational class was great. For this reason the average deviation from the mean and maximum income are mentioned.

**Table 30 Average income per month by occupation in Zanzibarian urban areas**

Occupational field	Average cash income per month/TSHS		Standard deviation		Maximum income	
	Zanzibar Town	Pemba towns	Zanzibar Town	Pemba towns	Zanzibar Town	Pemba towns
Agriculture/farming	4000	900	4700	2100	20000	10000
Agriculture/fishing	5000	-	0	-	5000	-
Service/public	4100	4000	3400	2400	16500	10000
Service/private	1100	-	1400	-	3000	-
Business	8400	9300	11500	12600	6000	50000
Labourers, employer unknown	3500	-	250	-	3500	-
Unemployed or assisted	900	-	1500	0	6000	-
Other or unknown	5800	4990	5200	4200	20000	12000

These figures must be taken very hesitantly because the declaration of income is always very sensitive, and affected by several unknown factors in addition to the fact that the response percentage was low to this question.

Socio-economic characteristics should be compared with general population census data which, however, was not available at present.

#### 6.4.2 Description of Water Supply and Sanitation Systems

The survey included a series of questions about conditions of domestic water supply systems, materials used, age of connection, etc. There were also a few questions about waste disposal and sanitation systems.

In this tentative report, however, attention is paid only to general features in order to get an overall picture of the level of these systems.

##### Water Supply Systems

Over a half of the households has its own indoor tap. The number of other options increases while moving towards the urban fringe as shown in Tables 31 and 32.



Table 31 Water sources of the households in Zanzibar Town

Water source	A R E A S				Total %
	Stone Town	Centre	Extension	Urban fringe	
	(A) %	(B) %	(C) %	(D) %	
Indoor tap, own	90	65	40	38	55
Neighbour's tap	-	4	20	17	12
Yard tap, own	10	24	10	22	16
Public standpipe	-	5	14	15	9
Container lorry	-	-	12	3	5
Well	-	-	3	5	2
Pond	-	-	1	-	0.5
Other	-	2	-	-	0.5
Total	100	100	100	100	100 (N =199)

Table 32 Water sources of the households in Pemba towns

Type of dwelling	Wete and Chake Chake excl. Tibirinzi	Mkoani and Tibirinzi	Total %
	(B) %	(C) %	
Indoor tap, own	35	47 *	40
Neighbour's tap	7	8	7
Yard tap, own	46	25	38
Public standpipe	2	3	2
Container lorry	-	-	-
Well	10	15	12
Pond	-	-	-
Other	-	2	1
Total	100	100	100 (N =100)

\* evidently Tibirinzi area

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### Sanitation and Drainage

Pit latrines are used by 63 percent of the households in Zanzibar Town and by 74 percent on Pemba. As expected, the proportion of flush toilets was highest in Stone Town.

It is a bit surprising that a complete drainage system was possessed by 58 percent of the households on both islands. However, the question was perhaps not specified clearly enough so that the responses may include a varied understanding of complete drainage systems.

The distribution is shown in the following tables:

**Table 33 Types of the toilets in Zanzibar Town and Pemba towns**

Area	Flush %	Type of toilet Pit latrine %	Outdoors %	Total %
<b>Zanzibar Town</b>				
Stone town	80	20	0	100
Centre	26	74	0	100
Extension	9	88	3	100
Urban fringe	47	48	5	100
Total	35	63	2	(N =198)
<b>Pemba</b>				
Wete and Chake Chake excl. Tibirinzi	10	87	3	100
Mkoani and Tibirinzi	43	54	3	100
Total	23	74	3	(N =99)

**Table 34 Waste water disposal systems in the urban areas of Zanzibar**

Area	Disposal system					Total
	Complete drainage %	Thrown into flush toilet %	Thrown into pit %	Thrown outdoors %	Other	
<b>Zanzibar Town</b>						
Stone Town (A)	90	-	-	3	-	100
Centre (B)	65	-	13	12	-	100
Extension (C)	38	-	19	42	1	100
Urban fringe	48	2	8	37	5	100
Total	58	-	12	28	2	100 (N =197)
<b>Pemba towns</b>						
Wete and Chake Chake excl. Tibirinzi	68	3	7	12	10	100
Mkoani and Tibirinzi	42	7	30	18	3	100
Total	58	5	16	14	7	100 (N =100)



### 6.4.3 Problems in Water Supply and Solving Efforts

#### Water Problems

Some 80 percent of the households had problems with water supply in Zanzibar Town and all of the respondents who answered the question (N = 72) on Pemba. The most commonly mentioned reason was an unreliable supply. The distribution of answers according to the water source is shown in the following table:

Table 35 Inadequate water supply or no problems in supply by the type of water source in Zanzibar Town and Pemba towns

Water Source	Inadequate or unreliable supply		No problems	
	Zanzibar Town %	Pemba town %	Zanzibar Town %	Pemba town %
Indoor tap, own	70	67	23	-
Neighbour's tap	62	80	14	-
Yard tap	66	74	15	-
Public standpipe	72	100	17	-
Container lorry	22	-	-	-
Well	-	33	-	-

One household complained of the poor quality of water in Zanzibar Town. One third of the well users in Pemba urban areas had problems with water quality.

A container lorry served as the water source for nine households in Zanzibar Town. Although only two of them had supply problems, the remaining eight had other unspecified troubles with this arrangement.

When water supply problems are studied according to the various areas some differences between them can be seen.

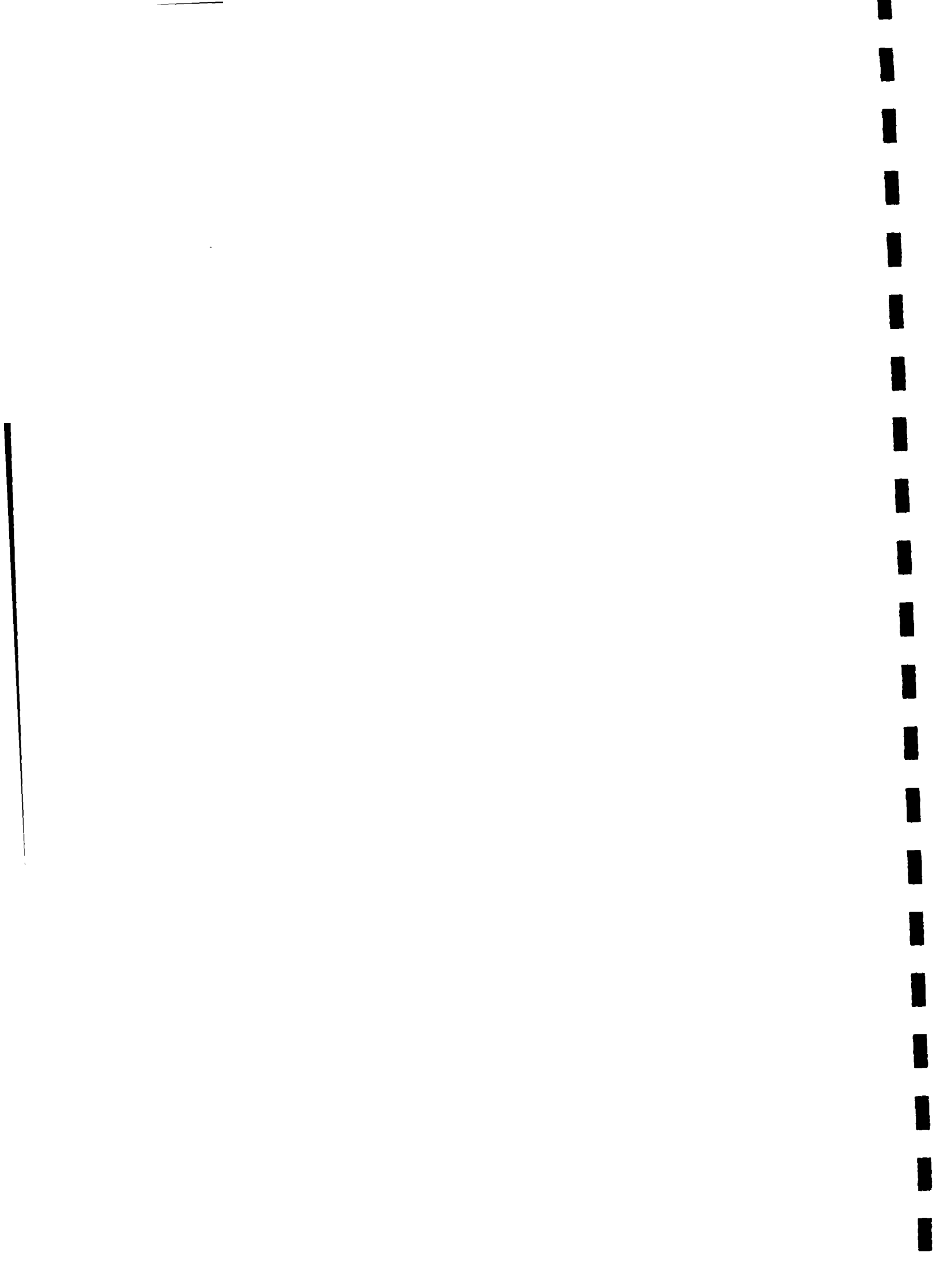




Table 36 Water supply problems by the town areas in Zanzibar Town

Problem	A R E A S			
	Stone town (A) %	Centre (B) %	Extension (C) %	Urban fringe (D) %
Poor quality	-	-	1	-
Inadequate or unreliable supply	50	70	72	62
Maintenance problems	10	-	-	-
Other problems	-	-	27	15
No problems	40	30	-	23
Total	100	100	100	100

(N =194)

The centre extension area appears to have more water problems than other ones. The best situation (although not good either) is in Stone Town. It was also the only area where maintenance was mentioned among other problems.

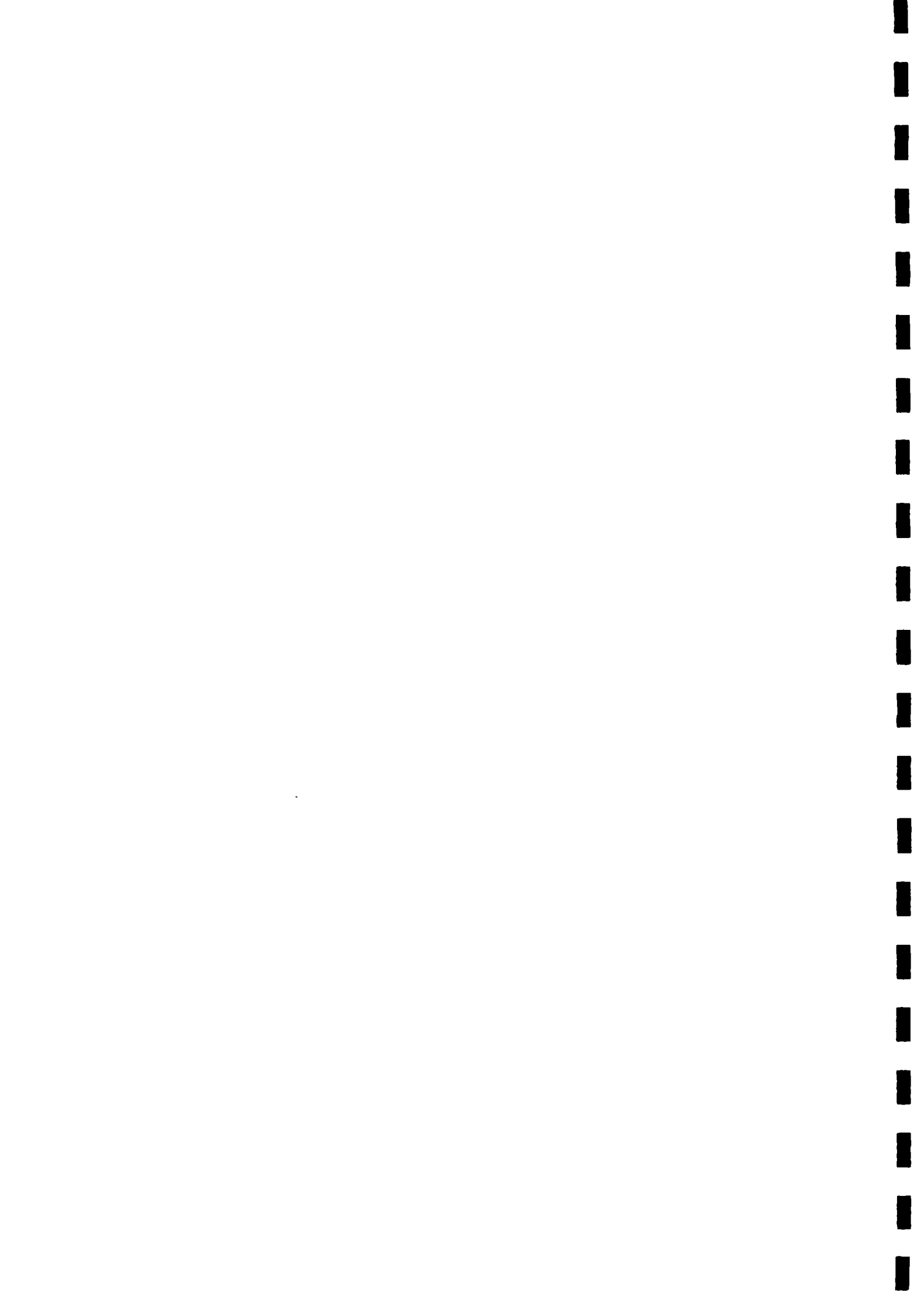
In Pemba the problems are distributed as follows:

Table 37 Water supply problems by area on Pemba

Problem	Wete and Chake Chake excl. Tibirinzi (B) %	Mkoani and Tibirinzi (C) %
	Poor quality	8
Inadequate quantity or unreliable supply	63	74
Maintenance problems	-	-
Other problems	29	26
No problems	-	-
Total	100	100

(N =72)

The proportion of "Other problems" is over one fourth of the responses on Pemba. Because those answers were not further specified nothing can be said about what they are.



### Problem-Solving Efforts

The question about ways used to try to solve water supply problems was open-ended. The answers were classified afterwards into five groups which cover the problem-solving efforts mentioned by the interviewees.

**Table 38 Problem-solving efforts of water problems in Zanzibar Town by area**

Method	A R E A S				Total %
	Stone town (A) %	Centre (B) %	Extension (C) %	Urban fringe (D) %	
Does not do anything	8	75	68	52	56
Stores water	46	-	3	22	13
Fetches water from somewhere else	29	18	22	15	21
Tries to get repairs made	17	3.5	-	4	4
Reports to DWD, owner or branch	-	3.5	7	7	6
					(N =147)

**Table 39 Problem-solving efforts of water problems in Pemba towns by area**

Method	A R E A S		Total %
	Wete and Chake excl. Tibirinzi (B) %	Chake Mkoani and Tibirinzi (C) %	
Does not do anything	62	62	62
Stores water	-	-	-
Fetches water from somewhere else	34	32	34
Tries to get repairs made	-	3	1
Reports to DWD, owner or branch	4	3	3
Total	100	100	
			(N =90)



Three fifths of the households in Pemba did not do anything when problems emerged and some one third tried to fetch water somewhere else. Nobody appeared to store water. There was no significant difference in responses between the areas.

In Zanzibar Town problem-solving efforts differ clearly from one area to another. The most common solution among Stone Town inhabitants is to store water. They also try to fetch water from somewhere else more often than others. A little less than one fifth of the households in Stone Town chose to make repairs while in other areas this way is used by only four percent or less of the households if used at all.

The great majority (75 %) of the households in the town centre does not do anything. This passivity decreases while moving towards urban fringes. The households situated between Stone Town and the urban fringe do not appear to store water, but some one fifth try to get water from somewhere else. No sample household in Stone Town reported deficiencies to the Water Department, the owner or the CCM branch, while some of the households in other areas tried this means as well.

#### 6.4.4 Willingness to Pay for Water

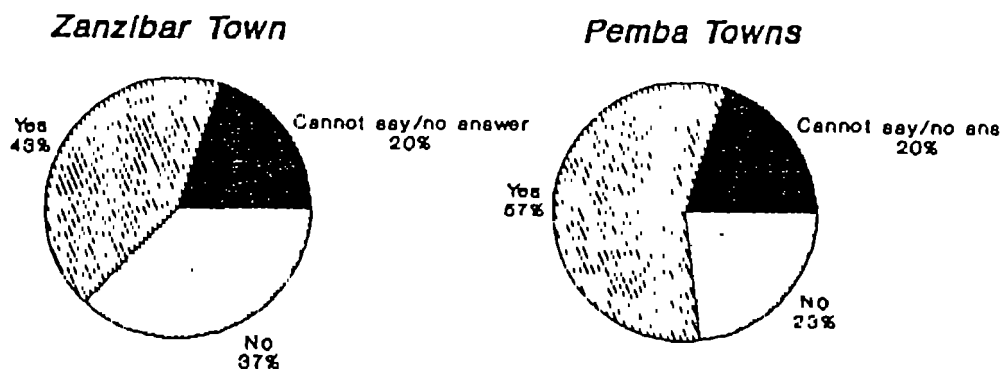
##### Willingness to Pay

The results indicate that Pemba town residents are more willing to pay for water than those in Zanzibar Town households. One of the reasons is likely to be that Pemba people have so many problems with water that they are even ready to pay in order to alleviate them.

The proportion of "No" responses was less than two fifths in Zanzibar Town and a bit more than one fifth in Pemba. One fifth of the households had no opinion about the matter or did not want to answer. In both cases the response is likely to mean that they have no strong attitude either for or against water charges.

The distribution of the opinions is shown in Figure 13.

Figure 13 *Willingness to Pay for Water among Zanzibar Urban Households*





Willingness to Pay according to Gender

On both islands the female respondents were more willing to pay for a reliable water supply. This is quite understandable because the shortage of water has the greatest influence on domestic work taken care of by women. The distribution of the responses is seen below. It is worth noting that male respondents were more unsure than women of their attitudes towards charges.

Table 40 Willingness to pay by gender of the respondent

Gender	Yes %	No %	No answer %	Total %
Zanzibar Town				
Female	45	37	18	100
Male	36	39	25	100
Pemba towns				
Female	58	24	18	100
Male	52	22	26	100

Willingness to Pay by the Major Source of Livelihood

There were relatively more supporters of water charges among agricultural, business and unemployed or assisted people than in the service sector. Those working in the civil service on Pemba were much more willing to pay for water than their colleagues in Zanzibar Town (67 percent versus 33 percent).

Table 41 Distribution of willingness to pay according to major source of livelihood

Source of livelihood	Zanzibar Town (N=196)			Pemba towns (N=92)		
	Yes %	No %	No answer %	Yes %	No %	No answer %
Agricultural/farming	50	32	18	54	23	23
Agricultural/fishing	100 *	0				
Service sector/public	33	37	30	67	20	13
Service sector/private	33	33	34	-	-	-
Business	45	40	15	64	21	15
Unemployed or assisted	60	34	6	-	100 **	-
Other or unknown	30	41	29	50	-	20
Total	43	37	20	57	23	20

\* only one fisherman in the sample

\*\* only two households in this class





### Willingness to Pay by Town Areas

By studying the willingness by areas it came out that there were relatively fewer "yes" answers within the extension area compared with the other areas of Zanzibar Town. However, the greatest number of households not responding to the question were located there as well. In Stone Town and the centre a good 60 percent of the households were ready to pay for a reliable water supply.

Table 42 Willingness to pay by town areas in Zanzibar

Town area	Yes %	No %	No answer %	Total %
<hr/>				
Zanzibar Town				
Stone Town	60	40	0	100
Centre	62	32	6	100
Extension	23	40	37	100
Urban fringe	36	38	26	100
				(N =199)
Pemba towns				
Wete and Chake Chake excl. Tibirinzi	58	25	17	100
Mkoani and Tibirinzi	54	20	26	100
				(N =99)

### Willingness to Pay by Water Source

Among those reluctant to pay for water in Zanzibar Town, the majority had their own indoor tap. However, they also made up the majority of "yes" respondents. The households using a neighbour's tap found it difficult to give an opinion about payments.

The situation in Pemba differs from Unguja to some extent. The majority of "yes" answers were given by those who had their own indoor tap. The highest proportion of "no" answers was among the households using their own yard tap. The majority of well users had no opinion or did not want to express their opinions on the matter.



Table 43 Willingness to pay as distributed according to water source

Water Source	Yes %	No %	No answer %
<b>Zanzibar Town</b>			
Indoor tap, own	67	72	60
Neighbour's tap connection	-	-	-
Yard tap, own	22	17	-
Public standpipe	11	11	-
Container lorry	-	-	25
Well	-	-	10
Other	-	-	5
Total	100	100	100 (N =199)
<b>Pemba towns</b>			
Indoor tap, own	55	35	-
Neighbour's tap connection	-	-	-
Yard tap, own	43	61	-
Public standpipe	2	4	-
Container lorry	-	-	-
Well	-	-	60
Other	-	-	5
Total	100	100	100 (N =99)

Reasons for Unwillingness to Pay

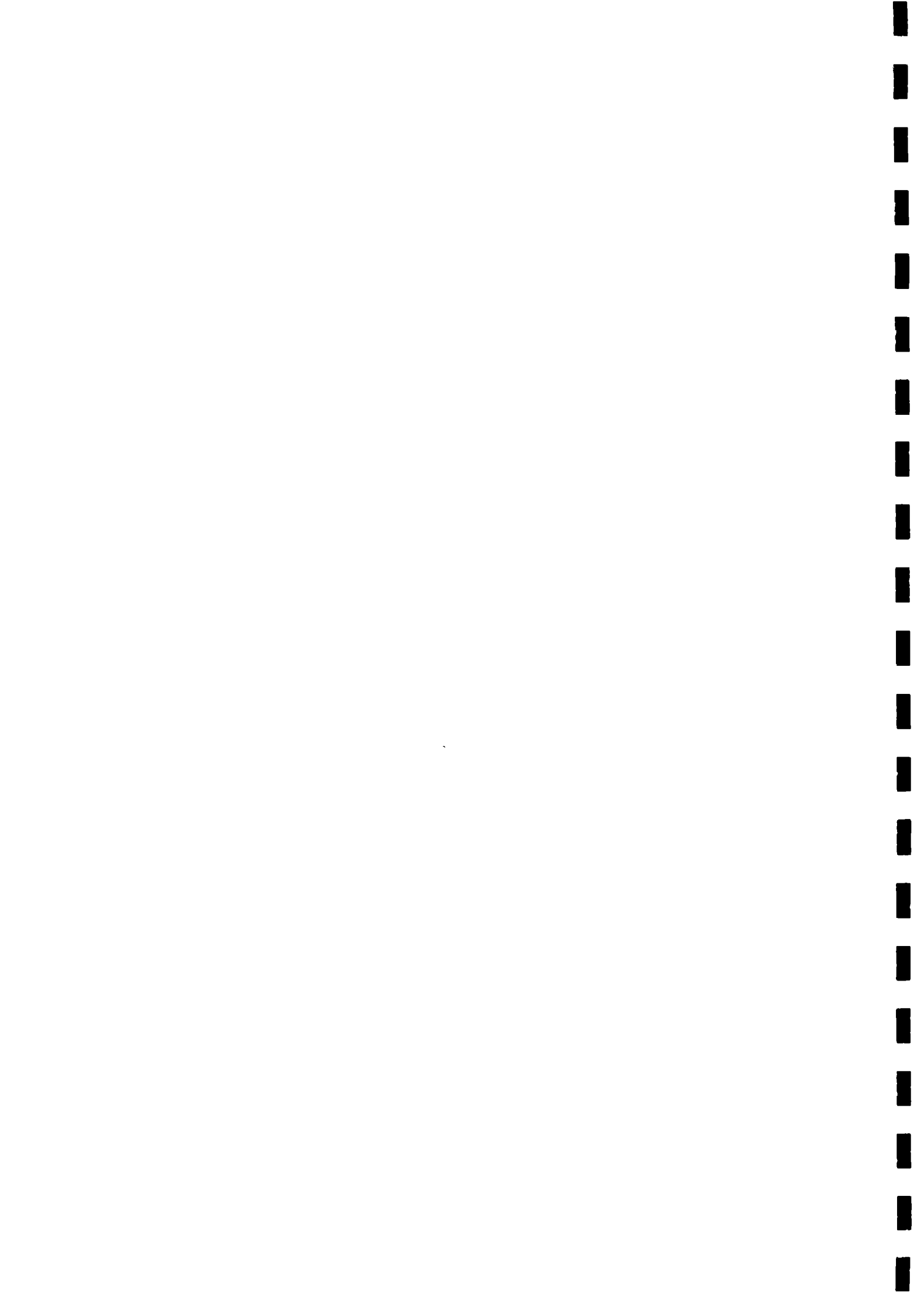
Seventy-five respondents of those not willing to pay for water in Zanzibar Town and 23 in Pemba gave reasons for why they are reluctant to pay. Thus the number of responses was quite low to this question. However, some trends are apparent. The Pemba data is small, but nevertheless very clear: in 79 percent of the cases the answer was that they "cannot afford to pay for water" or in another words "life is difficult". In Zanzibar Town 52 percent gave this reason.

It is interesting to note that only one respondent regarded water supply as the government's duty, something which should not be paid for. Seventeen percent of the Zanzibar Town households referred to the fact that they were not used to paying for water, but the answers did not include any wishes regarding the government.

The following kinds of reasons were mentioned in the class "Other"

- will not pay until water is guaranteed
- we have spent enough for repairing pumps
- like to use money for other purposes
- whatever I get is enough

Table 44 and 45 below show the answers given according to the type of connection.



**Table 44** Reasons for not being willing to pay according to the type of connection in Zanzibar Town

Reason	Type of Connection			Total %
	House %	Yard %	Standpipe %	
Cannot afford it	35	46	50	39
Life is difficult	15	15	0	13
Not used to paying	20	0	25	17
It is the Government's duty	0	0	0	0
No problems now	13	16	0	12
Other reason	9	23	0	11
No reason, cannot explain	8	0	25	8
Total	100	100	100	100

(N =75)

**Table 45** Reasons for not being willing to pay, according to the type of connection in Pemba towns

Reason	Type of Connection			Total %
	House %	Yard %	Standpipe %	
Cannot afford it	50	79	100 *	70
Life is difficult	0	14		9
Not used to paying	0	0		0
It is the Government's duty	0	7		4
No problems now	0	0		0
Other reason	12	0		4
No reason, cannot explain	38	0		13
Total	100	100	100	100

(N =23)

\* only one household



Amount Willing to Pay

If a respondent answered "yes" to the question about willingness to pay he or she was asked how much he or she would be willing to pay per month for a reliable water supply. The answers have been classified by the type of water connection in the following table:

**Table 46 Amount of TSHS the households are willing to pay for water**

Water source	No. of responses	Average amount/month TSHS	Minimum amount/month TSHS	Maximum amount/month TSHS
<b>Zanzibar Town</b>				
House connection	56	81	2	500
Yard connection	17	71	10	200
Standpipe	8	108	10	300
<b>Pemba towns</b>				
House connection	31	78	1	200
Yard connection	24	61	5	200
Standpipe	1	90	90	90

The number of the households with house or yard connections is enough for estimating ranges for water charges. Variation in the amounts presented by the respondents appears to be very wide. However, the results indicate the scope of an acceptable level for water fees.

#### **6.4.5 Willingness and Ways to Contribute to Water Supply**

Almost three-fourths of the households on both islands are willing to contribute to the improvement of the water supply in one way or another. The remaining one fourth did not regard that as their duty.

The question of how they would like to contribute was open ended in order to receive opinions without any guidance regarding possible ways. However, the responses paralleled one another closely. Those responses which specified the type of work they would like to do were put into the same class. The answers expressing positive generalizations such as "building the nation" or "helping the fatherland" were also separated into one group.

The latter ones more likely reflect positive attitudes towards participation than immediate readiness to take action.





Table 47 Ways to contribute to the water supply in Zanzibar Town

Means	Stone Town (A) %	Centre (B) %	Extension (C) %	Urban fringe (D) %	Total %
Financially	41	20	8	23	19
By working	27	17	14	27	19
Whatever is suggested	32	54	74	50	58
Others, building the nation	-	9	4	-	4
Total	100	100	100	100	100
					(N =134)

Table 48 Ways to contribute to the water supply in Pemba towns

Means	Wete and Chake Chake excl. Tibirinzi (B) %	Mkoani and Tibirinzi (C) %	Total %
Financially	20	30	25
By working	31	9	21
Whatever is suggested	41	49	44
Others, building the nation	8	12	10
Total	100	100	100
			(N =72)

One fourth of Pemba urban households and one fifth of the Unguja ones preferred to contribute financially. The proportion was the highest in Stone Town (41%) and lowest in the extension area of Zanzibar Town, where almost 90 percent of the willing households wished to contribute by working. In most of the areas people were eager to do some work (over 70 percent), except in Stone Town and Mkoani/Tibirinzi where the proportions were under 60 percent, but still very high.

The majority of the households wished to contribute on a voluntary basis. About 10 percent of those responding wanted to get paid for it.



#### 6.4.6 Institutional Preferences

The respondents were asked if the water sector should remain a government department or be converted into a corporation. The distribution of responses was as follows:

**Table 49 Institutional preferences in Zanzibar Town and Pemba towns**

Preference	Zanzibar Town	Pemba towns
Government department preferred	52 %	20 %
Corporation preferred	23 %	46 %
No preference	23 %	34 %
No answer	2 %	0 %
Total	100 % N = 200	100 % N = 100

About a half of the households in Zanzibar Town supported the present organizational form, while in Pemba towns only one fifth preferred a government department. However, the proportion of "No preference" answers was quite high, especially on Pemba.

Only ten respondents from Pemba gave reasons for preferring a department. The most common ones were that "payments will not be restored" and a "government department has more power". Thirty-five percent of the households in Zanzibar Town justified their opinions on the basis of one of the following groups:

**Table 50 Reasons for preferring department in Zanzibar Town**

Reason	Zanzibar Town
No payment	40 %
Has more power	11 %
Better services	6 %
No problems	13 %
No reason or answer	30 %
Total	100 % (N = 105)

Those respondents who supported a corporation format gave the following kinds of reasons:



**Table 51 Reasons for preferring corporation in Zanzibar Town and Pemba towns**

Reason	Zanzibar Town	Pemba towns
Better services	74 %	30 %
Department has failed	9 %	45 %
Easier to complain	9 %	9 %
Other or no reason	8 %	16 %
Total	100 % (N=46)	100 % (N=44)

The corporation sympathizers in Zanzibar Town gave guaranteed services as the justification for their opinions while the Pemba households paid more attention to the failures of the present organizational structure.

#### 6.4.7 Understanding of Good Drinking Water

The respondents were allowed to describe in their own terms the characteristics of good drinking water. All answers fall into the following categories:

- A - Tap water, cold water, purposely made for drinking
- B - Seems clean and clear, no color
- C - Good taste and no smell
- D - Other (boiled, filtered or protected in some way)

The Pemba and Unguja households emphasized these features a bit differently, as seen in the figures below:

**Figure 14 Understanding of Good Drinking Water**

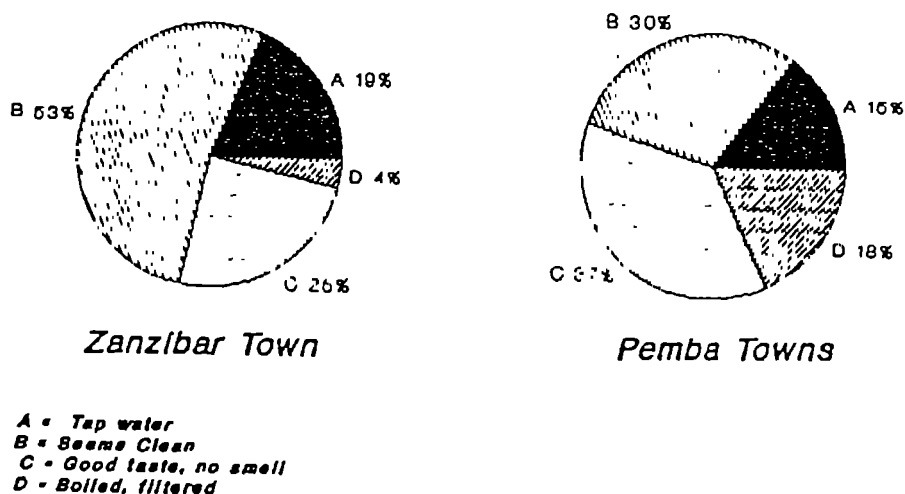
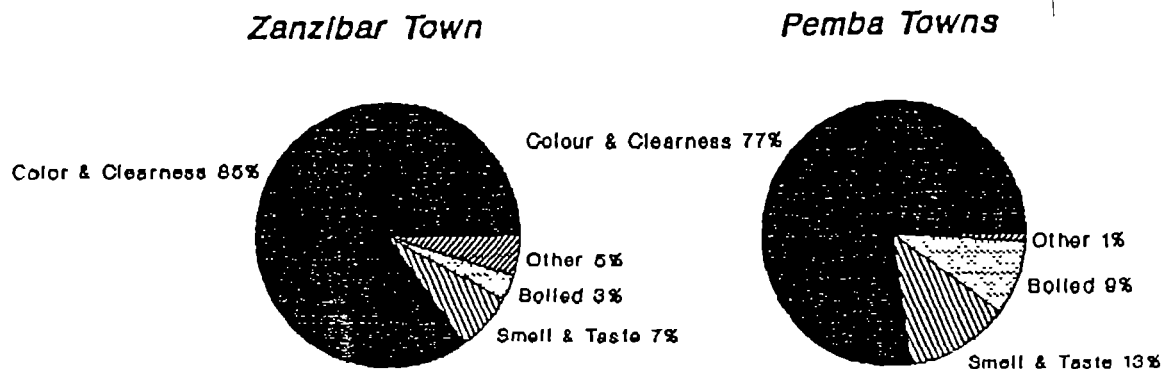




Figure 15 *Ways of Checking the Cleanness of Water*



While Zanzibar Town inhabitants mainly considered the physical appearance of water, urban households in Pemba also considered taste and smell of the water. In addition, Pemba people also mentioned more frequently that good drinking water should be boiled, filtered or protected in some way.

The means of ensuring that water is clean followed the trend above, although not so clearly. Some 85 percent of the Unguja households check the color and clearness and 77 percent of the Pemba ones do the same. Smell and taste are checked by 7 percent of Zanzibar residents and over 13 percent of those in Pemba who also boil water more often (3 % in Zanzibar Town and 9 % in Pemba towns).

There were more differences between the islands than between the male and female respondents in opinions about good drinking water. This can be seen in the following tables:

Table 52 Profile of good drinking water by gender

Profile	Zanzibar Town		Pemba towns	
	F %	M %	F %	M %
Tap water, cold water	18	24	16	12
Seems clean, no dirt or germs	56	56	29	31
Good taste, no smell	22	17	37	38
Boiled, filtered and protection	4	3	18	19
Total	100	100	100	100
	(N=132)	(N=63)	(N=62)	(N=26)





Table 53 Methods of checking the cleanness of water by gender

Methods	Zanzibar Town		Pemba towns	
	F %	M %	F %	M %
Checks color and clearness	82	90	80	71
Checks taste and smell	8	5	8	21
Boils it	5	-	10	8
Other	5	5	2	-
Total	100	100	100	100

Pemba men seem to taste and smell water as well as boil it more often than Unguja urban men, who mostly check only the color and clearness.

The reasons why people do not boil water reveal their understanding of good drinking water, but also the problems which hamper their boiling it. Open ended answers were grouped according to the frequency of reasons and the following tables were produced:

Table 54 Reasons for not boiling water in Zanzibar Town

Reasons for not boiling	Stone Town	Centre	Extension	Urban fringe	Total %
	(A) %	(B) %	(C) %	(D) %	
We trust it is clean, no doubt	70	49	63	58	60
It seems clean, nothing harmful	8	15	13	30	16
Tap water is clean	-	5	5	5	4
Already put medicine	16	5	5	2	7
Difficult to get firewood and other practical reasons	6	19	10	5	10
Other	-	7	4	-	3
Total	100	100	100	100	100

(N = 183)



Table 55 Reasons for not boiling water in Pemba towns

Reasons for not boiling	Wete and Chake Chake excl. Tibirinzi (B) %	Mkoani and Tibirinzi (C) %	Total %
We trust it is clean, no doubt	27	16	24
It seems clean, nothing harmful	4	12	6
Tap water is clean	8	8	8
Already put medicine	12	-	8
Difficult to get firewood and other practical reasons	45	64	51
Other	4	-	3
Total	100	100	100

(N =76)

The most visible difference between the responses from Unguja and Pemba is that Unguja town residents have a greater trust in the water's hygiene (60%), while those in Pemba regarded firewood and other practical problems as the most important reason for not boiling.

#### 6.4.8 Knowledge of Water-Related Diseases

During the last three months (March, April and May 1990) somebody had suffered from diarrhea in 16 percent of the households in Zanzibar Town. On Pemba the figure was 22 percent.

While being asked if interviewees knew of any diseases or infections caused by unclean water no alternative answers were suggested. So the respondents just gave their personal opinions. The distribution of responses is as follows:

Table 56 Knowledge of the diseases caused by unclean water by gender

Disease	Zanzibar Town			Pemba towns		
	F %	M %	Total %	F %	M %	Total %
Stomach problems	6	11	8	8	15	10
Diarrhea	45	47	46	38	32	36
Cholera	10	9	9	2	7	3
Vomiting	0	2	1	0	0	0
Malaria	2	0	1	4	14	7
Fever	1	0	-	4	7	5
Don't know or no answer	36	31	35	44	25	39
Total	100	100	100	100	100	100

(N =199) (N =100)



Pemba women were less aware of diseases caused by water than Pemba men or Zanzibar Town residents.

Almost half of the respondents in Zanzibar Town knew about the connection between water and diarrhea. In Pemba this proportion was 10 percent lower. However, there does seem to be a need for improving health education which was also indicated by the results on sources of water information.

There were several questions in the survey about practices and equipment regarding restoring and handling water. They also included aspects relevant to health and should be further analyzed.

#### 6.4.9 Sources of Water Information

As far as Zanzibar Town is concerned the radio is by far the most important source of information. Almost 90 percent of the households had got their knowledge of water through radio. The remaining ten percent used various other alternatives (TV, neighbours, health workers and governmental offices).

Nobody mentioned that any information on water was transmitted by schools and only two households named health workers. The distribution was similar to female and male respondents in all age groups.

The Pemba data is on this issue unfortunately insufficient due to unknown reasons. Only half of the data was valid. Nevertheless, the responses received indicate that neighbours play a greater role as a means of communication than in Zanzibar. Women get information more frequently from neighbours (51%), while a good half of the men regarded radio as the main source of knowledge. In Pemba towns, authorities also appear to be of very little significance in communication.

#### 6.5 Proposals for Further Analyses

Only a part of the survey data has been treated above, because of the reasons mentioned earlier. In any case, dozens of tables generated from the data have already been utilized as background material for plans of various programme components.

However, it can be seen that the survey data is very valuable and worth analyzing in more detail. And it will be even more useful for the planning of concrete actions. For this reason it is recommended that a more complete analysis be carried out in the beginning of the first implementation phase. All relevant statistical data have already been tabulated. In addition some comparative statistics should be collected in order to put the results into perspective.



The issues suggested for further study are:

- i) Description of water supply systems
  - \* age of water connections
  - \* condition, materials used and location of water tanks on premises
  - \* types of connection to the tank
  - \* reasons for acquiring own connection; cost of connection
- ii) Storage, handling and usage of water
  - \* distance to water sources and transporting practices
  - \* equipment, habits and reasons for water handling and storing
  - \* consumption habits
- iii) Disposal systems for solid waste and human excrement.
- iv) More detailed analysis on understanding and knowledge of relationships between water and health.
- v) Preference of service levels regarding repairs, cut-offs and rationing of water supply.

## 6.6 Conclusions for Education and Community Participation

The community participation approach has in recent years played an important role in rural water supply and sanitation projects in developing countries. It has turned out to be a vital element for the sustainability of development efforts.

Obviously patterns for community participation in urban areas differ from those implemented in rural ones. For instance in Zanzibar Town a kind of a piped water system has been in existence for some 70 years. Water comes from taps which if not situated inside a house, are within a relatively short distance from homes. In fact a major problem is that water is not obtained from taps due to power cuts and frequent breakdowns of pumps or pipelines and not due to a fetching distance or the lack of water sources.

However, there is room for community participation but patterns and procedures are likely to differ between towns and rural areas. The degree of participation might also differ inside the town area according to the degree of urbanization.

Water has been free of charge for domestic users since 1982. This together with intermittent supply appears to have created practices which indicate some carelessness and overusage of water. It is common that water taps are kept open all the time in order to notice when water is again available for use and storing. This concerns household taps as well as yard taps and standpipes, from which water may be running for days. Consequently, every time water is





delivered consumption is at the peak and the continuation of supply is endangered.

Intermittent supply also leads to a number of practices for storing and handling of water which can easily involve health risks, as indicated by the preliminary findings of the survey.

People are probably not aware of the impacts of their behavior on water supply. They try to adapt themselves somehow to the prevailing situation. Fortunately the Islamic tradition, according to which water should be given without charge to the thirsty, obviously promotes an atmosphere of mutual help in regard to water problems.

However it was clear from the responses of the households that urban households are very willing to contribute to the improvement of water supply, but at the moment channels to do so do not function well.

There is no past experience of systematic community participation in water or sanitation sectors in Zanzibar. The Water Department consults consumers before repairs or installations of connections or pipelines. Occasionally, beneficiaries have also assisted in construction work on a self-help basis. The household survey revealed, however, that workable institutional means through which consumers can interact with the water authorities are lacking. Only a few households contacted the Department about problems.

The household survey indicated that the great majority of knowledge about water is transmitted by radio. Water, health and education authorities do not appear to play any role in communication recognized by people. However, health workers and teachers could be able to reach very important target groups from the point of view of health and environmental education. Women in particular are in critical position in this respect. They are responsible for domestic work and bringing up children according to traditions. For instance the practice of a regular medical checking for pregnant women could also be utilized, as a channel of water education. In addition, children could be key persons for bringing water information to their homes.

It can be also concluded that there is a need to raise the profile of the water authorities as an organ responsible for water affairs including also consumer education and public information activities.

Radio is commonly used to inform citizens of important issues taking place in Zanzibar. The urban water authorities should study possibilities for cooperation with the Zanzibar Broadcasting Company more regularly and give any necessary support in producing water related programmes.

Finally, it is necessary to emphasize that further studies are needed for developing functioning procedures for community participation, and ensuring relevant contents and a suitable means of communication. The Urban Water Supply



Programme should examine how to invite consumers and beneficiaries to cooperate with the Programme and improve their knowledge of water. Instead of aiming at a highly participatory approach right from the start, institutional efforts should be supplemented by the inputs of town areas in ways which are most suitable for their circumstances.



## 7 RECOMMENDATIONS AND STRATEGY FOR INSTITUTIONAL DEVELOPMENT

### 7.1 General Guidelines

#### 7.1.1 Institutional Targets

The Urban Water Supply (UWS) Programme as planned will provide reliable services of safe and clean water at a moderate price to the water users in Zanzibar's urban areas. A reliable supply of good quality water for the urban population is to be arranged at a satisfactory service level, without over-pumping the limited water resources. The achievement of the set goals depends on the cost-effective utilization of properly trained manpower, and of technical and financial resources.

According to the institutional studies carried out during the planning phase, the following three issues should be resolved to guarantee successful further development:

- 1) Water ordinances and legislation should be introduced to regulate the use of water sources and the development of water supply
- 2) The Urban Water Supply Authorities (UWSA) should be established on a financially sound basis with adequate institutional authority. Cost-recovery through revenue collection should be introduced. The UWSA should be supported by appropriate legislation.
- 3) The institutional set-up and management system should be well organized for the efficient and cost-effective accomplishment of the duties of the Urban Water Supply Authorities. The staff size should be optimized in relation to the work load. The key posts should be filled with properly trained and qualified people.

The measures proposed in this report should be taken gradually. The Urban Water Supply organizational system should be developed step-by-step towards sufficient autonomy coherently with the development of legislation and financial systems, and with improvements in service levels.

#### 7.1.2 Integration of Activities

Utilization of the limited numbers of highly qualified staff could be optimized if different institutions with similar expertise needs maintain close institutional ties. For instance, possibilities for better cooperation with the State Fuel and Power Company should be studied.

The conformation of water and sewerage and drainage authorities would facilitate the sharing of administration and engineering resources between the two institutions. This would optimize the use of limited human resources.

However, new components such as sewerage and drainage should not be added to the planned Urban Water Supply Institution



until the institution is performing well and has some excess capacity for new functions.

### **7.1.3 Organizational Format of the Urban Water Supply Authorities**

Water is a politically and culturally sensitive commodity. It is essential to people's well-being and public opinion would not easily accept the provision of water on a clearly profitable basis. Therefore there are only two possible options for an organizational form of the UWSA in the Zanzibarian setting - a government department or a public enterprise.

The present organizational status as a government office does not enable to entrust the UWSA with the necessary managerial autonomy and financial independence. Therefore a public enterprise is felt to be the only suitable organizational form for the Urban Water Supply Authorities.

Under the Public Enterprise Decree a parastatal organization can be trusted with necessary managerial authority. The decree provides a legal basis for the operations of the parastatal organization and defines the relationship between the Urban Water Supply Authority and the Government. A parastatal institution is considered to be a realistic organizational option in the Zanzibarian context.

### **7.1.4 Organizational Reform**

The transfer towards parastatal status should take place step-by-step. During the first implementation phase a separate Urban Water Supply Section should be formed within the Department of Water Development. The institutional structure and internal managerial and financial systems of the section should be created anticipating the transfer to parastatal status in the future. Necessary preparations for the establishment of the public enterprise should be commenced simultaneously with the completion of the first institutional reform of the department.

The establishment of an institution is always a dynamic process, where various activities and contradictory targets and interests are to be kept in balance. It is assumed that the institutional set-up will undergo dynamic development lasting at least a couple of years before it settles down. Even later on there should be room for organizational revisions if needed. Regular appraisals of institutional performance should give further guidelines for necessary corrective changes.

### **7.1.5 Relations between Unguja and Pemba**

The institutional structure to be proposed needs to be based on the following outlines of cooperative relations between the Unguja and Pemba units:





- joint institutional policy
- coordinated planning and budgeting
- operational independence and financial accountability
- similarity of monitoring and controlling systems
- joint personnel policy
- joint specialized facilities and services
- joint use of expertise available.

The Pemba unit will form a branch of the Urban Water Supply Section. It would be entrusted with operational independence, but functionally and administratively it will be subordinate to the Unguja section. This arrangement would anticipate the parastatal setting and is in accordance with other recommendations made in the development plan.

#### **7.1.6 Water Resources Management**

An interministerial Water Board is to be established for water resources management. The board would monitor the use of groundwater and handle water resource related issues. The board would also co-ordinate cooperation between different sectors using water resources. The establishment of the water board does not depend on any other institutional arrangements. It is necessary to commence operation of the water board as soon as possible.

#### **7.1.7 Human Resources Development**

Human resources development will play a vital role in the development process. It will be used as a tool for materializing the suggested institutional reforms. Through training programmes the staff will be provided with skills and knowledge required for completion of their duties in the new institution.

### **7.2 Proposal for the Urban Water Supply Organization**

#### **7.2.1 Functional Targets of the Urban Water Supply Authorities**

The Urban Water Supply section would become as financially self-reliant a unit as possible. Revenues would be collected and water and installation charges in local and foreign currency introduced. After the set productivity targets have been achieved, sales of planning, drilling and laboratory services to other programmes and institutions would form another source of revenue. The Urban Water Authorities would maintain a bank account of their own and would operate on sound economic principles.

The Urban Water Supply would aim at self-reliance in current operational activities. Large periodic or occasional works would be contracted out.

Rehabilitation of the existing schemes and the improvement of reliability in water delivery will be a priority activity.



The emphasis of maintenance operations will be shifted from corrective to preventive maintenance.

The UWS section will carry the full responsibility for personnel management. Staffing requirements and employee qualifications will be set within the institution. Recruitment of new staff and salary levels will be decided on independently.

The following activities will be introduced:

- contracting out activities
- operational and financial planning, controlling and monitoring
- consumer services including consumer participation education and public relations
- monitoring of groundwater use and water quality

### 7.2.2 Criteria for Institution Building

The criteria for institution building are as follows:

#### i) Scope of the Urban Water Supply

Everything connected with the urban water supply network is considered to be a part of the urban water supply.

#### ii) Service Level

The set service level aims at securing an adequate daily supply of water for all urban inhabitants and other water users. Water will be provided through house connections, yard taps and standpipes. Interruptions of supply, and delays in repairs are to be minimized in order to maintain a constant service level regardless of the type of connection.

#### iii) Manning Ratios

The manning ratio will be kept initially at the current level, i.e. one employee per every 1000 beneficiaries. The ratio is targeted to change so that there will be one employee per every 1400 beneficiaries in 2000. This would require a substantial increase in the productivity of the organization.

The number of vocationally and professionally qualified staff is expected to increase during the course of time. Targets for higher educational standards of staff are set in Chapter 7.2.3



### 7.2.3 Proposal for the Organizational Chart

The proposed organizational charts and staffing for the urban water supply in Unguja and Pemba are shown in Figures 16 and 17.

At the beginning it is recommended that the Urban Water Supply Section function under the Director of the DWD. The manager of the Urban Section should have a Master's Degree in Water Supply or a relevant engineering field.

The posts of heads for the sub-sections and the Planning & Design unit should be occupied by persons with a higher level of education in the concerned field.

The Section would have a branch in Pemba. It should be headed by the Deputy Manager and carry independently the responsibility of operation and maintenance and of auxiliary functions related to them. Due to scarce human resources and economic reasons, technical planning and design, as well as research and development work (including geophysical and hydrogeological surveys and drilling) will be executed by the respective units of Unguja. However, a small local unit with limited activities is proposed to be established in Pemba for the implementation of those activities. The proposal also includes the establishment of a laboratory. It might not be justified only by the needs of urban water supply alone, but it could also sell laboratory services to other institutions.

The Urban Water Supply Section in Unguja consists of sub-sections for Water Supply, Workshops, Research & Development and Administration. The units for Operation and Maintenance and Technical Planning and Design are under Water Supply. The sub-sections are further divided into smaller units with the intention of forming functional entities of proper sizes.



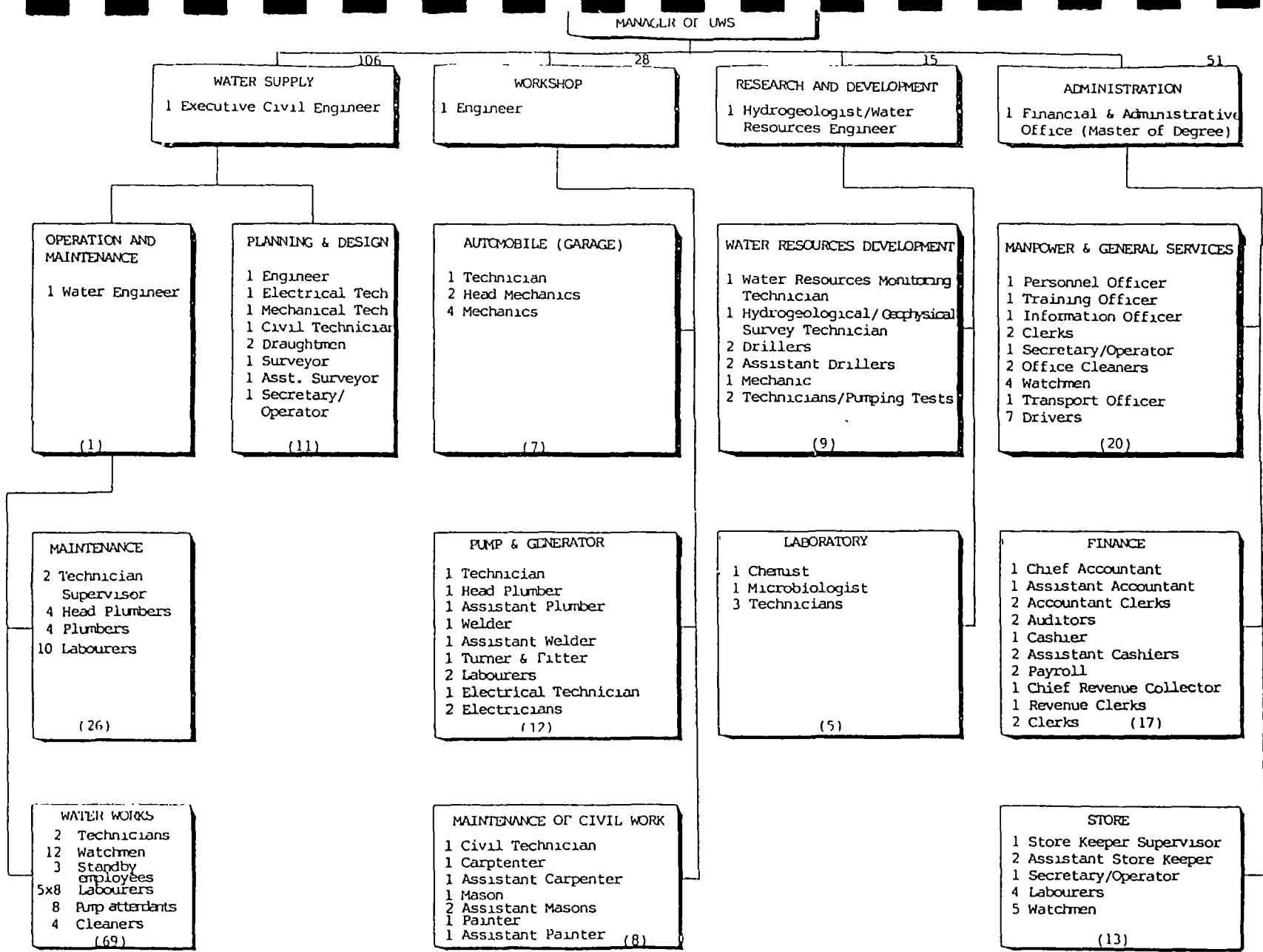
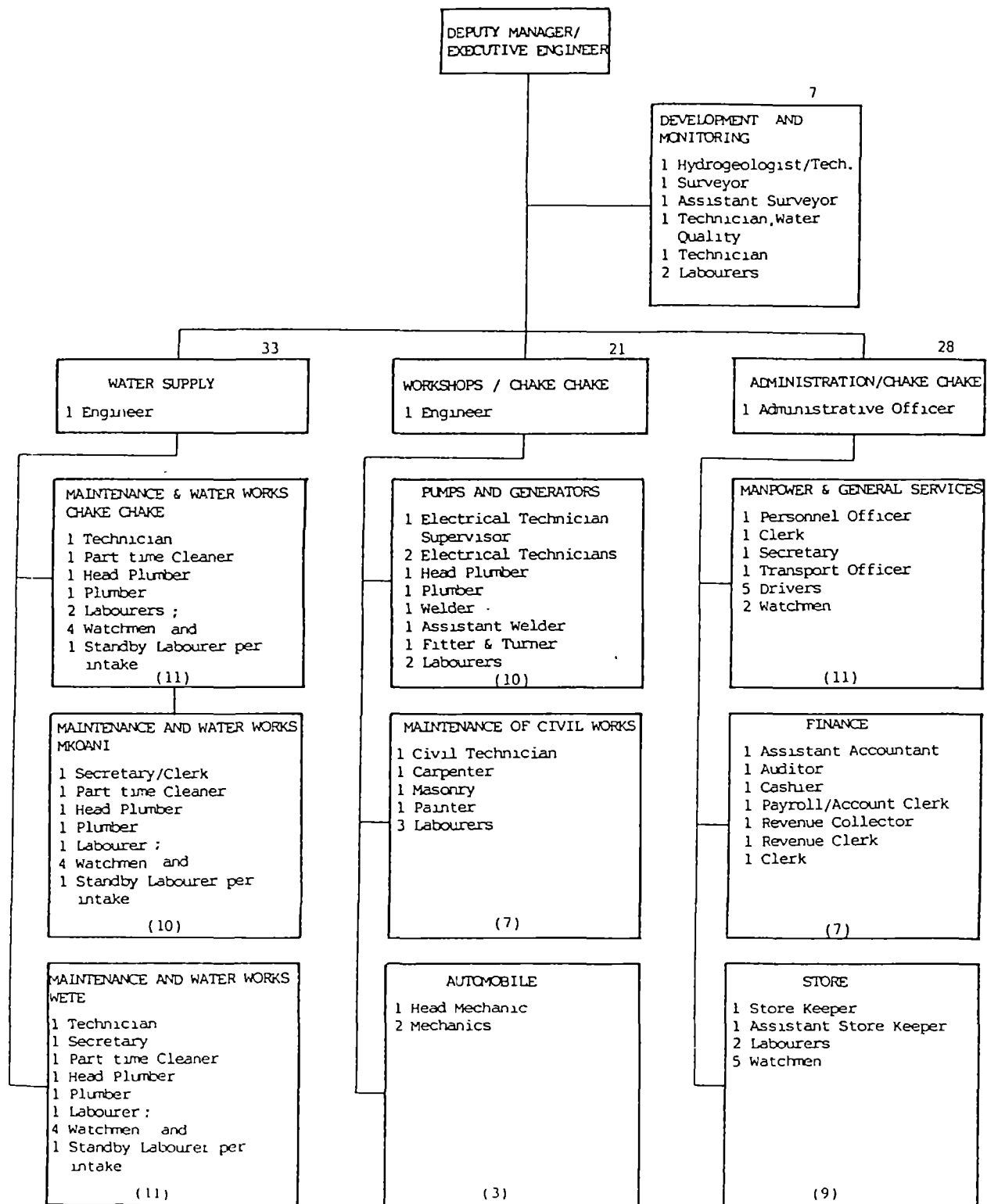


Figure 16 PROPOSED ORGANIZATIONAL CHART FOR URBAN WATER SUPPLY SECTION - UNGUJA





Figure 17 | PROPOSED ORGANIZATIONAL CHART FOR URBAN WATER SUPPLY SECTION - PEMBA





#### 7.2.4 Tasks and Staffing Patterns of the Urban Water Supply Section

It will be of utmost importance to clarify the duties of sub-units and staff in the new organization and to clearly define the line and functional responsibilities. The relationship between the administration and other units needs to be sound, and efforts should be made to avoid time-consuming bureaucratic administrative procedures.

The main responsibilities of the sub-sections are outlined as follows:

##### Water Supply

- i) The Operation & Maintenance unit consists of the Maintenance Unit and Water Works Unit. The Maintenance unit has the responsibility of installation and maintenance of house connections as well as network maintenance. All intakes and water works will function under the Water Works unit. Saateni will be developed into a central station. It will have the supervision responsibility over Bububu and Mtoni intakes. The Welezo station will supervise the borehole intakes.

The staffing of the borehole and spring intakes includes staff for security, cleaning and emergency reporting. The intake personnel is supported by regular visits of inspection teams from Saateni and Welezo stations.

- ii) The Planning & Design unit is responsible for technical planning and design, construction activities, preparation and supervision of contracts, as well as surveying and preparation of drawings.

##### Workshops

Workshops consist of units for repairing and maintaining vehicles, pumps and generators, as well as buildings and other civil works.

##### Research & Development

Research & Development is responsible for groundwater issues including hydrogeological and geophysical surveys, monitoring of water quality of water intakes and network, borehole design construction, drilling, and laboratory services.

##### Administration

The Administration unit is responsible for manpower supply and development, customer services, financial planning and controlling, monetary transactions as well as general office services. Vehicle management has been placed under Administration although other solutions could have been possible also. Each unit needs transport for staff,



materials, spare parts and tools - one unit perhaps continuously, another occasionally or seasonally. In any case, cars with drivers should be used economically and they should be available where needed most. The Administration section will be responsible for records and the monitoring and evaluation of the performance of the fleet of vehicles. In some cases vehicles and drivers can be placed permanently in sub-sections.

Stores and purchasing are under Administration. However, it must be emphasized that lists of material and spare part requirements for annual work programmes are to be made by the respective sub-sections. Procurement decisions are made by the head of the sub-section concerned. The procurement budget is defined in the annual budget of the UWS-section.

It is recommended that major activities of the Pemba Branch focus on daily operations and maintenance, as discussed earlier. Design and development work will be carried out in Unguja, in close co-operation with Pemba. Qualified staff from Unguja should work in Pemba from time to time when necessary.

It is also recommended that Administration and Workshops on Pemba be located centrally at Chake Chake. Wete and Mkoani would have Operation & Maintenance units with officers in charge. They would be answerable to the head of the Water Supply at Chake Chake. The officers should be responsible for operational duties, administrative affairs and spare part supplies on a small scale. In these tasks the officer would be assisted by a clerk or secretary who would also serve customers in the office.

The arrangements proposed above will function only if the Pemba Branch is provided with sufficient telephone communication and transport equipment.

#### Management Team

The day-to-day operations of the system are to be decentralized and the role of the heads strengthened. In order to secure sufficient coordination between the units and adequate understanding of common targets and operational principles, it is suggested that the heads of the subsections form a permanent internal management team with the following mandate:

- preparation of institutional strategies and long-term plans
- preparation and monitoring of the annual budgets and plans of action
- development of standard objectives for the institutional performance of the whole organization and for each unit separately
- monitoring and evaluation of the financial and functional performance of the sub-sections and making decisions on corrective actions when necessary
- coordination of the activities of the sub-sections



- approval of job descriptions prepared by the sub-sections
- outlining proposals for manpower policy
- handling important personnel affairs
- development of management procedures and systems

The team would be chaired by the director of the department and the manager of the UWS section would act as a vice-chairman. The management team would have regular meetings. The meetings should be called together by the chairman at the request of the manager of the UWS section. The agenda for the meetings should be prepared by the manager together with the director. The management team would have a secretary to take minutes. The team should specify the scope of its authority and define the issues to be handled by the team.

The Deputy Manager of Pemba should attend the meetings whenever common affairs of the islands are dealt with and whenever budgets, annual plans or other policy or development matters are to be handled.

The Pemba Branch should have a management team of its own with a similar mandate in Pemba. The Pemba team would also prepare suggestions and initiatives for the joint meetings of the section's management team.

### 7.3 Recommendations and Strategies for Implementation of Institutional Development

#### 7.3.1 Legislation and Policy Making

Providing the Urban Water Supply Authorities with the required managerial authority, financial independence and legal basis for its operation is the responsibility of the Zanzibarian political bodies and authorities. It would be necessary to draw up and approve new policies and rules to support the UWS authorities. They would be able to contribute here by participating in preparatory works on committees, as well as drafting proposals and making estimates. The GOZ and concerned ministries would have the responsibility of finalizing the suggestions and of making decisions.

It is suggested that the following measures be taken:

- i) An interministerial Water Board should be established for the coordinating of water resource related activities and the development of water legislation

- ii) Proposal for Water Legislation

Useful work in this field has already been done by Solanes in 1986 under the commission of GOZ, assisted by the United Nations.





It is recommended that a small committee of experts would draft a proposal under the guidance of the Water Board for political decision-makers.

iii) The Preparation of Water Work Rules in Zanzibar.

Existing Water Work Rules, dating back to colonial times, are to some extent still applied in practice. These rules could be utilized as source material while preparing new rules.

A Table of Contents for Urban Water and Wastewater Utility Rules was drafted during the planning phase. The draft aims at summarizing the vital issues to be included in the Rules (See appendix 1)

A small committee consisting of a Zanzibari water engineer, a Zanzibari lawyer and a consultant is proposed to be set up for drafting a proposal.

iv) Water Policy for Zanzibar

A committee has been established to prepare a proposal for Water Policy in Zanzibar. The committee should be encouraged to produce guidelines for the further development of Urban Water Supply as soon as possible.

### 7.3.2 Institution Building

#### Urban Water Supply Section

The Urban Water Supply Section should be set up within the Department of Water Development under the Ministry of Water, Construction, Energy, Lands and Environment.

Preparations for the transfer of the Urban Water Authorities to a parastatal status should be commenced under the Public Enterprise Decree along with the reform of the existing organization. The concerned local authorities should draw up appropriate procedures and make preparations for the institutional transfer.

#### Recruitment of the Urban Water Supply Staff

After the approval of the new organizational structure for the Urban Water Supply and the nomination of the heads for the various functions, the recruitment of the rest of the staff can be commenced. The following procedures and principles are suggested.

The staff will be recruited by using the current recruitment system in Zanzibar. The vacant posts will be advertised and the applications handled in standard order. The management team of the Urban Water Supply Section should be appointed by the Principal Secretary. The management team would then be responsible for all appointments.



The key posts which cannot be occupied by qualified persons should remain vacant. The lack of qualified staff can be temporarily compensated for by task arrangements increasing advisory contributions and by using consultancy services until an eligible candidate for the post has been trained.

The UWS section might interest qualified personnel due to better working conditions and new equipment to be provided in the near future. However, it would not be justified to attract specialists into the UWS section from other sectors where they are as desperately needed. The manpower needs of the rural water supply sector in particular must be taken into account because the majority of UWS section staff is likely to be recruited from the existing DWD staff. It may therefore take some time until all the proposed vacant posts are filled with qualified staff.

#### Management Systems Development

The objective of management systems development is that the UWS section be capable of improving its management and operational activities on the basis of feedback from the management information system. The basic strategy will be the improvement of institutional performance. Training will be a key tool for achieving the objectives.

It is suggested that management systems development be organized as an institutional development component of the programme. Management training would be included in the programme. The institutional renewal will be carried out over the next four years. The performance of the Urban Water Supply institution should be evaluated at the end of the four year period.

Management systems development should start shortly after the nomination of the staff of the UWS section. The results of the institutional assessment study should be utilized in the detailed planning of the management systems.

The management development component should start with the top managers and later on involve lower levels of hierarchy. The proposed management team is to be responsible for the planning and progress of the activity.

The core areas of management systems development will be the following:

- management development
- systems and procedure development
- provision of facilities, necessary equipment and accessories
- training systems development and training in skills
- institutional performance and organizational adjustments
- personnel management including the development of manpower planning system and incentive schemes among other issues of staff policy



It is recommended that the management development component be carried out in a manner similar to that of a training programme. Individual learning and systems development should dovetail and build upon one another. Short courses, demonstrations, workshops and seminars should be used to introduce concepts and skills to be applied in actual working situations. The progress of management development will coincide with technical development. The new systems and procedures should be worked out together with the staff.

Written manuals, forms and checklists for the essential phases of operations are to be produced by the supervisors and staff. It is assumed that it would be easier for the supervisors and staff to apply their own suggestions. The strategy aims at improving the employee's working performance while being trained in skills and how to develop his own working practices.

The issue of incentives would be a crucial part of personnel policy. A properly functioning incentive scheme should be created in order to motivate employees to improve work performance. The creation of prerequisites for individual career development should be emphasized as well.

The strategy for management systems development remains open ended. Changes should be subject to continuous review. Measurable performance indicators should be produced in the course of the programme. Further development of the organizational structure of the Urban Water Supply section and the management systems should be accompanied by a follow-up of performance indicators.

#### Use of Advisers and Consultants

Advisors may be used to bring in ideas and experience to support the top management of the UWS in the development of managerial and operational systems.

It is recommended that the management expertise available in the Water Resource Institute in Dar Es Salaam and Karume Technical College in Zanzibar Town be connected with the planning and implementation of the programme.

The benefits of cooperation would be mutual. On the one hand the institutes could utilize their experience and become familiar with management problems in a real water supply organization. This may be valuable for further development of their own management programmes. On the other hand the UWS programme would benefit from local management expertise and teaching in the swahili language. The cooperation could be arranged as consultancy work at a standard rate.



## 8 TRAINING STRATEGIES

### 8.1 General

Training systems are partly associated with managerial systems and can be created together with them. However it is worthwhile handling training issues separately due to their great importance for the sustainability of development efforts as well as their special characteristics.

It should be emphasized that training is not a sufficient prerequisite for success. Performance problems that stem from the surrounding or from management problems or personnel policy will probably not be solved by training.

Theoretical studies, carried out in universities, colleges and other institutes, should be supported by managers and be supplemented by on-the-job training. Training should contribute the achievement of institutional targets by providing personnel with actual skills and knowledge needed in carrying out their tasks.

The training systems should secure the sustainability of knowledge and skills although personnel, institutional goals and technology employed may change.

Major targets during the first phase are those of establishing flexible mechanisms for skill and knowledge transfer and improving the training abilities of the institution.

### 8.2 Strategy for Development of Training Systems

The Urban Water Supply Section along with the Pemba Branch will be responsible for training systems development, the regular assessment of training needs, annual and long-term training plans, budget estimates, an internal team of trainers, training materials, and cooperation with relevant training institutes.

The following measures and principles are recommended for the development of training systems and their implementation:

- The establishment of training systems should be started by nominating a training officer and organizing the training of internal trainers. The team of trainers together with the training officer would be responsible for the development of the training system. Training tasks should be included in the job descriptions of relevant professional staff. The role of supervisors and foremen should be strengthened and clarified and their abilities to assess training needs along with their subordinates improved.





The Pemba office should have their own in-service training system. Upgrading and supplementary courses would be common for both offices.

- Work manuals will be prepared together with the staff, in connection with management systems development, for the guidance of work practices. These manuals will be further developed for training purposes by the team of trainers together with local experts. If necessary, the producing of additional training material can be given to outside specialists, available in the local training institutes.
- Professional knowledge available within the UWS - section should be utilized in the internal training to the greatest possible extent.
- When a course is conducted in Zanzibar, relevant employees from the rural water supply sector could attend.
- Training can be conducted in the form of on-the-job training, internal courses, or studies outside the UWS institution. The courses will be arranged in Zanzibar if an adequate number of trainees is available. Relevant personnel should also be sent to courses on the mainland.
- Vocational courses will be executed in cooperation with local training institutes. The cooperation will be arranged on a contractual basis. The UWS section would determine the training objectives and participate actively in the preparation of syllabuses. If any training of trainers for teachers in these institutions is needed it will be carried out along with the Water Resource Institute.

### 8.3 Strategy for Professional Training

The objective of professional training is to provide the UWS - institution with a sufficient quantity of properly qualified staff for carrying out professional duties and for development activities.

Plans for professional training are derived from manpower estimates and deficiencies in current staff composition. From the personnel situation of the DWD and the estimated manpower needs of the UWS section it can be concluded that there will be shortages of qualified administrators, economists, chemists, engineers, etc. After recruitment of all required UWS section staff detailed training plans can be prepared.

Professional training will be financed by the UWS Programme. The training plans made for the UWS section could not be implemented by the Ministry of Education due to the fact that their potential for financing studies is very limited. The



following procedure for arranging professional training is recommended:

- Scholarships will be made available by the programme in relevant fields. The scholarships will be announced by the Ministry of Education according to standard practices. The studies should take place in Tanzanian institutes for higher education

In exchange for a study place a candidate should agree to work with the UWS section for a moderate minimum period of years. The length will be considered case by case.

- Needs for post graduate studies on the mainland or abroad will be assessed each year in connection with the preparation of annual and long-term training plans. Studies can be sponsored by the Programme when they are necessary for the accomplishment of tasks of the UWS section and in line with the priorities of activities. Overseas studies are to be considered only if the desired training is not available in Tanzania or in other African countries.

The relevant institutes for professional and higher education in Dar Es Salaam are Dar Es Salaam University, Water Resource Institute, Technical College, Ardhi Institute, Institute of Finance Management and School of Accountancy. The Institute of Development Management in Morogoro and Karume Technical College in Zanzibar are also relevant institutes.

#### **8.4 Strategy for Upgrading and Supplementary Training**

The objective of upgrading and supplementary training is to improve the vocational skills of the staff to the level required for the proper accomplishment of the required tasks. It aims at updating the employees' existing vocational education or skills acquired through working experience.

One of the important tasks of the planned UWS section is to prepare job descriptions for each employee, based on a task analysis. The job descriptions will also benefit the assessment of training needs.

Supplementary training is of a continuous nature and concerns all staff groups. With junior employees, theoretical knowledge should be applied in actual working situations by combining theory with actual problem solving. The supplementary training should transmit up-to-date information on professional and vocational issues and on general scientific development to the trainees. Those without a formal education would obtain relevant knowledge for improvement of their working performance. Introduction of new technology, tools and administrative systems in the



future must be supported by effective and systematic on-the-job training.

Supplementary training can be conducted in many various ways. It may include internal or external courses tailored or ready made for certain staff groups, individual training by sending a person to a short course outside, seminars, excursions or in-service training of different forms. The choice of means depends first of all on the training objectives and the number of trainees.

The majority of craftsmen and clerical staff in the DWD have learned their jobs through practical experience. The need for the upgrading of skills within all trade groups was evident according to the institutional studies. There is no reason to assume that the staff recruited by the UWS section in the future would possess more updated skills and knowledge than the current DWD staff. So a comprehensive training programme will be needed and must cover each staff group and employee.

Before the contents, methods and sequence of training activities can be specified, a detailed task and skill analysis should be carried out. Each task will be analyzed in order to identify the skills, the knowledge and the abilities required from a worker for mastery of a job. Because the UWS section is not yet established and staffed, the actual objectives and forms of training cannot be determined yet. Further information will be produced in connection with management systems development.

As stated before, upgrading and supplementary training will be planned and implemented on a continuous basis in close cooperation with local training institutes. In the long-run this cooperation will improve the competence of Zanzibarian training institutes in carrying out supplementary training in various water or administration related fields. Obviously these joint efforts could have a positive impact on the development of basic schooling programs in these institutes.

Vocational courses and seminars for the upgrading of skills and the knowledge of craftsmen will be arranged in cooperation with Karume Technical College and Water Resource Institute and, as far as clerical staff is concerned, with the Civil Service Training Institute in Zanzibar.

The approved completion of the vocational courses conducted by Karume Technical College and/or Water Resource Institute should be awarded a graded certificate. Training should foster chances for promotion within the UWS and support the employee's career development plans.

Finally, vocational training should be scheduled in accordance with technical development. It should be closely linked with the application of new technologies at working places. The course should include a substantial on-the-job component, to be supported by internal trainers and other arrangements.



### Community Participation

It is suggested that the approach for community participation be chosen as follows:

- i) The Urban Water Supply Programme should take the community participation aspect into account in the planning and implementation of each operational phase. The plans should include separate consideration regarding this component.
- ii) Small-scale pilot programmes should be conducted in order to work out proper procedures for community participation in different kinds of urban areas.





PROPOSAL FOR TABLE OF CONTENTS FOR ZANZIBAR TOWN  
WATER AND WASTEWATER UTILITY RULES

1. Coming into Force
2. Meaning of the Words and Expressions used
  - Authority
  - Utility
  - Consumer
  - Domestic use
  - Commercial use
  - Institutional use
  - Industrial use
  - Other use
  - Conveyor main
  - Distribution main
  - Water connection
  - Public standpipe
  - Wastewater
  - Conveyor sewer
  - Collection sewer
  - Sewer connection
3. Duties and Obligations of Authority
  - maintenance of water supply
    - continuity, quantity, quality, pressure availability
    - disturbances or technical failures, measures of authority
    - rights to regulate or cut off
  - maintenance of wastewater system
    - collecting, conveying, treating, discharging
    - disturbances, measures
4. Consumer's Rights and Responsibilities
  - right to services
  - obligation to pay
  - responsibility for their own/personally-owned facilities
  - responsibility for the facilities of the Urban Water Authorities (UWSA) located on the premises
  - responsibility for economical use of water
  - responsibility to inform the UWSA of disturbances



5. Conditions for Obtaining Water Connection
  - the location of the house according to Urban Land Use Plan
  - proper and inspected plumbing
  - household over-head tanks
  - connection to the sewerage system, provision of septic tank
6. Conditions for Using Public Standpipes
  - cash payment
7. Unauthorized Taking of Water, Unauthorized Disposal of Wastewater
8. Water Revending and Removal to the Premises
9. Supply to Mosques
10. Service Connection
  - ownership, installation, maintenance
- 10.1 Metered Service Conditions
  - obligatory, voluntary
  - type of use
  - size of premises
  - fittings
- 10.2 Unmetered Water Connection
  - particular conditions
  - fittings
11. Water Metering
  - meters (location, installation, sealing, costs, ownership)
  - meter reading
  - repair and maintenance
  - dissatisfaction with reading
  - meter replacement and renewal
  - violation of meters
12. Overhead Tanks
  - size, location
  - construction and fittings
  - maintenance and repair
  - sealing and its violation
  - costs and ownership
13. Temporary Water Supply
  - purposes
  - arrangements
  - costs and ownership



14. Plumbing and Fittings Within the Premises
  - installations
  - materials to be used
  - fittings
  - inspection
  - alteration
  
15. Leakage in Service Connections
  - reporting responsibility
  - repairing
  - service cut-offs
  - sewage disposal
  
16. Water and Service Charges
  - purpose of charges
  - types of tariff
  - measured consumption
  - unmeasured consumption
  - standpipe consumption
  - service charges
  - service connections
  - service repairs
  - plumbing installation
  - meter tests
  - water cut-offs
  - maintenance of tariffs
  - approval of tariffs
  - ways of payment
  - failure to pay
  
17. Offenses against the Rules and Authorities



## ZANZIBAR URBAN WATER SUPPLY

## HOUSEHOLD QUESTIONNAIRE

INTERVIEW NO. .... DATE .....

INTERVIEWER .....

A LOCATION .....

B. AREA CLASSIFICATION a b c d .....

1. Is the interviewee the head of household ? Yes < > No < >
2. Sex of interviewee Male < > Female < >
3. Age of interviewee ..... years old
4. Type of dwelling
  1. apartment block < >
    - 1.1 no. of floors .....
    - 1.2 no. of your floor .....
  2. detached house < >
  - 3 hut < >
  4. other (specify).....
5. Size of dwelling (Count of all rooms except for bathroom) .....
6. How many people are living in the same house or flat ? .....
7. How many people belong to your household ? .....
8. Number of adult males in your household ? .....
9. Number of adult females in your household ? .....
10. Number of children in your household? .....
11. Where do you normally get your water from-
  1. indoor tap, own < >
  2. neighbour's tap connection < >
  3. yard tap, own < >
  4. public standpipe < >
  5. container lorry < >
  6. well < >
  7. pond < >
  8. stream < >
  - 9 other (specify) .....
12. If yes to Q11: 1 or 3, how old is your connection ?
  1. recently installed < >
  2. a year ago < >
  - 3 over two years ago < >
  4. don't know < >
13. Do you have fixed water tank on the roof ? Yes < > No < >
14. Do you use a pump to get water into the roof tank? Yes < > No < >
15. Do you have underground or surface tank? Yes < > No < >
16. If yes to Q13 or 14 what is the capacity of the tank in litres?
  - 1 Roof .....
  - 2 Ground .....

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



17 If yes to Q13 or Q14, what is the state of the tank(s)?

- 1. Good
- 2. Works, but needs repair
- 3. Not in working order

18. If yes to Q13 or 14, what is the material of the water tank ?

Roof tank:

- 1. galvanised standard steel < >
- 2. ordinary tin < >
- 3. old fuel barrel < >
- 4. concrete block < >
- 5. other, specify .....

Ground tank:

- 1. galvanised standard steel < >
- 2. ordinary tin < >
- 3. old fuel barrel < >
- 4. concrete block < >
- 5. other, specify .....

19. If yes to Q13 or 14, what kind of connection have you got from the tank ?

- 1. whole premises/flat, house < >
- 2. to the toilet only < >
- 3. to the toilet and kitchen < >
- 4. other, specify .....

20. Have you got any problems in water supply during the last weeks ? Describe what kind of problems. How often ?

- 1. poor quality < >, specify .....
- 2. inadequate quantity < >, specify .....
- 3. unreliable supply < >, specify .....
- 4. maintenance problems < >, specify .....
- 5. other < >, specify .....

21. In which ways have you tried to solve those problems ?

.....

22 How many days' notice is reasonable to you, if water is temporarily not supplied ? ... .. days

23. Suppose that your tap is faulty and leaks. How many days' delay in repairing is still acceptable ? ... .. days

Questions 24-30 only for those who must fetch water (no house/f: connection or connection out of order):



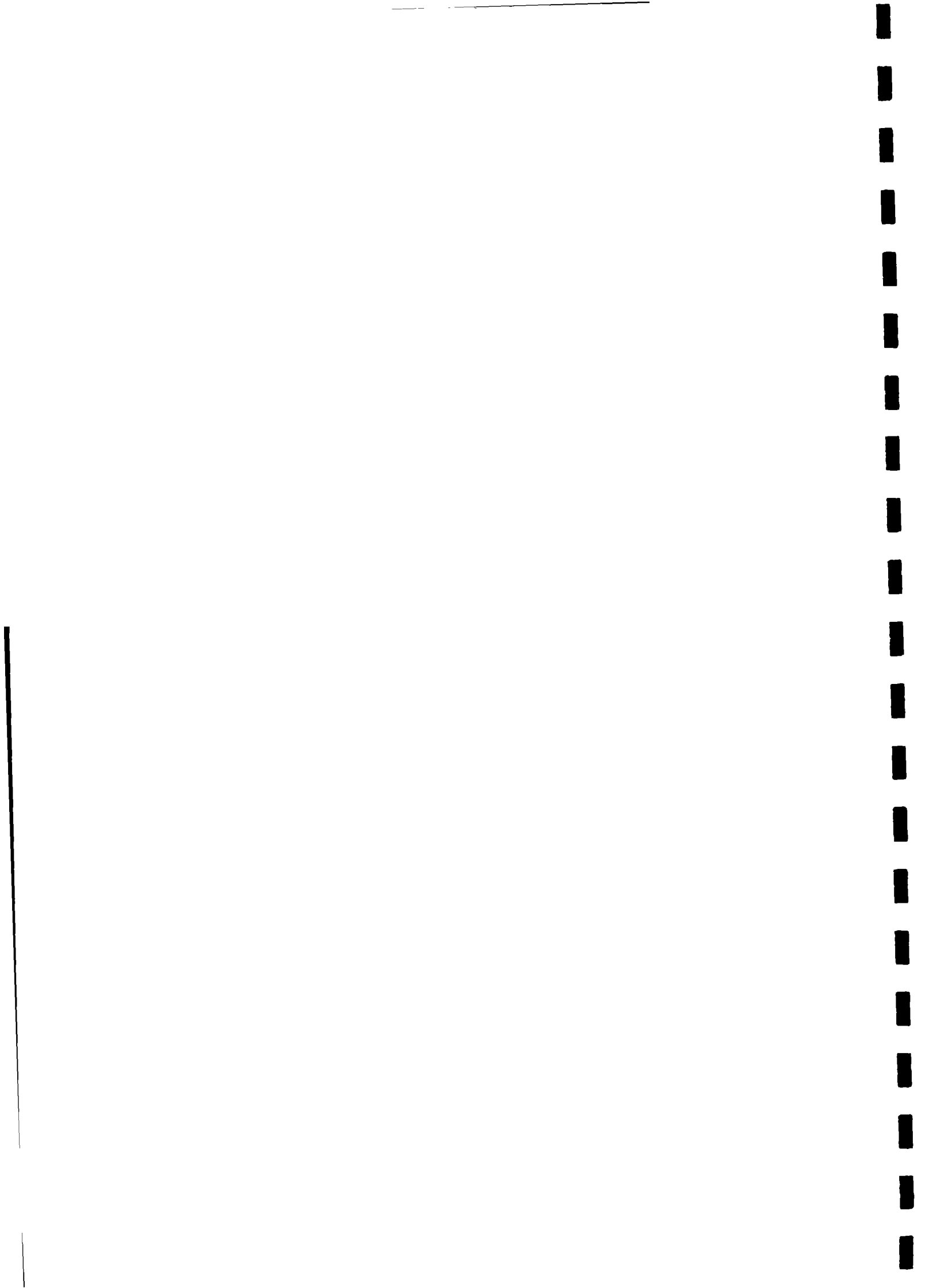
24. Distance to water source ..... km  
If in apartment block, number of floors .....
25. How many times do you fetch water daily ? < >
26. No. of hours/day spent for water hauling ? < >
27. Time and effort used for fetching water is
1. too much < >
  2. normal < >
  3. little < >
28. Who fetches water ?
1. male family member < >
  2. female family member < >
  3. child/children family member(s) < >
  4. hired help < >
- Why this person? .....
29. What kind of container do you use ?
1. tin bucket < > size in litres .....
  2. plastic bucket < > size in litres .....
  3. plastic container < > size in litres .....
  4. drum < > size in litres .....
  5. other (specify) .....
30. Do you clean container before filling ? Yes < > No < >
31. If yes to Q30, how? .....
32. If yes to Q30, why? .....
33. If yes to Q30, how often?
1. every time < >
  2. once a day < >
  3. once in 2 days < >
  4. once a week < >
  5. less < >
34. Do you store water ? Yes < > No < >
- If yes to Q34, answer questions 35-37:
35. Why do you store it? .....
36. How do you store it ?
1. in the same container used for fetching < >
  2. tin or plastic bucket < >
  3. concrete or masonry cistern < >



4. drum < >  
 5. other (specify) .....
37. Where do you store the water ?  
 1. inside the house < >  
 2. outside the house < >
38. Is the container covered ? Yes < > No < >  
 If yes, why do you cover it ? .....  
 .....  
 If no, why not? .....
39. How do you get water out of the container ?  
 1. dipper (calabash, mug, cup, bowl) < >  
 2. hosepipe, tap < >  
 3. tilting the container < >  
 4. other (specify) .....  
 Why do you use this method?.....
40. Where do you put dipper after use ?  
 1. on the floor < >  
 2. on the table < >  
 3. in the container < >  
 4. on the lid of the container < >  
 5. other (specify) .....  
 Why do you put the dipper there? .....
41. How often do you clean storage container ?  
 1. once a day < >  
 2. once in 2 days < >  
 3. once a week < >  
 4. less < >  
 Why do you clean it this often? .....
42. Do you collect rainwater ?  
 1. irregularly < >  
 2. occasionally < >  
 3. never < >
43. For what do you use this water?  
 1. cooking and drinking < >  
 2. bathing and toilet flushing < >  
 3. washing clothes < >  
 4. garden livestock < >  
 5. other (specify) .....
44. How much water (from the usual source) do you use for









3. standpipe in the distance less than 200m Yes < > No < >
54. If yes to Q53, how much would you be willing to pay for
- |    |                  |            |       |
|----|------------------|------------|-------|
| 1. | house connection | TSHS/month | ..... |
| 2. | yard connection  | TSHS/month | ..... |
| 3. | standpipe        | TSHS/month | ..... |
55. If no to Q53, why not? .....
56. If the water was rationed, at what time would you like to have water in your place?
- |    |                        |     |
|----|------------------------|-----|
| 1. | between 6 - 12         | < > |
| 2. | between 12 - 2         | < > |
| 3. | between 2 - 6          | < > |
| 4. | other, (specify) ..... |     |
57. What's your opinion, should the Water Sector remain a government department or should it be converted into corporation ?
- |    |                                |     |
|----|--------------------------------|-----|
| 1. | a department is preferred      | < > |
| 2. | a corporation is preferred     | < > |
| 3. | reasons for your opinion ..... |     |
| 4. | no opinion                     | < > |
58. Could you work with other people to contribute to the improvement of the water supply in the community ? Yes < > No < >
59. If yes to Q58, how would you like to contribute ?  
.....  
.....
60. If yes to Q58 under what conditions ?
- |    |                       |     |
|----|-----------------------|-----|
| 1. | voluntary/self help   | < > |
| 2. | exchange work         | < > |
| 3. | paid work             | < > |
| 4. | other (specify) ..... |     |
61. How have you arranged the disposal of human excreta ?
- |    |                                      |     |
|----|--------------------------------------|-----|
| 1. | flush toilet                         | < > |
| 2. | pit latrine                          | < > |
| 3. | outdoors (ditch, bush, seashore etc. | < > |



62. How have you arranged the disposal of waste water ?

1. the house has a complete drainage system < >
2. throw it into flush toilet < >
3. throw it into pit < >
4. throw it outdoors < >
5. other (specify) .....

63. Describe your solid waste disposal system ?

1. no system < >
2. dust bin < >
3. burning < >
4. solid waste disposal heap/pit < >
5. collection is arranged by the Municipality < >
6. other (specify) .....

64. Do you know any diseases or infections caused by unclean water ? What diseases ? .....

65. Has anyone in your household had diarrhoea during the last three months ? Yes < > No < >

66. If yes to Q65 specify

1. number affected children < >
2. number affected adults < >

67. Where do you usually get information on water ?

1. newspapers < >
2. radio < >
3. TV < >
4. neighbours < >
5. doctors and health workers < >
6. school < >
7. governmental offices, specify .....
8. other, specify .....

68. Major sources of the livelihood of the family ?

.....  
 .....  
 .....

69. Average cash income per month ? TSHS ... ..

form: 26 5.90



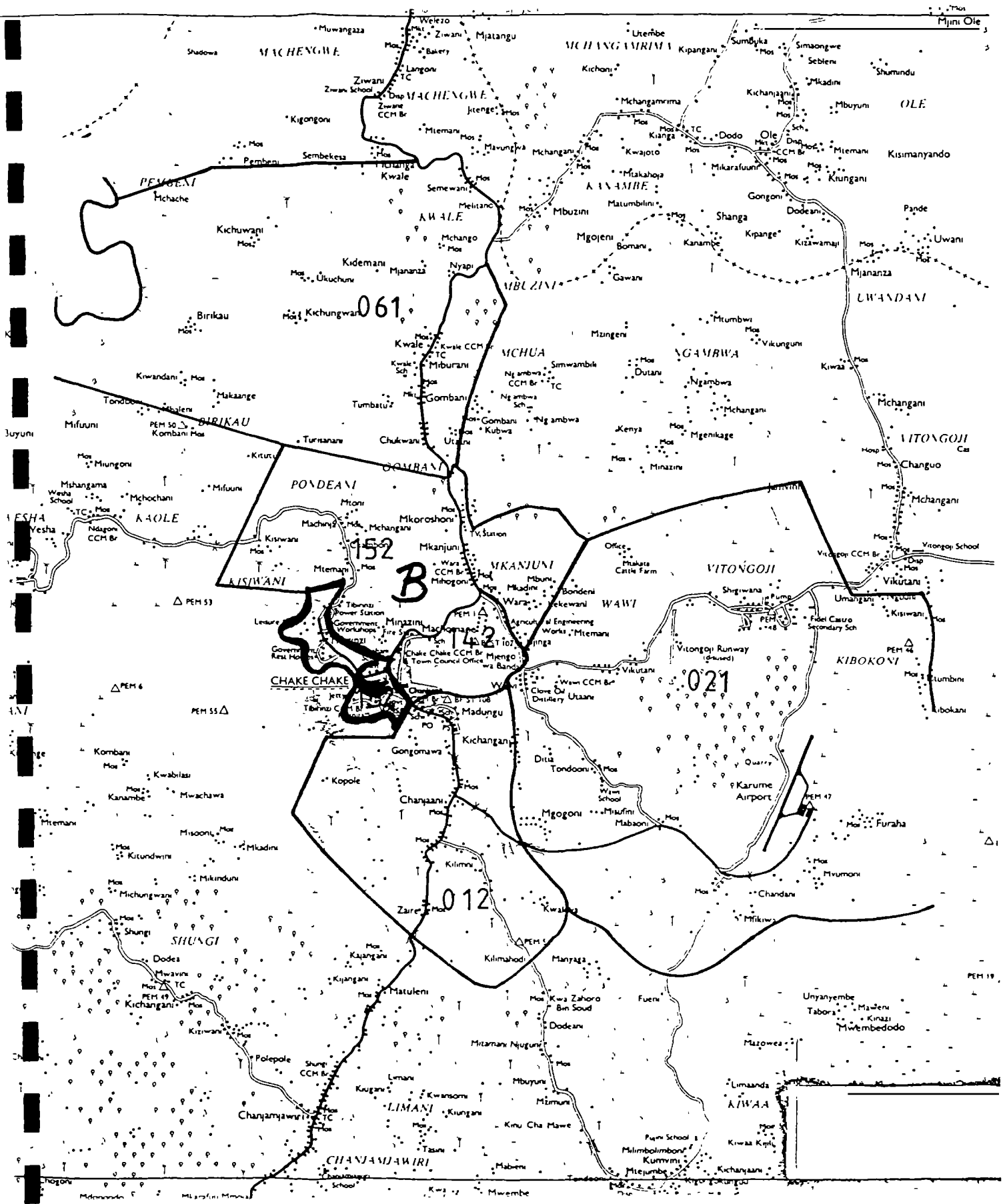




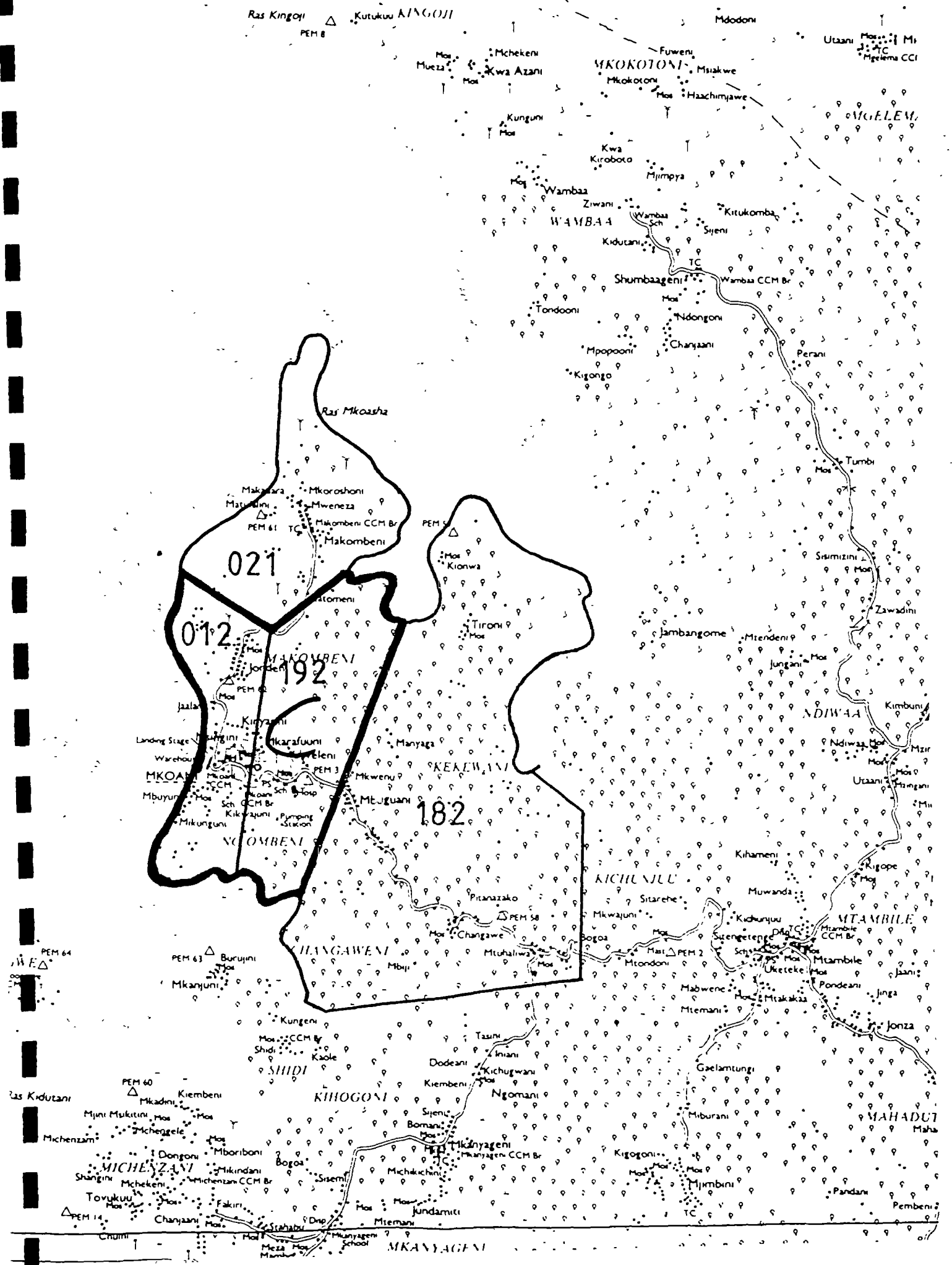














## URBAN WATER SUPPLY PROJECT

21st March 1990

### STUDY ON MANAGEMENT PRACTICES

#### Objectives:

- to find out strengths of managerial procedures, as well as weaknesses
- to gather ideas and proposals for improvement
- to collect the information about training needs of management staff
- to orientate the Project to the work of DWD

#### Method:

- to conduct open ended interviews with key job holders and supervisors
- selection of interviews in collaboration with DWD in Unguja and Pemba
- interviews are carried out by the consultant and her counterpart in English or in Swahili

#### Time of Implementation:

- In April 1990, duration of each interview about one hour

#### Check list for Interviews:

1. Understanding of the objectives:
  - Analysis on how the interviewees understand the objectives of DWD and those of their own work.
2. Major strengths and weaknesses in the work process:
  - what kind of deficiencies and problems do the interviewees see in their work? Which



are major advantages? For instance the following areas are relevant:

- coordination
- administrative work in general
- financial administration
- management system
- planning
- decision making
- supervision and monitoring
- evaluation of work
- basic work in the field

3. Which kind of opinions do the interviewees have about the conditions of work? What resources are needed for improving the existing situation?

- motivation
- division of duties
- salary
- professional education and in-service training
- communication
- promotion





DEPARTMENT OF WATER DEVELOPMENT

PERSONAL DATA

-----  
NAME .....; DATE OF BIRTH .....  
.....; PLACE OF BIRTH .....  
-----

WORKING PLACE .....; DATE OF EMPLOYMENT .....  
-----

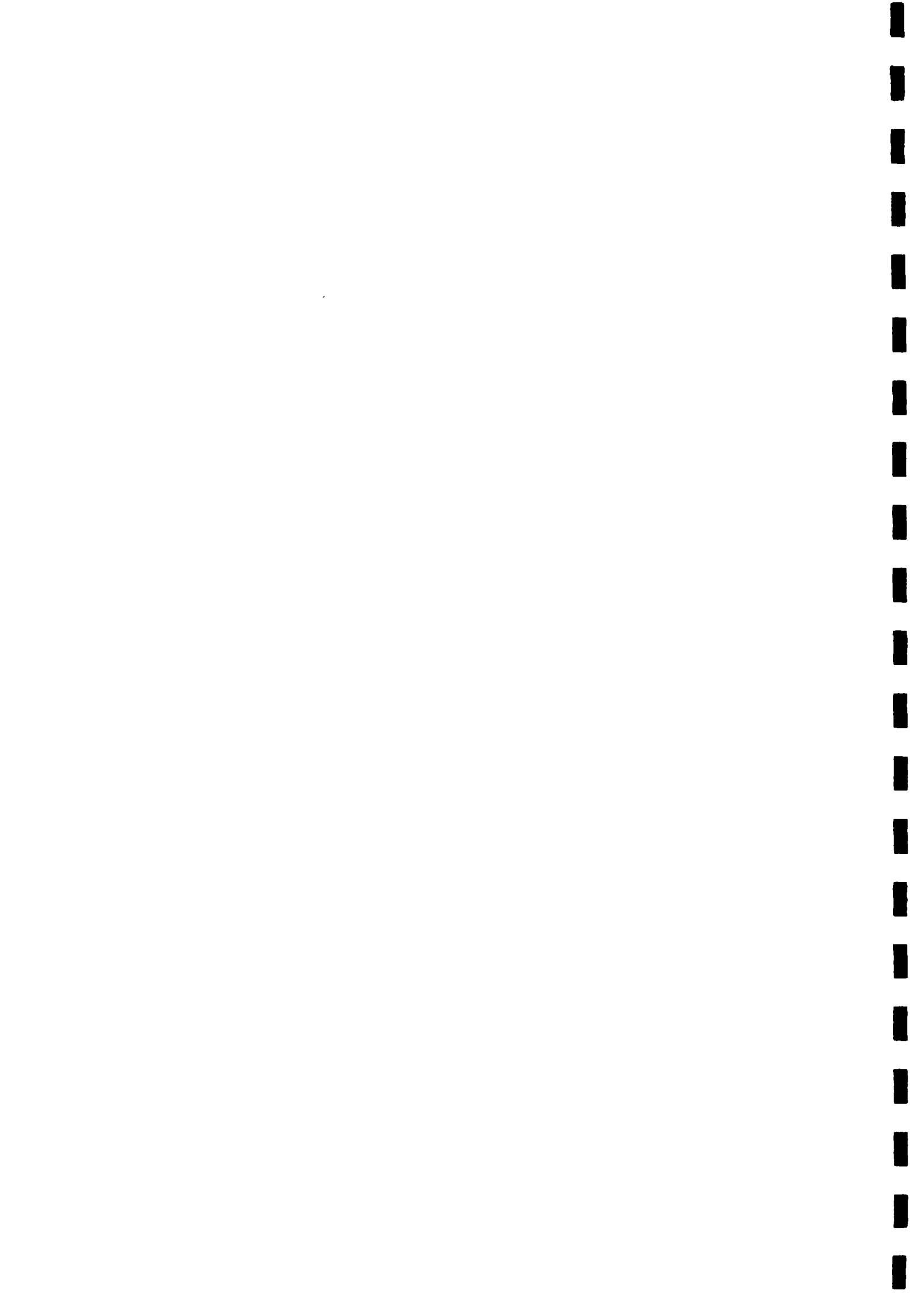
JOB CLASSIFICATION .....  
-----

SCALE .....; INCREMENTS .....  
SALARY .....; ALLOWANCES .....  
-----

LEAVES .....  
-----

WORKING EXPERIENCE .....  
.....  
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EDUCATION AND TRAINING :  
STD I-III                      STD IV-VI                      STD VII-VIII  
FORM I-III                      FORM IV                      FORM VI  
F.T.C.  
DIPLOMA .....  
DEGREE .....  
OTHER TRAINING .....  
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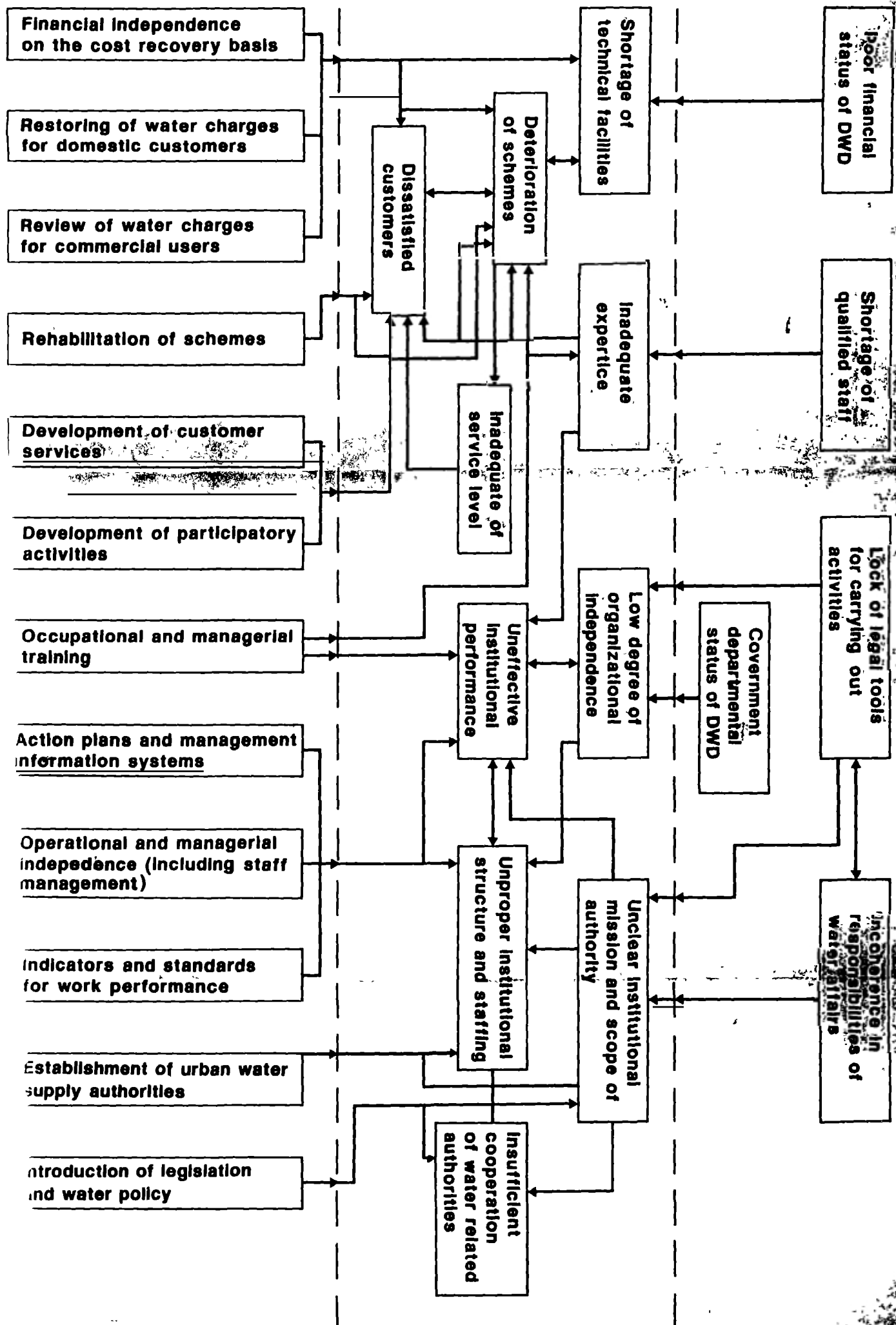
WATER DEPARTMENT PERSONNEL MANAGEMENT DATABASE REPORTS

JJ Databases  
P.O. Box 400  
Zanzibar

Employee List Grouped by Workplace  
Employee List in Alphabetical Order  
Employee List Grouped by Job Classification  
Employee List Grouped by Job Code  
Leaves Taken in 1988  
Leaves Taken in 1989  
Job Code Distributed by Length of Service  
Job Classification Distributed by Length of Service  
Gender Distributed by Length of Service  
Gender Distributed by Education and Age  
Job Classification Distributed by Age  
Retirement Distributed by Job Class (Mandatory Retirement)  
Retirement Distributed by Job Class (Optional Retirement)  
Retiring (Mandatory) Employee List  
Retiring (Optional) Employee List  
Job Classification Distributed by Gender  
Job Classification Distributed by Education  
Job Classification Salary Statistics  
Job Code Salary Statistics  
Workplace Salary Statistics  
Scale Salary Statistics  
Job Code Related to Job Classification  
Scale with Job Classification



**PROBLEM ANALYSES RELATED TO INSTITUTIONAL ASPECTS**





MINISTRIES OF THE GOVERNMENT OF ZANZIBAR

1. Ministry of State  
President's Office, Planning
2. Ministry of State  
President's Office, Regional Administration
3. Ministry of State,  
Chief Minister's Office
4. Ministry of State,  
President's Office (Special Duties)
5. Ministry of Finance
6. Ministry of Agriculture and Natural Resources
7. Ministry of Health
8. Ministry of Trade, Industries and Marketing
9. Ministry of Water, Construction, Energy, Lands and Environment
10. Ministry of Information
11. Ministry of Education
12. Ministry of Communication and Transport





PUBLIC ENTERPRISE DECREE

11 12

Legal Supplement (Part 1) to the Tanzania—Zanzibar Gazette Extraordinary,  
Vol. LXXXVII, No 5151 of 19th August, 1978

I ASSENT,

ABOUD JUMBE,

Chairman of the Revolutionary  
Council

REVOLUTIONARY COUNCIL DECREE No. 4 of 1978

A DECREE TO RE-ENACT AND REPLACE THE PUBLIC  
ENTERPRISES DECREE OF 1966

IN EXERCISE of the powers conferred by the Legislative Powers Law,  
1967, the Chairman of the Revolutionary Council by and with the advice  
and consent of the Revolutionary Council hereby makes the following  
Decree—

1. This Decree may be cited as the Public Enterprises Decree, 1978  
2. In this Decree unless the context otherwise requires—

"Board" means a Board of Directors established under section 5;  
"Chairman" means the Chairman of the Revolutionary Council,  
"Government" means the Revolutionary Government of Zanzibar,  
"Minister" means the Minister stated in the Order made under  
section 4 (1) to be responsible for the Public Enterprise

3. (1) The Chairman may by order published in the Gazette establish  
any Public Enterprise for the purpose of carrying on any business, trade  
or undertaking for the purpose of providing any service and for such  
other functions as may be specified in such order

(2) Every Public Enterprise established by an order made under this  
section, with effect from the date of such order, shall—

- (a) have perpetual succession and a common seal,
- (b) in its corporate name be capable of suing and being sued;
- (c) subject to the provisions of this Decree and of any order made  
in that behalf be capable of purchasing and otherwise acquiring,  
and of alienating, any property, movable or immovable;
- (d) subject to the provisions of this Decree and of any order made  
in that behalf enter into contracts

Order

4. (1) Every order made under section 3 establishing a Public Enterprise shall provide for the following—

- (a) the name and composition of the Public Enterprise,
- (b) the Minister responsible for the Public Enterprise,
- (c) the objects of the Public Enterprise,
- (d) the Head Office of the Public Enterprise,
- (e) the nominal capital of the Public Enterprise

(2) In such order the Chairman may exempt any Public Enterprise from complying with the requirements of any law either temporarily or permanently

Board of Directors.

5. (1) There shall be established a Board of Directors for every Public Enterprise incorporated under the provisions of this Decree

Management of Public Enterprise.

(2) Subject to the provisions of this Decree the Board of Directors shall be responsible for the policy, control and management of the Public Enterprise

Composition

- (3) The Board shall consist of—
  - (a) a chairman, who shall be appointed by the Chairman,
  - (b) such other members, being not less than five nor more than ten, as the Minister may appoint

Provided that in Public Enterprises for which Executive Chairmen have been appointed such shall also be the Chairmen of the Boards.

(4) The chairman and other members of the Board shall be appointed from amongst persons who have had experience of, or shown capacity in, or otherwise knowledgeable of the activities to be undertaken by the Public Enterprise

(5) The Board may elect one of their members to act as deputy chairman

(6) The Minister may appoint a competent person from among the employees of a Public Enterprise to be the Secretary to the Board. The Secretary shall keep minutes and records of the Board's meetings

- (7) The Chairman may make regulations with respect to—
  - (a) the appointment of, and the tenure and vacation of office by the members of a Board,
  - (b) the quorum, proceedings and meetings of a Board and determinations of a Board,
  - (c) the execution of instruments and the mode of entering into contracts by or on behalf of the Public Enterprise, and the proof of documents purporting to be executed, issued or signed by the Public Enterprise, or a Director, Officer, or servant of the Public Enterprise

Short title  
Interpretation

Establishment of Public Enterprise



Subject to any regulations made under subsection (6) of this section the Board shall have power to regulate their own procedure

(9) A Board shall meet at least every three months.

No act or proceeding of the Board shall be invalid by reason only of the number of members not being complete at the time of such act or proceeding or of any defect in the appointment of any member or the fact that any member was at the time disqualified, or disentitled to act as a member.

Proceedings of Board not to be invalid by reason of irregularity  
General Manager and other officers.

(1) For every Public Enterprise the Chairman may appoint a General Manager or Executive Secretary on such terms and conditions as may be determined who shall be the Chief Administrative Officer of the Public Enterprise concerned responsible to the Board of Directors—

- (a) for the proper day-to-day administration of the Enterprise in accordance with the policy laid down by the Board;
- (b) for the enforcement of staff and financial regulations that may be laid down by the Board;
- (c) for reporting on the activities of the Public Enterprise at every meeting of the Board

In like manner a Deputy to the General manager or Executive secretary may be appointed by the Chairman to whom the General manager may delegate some of his powers

The Board may employ such officers and other employees of the Public Enterprise as in the opinion of the Board are necessary for the efficient performance of the functions of the Public Enterprise under this Decree

The Board may delegate to the General Manager their functions of appointing officers and employees either generally or in relation to any category of officers and employees.

(1) The Minister may give to the Board directions of a general character as to the exercise and performance by the Board of their functions in relation to matters appearing to the Minister to affect the national interest and the Board shall give effect to any such directions

Powers of Minister in relation to Board

The Board shall afford to the Minister facilities for obtaining information with respect to the property and activities of the Public Enterprise and shall furnish him with returns, accounts and other information with respect thereto and afford to him facilities for the verification of information furnished, in such manner and at such times as the Minister may require

(1) Every order made under section 3 shall indicate the nominal capital of a Public Enterprise

Authorized Capital

The authorised capital of a Public Enterprise may be increased or reduced by a resolution of the Board as on the direction of the Minister

Funds and resources of a Public Enterprise

10. The funds and resources of a Public Enterprise shall consist of—

- (a) the paid-up capital,
- (b) such sums as may be provided by the Government by way of loan or equity for the purposes of the Public Enterprise,
- (c) any sums borrowed by the Public Enterprise in accordance with the provisions of this Decree;
- (d) any sums which may in any manner become payable to the Public Enterprise as the result of the performance by the Public Enterprise of its functions.

Power to borrow.

11. (1) With the prior approval of the Minister, the Board of Directors of every Public Enterprise established under this Decree may, from time to time, borrow moneys for the purposes of the Public Enterprise by way of loan or overdraft, and upon such security and such terms and conditions relating to the repayment of the principal and the payment of the interest as, subject to the directions by the Minister, the Board may deem fit.

(2) The Government may guarantee in such manner and on such condition as it may think fit the repayment of the principal of and the payment of interest and other charges on any borrowings of a Public Enterprise under and in accordance with an order made under subsection (1), and any sums required for the fulfilling of any such guarantee shall be charged on and issued out of the Consolidated Fund.

(3) The Government may, with the approval of the Revolutionary Council, raise moneys, either within or outside the United Republic of Tanzania, Zanzibar, specifically for the purposes of a Public Enterprise and all moneys so raised shall be charged and issued out of the Consolidated Fund, and when paid to the Public Enterprise shall form part of its funds.

Government Revenue.

12. (1) Every Public Enterprise shall remit to the Ministry of Finance such proportion of its net profits and at such intervals as the Minister for Finance in conjunction with the Board may determine

(2) All sums received by the Government from a Public Enterprise as provided in this section shall be paid into the Consolidated Fund

Accounts and Audit

13. (1) The Board shall cause to be provided and kept proper books of account and records with respect—

- (a) the receipt and expenditure of moneys by, and other financial transactions of, the Public Enterprise,
- (b) the assets and liabilities of the Public Enterprise,

and shall cause to be made out for every financial year a balance sheet showing details of the income and expenditure of the Public Enterprise and all its assets and liabilities



(2) Within six months of the close of a financial year the accounts including the balance sheet of the Public Enterprise in respect of that financial year shall be audited by auditors of high repute who shall be appointed by the Minister for the time being responsible for finance

(3) As soon as the accounts have been audited and in any case not later than seven months after the close of such financial year the Board shall submit to the Minister a copy of the audited statement of accounts together with a copy of the report thereon made by the auditors

14. The General Manager or Executive Secretary shall at the end of each financial year, prepare a report on the activities of a Public Enterprise during the financial year and submit such report to the Minister

15. The Minister shall as soon as may be practicable and not later than twelve months after the close of a financial year, submit to the Revolutionary Council

- (a) a copy of audited statement of accounts of the Public Enterprise,
- (b) a copy of the auditor's report, if any, and
- (c) a copy of the General Manager's report

16. (1) The Chairman may by order dissolve any Public Enterprise, amalgamate any two or more Public Enterprises or re-construct a Public Enterprise into two or more Public Enterprises

(2) Such order shall set out the terms of dissolution, amalgamation or re-construction as the case may be

17. (1) The Chairman shall appoint a Registrar of Public Enterprises to perform the duties imposed by this Decree

(2) The Registrar shall maintain a register containing the following particulars —

- (a) the name of the Public Enterprise,
- (b) the objects of the Public Enterprise,
- (c) the Head Office of the Public Enterprise,
- (d) the names of the General Manager and his Deputy and the principal accountant,
- (e) the nominal capital of the Public Enterprise,
- (f) the Ministry responsible for the Public Enterprise,
- (g) the chairman and the members of the Board

(3) The Registrar shall devise a form for obtaining the information required in subsection (2) of this section

(4) It shall be the duty of each General Manager or Executive Secretary to have the form, mentioned in subsection (3) of this section, filled and submitted to the Registrar at the time of incorporation of a Public Enterprise and at any other time there is an alteration in any of the particulars required in subsection (2) of this section

(5) A copy of the minutes of every Board's meeting and the report required under section 14 of this Decree shall be submitted to the Registrar

(6) In the case of Public Enterprises whose Boards do not either hold meetings regularly or furnish copies of the minutes or reports as required under this Decree, the Registrar shall first draw the attention of the chairman of the Board of the Public Enterprises concerned. Thereafter, if no steps are taken in compliance with the law then the Registrar shall notify the Minister for necessary appropriate action against either the Board or Management of the Public Enterprise concerned

Public Enterprise report.  
Exemption from stamp duty and other charges

Minister to report Revolutionary Council

Delegation of powers

18. Notwithstanding the provisions of any law providing for the registration of documents or the payment of stamp duties, for certificates instruments or other documents issued by or in favour of any Public Enterprise acting within the powers conferred upon it by this Decree or otherwise shall be subject to exemption in appropriate cases by the relevant authorities in regard to stamp duty, registration fee or any charge of a similar nature, or the payment of search or inspection fee

19. The Chairman may, by an order in the Gazette, delegate all or any of his powers under this Decree, other than his power under section 3 to establish a Public Enterprise, to a Minister or a committee charged with the smooth running of Public Enterprises and may empower the Minister or such committee to make regulations concerning any matter in relation to any or all Public Enterprises

Transitional provision

20. Save for the necessary modifications that may from time to time be effected the Public Enterprises established under the Public Enterprises Decree, No 1 of 1966 shall unless otherwise expressly stated in an order published in the Gazette remain as duly constituted under this Decree

Repeal of Decree No 1 of 1966

21. The Public Enterprises Decree, 1966 is hereby repealed

Made at Zanzibar this 3rd day of August, 1978

ALI SALIM AHMED,  
Secretary to the Revolutionary Council



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Civil Service Training Institute  
Commission of Lands and Environment  
Department of Manpower, Administration and Development  
Department of Regional Administration and Local Government  
Department of Women and Youth Development  
Gulioni Technical School  
Karume Technical College  
Labour Department  
Mikunguni Technical Secondary School  
Ministry of Education  
Ministry of Water, Construction, Energy, Lands and Environment  
Permanent Planning Commission  
Tractor Workshops  
Zanzibar Municipal Council

Tanzania Mainland

Ardhi Institute  
Dar Es Salaam School of Accountancy  
Dar Es Salaam Technical College  
Ministry of Water, Energy and Minerals  
National Urban Water Authority (NUWA)  
Water Resource Institute

