

MASTER

The informal building process for houses in Dar es Salaam, Tanzania : a contribution to the upgrading of the informal construction sector and to the formulation of a management plan for hazard lands

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Award date:
1996

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**THE INFORMAL BUILDING PROCESS
FOR HOUSES
IN DAR ES SALAAM, TANZANIA**

*A Contribution to the Upgrading of the Informal
Construction Sector and to the Formulation of a
Management Plan for Hazard Lands*

**Marten Treffers
July 1996**

M.Sc. thesis International Technological Development Sciences
Faculty of Technology Management
Eindhoven University of Technology
in cooperation with the National Construction Council
and the Sustainable Dar es Salaam Project

PREFACE

In August 1995 I arrived in Dar es Salaam, and in March 1996 I left the city again. In the mean time I had adjusted the subject of this study, I had added another interested party, I had learned some Swahili, I had been collecting data, and I had entered the Working Group Hazard Lands, to name a few things that were relevant for this study. Probably for most researchers in Tanzania, doing research there is sometimes quite frustrating. But looking back it all appears so good. For sure I learned a lot about the country, especially by living in Hananasif, on the edge of the Msimbazi Valley and by being a member of the working group. Besides that, I learned much by being and working mainly on my own. Even though this was not always a pleasant situation, it had positive results indeed. And fortunately I had Anna with me...

I have been writing this report during and after my stay in Tanzania, but without the help and support of several persons I would not have managed to finish it the way I have done now.

First of all, I am grateful to the National Construction Council, that enabled me to perform this study. In particular, I thank Mr. Mamiro for this. Furthermore, I thank Mrs. Mtani of the Sustainable Dar es Salaam Project, who gave me the chance to be a member of the Working Group Hazard Lands. The same goes for all the other members of the working group, with whom I experienced an interesting and instructive cooperation. Thanks as well to Mr. Schuttenbelt of the Sustainable Dar es Salaam Project for his comments. I give special thanks to Miss Annette Shoo, who helped me out becoming my interpreter during the field-work in the Msimbazi Valley. Thanks are due to Mr. Kileo of the Sigara Building Cooperative Society for the visits to the project and the factory.

In the Netherlands, I am grateful to my graduation commission at the Eindhoven University of Technology; Mrs. van Egmond-de Wilde de Ligny and Mr. Gaillard of the Department of International Technological Development Sciences of the Faculty of Technology Management, and Mr. Erkelens of the Faculty of Architecture. Furthermore, I thank Mr. Rikhof of the Faculty of Architecture for his comments and Miss Nina Woodson for her corrections.

Final thanks for the friendship from my family and friends, both in Dar es Salaam and in the Netherlands.

Marten
July 1996

*When I shall die,
I shall do it myself.
Nobody shall do it for me.
When I am redy,
I shall say,
'Fin, stand me up,'
and I shall look
and lagh merry.
If I fall down,
I shall be dead.*

by ANNA

[Fynn, 1974, p. 190]

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SUMMARY OF THE REPORT

The increasing housing demand in Dar es Salaam necessitates an improvement of the housing supply. Most of the houses in the city are built in the informal construction sector. This report aims to find out how exactly the informal building process takes place, who the actors are, how their cooperation works and how it can be improved. The study thus contributes to the objective of the National Construction Council to upgrade the informal construction sector. Furthermore, the study contributes to the development of a management plan for the Msimbazi Valley, which is being conducted by the Sustainable Dar es Salaam Project. The Msimbazi Valley is one of the hazard lands in Dar es Salaam on which people have started settling. *Part A* of the report deals with the relevance of the study and presents the structure of the report.

In *Part B* the research design is presented. The informal building process depends on the demand for housing, the supply in the informal sector and the programme of requirements for housing and infrastructure. Those three parameters influence each other, and in order to reach a selection of criteria for housing, an optimum needs to be found. When the final programme of requirements is achieved, the selection of criteria makes way to continue the building process. The research problem, then, is to find out **how the housing supply in the informal building construction sector takes place in Dar es Salaam, and what can be done to improve it.** Answers to that question are found by means of a case study done in the Msimbazi Valley. The case study consisted of literature study, interviews with professionals in Dar es Salaam, non-participant direct observations in the field, and interviews with the research units, namely households and informal contractors. The research units are taken from respectively the households owning and living in a house in the Msimbazi Valley and from the informal contractors building in the valley.

The severity of the housing shortage in Dar es Salaam is discussed in *Part C*. The estimated present shortage is 87,000 houses, in the year 2000 this will be 140,000, and in 2025 almost 500,000. The quantitative shortage has been causing and will continue to cause, a qualitative shortage, which expresses itself in the formation of squatter areas. Approximately 70 % of the population in Dar es Salaam is living in squatter areas, covering 41 % of the urban area. Squatter areas in Dar es Salaam especially suffer from poor services and infrastructure, while the houses are too small and overcrowded.

In the past, the government did not manage to supply housing for the population, and it is only recently that new attempts have been made along those lines. Presently the Sustainable Dar es Salaam Project (SDP), a large project within the City Council, works on the development of a new urban development plan. In the context of this study, the SDP aims at upgrading unserviced settlements, at servicing city expansion, and at managing open spaces. The failure to supply houses finds its cause in the failure to provide plots for residential use: because there are definitely not enough plots provided for the population, people acquire land to build on through the informal land market. This causes people to illegally live on the land, which turns the land into a squatter area.

Whereas *Part C* examined the problem of the housing shortage in Dar es Salaam, *Part D* deals with the informal construction sector. The informal sector as a whole plays an important role in Tanzania, with respect to its size and its economic relevance. The government of Tanzania does indeed realize its importance, but there are no straight policies or actions yet on how to stimulate informal activities. The informal construction sector, then, is a sector of the Tanzanian economy that has the potential to comply with an increase in the housing demand. For most people in Tanzania, both in urban and in rural areas, the only access to house building is through the informal construction sector. This is so because formal building is more expensive and more time consuming than informal building, as a result of the regulations that have to be followed and the permits that are officially needed to start building.

In the informal building process, there are two main actors, namely the contractor (in Swahili 'fundu') and the client. Neither consultants nor financiers are included, and the government and suppliers play minor roles. This expresses itself most obviously when considering the process of self-help building. In short, self-help building occurs when the household that is going to live in the house

participates in the building process. The different gradations and dimensions of self-help building are discussed in detail in *Chapter 10*. Self-help building in Dar es Salaam occurs in three forms. Firstly, households take the initiative to build, but the building, managing, and construction is done by a contractor (only higher income people can afford to hire a contractor to do all this). Secondly, an organized group of households take the initiative to build; they manage the building process themselves, but the execution is done by a fundi. The majority of the building activities however are in the third form: individual households take the initiative to build and manage the building process of their own house, while again the execution is done by the fundi.

In the Msimbazi Valley, all houses are built using some form of self-help. Except for a few cases in which the owner himself built the house completely, all building occurred in the third form mentioned above. The informal sector building process consists of four phases, i.e. initiative, preparation, execution, and maintenance and control. In general, the clients execute two of the four phases of the building process all by themselves, namely the initiative phase (taking the initiative, acquiring the land, and possibly getting permits) and the maintenance and control phase (maintenance and repairs of the house). The preparation phase is done by the client and the fundi together. This phase includes planning, design, obtaining the building materials, and the actual preparation of the plot in order to start construction. The cooperation between the client and the fundi works quite well, except for the matter of acquiring the materials: it is usually the client who purchases the materials, and, according to the fundi, the client, in order to decrease expenses, does not buy high-quality materials. The fundi however have to build with those materials and are not content with the quality. The remaining phase, the phase of execution, is almost completely done by the fundi. There are, however, tasks during the execution that could well be done by the client, for they are usually executed by unskilled labourers. The clients think they do not have enough time to work with the fundi, and yet there are several reasons why the clients could still participate in the execution phase. These reasons are that all members, both men and women, could participate, and that the clients could determine when the execution takes place so as to have it suit them. Even though it would not save the clients a lot of money (a maximum of 10 % of the total costs), every little bit helps. Furthermore, the fundi are not reluctant to have the clients take over the tasks of unskilled labourers.

The financial aspects of building a house are the main constraints during the building process. Clients cannot pay the fundi regularly, which causes the process to lie idle quite often. While the time necessary to build a house is four to nine weeks, it takes 18 months on average. This causes extra costs, as well as complaints from the fundi's side for he cannot continue his work and has to wait. Because the biggest part of the construction costs are the costs for the building materials (approximately 80 %), which are more or less fixed costs, it is difficult to decrease the construction costs. Using cheaper materials is not easily possible in the Msimbazi Valley, for the conditions demand the use of durable, and thus expensive, materials.

The conditions in the Msimbazi Valley have two sides: a positive and a negative side. The positive aspects of the valley are the location so close to the city centre, the exposure to the Indian Ocean, and most importantly, the availability of cheap land. The negative aspects are the fact that settling in the valley is illegal since the valley is hazard land, the annual floods during the rainy season, and the polluted Msimbazi River running through the valley. For the people living in the valley, it is especially the flooding that hinders them. The pollution, however, seems to be more dangerous, because the people use the water of the river for domestic and agricultural purposes, and the danger of pollution is not visible. Considering the past three years, the positive aspects are much stronger than the negative ones, for the average annual rate of invasion of the valley is 24.7 % (in Dar es Salaam the annual rate of growth is 9.0 %). Most households that came to live in the valley were previously tenants and had saved enough money to build their own house. Now that they live in this area, they do not seem to like it very much, and most of them would like to live in a safer area. There are, however, no plots available elsewhere and the households thus expect to stay in the Msimbazi Valley permanently, unless the government becomes strong enough to remove them.

In order to withstand the annual floods in the area, the quality of the houses in the valley must be better than in the rest of Dar es Salaam. 85 % of the houses has been built of permanent materials, which is quite a high percentage compared to the 66 % in other unplanned areas in Dar es Salaam. Apart from the building materials, some houses have special measures to prevent the water from

entering the house when a flood occurs. Although most houses have been built in a similar manner as elsewhere in the city, four measures exist in the valley: the house built on an artificial hill, a raised floor by means of a sort of basement, a wall around the plot, and a dike around the plot. All fundi know how to construct these four components, but neither the fundi nor the clients know any other measures. Throughout the building process, the fundi can meet the requirements that the clients demand. The fundi have enough skill and knowledge to build what the clients require. The clients are usually satisfied with the quality of the fundi's work, especially because they know that they cannot afford to hire a formal contractor.

In contrast to the quality of the houses, the quality of services and infrastructure in the Msimbazi Valley is deplorable. Except for the pit-latrines on the plots and a few illegal connections to water and electricity, there are no services available, and there is no physical infrastructure, either. All households thus want to improve the services in the area, starting with drainage and flood protection, whereas clean water and electricity are secondary concerns.

The difficulty in this remains that the Msimbazi Valley is hazard land, and that the government must take a position on what must be done with the area. As long as that remains unclear, the area will not improve, but rather deteriorate with the continued invasion of people into the area.

Part A: GENERAL INTRODUCTION

Introduction

Structure of the report

Relevance of the research

Part B: RESEARCH DESIGN

Theoretical part

Empirical part

Part C: BACKGROUND OF THE HOUSING SITUATION

Housing in Dar es Salaam

Governmental attitude towards housing

Land tenure and acquisition

Part D: THE INFORMAL BUILDING PROCESS

Informal sector in Tanzania

Informal construction sector: the actors

The construction site

Building in the Msimbazi Valley

Part E: IMPROVING THE SITUATION

Conclusions

Recommendations

Part F: REFERENCES AND APPENDICES

1 INTRODUCTION

As we stepped into the light of the fire Old Woody looked up and sized us up for a minute or two. Nobody spoke. His eyes passed from my face to Anna's, and there they stuck. With a smile he held out his hand to Anna and she went across to him and held it. For a long, long moment they stared at each other, showering each other with good things, and smiling fit to bust. They were two of a kind, they didn't need to use language. The exchange was immediate and complete. Standing Anna in front of him, he looked over once more.

[Fynn, 1974, p. 162]

Sometimes it happens that two people meet and do not need any language to understand each other. Sometimes, however, a lot of words need to be spoken or written to make something clear. Because not everybody is like Anna, who was a personal friend and helper of Mister God and who was a theologian, mathematician, philosopher, poet and gardener at age six, the second way is more common. That is why this report is being written: to make something clear about the building process in the informal sector in Dar es Salaam.

Each new chapter will be introduced by a quotation from the book 'Mister God, this is Anna' by Fynn. The quotations are not meant as a clarification of the matter, but as an enrichment: they may enable the reader to see things from a different perspective. If not, they might just function as an illustration or a nice diversion from the topic.

After this short introduction, the structure of the report will be outlined and in *Chapter 3* the relevance of the subject will be explained.

2 STRUCTURE OF THE REPORT

'Whuh' words were those words that began with 'wh', and these, so far as Anna was concerned, were question words. 'What', 'which', 'where', 'why', 'who', all question words, the well-behaved question words. There was however a rebel question word; it was 'how'. 'How' was undoubtedly a question word, and according to Anna should have been spelt 'whow', or more exactly 'who'. But we'd already got a 'who', so it was obvious to her that somebody must have taken the 'w' from the front of the word and simply stuck it on the end. 'How' was a more or less well-behaved word; it did at least contain the letters 'w' and 'h' which indicated that a question was coming up. (...)

With regard to language itself, Anna was convinced that it could, by and large, be divided into two parts: the question part of the language and the answer part of the language. Of the two the question part of the language was the most important. The answer part had a certain satisfaction, but was nowhere near as important as the question part. Questions were sort of inner itch, an urge to go forwards. Questions, that is real questions, had this about them, they were risky things to play with, but they were exciting. You never quite knew where you were going to land.

[Fynn, 1974, pp. 139-140]

The question part of the language can be marked by question words. The question words can be taken as a guide to read through this report. Simplified, the report has the following structure:

- Part A: Why?
- Part B: What?
- Part C: How?
When?
Where?
- Part D: Which?
Who?
Where?
How?
- Part E: What?

The question words as such are not that interesting yet, but putting them together with words that form real questions, it looks like this:

- Part A: Why has this research been executed?
- Part B: What is the problem?
- Part C: How has the actual situation developed?
When and where does the problem occur?
- Part D: Which existing process deals with the problem?
Who is involved in this process?
Where does this process take place?
How does this process work?
- Part E: What can be done to improve the situation?

These points provide some general guidance through the report. As to the overall structure of the report and subject focus, it looks as follows:

- Part A:** After the general introduction and the structure of the report, the relevance of the research is made clear.
- Part B:** The way the research is set up is explained: both the theoretical and the empirical aspects of the research are dealt with. The theoretical part includes the definition of the problem, objectives, research questions, the theoretical framework, and definitions of important concepts. The empirical part covers the population, the sampling method, and the methods of data collection and data analysis.
- Part C:** This part focuses on the magnitude and the obstinacy of the present problem of housing shortages in Dar es Salaam. Therefore, the actual housing situation in Dar es Salaam, both quantitatively and qualitatively, the role of the government and the existing system of land acquisition are discussed. So, in this part the relevance as instructed by the NCC and the SDP (see the *Chapter 3*), is verified.
- Part D:** The process of housing supply through informal sector activities is discussed. The informal sector as a whole is discussed in order to understand the informal construction sector, and the direct actors within the informal building process are looked at. Next, the construction site where the process takes place is dealt with. After that, the process as it occurs in the study area is discussed. Throughout *Part D*, the case study that has been performed in the Msimbazi Valley in Dar es Salaam plays an important role.
- Part E:** Conclusions on the process of *Part D* are elaborated on in more detail. Using the information of the preceding parts, recommendations are formulated for improvements on the existing methods.

3 RELEVANCE OF THE RESEARCH

She looked me full in the face as her hand stretched out for mine. A frown flickered over her face.

'Why, Fynn? Why?' she asked, searching my face for an answer.

I could give her no answer. Kneeling down, she gently touched the few wild flowers that grew in the back-yard. It must have been the best part of an hour that I stood there watching her touch and explore these few square yards of the garden.

[Fynn, 1974, p. 176]

In this chapter the relevance of the research is explained by relating this research to other research, previously executed or to be executed in the future. The participants in the field are mentioned as well as their interest in the results. Then, both the social and the scientific contributions of the research are given here.

Connection to Other Research

The existing need for low-cost housing in urban Tanzania requires efforts of many parties coming to a solution. One of the main producers of houses, and the biggest producer of low-cost housing, is the informal small scale building contractor. A research, executed in 1995 by Miriam Tegelaers, treats the characteristics and problems of these informal small scale building contractors in Dar es Salaam. This research is strongly related to Tegelaers' research, but focuses on the relation between these contractors and their clients' and on the clients role in the building process.

In 1991, Peter Erkelens of the Faculty of Building and Architecture of the University of Technology of Eindhoven, wrote his thesis on the productivity of self-help building. This thesis aimed at developing a method for improving house building by low-income groups, applied to Kenya, which can be assumed to be in a similar situation as that in Tanzania. The present study has a connection to Erkelens' work as well, because it focuses on self-help aspects in the informal building process.

Furthermore, this research project is part of a broad project conducted by the University of Technology of Eindhoven. The ultimate goals of that project are to increase the use of local building materials and to improve the execution of the building construction process in Tanzania. In this context, the Department of International Technology and Development Sciences stimulates and supports students undertaking research in Tanzania.

Participants: National Construction Council (NCC)

In Tanzania, different institutions are becoming more and more interested in the informal sector and its possibilities. The National Construction Council in Dar es Salaam for example, tries to upgrade small scale building contractors, rightly aiming at the informal sector. Also, the past few years, the national government of Tanzania has been showing interest in the informal sector, providing the survey covering this sector that was executed in 1991. Recent national policies show this interest, as well.

However, not much is known about the informal sector and the actors within it, for the reasons that; the interest in Tanzania is of a recent date, and, because of its informality, it is difficult to gather information about it. It is therefore important that more research be done for a better understanding of this extensive sector. This study can contribute to this understanding and support the NCC in their efforts to upgrade the sector.

Participants: Sustainable Dar es Salaam Project (SDP)

Furthermore, within the framework of the Sustainable Dar es Salaam Project, the Dar es Salaam City Council (DCC) is, among other things, working on the development of a management plan for hazard lands in Dar es Salaam. The SDP has given priority to the Msimbazi Valley, an area in the city

regularly affected by floods. For this study, a case study has been performed in a part of the Msimbazi Valley, covering both the informal housing construction process and, the specific characteristics of the area. Therefore, the results of this research can give a contribution to the formulation of the management plan for the Msimbazi Valley.

Social Contribution

The study focuses on low-income housing and on the residential situation in a hazard area where low-income people settle. Recommendations for improving their housing possibilities are put forward.

Scientific Contribution

The study makes it possible to generate theory on improving the housing construction process in the informal sector, leaving space for related research in the future. The study therefore contributes to the further development of science in its on-going process towards understanding.

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Part E: IMPROVING THE SITUATION

- Conclusions
- Recommendations

Part F: REFERENCES AND APPENDICES

4 THEORETICAL SECTION

'Ha, I said, 'you've got a triangle all to yourself I see!'
'No. Everybody has got one.'
'Oh. What's it meant then?'
'It's for when I die and Mister God asks me all them questions.'
'What about it?'
'Well, I've got to answer them all by myself. Nobody can do it for me.'
'I see, but what does the triangle mean?'
'That I have to be -'
'Responsible?' I suggested.
'Yes, responsible.'
'Yes, I see. You mean you've got to bear all the weight like those other triangles do?'
'Yes, of the things I've done and the things I've thought.'
Each word was underlined with a nod of satisfaction. She left me in the silence of the full-stop.
It took a little time for all this to sink in, but it was true. We've all got to bear the weight of our own actions. We've all got to be responsible - either now or later. We've got to answer Mister God's questions all by ourselves.

[Fynn, 1974, p. 70]

This chapter bears the weight of the actions taken to complete this report. The theoretical background described is responsible for the empirical part, that is described in *Chapter 5*. This chapter starts with the problem definition, the objective of the research, and the research questions. Then, the national framework and the theoretical framework are presented. In *Paragraph 4.5* some important concepts are defined.

4.1 Problem Definition

The research problem of this study can be described as follows:

How does the housing supply in the informal building construction sector take place in Dar es Salaam and what can be done to improve it?

4.2 Objective

The objective of the study is the following:

To find factors that constrain within and/or factors that contribute to the informal housing construction sector in Dar es Salaam.

4.3 Research Questions

It is necessary to find the answers to several research questions, in order to direct to the research problem. These questions are the following ones:

- Who are the actors in the informal housing construction sector? What are the characteristics of these actors? What is their role in the building process? What is the relationship between the different actors?
- What are the requirements for housing from the demand side in this sector? Which restraining factors are of direct importance?
- What are the options for the supply side in this sector? Which restrictions does it face?
- To what extent can the supply meet the requirements of the demand?

4.4 Theoretical Framework

The informal construction sector, like any other economic sector, is not an isolated matter in a country. It can be intricately connected with other aspects in the country, varying from economic to social, from demographical to political, and from geographical to cultural aspects. Even activities or factors in other countries can be related to this particular sector. The place of the informal construction sector within a national environment, here Tanzania, is made clear in *Figure B-I*. The national environment in this figure covers all aspects that can exist in a society and that might be related to economic activities. For the sake of clarity, this figure is restricted to the national environment only, so international relations are left out.

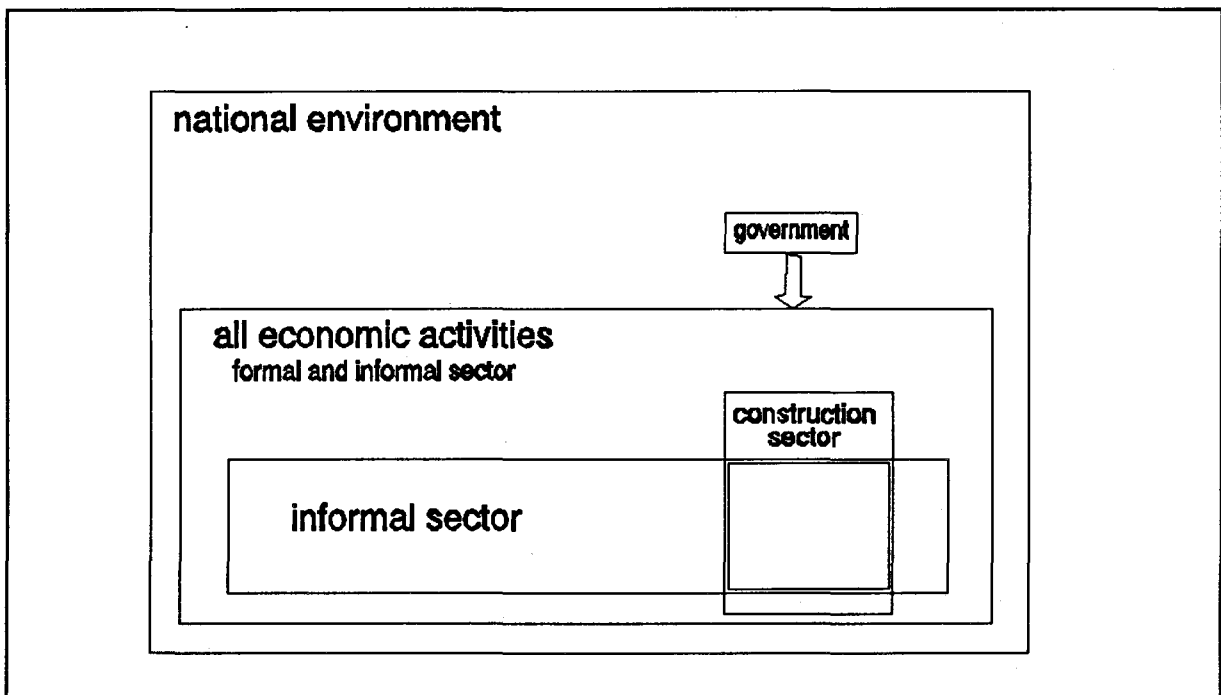


Figure B-I: National framework: the place of the informal construction sector

The national framework in outline shows the place of the informal construction sector as a whole, but for this study only part of it is relevant; the construction of housing. Its place is shown in *Figure B-II*; the research concentrates upon this small part of the whole national environment.

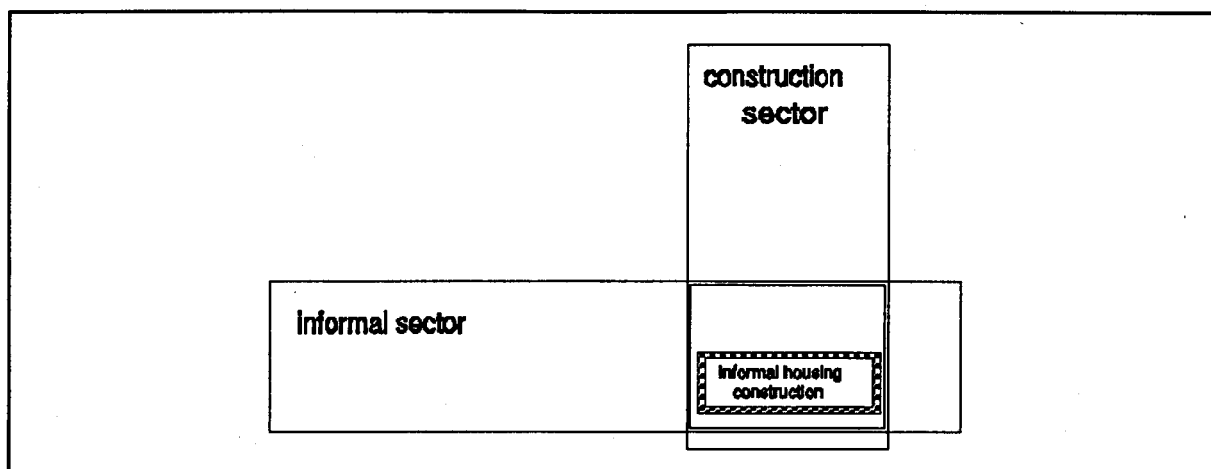


Figure B-II: Place of informal housing construction

Now that the place of the informal housing construction is made clear, the focus will be on the informal housing production itself. For an effective development of this production¹, two parties have to be taken into account; one party on the supply side and one on the demand side. Each party has its own conditions and possibilities that influence the eventual production of housing. In other words, the effective development of housing production must allow for several parties, each with its own conditions and possibilities. If a situation can be found where the different aspects of both parties meet, the production of housing can take place more effectively. Or, to come back to the research questions: if the relation between the actors on the supply and on the demand side is satisfactory, and if the different requirements and options meet, the process can continue.

To find a way in which these aspects can meet, they are placed in a theoretical framework at the national level (see *Figure B-III* below). This framework is based on a framework for socio-technical development [Egmond, 1995, pp. 2-5], in which the relation between conventional economic-based and socio-technological approaches towards planning is advocated. In the framework of Egmond, a combination is found of models that have been developed by various professional fields. Therefore, this framework provides a model that considers technological infrastructural, as well as social and economic aspects. The framework is seen as;

- an open system: New elements may be produced within the system or introduced from outside the system. New elements here include technological components, knowledge, capital, natural resources, etcetera;
- a dynamic system: It may change over time; and
- a system with normative, and thus arbitrary, boundaries: It can apply to a single organization or enterprise, an industrial sector, a nation or a group of nations, each with different boundaries [Egmond, 1995, p. 5].

For this research, the framework has been adapted in order to apply to the informal construction sector in Tanzania. It then consists of three parameters that are relevant for the production of housing in the informal sector:

- (a) demand for housing (both the quantitative and the qualitative demand);
- (b) supply of housing in the informal construction sector (both the quantitative and the qualitative supply); and
- (c) programme of requirements for housing and infrastructure.

The three parameters are presented in *Figure B-III*, which shows their mutual relations as well. Moreover, the internal relations between (a), (b) and (c), are under the influence of external factors.

¹Later, it will be shown in the report that the production of housing in Dar es Salaam is rather urgent. See *Chapter 6*.

These factors are features of the national environment and they can be divided into physic-geographic features on the one hand and socio-economic features on the other hand. The physic-geographic features (i.e. demography, natural resources, climate, and physical infrastructure) and the socio-economic features (i.e. economy, sociology, government and other institutions, private organizations, and non-governmental organizations) together have been used for the operationalization of the three parameters (see *Appendix B-1*).

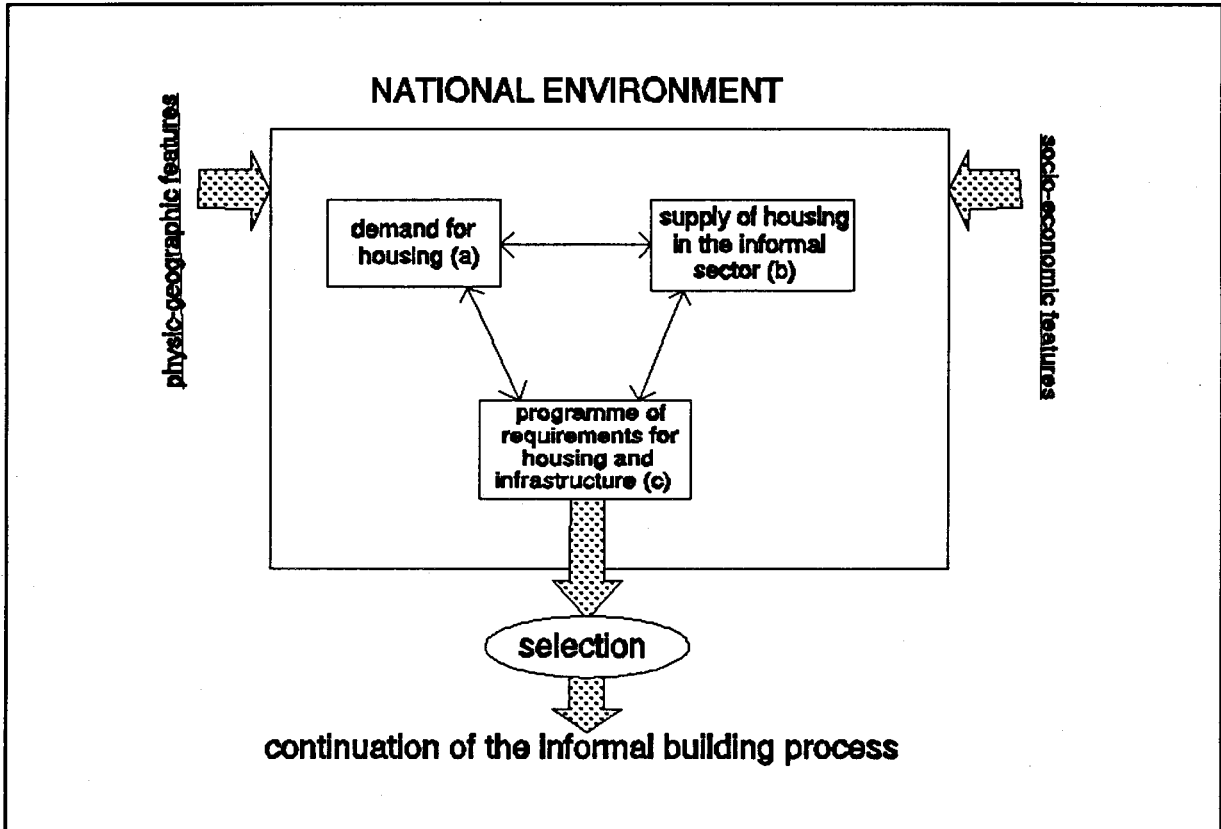


Figure B-III: Theoretical framework: supply and demand of housing in a national setting

In the figure can be seen that the demand for housing and the supply in the informal construction sector eventually determine the programme of requirements for housing and infrastructure, which leads to the final selection of criteria for the housing². This selection subsequently results in the continuation of the building process. In other words, the three parameters find an optimum that results in the continuation of the informal construction process on a general level.

As mentioned above, the framework can be used with different boundaries in order to apply to another situation. Therefore, the figure can be adapted so that it is valid for part of the sector, for example for a single housing project, or for the construction of one house. The parameters would not be very different, only their completion depends on the boundaries. This is done in *Figure B-IV* for the construction of a single housing unit in the Msimbazi Valley. Parameters (a) and (c) however alter, for they apply to one housing unit now, which leaves out the quantitative demand and which makes the programme of requirements valid for the one household only.

²In the formal sector, the selection would be written down in a so-called project document, which includes a final design and engineering plan as well as a contract and conditions for execution by a contractor. However, as shown by Mwaiselage [Mwaiselage, 1992, p. 33] for example, in the informal sector there will not be such things as contracts or other project documents. Still a selection takes place, because choices have to be made about the content of projects, about the technology to be used, and so forth, and this selection gives way to develop the construction sector. The steps to be taken in the informal construction sector after the selection of criteria, will be discussed later (see *Paragraph 4.5*). The criteria then, that are to be selected, are discussed in *Appendix B-1*.

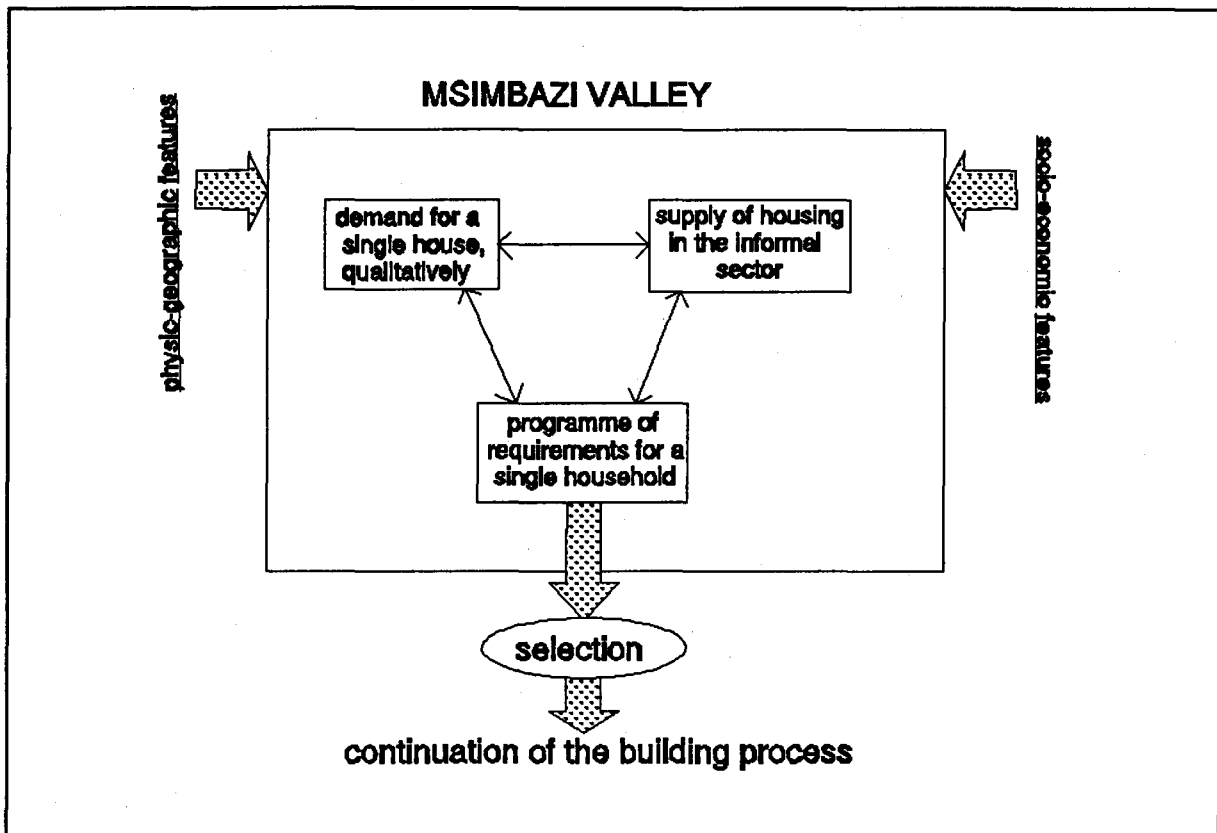


Figure B-IV: Supply and demand of a single housing unit in the Msimbazi Valley

The three parameters in the theoretical framework cannot be measured directly, so it is necessary to convert them into measurable terms first. This is done for both the demand for housing and for the supply of housing in the informal construction sector, which together determine the programme of requirements. The operationalization of the parameters is necessary for the research instrument that is used for data collection in the field. See *Appendix B-1* for the operationalization of these parameters.

4.5 Definition of Key Concepts

This paragraph covers some important concepts that are used throughout the report. The informal construction sector will be specified first. After that, the building process is discussed and next the product of that process which has been looked at for this study, namely housing. Then, the most important executor within the process, the contractor, and the client are defined³, as well as some related aspects. Finally, the definition of hazard land is given.

Informal Sector

The term 'informal sector' has been in common use since the early 1970's. It has been interpreted in a variety of closely related ways, both internationally and within Tanzania. For this study, the definition will be used as formulated in the survey on informal sector activities in Tanzania.

The informal sector is constituted of urban and rural, non-farm, small scale, self-employed activities, with or without hired labour. Typically, they operate with a low level of organization, low capital, low

³Both of them will be discussed thoroughly in *Chapter 10*.

technology and often from temporary premises. They usually are not supported by formal financing institutions, and are not usually measured in official government statistics.

This definition has been adapted to a practical one that can be applied in fieldwork. The major features of the definition are:

sector: the informal sector is restricted to the private sector. All government or parastatal establishments and enterprises are excluded, as well as registered cooperatives. Business activities to be included can be conducted by an individual, a household as a group, or by several individuals organized as a partnership or unregistered cooperative.

size of employment: All enterprises with more than five paid employees are excluded. The paid employees can be full-time, part-time, or casual and can be family members or non-family members. All employees of the business are to be included, e.g. watchmen and cleaners, but not private domestic employees of the household. Any number of unpaid workers is allowed.

location: All establishments operating at the locations below are to be taken as informal, provided they meet the above restrictions:

- at a market place;
- in a temporary structure;
- on a footpath, in the street, or in an open place.

other qualitative restrictions: Other restrictions are applied which exclude certain professional type enterprises (e.g. doctor's or lawyer's practices) and enterprises using high technology or having other 'formal' characteristics.

[Planning Commission and MLYD, 1991, pp. 1.1, 3.8, 3.9]

Construction

Construction industry is the sector of the economy which plans, designs, constructs, alters, maintains, repairs and eventually demolishes buildings of all kinds, civil engineering works, mechanical and electrical engineering structures, and other similar works.

[Ofori, 1990, p. 23]

Informal Construction Sector

The informal construction sector for the construction of residential buildings consists of all persons and enterprises involved in the process of planning, designing, constructing, altering, maintaining, repairing, and demolishing residential buildings, provided that their characteristics and activities meet the definition of the informal sector, as given above. Examples of persons in the informal construction sector are house builders, house repairers, roof makers, and craftsmen like plumbers or painters.

Informal Sector Building Process for Residential Buildings

The informal sector building process is the process that has to be gone through in order to build a residential building in Dar es Salaam. Consecutive activities of a project can be combined so that they together form a phase in the whole process of the project. The phases of a general project are described by Wijnen [Wijnen, 1984, p. 59] and they form the basis of the phases of the building process. The process of a general project consists of six phases (see *Figure B-V*) in order to reach completion.

According to the UNCHS [Habitat, 1981, p. 15], there are two major differences between the phases of a general project and those of a formal building project. The first one is that the phase of definition is included in the initiative phase, and the second one is that the preparation is included in the execution phase. The formal building process thus consists of four phases (see *Figure B-V*).

As in a formal building project, an informal building project includes the phase of definition within the phase of the initiative. Furthermore, the design is a minor aspect of the process; in practice it is part of the preparation for the execution. While in a formal sector building process the preparation is included in the execution phase, in the informal sector the preparation is very important and therefore mentioned as a separate phase. The phases of the three different processes are presented in *Figure B-V*.

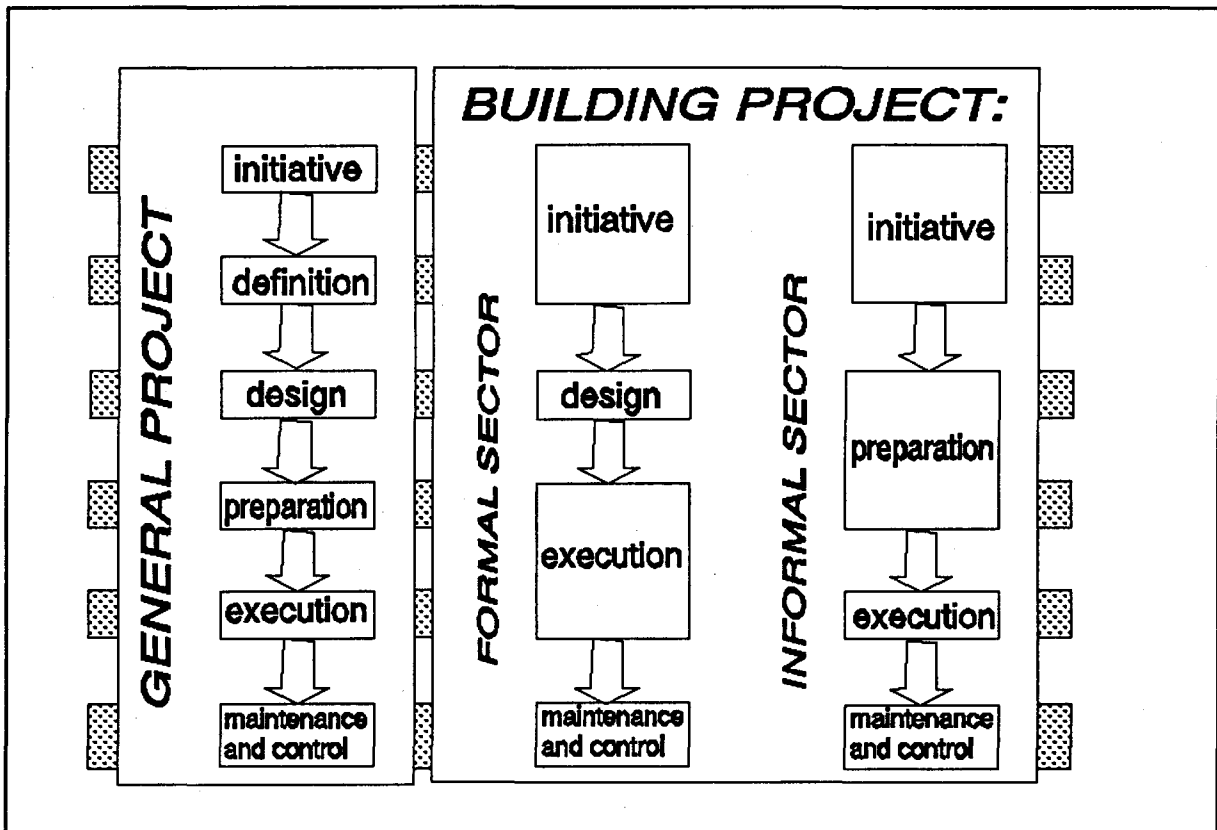


Figure B-V: Phases in the processes of a general project, a formal sector building project and an informal sector building process [sources: Wijnen, 1994, p. 59; Habitat, 1981, p. 15]

The definition of the informal sector building process for residential buildings therefore is:

The process that has to be gone through in order to build a residential building; following the phases of initiative, preparation, execution, and maintenance and control.

The process as it is given here can be elaborated further: each phase can be divided into more detailed steps. For this elaborated process see *Appendix B-2*. One other aspect of the process is that the execution does not take place in a continuing time span, for it merely depends on the financing possibilities of the client. Therefore, it often happens that the phases of preparation and execution are repeated time after time.

Housing

A housing unit is defined as a separate and independent place of abode basically intended for habitation by one household, or one not intended for habitation but occupied as living quarters by a household.

[United Nations, in Erkelens, 1991, p. 22]

Building Contractor

A building contractor is an entrepreneur who undertakes building projects. He is usually responsible for the acquisition of the required human resources and materials and for the execution of the building activities on site.

[Tegelaers, 1995, p. 8]

Informal Small Scale Building Contractor or Fundi⁴

An informal small scale building contractor is a building contractor who, in comparison to a formal building contractor, is registered neither at the National Board of Architects, Quantity Surveyors, and Building Contractors nor at the Ministry of Works. His projects may not exceed jobs categorized for class VI and class VII contractors, which means that it is allowed for him to have contract sums with a maximum of Tshs 20,000,000. Furthermore, his activities must meet the definition of the informal sector.

[Tegelaers, 1995, pp. 8, 97]

Household

A household is that group of persons who live and eat together and share common living arrangements. It usually consists of husband, wife and their children, but may also include other persons, relatives and domestic servants (married or single) provided they live together and eat most meals together. A household can consist of one up to many persons.

[Planning Commission and MLYD, 1991, p. 3.15]

Programme of Requirements for Housing and Infrastructure

The programme of requirements is the complete package of demands for the housing and the infrastructure by the target group, that is the households. It should include spacial aspects, social aspects, and service aspects. These aspects cover the following variables:

- technological aspects: strength, stability, durability;
- spacial aspects: infrastructure, safety, hygienics, orientation, needs of space, space-relation between rooms;
- social aspects: privacy, personal identification, status, elements of territory;
- service aspects: climate, lights, aesthetics, flexibility.

[ITDS, 1996, p. 33]

Construction Costs

The price charged by the contractor is the cost to the client [Ofori, 1990, p. 4]. In addition to that price, other expenses should be included in the costs when considering a private household that is building a house; namely, the prices charged by the suppliers of the building materials necessary for

⁴'Fundu' is a general Swahili word for craftsman, for example a 'fundu baisikeli' is a bicycle repairman and a 'fundu vya viatu' is a shoemaker. In this report 'fundu' will be used for any craftsman in the building sector.

construction, the prices charged by the government for permits and fees, and the prices charged by other persons who are involved in the construction of the building and hired directly by the client, such as professionals or unskilled labourers. Prices charged for land for construction are excluded from the construction costs, because land officially has no value in Tanzania⁵. The definition therefore will be:

Construction costs are all costs made by the client necessary to construct his house, minus the cost of the land. These construction costs thus include payments to the contractor or contractors, to the suppliers of building materials, to other professionals or workers involved, and to the government.

Hazard Land

Hazard land is all land where potential hazards are considered to be present. The dangers may vary, but are described in the Dar es Salaam Master Plan as follows: flood susceptibility, erosion, steep slopes combined with river valleys, and other physical limitations. It is not permitted to construct buildings or structures of any kind in any hazard land area except structures required for salt operations and related servicing facilities. The reason for this prohibition is that a governmental body determines that the land is dangerous for humans to live on.

[Marshall Macklin Monaghan Limited, 1979, pp. 19, 104; Working Group Hazard Land, 1996, p. 1]

⁵This will be explained in Chapter 8.

5 EMPIRICAL SECTION

Anna's other major discovery of that summer grew into a very complex activity, for our house suddenly blossomed with little blue notebooks and slips of paper. When confronted with something new, Anna would accost the nearest passer-by, and hold out notebook and pencil, with a 'Please write that down big, please.'

This request to 'write it down big' often produced a somewhat startled reaction. Anna's presentation on these occasions was like a stick of dynamite with a very, very short fuse and it frightened some people. (...)

She pointed to a broken-off stump of an iron railing. 'I want somebody to write about that, but they don't see it.'

'Perhaps they are too busy,' I suggested.

'No, it ain't. They don't see it. They don't know what I mean.'

This last reply was uttered with a kind of deep and inward sadness; it was a sentence that I was to hear more and more. 'They don't see it. They don't see it.'

[Fynn, 1974, pp. 50-51]

Like Anna, we want to write down what we see in the field. Anna uses notebook and pencil to collect her data: she asks others to write down what she sees. This chapter describes how the theory of this research is put into practice.

In *Chapter 3*, it is made clear that this study could be used in Dar es Salaam in two ways. The NCC can use the results to get a better understanding of the informal construction sector in Dar es Salaam, and the DCC can use the results to formulate a management plan for the Msimbazi Valley. Each one of these two institutes, however, has a different objective:

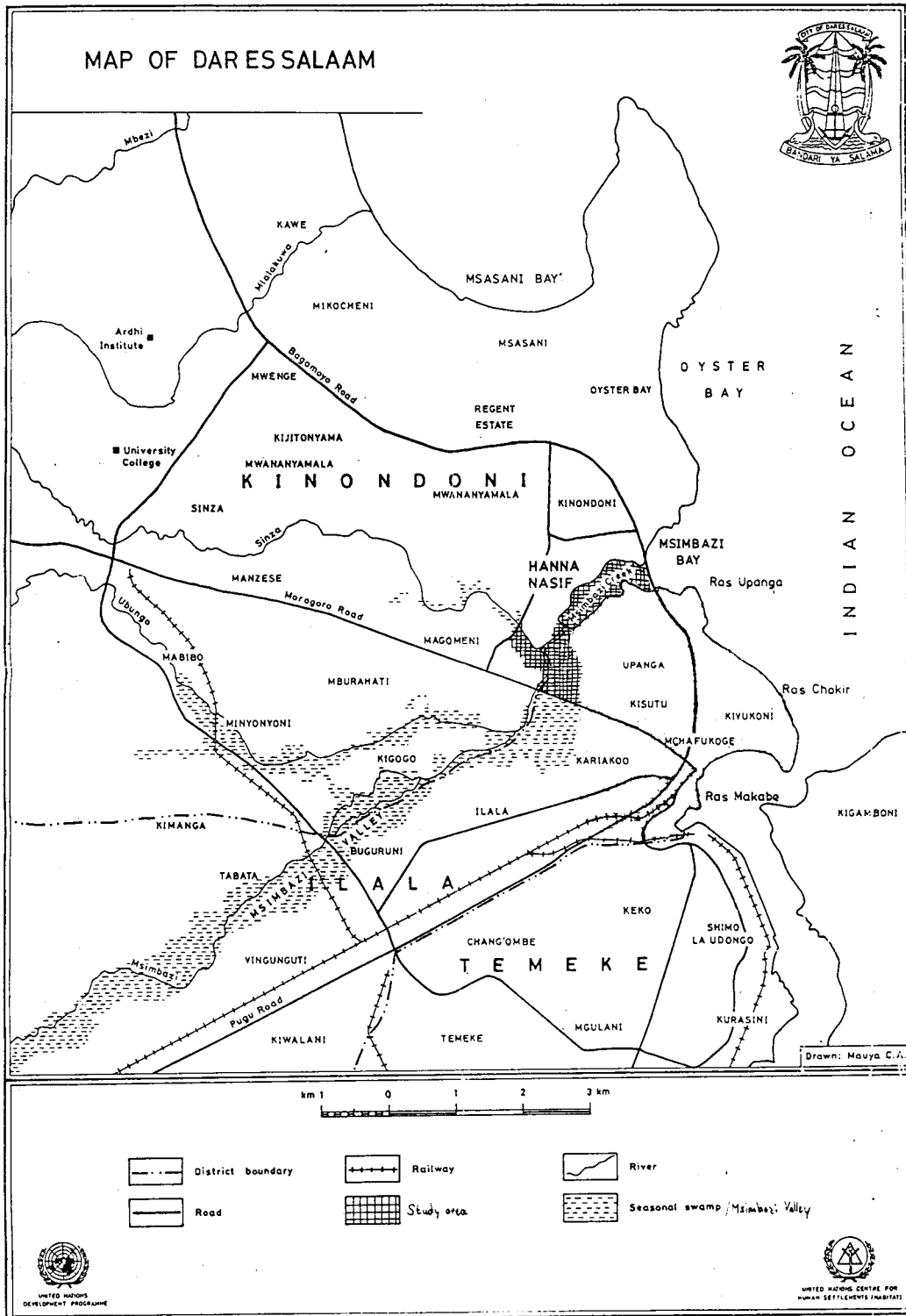
- The NCC wants to survey the informal construction sector in Dar es Salaam; whereas
- The DCC wants to get a precise view of the Msimbazi Valley to continue their work from there.

The choice as to what type of research should be done in order to agree with both parties seems difficult, because the objectives of both institutes are dissimilar. First, it will be made clear which choice was made and how this is justified. After that, the population and research unit will be described, and then, the sampling method, the method of data collection and the method of data analysis.

5.1 Type of Research

The DCC required that a case study be executed in the part of the Msimbazi Valley in Dar es Salaam which lies the most to the east⁶. *Map B-1: Msimbazi Valley* shows the study area as well as the whole valley and its position in the city. The study area is a part of the valley suffering severely from floods because of its position close to the Indian Ocean. Also, the area has rapidly been occupied by land seekers during the last years. For those reasons, the DCC demanded that action be taken in that area; starting off with a case study.

⁶Throughout the report when the Msimbazi Valley is cited, only this part of the whole valley is meant.



Map B-1: Dar es Salaam, showing Msimbazi Valley

While a case study does not allow for a statistical generalization, it is possible to use the results on a broader scale. This is only possible by assuming that the informal construction sector functions similarly in other squatter areas in the city. A justification for this assumption is presented in *Table B-1*, which shows relevant aspects found in the study area and in other areas of the city of Dar es Salaam, where the informal construction sector is vivid. The aspects are some characteristics of the households, the way the households had acquired the land for building, and some characteristics of the fundi. Because these aspects show similarities in all three fields, it is justified to assume that the results of the case study can be generalized and that the situation found in the study area also applies to other parts of the city. If desired, other case studies about the subject could be performed later to confirm this assumption.

	Dar es Salaam	Msimbazi Valley
households:		
- average number of households per house	2.1 households	2.1 households
- average household size	5.5 persons	4.9 persons
- average number of persons per house	11.6 persons	10.3 persons
- average age of head of household	39 years	41 years
- household type:		
- couple with extended family	22 %	31 %
- couple with children	41 %	54 %
- couple	6 %	3 %
- single (alone or with others)	31 %	12 %
- total	100 %	100 %
land acquisition:		
- occupied without approval	5 %	6 %
- permission from friend	8 %	13 %
- inherited	17 %	6 %
- bought from a person	67 %	72 %
- allocated by government	3 %	3 %
- total	100 %	100 %
fundi:		
- percentage of fundi that use written contracts	17 %	29 %
- fundi's clients come from the local areas	yes	yes
- fundi's clients are private households	91 %	mostly
- fundi find it difficult to get new jobs	sometimes	sometimes

Table B-I: Relevant aspects in Msimbazi Valley and Dar es Salaam

With this information, it is understandable that a case study is in place, for both institutes will benefit from it. First, the NCC can get an image of the informal construction sector as it functions in the study area, and, because one may assume that this justifies a more general picture of this sector, it can get an image of the functioning of the sector in the whole city of Dar es Salaam⁷. Second, the DCC can get information on the housing situation in the study area, which is needed for the preparation of the management plan for the area.

5.2 Population and Research Unit

The population of the research, and thus of the case study, consists of two groups of people involved in the construction of housing. One group is the households that own a house in the Msimbazi Valley and that live in that house; the other group is the contractors building the houses in the valley. Note that possible tenants in the valley are excluded from the population. This does not make a difference for the size of the population, because in the Msimbazi Valley, tenants rent only part of a house. It happens in Dar es Salaam that houses are occupied by tenants only, but this is either in areas where the government, or another institution, owns houses for renting purposes, or in 'old' areas where house owners leave their house to rent it out. This first situation does not occur in the Msimbazi Valley, and the second situation is not common either, because the valley is a relatively 'young' residential area. Therefore, the situation of tenants being the sole occupants of a house is assumed to be negligible. The number of house owners thus remains the same as the number of houses in the valley.

Moreover, there are two research units, since the population consists of two groups of people. The first research unit is defined as the household owning a house in the Msimbazi Valley and living in

⁷The assumption will be clarified in Paragraph 5.3.

that house. The second research unit is defined as the contractor constructing houses in the Msimbazi Valley, either in the past or at present. A questionnaire has been made for each of the two research units. See *Appendix B-3* for the development of the research instrument and the final questionnaire for the households, both in English and in Swahili, as it is used in the field, and *Appendix B-4* for the questionnaire for the contractors.

5.3 Sampling Method and Sample Size

Area

The area where the research took place (the Msimbazi Valley) has been chosen for two reasons. The first one is that the area has interesting characteristics, namely the location in the city and the situation with regard to the floods^a. The second, and more important one, is that a study in this area is quite relevant at the moment because of the fact that the government wants to set up a management plan for the hazard lands in Dar es Salaam. These two reasons justify the choice of the Msimbazi Valley as the study area. The selection of the research units within the area, however was not a matter of choosing as such, so it was necessary to sample.



Picture B-1: View of the Msimbazi Valley, taken from Hananasif

Households

In selecting the households in the valley, there were no possibilities for doing a probability sampling. A probability sampling requires a complete list of the research units, and a list of all the households in the valley is practically impossible to set up. Therefore, the scientifically favourite method could not be used, and another way of sampling had to be chosen.

The first thing necessary to do the sampling was to arrive at a figure for the total population. Only an estimation could be made of the number of houses, because accurate maps or figures were not

^aBoth characteristics will be discussed in *Chapter 11*.

available. The total number of houses in the Msimbazi Valley is estimated, through house counts, to be 611 houses. Because time and money did not allow for interviewing the households of all 611 houses, a sampling had to be done. It is generally accepted that if the sample size is bigger than $n=20$, the results are accurate enough to acquire a good idea of the population. Therefore, it was chosen to use a sample of $n=32$. This sample size is justified with the use of a formula that has been developed by McCarty.

According to this formula [McCarty, in: Lemmens, 1987, p. 71], the minimum sample size is theoretically determined as:

$$n = \frac{(1.96)^2 pq}{d^2 \frac{N-1}{N} + \frac{(1.96)^2 pq}{N}}$$

with: n = sample size
 p = population proportion
 q = (1-p)
 d = deviation or sampling error
 N = population size

The formula estimates the correctness of a population proportion within a certain value of the deviation, with a reliability of 95 %. The deviation is usually assumed to be 0.1 and the population proportion is assumed here to be 0.9. In summary:

$p = 0.9$
 $q = 0.1$
 $d = 0.1$
 $N = 611$

Then, using this formula, the sample size for the population comes down to $n=33$. Because the sample size used ($n=32$) is only one less than the theoretically determined sample size, one can assume that the theory applies for this sample size as well. This means that, if the method of sampling is correct, it is justified, with this sample-size, to generalize the outcome to the whole population, with a reliability of 95 %. The method of sampling is, thus, of major importance: a proportional stratified sampling has been done to acquire a representative sample.

The whole population has been divided into sub-populations, based on three relevant factors:

1. level of income of the household;
2. duration of stay in the Msimbazi Valley;
3. location of the house in the Msimbazi Valley.

Ad 1:

Because the real income of the households is unknown, an indication for the level of income is used: the use of different building materials. In the Msimbazi Valley, two sorts of houses are distinguishable, based on the material used to construct the walls:

- the walls of a house built of mud-and-poles;
- the walls built of sand-cement blocks.

These two building materials are the main walling materials in Dar es Salaam. They are the only two sorts that exist in the Msimbazi Valley, and they differ strongly in costs. Assuming these building materials correspond with the economic situation of the occupants, there are two, economically different, groups of house owners in the Msimbazi Valley.

House counts in the Msimbazi Valley pointed out that approximately 90 houses are built with mud-and-pole walls, which is somewhat less than 15 % of the total of 611. The division therefore is:

mud-and-poles: 15 %
sand-cement blocks: 85 %

Ad 2:

There are three periods during the last two decades, that are distinguishable when considering the duration of stay of households in the Msimbazi Valley. They vary in the rate of occupation⁹, which has been increasing over the years. The first settlers came in 1980, but their number was relatively low; since 1985 the rate of occupation has increased rapidly, for more people started to see the advantages of the valley and space elsewhere became difficult to find. Then, since 1993, the rate increased to an alarming level because of the unavailability of land elsewhere, and because the government did not stop the illegal settlers. Hence, the three periods are the following:

I: before 1985 (or: ≥ 10 years ago);
II: from 1985 until 1993 (or: 3 - 10 years ago);
III: from 1993 onwards (or: ≤ 3 years ago).

Estimations and house counts give the following division for the three periods:

I: 90 houses, or 15 %
II: 261 houses, or 43 %
III: 260 houses, or 42 %

Nota bene: All mud-and-pole houses are all built less than three years ago. Houses that had been built with mud-and-poles before 1993 have already been replaced by houses of sand-cement blocks. The consequence of that is that the division of the building materials (1) accounts for period III only. This is shown in *Table B-II* below..

Ad 3:

The Msimbazi Valley can be divided into two parts, each part being affected by the floods to a different extent. One part is along the Msimbazi River, and the other is between Hananasif and Magomeni, towards Rashidi Kawawa Road. The second part is higher than the first part and therefore less affected by the floods. House counts then give the following division:

Msimbazi River: 312 houses, or 51 %
Kawawa Road: 299 houses, or 49 %

Nota bene: This division accounts for all the houses in the valley. For the houses that are distinguished on the basis of materials, the division is different, because the mud-and-pole houses are almost all built along the Msimbazi River. Only 5 of the total of 90 mud-and-pole houses are in the other part of the valley. The consequence of that is that the percentage of mud-and-pole houses towards Kawawa Road is 1 %, and along the Msimbazi River 14 %. The percentage sand-cement houses towards Kawawa Road then is 48 %, and along the river 37 %. This is shown in *Table B-II*, as well.

Table B-II presents the distributions of the sample, based on the different sub-populations. The figures based on the percentages given above are shown in parenthesis, and the figures eventually used for the sample are shown bold. In three boxes, the two figures are unequal, for it was too time-consuming in the field to fill them correctly.

⁹Based on personal interviews at the Dar es Salaam City Council.

Msimbazi River (51 %)			Kawawa Road (49 %)	
[1] -	[2] 3	period I (15 %): ≥ 10 years ago	[1] -	[2] 2
[1] -	[7] 7	period II (43 %): 3 - 10 years ago	[1] -	[7] 6
[4] 4	[3] 4	period III (42 %): ≤ 3 years ago	[0] 0	[6] 6
mud-and-poles (33 % of III)	sand-cement (18 % of III)		mud-and-poles (2 % of III)	sand-cement (47 % of III)

Table B-II: Proportions of the household sample in the Msimbazi Valley, both theoretically and in practice

Hence, the sample that is used for the field-work is representative for the whole valley on the basis of the three characteristics; income, duration of stay, and location of the house.

After determining the sample sizes of the several proportions, the sampling itself had to be done. In order to reach the households and fill in the screen of *Table B-II*, the snowball method was used. This method asks the respondents for other respondents that fit in the boxes of the screen, to be questioned afterwards. Even though it is not entirely arbitrary, it was the best method, given the circumstances in the Msimbazi Valley, since this method gives better access to the households in the community. To increase the randomness, the snowball method was started in four different locations of the valley, two locations along the Msimbazi River and two towards Kawawa Road.

Fundi

The second group of people in the population were the contractors building the houses in the Msimbazi Valley. Because quite a lot was already known about the small scale contractors (fundi) in Dar es Salaam, the approach here was different than for the households.

The main reason for including the fundi in the research was to control the outcomes derived from the households. Therefore, it was chosen not to do a sampling from the fundi working in the area, but to have interviews with five fundi as key persons. The ones that were interviewed, varied from each other by age and thus by experience. Because the information needed from the fundi was not just factual data, it was necessary to ask more than one key person. From the interviews with the households however, it appeared that most fundi work the same way, which would allow for only a small number of fundi being interviewed. The five fundi that were interviewed all lived in the area around the Msimbazi Valley: some of the households in the valley being interviewed had referred to them, for they had built their house.

5.4 Method of data collection

Much of the data collection was done by a literature study. Although sometimes it was very difficult to find relevant and more or less actual literature, there was some available. A second source of information was doing interviews with or talking to professionals in the fields of architecture, town planning, and construction technology. The key persons that were interviewed are introduced briefly in *Appendix B-5*. A third method was by non-participant direct observations in the valley. Living on the edge of the valley made this quite easy, and several visits, alone or together with other members

of the Working Group Hazard Lands of the SDP, were paid to the valley and to other hazard lands in the city. The fourth method was doing interviews with the research units: both households and fundi were interviewed during the study, as explained in *Paragraph 5.3*. See *Table B-III* for a description of which parts of the report are derived from literature, which ones from key persons, which ones from observations, and which ones from the interviews in the valley. Sometimes more than one method is used to collect the data for a certain part. This is done in order to control and to complete the data that would have been collected by means of one method only.

method of data collection	which data
1. literature study	theoretical background (<i>Chapter 4</i>) housing in Dar es Salaam (<i>Chapter 6</i>) governmental attitude (<i>Chapter 7</i>) land tenure (<i>Chapter 8</i>) informal sector (<i>Chapter 9</i>) actors (<i>Chapter 10</i>) self-help building (<i>Chapter 10</i>) hazard lands (<i>Chapter 11</i>)
2. interviews with professionals	theoretical background (<i>Chapter 4</i>) empirical background (<i>Chapter 5</i>) governmental attitude (<i>Chapter 7</i>) land tenure (<i>Chapter 8</i>) actors (<i>Chapter 10</i>) hazard lands (<i>Chapter 11</i>)
3. non-participant direct observations in the valley	self-help building in Dar es Salaam (<i>Chapter 10</i>) hazard lands (<i>Chapter 11</i>) building in the Msimbazi Valley (<i>Chapter 12</i>) client-fundi relation (<i>Chapter 12</i>)
4a. interviews with the households	actors (<i>Chapter 10</i>) hazard lands (<i>Chapter 11</i>) construction site (<i>Chapter 11</i>) building in the Msimbazi Valley (<i>Chapter 12</i>) client-fundi relation (<i>Chapter 12</i>)
4b. interviews with the fundi	actors (<i>Chapter 10</i>) construction site (<i>Chapter 11</i>) building in the Msimbazi Valley (<i>Chapter 12</i>) client-fundi relation (<i>Chapter 12</i>)

Table B-III: Methods of data collection

5.5 Method of Data Analysis

The research is a descriptive study of the informal construction sector that is based on literature, interviews, observations, and mainly qualitative data from a case study. To this end a descriptive statistical analysis has been executed. This means that, depending on the measuring level of the data, the following descriptive techniques are used, in order to answer the research questions:

- calculation of frequencies;
- calculation of the range;
- calculation of the mean and the mode.

Part A: GENERAL INTRODUCTION

- Introduction
- Structure of the report
- Relevance of the research

Part B: RESEARCH DESIGN

- Theoretical part
- Empirical part

Part C: BACKGROUND OF THE HOUSING SITUATION

- Housing in Dar es Salaam
- Governmental attitude towards housing
- Land tenure and acquisition

Part D: THE INFORMAL BUILDING PROCESS

- Informal sector in Tanzania
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- Building in the Msimbazi Valley

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6 HOUSING IN DAR ES SALAAM

Our street, twenty houses big, was a regular United Nations; the only colours in kids we didn't have were green ones and blue ones, we had nearly every other colour. Our street was a nice street. Nobody had any money, but in all the years I lived there, I can never remember anyone's front-door being shut in the daytime, or, for that matter, for most of the night either. It was a nice street to live in and all the people were friendly, but after a few weeks of Anna the street and the people in it took on a buttercup glow.

[Fynn, 1974, p. 26]

On a global scale, urban housing, and in particular low-cost housing, is a problem growing at an exponential rate. Much has been written about it and about how to solve it. However, there has been no satisfactory solution yet, so the problem is still there, increasing every day. The problem of providing low-cost housing also exists in Dar es Salaam. In the following chapter, the housing situation in Dar es Salaam is discussed. An analysis of the problems concerning housing is made, both quantitatively and qualitatively. The chapter gives an idea of Dar es Salaam, which is necessary for the reader to understand the context of the research. Because the research aims at low-income households, only the housing for those households is paid attention to. Some additional information about the city is given in *Appendix C-1*. Note, apart from that, that the city of Dar es Salaam is a big city, and that it comprises many different living areas and also many types of houses; the image given here, therefore, is a generalization.

6.1 Housing Situation: Quantitative

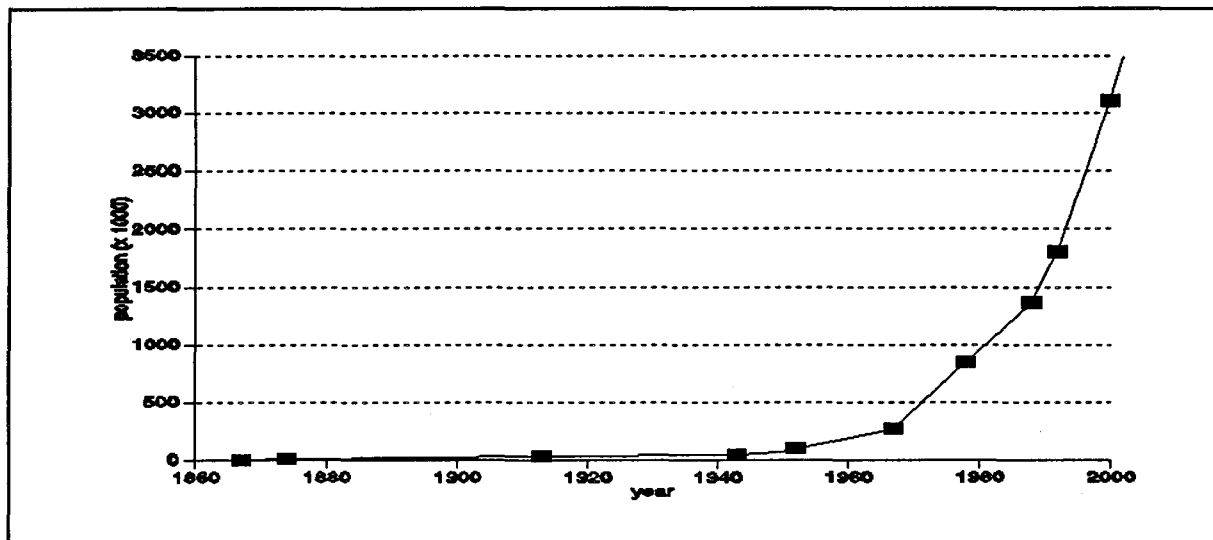
Over the years, Dar es Salaam has been growing rapidly, making it one of the fastest growing cities in Africa. See *Appendix C-1* for detailed data on the population growth of Dar es Salaam. *Table C-1* shows the main figures of that appendix.

year	population	annual rate of growth (%)
1867	900	-
1874	10,000	41.1
1913	34,000	3.2
1943	45,000	0.9
1952	99,140	9.0
1967	272,515	7.0
1978	843,090	10.8
1988	1,360,850	4.9
1992	1,800,000	7.2
2000	3,100,000	7.2

Table C-1: Population of Dar es Salaam [source: CHS, 1995, p. 7]

Notice that the period between 1978 and 1988 does not follow a line of gradual growth, which is caused by an adjustment of the city boundaries during that period. Furthermore, the 1988 census gave the last reliable figures on the population of Dar es Salaam. The 1992 and 2000 figures are based on an annual growth figure of 7.2 %. This figure is based on urban ward growth statistics

[CHS, 1995, p. 6]. It will be used further on as well, although other figures of the population of Dar es Salaam show otherwise. There are no indications which figures are correct and the choice is made to use this growth rate. *Graph C-1* presents the growth of Dar es Salaam in outline.



Graph C-1

The enormous population growth requires, of course, an adequate supply of housing. This, unfortunately, is not the case: the demand for housing in Dar es Salaam far exceeds the supply. Exact figures about the deficit of the housing supply are not available, but it is possible to make a rough estimation.

In practice there are four sources of demand for urban housing:

- the housing required for the growing population;
- the housing required to eliminate presently existing overcrowding conditions;
- the housing needed to replace houses as they come to the end of their lives;
- the housing needed to replace semi-permanent structures.

[Kyhne, 1984, p. 39]

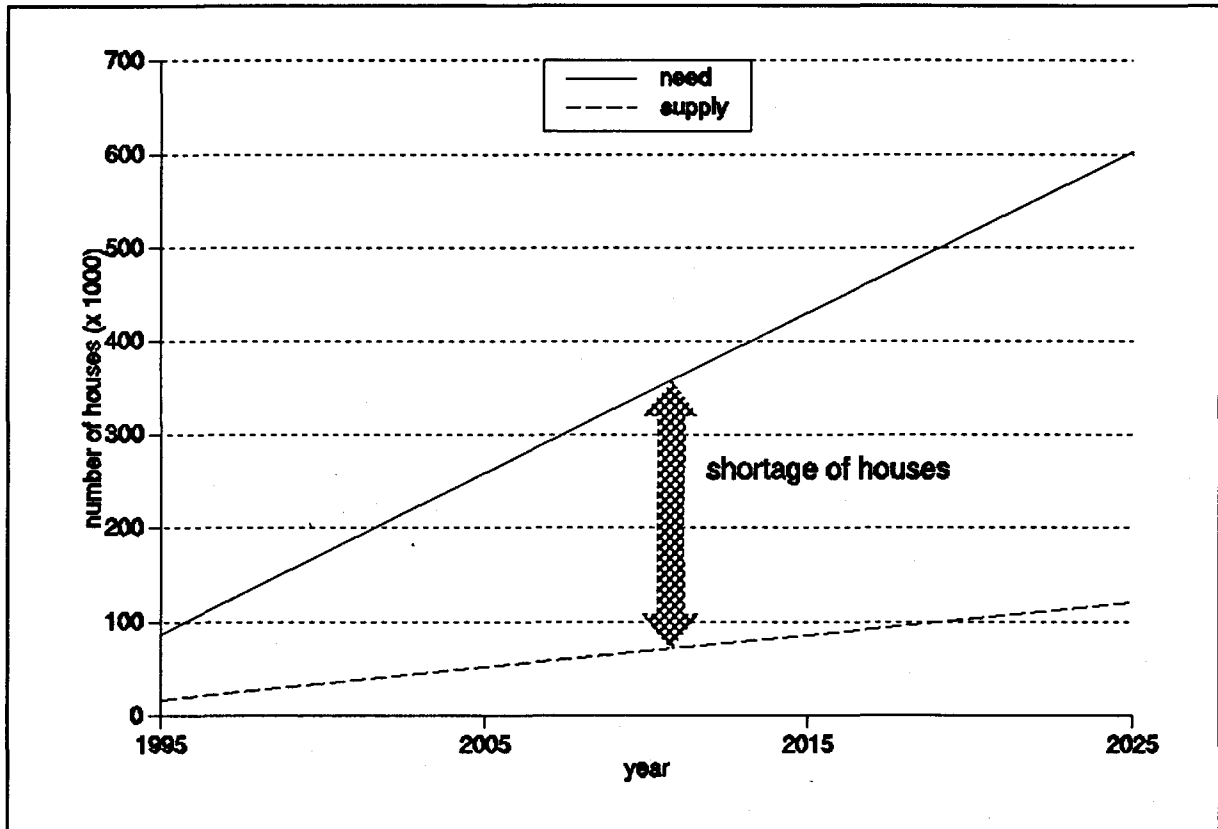
Each of those four different needs can be estimated separately, which gives a very rough indication of the total demand for housing in Dar es Salaam. See *Appendix C-2* for these estimations, *Table C-II* presents the outcomes.

housing need as a result of:	number of houses per year
- population growth	13,500
- elimination of existing overcrowding	4,350
- replacements	3,700
total housing need	21,550

Table C-II: Housing needs Dar es Salaam [sources: Bureau of Statistics, 1991; CHS, 1995; Hoek-Smit, 1991]

Then, Kyessi writes that the supply of housing in urban Tanzania is below 20 % of the requirements [Kyessi et al, 1995, p. 2]. Therefore, the supply of housing in Dar es Salaam here would be 4.310 houses per year.

The shortage of houses from 1995 onwards, as a result of the difference between supply and demand, is shown in *Graph C-II*. The housing need in 1995 is the total number of houses needed to eliminate the existing overcrowding (87,000 houses); the increase is the result of the population growth and of necessary replacements. The supply is assumed to grow as a constant percentage of the need (20 %). Even though this constant percentage is an optimistic assumption, because a fast increase would be necessary to reach it and there are no signs that this increase will happen, it will nevertheless be used here.



Graph C-II: Housing shortage in Dar es Salaam

The fact that the quantitative demand for housing far exceeds the supply makes people seek other ways in order to find accommodation. As a direct result, the quality of housing decreases in urban areas, as mentioned by Kyhn:

- rooms being sublet at the rate of one household per habitable room;
- overcrowding of the individual rooms;
- stress on service facilities like toilets, showers and kitchens;
- circulation and access problems;
- lack of privacy.

[Kyhn, 1984, p. 39]

The quality of housing will be elaborated on in the following paragraph.

6.2 Housing Situation: Qualitative

In spite of what is written in *Paragraph 6.1*, the housing problem in urban areas in Tanzania is of a qualitative rather than a quantitative nature: the urban population in Tanzania is housed, but the accommodation in which they live is either overcrowded or its standard is deplorably low. For Dar es Salaam, it is estimated that 40 % of the households have to cope with overcrowding, while only 0,2 % of the inhabitants of Dar es Salaam is considered to be homeless [CHS, 1995, pp. 40-41].

The areas where the overcrowding and low-standard situation mostly exist, are so-called squatter areas. In Dar es Salaam, all unplanned areas are considered squatter areas, and because they are unplanned, the occupancy in those areas is illegal¹. The definition of a squatter settlement that will be used in this report is the following one:

squatter settlement

A squatter settlement is an urban area consisting of builder-occupied houses on illegally occupied land.

[Basham, in Segal, 1988, p. 159]

Very generally, the squatter areas can be characterized by the absence of a plan for the area (no surveyed plots, no roads) and the absence of any services (no water, no drainage system, etcetera). The SDP [SDP, 1995, section 1.1.4] describes deficits that usually appear in those unplanned areas, although they appear as well in many planned areas in Dar es Salaam:

- a lack of drainage causing frequent and severe flooding;
- insanitary human waste disposal facilities;
- poor access with few footpaths, and unpaved secondary and tertiary roads which are often impassable in rainy seasons;
- intermittent and/or limited water supply;
- inadequate solid waste collection facilities resulting in drainage channels being choked with refuse;
- poor telecommunications;
- inadequate street-lighting for security and safety;
- few parks, open spaces, education or primary health and social infrastructure facilities.

According to the most recent Dar es Salaam Master Plan [Marshall Macklin Monaghan Limited, 1979, p. 16], the city had 3,775 ha of planned area and 2,349 ha of unplanned residential area as of June 1978. So, at that time almost 40 % of the land was unplanned. Knowing, moreover, that 60 % of the total population of Dar es Salaam lived in those unplanned areas, the problem is obvious. Because of the failure to supply sufficient plots over the past decades, the squatter population is increasing rapidly². Estimations of the actual situation show that 70 % of the population lives in squatter areas [SDP, 1995, 1.1.4], which is 1,260,000 persons³. See *Table C-III*.

¹The situation of land tenure will be discussed more closely in *Chapter 8*.

²This will come back in the next chapter where the role of the government is discussed.

³Based on the estimation of the total population of Dar es Salaam of 1,8 million.

		planned	unplanned	total
1978 residential area	absolute (ha)	3,775	2,349	6,124
	relative (%)	62	38	100
1978 population	absolute (persons)	340,000	506,000	846,000
	relative (%)	40	60	100
1995 residential area	absolute (ha)	7,130	5,020	12,150
	relative (%)	59	41	100
1995 population	absolute (persons)	540,000	1,260,000	1,800,000
	relative (%)	30	70	100

Table C-III: Squatter areas in Dar es Salaam [sources: Marshall Macklin Monaghan Ltd, 1979; CHS, 1995; SDP, 1995]

Table C-III shows the magnitude of the squatter settlements, which is an indication of the quality of housing in Dar es Salaam. It is, however, necessary to have a closer look at the housing units themselves. In general, the quality of the existing housing stock is fairly high. About two-thirds of the units are constructed out of permanent materials and expected to last twenty years or more [Hoek-smit, 1991, p. 13; CHS, 1995, p. 40]. The average size of the housing units in Dar es Salaam is very small: the mean of the indoor size of all houses is 128 m², and the mean floor area per person comes down to 11 m². The minimum required size in Dar es Salaam is 45 m² per person. Although 45 m² per person may be very large (the houses would have to be over 500 m² in order to comply with this requirement), a major problem, especially in squatter areas, is that of overcrowding.

Table C-IV shows the types of housing units in Dar es Salaam. The first four categories are the ones that occur in the squatter areas, the other categories occur in planned areas only.

category of housing units	amount (%)
traditional house	20
unextended Swahili	38
extended Swahili	5
core house	3
detached house	11
semi-detached house	3
row house	5
multi-storey	15
total	100

Table C-IV: Types of housing units in Dar es Salaam [source: CHS, 1995, p. 39]

Most houses in Dar es Salaam are of the Swahili-type. This is a six-roomed house with three rooms on either side of a corridor; kitchen, bathroom and toilet are usually built separately on the plot. If extended with more rooms, it is considered as a different type, but often there is no clear distinction whether a house is extended or not. The traditional house is a rectangular house that varies in size. Most newly built houses are of that type, for it requires less skill from the fundi and is therefore cheaper.

6.3 Conclusion

The enormous growth of Dar es Salaam and the resulting demand for housing, ask for an increase in the supply of houses. The shortage of houses will increase rapidly if nothing changes: in the year 2000 there will be a shortage of 140,000 houses (twice the present shortage), in 2010 it will be 280,000 houses, and in 2025 almost 500,000 houses. The shortage will result in a portion of the population living in squatter areas that is still growing, and, because of the increasing pressure on those areas, the quality of the housing situation will decrease constantly. If that is the case, the deficits in the squatter areas will even futher deteriorate, and it will become more and more difficult, if not impossible, to improve the areas. It is therefore essential that a way to increase the housing supply be found in the near future.

An improved housing supply should take into account not only the quantity, but also the quality of the housing. Even though houses themselves in Dar es Salaam are of a reasonable quality, the situation in the residential areas often is deplorable. The lack of services, the unhygienic conditions and the poor infrastructure remain the basis of unacceptable living conditions for people.

It is one of the government's duties to deal with the above problems, its role will therefore be discussed in the next chapter.

7 GOVERNMENTAL ATTITUDE TOWARDS HOUSING

*'Why did Mister God rest on the seventh day?' Anna began.
 'I suppose he was a bit flaked out after six days' hard work,' I answered.
 'He didn't rest because he was tired though.'
 'Oh - didn't he? It makes me tired just to think about it all.'
 'Course he didn't. He wasn't tired.'
 'Wasn't he?'
 'No - he made rest.'
 'Oh. He did that, did he?'
 'Yes, that's the biggest miracle. Rest is. What do you think it was like before
 Mister God started on the first day?'
 'A perishing big muddle, I guess,' I replied.
 'Yes, and you can't rest when everything is in a big muddle, can you?'
 'I suppose not. So what then?'
 'Well, when he started to make all the things, it got a bit less muddy.'
 'Makes sense,' I nodded.
 'When he was finished making all the things, Mister God had undone all the
 muddle. Then you can rest, so that's why rest is the very, very biggest miracle
 of all. Don't you see?'*

[Fynn, 1974, pp. 145-146]

One of the tasks of a national government is to support the provision of shelter for the people in the country and to enable the construction of affordable housing. In this chapter, the provision of housing led by the Tanzanian government is discussed: both the historical and the actual role and some results come up for discussion. As stated in the previous chapter, a large part of the population of urban Tanzania, is living in squatters. Therefore, the question rises what the government undertakes to undo the still existing muddle.

7.1 Historical View

During the 1960's, the government had a negative view of squatter settlements and a policy of slum clearance was followed. The squatter areas were to be redeveloped and the slums replaced by "standard" houses. However, the former squatters could not afford the new houses or the environment associated with those houses, for reasons of their incomes, life styles, and other socio-economic factors. Only with governmental subsidies could the people afford the rent, but the environment would still be alien. Therefore, it is easy to conclude that this policy was very inappropriate and costly, both socially and economically. [Mosha, 1988, pp. 150-151; SDP, 1995, section 1.1.2]

In 1972, the government adopted the ideas of the World Bank and ordered that squatter settlements were not to be demolished any longer, but that they had to be improved and provided with services. Two projects led by the World Bank were implemented, directed both at upgrading the squatter areas and at providing sites and services in certain areas. The World Bank One and Two Projects (respectively in 1974-1976 and 1977-1981) show mixed achievements. On the positive side, the total housing stock had been increased by the projects, and the infrastructural improvements and community facilities initially provided improved health and security [Mosha, 1988, p. 154]. On the negative side, however, four aspects were apparent:

- The improvements made in the project areas attracted rapid densification over and above the infrastructure design standards. As a result, the environmental living conditions in those areas declined;
- The small plot sizes of the Sites and Services Programmes, turned out to be unsuitable for a pit latrine system and prevented urban subsistence farming;
- There was a severe shortage of building materials; and
- It was almost impossible for the target group (the low-income part of the population) to enter the programmes, because of the established plot allocation criteria, the difficulties to access the loans from the Tanzania Housing Bank, and the insufficient finance for building material loans.

[Mosha, 1988, pp. 155-156; Mwapilinda, 1992, pp. 53-54]

The failure of the upgrading and sites and services policy becomes clear when considering the conclusion of Mwapilinda [Mwapilinda, 1992, pp. 54-55]: 'The number of surveyed plots in the five project areas were intended to satisfy about 75 % of the estimated demand for building in these areas. However, by mid-1981, less than 30 % of the intended number of surveyed plots had actually been prepared. (...) Estimates have shown that during the implementation of the first and second sites and services projects, squatter population increased by 750.000 - 900.000 people. Compared with the estimated figure of 467.000 people of project beneficiaries for both projects, and the fact that the projects were planned to have covered about 75 % of all squatter housing, it is clear that the new squatter settling has by far outweighed the efforts to contain further squatting.'

After these two World Bank programmes, no significant urban infrastructure project has been implemented. As a result, the investments in infrastructure and services have seriously lagged behind effective demand (see *Chapter 6*). The performance of the housing sector during the period 1991/92 - 1993/94 is described in the Rolling Plan and Forward Budget for Tanzania (RPFB). According to this plan, the levels of housing construction activity had continued to increase rapidly, but mainly by means of the private sector. Some constraints for more achievements were identified, like the serious shortages of surveyed plots. These shortages in turn were responsible for the continuing problem of squatter areas and related problems. In other words; the government has not succeeded in providing sufficient shelter, and the only positive results have been achieved by the private sector.

7.2 Actual Situation

Because of governmental failure to meet the demand for low-cost housing, the alternative for the people was and is to provide housing themselves through the private sector, thus forming squatter areas [Mwapilinda, 1992, p. 87]. The government has not been indifferent to this state of affairs and a number of housing policies have been proposed in the national policy documents. Since 1993 Tanzania works with a Rolling Plan and Forward Budget that applies for one year. The actual policies are described in the RPFB3, covering the period starting 1995/96 to 1997/98. The RPFB does not include any specific action plans, so it is not clear how the policies will be implemented. On the other hand, the objective of the housing sector is very clear: to ensure that all Tanzanians have decent shelter. The plan indicates further that in 1990 the work had started to review the current sector policy, which dates back to 1982. Because this has not been completed yet, the housing sector will continue to be guided by the same policy components as those applying under the RPFB1 and RPFB2 [Planning Commission, 1995, p. 92]. See *Appendix C-3* for the actual policies and strategies concerning housing.

The RPFB3 makes it clear that the government wants to enable the development of the private construction sector. By doing that, the housing production can be increased through private initiative. The governmental policies and strategies for the construction sector are given in *Appendix C-3*, as well.

Since November 1993, a big project is operating in Dar es Salaam, with the overall aim of managing the growth and development of the city on a sustainable basis [SDP, 1995, p. 1]. A brief description

of this Sustainable Dar es Salaam Project is given in *Appendix C-4*. Among other things, the SDP is framing a new Strategic Urban Development Plan (SUDP), which is scheduled to be effective mid-1997. This is quite necessary, because the most recent Master Plan dates back to 1972.

None of the priorities of the SDP aims directly at developing housing itself, but three of them are related to squatter areas:

- upgrading of unserviced settlements;
- servicing city expansion;
- managing open spaces, recreational areas, hazard lands, green belts and urban agriculture potential.

While the first priority aims at improving existing squatter areas, the second and the third priorities have the aim of preventing new squatter settlements from evolving. Within the first priority, a pilot project has been running since 1993: a community based infrastructure upgrading project in Hananasif⁴. Some results of the SDP can already be seen (see *Appendix C-4*), but it is too early to identify major effects.

A note of criticism on the SDP is that the project is of such an enormous size, in terms of both the number of people involved and the goals of the project. Owing to the fact that in Tanzania the government does not work efficiently because of its size, its hierarchy, and its bureaucracy, it seems strange to implement a new project like the SDP, exactly within the existing structures of the DCC. It is indeed one of the objectives of the SDP to strengthen local capacity in planning, coordinating and managing, but it is doubtful if the government can change its working method by means of the project. It is out of the scope of this report to go into this deeper.

Altogether, the government is not very clear or outspoken about the housing situation in Dar es Salaam and does not take a position that shows its attitude. Most policies do include ideas about housing, but the implementation lag behind the policies. The weakness of the executive power of the government plays an important role in this, for it often happens that policies are not empowered and thus useless. Again, this goes beyond the scope of this report, but one term should still be mentioned here: corruption. As long as corruption in the governmental bodies is present the way it is now, the government will not be able to effectuate all its policies.

Finally for this chapter, a brief mention of the financing possibilities for housing for private individuals. In 1972, the Tanzania Housing Bank (THB) was established. Among other things, its objectives included the mobilization of local savings and external sources for housing development and the provision of technical and financial assistance for owner-occupied housing. THB was the only long-term mortgage provider in the nation [Hoek-Smit, 1991, p. 7]. Mid-1995 however, the bank went bankrupt, leaving no other funds for housing loans. The government, thus, does not succeed in making available financing for houses.

7.3 Conclusion

Although the government followed several strategies to cope with the squatter problem, none of them has been very successful. First, the government approached the problem of illegal settlers by means of slum clearance. After the failure of this approach became clear, the government shifted from its role as a provider to the role of facilitator of the housing process. In the early 1970's, another strategy, that was stimulated by the World Bank at the time, was followed: two programmes

⁴Hananasif is one of the largest squatter areas, close to the city centre and adjacent to the Msimbazi Valley. With the participation of community members, a storm water drainage and primary roads have been constructed. Much criticism has arisen, however, about the set up of the project, which is beyond the scope of this report to discuss. See for example Jessen, A., *Evaluation of the Hananasif Project*, University of Copenhagen, Copenhagen, 1996.

of sites and services and squatter upgrading were implemented. However, the programmes did not solve enough of the problem and the actual situation is not very promising.

Recently, the SDP was founded in order to create solutions for the urban problems. It is too early to draw conclusions on this project, but its size and its place within the DCC seem drawbacks in the execution of the programmes: it is very difficult to accomplish something within the bureaucratic governmental system in Tanzania. Furthermore, corruption is an aspect of that system that hinders major changes as well. Still, it is promising that the problems are being approached from a new angle and that it is aimed at dealing with the governmental working methods, its weaknesses, and its efficiency, in order to improve its activities. Additionally, there are no possibilities for individuals to acquire loans since THB went bankrupt.

The positive aspect is the role that the private sector can play in the provision of (low-cost) housing in Dar es Salaam. The government can be in a position to stimulate this development, although its own role will still be important: the government will have to take a position first, in order to undertake effective action. In the next chapter, the role of the government will return, for the system of land acquisition in Tanzania asks for a major executive contribution from the government.

8 LAND TENURE AND ACQUISITION

'You have seven sweeties in one hand and nine sweeties in your other hand. How many sweeties have you got altogether?'

'None,' said Anna. 'I ain't got none in this hand and I ain't got none in this hand, so I ain't got none, and it's wrong to say I have if I ain't.'

Brave, brave Miss Haynes tried again.

'I mean pretend, dear, pretend that you have.'

Being so instructed, Anna pretended and came out with the triumphant answer, 'Fourteen.'

'Oh no, dear,' said brave Miss Haynes, 'you've got sixteen. You see, seven and nine make sixteen.'

'I know that,' said Anna, 'but you said pretend, so I pretended to eat one and I pretended to give one away, so I've got fourteen.'

[Fynn, 1974, pp. 122-123]

The official system of land tenure, acquisition of plots or buildings in Tanzania is a bit complicated. There are two divisions to make concerning land in Tanzania. The first division is that urban land can be divided into two types: planned and unplanned. A second division is to be made on the method of acquiring the land: through formal and through informal channels. These two divisions mostly correspond, but exceptions are present. This chapter looks more closely at the division between formal and informal acquisition, corresponding with planned and unplanned land.

8.1 Access to Land: the Formal System

Access to land can occur via formal or informal means. In the formal land delivery system, the allocation and transfer of land follows procedures appointed by the government. In urban areas, such land is usually planned and the government controls the legal status of the land. In the informal land delivery system, the allocation and transference of land takes place outside of governmental procedures. In urban areas this land is generally unplanned.

The formal land delivery system dates back to 1962, right after Tanzanian independence in 1961. Two important factors determining this system are briefly elaborated on below. In the following chapter, the informal system, which has its origin as a reaction to the formal system, will be discussed.

Of major importance for the housing system in Tanzania, is the Land Ordinance, Cap. 113 of 1962, which nationalized all land. Unimproved land (without infra- or superstructure) had, as a result of this rule, no official value and could not be charged for or taxed. The only form of tenure on urban land issued by the Government was and is the Right of Occupancy (RoO), which can be given for periods of one, 33, or more than 33 years. An official survey of the plot is required for issuing a RoO and an official title to the plot can be issued. The latter used to be necessary to apply for a mortgage at the THB. The whole survey and registration process takes an average of four to five years, from the time an official offer has been made to the allotment of the land [Hoek-Smit, 1991, p. 6]. This time-consuming activity forces people to seek other ways of acquiring land, for example through the informal sector.

Another important factor was the Arusha Declaration of 1967: it stipulated an extensive role for the Government of Tanzania in all sectors of the economy. The focus at that time was on rural development. As a consequence of the Arusha Declaration, banking and insurance systems were nationalized, and other sectors of the economy came under the control of parastatal organizations,

including the building materials industry. All local Governments came under Central Government control, and were made very weak, both technically and financially. Still, the Central Government has control over many important local functions such as water, electricity and land. Since land is nationalized (Land Ordinance, 1962), the government technically controls the delivery system of urban plots. The government, in this case, is the central government (Arusha Declaration, 1967). It is therefore the task of the Survey Department of the Ministry of Lands, Housing and Urban Development to survey urban plots in collaboration with the weakened Local Government. However, practically no plots in Dar es Salaam have been surveyed by the Ministry during the past four years. This makes land seekers totally dependent on the informal land delivery system.

Table C-V makes clear to what extent the formal plot supply fails to meet the need for plots. Note that the number of applicants remains high because of the fact that the number of allottees is far too low to meet the demand, which gives a somewhat distorted impression.

year	number of applicants (A)	number of allottees (B)	percentage (B of A)
1978/1979	18,400	1,865	10.1
1979/1980	18,900	3,604	19.1
1980/1981	19,350	1,198	6.2
1981/1982	20,000	1,490	7.5
1982/1983	22,296	3,388	15.2
1983/1984	24,200	1,660	7.2
1984/1985	24,100	1,528	6.3
1985/1986	24,800	2,000	8.1
1986/1987	25,200	1,718	6.8
1987/1988	25,856	1,205	4.7
1988/1989	28,900	1,560	5.4
1989/1990	30,000	1,490	5.0
1990/1991	37,316	934	2.5
1991/1992	40,170	1,362	3.4
total	359,488	25,002	7.0
average per year	25,678	1,786	7.0

Table C-V: Plot supply in Dar es Salaam [source: Dar es Salaam City Council Statistics, in Kombe, 1994, p. 30]

From the estimations in *Chapter 6* the demand for housing as a result of population growth only, is 13,500 houses per year. 85 % of the houses in Dar es Salaam is single-storey housing, while 15 % is multi-storey housing [CHS, 1995, p. 39]. Assuming that for this 15 %, there is an average number of two houses on one plot, the annual demand for residential plots, as a result of the population growth, is almost 12,000. The table shows a supply of 1,786 plots on average per year. This is a deficit of approximately 10,000 plots per year, or in other words: 82 % of the demand for residential plots is not reached.

8.2 The Alternative: the Informal Land System

The informal land delivery system originated after the formal system had been established firmly in 1967, for only the socially powerful members of society got access to planned land through this formal system. Therefore, other ways to acquire land had to be found, which resulted in an informal land market. Presently, the informal land market is flourishing. Kombe emphasised that this, however, is not the result of the long and difficult procedure to acquire land formally, but rather of the deficit in the supply of plots, as shown in the previous paragraph.

Since land has officially no value⁵, the only price for privately acquired land that can be officially charged and recorded at the time of the registration of the transfer, is for improvements made on the land. So, any improvement on the land, varying from an infrastructural element to a fruit tree, are to be transferred to the next occupant. However, informally people pay high, but unrecorded, compensation for land to individual landholders. Increasingly, private surveyors are hired to fulfil the survey requirement for acquisition of a formal title to land acquired in the informal market.

How to acquire land informally?

There are several ways to obtain land on the informal land market. The most common one is to purchase it from recognized owners in unplanned areas. These owners, who are in fact 'first right' plotters, sub-divide the land and sell it either as building plots or as agricultural land (shamba). Several studies executed in Dar es Salaam show that the majority of the plots in the unplanned areas are obtained in this way [Kironde, 1995, p. 81; Kombe, 1994, p. 33; Hoek-Smit, 1991, p. 16].

Other means to obtain the land are inheriting it, simply occupying it, or getting permission from a friend who owns the land or from the Ten Cell Leader (balozi)⁶ to stay there. For the city of Dar es Salaam, the types of land acquisition for house owners, are shown in *Table VI*.

land acquisition	planned areas	unplanned areas	Dar es Salaam
- occupied without approval	1 %	5 %	4 %
- allocation by balozi	-	3 %	2 %
- permission from a friend	2 %	8 %	6 %
- inherited	20 %	17 %	18 %
- bought land	40 %	56 %	49 %
- bought house and land	13 %	8 %	10 %
- allocated by government	24 %	3 %	11 %
total	100 %	100 %	100 %

Table C-VI: Acquisition of land in Dar es Salaam [Source: Hoek-Smit, 1991, table 17]

In *Chapter 6* it was shown that the shortage of houses resulted in a qualitatively inferior housing situation, thus creating squatter areas. The result of the shortage of plot supply creates the formation of squatter areas as well. Mwapilinda mentions this manner of squatter formation, together with two other forms of squatter settlements in Tanzania:

- spontaneous settlements around municipalities, thus expanding its boundaries;
- unauthorized extension of buildings beyond plot boundaries;
- failure of municipalities to meet the demand for surveyed plots. This has two effects; on the one hand new houses filling-in vacant areas that are actually reserved for community purposes, and on the other hand construction of dwelling units on hazard lands, such as hill-sides prone to landslides and lowlands vulnerable to flooding.

[Mwapilinda, 1992, p. 9]

⁵In the new National Land Policy land has got market value, even if it is not developed. The determining factors of its value are its location and size [MLHUD, 1995, p.9]. The result of that change, however, are not noticeable yet. Another change is that the responsibility of surveying land will go to the local government, thus in Dar es Salaam to the DCC.

⁶The Ten Cell Unit is the smallest political-administrative unit in the country and originally the leader looked after ten houses; in practice today the size of the unit varies between eight and fifteen houses. Several Ten Cell Units make up a neighbourhood (mtaa), several neighbourhoods make up a ward (kata), several wards make up a division (tarafa), and several divisions make up a district.

8.3 Conclusion

Because of the fact that the government does not provide enough plots for residential use, people have to appeal to informal land acquisition, hence forming squatter areas. Here, the role of the government is apparent: if it provided sufficient plots, people would have land to build on, and there would not be such a big housing shortage. The private construction sector seems to be able to supply more housing units than it does at the moment, but people need space for building first. As long as the plot supply is not sufficient, many people will not invest in the construction of a new house, for they do not know if they can stay on the land.

Now that land officially has a market value, it might be easier for the government to control the land delivery system, also because surveying will be the responsibility of the local government. However, as in *Chapter 7*, the government needs to have a stronger hand to enforce its policies, which is not the case yet. If the government can empower its ideas, then it would be possible to designate out land for specific uses, including land for habitation. Only then, might it be able to provide more plots as well.

Part A: GENERAL INTRODUCTION

Introduction

Structure of the report

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9 INFORMAL SECTOR IN TANZANIA

At two o'clock in the morning my brain cogs are apt to be a little slow in reacting. Obviously this was one of those times. Fuelling up to meet this situation meant getting up and it was too darn cold, so I lit a fag. The fumes hit my brain and I coughed awake my engine. I put my brain into bottom gear, the church and Mister God being like repairing a radio was obviously going to be a tough hill to climb, and at that time in the morning I wasn't at all sure where my brakes were. Nothing was going to stop it, so resigning myself to the inevitable, I invited her to proceed with, 'All right, so going to church is like mending a radio. I agree. I agree, only tell me about it slowly - nice and slowly.'

[Fynn, 1974, pp. 94-95]

One of the major characteristics of an economy in a developing country is the presence of an informal sector. In Tanzania, too, the informal sector plays an important role. For example, in 1990/91, in urban areas only, the informal sector provided 56 % of all employment, while in the whole country, this figure was 22 %¹ [Planning Commission and MLYD, 1991, p. 1.5]. Because this research aims at gaining more insight into one of the sub-sectors of the informal sector, it is useful to take a closer look at its relevance in developing countries in general and in Tanzania in particular. Parts of the following paragraph (*Paragraph 9.1*) and of the general section of *Paragraph 9.3*, both of which cover the informal sector, are derived from the report of Miriam Tegelaers [Tegelaers, 1995, pp. 23-27], although additions and alterations are included. A paragraph on informal sector policy discusses the governmental attitude towards the sector and the chapter concludes with the informal construction sector and its relevance in Tanzania in *Paragraph 9.3*. This chapter is the first chapter of *Part D*, which treats the informal construction sector. The informal construction sector can be seen as a section of the private sector that contributes to a solution of the existing housing problem.

9.1 Relevance of the Informal Sector

The importance of the informal sector as being a significant factor in the development of a country has been recognized by governments as well as non governmental and parastatal organizations. As a result of the rapid growth of many cities in the countries, which is mainly caused by migration from rural areas and the high population growth, the number of people who do not succeed in finding a job in the formal wage sector increases, as well.

The formal sector appears to be unable to absorb the surplus of labour that exists in most of the large cities in developing countries. Therefore many people have tried and still try to create a job for themselves to earn a certain income. These jobs can vary in size and location and they can consist of different activities²; the activities vary from single-person activities (like selling food or clothes, repairing watches, or repairing and shining shoes) to small enterprises with several paid employees and the use of some low-level technologies (like a car maintenance shop, a tailor shop, making furniture, or making bricks or other building components).

¹The 'rural percentage' seems a relatively low percentage compared to the 'urban percentage,' but this one is so low because all agricultural activities in the rural area are considered to take place in the formal sector.

²See also the definition of the informal sector in *Paragraph 4.5*.

Many authors give characteristics of informal sector activities, but it is out of the scope of the research to repeat those here. The definition of *Paragraph 4.5* gives the characteristics that are used for this report. To understand the relevance of the informal sector, it is nevertheless necessary to take a look at some advantages and disadvantages. Van Dijk [Van Dijk, in Tegelaers, 1995, p. 24] presents a list of most commonly heard advantages and disadvantages for a further development of the urban informal sector. Some of the major advantages with respect to economic development are:

- Informal economic activities are not very capital intensive, and thus more appropriate in a situation of very limited financial resources;
- The provision of essential goods and services can occur at prices which are far more affordable for most people than those produced in the formal sector;
- The informal sector is labour intensive and thus contributes to a reduction of unemployment; and
- As simple and traditional technologies are used, the level of requested formal education and training is low.

The second advantage of informal sector activities is clearly demonstrated by the informal building sector in developing countries. As the gap between the purchasing power of people and the increasing building costs widens, it becomes more and more difficult to have a shelter built by enterprises operating in the formal building sector. The informal building sector is capable of providing shelter at lower prices, which are more affordable for most people. In this context Erkelens [Erkelens, 1991] investigates the possibilities for improving self-help building productivity. As a continuation of Erkelens research, this report aims to discover the role of the client, in casu the self-help builder, in the building process. The degree of self-help activities within the informal building sector, therefore, is of major importance. The process of self-help building will be dealt with in *Chapter 10* and *Chapter 12*, showing the advantages of this informal sector activity.

On the other hand, some major disadvantages of a further development of the informal sector are:

- Informal sector activities unfairly compete with formal activities;
- The efficiency in the informal sector is relatively low;
- Development of the informal sector prohibits further modernization of society;
- To be able to compete at international level, only modern technologies should be used instead of improving traditional technologies; and
- Stimulation and development of the informal sector slows down the industrialization process.

However, often there is no access to the formal sector, which forces people to enter the informal sector. Furthermore, since many modernization or industrialization strategies have proved to fail, the disadvantages get outweighed by the advantages.

An as yet unmentioned advantage for the persons who are operating in the informal sector is the fact of not being registered, which results in not paying any taxes. This means that the government is missing certain income, which of course can be mentioned as another disadvantage of the informal sector activities. If those informal operators, however, had to pay tax, which can be up to half of the income, it would probably mean that the entire activity would disintegrate since it would become unprofitable. Most people, including those who have informal activities besides their formal job, even earn more in the informal sector than in their formal jobs. This is particularly true for the entrepreneurs themselves, but sometimes for employees as well. *Table D-1* presents index figures for the wage structure in Africa, Asia, Latin America and for Tanzania and Dar es Salaam in 1991. The legal minimum wage in the formal sector is used as base a wage³.

³All figures about income and expenditures should be used with caution. The way the figures are collected is by asking direct questions about each aspect, which makes the results not very reliable, for people do not know or do not want to reveal this information.

	Africa	Asia	Latin America	Tanzania	Dar es Salaam
legal minimum wage in formal sector	1.00	1.00	1.00	1.00	1.00
informal sector:					
- payment apprentice	0.14				
- wage employee	0.71	0.33	0.50	1.24	
- income entrepreneur	2.14	1.33	1.50	2.83	4.63

Table D-I: Index figures for wage structure [sources: Gaillard, in Tegelaers, 1995, p. 24; Planning Commission and MLYD, 1991, pp. 1.57, 1.67]

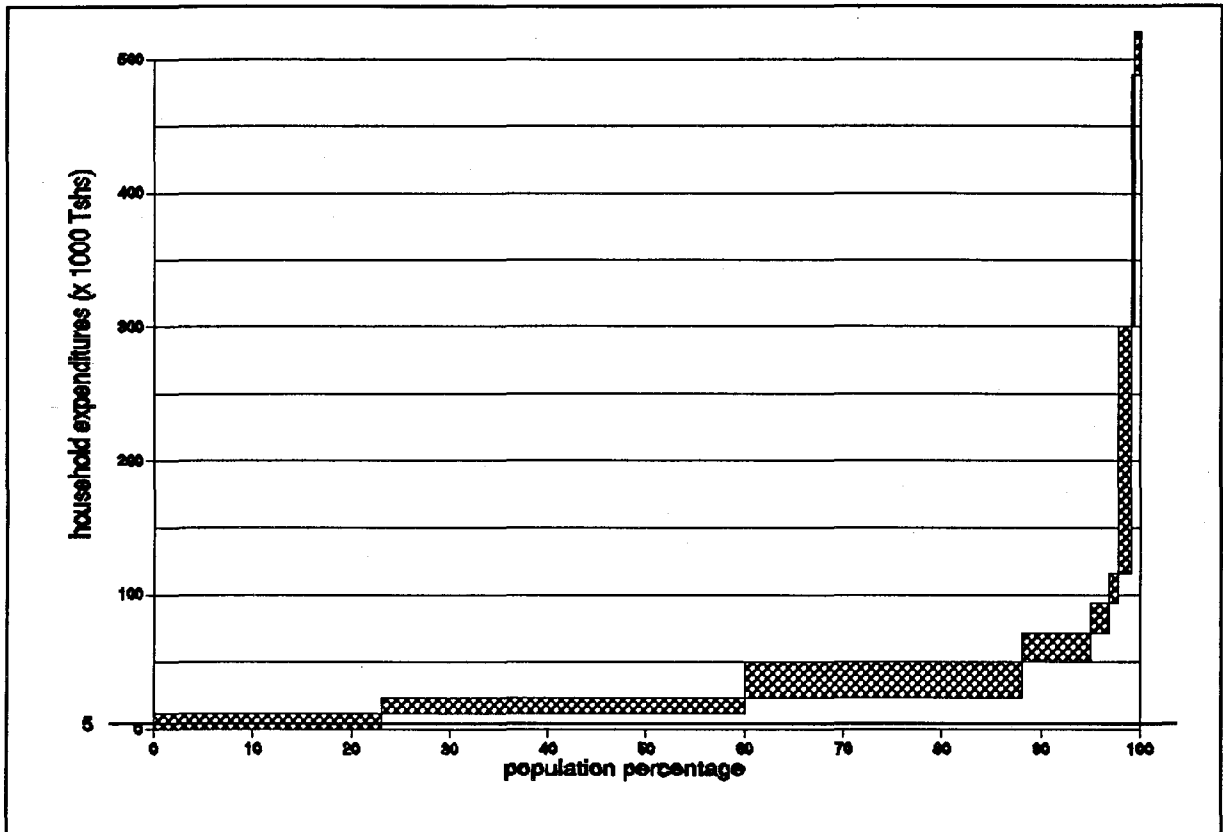
The figures of *Table D-I* do not imply that in the informal sector high wages are earned, because the formal minimum wage is a very low salary; even for the situation in Tanzania. This can be seen from *Table D-II*, which shows monthly household expenditures in 1991/92⁴, when the minimum wage in the formal sector was Tshs 5000,- per month (1992).

household expenditures (Tshs)	Tanzania (%)	Dar es Salaam (%)
0 - 11,999	23.07	10.39
12,000 - 23,999	36.78	39.99
24,000 - 47,999	28.92	39.23
48,000 - 71,999	6.36	7.12
72,000 - 95,999	1.82	1.49
96,000 - 119,999	0.93	0.94
120,000 - 299,999	1.33	0.66
300,000 - 479,999	0.18	0.09
480,000 +	0.61	0.09
total	100	100

Table D-II: Distribution of household expenditures by percentage households, 1991/92 [source: Bureau of Statistics, 1994, p. 11]

The figures of this table are represented in *Graph D-I* again, to show the difference between the formal minimum wage and the household expenditures.

⁴Household expenditures are used to determine the income of the people as well; more accurate figures are not available because of the fact that much of the income is earned in the informal sector.



Graph D-I: Household expenditures and minimum wage, Dar es Salaam, 1995

9.2 Informal sector policy

Some writers disagree with a policy of deliberately creating, supporting and subsidizing the informal sector, affirming the effectiveness and efficiency of the market [Little, in UNCHS, 1991, p. 42]. However, experience in many countries shows that the informal sector needs governmental support to be able to play its expected role. The UNCHS gives a list of twelve aspects that should be included in a strategy for developing the informal sector. This list is given in *Appendix D-I*.

The same report by the UNCHS states that there is scope for developing the informal sector, especially in construction, to provide it with the opportunity to make its contribution to overall national development. If direct links between the formal and informal sectors were strengthened, the latter would be able to produce much needed construction materials and components, and undertake sub-contracts for the former [UNCHS, 1991, p. 42]. This chapter describes the Tanzanian attitude towards a development of the informal sector, and a few examples of policies concerning the informal sector. As in most policies, the ones discussed here, do not include the step of its implementation, which makes it difficult to actually see and judge results.

National Informal Sector Survey 1991

The government of Tanzania in 1991 demanded a comprehensive survey of the informal sector for mainland Tanzania. It was conducted to acquire 'basic information on the sector so that it could be integrated into overall economic and human resources development planning' [Planning Commission and MLYD, 1991, p. 1-1]. The report also mentions that the government aims to develop the informal sector with the help of the survey, in order to provide employment for the unemployed labour force in Tanzania [Planning Commission and MLYD, 1991, p. iii].

National Construction Industry Development Strategy 1991

In the National Construction Industry Development Strategy of 1991, an encouragement of the informal sector is mentioned explicitly: 'the informal sector of the industry, especially in rural areas, will be given guidelines on the use of local construction materials, construction standards, regulations, and techniques; as well as standard, simplified designs' [Ministry of Works, 1991, p. A5].

AHF Pilot Programme

From a draft of the AHF Pilot Programme in Tanzania [African Housing Fund Tanzania, 1995] it also seems that the informal sector will have to play an important role in the creation of housing for the poorest of the country. The way the programme is described, it will require a major participation by small scale contractors and individual building material suppliers, plus the use of local management skills, activities by self-help organizations, and most especially family participation. All those aspects are intertwined with informal sector activities. Thus again, the plans to strengthen the informal sector are in place, what remains, is 'only' the implementation and the results. But in contrast to the policies that are mentioned before, this programme does contain specific action to be taken and even points out areas where the project should be started.

Rolling Plan and Forward Budget 95/96 - 97/98

The RPF3 has no specific aim for the informal sector. Although 'the potential of the informal sector for employment creation and economic growth is becoming increasingly realized' [Planning Commission, 1995, p. 7], there is no continuation of the awareness.

From all these examples, it is clear that Tanzania wants to develop the informal sector. In line with that attempt, it has been announced that an informal sector policy will be ready in 1995/96, because its preparation has been finished already. Altogether, though, there is not yet an informal sector policy that aims at stimulating and developing the sector. The government is working on it.

9.3 Relevance of the Informal Construction Sector in Tanzania

The informal sector in Tanzania plays an important role in the nation's economy. Some results of the sector's survey are given in *Appendix D-2*, summarized here in *Table D-III*.

	informal sector	formal sector	total
number of people employed (x 1000)	2,369	8,531	10,900
% of total	22	78	100
annual gross output (million Tshs)	486,869	834,730	1,330,599
annual value added (million Tshs)	183,417	573,536	756,953

Table D-III: Major results of the Informal Sector Survey [sources: Planning Commission and MLYD, 1991, pp. 1.5, 1.14-1.16; Bank of Tanzania, 1995, p. 35]

As explained before, one of the major advantages of the informal sector is the low capital intensity. For Tanzania this is demonstrated for each sub-sector in the next table.

	total value added (x 1000 Tshs)	total capital (x 1000 Tshs)	value added per unit of investment (Tshs)
agriculture/fishing	20,446,486	5,162,083	4.0
mining/quarry	1,159,185	135,923	8.5
manufacturing	29,799,999	10,404,870	2.9
construction	10,863,981	1,316,091	8.3
trade/restaurants/ hotels	104,726,664	25,395,473	4.1
transport	6,113,796	10,180,162	0.6
community and personal services	10,306,806	3,285,504	3.1
total	183,416,866	55,880,106	3.3

Table D-IV: Capital intensity for the informal sector in Tanzania [Source: Planning Commission and MLYD, in Tegelaers, 1995, p. 26]

The advantage, to most people, of the providing of goods and services at more affordable prices by the informal sector cannot be illustrated by figures, as these are not available. Nevertheless, observations in Dar es Salaam, but also in other areas of Tanzania, prove that most people do their daily shopping at markets and street vendors, which shows the power of the informal sector in everyday life. The fact that people find their way as a customer, to the informal sector is an indication of the price differences between the street vendors and the regular shops, or between other types of informal activities and their formal competitors.

The previous tables illustrate the role of the informal sector in general and its relevance in Tanzanian economy. It is expected that the informal part of the building sector is a very good example of an informal sector meeting the needs of low income households, since the low-cost houses are built through the informal sector, and the difference between the low-cost houses and the higher-cost houses is a big one. *Table D-V* gives housing prices in 1989, when the public wages ranged from 3,000 to 15,000 Tshs per month [Anders, in Tegelaers, 1995, p. 26]. This clearly shows that only lower-cost housing is within the financial capacity of that part of the Tanzanian population earning the indicated income.

	average price (Tshs)
low-cost building	100,000
medium-cost building	550,000
high-cost building	4,200,000

Table D-V: Prices of houses in Tanzania [source: Anders, in Tegelaers, 1995, p. 27]

Because the informal sector, or its sub-sectors, are sometimes very difficult to grasp, their importance and relevance are not easy to indicate. However, as in the previous paragraph, it is possible to give some figures about the economic relevance of the informal construction sector, derived from the 1991 survey. In *Appendix D-3* some tables show the magnitude of the sector and

some of the economic significance, divided up for Dar es Salaam only, other urban areas, and rural areas in Tanzania. Derived from those tables, the major outcomes for the whole country are given in *Table D-VI*.

	Tanzania
total employment in the informal construction sector	163,438
number of enterprises in the informal construction sector	116,496
gross output in the informal construction sector (million Tshs)	14,577
value added in the informal construction sector (million Tshs)	10,864

Table D-VI: Informal construction sector in Tanzania [Source: Planning Commission and MLYD, 1991, pp. 1.6, 1.14]

Knowing that the total number of persons working in the informal sector is 2,369,000, the share of persons working in the informal construction sector is approximately 7 %. The share of informal construction sector enterprises is about the same: 6,5 % of the total number of enterprises that are active in the informal sector. Furthermore, from the tables in the appendix it is clear that the difference between urban and rural work is quite big: it is economically more attractive to work in urban than in rural areas. At the same time it is more attractive to work in Dar es Salaam, than in other urban areas.

Both the size and the economic relevance of the informal construction sector are made clear. The houses in the squatter areas, as described in *Chapter 6*, are usually built through informal sector activities. Therefore, it might seem that the informal construction sector causes the formation of squatters. This is, however, not the case. The reason that squatters are formed is that there are no surveyed plots available. Building in the unplanned areas forms squatter areas, regardless of the executor of the construction process. Moreover, even in areas where the land has been surveyed and where people buy a plot and build a house on it, predominantly informal contractors execute the construction. These areas are not considered squatter areas, because they are legal residential areas, and the quality of the areas is quite good. A possible absence of services and infrastructure is a characteristic of those areas which might make them somewhat unsuitable to live in, but the quality of the houses themselves is reasonable. Thus, the informal construction sector takes place everywhere in the city, both in planned and in unplanned areas. The cause of some areas being squatter areas is the fact that they are unplanned, with all the consequences thereof, and not the fault of the executor of the building process in that particular area.

Apart from the advantage, mentioned in *Paragraph 9.1*, that in the informal sector no taxes are paid, there is another advantage that expresses itself clearly in the informal construction sector. In the informal construction sector, neither the client nor the contractor have to go through the process of acquiring permits from the government. The formal way to acquire land for building takes four to five years (see *Paragraph 8.1*), and this is by-passed in the informal sector. Other governmental regulations or permits for the actual construction of a house, which would cost a lot of money and time, can be neglected by acting in the informal sector as well.

9.4 Conclusion

This chapter clarified the informal sector in Tanzania. Especially for lower income households, the informal sector is of major significance, both according to its size and to its economic capacity. The sector gives possibilities for employment creation, even for people with limited financial resources, which is relevant for a large portion of Tanzanians. Its accessibility due to the fact that not very much skill or knowledge is required to start economic activities in the informal sector, is a positive aspect for many Tanzanians as well.

The government plans to develop the informal sector, but it is still uncertain as to the best way to do so. On the other hand, as long as the government does not follow a restrictive policy, the informal sector will probably manage to develop itself, as it has been doing in the past years, because the direct advantages are big. Advantages that save time and/or money, like not paying taxes and passing over the permit requirements, make it probable that the informal sector in general, and the informal construction sector in particular, will continue to develop itself. In the next chapter some aspects are described that the government should pay attention to and could help to stimulate, or at least to support, the informal construction sector.

10 INFORMAL CONSTRUCTION SECTOR: THE ACTORS

The day that the horse and cart got its back wheel stuck in the tram-lines produced half a dozen willing helpers.

'All together, lads. When I say "heave," all heave together. Ready? Heave!'

We all heaved like mad. Nothing happened.

'Once again, lads. Heave!'

We all heaved once again; same result - nothing.

After a few minutes of heaving and cussing, Anna tugged at my coat. 'Fynn, if you put something across the line under the wheel and something so it won't go back again, and then push, it's easier and the horse can help.'

With the help of a flat iron bar and a few bits of timber we pushed and the horse pulled. The wheel came out as sweetly and as easily as a cork of out a bottle. Someone thumped me at the back. 'Good lad, that was a good idea of yours.' How could I say that it wasn't my idea? How could I say it was hers? I just accepted the praise.

[Fynn, 1974, pp. 73-74]

In this chapter the actors of the informal construction sector are discussed. First their mutual relations, then the chapter concludes with the characteristics of the contractor and the client. The chapter also introduces the system of self-help building, which will be elaborated on in *Paragraph 10.2*. The self-help that takes place in Dar es Salaam is discussed in *Paragraph 10.3*.

10.1 The Actors

It is of importance to determine who the actual actors are within this process. Both direct and indirect actors are of importance; direct actors are the ones directly involved in the building process, while indirect actors are involved peripherally. As pointed out by Tegelaers [Tegelaers, 1995, pp. 7-8], the actors in the formal construction sector are the following ones:

direct actors:

- consultants (architects, quantity surveyors, engineers, etcetera);
- builders (contractors, general foremen, etcetera);
- suppliers.

indirect actors:

- the client;
- the government;
- financiers.

They are categorized as follows:

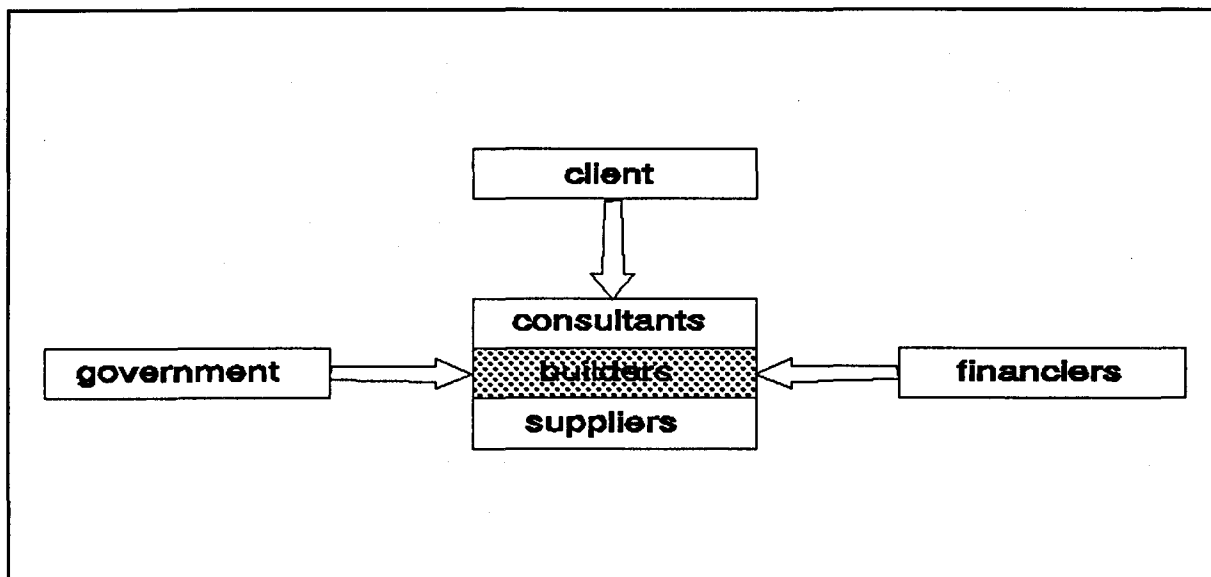


Figure D-I: Actors in the formal construction sector

In the case of housing production in the informal construction sector however, this categorization does not strictly apply. First of all, there is usually no interference from consultants within the informal process; unless the ability of the client is such that he can afford it, there is no intermediary between him and the contractor [Mwaiselage, 1992, pp. 32-35]. Second, there are usually no external financiers involved in the process; mostly the client pays the costs for materials and construction from his own savings or he borrows from friends or family (see also *Chapter 12*). So, the client in the informal process is in fact the financier as well. Third, the government will have very little influence on the process, for the obvious reason that all activities take place in the informal sector. *Figure D-I* will therefore be adapted to the actors in the informal construction sector:

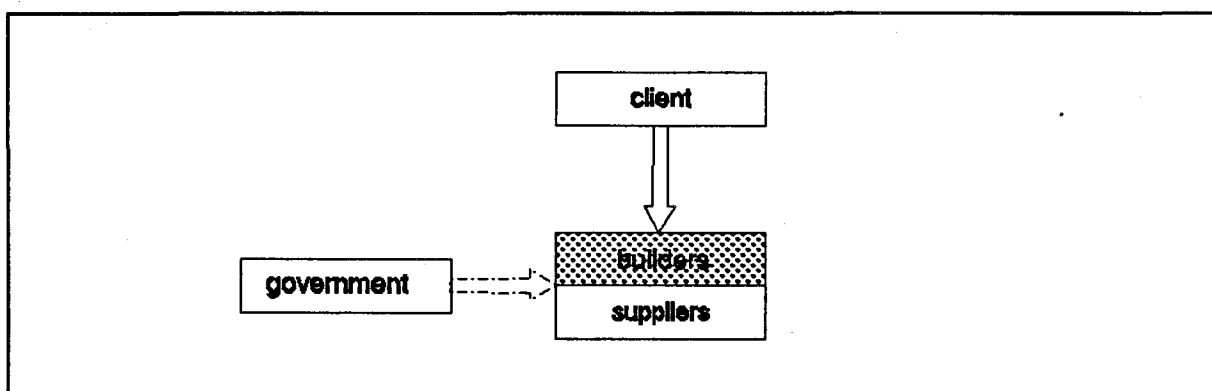


Figure D-II: Actors in the informal construction sector

From this figure it is obvious that, within the informal building process, the direct actors are the builder and the supplier, and that the indirect actors are the client and the government. However, an important aspect within the informal construction sector is the so-called self-help building. Therefore, the figure will be developed further in the following paragraph in which the actors in the case of self-help building are discussed.

10.2 Self-Help Building

Before dealing with the actors within the building process as it pertains to self-help building, a definition of self-help must be given.

self-help building

Self-help building is the system of construction, whereby the family that lives in the house, participates in the construction process. This can be done by making different contributions (finance, labour power, administration, etcetera) and in different forms (autonomously or in an organized group)⁵.

[Burgess, in Erkelens, 1991, p. 76]

In other words, if the family that lives in the house, executes any step, or part of any step, in the building process, one can consider this to be self-help building. Looking at the different phases of the building process (see *Appendix B-2*), it is possible to conclude that the degree of self-help can vary, for a family can participate in any number of the steps in the process. Because of that, a first division can be made as to the contributions that take place in self-help building; it is possible to distinguish several gradations of self-help. Erkelens [Erkelens, 1991, p. 83] defined three modes of self-help building in Kenya, with intermediate forms being possible:

- I: completely self-help built: management and construction by the allottee and/or a building group;
- II: self-help management plus subcontracting a contractor or fundi for the construction work;
- III: self-help initiative but contractor-built: management and construction is by the contractor or fundi employed by the allottee or building group.

These three modes or gradations are used for this research as well, for the classification makes it easy to distinguish different forms of self-help building. Furthermore, the building situation in Kenya is considered similar to the one in Tanzania, for both systems are derived from the British system⁶.

In the classification, Erkelens uses a useful distinction between self-help management and self-help construction: self-help management covers the organizational aspects of the building process, while self-help construction covers the actual building of the structure [Tempelmans Plat, in Erkelens, 1991, p. 81]. When both management and construction are meant, the term self-help building will be used in this report⁷.

The second division that is made considers the two different dimensions in which self-help activities can take place, namely autonomously or in an organized group. Those two dimensions do not contradict each other in the context of the main objectives or the result of the building process. Especially in organizing the building process however, there are many differences. The possibilities for individuals to contribute to the building process are quite big, because after having taken the initiative to build a house, they can decide as well to execute one or more steps in the building process. This 'individual' self-help has been promoted by John Turner, one of the first and one of the main advocates of self-help building. Turner summarized his ideas on housing theory and practice in his three Laws of Housing, of which the first one is:

⁵For the sake of clarity the term 'dimension' is used in this report, to distinguish the forms of autonomous self-help and self-help in an organized group.

⁶Both Kenya and Tanzania are former British colonies. Independence in Tanzania came in 1961 and in Kenya in 1963. See for the history of Africa and the effects of history on the present, for example Freund, B., The Making of Contemporary Africa, 1984.

⁷Throughout the report, the term 'self-help housing' is used as well. It is possible to distinguish between the two terms, when the objective is to build any construction (self-help building) or a house in particular (self-help housing), but because the self-help here does not go beyond construction of housing, the two terms are used without distinction.

When dwellers control the major decisions and are free to make their own contribution to the design, construction or management of their housing, both the process and the environment produced stimulate individual and social well-being. When people have no control over, nor responsibility for key decisions in the housing process, on the other hand, dwelling environments may instead become a barrier to personal fulfilment and a burden on the economy. [Turner, 1972, p. 241]

Turner's First Law makes clear again that there are gradations of self-help building, because he demands for a contribution to design, construction, or management, and not for all three aspects at one time. Turner's preference for 'individual' instead of 'organized' self-help (the second division) appears from his ideas that

- Housing needs differ individually, hence large organizations can never cater to all of them. In other words, the main aspects of housing need to be left to the individual, which does not necessarily mean that the individual has to construct his own house; and
- The task of government in housing is just to function as an enabler, without releasing it from the responsibility of organizing those things which cannot be expected of the individual, such as roads, power, water, etcetera, for the area.

[Turner, in Erkelens, 1991, p. 77]

However, some advantages that are found in Dar es Salaam for organized self-help building compared to individual self-help building, are:

- It is easier to acquire plots as an organized group than individually;
- Materials can be bought in large quantities, directly from the factory, and therefore for a lower price;
- Transport costs can be shared; and
- It is easier to obtain (soft) loans as a group than individually.

[Kileo, 1995, pp. 2, 8]

On the other hand, some disadvantages in terms of the self-help dimension in an organized group can be noticed in Dar es Salaam as well:

- The group takes away some of the freedom and independence that the individual self-help builder does have, for example in the choice of design or materials;
- The organization is more complicated, because of the many people and institutions involved;
- Sometimes people cannot join the group, thus giving unequal chances to every one; and
- There might be a deadline for the construction to be finished, which an individual builder would not experience.

Both dimensions have their advantages and disadvantages, which are not discussed at length here. For this report, one organized group of self-help builders in Dar es Salaam is examined as an example (see *Appendix D-4*), but the focus is on individual self-help activities that take place everywhere in the city.

Now looking again at *Figure D-II* that showed the different actors in the informal construction sector, the next step to make is the step towards the actors in the self-help building process. If the entire building process is executed by the self-help builder (Erkelens' mode I), the builder of the house will be the owner himself, i.e. the client. The same goes for an organized group of self-help builders: the builders are the eventual owners of the house. The categorization of the actors will then look like this:

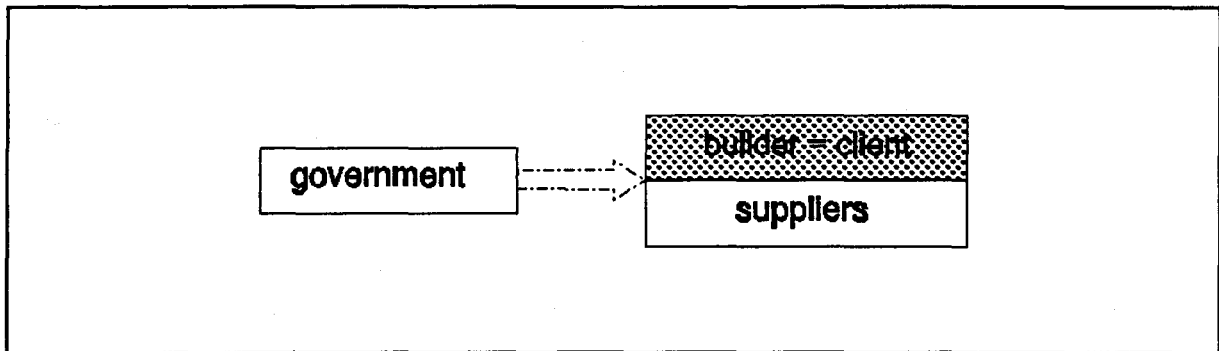


Figure D-III: Actors in the 100 %-self-help construction sector

However, the degree of self-help within the informal construction sector can vary considerably (modes I, II, and III and in between), and therefore, the scheme will be adjusted once more:

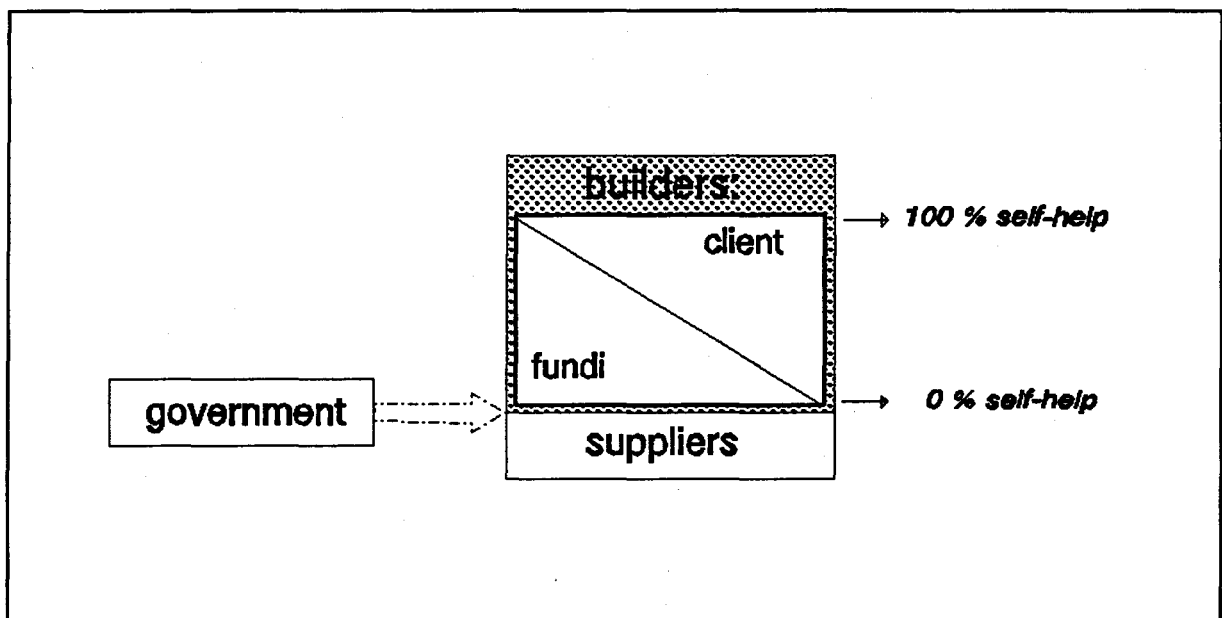


Figure D-IV: Actors in the informal construction sector, including self-help building

Note that in this figure the 'builder' can be the client (or clients), the fundi, or both of them in any cooperation: 'builder' here means the person (or persons) who executes one or more steps in the whole housing production process (see also *Paragraph 4.5* for the informal sector building process for residential buildings and *Appendix B-2*). Within the informal building process with a place for the self-help builder, the direct actors thus are the builders (i.e. the fundi and the client^a) and the supplier; the indirect actor is the government.

The role of the supplier is not dealt with in this report. The assumption is made that the suppliers have a minor role in the building process, namely the supply of materials and/or equipment only. They will not be included in any step of the building process, but the provision of these goods. The characteristics of the two builders, that are found in literature, are described in the *Paragraphs 10.4* and *10.5*, respectively for the fundi and for the client. First however, in *Paragraph 10.3* the situation of self-help building in Dar es Salaam is discussed.

^aIt is, of course, possible that the owner gets help from friends or family. This is considered to be self-help as well, as long as it is unpaid labour, and therefore it is included in the client's participation.

10.3 Self-Help Building in Dar es Salaam

This paragraph deals with self-help building in Dar es Salaam, considering the two divisions that are given above. First, the division of the contribution of the self-help builder to the building process, using Erkelens' three gradations. Second, the division of the dimensions of self-help building.

From discussions with key persons, from observations in several parts of town where people are active in building houses, and from talks with the people building, it became clear to what extent the three gradations of self-help are present in the city of Dar es Salaam:

I: Completely Self-Help Built: Management and Construction by the Allottee and/or a Building Group

This form takes place mainly in rural areas. In urban areas the people usually do not have the time to build their own house. It is economically more attractive to let the house be built by a small scale contractor and to continue the daily activities in order to gather one's own income. On the other hand, some houses in urban Dar es Salaam are built completely by the owner himself. This is, however, exceptional, and usually the self-help builder is a fundi himself, which gives him the knowledge and the skills necessary to construct his own house.

II: Self-Help Management Plus Subcontracting a Contractor or Fundi for the Construction Work

The majority of the houses built in Dar es Salaam is constructed using this manner. Of the phases in the informal sector building process, those of initiative, preparation, and maintenance and control are done by the owner of the dwelling, and the execution is completely done by a fundi. Sometimes parts of the preparation is done by the fundi too, but as mentioned before, the gradations are not strict at all: intermediate forms are possible.

III: Self-Help Initiative but Contractor-Built: Management and Construction Is by the Contractor or Fundi Employed by the Allottee or Building Group

This system takes place in urban areas, but because of the higher costs, it happens at upper-class level only. Since this study focuses on low-income households, this gradation is not applicable.

There are no figures available on the proportions of the houses constructed in the different gradations of self-help. But taking self-help in its broadest meaning, almost all houses in Dar es Salaam are constructed by means of self-help. This is so, because the initiative to build and the management of the execution of the work, is merely done by the owner himself. Figures of the Urban Indicators Study show that public housing accounts for 5 % of all houses, that there is a negligible percentage of privatized public housing and public housing production, and that 95 % of the houses come from private initiatives, hence through some form of self-help.

The second division of self-help building, is even more difficult to trace. Only the organized housing projects that work with self-help aspects can be found. Individuals executing some parts of the building process are in fact all building a house. This does not take place in a registered way, so tracing them is nearly impossible. From personal interviews, it appeared that the organized form of self-help building exists in urban areas in the form of management of the building process only (which is Erkelens' second gradation) and in rural areas both in the form of building and managing the process and in the form of managing only (Erkelens' gradations I and II). Furthermore, in urban areas this occurs through existing organizations, for example within a company, while in rural areas it occurs through community based structures. Preferably, existing structures would be used to form groups, but new structures could be founded, too. It is out of the scope of the report to go deeper into the formation of structures within the population⁹.

⁹Within the SDP there are activities related to the effective founding of community based organizations. These could very well form structures for organized self-help building.

A schematic representation of the different forms of self-help building is given in *Table D-VII*. The table shows the major applications of the forms, as to be seen in Tanzania.

form of self-help	I: (built and managed)	II: (managed)	III: (initiative only)
in a group	rural areas	both urban and rural areas	-
individual	rural areas	majority of urban housing	urban areas, limited to higher income people

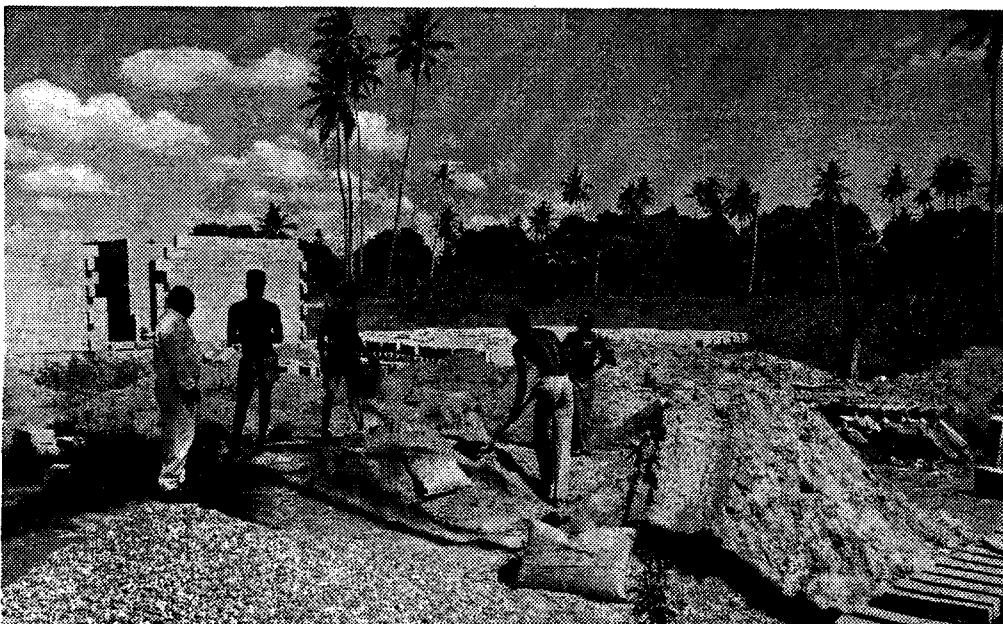
Table VII: Forms of self-help building in Tanzania

For urban areas, and for Dar es Salaam in particular, the above table is simplified to the following:

form of self-help	II: (managed)	III: (initiative only)
in a group	through an existing organization, for example a company	-
individual	majority of houses	limited to higher income people

Table D-VIII: Forms of self-help in Dar es Salaam

In terms of the client, his characteristics and role in the building process of the individual self-help builders are discussed in *Paragraph 10.5* and in *Chapter 11*; while in *Appendix D-4*, the example of an organized group of self-help builders in Dar es Salaam is presented.



Picture D-1: Self-help in an organized group; the Sigara Building Cooperative Society

10.4 The Fundi

The 1991 Informal Sector Survey raises some important characteristics of the informal enterprises working in the construction sector. Informal construction enterprises include not only the house-building fundi, but also masons and other unspecified craftsmen in this sector, for instance plumbers and carpenters (see *Appendix D-3* for the different activities in the construction sector). The main characteristics of the enterprises are listed below. They give an impression of the way the fundi work and with whom.

- 83 % have no fixed location from which they operate;
- 54 % secure their raw materials from within their local areas, while 43 % do not use raw materials. This latter fact means that the major input is labour, while other inputs are supplied by the customers;
- 95 % serve their customers within their local areas. It is mentioned though, that house building does take place in other districts and areas as well;
- 91 % of the customers in the informal construction sector are private individuals, i.e. households;
- When establishing, the main problems mentioned were: lack of equipment and spare parts (34 %), unavailability of capital and credit (21 %), and a lack of market and customers (17 %); and
- When operating, difficulties were: unavailability of capital equipment (28 %), unavailability of credit (19 %), and non-payment of debts by customers (11 %).

[Planning Commission and MLYD, 1991, pp. 1-24, 1-31, 1-32, 1-40, 1-43]

From a study done by Agnes Mwaiselage [Mwaiselage, 1992, pp. 32-34], three different types of informal small scale contractors in Tanzania can be distinguished:

- The independent fundi: He is normally hired for a certain skill. If the fundi needs help, he hires a labourer himself and is responsible for paying him. The contracts between client and fundi are informal and in general oral, although a Ten Cell Leader may be asked to witness.
- The fundi with a gang: He is a bigger fundi that undertakes a number of operations on the construction site, for example block making, trench digging, masonry work, roofing. In fact he often executes each step of the building process himself. He can have one or two, more-or-less skilled, labourers, each with a helper. Usually this fundi works with his gang at one site and on one project at a time.
- The fundi for specialized jobs: He is specialized in one particular job, like concrete pouring. Whenever he is contracted, he collects a gang of unskilled labourers to finish the job in a few days. He is contracted by the entrepreneur or by the client to provide the labour power required for concrete mixing and pouring.

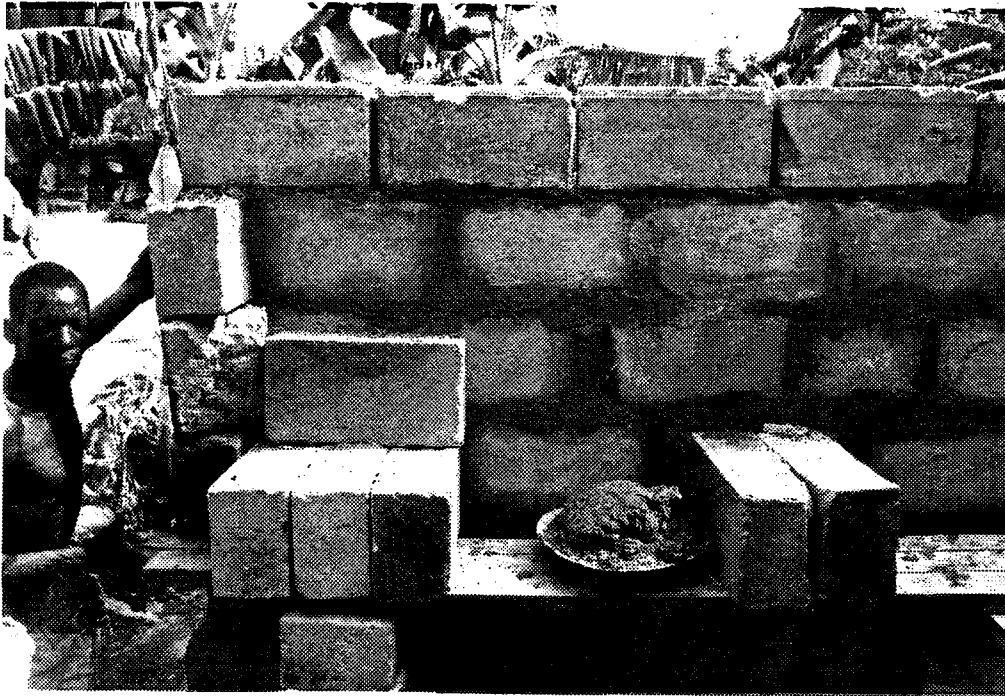
The second type of fundi is the most common in the informal sector, and he actually acts like a contractor.

In the survey done by Miriam Tegelaers on the informal small scale contractor, the external organizational characteristics that she found, are:

- 3.7 customers per year, which are households;
- 80 % of the materials is purchased from informal sector organizations;
- 97 % of the capital is provided by advanced payments by the client;
- An increase in demand for housing construction is noticed; and
- Competition from other informal sector organizations is noticed.

[Tegelaers, 1995, p. 53]

The complete list of characteristics of the informal small scale building contractors in Dar es Salaam, found by Tegelaers, is shown in *Appendix D-5*.



Picture D-2: A fundi constructing a wall

In *Chapter 12*, some more characteristics of the fundi are discussed. They have to do with the working methods of the fundi in and around the Msimbazi Valley. In considering the execution of the fundi's work, Mwaiselage gives a list of problems that the fundi face in Tanzania:

- lack of policy guidelines for their development;
- legacies of colonial administration seen in contract procedures, building codes, etcetera;
- lack of working capital and capital for tools and equipment;
- lack of technical and managerial skills;
- lack of access to public infrastructure or established financial institutions;
- great uncertainty in their work coupled with poor-quality work and delayed projects;
- lack of materials and skilled manpower.

[Mwaiselage, 1992, p. 38]

Some of the problems come back when considering the working methods of fundi in the Msimbazi Valley. On the other hand, the first two problems mentioned here are not felt by the fundi in the valley, for they do not take into account policies and procedures. See *Chapter 12* for more on this.

10.5 The Client

Both the I.S. Survey and the survey by Tegelaers reflect that the fundi mainly have private households as their customers (even 91 % of the customers of informal building contractors are private individuals [Planning Commission and MLYD, 1991, p. 1.32]). Consequently, the client here is the household that has built or is building its own house alone or together with one or more fundi. The households that build their houses in the informal sector are not the lower income households only: except for the high income households, households of all income levels build their houses in the informal sector. This makes it difficult to sketch an image of the clients, for they diverge too much. Some general characteristics of households in Dar es Salaam are given in *Table D-IX*, it is assumed that these characteristics apply to the clients of the fundi.

characteristics of households in Dar es Salaam	
average household size	5.5 persons
average number of persons per house	11.6 persons
percentage woman-headed households	17 %
average age of head of household	39 years
average number of dependent children per household	2.3 children
income (in 1990-figures):	
- average total income of head of household	Tshs 14,600
- average number of earning household members	1.7 persons
- average monthly household income	Tshs 18,500
- average monthly household expenditures	Tshs 22,120
- household income (1990): < Tshs 2,500	2 %
Tshs 2,500 - 5,000	13 %
Tshs 5,001 - 7,500	12 %
Tshs 7,501 - 10,000	13 %
Tshs 10,001 - 15,000	19 %
Tshs 15,001 - 20,000	12 %
Tshs 20,001 - 25,000	7 %
Tshs 25,001 - 30,000	6 %
Tshs 30,001 - 40,000	6 %
Tshs 40,001 - 50,000	4 %
> Tshs 50,000	6 %
	(total: 100 %)
household type:	
- single adult	14 %
- single with children	7 %
- single with extended family	5 %
- single with friends	5 %
- couple	6 %
- couple with children	41 %
- couple with extended family	22 %
	(total: 100 %)
household expenditures:	
- food	55 %
- housing and services	15 %
- education and health	3 %
- travel	5 %
- loans, savings and payments	5 %
- other	17 %
	(total: 100 %)
distances to services in percentage of all urban households:	
- water less than ½ km	76 %
- primary school less than ½ km	56 %
- health facilities less than 5 km	92 %
- market place less than 5 km	99 %

Table D-IX: Characteristics of the fundi's clients [sources: Bureau of Statistics, 1994, p. 9; Hoek-Smit, 1991, Tables 6, 7, 8a, 9b; CHS, 1995, pp. 38-39]

10.6 Conclusion

The direct actors in the informal construction sector are the builders and the suppliers only. Even the suppliers remain outside the actual construction of a building: they supply the materials and/or the equipment and with that their task is finished. The builders do the rest. Especially when considering

self-help building, the two builders are very important. Also, the way they work together is of concern, and a good cooperation is essential. The majority of the houses in Dar es Salaam is built by a fundi, while the house owner manages the process individually. The situation in which a house owner participates in the construction of the house does not occur often in the city, while in rural areas many houses are built that way. People in the city are said not to have enough time to participate in the construction itself. Later on, the report will get back to this point.

Self-help building in a group has advantages as well as disadvantages; it should be possible to utilize the advantages of being a group and then to dissolve the collaboration so as to avoid the disadvantages. If a group of people would start up a project together, they could benefit from acquiring plots together, obtaining and transporting materials and equipment together, and acquiring loans. After that the households could continue individually, thus keeping their freedom in design and tempo. Existing structures within the population could be used to form groups rather than the formation of new structures, but the latter is possible, too.

The present role of the government in the informal construction sector is minimal. The government wants to stimulate the informal sector, and thus the informal construction sector, as well. First, it will be necessary for the government to clarify its role in the process, to take a clear position, and to determine its capacities. Only then can the informal construction sector benefit from the government's help. As a matter of fact, the sector's shortcomings as they affect the fundi in the execution of their work, are clear (see *Paragraph 10.4*) and the government could focus on these to commence a stimulation of informal construction activities.

11 THE CONSTRUCTION SITE

'Mister,' she said, 'do you always work here?'
'Most times,' the policeman replied.
'Mister,' Anna took his hand and pulled him to the wall, 'mister, is the Thames the water, or the hole it goes in?'
The policeman looked at her for a moment and then replied, 'The water, of course. You don't have a river without water.'
'Oh,' said Anna, 'that's funny, that is, 'cos when it rains it ain't the Thames but when it runs into the hole it is the Thames. Why is that, mister? Why?'
The policeman looked at me. 'Is she having me on?'
'You're being let off lightly,' I said. 'I get it all day long.'
(...)
I grabbed Anna's hand and led her away. 'Nice work, Tich, nice work. A good bit of thinking, all that Thames stuff.'
'Oh,' murmured Anna, 'but when do you, Fynn? When do you start calling it the Thames and when do you stop calling it the Thames? Do you have a mark? Do you, Fynn?'
Old Woody was right. The daylight schooled the senses and the night-time developed the wits, stretched the imagination, sharpened fantasy, hammered home the memory and altered the whole scale of values.
I began to realize why most people went to sleep in the night-time - it was easier. A whole lot easier.

[Fynn, 1974, p.174]

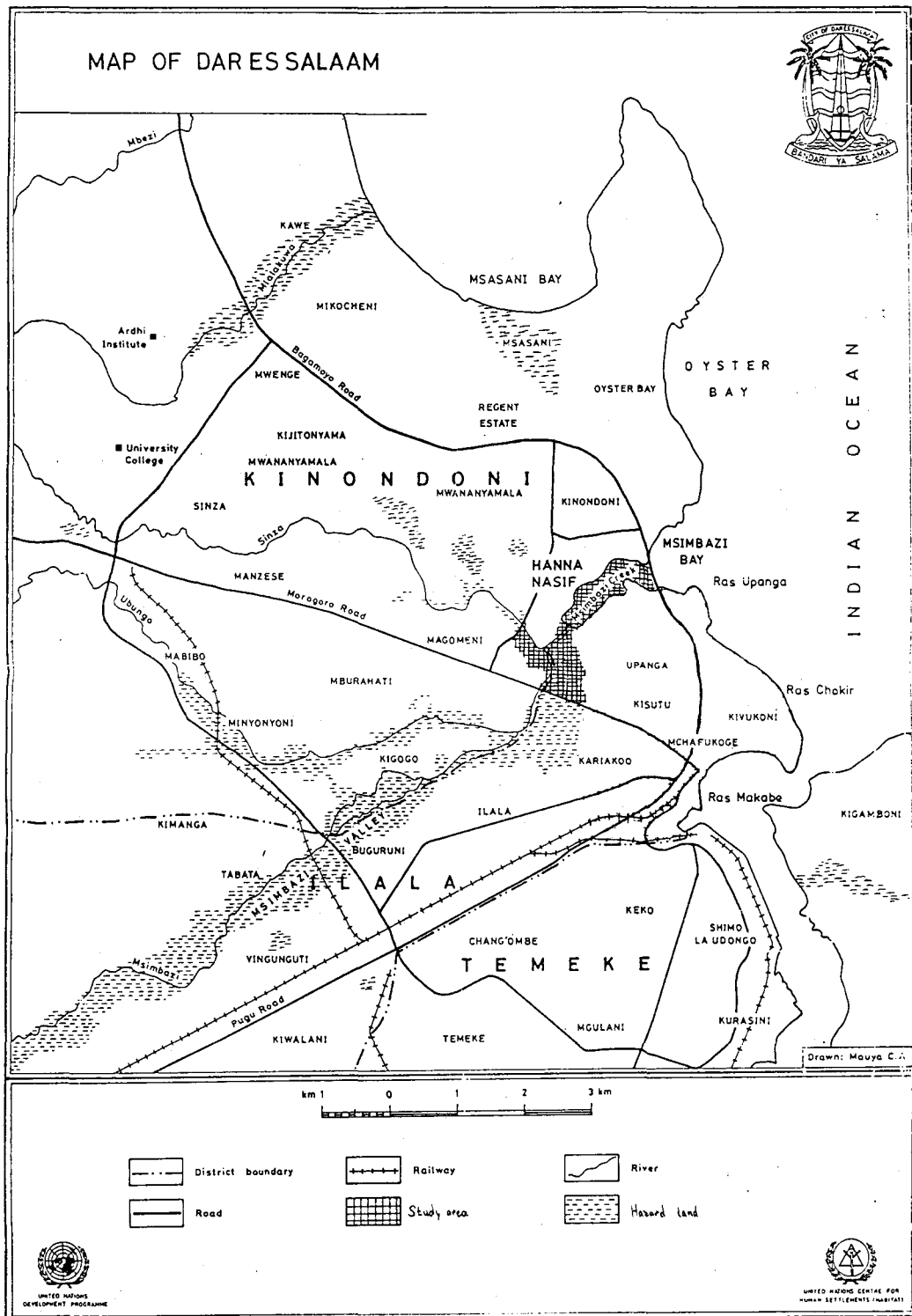
The case study for this report has been executed in the Msimbazi Valley. The reasons for choosing the Msimbazi Valley were that the area is rapidly being occupied by land seekers who find the valley a suitable place in which to build their homes. The Dar es Salaam City Council however, had indicated the Msimbazi Valley as Hazard Land, because it is affected by the flooding of the Msimbazi River. Therefore, the land is not suitable for housing, according to the city government. This problem, and the fact that the construction of houses there is from a fairly recent date, made the area interesting for the case study.

This chapter covers the location of the building site for the informal housing construction, i.e. hazard lands in Dar es Salaam. The emphasis is on the Msimbazi Valley, so a brief description of the Valley and its surroundings will be given. Then, the housing situation in the valley, as found in literature and based on observations, is dealt with. After that, the perceived situation of living in the valley is described in *Paragraph 11.4*.

11.1 Hazard Lands in Dar es Salaam

Many cities in the world experience the problem of people occupying areas within the city that are dangerous to live in. The reasons for these dangers may vary: sea erosion, floods, toxic industries, dump sites, slopes, etcetera. The consequence is often the same: the government prohibits people from building in these areas. However, in places where the government does not have the power to effectuate this policy and where the people consider the danger minimal, these areas still get occupied. Because very often people are in great need of space for housing, they do not even consider the danger of living in the area: they just occupy it, and later they will see what happens. The symptom of illegally occupying hazard land, occurs in several areas in Dar es Salaam, too.

According to the 1979 Masterplan [Marshall Macklin Monaghan Limited, 1979, p. 104], hazard lands are 'all lands having such potential hazards as flood susceptibility, erosion, steep slopes associated with river valleys and other physical limitations.' According to the same plan, it is only permitted to use those areas for outdoor recreation, agriculture and salt operations: 'no buildings or structures of any kind shall be permitted in any hazard land area except structures required for salt operations and related servicing facilities.' The same Masterplan shows areas in Dar es Salaam that were pointed out as being hazard lands. They are shown in *Map D-I*.



Map D-I: Hazard lands in Dar es Salaam

Furthermore, within the SDP project, a working group has been formed to establish a management plan for the hazard lands in Dar es Salaam. This Managing Hazard Lands Working Group indicated twelve areas as being hazard lands, which mainly correspond to the ones of the 1979 Masterplan. The areas vary in size and in designated reason for being hazardous for habitation. The areas are shown in *Map D-1* as well, but some lie further away from the centre, which is not on the map. The reasons for choosing the areas are given in *Appendix D-6*.

In spite of the governmental decisions to call certain areas hazardous and in spite of the apparent dangers of living in those areas, people started building houses in many of the areas (see also *Appendix D-6*). A very recent policy from the MLHUD repeats the governmental attitude towards this: 'measures will be taken to prevent building on hazard lands and on all fragile environments. Hazard lands should be developed for public uses benefitting the local community' [MLHUD, 1995, pp. 38-39]. However, it is not yet clear how this will be implemented.

11.2 Picture of the Msimbazi Valley

As to be seen on *Map D-1*, the Msimbazi Valley covers a great part of the city of Dar es Salaam. The Msimbazi River, and therefore the valley as well, runs for about 35 km from Kisarawe emptying into the Indian Ocean, at Selander Bridge. The total catchment area of the river is nearly 300.000 ha and the area within urban Dar es Salaam covers 16.000 ha [Working Group Hazard Land, 1996, p. 1]. The area that is the subject of this study covers 1.500 ha and is that part of the valley bounded by Morogoro Road in the south, Rashidi Kawawa Road (Morocco Road) in the west and Ali Hassan Mwinyi Road (Bagamoyo Road) in the north¹⁰. Furthermore, the area is enclosed by three residential areas, namely Hananasif in the north and east, Magomeni in the southwest and Upanga in the east. See also *Map D-II*.

The location of the Msimbazi Valley within the city is very good, as far as accessibility and position compared to the city centre are considered:

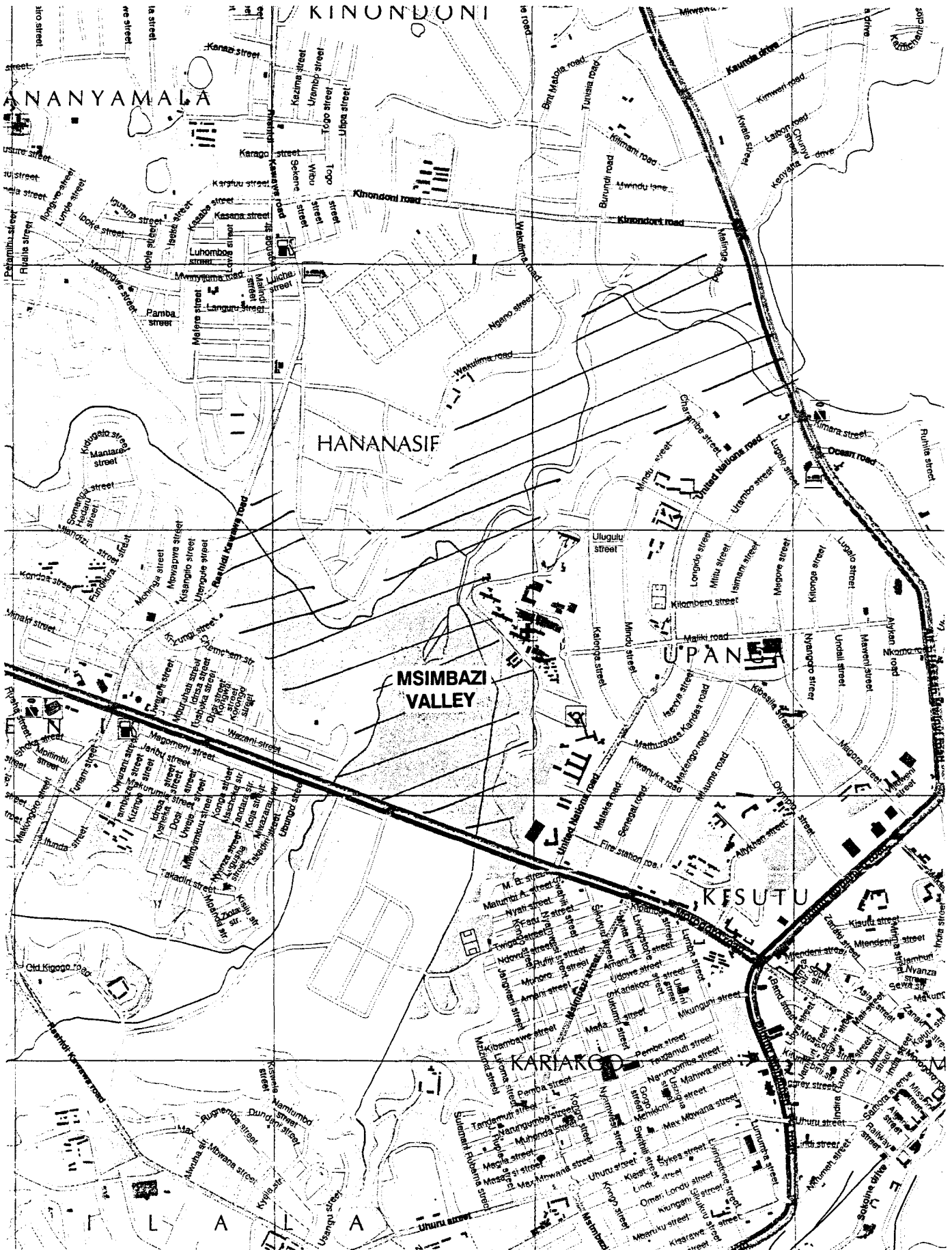
- Two of the in total three main access roads to the city centre border the Msimbazi Valley: Ali Hassan Mwinyi Road and Morogoro Road;
- The distance from the valley to the city centre is between 2 and 3.5 km, which is very close, considering the total area of Dar es Salaam being 112,126 ha; and
- Public transport from the valley to the centre (daladala) is reasonably good: during non-peak hours, it would take five to ten minutes to reach the city centre.

One other main advantage of the valley is its exposure to the Indian Ocean, which often provides a cool breeze that makes the climate in the valley more agreeable than in many residential areas in the city.

The environment within the valley varies, as well as the nature of the land. Close to Selander Bridge there are many mangrove trees. It has been recommended to conserve this area, because the mangrove creek is a good breeding ground for fish and other animals. The rest of the valley includes, apart from the river itself, swamps, sand and mud, and some cultivated areas.

Though there are no services in the valley itself, the surrounding areas are well serviced: several primary and secondary schools, churches, mosques and dispensaries can be found there. Besides those, on the edge of Upanga, bordering the valley, is the Muhimbili Hospital, the biggest hospital in Dar es Salaam.

¹⁰Only this part of the whole valley is meant when the Msimbazi Valley is cited.



Map D-II: Msimbazi Valley

Then, there are plans from the city council to start two major activities in the valley. First, there is the intention to construct a central bus station in the valley, just north of Morogoro Road. Second, the area south of Morogoro Road is reserved for the construction of a national football stadium. Both activities will make it even more attractive than it already is to settle in the Msimbazi Valley.

On the other hand, in many parts of the valley, there is the danger of the floods during the rainy season. Since 1989, floods have been responsible for the destruction of houses throughout the whole Msimbazi Valley. Furthermore, heavy rains have been a disaster pertaining to erosion on the edges of the valley. For example part of the cemetery in Vingunguti (to the south-west of the city) was eroded and washed away in 1992. It highly depends on the location in the valley what the damages from floods might be, for many parts do not experience the flooding at all, while other parts suffer severely. Apart from the two activities mentioned above, a third, but different type of activity in the valley, is being talked about: the channelling of the Msimbazi River. This is however in its very first stage, so there is not much known about it yet.

Apart from the flooding, the river brings another risk, maybe even more dangerous than the previous one. Lugalla writes that the Msimbazi River has turned into an open sewage; a situation which endangers the lives of those who depend on its waters [Lugalla, 1995, p. 8]. Different industries and households, namely empty their waste water into the rivers of Dar es Salaam. Some of these rivers subsequently flow into the Msimbazi River, thus collecting the polluted water from different parts of the city. The Msimbazi River contains waste water from, among other industries, Urafiki Textile Mills, Ubungo Tanesco Power Station, Darbrew, Tanzania Breweries, and Coastal Dairies, creating health hazards for all people living around and in the valley. Studies reveal that the water contains fresh faeces, as well as various metals in concentrations that are dangerous for people. It was recommended that the water should neither be used for domestic purposes, nor for cooling, irrigation, or fishing [Working Group Hazard Land, 1996, p. 3].

The polluted water causes an unhealthy situation for those living along the river. Moreover, because of the fact that this problem is not visible, in contrast to the flooding, people do not realise the risks of using the water, and they continue to use it for domestic purposes, bathing, irrigation, etcetera. Probably, because of the hidden danger of the polluted water and because of the ignorance of the people, this problem will have a much more and lengthy impact, of which the consequences will be seen in the coming years.

11.3 Housing in the Msimbazi Valley

As in *Chapter 6*, a distinction is made between the quantity and the quality of housing in the Msimbazi Valley. The quantity of housing will be discussed first and then the quality of housing in the valley.

Quantity

Because of a lack of maps or other sources, it is impossible to determine exactly how many houses there are in the Valley. The only sources available are detailed maps from 1994, that are based on aerial photographs from the end of 1992. A field-check of the photographs was executed in 1993, which means that the maps represent the situation of 1993. With the help of these maps it was possible to make a subjective estimation as to where the edge of the Valley lays, which houses are just inside and which are just outside the valley. The results of these observations are presented in *Map D-III*. Further, an attempt is made to count the houses that have been built since the aerial photographs were taken. *Map D-III* presents those new houses as well, as observed in the beginning

of 1996¹¹. *Map D-III: Housing in the Msimbazi Valley, 1993 and 1996* is appended in the back of the report.

Counting the houses inside the valley on the map, distinguishing between the houses of 1993 and those of 1996, now makes it possible to determine the rate of invasion. The results are presented in *Table D-X*.

number of houses, 1993	number of houses, 1996	increase 1993-1996	average annual rate of invasion	annual rate of invasion
351	611	260	24.7 %	20.3 %

Table D-X: Housing in the Msimbazi Valley, quantitative

In the Msimbazi Valley, both the average annual and the annual rates of invasion are bigger than the growth figures for Dar es Salaam (respectively 9.0 % and 7.2 % for Dar es Salaam). This means that, in spite of the governmental policy on hazard lands, the valley is being occupied rapidly.

Quality

Dankers [Dankers, 1995, p. 81] writes that the Ministry of Development Planning made a classification system to judge the quality of the houses in Tanzania. That system categorizes the houses into three categories:

- permanent houses: Houses made of materials which have a long life-span, like sand-cement blocks, burnt clay bricks for the walls and corrugated iron sheets for the roof;
- semi-permanent houses: Houses made of materials which last a medium long period: e.g. wood for the wall structure, but plastered with a cement plaster, and corrugated iron sheets for the roof; and
- temporary houses: Houses made of materials which last a short period.

The government qualifies only permanent houses as good, and semi-permanent and temporary as bad. In the Msimbazi Valley now, the materials that are used for the construction of most houses are permanent materials. In some parts of the valley there is a higher percentage of houses that have mud-and-poles for the walls. These parts are the strip east of Hananasif, where about 20 - 25 % of the houses has been built with mud-and-poles, and the area east of the Msimbazi River near Morogoro Road, where except for five houses, all have been built with mud-and-poles (the two parts can be seen on *Map D-III*). For the remaining parts of the area, the use of mud-and-poles is negligible. Observing the whole area, it is estimated that 85 % of the houses is built with cement blocks and 15 % is built with mud-and-poles for the walls. Compared to the rest of the houses in Dar es Salaam, the proportion of permanent housing in the Msimbazi Valley, is high. Even the houses in the planned areas of the city are of lesser quality. A reason for that is that the Msimbazi is a relatively young residential area, and that people building new houses use more durable materials than they used to do. A second reason is that it is necessary for the conditions in the valley to use permanent materials. The proportions of the different qualities of the houses are shown in *Table D-XI*.

¹¹Note that some parts of this map are not more than a rough assessment of the new houses being built. This is so, because time and money did not allow an exact determination of the houses in the area. Another reason is that with the available means (only the 1994 maps, that are not as accurate as they seem), it is very difficult to orientate oneself in an unplanned area like the Msimbazi Valley.

housing:	Msimbazi Valley	Dar es Salaam		
		planned areas (59 %)	unplanned areas (41 %)	total (100 %)
permanent	85 %	82 %	66 %	75 %
semi-permanent/temporary	15 %	18 %	34 %	25 %

Table D-XI: Quality of housing [source: Hoek-Smit, 1991, table 1]

The construction of the houses in the Msimbazi Valley requires a different approach from the fundi than in other areas. Although there are numerous ways to solve the problems of the floods and the swampy earth, the population continues to prefer to build in their traditional and standard way¹². The threat of floods and the swampy earth demand that three components of the houses should be executed differently, namely the floor, the foundation and a damp-proof layer. They are elaborated below.

Floor

Some houses in the valley have a floor which is higher than ground level. This occurs even up to 75 cm, but it is more commonly some 40 cm. By constructing the floor on an elevation, the house will not be affected when the river floods. This artificial hill can be made of sand only, as long as there is some sort of drainage so that surface rainwater can flow away. A second type of elevation can be made by constructing a sort of basement. In that case, the floor is laid on top of the walls (sand-cement would be the best because it is able to withstand the water) that are filled with sand. A third method to protect the house from the floods is to build a wall all around the plot: in case of a flood, the water cannot pass to the house. Similar to this third method, some households have constructed a low dike all around the plot to stop the water. This method is often used in the part of the valley near the Indian Ocean, because there the tides cause a flooding of the plot twice per day. A low dike is certainly enough to protect the plot against the seawater, but would not be high and strong enough against the floods during the rainy season. All methods, except for the 'basement-method', require a drainage system to lead away surface water from the plot.

Notice that if a high flood occurs, like the one in April of 1995, neither the raised floor nor the wall can give any protection, for the water can get much higher than that. This, of course, depends on the location in the valley, hence the expected water level, and the height of the floor or wall.

All four methods occur in the valley, but which method, if any, gets used depends both on the location in the valley and on the financial capacity of the clients. The fundi usually recommend a higher floor level, but not all households can afford it. All fundi working in the valley have the knowledge and the skills to construct the elevated floor or the wall around the plot.

¹²For example, a pile-dwelling is not a traditional Tanzanian type of house, and therefore it is not used in the valley either. The unfamiliarity of other types of houses, both by the clients and the fundi, makes people hold on to the standard construction methods.



Picture D-3: The raised floor by the 'basement-method'

Foundation

When considering a permanent structure, it is necessary to have some sort of footing as part of the foundation. The way the footing is laid can be different: if a sand-cement mixture is used, the mixture can be dumped dry into the slot and will be moistened by the ground water. This mixture then has to be stirred during hardening. It is quite common to use sand-cement blocks for the footing of the foundation too. Furthermore, the foundation should be deeper than in places where the ground consists of dry sand, as in other areas in Dar es Salaam. This means that the depth of the foundation should be at least 100 cm, and approximately 140 cm would be best for most locations in the valley.

Damp-Proof Layer

The best thing to do is to have a damp-proof foil underneath the floor and as a strip in the external walls, to prevent ground water from coming through and penetrating into the floor. The foil underneath the floor should be above ground level and it should be sealed properly to the strip in the wall.

It depends on the financial capacity of the owner of the house, whether or not a damp-proof layer is applied. To achieve a higher comfort level and make the house last longer, it is absolutely necessary in the swampy parts of the valley.

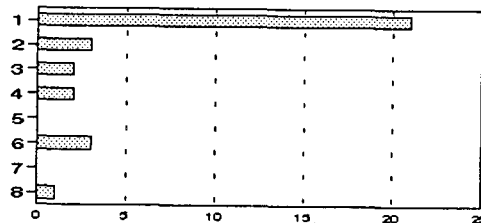
To give an impression of the way the fundi build in the valley, the plan, the elevations, and some details are worked out in *Appendix D-7*. The house that has been drawn can be considered a standard type house in the valley (and even outside the valley too), although many varieties in the design exist. The details and the materials drawn are those generally used by the fundi, with the above mentioned components included, as well. Thus, the drawings show the standard execution of the construction and not the optimal solutions or methods. See for improvements on the fundi's work, for example [Kyh, 1984] or [Obande, 1981].

11.4 Living in the Msimbazi Valley

The households that live in the Msimbazi Valley share characteristics with the rest of the population of Dar es Salaam. Some are represented in *Table B-1* in *Chapter 5*, some in *Table D-IX* in *Chapter 10*, and some additions are given below. Of course, there are aspects of living in the valley that are different from the rest of the city because they are specific for the area. These are represented as well in this paragraph. The results of the questionnaire that are used in the chapter, as well as in the other chapters of *Part D*, are presented in *Appendix D-8*.

Personal Data

Neither the household composition nor the number of households per house in the Msimbazi Valley is very distinct from those of the other households in the city. *Chart D-1* presents the number of households per house in the valley. The majority of the houses is occupied by one single household. For the houses with more than one household (11 in total) it generally goes that the extra households are tenants. In two cases however there are relatives living in the house without paying rent. In total, there are 67 households living in the 32 houses.



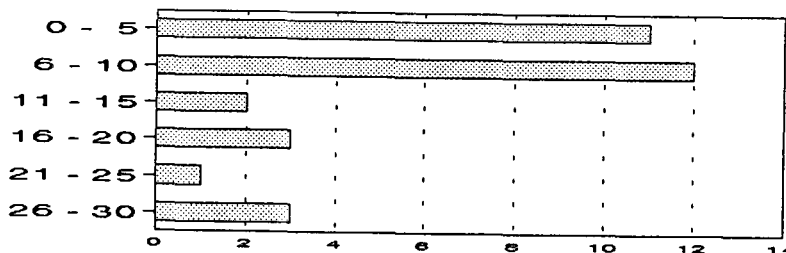
mean: 2.1

mode: 1

range: 7

Chart D-1: Number of households per house

Chart D-2 presents the number of persons per house. The variety is rather big, although the majority of the houses accommodate ten or fewer persons. In total, there are 328 persons living in the 32 houses. Considering the 67 households altogether, this makes an average of 4.9 persons per household, which is slightly lower than the 5.5 persons per household in Dar es Salaam.



mean: 10.3

mode: 5

range: 27

Chart D-2: Number of persons per house

The majority of the income earners are male (41 males over 8 females) and over 30 years old. Only 6 men older than 20 years, do not have an income, while 29 women over 20 years old, do not have an income. Most of the women are housewives, except for the 8 income earners; they have work as a nurse, a housekeeper, a tailor, one doing petty business, two doing business together with their husbands, and two being a traditional doctor. Those last two women are the only females that are heads of their households. That is a relatively low number of female headed households compared to the rest of Dar es Salaam: 6 % in the Msimbazi Valley compared to 17 % in Dar es Salaam. One reason for this might be that the houses in the Msimbazi Valley are all quite new, and a single mother might not earn enough to build her own house (women earn a lot less than men, both in the

formal and informal sectors [Planning Commission, 1991, p. 1.79]), thereby staying instead with family or renting a house somewhere.

The occupations of the 41 men earning an income vary considerably. Most of them, however, work in the informal sector, only 10 have a formal job. Moreover, for all income earners (both male and female), the number of hours per day spent working and the completed level of education is presented respectively in *Chart D-3* and in *Chart D-4*. Most of them have regular working days of anywhere between 6 and 10 hours per day, and most of them finished the compulsory primary school.

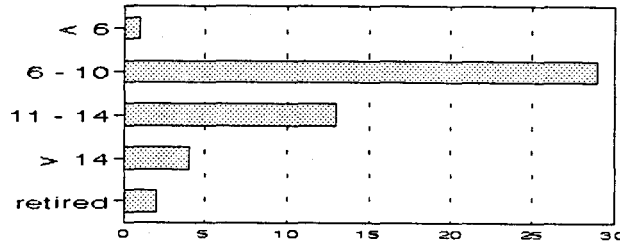


Chart D-3: All income earners: number of hours per day spent working

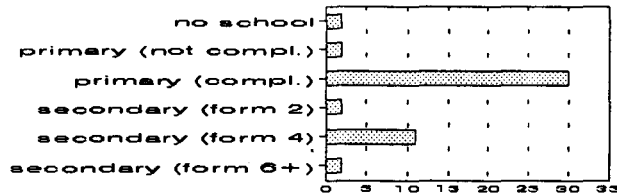


Chart D-4: All income earners: finished education

One aspect that is very difficult to find out is the household's income. People are not eager to talk about their income, or do not know it. Still, the households were asked to estimate the income of the whole household. The results are presented in *Chart D-5*, but it should be used with caution, for the answers are not very reliable. A better method would be to ask for expenditures, which indicate the household's income. This method however requires that the household write down their expenditures for a long period in order to estimate their average expenditure pattern. It was not possible to accomplish this, because the time reserved for the field work was not long enough.

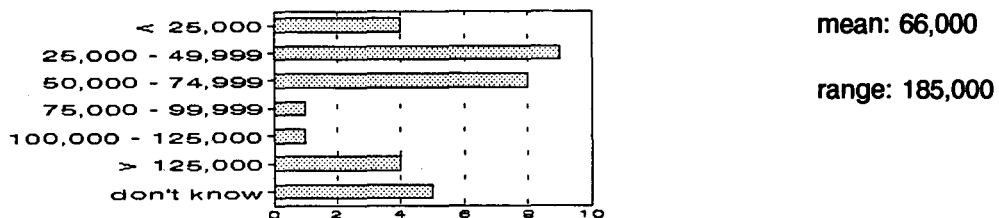


Chart D-5: Average monthly income of the whole household, in Tshs

The monthly household income in Dar es Salaam in 1990 was Tshs 18,500 [Hoek-Smit, 1990, table 7], which corresponds with approximately Tshs 58,000 by the end of 1995¹³. The income in the Msimbazi Valley, is thus a little higher than in the rest of Dar es Salaam. We will return to this point later on in the report.

For 19 of the 32 households, the household income is the income of the head of the household only. One man has a second job; the two jobs together form his income. For 5 households, the women earn a small additional income by doing some petty business, and for 7 households there is extra income from tenants paying rent. The two other households with tenants did not mention the rent as an additional income for they considered this to be too little to see it as an income.

In spite of the unreliability of the income figures, the average monthly income per person is calculated by means of the income of the household and the number of persons of that particular household. The results, for one person per household (thus a total of 32 again), are presented in *Chart D-6*. This chart is more equal than *Chart D-5*, which indicates that bigger households have a higher income than smaller ones. The range however is still quite high, pointing out that there is still much inequality among the population.

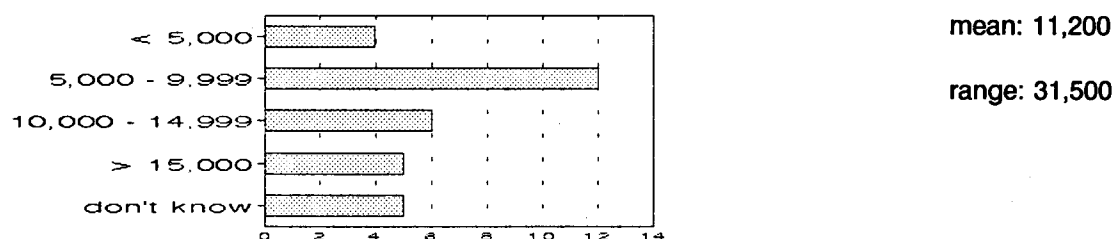


Chart D-6: Average monthly income per one person per household, in Tshs

Land

Before coming to the actual place of residence in the Msimbazi Valley, most of the households lived in the adjoining neighbourhoods (Hananasif or Magomeni) or in the neighbourhoods a little further away (Kinondoni, Mwananyamala, Kariakoo). All households were already living in Dar es Salaam. See *Chart D-7* for the distribution.

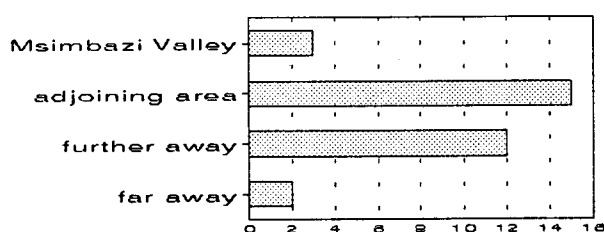


Chart D-7: Place of living before moving into this house

The reasons for leaving the place where the household lived before are presented in *Chart D-8*. Most households were renting before and had saved enough money to build their own house.

¹³Inflation figures up to the year 1994 are available, and for this calculation it is assumed that for the years after 1994 the average figure of 1990-1994 is valid. This makes an average over the whole period of approximately 26 % [Bank of Tanzania, 1994, p. 87].

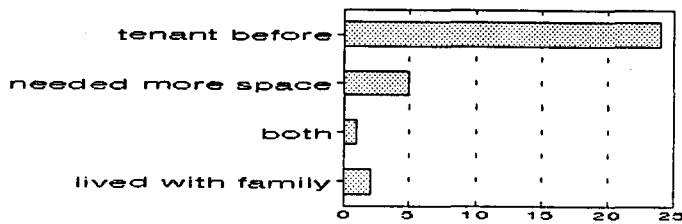


Chart D-8: Reason for leaving former place of residence

Land in the Msimbazi Valley is cheap and at least available, while in many parts of Dar es Salaam it is very difficult to find vacant land. This availability of plots and the price are the main reasons that the households have come to the valley. See *Chart D-9*.

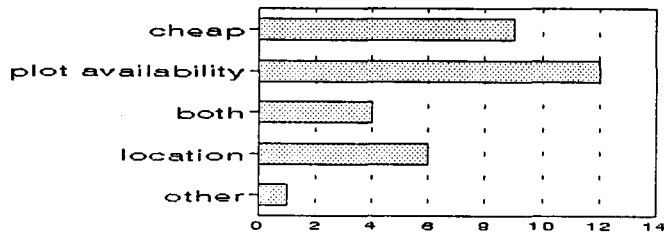


Chart D-9: Reasons for choosing the Msimbazi Valley for residence

Chart D-10 presents an idea of how the households acquired the land. The majority bought it from a person. Considering the system of land acquisition this must have taken place on the informal land market. The informal market thus flourishes in the Msimbazi Valley, and from *Chart D-11* and *Chart D-12* one can see that it functions well, too: the time it took the households to acquire land for building is quite short and the prices for land are still lower than prices in the surrounding areas. Furthermore, only seven households had not paid for the land, of which only two had just occupied it. Being a spontaneous settlement, this incidence was expected to be higher.

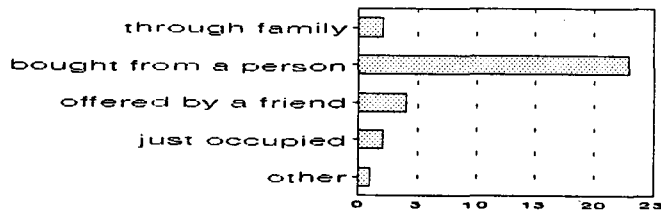


Chart D-10: Land acquisition

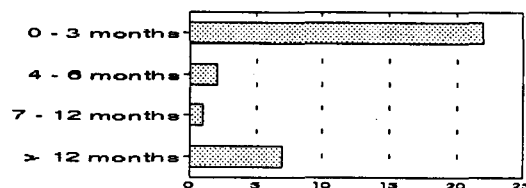


Chart D-11: Time spent to acquire land

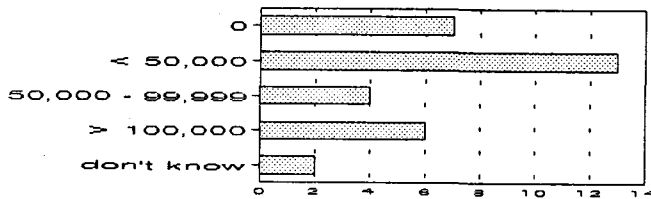


Chart D-12: Land prices, in Tshs

Only three of the households received legal right to live in the spot where their house currently is located. Of the other 29 households, 14 think they will receive it in the near future. The reason for such an expectation is that the household simply has to go to the DCC to receive this right. The DCC will give it, according to the households, because the government knows that there is a shortage of land, and that there are too many people living in the valley to be able to remove them. In any case, it is almost always possible to receive the right by giving the government a pay-off, according to some households. On the other hand, 15 households do not expect to receive the right, for the land is not planned and it is hazard land and the government will remove them¹⁴.

Most households find it a problem not to have the legal right to live in the valley, because it makes them feel insecure. Five households do not feel this; they feel safe because of the fact that they are with so many.

Housing

The sizes of the plots and of the houses in the valley are presented in *Chart D-13* and *Chart D-14*. Compared to the minimum required floor space per dwelling unit which is 45 m² per person, the average in the Msimbazi Valley is very low, for this is 17 m². The size of the plots compared to the size of the houses, on the other, hand is positive: on average only 25 % of the plot is floor area. The maximum allowable ratio on residential plots is 40 - 80 %. In other words, the houses are too small, but the large plots compensate for this.

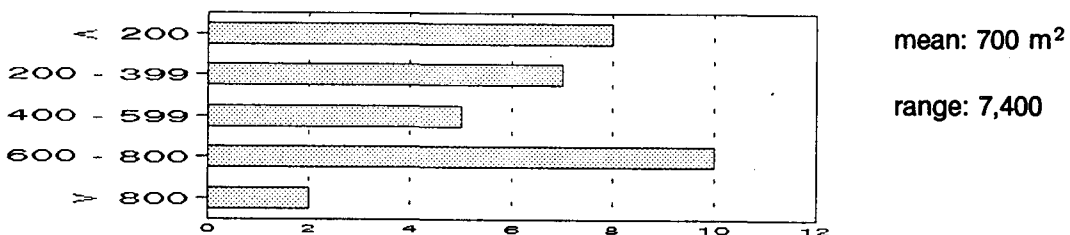


Chart D-13: Plot sizes, in m²

¹⁴The two groups of households, in fact, reflect the ideas of the government as well, for there is no clear idea of what to do with the people in the valley: they are too many to remove them, but they do live on hazard land. This dilemma needs to be ended soon, for something must be done, before it is too late.

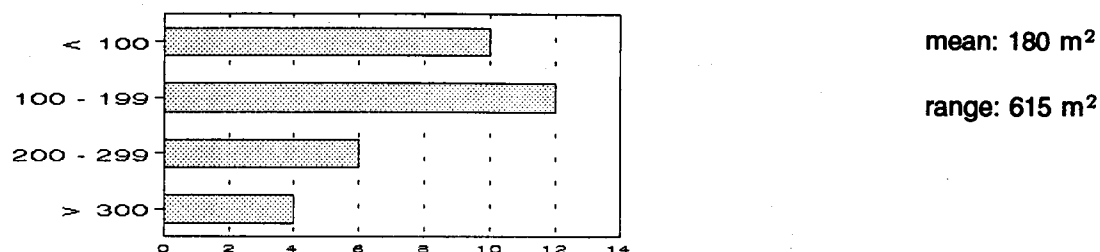


Chart D-14: House sizes, in m²

Most of the houses in the valley are of the traditional rectangular type. Still some Swahili-type houses have been built, but there is usually not enough money for that. The houses are small, considering the average number of persons per room and the average number of rooms per household; respectively 2.9 and 1.7 (compared to house owners in whole Dar es Salaam: 1.9 and 3.4).

In spite of the small number of rooms, most households (24) prepare and cook their food inside the house, while the remaining 8 households do this outside on the plot. All households, on the other hand, wash their clothes outside on the plot, and bathing mainly happens outside on the plot as well: 26 households. Most of them have a separate place on the plot for bathing, and 6 households do this inside the house. Furthermore, the majority of the households have no activities other than 'living' on their plots. Only 4 heads of the households practise their job in their house (3 traditional doctors and 1 artist), and 5 have other commercial activities on the plot. Nine households do some kind of farming for their own consumption on the plot, two do this on a shamba somewhere else, and 21 households do not do this at all. The small percentage of households that do farming activities on the plot is probably caused by the swampy ground in the valley. Most people in the valley would like to have more possibilities to do some kind of farming on their plots, mainly for the purpose of selling the crops and thus earning an additional income.

When it comes to the facilities that the households have on the plot, the situation is rather poor. Some households have access to water and electricity, but they all draw it off of houses in the neighbouring areas. Three households have constructed a drainage system for their own use, something that would be necessary for almost all the houses in the valley. All latrine facilities in the valley are pit-latrines, but one household does not have any facility on the plot. This is presented in *Table D-XII*.

water (illegal)	7
electricity (illegal)	6
drainage	3
pit-latrine	31
none	1

Table D-XII: Access to services

The households would like to see the services in the valley be improved, with a preference for flood protection, then drainage, then water and finally electricity. Other services, like accessibility, education and health are mentioned as well, but the priority goes to flood protection and drainage. Except for the drainage, these are services that should be provided by the DCC officially, which will not happen as long as the settlements are illegal. With respect to the drainage, the people could construct a system on their plots themselves, which is not too complicated.



Picture D-4: Lack of services and infrastructure in the valley

Floods

As expected, most households experience floods on their plots: only three of the 32 have remained dry during the rainy periods of the last few years. Twelve of the households experience floods on their plots less than once a year, thirteen once a year, three twice a year, and one household 4 times per year. However, fourteen of the 29 'wet' households, do not have any flood damage. Six lose some property, two notice damage to the house, five mention both loss of property and house damage, and two mentioned something else: one household lost their garden, which had 'fallen' into the river; one household had left the house, so that burglars entered the house and robbed them...

Knowing this, it would be no good to leave the house, but 16 households did so, for periods ranging from a couple of hours to up to three days. Eleven households just stayed at home, and two households left the house, but the father remained there alone. All people leaving went to family or friends in the neighbouring areas, or to shelter that had been provided by the government just outside the flooded area. Because of the fact that the floods came suddenly, the households did not have enough time to take much with them. Most did not take anything, four households took some valuables, and five took some clothes and food.

The seriousness of the floods can be seen from *Chart D-15*, which shows the highest level that the water had come, for the 'wet' households only.

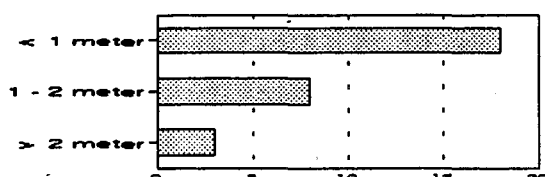


Chart D-15: Water levels from the floor

In spite of this high water level, the households do not want to leave the Msimbazi Valley: 27 of them want to stay permanently in their houses. Only two households want to stay **only** temporarily and three households do not want to stay any longer, but they do not have another place to go to. All but one household would be willing to pay for a solution for the water floods. The one household stated that paying would not solve anything, and therefore he would not want to. Also, 30 households would be willing to participate in any effort to improve the living situation in the Msimbazi Valley, either in paying contributions or in physical participation. One household **does** not know, and one household thinks that improving the area is the responsibility of the government, and therefore does not want to contribute.

In contrast to what is written above, 17 households would be willing to pay a higher price for another place to live, that would be safer, better serviced and legal. 15 households would still not want that, especially for financial reasons. But the question as to whether the households preferred to live somewhere else gave different answers, which are presented in *Table D-XIII*.

would you prefer to live somewhere else?	reason:	number
yes (24)	danger of floods	9
	need more space	3
	insecurity of land	5
	to rent out this house	4
	poor accessibility	2
	for a change	1
no (8)	work and friends are here	3
	climate is good	2
	location is good	3

Table D-XIII: Preference to live somewhere else

There are three different answering patterns on the question as to whether the household would like to live somewhere else. This is quite confusing, but the reason could be that the households do not see any possibilities for moving, for there is no land available. Therefore, they think they will stay in their house permanently, although most of them would prefer to live somewhere else. In the field, it seemed that most people, and especially the women, were afraid of the floods and of the government, and would like to move. They do not expect this to happen though.

11.5 Conclusion

Dwellers in hazard lands weigh the risks of living on the land against the positive aspects of the location. The Msimbazi Valley has many positive aspects that make people decide to accept the dangers, and settle in the valley. Especially the availability of cheap land, so close to the city centre, makes people neglect the threat of the floods. Additional advantages are its exposure to the Indian Ocean and the presence of services in the adjoining areas. Compared to the whole city, the rate of invasion of the valley, as well as the proportion of permanent structures in the valley, is high: many people seem to come to the Msimbazi Valley to settle there permanently. Furthermore, they do not consist of the very lower class of people who would have no choice but to settle on hazard lands; they have actually chosen to live there.

Even though the annual flooding of the valley is an annoying and in some parts of the valley, dangerous event, the hidden danger of the polluted river seems far more serious. The latter namely will not easily be visible or noticeable, and it will have effects that will be spread out over a longer period of time. The effects will also be very difficult to cease, for the problem will literally deepen. Whereas the danger of the floods can be dealt with by means of a technical solution, either of the construction of the houses or of the river itself, to deal with the pollution is more difficult. It would mean that all industries along the rivers would have to treat their waste water, and that all households along the rivers and in the valleys would have to be connected to a sewage system. Both requirements seem impossible to achieve anytime soon.

The weakness of the government becomes clear again, for people settle in the hazard lands and the government cannot stop them, in spite of its policies. It seems too late now to evacuate them, because they are with too many and there is no land available elsewhere. A solution should be found thus to make the land no longer hazardous. Apart from that, the area should be planned in order to prevent a continuing chaotic invasion, that would result in another squatter area. It is not too late to create a residential area, with planned infrastructure and services, but there is not much time left. At present the situation in the area is deplorable, for there are hardly any services available, except for the pit-latrines on the plots. Hence if the government, or any other institution, wants to improve the area, it will be a big undertaking.

The households living in the Msimbazi Valley are a little smaller than in the rest of the city, and there are only few female headed households. The average income is a bit higher, which corresponds with the high proportion of the houses that have been built of permanent materials. On the other hand, the houses are smaller compared to the whole city. This might be so because the people feel insecure when building in the valley, for they could be removed at any time. The use of permanent materials then might seem strange, but other materials would not be able to withstand the water at all. The households, thus, built their houses, having invested as little as possible and still having a permanent structure.

The plots in the valley are relatively large and easy to acquire. This latter is the reason that most households come to the valley and leave their former residence. Most of them left because they had been renting; but now that they live in the valley, they want to leave again. Although they do not expect this to happen, most households would prefer a safer place of residence. They are afraid of the annual floods and dislike the insecurity of illegal land and the absence of services. By means of relatively simple solutions however, most new houses could be built in such a way as to be safe. This can be done by constructing the house on an artificial hill or on a sort of basement or by constructing a wall or a dike around the plot. In some parts the water level is too high to just solve the problem this way, and for existing houses it would be more complicated to make them safe, although the dike or the wall would do for these, too. Other technical solutions should be possible as well, but they are not yet applied in the Msimbazi Valley.

12 BUILDING IN THE MSIMBAZI VALLEY

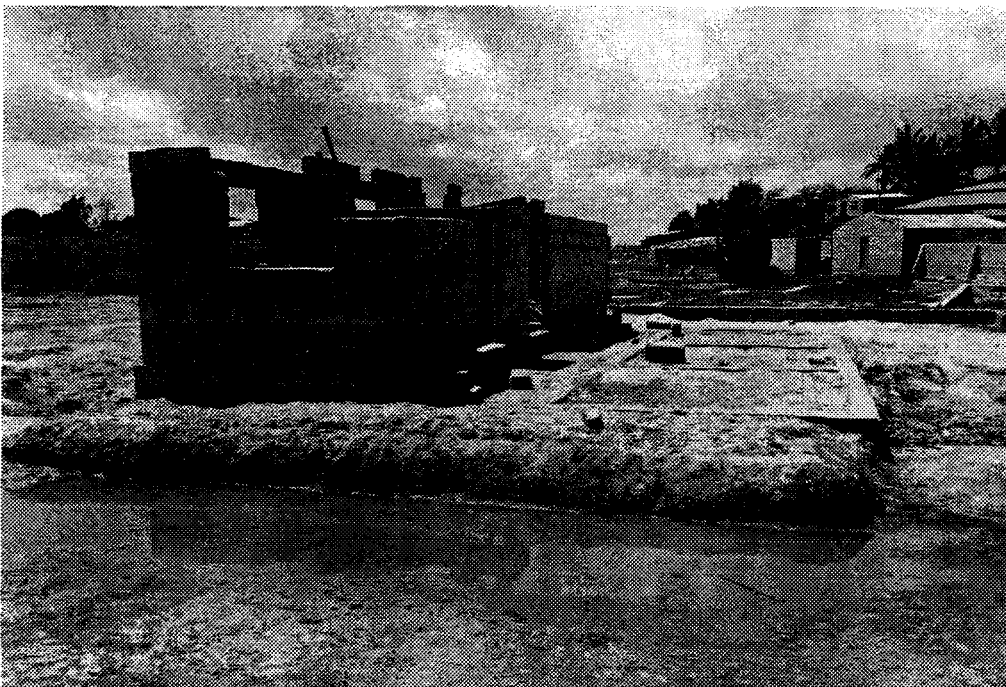
Anna's ability to polish any situation was truly extraordinary. She had some uncanny knack of doing the right thing at the right time to get the most out of an occasion. I've always thought that children ran towards those they loved, but not Anna. When she saw me she started to walk towards me, not too slowly, but not too quickly. My first sight of her was too far away to distinguish her features; she might have been any other child, but she wasn't. Her beautiful copper hair stood out for miles, there was no mistaking her.

[Fynn, 1974, p. 28]

This chapter deals with the building process as it occurs in the Msimbazi Valley. It discusses the successive phases and the actors who execute them. The relation between the client and the fundi and the self-help activities in the valley are dealt with in *Paragraphs 12.2 and 12.3.*

12.1 The Building Process

Many houses in Dar es Salaam are waiting to be completed, or in other words, they are waiting until their owners have enough money to execute the next step of the building process. This goes for the Msimbazi Valley as well. *Chart D-16* presents the time it took to complete the houses in the valley, from the moment of starting to build up to the moment of taking up residence. Most households by the way, keep building, even after having moved in, whenever they have saved enough money. The houses will normally never be finished, for there will always be extensions and improvements possible.



Picture D-5: Unfinished structure

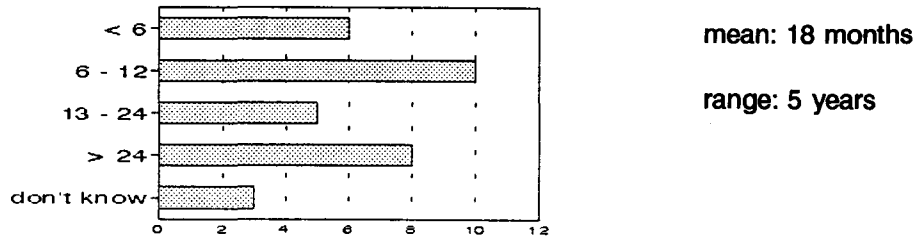


Chart D-16: Time required to complete the construction of the houses, in months

The price of a house in the valley is presented in *Chart D-17*. The construction costs can be divided into costs for the materials and costs for the fundi. The division is approximately 20 % for the fundi (including the labourers he needs to hire) and 80 % for building materials (including transport and storage). Other costs, namely for equipment and permits, are negligible, because the fundi own most equipment themselves, and, in general, permits are not paid in the informal sector.

Many people do not know the costs they made for the building of the house, just because it takes so long to complete it. The great differences in the prices are mainly due to the size of the houses, which is to be seen from *Chart D-18* that presents the price per m². The latter chart, namely, is composed of longer bars in the lower price classes.

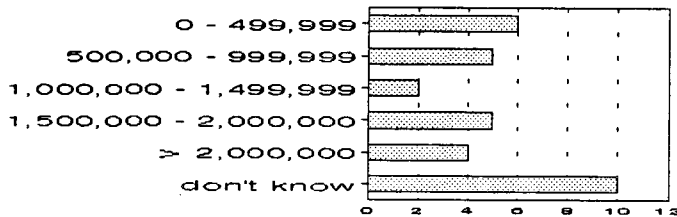


Chart D-17: Construction costs for the houses, in Tshs

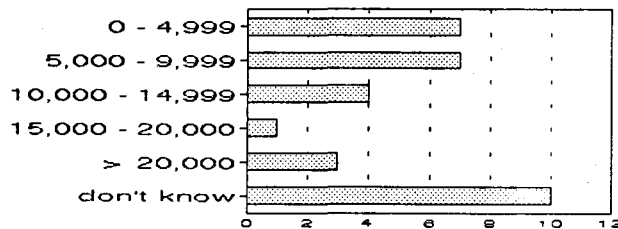


Chart D-18: Construction costs per m², in Tshs

During the actual building of the house (execution phase, see the definition in *Paragraph 4.5*), several problems may occur. The problems that were mentioned by the respondents in the Msimbazi Valley are listed in *Table D-XIV*. Of the most frequently mentioned problems, 5 refer to financing difficulties, whereas problems about the execution of the construction are of less importance.

problem mentioned	number	problem mentioned	number
difficult to borrow money	21	lack of skilled labour	11
unavailability of roads and paths	22	variability of weather	15
high cost of building materials	26	insecurity of land legalization	16
low income level	26	limited resources for pre-financing	20
unavailability of materials	14	strict building regulations	7
disappearance of equipment/materials	11	frequent price changes materials	27
crowded, small plots	13	swampy plots	1

Table D-XIV: Problems during the execution of the construction, number of times mentioned by the respondents

The problems that are mentioned by the households can be divided into three types of problems:

- problems related to financing;
- problems related to the physical conditions of the construction site;
- other problems (including regulations, building materials, theft and the fundi).

Using this division, the first problem is the most urgent one (mentioned 120 times), while the other two are of minor importance (50 and 48 times). The difficulties of financing, furthermore, are not easy to avoid, because generally there are no opportunities for the households to receive loans or other financial support. The Tanzania Housing Bank, where it was already very difficult to acquire a loan, went bankrupt in 1995, leaving no other possibilities.

So, of the external factors (see the theoretical framework in *Paragraph 4.4*), in particular the economy has much influence. The physical infrastructure and the climate are relevant, but to a lesser extent, while the government, private organizations and social aspects seem to be unimportant. Other features are not mentioned at all.

In *Chart D-19*, those who managed and organized the building process are presented. Whereas one would expect this to be the person who is the main executor, it is the client himself in most of the cases. Still, the fundi has his influence as a result of his experience, but the client is his superior in this respect. The fact that the client manages the building himself, assures that the process complies with the definition of the second gradation of self-help (see *Paragraph 10.2*).

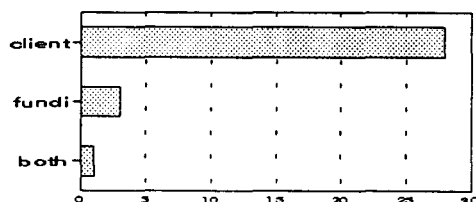


Chart D-19: Manager and organizer of the building process

The different steps of the building process can be executed by different actors. The actors that are found relevant in the Msimbazi Valley are the client (or his family or friends), the fundi, unskilled labourers who are hired directly by the client, and professionals, like an architect. This is presented in *Table D-XV*. Knowing that the client usually is the manager of the process, it is interesting to note who executes the different steps.

Initiative

From *Table D-XV* it can be seen that the phase of initiative is accomplished by the client in each case. The step of acquiring permits or other documented approvals for building, often is not done at all. People generally do not want to go through the long and costly procedure of receiving the permits, for even without those it is well possible to start building, since the government does not undertake much action to stop illegal builders. Furthermore, people do not expect to receive a permit, for the Msimbazi Valley is hazard land.

Preparation

Much of the phase of preparation is done by the client as well, although the role of the fundi becomes more important. In making the planning and the design, his knowledge and experience is considered to be of much value. All fundi make a planning of their jobs, even if the client had already made a planning. Sometimes, the fundi make the design of the house they are going to build. It can also happen that the client has a design of his own, or that the two together make one.

If no design is made, the fundi will build the house using only his own experience. That means that the house would be a standard house. It is important to know that practically all clients buy and transport their materials themselves. This requires some knowledge of the quality of building materials. As will be seen later on, this sometimes creates problems between client and fundi.



Picture D-6: Laying the foundation (picture taken in Hananasif)

Execution

The phase of the execution can be divided into three parts, when considering the different executors. The first part, preparing the plot for building is in about half of the cases, done by the client and in half of the cases by the fundi. The actual construction part (part two) is done by the fundi, except for three cases. Those three households executed the whole process themselves; the heads of the households were fundi themselves and thus had the skills and the time to do so. Thirdly, the services and finishings: much of this part of the execution phase is not done at all; services and finishings are

the first components that the households omit, if they have not enough money to complete the whole building process.

Note that doing the execution, the fundi do not work alone (see the three types of fundi described in *Paragraph 10.4*) but have labourers (skilled or unskilled) with them. It occurs that the fundi employs certain labourers for more than one job, which enables them to gain experience. This is the way that most fundi have learned the job. On the other hand there are many unskilled labourers as well. It seems to depend on the occasion only: sometimes a fundi works with an employee for a while, and sometimes they use unskilled labourers only. Besides that, the number of employees or labourers varies, as well. Some jobs require one labourer only and other jobs require two to four labourers. This also depends on the occasion.

Maintenance and Control

The phase of maintenance and control is done again by the client, except for the newly built houses that did not need any maintenance yet.

	client	fundi	client and fundi together	unskilled labourers	professional	not executed
initiative	32	-	-	-	-	-
obtaining the land	32	-	-	-	-	-
permits, etcetera	14	-	-	-	-	18
planning	21	10	-	-	1	-
design	8	10	2	-	1	11
obtaining materials	31	1	-	-	-	-
transporting materials	26	1	-	5	-	-
storage	28	2	-	-	-	2
plot demarcation	4	12	1	-	-	15
preparation of the site	11	14	1	4	-	1
setting out the site	17	14	-	-	-	1
excavation	3	26	-	3	-	-
foundation	3	26	-	3	-	-
walls	3	29	-	-	-	-
floors and roof	3	29	-	-	-	-
doors and windows	2	30	-	-	-	-
toilet	4	23	-	4	-	1
electricity	-	8	-	-	-	24
water	-	6	-	-	-	26
exterior finishings	3	15	-	-	-	14
interior finishings	4	13	-	-	-	15
external works	13	8	-	2	-	9
maintenance and repairs	18	3	-	-	-	11

Table D-XV: Executors in the building process; the case of the Msimbazi Valley

The time to execute the different steps in the building process varies greatly, because of the fact that households have to build periodically. For the phase of execution, it is possible to indicate the time required. The minimum time, the mean time, and the mode time for constructing a standard sized house are presented in Table D-XVI.

construction step	minimum time required	mean time required	mode time required
preparing the site	1 day	8.8 days	2/3 days
excavation and foundation	1 day	3.5 days	1 day
walls	1 week	23 weeks	4 weeks
floors	1 day	3.6 days	2 days
roof	1 day	3.2 days	5 days
doors and windows	1 day	2.5 days	1 day
toilet	1 day	7.7 days	5 days
electricity and water	1 week	-	-
exterior and interior finishings	3 days	-	-
total	1 month	7.6 months	2 months and 1 week

Table D-XVI: Time necessary to execute construction steps

Table D-XVI makes clear that it is possible to complete the construction of a house in one month (approximately 20 working days). The average time necessary to execute the construction comes down to 7.6 months. Because it is difficult for the households to estimate the actual time of construction, excluding the waiting time, the mode time is more reliable here: the time needed for the construction of a house in the Msimbazi Valley is 2 months and 1 week.

From Chart D-16 we know that it takes on average 18 months to complete the construction of the house. The great difference is ascribed to the financing of the construction (see also Table D-XIV that shows that the major problems are of financial nature). Three of the households indeed completed the building of their house in a month, but they had the assets to make a major investment, something which is quite exceptional for the population. It is, however, advantageous to complete the building in as short a time as possible, because delays cost extra money. For one thing, the extra money goes to the building materials, which increase in price constantly. The second reason for extra costs is that delays often cause more work for the fundi, because unfinished structures can be damaged easily, for example by the weather or vegetation. When the fundi may finally continue the work, he then has to repair the damages made in the meantime. Apart from the extra costs for the client, this influences the work of the fundi negatively, as well, for he cannot finish one job before continuing a new one.

There is hardly any problem in this with relation to the fundi. Most fundi are eager for new jobs, and are flexible towards their clients. The competition between the fundi is such that they all try to please the clients, for example by decreasing the price or speeding up the work. Hence, the fundi are not the ones that hinder a fast completion of the work.

The working method of the fundi, furthermore, is quite simple. If they have to do the design, they appeal to much experience, for before becoming an independent fundi they work as an employee with a fundi for some years, and most designs require standard solutions. The same goes for the planning: his experience allows him to do this without problems. The execution itself is usually not problematic either. As long as the client takes care of the materials and the missing equipment (most equipment is owned by the fundi; the client rents the rest), the fundi, with his employees or

labourers, can do the construction. If it happens that a fundi is not able to do a certain task, another one that is specialized on that task, will be hired. Usually this is known beforehand and included in the planning, and thus there are no problems on that end either. The only negative aspect for the fundi is that the construction process does not go on continuously as explained above. This interrupts the execution of the work, which is not pleasant for the executor.

12.2 Client-Fundi Relation

The relation between the fundi and client highly depends on the trust they have in each other, for example because they know each other personally, and on the division of the tasks in the building process, as presented in *Table D-XV*. Especially during the preparation phase, their relation is significant, for all agreements have to be made. The agreements between the client and the fundi are made informally: only five households had made up a written contract with the fundi, and the other 25 had made oral agreements only. Except for one household, all of them trusted the agreements they had made. The one household had had a bad experience with a fundi who had not been loyal, and therefore did not trust the agreement. The agreements, either written or oral, generally consisted of financial agreements (22 times). In three cases it consisted of time agreements, in two cases both of time and of financial agreements, and in three cases of other agreements.

To the question as to what the household would do when hiring a contractor again, ten households would want to make up a more official contract because it would be more secure and the quality of the execution would be greater. Eighteen households would not want that, because it would be too expensive and they trust the fundi they had hired. Two households did not know what they would do.

While the client usually makes a planning of the whole building process, the fundi makes a planning of the execution phase of the work. This planning includes costs, labour and materials. Most fundi have all equipment themselves, and if there is something missing it is the responsibility of the client to obtain it. The fundi can easily follow their planning, as long as the client is loyal and pays on time. Because of the problem of payment that will be described below, the fundi do not always make a planning of the time required for building, for they would find it difficult to follow it.

The design of the house is often actualised by either the client or the fundi, in association with the one another. Because of their mutual interest, they need the input of the other party to make the design. If the client makes the design, but does not have drawings, the fundi usually makes some sketches of the client's ideas, and together they might make some alterations. If the fundi is the main designer, he includes the wishes and the requirements of the client, and will make some sketches too. The demand of the client, combined with the fundi's possibilities form the programme of requirements and then the selection of the project. All of this happens in an informal and relaxed way, which is a good base for their cooperation. Mostly, the design does not include much more than the size of the house, the number of rooms and the type of house. If these aspects are decided upon, the fundi has his standard solutions for technical problems and for details.

The majority of the households, namely 22, had hired more than one fundi during the building process. The reasons they did so, were quite different. Eight households said that the fundi had not been loyal to them and that they had to find another fundi to complete the work. Five households said that they hired different fundi for different tasks, for example one for brick-laying, one for the roofing and one for the finishings. Another eight households said that they had to find a fundi whenever there was enough money to buy materials and continue building. It happened that the previous fundi was not working in the area any longer, or that he was too busy at that time, so that another one had to be found. Finally, one household said the first fundi failed to complete the work. Of the remaining ten households, eight had hired one fundi only, and two had not hired a fundi at all.

The main reasons that the households chose their fundi, were that the households knew the fundi beforehand (10 times), that somebody had told the household about this fundi (2 times), or that the fundi lived nearby (7 times). Eight households had compared the work and the price of different fundi and then come to a choice, and four households were impressed by the fundi's work. Two other households said that the fundi that did the work were colleagues, which made the choice easy. Furthermore, all fundi that work in the valley, live either in the valley itself or in the adjoining neighbourhoods.

The fundi do not do much to get new clients, although it is difficult to find new jobs. Some go to new landowners and offer them to build the house, some do some oral advertising in the area, but the majority do nothing at all. They just wait until clients, or other fundi that need help with a job, come to them and offer them work. Verbal advertising therefore is of major importance, and the fundi notice that it often happens that people find them indirectly.

Almost all the households are content with the work that was done by the fundi. Only four were not satisfied, because of bad quality (three cases) and because of the necessity to hire different fundi (one case). A smaller majority of the households think that the total costs made for the house agree with the quality of the house. Only seven households disagreed, because of bad quality during execution (one case), fundi that were not loyal (two cases), building periodically made it too expensive (two cases), and the swampy ground made it too expensive (one case); one household thought the costs were too low considering the quality. In line with this, the majority of the households do think that the total costs made to construct the house are too high. They do not, however, ascribe this to the fundi, but to the building materials that are expensive; only three households really have specific criticism about the fundi's work.

In general, the clients do not have negative ideas about the fundi. Although sometimes friction between the two actors occurs, the clients keep trusting the fundi and they are satisfied about their work. In general, the fundi can meet the quality of building that the clients require without any problem. The fundi however feel two major difficulties towards their clients:

- Clients buy building materials of a quality that is too low, according to the fundi; and
- Clients cannot pay regularly.

The first aspect forces the fundi to build with bad materials, which results in a lower quality of the house. Often the client ascribes this to the fundi, because he is the executor, but the fundi ascribes it to the client who has bought bad materials. The reason for the client to buy the materials himself is that he can find the cheapest materials available, which of course results in a lower quality.

The second aspect expresses itself mainly in the case of delays in building. It occurs that the fundi has to wait several hours before the client brings in the materials, or that the fundi is ready to do the work, but that the client is not in the position to pay him that day. This makes the job very insecure for the fundi, and in spite of this he has to be available for the client.

Price and Payment

The fundi usually is payed during the execution of the work. In two cases it occurred beforehand, and in three cases afterwards. Delayed payment to the fundi often causes delays in the execution, but the households sometimes cannot manage to get the payments ready in time. Each of the two parties in this request more flexibility from the other party, which obviously is not easy to realize. The household pays for the building of his house using mainly his savings and his own salary (28 times), while only two households had had a loan and two had borrowed the money from friends or family.

The prices the fundi charge are determined together with the client. They negotiate about the price and when they have agreed, the fundi will work with maximum effort. The price will never influence the quality of the execution, for the fundi will always do the best they can; any higher payment would be a bonus for the fundi. The only difference might be that the better paid jobs will have priority.

To determine the price, the fundi make an estimation of the total work: they estimate the time required to finish it and the labour necessary to do so. With this estimation they can determine the price. Most of them have enough experience to make a good estimation, taking into account for example the size of the work, the difficulty and the location. Building in the Msimbazi Valley, for instance, is more expensive than building in other areas, because the swampy ground makes the work more difficult. One fundi used a nice method to determine the price: he calculates the number of sand-cement blocks necessary for the house, multiplies that number by a fixed price (for example Tshs 100 per block, depending on the difficulty of the work) and the outcome is the price for the total construction of the house.



Picture D-7: House of muc-and-poles along the Msimbazi River

12.3 Self-Help Throughout the Building Process

According to *Table D-XV*, the initiative phase is done by the client, and much of the preparation phase as well. However, in the execution phase, the self-help possibilities are not utilized. There are tasks in that phase that can be executed by the client as well, for they do not require much skills or experience. The only factor that is important there, is the factor of time. If the client has the time to execute some tasks, he can save on his expenses. All fundi hire unskilled labourers throughout the whole execution phase, and the fundi do not find it a problem at all if these labourers would be their clients themselves.

The fundi estimate that if the client would do the work of one labourer, it would save him approximately 20 - 30 % on the expenses that the client has to pay to the fundi. The fundi charge Tshs 4,000 - 5,000 per day (1996) for themselves, and unskilled labourers are paid Tshs 2,000 - 3,000 per day. If the client would do the labourer's tasks, he could save those costs. The minimum time necessary to build the whole house is 20 days (see *Table D-XVI*) for a standard size house. This enables a saving of Tshs 40,000 - 60,000, depending on the assumed payment of the labourers. If the house happens to be bigger, the time for construction would of course be longer, and the absolute savings would increase. Using the mode time necessary for construction (2 months and 1

week), the saving would be Tshs 90,000 - 135,000. Furthermore, quite often the fundi need more than one labourer, which enables the client to participate in the execution with more than one person to increase the savings even more. The clients could save even more by executing tasks that are done by the fundi now, but that do not require any skills, like the preparation of the plot and the excavation. If the fundi explains to the client what to do, he could do this alone, saving expenses again. Altogether, it is estimated that the client could save at least 20 % of the costs for the fundi, with a maximum of 50 % if many tasks would be taken over.

The difficulty in this is that the households say that they do not have enough time to participate in the construction of the house, for they have long workdays (see *Chart D-3*). However, there are two reasons why it should be possible for the client to take over the labourer's tasks.

The first reason is that there are more members of the household than income earners, who could participate in the construction (*Chart D-3* is about the income earners only). It often happens that, for example, older sons or daughters do not have tasks that take the whole day. Although some of the work that needs to be done to help the fundi is quite heavy and should be done by males, most tasks can be done by either males or females¹⁵. In most households in the valley at least one member would have enough time to help a fundi, and thus to save on the expenses for the building.

The second reason is that it should even be possible for the income earners to participate in the construction, since the time of the execution is spread out over such a long period. Because the client can decide when the construction goes on, he can arrange it in such a way that he can contribute himself. Of course, it asks for some flexibility from the client himself and from the fundi, but there should not be a problem with that.

These two reasons are assumptions only, but the households themselves indicate that they would have time, apart from their daily activities, to participate in construction work. To the question if the households would want to participate in efforts to improve the area, all but two households answered that they would. Three of them would want to support through physical labour only, while 27 would want to contribute both physical labour and finances. Therefore, it seems that the households indeed have some extra time, which could be spent by participating in the execution phase of the building process as well.

12.4 Conclusion

For the population in the Msimbazi Valley, the bottleneck in the construction process is the financing. Both for the clients and for the fundi this is where the problems occur: clients cannot continue to build for they cannot buy materials, nor can they pay the fundi in advance. As a result, the time to complete construction is very long, something which is more costly than a fast completion of the building. It is difficult to escape this vicious circle, because there are no alternative sources for financing or funds for loans, which would enable a large investment from the side of the client.

During the execution phase especially, these financial problems are present. The physical infrastructure and the weather, as well as some regulations, are causing problems too, but to a lesser extent. Also mentioned was the disappearance of equipment or materials, which happens because the materials often lay stored open on the plot, in easy reach of thieves. Concerning the supply of materials, the price again is the problem. Some households mentioned the unavailability of materials, but nowadays this does not seem to be a problem any longer. The high price of building materials, however, causes that these take care of approximately 80 % of the total construction costs. Lack of skilled labour was mentioned a few times, but at the same time, the households are

¹⁵The case of the Sigara Building Cooperative Society (*Appendix D-3*) shows tasks that can be done by the household members. Each of these tasks could be executed by women, something which is often done within the Society, where many of the members are female indeed.

satisfied with the fundi's work. Because of the fact that the fundi can easily meet the quality required by the clients, and because of the above mentioned satisfaction, the skills of the fundi are surely good enough. His working method does not cause any problems, for the design of the house is usually simple and standard, and he has the experience to do the execution of the construction without difficulties.

The relation between the client and the fundi is quite good. Mostly they trust each other and work well together. They usually do not use a written contract, but neither one of the parties find this a big problem, for an oral agreement is enough to instill trust in each other. Nevertheless some households would prefer to use a more official contract, while others thought that would be too expensive. A solution would be that fundi make up own contracts and let somebody, for example a ten-cell leader, witness the signing. Furthermore, better agreements should be made on the quality of the building materials, for the clients buy materials that are not good enough, according to the fundi.

After the fundi makes a price for the work, the fundi and the client negotiate on it and eventually agree on it. It depends on the size of the work and on the difficulty of it, and on the relation between the two, how high this price will be. The fundi then will do his very best during the execution of his work, regardless of the price they had agreed upon.

Usually, more than one fundi is hired to do the job, due to several reasons for which generally the skills of the fundi are not to blame. Sometimes however, the fundi are not loyal to their clients, but this occurs the other way around as well. The fundi are usually known in the area, and therefore people choose them to do the work. Even though it is sometimes difficult to find a new job, the fundi do not do much about it. The custom of the client coming to the fundi apparently is quite ingrained.

Throughout the building process, the division of tasks is rather firm: the initiative is always taken by the client, the execution is done by the fundi, and maintenance and control is done by the client again. Only during the preparation phase is there more collaboration between the two. The whole process is managed and supervised by the client, but in general the fundi may participate in that, because of his experience. This seems to work well, too. The actual division could be altered in order to lower the costs for the client, because clients could have a bigger contribution during the execution phase. Even though the total savings that can be reached by doing so (definitely not more than 50 % of the costs for the fundi, thus 10 % of the total costs, and more likely approximately 30 % of the costs for the fundi, thus 6 % of the total costs) is not very much, it at least helps the client to reduce the costs.

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13 CONCLUSIONS

Certainly Anna had a gift but it turned out to be nothing spooky, nothing out of this world. In a very deep sense it was at once as mysterious as it was simple. She had an immediate grasp of pattern, of structure, of the way that bits and pieces were organized into a whole. Unexplainable as this gift might be, it was always well and truly earthed in the nature of things. As simple and as mysterious as a spider's web, as ordinary as a spiral sea-shell. Anna could see pattern where others just saw muddle, and this was Anna's gift.

[Fynn, 1974, p. 73]

This chapter covers the conclusions that are drawn from the whole report. They are formulated by subject. The final one is a general conclusion on the situation of building in the Msimbazi Valley.

Housing Shortage

The quantitative housing shortage in Dar es Salaam is a big problem and in the near future, the shortage will increase rather than decrease. The present shortage of 87,000 houses will increase to 140,000 in the year 2000 and to 500,000 in 2025. The shortage causes the formation of squatter areas in many parts of the city. The living situation in squatter areas is qualitatively deplorable and the conditions for the population in those areas need to be improved urgently.

Government

The government has repeatedly failed in its task of taking care of the supply of housing. Presently, new measures are being taken via the SDP in order to deal with the urban problems. The government still shows an incapacity in its tasks and duties, concerning housing of the Dar es Salaam population. The incapacity expresses itself first by the deficiency in the number of residential plots being provided, second by the unavailability of loans for housing, and third by the failure to supply the construction of physical infrastructure and services.

Government and Informal Sector

The Tanzanian government realizes the importance of the informal sector and its possibilities for development. Policies on this sector are being prepared and existing policies mention the opportunities the informal sector offers. For the informal construction sector in particular, there are several well-defined elements, apart from policy making, on which to focus: availability of capital, training for construction executors, infrastructural improvements and availability of building materials.

Informal Sector Building Process: Division of Tasks

The private sector in general, and the informal sector in particular can play an important role in the execution of housing construction. The majority of the houses in Dar es Salaam is constructed through private activities in the informal construction sector. The phases of the construction process are executed by different actors, with the emphasis on the fundi and the client. Their cooperation therefore is very important, and mostly it functions quite well. The definition of the informal sector building process as it is given in *Paragraph 4.5* and the steps, given in *Appendix B-2*, suit the situation in the Msimbazi Valley. The division of the different tasks is clear: the client takes the initiative, the client and the fundi together do the preparations, the fundi does the execution, and the client does the maintenance and the repairs. Moreover, the client manages and organizes the whole process.

Self-Help

The self-help aspects in the process, apart from the management of the building process, are limited to the phases of initiative, preparation (partially), and maintenance and control. In order to decrease the construction costs, it is possible that the client participates in the execution phase, as well, and enlarges his participation during the preparation phase.

Furthermore, self-help through an organized group has many advantages from which individuals builders could benefit as well. The advantages include acquiring plots, obtaining and transporting materials and equipment, and acquiring loans.

Construction Costs

Considering the whole building process, the construction costs always form the bottleneck. The clients would like to spend more money than they can afford, in order to increase the quality and the size of the house. In spite of the desire to beautify or to improve the house or the design (for example size, finishings, durability, and services are aspects that all households want to improve), the households know they cannot afford it and they accept that their wish will not be fulfilled.

Composition of Construction Costs

The construction costs can be distinguished into the costs for the fundi (including labourers), the costs for building materials and equipment (including transport and storage), and the costs for the government (permits, fees, etcetera). The fundi usually own most equipment themselves, thus the costs for equipment compared to the costs for building materials are low. In the Msimbazi Valley, or in other unplanned areas, they roughly amount to 20 % for the fundi and 80 % for the materials and equipment, while generally the government is not paid. Thus especially the costs for the building materials are high; the costs for labour are relatively low.

Problems During Execution

Apart from financial problems, four other problems occur during the execution of the process. These are the lack of physical infrastructure in the Msimbazi Valley, the variability of the weather, the strict governmental regulations, and the disappearance of materials/equipment. These problems definitely are less important than the financing difficulties, but they do exist. Of those problems, the governmental regulations are usually ignored.

Programme of Requirements

In general the fundi have no problems in meeting the requirements that the clients have. It is important hereby, that the clients do not ask for very difficult solutions or operations: most of their technical requirements are standard and simple. The clients do not ask for more, firstly because they cannot pay for more expensive components, and secondly because they do not know other solutions. Besides that, the low requirements that the clients have originate from the fact that they are easily satisfied with their house. They feel that in the long run they will have enough time and plenty opportunities to finish the building. So, they keep constructing when new requirements come up; in general the houses are never completed.

The programme of requirements for the clients distinguishes four aspects:

technological aspects

Apart from considering the floods, the strength, durability, and stability are satisfactory. This means that the houses, built with the permanent materials that are mostly used (sand-cement blocks), will last long enough without many reparations. The floods in the Msimbazi Valley, however, may damage the houses, and therefore other requirements are relevant there. In order to protect the house against the floods, raised floors or a wall or dike around the plot are utilized. Other technical solutions exist, but they are not applied in the valley. The above methods, however, bring about extra costs, which not all people can afford.

spacial aspects

If some planning is not developed for the area soon, the situation, which is already bad, will deteriorate rapidly. No durable infrastructure, no services, and no arrangements are present in the valley. The houses themselves are small and are neither safe nor hygienic because of the floods, the polluted water, and the absence of clean water. The households would like to see those aspects be improved, most preferably flood protection, drainage, and drinking water.

social aspects

Because of the small sizes of the houses, the households lack privacy. The households cannot identify themselves with the house, because they do not even have the legal right to live there, and because of the threat of floods. The positive aspect in this is that they have relatively large plots.

service aspects

The climate in the Msimbazi Valley is better than in other areas of Dar es Salaam, because there is a breeze blowing in from the Indian Ocean. Other service aspects are standard in Dar es Salaam, like the materials used for walls and roofs.

Quality of the Fundi

The situation in which the clients have simple requirements is a positive one for the fundi, who can execute practically everything the clients want. Their experience is such that they have no problems doing their jobs because of the fact that the demand is quite standard. A negative aspect to this is that the fundi do not develop their skills and knowledge. Probably the fundi have more capacities than they utilize, something which is regrettable. At the same time, the fundi would need to gain more skills on building in a swampy area like the Msimbazi Valley. There are no possibilities for them to find other solutions that might be better for solving the problem of building in a flood hazardous area.

Payment of Fundi

Fundi are paid whenever the client has money to pay him, thus during the execution of the work. Though the agreements are well made, the fundi often have difficulties with the financial side of their relation with the clients: the clients buy low-quality materials and they cannot pay the fundi regularly. Apart from the resulting extra costs, this has a negative impact on the trust they have in each other.

Fundi Looking for Work

Whereas it is sometimes difficult for the fundi to find new jobs, they are not actively looking for new work. Clients choose them as a fundi because they know him, they see his work, or he lives in the area. The fundi does nothing to promote himself.

Msimbazi Valley

The Msimbazi Valley has such amenable characteristics that people find the choice to settle there very easy to make. The availability of cheap land, so close to the city centre, makes people ignore the risks of the floods when deciding to start construction there. Other advantages are the exposure to the Indian Ocean and the services for education, health, and religion, that are located in the adjoining areas. The result for the valley is that there is a very high rate of invasion.

Pollution of the Msimbazi River

The Msimbazi River is a river full of pollution. The danger of the polluted water even seems bigger than the danger of the annual floods, because the pollution is invisible and its impact is more durable. Because the people living in the valley do not know about the pollution, they do not take it into account when deciding to settle in the valley.

Government and the Msimbazi Valley

The DCC does not know what to do about the situation of people invading the valley. On the one hand, they are with too many to throw them out, but on the other hand, the risks of living there are too high. Furthermore, if the government would allow the settlers to stay, other hazard lands in Dar es Salaam will be occupied as well, for people would think they would not be removed.

General Conclusion

The informal building process in the Msimbazi Valley functions without much difficulties. As in the rest of Dar es Salaam, the bottleneck is the financing. This influences both the client and the fundi. The first one because he cannot immediately construct the house he desires. Because he knows this, and, moreover, accepts this, he has few requirements for his house at first instance, expecting he will continue building in the future. The fact that building over a longer period causes an increase of construction costs, is not positive for the client, but he cannot afford a major investment at one time, so he has not much choice.

The financing problems force the fundi to build with low-quality materials, which he does not appreciate. Furthermore, he often has to interrupt the construction process because of lack of money from the client's side. This discourages him to continue the work and slows down the fundi's activities.

For the situation in the valley thus, building itself is not the main problem. It is urgent that a plan will be developed in order to cease the chaotic invasion of the area. If the government awaits much longer, the Msimbazi Valley will become another squatter area, whereas it has the potential of becoming a beautiful residential area.

14 RECOMMENDATIONS

'The sun is nice,' said Anna, 'but it lights things up so much that you can't see very far.'

I agreed that sometimes the sun was so dazzling that on occasions one was quite blinded. That wasn't what she meant.

'Your soul don't go very far in the daylight 'cos it stops where you can see.'

'That supposed to make sense?' I asked.

'The night-time is better. It stretches your soul right out to the stars. And that,' she pronounced, 'is a very long way. In the night-time you don't have to stop going out. It's like your ears. In the daytime it's so noisy you can't hear. In the night-time you can. The night-time stretches you.'

[Fynn, 1974, P. 158]

In this chapter, recommendations are given on how the situation, as described in the conclusions in the previous chapter, can be improved. The same subjects as in *Chapter 13* are dealt with here and the final one is on the general situation in the Msimbazi Valley again.

Housing Shortage

The quantitative housing shortage needs to be diminished. Because of the capacities of the private construction sector, the focus should be on private initiatives. The government should encourage private individuals to build a house, which can be accomplished through the informal construction sector very well, by providing residential plots, by supporting the reestablishment of THB or similar institutions, and by providing the necessary infrastructure and services in the city.

Qualitatively, the residential areas should be improved by means of the construction of infrastructure and services in the squatter areas. Furthermore, new residential areas should be planned in order to prevent the formation of squatter areas.

Government

The government must let go of its old structures and adapt to the SDP to cope with the existing urban problems. It must adjust and specify its policies and include the implementation of the policies. Moreover, the government must find ways to follow their policies and to enforce its plans. There is no use in spending much time and money on policy making and then being too weak to enforce the policies. Within the SDP there should be a stronger focus on the implementation of policies; this could be reached by improving the working methods of the working groups of the SDP itself, that should be directed at the objectives and final effects, instead of at the process towards those objectives.

The difficulties of providing plots, loans, infrastructure and services for the population of Dar es Salaam, must be solved. A method would be to contract out these tasks to private companies that work more efficiently than the government.

Government and Informal Sector

The focus should be on the implementation of the policies instead of at the formulation of the policies. The informal sector is able to function by itself, but it certainly needs an environment and circumstances that make its functioning possible. For the government this means that legislation should be such that informal activities are not hindered. Furthermore, the government can indirectly stimulate the informal sector by making available capital and infrastructure, and directly by contracting out tasks to informal sector enterprises. If the government would give informal construction enterprises the opportunity to construct infrastructural elements, two goals could be met.

Informal Sector Building Process: Division of Tasks

Because the client is the organizer and manager of the building process, he can determine if the general division of tasks is satisfactory to him, or whether or not he wants to participate more or less in some of the particular phases. So, he has the division under control and can handle it according to his own wishes and advantages.

Self-Help

The self-help aspects in the building process could be increased. Apart from the steps they already execute (see *Chapter 12*), clients could execute the steps of preparation of the site, excavation, and external works without the fundi. Furthermore, they could take over the tasks of the labourers during the whole execution phase. This could save them up to approximately 10 % of the total construction costs. Generally the fundi do not mind this, and therefore they should stimulate it, because it might speed up the building process, which is positive for both the client and the fundi.

People should find ways to organize themselves in order to benefit from collective efforts to acquire plots, building materials, and loans. Such groups could furthermore be brought in for the construction of services and infrastructure.

Construction Costs

The fundi know which components of the house are essential, and which components are not. Then they should confer with the clients on how to save costs on components or elements (including labour) in order to spend more on other necessities. This might make clients decide to aim at the fulfilment of enlarging or beautifying their house. It is, however, quite difficult to decrease the costs, for the majority of the costs are inevitable.

Composition of Construction Costs

As explained before, it is possible to save on the expenses for labour. The greatest part of the construction costs however goes to the building materials. Buying large quantities is cheaper, something that can be done by joining with other clients and obtaining and transporting the materials together. There is a task for the fundi in this, for he could be the one that starts up the organization of the clients, since he knows who is building or planning to build a house. Another way would be to use cheaper materials, but most clients prefer to use expensive materials like sand-cement blocks, or must do so in order to reach the required durability.

Because of the fact that this is the main problem in the construction process, research should be done on a way to decrease the costs of building materials and on the use of other materials that are cheaper.

Problems During Execution

The lack of physical infrastructure in the Msimbazi Valley is a problem that is not easy to overcome. The government does not plan to provide it because the valley is hazard land. Households constructing a house in the valley should, however, allow for a future infrastructure when planning their house. It might occur that roads will be constructed, and if the planning of the houses, especially the location on the plot, is such that there is space for roads, that could be facilitated. The fundi should play a role in this as well. For the time being, this will remain a problem.

With regards to the weather, not much can be done, for human beings cannot influence the weather. The only thing to do during the execution is to lead away surface water by constructing a drainage system. A drainage system would be recommendable in the Msimbazi Valley anyway, but it would be good to construct it sooner, for example before constructing the walls, so that it can function during the construction of the house as well.

Governmental regulations are usually ignored, but people still find it a problem. Therefore, the regulations should be checked and perhaps adapted to the actual situation.

The disappearance of materials mainly occurs because of the fact that building materials are left unused for a long time, lying open on the plot. Speeding up the execution would be the best solution, but it is also possible to take care of the storage more accurately: for example, different households could share a place to store building materials.

Programme of Requirements

The requirements of the households in the Msimbazi Valley are simple and standard, but they should be aware of the circumstances in the valley that ask for a different approach. To protect the houses from the water, the construction should be a little different. There is not one best solution, but some more research should be done to find a reliable and cheap way to stop the water. Each of the four solutions used in the valley, i.e. the artificial hill, the basement, the dike, and the wall, functions well, but they all require regular maintenance. Especially the hill and the dike need to be controlled each time the water reaches it, and probably after heavy rains too. A drainage system is necessary for all solutions, except in the case of the basement. Furthermore, all newly built houses should utilize at least one of the methods to protect the house against the water, and also the existing houses should have a wall or a dike built around the plot. Instead of individual solutions, it would be better, though, to look for a communal solution. The plans for channelling the river would deal with the problem of the floods, but a larger dike separating the residential areas from the river would work well, too.

Only when the danger of the floods has ceased, can the households start thinking about other aspects, like services, size of the houses, and infrastructure.

Quality of the Fundi

In order to develop the skills and knowledge of the fundi, a training programme should be given. In that programme, the focused should be on building in swampy areas and the difficulties of individual flood protection. Furthermore, it would be good if the fundi learned how to organise the construction of more than one house at a time, because then they can arrange that several clients join together and benefit from that cooperation. If the fundi develops his managerial skills, he can be the organizer of such a group of builders.

Payment of Fundi

Households should be given access to loans for housing. The financial difficulties hinder an easygoing building process because of the delays. Agreements with the fundi should include the moment of payment as well. Furthermore, better agreements should be made about the quality of the building materials. It might even be better if the fundi would buy the materials himself, because he is more adept at recognizing the quality.

Fundi Looking for Work

When a fundi finds it difficult to find new jobs, he could do several things to promote himself. First of all, he could go to new land owners and offer to build a house for them. Second, he could advertise in the area, for example via suppliers of building materials or via land owners. Apart from individual promotion, fundi could form a group and divide work that way. This could even develop into specialization of certain tasks, which would improve the quality of the execution. If such groups of fundi existed, they could benefit in other ways, as well. For example, they could buy equipment together, they could enrol in training courses, they could exchange experience, etcetera.

Msimbazi Valley

It is probably impossible to stop people from invading the attractive Msimbazi Valley, but the way the invasion takes place must be changed. Otherwise, it will result in a chaotic residential area without any services or infrastructure. It is therefore necessary to make a development plan for the area, with residential parts, locations for services, for infrastructure, etcetera. The main point in this must be to indicate that certain parts of the valley are too dangerous for living, and those parts should either be left open or be given another function. There are plans for a bus station and for a stadium, which would

prevent people from building houses. On the other hand, these would attract other activities as well, something that should be limited. Parts of the valley must be left open too, because it would be too risky to build on these parts. To set up a development plan, the differences between the parts must first be determined, and then the locations must get their functions.

Pollution of the Msimbazi River

It is urgent that the pollution in the Msimbazi River and the other rivers in Dar es Salaam is stopped. The government must define the regulations concerning waste water, and then enforce these in order to guarantee the population's health. Campaigns at the industrial sites should be held, so that they understand the consequences of the pollution they cause. Also, the households should be informed about the situation, not only about their waste water, but also about their use of the water from the Msimbazi River. Most people do not realize the danger of using that water.

Government and the Msimbazi Valley

The DCC does not know what to do about the situation of people invading the valley. On the one hand, they are too numerous to be thrown out, but on the other hand, the risks of living there are too high. Furthermore, if the government allows the settlers to stay, other hazard lands in Dar es Salaam will soon be occupied as well, for people do not think they will be removed.

If a development plan for the Msimbazi Valley were in place, it would then be crucial that the government follow that plan, for if it does not, the whole plan is meaningless.

General Conclusion

It is the task of the government of Dar es Salaam to come up with a plan for the Msimbazi Valley. There are six steps that have to be followed in order to create a more structured growth of the population in the area:

- surveying of the entire area;
- giving the present settlers the legal right to live in the Msimbazi Valley;
- determining which parts of the area must be utilized for which functions, including residential areas, services, infrastructure, public space, and open space;
- providing new plots for residential use;
- providing services and infrastructure in the area in such a way that the population neither will be harmed by the water of the Msimbazi Valley, nor will the population have to use it. This includes access to drinking water and a diking-in or a channeling of the river;
- providing access to loans for house building, for individuals and/or groups of individuals.

The above activities should be executed with participation of the population of the Msimbazi Valley. This is particularly so in the provision of services and infrastructure, whereby the population can play a major role. Furthermore, the government should keep in mind that something must happen soon, otherwise it might be too late: the sooner the better.

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Structure of the report

Relevance of the research

Part B: RESEARCH DESIGN

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Empirical part

Part C: BACKGROUND OF THE HOUSING SITUATION

Housing in Dar es Salaam

Governmental attitude towards housing

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Informal sector in Tanzania

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Building in the Msimbazi Valley

Part E: IMPROVING THE SITUATION

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Part F: REFERENCES AND APPENDICES

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Appendix B-1: Operationalization

The parameters demand of housing and informal sector housing supply of the framework are discussed separately here. The terms given in this appendix can be measured and determine the two parameters. Note that the boundaries used for the framework are not the ones of the whole informal construction sector, but for the situation in the study area only, i.e. the Msimbazi Valley.

DEMAND OF HOUSING

The quantitative demand of housing in the Msimbazi Valley alone can be found by means of the following factors:

1. housing need Dar es Salaam;
 2. housing supply Dar es Salaam;
 3. plot availability Dar es Salaam;
 4. attractiveness of the area;
 5. housing conditions in surrounding areas.
- ad 1. - population growth;
 - existing overcrowding;
 - replacement old and semi-permanent houses.
- ad 2. - housing supply formal sector;
 - housing supply informal sector.
- ad 3. - survey of land by the government.
- ad 4. - location;
 - climate and nature;
 - services available in and around the valley;
 - activities in and around the valley;
 - legislation on hazard lands.
- ad 5. - percentage of renters;
 - rent increases.

The first factors are presented in *Chapter 6*, where an estimation is made of the housing need in Dar es Salaam, the third factor in *Chapter 8*. The other two factors come in *Chapter 11*, where hazard lands are discussed and where a picture is made of the Msimbazi Valley and the areas around the valley.

The qualitative demand for housing in the Msimbazi Valley depends on the following factors:

1. characteristics of the Valley;
 2. demands of the households;
 3. legislation.
- ad 1. - climate;
 - floods.
- ad 2. - household characteristics;
 - activities on the plot and in the house.
 - financing possibilities.
 - services.
 - durability.
 - comfortability.
- ad 3. - legislation on hazard lands;
 - building standards.

To acquire these factors, a research instrument has been developed in the form of a questionnaire. The pre-test and the analysis of the pre-test, as well as the final questionnaire, are presented in *Appendix B-3*.

INFORMAL SECTOR HOUSING SUPPLY

The housing supply in the Msimbazi Valley through the informal sector, depends on the following factors:

1. characteristics of the Valley;
 2. possibilities for the builder;
 3. working method;
 4. relation between the client and the builder.
-
- ad 1. - climate;
 - floods;
 - physical infrastructure.
 - ad 2. - characteristics of the builder;
 - financing options;
 - policies, regulations and building standards;
 - formal housing construction.
 - ad 3. - labour (quality and quantity);
 - equipment (quality and quantity);
 - materials (quality and quantity).
 - ad 4. - division of tasks and responsibilities;
 - financing methods;
 - trust and results.

These factors will be discussed in *Chapter 10, 11, and 12*. A questionnaire has been made to measure the factors (see *Appendix B-4*). This questionnaire is only made to acquire additional information about the factors, for most information comes from the questionnaire used for the households and from literature.

Appendix B-2: Informal Sector Building Process

The definition of the informal sector building process for residential buildings given in *Paragraph 4.5*, can be divided into detailed steps. The phases of initiative, preparation, execution, and maintenance and control are set up by several steps. From observations and interviews, the steps have become clear, and they are presented in this appendix.

- initiative:
 - taking the initiative to build a house
 - obtaining the land for building
 - acquiring permits, etcetera, to start building

- preparation:
 - planning the building process
 - designing the house
 - obtaining the building materials
 - transporting the building materials
 - storage of the building materials
 - plot demarcation
 - preparing the site for building

- execution:
 - setting out the site
 - excavation
 - construction of:
 - foundation
 - walls
 - floors
 - roof frame
 - roof covering
 - doors
 - windows
 - toilet facilities
 - electricity
 - water facilities
 - exterior finishing
 - interior finishing
 - external works

- maintenance and control:
 - maintenance
 - repairs

Appendix B-3: Pre-Test and Final Questionnaire for the Households

For the pre-test of the questionnaire a number of six households has been interviewed. Because of some difficulties with the interpreter who had to quit just before the execution of the pre-test, there was not enough time to instruct the new interpreter thoroughly. Therefore, the analysis of the pre-test was somehow subjective. Furthermore, a small shift in the emphasis of the questionnaire was needed, which made some questions superfluous and made it necessary to add some other questions. Many questions, however, were still useful and did not need a change, and some questions were adjusted or removed. Especially on the part of the building process more detailed information was needed, so this part had to be enlarged. Altogether, 11 questions were left out for the final questionnaire, 6 new questions were added, 4 questions were removed and 13 questions were reformulated. For the remaining 35 questions no adjustments were necessary. A brief description of the adjustments is given below.

Then, while doing the pre-test it became clear that only the head of the household knew the answers to all questions. If he did not know the answer, nobody knew it. Therefore, doing the final interviews, only the head of the household was asked the questions. For the same reason, tenants were left out as well: they could not answer questions about for example acquiring the land or about the building process, because they had not been participating in those activities. As a result they were left out of the population.

The pre-test was divided into six parts, namely:

1. personal data;
2. the house;
3. housing;
4. the building process;
5. drainage and floods;
6. expectations.

- ad 1: no major adjustments, some questions had to be formulated differently or removed because the respondents did not understand the question properly.
- ad 2: one question was reformulated to become a multiple choice question. This part was added to the first part of the questionnaire because that would be a more logical division for the respondents.
- ad 3: three questions were left out, for they dealt with tenants only. Three questions were reformulated. This part was added to the first part as well.
- ad 4: more questions were needed to acquire enough information about the building process. One big question was made, covering the whole building process, asking several questions about it. It strongly depended on the respondent if he could answer those questions or not. Two questions were left out, the other ones were reformulated. Already during the pre-test this part of the questionnaire was difficult to answer for some households.
- ad 5: three questions were left out, all other questions remained the same.
- ad 6: three questions were left out, one was shifted to the second part of the questionnaire and two were reformulated. This part was added to the third part of the final questionnaire.

For the final questionnaire, a more logical sub-division of the questions is used, resulting in three parts:

1. personal data and housing;
2. building process;
3. floods and hazard lands.

The final questionnaires, both in English and in Swahili, are presented below.

I. PERSONAL DATA AND HOUSING:

1. Do you own this house?
 - yes
 - no

2. How many households are living in this house? Specify if they are tenants or owners.
... households, ... are tenants

3. How many persons are living in this house?
... persons

4. Please specify sex and age for all household members.

5. Please specify for the head of the household, and for other income earners in the household:
 - occupation
 - hours per day spent working
 - highest education followed
 - average monthly income

6. Are there any other sources of income for the household, apart from the ones mentioned in the above question?
 - no
 - yes:
 - second job, namely ...
 - property income (for example rent, interest), namely ...
 - profit from farming or non-farming activities, namely ...
 - other, namely ...

7. What is the average monthly income for the whole household?
 - Tshs 0 - 24,999
 - Tshs 25,000 - 74,999
 - Tshs 75,000 - 124,999
 - Tshs 125,000 or more
 - don't know

8. Where did you live before coming to the Msimbazi Valley?
 - born here
 - Dar es Salaam area, namely ...
 - somewhere else, namely ...

9. Why did you leave the place where you lived before?
...

10. How long have you lived in the Msimbazi Valley?
 - less than 1 year
 - 1 - 3 years
 - more than 3 years, namely ...

11. Why did you choose to live right here in the Msimbazi Valley, and not somewhere else in Dar es Salaam?
- ...
12. How did you acquire the land?
- family ownership
 - bought from a person
 - bought from the government
 - offered by a friend/relative
 - just occupied it
 - otherwise, ...
13. How long did it take you to acquire the land?
- 0 - 3 months
 - 4 - 6 months
 - 7 - 12 months
 - more than 12 months
14. How much did you pay for the land?
- not paid
 - less than Tshs 50,000
 - Tshs 50,000 - 99,999
 - Tshs 100,000 or more
 - otherwise, ...
 - don't know
15. What is the size of the plot?
- ... x ... m
16. What is the size of the house?
- ... x ... m
- type: ...
17. How many habitable rooms are there in the house?
- ... rooms
18. Does the household do any kind of farming for own consumption? If yes, where does it take place?
- no
 - yes, namely ...
19. What activities are done on the plot, other than normal activities for living?
- no other activities
 - agricultural activities, namely ...
 - keeping some animals, namely ...
 - business, namely ...
 - production, namely ...
 - other, namely ...

20. Where do you prepare and cook your food?
- inside the house
 - outside house, on the plot
 - other, namely ...
21. Where do you bathe?
- inside the house
 - outside house, on the plot
 - other, namely ...
22. Which of the following services are present in the house or on the plot?
- water
 - electricity
 - drainage
 - toilet, type: ...
 - other, namely ...
 - none

II. BUILDING PROCESS

1. When was the house built?
- less than 1 year ago
 - 1 - 3 years ago
 - more than 3 years ago, namely ...
2. How long did it take to build the house?
- less than 6 months
 - 6 -12 months
 - 13 - 24 months
 - more than 24 months
3. Could you estimate the total costs made to build the house (all costs excluding the land), at that time?
- Tshs 0 - 499,999
 - Tshs 500,000 - 999,999
 - Tshs 1,000,000 - 1,499,999
 - Tshs 1,500,000 - 1,999,999
 - Tshs 2,000,000 or more, namely ...
 - don't know
4. Who organized and managed the building of the house?
- the owner
 - the contractor/fundi
 - the owner and the contractor/fundi together
 - other, namely ...

5. What were the problems during the actual building of the house? (more answers possible)
- difficult to borrow money
 - unavailability of roads and paths
 - high cost of building materials
 - low income level
 - unavailability of materials
 - disappearance of equipment/materials
 - crowded, small plots
 - lack of skilled labour
 - variability of weather
 - insecurity of land legalization
 - limited resources for pre-financing
 - strict building codes
 - frequent price changes materials
 - other, namely ...
6. How many different contractors were involved in the building process? Where do they live?
- none
 - one contractor, he lives ...
 - more than one contractor, because ...; they live ...
 - don't know
7. How did you choose your contractor(s)?
- I knew him before
 - some one told me, namely ...
 - I compared price and quality of different contractors
 - he lives/works nearby
 - other reason, namely ...
 - no reason/don't know
8. What kind of agreements did you and the contractor make up?
- written contract, because ...
 - oral agreements only, because ...
 - other, namely ...
9. Did you trust the agreements you made with the contractor?
- yes
 - no, because ...
 - don't know
10. What were the contents of the agreements?
- time schedule
 - financial agreements
 - division of labour tasks
 - division of other tasks, namely ...
 - other, namely ...
11. If you would hire a contractor again, would you want to have a more official contract?
- no, because ...
 - yes, because ...
 - don't know

12. Are you content with the work the contractor has done?
- yes
 - no, because ...
13. Do you think the total costs you made for the house agree with the quality of the house?
- yes
 - no, because ...

(initiative to build; obtaining the land; permits etcetera; planning; design; obtaining materials; transporting materials; storage; plot demarcation; preparing the site; setting out the site; excavation; foundation; walls; floors; roof frame; roof covering; doors; windows; toilet; electricity; water; exterior finishings; interior finishings; external works; maintenance and repairs)

14. Who executed each step of the building process?
- ...
15. How long did each step take?
- ...
16. What materials did you use? And how much?
- ...
17. What is your opinion of the quality of the execution?
- good
 - fair
 - poor
18. What is your opinion of the total costs?
- too high
 - fair
 - too low
19. When did you finance the building?
- before execution
 - during execution
 - after execution
 - other, namely ...
20. How did you finance the building?
- from my salary
 - from savings
 - from a loan, namely ...
 - borrowed from a friend/family
 - other, namely ...

III. FLOODS AND HAZARD LANDS

1. Do you experience floods on your plot? If yes, how often and when?
 - no
 - yes, less than once a year, namely ...
 - once a year, namely ...
 - twice a year, namely ...
 - 2 - 10 times a year, namely ...
 - more than 10 times a year, namely ...

2. What are the flood damages?
 - none
 - loss of property
 - damages of the house
 - loss of life
 - other, namely ...

3. What do you do when the river floods? If you leave, for how long?
 - stay
 - leave the house and the plot, for ...
 - other, namely ...

4. If you leave the house because of the floods, where do you go then?
 - relatives or friends living in the neighbouring areas
 - relatives or friends living farther away
 - just outside the flooded area
 - other, namely ...

5. If you leave the house because of the floods, what do you take with you?
 - nothing
 - only some valuables
 - other, namely ...

6. What is the highest level of water during the flood on your plot? Please indicate the height.
 - less than 1 meter
 - 1 - 2 meter
 - more than 2 meter
 - don't know

7. Would you want to pay if there would come a solution for the water floods?
 - no, because ...
 - yes
 - don't know

8. How long do you want to stay in this house?
 - permanently
 - temporarily
 - don't want to stay any longer

-
9. Do you have the legal right to live here? If yes, how did you receive it?
- yes, ...
 - no
10. If you do not have it, do you think you will receive legal right to live here?
- yes, because ...
 - no, because ...
11. If you do not have the legal right to live here, do you find this a problem?
- yes, because ...
 - no, because ...
12. Would you prefer to live somewhere else? If yes, why? If no, why do you want to stay here?
- yes, because ...
 - no, because ...
13. Would you be willing to pay a higher price for another place that would be safer, better serviced and legal?
- no
 - yes
14. What in the area would you like to be improved by the government?
- housing
 - water
 - electricity
 - drainage
 - roads and transportation
 - floods protection
 - employment
 - other, namely ...
15. Are you willing to participate in any effort directed towards those improvements?
- yes
 - no, because ...
16. How would you want to participate?
- by deliberation
 - by physical labour
 - by paying contributions
 - combination of the above
 - other, namely ...
- * Would you like to say anything else, concerning the housing situation in the Msimbazi Valley?
- no
 - yes, namely ...

I. HABARI BINAFSI NA NYUMBA

1. Unamiliki nyumba hii?
o ndiyo
o hapana
2. Ni wanafamilia wangapi wanaishi nyumba hii? Elezea kama kuna wapangaji.
wanafamilia ni ..., wapangaji ni ...
3. Ni watu wanganpi wanaishi nyumba hii?
watu ...
4. Tafadhali elezea jinsia na umri wa kila mmoja wa familia.
5. Mhuu wa familia na wanafamilia wengine wenye kipato:
 - wanafanya kazi gani (ajira)
 - wanatumia masaa mangapi kazini
 - elimu ya juu
 - wastani wa kipato kwa mwezi
6. Kuna njia nyingine ya kuongeza kipato kwa wanafamilia licha ya hizo hapo juu? Kam ndiyo, ni njia gani?
o hapana
o ndiyo:
 - o kazi ya ziada, ...
 - o kodi ya nyumba, ...
 - o faida kutokana na kazi za shamba au kazi nyinginezo, ...
 - o njia nyinginezo, zitaje ...
7. Nini wastani wa kipato kwa mwezi kwa wanafamilia wote?
o shilingi 0 - 24,999
o shilingi 25,000 - 74,999
o shilingi 75,000 - 124,999
o shilingi 125,000 au zaidi
o sijui
8. Ulikuwa unaishi wapi kabla ya kuhamia Bonde la Msimbazi?
o nilizaliwa hapa
o jijini Dar es Salaam, wapi? ...
o mahali pengine, wapi? ...
9. Kwanini ulihama ulikokuwa unaishi mwanzoni?
...
10. Mmeishi muda gani katika Bonde la Msimbazi?
o chini ya mwaka mmoja
o miaka 1 - 3
o zaidi ya miaka 3, zitaje ...

11. Kwanini ulihamua kuhamia Msimbazi wakati kuna sehemu nyingine nyingi za kuishi?
...
12. Ulipataje hii ardhi?
o kifamilia
o kununua kutoka kwa mtu
o toka senikalini
o nilipata kwa rafiki/ndugu
o nilijichukulia tu
o mengineyo/vinginevyo, ...
13. Ulichukua muda kiasi gani kupata ardhi?
o miezi 0 - 3
o miezi 4 - 6
o miezi 7 - 12
o zaidi ya miezi 12
14. Ulilipa kiasi gani cha fedha kwa ajili ya ardhi?
o sikulipa chochote
o chini ya shilingi 50,000
o shilingi 50,000 - 99,999
o shilingi 100,000 au zaidi
o vinginevyo, ...
o sijui
15. Ardhi umayomiliki ina ukubwa gani?
meta ... x ...
16. Nyumba yako ina ukubwa gani?
meta ... x ...
aina: ...
17. Nyumba yako ina vyumba vingapi vya kuishi?
vyumba ...
18. Wanafamilia wanafanya kazi ya kilimo kwa matumizi yao? Kama ndiyo, wanalima wapi?
o hapana
o ndiyo, wapi? ...
19. Ni shughuli gani zinazofanywa kwenye kiwanja, licha ya shughuli za kawaida za kimaisha?
o hakuna shughuli nyingine
o shughuli za kilimo, zipi? ...
o utunzaji wa wanyama, wapi? ...
o biashara, zipi? ...
o uzalishaji, upi? ...
o nyingine, ...

20. Je, katika nyumba hii muaandaa na kupikia wapi chakula?
- o ndani ya nyumba
 - o nje ya nyumba (uani)
 - o mahali pengine, taja ...
21. Mnaaga wapi?
- o ndani ya nyumba
 - o nje ya nyumba (uani)
 - o mahali pengine, taja ...
22. Kati ya huduma zifuatazo ni zipi zinapatikana katika kiwanja chako/chenu?
- o maji
 - o umeme
 - o mifereji ya maji machafu
 - o vyoo (vya aina gani?)
 - o huduma nyinginezo, zitaje ...
 - o hakuna

II. HATUA ZA UJENZI:

1. Nyumba ilijengua lini?
- o si zaidi ya mwaka sasa
 - o miaka 1 - 3 iliyopita
 - o zaidi ya miaka 3 iliyopita
2. Ilichukua muda gani kujenga nyumba?
- o chini ya miezi 6
 - o kati ya miezi 6 - 12
 - o kati ya miezi 13 - 24
 - o zaidi ya miezi 24
3. Ilikugarimu kiasi gani cha fedha katika kujenga nyumba hii (ukitoe zile za kiwanja)?
- o shilingi 0 - 499,999
 - o shilingi 500,000 - 999,999
 - o shilingi 1,000,000 - 1,499,999
 - o shilingi 1,500,000 - 2,000,000
 - o shilingi 2,000,000 au zaidi
 - o sijui
4. Nani alipanga na kusimamia ujenzi wa nyumba hii?
- o mwenye nyumba
 - o mkandarasi
 - o mwenye nyumba pamoja na mkandarasi
 - o mtu mwingine, nani? ...

5. Yapi yalikuwa matatizo yako wakati wa ujenzi wa nyumba? (majibu mengi yaweza kutajwa)
- o viguma kukopa pesa
 - o ukosefu wa vitu kama barabara au muingiliko
 - o bei ya juu ya vifaa vya ujenzi
 - o kipato kidogo
 - o ukosefu ya vifaa
 - o wizi au upotevu wa vyombo na vifaa
 - o kiwanja kidogo na kilichojaa
 - o ukosefu wa mafundi wasomi
 - o mabadiliko ya majira
 - o kutokuwa na uhakiko wa uhalali wa kiwanja
 - o vyanzo visivyoongezeka vya fedha hapo awali
 - o sheria kali za kiufundi za ujenzi
 - o mabadiliko ya bei za vifaa ya mara kwa mara
 - o nyingine, ...
6. Ni makandarasi wangapi katika ujenzi wa nyumba? Na wanakaa wapi?
- o hakuna
 - o mmoja, anakaa ...
 - o zaidi ya mmoja, sababu ...; wanakaa ...
 - o sijui
7. Makandarasi uliwachaguaje?
- o niliwajua kabla
 - o niliambiwa, nani? ...
 - o nililinganisha bei na kazi zilizofanywa na makandarasi mbali mbali
 - o mkandarasi anayeishi au kufanya kazi karibu
 - o sababu nyingine, ipi? ...
 - o hakuna sababu/sijui
8. Kulikuwa na makubaliano ya aina gani kati yako na mkandarasi?
- o tuliandikiana mkataba, kwasababu ...
 - o tulikubaliama kwa maneno tu, kwasababu ...
 - o mengineyo, kama ...
9. Uliamini makubaliano uliyofanya na mkandarasi?
- o ndiyo
 - o hapana, sababu ...
 - o sijui
10. Kulikuwa na vipengele gani kwenye makubaliano?
- o mpangilio wa muda
 - o makubaliano ya fedha
 - o mgawanyo wa wajengaji
 - o mgawanyo wa kazi nyingine
 - o nyingine, ...
11. Kama utapenda kumwajivi mkandarasi tena, utataka kuwa na mkandarasi wa mikataba?
- o hapana, sababu ...
 - o ndiyo, sababu ...
 - o sijui

12. Umeridhika na kazi iliyofanywa na mkandarasi?

- o ndiyo
- o hapana, sababu ...

13. Unafikiri kiasi cha fedha ulicholipa kwa ajili ya ujenzi kinalingana na nyumba yenyewe?

- o ndiyo
- o hapana, sababu ...

(uamuzi wa kujenga; kupatikana kwa kiwanja; ruhusa ya kujenga; kupanga; kuchora; kununua vifaa; kusafirisha vifaa; hifadhi vifaa; upimaji kiwanja; kuandaa kiwanja; kupangilia kiwanja; uchimbuzi; msingi; kuta; sakafu; paa; mabati; milango; madirisha; vyoo; umeme; maji; ujenzi wa mwisho wa nje; ujenzi wa mwisho wa ndani; kazi za nje kama kuondaa takataka na kufuhia mashimo; kuhifadhi na kurepea)

14. Ni nani alifanya kazi hii?

...

15. Ilitumia muda gani kumalizika?

...

16. Mmetumia vifaa vya aina gani kwa kazi hii? Na kwa kiasi gani?

...

17. Unafikiriaje kuhusu ubora wa kazi hii?

- o mzuri
- o za kawaida
- o mbaya

18. Unaonaje gharama zilizotumika katika kujenga nyumba hii?

- o kubwa sana
- o zinaridisha/za kawaida
- o za chini sana

19. Ulipia lini kujenga nyumba hii?

- o kabla ya kufanyika
- o makati ilipokuwa inafanyika
- o baada ya kufanyika

20. Ulipata wapi hela za kulipia kujenga nyumba hii?

- o kipato changu
- o fedha iliyowekwa
- o mkopo, ...
- o nilikopa ya rafiki/ndugu
- o nyingine, ...

III. MAFURIKO NA ARDHI YA HATARI

1. Umepata kuona mafuriko hapa kwenyo kiwanja chako? Kama ndiyo, ni mara ngapi na lini?
 - o hapana
 - o ndiyo,
 - o chini ya mara moja kwa mwaka, lini? ...
 - o mara moja kwa mwaka, lini? ...
 - o mara mbili kwa mwaka, lini? ...
 - o mara 2 - 10 kwa mwaka, lini? ...
 - o zaidi ya mara 10 kwa mwaka, lini? ...
2. Nini madhara ya mafuriko?
 - o hakuna
 - o kupoteza vyombo
 - o kuharibika nyumba
 - o kupoteza maisha
 - o nyingine, ...
3. Huwa unafanya nini mafuriko yakitokea? Kama unaondoka, kwa muda gani?
 - o nakaa
 - o naondoka nje ya nyumba na kiwanja, kwa ...
 - o vinginevyo, ...
4. Kama unaacha nyumba sababu ya mafuriko, unaendaga wapi baadaye?
 - o ndugu na marafiki wanaoishi jirani
 - o ndugu na marafiki wanaoishi mbali
 - o ninabakia nje ya eneo la mafuriko
 - o pengine, ...
5. Ukiacha nyumba sababu ya mafuriko, unachukuaga nini?
 - o sichukui kitu chochote
 - o vitu muhimu tu
 - o vingine, ...
6. Ni kiasi gani cha juu cha kima cha maji kwenyo kiwanja chako wakati wa mafuriko? Naomba nionyeshe.
 - o chini ya meta moja
 - o meta 1 - 2
 - o zaidi ya meta 2
 - o sijui
7. Ungependelea kulipia kama kungekuwa na juhudi za kuzuia mafuriko?
 - o hapana, sababu ...
 - o ndiyo
 - o sijui
8. Unapendelea kukaa kwa muda gani kwenye nyumba hii?
 - o muda wote wa maisha yangu
 - o kwa muda tu
 - o sitaki kukaa zaidi

9. Una haki ya kuishi eneo hili? Kama ndiyo, ulipataje?
- o ndiyo, ...
 - o hapana
10. Kama hapana, unafikiri utapata haki ya kuishi hapa?
- o ndiyo, sababu ...
 - o hapana, sababu ...
11. Kama huna haki ya kisheria ya kuishi hapa, unaona kama hilo ni tatizo?
- o ndiyo, sababu ...
 - o hapana, sababu ...
12. Unapenda kuishi sehemu nyingine zaidi: kama ndiyo elezea. Kama hapana, kwanini unapenda kuishi hapa?
- o ndiyo, sababu ...
 - o hapana, sababu ...
13. Unapendelea kulipa fedha zaidi katika sehemu nyingine salama, halali na yenye huduma?
- o hapana
 - o ndiyo
14. Ni eneo gani katika Bonde la Msimbazi ungependelea serikali iliimarisha?
- o nyumba
 - o maji
 - o umeme
 - o mifereji, barabara na usafiri
 - o uzuiaji na mafuriko
 - o ajira
 - o nyingine, ...
15. Unapenda kushirikishwa katika juhudi za kuimarisha hivyo vitu?
- o ndiyo
 - o hapana, sababu ...
16. Unapenda kushirikishwa vipi?
- o kwa ushirikiamio/harambee
 - o kwa kufanya kazi
 - o kwa michango
 - o kwa vyote juu
 - o mengineyo, yapi? ...
- * Ungependelea kusema kitu kingine zaidi kuhusu hali halisi ya nyumba kwenye Bonde la Msimbazi?
- o hapana
 - o ndiyo, ...

Appendix B-4: Questionnaire for the Contractors

In this appendix the questionnaire, as it is used for the interviews with the fundi, is presented.

1. Do you find it difficult to get new jobs?
 - yes
 - no
 - sometimes

2. What do you do to get new jobs?
 - nothing
 - going to new land owner and offer to build
 - 'advertising' in the area
 - other, namely ...

3. Why do clients choose you as a contractor?
 - they know me personally
 - they see my work
 - former clients tell them
 - other, namely ...

4. Do you make a planning when you have a new job?
 - yes
 - no
 - sometimes

5. If you make a planning, what does it include?
 - time
 - costs
 - transport
 - labour
 - materials
 - equipment
 - organization
 - working space
 - other, namely ...

6. If you make a planning, can you follow it?
 - yes
 - no
 - sometimes

7. If you make a planning, do you write it down?
 - yes
 - no
 - sometimes

8. Do you design the house yourself?
- yes
 - no
 - sometimes
9. Do you use drawings?
- yes
 - no
 - sometimes
10. What do you design?
- size
 - shape
 - number of rooms
 - materials
 - details
 - other, namely ...
11. How is the client involved in the design?
- ...
12. Do you have fixed prices?
- yes
 - no
13. How do you determine the price?
- ...
14. Does the price you agree upon, influence the quality of the work?
- yes
 - no
15. If yes, in what way?
- quality of materials
 - speed
 - precision of execution of the work
 - details and finishes
 - other, namely ...
16. Can you meet the quality the client requires?
- yes
 - no
 - sometimes
17. Can you meet it for the price he pays?
- yes
 - no
 - sometimes

18. If the client would pay more, could reach a higher quality?
- yes, because ...
 - no, because ...
19. For what works do you need labourers? How many and who are they?
- ...
20. Would you mind if the client would take over the tasks of the labourers?
- yes, because ...
 - no, because ...
21. How much would the client save that way?
- ...
22. When building in the Msimbazi Valley, do you work in another way than for example in Hananasif?
- yes, namely ...
 - no, because ...
- * Is there anything else you want to say about your work in the Msimbazi Valley?
- ...

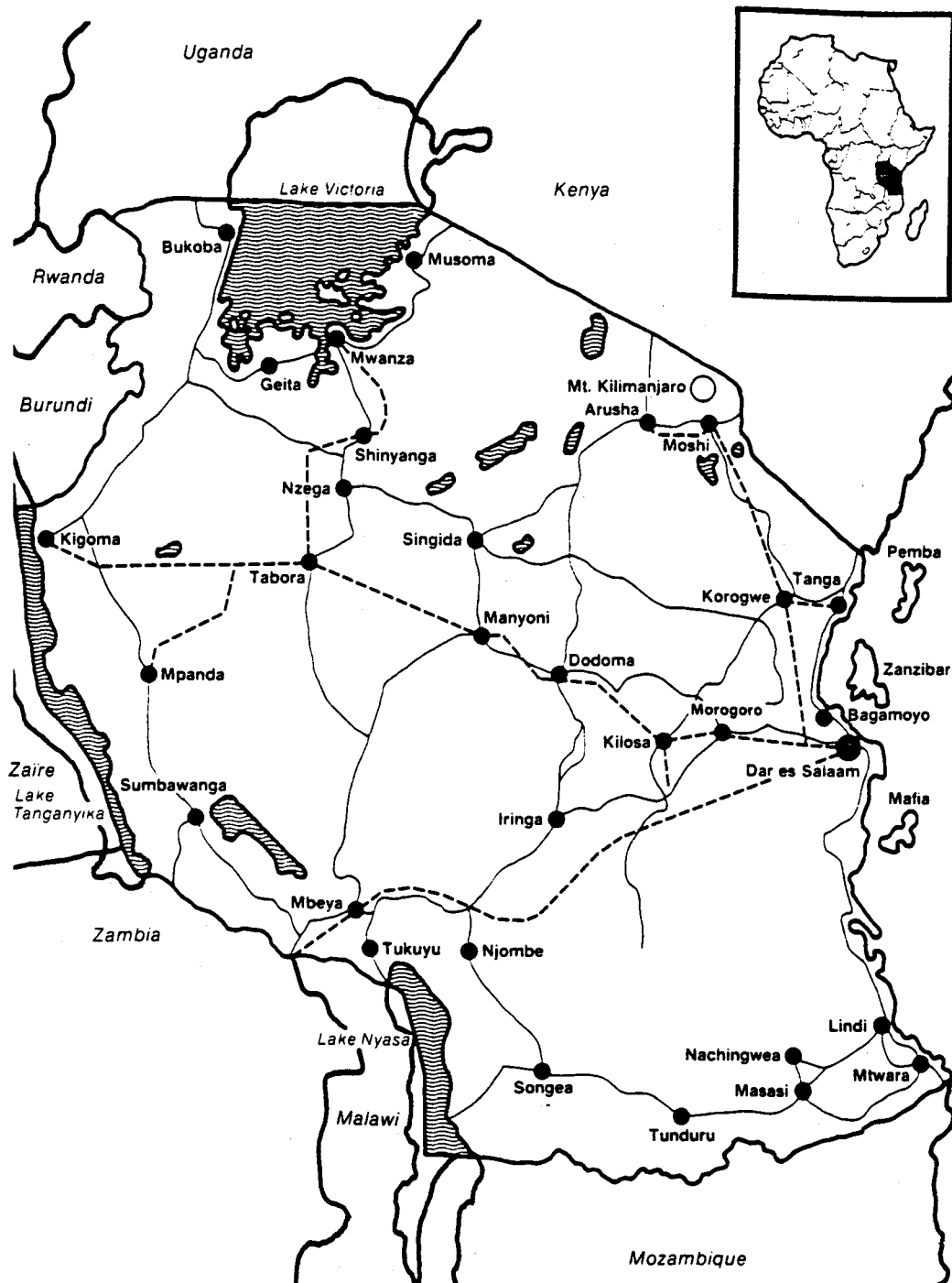
Appendix B-5: Introduction of Key Persons

This appendix introduces the key persons that were interviewed during the research in Dar es Salaam.

Mr. Ernest:	Town Planning Officer in Charge at the Dar es Salaam City Council
Mr. Hayuma:	Director of Urban Development Division at the Ministry of Lands, Housing and Urban Development
Mr. Kileo:	General Secretary of the Sigara Cooperative Society
Mr. Kiwinge:	Acting Commissioner for Lands at the Ministry of Lands, Housing and Urban Development
Mr. Kombe:	Lecturer at the Department of Architecture at the Ardhi Institute, Dar es Salaam; lecturer at the University of Dortmund
Mr. Mamiro:	Staff member National Construction Council
Mrs. Mtani:	Manager Open Spaces at the Sustainable Dar es Salaam Project
Mr. Seleki:	Assistant Director of Housing Division at the Ministry of Lands, Housing and Urban Development

Appendix C-1: Dar es Salaam Profile

The city of Dar es Salaam is located in the east of Tanzania, at the coast of the Indian Ocean. It is the biggest city of Tanzania, and the best known one as well. Although since 1973 Dodoma is the capital of Tanzania, almost all ministries, embassies and other central governmental institutions are still located in Dar es Salaam. The goal of shifting the capital from Dar es Salaam to Dodoma in 1973, in order to relief the pressure on the fast growing city of Dar es Salaam, has not been achieved yet. Growth figures still show that Dar es Salaam is growing more rapidly than other cities, and that Dodoma is still a relatively small city: in 1988 140,000 inhabitants, compared to 1,360,850 inhabitants in Dar es Salaam. Map F-1 is a map of the East African country, that lies just south of the equator (between 1° and 12° southern latitude). The total area is 945,087 km², which is about 26 times the area of the Netherlands.



Map F-1: Tanzania

Dar es Salaam is located in the coastal zone of the country. It is the narrow strip of land along the Indian Ocean, which does not come over an altitude of 200 m. The climate is hot and humid, with at some places a cooling sea breezes. The maximum temperature does not come below 30°C over the whole year, and the minimum temperature is between 19°C and 27°C. There are two rainy seasons in Dar es Salaam; a short one in November/December, and a long one from April up to June. Especially during the long rainy period heavy rains can disorder all city traffic and make dirt roads and squatter areas look like a pool of mud. The Dar es Salaam Region covers a total area of 139,300 ha, of which about half is considered to be urban area and the other half rural area. The existing land use is shown in *Table F-I*.

total area of Dar es Salaam (km ²)	1,393
residential area (km ²)	121.5
industries (km ²)	28.2
institutions (km ²)	42.2
agricultural (km ²)	523.8
open space (km ²)	501.6
hazard lands (km ²)	175.7

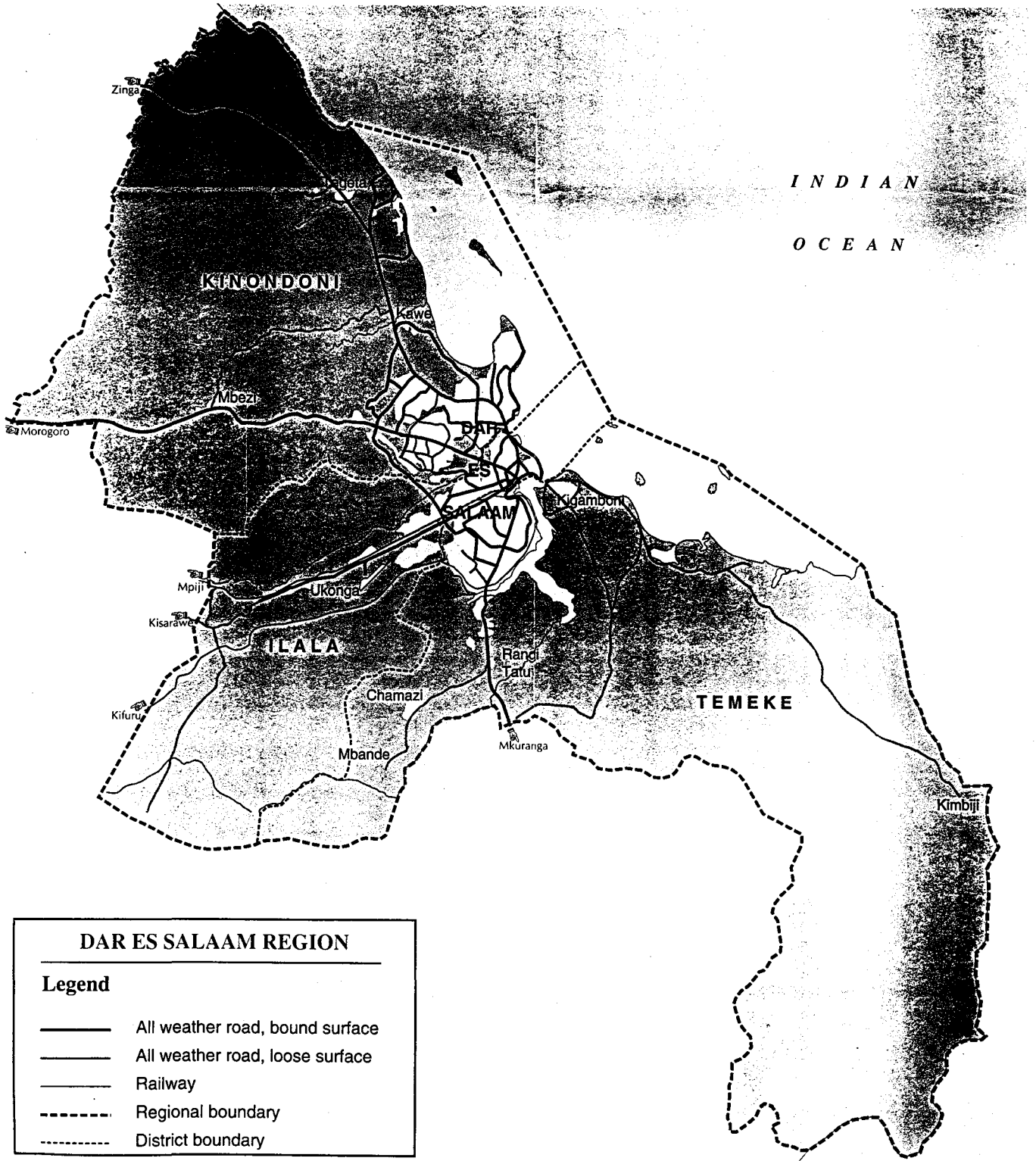
Table F-I: Existing land use in Dar es Salaam

The large part of the city that is used for agricultural activities, made it attractive for people from rural areas to come to Dar es Salaam, because it is still possible to keep a sort of rural lifestyle there. Although more and more of the open land (agricultural land, open space and hazard lands) are being occupied by people, the city is still quite open and green. Whereas the city centre and a few places in the suburbs are occupied by high-rise buildings, the majority of the built-up area consist of low-rise buildings. Mostly the different functions have their own places in the city. The city centre is a real business district, industrial activities tend to concentrate south of the centre and along the main exit roads. *Map F-II* shows the Dar es Salaam Region and the urban area of the region.

Different types of residential areas can be seen, determined by the economic situation of the residents. There are four main exit roads in the city, all made of tarmac. The majority of the main roads is made of tarmac, although the quality sometimes is very low because of a lack of maintenance. In residential areas, most roads are unsurfaced roads of a fair quality as long as there has not been too much rain recently. The access to services is shown in *Table F-II*. Although the figures seem to be too high, especially the percentage of households connected to telephone, the table is presented here because other figures are not available.

water	22 %
sewerage	6 %
electricity	37 %
telephone	25 %

Table F-II: Household connection levels to services [source: CHS, 1995, p. 29]



Map F-II: Dar es Salaam Region

The proportion of solid waste that is not collected in the city is 82 % [CHS, 1995, p. 33], but at the time of this writing actions are undertaken to privatize the solid waste collection. Therefore, this could change in the near future.

Chapter 6 shows that the population of Dar es Salaam increases quickly. The following table shows this more exhaustively than the table in Chapter 6.

period	years	population by end of the period (persons)	population growth for the period (persons)	average growth per year (persons)	average annual population growth (%)	annual growth rate (%)
1867-1874	7	10,000	9,100	1,300	144.4	41.1
1875-1913	39	34,000	24,000	615	6.2	3.2
1914-1943	30	45,000	11,000	367	1.1	0.9
1944-1952	9	99,140	54,140	6,016	13.4	9.2
1953-1967	15	272,515	173,375	11,558	11.7	7.0
1968-1978	11	843,090	570,575	51,870	19.0	10.8
1979-1988	10	1,360,850	517,760	51,776	6.1	4.9
1989-1992	4	1,800,000	439,150	109,788	4.8	7.2
1993-2000	8	3,100,000	1,300,000	162,500	9.0	7.2

Tabel F-III: Population changes in Dar es Salaam

The economic situation of the population of Dar es Salaam is presented in the following tables. *Table F-IV* shows household expenditures (for the household and per adult equivalent) and because the average income per household in 1991 was Tshs 64,378, the ratio for the whole country is 1.05. For rural Tanzania this ratio was 0.97 and for urban Tanzania 1.31, [World Bank, 1993, p. 1].

location	rural	urban	Dar es Salaam	Tanzania
yearly household expenditures (Tshs)	49,620	78,542	112,894	61,564
average monthly household expenditures (Tshs)	4,135	6,545	9,408	5,130
yearly expenditures per adult equivalent (Tshs)	77,246	108,988	158,695	91,509

Table IV: Household expenditures in 1991 [source: World Bank, 1993, p. 29]

In *Table F-V* it is to be seen that even though the per capita income increased over the years, the figure at constant prices was quite stable.

	per capita GDP at factor costs (Tshs)					
	1976	1990	1991	1992	1993	1994
at current prices	1,376	27,792	33,986	40,816	49,607	62,138
at 1976 prices	1,348	1,252	1,287	1,296	1,312	1,315

Table F-V: Per capita income in Tanzania [source: Bureau of Statistics, 1995, p. 9]

In the same World Bank report, two poverty lines are determined [World Bank, 1993, p. 15]. The first one, that is drawn on 50 % of the mean adult equivalent expenditure, has a monetary value of Tshs 46,173 per adult equivalent; the second one, based on an ILO-method, has a value of Tshs 31,000 per adult equivalent. In 1991 about 50 % of the population of Tanzania were classified as poor, because they were below the first poverty line. The percentage of very poor people applied to 36 %, who were living below the second poverty line. Furthermore, most of the poverty is found in rural Tanzania: 85 % of the nation's poverty is in rural areas [ITDS, 1996, p.59].

Finally, *Table F-VI* presents the minimum wage in the formal sector in the last few years. The figure is increasing rapidly, but comparing these figures with the monthly expenditures (see *Table D-II* in *Chapter 9*) it is clear that the minimum wage is still very low.

year	minimum wage in the formal sector (Tshs)
1991	3,500
1992	5,000
1993	10,000
1994	10,000
1995	17,500

Table F-VI: Minimum formal wages per month, since 1991

Appendix C-2: Housing Needs in Dar es Salaam

Each of the four different needs of housing, that are given in *Chapter 6*, can be estimated separately, which gives a very rough indication of the total need of housing in Dar es Salaam. Data from three recent studies are used for these estimations: the Household Budget Survey [Bureau of Statistics, 1994], the Urban and Housing Indicators Study for Dar es Salaam City [CHS, 1995], and The Urban Housing Sector in Tanzania [Hoek-Smit, 1991]. The calculations here are made for the year 1995, for the data from the study by the CHS are of that year.

Housing Need as a Consequence of Population Growth

The actual population growth of Dar es Salaam is about 150,000 persons per year [CHS, p. 7]. Knowing that on average one household consists of 5.5 persons [CHS, p. 23], and that two households share one house [Hoek-Smit, p. 11], the need is the round number of 13,500 new houses per year.

Housing Need to Eliminate Existing Overcrowding

40 % of all households in Dar es Salaam is living in a situation with too few bedrooms for a family of that type [CHS, p. 40]. The 1988 census showed a total number of households in Dar es Salaam of 314,304. With a growth rate of 4.8 % per year [Hoek-Smit, p. 11], this number would have increased to approximately 436,000 households in 1995. This means that about 175,000 households would need an improved housing situation. With the average of 2 households per house, this means approximately 87,000 houses. Because the objective then is to eliminate overcrowding, it means constructing either a new house or an expansion of the existing house. The latter, if in any case space allows this solution, will be concerned here as building a new house, for the effort that is necessary to build a new house or to expand an existing one in an unplanned area is similar.

Another way to estimate this figure is by calculating how many tenants want to become owners. This is the case for 90 % of the tenants. *Table F-VII* shows the distribution of households to their housing tenure type.

- owner household occupying house alone	14 %
- owner household sharing unit with renters	13 %
- unit renters	17 %
- room renters	56 %
total	100 %

Table F-VII: Housing tenure type in Dar es Salaam [source: Hoek-Smit, Table 3]

Thus, 73 % of the households in Dar es Salaam is renting his dwelling. This means that 127,750 households, of the in total 175,000, are renting. Therefore, the demand of tenants wanting to own, comes to about 115,000 houses.

The second method comes somewhat higher than the first method. A reason for the difference could be that even though tenants say they want to own a house, they might not do so if getting the chance. To have an estimation that rather is positive than negative, the first one will be used further. Note that both estimations made here give figures for the need of a single supply of housing and not

for a yearly need. If this absolute need would be spread out over twenty years, the need would be 4,350 new houses per year.

Housing Need for Replacing Old or Semi-Permanent Houses (the two needs are taken together here, for it is impossible to estimate them separately)

34 % of all houses will probably not last more than twenty years, given normal maintenance and repair [CHS, p.40]. The existing housing stock in 1995 is estimated to be 436,000 / 2 = 218,000 houses. This means that the demand to replace those houses comes down to 74,000 houses over a period of twenty years, thus a need of about 3,700 houses per year.

Total Housing Need

The sum of the four separate housing needs give the total housing need in Dar es Salaam. This is presented in *Table F-VIII*, which is the same table as the one in *Chapter 6*.

housing need as a result of:	number of houses per year
population growth	13,500
eliminating overcrowding	4,350
replacements	3,700
total housing need	21,550

Table F-VIII: Housing needs in Dar es Salaam

Appendix C-3: Policies on Housing and the Construction Sector

The Rolling Plan and Forward Budget for the period 1995/96 - 1997/98 [Planning Commission, 1995], gives policies on housing and on the construction sector.

Housing

Increased private sector activity in housing development and provision will be encouraged, by:

1. measures to ensure adequate and timely supply of building plots in urban areas;
2. review of regulatory laws such as the Rent Restriction Act;
3. encouragement of housing cooperatives;
4. review of housing finance arrangements, especially with a view to making available other lending avenues, including community-based systems such as savings and loan associations.

The efficiency and effectiveness of public involvement in the sector will be improved, by:

1. ensuring that institutions providing public housing operate on the basis of market forces and, in particular, avoid dependence on the Government budget;
2. charging economic rents;
3. selective and progressive sales of existing housing (partly as a means of financing further construction);
4. ensuring the participation of Local Authorities as principal actors in the planning and implementation of housing development programmes;
5. seeking partnership between public and private sector where appropriate.

[Planning Commission, 1995, p. 93]

Construction Sector

The main objective during the RPF3 period will be to develop a self-sustaining construction industry that is capable of meeting the diverse needs for construction, rehabilitation and maintenance of all building and civil works efficiently and effectively. This has to be achieved by:

1. promoting the development of local contractors and consultants;
2. improving efficiency of contractors and consultants;
3. encouraging private sector participation in the provision of back-up facilities;
4. encouraging the use of appropriate technologies;
5. enhancing human resource development.

[Planning Commission, 1995, p. 64]

Appendix C-4: Sustainable Dar es Salaam Project (SDP)

The SDP was launched in 1992 and became fully operational from November 1993. The project was initially funded by the UNDP, but it is geared towards revenue generation within the City Council. The overall aim of the project is to manage the growth and development of Dar es Salaam on a sustainable basis, by:

1. strengthening local capacity to plan, coordinate and manage environment/development interactions;
2. preparing a long term dynamic and integrated development plan and investment strategy.

Through the participation of many representatives and an action oriented approach, the SDP aims to fulfil those goals for the general population and business community of Dar es Salaam and the adjoining sub-region. In more than 30 working groups representatives from several institutions are involved. Apart from the Dar es Salaam City Council, this means participation from Central Government Ministries, utility parastatals, the private sector and non-government and community based organizations. They all nominate representatives to the so-called 'cross-sectoral multi-institutional working groups.' The working groups are established to address themselves to the key components of each of nine priorities.

The following nine key environmental issues were given priority:

1. improving solid waste management;
2. upgrading unserviced settlements;
3. servicing city expansion;
4. coordinating city centre renewal;
5. managing surface waters and liquid waste;
6. air quality management and urban transportation;
7. managing open spaces, recreational areas, hazard lands, green belts and urban agriculture potential;
8. managing the economy and integrating petty trading;
9. managing coastal resources.

In the beginning of 1996, the project achievements on the improvement of the living environment are:

- ad 1: conducting an emergency clean-up campaign; constructing access to a new disposal site; privatizing solid waste collection in ten city centre wards increasing collection from 30 to 300 tons/day; establishing a basis to expand collection to other areas.
- ad 2: upgrading of Hananasif by constructing 1,115 meters of storm water drainage and 690 meters of murrum roads.
- ad 5: setting up a programme of regular and fast emptying of pit latrines in Sinza.
- ad 6: re-organizing bus routes and city centre bus terminals to improve the public transport system.
- ad 7: coordinating community redevelopment and management of public open spaces in three Mtaa Committees.

For the other four priorities, no major achievements have been reached yet. The size of the whole project however allows the different priorities to develop with different speeds. It is clear that very much is done in the city to aim at the main goals of the project, and that it is too early to see the real results of it. At the moment of writing, future plans for projects that are ready for implementation or that are in their final stage of preparation, are:

1. rehabilitation of horticultural gardens and strengthening of agricultural extension to improve hazard land management through urban agriculture;
2. construction of Jangwani bus terminal;
3. one way street system for the city centre;
4. privatization of parking in the city centre;
5. rehabilitation of Oysterbay Beach;
6. upgrading Vingunguti into a sanitary settling area;
7. strengthening of solid waste collection fleet.

Appendix D-1: Developing the Informal Sector

According to the UNCHS a strategy for developing the informal sector should include the following:

- studying the needs of the particular target group of poor people and adopting measures which will mobilize them and enable them to enter the informal sector and establish small enterprises; providing support for such enterprises;
- specifically attempting to remove the constraints facing the sector through the implementation of appropriate policies;
- providing premises for production at reasonable costs, as well as the basic infrastructure to facilitate the distribution of the products;
- providing the target group with specially-designed training in such aspects as running a business and marketing (however, this area should not be given undue emphasis in order not to discourage the illiterate); disseminating information on new products and techniques; and arranging for them to attend seminars, exhibitions and technology demonstration workshops;
- providing credit on soft terms, preferably by mobilizing funds from within the sector itself;
- helping to organize the supply of the required raw materials and to improve access to technology;
- formulating appropriate regulations, standards, codes and specifications for the production and use of the items made by the sector;
- arranging for a sheltered market for the products of the informal sector, through government purchasing or specific restrictions;
- establishing closer, mutually-beneficial, direct links between the formal sector and informal sectors;
- supporting research into the (technological, economic and social) attributes and needs of the sector;
- encouraging each enterprise or entrepreneur to strive to make profits and to become self-sufficient;
- integrating the sector into national and regional development plans and coordinating government policies aimed at developing it.

[UNCHS, 1991, p. 43]

Appendix D-2: Results of the Informal Sector Survey

In Table F-IX, some relevant aspect of the informal sector in Tanzania are presented.

	Informal Sector (I.S.)				Formal Sector	
	Dar es Salaam	other urban	rural	total	total	total
number of people employed (x 1000)	316	634	1,419	2,369	8,531	10,900
% of total I.S.	13	27	60	100	-	-
% of total	3	6	13	22	78	100
number of I.S. enterprises (x 1000)	211	436	1,154	1,802		
annual gross output (million Tshs)	137,572	173,404	175,893	486,869	834,730	1,330,599
% of total I.S. output	28	36	36	100	-	-
% of total	10	13	13	36	64	100
average gross output per I.S. enterprise (Tshs)	651,562	397,474	152,402	270,251		
annual value added (million Tshs)	41,840	68,188	73,389	183,417	573,536	756,953
% of total I.S.	23	37	40	100	-	-
% of total	6	9	10	24	76	100
average value added per I.S. enterprise (Tshs)	198,158	156,300	63,588	101,811		

Table F-IX: Relevant aspects of the informal sector in Tanzania [sources: Planning Commission and MLYD, 1991, pp. 1.5, 1.14-1.16; Bank of Tanzania, 1995, p. 35]

Appendix D-3: The Informal Construction Sector

The following tables are derived from the Informal Sector Survey of 1991 by the Planning Commission and the MLYD. Each table is specified by area (Dar es Salaam, other urban, and rural). The classification that is used for the different industries in the Informal Sector Survey, is the International Standard Industrial Classification. For the Construction sector, which is coded '5' in the classification, the sub-sectors look as follows:

5	construction:	501	general construction of houses, buildings
	services to construction:	502	masonry
		503	carpentry
		504	plumbing
		505	roof making
		506	electrician
		507	painting
		508	other buildings or constructions

In the survey, the writers use the following simplified classification for the construction sector:

- house building
- masonry
- other

Table F-X shows absolute figures on the magnitude of the informal construction sector.

	Dar es Salaam	other urban	rural	total
total employment (persons)	22,327	28,785	112,326	163,438
- house building	4,416	1,366	12,568	18,350
- masonry	10,596	24,209	88,061	122,866
- other	7,315	3,210	11,697	22,222
number of enterprises	10,762	18,136	87,598	116,496
total capital (million Tshs)	763		553	1,316

Table F-X: Magnitude [Planning Commission and MLYD, 1991, p. 1.7, 1.14]

The following one, Table F-XI, presents the output in the informal construction sector, and Table F-XII presents the value added.

	Dar es Salaam	other urban	rural	total
gross output (million Tshs)	5,187	4,133	5,257	14,577
- per person (Tshs)	232,320	143,581	46,801	89,190
- per enterprise (Tshs)	481,975	227,889	60,011	125,138
- per unit of investment (Tshs)	12.2		9.5	11.1

Table F-XI: Output [Planning Commission and MLYD, 1991, pp. 1.14-1.18]

	Dar es Salaam	other urban	rural	total
value added (million Tshs)	3,064	3,421	4,380	10,864
- per person (Tshs)	137,233	118,847	38,994	66,472
- per enterprise (Tshs)	284,672	188,617	49,996	93,256
- per unit of investment (Tshs)	8.5		7.9	8.3

Table F-XII: Value added [Planning Commission and MLYD, 1991, pp. 1.14-1.17, 1.19]

The next one, *Table F-XIII*, gives inputs, revenue and profit per enterprise in the informal construction sector. These figures are figures for enterprises with sole-ownership only, which applies for 99 % of the total enterprises [Planning Commission and MLYD, 1991, p. 1.21].

	Dar es Salaam	other urban	rural	total
average annual inputs (Tshs)	246,200	66,200	16,000	45,100
average annual revenue (Tshs)	469,900	220,200	60,100	122,900
average annual profit (Tshs)	223,600	154,000	44,100	77,800

Table F-XIII: Inputs, revenue and profit [Planning Commission and MLYD, 1991, pp. 1.35-1.36]

Appendix D-4: The Sigara Building Cooperative Society

A good example of an organized group of self-help builders is the Sigara Building Cooperative Society. It began its activities in 1976 and is still very active in housing employees of the Tanzania Cigarette Company, which is the country's only Cigarette Manufacturing Company. A brief description of the Society and its projects is given below.

The society members have organized two phases of construction, one at Sinza Block B and one at Yombo Vituka Block B, both in Dar es Salaam. The first phase ended in 1980, when construction on all 80 allocated plots had been completed and the houses being occupied by members and their families. Because of financing difficulties as a result of the bankruptcy of the Tanzania Housing Bank in 1995, the activities in Yombo Vituka do not proceed as planned. However, the construction of 160 houses, out of the total 252 allocated plots, has started and some of the houses are completed and inhabited.

The self-help aspects within the project are not the same for each member. The members are free to decide whether they want to contribute to the construction process or not. All members can benefit from the following:

- acquiring of a plot through the society;
- soft loans from the employer enabling the start of construction;
- buying materials close to the site, for transport is arranged by the employer.

Furthermore, self-help activities are stimulated by the society, as will be explained below.

For one thing, all members supervise the construction of his or her (almost half of the owners are women) house, either individually or in a small group. This already decreases costs and it contributes to the commitment of the occupant. The second contribution is by actual participating in the construction process. Usually, a fundi works with one or more unskilled labourers. A daily salary of the fundi is Tshs 5,000, while the labourers receive Tshs 2,000 - 4,000 each. If the family does the work the labourer normally does, he can save this amount.

In Yombo Vituka, families participate mainly in the following steps of the building process:

- preparation of the site;
- excavation works;
- collecting water and sand, necessary for block making;
- block making on the plot;
- internal finishing;
- external works;
- maintenance and repairs.

In other steps participation occurs as well, but to a lesser extent.

Appendix D-5: Small Scale Building Contractors

This appendix presents a summary of the results of the survey on informal small scale building contractors in Dar es Salaam, that was done by Miriam Tegelaers in 1995 [Tegelaers, 1995, p. 53].

internal organizational characteristics

social background characteristics of the contractor:

- male, married
- between 30 and 49 years old
- primary education complete, learnt in a small scale enterprise
- works between 40 and 49 hours per week, has no other economic activities
- income between 40,000 and 49,999 Tshs per month
- plans to expand building activities

basic characteristics:

- sole/household mode
- equipment is partly owned by the enterprise, partly hired
- no fixed workshop
- enterprise has been operating between 6 and 20 years
- enterprise has been operating 12 months out of 12 during the last year
- enterprise consists of a master (owner) + employees
- on average 5.6 persons are working per enterprise, including entrepreneur
- initial capital between 5000 and 9999 Tshs
- current working capital between 40,000 and 59,999 Tshs
- bought last year for between 0 and 999 Tshs
- no trouble in finding requested know how
- quality of building materials is ok, availability is not
- no use of high temperatures, but use of electricity
- electricity and water is available, roads are very poor

structural characteristics:

- employees are informed before and after decisions are taken
- employees can give their opinion asked and unasked, e.g. offer advice
- written information is hardly used
- use of records of payments to workers
- between 0 and 15 minutes per week spent on administrative activities

social background characteristics of the employees and apprentices:

- on average 2.7 skilled/permanent worker per day
- on average 1.7 unskilled/casual worker per day
- hardly apprentices
- workers between 15 and 29 years old, male
- workers finished primary education and learnt in a small scale enterprise
- skilled worker earns between 2000 and 2499 Tshs per day
- unskilled worker earns between 1000 and 1499 tshs per day
- no other earnings for both skilled and unskilled workers

external organizational characteristics

direct external relations characteristics:

- 3.7 customers per year, which are households
- 80 % of the materials is bought at informal sector organizations
- 97 % of the capital is provided by advanced payments by the client
- an increase in demand is noticed
- competition from other informal sector organizations is noticed

effectiveness characteristics

macro socio-economic effectiveness characteristics:

- contractor comes from a rural area

micro socio-economic effectiveness characteristics:

- contractor wants no other work
- contractor wants to go to the formal sector, e.g. enter registration

Appendix D-6: Dar es Salaam Hazard Lands

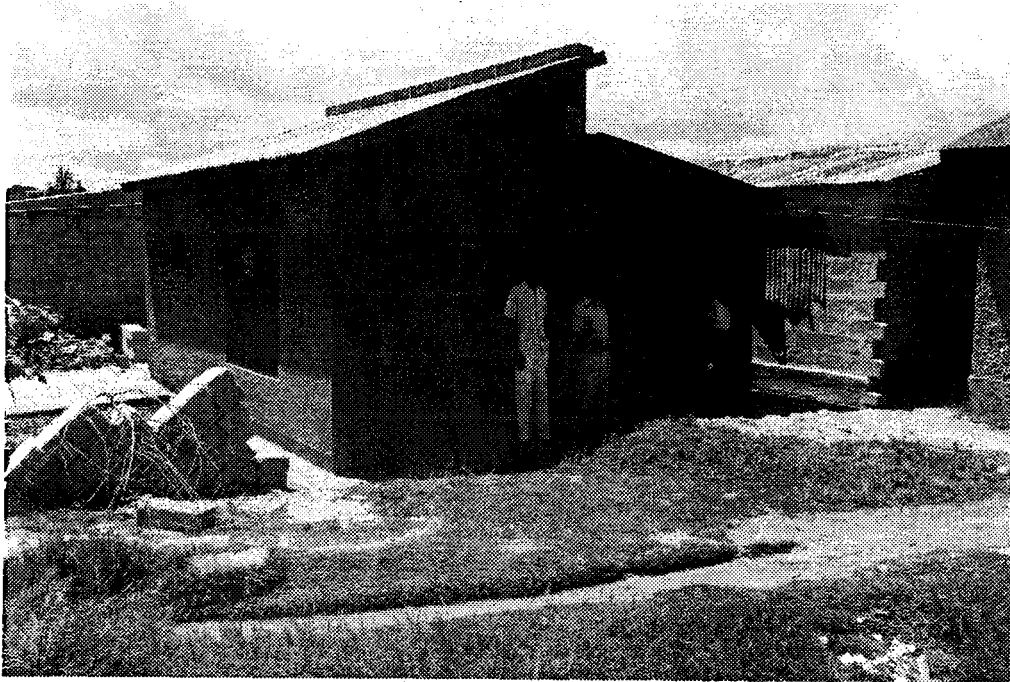
In 1995 the SDP indicated a number of 13 areas of Dar es Salaam as hazard land. The goal of the SDP is to set up a management plan for those areas, but because of their disparity it is impossible to do this for all the areas at once. The reasons for considering the areas as hazard lands are given below, which makes clear that very different approaches will be necessary to manage them. The Working Group Hazard Lands therefore decided to give priority to the Msimbazi Valley, for that area is the most vulnerable.

Kunduchi Quarry Site:	Residential buildings have been built within the area where dynamiting takes places for it is a quarry site;
Nyakasangwe River:	Intensive sand extraction from the river-bed;
Salasala:	Houses have been built near the quarry site and are in danger of wreckage or collapsing due to further extension of stone mining;
Goba (Kungulu Cluster):	Erosion because of poor farming management practices and deforestation; also part of a dumping site;
Tandale Valley:	People have built houses very close and in the valley, consequently blocking and depositing solid and liquid waste in the natural drainage system;
Msisiri:	Several houses in between the two waterbodies in the area are submerged in water;
Kimara (Temboni):	Pond of stagnant water which is used by cattle to drink, which result in erosion of banks, hence damaging the road;
Vingunguti:	Dangerously operated dump site, very close to residential houses;
Msimbazi Valley:	Different activities have taken place in the valley that is susceptible to floods: human habitation, urban agricultural activities, dumping of solid wastes and industrial waste, washing of vehicles, aquaculture;
Mzambarauni, Ukonga:	Permanent houses have been built or are being built within 20 meter of the TAZAMA pipeline;
Yombo kwa Kilakala:	Several houses were submerged during rainy seasons because of the flooding of the stagnant and foul water of the ponds in the area;
Mzinga Creek:	Different activities have taken place in the valley that is susceptible to floods: house building, commercial activities in light structures, washing of cars and agricultural activities;
Tanita, Mbagala:	The area is still inhabited, but the area is vulnerable for land erosion;

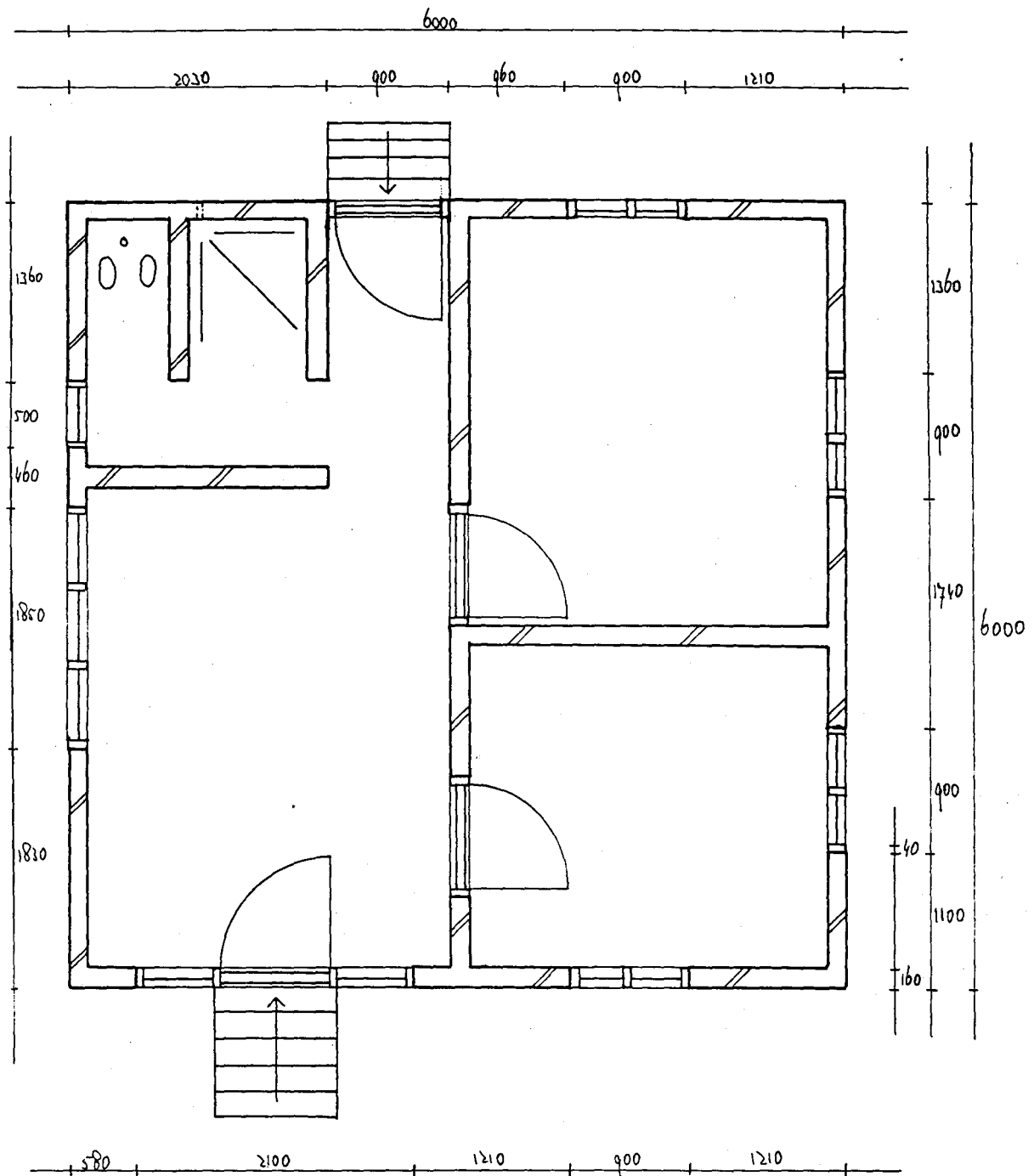
[Hazard Lands Management, 1995]

Appendix D-7: A House in the Msimbazi Valley

In this appendix a house in the Msimbazi Valley is elaborated on. The drawings are drawings of a house along the Hananasif side of the valley, and the house can be considered a standard house. First, there is the ground floor plan of the house and then the elevations (scale 1:50). After that there are details of the roof (scale 1:10), of the foundation and the floor (scale 1:5), and of the windows and doors (scale 1:5). All measures indicated are in millimetres. Note again that the drawings show the way the fundi usually work, which might not be the best way. Added to the existing house (see the picture below) are the basement and the damp proof foil, which are dealt with in *Paragraph 11.3*.

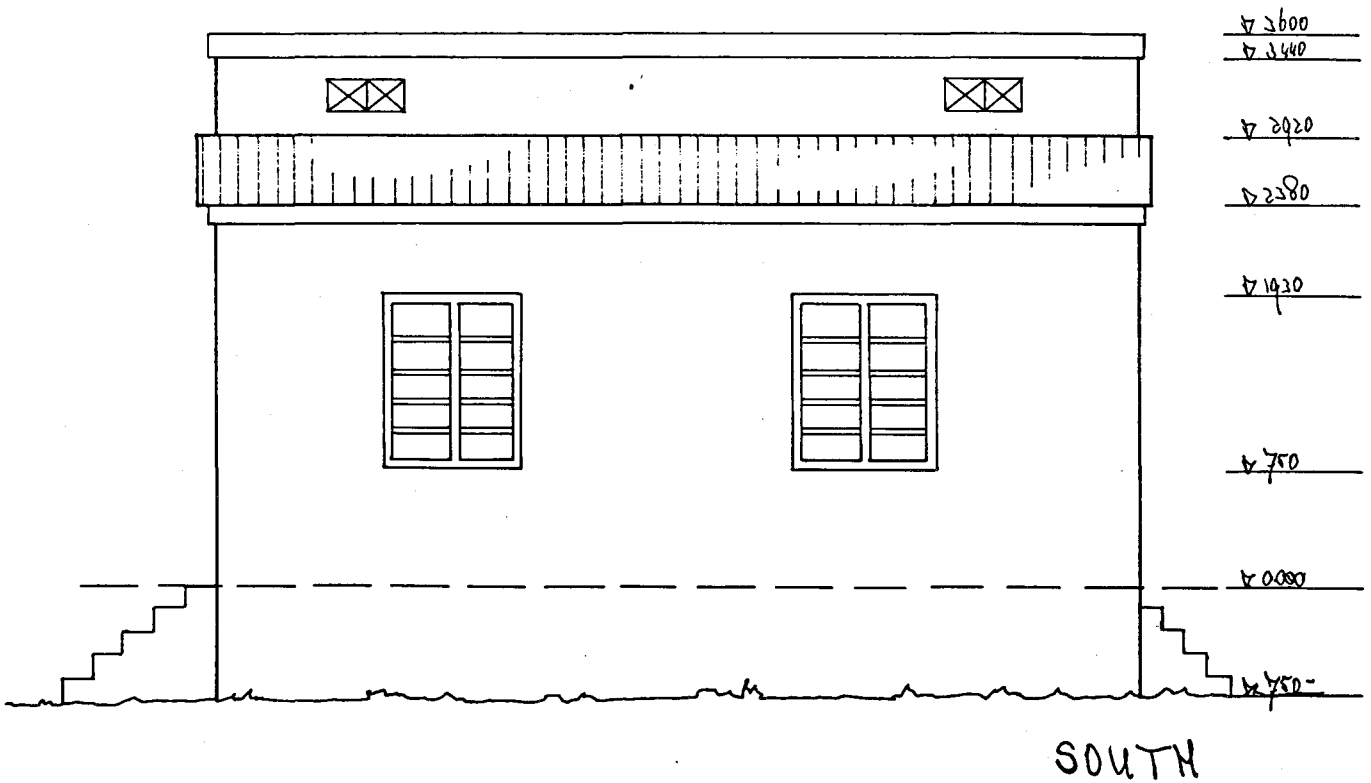
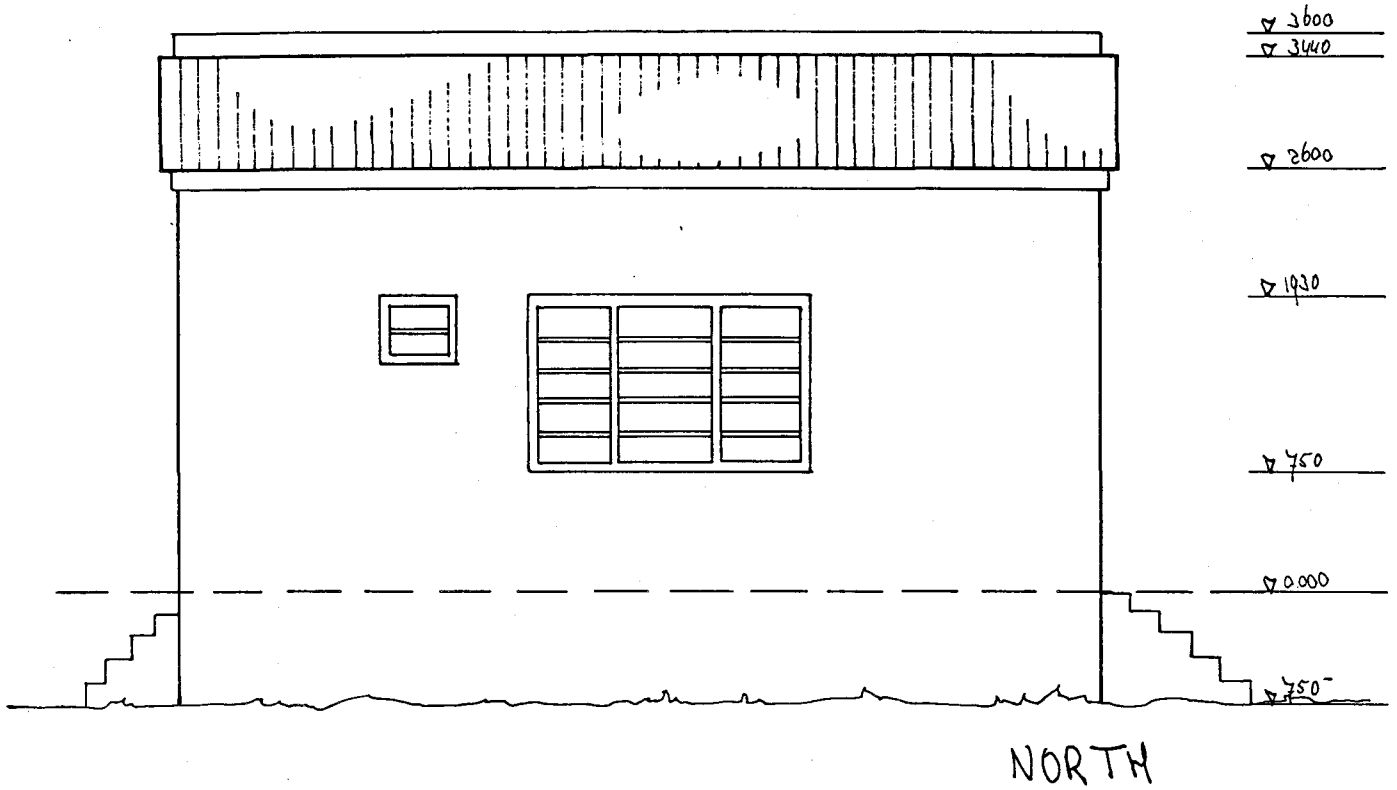


Picture F-1: A house in the Msimbazi Valley



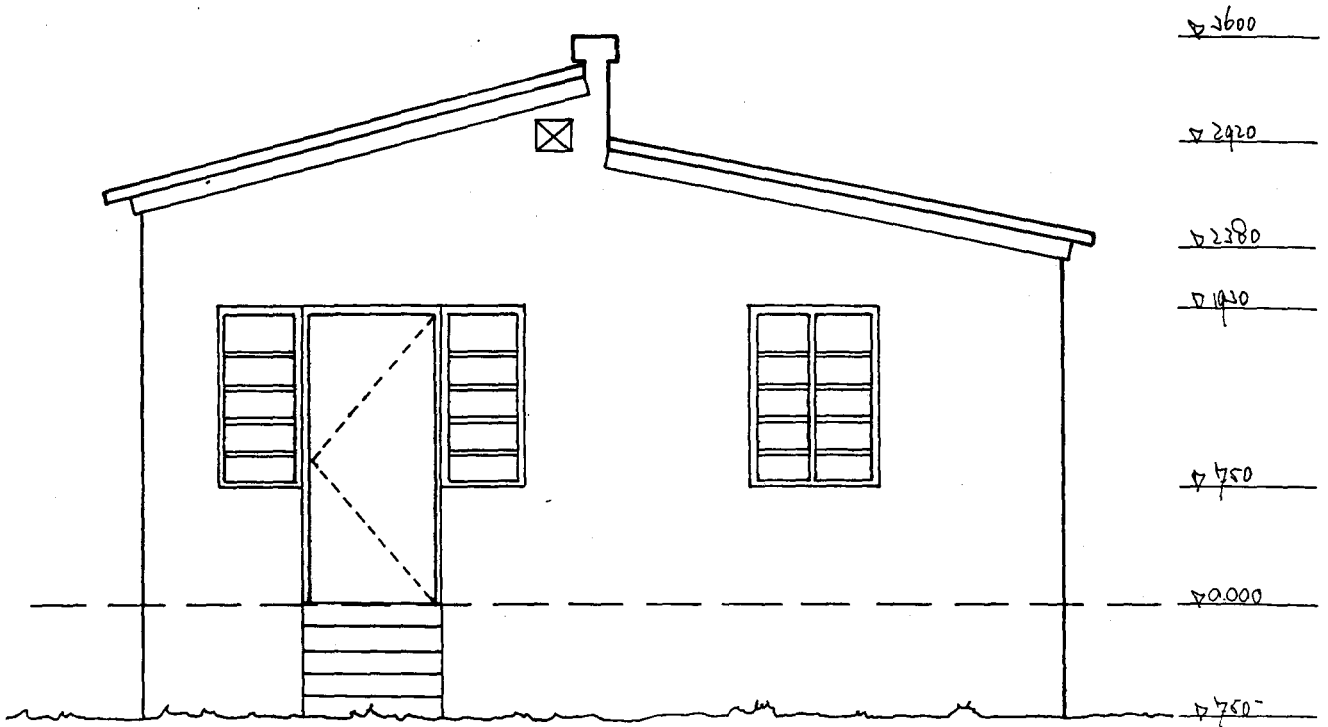
GROUND FLOOR PLAN

1:50

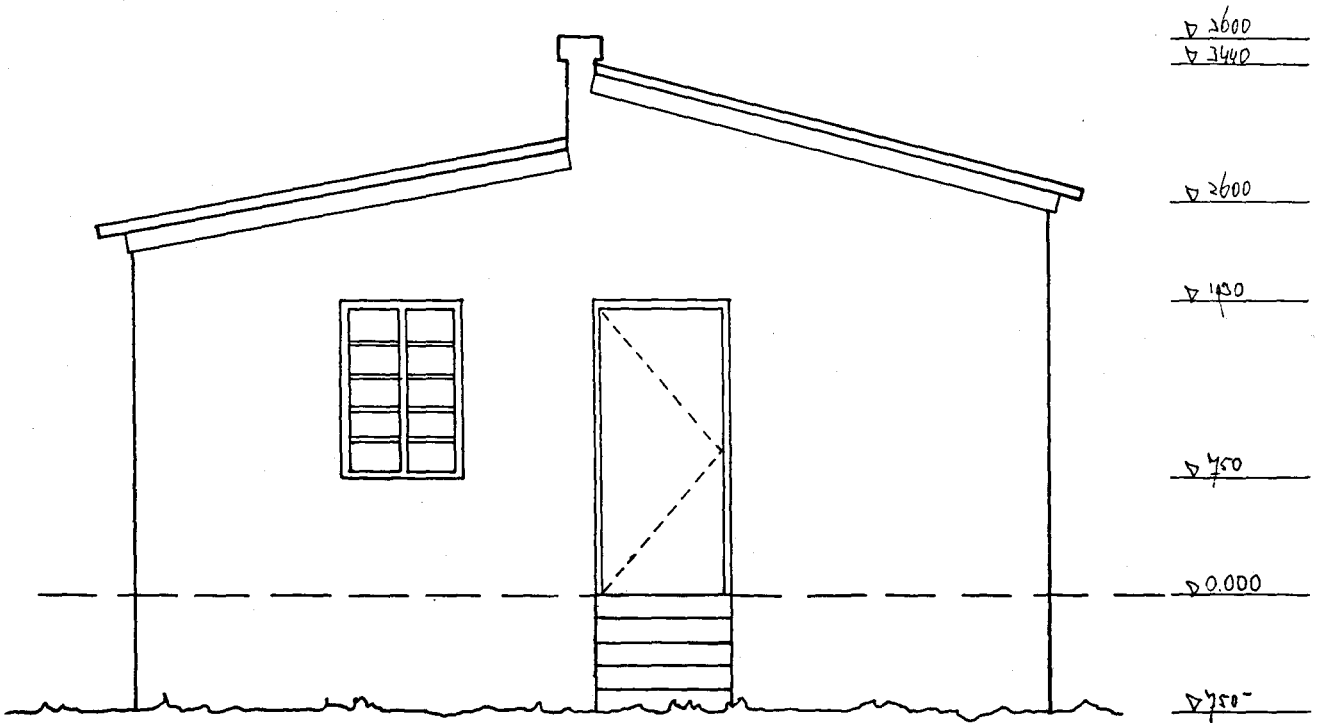


ELEVATIONS

1:50



WEST

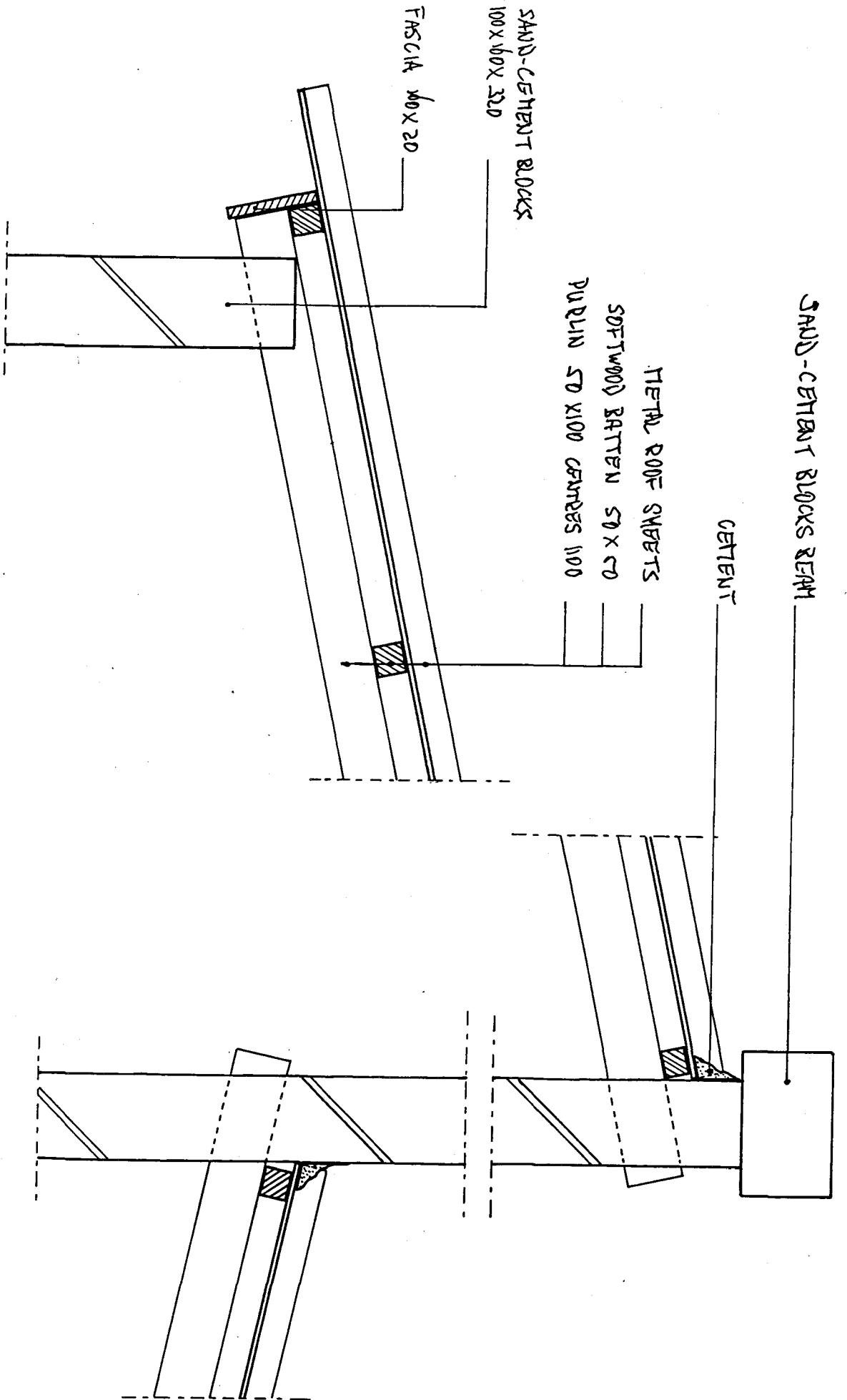


EAST

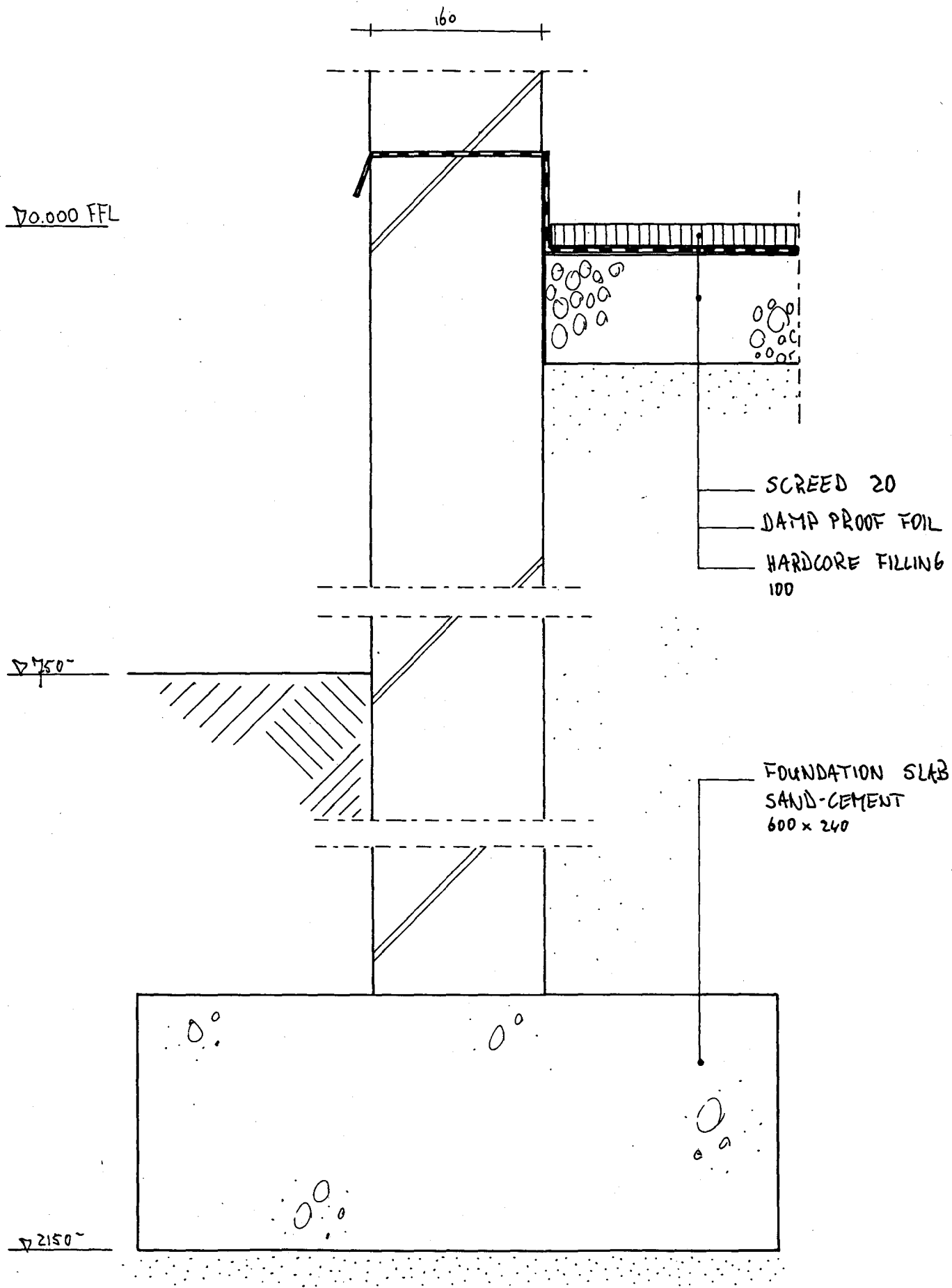
ELEVATIONS

1:50

ROOF DETAIL

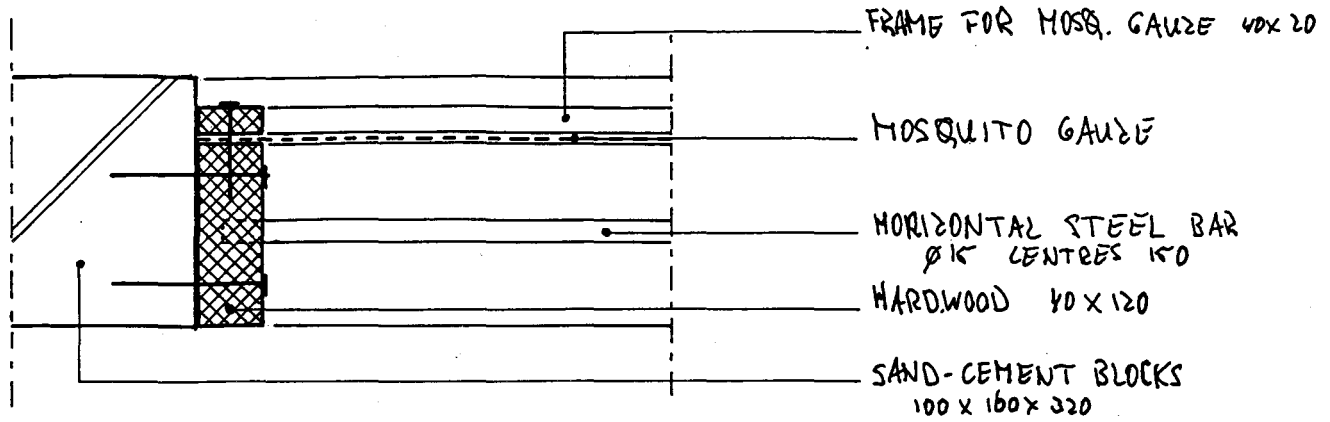


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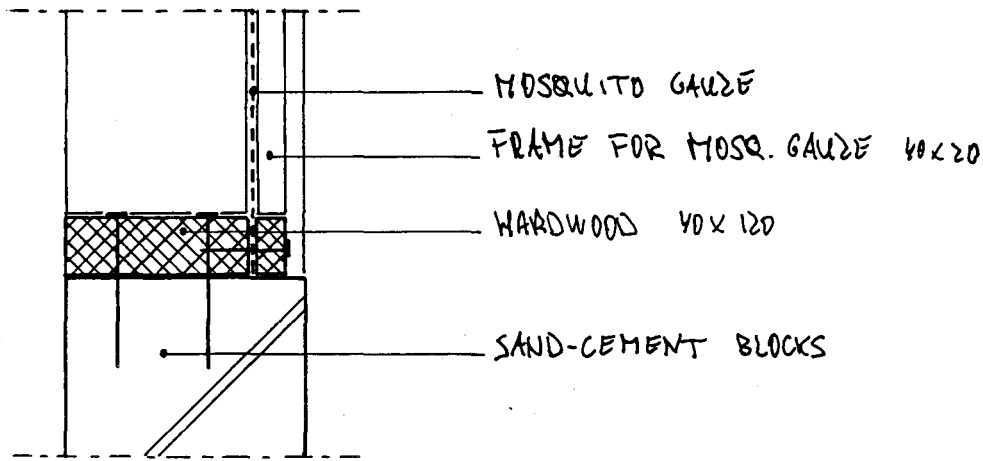


FOUNDATION/FLOOR DETAIL

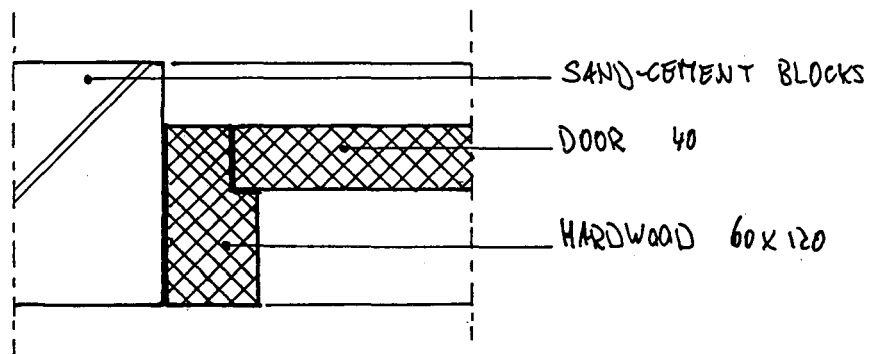
1:5



HORIZONTAL SECTION
THROUGH WINDOW



VERTICAL SECTION
THROUGH WINDOW



HORIZONTAL SECTION
THROUGH DOOR

DOOR/WINDOW DETAILS

Appendix D-8: Results of the Questionnaire

In this appendix the results of the interviews with the households in the Msimbazi Valley are listed. Additional abbreviations that are used are: hrs (hours); d (days); w (weeks); m (months); y (years); f (form); st (standard); and ? (don't know).

number of households per house (number of tenants):

1	21
2	3 (0,1,1 tenants)
3	2 (2,2 tenants)
4	2 (3,0 tenants)
6	3 (5,4,5 tenants)
8	1 (7 tenants)

number of persons living in the house:

3	2
4	3
5	6
6	2
7	2
8	4

10	3
11	1
12	1
16	1
19	1
20	1

22	1
26	1
27	1
30	1

sex and age of all household members:

	earners	non-earners
male, 0-19	0	58
male, 20-30	10	5
male, > 30	36	1

	earners	non-earners
female, 0-19	0	57
female, 20-30	4	14
female, > 30	4	15

residence before coming to Msimbazi Valley:

Msimbazi Valley	4
Hananasif	9
Mwananyamala	3
Magomeni	6
Mikocheni A	1

Mkwajuni	1
Kinondoni	5
Manzese	1
Kariakoo	1
Ilala	1

reason for leaving:

tenant before	24
more space needed	5
tenant before and more space needed	1
lived with family	2

occupation, hours per day spent working, highest education followed and average monthly income of income earners:

occupation	working hours	education	income (x Tshs 1000)
business	12	st. 7	30/40
petty business	-	f. 3	-
business (5 pers)	12	st. 7	-
messenger	10	st. 7	35
business	>12	st. 7	300
business	12	f. 4	10
clerk	8	f. 4	50
tailor	10	st. 7	40
nurse	8	st. 5	50
business	17	st. 7	40
business	17	st. 7	40
traditional doctor	8	st. 7	15
tailor	9	f. 1	15
fundi	8	st. 7	70
fundi umeme	12	f. 3	50
foreman	8	f. 4	42
artist	10	st. 7	100
transport officer	9	f. 4	-
business	8	f. 4	150
nurse	8	f. 4	30
labourer	10	st. 7	30
farmer	-	f. 4	-
nurse	8	f. 1	30
housekeeper	10	st. 7	15
tailor	8	st. 7	150
business	8	st. 7	30
business	8	st. 7	-
traditional doctor	24	st. 7	30
mechanic	12	st. 7	20
driver	8	f. 4	20
tailor	8	st. 7	20
agricultures	10	university	50
tailor	8	f. 4	25
petty business	6	st. 7	20
tailor	10	f. 4	20
business	7	f. 4+	200
traditional doctor	24	st. 5	-
watchman	-	-	-
mason	12	st. 7	35
mason	12	st. 7	-
fundi	8	st. 7	60
watchman	10	-	-
driver	8	st. 7	-
business	12	f. 4	50
business	8	st. 7	-

other sources of income:

no	19
yes, second job	1
yes, rent	7
yes, farming activities	5

average income for the whole household (x Tshs 1,000):

15	35	46	70	170
20 (2 x)	40 (3 x)	50 (5 x)	80	180
22.5	42	60	100	200
30	45 (2 x)	65	160	? (5 x)

years living in the Msimbazi Valley:

<1 yrs	5
1	2
2	3
3	3

4	5
5	7
6	1
7	1

13	1
14	1
15	2
16	1

reason for choosing Msimbazi Valley:

location	6
cheap	13
plot availability	16
already owned land as a shamba	1

acquisition of land:

through family	2
bought from a person	23
offered by friend	4
just occupied	2
shamba, given by government	1

months taken to acquire the land:

0-3	22
4-6	2
7-12	1
>12	7

paid for the land (x Tshs 1,000):

0	7
<50	13
50-99	4
≥100	6
?	2

size of the plot and of the house (m²):

plot	200	150	800	800	800	800	150	625	63	375	150
house	65	150	265	400	25	75	150	225	63	180	100

plot	375	500	800	180	150	7500	150	750	500	225	450
house	150	400	200	36	30	600	32	126	300	100	225

plot	810	600	800	1200	300	77	280	340	540	400
house	640	32	32	300	120	32	100	180	100	120

number of habitable rooms:

1 room	2
2	9
3	4
4	5
5	4

6	4
7	2
10	1
12	1

farming for own consumption:

no	21
yes, on the plot	9
yes, off the plot	2

other activities on the plot:

none	23
agricultural	2
animals	1
business	1
production	1
job	4

place for cooking, place for bathing:

inside	24
outside	8

inside	6
outside	26

available services on the plot:

water	7
electricity	6
drainage	3
pit-latrine	31
none	1

years ago the house was built:

> 1 years ago	3
1	4
2	4
3	3
4	6
5	4

6	1
7	2
12	1
14	2
15	2

months it took to build the house:

1 month	3
1-5	3
6-12	10

13-24	5
>24	8
?	3

total construction costs (Tshs):

0-499.999	6
500.000-999.999	5
1.000.000-1.499.999	2
1.500.000-2.000.000	4
>2.000.000	4
?	11

manager of the building:

owner	26
contractor	3
owner and contractor	1
wife	2

problems during actual building:

difficult to borrow money	21
unavailability of roads and paths	22
high cost of building materials	26
low income level	26
unavailability of materials	14
disappearance of equipment/materials	11
crowded, small plots	13

lack of skilled labour	11
variability of weather	15
insecurity of land legalization	16
limited resources for pre-financing	20
strict building regulations	7
frequent price changes materials	27
swampy plots	1

number of contractors involved:

none	2
1 contractor	8
>1	22

choice of the contractor:

knew him before	10
some told me	2
compared price and quality	8

lives nearby	7
work together	2
impressed by his work	4

kind of agreements, trust, contents, next time more official contract:

oral agreement	25
written	5
yes, trusted	29
no, did not trust	1

time included	3
financing included	22
both time and financing	2
other	3

not more official	18
more official	10
don't know	2

content with contractor's work, costs agree with quality:

content	26
not content	4

yes, they agree	23
no, they do not	7

time needed for steps:

preparing the site	1d	2d	3d	1w (2)	2w	1m	2m (2)
excavation and foundation	1d (5)	2d (3)	3d (3)	1w (4)	2w	1m	
walls	3d	1w (2)	2w	1m (5)	2m	6m	1y 4y
floors	1d (2)	2d (4)	3d	1w (4)	2w		
roof	1d (3)	2d (2)	3d	4d (2)	1w (4)	1y	
doors and windows	1d (4)	2d (3)	3d	4d	1w (2)		
toilet	1d (2)	2d	3d (2)	1w (4)	2w (2)	4w	6w
electricity	1w	2m	6y				
water	1d						
finishings	3d	4d	2w	3w	2m		

executors of steps in the building process:

	client	fundu	client and fundu together	unskilled labourers	professional	not executed
initiative	32	-	-	-	-	-
obtaining the land	32	-	-	-	-	-
permits, etcetera	14	-	-	-	-	18
planning	21	10	-	-	1	-
design	8	10	2	-	1	11
obtaining materials	31	1	-	-	-	-
transporting materials	26	1	-	5	-	-
storage	28	2	-	-	-	2
plot demarcation	4	12	1	-	-	15
preparation of the site	11	14	1	4	-	1
setting out the site	17	14	-	-	-	1
excavation	3	26	-	3	-	-
foundation	3	26	-	3	-	-
walls	3	29	-	-	-	-
floors and roof	3	29	-	-	-	-
doors and windows	2	30	-	-	-	-
toilet	4	23	-	4	-	1
electricity	-	8	-	-	-	24
water	-	6	-	-	-	26
exterior finishings	3	15	-	-	-	14
interior finishings	4	13	-	-	-	15
external works	13	8	-	2	-	9
maintenance and repairs	18	3	-	-	-	11

opinion of costs and quality:

costs high	12
costs fair	7
costs low	2

quality high	7
quality fair	14
quality low	3

moment of payment, source of financing:

before execution	2
during execution	27
after execution	3

loan	2
savings	17
salary	11
borrowed	2

floods on the plot:

no	3
less than once a year	12
once a year	13
twice a year	3
more than twice a year	1

flood damages:

none	14
loss of property	6
damages of the house	5
both loss of property and house damages	2
robbery	1
damages of the garden	1

activity during floods:

stay	11
leave	16
only one person stays	2

time absence, where to, luggage:

0.5hrs	1
1hrs	1
2hrs	2
4hrs	2
8hrs	2
12hrs	2
14hrs	1
2d	4
3d	1

relatives/friends in the area	10
just outside the flooded area	8

some valuables	4
clothes	3
food	2
nothing	9

water level:

<1 metre	18
1-2 metre	8
2 metre	2

willing to pay for solution:

no	1
yes	30
?	1

want to stay in the house:

permanently	27
temporarily	2
not any longer	3

legal right:

have legal right	
yes	3
no	29

will receive it	
yes	14
no	15

is a problem	
yes	24
no	5

living somewhere else:

prefer to live somewhere else	
yes	24
no	8

willing to pay more	
yes	17
no	15

improvements in the area:

housing	1
water	6
electricity	5
drainage	10
floods protection	16

education	1
health	1
land security	5
accessibility	3
anything	1

participation:

no	1
yes, by physical labour	3
yes, by labour and money	27
?	1

LIST OF ABBREVIATIONS

AHF	African Housing Fund
CHS	Centre for Human Settlements Studies
cm	centimetre
DCC	Dar es Salaam City Council
ha	hectare
ILO	International Labour Organization
ITDS	International Technological Development Sciences
km	kilometre
km ²	square kilometre
MLHUD	Ministry of Lands, Housing and Urban Development
MLYD	Ministry of Labour and Youth Development
m ²	square metre
NCC	National Construction Council
p	page
pp	pages
RPFB	Rolling Plan and Forward Budget
RoO	Right of Occupancy
SDP	Sustainable Dar es Salaam Project
SUDP	Strategic Urban Development Plan
THB	Tanzania Housing Bank
Tshs	Tanzanian Shilling
UNCHS	United Nations Centre for Human Settlements (Habitat)
UNDP	United Nations Development Programme