A CRITICAL STUDY ON HOUSING STANDARDS IN IRINGA TOWN, TANZANIA

V. H. MWINGIRA
B.A. (Education) hons.
University of East Africa
University College, Dar-es-Salaam, 1970

A THESIS SUBMITTED IN PART FULFILMENT
FOR THE DEGREE OF MASTER OF ARTS
(PLANNING) IN THE UNIVERSITY OF NAIROBI
JUNE 1976

Supervised by.....

ACKNOWLEDGEMENT

The research upon which this thesis is based was carried out during the long vacation starting from July to October 1975. Assistance given generously from many people during the course of research is greatly acknowledged. In particular, I would like to thank Mr J C Lupindu of the Iringa RDD's office for attending to many of my inquiries.

The text of the thesis was prepared under the advice and supervision of Mr S Saha of the Department of Urban and Regional Planning, University of Nairobi, whose guidance I am mostly grateful.

I am also thankful to Professor A Subbakrishniah, Mr Maleche and Mr Bo Vagnby, lecturers in the Department of Urban and Regional Planning, University of Nairobi for their general constructive comments and suggestions on my thesis writing work and Mr Kasner from the University of Nairobi, Housing Research and Development Unit for his help on the design aspects of housing.

I take this opportunity to thank also Miss S Valli for typing first draft of the thesis; Mr A B Mapunda for arranging for the typing of the final thesis manuscript and Mrs R P Odera for the typing. I am also thankful to Mr J Nchimbi of the University of Dar-es-Salaam for arranging for the binding of the thesis copies.

I have a special debt to my wife, Christine and family who at frequent intervals suffered the distraction which attends research. In gratitude and affection, I dedicate this work to her.

ABSTRACT

Housing Standards is an important aspect of Housing Policy in a country. The housing standards are categorized into three types. There are those which are legally based; those which are acceptable by the politicians, which can be termed as political standards and finally those which are influenced by people's affordability.

This study has attempted to analyse housing standards using a case study of Iringa Town in Tanzania. The study has emphasized the positive correlation that exists between the housing standards and housing supply.

The thesis has argued that housing standards affect the development of both new housing stock and the already existing one. If the standards are very high, they become unrealistic to the economic situation of the nation at large and the people in particular.

Limited financial and man-power resources force the Government to rely greatly on the people to house themselves. The public sector fails to house the large urban populations which increase year after year due to natural increases and mainly rural-urban migrations.

Many developing countries tend to copy the complex codes of England or still make use of the codes which were prepared before independence. The Township (building) Rules applicable in Iringa Town were last revised in 1960 a year before independence. Such standards fail to match with the domestic savings of the individual house-holds in the urban setting, the majority of which are low income earners whose monthly incomes do not exceed Shs.500/-.

In Tanzania nationalization of buildings policy and the leadership code have discouraged some individuals with the potential effective demand on housing to utilize the housing loan facilities offered by the Tanzania Housing Bank. The low income people fail to utilize the financial institution due to their meagre earnings which render them unable to make the down payments and monthly repayments. This discourages potential developers.

The high building standards are always based against low

income private housing markets and such markets are often described as squatters of uncontrolled and illegal development. These squatter areas have been ignored and lack the necessary infra-structural services. The result is that many people look down upon such areas and refuse to dwell in them. The risk factor resulting from this status of illegality has served to reduce the quality of the already existing housing supplied by the low income market.

Many governments, due to prestige reasons tend to advocate complete clearance of the squatters and uncontrolled areas. This reduces the number of already existing housing stock.

This study has thus started with analysing the physical background of the town to find out the land capability and direction of growth. The conclusion from this analysis is that Iringa Town does not suffer from land dearth. There are vacant and open areas on the north and north-west of the town and numerous land pockets of open areas which have been underdeveloped. Plenty of land lie idle between house units in the low density areas. Some institution like Mkwawa Secondary School possess large tracts of land which just remain unutilized and can easily be made available for house development.

Then an analysis of the socio-economic base has been made. This has helped first to determine the size of house-holds and the structure of population and hence appreciate the housing requirement of the various population categories; secondly, to determine the housing fiscal capabilities of the nation as a whole and the individual house-holds in particular. The socio-economic base is an effective yard-stick to measure the realities of standards. It determines the type of housing the people can afford.

The study has then looked into the housing situation in Iringa Town. This has included the determination of housing needs over the period of five years, upto 1980, resulting from increases in house-holds and general deterioration and obsolescence of the already existing housing stock. The quality of the existing housing in terms of building materials used, availability of sanitary facilities and kitchen and infra-structural services such as roads, drains, refuse disposals, sewers and electricity has also been assessed.

This analysis on housing situation has indicated the housing task the public and private sectors in Iringa Town confront.

Finally, the analysis has dealt with the study of the housing standards in the town. This has involved studying the existir building rules for house unit construction and rules governing the development of the environment immediate to the housing units. This study has helped to determine whether the housing standards applicable in the township meet the physiographic and economic realities in the town and the socio-cultural aspiration of the urbanites.

Positive proposals and recommendations have been suggested for realistic housing standards. The standards have been suggested for various levels of housing development in the township area, namely, housing in uncontrolled or un-planned areas; underdeveloped high density planned areas; developed high density planned areas and the planned low density areas. Standards have also been proposed for the house unit construction in terms of building period, designs, materials to be used,plot size and coverage, size and number of rooms.

The study has been able to conclude that there exists a housing shortage in Iringa Town caused by high urban populatic growth rates which have persisted for the last two decades and that the government possess meagre financial, material, man-power and organizational resources and hence fails to provide housing for the urban dwellers. The only logical approach to solving the problem of housing shortage in the urban area is for the people to house themselves. Obviously they are unable to do it if the standards are highly pitched up. The housing standards have to be reviewed and make them comply with the physical, economic and socio-cultural realities existing in the town.

A CRITICAL STUDY ON HOUSING STANDARDS IN IRINGA TOWN, TANZANIA

TABLE OF CONTENTS

Contents Page

Contents Page

CHAPTER I

1: INTRODUCTION:

1:1 General

Most rural houses in Tanzania are built with little or no cash expenditure. This is because the people build their own houses with their own labour and using traditional building materials the commonest being mud and poles and thatched roof. In the fast expanding towns, however, with their dense population concentration, house building even using traditional materials like mud and poles is becoming increasingly expensive. This situation is partly caused by the need to buy building materials such as bush poles, sand, cement and galvanised iron sheets and partly because town people have less time for building activities and often tend to forget their traditional building skills. They are often reluctant to do construction work themselves preferring to hire fundis (craftmen) to do the job for them.

Moreover the Township Authority discard the use of traditional materials for building of houses within the township bounderies and demand that people use the so called durable permanent materials such as cement blocks, burnt bricks and concrete. Most of these materials are expensive to procure and often require specialized building knowhow to use them which the traditional fundis may not possess.

Below is produced an extract of a true building plan note given by the Iringa Township Authority in 1975 to a person who acquired a surveyed plot within the township, instructing him on the materials he should use for building his house on the plot:

"Note:

1. Material: stone for foundation with cement and sand mortar (1:6 mix)
   Burnt bricks for the walls with cement and sand mortar
   Corrugated iron sheets over timber trusses for the roof
2. Provide steps where necessary
3. Finishes to wall faces to be decided by the owner
4. Roof timber to be treated with wood presevaties
5. Drainage to satisfy the Iringa Town Council regulations and should be approved by the health officer of the authority" (1).

These are typical instructions given to people who want to build in Iringa Town and suggest the acceptable standards of house construction within the township bounderies. However, such instructions have a lot of financial implications to the client.

To build a house t› such specifications requires a lot of cash expenditure. First, mon:y is required for buying the building materials such as cement, bricks, corrugated iron sheets, timber and wood preservatieves. Secondly, money is also required for transportation of the materials from the source to the building site. Moreover constructing a house to such specifications requires more than a traditional fundi. One has to hire the services of a knowledgable craftman who at least knows to build with the materials, to the satisfaction of the authority. Such craftmen must be few and expensive to hire.

Can everyone who wants to build a house in the town afford the cash expenditure to meet the regulations? Definitely not. Many potential builders may be discouraged from building houses because of the high costs which go with the required house building regulations. It is difficult to accumulate the necessary capital for house building. Most people in the town try to develop housing as they slowly acquire sufficient capital and there is clear evident throughout the town of unfinished buildings.

The Township Authority on the other hand has a regulation which requires that any person given a surveyed plot starts the house construction within a period of a year from the date he aquires the plot. Not abiding to the regulation leads to the plot being taken away from the person and given to somebody else.

Land form No. 43 which is the "Offer of Right of Occupancy Certificate" summarizes the 1948 Land Ordinance Cap 113 of the Laws. Its paragraph 3 reads:

> "Building: Not later than one year after the commencement of the term the Occupier shall have on the land a building of a type and standard approved by the District Development Director. The occupier shall at no time have or errect on the land any building not approved by the District Development Director. Any building on the land shall also comply with any Township Building Rules and any other statutory regulations or requirements in force in the area. All approved buildings on the land shall be maintained by the Occupier in good repair to the satisfaction of the District Development Director" (2)

It becomes clear from the afore stated regulations that low income people cannot afford to build houses in the urban areas which meet the requirements of these regulations. However, low income people do build houses even in the surveyed plots. Most of them build houses which do not comply with these regulations.

/3....

From both quotations made above one point becomes very clear, that the regulations are very old in the first quotation it is seen that although the building instructions were given in 1975, they still bear in it the name Town Council for the Township Authority. By 1973, Town Councils were officially abolished to form Urban Districts in their place. It shows, therefore, that there has been no attempt to modify the regulations with the changing national trends.

The use of 1948 Land Ordinance is even more appalling. This substantiates the common accusation on regulations in developing countries that, in the words of Abrams: "the tendency in a number of countries is to copy the complex codes of England,..... though they are irrelevant and though the talents to enforce, contrue and adapt them may be completely lacking." (3)

Tanzania has inherited the ordinance from the British rules and regulations. The standards set in the ordinance were pitched very high and compared very closely with those of the U.K. With independence the regulations have not been modified and therefore the same ones continue being used.

1:2 The Probelm:

The thesis tries to deal with the question of Housing Standards of Iringa Town and how they affect the housing supply. The author believes that there is a strong correlation between housing standards and housing supply. The higher the standards the lower the housing supply. It has already been pointed above that the housing standards in developing countries are highly pitched comparable to those in the developed countries. The majority of the people in developing countries are poor so they cannot afford to comply with the high standards provided by their national governments and local councils. Because of their poverty, unless they chose to build their houses illegally, without due regard to the standards set, they fail to indulge in house building in towns.

As the low income group comprises the major segment of the urban population in developing countries, their failure to build themselves houses greatly affects the total housing supply in the towns.

However, these people need shelter while they cannot provide for their own housing. This results in housing shortage particularly for them, the low income people. It appears logically that the answer to housing shortage in urban areas is the lowering of the housing standards or in the words of Abrams: "the provision of bare essential may have to be the world's sad but only reasonable alternative" (4)

But many government officials and politicians feel ashamed of themselves to accept these realities. They refuse to accept the fact that a mud and pole house is an answer to urban housing shortage

/4...

however detestable. The officials try to weather the popular pressure for shelter by making promises they cannot fulfill or by providing a few sporadic projects to buoy up hope.

The stress on sporadic projects steam from a lack of understanding of the underlying problem and so result in such misguided policy formulation. The author is of the opinion that the underlying problem, which causes housing shortage in urban areas is the high housing standards which make the majority of the urban dwellers, because of fiscial incapability, unable to construct their houses. Rural areas in most cases never experience housing shortage because building houses is easy. There are no standards to govern their construction work. Clearly if standards for housing were to be introduced in rural areas, housing shortage would occur. The abscence of housing shortage in rural areas should be a lesson for the housing development in urban areas. Sincerely one has to ask whether urban living is better than rural living so as not to learn from the rural experiences.

1:3 The choice of Iringa Town as a study area:

There are mainly two reasons why the author selected Iringa Town as a study area.

1. Iringa Town is unique in the type of building materials used particularly for the traditional housing. The traditional houses in Iringa town are built with mud without poles and sun dried bricks. The most common traditional materials used in Tanzania are mud and poles. In Iringa the people use mud without poles. This uniqueness impressed the author and encouraged him to study the housing standards in a town with traditional building material uncommonly used in other urban areas. Even the National Housing and Building Research Unit, of the Ministry of Lands, Housing and Urban Development, Dar-Es-Salaam in its Report No.3, Economic Comparison of Building Materials" has not studied the use of mud without poles as a building material. It has concentrated on soil cement blocks sand-cement blocks and mud and poles.

2. Iringa Town is among the urban centres in the country which has had no master plan for guiding its future land use development. Master Plans help to provide useful data in an assembled form and made available to anybody who wants to refer to them. The author is of the opinion that the fact that a master plan has not been prepared there is a dearth of assembled data for the town. An important contribution this study will make is to provide data in an assemble form. The data can be useful in other future studies and for planning purposes.

.../5...

The author has stayed in the town for quite long. This has added his interest to study the town's housing standards so that through the conclusions and recommendations he will make from the study may help in future development of the town.

1:4 Research Hypotheses:

Research Hypotheses are drawn from literature and practical experience about the study area. Research hypotheses are important in that they help to show why the need has arisen to carry out the research. They also show the kind of data one is to collect to enable one to answer the research question and they provide the basis of analysing the data collected.

Five hypotheses have been set for this study. These are:

1. that there is a housing shortage in Iringa Town (numerically and qualitatively).
2. the housing shortage is caused by the inability of the private sector in particular to contribute much to housing. The contribution of the private sector to housing is not fully exploited. Provision of new housing stock is left to public housing institutions.
3. the private sector fails to contribute much to housing due to the inability of particularly the low income group to finance for housing because of the high costs involved in constructing a house.
4. the high housing costs are mainly caused by unrealistically high housing standards.
5. the housing standards discourage the production of new housing stock of appropriate or low costs standard; encourage the expenditure of limited public resources on high priced housing for small proportion of the population and condon or actively encourage the removal of squatters and similar housing.

1:5 The Aim and Significance of the Study:

The study attempts to examine the existing housing standards which apply in Tanzania in general and in Iringa Town in particular. Then an analysis is carried out to find out whether the standards are realistic or not in terms of people's fiscal capabilities and their socio-economic aspirations. If they are seen to be unrealistic, an attempt will be made to suggest realistc one particularly for the town of Iringa.

/6...

The study of housing standards is important and necessary. As indicated in paragraph 1:2 earlier, that a relationship exists between housing shortage and housing standards. On the one hand there can be a great tempration to emphasize only the effects of high housing standards on new construction. It is true that high housing standards have a discouraging effect on housing supply. On the other hand high housing standards have a greater influence on the already existing stock.

It is often forgotten that the vast majority for housing supply consits of existing stock. L. Muench writes:(5) "Rarely does new housing construction amount to more than 10 per cent of the existing stock and usually much less." High housing standards affect the already existing stock in two ways:

1. Public policies in East Africa have almost invariably been biased against low-income private housing markets and such markets are often described as squatters of uncontrolled and illegal development. The squatter areas have often been denied infra-structure such as roads and storm water drainage and other aminities like water, electricity and garbage collection. These infrastural services and aminities would enhance their attractiveness and developability. Lack of such aminities like electricity make living in these areas very dangerous. Many people may even be discouraged to rent houses from the areas. Moreover people living in areas like Mwangata, Mtwivila and Mkwawa in Iringa Town are very much looked down upon because such areas are often associated with thuggery such as thefts, robbery, prostitution and general personal insecurity.

2. In developing countries it is the existence of these regulations which has made most private low income housing illegal. The risk factor resulting from this status of illegality has also served to reduce the quality of housing supplied to the low income market. Because of risk, costs are minimized down to the lowest possible level e.g. flatten tin roof, mud and wattle walls and packed earth floor. These houses often risk the danger of being pulled down and so the owners do not care to improve on them: Even if they are one day pulled down by the authorities their losses incurred will be minimum.

/7...

This study therefore tries to stress to those who resent slums and squatters or uncontrolled housing that this is a policy failure. To quote from the United Nation's Sector Policy Paper on Housing: "The poor who are frequently described as 'marginal' by those who resent slums and squatter areas are thus 'marginalised' by policy failure." (6)

It is expected that in highlighting such policy failures the study may be of use to the Town Authorities in Iringa to reorientate their thinking on low income housing. That wretched housing is better than nothing. It is assumed that the authorities at this stage know that since the underprivileged in their town in particular and in other towns in Tanzania in general are innumerable, no goverment has enough money to build the necessary housing for them. Its task may perhaps only be to organize what has hitherto been unorganized without any pretence at perfection. Colin Rosser with his experience on housing for the lowest income groups in Culcutta states that:

> "At the rate at which low cost housing is at present being built in the metropolitan district of Culcutta, it will take a hundred years to house the present inhabitants of the 'bustee,' without counting the normal annual growth during these hundred years." (7)

The town authorities will have to accept that houses being built by the low-income people with whatever material they use to whatever design or specifications they build them. That presents the economic and perhaps the socio- cultural realities of the lives of the residents. The houses the people build provide evidence of the creative energies of the people. It is useless to impose on them very stringent standards and regulations for housing.

1:6. Research Methodology:

Questionnares, interviews and direct observations each contribute to provide data for the study. It was impossible to make the study by one method alone.

The most important questionnare was the socio-economic survey. The principle questions asked in the socio-economic survey included sex, age, relationship to the head of the house hold, house hold marital status, birth place, occupation income and expenditure. Other questions were asked on the house unit structure. They included questions on the type of foundation, floor, wall, roof, kitchen facilities, bathroom and toilet facilities, methods of refuse and surface water drainage

/8....

disposal. Questions on distance, time taken and mode of transportation to work and to different types facilities and services were also asked. It was also important to ask on the rents both those which they currently pay and those which they could pay if provided with bigger houses.

A sample of 305 house units (about 5 per cent) were taken for the socio-economic survey. To avoid haphazardness and bias in the selection of the population to be studied the authour used a systematic sampling technique. An attempt was made to select from housing rows every 10th house. This method of approach is skilled procedure which must be designed carefully and followed through systematically.

Precision to the sampling was increased by introducing strafication before the selection of the sample. The study area was stratified into various categories. The strafication factor was house-type. In the study area there are regular as well as irregular houses. Regular houses are built in well surveyed and controlled plots and irregular ones are the squatters built in unplanned areas. The regular houses were further categorized into high and low density housing respectively.

In all therefore there were three categories of house type to be studied namely, the irregular houses, the high density housing units and the low density housing units. The method of stratified random sampling answers that each distinct group is represented in the coverage of the sample and varying characteristics within those groups may then be examined.

The proportions of house units to be studied in the three housing types were crudely based upon the 1967 population census data. Through calculations the uncontrolled, high and low density housing were in the ratios of 2:7:1 respectively. Therefore from the 305 sample, 62, 213 and 30 house units in the uncontrolled, high and low housing type respectively were studied.

Apart from the socio-economic survey questinnaire which examined the activities of all members of the house holds in a day from 6 a.m. to 10 p.m. Details of whether the activities were performed in the residential, commercial industrial transportational, recreational and public purpose areas were also asked. The survey aimed at providing patterns of time and space use. The study of activity patterns is an important means for defining planning criteria or standards which have

/9...

often existed largely as ad hoc rules of thumb. Moreover there is also a possibility of linking up planning goal formulation, policy making and political action concerning the urban environment to the value systems and preference patterns of the urban residents.

The survey of activity systems was done at the same time as the socio-economic survey. However it was difficult in terms of time to study the whole sample of 305 house units. The author decided to select among the 305 houses only 45 houses units in the following order: 10 houses from the uncontrolled area 30 in the high income area and 5 houses from the low income area.

The work which was involved in the study was very difficult. The data on daily activities were obtained by asking the members of the house holds what activities they had done in the day before. The time at which each activity was done was entered with the activity mentioned. Because the study was conducted for more than two weeks activities of both weekdays and week-ends were taken care of.

Personal interviews were conducted to institutional heads and other individuals. Those interviewed included the heads of National Housing Corporation (NHC); the Registrar of Buildings (RB); the Tanzania Housing Bank (THB) Iringa Branch; the Ratan Sikh Building Contractor; the Regional and District Land Officers; the Regional Surveyor; the Town planning Officer in the sub-urban District, Iringa; the Regional Production Officer for SIDO (Small Industries Development Organization); the Regional Water Engineer; the manager of Tanzania Electrical Supply Company (TANESCO), the Regional Engineer in the Ministry of Works and several local fundis. These were interviews with experts for technical information or for their professional attitudes..

In order to have an idea of the physical set up of the different areas the observation method was used. The author walked around the study area to see the changes in physical terrain of the area.

There were some problems in the survey. The major problems were faced in the uncontrolled area. Due to lack of proper arrange-ments of houses it was very difficult to sample out the houses. The difficulties were more aggravated by the fact that the author did not have aerial photographs of the study area.

/10....

There was practically little problem of non-response from the individual house hold members. It was only in six cases that people completely refused to answer questions. The majority of people were very willing to be interviewed and to describe their feelings and reactions on aspects which related to housing and demand for community facilities.

However it was very difficult to obtain information from the institutional and government heads. The heads tend to treat any information in their possession as confidential and not to be communicated to an outsider. Inspite of letter of introduction from both the Director of Urban Planning in the Ministry of Lands, Housing and Urban Development and the University of Nairobi, many of them answered the questions reluctantly. For example, the TANESCO Manager was reluctant to give out the maps of electricity distribution in town for reasons of security.

Another important source for the study was the references made from published materials. These include text books, reference books, lecture notes. These have been quoted from, here and there in the text. Reference maps were also important source of information. The major ones include the Tanzania maps No. 215/1/1961 and 215/3/1972.

1:7 Review of Existing Literature Relevant to the Study:

1. Cap 113, supp. 57 of the Laws of Tanzania, 1948 Edition: This is the Land Ordinance which deals with procedures and regulations of land acquisition and development in the Urban areas. The main points of the law are succintly summarized in what is known as the land Form No.43. This is a title-deed or offer of a Right of Occupancy Certificate given to a developer when he acquires a plot in an urban area. The law is old but is still in use. It is conservative and lacks dynamism which developing countries require in their regulations of urban development.

2. Cap 101, supp. 59 of the Laws of Tanzania, revised in 1960: This is the Township (Building) Rules which is part of the entire Township Ordinance chapter 101. It is also an old law but still in use in Tanzania. The regulations in the law mainly deal with house unit construction as such. They stipulate the rules on materials for house builds in urban areas and other technical details on size specifications of different house components such as rooms, wall height and thickness, wall finish-up etc.

/11....

3. The Building covenant worked out by the Building Research Unit in 1974 for the specifications on the various Components for the construction of low-cost houses. It gives useful guides on house construction in urban areas using both the traditional and conventional building materials. It is a useful covenant particularly for its dynamism in accepting modifications in the use of the specifications depending on prevailing conditions of site of a particular house. The only major shortcoming in the covenant is that it says practically nothing on the environment immediate to the house. The covenant is still in a draft form and has not been sent to the regions for its implementation.

4. Two reports prepared by the National Housing and Building Research Unit, Ministry of Lands, Housing and Urban Development, 1973, namely Report 2 on "Lateratic Soil-cement as a building material" and Report 3 on "Economic comparison of Building Materials, survey of Dar-es-Salaam" have very great reference to this study. For example the method applied in comparing costs of various building materials in Dar-es-Salaam can easily be applicable in costing building materials in Iringa Town.

5. There is also a report by the Housing Research Unit of University of Nairobi, 1970 on "Improvable Minimum standards. Although the research was carried out in Kenya, the findings made are quite relevant to most developing countries in Africa in particular. This study can make references to many of its recommendations.

6. A Diploma Project Work of the University of Nairobi, Department of Urban and Regional Planning on "Comparative Analysis of Community Facilities" by S.K. Jamal, 1972 catelogues the existing planning standards for community facilities. The planning standards have taken from the Dar-es-Salaam Master Plan and are thus the ones acceptable to the Town Planning Division of the Ministry of Lands, Housing and Urban Development. This study will definitely make a lot of references to them.

1:8 Definition of Important Terms:

1:8.2 House: A building designed or occupied as the living quarters of one or more families or house holds. It may or may not be equiped with facilities for cooking, bathing and toilets. For purses of this definition a house includes all ancillary buildings which provide separate facilities for its occupants.

/...12

1:8.2 Housing: The word housing comprehends the housing process as well as the material products of that process. The housing process is described in terms of the general sequential operations of preparation, construction and post construction uses, management and maintainance of building and their equipment.

1:8.3 Standard: measure to which others must conform. It refers to degree of quality of a thing. Housing standards are of three types: the legally-based including building codes, regulations and rules and by-laws; the political housing standards or the type of housing acceptable by the politicians and standards influenced by people's affordability.

1:8.4 House hold: Basic human unit is assumed to be the persons occupying a finite dwelling space who share or contribute to the cost of living in that space. A house hold is not synonymus with family although most families are of course, house holds.

1:8.4 Improvability: the dwellings' ability, by future additions to increase the services to the occupants e.g. addition of area by extension or by combination of units or addition of facilities to existing area.

1:8.5 Town: By 1973, the town concils were abolished in Tanzania. In their place, sub-urban districts were formed. The sub-urban districts are administrative areas including the former township area with some rural areas added to it.

CHAPTER II

2: THE PHYSICAL BACKGROUND

2:1 The National and Regional setting:

Iringa Region with an area of ~~42,000 hectares~~ 21950 sq miles is located to the north east of Lake Nyasa. The region is bordered by five other regions: Singida and Dodoma in the north west and north respectively, Morogoro in the east, Ruvuma in the South and Mbeya in the West. Iringa region is divided into four districts: Iringa sub-urban, Iringa rural, Mufindi, Njombe and Ludewa districts. The district headquarters are in Iringa, both for the urban and rural districts; Johnscorner, Njombe and Manda towns respectively. The regional center is Iringa. (see map 1).

2:2 The Study Area: Iringa Township:

Iringa Town is situated about 317 miles from Dar-es-Salaam, the capital of the Republic of Tanzania. The town is nodal in its location. The Great North Road from Arusha (and beyond from Nairobi) meets with the newly constructed Tanzania-Zambia Highway. Its focal location has attracted many people from its surrounding himberland areas to migrate into the town. In 1973 as the town received sub-urban district status its township boundaries were expanded to include the once rural fringes and the surrounding squatters of Ipogolo, Mwangata, Mkwawa and Mtwivila. At present the town covers more than 42,000 hectares.

2:3 Present role:

Iringa maintains a dominat role as the administrative, commercial and communication hub of the region. The district headquarters and the other centres in the region can only be seen in their relation to it as ancillary and largely dependent on it and as intermediate posts between the outlying villages and rural areas.

Iringa has also developed as an educational centre with four secondary schools, a Teachers Training College, a banking college and a medical school.

The locational advantage of Iringa for the establishment of industrial and commercial concerns cannot be overstated. With the government policy of decentralization Iringa definitely stands a very good advantage particularly where availability of labour and easy transportation network to other areas in general and to Dar-es-Salaam port in particular is a criterion for the location of such activities. Iringa has also attained a reasonable standing as one of the important national growth pole and attraction.

2:4 Physical setting:

Any attempt to understand urban development of Iringa Town and its parttern should start with an appreciation of the physical

setting influencing this development.

Physiographically the town of Iringa lies on the Iringa Plateau. This is an extensive area ranging in elevation from 1500 meters to more than 2000 meters. The Iringa Plateau forms part of the greater Southern Highlands of Tanzania. The Southern Highlands of Tanzania form the second largest block of highlands in East Africa after the Kenya highlands. The highlands resemble the other highland areas further to the north. They are associated with Rift Valley system. Here too there has been a considerable amount of volcanic activity.

These highlands span south-westwards from great dissected scarp overlooking the Kilombero Valley, where it is called the Udzungwa Ranges. They continue as Kipengere Ranges south of the Iringa Plateau in Njombe district and end in Mbeya Region where they are known as the Rungwe Ranges.

The town itself consists of an escarpment. Its scarp to the south falls steeply towards the Little Ruaha River. The river meanders in its wide flood plain. There is a very steep slope as one leaves the town towards Mbeya. In fact the town is almost at the edge of the escarpment. The altitude is about 1500 meters above sea level.

The dip of the escarpment slopes gently north and north-westwards. The general morphology of the dip slopes is interrupted by stony hillock ranges or scattered outcrop rocks of granite type. (see map 2). The physiography of the town has influenced its development. The degree of slope affects the cost of buildings and their layout; the provision of public services; the amount of excavation in road and building construction and the availability of extensive site. According to J.N. Jackson (8) the sloping zones can be distinguished into three categories: The steeply sloping areas with approximate average slope about 1:7.5 This is classified as unsuitable for development.

In Iringa Town areas of this classification include the southern slopes near the Little Ruaha River and the steep slopes of the rocky outcrops. House construction is difficult and costly. Very few costly houses appear on these slopes. Because of the altitude of the rock outcrops storage water tanks are sited on these rock hill-tops.

/15.....

However, the rocky outcrops form an important source of building stone. Many self-employed people engage in quarrying the already broken stones or break the big boulder stones into sizes acceptable for building purposes and sell them to lorry owners who then sell the stones to the house developers.

The stones are used as building material for house foundation construction in particular. There are some few people, however, who use the stones for wall construction. Some stones are also broken into very small sized gravels. These are used for constructing reinforced concrete floor and window and door slabs.

Secondly there are areas of moderate slopes with inclines of 1:7.5 to 1:10 where development was undesirable. In Iringa town this in fact forms the greater part of the already build area. Although house building is costly people have managed to build houses making very extensive site clearing.

Finally there are slope of less than 1:10 which are deemed to be suitable for development. In Iringa Town extensive areas of this type are found to the north and north-west. They are gentle sloping areas between rock outcrops. Because town development started from the escarpment side of the town the relatively gentle sloping areas have for quite long remained outside the town boundaries as the rural fringes. (see cross section in map 2).

The Little Ruaha River is the most important drainage system within the town. By lateral erosion the river has been able to develop a wide flood plain which become filled with water during floods.

The areas liable to flooding are very damp. They present construction difficulties. The flooding may endanger house foundations. On the other hand the buildings may prevent free flow of flood water. Flood areas are usually avoided for building development. There are no building in the Ruaha flood plain. However they may be suitable for other functions. The Ruaha floodland is an important brick making area. Fire-burnt bricks are made and burnt here. The alluvial soil is very suitable for making fire-burnt bricks.

Running down the slopes from the escarpment crest are gullies. These also constitute a type of drainage system perculiar to the town. These gullies have been furrowed into relatively deep ravines by continuous rain run-off. The gullies are intermitent. They contain water during the rainy season and remain alomost dry during the dry season. During the rains they become natural water courses draining the run-off from high areas to low areas. The biggest gully runs from near

/16.....

the town centre through Makorongoni residential area down to Itamba. These gullies have eroded devastatingly the areas over which they run rendering them very difficult for house construction. One can find surveyed plots in Mwembetongwa area which have been traversed by deep georges in between. It becomes really difficult and costly to do some construction on such plots.

Unfortunately there is no soil investigation for the study area. On the basis of a study of maps and field observation and interviews with the respective local authorities the whole area is suitable for building with exception of the marshy river plains. A useful soil classification which can be relevant here is the general one based on the East African Catenary soil classification (9). This is a classification of soils for micro areas. It can be used to supplement the global classification of soil which generally puts the whole of Iringa town under a general classification of Lateritic soil type.

The catenary classification is based on the topography mainly slope of the areas concerned. So that at micro level there is a clear difference of soil types between the steep slopes and the gentle ones. This is based on the fact that there is a tendency for all loose unconsolidated material to move down slope under the pull of gravity. This movement tends to retard the development of soil maturity on the steep slopes. Any soil profiles found on steep slopes are likely to be thin and poorly developed. In steep slopes which are very much eroded the soil profile may be entirely absent because the fragmental material does not remain in situ for long enough time to develop a profile.

Slope conditions may also alter the effect of climate on soil formation percolation of rainfall is reduced on steep slopes because of more rapid run off on the surface, hence the rate of profile formation is also retarded. The exposure of slopes to sunlight varies, thus temperature condition and evaporation may vary accordingly. Slopes may also affect the exposure to prevailing winds and may result in marked differences in precipitation which in turn produce noticeable local variation in soils. Steep slopes have excessive drainage conditions while flat land has poor drainage. This also affects soil profile and soil type.

According to above explanations which fit very much the topography of Iringa town the soil types with the area have developed as shown in the diagram (1)

/17...

6 - red friable clays, 30 - 40 inches, sub-humid ph 5-6.5
These are soils found on gentle slopes to the north and north - westwards. They can be used for building mud houses but are not good for making burnt bricks. Burnth bricks made such soils are very light, break easilly and can be eroded by rain if the walls of the houses are not plastered.

30 - Alluvium, recent deposits
swamps with seasonal or permanent water table.

These are the soil types found in the flood plain of the Ruaha River. The soils are very good for making burnt bricks and liles.

35 - Volcanic rocks
shallow stony soils with rock outcrops and steep slopes.
These are the crests of the stony hillock ranges which have very thin soil or no soils at all. It is only the stones which are of building importance.

The climate of Iringa is generally more pleasant than that of the coastal plain because of its higher altitude. The average annual temperature is about $18^{o}C$ and the month of June is the coldest. It has two seasons in a year, the rainy and dry seasons. Iringa has an annual rainfall of 1000 - 2000 mm a year. The rainfall is reliable. The amount of rain to expect in a year and the time when to expect it is very reliable. Refer to the climograph.

Climatic conditions must have influence on the design and construction methods of the houses in any area. The influence of climate on design of the house include "shape and relation of rooms, size and positioning of openings, suitability of walls and roof structure as climatic barriers and their durability under the attack of climatic influence." (7)

The relatively cold conditions in Iringa calls for construction methods which allow heat insulation. The traditional "tembe" house of the Hehe a tribe of Iringa Region is constructed with very small windows.

/....18

This is in attempt to keep their houses warm. It gives evidence of climate related design.

In the urban area the traditional design and construction patterns are entirely abandoned. This create the danger that climate-related traditional construction methods and materials are abandoned without taking into account the climatic requirements.

Climate has also great influence on the availability of building materials. For example the very wet Dabaga and Mufindi areas produce a lot of timber which is used for roof construction in the whole region including the town of Iringa. The relatively dry areas of Nzilu and Pawaga have tall grass which is very good for house thatching.

2:5. Evolution of the Town and the Urban Structure:

Historically Iringa town was strategically sited by the Germans on a scarp top far from the Hehe tribal fortress of Kalenga. It might suffice here to give a brief historical summary on the Hehe-German war which later lead to the establishment of the Iringa Town.

John Iliffe narrates that here Germans had been bravely resisted by the Hehe under their warrior Chief Mkwawa. The Hehe state had been formed in response to military revolution brought to this area in the 1840's by Ngoni people moving northwards from South Africa, bringing with them the regimental system and the stabbing spear which had made them the most feared people.

The Hehe fought a five year war with the Ngoni, 1978-1882 which ended in confining the Ngoni to an area east of Lake Nyasa and secure Hehe dominance. In 1891 the Hehe crashed with the Germans which resulted in the taking of the Hehe capital at Kalenga in 1894 and a replacement of the Hehe military organization by the authority of the garrison commander in Iringa. Iringa town continued to be an administrative town even during the English rule and later after independence (ii)

In the late 1950's, there was a maize boom in Isimani area which is about 30 miles north of Iringa Town. Many people made a lot of money from the boom. Most of them decided to invest some of their money in house building in Iringa town. This is the time when Kihesa, Mwangata and Ipogolo areas were extensively built. These areas by then were outside the township boundaries. As a result areas were not planned and so the buildings were haphazardly scattered in the areas. These are up to date uncontrolled residential areas although in township.

The town can be described as reasonably dispersed with a radius of three to four kilometers from the town centre. The most densely built up areas are in and immediately around the centre. The stony hillock ranges and the steep scarp to the south have for quite long acted as a sort of barriers or constraints to the expansion of the town.

It was in 1973 that the boundaries of the township were extended beyond the steep scarp. The stony hillock ranges have hindered the continuous development of the built up areas so that many of the built up areas in the town are located far apart from one another, separated by unsettled stony ranges.

This kind of dispersed development has very much affected the provision of community services and amenities. For example Mkwawa and kihesa are only less than one kilometers apart but lack road connection because of the presence of a stony range between them. For a resident of Mkwawa to reach Kihesa he has to go a longer way through the town centre.

The present pattern of growth is radial, spreading along the major roads. The major roads include two international highways namely the Tanzania-Zambia highway from Dar-es-Salaam through Iringa to Zambia and the Great North Road to Arusha.

There are also important regional roads which lead to productive hinterlands around the town. The roads are the Kalenga road to the west which goes to Nzili agricultural area producing maize and tobacco; the Pawaga road to the north-west leading to Pawaga and Kiwele areas growing maize and rice; and the Ihumbu-Dabaga road which goes to the wetter eastern lands of Dabaga where people grow tea, coffee, vegetables, fruits, pyrethrum and keep dairy cattle.

There has been no master plan for the town except a planning scheme. The existing planning scheme was prepared in 1964. The scheme attempted to consolidate the structure of the town by infilling the vacant areas between the major roads particularly the north western sector where the National Housing Corporation undertook massive residential development. This is the time when Mwembetogwa, Ilala and Mlandege areas were extensively built.

Later building development occurred after the extension of the township boundary in 1973. It became necessary to extend the township bounderies when the local council, Iringa Town Council was abolished and the town raised to the status of sub-urban district. As a result of the extension of the township boundaries the unplanned areas of Kihesa Mkwawa, Mwangata and Ipogolo were included in together with extensive rural fringes of Mtwivila and Itamba.

The Completion of the Tanzania-Zambia Highway had also an impact on the development of new residential area on the southern bank of River Ruaha beyond the flood plain. This is a very recent development which has resulted from the industrial activities such as the Tanzania-Zambia Road Service Company's depot and garages which are located here.

The sub-urban District Authority now intends to extend the township bounderies to include all areas within the radius of 10 miles from the present town centre.

2:6 Land Use:

2:6.1 Residential Areas:

The residential areas in Iringa town are classified into three categories, namely low, high density areas and the unplanned squatter areas.

The low density areas consist of sub-urban type Government quarters developed during the colonial days. They consist of an arc running from north-east to east. This area is known as Gangilonga. It was

/21....

formerly resided by Asians and Europeans. This is the zone of better homes. Today the area is resided by high goverment officials, officials in the parastatal corporations and institutions and some well-to-do individual businessmen. The density of houses in this area is about two units per hectare. The low density areas consists of about 10 per cent of the total residential area in the town. The estimated density of people is up to 10 persons per hectare gross.

The larger part of the planned residential areas is of high density development. This makes up 60 per cent of the total residentail area in the town. The estimated density of people is above 100 persons per hectar gross. They have an average plot size of 937 sq. meters or 10,000 sq.ft. and are mainly single storey houses.

The development of the high density residential areas or the zone of low income workers homes as has already been indicated follow major arterial roads. These routes determine positions of areas with greater accessibility with the town. However the locations of these routes are greatly influenced by relief. The roads have tended to avoid the rock outcrops and ranges.

The building of houses here started immediately on the road flanks and quickly expanded outwards until the hillock ranges were reached. Because of increased population some of the steep slopes of these ranges are being used for building houses. However the building expenses here are high.

The residential areas close to the town centre include areas of Miyomboni, Kitanzini, Mshindo and Mji-mwema along the Kalenga Road. Along the Pawaga Road the areas close to the town centre are Makorongoni and Mwembetogwa. Planned development along the Dodoma Road is taking place now immediately after the low density areas. Formerly this area was left vacant.

Further away from the city centre there are planned development including Mlandege residential area which has developed on a ridge along the Kalenga Road. Along the Pawaga Road there is the Ilala residential area.

There are four main squatters areas within the township boundaries. These make up about 30 per cent of the total residentail area. In these unplanned built up areas the houses are very close together with generally poor drainage of surface water. The surface water is left to run off in natural courses. The squatter areas are Kihesa along the Dodoma Road; Mkwawa along the Pawaga Road; Mwangata along the Kalenga Road and Ipogolo or Ruaha along the Tanzania-Zambia Highway.

/22.....

2:6.2 Commercial Area:

The commercial area is located on the crest of the escarpment. The crest is relatively flat and so has afforded space for building high valued commercial cum residential houses. The houses here are of mult-storey buildings in which the top storeys are used for residence.

This is the hub of the town containing the main commercial administrative and entertainment buildings. The central business district is located on the Jamat Street. Further north-east are located the public institutions and offices including the post office; the regional hospital, prison, market and the library. The regional administration offices are located to the north of the CDB.

2:6.3 Industrial Areas:

The industrial areas have tended to be close to the residential areas. Immediately near the commercial area there are light industries including Tanzania Diamond Cutting Company; book binding and small sundry activities such as shoe making, tailoring and furniture making.

Away from the town centre, along all the major roads there are construction, processing and repair industries. Along the Iringa-Dodoma Road there are several medium sized garages, the railway bus depot and garages and the National Milling Corporation.

Along the Kalenga Road there are small scattered service industrial premises most of them include mechanical repair industries. There are also the Tanzania wood Company factory and several godowns for parastal institutions like the Regional Trading Company, the National Haulage Company and the Regional Cooperative Union as well as for individual businessmen. The godowns are used for storing industrial and commercial goods.

The industries found along the Tanzania-Zambia Highway include the Tanzania-Zambia Road service depot and garages; the Vaculug Company which retrades old tyres and other processing factories. The processing factories include the Coca-cola Bottling Factory, the Southern Highland Tobacco Union and the cold food storage plant.

2:6.4 The Transportational land use:

The land for transportation include the streets partking spaces and bus terminus. The town has one central bus station in the town centre. The bus stand serves for all incoming and outgoing buses, lorries and taxis. There are also several parking places for the town bus services in the town and residential areas.

/23.....

The service roads take off from the major distributors and are of varying standards and qualities. Most of the roads near the town centre and in the low density residential areas are tarmaced roads and reasonably maintained but the rest of the service roads particularly those in the high density areas are of rather poor quality but are being gradually up-graded to gravel standards.

2:6.5 Land for Public Purposes:

These public uses include land for recreation, worship and cemetary, educational and health purposes. In Iringa Town there are two public stadia for sports and games, public rallies and national festivals. On top of these two grounds every school has spaces for sports and games. Near the low density residential area there are sports ground for golf, tenis and football.

Worship uses include areas with churches and mosques. There are seven churches and six mosques. The burial grounds are three. The cemetery in the centre of the town and that of Mlandege residential area are not used for burial nowadays. It is only the Mkwawa cemetery which is in use today.

Iringa has five nursery schools, 18 primary schools four secondary schools, one teacher training college, one agricultural training school, one medical school and a library. All these institutions occupy a large part of land.

2:6.6 The Available vacant land for Future Expansion of the Town:

The foregoing appraisal identifying the major constraints to future growth of the town, namely the steep slopes and rock outcrops indicates that the probable direction of growth would be between the Kalenga and Great North Roads. This corridor running north and north-west consist of vast open land sloping gently to the Kiwele mountains which form the northern natural constraint.

There is sufficient amount of suitable vacant land within this corridor to meet and land requirement. It is also likely that part of the Mkwawa Secondary School land will have to be accepted for urban development. This is a useful land because of its proximity to the present centre of the town and the easiness of providing infra structural services.

Some redevelopment and redistribution of land use will also be considered within the existing urban structure including the utilization of the various patches of underdeveloped and under-utilized land.

/24.....

2:6.7 Land Tenure

Land tenure in Iringa Town like in the rest of the country is in accordance with the Freehold Titles and Government Leases Act of 1963 which abolished freehold tenure replacing them with rights of occupancies for specific periods of time.

There are two types of leases namely, short term leases for periods of less than five years and long term leases for periods of up to 99 years. Most rights of occupancies in the high density areas are on short term leases. Virtually all the land in the low density area is Government ownership including large parts of the commercial area where most Government offices are located. The squatters located in the four main areas in town have no legal tenure.

CHAPTER III

3: THE SOCIO-ECONOMIC BASE

3.1 Regional Population Projection

Based on the proposed growth rate by the Bureau of Resource Assessment and Land use Planning (BRALUP) of the University of Dar-es-Salaam, Research Note 19 of 1972 which is a demographic analysis of the 1967 census and extending its projection up to 1980 we get estimates for growth of population in Iringa Region as shown in the table 3.1 below:

Table 3.1

Projections of population in Iringa Region

	Population in 000						Annual growth rates 1948 - 1980					
District	1948	1951	1967	1970	1975	1980	1948-57	1957-67	1948-67	1967-70	1970-75	1975-8
Iringa (Urban included)	126	171	231	278	333	402	3.4	3.1	3.2	2.0		
Mufindi	50	68	118	134	168	211	3.4	5.7	4.6	1.4		
Njombe (Ludewa included)	207	241	319	340	385	443	1.7	2.9	2.3	3.2		
Region	383	481	669	752	886	1086	2.6	3.5	3.1	4.1	3.3	3.6

Expalanatory Note:-

The figures on the recorded population are compiled from "Recorded Population changes 1948 - 67", Tanzania Bureau of statistics, 1968 and "Census Volumel, Statistics for Enumeration Areas", Bureau of statistics, 1968.

The main problem was the adjustment required for boundary changes between 1948 and 1967 and the division of Iringa and Njombe districts in 1973 into urban and rural, Njombe and Ludewa districts, respectively. These changes are important administrative change. Census data is also based on administrative boundaries. But due to lack of data it has been difficult to show the population projections based on the new districts. It is hoped that this will not adversely affct the details of the study.

From the details of these projections, it becomes clear that the population of the region is increasing sufficiently. The annual growth rates for 1967 - 7o; 1970 - 1975 and 1975 - 1980 which are 4.1, 3.3 and 4.4 per cent respectively are greater than the national average growth rate of 3.1 per cent and the national rural growth rate of 3.0 per cent.

The implied annual growth rate percentage for Iringa region are even higher than those of the other five regions namely Singida, Dodoma, Morogoro, Ruvuma and Mbeya which are bordering it. The situation in Dodoma will be different due to greater population drift to urban Dodoma

as the decision of capital shifting from Dar-es-Salaam to Dodoma is getting implemented. However, the projected population and annual growth rates by BRALUP are put in table 3.2 below for comparison.

Table 3.2: Projections of selected regional population up to 1980

Region	Projected Population (000)			Implied Annual growth percentage	
	1970	1975	1980	1970-1975	1975-1980
Iringa	752	886	1086	3.3	3.6
Singida	475	513	560	1.5	1.8
Dodoma	755	853	976	2.5	2.8
Morogoro	723	804	907	2.2	2.4
Ruvuma	424	491	575	3.0	3.2
Mbeya	1048	1281	1433	3.1	3.3

Source: B. Egero and Henin, Bureau of Resource Assessment and Land use Planning, University of Dar-es-Salaam Paper No.19, October, 1972.

It can be assumed that the relative high population increase will mainly be contributed by the natural increase which is changes in numbers of people brought about by the difference between the birth rate and the death rate and to a relatively smaller extend by migration of people. This is assumed so because Iringa region cannot be regarded as one of the most attractive in terms of industrial expansion or agricultural potentialities. Iringa region situated on the Southern Highlands has a big agricultural potentialities. For quite long Iringa region had white settler farmers concentrated in wetter eastern lands of Dabaga, growing tea, coffee, fruits and vegetables pyrethrum and dairying; Mufindi growing coffee and later tea; in the belt south of Kalenga in the high plateau of Sao Hill growing tobacco, barley, wheat, maize and Livestocking and in Idodi, Mloa and Nduli growing tobacco. Very few white farmers are still living in the region. A lot of this cash cropping is now being carried on by indigenous farmers mainly on the basis of Ujamaa. In the post independence period cash cropping by the indegenous farmer have also been expanded. They include the tea farming in Lupembe area in Njombe and wheat and pyrethrum growing in Ukinga and Upangwa Plateaux in Njombe district. In Njombe there is also a wattle and hybrid seed growing in the Kibena scheme. The point to be stressed here is that these agricultural potentialities have not attracted people from outside the region rather it has employed the people from different parts from within the region.

Iringa Region on the other hand has very high fertility rate. "Census evidence suggest that the Hehe (the main tribe of Iringa) have a high fertility rate." (12). The total fertility rate is defined as the

/27.....

average number of children born alive to a woman who lives to the end of her reproductive life, here in Tanzania the age of 50 years. For illustration and comparison recorded mortality estimates for Iringa Region and its neighbouring regions are given below:

Table 3.3 Mortality Estimates for selected Regions:

Region	Crude Death Rate	Live Expectancy at Birth (years)	Infant Mortality per 1000 born	Surviving age c 5 per 1000 born
Iringa	25.8	38	170	714
Singida	27.4	36	186	688
Dodoma	22.9	41	155	739
Morogoro	24.9	38	170	714
Ruvuma	27.6	36	186	688
Mbeya	30.7	34	203	660

Source: B. Egero and Henin, Bureau of Resource Assessment and Land use Planning, University of Dar-es-Salaam Paper No. 19, October 1972.

The relatively high population increase in the Iringa Region due to declining mortality which is often associated with economic and social development and a high fertility rate also caused by the same reasons above must have an effect on the growth of the towns in the region, the district headquarters in general and Iringa Town in particular which is the Regional headquarters.

The population of the towns will grow as that of the regional hinterland also increases. The people from the rural hinterland will drift to the towns. The causes of these rural-urban exodus are numerous, ranging from economic to social ones. Most people migrate to towns to seek for economic opportunities such as jobs. Others may be attracted by the relatively good life in the urban areas. The result of these migrations is to increase the urban population.

Iti will suffice here to mention the impact of other population concentrations such as in the two important Tea Estates of Mufindi and Lupembe; and the Tanzania-Zambia Railways and Highway on diverging population drift to towns. People come to the Tea Estates to seek for jobs of plucking tea-leaves for the tea factories. More recently there has been a drift of people to places along the railway and highway to Zambia. Relatively large rural settlements have Mushroomed here.

3:2 The Urban Population within Iringa sub-District

In 1967 the population of Iringa Town was put at 21,746 with an annual growth rate of 8.5 between the years 1957 and 1967. Assuming that this annual growth rate of 8.5 was maintained even in the years after 1967 the projected population for the urban area up to 1973 was 35,477.

/28...

Table 3.4 Projected Population of Iringa Town up to 1973

STATED POPULATION		PROJECTED POPULATION					
1957	1967	1968	1969	1970	1971	1972	1973
9,587	21,746	23,594	25,599	27,775	30,136	32,698	35,477

In 1973 the boundaries of the town changed to incorporate the former squatters around the township boundaries. This incorporation of unplanned areas had an effect of increasing the population of Iringa Town.

However, out of the finve unplanned areas namely, Mkwawa, Kihesa, Mwangata and Ipogolo, it was only Ipogolo which was not included in the 1967 population census for the township. The unplanned areas of Mkwawa, Kihesa and Mwangata were included in the 9th, 8th and 9th enumeration wards respectively. So the extension of the boudaries of the township was affected only by an increas in population from that of Ipogolo.

An investigation on the 1974 population of Ipogolo unplanned area was carried out by the Assistant District Development Director's Office of Lands (13). The investigation was carried out in the period of July and August. The study revealed that the average house hold per house unit in the unplanned area was 1.65 and that there were an average of 6.07 persons per house hold. The number of persons per house unit was taken to be 10. Ipogolo was found to have 341 houses. From simple calculations, the population figure of Ipogolo was estimated at 3410.

Therefore the 1973 population projected figure from the 1967 census figure added to the Ipogolo calculated population comes to a total of 38,887 people for the whole township in the year. Assuming an annual growth rate of 8.5 for the township, the projected population up to 1980 will be as shown in table 3.5 below.

Table 3.5 Population Projections for Iringa Town from 1973-1980

1973	1974	1975	1976	1977	
38887	42192	45,778	49669	53891	ɔ8472

The population projection is hwon on the accompanying graph. Based on the 8.5 per cent annual growth rate which is higher than the average national urban growth rate of 6 per cent (3 per cent natural growth increase and net migration 3 per cent) the present population is estimated well above 49,000. The projected population by 1980 is 68,835.

Population charges can be fairly accurately predicted in short term. Longterm projections are inevitably subject to considerable variations depending on the accuracy of the natural increase and migration assumptions that are incorporated. It is essential that projections are regularly revised and that a range of assumptions should be adopted for longer term planning purposes.

/29.....

Isimani will be used here to illustrate the drift of farm labourers from rural areas. Isimani is an area along the Iringa Dodoma Great North Road. It had developed into a large maize commercial farmland. The farming area of 225 sq. miles was occupied by about 30,000 commercial maize farmers. For quite long Isimani area was referred to as the maize granary of Tanzania (15).

Immigration to the Isimani area started in the late 1940's and the Miombo forest which formed the vegetation of the area was rapidly cleared out and the land turned into maize farmland. The maize production from the virgin land was very good, about 30 bags per acre, in the 1950's. The national average is 5 bags per acre. With unimproved monocropping methods of cultivation yield, began to decline. Yields still stand at 10 bags per acre. The land tenure in the area was fendalistic with few individuals owning large stretches of land and employing hordes of labourers.

Finally the changes advocated by the government policy which established commercial Ujamaa Vilages (1967) dramatically altered the settlement pattern and land tenure there. Most of the owners of the farms and labourers who could not accommodate the idea of Ujamaa living fled the area into Iringa. Research is required to establish the rate of the exodus. As stated earlier (refer para 2.5) many of these people had built themselves town houses in Iringa. Nevertheless, there were those few who had no houses in town and so had to establish their lives in the town anew.

The very high population increases within the unplanned areas of Iringa Town from 1967 - 1974 indicate the intensity of the rural-urban drift. Often the new immigrant move to the unplanned areas when he comes to town. The unplanned areas offer the new town-dwellers an opportunity to consolidate their status: although earning a regular income one may still be unable to afford an officially approved house. So the main cause of uncontrolled urban settlement are the rural-urban migration, population growth, urban unemployment and the accute shortage of housing.

From a study conducted by the Assistant District Development Director's office of Lands it is shown that the population of Ipogolo unplanned area shot from 710 people in 1965 to 3410 people in 1974 making a very high annual population increase rate of 19 per cent. It can be said with certainty that much of this high growth rate must have been contributed by immigrants from rural areas rather than natural growth rate.

Michael Safier substantiates the above arguments and states that:-(16)

A general increasing pressure of population of working age on the land combined with technical and marketing limitations on the expansion of agrarian production and productivity leads a growing number to seek alternative opportunities in town. It may still be marginally better

/31...

to be poor in the city rather than being poor in the countryside. There are more accessible amenities, some form of community support and an increased freedom from traditional mores.....There are thus emerging in the peripheral areas of major cities large fringe population which are faced with the immediate prospect of a new kind of quasi subsistance form of life, a state of chronic under and unemployment."

The problem of rapid growth of urban centres is inevitable and cannot realistically be tackled on a basis of probibitive policies on migrations. The urban problem has to be faced and brought under control in line with other related economic and social changes.

The population increases bring about problems of providing housing, community services and facilities for a large population. The township authorities have responded to this increase in population by extending the boundary of the township beyond the scraps and rock-outcrops to encorporate the unplanned areas and other rural fringes. In so doing problems of remoteness come. It becomes difficult ot provide such services and facilities such as lights, water and streets to these remote areas. So extending the township boundary although tries to solve the problem of increasing population density and concentration of the already settled areas by providing vacant land for new development bring other problems of size or spread and remoteness.

3.3 Population size and structure:

From the household survey sample it was found that about 46.5 percent of the adults are women. This proportion is almost the same as the 1967 census figure of 45.6 per cent.

From the survey sample it was found that the number of children below 15 years of age constituted 32 per cent of the total population. In the 1967 census the total number of children below 15 years of age was 43.6 per cent. Like the 1967 census figures the survey sample showed a higher proportion of young children in the age of 0-4 years. In the simple survey this age group constituted 14.8 per cent of the total population and 46.5 per cent of the total number of children. In the 1967 census the number of children in the 0 - 4 years age group was 17.97 percent of the total population and 41.2 per cent of the total number of children.

Both the survey sample and the 1967 census showed the highest proportions of young adult between the ages 15 - 45 the number of people in this age group constituted 48.8 per cent and 49.15 per cent for the survey sample and the 1967 census respectively. The elderly adults made up the lowest proportions, only 19.0 and 7.2 percent for the survey sample and the 1967 census respectively.

/32.....

Table 3.6 below showing the age structure of the population for the 1967 census and the survey sample for easy comparison.

Table 3.6 Age Structure of the Population 1967 and 1975

AGE GROUP	1967				1975			
	S E X		TOTAL	%	S E X		TOTAL	%
	MALE	FEMALE			MALE	FEMALE		
0 - 4	1882	1956	3838	17.9	92	99	191	14.8
5 - 9	1463	1616	3079	14.4	52	43	95	7.5
10 - 14	1182	1216	2398	11.2	57	68	125	9.7
15 - 19	1244	1313	2557	11.9	51	56	107	8.3
20 - 24	1144	1167	2311	10.8	53	72	125	9.7
25 - 29	1304	1169	2473	11.5	75	57	129	10.1
30 - 34	842	626	1468	6.8	59	42	101	7.9
35 - 39	653	424	1077	5.0	54	32	86	6.7
40 - 44	346	267	613	2.9	44	35	79	6.1
45 - 49	346	220	566	2.7	43	33	79	6.1
50 - 54	178	155	333	1.6	30	23	53	4.1
55 - 59	100	86	186	0.9	28	21	49	3.8
60 - 64	79	77	156	0.7	17	18	35	2.7
65 OVER	95	205	300	1.4	11	19	30	2.3
TOTAL	10858	10497	21355	100	663	621	1284	100

Source: The 1967 figures come from the Population Census Volume 2, statistics for Urban Areas Bureau of statistics, 1968; Dar-es-Salaam.

The shape of the age distribution has important implications on the people's patterns of consumption, production, employment and unemployment, education and health. The age-sex composition indicates the future requirements of the people in the town in relation to the different age groups.

The high proportion of children in the population, constitutes a section of the people who are potential school goers. This calls for planning of schools and child-care centres and clinics. A relatively high proportion of young adults indicates a high potential labour force group, implying a need for employment opportunities.

Among the heads of the house hold, 217 or 74.5 per cent were males and 38 or 25.5 per cent were females. 168 or 77.5 per cent of the male heads were between the age of 15 - 45 years and 31 or 22.5 per cent were above 45 years old.

/33....

Source: Economic Survey 1970/71, Government Printers Dar-es-Salaam, 1971.

Over the course of years there has been a significant in-put by the government to restructure and thus gain some control over the construction industry. However, this effort while giving major success has to some extend, in the short run been neutralized by the credit squeeze due to our current financial constraints, socialization measures including the Acquisition of Buildings Act and foreign exchange control regulations.

The cumulative effects of these factors have been some depletion of capacity in the industry which in turn has resulted in cost escalations. The objectives for the construction sector as summarized in the Economic Survey 1970/71 are:-

- to expand through the development of its parastatals public sector capacity and participation in the industry.
- to reduce the outflow of foreign exchange in the sector by substituting locally available materials by developing local building construction manpower in substitution for expatriates and reducing the number of contracts given to foreign construction companies.
- to stabilize the price flactuations on construction projects and thereby reduce construction costs: first by making the industry more efficient, second through careful planning of the flow of construction projects in order to prevent situations whereby projects are bounded into peak periods and finally by reducing the number of non-essential and prestige type construction projects. (17)

In order to pursue these objectives more effectively the government has made several structural changes.

- two government parastatals Mecco and NEDCO have been shifted from Ardhi to works. In so doing the government has charged works with responsibility for public sector construction. NHC remains the responsibility of Ardhi. NEDCO is now a design parastal whose major responsibility is to produce standardized design for building and civil engineering structures.

The table 3.8 below shows the public and private capital expenditure on building from 1968 - 1971

/....35

Table 3.8 Capital Expenditure on Buildings

Type	Shs. Million			
	1968	1969	1970	1971
Residential: for: Central Government	4.6	7.4	11.8	8.3
Local government	7.8	5.2	11.4	18.6
Parastals	12.6	18.1	32.0	58.0
E.A. Corporations	7.2	3.2	1.6	7.8
N.H.C.: Tenant Purchase and slum clearance	17.5	7.7	0.2	-
Sub-total Public	49.7	41.6	57.0	92.7
Missions	6.4	14.1	6.5	7.2
Private	27.0	33.0	50.9	26.3
Sub-total - Private	33.4	47.1	57.4	33.5
Total Monetary	83.1	88.7	114.4	136.2

Source: Economic Survey 1970/71, Government Printers Dar-es-Salaam, 1971.

The figures in the table 3.8 above show that the contribution to housing by the private sector is also very substantial. In 1971 the private housing declined. This was the effect of Acquisition of Buildings Act which was passed in the same year.

Public expenditure in Iringa Town in 1971/72 was very little indeed. It totalled a mere 6381 shillings. This was used for sub-division layouts for various urban locations (18) The Government priority will continue to be on rural water supply, education, health and productive sectors of public investment.

This calls for an encouragement of the public sector to provide for the urban as well as the rural housing. The greatest effort in the urban housing by the government should be in the provision of services for the greatest number of people.

The NHC programme accounts for about 46.9 per cent of the public annual housing construction in the country. The balance is being built independently by various ministries and parastatals. Through the N.H.C. construction costs for low cost dwelling average four times the cost for traditional housing, it remains the most efficient and lowest cost formal builder of housing in the country.

/36.....

Despite NHC's ability to produce low cost housing, the economic rental level for the majority of their units remains substantially more than most urban workers can afford to pay. For example it is estimated at national level that 50 per cent of urban workers can afford to pay shs.30/= or less for rent yet NHC's lowest rents on new units are shs.40/= per month. "Moreover few of the shs.40 units are built as they are small and generally unacceptable to the people who can obtain more space for less rent in traditional houses". (19)

Table 3.9 NHC Expenditure and Output 1971/72

Source	Expenditure million shs.	Output in Units.	Average cost per Unit in shs.
Treasury	10.2	1,154	8,800
P.H.F.C.	16.0	481	36,800
T.P.D.F.	4.8	407	11,800
Rental and other Income	12.0	11 plus Debt, servicing.	27,210
	43.0	2,053	21,000

Explanatory Note:

P.H.F.C. - Permanent Housing Finance Company. This was an Institution which gave out housing loans before the establishment of the Tanzania Housing Bank.

T.P.D.F. - Tanzania Peoples Defence Forces.

Source: Economic Survey 1971/72, Government Printers Dar-es-Salaam, 1972.

The major role of the NHC is to construct low cost houses in urban areas. The main sources of funds is the treasury and the Tanzania Housing Bank. Over the year, the government development funds for National Housing Corporation as shown below have been meagre:-

Table 3.10 NHC Funds from the Treasury 1969 - 72

1969 - 70	-	shs.16 million
1970 - 71	-	shs.20.4 million
1971 - 72	-	shs.10.2 million

source: Economic Committee of the cabinet paper No. 81.

While the NHC is mainly charged with the construction of low cost houses, the Registrar of Buildings concentrates on constructing medium and mainly high cost housing. With the acqusition of buildings, private individuals are becoming more and more obviously reluctant to invest in building. The responsibility of building in township central areas, that is the shopping and office blocks fall on the Registrar of Buildings. Immediately after its formation the RB plunged itself into the work of completing buildings left over at the time of nationalization

/37....

of buildings. The source of funds for RB is both the treasury and the Tanzania Housing Bank.

The Tanzania Housing Bank has been established by an Act of Parliament and commenced its activities on 1st January, 1973 when it took over the assets and liabilities of the Permanent Housing Finance Company of Tanzania. The Bank is a Government owned finance institution with an authorized capital formation of shillings 100 million.

The bank accepts deposits from public and gives loans for every type of building activity in urban and rural areas. Loans offered by the bank are for purchase of building materials, improving the standard of existing houses, construction of houses and also construction of commercial buildings like office blocks godowns and industrial estates. It also finances projects for commercial production of local building materials such as burnt bricks, tiles etc.

The source of Funds for the bank include:

(a) share capital
(b) Public deposits
(c) Borrowed funds from internal and external sources
(d) Special funds created by the government like the workers and farmers Housing Development Fund and
(e) The bank's own General Reserve Fund.

Types of Loans:

(a) Soft loans at lower rates of interest for purchase of building materials, improving existing sub-standard houses and construction of low-cost houses.
(b) Loans for other housing
(c) Loans for construction of commercial buildings and production of building materials on commercial basis.

Classes of Borrowers:

(a) Ujamaa villages
(b) Housing Cooperative societies
(c) National Housing Corporation, Registrar of Buildings and all government institutions which develop housing estates for letting to the public.
(d) Parastatal and private institutions which develop housing estates for occupation by their employees and construct commercial and industrial buildings for use.
(e) Commercial institutions engaged in production of building
(f) Employers for short term re-lending to their employees
(g) Individuals.

/38.....

Table 3.11 Rates of Interest and Repayment:

Loan (Shs)	Interest Rate %	Repayment 15 Years		Repayment 20 Years	
		Monthly Shs	Annualy shs	Monthly shs	Annually shs
10,000	5	80/30	963/60	66/90	802/80
15,000	5	120/45	1445/40	100/35	1204/20
20,000	5	160/45	1926/20	133/80	1605/60
25,000	5	200/75	2409/00	167/25	2007/00
30,000	6	257/45	3089/40	218/00	2616/=
35,000	6	300/35	3604/20	254/30	3051/60

Explanatory Note:

(a) For soft housing loans from the special workers and Farmers Housing Development Fund:
   (i) 1,000 - 25,000 shs - 5 per cent is charged
   (ii) 25,000 - 35,000 shs - 6 per cent is charged

(b) For soft housing loans from the Bank's General Fund:-
   1000 - 35,000 shs - 6 per cent is charged

(c) For other housing loans from the Bank's General Funds
   (i) 35001 - 60,000 shs 8½ per cent is charged
   (ii) 60001 - 80,000 shs 10 per cent is charged

Source: Unpublished paper on Tanzania Housing Bank, Leading Policy and Procedure for Housing Loans Dar-es-Salaam, 1975.

Assessment of Repayment Ability

The ability for repayment has to be carefully assessed with a view to not only protecting the interest of the Bank as a lender but also preventing the borrower from being led by sheer enthusiasm to committing himself to monthly payment which are larger than what he can comfortably afford.

When assessing the repayment ability, the bank takes into consideration both the income and the age of the borrower because the Bank's loans are long term. The loans should fulfil the purpose of enabling the borrower to acquire the use of a house. The purpose is defeated if the borrower loses possession or ownership of the house because he fails to maintain the repayment or he sells the house as the repayment proves beyond his financial capacity.

The Bank as a financier plans its administrative capacity and costs and accordingly fixes its rates of interest on the loans on the hopeful calculation that the loan accounts will be conducted by the borrowers

/39.....

satisfactorily from inception upto the end of repayment period. The calculation based on this optimism will hold good so long as loans are issued carefully and the extend of loans in respect of each proposal is determined according to careful assessment of the individual ability to repay the loan.

It is possible for the majority of the workers who receive a monthly income of shs.500.00 and below to seek for a loan of only up to shs.10,000.00 which requires a monthly repayment of shs.80.30 or 66.90 for 15 and 20 years period respectively. The shs.80.00 repayment is already above the ability to afford by even those who receive shs.500.00 a month, if 15 per cent of the monthly income is taken to be the amount an individual can pay for housing.

Bienefeld observing the history of financial institutions in Tanzania the following interesting comments to make:

> "In Tanzania the growth of financial institutions to provide funds for residential construction has been slow. This development was primarily due to persistent shortage of effective demand for housing finance on an economic basis. This absence of demand naturally reflected primarily the low average per capita income but in the past this problem was made more accute by the colonial government's policy of providing free housing to senior civil servants who were all expatriates."(20)

This meant that the bulk of the potential effective demand for housing finance was eliminated. With this policy scarce government resources were allocated to housing middle and high income groups instead of trying to elliminate the worsening urban housing shortage for the majority of the low income people.

> "Only after independence did the government become fully aware that it is this marginal housing demand which is of vital importance and for which a massive and easily accessible source of funds must be made available ....The fund was very heavily used in the early years up to 1966 but after the Arusha Declaration early the following year there was marked drop in the number of loans taken up." (21)

It is true that after Arusha Declaration people became reluctant to build new houses and hence risk to take up housing loans for fear that their houses might be nationalized. Later on the Acquisition of Building Act of 1971 had the same effects. Moreover the Arusha Declaration disaccorded both party and government leaders to build rental houses. And by

/40.....

definition a leader meant a man and his wife or a wife and her husband receiving a salary of shs.1100.00 a month. These were therefore the people with the potential effective demand for housing finance.

The leaders could take loans to build themselves houses for their own occupation. Work transfers made owner occupation of a house impossible. There is a provision that an officer on transfer can give out his house to a housing institution like NHC or RB who rents it to another officer and the owner gets another house to stay in at his new station without paying rent. However, the Report of the Controller and Auditor General, 1965 - 66 para 163 and 1966 - 1967 para 182 indicate that after Arusha Declaration there was a drop in people taking up loans for housing.

3:4.2 Financial Resources of the house holds in Iringa Town:

The financial resources of the house holds mainly concern the aspects of employment and earnings of the members of the house holds in the town. Emphasis is put on the numbers of those employed and unemployed, their (monthly) incomes and distribution of the sources of income and finally their expenditure patterns.

For this study a comparison between the census details of the financial situation of the house holds with those from the sample survey will be made. The financial resource analysis help in assessing the ability of the various house hold, to pay for housing.

According to the census of 1967 there were about 5119 households in Iringa Town. Compared with the total employment number of the same year of 5690 people employed we get an employment-household ratio as good as about one employee per one household.

However, it can be assumed that this ration might have been higher had the small scale private employment been considered in the types of employment. Very often such private employment is hidden to government data collections. The people with small private employment are regarded as unemployed. In towns many people are self-employed as petty traders, porters and hawkers. Although it is often difficult to ascertain the quality of such jobs the contribution of these people to the overall economy of an urban area should not be ignored.

A detailed scrutiny of the census figure gives rise to observations that 1562 or 24.3 per cent of the male population aged 15 years or more were classified as "not economically active." These include the unemployed, students and others, not working persons. Out of the 6385 males aged 15 years and more, 460 or 7.2 per cent of the total male labour force were unemployed.

/41.....

About 4659 or 83 per cent of the female population of the age of 15 years and more were "not economically active" and only 52 or less than 1 per cent were unemployed. The rest were either home makers, students or others not working.

Altogether the number of unemployed people of the age of 15 years or more was 4.3 per cent of the total labour force. The table 3.12 shows the economically active population during 1967 census.

Table 3.12 Economically Active Population, 15 years or more by sex and Economic Activity

SEX	TOTAL	EMPLOYED	UNEMPLOYED	HOME MAKERS	STUDENT	OTHERS NOT WORKING	STATED	NOT STATE
MALE	6414	4772	460	32	614	456	6385	29
FEMALE	5713	918	52	3453	344	810	5648	65
TOTAL	12127	5690	513	3485	958	1266	12033	94

Source: Population census, volume 2, statistics for Urban Areas, Bureau of statistics Dar es Salaam, 1968.

3:4.3 Income by Household and by Source:

In determining the income of a household the total earnings of the members of each household were taken. Then three wage categories were considered for the analysis. The wage groups are those earning less than shs.500/=; a group earning between shs.501 - 1000/= and lastly those earning above shs.1000/=. For this study the people earning below shs.500/= were taken as low income group and those earning above shs.1000/= as high income group. The middle category of shs.501 - 1000/= can therefore be considered as the middle income group.

The income studies revealed the following

- More than half i.e 51 per cent or 208 households out of the total number of 305 households earned less than shs.500/=. These are the low income group.
- A very small fraction, less than 10 per cent i.e. 8 per cent or 23 households earned more than shs.1000/= per month and these are regarded to be in the high income bracket.
- There is also an indication that the large families tended to earn higher incomes than the smaller ones. This indicates that most households had more than one income although generally such incomes by individual members of the households were relatively very small

/42.....

Very few males, 10 per cent of the males aged 15 years or more claimed to be unemployed. As indicated above (refer to para 3.4) that it is difficult to differentiate between self-employment and unemployment. It may be that some of those who claimed to be unemployed had self-employment of some sort. On the other hand it is equally likely that some of those who said were self employed were so under-employed that really they should be classed as unemployed. The latter supposition may be particularly true in this study as during the period of survey, the Regional Commissioner had given orders to the effect of repatriating the vagrants and unemployed back to the rural areas. Fearing repatriation someone could just claim to be employed while actually not.

The 34 percent of females who claimed to be employed is a comparatively high figure comparing it with the 83 per cent of females who were recorded as not economically active in the 1967 census. However, notwithstanding the effects of the repatriation orders which could force one to claim that one is employed, the overall thinking of the role or women in society and the acceptance by the society that a woman could also get employed instead of mearely being a home maker has contributed to the high figure of employed females. However, a high proportion of the females were self employed in such activities like brewing and selling local liquor.

Studies on the distribution of the sources of income indicate that 44.8 percent of the males employed were working in the public sector, 37% in the private sector and only 18.2 percent said to be self employed. The private sector was not categorized into the details of formal and informal ones.

16.7 per cent of the employed females were engaged in the public sector, 35.3 per cent in the private sector and 48 per cent were self employed.

Other detailed observations on the employment of adults are that the 5-6 household size had more people working, both males and females. The number of those employed in all the employment categories, namely public, private and self employment both in the smaller 3-4 and 1-2 household sizes and the very big 7 and over house hold size got decreased.

Table 3.13 Monthly Income by house hold size

INCOME PER MONTH	HOUSE HOLDS				TOTAL	PERCENTAGE
	1-2	3-4	5-6	7+		
Below 500	44	59	82	18	208	51
501 - 1000	10	21	26	17	74	21
ABOVE 1000	2	6	16	5	23	8
TOTAL	56	86	144	40	305	100

/42.....

3:4.4 Expenditure Pattern

The expenditure pattern analyses the expenditures by households incurred on food, house rent, remittance, savings, recreation and others.

The gereral feature is the similarity of the expenditure pattern adopted by the various households. The maximum expenditure was on food, averaging about 55 per cent. This is in accordance with the high cost of living. Under the item of food were included other things like fuel and electricity.

House rent was the second expenditure item. Civil servants and workers in the parastatals residing in public housing pay a fixed percentage of their monthly income (refer to para 5:4.4) However, public houses in the town are not many and thus the majority of the urban residents rely on private housing. The sample survey reveal that the average house rent for the house holds was 10 percent. This is not a very high rent percentage. The budgetary experts accept 25 percent as the maximum house rent a person can afford to pay.

All households seem to remit a fair percentage to their families living in the rural areas. The average remittance was found to be 12 percent. However, it was also found out that the town people benefited from the rural relatives by obtaining some items like food.

The expenditure on recreation and others came up to 18 per cent. This includes expenditure on beer, clubs and dances, national self reliance contributions and customary rituals like death and marriage.

The general low wage income of the urban residents means that domestic savings by households cannot be high. Only 73 households or 21 percent of the total sample indicate that they had a monthly saving to meet unforeseen contingencies. The average saving percentage of the income did not exceed 10 percent. It is therefore clear that domestic saving cannot be relied for as a means of financing housing.

CHAPTER IV

4. THE HOUSING SITUATION

4.1. The Housing Needs in Iringa Town

Information about the housing situation in an urban area is a necessary prerequisite in formulating realistic policies on housing. The aspect of housing standards is one of the most significant component of a housing policy. It is necessary, for example, that before anyone suggests what type of housing standards should be applied in constructing housing structures and supplying urban infra-structure in a particular urban area one must fully be aware of both the present and future quantitative or numerical as well as the qualitative requirement of housing for that urban area.

The multiple problems of urban development are mostly caused by lack of enough housing to satisfy the needs of the urban dwellers. An important ingredient in effecting a successful attack on the urban development problems is to recognize the need for housing. Unfortunately statistical guidelines on the housing needs in Iringa Town have been lacking particularly so as the town has had no Master Plan in which such information could have been provided.

It is clear, therefore, that the Iringa Township Authority's policy on housing has frequently been based on incomplete information and inadequate assessment of need. They have definitely depended on the traditional methods of assessing need from waiting lists for public houses. Such a method by itself is not sufficient to provide efficient basis for policy formulation.

This section of the study attempts to assess the present needs of housing in Iringa Town and then make projections for future needs upto the year 1980. The assessment is expected to provide useful and better information on housing needs to the decision makers of the Iringa Township Authority. Firstly, the assessment will provide them with an idea, in quantitative terms, on the reality of the housing problem and thus enable them to give out realistic regulations and policies in general. Secondly, the assessment may provoke thoughts on how best they can meet the housing requirements.

There is a distinction between housing needs and housing demand. Both the terms connote housing requirement. Housing needs, however, are dictated by the basic human requirements for shelter and fall into the same category as the need for essential items like food. On the other hand, housing demands are dictated by economic factors and persons may have a need for housing but getting it is dictated by the general demand and the market situation. The housing need stresses the social aspects of housing while housing demand the economic ones.

4.2. Estimating Housing Needs for Iringa Town, 1976/80

The characteristics of the population are reflected in the characteristics of households and have very important implications for housing and related policies.

Table (4.1.) below shows potential house-hold projections for the Town of Iringa. The potential house-hold projections have been prepared based on the population projections shown in table above. The potential house-holds are calculated by dividing the projected population figure for each respective year by the average house-hold size figure.

The average house-hold size from the 1967 census was put at 4.4. This is higher than that for the sample survey. The sample survey house-hold size was calculated to be 4.21 (1284÷305).

The potential house-holds have been projected using both 4.4. and 4.2. average house-hold sizes for comparison and the results are shown below in table 4.1.

Table 4.1. Projected Households for Iringa Town 1976/80

YEAR		1976	1977	1978	1979	1980
POPULATION		49669	53891	58472	63442	68835
HOUSE-HOLDS	4.2	2086	2263	2456	2665	2891
	4.4	2185	2371	2573	2791	3029
INCREASED HOUSE-HOLDS	4.2	0	177	193	209	226
	4.4	0	186	202	218	238

The hous-hold size of the sample survey shows that there are more 3-4 and 5-6 persons house-holds than the 1-2 and 7 and over persons house-holds. The 3-4 and 5-6 persons house-holds make up 29 and 42 per cent of the total number of house-holds respectively. The 1-2 persons house-holds consists of 16 per cent while 7 and more persons house-holds make for 13 per cent.

Table 4.2. House-hold Size (source: Sample Survey)

No. of Persons	No. of House-holds	Percentage
1-2	49	16
3-4	89	29
5-6	129	42
7+	39	13
Total	305	100

The estimates of potential house-holds in each year of projection years give an idea on the number of dwellings that must be provided for in order to meet the needs of the expected future population. The assumption made here is that each house-hold needs to be provided with a shelter. Had it been possible to provide a house unit for each house-hold than the number of house-holds would represent the minimum number of house units to be provided in order to meet the needs.

The true situation here is that there are usually two or more house-holds living in a single house unit. The density of occupation needs to be calculated in order to establish the number of persons living in a single room. This is called the occupancy rate.

The occupancy rate is the average number of persons per habitable room. It is calculated by dividing the number of persons within an area by the number of rooms. Children under 1 year of age are ignored while those above 1 year but under 10 years are counted as 0.5 persons.

Detailed information on density is of vital importance for planning purposes for upon it are based most proposals for reducing congestion and providing an important means of influencing standards. In particular the occupancy

rate indicate over-crowding or under-utilization of space.

According to the sample survey, 305 house-holds were found to live in 183 rooms. In average, it means that there were 1.6 rooms per house-hold.

The average house-hold size has been calculated to be 4.2. Therefore, by dividing the number of rooms by the number of persons in the house-hold we get an occupancy rate of 0.4 rooms per person.

These figures demonstrate the seriousness of the housing situation in the town. There is a shortage of housing resulting in extensive over-crowding particularly in the high density areas.

One person per room is considered ideal while 2 persons per room is the acceptable minimum standard of room occupancy. To meet the acceptable standards each house-hold (with an average size of 4.2 persons) had to have two rooms. This is not even met. The 1967 figures show that 45 per cent of the house-holds lived in one-roomed dwelling, 26 per cent in two-roomed house, 15 per cent in 3 roomed dwelling and 14 per cent in four or more roomed dwelling.

Table 4.3 Occupancy Rate: Persons per Room

No. of Rooms occupied	No. of House-holds	Percentage
1	2177	45
2	1320	25
3	754	15
4+	737	14
Total	5083	100

Source:- Population census, Volume 2, Statistics for Urban Areas, Bureau of Statistics. Dar-es-Salaam, 1968.

The above figure of 0.4 room per person or 1 room per 2.5 persons show a situation of over crowdedness. 0.5 is a figure which exceeds the minimum standard of occupancy. This figure represents an addition of 25 per cent from the minimum figure of 2 persons per room. It can be assumed that 25 per cent of the house-holds need extra housing in 1976. This is about 521 house-holds.

The crude housing needs in 1976 can easily be calculated. A typical house in Iringa Town has six rooms. This can therefore, accommodate at least three house-holds. Therefore, the 521 house-holds require $\frac{521}{3}$ = 174 house units.

A study conducted by the ADD office of Lands (17) revealed the number of approved buildings, plots for the period from 1971 to 1974. This can help to establish the number in other years after that.

Table 4.4 Building Plots Approval 1971/74

Year	Building Plots Approvals	Monthly Average	Annual Increas Rate %
1971	105	11.7	
1972	157	13.1	12
1973	197	16.4	26
1974	190	17.3	5

Explanatory Note

The figures for 1971 were taken only from April to December. The figures for 1974 were taken only from January to November.

Source

Internal study (unpublished):- Provisional Draft of Revising estimated figure of population within Iringa Sub-district with regard to Universal Primary Education ADD, Iringa.

From table 4.4 it is seen that the number of plots given to people in town does not exceed 200 a year. If it is assumed that 10 per cent of the houses are completed in a year, then it is clear that less than 20 housing units enter the housing market a year.

Therefore, if the 20 new housing stock are taken as additional housing units in 1976 the housing shortage will fall to 154 units as shown in the calculations below:-

Housing needs in 1976	174
New Housing stock in 1976	-20
Additional Housing required in 1976	154

The age of the buildings is also an important variable to consider when determining the needs of housing. Soon or later the older houses will have to be replaced. This is necessary particularly when we consider the future needs of housing. It should be stated from the onset that the age of the housing units in the town is very much related to the historical evolution of the town (refer to para. 2.5).

In discussing the age of the housing units differentiation between public and private houses may be necessary.

The first type of public housing include the Pool Staff Housing. In Iringa Twon these include those in the Gangilonga low density residential area. These houses were financed, developed and are managed by the government through the Ministry of Works. Some of the houses in this area are very old, built during the German rule, before the Second World War. Most of these houses were built in stone with tile-roofs. They are permanent though at times modifications and renovations are being done to them.

Others were built by the British Government in the late 1940's and early 1950's. They were meant to accommodate the civil servants serving in the government. These houses were built with fire-burnt bricks with tile roofs. Most of these houses require small painting repairs.

Then there are public Institutional houses. These include houses for police, hospitals, schools and other public purposes. These houses are financed by the government and very often managed by the various institutions through the Ministry of Works. In Iringa the Police quarters in Kihesa and in the commercial area and the Mkwawa school staff quarters make up a large proportion of this type of housing. The Mkwawa school staff quarters for example, consist of more than 150 housing units both for senior and junior staff.

The police quarters in the commercial area are as old a the public buildings in Gangilonga. Those in Kihesa were built in the early 1960's after Independence. The latter do not require repairs, perhaps repainting. The former require repairs from time to time. The Mkwawa school staff quarters have not been renovated although minor repairs are done from time to time.

The government has indirectly participated in providing housing through the NHC and later by the acquisition of houses through the RB. The NHC engaged in house building in 1964 and they have built 201 rental houses along the Pawaga, Frelimo and Kalenga roads. The RB houses although they were acquired in 1971 all of them had to have an age of more than 10 years. Therefore, many of them are old.

The private housing units are of two types, those in the planned urban areas and those in the unplanned areas. The oldest buildings in the planned areas are those in the residential areas near the commercial areas, namely Miyomboni, Makorongoni and Mshindo. The original house units in these areas were built of mud walls. Later on through individual initiatives, some of the mud houses have been pulled down and replaced by houses built with fire burnt bricks and corrugated iron iron roofing. Since the renewal is done individually, the process is sporadic and spontaneous.

Housing in the unplanned areas took place during the maize boom of the 1950's. The houses were originally built of mud and thatch. Later, the thatch roofing of most houses has been replaced by corrugated iron roofing.

According to the 1967 census figures, Iringa town had only 29 per cent of the housing units classified as permanent, 67 per cent as semi-permanent and 4 per cent as others.

The census defined permanent house as a unit constructed of permanent materials such as concrete bricks, concrete blocks, fire burnt bricks and metal material roofing and having an expected life span of over 10 years. Semi-permanent housing included those units constructed of

impermanent materials such as mud, sticks and thatch and having a life span of under 10 years. Other housing included housing units constructed of non-building materials such as cardboard, sheet materials of wood and metals and having a life span of 5 years.

There was a study carried out in 1974 in Iringa town. This study recommended a scheme of material credit for the replacement of the so called semi-permanent houses. The author is of the opinion that such a recommendation was not feasible. How do you replace more than 71 per cent of the housing stock of a town? However long it may take the financial implications of such a scheme are tremendous. Such money could be left for building other new housing stock and leave the existing stock be improved by individual initiative as it is being done already. The mud houses which are termed as semi-permane have lasted for a period of more than 20 years.

For the purposes of dealing with housing needs which may result from normal deterioration and general obsolescence this study recommends redevelopment of the houses by plastering and painting. It is assumed that by now, more than three quarters of the houses termed semi-permanent and others have been redeveloped.

So the additional housing needed as a result of redevelopment of obsolescence and deterioration will be calculated from a random figure of 1 per cent of the total existing units as shown in the calculations below:-

Housing needs in 1976	174 ($\frac{521}{3}$)
New Housing stock in 1976	-20
Housing Needs caused by deterioration (1 per cent of 6040 units)	+60
Additional Housing Needs in 1976	214

The future needs for housing for each projection years can be calculated from the projected house-hold increase in the particular year. The calculations will be on the basis that one extra house unit will be able to accommoda

3 house-hold. The housing needs for each year from 1977 to 1980 are shown in table 4.5 below:-

Table 4.5: Projection of Housing Needs, 1977/80

YEAR	1977	1978	1979	1980
HOUSEHOLD INCREASE	177	193	209	226
HOUSING NEEDS	59	64	69	72
LESS NEW STOCK, 20	39	44	49	52
PLUS NEEDS FOR DETERIORATION - 60	99	104	109	112

Therefore, the total housing needs as at 1980 will include the additional housing needs in 1976 which is 214 units plus the total projected housing needs for the years 1977/80 which is 424 units, making a total of 638 units.

The above analysis shows that there is a definite housing shortage numerically. This shortage will continue to increase year after year unless special steps are taken to meet it. By 1980 this study estimated that Iringa town will require an extra housing of 638 units.

After establishing the existence of quantitative housing needs there are two major questions emerging, namely, to what extend can the public sector be able to satisfy this housing needs and what housing policies should be adopted which will contribute to the solution of the problem? But before such questions are discussed, it may be necessary to analyze the housing quality in Iringa town.

4.3. Estimating Housing Quality for Iringa Town

By comparison with demographic characteristics housing quality assessment is complicated by social, economic and political overtones. The desirable characteristics of a house are many different things to many people. Certainly, the availability of water and certain basic facilities such as toilets, bathroom,kitchen may be sought by all but the surroundings of a house can be almost as important and much more difficult to quantify.

It is true that some families have no need for a garden

while others enjoy tendering a fair-sized area. Some wish to live close to a town centre for the conveniences this brings and others although perhaps in the same domestic position do not mind a journey to work if they can live in more open surrounding.

Another important consideration on housing quality is that of ability to pay. At anational level the extent to which a country's housing falls below any particular standard may be as much a reflection of its priorities as of its wealth in aggregate. The fact that different nations hold housing in different esteems makes the adoption of standards for international comparison very difficult.

4.3.1. Structural Condition of Residential Buildings

It has been stated above that the 1967 population census classified the residential buildings into permanent, semi-permanent and others. This classification was based upon construction material type (refer to para. 4.2). There were 1984 or 29 per cent permanent houses, 3341 or 67 per cent semi-permanent houses and 191 or 4 per cent other houses.

Accordingly, the permanent houses could be regarded as good while the semi-permanent as fair and other houses as poor.

House condition classification based upon the type of material used for construction can be very subjective and misleading. The classification assumes that houses constructed of local materials such as mud, sun-dried bricks or mud and poles possess a short life span of less than 10 years. The main reason for the short life span is given as the use of unpreserved organic materials like wood and unstabilized mud which easily decay or get eroded.

Through experience the people have been able to discover ways of using local construction materials with ingenuity and good work manship. People along the East African coast for example, when building their Swahili type of houses, use coral stones to strengthen walls and plastering. In Iringa Town the people build stone "foundations" of 45-60 cm high, surrounding all the walls externally. In

this way they are able to prevent erosion of the low parts of the walls of mud or sun-dried bricks by rain run-off. Moreover, many of the houses in urban areas today combine the use of both local and manufactured materials. The houses may have mud walls but with cement floors, walls plastered with cement and iron roofing. The life span of such houses cannot be short at all.

According to the sample survey, the houses were also classified into good, fair and poor. Although the categorization was also based upon the life span of the buildings, the idea of how long the buildings would last was not entirely based upon the type of construction materials used. The general authentic appearance of the buildings was really a deciding factor on the structural conditions of the houses. Those classified poor, were the ones which were really dilapidated, say, with falling walls or roofs and so appearing very unfit or unsafe for human habitation.

There were 171 or 56 per cent of the houses which were considered to be in good structural conditions, 128 or 42 per cent fair and 6 or 2 per cent poor. The summary of this is shown below in table 4.6.

Table 4.6:- Structural Condition of Residential Building (Source sample survey)

Category	Housing Units	Percentage
Good	171	56
Fair	128	42
Poor	6	2
Total	305	100

The figures above still demonstrate the seriousness of the housing condition. There is a need for redevelopment programmes for at least 44 per cent of the housing units in the town. The redevelopment measures may include building repairs, painting and improved building maintenance. It is only in the extreme cases, particularly for the 2 per cent that renewal or demolition can be envisaged. There should be a deliberate attempt

to prevent demolition wherever it is possible.

4.3.2. Materials and Building Methods

Very strict regulations of what type of materials to be used for the house construction are being used for the surveyed plot in the planned areas. As already indicated (refer para. 1.1) the developer is clearly told to use stones with cement and sand mortar for the foundation, burnt bricks for the walls with cement mortar and corrugated iron sheet over timber trusses for the roof. There is a building inspector who move around the town seeing that the regulations are not contravened. However there are some people who are able to transgress the regulation and even dodge the watchful eye of the building inspector. One can find mud and sun-dried bricks houses even in the planned areas.

Mud and sun-dried bricks are the main construction material used in the unplanned areas. However, there are some few well-to-do individuals who managed to get a plot in these areas and erected for themselves houses to the standards stipulated by the township building regulations. The roof covering materials vary very little. It is mostly iron sheet with some exceptions of flattened tins and thatch. When thatched roof is used it is done in a very peculiar traditional way similar to the rural "tembe" house-thatching.

The "tembe" is a traditional "Hehe" house. It consists of a rectangular two-roomed structure with a sitting room or a "baraza" separating the two rooms. The walls are of mud and the roof is a soil stabilized thatch. The soil and the thatch on the roof encourage short grass to mushroom on the roof-top thus, making it leak-proof. This type of roofing is abviously disappearing in town being replaced by iron sheet and glatten tin roofing.

Foundations

The sample survey revealed that 177 structures or 58 per cent had a stone foundation while 22 or 7 per cent had a brick foundation and 106 or 35 per cent had no

foundation at all. However, some of those structures with no foundations usually with mud or sun-dried brick walls had "external foundations" improvised to prevent erosion of the walls by rain. Table 4.7 below shows foundation type for the surveyed structures:-

Table 4.7:- Type of Foundation (Source: Sample survey)

FOUNDATION TYPE	No. OF UNITS	PERCENTAGE
Stone	177	58
Brick	22	7
No foundation	106	35
Total	305	100

The foundation has two main purposes:-

- To transfer all loads of the structure to the ground without harmful settlement. Harmful settlements mean in most cases, differential settlements;
- To prevent water from penetrating into the house and erode away the soil which supports the load-bearing structure or the floors.

Fig. 4.1. and 4.2. show examples of foundation used. The first is a stone foundation which usually carry a brick or block wall and the second is a foundation for mud walls.

In both, a trench of approximately 40 cm by 30 cm is dug. The depth of the trench will depend on thickness and properties of the top soil. Usually all weak soil is removed before the footing is casted. The width will vary with the bearing strength of the soil but in most cases, a width of 30-35 cm is adequate. The bottom of the trench should be smooth and level.

Floors

According to the sample survey there were 112 structures or 36 per cent with compacted earth floors while 89 structures or 29 per cent had rough concrete floors, 99 structures or 33 per cent had smooth concrete and only 3 or 2 per cent had timber floors. A summary of the floor types of the surveyed structures is shown below:-

Table 4.8:- Type of Floor (Source: Sample survey)

FLOOR TYPE	UNITS	PERCENTAGE
Earth	112	36
Rough Concrete	89	29
Smooth concrete	99	33
Timber	3	2
Total	305	100

The floor will prevent moisture from the ground from destroying the floor or other parts of the house. It is difficult to keep dry earth compacted floors. The floors are also supposed to be hard and smooth so that they can resist applied loads from the use of the house. Smooth floors are easy to clean. (Fig.4.3 shows concrete floor).

The earth floor are made very simply by applying a heavy weight on the ground of the room. Then the soil becomes compacted.

The concrete floors are difficult to make. The surface is levelled. Then pieces of bricks or stones are arrange in an orderly way so as to leave small spaces between them. Then a structural slab is made from sand-cement mortar. The mixture of the sand vary according to whether the floor is to be rough or smooth. The rough floors contain more sand while the smooth ones more cement.

Walls

Table 4.9 below shows the type of walls used in house construction in Iringa Town. The survey show that the most popular wall type is the mud. There were 132 structures or 43 per cent mud walls. Then 104 structures or 35 per cent fire-burnt bricks. Sun-dried bricks and concrete blocks were seldomly used, 45 structures or 15 per cent and 22 structures or 7 per cent for the sun-dried brick and concrete block walls respectively.

Table 4.9: Type of Wall (Source: sample survey)

WALL TYPE	UNITS	PERCENTAGE
Cardboard	0	0
Mud	132	43
Mud + Poles	0	0
Sund-dried Bricks	45	15
Fire burnt bricks	104	35
Concrete blocks	22	7
Total	305	100

The walls are meant for withstanding their own weight and all applied loads without harmful deformations and they must at least be properly bonded together. The walls should also resist penetration by rain-water. The walls should also prevent water and vapour to rise from the ground through the walls themselves so that any part of the house is destroyed by dampness or create health hazards and discomforts.

The walls of a house are important as they possess openings such as windows and doors. So the walls must be built as far apart as practicable so that cross-ventilation, shading and other means of avoiding high tempratures are provided.

Fig. 4.4 shows an example of a brick wall. A properly made block-wall may be untreated but plastering or lime-wash may be an advantage.

The mud wall can be supported by a foundation but often there is no foundation as such need except stone platform built surrounding the external walls to prevent water penetration and erosion. Quite often, for durability and authentic appearance the walls are plastered on both sides.

Building mud walls requires a stretch of time to elapse so that part of the wall built first gets dried before another part is built on top of it.. The best time for building mud house is therefore, during the dry season.

The first step in the building process is to dig the

trench on the prepared site along the wall lines.

Then, a mud pit is prepared very close to the building site. This minimizes transport costs. The mud preparation involve digging out the soil and soaking it with plenty of water. For effective soaking, the previous evening. In the morning the mud is trampled on very vigorously so as to make it wet, soft and smooth. Then the mud is picked up and used for building the walls.

The actual wall building involves heaping the mud in an orderly manner starting from deep into the trench for houses without foundations or on the foundation top for those with stone or brick foundations. The mud is heaped in a straight line so that the wall portion is 20 to 25 cm wide and the height is 35 to 40 cm. Such a wall portion is usually completed in a day surrounding all the walls to the same level or height. Then, it is left to dry for two or three days and the building process continues.

The windows and doors are built in. The windows consists of small openings of 60 x 90 cm usually one per room.

Roofs

The sample survey showed that iron sheet was in very great use as a roof-covering material. There were 189 houses or 62 per cent which had corrugated iron roofing. These were found both in the controlled as well as the unplanned areas. 49 house structures or 16 per cent had roofs made of flatten tins. 33 of the houses or 11 per cent were thatched. These were found in the unplanned areas. Tiles and asbestos roofs were few. 23 houses or 7 per cent and 11 houses or 4 per cent had tile and asbestos roofs respectively.

Table 4.10 below shows the roof-types in the sample survey:-

Table 4.10:- Type of Roof (Source: Sample survey)

ROOF TYPE	UNITS	PERCENTAGE
Thatched	33	11
Iron Sheet	189	62
Flattened Tin	49	16
Tiles	23	7
Asbestos	11	4
Total	305	100

The roof should be water proof. It should also withstand its own weight and all applied loads without harmful deformations. There should be precautions against wind load by effective anchoring so that the whole roof or part of it cannot be torn off by wind. The roof should sustain a certain point load so that persons can walk on it for maintenance.

It is also important that a roof should be able to keep rainwater away from walls and should contribute to the shadding of the walls. It is necessary that the roof should overhang a bit. This may be very essential for mud and sun dried brick walls which get eroded by rain if not plastered.

4:3.3 Technical Resources:-

To meet the housing needs it is essential to know how the resources of the people themselves can be mobilised. This mobilization is necessary for both the public and private sectors.

In Iringa the N.H.C. is the most important institution which deals with the provision of low cost and medium cost houses. The NHC through its departments is capable of initiating, designing and implementing their building projects. In Iringa Town the NHC has been able to construct only 201 structures. Compared to the total number of structures of 6040 this figure is really very small notwithstanding the growing needs for housing. Thi substantiates the common belief that the public sector has failed to provide the housing required and much of what is built is well beyond the means of the lowest income group.

It is essential, therefore, to expand the capacity of the private sector to produce more houses both for owner occupancy and renting. This capacity is a function of the technical resources that is available in the private sector.

It may suffice here to explain how the houses are being built in the town so as to assess areas which may require improvements in terms of the available technical resources in the building sector.

In former times most houses in Tanzania including those in urban areas were built by the owner himself with help from his family and friends. Today many people living

in urban areas prefer to hire Craftmen or Fundis and Labourers to construct their houses. This specialization is one of the inevitable effects of urbanization and of course is an important source of wage employment.

The Conctruction is divided into a number of separate "Tenders" for which the potential house-owner can hire various Fundis. The Fundis will hire their own Labourers if need arises. There can be up to nine different Fundis hired for the completion of a house.

During the construction, the house-owner assumes the role of organizer. He supplies the materials and negotiates a price with the various Fundis, who are paid after completing a definite part of the house. Payment is withheld until the owner finds the quality of work satisfactory.

This stage by stage approach suits the house builder well since few house builders can afford to pay for all the necessary materials and the Fundi's wages during short period. Depending on the financial situation of the owner the total construction may be spread over several years.

With this approach of building houses, it is not very essential that the owner knows any building work nor does he need to have time for doing his own construction work. They prefer to employ the services of the Fundis and they themselves remain as Contractors

4:3.4 Infrastructural Services

Water supply

Water is the most critical local service and should receive the highest priority. Of the levels of services to be provided stand pipes or public fountains have probably the lowest cost as compared to normal type water systems with individual connections. It has also been found that there is a lower per capita consumption from standpipe sources then the demand from individual house connections (22)

There are also savings to be made by the use of smaller pipes and less storage capacity as a result of the lower consumption. Howecer it is general preferable if possible to provide an individual water supply source to each plot.

The 1967 census report provides information on the access to pipe water by the house holds in Iringa Town and other urban areas. Table 4.11 below summarizes the water supply system during the census year.

Table (4.11) House hold by Access to pipe water

CATEGORY	HOUSEHOLDS	PERCENTAGE
Inside, Private	832	15
Inside, Shared	597	12
Outside	942	59
None	651	13
Total	5022	100

Source: Population census, volume 2, statistics for urban Areas, Bureau of Statistics - Dar es Salaam, 1968.

In 1967, 4371 house holds or 87 per cent had an acces to pipe water. Only 651 house hold or 13 per cent had no access to pipe water. More than half of the total number of the house holds, namely, 2942 house holds or 59 per cent obtained their water supply from water points outside. These water stand pipes have been provided by the Government and the people obtain water from them freely. The census figures show that Iringa enjoys good supply of fresh water.

The table 4.12 below shows the water supply situation as revealed by the sample survey. The situation had changed from that of 1967 census year for the better. The number of those who had no access to pipe water decreased. Only 4 per cent of the house holds lacked access to pipe water. These were mainly people living in the former urban fringes which were then incorporated into the Township boundary in 1973.

There was another conspicous change since the census period. This was the decrease of the number of house holds obtaining their water supply from stand pipes outside. Althcugh the percentage of 34 of the total households obtained their water supply from water stand pipes is still high, it is not as high as that during the census year. There is also an increase of house

holds sharing water supply from pipes inside their house structures. This constitutes 45 per cent of the total number of house holds.

Table (4.12) House hold by Access to pipe water
(Source: Sample Survey)

CATEGORY	HOUSE HOLDS	PERCENTAGE
Inside, Private	51	17
Inside, Shared	137	45
Outside	104	34
None	13	4
Total	305	100

It is possible to estimate the water demand of the urban area based on the population projections.

As a result of urbanization and higher standard of living the increase rate of average daily water consumption has been approximated to be 5 litres per capita per annum. The estimated daily consumption is about 150 litres per capita. This includes both the industrial and the public use (= 30 per cent). The daily consumption by those obtaining water from stand pipes is about 15 litres per user per day (23). This means that the per capita cost of providing water from stand pipes is lower than for private connections. This concurs very much with an earlier observation quoted from Braz Menezes (refer to quotation 22 above).

Table 4.13 Estimated Water Demand for Iringa Town, 1976-80

DESCRIPTION	1976	97
(a) Population Projections	49669	
Population with Private pipe connections 62%	30795	
Population getting water from public pipes 34%	16887	18323
Population with No pipe water supply 4%	1987	2156
(b) Water Demand:		
1. Private	150	155
2. Public	15	20
By Private connections	4619250	517886(

Table 4.13 Contd.

DESCRIPTION	1976	1977	1978	1979	1980
By Public Standpipes	253305	366460	497000	647100	819140
By those with no pipe water if provided with public stand pipe	29805	43120	58475	76140	96255
Total Litres	4902360	5588440	6355955	7213350	817075
Total Cu.m.	4902	5588	6356	7213	8171

The present water intake lies 3 KM to the East of the Town centre along the Little Ruaha River. The pumping Station and the setting tank has a capacity of intake treatment of 40,000 gallons or 180,000 litres per hour. The existing intake treatment is 16,500 gallons or 74250 litres per hour.

From the setting tank the water is then pumped Northwards through an 8 inch diameter pipe line to two intake tanks located at an intake level of 5510 ft. One of these two intake tanks is a concrete tank with a capacity of 110,000 gallons or 495,000 litres. The other tank is made of steel with a capacity of 20,000 gallons or 90,000 litres.

From the intake tanks the water is then distributed to two reservoirs by a 6 inch diameter pipe. One storage tank is in Mlandege residential area with a storage capacity of 25,000 gallons or 112,500 litres. The other storage tank is in Mkwawa with a storage capacity of 48,000 gallons or 216,000 litres.

From the reservoirs the water flows through distribution pipes network of the size of 4 and 3 inches diameter to cover the township area.

This distribution system consists of (a) Gravity feeder pipes from the intake tanks to the consumption area and water reservoirs (b) Water reservoirs (c) Main water distribution network between reservoirs or feeder and sub-consumption areas and (d) Local distribution pipes within sub-areas.

The small altitudinal difference between the intake tanks which is at 5510 ft. and the Mlandege reservoir which is at an intake level of 5466 ft. has sometimes brought difficulties of low water pressure. Particularly during the dry season, the residents of Mlandege experience water shortage. To make sure that these highest areas like Mlandege get adequate water flow and sufficient pressure the water reservoir at

sewage containing both human and house hold waste is equally fungamental to the provision of a water supply. The standards should be carefully considered as the range of choices available range from water - borne systems connected to each plot to communal pit latrines. The implications of wet services in the provision of water supply and the removal of sewage is so critical that these become crucial to the overall plan layout and from there the resultant physical form.

There is no water-borne sewage system or sewage treatment for the whole Iringa Town. Two institutions namely Mkwawa Secondary School and Klerruu Teachers' College both have oxidation ponds for the treatment of effluents with the treatment plants located within the institutional boundaries.

Foul drainage from the industrial and low desnity areas is discharged into septic tanks with soakage pits. In the high density and the unplanned areas deep pit latrines are commonly used.

More than half of the surveyed housing structures i.e. 63 per cent used pit latrines. The effects of this extensive use of pit of the people obtain their water from piped supply. Moreover the Geological and soil structure in the town is stony so that pecolation of polluted water from one area to another or from one layer to another must be very difficult.

31 per cent of the surveyed house structures used septic tanks with soakage pits. 6 per cent of the house structures had no toilet facilities.

The table (4.15) below show the toilet facilities as found from the survey sample.

Table 4.15 Toilet Facilities
(Source: Sample Survey)

CATEGORY	UNITS	PER CENTAGE
Pit latrines	192	63
Septic tanks	95	31
No Toilet	18	6
Total	305	100

The Township authority i.e. the Iringa Sub-Urban District operates a conservancy service for discharging the contents of the pits and septic tanks. The sub-urban District has only two trucks for the services. The exigting emptying

service is insufficient for the present requirements.

Bathroom Facilities

Table 4.16 below shows the bathroom facilities for the surveyeyd house structures in Iringa Town. Although in practice the bathroom facilities are provided adjacent to toilet facilities and that the number and quality of the bathroom facilities compare very much with those of the toilet facilities, the figures show that the total number of house structures without bathroom facilities outnumbered those without toilet facilities.

While the house structures without bathroom facilities numbered 49 units or 13 per cent of the total number of surveyed houses, those without toilet facilities totaled only 18 making up 6 per cent.

This is easy to explain. It is easy, even in urban areas, for people to use the compound for bath and very difficult for them to defecate openly. So they normally build pit latrines sometimes without extensions of bathroom facilities.

The survey also revealed that 83 house units or 27 per cent had separate bathroom facilities located inside the structures. These houses were mainly those built in low density areas and the N.H.C. houses which provide separate bathroom and toilet facilities for every housing unit and in Iringa Town these houses are normerly rented to single house holds.

The commonest type of bathroom facilities is the shared one. This type constituted 182 units or 60 per cent of the total surveyed housing structures. Such facilities were typical for the high density and uplanned residential areas of the township.

Table 4.16 Bathroom Facilities
(Source: Sample Survey)

CATEGORY	UNITS	PERCENTAGE
Separate bath	83	27
Bathroom shared	183	60
No Bathroom	49	13
Total	305	100

KITCHEN FACILITIES

The kitchen together with the toilet and bathroom facilities form the wet core of the house structure.

According to the sample survey more than half of the house units had kitchen facilities built separately from the main house holds which reside in the house structure. These were 189 units making up 62 per cent. The house holds which reside in the house structure share together these facilities.

There was a small per centage, about 18 per cent or 54 house structures which had kitchen facilities provided separately from the dwelling unit and are used by private individuals. These mainly occured in owner occupied houses of the unplanned areas and some few unfinished houses structures in the planned areas which at present are also owner-occupied.

61 house structures had kitchen facilities inside the building and were used by private individuals. This made up about 20 per cent of the total number of the house structures.

Below is table 4.17 which shows the kitchen facilities of the sample survey.

Table 4.17 Kitchen Facilities
(Source: Sample Survey)

CATEGORY	UNITS	PER CENTAGE
Separate but shared	189	62
Separate but Private	54	18
Inside Building Private	61	20
Total	305	100

Roads and Storm water Drainage

It is possible to aim at different levels of service of roads and surface water drainage. In many towns this aspect is less critical than the supply of water or sewage disposal. It may be necessary to indicate here that because more than 43 per cent of the house structures (refer table 4.9) in the town have mud walls which may get easily eroded with rain water drainage may assume a greater importance here than is normally given to.

The choice can be between fully bituminized main roads and access roads, piped storm water drainage ranging down to a number of alternatives where only the main road may be gravelled and open rain water drainage channels established.

According to Braz Menezes (25), on the average roads and surface water drainage represent up to 30 per cent of the total onsite infrastructure costs, although these costs could be reduced slightly with proper site planning.

The type and quality of the roads in Iringa Town have already been discussed above in para 2:6.4 under transportaional land use.

The storm water drainage arrangement in the town consists of open gutters which are quite inadequate with the result that most of the roads get washed away during the rains due to heavy run-off. 47 per cent of the house structures were drained by constructed open drainage and 38 per cent by natural courses. It must be emphasized that many of the open gutters are rendered useless because of lack of proper maintenance. As a result they remain sand-filled.

A few streets in the town have recently been provided with proper covered storm water drains. The areas include the commercial area along Jamat Street and the planned residential areas of Miyomboni, Makorongoni and Mshindo which are near the commercial area. These make up 15 per cent.

Table 4.18 Surface Water Disposal
(Source: Sample Survey)

CATEGORY	No. OF UNITS	PERCENTAGE
Constructed open drainage	143	47
Constructed covered drainage	46	15
Natural course	116	38
Total	305	100

Refuse Disposal

The Iringa Sub-Urban District authority also operates a refuse disposal service throughout the town. According to the sample survey, however, 199 house units or 65 per cent of the sampled house units were provided with the services

of garbage disposal by the township authority. There were also 106 house units or 35 per cent of the sampled house units which did not get the services of the township authority. The people in these houses simply dumped the refuse in a pit nearby located within the house compound. The people who lacked the township authority's garbage disposal services were mostly those who had their houses located away from the town centre. These included all the unplanned areas of Mkwawa, Kihesa, Mwangata and Ipogoro or Ruaha and the urban fringes of Mtwivila. The table 4.19 below show the methods of garbage disposal as revealed by the sample survey.

Table 4.19 Refuse Disposal
(Source: Sample Survey)

CATEGORY	No. OF UNITS	PERCENTAGE
Dump it in pit nearby	106	35
Dump it in central Place	0	0
Collected by Town authority	199	65
Total	305	100

The frequency of garbage collection by the township authority is not very satisfactory. For the central area of the town including the commercial centre, Miyomboni, Makorongoni and Mshindo residential areas the township authority was able to collect refuse almost daily. The house units survey which reported that had the refuse in their areas collected daily consisted of 39 units which made up 19 per cent of the total units served by the township authority. 66 units or 34 per cent and 94 units or 47 per cent had the refuse collected by the township authority twice a week and once a week respectively. The table (4.20) below summarizes the frequency of collection of refuse bins by the township authority.

Table 4.20 Frequency of collection of Refuse bins by Township Authority
(Source: Sample Survey)

CATEGORY	No. of UNITS	PERCENTAGE
Daily	39	19
Twice a week	66	34
Once a week	94	47
Total	199	100

The problems of refuse collection by the township authority can be summarized as follows:

1. Lack of sufficient refuse collection trucks. This calls for well scheduled services so that all areas in the town are visited at least once a week. The town has only trucks.

2. The refuse collectors:- They do their job recklessly.

- They empty the refuse into the trucks very carelessly. As a result some of the refuse drop in the street and so leaving scatter litter here and there along the street.

- After emptying the refuse bins, the collectors do not care to put back the containers with care. They just throw them to the sides of the streets. This has two effects, namely the refuse bins get destroyed quite easily as a result of constant banging them on the floor. When the people come to dump refuse into the refuse bins, they do not care to put the containers uprightly instead they carelessly dump refuse on the floor close to the lying containers.

3. The people:

- The township authority plus other public housing bodies like the NHC provide to the people refuse bins. Ridiculously many of these refuse bins disappear after a short while of use. Some people do take them and use them for domestic purposes such as fetching water from the common booths storing food grains or flour.

- The people are also to blaim because even after they have seen that the refuse bins are full and that the township authority has not come to empty them they continue dumping more refuse at the sides of the bins. It would have been responsible of them to bury or burn the refuse in an empty land. This is usually not done even where there is plenty of space for the burying and burning it.

To solve the above problems require more vigilance on the part of the township authority to supervise the collectors of the refuse bins and a general civic education to the people on the dangers of sanitary hazards.

Street Lighting and Electricity Supply

Electricity is potentially the most capital intensive and is not considered to be among the more basic needs. However, it is important that a supply source is available for at least security lighting.

Again depending on the range of standards established, priority must be given to the lighting of the communal areas with later possibility to upgrading to full street lighting and individual supply of electricity to house. In the low income houses, alternative fuels are still available at marginally cheaper prices for lighting and cooking.

At the initial planning stage, the cost of the houses envisaged and related specifically to the ability of the particular consumer group to pay must carefully be considered. There is very often a temptation to raise the standards to the point that costs preclude settlement of the site in question by the people who were the initial target group. 18 this happens then you will have failed in your responsibility in achieving the planning objectives related to housing. This is not to suggest that higher standards do not have a place in the wider spectrum of housing supply. There is the need for a full range, but the priority must remain increasingly for low income housing.

The 1967 census report revealed that about 13.5 per cent of the house holds had electricity in their dwelling units and 86.5 had none. This is summarized in table 4.21 below.

Table 4.21 House holds by Electricity

ELECTRIC SUPPLY	HOUSE HOLDS	PERCENTAGE
With electricity	689	13.5
Without electricity	4323	86.5
Total	5012	100

CHAPTER V

5: A STUDY OF HOUSING STANDARDS IN IRINGA TOWN

This Chapter attempts to look into the existing housing standards Iringa Town with an aim of determining the adequacy of these standards in relation to the physical conditions in the town, the socio-cultural aspirations of the urban dwellers and their economic and resource capability. These factors affecting housing standards have already been discussed in the relevant Chapters above (refer to Chapters II, III and IV above). The housing standards will be analysed under three major categories namely, housing standards at unit, at community or neighbourhood and at town levels.

A unit is taken to mean a living house within a residential neighbourhood. It is a house structure which may consist of one or more dwellings. The terms detached, semi-detached, row house, flat, maisionette, bungalow etc., are therefore resolved to mean residential units.

At the unit level the study will analyses details on plot sizes, plot coverage, dwelling area (living rooms and bed rooms); Wet core (Kitched, toilet and bathroom); building heights; window and door sizes and orientation and other small details like ceilings and fire places.

Chapter IV above already gives details on the real situation of housing in the town both by public and private sectors. It analyses what type of buildings in terms of materials used and workmanship do really exist in the twon without giving any analysis of whether these are in accordance with the building standards demanded of by the township authority. This Chapter will more or less be comprehensive. It will accomplish both that is starting what standards the authorities expect and to what level the existing housing complied with the expectation.

A community or a neighbourhood is difficult to determine. For the purposes of this study the existing ward system is used. A community therefore will have a population of over 5,000 persons with a school age population large enough to support 4 nursery schools, 1 primary school and a total population which can support 2

religious buildings, a local market, children playing ground, playing fields and incidental open spaces. At present there are 13 wards in Iringa town namely Kihesa, Miyomboni, Mkwawa, Mshindo, Mlandege, Mwembetogwa, Mtwivila, Ilala, Gangilonga, Kitanziri, Makorogoni, Ipagolo, and Mwangata.

At the community level the standards of house density and plot planning; availability of and distance to amenities in the neighbourhood be considered lower level facilities are those which should be incorporated in a residential area to serve the immediate residents. These include primary schools; religious and other public building; local centres which normally consist of a market with some parking space for vehicles, commercial plots and some service industrial plots and open spaces which include playing fields and incidental open spaces. The infrastructural services will also be considered.

At the town level the availability of and distance to amenities will be studied. These amenities will be those of a higher level which include secondary schools, community centres, health centres and other major public buildings such as libralies major open spaces, major industrial areas, the central business distract and the traffic and circulation facilities. Details of the availability of and type of building materials and technical skills will also be considered.

It should be emphasized from the onset that these standards details will be studied from both the unplanned and planned residential areas.

Finally, it will be necessary also to establish whether the standards postulated by the township authority are realistic or not financially. This will be done making a comparative Economic analysis of the various building designs and materials including those which are being enforced by the authorities and those which are being used by the urban dwellers irrespective of the regulations. A balance between the two, influenced by other factors such as safety, health and convenience will therefore form the basis of the proposals.

5.1. Housing Standards at Unit level:

It is definitely very essential to distinguish between public and private housing and between housing for high and middle income group and low income group when it comes to designing a house unit. The two questions, who bears the cost for the unit and housing unit for whom are very important for any unit design.

Public housing in general is difficult for any designer because everything remaining equal, the designing has to consider a consensus of opinion at designer's brief formulation stages and does not relate to individual requirements of the home occupier.

In Iringa town as it has already been discussed above, public housing is provided directly by the government through the Ministry of Works and indirectly by the National Housing Corporation and recently the Registrar of Buildings. (refer to para. 4.2). The designs for the former houses are made by the experts in the Ministry of Works. These for the National Housing Corporation houses are prepared by the designers in the National Housing Corporation Head office in Dar-es-Salaam and are only brought to Iringa town for use.

On the other hand the designs for the Registrar of Buildings' houses were made by the former individual owners of the houses before their acquisition. Many of these houses are used for residential cum commercial purposes.

Obviously, apart from the Registrar's houses the other public houses which are designed in Dar-es-Salaam are not prepared in accordance with the socio-cultural aspirations of the urban dwellers of Iringa Town and the physical conditions of the town.

Socio-cultural conditions are important for any house designing. Quite often new housing programmes are designed on the basis of what the designers consider adequate. The designer tries to impose his own values into those he is designing for. Quite often he does it very unconsiously.

C. Brent and J. Ziesel express that:
"Architects have introduced modern sanitary standards, middle class assumptions of privacy, comfort and forms of sociability. Community living of the western middle class norms as we can see have often proved inappropriate" (27)

The two authors give examples of Brazil, Hungary and Jamaica where people refused to dwell in new houses designed and built for them by their governments. In the case of Brazil, the government built apartment buildings in Peoregulhos for the inhabitants of the shanty twon of Rio de Janeiro and then destroyed their 'primitive' shacks. Several months later the tenants of the project rebuilt their shacks and moved back.

Hungarian government in Budapest built modern low income community houses in physically deteriorated district. Many people sold their new apartments to middle class families and they themselves moved back to their old but familiar physical slums. Riots in Kingston, Jamaica in the summer of 1966 were partly prompted by resistance to public housing proposed to replace familiar slums.

It may be necessary at this juncture, to discuss briefly on the ideas of some of those people who urgue against sociological considerati in house design. There are those who argue that socio-cultural considerations become unimportant particularly when designing houses for the very needy urban dwellers, after all these people have very little or no choice to make. They become satisfied with shelter of any type. And ironically the needy people constitutes the larg group in any urban area.

Thornley Dyer a former planner in Kenya provides another important arguement. He urgues that it is often difficult for a planner or designer to know clearly what the socio-cultural aspirations of the dwellers of an urban area because of the heterogeneity of the urban dwellers. They lack a common dialogue. It becomes difficult to cat for the varying needs of these multi-tribal or racial communities.

Thornley Dyer observed in 1957 that:
"Asians of low income maintain their tradition of living in large groups consisting of multpe multiple households of three or two generations and comprising of three or four families. They will therefore number from ten to twenty persons in a double roomed house under one roof. The African on the other hand come from isolated rural homesteads in agricultural communities accustomed to free space and free association into the crowded urban conditions. How the planner in such circumstances determines suitable residential standards to satisfy the social values of such mixed communities is really difficult." (28)

Table 5.1. below shows the multi-tribal or racial composition of the Iringa Town. The table shows that a greater majority of the urban dwellers are not born in Iringa. They came from other parts of Tanzania.

Table 5.1. Population By Sex and Main Birth Place

	Total	Same Locality	Elsewhere in Tanzania	Outside Tanzania
Males	10938	3997	6426	513
Females	10488	4551	5554	383
Total	21426	8548	11980	896

Srurce: Population Census, volume 2, Statistics for urban areas, Bureau of statistics, Dar-es-Salaam, 1968.

Even if neighbourhood boards were to be established so as to provide residents with opportunities to participate in decisions about housing designs, problems of who should be in the board would still be a major problem. In the words of G. Neil and J.W. Eaton, "Does citizen participation mean representation". (29)

The "tembe house" built by the indigenous Hehe tribe of Iringa Region is typified by very small windows on the walls. To a foreigner this structure looks like an unhyhienic mud cave lacking suffieient ventilation. However, the tembe befits the cold weather conditions of the southern highlands (refer to para 2.4.).

The National Housing Corporation overlooked the important factor of climate when building houses in Iringa Town. The National Housing Corporation built self-contained houses modelled to the Dar-es-Salaam house designs. The Nationa Housing Corporation authorities disregarded the fact that Dar-es-Salaam in hot and humid while Iringa is cold, particularly in the month of May to July. Considering such cold conditions they could at least have provided fire places fo the house units.

The National Housing Corporation is trying to minimize costs of building the houses by standardizing the house designs for the whole country However, the cost minimization should not be achieved at the expense of comfort and well-being of the residents.

The public houses in Gangilonga exhibit a colonial legacy. These houses most of which wer built during the colonial era are characterized by a very big sitting room and one or two bedrooms. To the Europeans, for which the houses were initially ment this design is in order. They needed big living rooms for parties and other social interactions. An African family with large numbers of family members, the number of bedrooms is of much more paramount necessity than the size of a living room. Many of the social dealings are usually done outside, at the veranda.

5.1.1. The Objectives of Design Standards of a House Unit.

The main purpose of the design standards should be to meet only the minimum basic needs of families particularly the low income group who form the majority of the urban dwellers. Their purpose is however to provide these families with a dwelling which is structurally safe, reasonably durable and which will not require

excessive maintainance or repair.

The minimum standards set forth should not relieve the builder of complying with the local or national regulations which may be in force including requirements of health. However, these regulations or requirements should not make excessive demands resulting in building costs that put housing beyond the reach of low income groups.

The unit designed should provide for healthful environment and enough room arranged to ensure suitable and desirable living conditions commensurate with the type and quality of property of the people for whom the unit is being designed. Logical space arrangement should take into account areas required for furniture and other belongings and for circulation. The space should be designed in relation to furniture placement and use, i.e. functional requirements rather than create minimum areas.

It should be emphasized that care must be ex exercised to avoid making these standards too rigid in order to encourage rather than inhibit the application of new ideas, new materials and new construction system which may result in improved construction or in cost savings. Therefore, any proposed standards will have to be brought up to date from time to time in keeping with the economic development of the country in general and of the locality in particular.

5.1.2. The Housing Standards Applicable in Iringa Town:

The housing standards applicable in Iringa Township are stipulated in the Township (Building) Rules contained in cap. 101 supp. 59 revised in 1960. These form part of the entire Principle Legislation cited as the Township Ordinance, Chapter 101.

The rules which are numbered from 4 - 61 do not apply to government buildings and temporary buildings the walls of which consist of wood,

mud or grass or any other temporary erection used for human habitation. According to the Township Ordinance 101 rule 17, the temporary buildings are regarded as insanitary premises. The law gives to the Township Authority power to destroy them. The law reads:

"If in the opinion of the authority any tent or any hut constructed of wood, mud or grass or any other temporary erection used for human habitation is unfit for that purpose or is dangerous or is likely to be dangerous to health, the authority may serve a notice upon the owner or occupier of such tent or hut or temporary erection to remove or destroy the same within the time specified in the notice and if the owner or occupier fails to comply with any of the terms of the said notice, he shall be guilty of an offence and the authority may then undertake the work of such removal or destruction the cost of which may be recovered from the said owner or occupier in addition to any five or imprisonment that may have been imposed." (30

Tendering the House Plan.

The law requires that every person who intends to erect a building in the township area must first send to the authority a plan of each floor and section of each storey, floor and roof of the building and elevations drawn in a clear and intelligible manner to the scale of not less than one inch to every eight feet.

This regulation is really very demanding for an ordinary low income person. Most of the citizens have had no formal education, needless to say, a design training. It means therefore that these people have to hire the services of a professional designer. In a town like Iringa, professional designers are few. Most of them are employed fully in the Regional Development Director's offices and a few private ones are engaged in private building contracts. The professional fees of the later are exorbitant. The lowest

The lowest fee a person can pay to a designer in town is Shs. 800.00. Realizing that more than half of the population in the town earn less than Shs. 500.00 per month, these fees are unaffordable by the majority of the people.

The Iringa Town Authority has realized the problem of house plans. It prepares cheap plans for the people to purchase for a price of Shs. 49.00. These plans are simple and easily comprehended by even the ordinary funds (craftmen) who do the actual construction. Diagram 5.1. shows a typical plan purchased from the Iringa Town Authority.

Plot Size and Plot Coverage:

The law also gives the size of plot and the building coverage for areas zones as commercial and those zoned as residential.

The area of any plot for building upon in the area zoned as residential should not be less than ten thousand square feet.

The portion of any plot covered by a building in an area zoned for commercial purpose should not exceed sixty six per cent of the area in the case of an interior plot or seventy per cent of a corner plot. The portion of any plot covered by a building in an area zoned as residential area must not exceed twenty five per cent of the plot.

The space between buildings and boundary of plot are also postutated in the law. Every external wall of a building erected on a plot will have between it and the boundary line of the plot an open space extending throughout the entire length of such wall at least five feet wide.

Therefore there will be a clear space of at least ten feet between any two buildings so that no building is erected in a manner which may black out light or ventilation of another building.

The objectives of such regulations are to control the housing density in a block. The density of buildings help to control the sanitary and social standards of living environment within the range of reasonably desirable and economic maximum use of the available land.

The plot size is intended to provide an area sufficient in size and of reasonable proportion to allow the erection of a house structure and have remaining sufficient area for normal domestic activities such as children's play, the cultivation of a garden and drying space for laundray.

The urban land is often assumed to be scarce. Hence the maximum plot size is fixed so as to economize on the land. The regulations were revised in 1960 before independence and more important before the Arusha Declaration which among other things made land the property of the state. Land anywhere in the country can be used in any way the government thinks fit subject only to people's compensations on their property and crops developed on the said piece of land.

The dearth of urban land in Iringa should not be taken as a problem. Although people already build on steep slopes it is just because this land is close to the commercial area and people like staying near it.

On the whole Iringa town has vast areas of flat vacant land extending all through towards the north. (refer to para 2.6.6.) Moreover, Mkwawa Secondary School has more than enough of land for both its playing fields and farming purposes. A lot of land, more than 30 hectares could be surveyed and utilized for residential plots.

It can therefore be argued that the regulation should not be so rigid on plot size. Allowance should be made for any individual to get a larger plot so that such a person can even build row houses for rental purposes. Row houses are efficient in alleviating housing shortage in urban areas.

The regulation on plot frontage is very much related to that on plot size and coverage. The objective of the law of plot frontage is to provide reasonable access to street or path; to allow off street parking where necessary and to allow dwellings to be oriented toward the street while keeping length of street and service lines, i.e. water, sewarage and electricity to economic minimum. The maximum frontage dimension for a rectangular plot does not exceed fifty feet.

The houses in the unplanned areas are randomly erected on unsurveyed plots. They are characterized by their haphazardness and so they do not comply with the above cited regulations. However, these regulations should not be used to justify their demolition, instead they should form a useful basis for urban improvement of these unplanned areas.

The unplanned areas lack easy access. So streets or paths should be provided with the objective of providing circulation around the dwelling to ensure adequate open space and sanitary conditions includin adequate light and ventilation; providing areas for necessary external domestic activities and off-street children's play and to prevent spread of fire from one dwelling to another and to allow access to the rear yard for services of sanitary facilities and for fire fighting equipment.

Period Commencement and Completion of building erection:

The law requires any person to whom the authority has granted a permit to erect any building, to start the work of erection within six calender months of date of such permit. Should the person fail to do so the permit will be deemed to have lapsed as if it had not been given. It has already been observed above in para. 1.1 that it is very difficult for the low income people to accummulate enough cash for six months and start building the house.

Many low income people build their houses serially. This method has been termed by Charles Abrams as "installment construction" (31) Installment building is the only way families without savings can get their houses built.

After a family has paid for the various fees require for acquiring a plot of land, it waits until it can afford to buy some building materials like bricks or blocks. At that time the family may either put up the wall with the help of its members or a fundi. The family will again wait until it accumulates enough money for roofs, doors and windows. The interval between the building stages is usually long and it takes many years for a family to complete the whole house.

According to another regulation, rule 13 of the Township (Building) rules, the work of erecting the house must be completed within the time specified by the township authority. The rule reads:

"If the work for which a permit has been granted be not completed within a reasonable time in the opinion of the authority, the authority may give notice in writing to the person concerned therein that unless he completes the work by a date to be specified in such notice the permit given shall be deemed to have lapsed." (32)

This rule completely fails to appreciate the poverty of the majority of the urban dwellers. It discourages the installment construction method which is a good variant of the self help technique befitting the low income people.

There is another rule which is also against the installment construction method. This is rule 14 on the occupation of new building and it reads:

"No person shall occupy or suffer to be occupied any new building until such building has been certified by the authority to be in their opinion in every respect fit for occupation or in the case of a domestic building fit for human habitation". (33)

Core housing which is also a variant of installment building is discouraged by this rule. In core housing the building is expanded room by room until it meets the family's ultimate needs. One of the shortcoming of the self help operation is that the builder has no place to live while he builds his house or he lives far away in an uncontrolled area. The core house scheme enables the owner to occupy the core right away and there after expand the house as time and funds allow.

Inspection of Buildings:

Rule 12 of the Township (Building) rules reads that:

"The authority shall have power to inspect any building in course of erection or on completion and if any portion or detail thereof shall contravene any of the rules may by written notice require the person erecting the building to make within a time to be specified in the notice such alterations as may be necessary to comply with these rules and any failure to comply with such notice shall be deemed a breach of these rules". (34)

This rule makes it impossible for the owner of a house to occupy it just after he has completed a portion of it. Doing so would justify its demolition and even lapsing of the permit allowing him to construct a house on the plot.

The rule requires the builder to construct the house according to the planwhich had already been given to the authority previously. Abiding to the plan may at times become difficult particularly when the building is being done by self-help or by inexperienced funds.

The financial realities force the low income poe people to build the houses themselves or hire cheap inexperienced fundis. What the people are mostly interested in is a dwelling while the authority requires buildings of very high quality workmanship to be constructed within its township. This becomes the pride of the authority.

Core housing which is also a variant of installment building is discouraged by this rule. In core housing the building is expanded room by room until it meets the family's ultimate needs. One of the shortcoming of the self help operation is that the builder has no place to live while he builds his house or he lives far away in an uncontrolled area. The core house scheme enables the owner to occupy the core right away and there after expand the house as time and funds allow.

Inspection of Buildings:

Rule 12 of the Township (Building) rules reads that:

"The authority shall have power to inspect any building in course of erection or on completion and if any portion or detail thereof shall contravene any of the rules may by written notice require the person erecting the building to make within a time to be specified in the notice such alterations as may be necessary to comply with these rules and any failure to comply with such notice shall be deemed a breach of these rules". (34)

This rule makes it impossible for the owner of a house to occupy it just after he has completed a portion of it. Doing so would justify its demolition and even lapsing of the permit allowing him to construct a house on the plot.

The rule requires the builder to construct the house according to the planwhich had already been given to the authority previously. Abiding to the plan may at times become difficult particularly when the building is being done by self-help or by inexperienced funds.

The financial realities force the low income poe people to build the houses themselves or hire cheap inexperienced fundis. What the people are mostly interested in is a dwelling while the authority requires buildings of very high quality workmanship to be constructed within its township. This becomes the pride of the authority.

The ordinary fundis often fail to comprehend some of the measurement details shown on the house plan. The authority on the other hand assumes that for proper house construction the people will hire experienced fundis. Such fundis are rare and expensive to hire. Hiring them raises the costs of construction.

It is clearly stated in rule 28, on design and decoration that if the facing material or decoration shown on the drawings or used in any building in course of erection is in the opinion of the authority of such quality as to appear austhetically unsuitable, the authority will have power to call the owner to substitute such facing material.

The two rules cited above were definitely meant for upholding very high standards of buildings in the urban area, particularly those buildings constructed in the commercial area and near it. These rules were written during the colonial period and at the time the commercial area and the areas near it were mostly resided by Europeans, Asians and well-to-do Africans. These people had money and so could easily comply with the required housing regulations. These regulations have been inherited by the township even after independence.

According to the conclusions made by the Nairobi Housing Research and Development Unit, University of Nairobi, pride by the authorities for the urban areas has replaced the "colonial exclusiveness" as a reason for insisting that if the poor cannot afford to live in the urban areas then they must go back to the land. (35). The officials in town are reluctant to relax their building standards to make provisions for the urban poor.

The technical section of the Township (Building) rules outline in details the required standards for the construction of foundations, floors, walls and roofs. It will be remembered that the existing situation in terms of the materials the people have used in the construction of the foundations, floors, walls and roofs has already been discussed in Chapter IV above.

The aim of this part of the Chapter is only to discuss the existing rules governing their construction and to see whether these rules are realistic or not based upon the economic realities of the majority of the urban dwellers of Iringa.

Rule 32: Foundation:

The foundation of the walls shall be of concrete dressed stone or good sound burnt bricks laid in cement mortar.

Rule 33: Floors:

The floors may be made of concrete, stone, good sound burnt bricks, wood or other materials approve by the authority.

Walls

Rule 34: Materials not permissible for walls:

No external wall shall except with the written permission of the authority consist of any tempora erection of wood cloth canvas, grass, leaves, mats or any other inflammable materials.

Rule 36: Approved materials for walls:

Walls may be built of concrete, concrete blocks, stone, and good sound burnt bricks.

Rule 37:

Every wall shall be of sufficient strength and shall be constructed in such a manner as the authority shall approve.

Rule 38:

Every wall built of concrete blocks, stone and good sound burnt bricks shall be properly bounded and solidly put together with mortar and all return walls and partition walls shall be properly bounded to the walls adjoining them.

Rule 39: Thickness of walls:

Height in ft.	Length in ft.	Thickness in inc
15	30	9
25	25	9
25	25	9
		13½ in the lowest sto

Rule 47 Roofs:

Every roof shall be constructed of wood, iron, tiles or other impervious material. No thatched roof shall be constructed without the special permission of the authority.

Fig. 5.2. compares the cost of constructing a basic four room house in each of four different materials, mud (without poles), sum dried bricks fire burnt bricks and concrete blocks. Accordin to the sample survey these are the main type of materials used in the construction of houses in Iringa (refer to table 4.9.).

To facilitate the comparison the cost of foundat walls floor have been calculated using each of t different materials. Further more the total cos have been divided into material, labour and transport costs for each component of the house. The costing is based mainly on interviews with a limited number of house builders funds, contractors and local building material supplier in Iringa during, December, 1975.

Only average costs have been listed. Whereas material prices vary no more than 10 per cent from the average, labour cost variation are large and vary with the type of construction. Therefore for traditional construction labour charges may vary by 10 per cent but the less common block houses variation could be 30 per cent.

The material and construction procedure for the pit latrines and other ancilliary structure such as bathrooms, kitchen and stores; doors; windows and roof have been assumed to be the

same in all four cases. The material and labour costs for these components is this also constant.

A list of the various materials used in each component of the different construction types are found in table 5.2. below:-

Table 5.2. Material used in Each Construction Type:

Component Type	Walls		Foundation	Floor
	External	Internal		
Mud	mud and plaster	mud and plaster	stone, plinth	6-8cm compacted sand soil and 2-3 cm cement
Sun Dried Bricks	Bricks 3"x4"x9"	Bricks 3"x4"x9"	Concrete strip foundation under all walls	6-8 cm stone hard core, 6-8cm concrete and cement screed.
Fire Burnt Bricks	Bricks 3"x4"x9"	Bricks 3"x4"x9"	Concrete strip foundantion under all walls	6-8cm stone hard core, 6-8cm concrete and cement screed.
Sand Cement Blocks	Cement Blocks 46x23x15 cm.	Cement Blocks 46x23x15 cm.	concrete stip foundation under all walls.	6-8cm stone hard core, 6-8cm concrete and cement screed.

The economic comparison between the four materials show that the tradition mud wall construction is the cheapest follow by sun dried bricks. It is seen that fire burnt bricks and sand cement blocks are both very expensive walls to construct.

Both material and labour costs in the mud and sun dried bricks wall constructions are low. Mud costs nothing while a sun dried brick which can be made by ordinary fundis costs only five cents.

The fire burnt bricks become more expensive than the sun dried ones because of the extra expenses involved in the burning. Extra labour and fuel is required to burn the bricks. The bricks are burnt for four continuous, day and night. At least two people are involved

in the job and their wages for the four days is usually shillings seventy-five each. To burn 20,000 bricks requires four lorry trips of fire wood each trip costing shillings one hundred and fifty. The house builders buy the bricks from brick making contractors who sell them at 15 cents each. The bricks are burnt along Ruaha river sides

The sand-cement blocks cost about one shilling each. This cost consists of the materials used for and the labour employed in the block making.

When transport costs are considered the traditional mud walls construction is again the cheapest. Except for the foundation stones used for the construction of the external foundations the major building material, the mud is available at no cost at the building site. The foundation stones which are used foundation construction in all the four construction materials are bought at ninety shilli per lorry trip, transport charges included.

The sun dried bricks are also made at the site and so have also relatively low transport cost componer only for the foundation stones and roofing material

The fire burnt bricks are the most expensive to transport. The transportation charges are calculated at 90 shillings per lorry trip of 2,000 bricks.

The sand-cement blocks are also made at the site. However, the sand and cement has to be brought to the site. The sand is charged 90 shillings per lorry trip.

A true economic comparison of different building material must consider the cost of the material in relation to its useful life span or durability. Not enough information is available yet to do this quantitatively. Based on the finding by the Nationa Housing and Building Research unit, Housing Divisior Ministry of Lands, Housing and Urban Development, Dar-es-Salaam it is conservatively assumed that the useful life of fire burnt bricks and sand cement blocks is appreciably longer, by 50 per cent than that of the traditional walls of mud. (36)

As stated in rules 34 - 38 above mud and sun dried bricks are regarded as temporary materials unrecommended for house construction within the township boundary. But from the analysis it has been observed that the mud and sun dried bricks are the cheapest of the four types of building materials. It can therefore be concluded that the demanded standards by the township authority are unrealistic compared with the incomes of the majority of the people in the town. Very few people can afford to build with the fire burnt bricks and sand-cement blocks recommended by the authority. Mud and sun dried bricks become the only realistic types of building materials.

As the sample survey has shown mud and sun-dried bricks walled houses consist of over half of the total sample. These houses total 177 or 58 per cent of the sample. This type of houses were found built both in the uncontrolled and planned areas. It should therefore be emphasized that even rule 17 which empowers the authority to demolish temporary structures such as those constructed of mud and sun-dried bricks is very unrealistic too. How can the authority afford to destroy more than half of the total urban dwellings in the town? The authority can never be able to house all the people who at present are being housed in the so-called temporary structures.

Apart from durability, the township authoritity recommends fire burnt bricks and sand-cement blocks to avoid sanitary consequences associated with house construction with mud and sun dried bricks. It has been stated already that mud and sun dried bricks construction requires the use of mud which is available at the building site. The mud is dug from the nearby earth. To construct a structure a lot of mud is required which results in the creation of a large excavation hole.

Excavation holes are regarded by the township authority as nuisances. A nuisance according to the law is defined to mean "anything whatever which is in such condition or is so used or disposed of or is so situated or constructed or is so unclean as to be:-

(a) dangerous to human life

The whole country depends on a single cement factory located in the present capital, Dar-es-Salaam. However, efficient this one factory may try to be, it cannot fully satisfy the cement requirements of the whole country. There are times when some areas in the country outside Dar-es-Salaam face cement shortages due to factory machinery breakdown or water supply cuts to the factory. Recently Tanzania has decided to import some cement from the neighbouring country, Mozambique to eke its national cement supply.

High transport costs from the factory in Dar-es-Salaam to Iringa mainly due to escalating oil prices has resulted in a 50 kilograms cement bag to sell at fourty shillings in Iringa. According to the local fundis a house structure of four rooms requires fourty bags of cement for both wall-bounding and plastering. Obviously cement prices raises highly the construction cost The same reasons make the use of sand-cement bloc in the town very unrealistic. A house of four rooms require more than 100 bags of cement for cement block making.

Contrary to the rules of the township, some builders in Iringa town has stopped using cement for wall-bouding. Instead they use mud. The township authorities must accept this as reality and stop insisting on the use of sand-cement mort

Size of Rooms:

According to the rule 53 of the township building rules:
"Every room intended to be used as a living or sleeping room shall not be less than ten feet in height from the floor to the underside of the ceiling and shall have a clear superficial floor area of not less than one hundred square feet and every room intended as a sleeping room shall have floor area not less than fifty square feet for every person sleeping therein, subject to a minimum floor area of one hundred square feet. For the purpose of this rule two children under ten years of age shall be reckoned as one person". (33)

According to the sample survey the average size of the rooms intended for living and sleeping met the required standards. All the houses surveyed had sleeping rooms above 10 x 10 feet size.

The 2 persons per room standards stipulated in the rule is difficult to meet in reality. The aspects of occupancy rate have already been discussed under para 4.2. above. It was observed that in the 1967 census 45 per cent of the house holds lived in 1 roomed dwellings. The sample survey also showed that more than two persons lived in a room. According to the township rules this occupancy rate is considered overcrowdness.

It can only be stated that the stipulated occupancy rate is idealistic. It does not compare to the real situation existing in the town. As these regulations were made during the colonial period, it is difficult for the authority which enforce the regulation to-day to justify such a regulation. How was the optimum occupancy rate of 2 persons per room reached at apart from just saying that this is a health requirement. Is anybody certain that if an extra one or two persons are added in a room already occupied by two persons will cause health hazards and what type of hazards.

From the above argument it can only be said that research into the reality of the things is needed to establish what population should live in a room. As it appears this figure was just randomely picked up to fit the western middle class of comfort and sociability. The colonial administrato were privileged and had to be provided with a big house. For them their cultural aspirations appreciated small families of two children. So a two roomed house was enough to house the parents in one room and the two children in the other. Standards based upon these people fail when applied to polygamous African with large extended families.

House Detail:

A selection of three houses was taken to i illustrate the room adjacency and the main types of furniture in the rooms. The selection of the three houses was carried on in the follo ing way: the first was a National Housing Corporation house along Pawaga Road representin a public housing; the second was a house in a controlled area in Mlandege residential area and the third one was selected from the Mkwawa unplanned area.

The furniture in the house is drawn approximate to scale 1:200 and shown in the position they were found in the rooms. Asmaller plan to scal 1:100 shows the house plan in which each room is located. Smaller household utensils and equipment such as crockery cannot be shown in t drawings.

The house detail is significant because it shou form the basis of room disigning. Designing of space must be in relation to furniture placemen and use rather than randomly creature of minimu areas. The furniture placement and use should allow easy circulation in the room.

Figures 5.3., 5.4. and 5.5. show the plan of th houses and the rooms selected to illustrate f funiture placement in the three case studies.

5.2. Housing Standards at Neighbourhood level:

5.2.1. The Objectives of Neighbourhood Planning

The objectives of neighbourhood planning is to ensure the best use of available land in provid private, commercial and public anemities for th residents of the area concerned by:-

(a) providing adequate and consistent zoning wi the master plan or any other proposed plan of the larger community. The neighbourhood unit must allow for future growth and chang and should maintain the value of properties and residential areas. The neighbourhood residential areas must at the same time be protected from smoke, noise, traffic and oth nuisances associated with commercial and industrial activities.

- The residential area should also be within a reasonable distance from employment area and if possible should be accessible by public transportation.

(b) establishing limits for density of person and living units which will provide a desirable sanitary, physical and social environment.

(c) providing easy flow of vehicular and pede-strian traffic.

(d) providing those shopping and other commerc facilities normally used on day to day basis within a reasonable distance of all dwelling units.

(e) providing reasonable access to and service from public facilities such as parks, play grounds, libraries, clinics, police and fire protection.

5.2.2. Neighbourhood Planning in Iringa Town:

The township regulations saw very little on the total neighbourhood environment. The regulatic touch briefly on the aspects of accessibility, drainage, refuse disposal and insanitary premises. However, these aspects are discusse from the individual house structure standpoint and not on the total neighbourhood environment Aspects of general landscaping and provision of social facilities are not dealt with. Such aspects are provided by the Town Planning Divi of the Ministry of Land, Housing and Urban Dev lopment and are generally applied for every urban area for the preparation of master plans and other development proposals.

This section of the Chapter analyses these Tow planning standards and tries to suggest whethe they are realistic or not in relation to Iring town.

Land Requirements:

Space standard for land requirements for the various urban developments are available in the existing master plans for the towns of Dar-es-Salaam, Arusha, Tabora, Morogoro, Mbeya and Moshi.

The land allocations for the main land development are given below in Table 5.3. The table is based on the Town planning Division proposals. The figures do not present maximum or minimum percentage but are given as guidelines from which reasonabl variations are permissible.

Table 5.3. Land Allocations for various Land uses.

Land uses	Percentage of total land area.
Residential plots	55
Streets and paths	20
Open space	15
Public facilites	7
Commercial Services	3

Source: Dar-es-Salaam master plan, United Republic of Tanzania, Town Planning Division, Ministry of Lands, Housing and Urban Development, Dar-es-Salaam, 1969.

Residential Needs:

The housing space standards used in the abov named master plans is the average of 30 units per hectare. (39). It has been analysed that by 1980 an extra 648 house units will be required. The land requirements for these housing units will therefore be 638 ÷ 30 = 21.2 hectares.

It has been stated that Iringa Town at present does not seriously suffer from land shortage for its urban development. Therefore it is very possible to get the 58 hectares from the north western areas of the town which at present lie vacant. Moreover, space will also be available in some areas which at present are occupied by deteriorating houses which ultimately will need redevelopment.

It should however be pointed out that as a matter of precaution the outward spread of residential areas into the existing open land should not be considered as the only possible remedy for housing shortage. Residential spreads have very serious reparcations on the provision of infrustractural services and other emenities. The remote the areas the more difficult it becomes for these areas to get facilities and services particularly when the provision remain centralized as is the case at present in Iringa town. Apart from decentralizing the urban activities some thought should also be entertained on the building of flats or row houses within the town boundary for residential purposes. These type of housing are good at economizing space.

Standards for the Provision of Community Facilities:

At the neighbourhood level the public f facilities of the lower level i.e. those incorporated in the residential areas to serve the immediate residents are considered.

The Table 5.4. below is a summary of both the unit per person and space standards for the provision of community for a neighbourhood of more than 5,000 people.

Table 5.4. Standards for the Provision of Low level community facilites:

Land use	Units/Persons	Space Standards
Nursery School	1 per 1000 persons	0.25 hect. per sch
Primary School	1 per 5000 persons	2.00 hect. per sch
Religious and other public buildings	2 per 5000 persons	0.5 hect. per 1000 persons
Local centres and market	1 per 5000-7000 persons	2.00 hect. per 500 persons
Childrens playing ground	1 per 5000 persons	0.25 hect.
Incidental open spaces		2.0 hect.
Playing Fields	1 per 5000 persons	3.75 hect.

Source: Master Plan for Morogoro, United Republic of Tanzania Town Planning Division, Ministry of Lands, Housing and urban, Development, Dar-es-Salaam, March, 1974.

Educational.

Nursery and Primary Schools.

Planning objectives.

(a) Every child of school age should have access to a primary school within a reasonable short and safe walking distance. At present nursery schools are also encouraged to be opened to serve children before they are able to attend primary schools.

(b) Every residential unit big enough to support a primary school should have one, and invertedly, every primary school should be surrounded by enough people to support it.

(c) The site reserved for the school should be big enough to allow extension up to a point where the Universal Primary Education (UPE) has been reached.

(d) The school should be centrally located in the residential area so as to encourage its recommendable multi-purpose use and thus enhance its role as a centre for many activities.

Planning Standards:

The national compaign for universal primary education means that every child of school age should have a possibility to attend a primary school. In practice UPE is assumed to mean about 95 per cent attendance.

Nursery schools should be provided at the rate of 1 per 1000 people. This standard is obviously high considering the number of teachers that would have to be recruited for the 68 nursery schools in the town by 1980 and the investment on buildings and other facilities for the nursery schools. A realistic standard for Iringa should be 1 per 5000 persons, i.e. one per a neighbourhood unit. So that in all they would number 13 by 1980.

Primary schools are provided at the rate of 1 per 5,000 persons. The average primary school population with two streat classes is to be about 450 pupils. For the estimated population of Iringa in 1980 (68,835), the primary school requirement should be about 13.

At the moment there are 18 primary schools in Iringa township most of which were two stream classes capacity. The 13 primary school requirement is proposed on the assumption that the existing primary schools will be expanded to their full capacities. Table 5.5. below shows the number of primary schools in Iringa Township.

Table 5.5. Primary Schools in Iringa Urban District 1974/75.

Name of School	Standards							
	I	II	III	IV	V	VI	VII	Total
Gangilonga	1	1	1	1	1	1	1	7
Kichangani	1	1	1	1	1	1	1	7
Kilimani	1	1	1	1	1	1	1	7
Shababa	1	1	1	1	1	1	1	7
Wilolesi	2	2	2	1	1	1	1	10
Kihesa	1	1	1	1	1	1	1	7
Ruaha	1	1	1	1	1	1	-	6
Chemchemi	1	1	1	1	1	1	1	7
Ilala	1	1	1	1	1	1	1	7
Itamba	1	1	1	-	-	-	-	3
Mlandege	2	2	2	2	2	2	2	14
Mlangali	2	2	2	2	1	1	-	10
Mtwivila	2	2	1	1	1	1	1	9
Mwembetogwa	2	2	2	2	2	2	1	13
Ipogolo	1	1	-	-	-	-	-	2
Ndiuka	1	1	1	-	-	-	-	3
Njia Pauda	1	-	-	-	-	-	-	1
Kihesa Kilolo	1	-	-	-	-	-	-	1
Total	23	21	19	16	15	15	12	121
Pupils	1035	945	855	720	675	675	540	5445

Source: Internal study: Provisional Draft for revising estimated figures of population within Iringa Town.

Assumed that 7 - 10 years age group should be provided with primary education by 1980, about 6953 children will require standard 1 classrooms, i.e. 14 percent of the present population with the age of 5 years. The present classrooms are able to accomodate only 1033 children.

The Township Authority has therefore to construct about 125 new standard 1 classrooms by 1980. This means a construction rate of 25 classrooms per year. This is an impossible task both in terms of the required investments for the buildings and other amenities and recruitment of teachers.

It can therefore be suggested that to achieve economies of scale large classrooms should be constructed to accommodate up to 55 children instead of the present 45 children. The existing standards are therefore unrealistic.

It is further proposed that shift system be introduced whereby one classroom should be used for two sessions for groups of 55 children each, one in the morning and the other in the afternoon. This system will help to reduce the number of classrooms demanded about 10 classrooms per year which should be an affordable number because this means an addition of one classroom for each existing school in a year.

Land is provided at the rate of 2 hectares per primary school. Again this is not enough land for school purposes including buildings, play grounds and farms. In Tanzania, with the policy of Education for self Reliance the schools require more than two hectares. In Iringa town with the available land, the schools could be provided with at least 3 hectares for which 2 would be used for buildings and play grounds and 1 for agricultural purposes.

Religious and other Public Buildings:

According to the 1967 population census, 49.7 per cent of the heads of house holds in Iringa Town were christians and 45 per cent muslems. At present there are a total of 15 religious buildings within the township which means a ratio of about 1 building per 3800.

At neighbourhood level the TANU branch offices are important buildings. There are at present 13 ward Tanu branch offices. With exception of the Mkwawa branch the rest have no office buildings of their own. It is proposed that each ward builds a Tanu office by self help.

The space standards for these facilities is 0.5. hectares per 1000 persons. The standards for religions buildings in a neighbourhood of 5000 persons is 0.4. hectares for two buildings in the neighbourhood. The standards for a TANU branch office is 0.1 hectares.

Local Centres:

The local centres will normally consist of market with some parking spaces for vehicles commercial plots and some service industrial plots. These will be provided to serve the daily needs of local areas with a population of more than 5000 people.

Space standards of 2 hectares per local centre are adopted.

At present there are only three well planned market centres. One of these is the main town market located in the commercial area and serves not only the town but also the town's hinterland. The neighbourhood markets are provided in Mlandege and Kihesa residential areas.

There is definitely an immediate need for at least two local centres. One of these should be located in Ilala to serve Ilala and Mkwawa and part of Mwembetogwa areas. The other one should be located in Ipogolo to serve the area along River Ruaha, an area which is cut off from the central commercial area by the steep escarpment. The total land requirements for these two markets is 4 hectares.

Two hectares can easily be found in Ilala, near the present pombe shop and two hectares will be available in Ipogolo, near the Tanzania - Zambia Road service depot.

Open Spaces:

Open spaces include the playing fields and incidental open spaces. These are provided at the rate of 0.5 hectares per 1000 people. By 1980, 34 hectares will be required for open spaces.

Land Requirements

It may be necessary here to make a summary of the estimated land requirements for the various low level public facilities as proposed in this section of the Chapter. Table 5.6. shows the land requirement for housing and public facilities by the year 1980.

Table 5.6. Esimated Land Requirement.

Land Use	Additional units unit	Space Standards	Total Requirement in Hectares.
Housing		30 units per hectare	21.2
Primary School	4	3 hectares per school	12.0
TANUA branch office	12	0.1 hectare per office	1.2
Local centres	2	2 hectares per centre	4.0
Total			38.4 Approx.

Mode of Transport to the Public Facilities:

The mode of transport greatly determines the locational requirement of the public facilities within a neighbourhood. People in a neighbourhood will always want to walk to the low level public facilities such as to school, local centres and play grounds. Findings from the sample surveys also show the same.

Table 5.7. Mode of Transport

(Source: Sample survey)

	House holds					Percentage				
Transport Facilities	Walk	Bicycle	Car	Bus	Total	Walk	Bicycle	Car	Bus	Total
Work	212	60	21	12	305	69	20	7	4	100
School	288	0	17	0	305	95	0	5	0	100
Shop	255	9	21	20	305	84	2	7	7	100
Clinic	222	0	21	62	305	73	0	7	20	100
Recreation	284	0	21	0	305	93	0	7	0	100

The travel time to the various facilitie also indicate that the facilities are within a walking distance of not more than 30 minutes. The survey showed that people do not walk to school and recreation for more than 20 minutes. This indicates that the locations of these facilites is alright. For clinic and shopping, the facilities which are seldomly visited the travel time exceeds 30 minutes for some people about 25 per cent for shopping and 23 per cent for clinic. 20 per cent of the population travel for more than 30 minutes to their places of work.

This travel time is normal. It may be cumbusome only to those who have to walk for the 30 minutes daily. Table 5.8, shows a detailed travel time to the various facilities.

Table 5.8. Travel Time:
(Source: Sample survey)

	House holds							
Minutes Facilites	0-15	16-25	26-35	Total	0-15		26-35	Total
Work	156	88	61	305	51		20	100
School	271	34	0	305	89	11	0	100
Shop	119	111	76	305	39	36	25	100
Clinic	107	128	70	305	35	42	23	100
Recreation	210	95	0	305	69	31	0	100

Détail Layout:

A selection of detail layouts of three residential areas is drawn to illustrate the house densities, the available public facilities and streets. The three selected areas are Kihesa uncontrolled area; Mushindo along Kalenga Road to dipict the high density layouts and Gangilonga planned residential area. Maps 8 and 9 show the detail layouts of Kihesa, Mshindo and Gangilonga, respective

5.3. Housing standards at Town level.

Town planning sets out a framework and strategy for guiding the future development of the town as a whole over a certain period in order to ensure rational and systematic growth. We have short term, for a period of 3 - 5 years and long term, for a period of 15 - 20 years.

The planning period is often phased into even much shorter period e.g. budgetary years for the short term plans and 5 year development plans for the long term ones. The phasing facilitates easy implementation of the plan proposals and recommendations relative to the available finances and other resources like manpower and materials.

Any planning requires several projections e.g of population, economy and land requirement. Such changes are more accurately projected within a short period. Long term projections are subject to errors mainly affected by the accuracy of the projection rates. Moreover any plan, should not be considered an absolut rigid and once for all document. Planning is a continuous process and should be revised and updated often with changing situations and availability of new basic information. Short term plans are cheap and easy to update.

The planning at the town level should be done within the framework of the accepted national policies and objectives. In Tanzania the basic development philosophy is Ujamaa, socialism and self Reliance.

At town level, high level problems of land use such as housing policy, circulation provision of high level public facilities and the broader aspects of environmental qualities should be considered. The standards of their provision are mainly stipulated at Ministerial and National levels.

5.3.2. Standards for the Provision of high level community facilities:

High level public facilities are those provided to serve several residential areas in a town with a population of over 20,000 people.

Educational:

Secondary Schools:

There are at the moment four secondary schools within Iringa township. This demonstrates the significance of Iringa town as an educational centre of the region. These schools draw students from various parts of the region and the country as a whole. The provision of secondary schools is a national responsibility. It is not possible to forecast the requirement for the region or town.

Land for secondary school is provided at 6 hectares per school. This land is enough for double - stream secondary school with domitories, play grounds, school shambar and possibilities for extension. Two secondary schools, Lugalo and Highland are day schools and so they do not need domitories. Such schools can do with 4 - 5 hectares.

The present number of secondary schools in the town is enough when considered in the context of the whole region. Iringa District, urban and rural, dominate in the number of secondary schools. It has six while Mugindi and Njombe have only one each. Ludewa has none.

The location of new secondary schcols is a significant planning issue. Secondary schools with their students and teachers have stimulating and activating effects on the activities of the inhabitants in the area in which they are located. 18 there is a plan by the Ministry of Nationa Education to locate a secondary school in Iringa Region, then the most appropriat location should be in Ludewa District which at present has none.

Community Centres Health Centre and Other major public buildings:

There is at present only one community centre in the twon. The community centre is an important cultural centre. Apart from using it as a dancing hall at night, during day time people use it for adult classes. The community centre is being expanded for the Saba saba celebrations which this year, 1976, are being celebrated in Iringa town at national level.

It is proposed that within the period of 1976 - 1980, two new community centres be built, one in Kihesa and the other in Ipogolo. These two areas are far from the present community centre. The travel time from Kihesa and Ipogolo to the town centre is more than 30 minutes. From the sample survey it has been revealed that people do not travel for recreation for a time of more than 25 minutes.

In Kihesa, the community centre should be built north of Iringa Girls's Secondary School where open land is available quite near to the residential area. In Ipogolo

CHAPTER VI

6: PROPOSALS AND POLICY RECOMMENDATIONS

Four housing types can be recognised in Iringa Town. They include (a) housing in unplanned or slum areas of the town (b) housing in the newly developing and thinly populated planned areas (c) developed high density planned areas and (d) low density planned areas. Each of these areas require a development policy of its own. This chapter intends to propose and discuss policies which can be applicable in these areas with a view of achieving livable housing standard and reducing housing shortage.

6:1 Improvable Housing Standards for Unplanned areas

Although the Township Building Rules have not been reviewed and still abhor the existance of such unplanned areas, the Government at national level has already expressed concern over such regulations and has proposed their recognition as transitional housing areas. Therefore instead of applying the high housing standards as postulated in the building rules in these areas, incremental improvable standards should be used in order to ensure the health, security and convenience of the residents of these areas.

The improvable standards deal with the provision of public facilities like water, access roads and security lighting in the area. It is important to emphasize here that these facilities should not be provided to people for free of charge as the practive in the site and service scheme has been. It has been noted in para 5:4.1 above that past experience on site and service provision have proved to be expensive.

The point to be stressed here is that social welfare is not free. Everybody getting the benefits must contribute to its costs in some form like money payment for those who can afford or work on the project. The benefit of any project must have a component of ability to repay. The capacity to pay back affects the number of projects to be financed in the area. This ensures that finances are not wasted and that the Government or township do not indulge in projects the people cannot afford merely for prestige purposes. It is necessary therefore to appraise the capacity of the community to absorb and repay the investment.

The policy must be that services only for those who contribute to the costs of provision. The people must be told of the policy and ways must be found to ensure that every member of the community contributes fully to the projects.

In Iringa town the majority of the people cannot contribute money to the projects. It is suggested that contribution by working in the projects must be stressed. The ward system and ten cell grouping easily facilitates administration and control of those to participate in a project at a time.

/2.....

Fine system to those who do not participate in projects can be enhanced by township by-laws.

The financial reality of the nation and individual necessitates the carrying out of the projects in the unplanned area in phases instalment improvement. In between the phases, people to work in the projects to come will be mobilized and the funds to buy materials sought.

For this study Mkwawa unplanned area is taken as a case study to explain the detail of providing services in such unplanned areas.

6:1.1 Problems:-

An unplanned area like Mkwawa is characterized by:
- houses which are built close in haphazard pattern leaving little room for open spaces, adequate drainage and roads.
- A maze foot paths which provide the only access to the buildings
- Absence of pipe-water supply, security lighting and drainage
- Uncleaned open spaces which form dumping areas for domestic refuse

6:1.2 Objectives

Through self help or aided self help methods and using available materials:
- to provide circulation around the dwellings
- to provide areas for necessary external domestic activities and children play
- to ensure an adequate supply of safe water for domestic use at a minimum distance from all dwellings.
- in absence of individual water supply to provide means of cleanliness of persons and clothings at minimum distance from individual dwellings.
- to provide protection from hazards or crime of those circulating within or through the area between the hours of sunset and dawn.
- to prevent possible unsanitary conditions such as unsightly appearance and orders and keep land clear for normal living activities.

6:1.3 Policy Recommendations

- A basic framework of an access layout determinging housing areas should be made. The accesses will include major longitudinal and transverse roads These are the collector routes connected with or extensions of major town circulation routes. They will carry "through traffic" through or from the area.

  Paths will act as service routes, planned to serve individual dwellings, giving access to community facilities and major traffic routes.

  Both the collector and service routes will be of murram improvable later on to gravel surgace or even tarmac. Mkwawa area has enough room for collector routes of 10 ft and service routes of 5ft.

/3.....

- Most of the houses in the area are of mud walls, refer to para 4:3.2 surface water drainage becomes very important and necessary trap the rain water runoff and prevent it from eroding the house walls.

  The major surface water drainage of 2 ft. width will be constructed adjacent to the collector routes. Those constructed adjacent to the paths or service routes will be 1.5 ft wide.

  The surface water drainage will be of incovered construction which may in later years be improved and covered.

  It is very essential that the surface water drainage are frequently cleared of the soil and other rubbis which accumulate in them mainly during the rains and cause grass to grow in them so as to maintain their proper working.

- It is suggested that the playing grounds at Itamba Primary School be maintained by cutting short the grass so that shcool children and others in Mkwawa area may use them for playing.

  The incidental open spaces around the dwellings are at present used for maize and vegetable growing. This has been sanctioned by the government in the whole country to implement the "agriculture is a matter of life an death"campaign.

  To avoid mosquito breeding and general environmental untidness, it is suggested that the crops be grown about 5ft away from buildings and that the township authority frequent the neighbourboods to spray insecticide to kill the mosquitoes which may happen to breed in the cultivated open spaces. Moreover after the harvest of the crops the open spaces get cleared as quickly as possible.

- Mkwawa unplanned area has 201 houses. Assuming that the number of persons per house unit is 10 (refer to para 3.2) then the population of Mkwawa is about 2,000 people. The sex ratio i.e. males per 100 females, is 106. Therefore there are 970 females in the area. Out of this total numbers of females it is further assumed that females who will go to the standpipe and fetch water will be those above 10 years of age. There are 77 per cent of the female population (refer to table ( ) on age structure) or 747 people. These can conveniently be served by 2 standpipes i.e. an average of 373 persons per standpipe or 1 person per minute in a daytime (373 ÷ 360)

  The standpipes will be located 400 yards from one another. The pressure of service shall be constantly maintained to provide continuous service. The volume of supply should be sufficient to provide a minimum of 15 litres per use per day (refer to para 4:3.4)

/4.....

6:1.3 Policy Recommendations

- A basic framework of an access layout determining housing areas should be made. The accesses will include major longitudinal and transverse roads. These are the collector routes connected with or extensions of major town circulation routes. They will carry "Through traffic" through or from the area.

  Paths will act as service routes, planned to serve individual dwellings, giving access to community facilities and major traffic routes.

  Both the collector and service routes will be of murram improvable later on to gravel surface or even tarmac. Mkwawa area has enough room for collector routes of 10 ft. and service routes of 5 ft.

- Most of the houses in the area are of mud walls, refer to para 4:3.2 surface water drainage becomes very important and necessary trap the rain water run-off and prevent it from eroding the house walls.

  The major surface water drainage of 2 ft width will be constructed adjacent to the collector routes. Those constructed adjacent to the paths or service routes will be 1.5 ft. wide. The surface water drainage will be of uncovered construction which may in later years be improved and covered.

  It is very essential that the surface water drainage are frequently cleared of the soil and other rubbish which accumulate in them mainly during the rains and cause grass to grow in them so as to maintain their proper working.

- It is also suggested that the playing grounds at Itamba Primary School be maintained by cutting short the grass so that school children and others in Mkwawa area may use them for playing.

  The incidental open spaces around the dwellings are at present used for maize and vegetable growing. This has been santioned by the government in the whole country to implement the "Agriculture is a matter of life or death" Campaign.

To avoid mosquito breeding and general environmental untidness, it is suggested that the crops be grown about 5 ft. away from buildings and that the township authority frequent the neighbourhoods to spray insecticide to kill the mosquitoes which may happen to breed in the cultivated open spaces. Moreover after the harvest of the crops the open spaces get cleared as quickly as possible.

Mkwawa unplanned area has 201 houses. Assuming that the number of persons per house unit is 10 (refer to para 3:2) then the population of Mkwawa is about 2,000 people. The sex ratio i.e. males per 100 females, is 106. Therefore, there are 970 females in the area. Out of this total number of females it is further assumed that females who will go to the standpipe and fetch water will be those above 10 years of age. There are 77 per cent of the female population (refer to table ( ) on age structure) or 747 people. These can conviniently be served by 2 standpipes i.e. an average of 373 persons per standpipe or 1 person per minute in a daytime (373 ÷ 360).

The standpipes will be located 400 yards from one another to provide continous service. The volume of supply should be sufficient to provide a minimum of 15 litres per use per day (refer to para 4:3.4)

An area of at least 1.5 meters in diameter around the standpipe will be surfaced with impervious material graded to drain away from the standpipe. Channels or other means will be provided to prevent the run off from the area becoming standing pools or creating mud conditions.

Laundry facilities which will consist of table-like cement structures should be provided adjoining the water supply. The number of the tables will entirely depend on the available funds from the township authority and individual contribution. The people will have to do with the few their financial resource will allow to be constructed.

At present Mkwawa area like the other unplanned areas lacks security lights. It is suggested that electricity be provided from the nearby Mkwawa Secondary School to light the major collector streets and communal points like the water standpipes.

It is impracticable and expensive for the Township authority to go all around to collect refuse from each house unit. It is suggested that some areas be designated as refuse collection centres, where refuse will be deposited to await collection. Such areas should be screened from view and should not immidiately adjoin any houses. Collection should be made at least twice weekly. The locations will be shown in map.

It is also suggested that at very little extra cost, buildings can be plastered and painted to improve their general appearance.

6:1.4 IMPLEMENTATION

Organizational Resources

It has already been suggested that most of the work for these suggested improvable standards will be done through self-help or aided slef-help. However, self-help is not always easy to organize. It requires initiative, designing and implementation.

The Township Authority will provide both the initiative and the designs for the roads; the water pipe trenches, standpipes and laundary facilities and refuse collection centres. The Township Authority will give the designs once they are completed to the Ward Secretaries of the area. The technical personnel of the Township Authority will have to give seminars on the basic technical principles involved in the work ahead. The seminars can be organized for all the Ward Secretaries in town. The Ward Secretaries have interpersonal contacts with both the technicians and the people. It is essential that they understand waht is involved in the projects.

The Ward Secretaries with the help of his ten cell leaders will mobilize the people for the work. The ten cell Leaders will check attendance of the people in his ten houses. The Ward Secretary, on the other hand, will be the incharge of all the projects. He will distribute the work to the various ten cells and supervise on it.

It is important that from time to time the technical personnel visit the work sites to inspect and give more advice on the work as it proceeds.

Phasing:-

The work will be phased into two periods. The first phase will commence in 1976 and finish in 1978 while the second from 1978 to 1980.

Phase One: 1976-1978

- Earth roads
- Surface water Drains with open
- Water stand points
- Security lighting on communal points
- Refuse collection centres
- Individual improvement of walls by plastering and painting and sanitary facilities like deep latrines

Phase Two 1978-1980

- Gravel roads
- Maintenance of surface water drains, standpoints and others.
- Laundary facilities
- Security lights along the major collector routes

Financial Resources: Costing

Phase One:

Earth Roads:

Total meters of earth road	1500 meters	Shillings
Cost per linear meter	2/=	
Total cost		3,000/=

Surface Drains:

Total meters of drains to be constructed	1500 meters	Shs.
Cost per linear meter	6/=	
Total cost		9,000/=

Water Supply:

Total length to be excavated for laying pipes	475 meters
- Cost of excavation	nil
- Cost of pipe	nil
(a) 75 meters of pipe: 3 inches diameter 49/= per meter	3,675/=
(b) 400 meters of pipe: 1 inch diameter 43/= per meter	17,200/=
- Cost of T - Junctions:	
(a) One 3" x 3" main T - Junction @620/=	620/=
(b) One 1" x 3" T - Junction @345/=	345/=

- Cost of sluice valuve @1242/= 1242/=

- Cost of 2 water standpipes with 2 running taps @175/= 175/=

Security lights

Total length 115 meters (4 poles)
Cost per linear meter 300 a pole
Total cost 1200/=

Refuse collection centres:

Units
cost per unit 150/=
Total cost for cement and Bricks 150/=

Total Expenditure for phase one 36,607/=

Phase Two:

Gravel Roads
Total meters of gravel road 1500 meters
Cost per linear meter 15/=
Total cost 32,500/=

Laundary facilities:
Units 2 @100/=
Cost per unit
Total cost 200/=

Security lights
Total length 1500 meters
Cost per linear meter (50 poles @300/=)
Total cost 15,000/=

Maintenance
Standpoints
Surface water drains Nil

Total Expenditure for Phase Two 47,700/=
GRAND TOTAL FOR THE TWO PHASES 84,307/=

The recognition of the unplanned areas ensures security of tennure which in turn gives the incentive for gradual improvement of their dwellings and the environment around them. However, it will also be fair enough for the township authority to demand rent for the plots as they do to the surveyed plots. At present the Township charges Shs.75,00 for a plot per annum. It is suggested that the same amount be cahrged for each plot in the planning area. The extend of the plot will include the area over-which a house stands together with the open spaces around. Here the plots will differ from one another both in shape and size.

The plot rent will form an important source of income from the area and will contribute substantially to the development of the area. Mkwawa unplanned area has 201"Plots". If shs.75.00 is charged from every plot the revenue from the plot rent for the five years' period will be Shs.75,375.00

6:2. Developing the newly planned areas:

In the newly developing thinly populated planned areas the policy suggested include the acceptance of installment construction which at present is discouraged (refer to rules 11, 12 and 14 above).

The typical plans (see diagram) produced by the Township Authority and used in the planned areas of the town can easily be adaptable for installment construction. A person should be allowed to occupy his house once he has completed the rear three rooms. According to the Socio-Cultural Aspirations of the people in Iringa, three roomed house is enough for a household good dwelling. One room will be used by the parents while the other two rooms will be used separately by the female and male children.

It is further suggested that because money is set for the surveying of the plots and providing of access roads and other facilities in the planned areas, these services should be provided early enough so that people live in proper evironment. These include the newly developing areas of along the Frelimo Road. For those planned areas which have already been settled by people but these facilities are lacking the same improvable standards, approach should be adopted. The people should provide them through self-help. These include Ilala B and Kwa Kilosa areas.

6:3. Improving the developed high density planned areas:
The developed high density planned areas have been provided with sufficient public facilities. Here the policy mainly concentrates on the structural and environmental qualities i.e. the physical conditions of structures in the town and the quality of their environment associated with urban blight and obselescence.

The problem in these areas is that the land lords do not care to improve the general appearances of their structures.

This proposition makes sense when weighed against total resources devoted to housing. In a situation like provision of infrastrural services in the low density area of Gangilonga, the nation uses an unproportionate share of resources to house only a few people. Cost levels should be established relevant to our total economy.

6:5 Other Recommendations

6:5.1 Review the existing Housing Standards

" In the question of standards for shelter and general development it appears that we have not been able to free ourselves from the past. Our standards lack the realism that is so essential if we are to achieve our goal in the field of development, especially in housing" (44)

The Township Building Rules now applicable in Iringa Town were revised last in 1960, that is, before Independence. Definitely the Socio-Economic situation has since then changed tremendously. It was definitely impossible for the makers of these regulations to have forecasted the changes and hence fix such rigid housing standards.

"If the majority of people cannot meet the standards required in the existing Building Regulations then they will build where and in whatever way they can regardless of the regulations." (45). The housing in the unplanned areas bears no relation to the official standards. The housing standards must, therefore, be reviewed with the view to making them realistic and flexible. For example, legislation is required which enable gradual improvement to take place.

The main goal of standards should be to provide affordable and habitable housing particularly to low income people who form the majority of the urban dwellers.

Any review of standards must invclve multi-disciplinary personalities including health irspectors, planners, designers, contractors, engineers, fundis and the public representatives. This will facilitate good exchange of ideas.

On what should the housing standards be based is an important problem the reviewers of the housing standards will always be faced with. This section of the chapter intends to give some positive proposals on the basis of housing standard review in Iringa Town in the light of the analysis which has already been done in the foregoing chapters.

The main factors influencing housing standards have been identified as socio-cultural, economic and physiographic. Based upon these broad aspects the following housing standards have been proposed to be applicable mainly to the private sector housing.

(a) Construction materials to be used within the Township

With extension of the boundaries the township has incorporated large proportions of rural areas. Because of this, it is suggested that there should be differential construction material standards. The rural fringes should be allowed to live in their mud houses and encouraged gradually to used sun-dried bricks and fire burnt bricks. The people in the proper urban area should be encouraged to use sun-dried bricks and fire burnt bricks. The provision of two alternatives allows for the financial differences among the urban residents.

Sun-dried bricks are cheaper than fire-burnt bricks and have been suggested for house construction in the urban area proper to satisfy the aspirations of the politicians on urban housing and to match it with peoples' affordability. It is possible to plaster sun-dried bricks with soil-cement which sticks into the wall and is cheap. Good plastering results into good wall finishup. And wall appearance is the only thing the Politicians are interested in.

It is further suggested that the mortat for binding both sun-dried and fire burnt bricks should be mud instead of sand-cement. Sand-cement is expensive to procure and cement is subject to periodic shortages.

(b) Period of Completion of Building Erection

It is proposed that the Township Authority should accept installment construction. The people should be allowed to construct their houses in stages for a longer period depending on the financial capability of the individual. It should, however, be stressed that the authority remain strict on the provision of basic sanitary facilities such as pit-latrines and bathrooms for the core. No person should be allowed to occupy a house unless it has the sanitary facilities.

(c) Sizes)

(i) Plot size and coverage: the present regulations are realistic and may be maintained.

(ii) Number and size: It is suggested that, according to the Socio-Cultural aspirations of the people in the area the minimum number of rooms the family should construct at the initial stage is three. This will facilitate one room for the parents and the other two for the female and male children separately. In iringa it is regarded as socially unsound to mix up female and male children in one room. It is, therefore, suggested that the traditional three roomed house be accepted as the minimum housing standard for the town.

It has been argued in para 5:1 that the size of rooms should be based on furniture placement and easy circulation in the room. The most essential item in the house is a sleeping bed. For this reason it is proposed that the minimum size of rooms should not be less than 3 x 3 meters. This will allow more than two beds to be placed in a room. For house holds with large members, this is an advantage.

(iii) Wall height: High walls as stipulated in the regulations subject, large wall portions to rain wash even if the roof is made to over-hang. To prevent erosion of walls by rain it is suggested that the walls should not exceed 8 feet high. Moreover short walls are more stable than high ones and since the mortar used is mud the height of walls become an important issue. Wall thickness of 9 inches as postulated in the regulation is alright and can continue to be enforced for this has very insignificant financial implications to the house builder.

6:5.2 Making the Construction Industry an Efficient Domestic Industry with Local materials and resources

The building industry should be a domestic industry producing for local market. Its products should be able to cater for the national policies and priorities, national economy, manpower resources and skills, local material resources, climate and culture.

At present there is a split of construction industry between the low-income level mainly catered for by the system of local fundis and the construction industry for Governmental, commercial, industrial buildings and high income buildings. This split must be bridged by the establishing of a new medium level of contractors particularly in the regions and districts.

The big contracting companies are now catering for all big contractors which involve complicated construction work. The services of such organizations are expensive and not easily available to low income people. The medium level of contractors, therefore, will be able to cater for the low and medium level of contracts from the present fundis.

Local fundis have catered for the low income housing within the monetary economy but have not been organized or "legalized" and accepted as part of the building industry. They should, therefore, provide the source from which a medium level of contractors can be recruited.

The local fundis would strengthen the building industry because they all together know more about local materials and skills than the big companies established to European models.

There are different alternatives for establishing a cadre of medium level contractors.

(a) Co-operative Fundis

(b) Pilot companies: some pilot companies could be established carrying out ordinary construction work but set up and supported by the Government with a special section for inservice training.

(c) Schools for contractors.

(d) Training by National Housing Corporation: NHC needs its own wide staff. The main source of these staff can be local fundis whom they can through in-service train them. They might extend this programme to train staff for medium level contractors.

The need for use of local materials for construction has already been observed as a national policy. (Para 5:4.3)

Raw materials for building materials are found all over Tanzania but not any material anywhere. A strategy for utilization of raw materials, manufacturing of building products and for construction method must be worked out according to regional occurances of raw materials.

When looking for raw materials one must know which of them can be useful for building purposes. The main raw materials are stone, sand, soils, limestone, wood, gypesum, all of them natural products. There are also a series of waste products such as wood fibre, saw dust, straw all occuring in Tanzania. Other raw materials as steel, aluminium and plastics which at present not available in Tanzania and are, therefore, being imported.

It is suggested that the information on the occurances of the raw materials be plotted into maps for each region of the country. Based upon information on the map it will be possible to set up a regional programme for education and training people in how to utilize local materials both how to make products such as bricks, tiles and how to make construction using these products. Likewise the information on local materials will give ideas about the available materials for small scale industries.

In and around Iringa Town the soil is good for fire brick and tile making. SIDO (
has embarked into training people in commercial brick and tile making. It is envisaged that bricks and tiles manufactured from these endeavours may be "exported" to Dodoma for capital construction.

6:5.3 Housing Management: Public Sector Vs Private Sector

The development of national housing information has had a major impact on policy formation. But it is wrong to say that in Tanzania we have a single national housing problem. We have a large number of local housing problems of great variety. It is essential that local policies be based on a well informed understanding of problems of individual areas and the context in which they arise. It is, therefore, suggested that the Iringa Township Authority should take steps to ensure that they are better informed of the housing situation in its area.

The Township Authorities have sought to provide housing for low income people through the NHC. This is one way of meeting a need, it is not the only way. The Township Authorities and the Government in general have not paid much interest in the private housing sector. They must be just as concerned with the private as they are with the public housing and steps should be taken to ensure that private individuals can play their part in contributing to the solution of housing needs.

It is suggested that the Township Authority in Iringa encourages its residents to form Housing Co-operative Societies which at present are lacking. Such Societies can then be encouraged to obtain loans from the Tanzania Housing Bank of which a branch is in the town. The individuals should also be encouraged to make use of housing loan facilities offered by the THB for owner-occupation or rental houses. Some few individuals at least are able to take the loans and pay the repayment installments but are at present not encouraged to do so.

It is again stressed that the Township Authority take a continuing concern for the existing stock. It should through educational campaings encourage the people to maintain their houses so that they last longer and always appear attractive.

CHAPTER VII

7: SUMMARY AND CONCLUSIONS

7:1. Summary:

The study has dealt with the housing standards at various levels of the town, namely at house unit, neighbourhood and town levels. At each of these three levels the applicable housing regulations have been discussed. Shortfalls of the regulations have been identified and alternative suggestions offered. The national policies on Urban housing have also been discussed to complete the analysis of what regulations really govern the housing sector.

The study on the housing standards was by a detailed analysis of the physical setting and socio-economic base of Iringa region as a whole and the town in particular. These aspects have been considered as factors influencing housing standards of an area.

Under the physical setting the details of relief, slopes, drainage, soils and vegetation have been considered. The whole physical set up is chacterized by the escarpment which consist of the very steep slopes and rock outcrops in the greater part of the occupied town and gentle slopes towards the north and north-west to where the town is now extending.

The socio-economic base discusses the population projection details for the Iringa region and town and how the rural-urban migrations affect the growth of Iringa Town and how the population growth causes problems of housing and community facilities. Details of the town population age structure, house hold size and structure are also considered in an attempt to realize what type of housing should be provided for the population.

The financial situation both at national/regional and household levels forms the economic basis for assessing the ability of the urban dwellers to finance housing. The national financial institutions with the view to seeing the possibilities of housing loans for private and public housing.

The study comes out with concrete proposals and policy recommendations, based on the housing analysis on how to develop the various residential areas in the town, ranging from the unplanned and newly developing areas to planned high and low density areas.

...../125.

7:2. Conclusions:

The study started with five hypotheses which are stated in para 1:4. Throughout the housing analysis an attempt has been made to either prove or disprove them.

The first hypothesis that there is a housing shortage in Iringa Town has ben proved true. In para 4:2 it has been shown that there is already a housing shortage of 214 in 1976. It was calculated that about 25 per cent lived in very crowded conditions and so needed extra housing for health and convenience. From the population projections it was also possible to project housing needs up to 1980. This numerically amounted to 638 housing units. The need is being caused by both increase in house holds due to natural increase and migrations and deterioration of existing stock. The annual building increase of less than 30 per cent will be unable to meet the increasing housing demand.

It should also be noted that more than 20 per cent of the urban dwellers live in unplanned areas with no basic infrastructural services like water, sewage, drainage, security lighting and public facilities such as well kept open spaces and playgrounds. Qualitywise therefore housing in these areas leaves much to be desired.

The second hypothesis consists of two sub-sections. The first, postulates that the housing shortage in Iringa town is caused by the inability of the private sector in particular to contribute much to housing. This hypothesis is true only as far as the conventional houses are concerned. Less than 200 building plots are approved for house construction in a year. Even if construction of houses in such plots were to be carried on quickly and all the constructions completed in a year the annual increase of the conventional housing could not match the annual increase in housing demand.

It is known that the houses take a long period of years to get completed. Some take up to five years. Therefore very few new houses enter into the market yearly. It is true therefore that private sector's contribution to conventional housing is not much and does not match with the increase in demand. However private sector contribute much in terms of unauthorized housing.

...../126.

The Township Authority refuses to legally recognize these uncontrolled houses. In this context, it becomes true that the contribution of the private sector to housing is not fully exploited. It has already been argued in para 6:1, that these houses must be recognized and hence provided with the necessary infrastructural services and community facilities.

The second part of the 2nd hypothesis postulates that the provision of new housing stock is left to public housing institutions. Again the type of housing which is considered here is the conventional ones. Even if the conventional type of housing is considered, the public appears not to have contributed more than the private sector.

The NHC is the largest public institution providing housing in the country. It has been able to build only 201. The last group of NHC houses built along the Frelimo Road were completed in 1971. Eversince no new buildings have been constructed. When the unauthorized houses are also taken into consideration then the public sector's contribution to housing really appear very small.

The third hypothesis which states that the private sector fails to contribute much to housing due to the inability of particularly the low income group to finance for housing because of the high costs involved in constructing a house also considers the conventional housing.

It is true that the majority of the urban dwellers earn less than Shs.500.00 a month. With this monthly income the people are unable to save enough money to construct houses according to the Township Building Rules. Much of their income is spent on food and other domestic expenses.

There are housing loan facilities provided by the THB. The low income people fail to make use of the facilities because of their inability to pay the down-payments and monthly repayment installments.

The low income people on the other hand are able to provide for their shelter using local materials like mud. The building construction is done in stages using the local fundis.

The fourth hypothesis is true. The high housing costs of house construction are caused by unrealistically high standards. It was shown by a comparative cost analysis of house construction using different wall materials that the total costs for conventional houses accepted by the Township Authority were higher than those for unauthorized houses of mud and sun-dried bricks.

/...

It is very true that the present housing standards discourage the production of new conventional as well as uncontrolled housing stock. The high costs involved and the specification details given for the construction of houses in planned areas discourage many low income people to build houses in the planned areas.

The public sector constructing its houses in accordan with the housing regulations build few very expensive houses which are used by only few people. If the same amount of money was to be spent on constructing modest houses using local materials more houses would have been constructed.

The housing regulations which regard houses in the unplanned areas illegal discourage the construction of new houses and improve on the existing ones for fear of having such houses pulled down.

The regulations also give powers to the authorities to clear unauthorized housing.

7:3. Scope for future research in the Iring Town Housing:

7:3.1. Methods of mud stabilization:

Building mud houses is quick. Moreover mud or soils are ubiquitous. Soil does not get depleted or get scarce as quickly as other traditional building materials like ples and grass. It is therefore very essential that means be researched into on how to stabilize the mud apart from the present methods of wall plastering. Wall plastering may be abit expensive. It is suggested that research into local ways of mud stabilization by use of straw, small amount cement and gravel can be carried out..

7:3.2. Behavioral Research:

Unplanned areas are always associated with thuggery such as thefts, robbry and prostituion. The reasons given for the occurences of these violent behaviours include the lack of security lighting. However security lighting is absent even in the rural areas where very little of violence occur. It is therefore suggested that further research into the relationship between behaviour and living environment particularly of very high density can be carried out.

Galle, O.R., Walter, R., and McPherson, J.M., assume the hypothesis of Calhour regarding the various pathologies of rats when they are overcrowded and test for similar pathologies on community level in the city of Chicago

...../128.

First using a simple measure of number of people per area in the community, the authors found no correlation. Then using people per room as the density indicator correlations were found with the pathological indices of mortality fertility inffectual parental care and juvinile delignency.

Corollary to the above findings, it may also be interesting for planning housing densities to find out whether there is any correlation between squalor living and the mental development of children in such uncontrolled area. Do children who live in unplanned areas have any disadvantagies in class, academically.

7:3.3. Research into use of Pit latrines:

Pit latrines are typical of sanitary facilities in Iringa Town. It will be of great use to do some research into the hygienic implications of these numerous latrines to water for domestic use. The research may come out with some recommendations on the type and capacity of pit latrines to be used in highly populated areas of the town.

* * * * * * * *

B.I.B.L.I.O.G.R.A.P.H.Y

1. IRINGA TOWNSHIP, Plan Note, 1975.
2. THE UNITED REPUBLIC OF TANZANIA, Conditions of the Right of Occupancy, Land form No.43, Land ordinance Cap.113 of the laws.
3. ABRAM, C., Man's struggle for shelter in an Urbanizing World, Cambridge, Massachusetts M.I.T. 1970 p. 54.
4. Ibid. p.62.
5. MUENCH, L., Lecture Notes, Housing and community Facilities course, Urban and Regional Planning, University of Nairobi (Unpublished), 1975.
6. UNITED NATIONS, Housing Sector Policy Paper, World Bank, May 1975.
7. ROSSER, C., "Housing of Low Income Groups: The cultutta Experience" Ekistics Magazine Volume 31 No.183, February, p.129.
8. JACKSON, J.N., Surveys for Town and Country planning, Hutchinson, London 1963, p.89.
9. MORGAN, W.T.W., East Africa: Its People and Resources, Nairobi, Oxford University Press, 1969, p.99.
10. EYGELAAR, J., "Climatic Aspects of Design Material Selection and construction methods of Rural Housing", Housing Research and Development Unit, University of Nairobi.
11. ILIFFE, J., Tanganyika Under German Rule 1905-1912, Cambridge University Press, Londown, 1969, p.16-17.
12. THOMAS, I.D., "Population in the southern Highlands of Tanzania in Ominde, S.H., (ed) Studies in East African Geography and Development, Heinemann, Nairobi, 1971 p.239 - 257.
13. KAMIN, F., "Provisional Draft of Revising Estimate, Figure of Urban Population within Iringa Sub-District, with regard to Universal Primary Education by 1977 unpublished.
14. THE UNITED REPUBLIC OF TANZANIA: Tanzania Second Five Year Development Plan for Economic and Social Development 1969 - 1974, Volume 1: General Analysis Government' Printers, 1969 p.176.

...../2.

15. FELDMAN, R., Custom and Capitalism: "A study of Land Tenure in Ismani, Tanzania Economic Research Bureau, University of Dar es Salaam, 1970, P.1.

16. SAFIER, M., Urban Problems, Planning Possibilities and Housing Policies in Urban Challenge in East Africa, J. Hutton (ed) Nairobi: East African Publishing House, 1972.

17. THE UNITED REPUBLIC OF TANZANIA: Economic Survey 1970/71, Government Printers, Dar es Salaam, 1971, p.102.

18. Ibid. P.106.

19. THE UNITED REPUBLIC OF TANZANIA: Economic Survey 1971/72, Government Printers, Dar es Salaam, 1972, p.104.

20. BIENEFELD M.A., "Tanzania Housing Finance and Housing Policy: Economic Research Bureau, University of Dar es Salaam ERB paper 69.19, 1969.

21. Ibid

22. MENEZES, B., "Environmental Planning: Relationship between site - layout and Infrastrure Services", A paper presented in the workshop on Urban Implementation with particular Reference to Housing in Nairobi, Dept. of Urban and Regional Planning, 1976.

23. THE UNITED REPUBLIC OF TANZANIA - MINISTRY OF LANDS HOUSING AND URBAN DEVELOPMENT: Exposition of Water Supply and Sewage Disposal in Moshi Urban Area. An appendix B of the report on Moshi Master Plan.

24. Ibid

25. MENEZES, B., Op. cit.

26. BELL, G., Urban Environment and Human Behaviour: An annoted bi liography Hutchinson, Pennsylrania 1973.

27. BROLIN, BC AND ZIESEL, J., "Mass - housing. Social Research and Design" in Bell, G (ed) Human Identi in the Urban Environment, Penguin Books Middlesex, England 1972 p.366.

...../3.

28. MALECHE, Z., "Research Priorities for Planning" M.A. Thesis (unpublished) of the Institute of planning studies, University of Nottingham, 1972.

29. NEIL, G. AND EATON, J. W., "Who speaks for the Poor" in Jn. of the American Institute of Planners 1970, 36, 411-416.

30. THE UNITED REPUBLIC OF TANZANIA: Township (Building) Rules in Cap.101 Supp.59 revised in 1960.

31. Ibid.

32. Ibid.

33. Ibid.

34. Ibid.

35. UNIVERSITY OF NAIROBI, HOUSING RESEARCH AND DEVELOPMENT UNIT. Mathare Valley, "A case study of Uncontrolled settlement in Nairobi, Sept. 1971.

36. MORIARTY, J.P. AND THERKILDSEN, O., "Economic comparison of Building materials", Housing and Building Research Unit Ministry of Lands Housing and Urban Development Dar es-Salaam 1973.

37. TOWNSHIP (BUILDING) RULES Op. cit.

38. Ibid.

39. UNITED REPUBLIC OF TANZANIA: Town planning standards, Town planning Division, Ministry of Lands Housing and Urban Development Dar es Salaam, 1969.

40. UNITED REPUBLIC OF TANZANIA: Economic committee of the Cabinet, paper No.81: National Urban Housing Policy, unpublished.

41. ABRAMS, C. op.cit p.170

42. ECONOMIC COMMITTEE OF THE CABINET paper no.81, op.cit.

43. TANU Biannual Conferences: The 15th para 16 and 16th para 32, Government Printers, Dar es Salaam.

44. NJAU, G.J. "Acceptable Minimum standards for Human settlements" A paper (unpublished) presented at National Seminar on Human Settlement, 1975.

45. UNIVERSITY OF NAIROBI HOUSING RESEARCH AND DEVELOPMENT UNIT: Mathare Valley, op. city.

* * * * * *

APPENDIX A: QUESTIONAIRE

1. House No. (Namba ya Nyumba) .....
2. Ward. (Kata) .....
3. Information about the members of the house-hold (maelezo kuhusu jamii)

   Head: (Mkubwa wa familia)

   Age (umri) ..... Sex: (Hali) ..... Marital Status (Kaoa) ..... Place of Birth (Alikozaliwa).....
   Education (kisomo) ..... Type of Employment (kaz)..... Monthly Income (Kipato) .....

   Wife: (Mke)

   Age: (umri) ..... Sex (Hali) ..... Marital status.....
   Place of birth (alikozaliwa) ..... Education (kisomo ..... Type of employment (kazi) ..... monthly income (kipato) ..... .

   Children (watoto): 1, 2, 3, 4, 5, 6, 7, 8, 9.
   Age (umri) ..... Sex (hali) ..... place of birth(Aliko zaliwa) ..... Education (kisomo) .....
   Type of Employment (kazi) ..... monthly income (kipato) .....

   Brother (Kaka)

   Age (umri) ..... Place of Birth (Alikozaliwa).....
   Education (kisomo) ..... Type of Employment (kazi) ..... Monthly income (kipato) .....

   Sister (Dada)

   Age (umri) ..... Place of Birth (alikozaliwa) .....
   Education (kisomo) ..... Type of Employment (kazi)....
   Monthly income (kipato) .....

   Parent (mzazi)

   Age (umri) ..... Place of Birth (Alikozaliwa) .....
   Sex (hali) ..... Education (kisomo) ..... Type of Employment (kazi) ..... Monthly income (kipato) .....

   Others (Wengineo)

   Age (umri) ..... Sex (hali) ..... Place of Birth (alikozaliwa) ..... Education (kisomo) ..... Type of Employment (kazi)..... Monthly income (kipato).....

4. How long have you been staying in Iringa Town (Umeishi Iringa Mjini kwa muda gani) .....
5. Type of building Tenure (Nyumba ni ya nani)

   (i) Owner (yako) ..... (ii) Free: related to owner (Ni ya/jamaa)..... (iii) Full rent (umepanga).....
6. Monthly rent (kodi ya nyumba kwa mwezi) .....
7. Do you intend to build a house in Iringa (unakusudia kujenga nyumba hapa Iringa) .....

...../2.

8. Landlords (wenye nyumba)
   How long did it take you to complete this house (Ulijenga hii nyumba kwa muda gani) .....

9. What things make building a house here difficult (vitu gani vinasababisha ugumu wa kujenga nyumba hapa mjini) .....

10. Use of building (matumizi ya jengo)
   (i) Residential (kuishi)
   (ii) Residential and commercial (kuishi na biashara)
   (iii) Residential and Industrial (kuishi na kutengeneza vitu) Residential and institutional (kuishi na shughuli zingine kama dini, shule).....
   .....

11. Number of Storey (idadi ya orofa) ....

12. Number of habitable rooms in the structure (idadi ya vyumba vya kuishi) .....

13. Area of the rooms by pacing (ukubwa wa nyumba katika miraba ya mita, kisha kwa hatua).....

14. Is the living space enough for your needs (nafasi ya kuishi inatosha kwa ajili ya kuishi).....

15. Do you need moe space, more rooms or both (jee unahitaji uongezwe nini nafasi zaidi, vyumba zaidi au vyote) .....

16. If you were given a bigger house how much rent would you be prepared to pay for the house (kama ungepewa nyumba kubwa zaidi ungeweza kulipa kodi kiasi gani) .....

17. Type of floor (aina ya sakafu) .....
   (i) Earth (udongo) (ii) Rough concrete (sementi hafifu) (iii) smooth concrete (sementi laini) (iv) Timba (mbao).

18. Type of wall (aina ya kuta)
   (i) Card board (Makaratasi magumu)
   (ii) Mud and poles (nyumba ya miti)
   (iii) Mud (udongo) (iv) Sun dried bricks (matofali mabichi) (v) burnt bricks (matofali ya kuchoma)
   (vi) concrete blocks.

...../3.

19. Type of roof (aina ya paa)
    (i) thatch (nyasi) (ii) flattened tins (mapipa)
    (iii) iron sheets (mabati) (iv) asbestors
    (v) tiles (vigai) (vi) concrete (sementi)
20. Foundation (msingi)
    (i) Stone (mawe) (ii) bricks (matofali)
    (iii) No faundation (bila msingi)
21. Toilet Facilities (choo)
    (i) Separate but shared (zimetengwa lakini hutumika kijumla)
    (ii) Separate and private (zimetengwa kwa kila mkazi)
    (iii) Inside the building but shared (vipo ndani lakini jumla)
    (iv) Inside the b ilding and private (vipo ndani kwa pekee)
22. Type of Toilet (aina ya choo)
    (i) Pit latrine (cha shimo)
    (ii) Water borne (cha kuvuta)
    (iii) No latrine (Hakuna choo)
23. Kitchen facilities (jiko)
    (i) Separate but shared (zimetengwa lakini hutumika kijumla)
    (ii) Separate but private (zimetengwa kwa kila mkazi pekee)
    (iii) Inside the building but shared (lipo ndani lakini hutumika kijumla)
    (iv) Inside the b ilding but private (lipo ndani lakini hutumika kwa mkazi mmoja pekee).
24. Bathroom facilities (bafu).
    (i) Seperate bathroom (bafu limetengwa)
    (ii) Bathroom shared w th others (bafu hutumika na wengine)
    (iii) compound used for bath (watu huoga nje tu)
25. How do you dispose off refuse (takataka unatupa wapi)
    (i) dump it at pit nearby (natupa katika shimo la karibu)
    (ii) dump it in container at central place (natupa katika pipa la wote)
    (iii) Use refuse bins collected by local authority door to door (natupa katika mapipa ya Halmashauri ya mji ambayo hukusanywa mara kwa mara toka kila mlango).

26. If refuse bins are collected by local authority then how often (magari ya mji ya kuzoa takataka hukusanya takataka mara ngapi)
    (i) daily (kila siku) (ii) once a week (mara moja kwa juma) (iii) Twice a week (mara mbili kwa juma).
27. How is surface water disposed off (Maji ya mvua hutolewaje)
    (i) constructed open drain (kwa mtaro usiofunikwa)
    (ii) constructed covered drain (mtaro uliofunikwa)
    (iii) Natural course (yanafurika hivi hivi tu).
28. Source of water (unapataje maji)
    (i) stream or river (mtoni) (ii) well (kisima)
    (iii) pipe borne water on own compound (maji ya bomba uwanjani pako) (iv) pipe in the house (bomba nyumbani) (v) pipe water from street nearby (Maji ya bomba kutoka barabara ya karibu).
29. Distance to place of work (umbali hadi kazini) .....
30. Mode of travel to work (unaendaje kazini) .....
31. Distance to the nearest market (umbali hadi sokoni) ..
32. Mode of travel to market (unaendaje sokoni)
33. Distance to the nearest school (umbali hadi shule ya karibu) .....
34. Mode of travel to the school (unaendaje shuleni).....
35. Distance to the nearest clinic (umbali hadi hospitali).....
36. Mode of travel to Clinic (unaendaje Hospitali)
37. Distance to the nearest play ground (umbali hadi kiwanjani) .....
38. Time taken to (muda unaotumika kwenda)
    (i) Work (kazini), (ii) Market (sokoni),
    (iii) School (Shuleni) (iv) Clinic (Hospitali)
    (v) play ground (uwanjani) (vi) Bar (baa).
39. Expenditure per month (matumizi ya mwezi)
    (i) food (chakula)
    (ii) Saving (kuweka akiba)
    (iii) Remittance (kupeleka kwa jamaa)
    (iv) rent (kodi ya nyumba)
    (v) recreation (starehe)
    (vi) other (mengineyo).

* * * * * * * * *