

**UNIVERSITY OF KWAZULU – NATAL**

**ANALYSIS OF IMPLEMENTATION CONSTRAINTS  
FOR PLANNING PROGRAMS. A CASE STUDY OF  
THE CITY OF MAPUTO, MOZAMBIQUE**

**By**

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## DISCLAIMER

This document describes work undertaken as part of a programme of study at the Centre for Environment, Agriculture and Development, School of Applied Environmental Sciences, University of KwaZulu – Natal. This whole dissertation comprises original work done by the author.

All views and opinions expressed therein remain the sole responsibility of the author, and do not necessarily represent those of the institute. Where other material was used it has been acknowledged in the text. The thesis has not been submitted, in whole or in part, to any other University.

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## **COMPONENT A**

## **CHAPTER I: INTRODUCTION**

### **CONTEXT**

Through the centuries most people have lived in rural areas and only a relatively small groups lived in cities. But cities as a part of human reality have got a high social, cultural and economical impact in every area of human development. This situation is especially true and easy to see nowadays. Since the 20th century world population has grown rapidly and this has brought also enormous changes in population spatial distribution. The actual tendency of population is to migrate to cities as places of higher chances for better job opportunities, life conditions such as access to health care, education and other infrastructures and services. Another reason for migration to cities, especially in Third World countries, is a question of security during civil wars. Cities are relatively safe places.

The proportion of people living in urban areas is growing continuously. In 2000 there were approximately 2,8 billion people living in cities in the whole world, which is equivalent to 47% of the total population. According to UN Habitat projections, in 2015 probably 53.4% of the population will live in cities. The rapid growth of cities is noted specially in developing countries, where annual growth is higher than in developed regions. The UNCHS estimates that in the period 2000-2015 the world annual population growth will be 2.0%, while the less developed regions will be 2.6%. In the specific case of Mozambique the annual growth is estimated at 3.3% (UNCHS, 2001).

The fast, and in most cases, uncontrolled growth of cities in the developing countries brings a range of difficult issues; like health, economical, social and environmental problems. The migration of unskilled labour from rural to urban areas increases the urban poor. New inhabitants do not have easy access to labour markets, and cannot ensure reasonable level of life for them and their families. Having no resources to obtain an official concession of a piece of land to build a house, in case that there is available land in planned areas, they decide to informally occupy any land without looking at its suitability for housing. This creates other problems: environmental (erosion, floods),

social (lack of security of land tenure), and economical - access to creditors for improvement of shelter and small business is denied. A large proportion of the urban population in developing countries live and work in conditions that pose a serious threat to their physical and mental health and safety. A high rate of unemployment provokes criminality (UNCHS, 2001). This shady picture is also faced by Mozambican cities with many consequences driven from it.

The rapid expansion of cities is not accompanied by the spread of infrastructure and services. The demand for services, deterioration of existing infrastructure and difficult access to land are high and the result is deterioration in the quality of people's lives. Urban administration is not able to satisfy all the basic necessities of dwellers. In general there is no financial and technical capacity to deal with complex issues. Administration in developing countries faces a scarcity of skilled labour to conceive and implement land use plans. The legislative matters like lack of legal frameworks endanger implementation of existing urban plans.

Obudho and el-Shakhs (1979) state that the principal question is not the rapid urban growth but slow expansion in the capacity of urban systems, inexistent or insignificant improvement of institutional structures, and distorted measurements, norms, goals, and planning approaches. Also Hall and Pfeiffer in their report "Urban future 21" (2002:xi) state the same important question "how can we influence the development of towns and cities in such a way that all their inhabitants have a share in economic, technological and social progress, enjoy cultural diversity and a sound environment, and can participate democratically in shaping where they live?"

One of the tools to reach this situation and ensure the sustainable use of existing resources is urban planning - a necessary and useful instrument for controlling and promoting sustainable changes in the social and economic environment. Hall and Pfeifer (2000) see as a solution for urban problems the application of flexible planning strategies based on frameworks adapted to local circumstances. The planning is seen more as a set of broad principles of development.

## **RESEARCH PROBLEM**

The capital of Mozambique – Maputo is facing many urban problems typical of cities in developing countries: fast growth, informal settlements on erosion and flood prone zones, deficient delivery of infrastructure and services, high criminality rate, unemployment, security of land tenure problems and lack of feasible urban plans to regulate urbanization. Although there are urban plans conceived for Maputo, the situation seems to be worse with uncontrolled development of the city and there is a need to critically look at the condition of urban planning in Mozambique, taking the capital – Maputo as a sample. There is also a need to find out to which extent the urban plans influence the city development.

## **OBJECTIVES**

In consideration of the problems described above, the objectives of this research are to evaluate the Maputo Structure Plan of 1985 and to analyze if, and why, there are deviations between the land use proposals of the Structure Plan and the land use after ten years.

The following specific objectives are pursued in the research:

1. To compare the proposed land use for 1985 with the actual land use of 1996 to analyze the deviations from the plan and what the reasons are for these differences.
2. To evaluate the financial, human and technical conditions of the agency responsible for urban planning and implementation of plans within the Maputo Municipality.
3. To evaluate the legal and administrative frameworks of the planning process.

## **RESEARCH FRAMEWORK**

Land use planning is an essential component that planners and decision-makers employ for the management of urban areas. In this research, it is intended to study three aspects of the planning programs (Figure 1). Firstly, there will be an evaluation of the legal, financial, human and technical resources that influence the efficiency of the planning

process in all stages. The legal issues look at the question of the responsibilities among the government institutions regarding urban planning and awareness of the state with the need of controlled development of the urban areas. Then the study will look at financial, human and technical resources of the municipality to find out to which extent the availability of these resources affects the implementation of the planning programs. Secondly, the research will analyze the methodology used during the plan process and the main output – the Structure Plan of 1985 (Appendix A, p.30). Finally the study will examine the differences between the proposed land use, and the actual land use 10 years after (1996) the Structure Plan was made (1985).

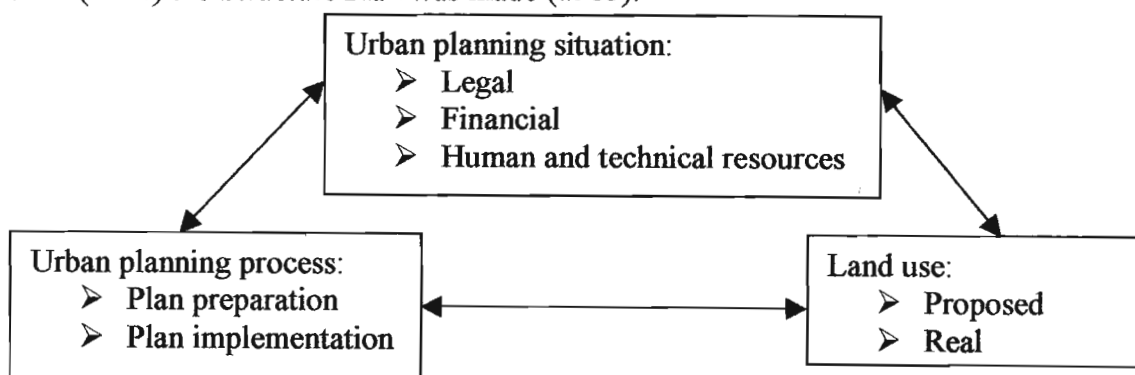


Figure1 Aspects of planning programs analyzed during the research

## RESEARCH QUESTIONS

To fulfill the above objectives, the research questions have been divided into three groups focusing on each of the above objectives:

**Group1** concerns the context and practice of urban planning in Mozambique:

- What is the urban planning practice in Mozambique after Independence (1975) and currently (2005)?
- What is the relevant legislation regarding urban planning?
- Who is in charge of managing the urban planning process?
- What is the position of urban planning within overall organization of the Maputo Municipality?
- Who is directly responsible for urban planning within the Maputo Municipality?
- What are the human and technical resources available in the municipal agency responsible for urban planning?

- How are planning data managed in the Maputo Municipality?

**Group 2** concerns the Structure Plan and the urban planning process:

- What phases are undertaken during the planning process?
- What spatial geo - information is needed in the planning process and what are their sources?
- What are the objectives of the Structure Plan?
- How are stakeholders involved in the planning process?
- What is the final product – the Structure Plan, its organization and content?

**Group 3** finds the relation between the proposed and real land use:

- Which proposals of land use are presented in the Structure Plan?
- How was land used in 1996?
- How population distribution influenced land use?
- How legal, financial and organizational issues linked to urban planning influenced the implementation of the Structure Plan proposals?
- How the economic and politic situation influenced the Structure Plan implementation?

## METHODOLOGY

In order to achieve these objectives the research will focus on three main tasks:

Task 1: Analysis of the current situation of urban planning.

The aim of this task is to answer research questions indicated in group 1 of the previous section. The task will be carried out in three subsequent phases: a) study of available literature related to urban planning after Independence, b) visits and discussions with responsible planners in the municipality of Maputo City and other related organizations, and collecting necessary data from the organizations using semi-structured interviews (Appendix A, p.30), and c) carrying out an analysis of legislation.

Task 2: Analysis on the components of the Structure Plan and the planning methodology.

The aim of this task is to achieve the second objective by answering questions indicated in group 2 of the research questions. Since this task is related to methodology issues on

urban planning, the approach will be based on literature reviews regarding the following: Methodological aspects, analysis of the available documentation related to the process of the plan preparation, interviews to identify organizations involved in the preparation of the plan, data gathering and analysis, and evaluation of the Structure Plan composition, objectives, data output and land use alternatives (Appendix A, p.30).

***Task 3:*** Comparison between the land use proposals and the land use of 1996.

The level of accomplishments of the proposals of the Structure Plan will be evaluated looking at the land use proposals and the land use of 1996. The basis for the comparison will be the map of the third alternative and the map of 1996 land use. They will be digitized, overlaid and intersected. Then the polygons resulted from the intersecting process will be evaluated comparing the proposed and real land use.

The figure below illustrates the methodology followed in this research.

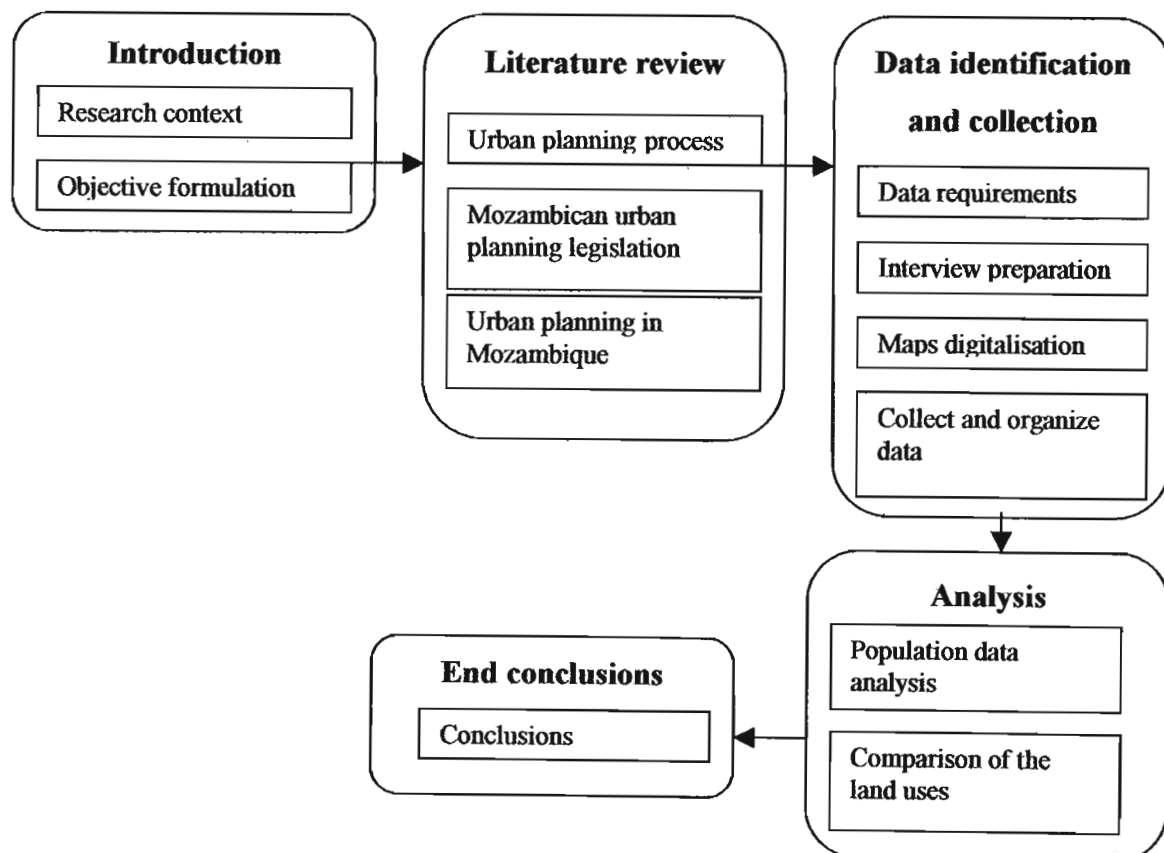


Figure 2 Methodology followed in the research of the land planning constrains in the Maputo City

## **ORGANIZATION OF THESIS**

The thesis is divided into two main components A and B. Component A describes the research problem placing it in the broader picture of global tendencies of human distribution and challenges faced by the cities. It also describes the objectives of the work and methodology used to accomplish them. Following this is the literature review, where planning definitions, the urban planning methodologies and questions related to legal and administrative issues are presented.

Component B starts with a description of the research objectives, methods and materials in the first chapter. Chapter II discuss about the state of planning in Mozambique using Maputo City as an example. First it describes the study area and gives a brief historic review of urban planning after independence and the legal situation of urban planning in Mozambique. Then it discusses human and technological resources, and organization of Maputo Municipality with special attention to the Municipal Directorate of Construction and Urbanization. Chapter III is an evaluation of the Maputo Structure Plan of 1985 and consists of a description of methods and data used during the preparation process as well as a detailed examination of the plan – its objectives and outputs. The fourth section of Component B compares the proposal of land use with the situation of land use in 1996. The fifth chapter is reserved for final conclusions of the thesis.



## **CHAPTER II: THEORY OF URBAN PLANNING**

### **INTRODUCTION**

Changes are a very natural part of human life; they are spontaneous or planned by people. The need for controlling changes is very important in all areas of society's life, because of the number of human population and consequently pressure on natural resources. Especially the question of space regulation to better organize all activities is at the center of attention. In the past centuries planning was based only on spatial issues without taking into consideration other aspects of human life, but continuing land degradation and a considerable increase in population shows the deficiency of this approach. Poor management strategies, failure of integrating stakeholders into the planning process and weak institutional structures are other reasons of deficient planning presented during the United Nations Conference on Environment and Development in 1992 in Rio de Janeiro. As a result Agenda 21 proposes a number of measures and policies, as in Principle 1, where it is stressed that at the center of sustainable development should be the human beings. A question arises here: why should a human being be the center of attention? We can find an answer for the question in the definition of development given by Ashworth (1973) in "Encyclopaedia of planning". According to him development is any change, like mining, building and so on, performed on, in or under the ground, which the purpose is to modify the previous use to satisfy necessities. As one can see from this definition development is any rational and planned activity with an end objective of changing the environment to satisfy human needs. Being rational, only humans carry out planning, so it is logical to put a human in the center of attention. The best way to accomplish sustainable development in all areas of human life is to carry out planning activities.

The objective of this chapter is to present planning theories regarding urban reality, because cities are the places with the major concentration of population and processes of changes are faster and more intense than in rural areas. Firstly the definition of a term planning will be explained. Subsequently the actual methodology of urban planning will be depicted. Finally the chapter will talk about the administrative and political requirements for successful urban planning.

## PLANNING DEFINITION

From the definition of planning in the “Encyclopaedia of planning” (Ashworth, 1973) it can be concluded that planning is a practice, which organizes resources to achieve desired objectives, in general, in the future. This achievement of desired objectives in the future and by humans is also stressed in others definitions of a planning exercise. Chadwick (1978) defines planning as a process taken by human being. The process can be divided into two phases: forethought and action to implement the thought. In the first phase a man analyses surrounding environments and idealizes changes, which he would like to do. The changes have as an objective improvement of his life conditions. The next stage is an implementation of those idealized changes by taking appropriate actions. However since surroundings are never perfect and continuously need to be altered this therefore means that the whole process starts again. As one can see the planning practice is a continuous activity. Bracken (1981) sees planning as a designing of strategies to accomplish objectives established by people. Ferrari (1986) holds the same view, planning, in its essence; at any level of government (municipal, provincial or national) has in view solutions to problems of a society (being), which is localized in a specific area or space (form) and in a specific period (time). Ferrari (1986) defines planning as a method of researching, predicting, analyzing and ordering changes. According to him planning has to set up alternative solutions from which one will be selected – the best.

Hall (1992) describes planning as an activity with the purpose to order actions that will lead to the accomplishment of previously established objectives. He enumerates techniques used during the planning process. They consist of written statements to describe planning realities and precise formulation of objectives. The written document goes together with statistical projections, mathematical representations, and graphs and quantified evaluations that depict the correlation between different parts of the plan. Based on this definition Hall (1992) explains the scope of urban planning. For him the term “urban planning” means a specific activity performed at a particular place with the objective to spatially manage human actions. He assumes that the planning activity organizes this place better than it could be without planning. One can conclude that planning is a complex process, which has as an objective to improve present situations of

human society by predicting directions of their development and controlling these developments by taking previously determined actions. Ferrari (1986) sees spatial planning as a tool to control urban systems. For him a government has a duty to intervene through the planning process to avoid distortions that could diminish the efficiency of a system. There is a need to correct unbalances in the development of different regions and classes of population, to increase the income per capita of the poorest class, the number of jobs and to coordinate an application of resources to avoid “deficits” and to grow private investment.

Although calling for government intervention, Ferrari (1986) is aware of the threat of excessive control by state that can lead to a concentration of power, of a totalitarian system, and diminish human freedom, especially in developing countries. Therefore Bracken (1981) sees the power of planning in the increasing opportunity for society to influence politicians. The planner should make politicians aware of urban problems and how the general public perceives them. Hall (1992) also stresses the need for democracy in planning activities. He emphasizes that the priority of planning should be facilitating of decision-making on democratic and informed bases. The facilitation of decision-making is stressed by Bracken (1981) too regarding planning issues. Bracken (1981) sees the reason of planning in two motives: a need for good management of resources and a necessity to select the best options from many existing ones. Because resources are limited and needs unlimited, man must select which of the needs are priorities and how to use available means to satisfy them. McNulty and Horton (1979) present the same scenario. They agree that planning is a useful tool for sustainable development of a society. It helps to choose better options and make better decisions, which give people opportunities to improve the conditions of their lives by satisfying their needs. Another question of conflicting needs arises here. Members of a society have different necessities, which can collide with each other. To reconcile them, Bracken (1981) says, physical planning is used especially in urban areas because the city is a place where the possibility of more conflicts could exist. As Bracken (1981) states, the main role of an urban planner is to regulate spatial organization of human activities to improve life quality of all dwellers. Planning must find their needs and translate them into concrete actions. To

realize this planning must use appropriate instruments like good and feasible policies and efficient and competent institutions designated for implementation and monitoring. Planning should be integrative, involving economic, social and territorial aspects of reality to be planned. Ferrari (1986) enumerates various areas that require the strategy. In urban areas the policy should embrace urbanization tendencies, which can be controlled through the localization of industry, spaces for residential use and urban transport, principally public transport. The policy also needs to include the issues of public health, social assistance, leisure, education and so on.

## **METHODOLOGY OF URBAN PLANNING**

The planning process has as an objective to improve urban reality by controlling and directing human actions. This is done by implementation of a plan produced during the planning exercise. McLoughlin (1969) sees the formulation of plan as a selection of the best options from the range of alternatives. The base for selection is their responsiveness in relation to stated aims. For Ferrari (1986) there are three requisites needed to accomplish rationality of the plan. It should be based on correct data, which allows planners to make better decisions. The plan must establish realistic standards, which are possible to achieve during the process of the implementation. Finally the objectives need to be correctly formulated which will help in the monitoring the whole process and to know to which extent it is going in the right direction or is moving out of the previously established direction. McNulty and Horton (1979) suggest some basic guidelines within the process. Firstly, the planning must be integrated, i.e. it should take into consideration all elements of human activity and see this as a whole where changes in one part have impact on another. For example industrial development influences the transportation planning and vice versa. Herbert and Thomas (1982) focus on the importance of understanding the relation between transport infrastructure, urban morphology and localization of urban activities. Comprehending this relationship helps in the proper planning of road networks and influencing development of a city. Easy access to the transport lines is vital for industry, commerce and other economic activities, as for residential purposes. The second aspect, which McNulty and Horton (1979) stress, is the spatial component of the planning framework. All human activities take place within

specific areas; so a successful plan must be projected on a real situation in a certain space. It must take into account physical and social conditions of the place. This will help with proper decision-making and sustainable use of available resources such as natural, financial and human.

To perform the complex task of analyzing generation alternatives and finally producing a sustainable plan, the planner must be provided with a methodology. Berry (1973) distinguishes four models of urban planning (Table 1). The first methodology is called ameliorative problem solving and is based on the assumption that any action is taken only when the urban system presents some problems. Planning operations are based on analyses of problems and the design of required interventions. Resources are allocated accordingly to present needs without consideration of the future consequences. Bracken (1981) stresses the pragmatic character of this model, which rarely develops a prediction of the future.

Table 1 Models of urban planning methodology

Model	Planning mode	Planning operations	Result of planning action
Ameliorative problem solving	Planning for the present by reacting to past problems.	Analyze problems, design interventions, allocate resources accordingly	Haphazard modification of the future by reducing the future burden and sequelae of present problems
Allocative trend modifying	Planning towards a predicted future	Determine and make the best of trends and allocate resources in accordance with desires to promote or alter them	Gently balance and modify the future by avoiding predictable problems and by achieving a "balanced" progress to avoid creating new problems
Exploitative opportunity seeking	Planning with a predicted future	Determine and make the most of trends and allocate resources to take advantage of what is to come	Unbalance and modify the future by taking advantage of predictable happenings, avoiding some problems and exploiting others without a major concern for emergence of new problems
Normative goal-oriented	Planning by creating a desired future	Decide on the future desired and allocate resources so that trends are changed or created accordingly. Desired future may be based on present, predicted or new values	Extensive modification of the future by aiming for what "could be". New predictions by changing values or goals, matching outcomes to desires, or avoiding and changing problems to ones easier to handle or to tolerate

After Berry, 1973:16

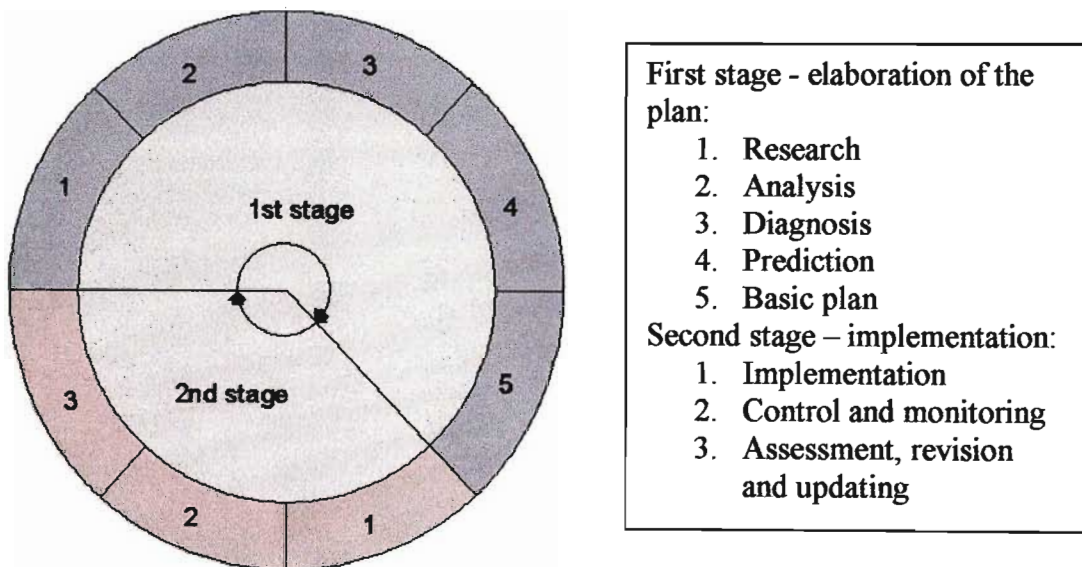
Foreseeing the future is a basic component for the other three models: allocative trend modifying, exploitative opportunity seeking and normative goal-oriented. The allocative trend modifying or, using Bracken's terminology, system – maintaining model tends to preserve the actual system, which is criticized by Bracken (1981) because it does not allow for the dynamic social changes. Its *modus operandi* is based on a selection of one of the better trends and allocation of all resources to control and balance it's functioning. The result of planning is a situation where predictable and possible new problems tend to be avoided. The next one, the exploitative opportunity seeking or evolutionary model, is more dynamic trying to find the best possibilities and, once identifying them, to stimulate these parts of system, which will be conducive to the desired state. For Berry (1973) the result of this approach is a modification of the future where predictable actions are controlled and manipulated to create a desired status. Some problems are avoided, some are exploited and the possibility for emergence of new problems is eliminated. Bracken (1981) finds the deficiency of the model in its tendency to move within the schema of already known problems and solutions and inability to apply a new way of thinking. The reason of this imperfection rests in the improper use of urban planning methods. The last two models base planning exercise on future foreseeing. The last one creates the desired future.

Twentieth century planning, according to Hall (1992), distinguishes three phases in the urban methodology. The first stage is a master plan or blueprint era. Planning is basically seen as a production of detailed plans that give indisputable solutions for current problems. The main product of the planning exercise is a fixed master plan, which describes in detail the idealized land – use patterns. The process is divided into the following stages: Survey – Analysis – Plan. The survey is carried out to collect all relevant information about an area where planning action will be taken. In the next step analyses of gathered data are performed which helps in problem stating and finding the best solutions to change the situation. The final product is a fixed plan that presents results of previously taken actions. The fast transformations in society, especially in urban areas, bring a need for new strategies of urban planning. The “blueprint” plans show their incapacity to deal with rapid changes. The second phase in the planning theory

is known as the system view (Hall, 1992). The system view has its origins in cybernetics. As Hall (1992) points out, system planning is based on a hypothesis that everything is organized in a system, which can be divided and distinguished. All parts of the system interact and this interaction is possible to analyze. Any alteration in one element of the system brings effects in another, so it is necessary to take into consideration the whole. Once the *modus operandi* of the system is understood, it is possible to change its behaviour by using the proper control system. Urban space is seen as a system and urban planning is its part. Differently from the first approach the system view perceives planning as a continuous process, which tries to find the best way to develop a city by understanding, changing, controlling and monitoring the urban system (Hall, 1992). The final result – a structure plan – is more concerned with searching for the best solutions for observed issues than in production of detailed maps. Hall (1992) stresses that in the system approach the principle matter is to depict the possible effects of selection and implementation of the specific policies. The policies are evaluated against the stated objectives and the best alternatives are selected. What, principally, differentiates this methodology from the master plan is its continuity. The strategic plan is never the best and final solution; it is modified by changes that occur throughout the implementation and are detected during the monitoring stage. The last and actual approach used in the planning practice is integrative planning.

The integrative planning is a normative goal-oriented methodology. Although it is a more multifaceted method, its shortcoming lies in the complexities that consume time and resources and, as Hall (1992) argues, results are doubtful. The plans foresee the future based on the societies current point of time, so they run the risk of being less actual at the moment of implementation taking into account that changes in urban systems occur relatively fast. To ensure the integrative character of planning, there is a need to include specialists from different fields. Ferrari (1986) enumerates various professions dividing them into four main groups. According to him, an architect, a civil engineer, an agronomist, a geographer and a GIS-specialist, should compose the territorial sector. Because the rural component encircles the edges of a city he also stresses a necessity to have a rural component, which consists of a sociologist, a social assistant, psychiatrist

and sanitary physician. A demographer, a statistician and specialists from different fields of economics should ensure the economic part of the planning process. And finally a public administration technician, a public finance specialist, and a lawyer can solve the administrative issues. Ferrari (1986) breaks the integrative planning model in two main phases that are also split at various stages (Figure 3). McLoughlin (1969) argues that all stages of the planning process interact and mutually diffuse, so it is quite problematic to find a clear frontier between them. For example evaluation is done in many planning steps. But for methodological reasons, it is more convenient to split the process into phases; hence we will follow Ferrari's point of view.



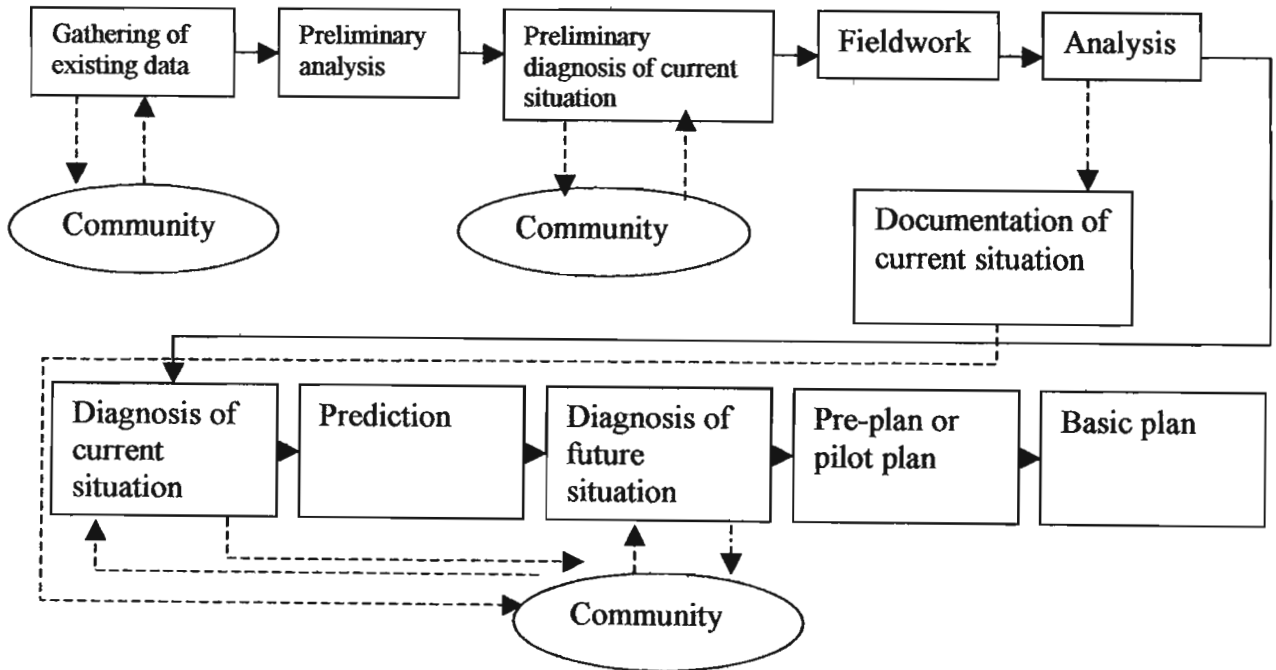
After Ferrari, 1986:41

Figure 3 Graphic representation of planning process stages - shows continuity of the process

The first stage is the elaboration of the plan and Ferrari (1986) divides this stage in five steps (Figure 4). The planning process in this phase starts with the research, which is fundamental for allowing the planner to understand reality that will be changed. At this point a planner must determine individual priorities of the public over which the planning process is exercised. McLoughlin (1969) sees the need of a brief historical review of planned areas to understand the actual situation of the urban system and better predict possible courses of action in the future with special attention paid to major public works. Research consists mainly of three segments i.e. gathering of existing data, interviews



with people who know problems of the area and preliminary diagnosis of principal issues. Details can be obtained from a census, literature reviews, documentation and institutions responsible for collection and conversion of the information into useful data. The evaluation of present situation and bring up all available data help to establish a schedule for future fieldwork. It should consist of a survey of environment and natural resources, human and financial resources, and social, physical and administrative structure of the city. McLoughlin (1969) states that information gathered in the first stage of planning process should serve to construct a dynamic growth model which will help to predict future development of population and economy and in the next stages to evaluate development alternatives.



After Ferrari, 1986:155

Figure 4 Flowchart of different stages of the integrative planning process (municipal or regional)

Hall (1992) distinguishes two stages of modeling. In the first stage it decides what part of the urban system will be changed and in the second stage a type of model that will be used for analysis is selected. Selection of the part and a type of model depends on the objectives. Usually the planners concentrate on spatial behaviour of development and are

interested in relationship between space and human activities. They can use different types of models to better perceive this relationship. Hall (1992) distinguishes different groups of models like deterministic or probabilistic in character; static or dynamic in character; and spatially aggregated or disaggregated. According to Hall (1992), the static models are more in use. McLoughlin (1969) states that information gathered in the first stage of planning process should serve to construct a dynamic growth model which will help to predict future development of population and economy and in the next stages to evaluate development alternatives.

The next step is analysis, which consists of transformation of raw data into easy to use and analyze tables, charts etc. In the “Curso de planejamento integrado” Ferrari (1986) describes them with detail. Graphic documentation consists mainly in the form of maps of regional framing in the scale of 1:50 000 to locate a planned area in the bounds of the region; city map (scale 1: 25 000) to describe in detail urban zone; slope map (scale 1: 10 000 or 1: 5 000) – to find out suitable and unsuitable areas for urbanization; demographic density map in the scale of 1: 5 000 or 1: 2 000 showing variations of the density over time; and public infrastructures map (scale 1: 5 000 or 1: 2 000) to show present situation of road and rail networks, water and sewage system and waste collection. Graphic charts should describe population by age, labour force, access to education and health care. They should also illustrate a transit flow in different points of the city, financial situation of the city especially regarding revenue and operating costs. The last one will facilitate the conception of the detailed budget during the implementation stage of the plan.

The objective of the analysis of the whole above-mentioned information is to describe each noticed problem in its multiple aspects and decomposing them for better understanding the complex reality. To achieve this planners create what Hall (1992) calls a model of the system, alias “a number of interconnected models, which seek to describe the behaviour of its subsystems” (Hall, 1992). The model not only helps to perceive the present behaviour of the system but also to predict its future action depending on the selected development alternatives. This helps planners to make appropriate diagnosis of questions that should be improved or solved. The judgment of the current situation is a starting point to predict future development of community, which allows planners to

foresee potential constraints and find the best option with more benefits and less disadvantages. Ferrari (1986) distinguishes three steps in the analysis process: a problem ranking, a compatibility of proposed options and an evaluation of the most efficient solution. In the problems ranking the issues are assessed according to their importance to the development of the area. It is impossible to solve all questions at the same time; therefore planners with all stakeholders must select what is their priority and what actions should be taken first. Hall (1992) differentiates three stages in aims identification: goals formulation, objectives identification and target setting. Goals are abstract, general and qualitative, while objectives are specific and more quantitative. McLoughlin (1969) stresses the need of translating the general aims into a set of principles, which serve to generate alternatives. McLoughlin (1969) divides planning goals in different groups: the aesthetic qualities, healthy and sanitary living conditions, economic health of cities and the issue of locational relationship. Goals are defined in broad categories while objectives fall within the actual programmes and transform into specific actions. Objectives require budget planning. Consequently this exercise will help in proper allocation of funds for priority actions. The second phase is a compatibility of proposed solutions or actions. Compatibility means adoption of these solutions or actions, which are coherent and are not opposing mutually. They cannot exclude each other or collide at any stage because this situation could bring chaos and compromise development. The last part, the evaluation of the most efficient solution, has as the main objective to help in selecting the options, which are the most efficient and valuable to achieve development objectives. Evaluation should take into consideration the future impact on peoples' live.

To select the best or most suitable option one needs to adopt a model of rational decision making (Ferrari, 1986), which should cover the following aspects. First, the model should identify all possible alternatives. Subsequently it needs to evaluate consequences derived from implementation of specific options and finally select the alternatives most favourable to realize most objectives. They must adhere to previously established criteria and at the end of the process the best alternative is selected. According to Ferrari (1986) the best solutions are those, which present minimum implementation costs and maximum benefits or profits. Hall (1992) stresses that evaluation cannot be made bearing only

economic advantages or disadvantages in mind. For him evaluation is a process, which should classify alternatives according to their responsiveness to the previously established goals and objectives. The evaluation is made using three techniques: cost-benefit analysis, planning balance sheet and the goals achievement matrix.

The cost-benefit analysis presumes that the best alternative is the one where benefits are higher than costs. McLoughlin (1969) emphasizes the main characteristic of the cost - benefit analysis - the use of quantifiable elements of the evaluated reality. Hall (1992) highlights the value of this technique in situations where the economic benefit of several options is more important and normal market indicators do not exist. This technique helps in decision making by stressing economic aspects of alternatives. But he sees several shortcomings of the cost-benefit method when used for the planning procedure. One of them is the difficulty to measure those items, which are not easy to value in monetary terms like landscape or an old building. McLoughlin (1969) also sees this as a weakness. For him, the cost-benefit method puts too much weight on economic criteria and forgets other non-tangible aspects of human reality. Hall (1992) also questions its objectivity. Although, apparently the cost-benefit analysis seems to be impartial by translating all types of cost and benefits in numbers, but is too arbitral, because it hides important social questions that, as was said before, can not always be measured in monetary terms.

Another technique is the planning balance sheet. The planning balance sheet developed by Lichfield takes into consideration the calculable and incalculable aspects of human reality. Hall (1992) sees an advantage of this technique in its capacity of segmentation planning components. This allows the planners to notice the advantages and disadvantages of the proposed options for different groups of people and helps to select the optimal alternative. The difficulty of this method lies in its complexity and it is time consuming. The last technique is Hill's goals achievement matrix. The method evaluates different plan objectives and classifies them in order of their weight. This technique also takes into account the differences between stakeholders regarding the importance of stated goals. To accommodate these differences the goals achievement matrix disaggregates the analysis. Hall (1992) observes that it brings the same problem as in the planning balance sheet - the complexity.

After the projection of current data to predict the future, once more a diagnosis of the current situation is required, but this time a desired status of urban system is analyzed. The plan is designed after this phase. Solutions are proposed for problems, which are previously identified for a future period, as well as means to solve them are prepared. Following these, all possible alternatives should be presented to the government and other stakeholders for selection of the preferred option, according to their objectives. Bracken (1981) sees the planner's role in stimulating a debate between all stakeholders about urban problems with the aim to find solutions for important issues. He stresses the need for stakeholders' participation because of the inevitable conflict of interests, which can only be solved via dialog. Hall (1992) sees the problem of public participation in the difficulty of identifying all interested groups, because most people belong to more than one group. This can bring the dilemma of opposite objectives, which may be impossible to conceal. Clarifying of development objectives, during the planning process, can be problematic, because of human limitations regarding abstract thinking. Another danger of public participation distortion, argues Hall (1992), lies in favouring the wealthy, better organized and informed, who have more possibilities pressing planners to give preferentiality to their interests. Although public participation is quite a complex process, it is an indispensable part of the planning process because the approval of proposed solutions by stakeholders will give the green light to produce a basic plan.

McLoughlin (1969) argues that urban plans should comply with specific conditions. Firstly, the plan should be clear and easy to use with comprehensible explanation of its goals, objectives and final output. The plan should provide the implementing authority with all necessary tools to accomplish desired development. For better preparation of the plan, and to avoid wasting of time and money, Ferrari (1986) calls for a proper methodology, which will help in understanding a city to be planned within its own 'regional characteristics', i.e. the city in relation with the state, region and province. It is very important to comprehend its role in achievement of development objectives of a country. From the other side it is essential to identify 'local characteristics' of the city, to unmask its problems, through preliminary analysis, which will facilitate future planning exercises and allow producing a suitable urban plan. Ferrari (1986) stresses, the plan

should not contain excessive theory by exhibition of all unnecessarily data collected and organized, by preparation of irrelevant diagnosis and conclusions, by ostentatious presentation. This way could seem to be an end in itself. Hall (1992) argues that the content of the plan design depends on the selection of urban system elements and the objectives of the planner. Opposite to the blueprint plans the plan design is not a picture of the present situations. Using the operational model it predicts the forthcoming state of the system that should “be internally coherent and consistent, and to be workable and feasible; and which also best satisfy the objectives which have been set” (Hall, 1992:238). Ferrari (1986) specifies that the basic plan should have the following elements. Firstly, it should contain information about the relationship between a region and city; this means the city within the region under economic, social and physic-territorial aspects. The objective is to place the city in the broader spatial and socio-economical context to find out its role in the regional, provincial and national setting. It helps to perceive the impacts of national and regional policies and socio-economical actions on future development of the city and vice versa. Also Hall (2001) sees the importance of placing the city into a broader context – local, regional, national and even international. He argues that urban development depends on a large scale on the position of the city in the world economy. The next issue, which should be taken into account, is the present situation of the city. This element should contain relevant information about different sectors of economic and social life of the city. In the economic sector Ferrari (1986) enumerates basic and non-basic activities, employment and income. In the social area he stresses education, health, housing and recreation. The physical–territorial part should contain data about road networks, land use, public services, sewage and so on. The basic plan must also describe administrative areas, i.e. means of municipal administration like internal organization, financial, human and material resources, municipal legislation and municipal activities, which provide revenues. The study of revenues shows the availability of financial resources to implement the plan. All this information should go together with maps, graphs and tables.

The graphic part of the plan describes the physical localization of changes and is presented in the format of maps and charts. McLoughlin (1969) stresses that maps must

be accompanied by written documents, which describe future reality depicted in graphic form. The written documents should contain information about the legal issues linked to the planning process and describe the authority that orders the plan and determines its character. The written component should include reports, budget description, policies and regulations on how to implement the plan. The basic plan can be done over a longer period of some 15-20 years. Constructions are programmed in accordance with priority criteria and their costs are compatible with revenues generated by the entity responsible for plan implementation. McLoughlin (1969) emphasizes the importance of explaining the reasons of selecting some development alternatives instead of choosing others. The basic plan should give details how each proposal can affect land use patterns. The document must contain a set of criteria that were used during the evaluation process and how they relate to the stated goals. The assessment of objectives according to their importance for stakeholders should be clearly depicted and substantiated. It is a general strategy flexible enough to allow the institutions to adapt to changes, which occur in the long term. It is displayed as less detailed maps (small scale) and principally in written format. The basic plan enumerates services, constructions and measures to implement.

The second stage – implementation - takes place after creation of the plan. McLoughlin (1969) underlines that implementation of the plan depends not only on the planners but also on the official entities which requisite the plan. It must clearly define the role of each planning participators, which means – what are the rights and duties of government, private investment and the general public. Ferrari (1986) specifies three implementation steps. First is an execution of the programme where the plan transforms its theoretical aspect into physical through the particular actions taken by implementation entities. This phase sets up regulations to guide implementation, training of staff to be more efficient and writing up for different administrative sectors responsible for the new planning functions. Ferrari (1986) emphasizes the need to take providences for successful implementation such as: proper organization of the office responsible for execution and preparation of legal tools able to impose all citizens to comply with the plan, compulsory and indistinctly. He enumerates the following regulations:

1. Plan regulation – to approve goals and guidelines of the plan with regard to territorial organization, economic and social development and administrative organization.
2. Land use regulation – it defines an urban zone with the purpose of plotting, destination and use of urban buildings.
3. Urban soil zoning regulation – to set up principles about different uses of urban soil and urban density.
4. Construction regulation – normalizes constructions within the parcels, illumination, quality of material for construction etc.
5. Cadastre regulation – establish models for registration of the property.
6. Budget regulation – standardizes all questions related to the financial part of the implementation plan.
7. Community participation plan - this instrument helps in the involvement of the local community during the planning process, which guarantees their collaboration and will make the plan successful.

The implementation step is followed up by control and a monitoring stage that helps to find out all distortions from the beginning of the “plan-reality”. It is a very important phase. For Ferrari (1986) the objective of this segment is not to control physical or technical aspects, but a comparison between what was planned and what is realized. All deviations from previous design must be carefully analyzed to find out reasons and effects on the plan as a whole. The last part is assessment, revision and updating of the plan in comparison with the actual stage of the reality being the most wanted. It assesses achieved outcomes. The evaluation, according to Ferrari (1986), can be done in two manners. It first compares isolated data sets, real with projected, and the second method appraises the interactions between different indicators observed on the past and projected. The evaluation findings will result in the rectification of the plan with the ending of



deviation adjustment. Once more this will require studies and research. The whole process will start again because it is a cyclic, on-going practice.

## **ADMINISTRATIVE AND POLITIC ISSUES IN URBAN PLANNING**

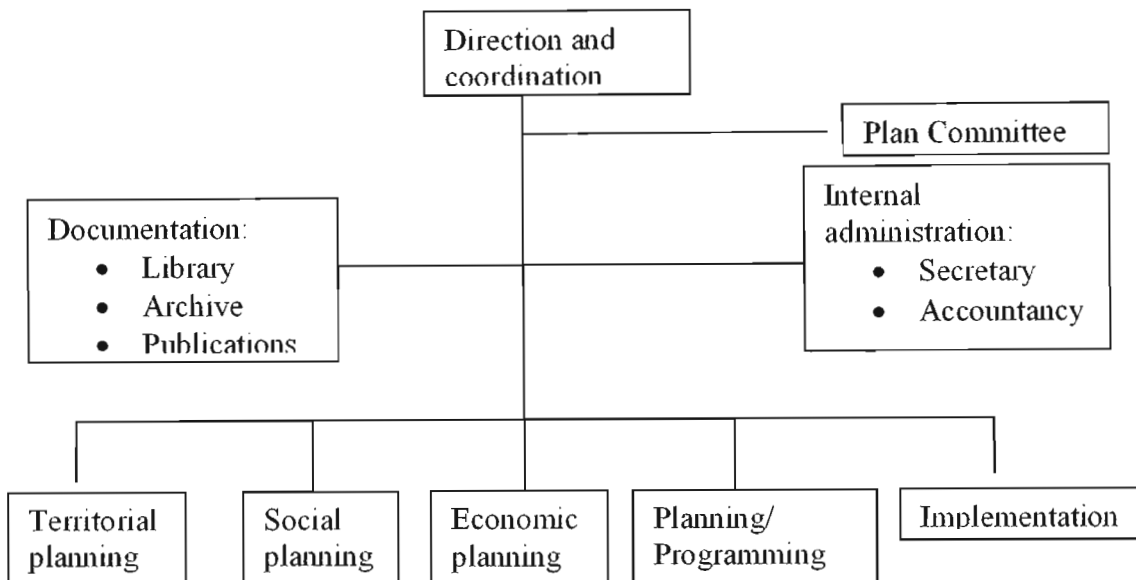
Planning is exercised on people by people through different actions and administrative decisions. Needham (1977) specifies these instruments of public intervention. He puts them into three classes – laws, financial arrangements and organizations. The first instrument – laws - allows the institutions to take actions, which have in view the development of a city. There are policies, regulations and so on. According to Hall and Pfeiffer (2002) urban policy has as a main objective of transforming cities into healthy and safe places of cultural exchange and economic prosperity for all dwellers. Good urban policy should ensure the possibility of active participation of citizens into a governing process, which is described by Swilling (1996) as a continuous relationship between different forms of organizations (public institutions, private and non-governmental) and local governments. McNulty and Horton (1979) stress that for planning to be effective it must obey very basic criterion: be accepted by people as a government means to control and direct their activities with the objective of improvement of life conditions. But there is a risk of planning to serve “only the narrow economic and political interests of the power elite” (McNulty and Horton, 1979:1). This threat can be overridden by the major involvement of stakeholders in the whole process. There is a real advantage of inclusion of interested and affected parties. They assume the development of actions taken by the government or private agencies as their own and collaborate on the implementation. Present tendencies of planning practices are to be interactive with stakeholders and consider them as the subject not the object of the planning process.

Legal means regulate the financial aspects of municipality life. These financial arrangements, as Needham (1977) emphasizes, have the objective of providing necessary resources for implementation of planned actions and normal functioning. Examples are taxes for waste removing, water and electricity charges or property taxes. Good implementation and execution of laws and money collection depends on the well-structured organizations like municipal authorities, water and electricity boards. These

organizations constitute local government authority. Halfani (1997) argues that in the globalization era the urban institutions must evolve to readily help a city in trading competition and attracting outside investment. Principally they should be good managers to deal properly with many urban issues like unemployment, poverty and informal settlement. Halfani (1997) points out the prevalence of poverty in cities as a main factor of urban crisis. There are a high number of people using the infrastructure and services, but only a small number to pay for the facilities. This automatically reduces the money for investment and maintaining of the city. Swilling (1996) claims that urban problems in Africa are very difficult to solve, because of the emerging informal settlements on the larger scale. According to him between 40-70% of urban dwellers live in the informal settlements where public services are not provided. The situation of urban growth out of control can lead to the population being excluded from the official urban system to a creation of a parallel urban system with a specific law that does not necessarily respect the official legislation.

Planning as a complex process is performed at different levels of government bodies. This situation, according to McNulty and Horton (1979), may result in inconsistent or even contrary decisions. There are real situations, when decisions taken in the provincial level are changed on the national level and vice versa. To overcome this kind of difficulties good coordination between all levels of governments must exist. Competences of all state and non-governmental agencies, which perform planning functions, must be clearly defined and they need to interact with each other. McNulty and Horton (1979) see the struggle in coordination of planning actions in non-existence of an “acceptable planning paradigm, that is, a generalized framework within which planning activities may be organized and pursued” (McNulty and Horton, 1979:3). Also Ferrari (1986) finds that administrative organization and successful planning process is dependant on each other. In order to achieve established objectives the local planning body must have relative autonomy within municipality. It also should include different kind of specialists, which help to produce highly integrative plans. Ferrari (1986) proposes a creation of a financial body whose function should be assisting the main organization in conceiving the plan and its implementation. The financial body could also

ensure financial autonomy of the planning body. Ferrari (1986) proposes the model of administrative organization for integrative planning (Figure 5). According to the model a planning body should be localized into a level of a mayor cabinet or in the position, which allows functional independence in relation to other parts of municipality. He argues that independence will prevent hierarchical conflicts and at the same time will prevent creation of an 'over – department' that could include other departments and not functioned properly. Equality in hierarchy between the planning body and other parts of municipality can lead to problems in data gathering and to impose aims and regulations on them.



Source: Ferrari, 1986

Figure 5 Example of administrative organization of planning body

To properly perform its functions, a planning entity should consist of a Plan Committee and Technical Office of Planning. According to Ferrari (1986) the Plan Committee should include reliable community leaders and the Technical Office of Planning should be of multi-professional composition. It should have at least one engineer or architect, one economist and one social assistant or sociologist. On the top of the hierarchy is a director whose main task is to coordinate the functioning of the institution. It does not mean a person has to necessarily be a planner but should be someone with strong capabilities of leadership. He or she is supported by the Plan Committee, which is formed

by representatives of each element of the institution. All records of organization are stored by documentation component, which is also responsible by public relations. The next part is an internal administration that performs all tasks regarding to normal functioning of the institution. Secretary and accountancy compose this section. Important segments are economic, social and territorial planning, which should proceed with research and data analysis, preparing basic plan and contact all stakeholders. Within their duties should be a responsibility to plan housing and services construction, to design specific projects to implement on study areas and to promote a revision of a basic plan. Once the plan is prepared, it goes to the next component, which is an implementation sector. This sector is responsible for promotion and supervision of administrative reorganization of the municipality to better respond to needs of a basic plan execution. Drawing of all necessary legislation to implementation, control and monitoring is another obligation of the section. The last part of the planning body is planning/programming sector, which is responsible for designing of detailed housing and services construction program and its budget.

## CONCLUSIONS

Planning is the process taken by human society to achieve desired changes using available resources. Because the ideal status quo is never accomplished, planning also does not stop, it is a continuous process, with the main objective to improve peoples' live by controlling and directing the development. The process can be threatened by different difficulties – political-administrative, technical and ethical. To overcome these problems there is a need for good and feasible policies and efficient and competent agencies to conduct the planning process and implement its outcomes.

Accelerated urbanization brings a considerable growth of urban areas and consequently amplification of many problems, which must be solved. Urban planning is one of the useful tools that can be employed. To better perform its task, urban planning relies on different methodologies. Urban planning methodologies evolve through time to better respond to contemporary challenges from the blue print or master plans; throughout the system planning to currently use of integrative planning. Contemporary methodology

stresses, as system planning, the continuity of the process and emphasizes the need of the involvement of all stakeholders. It is a normative goal – oriented methodology that looks at the city as a whole. All planning stages interact and mutually diffuse. The main output is an urban plan that should be clear and easy to use. The plan is the written result of the analyses and selection of the best development option. The main shortcoming of the integrative planning is its complexity that requires time and availability of huge amount of resources.

The next stage of the planning process is implementation of the plan. This phase, to be successful, calls for good instruments of public intervention – legal, financial and organizational. Legal tools ensure the authority of the implementing agency to carry actions with the intent to develop a city. Financial means provide the necessary resources to put the plan into action. It can be direct investment as well as changes in taxation systems. The organizational instrument deals with the question of coordination of efforts within government agencies responsible for the planning process. There is a need to clearly state the competences of each governmental agency to avoid the inconsistency or contrary decisions.

**APPENDIX A****INTERVIEW****Identification**

Name: \_\_\_\_\_

Institution: \_\_\_\_\_

Department: \_\_\_\_\_

Section: \_\_\_\_\_

**Technical and technological issues**

- Q1) How is your department organized?
- Q2) What are the responsibilities of your section, department?
- Q3) How do you evaluate the technical capacity of your department?
- Q4) What constraints does your department face?
- Q5) How often do technicians benefit from training courses to improve their knowledge?
- Q6) Do technicians use any GIS program as well?
- Q7) How is the process, of lots licensing, organized?

**Methodological issues**

- Q8) What instruments does the municipality use to guide the city development?
- Q9) What methodology is used during the planning process?
- Q10) What plans were drawn by the Urbanization Directorate?
- Q11) How do you see the importance of the structure plans in urban areas management?

**Data issues**

- Q12) What sources of information are used during the planning process?
- Q13) How is information stored in the department?
- Q14) How often does the municipality actualize spatial data?

**Structure Plan of 1985**

- Q15) How much time did the data-gathering take?
- Q16) What analyses were performed during the preparation of the Structure Plan?
- Q17) What criterions were used to choose the development options presented in the  
Structure Plan?
- Q18) What institutions participated in the plan preparation?
- Q19) What stakeholders were contacted?
- Q20) To which extent did the municipality use the 1985 Structure Plan?

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## **COMPONENT B**

**ANALYSIS OF IMPLEMENTATION CONSTRAINTS  
FOR PLANNING PROGRAMS. A CASE STUDY OF  
THE CITY OF MAPUTO, MOZAMBIQUE**

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# **ANALYSIS OF IMPLEMENTATION CONSTRAINTS FOR PLANNING PROGRAMS. A CASE STUDY OF THE CITY OF MAPUTO, MOZAMBIQUE**

## **ABSTRACT**

Maputo, as most of the Third World cities, faces a fast population growth. The spread of urban areas and pressure on the urban infrastructure requires a good response from the municipal authority and careful planning.

The Mozambican government recognizes the importance of urban planning. Visible signs of the awareness are creation of different institutions responsible for the preparation of the plans for various cities, including Maputo. In 1985 the Maputo City Council received the Structure Plan prepared by the National Institute of the Physical Planning. The Plan aspired to project the city development for the period 1985-1995.

This research aims to analyze the 1985 Structure Plan of Maputo and compare the proposed land use with the land use after ten years. The land use changes and correlation with the planned development are compared looking at the population distribution. To find out the differences between the land uses, maps were overlaid, intersected and reclassified. An analysis of the legal, financial and human resources availability aspects of urban planning in Maputo was performed.

The analyses of the findings show that the planning instruments in Mozambique are deficient. The urban planning is inadequately supported by the legislative acts and has limited financial, technical and human resources to fully respond to the challenges.

**Keywords:** urban planning, Maputo Municipality, land use

## **CHAPTER I: INTRODUCTION**

### **PROBLEM ANALYSIS AND DESCRIPTION**

Rapid population growth and urbanization during the twentieth century has changed cities and made people aware of the need for planning their development. To accomplish this, two basic steps are used: evaluation of existing environment and implementation of ideas. The results of analysis and alternative design are depicted in a written and graphic document, which serves as a guide during the implementation process. The Maputo Structure Plan of 1985 is an example of such a document. The Plan is a written document produced during a planning process, which stretched over a period of 6 years (1979 – 1985). The central objective was to depict the current situation and the development alternatives to guide the city expansion. Although the Plan was presented to the Municipal authority, it was not approved. The Maputo City still uses the plan prepared during the colonial period, which obvious does not fit the present situation. Bearing in mind that uncontrolled development of urban areas brings many problems not only social but also environmental and financial, there is a need to find out the reasons why the Structure Plan was never approved and why the municipal authority continues using a very old and outdated plan. The evaluation of the Structure Plan and the situation of the urban planning are important if we take into account that the current legislation obliged local governments to produce urban plans. Mozambique, as a developing country with scarce resources, should avoid wasting of money and time in actions without results.

### **OBJECTIVES**

From the short analysis of the problem presented above arises the main objective of the research study - the evaluation of the Maputo Structure Plan of 1985 within the context of the urban planning situation. A critical look at the condition of urban planning in Mozambique, taking as a sample the Capital of the country – Maputo and evaluation of the structure plan helps to understand the motives of non-approval. The research paper also evaluates the influence of the Structure Plan on the land use. The principal aim is

divided into specific objectives that concentrate on the comparison of the proposed land use with land use of 1996 to find out deviations from the plan and reasons for this situation; that concentrate on evaluation of financial, human and technical conditions of agencies responsible for urban planning and implementation of plans and that concentrate on evaluation of a legal and administrative framework of the planning process.

## **METHODS AND MATERIALS**

Being mainly a retrospective study the research is based on literature review and analyses of the Structure Plan. The literature review is concentrated on urban planning theory and practice, especially those conducted in Maputo City, studies on population changes within the urban area and on legislation. The analyses of the Structure Plan are based on the structure of the document and its content. The Structure Plan was analyzed bearing in mind its objectives and how they were accomplished in the development proposals. The analysis followed subsequent criteria: organization of the document, graphic presentation of the document, data used during the process, content of the document, data analysis – sources of the data, its graphic representation in the document and the kind of data analysis performed (Appendix A, p.30). The research also presents the development proposals and includes the limited field study – based in Maputo City. The field study comprises the observation of the functioning of the urban planning agency within the Maputo Municipality and interviews with workers as well as with technicians directly involved in the preparation of the Structure Plan. The semi-structured interview was conducted personally by the researcher with the intent to fully understand the functioning of the municipal planning agency and its role in the preparation and implementation of the Structure Plan of 1985. The technicians, who participated in the preparation of the plan, were contacted personally. The data gathered from the interviews and visits to the municipal directorate was organized accordingly to the two main tasks identified previously: task 1 – analysis of the current situation of urban planning and task 2 - analysis on the components of the Structure Plan and the planning methodology (Appendix D, p.108). The general conclusions were generated from the responses and from observation of the daily performance of the municipal directorate. The conducting of the interview (Appendix A, p.30) allowed for personal observation and the municipal

technicians perception regarding the land use issues, their willingness to perform duties and conditions of work given to them.

Statistical data regarding the population density in urban districts was collected and introduced to the computer using Excel in table form and following that visualization in map format was performed. The statistical data allows comparing the population density taking into consideration the information from 1980, 1991 and 1997 Censuses. It also shows changes in population growth and density as well as mean annual growth rate. The density was calculated using the following formula:

$$D = P/A$$

Where **D** means density, **P** is population number and **A** is an area of a district.

The mean annual growth rate was calculated using the subsequent equation:

$$Am = (P_1/P_0)^{1/t} - 1$$

Where **Am** means the mean annual growth rate, **P<sub>1</sub>** represents population in the final year of the observed period, **P<sub>0</sub>** is the population in the first year of the observed period and **t** indicates a time interval of the observed period (Muanamoha, 2002).

To obtain data about the proposed and real land use, maps were scanned, geo-referenced and digitalized using ArcView 3.2 with the extension Image Analysis 1.1 (Appendix C, p.107). The Metropolitan Area Structure Plan of 1999 was a source for the map of real land use of 1996. The Land Use Map that shows the real land use of 1996 prepared for the Metropolitan Area Structure Plan of 1999 was based on the aerial photos of 1996, which were checked by the field visits and by the information given by the municipality. The base map has a scale of 1:10,000 and was transformed into a final map with the scale of 1:25,000 (The Metropolitan Area Structure Plan, 1999).

The map of land use proposal presented by the Structure Plan of Maputo City of 1985 has an original scale 1:50,000. After digitalization and classification the two themes were overlaid and intersected to produce a new theme with the attributes from the two original themes (Figure 6). From the analysis areas impossible to compare were excluded – those called by the Structure Plan of 1985 as ‘Land actually occupied’, because there is no

specification what kind of uses can be found in these areas. Following this the columns of the attributes were compared and results were divided in three groups:

1. Development according to the plan
2. Development not according to the plan
3. Planned development (1985) but not yet developed (1996)

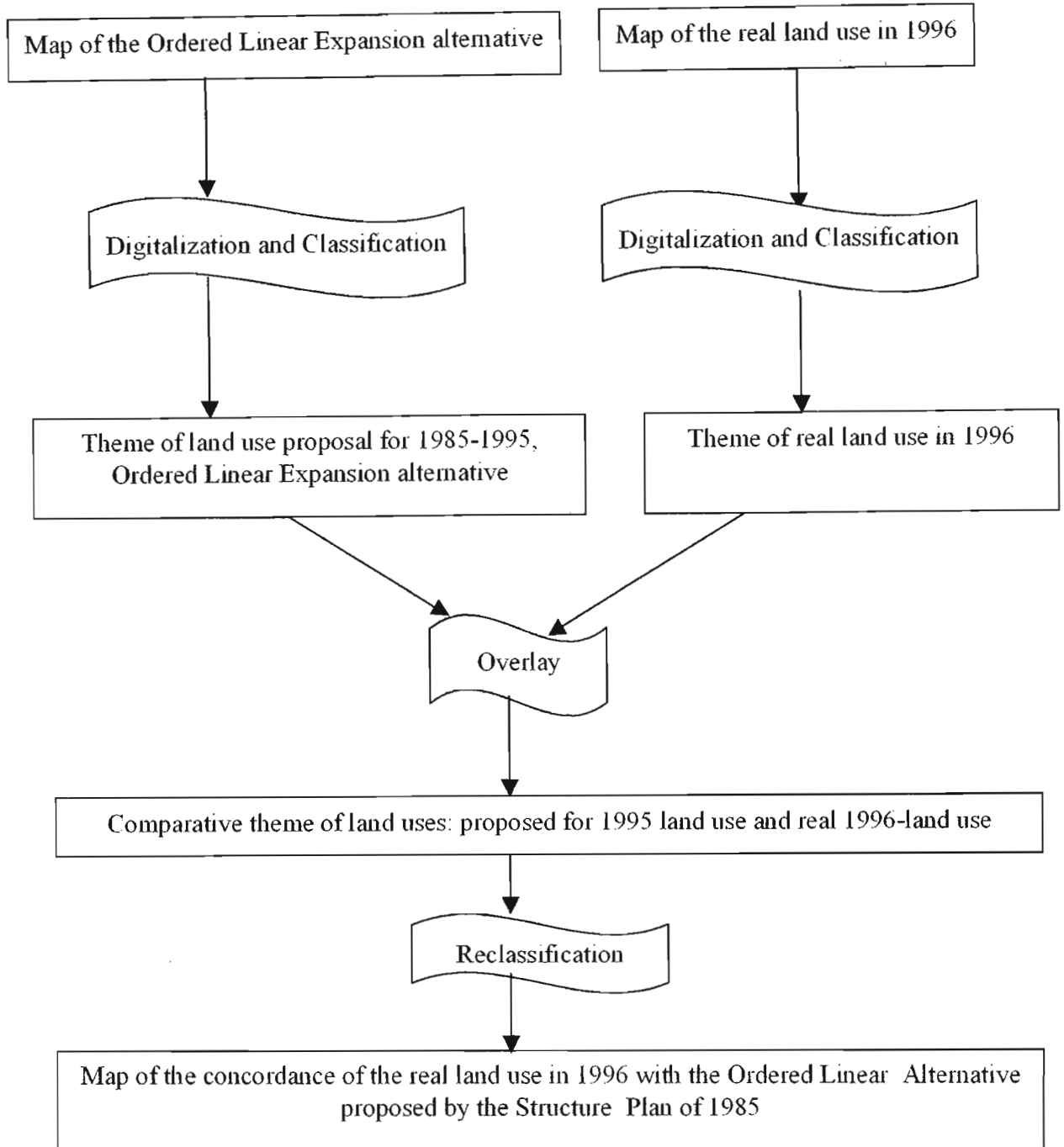


Figure 6 The steps taken during the analysis of the land use proposal of 1985 and real land use of 1996



The next step was analyses of the population distribution to find out if there is any relation between the changes in land use and population density.

The research used the following materials:

- Semi structured interview
- The Structure Plan report and maps
- Map of proposed land use
- Map of 1996 land use
- GIS program (Arc View 3.2 with Image Analysis 1.1 extension)
- Computer
- Scanner
- Microsoft office programs

## **CHAPTER II: URBAN PLANNING PRACTICE IN MAPUTO CITY**

### **INTRODUCTION**

Urban planning is a complex activity, which tries to direct the location of human activities in space and time. It needs effective tools like proper legislation, good government policies, competent and efficient institutions, and sufficient financial resources to conduct the whole planning process, beginning with research and ending with plan implementation and monitoring. If one of these links does not work well, the entire process suffers and becomes deficient. It can happen that the entity responsible for the plan production prepares a documents but it is not implemented, because of various reasons. This chapter will try to depict the situation of urban planning in Mozambique taking as an example Maputo City. The analysis will take into consideration the historical, legislative and institutional issues linked to the urban planning. First the area of study – Maputo City will be introduced. The second part will depict the history of urban planning in Mozambique with special attention on the post independence period. The next part will analyze the question of urban planning in contemporary legislation, how the present laws and policies help in accomplishing urban planning objectives. Lastly, the Municipality of Maputo with special attention on the Municipal Directorate of Urbanization and Construction will be presented.

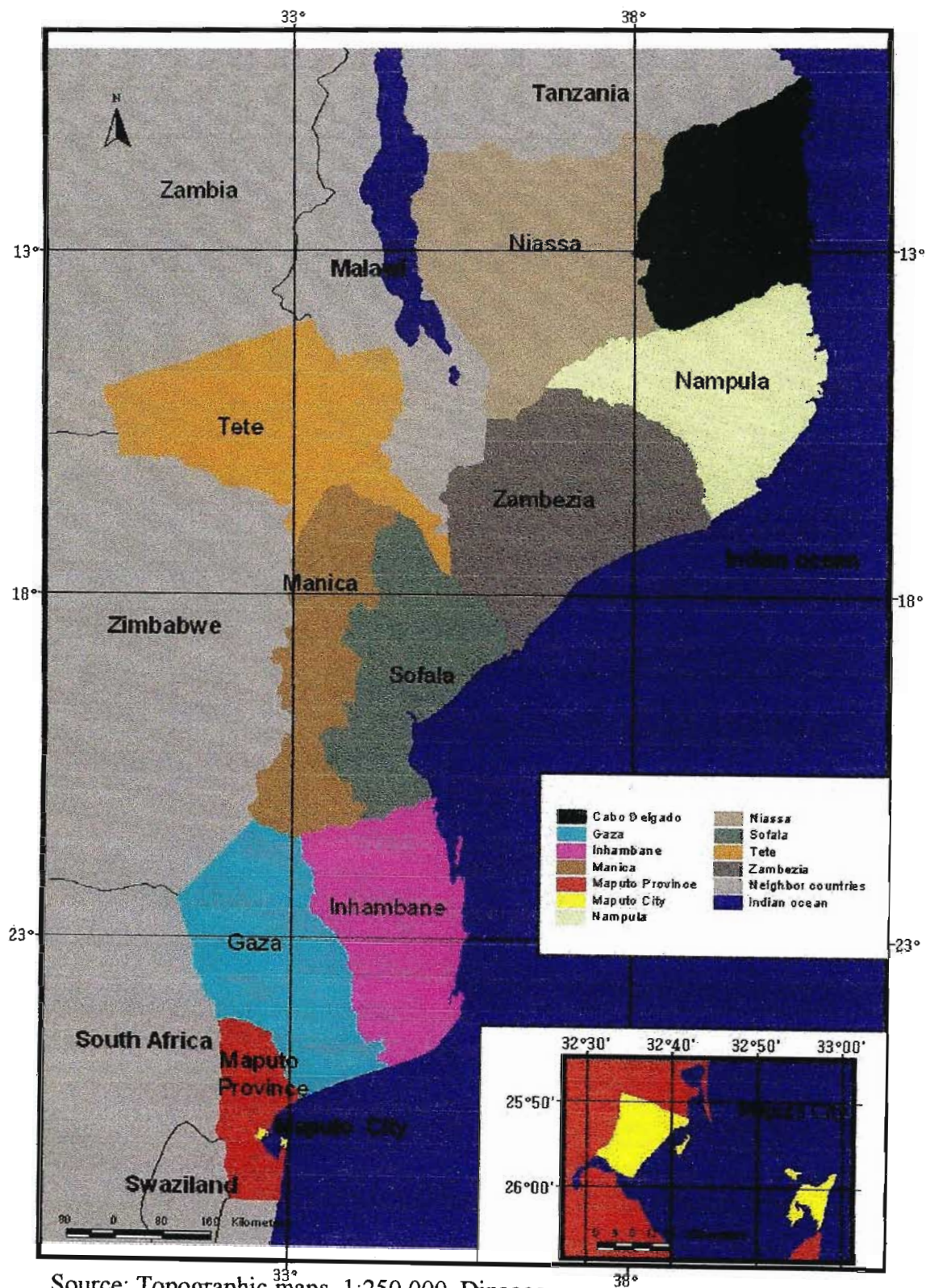
### **STUDY AREA**

Mozambique is a predominantly rural country with the majority of the population living in rural areas. The Population Census of 1980 showed that 10% of Mozambican population lived in urban areas. The 1997 Census demonstrated the increase of the urban population to 29%, but still 71% of total population is living in rural areas. According to the United Nations statistics in 2000 the urbanization level in Mozambique was 40% and the annual growth 3.3% (UNCHS, 2001). The biggest Mozambican city is Maputo. In 1955 Maputo had 175.000 inhabitants (Mendes, 1985) and in 1980 739.077 (Census, 1980). This means that in 25 years population has increased by 422%. In 1997 Maputo had 966.837 dwellers, which is a 6.07% of the entire country population (Census, 1997). After independence there has been a high migration to the city, especially to Maputo

City. Araújo and Raimundo (1999) stress that Maputo, like most modern third world cities, faces fast population growth which is not accompanied by development of services and infrastructure. Inadequate drainage, poor waste management, informal settlement and deficient transportation are a Mozambican reality. The progress of the economic activities, which could provide job opportunities, is also slow. This results in the unemployment and spreading out of informal sector as a unique way to survive for the majority of the inhabitants. Population growth also has an immense impact on the urban planning. Araújo and Raimundo (1999) see causes of immigration in the independence of the country, which brought more freedom to move and choose a place to live; in ecological disasters like droughts and floods; in the civil war and in better economic and social possibilities for living offered by the city.

Being the state capital since 1897, Maputo City is located in the extreme south of the Republic of Mozambique (Figure 7) on tributary of the rivers: Tembe, Matola, Umbeluzi and Infulene. Geographically Maputo lies between 25°40' and 26°30' S Latitude and 32°35' and 33°10' E Longitude from UTC (Dos Muchangos, 1994). Maputo is, without any doubt, the most important city of Mozambique not only because it is the biggest but it is also the commercial, industrial, administrative and cultural centre. It exerts direct influence on southern provinces: Maputo, Gaza and Inhambane. From these provinces the city receives the biggest number of immigrants and serves as a point of receiving and sending of diverse products through the harbor. The harbor allows Maputo to play an important role on the international level as a transit point to facilitate international exchange.

As recognition of its importance Act nº 5/80 of 26 June 1980 gives Maputo City a status of a province that subordinates directly to the central government. Since 1987, in the light of Act nº7/87, Maputo is considered as a city of level A, the only city of Mozambique in this category. In 1994 the city is given a status of municipality district and after the alteration of the Constitution in 1990 and approval of a Law of Local Autarchy nº2/97 of 18 February 1997, Maputo became the municipality with economical autonomy. The administrative changes also modify boundaries of the city.

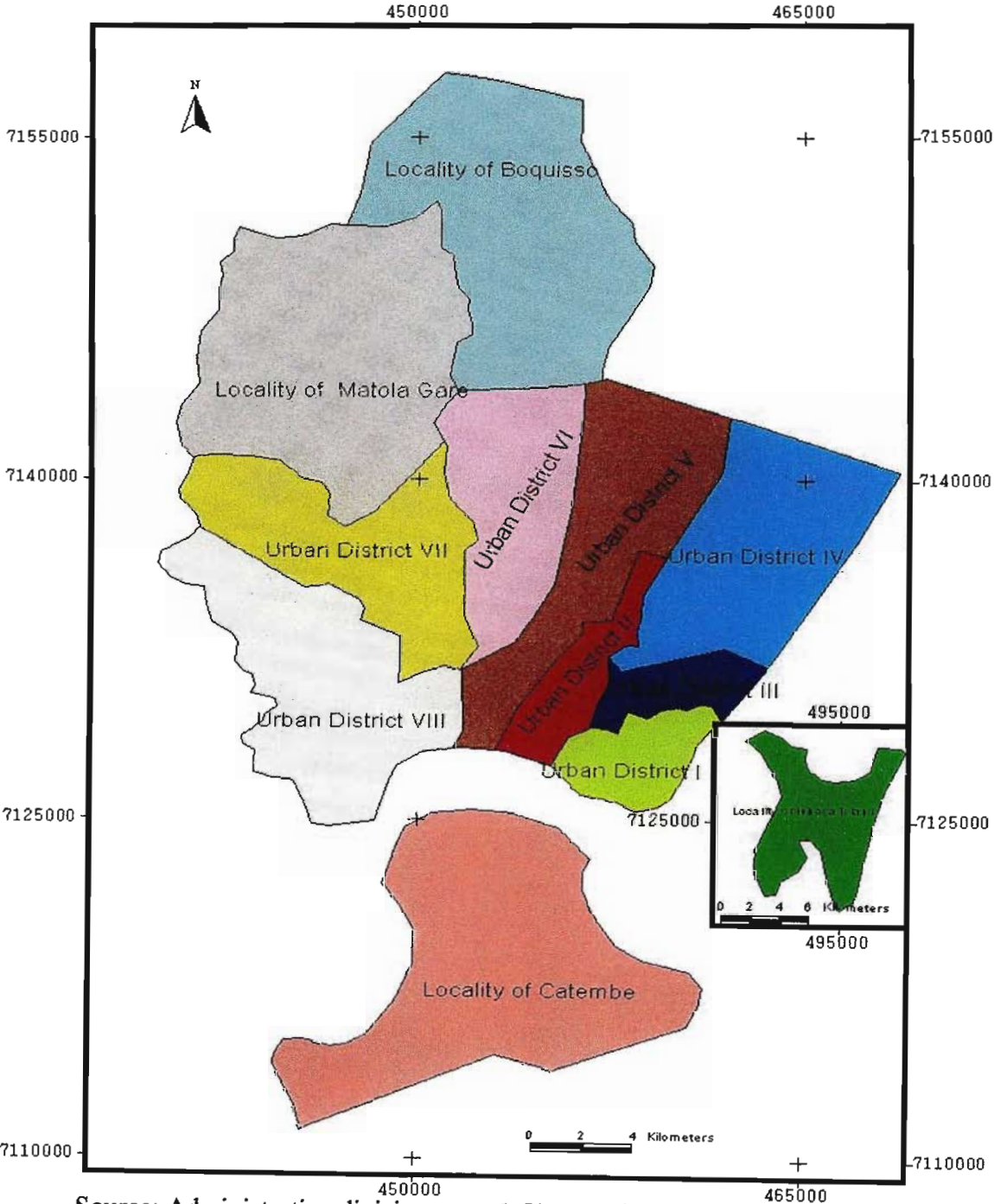


Source: Topographic maps, 1:250,000, Dinageca,

Figure 7 Location of Maputo City

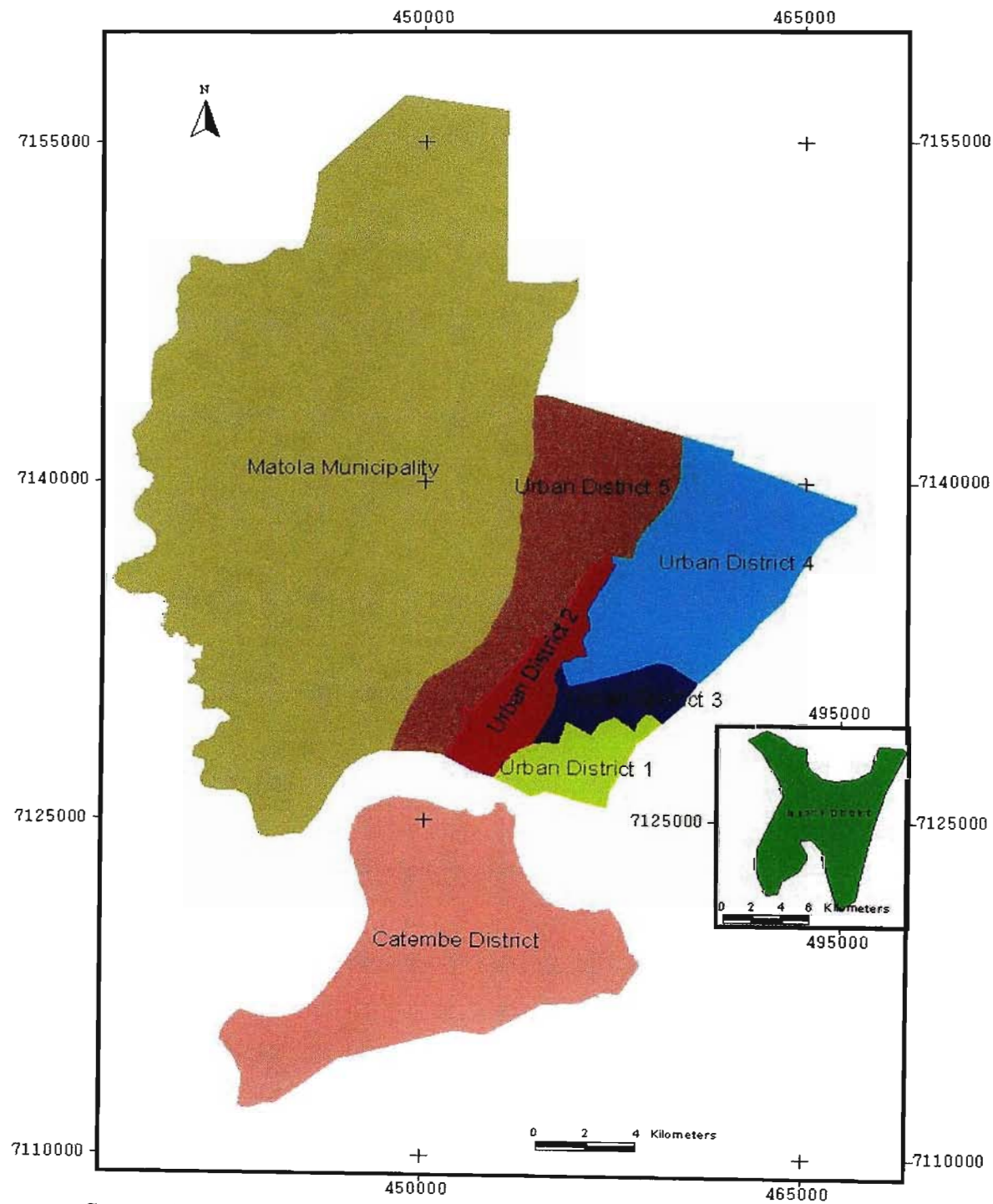


In 1985 Maputo had 8 urban districts and 4 localities (Figure 8). Urbanized zones compose districts, while localities as administrative divisions embrace areas with low population density, more rural than urban.



Source: Administrative division map, 1:50000, The Structure Plan, 1985  
Figure 8 Maputo City administrative divisions in 1985

Now Maputo is divided into 7 urban districts, which contain 60 quarters (Figure 9). The previous administrative boundary of Maputo embraced an area of 675km<sup>2</sup> and now is 316km<sup>2</sup>.



Source: Topographic map, Dinageca, 1997

Figure 9 Maputo City administrative divisions since 1986

Although the study area of the Structure Plan includes the actual Municipality of Maputo and Matola with special attention on urban parts and some areas of future expansion, the present paper concentrates on the Municipality of Maputo.

## **HISTORICAL REVIEW OF URBAN PLANNING**

Urban areas in Mozambique face many problems aggravated by deficient planning, inherited from the colonial period. During colonialism most of the investment was directed to the specific urban zones to benefit only a small percentage of the population, while most citizens lived in the areas without any infrastructure (1<sup>st</sup>. National Conference about Cities and Communal Neighbourhoods, 1979). Urban growth was carried out through ad-hoc decisions, not related to planning, through fomentation plans and decisions by the cabinet in selected zones of Mozambique, where the colonial government was interested in investing (Nhachungue, 1995).

In 1975 Mozambique became independent. Independence has brought to Mozambique a political system based on a strong, centralized state that decides all aspects of the nation's destiny. The excessive political, administrative and financial centralization places the local interests on the second plan. Shortly after independence even cities without significant problems faced a lot of difficulties in managing their development – spatial, economic and human. Urban planning was not efficient and could not solve the needs of the people. The weakness of the planning was caused by scarcity of resources, human and financial, added to the lack of government awareness regarding its importance. Although the 1<sup>st</sup>. National Conference about Cities and Communal Neighbourhoods realized in 1979 stressed the need to establish the plan of priorities in the field of urban planning to be observed by the different state authorities as well as to create conditions for the financial support to these priorities, it did not change the government perception. The Conference resolutions were not implemented and as result there is absence or deficient maintenance of urban areas. Jenkins (2000) finds these circumstances profoundly influencing the Mozambican urban development. The strategy of centralized administration does not help in the proper management of urban areas. He emphasizes that since independence the central government has paid more attention to rural areas with the argument that most of

the Mozambican population lives in rural zones. Responsibility for the urban development is delegated to the local entity but without the necessary legal and financial support. To aggravate this scenario the responsibilities of issues related to urban and residential development are divided between different institutions at the central level (Mazembe, 1997).

Since 1975 the main objective of urban planning is to provide all urban dwellers with space for living and economic activities (1<sup>st</sup>. National Conference about Cities and Communal Neighbourhoods, 1979). To comply with these objectives the National Housing Directorate was created in 1977. The institution concentrates its attention on Maputo City. Its priorities are physical planning, provision of basic infrastructure and support for self-helping house construction. To strengthen and help it fulfill its mission; the government created in 1983 the National Institute of Physical Planning. The principal duty of the institution is to control and coordinate spatial development in Mozambique. The institution has a responsibility to establish the regulations for land occupation, preservation and improvement of the environment and organization of urban centres and rural settlements. It also has the duty to design urban plans and provide support for cities in the implementation. The Institute must participate in the definition of national policy for housing as well as to take actions for training of physical planners. This institution in collaboration with the National Directorate of Statistics and the National Directorate of Planning became part of the National Planning Committee, headed by the Minister of Planning. The Committee is represented in the provinces by the Provincial Planning Committees. As a result of their existence, most Mozambican cities have plans, but local governments do not approve them.

In 1996 the Presidential Decree n° 86/96 of 28 August created the Ministry for the Coordination of the Environmental Action that embraces all activities of the National Institute of Physical Planning, which thus became unnecessary and was eliminated. Within the ministry the National Directorate for Territorial Planning has the responsibility for land use planning. The directorate acts principally on national, but also on city level. The responsibilities of this institution include the drawing of the national policy and strategy, setting up of norms and regulations for territorial planning, the promotion of the



collaboration with the relevant institutions to design development and land use plans on regional, provincial and local level. The directorate is also obligated to help municipalities in land use plans issues. In 1997 the National Directorate of Housing and Urbanization was created, which in cooperation with local governments should design and implement urbanization plans.

Land use planning issues are represented on the central level with many government institutions working and monitoring the planning activity. But the real problems start at the local level where all the centrally designed plans and strategies should be put into practice. The shortage of sources makes it difficult to implement urban plans and consequently the control of land occupation is very deficient. Since 1997 the central government has made an effort to modify its previous attitude of neglecting the urban areas and are trying to find the best ways to improve the management of urban areas. One of the methods is to the decentralization of responsibilities. Currently the central administration is gradually delegating some powers to local level believing that it will modify the complex situation. As a new experience, the decentralization is being introduced gradually and in the first phase it involves 33 major urban agglomerates. They are transformed into autarchies with economical autonomy.

## **URBAN PLANNING AND LEGISLATION**

Transformation on the political scene in the late decade of twentieth century resulted in many modifications of the Mozambican political, economical and social life. For the first time the question of urban planning appeared in explicit form in the Mozambican Constitution of 2004. Previous Constitutions do not mention it directly. They only forward to the state the obligation to provide adequate conditions for healthy environment, which ensures proper human development. Although the urban planning is directly linked to the question of good living conditions and human progress, it should be explicitly stated in the legislation, who and to what extent it is responsible for the urban planning. Correia (1993) argues that planning and management of urban areas depend on national policies, which are defined in central level of government and are based on the Constitution. The planning can be efficient only if is accompanied by appropriate

legislation and policy that allow realization of designed tasks and bear in mind all citizens' needs not only those of the minority. The efficient urban planning should be based on good quality and updated data, clear legislation and instruments, which effectively guide and control land use.

Article 11 of the Mozambican Constitution of 2004 affirms that the Mozambican state must promote balanced economic, social and regional development. The state also is obliged to create the basis for the material well - being for all citizens. Article 90 ensures that all citizens have a right to live in a healthy environment and the government either on national or local level must adopt policies that protect environment and manage all natural resources. A healthy environment can be achieved through the actions that direct and control human development. Article 91 puts an obligation on the state to create appropriate institutional, normative and infrastructure conditions for planning activity. And finally article 117 affirms that the state must promote land planning for the optimal location of all activities and equilibrate socio-economic development.

As stated before the Constitution obliges the government to support human progress and in the urban areas the central government delegates its powers to the local level. According to the Law of Local Autarchy n°2/97 of 18 February 1997, which regulates duties of local government, municipalities are responsible for drawing and approval of municipal development and land use plans as well as all related regulations regarding urbanization and construction. Another obligation of the municipality is a delimitation of the urban protected zones and areas of recovery and urban modernization, which should be done by approval of urban renewal plans of degraded areas and recuperation of historic and cultural centres. The plots demarcation and public investment for housing is also under the responsibility of municipality. According to the Act, the municipality has the obligation to stimulate local economy and social development. The sustainable social development should be accomplished by improving people's quality of life, the environment protection and by increasing the level of urbanization. The actions should be taken accordingly to the previously designed strategic plan and in association with financial and technical viability – possibility of the municipality. The Act designs gradual transition of responsibilities and financial, human and material resources from the central

government level to the municipality. The final results should be administratively and financially independent municipalities, which act within established laws. The local government should manage all services supplied to citizens without interference of central government. To better respond to this duty, the municipality has freedom of reorganizing itself and public participation is encouraged.

Specialists from the World Bank (World Bank, 1995) argue that the delivery of urban services in Third World cities is deficient not only because of resource scarcity but also because the institutional arrangements are weak. By institutional arrangements we understand: administrative procedures, behaviour and awareness of the staff and their willingness to perform the tasks well. The World Bank (1995) presents the opinion that difficulties in service delivery are particularly caused by the governing system, which gives huge powers to the central level to the detriment of the local governments. This drives towards the situation of complete ignorance of citizens' needs because of weak and distorted knowledge about local conditions. The World Bank (1995) claims that a clear division of responsibilities between levels of government is essential for good performance. To reach this is not enough to conceive legislation acts, but to change the attitude of the central government.

The World Bank (1995) finds three patterns of problematic institutional arrangements. The over - controlled local sector, where local governments are only representatives of the central governments; laissez-faire decentralization, where local governments are almost sovereign units; and the perversely regulated local sector, where local government has autonomy but is controlled by perverse incentives. According to the World Bank (1995) the over controlled local authority pattern is most common in the developing countries. It has got two main characteristics. First, most of the public expenditure is made at a central level, and second, the local government acts more like the administrative arm of the central government. In general the municipal managers are appointed by the central government, which also controls the allocation of a municipal expenditure. The World Bank (1995) finds that local government on staff salaries spends a large amount of money. In the over controlled local administration pattern even issues related to the workforce such as the number of people employed or salaries is controlled

by the central government. The World Bank (1995) argues that extensive concentration of powers at a central level leads to difficulties in satisfying local constituents.

Another way in giving autonomy to the local level is a *Laissez – faire* pattern, where decentralization guides to almost complete autonomy – political and financial – of the municipality but does not state clearly its functional responsibility. Mayors are elected by local elections. Basic services like education, health care and the provision of urban infrastructure are dispersed over the three levels of government, with no clear definition of their roles. As a result local and central level governments operate the very same public services within the same jurisdiction. Where responsibilities are not clear, it is easy to find a situation of a lack of awareness to perform duties well.

The perversely regulated local sector is based on the mixture of the previous two. The local government has some autonomy but not enough to fully realize its functional responsibilities. The mayor performs more like a lobbyist than like a manager responsible for specific functions. Usually the gap between revenues and expenditures is closed by ad hoc expenditures by central government ministries. Maputo City fits in the third model of decentralization. Mayors and members of municipal parliament are elected in public suffrage. According to the legislation they have autonomy, but because of financial resources scarcity they heavily depend on the central government. Road maintenance is the responsibility of the municipality, but if there is a need for greater investment the central government finances and monitors it. Another issue is the administrative integration of some directorates. In Maputo Municipality some of the municipal directorates are administratively still a part of the ministries. This means that a minister can influence the selection of staff and managers. A good example is the Municipal Directorate of Construction and Urbanization, which has some technicians employed by the Ministry of Housing and Public Works, and some by the Mayor. This is a heritage from the legal situation that existed in Maputo City before foundation of the municipality. As stated before the city is at the same time the province. Before 1997 it had an organization similar to that of a province, which meant almost all directorates were representatives of the central ministries, except the Directorate of Urban Services (DNDA, 2003). After changes to municipality a slow process of separation of the Maputo

Municipality from Maputo City Province started with appointment of the province governor began for the first time in 2005.

## **FINANCIAL SITUATION AND ADMINISTRATIVE ORGANIZATION OF THE MAPUTO MUNICIPALITY**

Legislation guarantees the financial autonomy of the municipalities, but the reality is quite different. They do not have the necessary political and financial power to act according to legal and administrative requirements. Even after the beginning of decentralization in 1997, municipalities still depend financially on the national government, although they generate some revenues through local taxes, fines and rents. A good example of this is Maputo Municipality. In 1997 53% of the Maputo Municipality income was ensured by central government subsidy. The income from taxes, fines and buildings renting represents 47% (MAE, 1998). In 2000 the dependency of municipality from the government aid increases to 67% and independent sources of income decreased to 32% (MAE, 2002). According to “Folha informativa dos Municípios II” (MAE, 2002) the reason of this situation lies in incorrect evaluation of capacity of local income rising and deficient management of municipal finances. Money is predominantly spent on salaries; there is no transparent presentation of accounts. According to “Folhas informativas dos 33 municípios” (MAE, 1998) more than 50% of the income of 1997 was spent in remunerations of administrative personnel, 15% to ensure functioning of subordinated institutions and 25% on other expenditures. In the same period municipality spent 14% on investments in areas of urban services, housing and urbanization. The amount of money used is not sufficient to respond to the demand and pressure posed by dwellers on infrastructure and services. There is a need to increase the investment to ensure their good functioning and maintaining. From the amount of money collected and received in 2000, the municipality spent in that year 54% on administrative expenditures and 46% on maintenance and new investment in all relevant areas.

The fragile financial situation of Maputo Municipality, Jenkins (2000) says, is a result of the deficient taxation. Incomplete cadastre and inadequate tax mechanisms applicable only to formal urbanized areas do not permit effective collection of property and other

taxes. The local government does not have adequate instruments or staff to effectively register and control land development. Mazembe (1997) does not see a solution for the financial situation in a short period of time, because there is no legislation, which allows municipalities to introduce new taxation and update existing ones. The financial problem is aggravated by a weak participation of dwellers in the costs of infrastructure maintaining. Mazembe (1997) alleges that limited and weak local governments are unable to control urban development. Weak governments are characterized by only protecting the interests of some groups and urban planning receives in such a situation minor priority. For Correia (1993) the link between financial management and urban planning is very strong. It is impossible to split them because any planning action must take into account the urban economy and local finances as well as the execution of any plan requires money.

Before 1994 Maputo was managed by the Executive Council selected by the City Assembly. The technicians who were chosen for the council had to be of the entire trust of the Frelimo Party. The Decree n° 2/78 of the President of the Republic established the organization of the Executive Council in the following manner:

1. President of the Executive Council
2. Director of Assistance and Control
3. Representative of Provincial Police Command
4. Representative of Commission of Implementation of Production Councils
5. Representative of Internal Commerce
6. Representative of Social Sector
7. Director of Finance
8. Director of Communal Quarters

The principal task of the Executive Council was to guarantee the political hegemony of the State (in that time equal to Frelimo Party) and ensuring city development. To fulfill these obligations the central government created an administrative machine for cities. The Act n°7/78 instituted the composition of the local administration. On the top of the hierarchy was the Office of the President of City Council. A Directorate of Assistance and Control and other Directorates supported the Cabinet (Figure 10).

Act 3/94 of September 1994 gave Maputo City a status of a Municipal District. The District was structured into 18 directorates and stations: the Cabinet of President, the Directorates of Control and Help; Finance and Planning; Industry, Commerce and Tourism; Labour; Transport; Urban Services; Register and Notary; Housing and Urbanization; Health; Education; Culture, Youth and Sport; Coordination of Social Action; Real State; Green Spaces; and police stations, urban police and secret services. The Directorate of Housing and Urbanization is responsible for urban planning and licenses for land use and occupation.

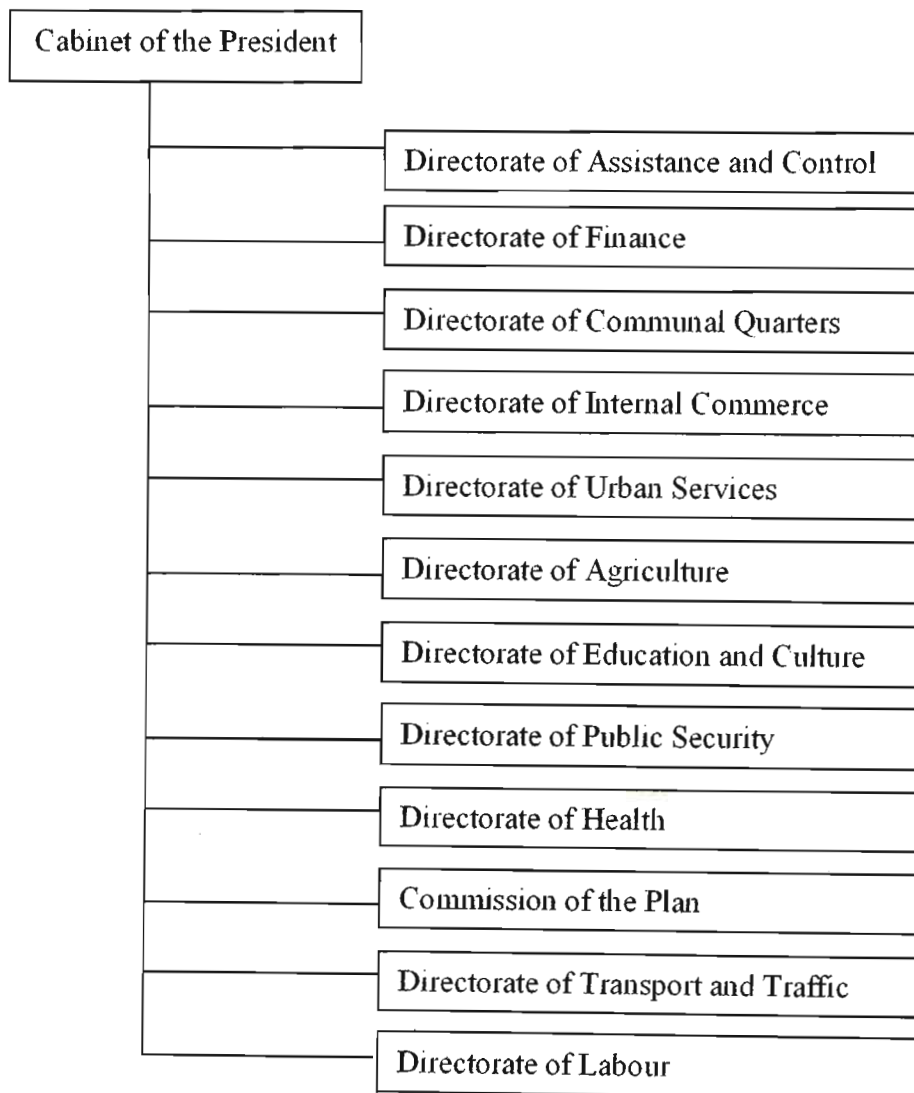
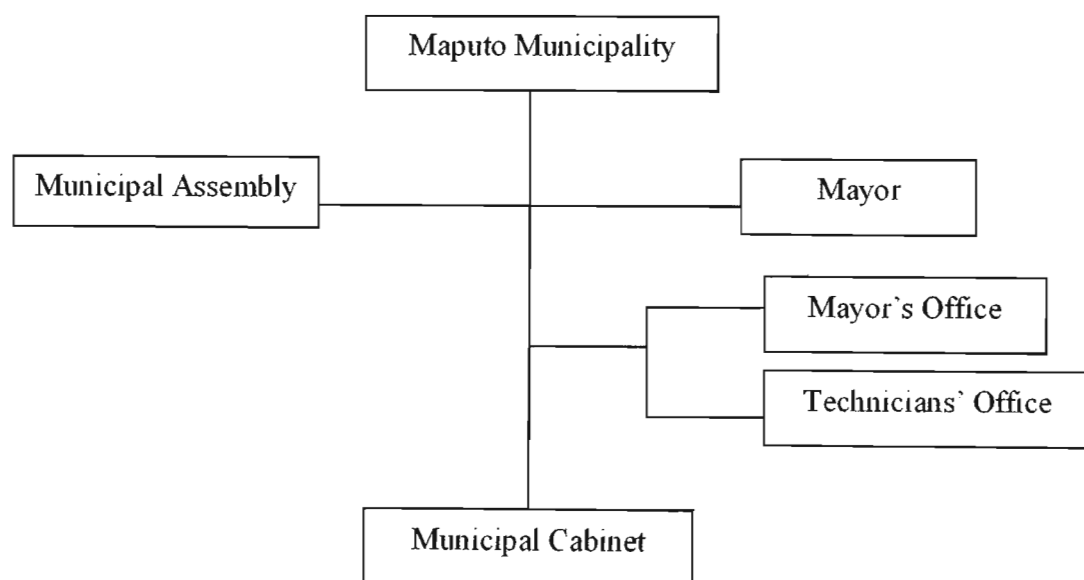


Figure 10 Organization of the Maputo Executive Council before 1994

There was no difference between the City Council and Municipal District. The president was still appointed by the central government and the local government did not have legislative and financial autonomy.

In 1997 another Act of 2/97 of 18 February transformed Maputo local government to a municipality. After 1997 the City Council with all administrative system was changed to administrative and financially independent municipality with a mayor elected by suffrage. The members of the Municipal Assembly are also elected. The principal activity taken by a new local government is internal and administrative organization to adjust the functioning of the existing structure to a new reality and new obligations. As a result most of the investments were spent in furniture and rehabilitation of the municipal offices during the change of municipal administrative division and structure. The process began in 1997 and finished in 2000 with approval of new structure by the Municipal Assembly. According to “II Reunião nacional dos municípios” (MAE, 2002) Maputo has new administrative boundaries and is now divided in seven municipal districts and 61 quarters. Matola and Marracuene became independent administrative units.

Regarding internal organization, Maputo Municipality is now divided in two organs: a Municipal Assembly and a Mayor supported by a Municipal Cabinet (Figure 11).



Source: MAE, 2002

Figure 11 Organization of Maputo Municipality after 1997



The Municipal Assembly and the Mayor are elected by elections. The Mayor appoints the members of the Cabinet – the councillors. The Assembly is a deliberation organ, whose main function is to establish regulations for crucial areas of municipal development, to approve activity plans, land use plans, budget, and reports and to monitor and supervise the activities of other municipal organs and institutions. It also gives authorization for Municipal Cabinet to conduct any alteration in municipal real state. The Municipal Cabinet is responsible for execution of the Municipal Assembly resolutions and controlling of the city development by licenses attribution. The head of Cabinet is Mayor whose competence is management of the municipality and coordination of the activities of Municipal Cabinet. He has the power not only to appoint but also to dismiss councilors. The Municipal Cabinet consists of various Councilors, who answer for different areas. The councilors supervise work of the diverse directorates. There are fourteen Councillors and 20 directorates. The urban planning area lies under the Councillor of the Urbanization and the Urban Soil Management and is undertaken by the Directorate of the Municipal Services of the Construction and the Urbanization, which is directly responsible for production and implementation of urban land use plans. Although the directorate has by name the word “municipal” administratively it belongs to the Ministry of Public Works, not to the municipality. The ministry finances the annual budget and some workers receive their salary from the ministry, while others from municipality; principally new staff and those who occupy executive positions.

## **DIRECTORATE OF MUNICIPAL SERVICES OF CONSTRUCTION AND URBANIZATION**

The Directorate of the Municipal Services of Construction and Urbanization is located in three buildings in the central district of Maputo. The buildings are very old and at the time of the conducting of the research were degraded. The buildings have not been renovated for a long time and do not give any security for human health and nor good conditions to properly execute the duties, which are imposed to the technicians. In the main building, the ground floor is used by a Sector of Title Deeds Registration, a Secretary of Construction and a Sector of Human Resources. On the first floor are a

general secretary and the cabinets of a director and a deputy director. A Department of Administration and two sectors of a Department of Urbanization occupy the second floor. The other sectors and an Informatics Room are in another building. The last building of the directorate is a new one but is not used because it has serious construction deficiencies and cannot be accepted by the municipality until improvements are made. The building does not have any furniture, nor is money available to buy new equipment. The directorate does not have enough space to function properly. The technicians work in unhealthy conditions surrounded by documents accumulated on the floor and any other available space. The institution does not have money to improve the conditions. The directorate is enabled to find sponsors, but all the money must be directed to municipality (Appendix D, p.108). Before the elections of 2003 the directorate was organized in three departments, thirteen sectors and one external section placed in the district administration (Figure 12).

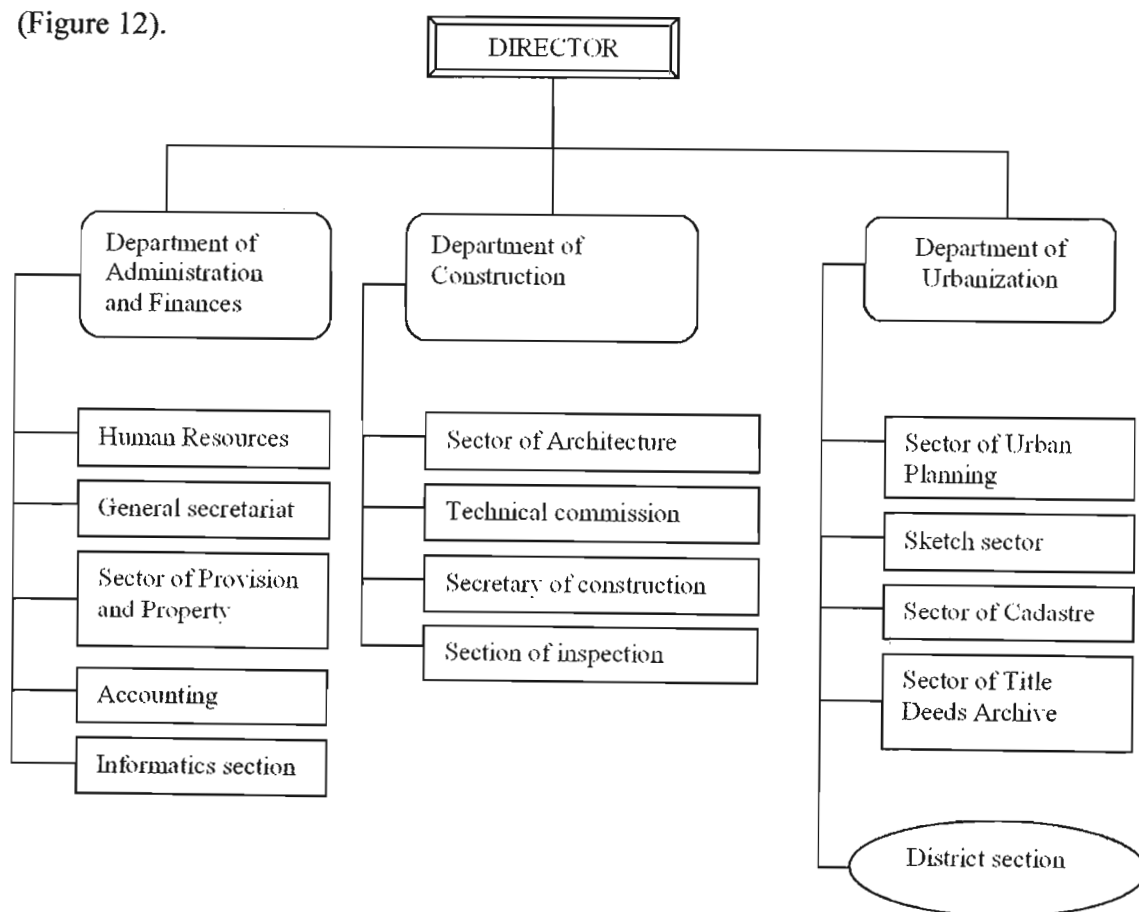


Figure 12 Internal organization of the Directorate of the Municipal Services of Construction and Urbanization before 2003

The external section is in first instance for the citizens to put all documentation necessary for the acquisition of title deeds and construction licenses. The change of the Mayor in 2003 brought alterations in the internal organization and staff allocation of the directorate. The external section was extinguished and the position of a deputy director was created. Completely new, out of the institution people occupy management positions. Technicians, who have worked in the institution for a long time, feel alienated and revolted with this situation (Appendix D, p.108).

The Department of Administration is organized into the following sectors: Human Resources, General Secretariat, Provision and Property, Accounting and Informatics. The Human resources section is responsible for all issues related to personnel. The General Secretariat has as a principal duty to receive and register all documents from clients and other institutions. The documents are sent to departments and then to the sectors. This is also a place where citizens obtain all information regarding submitted petitions. The main obligation of the Sector of Provision and Property is to provide directorate with offices stationeries, cars and to maintain buildings. The money provided for directorate is not sufficient and activities are not usually realized. Departments annually request various equipment and vehicles, but do not receive any. The directorate does not have basic means to comply with its duties. The institution has only one car, which must serve for a deputy director, the administrative officer and the inspection officers. As a result the directorate is unable to efficiently control the development of the city and its accordance with the Director Plan of 1968 (Appendix D, p.108).

The Accounts Department receives all payments done by clients, such as fees, taxes and fines. The directorate should potentially have its own funds arising from fines. 50% of fines should remain in the directorate while the other 50% should be allocating to municipal treasury. The reality is different – all money remains in the municipal treasury. Because of equipment scarcity all work in the directorate is done manually. There is no electronic equipment for technicians to speed-up the work. The institution owns few computers with basic Microsoft Office programs. To use them in a better way; they are placed together in one room – Informatics Section. There are specially trained personnel to type, only, day-to-day documentation from the whole directorate. The lack of basic

means influences the quality of work and efficiency of municipal staff (Appendix D, p.108).

The Department of Construction is organized into four sectors: a Technical Commission, an Inspection Sector, a Construction Secretariat and an Architecture Section. The duty of the Technical Commission is to check the concordance of the construction projects with municipal norms. The technicians still use the colonial norms, which accompany the 1968 Director Plan. The Inspection is enabled to control the accomplishment of building constructions with the proposed and approved construction plans, while the secretariat's duty is to organize all documentation. The Architecture Sector is responsible for examination of the project in terms of architecture concordance with urban plans and general regulations of urban buildings. The sector uses various plans, even those not approved by the municipal assembly, to evaluate the projects (Appendix D, p.108).

The main duty of the Department of Urbanization is to produce the structure plans and to control the cadastre of the city. The department is divided into four sectors: a Sector of Urban Planning, a Design Sector, a Sector of Cadastre and a Sector of Title Deeds Archive. The Sector of Urban Planning has 3 physical planners and 1 engineer. This sector is principally responsible for the production of the structure plans. The lack of means does not allow complying with the main duty. The activity of the department is narrowed to the emergency plans of the resettlement of population from the highly flood risk zones and from zones pointed as priority development areas as for example the corridor for the highway from Maputo to Witbank. The Director Plan of 1968 guides the planners' activities, but some of them are based on the unapproved Structure Plan of 1985. The 1985 Plan is used especially for the development of the expansion zones, which are not included in the approved, colonial plan. Also the partial plans of urbanization of Mahotas and Laulane are based on the Structure Plan. The main objective of these partial plans is to depict the localization of basic infrastructure and services like water, electricity and sanitation (Appendix D, p.108).

The design sector has 5 technicians: 3 surveyors and cartographers, 1 civil engineer and 1 auxiliary worker. The basic duty of this sector is to draw topographic plans of municipal

quarters and partial plans as well as to localize the plots. If an area does not have any record, the relevant information is provided by the Cadastre sector, which has 8 surveyors and 18 members of auxiliary worker. They are responsible for geometric survey, which serves for draw of cadastral maps of the city, topographic plans for construction projects, diagrams; and for comparison of certificates with the registers of the buildings. Diagrams are the basis for drawing of the title deeds. The technicians from the Cadastre sector go to the field and pick the coordinates. The coordinates serve as a source for design of the plan. Because of the lack of a computer and geographic information system software all is done manually. After this the plan is sent to a physical planner or an architect to prepare partial plans and comes back to the design sector to draw the final version. The process ends with drawing the topographic plan of the plot, which comprises the coordinates, name of owner, number of the plot, scale and area. The documents are stored in one of the rooms, which belong to the sector. The other copy is stored in the Title Deeds Archive, which is responsible for all cadastral documentation. The sectors are not provided with any fire or security system to protect the documents from the accidental or deliberate destruction. The documents are accumulated in dark, dusty and wet place. They exist only in paper version with no possibility of making digital copy, because of the lack of electronic equipment. In the case of any destruction there is no any legal proof of ownership of plots or buildings (Appendix D, p.108).

## **DATA ISSUE**

Municipal planners rarely use spatial information available in the National Remote Sensing and Cartography Centre, because the municipality does not have funds to acquire this information. Municipality and the Centre are the government agencies but no agreement exists between them to share any information. Only recently, have some efforts been made to change this, by implementation of the project of the National Land Cadastre that also embraces urban areas. The idea of the project is to exchange data among the different government agencies and provide free and easy access to this spatial information. This way the municipality will have free access to actual data. The institution does not have any modern equipment available for planners to use digital spatial data. As a result there is no possibility to use updated data as for example satellite

imageries to control real occupation of the municipal space. Usually they utilize the data from the 1968 Plan or go to the field to gather all necessary information (Appendix D, p.108).

The difficulty in having the updated spatial information affects the capacity of the technicians in supporting the decision makers. This results in that the decisions are taken without the real knowledge of the current situation. A good example is an action taken in Zimpeto, Catembe and Magoanine C quarters after the floods of 1998 and 2000. The municipal managers, confronted with the emergency situation, took decisions, which generated conflicts between the municipal representatives and the local population. The surveyors and planners from the municipality were sent to the selected areas to subdivide officially unoccupied land. The municipality not having any records, which provide the existence of the legal occupation of these areas, assumed that the land was available. But what happened is that the population already occupied the place, although in a low-density occupation. The municipality did not contact inhabitants before starting plot delimitation. The actions of the municipality without discussing with local population resulted in tensions between inhabitants and municipal workers. Another result of plot distribution without previous studies and analyses is the resettlement of the population from flood risky zones to another not less risky, as in the case of the Magoanine C quarter, where some areas are dangerous and now there is a need to resettle people one more time. The movement of citizens to new areas was a purely political decision to rapidly solve emergency situation of flooded population and provides an example of top-down approach without any public consultation and without having the correct information on land use, land ownership and environmental characteristics.

Up to now the municipality has only one urban plan developed by them, which is accompanied by some previous studies – the partial plan of selected areas in Zimpeto Quarter. The plan has as the main objective to develop the area for residential purposes. The plan was done with the cooperation of a Malaysian, then majority holder of the Austral Bank. The first step taken in the planning process was data gathering through the fieldwork. The Malaysians did this. Following this the municipal planners drew the partial plan with the exact localization of the infrastructure and plots. During this stage

some stakeholders were contacted. Because of inexistence of inhabitants in the area, only some public institutions were contacted, like Electricity of Mozambique and Telecommunications of Mozambique to know what their development plan is for the study area. The plan has not been implemented because of two reasons. The Malaysian partners are not interested in the investment because of low feasibility of money returns and they are no longer owners of the bank in Mozambique. The second reason is the lack of the official approval from the Municipal Assembly. The Mozambican authority did not accept the plan because of the lack of the economic feasibility study. They do not have access to feasibility studies done by Malaysians, and Directorate of the Municipal Services of the Construction and the Urbanization does not have technical capacity to conduct necessities studies. There is no skilled staff able to do this and there is no collaboration with other municipal directorates to provide the necessary technicians (Appendix D, p.108).

An example of the partial plan done for the Zimpeto Quarter touches another question linked to the data – the issue of data maintenance, updating and accessibility for other users. The inexistence of the spatial database of the works done by the directorate or other institutions but with the collaboration of the municipality brings the necessity of repeating every time the whole process. Data is produced in a one-off process to support a specific project. On the end of the project the data is not maintained or shared to the benefit of other possible users. The same data is captured several times leading to significant extra costs and inefficiencies. The benefits of any investment in land information are diluted.

## CONCLUSIONS

Urban planning, as a complex activity, needs efficient tools like legislation, policies, institutions, and financial and human resources. In Mozambique these means are not enough. The colonial past influenced the first years of independence urban planning. The local character of planning, directed to the specific urban zones, leaves most of the areas without any development guidelines. The massive abandon of Portuguese specialists and the lack of skilled Mozambican planners did not help in the change of this situation. The

communist government introduced the centralized style of governing which placed the local interests on the second plan. The scarce resources were directed to the rural areas in detriment of the urban areas. Although some government agencies are aware of the importance of effectively guiding the urban development of the country, which one can see in the resolutions of the 1<sup>st</sup>. National Conference about Cities and Communal Neighbourhoods (1979), it did not significantly influence the higher central governments perception. The state has tried to improve the management of the urban areas by creating many institutions at national level, which deal with urban planning and development, but this has only divided the responsibilities among them and does not help. The very basic obstacle for efficient urban planning is not the inexistence of the institutions but the scarcity or even lack of the skilled workers at the local level. The local representatives are entitled by the central government to manage the urban zones, but without necessary financial and legislative support. This situation has gradually changed since 1997 with the introduction of the legislation that regulates the functioning of the municipality. The autarchy act strengthens the need of the planned development and puts the obligation, of designing and approval of municipal development and land use plans as well as all related regulations regarding to urbanization and construction, on the municipal authority. The local government must not only approve but also implement the plans. This is very important; because before this legislative instrument there was no legal tool, which obligates the municipality to approve and implement the development, and land use plans. But the legal basis for the urban planning is still very limited in Mozambique. An important improvement was made by the inclusion of the land planning issue in the Constitution of 2004. This puts a clear obligation on state agencies to include the spatial matters on the development plans. It also strengthens the articles of the Autarchy Act, which talk about the responsibility of the municipality regarding to the designing and approval of the municipal development and land use plans.

Although legislation ensures the financial independence of the municipality, in fact it depends heavily on the central government. Most of the municipal expenditures are financed from the state budget. The local authority is not able to collect taxes because of the deficient tax revenue system and outdated cadastre. Presently there is no feasible



solution for this and the municipality will remain dependent. The municipality does not have updated data regarding land use and cadastre. Out-dated and not user-friendly systems of data storage do not allow the municipal managers take adequate decisions. Even when data is gathered and updated, it is hardly kept. Usually there is a one-off process for specific project and with its end the data is not stored or easily available for the municipal technicians or other potential users. The municipality is unable to fully respond to the citizens' demand, especially regarding the land issue. The poor collaboration within the municipal directorates does not help in improvement of the situation. Urban planning is seen as exclusive responsibility of the Directorate of the Municipal Services of the Construction and the Urbanization.

## **CHAPTER III: EVALUATION OF THE MAPUTO STRUCTURE PLAN OF 1985**

### **INTRODUCTION**

Rapid population growth and urbanization during the twentieth century has changed cities and made people aware of the need of planning their development. Bearing in mind that more than half of the world population lives in urban agglomeration, planning becomes an urgent and indispensable action especially for these areas. Being a complex process, the planning activity strives to find the most suitable directions for human progress that meet the needs of contemporary generations without compromising the future (Rio Declaration on Environment and Development, 1992). To accomplish this sustainable development concept, two basic steps are used in planning: evaluation of surrounding environment, which guides to idealization of desired changes and implementation of ideas. Because implementation causes changes, not always desirable and predictable, there is a need for restarting the whole process. The results of analysis and alternatives design are depicted in a written document, which serves as a guide during the implementation process. The Maputo Structure Plan of 1985 is an example of such a document and its assessment will be the main objective of this chapter. The Plan is a written document, where the central objective was to depict the development alternatives to guide the city expansion. To better understand the document, the first part of the chapter will analyze the methodology, which was applied during the planning process. The next part of the chapter will describe the final document of the planning process – the Maputo Structure Plan, its composition, objectives and data output. Finally other documents, which accompany the Structure Plan, will be described.

### **THE STRUCTURE PLAN: PREPARATION, METHODOLOGY AND DATA**

In the chapter about urban planning theory it was stated that the main objective of the planning process is the improvement of urban life in several aspects by directing and controlling the location of human activities. The whole process is divided into five stages, which start with the localization of study area. After this, follows the data gathering and the analysis. The next step is the preparation of the plan, its approval and implementation. Throughout all the steps relevant stakeholders should be contacted to obtain pertinent

data and select the best development options. It is crucial to include the stakeholders as an integrated part of the process. This provides the possibility of understanding the real necessities and priorities of the inhabitants and creates in them the sense of ownership. The exclusion of the stakeholders, especially of the entities responsible for the implementation of the plan may result in non-identification with the plan objectives. In the case of the Structure Plan it was not the municipality that had the initiative to produce the plan but the II Congress of Frelimo ordered preparation to the National Institute of Physical Planning. The plan was done without active participation of the representatives of the state institutions, population or other institutions. The government agencies received the final version at the end of the process for comments. The Structure Plan preparation process is the example of the top down approach without any public participation.

The preparation of the Structure Plan starts with research, which depicts the real situation of the city. It mainly consists in gathering of existing data, interviews and evaluation of the present situation, as well as fieldwork. The Plan evaluates the present situation of the city supporting its statements on available data. During the planning process of the Structure Plan mainly the secondary data is used although the fieldwork is done. During the five months the technicians collected data about population, schools, health services and its distribution, animal production, transport network, water and energy supply and industry. The methodology of data gathering consisted of interviews with the chiefs of quarters and leaders of community (grupos de dinamizadores). The information about principal problems, geophysical conditions, pollution, regional linkages or harbor development was obtained from previous studies, fundamentally the plans done before the Structure Plan. The population data came from the 1980 Census, the most recent done in 1985. General information about the region was obtained from public institutions such as the Provincial Commission of Plan, National Directorate of Water and census. Because most of the documents were produced after independence, shortly before the preparation of the plan, one can assume that the data used in the Structure Plan was recent. The Plan in many places stresses the need to do detailed research of different aspects of city life, both economic and social. The results of the research should be used as a basis for better

planning of future actions, taking in mind the preparation of specific plans for each district (Appendix D, p.108).

The next step in the process is the interpretation and analysis of the data to obtain information on the city structure, population, services etc. Adequate description of the information helps to explain each noticed problem in its multiple aspects, decomposing and combining data for a better understanding of the complex reality of the structure of Maputo. The primary data about Maputo, gathered during the fieldwork, serves as a basis for some analysis – for example the population information, water and sewage network were depicted on a map - but in general there was no deep analysis and most of the information was not used. The economic analysis did not take place because in the 1980's there was no free market economy in Mozambique. All economic activities were planned and managed on central level and the economy itself was very fragile. Most industries did not work and those that were functioning did not play an important role in the city development. Commerce was very weak, because there were no products supplied. It was also the era of an expanding informal economy.

The analysis were documented in the Structure Plan through the written study supported by maps and tables, which describe the south region of Mozambique, population growth, economic occupation and density by district, the agricultural areas, the land uses, the social equipments, the type of housing per zone and population and the location of industries. The outcomes of the analysis served as a basis for diagnosis and prediction. The maps localize Maputo City in the international and regional scene, present actual administrative division, the existing in 1985-year land use and types of dwellings. The maps are represented on the scale of 1:50,000. They are done manually and source for the design were maps drawn for the 1<sup>st</sup>. National Conference about Cities and Communal Neighbourhoods. Figure 13 illustrates an example of the map included in the Structure Plan. This is a map of the urban expansion areas. There are no maps of slope to find out suitable and unsuitable locations for urban development; the demographic density and public urban infrastructures maps are not represented.

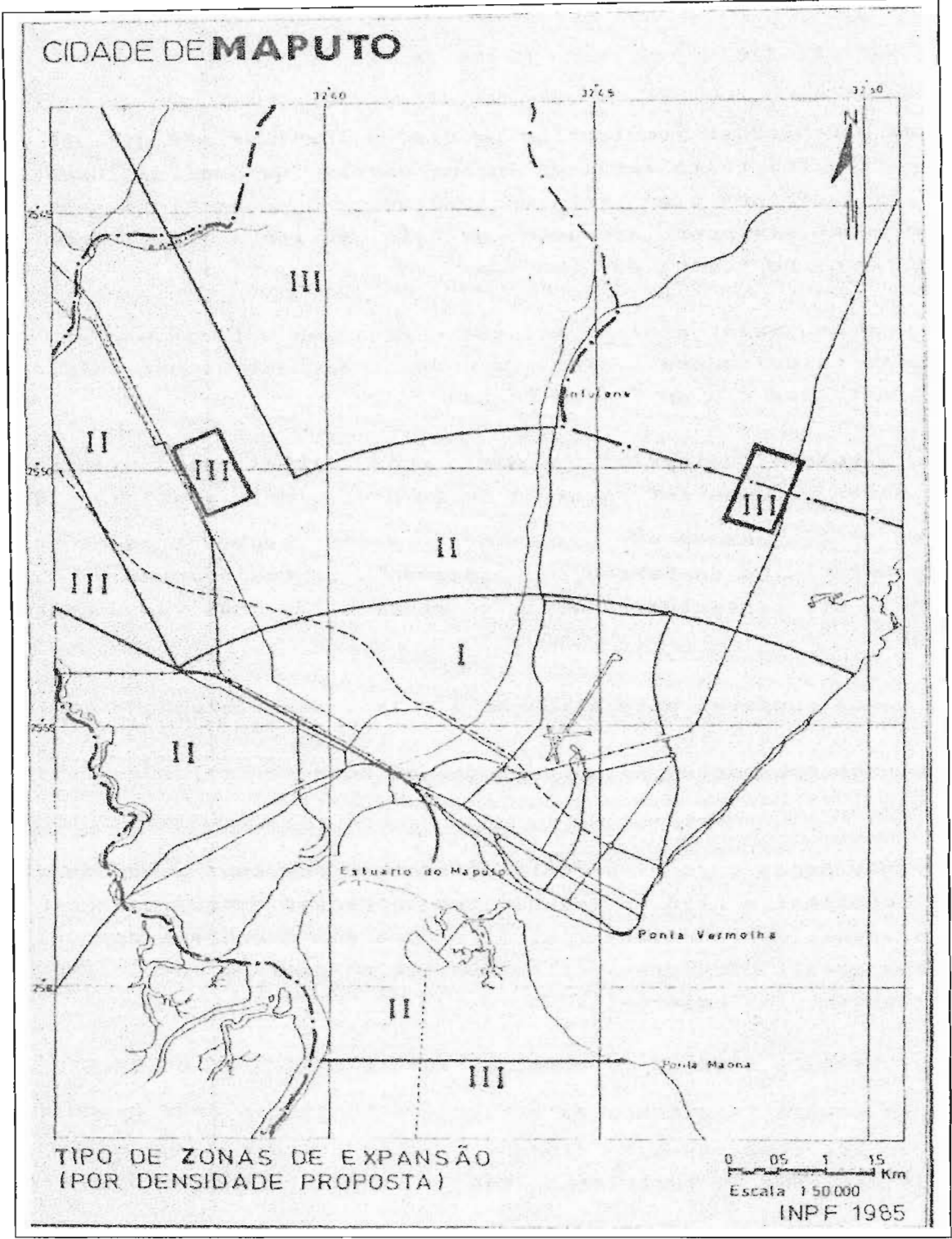


Figure 13 Example of a master plan map (urban expansion areas) included in the Structure Plan of 1985

## THE STRUCTURE PLAN CONTENT

The Structure Plan is composed of a graphic and a written part. The maps are done manually. They are based on maps made during the colonial period at scale 1:25,000. The technicians also used the maps at the scale 1:50,000 because some part of the planned area was not depicted on the larger scale maps. The text is organized in six chapters. The first chapter – Introduction – explains the reasons for the drawing of the plan and its objectives. The main purpose of the plan is to direct the development of the city for the next ten years. Because the goal is to create strategic vision for the whole city, the plan is more general and does not give specific answers for the city's issues. The area of study in the Structure Plan principally embraces an urban section and some areas of future expansion although Maputo City incorporates rural and urban lands. Inhaca Island, which is also a part of Maputo administratively, is not included in the plan. The document gives broad guidelines for urban expansion and wide solutions to work out actual problems. In the Introduction the Structure Plan states that proposals for land uses, already existing in previous papers, are included in the document. According to the Introduction, the Structure Plan should serve as a basic and legal tool to produce District Development Plans. The objective of the District Plans is to spatially organize development, to control land use and location of services and infrastructure. During the time of the Structure Plan preparation some district plans already existed.

The second chapter analyzes the role of Maputo on the international, national and regional context. According to the Plan, the transport network of Maputo city is determined by its function as a harbour for the products of neighbouring countries. The Structure Plan recognizes the importance of Maputo as administrative, cultural and economic centre not only for the country but also in the international dimension. Additionally there is a high concentration of services in relation to the rest of the country. It makes the city a very attractive destination for population and this aggravates the differences between the capital and other parts of Mozambique. It describes the natural conditions of the region and how it influences the city. As a region the Plan understands

the area of three south provinces: Maputo, Gaza and Inhambane. The Plan states that Maputo is directly linked to the development of the region by the transport network and by common economic activities. Maputo is the major market for agricultural products and the centre of industrial production. The city also offers more possibilities for employment and better life conditions. This causes a massive migration from rural areas.

The Plan describes the morphology, soils, hydrology and transport network of the region. Economic activity, with special attention to agriculture, history and population characteristics are other issues described in the document. The document explains the economic system of the city as a heritage of the colonial past. This is seen well in the organization of road networks, where principal transport routes go from Maputo to neighbouring countries to accommodate their necessity to export. The economic bases of the city are fragile because of a lack of capital and skilled labour. Industry, which was inherited from colonial times, is not fully in use and this aggravates the problem of employment. It obliges people to find occupation in the informal sectors. The Plan stresses the growing importance of the informal sector for the city. According to the document, this sector and principal transport routes to Marracuene and Matola determine the expansion of the city. The Structure Plan divides the city in five zones taking into consideration the urban characteristics and location (Figure 14). The classification does not take into account the financial aspects such as localization of the wealthy or low-income zones, because after independence it did not exist.

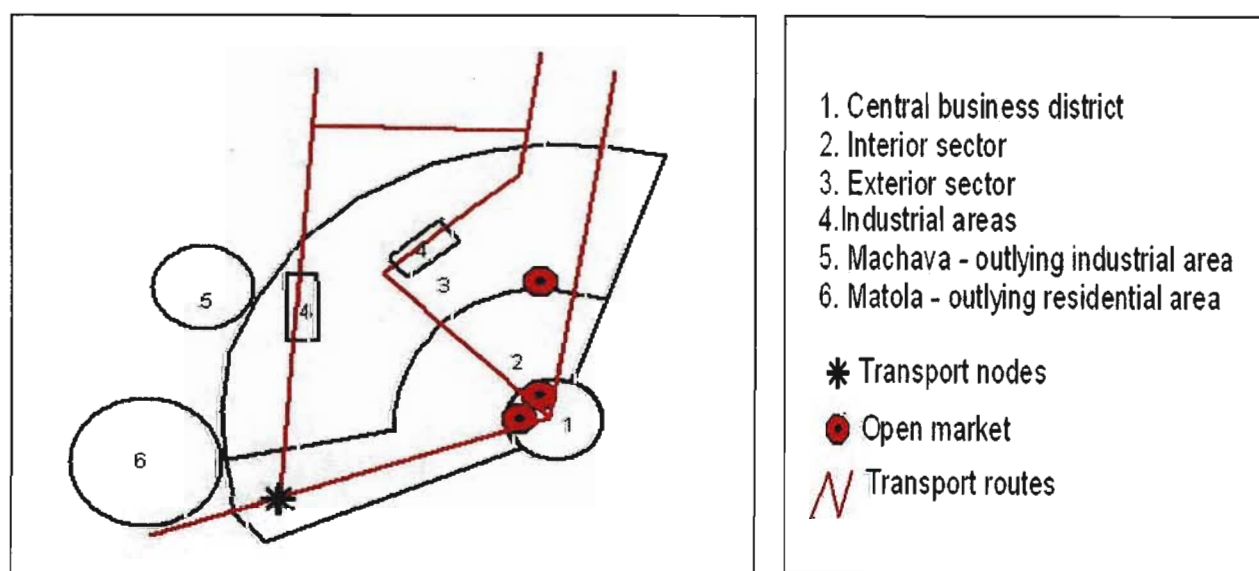


Figure 14 Maputo City zones in the mid 1980's

The first zone incorporates the Central Business District, which is characterized by a concentration of services and infrastructure. Next to the Central Business District is the interior sector where industry and residential areas mix together. The exterior part is recently occupied with a lower population density and existence of agricultural spaces. The next two zones: Machava and Matola are newly annexed, urban areas that already existed. Machava is an important industrial centre. Although a large number of the people live outside the Central Business District, most of the services and facilities lie in the first zone, which creates imbalances between Central Business District and other zones. The consequence is a lower level of living conditions in the remaining areas and constant transport problems caused by movement of people to the same destination. The Plan considers the accumulation of services in one zone as a fundamental constraint for balanced development of Maputo. Once again the colonial system, which benefited only a small portion of the citizens, is responsible for this.

Most of the services, including administrative activities, are in the first zone. The industry is also partially localized in the core area, but some parts occupy areas along the principal transport axis in directions to Marracuene and Matola. The highest concentration of industrial activities is found in the zone of Machava. The Plan recognizes that the planning of the location of industries did not take into consideration the relation between zones of employment and residence. This provokes a need for long trips, which is a really an important problem in the city where transport does not work properly. The direct impact is spending a considerable part of the earnings in transport in detriment to health care, education or food.

Another issue described in the Plan is the question of the agricultural areas, which are very important for the economy of the city. They provide fresh food and employment. The Plan pays more attention to them, although it recognizes that the lack of actual and detailed data does not allow for proper analysis and develop recommendations. The document describes agricultural areas looking at soil and taking into consideration their suitability for agriculture. The paper finds that agriculture is the most suitable activity in those areas because of natural conditions. The basic problem of agricultural areas is their underutilization. The document sees the main reasons of underutilization in a lack of



spatial organization of the zone and spontaneous and disordered occupation for housing in improper places, which causes erosion. The lack of clearly delimited plots and consequently insecurity of tenure are other important issues. This situation creates frequent conflicts between different land users. The Plan identifies, as a direct result of improper exploitation and insecurity of land tenure, an unwillingness to invest, low production and insignificant absorption of available labour. Also insufficient skills and knowledge of users contribute to low management of agricultural areas. The low productivity is caused by improper use of soils and deficient irrigation. Poor functioning irrigation is a reason for a high level of salinity of the soils.

Chapter III elaborates on the principal problems of Maputo. They are many and are linked to each other. The informal settlements occupy the agricultural zones and contribute to increased soil erosion. The informal occupation of these zones is caused not only by the shortage of space but also by the relatively good localization of these agricultural areas, which apparently are not in use, in relation to Central Business District. The Central Business District is a very attractive place because almost all services and infrastructures are located there. The schools and hospitals are in the centre of the city. The water supply, sanitation, electricity supply and transport network are efficient only in the urbanized zone, which is the centre of Maputo. The concentration of vital services in the Central Business District obliges dwellers to make long journeys and this causes traffic problems. The road system used in Maputo also contributes to the transport difficulties.

The transport network in Maputo uses a radial system, which links the Central Business District very well with surrounded zones but does not provide the linkage between these areas. It means that if anyone wants to move from one peripheral area to another, they must take a trip through the centre. The Plan mentions the existence of projects to improve the traffic situation but the shortage of financial resources does not allow for the expansion of the network or the proper and systematic maintenance of existing roads. The public transport is insufficient and inadequate for the needs of the dwellers because of a reduced number of vehicles and small covering of the city by routes. Here arises the question of communication between Catembe District and the rest of the city. The unique

link is a ferryboat, which is not a secure mean of transport because of boats are obsolete and irregular on the services provided. This also, considerably, reduces the possibility of city expansion to the south.

The Plan analyses the economy of Maputo and arrives at conclusions that its weakness was caused principally by the bankruptcy of factories and the lack of investments. As a result, the city has a high level of unemployment and poverty. This scenario will worsen, because, as was said, Maputo is a very attractive place for many people. The Plan estimates population increase between 29-50% in a 10-year period. This fast growth, according to the document, will aggravate existing problems especially the spread of informal settlement on zones previously destined for industry, a too high population density in already occupied areas and high unemployment. Another effect is serious pressure exercised on the infrastructure. The shortage of places in the formal part of economy causes the movement of people to the informal sector. This way a considerable number of citizens does not pay taxes and consequently the local authority does not have the necessary resources to maintain, improve and expand services and infrastructures. In the mid 1980's informal employment was strictly linked to informal settlement, because in the densely occupied areas the possibility to find any job was higher and a cost to acquire a house was lower than in urbanized areas. In the time of the plan preparation, the informal sector was restricted to the external zones of the city. Now it is also practiced in the city centre and commerce is the main activity.

After a description of the main problems of Maputo City, the Plan presents in part IV strategies for development for the next 10 years. The Plan sees the solution for the principal questions in creation of opportunities out of the city, which can stimulate people to move from urban to rural areas and in the long term, can diminish migration. This will reduce pressure on urban zones. The document stresses the need of a clear policy with the principal aim to help the rural population in development. The reduction of migration can be accomplished by creation of jobs out of the city and expansion of infrastructure and services. The document identifies the rural zones, which need improvement. It suggests implementing agricultural projects like irrigated cultivation or setting up small manufacturing to improve the quality of life there. The intervention should take into

account the soil use, the infrastructure and buildings development. The Plan addresses the issue of transport and a necessity to reserve space for roads, train and aerial network. It also stresses the need to reserve places for social infrastructure like health, education and sanitation. The Plan recognizes the necessity of decongestion of central district by the spread of basic services through the peripheral quarters. The Plan proposes three development alternatives for the city: the Alternative Zero, the Ordered Concentric Expansion and the Ordered Linear Expansion.

Regarding the agricultural areas, the Plan expects the integration of these zones into the city structure with the objective to ensure the food supply for city dwellers and to provide job opportunities. Another possible use is for tourism and protection of ecologically sensitive places. The Plan indicates the following agricultural areas:

Table 2 The Structure Plan of 1985 proposal of permanent zones for agricultural use for the Maputo City

District	Agricultural zone	Area (ha)
IV	Laulane, Mahotas, Albazine	2,250
V	Magoanine	950
V, VI, Boquisso	Infulene	1,850
VI	S.Damaso, Ingavela	530
VII, Matola - Gare	Machava, Cingatela, Kobe	650
VII, VIII, Matola - Gare	Cikwama, Tsalala, Matola - Gare	1,650
VIII	Matola	300
	Liberdade	30
Catembe	Catembe	300
Out of the city edge	Marracuene	1,300
<b>Total</b>		<b>9,810</b>

Source: The Structure Plan. 1985

The agricultural zones are divided into permanent and temporary. The permanent areas should be used for gardening while the temporary for crop growing. In the future the temporary spaces will have other type of use, non – agricultural. The Plan recommends

specific studies for better use of agricultural areas. The studies should establish soil aptitude, exact extend and localization of the two types of the agricultural areas – permanent and temporary, and define the best management and monitoring system. The paper establishes that for each agricultural zone a development plan should be produced. The Plan also highlights which of the agricultural areas requires environmental protection and why. The coastal zone must be protected because of a threat of erosion. Another protected area is located between Matola industrial zone and Trevo quarter.

## **OTHER DOCUMENTS**

Ferrari (1986) stresses that any plan must be accompanied by diverse regulations, which help in its implementation. The Structure Plan is accompanied by the following documentation: 'Norms of urbanization plans use'; 'Monument Plan – important areas of the city'; 'The List of existing studies', which deal with physical planning of the city and 'The Interventions already realized' (before and after independence). The norms regulate the planning activity. They normalize the question of the plot size for housing; the location of infrastructure, roads network and necessity of services supplied such as schools, pharmacies etc; with all this bearing in mind the population density. The norms describe the characteristics of expansion zones used as criteria the land use and the accessibility to transport and other services. The city is divided into three zones. The first embraces the Central Business District and neighborhoods where the services and transport network are well developed. The Plan recommends the increase of population density to allow access to facilities for more people. The second zone does not have services but there is a relatively well-developed transport network. The last one is more rural than urban in its character, without any access to services and infrastructure. While the second zone is expected to develop services in the near future, the third is not. The population density differs accordingly to the zone, being the highest in first and the lowest in third. Norms establish more control on use of the unoccupied plots in the first zone.

Finally the Plan recommends the creation of an Urban Planning Committee for Maputo City, with the main goal to monitor realization of the plan and coordination of the

activities of all institutions involved in the implementation process. Eight to ten deputies of municipal parliament, a director of Construction and Urbanization, a director of the Urban Services and Communal Quarters, and other directors if necessary, should constitute the Committee. The Planning Committee could approve and rectify the district plans. It should also collect, divulgate and insert into the plans the public opinions. Another task should be the constant control of development plans, the land use, the coordination of different sector plans and the synchronization of investments in services supplied. The Committee should create and assist the District Urban Planning Committees.

## **CONCLUSIONS**

The rapid growth of city brings positive and negative changes on humans' lives. The cities are economic and cultural centers encouraging innovations. Urban planning is a valuable approach to monitor and direct this multifaceted process. The planning process has two main phases namely the preparation of the plan, which includes the assessment of the present situation following by the drawing of the development options and the implementation of the best alternative. The Structure Plan is the written result of the planning action taken by the National Institute of Physical Planning between 1979 and 1985. The Plan is divided into chapters and includes the written statement, maps, tables, norms and other documentation. The document presents the actual situation of Maputo city and tries to predict possible development scenarios. The Plan presents three strategies: the 'Zero option', the Ordered Concentric option and the Ordered Linear alternative.

## **CHAPTER IV: THE MAPUTO STRUCTURE PLAN PROPOSED LAND USE VERSUS THE LAND USE IN 1996**

### **INTRODUCTION**

Spatial planning instruments are tools for the management of the location of human activities. They are efficient if combined with good legislation and availability of resources for their implementation. The implementation means changes in the current land use accordingly to the plan proposal. Previous chapters analyzed the Structure Plan of 1985 and the state of Mozambican urban planning, which will help to understand the reasons for non-approval of the document and consequent non-implementation. This chapter will evaluate the Structure Plan and in how far it has been implemented taking into consideration the situation of urban planning in Mozambique, to be exact Maputo City. First the Structure Plan development alternatives will be described. Then the chapter will show the differences between the land use proposed in 1985 for the period of 10 years and the real land use in 1996 and explain the reasons of the divergences and similarities. The analysis will look at the legislative, financial and institutional issues linked to the urban planning. Finally we will evaluate the planning methodology used and the public participation to see the influence of these matters on the Structure Plan approval and plan implementation.

### **LAND USE PLAN PROPOSALS**

The Structure Plan proposes three alternatives for Maputo development. They are called the Zero Alternative or Non-controlled and non-ordered development, Alternative 1 or Ordered Concentric Expansion and Alternative 2 or Ordered Linear Expansion. The first alternative, called Zero Alternative describes the future state of Maputo if no action will be taken. As a result, the Plan predicts an increase of density in all areas already occupied and disordered occupation of any free space, whatever suitable for housing or not. It will aggravate all existing problems like unemployment, poverty, criminality, informal settlement, erosion and expansion of informal sector. The concentration of services and better infrastructure in Central Business District will prevail, which means disequilibrium

regarding access to them and worsening the living conditions for the majority of the population, who live in surroundings zones. This will obligate people to travel daily to the city centre creating transport problems. In the short term this alternative has minimal financial costs of implementation, because it presumes a minimum of intervention. But in the long run this option brings considerable costs: social costs – because it condemns a majority of dwellers to live in harmful conditions; financial costs – because there will be a considerable increase of expenses in health care, in crime prevention. Any future changes in the land occupation or development of industrial areas will require many resources and will bring high social costs linked to the population displacement and compensations.

The second alternative: the Ordered Concentric Expansion (Figure 15) is an attempt to solve actual problems using the ameliorative problem-solving model. This alternative is concerned principally to solve current problems. The second alternative tries to design possible scenarios taking into consideration the probability of industrial development. The proposal recommends a set of measures to improve actual situation, like reservation of an area for industrial use especially along main transport axes, protection of agricultural areas, construction of new infrastructures and roads, reordering of residential zones and demarcation of new quarters. The plan suggests the delimitation of the areas neighbouring the harbour and the main railway station as the best for the industrial development. Other areas for industry should be located in the Zimpeto Quarter. New residential areas should be placed on the exterior zone with easy access to existing and new transport routes. They should be developed in the concentric manner especially in the northern part of Machava and eastern zone of Infulene River. The plan suggests the reordering of the inner zone and replacement of families from that area. It also stresses the need to protect the agricultural areas because it is a source of employment and can produce all the food the city requires. The Plan recommends the agricultural use as immediate form of occupation of space. According to the document, this option should bring in medium stage better spatial organization, which allows more coordination between residential and industrial zones.

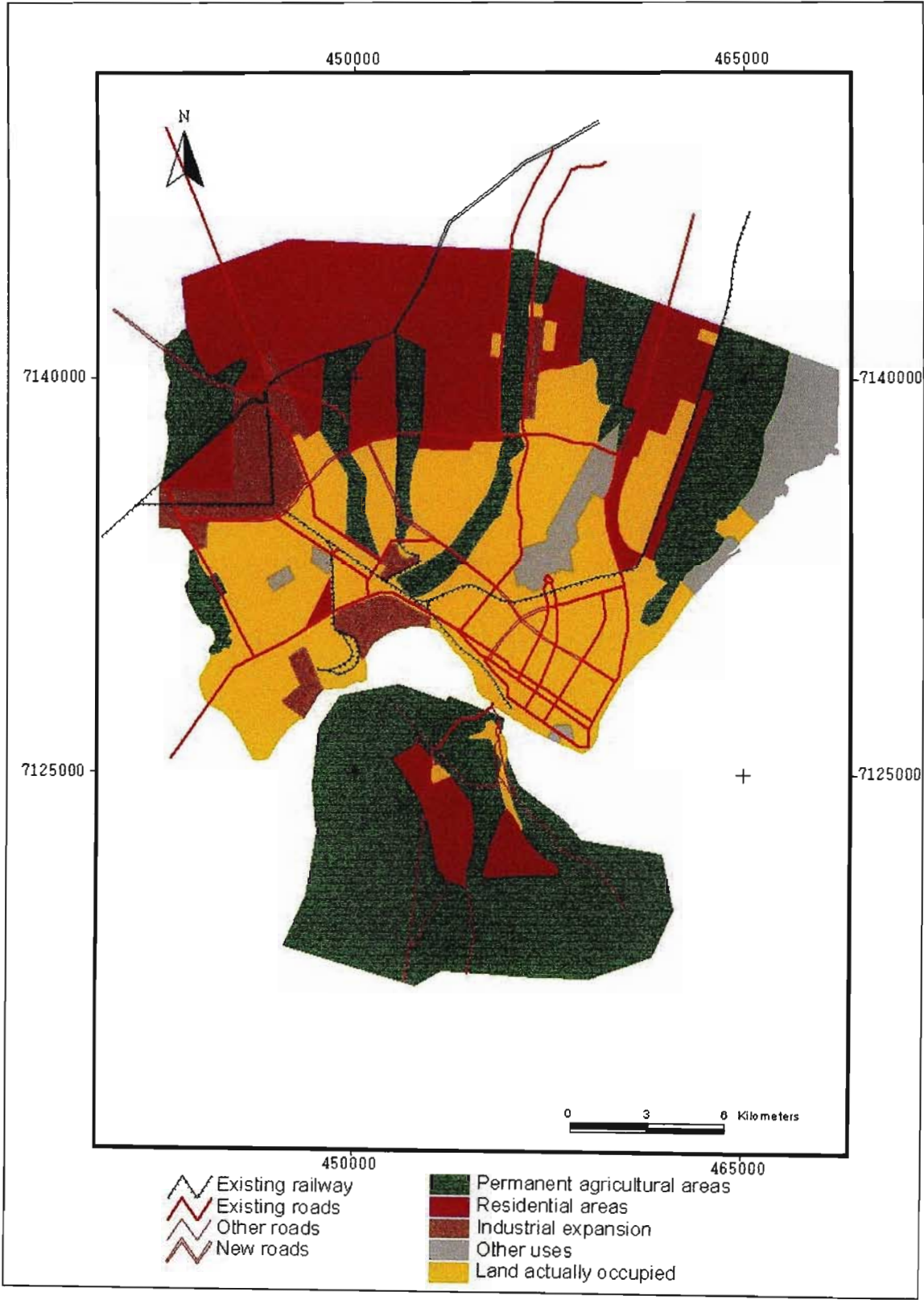


Figure 15 The Ordered Concentric Expansion as second alternative of the 1985 proposed land use for the Maputo City



Also access to services and distribution of equipment should be improved. The spread of the basic services could decrease the pressure on the city core. This option predicts the increase of employment in the formal sector of the economy, which benefits the government because it can execute tax payment easier. The development of the city in the concentric manner, improvement of the transport network and implementation of the industry in various quarters could reduce the distances between the residential areas and work places. According to the Plan this option requires high investment in the short run to construct infrastructures and roads and to treat industrial waste. The shortcoming of this alternative is a concentration of all resources in the city to the detriment of the region. This certainly encourages migration of people to find better life conditions. The Structure Plan recognizes that the positive results of this option depend on the dynamic economy and finds this alternative impossible to implement due to the high infrastructure investment costs although the advantages are stimulating.

The last alternative: the Ordered Linear Expansion (Figure 16) tries to maximally use available resources to better ensure future city growth. The option concentrates on five main lines. The first one is the investment to improve the public transport and the second is focusing on the demarcation of new areas for commercial agricultural production. The plan stresses the need for the definition of the new agricultural areas, which can absorb the work force. The agriculture zones should be delimited on places with easy access to water. The next intervention is related to the investment in new residential zones near the new agricultural areas, alongside the principal transport routes and in some rural nucleuses within the city. This placement should result in reduction of the traveling to work. It can also attract people from densely occupied areas to move. Better access to transport and its efficiency improvement will reduce the problem of limited existence of the infrastructure on the expansion zones. The forth field is the use of the areas of the city, which are close to new spaces for industry. The land adjacent to the zones destined to the industrial expansion and with less transport accessibility should be used essentially for agriculture of subsistence. The last line predicts little improvement of the Central Business District and only some social infrastructure. As the result the Plan expects the

possibility of ordered and controlled occupation of the space in the proximity of main communication nodes.

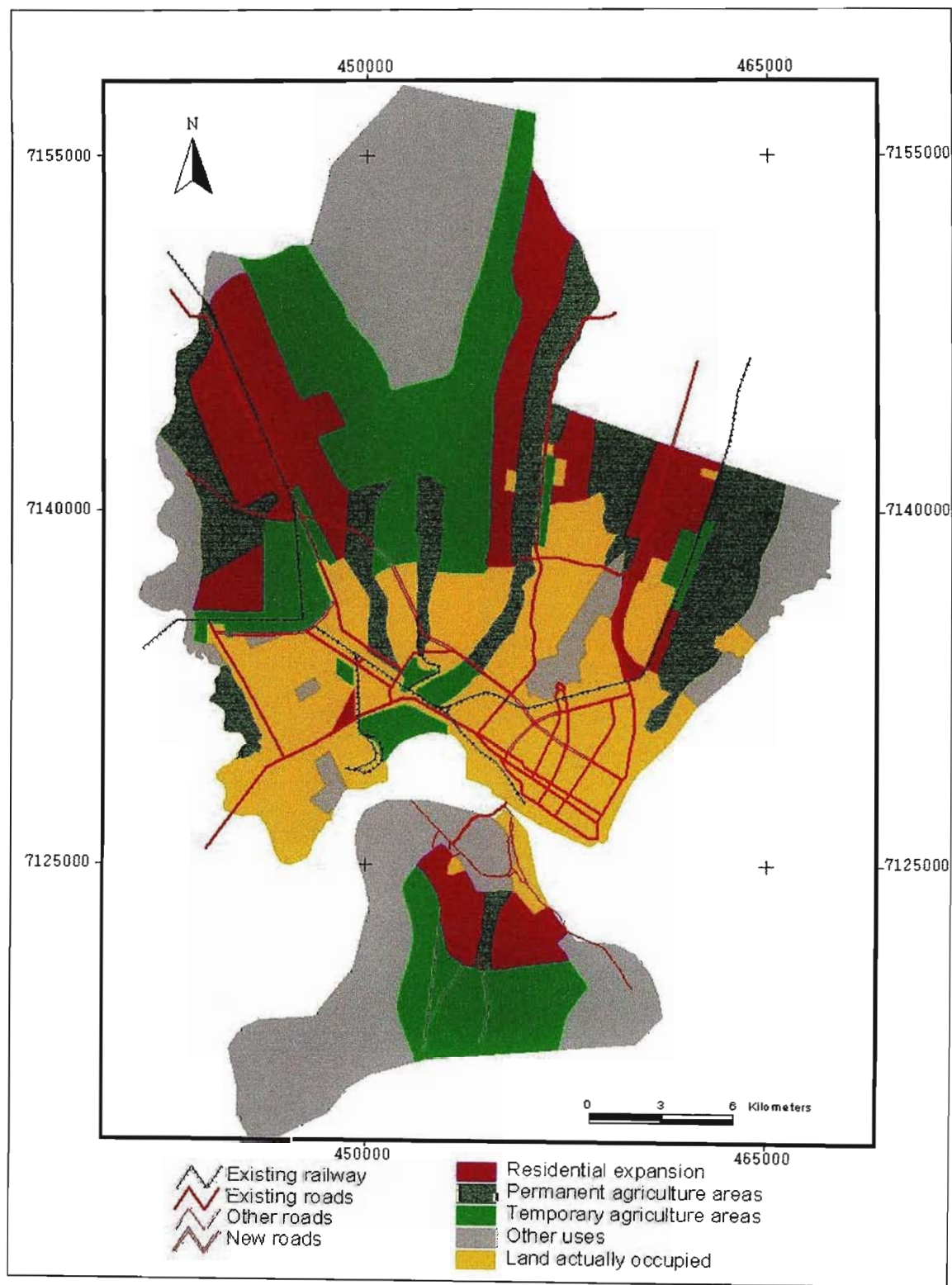


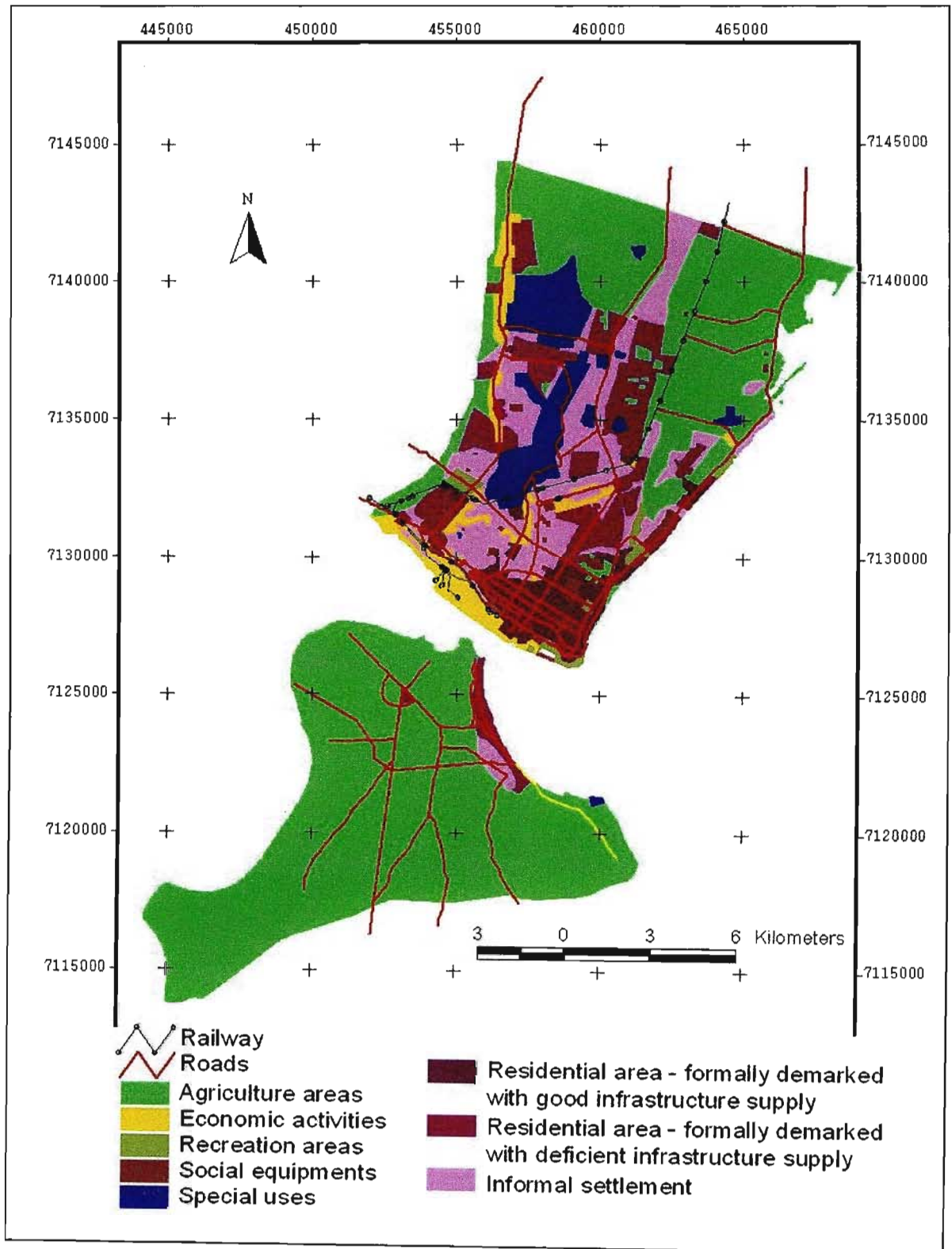
Figure 16 The Ordered Linear Expansion as third alternative of the 1985 proposed land use for the Maputo City

The Ordered Linear Expansion alternative also gives a response for the issue of concentration of services in the Central Business District. In the short term it predicts improvement of the transport and in the long run the spread of the basic social infrastructure. Another expected outcome is the decreasing cost of travel. The expected costs in a short time period are linked to the improvement of transport, delimitation of new quarters and construction of social equipment. According to the Plan, the third alternative is less expensive than the second and encourages the simultaneous development of Maputo and the region. This has a direct impact on migration. The Ordered Linear Expansion gives good basis for balanced development.

The Plan compares and evaluates the three alternatives. The best option for the development of Maputo City is the Ordered Linear Expansion because it is the most realistic and possible to implement. Regarding the costs of the third alternative they are lower than the second one. In a short time the local government needs to invest in the transport network and delimitation of the plots in new residential areas. In the future it will be necessary to upgrade and renovate the inner city. The ordered linear expansion gives a space for other forms of development such as concentric. The linear development allows easy identification of the most suitable areas for residential use. Concentric and linear alternatives recommend almost the same areas as suitable for residential expansion.

#### **THE DIFFERENCES BETWEEN THE THIRD PROPOSAL OF THE STRUCTURE PLAN AND THE 1996 LAND USE**

The objective of the Structure Plan of 1985 was to direct the city development for the ten years following. Various reasons dictated the non-approval of the Structure Plan but the comparison between the proposal and the land use of 1996 shows that the Structure Plan had impact on the land use. In Figure 17 we could observe land use in 1996. There are six types of land use: the economic activities, the residential areas, the social infrastructures, the special uses, the agriculture uses and the recreational use. Within the residential areas three principal groups are distinguished: formally demarked residential zone with good infrastructure, formally demarked residential zone with deficient infrastructure supply and informal settlement.



Source: The Metropolitan Area Structure Plan, 1999

Figure 17 Land use classes in Maputo City in 1996

The coastal zone of Costa do Sol quarter is considered unsuitable for development because of hazardous natural conditions – it is a humid area with a high risk of erosion. In 1996 the adjacent zone between the wet areas and the railway line was used for agriculture purposes, mainly subsistence agriculture. Agriculture use also occurs along the Infulene River. The class of land use called ‘special’ describes uses for military and airport purposes. The land occupied for the schools, hospitals and other public infrastructures is under the class of ‘social equipments’. In 1996 the residential and agricultural land uses dominated, dwellings occupied 25% of the municipal land (table 3).

Table 3 Areas of the land use in Maputo City in 1996

Land use areas	Area (Ha)	%
Agriculture areas	15986	62%
Economic activity	1026	4%
Recreation areas	231	1%
Residential uses	6409	25%
Social equipment	571	2%
Special uses	1523	6%

The general tendency during 1980’s and 1990’s was densification, without any control, the residential areas and occupation of the vacant and reserved land – principally for residential use. Most of the residential areas were occupied by the informal settlement with deficient infrastructure delivery (Table 4).

Table 4 Residential areas in Maputo City in 1996

Residential areas	Area (Ha)	%
Residential area formally demarked with good infrastructure supply	1116	17%
Residential area formally demarked with deficient infrastructure supply	2181	34%
Informal settlement with deficient infrastructure supply	3119	49%

Source: The Metropolitan Area Structure Plan, 1999

The 1985 Structure Plan Ordered Linear Expansion alternative divides land uses in five classes: permanent agricultural areas, temporary agricultural areas, residential expansion, land actually occupied and other uses. The development alternative focuses its attention principally on the land of low occupation considered as most suitable for city expansion leaving without any clear definition of possible improvements the zones already



occupied. This makes it difficult to compare the land use of the areas already occupied in 1986 with the land use existing ten years later (Figure 18).

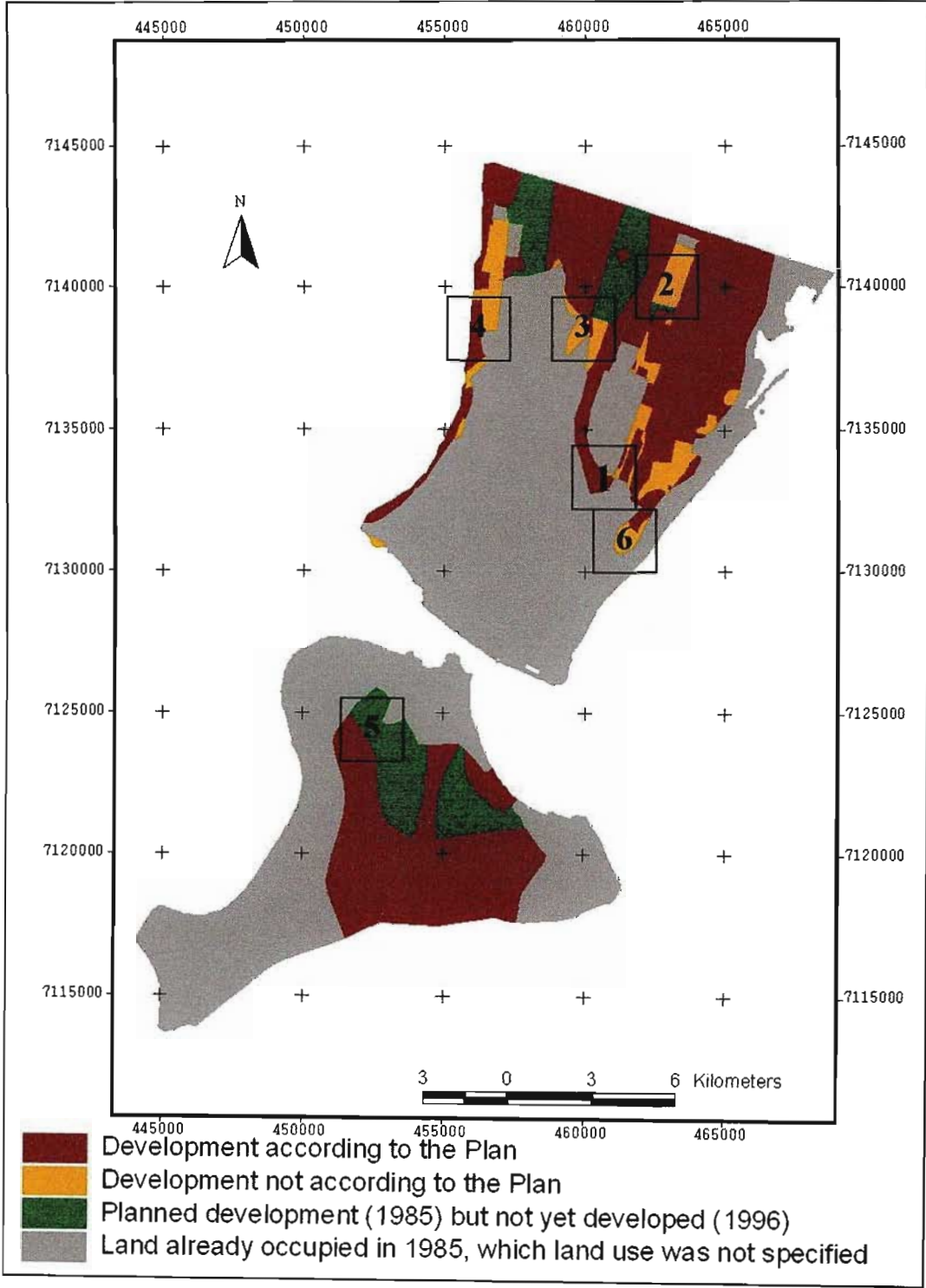


Figure 18 Comparison between Maputo City 1985 - land use proposal and 1996 - real land use

The class of other uses embraces areas with potential for agriculture or zones unsuitable for development and an airport. The intersection of the two maps – Ordered Linear Expansion land use proposal and land use existed in Maputo city in 1996 demonstrates that the Structure Plan had considerable impact on the city development, although it was not approved. The airport and zones described by the map of 1996 land use as special uses are considered in this study as the areas developed accordingly to the proposal.

While between 1980 and 1991 population settled as close as possible to the city centre (Appendix B, p.106), which was more secure and provided easy access to all basic infrastructures and services, after 1992 we can observe a movement of people to peripheral zones (Figure 19, 20 and 21). In 1980 the Urban District n° 1 was the most populated following by Urban District n° 3. Between 1980 and 1991 this situation changes and district n° 3 experiences the highest density rate. In terms of absolute numbers in 1980 the Urban District 1 had more dwellers - 130,813 but this altered in the following years and in 1991 District n° 5 becomes the most populated (215,852). After six years, in 1997, District n° 4 occupy the first position having 228,244 inhabitants (Table 5, p.89).

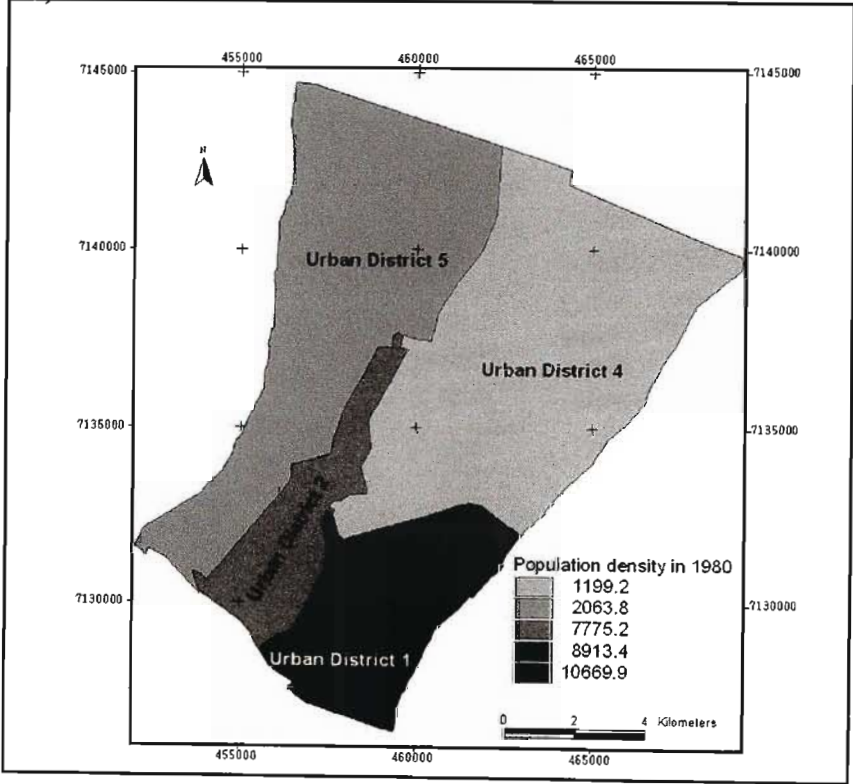


Figure 19 Population densities of Maputo City in 1980

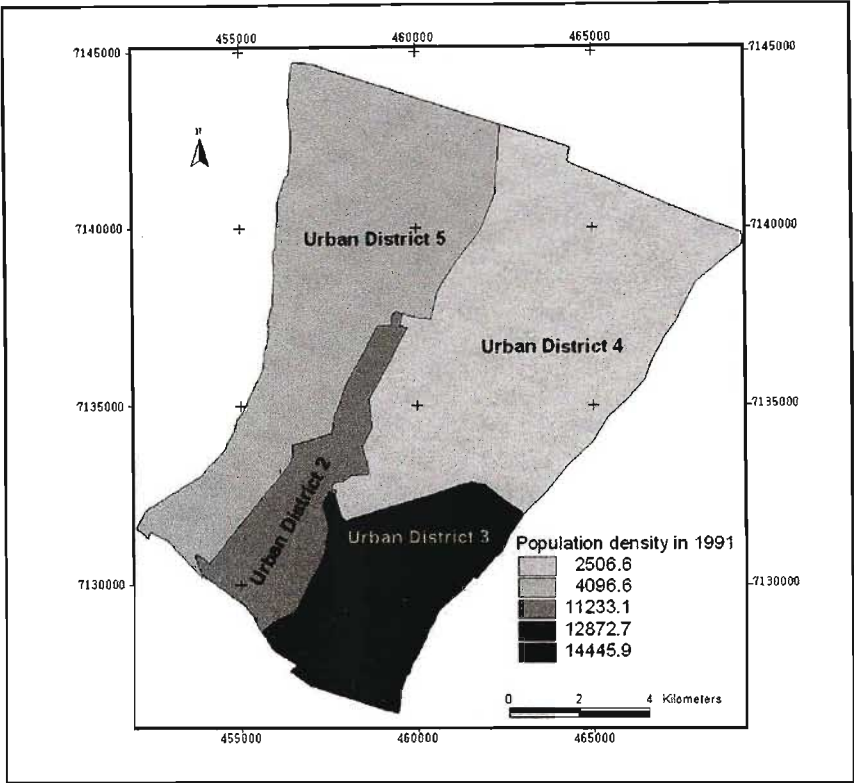


Figure 20 Population densities of Maputo City in 1991

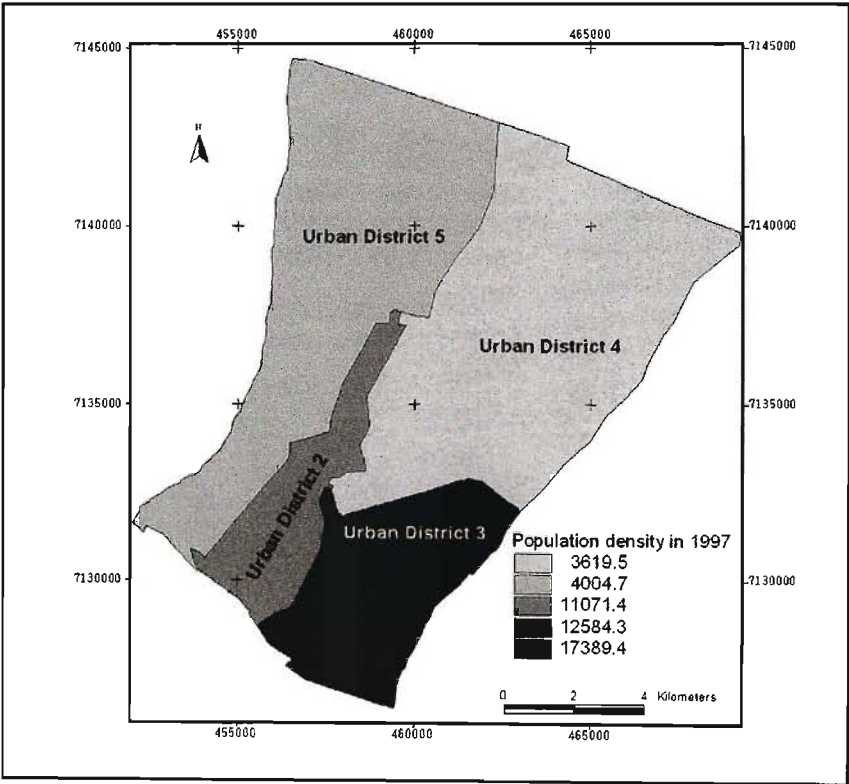


Figure 21 Population densities of Maputo City in 1997



According to Muanamoha (2002), the rapid population growth was the result of the civil war and accelerated insecurity of the rural areas. The first years after Independence rural - urban migration was directed to District n° 1 where it was easy to find house – most buildings were vacant because the Portuguese abandoned them. After 1980 there was still positive population growth in the inner district but it was relatively slow when compared with the peripheral zones (Figure 22).

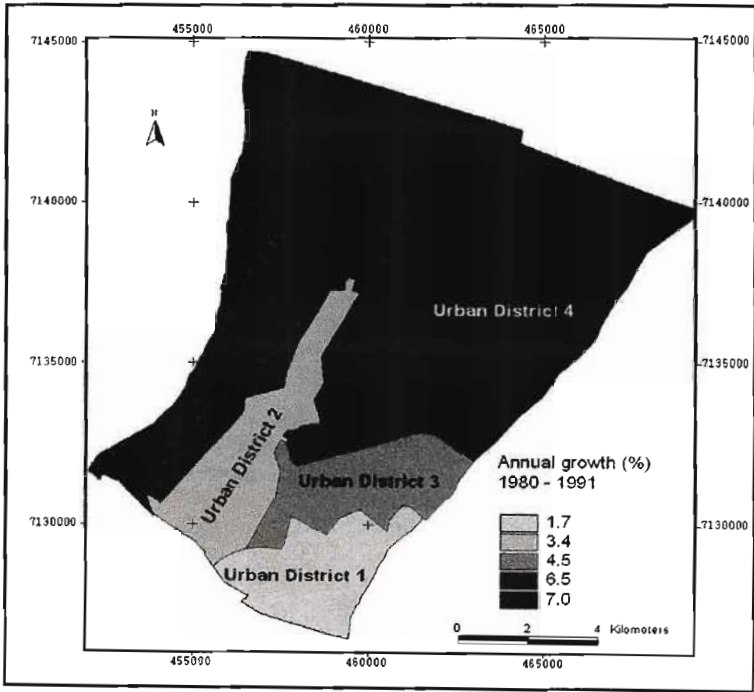


Figure 22 Annual growths of Maputo City within 1980 – 1991

After 1991 rapid population growth takes place in suburban areas (Appendix B, p.106). While the inner districts experience population decrease with a negative growth rate (Figure 23), the peripheral areas register considerable increase - especially Urban District n° 4 which has triplicate its population from 75,623 to 228,244 (Table 5).

Table 5 Maputo City population number in 1980, 1991 and 1997

Maputo City Urban Districts	Population number					
	1980	%	1991	%	1997	%
Urban District 1	130,813	24%	157,819	18%	154,284	16%
Urban District 2	114,295	21%	165,126	19%	162,750	17%
Urban District 3	107,923	20%	174,911	20%	210,551	22%
Urban District 4	75,623	14%	158,068	18%	228,244	24%
Urban District 5	108,740	20%	215,852	25%	211,008	22%
Total Population	537,394	100%	871,776	100%	966,837	100%

Source: Census 1980, 1991 and 1997

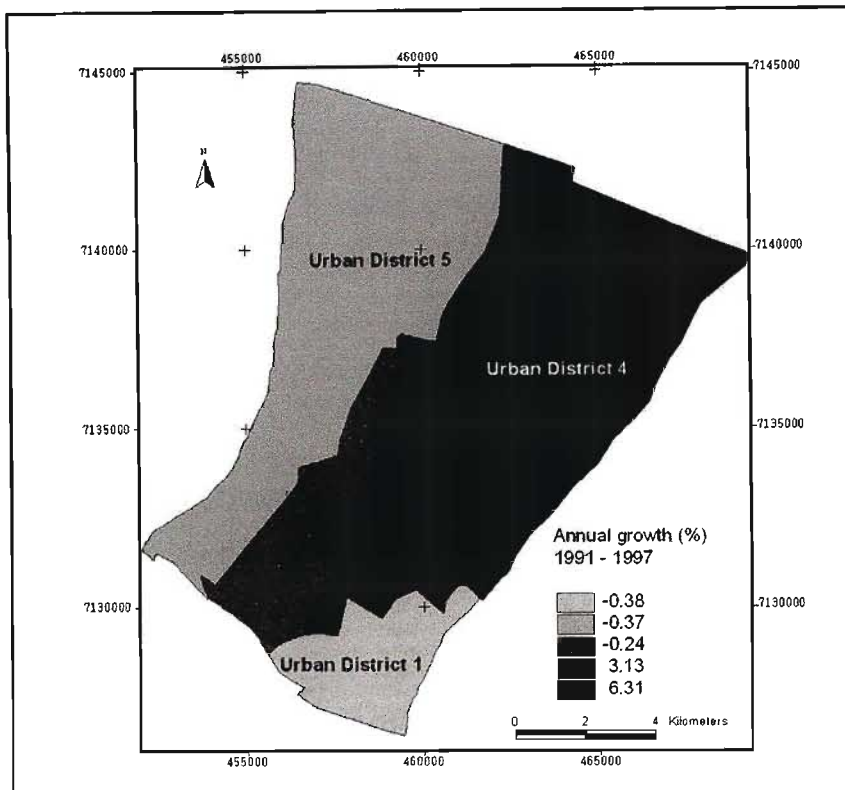


Figure 23 Annual growths of Maputo City within 1991 – 1997

The end of the civil war, the transition from centralized to free market economy and the new government policy of privatization of all nationalized buildings are the reason of this behaviour to leave the city centre and live on the outskirts of the city. Many people see this as an opportunity to improve their lives. They sell their apartments in the city center; purchase a piece of land in the peripheral zone and start constructing usually without requiring a building license. This explains why in the area along Julius Nyerere Avenue of the Laulane, Hulene A and B and 3<sup>rd</sup> of February Quarters, area 1 on Figure 18, the development of the residential land use is observed. The area lies near the main transport line and is adjacent to already existing residential zones. Although the area did not benefit from reasonable infrastructure development and formal demarcation of plots experienced fast population growth between the years 1987 – 1997 (Figure 23). The residential development, proposed in the Structure Plan of 1985, is also observed in area 2 (Figure 18, page 86), the Albasine Quarter, although the government did not provide any basic infrastructures nor officially recognizes the citizens' right to use the plots for residential purposes. This municipality attitude is based on a complex legal situation.

The land in Mozambique is State property and all citizens have constitutionally ensured the right to use the land. The Land Law gives citizens a right to occupy and use land without any previous license and registration and even guarantees tenure security if they utilize a piece of land for more than 10 years. This rule is not applicable for urban areas, where the dwellers should obtain a license first that certifies their right to use a plot and then the construction license. The problem is that the local authority cannot legalize the right to use the land if the area is not included in the urban plan. The Municipality uses a 1968 Director Plan of Maputo as a guide for developing the city. The plan is a legal tool on which the decisions are based. The plan is old and does not fit to the current situation of Maputo. Since 1968 the city has grown and the edges have changed. The Plan does not embrace the new areas and is unable to accompany the fast development of the urban areas. But despite these constraints the Plan of 1968 is still used as a planning tool for this main reason – it is a unique legal tool, being the only one, from many development plans produced for Maputo during the second half of the twentieth century, which has been approved. Jenkins (2000) alleges that the inflexible position of the local government leads to illegal occupation in the environmentally risky zones or occupation authorized only by local representatives of government. Quadros (2000) affirms that frequently the quality of residential areas constructed by citizens does not correspond to quality required by the plan; in general it was done in the colonial period, as in the case of Maputo City.

The process of license acquisition is complex and takes time (Appendix D, p.108). Before 2003 the local government organized the process of registration and construction licenses, in accordance with the regulation based on the 6/79 Act. The first step is the submission of a petition to the external section located within a district administration. The section sends the documentation to the Directorate of the Municipal Services of Construction and Urbanization with all necessary information such as physical description and the number of the plots. From there the request goes to the Title Deeds Archive to check if the registration of the plot exists and who is entitled to use it. Then all documentation goes to the Design Sector where surveyors design topographic localization of the area. They proceed with field visits to check if the plot is really unoccupied. Next the document goes to the Urban Planning Sector to analyze the legality

of the plot and the accordance of the proposed land use with the land use established by the Director Plan of 1968. After this the requirement is taken to the director and conducted by him to the mayor to make a final decision and grant the authorization to use the plot. Then all is registered in the urban cadastre and a citizen pays the costs of the survey. After receiving the registration license from the Title Deeds Archive, the person must submit a construction project. In the municipal level once again each department checks its legality and in accordance with the Director Plan of 1968. After this a citizen receives a license for construction and has two years to start construction. When construction is finished a directorate gives a certificate of auditing and with this document a dweller must go to the Conservatória do Registo Predial (Public Register). This is the last step to obtain the Title Deed. Between 1975 and 1996 local government authorized only 1/3 of the plots from the total number occupied (The Metropolitan Area Structure Plan, 1999).

After 2003 the process suffered some changes. The new local government extinguished the sections placed on the districts administration and enlarged the process by the addition of one more step (Appendix D, p.108). Actually the documentation must be presented to the Councillors Committee and to Municipal Assembly before it goes to the mayor. The process of license emission for occupation and use of land should be granted within 60 days and for construction license 30 days, but because of bureaucracy, it takes more time, even years. This situation is conducive to corruption, falsification of documentation, criminal actions, like obtaining an illegal construction license, occupation of someone's plot and construction while the owner is waiting for legal permission, as well as to illegal construction which is impossible to control by municipal agents. For Mazembe (1997) the situation is aggravated by a scarcity of human resources in municipality. The technicians employed are few if compared with the number of dwellers and do not have proper specialization, which could help them fully ensure a complex urban management.

The expansion process to the peripheral land resulted in the occupation of the areas destined for other uses, as in the case of area 3 (Figure 18, page 86) in the Magoanine Quarter. The Structure Plan proposed permanent agriculture use for this land, but actually

it is used for residential purposes. The land presents itself as very attractive for housing purposes because it is near the main transport node and the area was already developed for residential use. But not all areas designed for the agriculture land use changed their destination. The area along the Infulene River, area 4 in Figure 18 (page 86), maintains its projected use as the agricultural zone. The natural conditions do not allow for residential expansion. The area is still used for agriculture purposes. The zone along the coast, in the northern part of Maputo city is also used for agriculture. Agricultural use continues in Catembe District, area 5 in Figure 18 (page 86). The planned development did not take place. The Structure Plan proposed the increase of the residential area to the south separated by the agriculture land. Up to 1996 there was no significant change of the land use, classified by the Structure Plan of 1986 as the low-density area with strong agriculture activity. Although Catembe is considered as the option for the future expansion of the city, the transport issue impedes extension of Maputo in that direction.

## **THE STRUCTURE PLAN AND LEGISLATIVE ISSUES**

Analysis of the legal aspects linked to the urban planning in Mozambique show that the legislation, which regulates the urban planning activity, is not clear. Non-existence of specific legislation and regulations, which deal with land planning issues and normalize the type of plans, methodology of preparation, mechanisms of approval, powers of implementation and instruments for plan review contribute to the failure of the implementation of plans, including the Structure Plan. Nhachungue (1995) points out the lack of legislation, which establishes proceedings for drawing and approval, as a one of the main reasons of the unproductiveness of the plan. Jenkins (2000) finds the lack of legal basis, which could obligate the city councils to accept and put into practice the plan as the reason for failing to execute this tool. The Methodology Guidelines (1986) sets up that Municipal Assembly should approve the plan. The plan could become a legal tool for controlling the use of urban soils only after approval and in the mid eighties there was no legislation to obligate the Municipality to have and use updated plan. The legislative gap tries to fill the Presidential Decree n° 8/95, which attributes to the responsibility of urban plans approval to the Ministry of Public Works and Housing and a Land Law of 1997 that

gives this prerogative to municipal organs. That way the responsibility is delegated to two different authorities.

Deficient legislation is not the unique reason that the Structure Plan did not have success. Another cause lies in the lack of awareness of the Maputo City Council managers about the importance of urban planning and the necessity of an updated plan, which idealizes future scenarios, based on the present state of the city. The absence of political interest is due to two main reasons. The first one is the weak understanding of the necessity to strengthen urban planning. Another one is the complex political situation of the country in the mid eighties. The time of the Structure Plan preparation coincides with the worse period of the civil war. The war occurred principally in the rural areas and the cities were relatively secure places. The imposition of the circumstances living in relatively small areas, which provide the best protection, caused massive migration to the city, especially to the inner districts (Figure 19, page 87 and Figure 20, page 88). The government concentrates predominantly on the allocation of the refugees by the density increase on the places with easy road access. This way the government tries to avoid the construction of new roads because of financial reasons and a concern of the destruction of agriculture areas. But the migration was so high that it did not work and some agriculture areas were occupied, as was said before. An example is an area 6 on “Polana Caniço” quarter (Figure 18, page 86). Mazembe (1997) states that existing urban plans never complied with their role to control and regulate urban expansion. The reality shows that urban areas grow spontaneously in Mozambique and they consist of informal settlement without a minimum infrastructure like water and electricity supply.

### **THE STRUCTURE PLAN VERSUS FINANCIAL AND HUMAN RESOURCES**

Forjaz (1986) sees the role of the structure plan as a general guideline for planning of the development of urban agglomeration that should embrace not only urban area but also the territory of direct influence. The plan should find the best location for infrastructure, design main lines for urban expansion and define protected areas, and appoint zones not suitable for human settlement because of environmental factors. The Structure Plan as a general guideline for the city development requires a translation into more detailed plans. It only depicts in a very broad way the development trends and opportunities taking into account

the actual social, economic and political situation. The document is a basis for the production of detailed plans, which specify the city development. The low capacity of the municipality to translate the general lines of the plan into specific actions contributes to abandoning of the plan. In 1985 the Executive Council did not have the necessary staff to conduct this work. This situation prevailed in the eighties and nineties, as Nhachungue (1995) states, and it is still faced by the municipal directorate. Jenkins (2000) and Nhachungue (1995) see the problem of plans non-implementation due to the lack of management capacity for execution and the shortage of skilled labour.

Additionally the Municipality has serious problems in financing the planning actions and Jenkins (2000) and Nhachungue (1995) find this as another reason for the failure of the plan. Management of metropolitan area needs a huge amount of money, Mozambique does not have the financial capacity to fully support Maputo development and the municipality itself is not able to be self-sufficient. The taxation system is deficient. The number of people living in the city and using all services is much higher than the number of dwellers who can afford tax payment for the city government's support. In 1999 the Maputo Municipality collected 234,300,000.00 Metical (approximately 18,000 US Dollars) in individual dweller taxes, which is equal to 8% of the stipulated revenues (DNDA, 2003). Growing unemployment causes movement of people to the informal sector where taxes are difficult or even impossible to collect. The municipality is fragile and fails to deliver the services and infrastructure to citizens. As Mazembe (1997) stresses, existing infrastructures are not sufficient and they degrade in accelerated rhythm. Lack of financial resources does not allow for their proper maintenance and expansion.

The economic situation experienced by Mozambique after independence also contributed to the weakness of urban planning. The centralized economy left little space for private initiatives that could help with developing the industry. The industry can only be managed by the state, but there were no conditions to do this, because of the lack of skilled people and money. The existing industries were inefficiently administrated and frequently bankrupt which nourish unemployment. The weak Mozambican government depended heavily on external aid and did not have enough funds for investment. The

existing ones were frequently directed to the rural areas with a tendency to promote development leaving behind the city problems. Internally it was very difficult for the local government to find potential income sources. This reality was recognized by the Plan. There was a specification of the areas for the future industrial use in the development proposals, but the Plan stressed that the economic situation of the country did not allow for this kind of development in the near future.

## **METHODOLOGY AND PUBLIC PARTICIPATION**

Although the 1<sup>st</sup>. National Conference about Cities and Communal Neighbourhoods, held in 1979, and the Methodology Guidelines stress that the planning process must be participative taking into consideration the population's needs and must include the population in all relevant tasks to be carried out during the implementation process; the reality however was completely different. The weakness of the Structure Plan was its top-down approach with no support from the stakeholders. The methodology used during the planning process did not take into account the active participation of the community, other government institutions and principal interested in the plan – the Maputo Executive Council. The professionals from the National Institute of Physical Planning prepared the Structure Plan without public participation, because they assumed that they know how to do plans and what the best development options were for the city. Technicians and municipal managers saw the planning process as mere spatial activity for the small group of specialists. The participation came only from the municipality, but merely on the technical level (Appendix D, p.108). The Municipality, as a main stakeholder, did not actively participate in the preparation of the urban plan and its role was narrowed to approval and implementation. It is important to stress that the City Council's managers were not interested in the plan, because they saw the National Institute action as an interference in their internal affairs and an attempt to control them. For Jenkins (2000) the weak local government participation in the Structure Plan preparation is one more reason for failure of its implementation. He stresses that the local authority was reluctant to assume responsibility of the plan, which did not fully represent their position, but the interests of the local elite. McNulty and Horton (1979) argue that the fiasco of the public participation in the planning process lies in the administration attitude. The government is



not prepared to conduct the process, which bases attention on citizens' ideas, needs and complaints. The consequence is the majority of the inhabitants feel that the plan only mirrors the interests of the governing minority.

## CONCLUSIONS

The structure plan being the result of the planning process is not an end in itself. To be a useful tool to manage urban development the structure plan should be approved and implemented. In the case of the Structure Plan 1985 of Maputo it did not occur. The two alternatives for Maputo development – the Ordered Concentric Expansion and the Ordered Linear Expansion - differ from the real land use existed in 1996. More common situations are occupation of the areas designated for residential use for this purpose and the change of the other land uses proposed by the Plan for the residential use. The situation of the deficient government control over urban land use resulted in the spread of the informal settlement and the problem of the tenure rights insecurity. The non-implementation of the Structure Plan was the result of the weak technical and managerial capacity of the executive council. The inexistence of the financial independence and the unclear legal framework also contributed to the failure of the plan. The Maputo Executive Council did not have sufficient revenue sources to implement the proposed development actions. The absence of the legislation that obligates the local government to have an updated plan and the position of the managers, which assume urban planning as a mere spatial and technical activity, resulted in neglecting behaviour. The government spent money in the urban planning and then Maputo Executive Council did not assume the responsibility to comply with the recommendations. The political and economic situation experienced by Mozambique in 1980's – the civil war and centralized economy – contributed in the significant manner to the failure of the Structure Plan. In the centralized economy there was no space for private capital that could invest. The state did not have sufficient financial resources to significantly influence the city development by infrastructure and services supply and by expansion of the industry to provide employment. The centralized system leaves very little space for the stakeholders' participation and this, results in the alienation of the plan from their real needs and development objectives.

## CHAPTER V: CONCLUSIONS

Maputo is the most important Mozambican city. It is the political, economical and cultural centre and attracts many people who see the possibilities to improve their lives. The migration and natural population growth is one of the causes of fast city development and puts high pressure on the urban land use and infrastructure. Development, to be beneficial, must be guided and controlled and this requires competence and use of proper tools by the local government. The urban planning is one of the tools to do this.

Mozambican urban planning, as one can see in the example of Maputo city, is still weak and strengthening goes through the changes in the legislation, growth of awareness within the class of the political leaders about the necessity to plan and direct human development and through the improvement of the resources supply to the agencies responsible for the planning activity. The legislation regarding the urban planning issue is still not clear in Mozambique. But the real problem is implementation of existing legislation. For the first time the planning appears as the states duty in the actual Mozambican constitution but still there is no consistent land planning policy and adequate legislation to strength the planning practice. Planning is seen more as spacial activity than multifaceted process, which should take into account the complexity of human life and behaviour.

The Structure Plan of 1985 is an example of the plan developed with the intention to direct the urban growth of Maputo. The document tries to see Maputo as a whole and finds solutions for the problems, which arrive from fast population growth. It stresses the necessity to guarantee housing and employment for all and suggests areas for residential development taking into account the distance to the industrial areas, the need to preserve agriculture spaces as potential sources of food supply and employment generation.

The plan was prepared between 1979 and 1984 and presented to the City Council by the end of 1985. Although it was not approved and officially did not serve as a guide for development it has had an impact on city growth. A comparison between the proposal of the Plan and the land use ten years later shows that areas selected by the Structure Plan

for residential use in general maintain their purpose. Most of the areas opted for residential uses were occupied accordingly to the plan proposal although not always in a desirable manner – most areas are informal settlement with deficient infrastructure supply. The residential development took place with or without the assistance from the local government. Regarding to industry, the development did not take place to the extent planned by the Structure Plan of 1985.

Delivery of urban services is deficient not only because of resource scarcity but also because the institutional arrangements are weak. Maputo Municipality has some financial autonomy but not enough to realize its functional responsibilities. It depends heavily on the central government financial assistance. In 1997 53% of the budget was financed by the central government and in 2000 there was increase to 67%. The problem of collecting of taxes aggravates the difficult situation of municipality. Maputo Municipality hardly collects taxes. The cadastre system is deficient and does not help. The weak financial situation does not allow for having strong urban planning and consequently control of urban development. The municipality is trying to gain independence and improve its functioning but still has a lot of problems like:

- Scarcity of financial resources,
- Scarcity of well trained staff,
- Scarcity of equipment,
- Lack of internal cooperation between different directorates in the field of urban planning, and
- Data issue – there is no clear policy how to manage and store data within the institution.

The Mozambican urban planning also faces problems regarding the methodological approach especially on the point of stakeholders' participation. Although the manuals and guidelines stress the need of public participation it is still a weak point of the planning process. The Structure Plan is an example of top – down approach. The plan preparation was recommended by the central government and it was not seen by the city council managers as a useful tool to better administer the city. The feeling was that the plan

prepared by technicians from other state institution was an attempt to interfere in their governance. Despite the weak stakeholders participation there are other reasons of non-approval of the Structure Plan:

- Lack of financial and human resources to translate the general development lines into specific partial plans and implement,
- Change of administrative boundary,
- Complex politic, economic and social situation that dictated the selection of the '0' alternative. It aggravated the problems: unemployment rate, high pressure on infrastructure, informal settlement in risky zones, criminality, especially on suburban zones, erosion and expansion of informal sector,
- The lack of legal basis which could obligate the city councils to accept and put into practice the plan,
- Lack of awareness of city managers to have actualized plan,
- Weak understanding of the necessity to strength urban planning as a tool to manage city development.

The reality shows that urban areas grow in Maputo spontaneously and are composed of informal settlement without even minimum infrastructures like water and electricity supply. New areas face frequent problems such as transport. The distances between residential areas, basic services like schools and hospitals, and work places are big. People must spend considerable time and money on transport, which in consequence increases the cost of life.

## APPENDIX A

### Landscape and Urban Planning

#### Guide for Authors

## II. Manuscript submission

### 2. Required material and ethics

#### a) Original work

Submission of an article implies that it is not being considered contemporaneously for publication elsewhere. Submission of multi-authored manuscripts must be with the consent of all the participating authors.

## III. Setting up and formatting your manuscript

### 1. General information

Set up your document one-sided, using double spacing and wide (3 cm) margins. Use line numbering throughout the document. Avoid full justification, i.e., do not use a constant right-hand margin. Ensure that each new paragraph is clearly indicated. Number every page of the manuscript, including the title page, references tables, etc. Present tables and figure legends on separate pages at the end of the manuscript. Consult a recent issue of the journal to become familiar with layout and conventions. Number all pages consecutively. Italics are not to be used for expressions of Latin origin, for example, *in vivo*, *et al.*, *per se*. Use decimal points (not commas); use a space for thousands (10 000 and above).

### 2. Title pages and mentioning of authors' names

Set up two title pages for your manuscript. The first title page contains all authors' contact information and the title of the manuscript. The first title page may be separated from the manuscript for the review process. The second title page contains the title of the manuscript, as well as abstract and keywords (see sections IV.1 and IV.2 for further details). Please do not state authors' names anywhere else in your manuscript, nor in the figure captions. An exception is the quotation of own work.

### 3. Language

Please assure your manuscript is written in excellent English (American or British usage is accepted, but not a mixture of these).

## IV. Structure of the manuscript

### 1. First title page

#### a) Title of manuscript

State the title of the manuscript. The title should be concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.

#### b) Author(s) names and affiliation(s)

State the authors' first and family names (put family name in capitals) and affiliations. Where the family name may be ambiguous (e.g., a double name), please indicate this clearly. Present the authors' affiliation addresses (where the actual work was done) below the names and only in English. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and also in front of the appropriate address. Provide the full postal address of each affiliation, including the country name, and e-mail address of each author.

#### c) Corresponding author

Clearly indicate who is the corresponding author, willing to handle correspondence at all stages of refereeing and publication, also post-publication. Ensure the corresponding author's telephone and fax numbers (with country and area code) are provided in addition to the e-mail address and the complete postal address.

#### d) Present address

If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

### 2. Second title page

#### a) Title

State again the title of the manuscript.

#### b) Abstract

Provide a concise and factual abstract (maximum length of 200 words). The abstract should state briefly the purpose of the research, the methods, the principal results, major points of discussion, and conclusions. An abstract is often presented separate from the article, so it must be able to stand alone. References should therefore be avoided, but if essential, they must be cited in full, without reference to the reference list. Non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

### c) Keywords

Immediately after the abstract, provide a maximum of 6 keywords, avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Avoid the use of entire phrases as keywords and do not repeat words that were already used in the title. Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

## 3. Introduction

State the objectives of the work and provide an adequate background to the international context in which the research is carried out.

## 4. Materials and methods

Provide sufficient detail to allow the work to be reproduced. Methods already published should be indicated by a reference: only relevant modifications should be described.

## 5. Results

Provide your main results in a concise manner. Avoid overlap between figures, tables, and text.

## 6. Discussions and Conclusions

Indicate significant contributions of your findings, their limitations, advantages and possible applications. Discuss your own results in the light of other international research.

## 7. Acknowledgements

Place acknowledgements, including information on grants received and all appropriate ethics and other approvals obtained for the research, before the references. Place in a separate section, and not as a footnote on the title page.

## 8. Appendices

If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: (Eq. A.1), (Eq. A.2), etc.; in a subsequent appendix, (Eq. B.1) and so forth.

## 9. References

Assertions made in the paper that are not supported by your research must be justified by appropriate references. Follow the journal format for

references precisely. Ensure all references cited in the text are in the reference list (and vice versa). See section V. below for more detailed information.

## **10. Captions, tables, and figures**

Present these, in this order, at the end of the article. They are described in more detail below (see section VI.). High-resolution graphics files must always be provided separate from the main text file in the final version accepted for publication.

## **11. Footnotes**

Footnotes should not be used.

# **V. Referencing**

## **1. Citations in the text**

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Unpublished results and personal communications should not be in the reference list, but may be mentioned in the text. Conference proceedings abstracts and grey literature (research reports and limited circulation documents) are not acceptable citations. Citation of a reference as 'in press' means that the item has been accepted for publication.

## **2. Citing and listing of web references**

As a minimum, the full URL and last access date should be given. Any further information, if known (author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

## **3. Citing in the text**

Citations in the text should be:

Single author: the author's name (without initials, unless there is ambiguity) and the year of publication;

Two authors: both authors' names and the year of publication;

Three or more authors: first author's name followed by 'et al.' and the year of publication. Citations may be made directly (or parenthetically). Groups of references should be listed first alphabetically, then chronologically.



Examples: "as demonstrated (Allan, 1996a, 1996b, 1999; Allan and Jones, 1995). Kramer et al. (2000) have recently shown ...."

#### **4. List of references**

References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters "a", "b", "c", etc., placed after the year of publication. You may use the DOI (Digital Object Identifier) and the full journal reference to cite articles in press.

Examples:

*Reference to a journal publication:*

Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2000. The art of writing a scientific article. *J. Sci. Commun.* 163, 51-59.

*Reference to a book:*

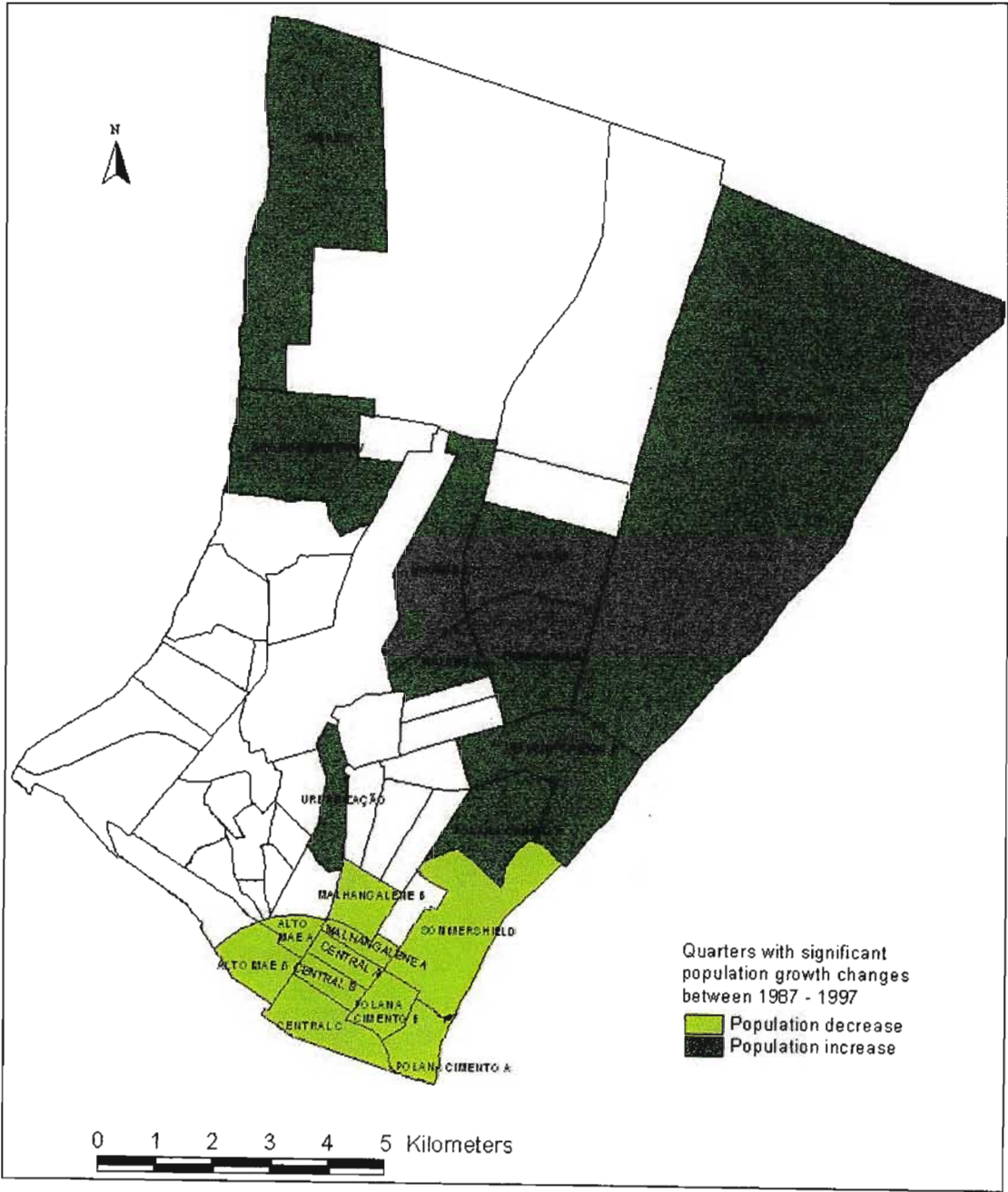
Strunk Jr., W., White, E.B., 1979. *The Elements of Style*, third ed. Macmillan, New York.

*Reference to a chapter in an edited book:* Mettam, G.R., Adams, L.B., 1999. How to prepare an electronic version of your article, in: Jones, B.S., Smith, R.Z. (Eds.), *Introduction to the Electronic Age*. E-Publishing Inc., New York, pp. 281-304.

Journal names should be abbreviated according to list of serial title word abbreviations.

**APPENDIX B**

**MAP OF POPULATION GROWTHS CHANGES WITHIN 1987 – 1997**



Source: Muanamoha (2002)

APPENDIX C

MAP OF LAND USE IN 1985



Source: The Structure Plan of 1985

## APPENDIX D

### TABLE PRESENTING THE RESULTS OF THE INTERVIEW CONDUCTED IN THE MAPUTO MUNICIPALITY DIRECTORATE OF THE MUNICIPAL SERVICES OF CONSTRUCTION AND URBANIZATION AND WITH THE TECHNICIANS RESPONSIBLE FOR THE STRUCTURE PLAN OF 1985 PREPARATION

Question	Response
<b>Technical and technological issues</b>	
How is your department organized?	<p>* <b>Urbanization Department</b>: sector of urban planning, design sector, geometrical cadastre, foral (legal cadastre)  <b>Design sector</b>: 5 basic technicians, 3 surveyors and cartographers, 1 civil engineer,  <b>Geometrical cadastre</b>: 8 surveyors, 18 auxiliary technicians</p> <p>* <b>Construction Department</b>: supervision, architecture, technical commission, construction secretariat.  <b>Technical commission</b> has 3 workers: 1 civil engineer and 2 secondary school technicians. The commission is subdivided in 3 sections: 1) stability - analyzes projects with accordance to construction regulations; 2) measurements – verifies the areas of the buildings and their ratio with area of the plot, walls, fences; 3) project analysis – verification of the project as a whole looking at their accordance with the regulations and urban plans.</p> <p><b>Architecture</b>: 1 architect is employed; look at the architecture aspects in the project, verifies if the proposed building to be constructed is in accordance with others in the area, with the requirements of the structure plan and the regulation of urban edifice.</p> <p>* <b>Sector of informatics</b> is responsible for preparation of electronic versions of documents. It is a kind of electronic secretariat.</p> <p>* <b>Administration</b>: 4 workers: 2 secondary level, 1 typist and 1 accountant,</p>
What are the responsibilities of your section, department	<p>For the <b>Urbanization Department</b> – preparation of the partial plans, archiving of the documents, preparation of the localization maps for the plots, title deeds. Designing of topographic drawings of partial plans and municipal quarters. The <b>design sector</b> sends technicians to the field to survey coordinates and then design map. After this the map is sent to the physical planner or architect. Then comes back and the final map with the plots demarcation is prepared. Each plot has description document which includes information of limits (with coordinates), name of owner, number and area. Even when the plot is sold, the description is maintained and actualized. The description and a map of localization of the plot can be seen only after written authorization from the current owner.</p>

	<p><b>Geometrical cadastre:</b> designing of diagrams, verification of certificates of Building Register; topographic maps, coordinates of the plots,</p> <p><b>Foral:</b> archive of the processes of the title deed acquisition and title deeds, petitions for emission of title deeds, petition of topographic maps</p> <p>For the <b><u>Construction Department:</u></b> construction documentation presented by the clients, cadastre of the buildings,</p> <p><b><u>Administration:</u></b> buying of equipment, fines and other payments charging; preparation of the reports</p>
How do you evaluate the technical capacity of your department?	<p>The Urbanization Department employs 3 land use planners and 1 engineer (all with secondary level). On the human resource level the department has capacity. The problem is a lack of technological means.</p> <p><b>Foral:</b> 150 processes enter in the sector but only 50 – 100 go out.</p>
What constraints does your department face?	<p>The few computers are out of order. The work is done manually.</p> <p><b>Design sector:</b> lacks of modern equipment, offices are too small, illumination is not proper. Storage system of maps and other documents is inadequate. There is neither security system nor fire prevention system.</p> <p><b>Foral:</b> they have only 1 computer, the place is small and dusty,</p> <p><b><u>Administration:</u></b> lack of space, archive disordered, lack of money to buy necessary means for the directorate</p>
How often do technicians benefit from training courses to improve their knowledge?	<p>The technicians do not benefit from any courses; actually people study by they own initiative.</p> <p><b><u>Administration:</u></b> there is no money for formation.</p>
Do technicians use any GIS program as well?	No.
How is the process of lots licensing organized?	<p>Before 2003 when someone required a license it was first directed to the external section of the directorate, which functioned in the district. The section used to send the documentation, which included the information about the localization of the plot, number of plot and the requirement. Then in the directorate the documentation circulated through different sectors: foral – to see if there is any official register; design sector – localization of the plot on the map if the zone was already urbanized, if not the surveyors went to the place to check and survey the coordinates. If the plot was on the area embraced by the plan, even if not urbanized, the requirement was usually authorized. The sector of urban planning should analyze the legal situation of the</p>

	<p>plot, if the area is included in the plan and is there any regulation, which allows for the acceptance of the requirement.</p> <p>After this a chief from the urbanization department sent documentation with his opinion to director. The director presented the final documentation to the mayor to accept it or not. Actually the external sector in the districts does not exist and there is one more step – before the mayor signs documents they must first go to the commission of councillors. The requirement can take years to be authorized.</p>
<b>Methodological issues</b>	
What instruments do municipality use to guide the city development?	<p>The municipality still uses the Structure Plan of 1968 as a guideline for the city development. The plan was approved. The partial plans are also based on the structure plans of 1985 and 1999.</p> <p>After the floods of 1998 and 2000 the plot demarcation was done without any plan. The priority was to accommodate the affected population in the Zimpeto, Catembe and Magoanine C quarters. The process was conducted on the political level. The municipal managers identified resettlement zones without previous studies and sent technicians there. As a result population was resettled in danger zones</p>
What methodology is used during the planning process?	<p>In the case of the area in the Zimpeto Quarter:</p> <ol style="list-style-type: none"> <li>1. Field survey</li> <li>2. Preparation of the plots map in the office</li> <li>3. Contacts with the main public entities – Mozambican Electricity and Mozambican Water to know their plans regarding the planned area</li> <li>4. Presentation of the plan for the investors</li> <li>5. Presentation of the plan for the municipal assembly for approval</li> </ol> <p>The population does not collaborate with municipal workers. The residents of the planned area are not consulted during the planning process.</p>
What plans were drawn by the Urbanization Directorate?	<p>Partial plans of Mahotas, Laulane, an area in Zimpeto quarter; plots demarcation in Zimpeto area - 1998</p> <p>The capacity of the municipality to produce plans has been reduced. There are no means necessary to perform this task. The municipality collaborates with the ministry of environment and uses the services of consultants.</p>
How do you see the importance of the structure plans in urban areas management?	<p>Although plans done after independence were not approved they are used as a basis for evaluation. The regulations are of the colonial era but still are used. Urban plans done before independence, as Structure Plan of 1969, are still very useful because they predicted city development in an ordered form. They need to be actualized.</p> <p>Structure or other urban plans are not always a good solution, because they become obsolete before they are implemented. Preparation of the plan takes years and is expensive. The solution could be small action</p>



	plans and they constitute a bigger plan. The structure plan is fundamental for Maputo city, but is not realized.
<b>Data issues</b>	
What sources of information are used during the planning process?	<p>During the floods we worked frequently without the previous studies of the planned area. The aim was to accommodate refugees.</p> <p>The technicians go to the field and do topographic surveys. The Dinageca is not contacted, because there is no money to buy actual data.</p> <p>The unique plan done by the directorate of urbanization where actual data was used is the partial plan of an area in the Zimpeto quarter. The Malaysians from the Austral Bank financed the studies. The viability studies were not done and the plan was not approved</p>
How is information stored in the department?	<p>The Directorate does not have electronic systems to store data.</p> <p>Data used during the preparation of the Magoanine Plan is not available for the technicians</p> <p>There is no database.</p>
How often does the municipality actualize spatial data?	Only when there is a necessity to go to the fields. It is sporadic and ad hock.
<b>Structure Plan of 1985</b>	
How much time did the data-gathering take?	<p>The data gathering took 5 months. 68 quarters were visited and local authorities were contacted. Data was gathered about schools, hospitals and population. Information about water and electricity supply was very difficult to obtain.</p> <p>There was a lot of data gathered but only a little used, the data was considered dubious and without good quality. Socio-economic data was especially scarce and with gaps. Some maps used for the structure plan are probably the same as the ones produced for the 2<sup>nd</sup> national meeting in urban planning. Others were based on the colonial maps of the scale 1:25 000.</p>
What analyses were performed during the preparation of the Structure Plan?	<p>Principally delimitation of the vacant areas and agricultural spaces. That time there was an idea of joining two conditions: living in the city and producing food for self-sustainability.</p> <p>Economic analyses were not necessary, because the economy was planned centrally.</p> <p>Regarding transport routes – there was a study done by the consultants from “Viak” company before the plan.</p> <p>Other studies were visualized on maps.</p>
What criteria were used to choose the	The basic criterion used was the financial – how much will implementation of the plan cost. The municipality did not have money and there was a need to produce a cheap and operational plan.

development options presented in the Structure Plan?	<p>Many proposals already existed and plans based on them.</p> <p>The alternatives tried to present extremes of the possible development.</p> <p>They also tried to accommodate existing big projects.</p> <p>The ordered Linear alternative was tentative to maintain areas suitable for agriculture in order and to concentrate on residential use along the transport routes, to avoid construction of new ones.</p>
What institutions participated in the plan preparation?	<p>On a technical level municipality collaborated with the National Institute of Land Planning, but on the managerial level they have not collaborated.</p> <p>After preparation of the written document, it was distributed through the government agencies for appreciation and comments. No one has sent anything.</p>
What stakeholders were contacted?	<p>Municipality, but on the top managerial level there was no interest shown to proceed with preparation of the plan.</p> <p>There was no public participation.</p>
To which extent did the municipality use the 1985 Structure Plan?	<p>In terms of expansion zones</p> <p>Urbanization of Moahotas and Laulane areas was done taking into account the 1985 Structure Plan – partial plans were produced based on the 1985 plan</p> <p>The structure plan was needed to accommodate existing partial plans and to give them legal force.</p> <p>The plan became obsolete before it was approved because the political, social and economical situation has changed a lot since 1984-85.</p> <p>Although it was not approved but the municipality uses for plots attribution.</p>

#### People interviewed:

1. Technicians from the Directorate of the Municipal Services of Construction and Urbanization – from the different departments and the deputy director,
2. Christine Allen – the consultant, who participated on the designing of the final version of the Structure Plan of 1985,
3. Anastácio Namburete – the technician from the Ministry for the Coordination of the Environmental Action. He was a member of a team that prepared the Structure Plan of 1985, as a technician of the National Institute of Physical Planning,



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