PROMOTING
THE ROLE OF PUBLIC SPACES

DEVELOPING PUBLIC SPACES AS A SPATIAL INTEGRATION ELEMENT IN THE CITY OF FORTALEZA

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PROMOTING THE ROLE OF PUBLIC SPACES

Developing public spaces as a spatial integration element in the city of Fortaleza

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PREFACE

Nowadays, there is a widespread debate about public spaces and their declining role on urban society. Some phenomena promoted by urban and technology transformations known as privatisation (Madanipour 1999), commodification (Banerjee 2001) and homogenisation (Sorkin 1992) of public spaces are the most responsible for undermining traditional public spaces in favour of private ones. In many parts of the world there is a huge concern to understand these transformations, and so ensure the importance of public spaces and the necessity to qualify the new ways to exercise public life.

According to Carmona et al (2008) the declining value of public life is closely followed by an increasing perception about the importance of public space benefits. Society in general and politicians particularly are now more aware that public space is able to deliver a range of benefits across economic, social and environmental spheres. For instance, in an economic aspect, public spaces can have a positive impact on property prices; in relation to social issues, they can provide a venue for social interchange; and in relation to environmental aspects, they can improve air quality, decrease urban heat, and even encourage the use of sustainable modes of transport. This research argues that public spaces system can influence an even wider range of benefits to the city and its society. The spatial benefits of appropriate public space structure are a clear issue on the urban transformation processes. There is a common agreement between academicians that public spaces can promote spatial integration within the city, and are also able to spin-off a process of spatial transformation on surrounding areas, as well as encourage social cohesion.

The benefits of public spaces are already becoming globally accepted (Carmona et al 2008), but it is necessary to research which problems are affecting them, and which interventions or strategy can be the most efficient to improve the actual conditions. Many authors pointed out that the declining use and quality of public spaces, besides being a consequence of general phenomena such as privatisation, is also a result of inadequate design (Shaftoe 2008), planning and management (Carmona et al 2008). This Master Thesis is focused on the planning framework related to public spaces, their normative instruments, policies, laws and actions from different sectors, able to delivery public space as a promoter of urban development and spatial integration. Therefore it is necessary to understand what is going wrong with public spaces and what can be done by the urban planners to

counteract the problem. This thesis will define the main issues affecting public spaces development and focuses its proposal on a planning framework point of view, to improve the public spaces structure. In this sense, this research will present which contributions spatial planning can give to the public spaces development.

This Master Thesis discusses the case study of Fortaleza, a city in the northeast region of Brazil *(see Map 0.1)*. In order to develop this research, first the global context was analysed looking to the academic discussion about it and then the analysis is focused on Fortaleza. This city is a large metropolis which is experiencing a huge decline of spatial quality, use and provision of its public spaces. The public life activities are increasingly being performed on private and semi-private spaces (Banerjee 2001), as shopping malls, recreational clubs and inside gated communities. Therefore, it is really important to understand what is going wrong with public spaces in the city and search for alternatives which can facilitate the improvement of their present conditions.

The analysis of Fortaleza presented some possible causes for the public space failure in the city, showing one of the main issues of the problem which is the inefficiency and neglect by urban planning framework on defining proper conditions to public space development. This problem is perhaps the main reason why public spaces in Fortaleza are failing and not fulfilling their role, which is to promote integration and support the development of the city.

Map 0.1. Location of the city of Fortaleza.
Source: Author

This research takes advantage of the continuous urban transformation happening in the city of Fortaleza in order to establish a concrete spatial role for its public spaces structure. Public spaces can work as an element of integration along the city, supporting the urban model of decentralisation adopted by the Municipality and being responsible to promote a range of urban transformations on its surroundings. This research promotes the role of public spaces in a city as a strong element of urban development and organisation of diversified areas.

This thesis pays attention on many global authors, but always being aware that Fortaleza has a very specific context, which requires an analysis of relevant Brazilian authors. Fortaleza's society has different perceiving of public spaces and completely distinct socio-economic and cultural background, which makes both problem and proposal really concerned with specific characteristics. Although there is a concern to be supported by local authors, such as Teresa Caldeira and Flavio Villaça, this research is based on theories and concepts defined by key specialists from the international context, for instance Jan Gehl, Mathew Carmona, Tridib Banerjee, Ali Madanipour, Lars Gemzoe, Patsy Healey, among others.

Structure of the Thesis

Chapter I - Introduction, this chapter presents the problem and the approach to tackle it. There is an explanation about how this research interpret the problem and confront it. In this sense, the aims are established and the research questions formulated. These questions will guide the research analysis and work as a parameter for the evaluation of the proposals. Afterwards, the main contributions to the social and academic debate are presented, showing the relevance of this research both in social and academic terms. In the last part, all the methodology of research is explained, with its main elements and their relations.

Chapter II - Theoretical Framework, it describes the main theories and discussion about current public spaces issues, their main present challenges and possibilities. This discussion involves what can be the contribution of European Spatial Planning to concrete spatial transformations in the city, in particular related with public spaces. This part presents the basis for the theoretical argumentation of the thesis, and also defines some specific terms, in order to make clear the debate presented on the research.

Chapter III - Analysis of Fortaleza, this part presents the analysis of the city, focused on two scales: a specific sub-centrality, and the city scale. It determines the main spatial conditions and the demands in the city, in respect to public spaces. Two dimensions are analysed, one is the Functional-spatial Dimension and the other is the Urban Planning Dimension. The results of this analysis, together with the results from Case Studies and the Theoretical Framework made possible to propose significant recommendations for the public space planning system of Fortaleza.

Chapter IV - Case Studies, it presents the analysis of different projects concerning their contribution on the efficient relation between urban planning instruments and spatial results on public space structure. This analysis complemented the Theoretical Framework with concrete cases of spatial transformations in a city through the use of public spaces and provided elements to do the evaluation of some recommendations proposed to the planning framework of Fortaleza.

Chapter V - Improvements on the Planning Model, this part takes the conclusions of the Analysis, together with elements from the Theoretical Framework and Case Studies as a basis to discuss and define recommendations to the actual planning model for public spaces in Fortaleza. Besides presents these recommendations, this chapter also makes an evaluation of it, applying a planning mechanism, related to public space development, on the selected sub-centrality of Washington Soares Avenue, and on a local public square, in Fortaleza.

Chapter VI - Conclusion, this part ends the thesis presenting an overall conclusion for the whole thesis, considering the main results reached and explaining the main benefits offered to the city, as well the main limitations of the approach on city planning.

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INTRODUCTION

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- R. Questions
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- Methodology

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CHAPTER I - INTRODUCTION

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This chapter presents the main elements to understand the scope, objective and methodology of this research. There are definitions of important terms repeatedly used along the thesis and very important to understand the used approach. The notion of public space and planning instruments are the ones presented in the first part.

Then, the problem which this thesis is discussing is introduced. First there is an explanation about the problem of public spaces on a global scale and then, the problem is translated to the reality of the case study of Fortaleza.

The approach to deal with the described problem is also presented, explaining the path which this thesis is following to reach the objectives and counteract the problem in the city of Fortaleza. Besides, the main aims of the research are described, together with the research questions, and academic and social relevance of the presented debate. Finally, this chapter presents the methodology used to develop the thesis and to answer the questions postulated.

1. MAIN DEFINITIONS

In order to make the objectives and scope of this project clear it is necessary first to define some crucial concepts such as "*public spaces*" and *"planning instruments"* very much used on this research. The spaces understood here as public are all the collective open urban spaces, as parks, squares, sidewalks, and also some semi-private spaces which supports public use and have free access to population:

> *"Public space (narrowly defined) relates to all those parts of the built environment where the public has free access. It encompasses: all the streets, squares and other rights of way, whether predominantly in residential, commercial or community civic uses; the open spaces and parks; and the public/private spaces where people access is unrestricted (at least during daylight hours). It includes the interfaces with key internal and external and private spaces to which the public normally has free access."(CARMONA, M., MAGALHÃES, C., HAMMOND, L. - 2008)*

In this sense, this research project does not include as public space what some authors have defined as third places, e.g. cafes, gated shopping malls, etc. Although, this research discusses the relation between private and public spaces, particularly on the interaction of both domains, usually composed by a transition zone, defined as semi-public or semi-private. The typologies of public spaces included on this research goes from natural green areas until the sidewalk and small public spaces on the street level *(see Figure 1.1)*.

In relation to planning instruments, the concept adopted here is very comprehensive and includes all the regulatory

tools, the governance models and their implementation actions related to urban and spatial planning, particularly the ones related to public spaces development. Then, in the context of public spaces, planning instruments can be understood as the planning framework with an influence on the development of public space structure, directly or indirectly. These instruments can be laws, for instance the Land-Use Plan and Urban Development Plan, but, they can be also the political and managerial actions like public-private partnerships to develop new areas, which mean different governance models. Besides, it can also includes spatial plans, strategic interventions, tools to engage community, private sectors and the actions of public departments on the elaboration, implementation and monitoring of the urban planning of the city.
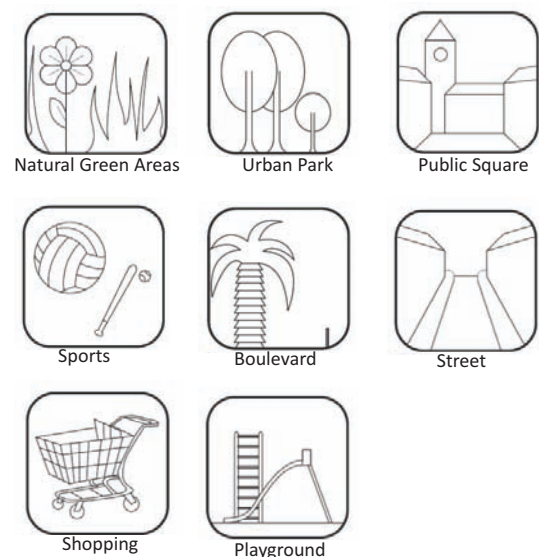
Figure 1.1. Typologies adopted on this research as public spaces.
Source: Pictograms from the Master Thesis of Sanne van den Heuvel-TU-Delft.

2. THE PROBLEM OF PUBLIC SPACES IN A GLOBAL CONTEXT

The last transformations on society, promoted by an emergence of a service economy and communications revolution, have been impacting very clearly on the way society perceives public life. According to Madanipour (1999, p.884 and 2003, p.214), *"the networks of communication and transportation have created a despatialized public sphere",* public life *"can take place in different locations through a variety of means other than face-to-face communication, the functional role of public space, which once could house all these activities, is no longer central in a city".* This despatialisation of public functions made possible to everyone performs a whole sort of public activities in a great variety of places, even in private ones.

The declining process of public spaces role, during the last decades, was followed by an increase of private sphere importance in the city. Many of the functions traditionally developed on public spaces are now being intensely promoted by private spaces. In this sense, Banerjee (2001, p. 12) says that *"for many observers, the sense that the public realm is declining is further corroborated by a growing trend of what is commonly described as "privatized" public spaces. [...] the term is used commonly to describe the corporate plazas and open spaces, shopping malls, and other such settings that are increasingly popular destinations for the public".* These private spaces are continuously absorbing functions which used to be public, for instance gathering, leisure, exchange of goods, and promoting public life activities *(see Photos 1.1 and 1.2)*.

This global process of public spaces transformation is promoting more spatial fragmentation in the city, which leads us to a challenge: how can we promote the improvement of public spaces in order to decrease this fragmentation tendency? Nevertheless, it is crucial to understand first why public spaces are failing? But, failing in what sense? It is failing on being a promoter of urban development and spatial organisation. There are different opinions about it, and the issues which are contributing to this failure represent distinct categories, such as design, management and some contextual reasons *(see Chapter II – Theoretical Framework)*.

It is easy to see many public spaces which are exclusionary, with homogeneous characteristics and which do not stimulate people's integration, being a result of a poor design. The concern on quality of design is one of the main discussions related to public spaces developed by the city specialists nowadays. These spaces have been designed following global standards make them lose the local character and their identity. Many public spaces are being promoted without any concern on the very local spatial and population characteristics. This is also a result of what is called commodification, which is the development of public spaces as market products to sell the image of the city.

Other aspects of public space failure, already detected by academicians, are the inefficiency of planning instruments, fragmentation on the involved stakeholders or obsolescence of public spaces standards confirming an inefficient planning framework for these spaces. Besides, some aspects like safety and social disparities are really affecting the performance of public spaces, showing that there are some reasons resulted from much more complex social and economic aspects, specific for each urban context.

Photo 1.1. Empty traditional open public space.
Source: www.clubeazimute.com.br

Photo 1.2. Crowded private space.
Source: Thiago Martins.

The problem of spatial segregation within the city and declining quality, provision and use of public spaces can be clearly observed in many cities today. Caldeira (2001) argues that one of the biggest problems in the case of Brazilian cities is the *"fortified enclaves"*, which is a picture from privatisation process of public life. In big cities like São Paulo, these *"fortified enclaves"* are represented by gated communities, shopping malls and corporate complexes, which for most of the people are considered entirely private and isolated from public network. Besides São Paulo, Caldeira argues that this same problem is also affecting the city of Los Angeles, with the proliferation of gated communities and big amusement parks, where the public spaces are owned by private sector.

This public spaces failure besides promoting spatial transformations in the actual city is also changing the lifestyle of a whole generation in those cities. There are many characteristics which represent this change for instance the increasing amount of people who prefers to have leisure on a shopping mall rather than on open public spaces. This fact seems to be a simple transformation on the way of life, however has significant impacts on the public spaces structure of a city. Another example is the decreasing amount of outside markets on the squares of some cities, due to the fact that less and less people are still keeping this habit to shop groceries on a public market. Many people today prefer to go to supermarket, where the options are much higher and might offer even better prices.

The transformations on the lifestyle of the population together with wider socio-economic aspects is undermining the role of public spaces in the city, which requires an urgent counteraction to bring back the public spaces potentials. There are several issues involved on this transformation which need to be addressed, for instance design, management and urban planning failure. It is crucial that urban planning together with its implementation tools recognize these transformations on the city and on the population behaviour, and also transform itself in order to be able to deal with new demands. The public space structure should be able to promote spatial integration and sustainable urban development in the city.

The city of Fortaleza, which is the case study of this research, has been confronted with very similar failure of its public spaces as we can see in a global context. As well as on western European cities, Fortaleza has similar problems with design and management of its spaces, and is also experiencing a privatisation process of its public spaces. Nevertheless the issues resulted from these urban transformation processes are interconnected with a specific context and socio-economic characteristics, generating particular constraints for public spaces development. The next section presents this context and some of the specific issues of public spaces problem in Fortaleza, however, they will be deeper analysed only on the chapter III-Analysis of Fortaleza.

3. THE PROBLEM OF PUBLIC SPACES IN FORTALEZA

During the last 100 years, Fortaleza has been experiencing, a huge population and physical growth, having become one of the biggest cities in Brazil *(see Figures 1.2 and 1.3, and Maps 1.1 to 1.4)*. Among others, one of the main reasons to this huge growth of the city was the great migration from the hinterland due to constant and extreme periods of drought and consequently, a search for better opportunities in the capital of the state. During this period, Fortaleza developed its industrial complex and expanded its urban structure, meaning a great range of opportunities to people from the hinterland and also from another states. Therefore a huge mass of people immigrated to the city to work on the industrial and building sites. Even nowadays, according to local researchers, there is a huge mass of population, more than 140,000 people, migrating every year to the city.

This huge spatial and population growth of the city promoted a very fast pace of urban transformations, which was not followed by the public spaces development. There is a mismatch between the fast demanding urban structure and the speed and quality of public space development *(see Figure 1.4)*. Therefore, what happened was a huge growth of Fortaleza without a consistent concern on the meaning and quality of public spaces. This process was characterized by some spatial and social effects on the city, represented by specific phenomena and characteristics, such as:

• Illegal occupation of public areas, through the phenomenon of informal settlements – as the demand of houses was extremely higher than the supply, the huge immigrant labour force started to occupy several public empty land around and within the city *(see Photo 1.3)*;
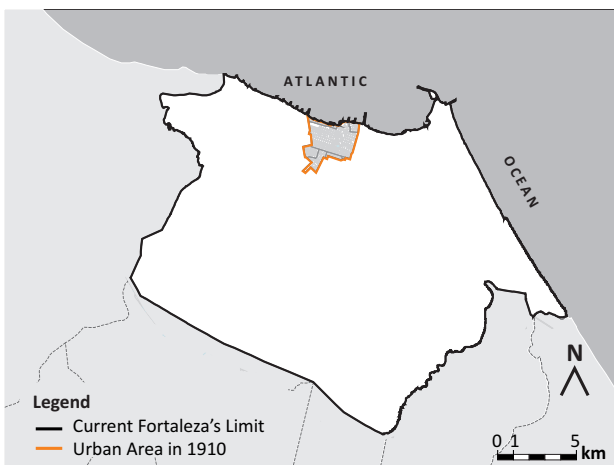
Map 1.1. Urban area of the city in 1910.
Source: Author, based on Municipality database.
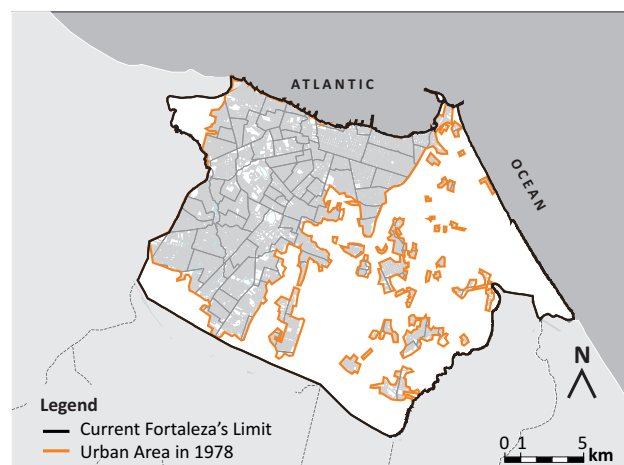
Map 1.3. Urban area of the city in 1978.
Source: Author, based on Municipality database.
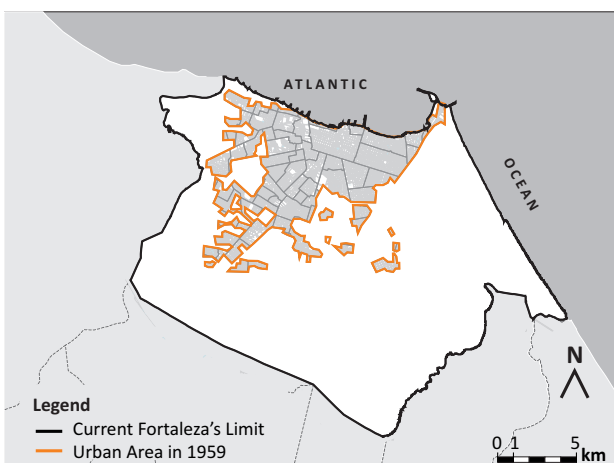
Map 1.2. Urban area of the city in 1959.
Source: Author, based on Municipality database.
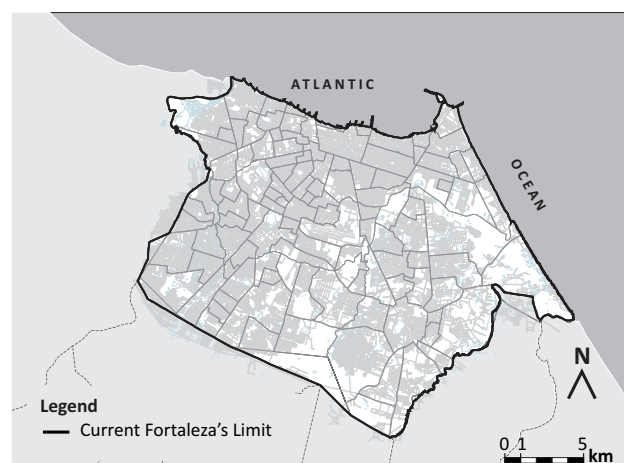
Map 1.4. Urban area of the city in 2009.
Source: Author, based on Municipality database.
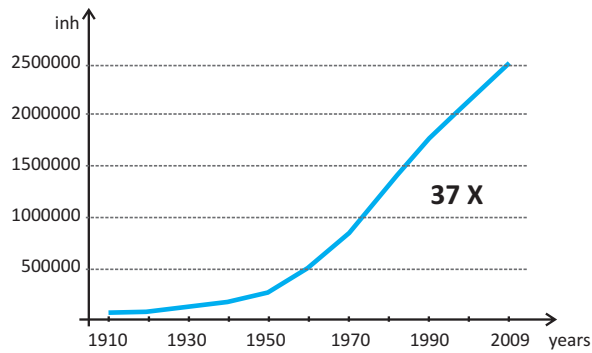
Figure 1.2. Population Growth Scheme.
Source: IBGE- Brazilian Institute of Geography and Statistics.
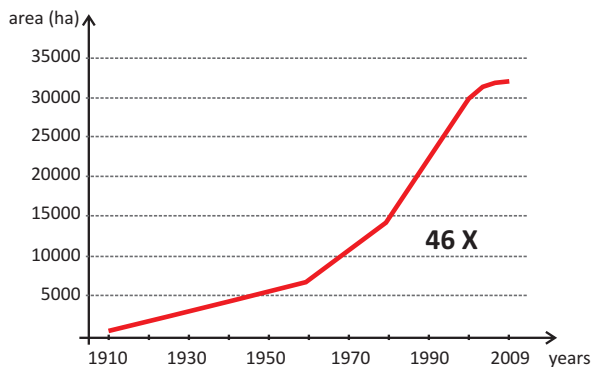
Figure 1.3. Spatial Expansion Scheme.
Source: Author.

• Neglect of public spaces, facilitated by the global public spaces privatisation process, represented by some aspects like: lack of provision; lack of appropriate maintenance and incompatibility of public spaces with their demands. This neglect also happened because people did not take care of it, public space has been understood as nobody's space *(see Photo 1.4)*;

• Exacerbation of social and spatial segregation. This aspect is represented by the gated communities and fortified enclaves, which are spaces to live, work or recreate behind walls and fences, completely segregated from the public urban environment. From the 80's on people started to cluster themselves behind security guards and electrified fences in order to avoid the chaos and violence of the city, creating a fake idea of safe community. This phenomenon is closely related to an aspect called *"fear of crime"*, which relates to the concern about personal and property safety. This social and spatial clustering led the city to a huge spatial fragmentation;

• Lost of public spaces network. The city used to have its public spaces very well connected and connecting other functions on the urban fabric, however, this

network was much weakened on the last 100 years. The links, which are mainly the street network lost their quality *(see Photo 1.5)*, being overlapped by the car supremacy, and the nodes, which used to be the open public spaces, such as parks and squares, are almost totally absent on the current urban fabric.

Photo 1.3. Example of informal settlements illegally occupying public space.
Source: Google Earth (2009).

Photo 1.4. Example of derelict open public space in Fortaleza.
Source: Rfurlani Architecture Office (2004).

Photo 1.5. Example of no quality on street network - sidewalks are not understood as public spaces.
Source: Panoramio.

GLOBAL CONTEXT

LOCAL CONTEXT

SPATIAL EFFECTS OF THE PROBLEM
- Derelict Public spaces;
- Lack of Public Spaces;
- Lost of Public Spaces Network;
- Spatial segregation;
- Illegal occupation of Public Spaces.

PROBLEM STATEMENT

On the last 100 years, Fortaleza had a huge and uncontrolled **spatial and population growth**, determining **fast changes** on its urban structure. **However**, **public space** structure was one of the city elements which did not follow the pace of urban transformations, losing its **quality** and its capacity to **support urban development.**

SOCIAL EFFECTS OF THE PROBLEM

- Undermining of Public Life;
- Exacerbating Social Segregation;

Figure 1.4. Problem Statement Scheme.
Source: Author.

4. APPROACH

4.1. Main aspects of analysis

This thesis argues that since public spaces has been neglected by government and population, there is a huge lack of provision of them, and also the majority of these spaces are derelict, it is already clear that the planning framework of the city has not been effective concerning public spaces development.

> *The city planning is not promoting a public space structure able to integrate the different uses, areas and people in the city.*

This is a starting point, which structures the thesis and defines the approach to develop the research.

The main approach for this research is based on the following questions: what is going wrong on public spaces in Fortaleza? And why is going wrong? In this sense, there are two main aspects of analysis *(see Figure 1.5)*:

• First, this thesis researches the present functional and spatial conditions of public spaces in the city, going deeper on the issues of the problem described before;

• Second, it researches the present conditions of planning instruments in relation to public spaces development, aiming to detect the failures on public spaces planning.

The importance to go deeper on these two aspects is because we need to clearly understand the issues of public space failure, since the spatial and functional reasons, until the planning instruments and their relations with the current spatial configuration of public spaces. We need to know which issues from the planning instruments are blocking the development of the public space role and where the urban planner skills can make any difference to fulfil the possible gaps and deficiencies.

The decision to focus on the planning instruments and its failure on promoting public spaces development is supported by some authors such as Borja & Castells (1997) and Carrion M. (2003). They argue that one of the main explanatory factors that have influenced changes on the urban form, particularly on large Latin-American cities, is the weak planning instruments and their mechanisms of control. According to Carrion M. (2003), the huge population growth which happened on the last century on large Latin-American cities, was followed by a lack of efficient planning tools and control framework.

This inexistence of effective control and anticipatory behaviour from the city government was one of the main reasons for the actual problems on these cities such as public spaces neglect.
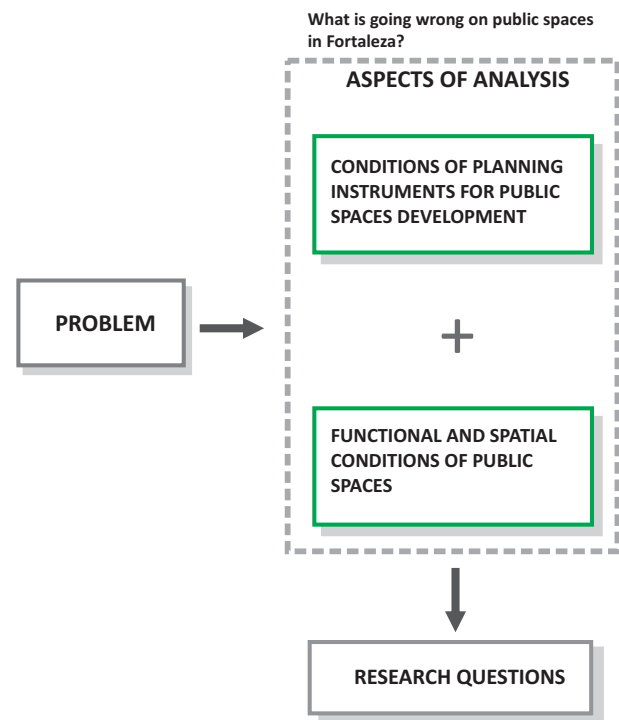
Figure 1.5. Scheme showing the approach for analysis.

Why the approach on planning is necessary?

> *The adaptation of changes is something that cannot be improvised. An anticipatory approach defined by planning is therefore required in order to meet current and future demands of cities and regions (Borja & Castells, 1997).*

4.2. The role of public spaces

In order to have sustainable effects in the city, the improvement of public space structure should be developed using the capacity of these spaces to transform the city. Public space should be developed as an element to integrate the other physical structures and the flows of the city. Should be able to integrate the built form and its different functions with the essential flows of the city,

connecting functions, distributing people and goods, and at same time be the space for leisure and recreation. Since the public space structure is composed by the open public spaces like parks and squares, but also by the street network, it is necessary to re-establish the sense of public space network, the sense of continuity between the different nodes and also the movement between them.

> *Therefore, the main role of public spaces is to work as an element of spatial integration in the city.*

4.3. Definition of a specific area to analyse

As an element of spatial integration in the city, public spaces have great potential to support effective urban transformations and help different areas to improve their spatial and functional conditions. In this sense, this research focuses its analysis on an specific area inside the city of Fortaleza, which is already experiencing several urban transformations, being an important target from the real estate market.

The chosen area represents a typical urban process experienced in Latin-American large urban agglomerations since some decades ago, which is the deconcentration of development, infra-structure and activities, creating new sub-centralities apart from the historical center *(see Map 1.5)*. This urban process started from an overcrowded historic center to the consequently decrease of its importance in favour of new sub-centralities along the city territory.

The specific area analysed is the sub-centrality of Washington Soares *(see Map 1.6)*. This is one of the actual urban areas in the city which is experiencing fast transformations processes, mainly steered by the private sector, with very weak control from the public government. This decentralisation process in Fortaleza was mainly a spontaneous reaction from the private market and from the rich population who realized that the historic center could not offer the same quality to live and to circulate anymore. The city planning recognized the deconcentration process some years ago and started to apply an urban model of decentralisation of public services, administration bodies, and infra-structure.
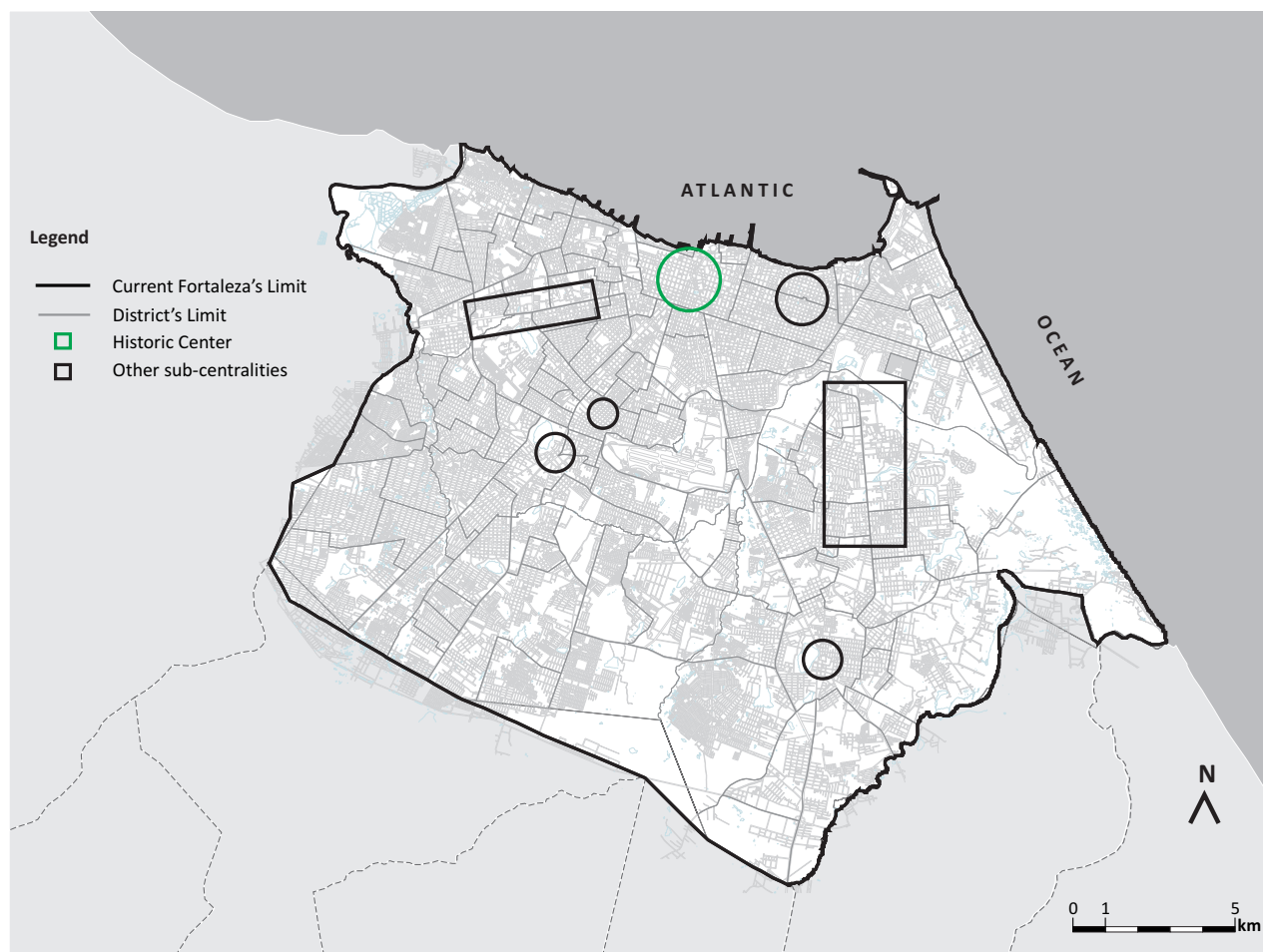
Map 1.5.   Location of Historic Center and other sub-centralities in the city of Fortaleza.
Source: Metropolitan Observing Agency - Observatório das Metrópoles (2009).

The selection of the specific sub-centrality area of Washington Soares Avenue, besides to be a clear example of the actual urban transformations happening on the city, it has some other important reasons *(see Map 1.6)*:

1. First, the urban transformations in the area are already in course and do not need to be stimulated. There is a concrete process of urban transformation on the sub-centrality which needs only to be steered according to an integration of different policies;

2. Second, the fact that there is already a transformation in process can really facilitate the concrete involvement of society, private sector and the government, which have total interest to improve the spatial and social conditions of the area;

3. Third, the city knows, by its own experience, that if these transformations happen to be left only on the market responsibility, the results will lead to more spatial and social fragmentation, which is not a proper condition to a sustainable development of the city;

4. Fourth, the decentralisation model is one of the actual goals of the city planning. In this sense, public space can play an important role as a driver of urban transformations on these sub-centrality areas.

Therefore, the linear sub-centrality which follows the Washington Soares Avenue was the one chosen to be deeper analysed *(see Map 1.6)*. This sub-centrality is described on the Metropolises Observation Agency (*Observatório das Metrópoles*), a research institute from Brazil, as a Tertiary Corridor or Commercial Activities Corridor. This sub-centrality is formed along a main axis road which connects the city to other Municipalities on the east side. Besides connects the city to the eastern cities it is a really busy route to many new housing developments, three different Universities and also several commercial activities.
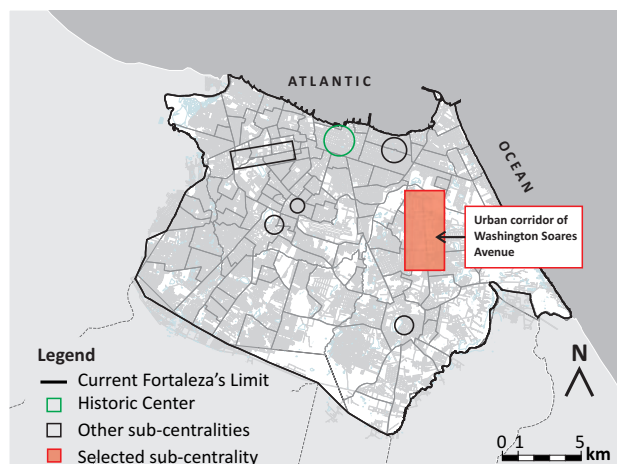
Map 1.6. The selected sub-centrality which is the focus of the research, the Urban Corridor of Washington Soares Avenue.

4.4. Scale of analysis

This thesis discusses the public spaces problem on the case study of Fortaleza, focused on two main scales of analysis. First the metropolitan city scale, responsible to understand the general issues and relations between the different areas of the city. Second, there is a deeper analysis of one specific part of the city, which is the sub-centrality of Washington Soares Avenue. This area is very emblematic of the current urban processes in the city, therefore can provide results which can be extrapolated to the whole city. Although the analysis is focused on these two scales, the definition of planning recommendations to public spaces development, which is the end product of this thesis, has impacts on all the scales of public spaces *(see Figure 1.6)*.
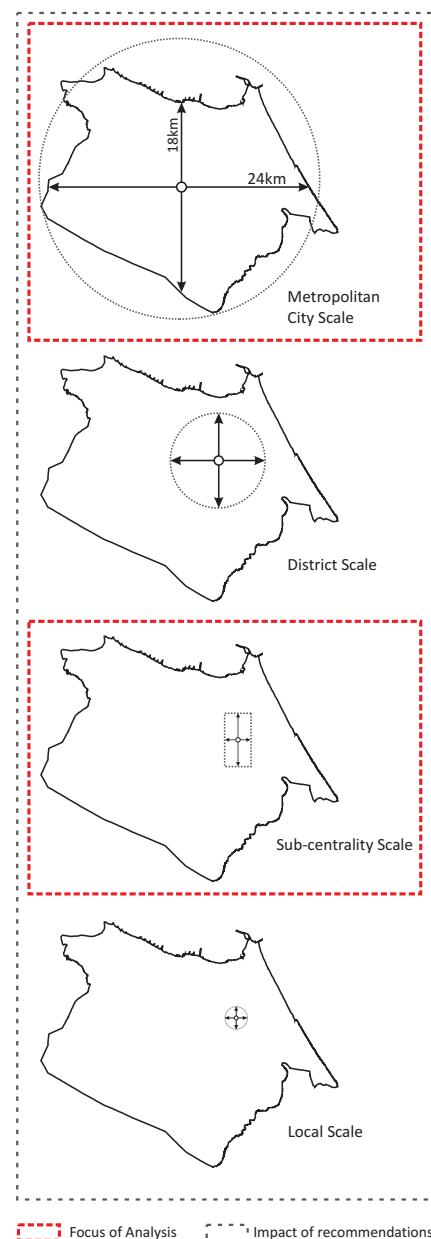
Figure 1.6. Scale of analysis focused on the sub-centrality, but involving all four scales.

5. AIMS OF THE RESEARCH

The main aim of this research is divided in two steps:

1- to explore and understand the main issues which are composing the failure of public space structure in the city of Fortaleza and to know the reasons for this failure (what is going wrong? and why is going wrong?).

2- to search for alternatives, focused on the planning framework, to promote public spaces development, ensuring their role as an element of spatial integration within the city.

These alternatives should be appropriate to the current socio-spatial reality of the city and innovative in order to be efficient in such diversified social-urban structure. There is an urgency to reach this aim for the city, because it will help to improve quality of life for its citizens, avoiding fragmenting development processes and illegal occupation of public areas.

Therefore, this research argues that a public spaces structure with good quality, well distributed and balanced over its urban fabric, and compatible with its socio-economic context, can promote quality of life in the city. According to specialists, this quality will certainly promote improvements on social cohesion and better spatial integration between neighbourhoods. Besides, it will also facilitate the mobility within the city, with better environment for public transport and mobility systems and appropriate space for them; will promote environment protection and an increase of air quality; and will allow a more spatial integration between the different areas within the city (Carmona et al 2008).

The relation between proper public spaces and the improvement of the overall quality of life in the cities was already proved by some concrete urban development strategies implemented in Curitiba and Bogotá. These cities improved their quality of life mainly through betterments in public spaces and transport systems. This means that even in cities that have huge social disparities, like them, the benefits of a public spaces improvement are clear and incontestable. The idea that public spaces can influence an overall improvement of the city is corroborated also by authors like Jan Gehl and Lars Gemzoe.

6. RESEARCH QUESTIONS

In order to explore the two main aspects of analysis presented before, which are the actual functional and spatial conditions of public spaces in the city, and the present conditions of planning instruments in relation to public spaces development, the thesis establishes the following Main Research Questions:

Conceptual aspect:

1. What are the **main issues** affecting **public spaces** nowadays, in respect to the new society demands?

2. How can current **Spatial Planning discussion** help the city to establish more **efficient public space** planning and development?

Planning aspect:

3. Are the **actual planning instruments** helping the city to establish a **balanced and organized** public spaces structure?

4. How can **planning instruments** help public space to fulfil its **defined role**?

Spatial aspect:

5. What are the **public space conditions** on the selected sub-centrality area of the city?

6. What are the **spatial demands** on the selected sub-centrality area of the city which should be answered by public space structure?
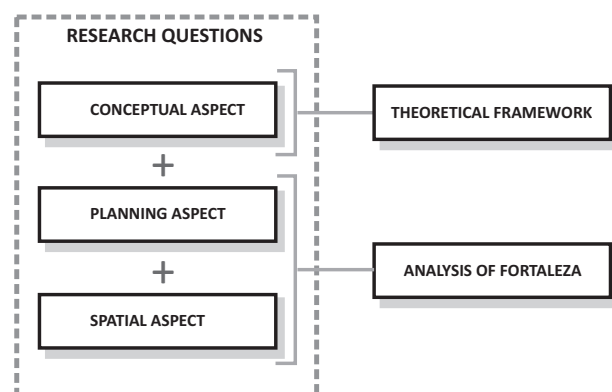
Figure 1.6. Scheme showing the research question aspects and their relation with other parts of the thesis.

The research questions were divided into three different aspects, conceptual, planning and spatial aspect *(see Figure 1.6)*. The conceptual aspect is responsible to give theoretical support to the thesis argumentation, through the review of relevant literature. The planning aspect is responsible to understand the present conditions of planning instruments in relation to public spaces development, observing the regulatory tools, the governance model and implementation actions related to public spaces in the city of Fortaleza. The planning aspect is also responsible for research about possible definitions and uses of planning instruments as an efficient tool to develop public spaces. The spatial aspect is responsible to discuss the public space conditions on a selected sub-centrality area of Fortaleza and their relations with the overall conditions on the city scale. These conditions are related to provision, functions, integration of flows, accessibility, etc. Besides the current conditions of public space, this aspect also researches about the spatial demands of the specific area, in order to establish an appropriate public space development.

7. CONTRIBUTION TO A SOCIAL AND ACADEMIC DEBATE

7.1. Social Relevance

There is already a serious demand from society asking for better public environments and for equality in the distribution of these spaces, as we can see in the following newspapers cuts *(see Figures 1.7 to 1.10)*. Besides the huge social demands specifically for better public spaces, the city is urgently asking for less spatial fragmentation, providing a balanced range of opportunities all over the city, which can be facilitated by public spaces. This research project offers to the city alternatives to develop and manage public spaces, facilitating the promotion of public spaces role as a structuring element of development and spatial integration in the city. This thesis contributes to implement an effective public spaces development which is an important and necessary step towards better social integration and sustainable social environment to the city.

Figure 1.7. Newspaper from 09 Oct 2008, presenting the lack of public spaces for children.
Source: OPovo Newspaper (20 08).

Figure 1.8. Newspaper from 26 Jan 2009, presenting the demand for public spaces.
Source: Diario do Nordeste Newspaper (2009).

Figure 1.9. Newspaper from 29 Dec 2008, discussion about illegal uses of squares.
Source: Diario do Nordeste Newspaper (2008).

Figure 1.10. Newspaper from 26 Jan 2009, presenting the discussion about solutions to give better conditions to the public squares.
Source: Diario do Nordeste Newspaper (2009).

7.2. Academic Relevance

The academic contribution of this thesis is reflected much further than in Fortaleza's reality. The thesis is collaborating to a general and an academic debate about the current issues which are promoting the failure of public space structure. Besides, it is debating how elements of urban planning can contribute to give quality to public spaces network, reflecting in better integration of the different elements from urban structure, and how these elements can be synthesized to be used in the whole city in order to improve social and spatial conditions. This research presents relevant guidelines which can be developed as a planning model on other similar situations. In this sense, this thesis contributes with the discussion of alternatives which urban planners can help the city to deal with public space issues.

The most successful urban experiences presented by Gehl and Gemzoe (2003) are related to interventions which made use of comprehensive policies for public spaces. This fact shows the importance to research about planning instruments (policies, laws, governance models, actions, etc) for public spaces which can foster the urban life quality in a city. Besides, another contribution to the academic field is the innovative approach towards public spaces from the planning point of view instead of being focused only on the spatial intervention *(see Figure 1.11)*. The common approach usually takes care about spatial interventions and forgets about one step before, their planning, which have the responsibility to facilitate the spatial intervention and give the necessary support for a successful result. In other words, planning is a wider group of actions which includes spatial interventions, but which also concerns regulatory tools, governance models and inplementations actions for a city. Since this thesis is focused on the planning instruments which enable spatial interventions related to public spaces, the

academic contribution is being also widened to a more comprehensive approach.

Another academic value of this research is the widening of the discussion about public space failure and its main issues to Latin-American and Braziliam context. The present debate about it is very much focused on the context of USA and Europe and needs to be spread to other contexts where the neglect of public spaces is very present and it imposes negative effects to the population of many cities around the world *(see Figure 1.12)*.
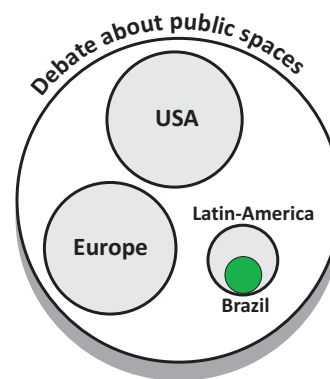
Figure 1.12. Graphic showing the very little amount of public spaces debate on Brazil.
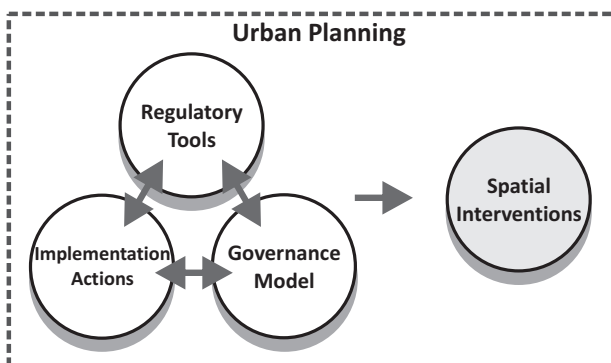
Figure 1.11. There is an Academic relevance on the approach on all the planning instruments, particularly on the regulatory tools, governance model and implementation actions.

8. RESEARCH METHODOLOGY

8.1. Three axes of the research

This research was developed following three main axes:

1-   The Theoretical Framework;

2-   The Analysis of Fortaleza;

3-   Improvements on the Planning Model

These   three main groups of activities are the methodological base for the entire research. The Theoretical Framework (1st Axis) is the part of this thesis which supplies the research with a theoretical argumentation and a selection of credible criteria to develop the analysis of the city *(see Figure 1.13)*. This is the part which answers the two first research questions, related to the conceptual aspect. Many authors were visited in order to strength the ideas presented in this thesis, for instance Madanipour (1999 & 2003), Gehl, J. and Gemzoe, L. (2003), Carmona, M., Magalhães, C., Hammond, L. (2008), among others. The argumentation which supports this research was provided by the discussion about new paradigm for public spaces on a globalisation and information society era; and also by a discussion about the possible contributions of European Spatial Planning to the city and to a better public spaces development. Although, this research is very much aware of the constraints for the use of foreign theories on the urban context of Brazil.

1	THEORETICAL FRAMEWORK	**Public Spaces Issues**
		Spatial Planning discussion
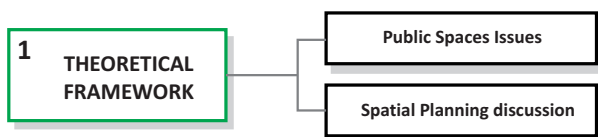
Figure 1.13. Graphic scheme of 1st axis of research and its mains elements, which are working as criteria for the analysis.

The Analysis of Fortaleza (2nd axis) is the biggest activity in this research project, and is where a general analysis of the city is developed and one specific area (sub-centrality of Washington Soares Avenue) is deeper analysed. The criteria to analyse the public spaces structure is based on two different dimensions: first, the Functional-spatial Dimension; and second, the Urban Planning Dimension *(see Figure 1.14)*.

2	ANALYSIS OF FORTALEZA	**Functional-spatial Dimension**
		Urban Planning Dimension
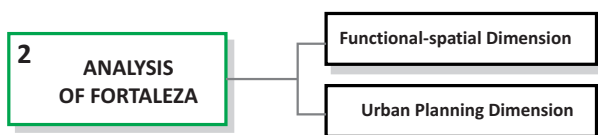
Figure 1.14. Graphic scheme of 2nd axis of research and its mains elements.

This analysis will be supported by different parameters mainly derived from the Theoretical Framework. The Functional-Spatial Dimension is responsible to answer the research questions about spatial aspect (*see item 6, on this chapter*).

The Theoretical Framework provided the main criteria for this analysis which are the six first aspects defined bellow. The last one was defined due to the approach chosen to develop the analysis focused on the sub-centrality. These criteria are deeper explained on the chapter of analysis, but are here presented, as it follows:

1. Provision of public spaces (amount of m²);

2. Kind of uses and users, concerning the different uses of public space structure and observing the diversity of users related to income and education level (socio-economic characterisation of the area);

3. Connection with public transport, checking if there are clear and appropriate connections with public bus system;

4. Surrounding buildings and infrastructure, analysing if the public space is compatible to the surroundings (building height, scale, physical appearance);

5. Level of maintenance, indicating the physical conditions of public spaces;

6. Accessibility of the public space structure;

7. Connectivity on a macro-level (city scale) of the sub-centrality with the overall urban network;

The Urban Planning Dimension is responsible to answer the research questions defined by the planning aspect (*see item 6, on this chapter*). This analysis is focused on the planning instruments with relation to public space structure, on the three levels of administration: national, state and municipal level; and it is developed based in three main elements *(see Figure 1.15)*:

• Regulatory Tools;

• Governance Model;

• Implementation Actions.

These three elements are the main components of urban planning for the city of Fortaleza, which directly regulates and develops the public space structure. The criteria for analysis are mainly derived from the Theoretical Framework, using the principles and characteristics of European Spatial Planning, and the discussion about

the public spaces issues, particularly about design and management. In this sense, the criteria for Urban Planning Dimension analysis are composed by three main questions for the Fortaleza context:

1. Are the actual planning instruments, in Fortaleza, ensuring adequate provision and distribution of public spaces?;

2. Are the actual planning instruments, in Fortaleza, defining quality requirements for public spaces development and management?;

3. Are the actual planning instruments, in Fortaleza, presenting effective regulatory tools, governance schemes and implementation actions?;

The two first questions are derived from the necessity to check how the spatial conditions are translating the planning instruments about public spaces. The other question is related to the effectiveness of the urban planning policies and public space planning on having concrete spatial results on the city. All these criteria are deeper explained on the section which presents the Urban Planning Dimension analysis, on Chapter III.

The development of the improvements on the planning model (3rd axis) is related to the proposal of recommendations about public space development and its planning instruments to do so *(see Figure 1.16)*. This

part represents the end product of this research, being responsible to develop a series of recommendations to the urban planning of the city which can help the different actors to exercise their roles on the improvement of public spaces structure. The fundament for the definition of the recommendations comes from the discussion developed on the Analysis of Fortaleza and on the Theoretical Framework.
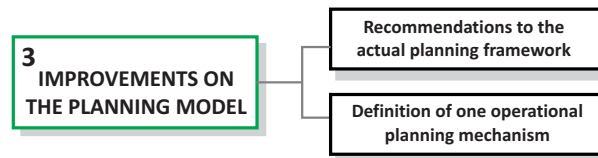
Figure 1.16. Graphic scheme of 3rd axis of research and its mains elements.

The third axis was assisted by the discussion on the contributions of three different case studies for public spaces development, offering alternatives to deal with the public space issues. These case studies are related to the integration between planning instruments and concrete spatial results on public space structure. It was selected three reference interventions to analyse particularly how public spaces have answered the spatial demands of the city and what kind of planning instrument is behind the spatial results. The selection of cases was based on two criteria: first, projects in cities which have similar characteristics (morphologic, social and cultural) to Fortaleza, despite the fact to have different scales; second, projects which had a very specific contribution in the use of planning instruments to improve public spaces structure. The three cases selected were the Privately Owned Public Spaces, in New York-USA; the Consortium Urban Operations, in São Paulo-Brazil; and the Metro on Rubber Wheels, in Curitiba-Brazil. This part of the research gave inputs about planning instruments and actions that were already used on other urban interventions and their effects on public spaces.

These three groups of activities (the three axes) compose the main elements of the thesis and systematize the methodology in a logical process *(see Figure 1.17)*. After the development of the analysis of the public space problem in Fortaleza, based on a theoretical framework, the goal of this research is to define a planning model for public spaces which is able to answer to a diversified set of spatial demands and create spaces with the power to stimulate urban transformations and promote spatial integration in the city. In this sense, the Theoretical Framework gave the argumentation support to the research, the Analysis of Fortaleza clarified what are the issues of public space problem and what spatial demands the city is pushing against its public space structure,
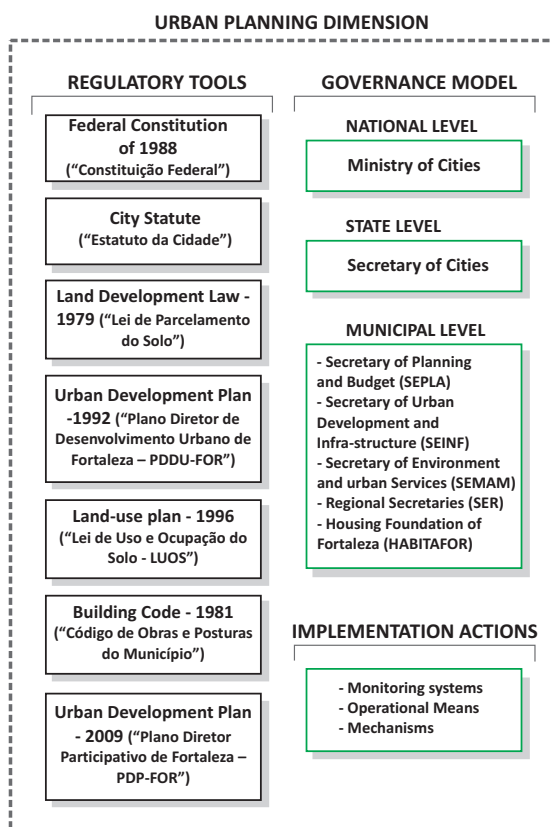
Figure 1.15. Main elements of analysis on Urban Planning Dimension.

and the Improvements on the Planning Model ends with recommendations which can make the planning instruments of the city help the development of public spaces, ensuring their role.
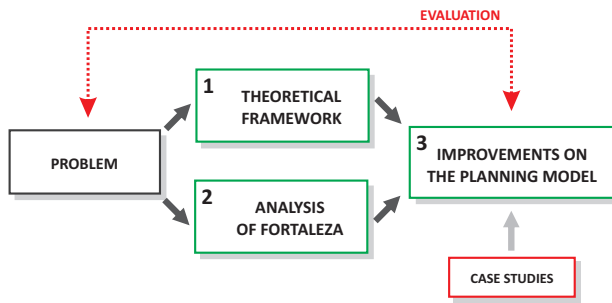
Figure 1.17. Overall scheme for the three axes of research.

Figure 1.18. End Product - The Planning Model recommendations.

8.2. End Product

The end product of this research, as already commented on the section before, is the recommendations to the actual planning model. These recommendations to public space planning and development are mainly based on elements from both dimension analysis of Fortaleza *(see Figure 1.18)*.

8.3. Methods

The development of the three main axes of this research was supported by a group of different methods which are: **Official Data Research (1)**, which analysed documents about the most diverse aspects as planning instruments, historical development of the city, income statistics, density numbers, transport means, etc; **Literature Research (2)**, partly related to Literature

Review and the theoretical background from key authors, other part related to the urban development process of Fortaleza with an historical approach, describing its different urban models and its impacts on public space structure, and other part related to the research about case studies; **Mapping (3)**, in order to spatially represents the characteristics of the area and to draw conclusions in respect to the public spaces problem and the spatial demands; and **Site Observations (4)** which is part of the Analysis of Fortaleza in its Functional-spatial dimension. These four methods do not necessarily need to follow the order presented; they were used in different times followed by other auxiliary methods to develop the research. The relation between methods and the main activities of research are described on the ***Figure 1.19.***
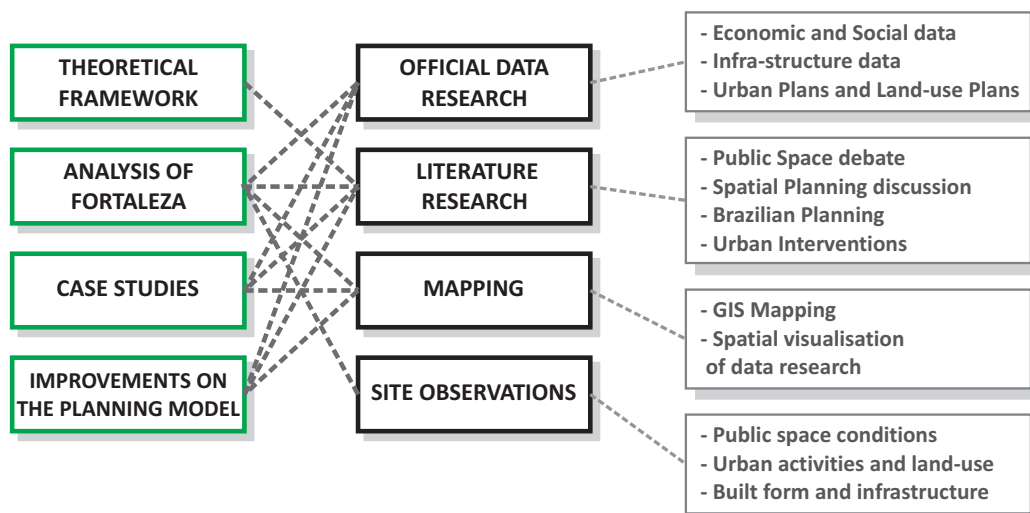
Figure 1.19. Relation between the methods and the main activities of the reserach.

Chapter II
Theoretical Framework
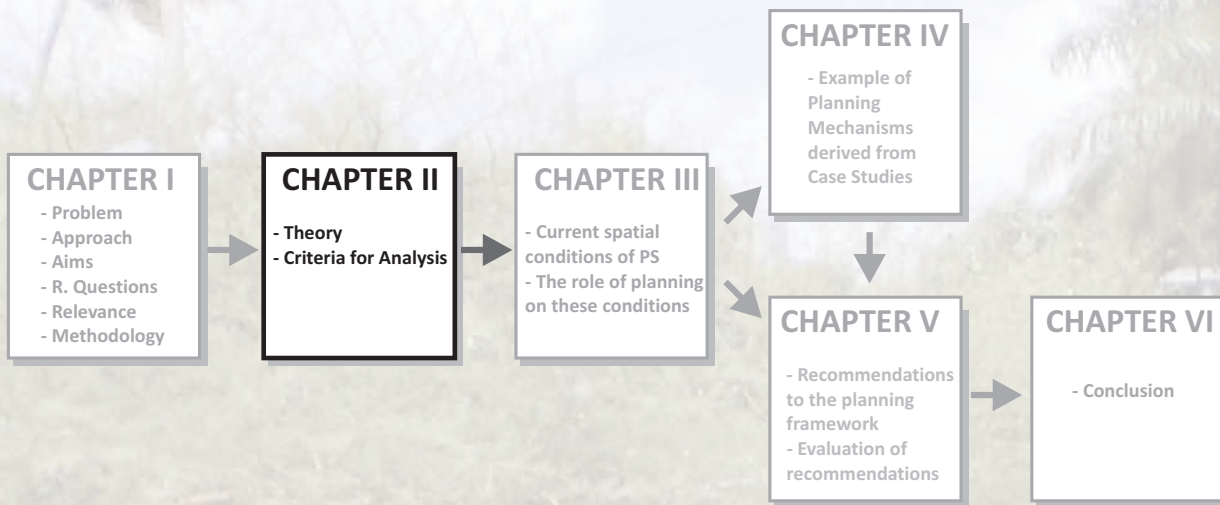
CHAPTER I	CHAPTER II	CHAPTER III	CHAPTER IV
- Problem - Approach - Aims - R. Questions - Relevance - Methodology	- Theory - Criteria for Analysis	- Current spatial conditions of PS - The role of planning on these conditions	- Example of Planning Mechanisms derived from Case Studies

CHAPTER V	CHAPTER VI
- Recommendations to the planning framework - Evaluation of recommendations	- Conclusion

CHAPTER II - THEORETICAL FRAMEWORK

1. PUBLIC SPACE ISSUES – DESIGN AND MANAGEMENT

1.1. Privatisation of Public Space

1.2. Why public space is failing? What can be done?

1.3. Design Issues

1.4. Management Issues

1.5. Contextual reasons

1.6. Framework for Functional-Spatial Dimension analysis

2. CONTRIBUTIONS OF EUROPEAN SPATIAL PLANNING TO THE CITY

2.1. Main characteristics

2.2. Principles

2.3. How Spatial Planning Works?

2.4. Transfer of Spatial Planning concepts from developed countries to developing countries

2.5. Framework for Urban Planning Dimension analysis

This chapter presents important discussions about public spaces in relation to urban planning, which will support the argumentation developed on this Thesis and give criteria for the analytical part. The theoretical discussion is divided in two main parts: the first one is about the problem issues affecting public spaces nowadays; the second part is a discussion about the possible contributions of European Spatial Planning to the city development, and in consequence, to the public spaces development *(see Figure 2.1).*

The first part of the theoretical discussion presents the main issues which reference authors are considering as failure of public space and their suggested interventions. This discussion has the focus to find criteria to evaluate the current functional-spatial conditions of public spaces in the city of Fortaleza.

The second part of the theoretical framework was directly focused on which contributions of current European Spatial Planning discussion can be offered to the development of a public spaces structure in a city. This discussion was supported by the document *"Spatial Planning - Key Instrument for Development and Effective Governance with Special Reference to Countries in Transition"*, elaborated by the United Nations Economic Commission for Europe – UNECE, in 2008.

PUBLIC SPACE ISSUES DESIGN AND MANAGEMENT		CONTRIBUTIONS OF SPATIAL PLANNING TO THE CITY
A theoretical debate about design and management of public space face to its privatization process.	**1** THEORETICAL FRAMEWORK	Principles, decision-making processes, tools and mechanisms from recent Spatial Planning discussion.

Figure 2.1. Graphic scheme showing the elements discussed on the 1st axis- Theoretical Framework.

1. PUBLIC SPACE ISSUES – DESIGN AND MANAGEMENT

1.1. Privatisation of Public Space

Nowadays, there is a widespread debate on the academic field that public sphere is continuously losing space towards a more private life, a phenomenon called by many of them as privatisation. In order to find a balance between private and public sphere many contemporary authors have been discussed this topic showing the importance to promote the development of public spaces and finding ways to ensure public life even facing this growing process towards privatisation.

According to Banerjee (2001, p.9-10) there are three main reasons for this shrinking of public sphere in favour of private realm, which are related to transformations in the global city context. First, a process of downsizing governments, resulting on a corresponding decline in the levels of goods and services, historically provided by the government; second, the subservience of local public interest to interests of global capital; third, the information technology revolution, which are contributing to profound changes in the traditional concepts of place and community.

Banerjee (2001, p.10) also says that *"these trends represent fundamental shifts in the way public life and space are conceptualised and in the values associated with them"*. But, what effects these *"fundamental shifts"* have in public spaces? According to Sheller and Urry (2003, p.107) *"on every front, it seems, the 'public' is being privatized, the private is becoming oversized"*, which means, for instance, the growing choice from urban populations to live in gated communities, or even the establishment of public life inside private spaces. This leads to a decline on the quality of traditional open public spaces in the city.

The way society organizes itself has direct impacts on the way people differentiate public from private activities. There is no agreement in define an appropriate way to deal with this new blurry boundaries between public and private. While some authors claim for a return of traditional public spaces, aiming for a clear separation between both spheres, others authors are just asking for new interpretations, considering that there is no longer precise limit between public and private. Habermas (1989 cited in Madanipour 1999, p.885) believes that *"a strong public sphere, where public life is conducted and which is clearly separated from the private realm, is seen to be essential for the health of a society"*. But, Hajer and

Reijndorp (2001) argues on another direction, he says that the shift towards a private character does not determine the quality of a place, neither its potential role to be part of public realm. Banerjee (2001, p. 15) corroborates saying that it is not necessary to have a division between both spheres; he argues that *"whether public life actually takes place in a private or public space does not seem to matter"* **(see Photo 2.1)**.
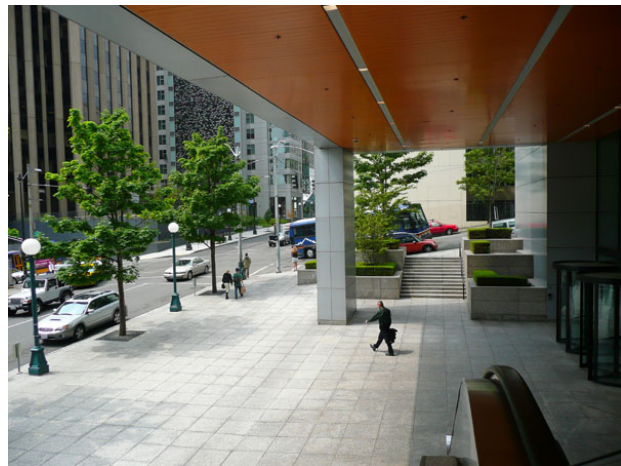
Photo 2.1. Entrance from Bank of America. Is this a public or private space?
Source: Dan Bertolet.

Another aspect of the privatisation process is a growing number of what Caldeira (2000, p. 04) calls as *"fortified enclaves"*. She defines these spaces as privatized, enclosed, and monitored, used for all kinds of functions, as residence, consumption, leisure and work. According to her fortified enclaves are clearly undermining the role of public space and promoting a spatial and social segregation in the city.

> *"Because access to enclaves is privately controlled, even if they have collective and semi-public uses, they deeply affect the character of public space. In fact, they create a space that contradicts the ideals of openness, heterogeneity, accessibility, and equality". (CALDEIRA 2000, p. 04)*

The problem of fortified enclaves is happening in many cities around the world, since a city as Los Angeles, in a developed country, until a city like São Paulo, on *"third world"* countries. They can be shopping malls, residential gated communities or even theme parks. Caldeira (2000, p. 327) says that *"most of L.A.'s public life takes place in segregated, specialized, and enclosed environments such*

as malls, gated communities, entertainment centres, and theme parks of all sorts". Caldeira argues that these kinds of spaces are made for social exclusion, creating real apartheid zones for different social groups, where people from different income level tend to not interact at all *(see Photos 2.2 to 2.4)*.

Photo 2.2. Shopping Mall in São Paulo.
Source:http://dicasdecomprasaopaulo.spaceblog.com.br

Photo 2.3. Amusement Park Lalandia, in Rødby-Denmark.
Source: www.visitdenmark.no

Photo 2.4. Gated community in Helsinki, Finland.
Source:locatinghelsinki.wordpress.com/2007/08/22/sundsberg-gated-community/

Looking now particularly to the phenomenon of gated communities the authors describe two main reasons for why people decide to live between walls and fences. Rio (2004, p. 36) says that the reasons are: first the society is scared for its own security, and second there is an extreme socio-cultural gap increased by the market and social expectations. These are similar reasons defined by Carmona et al (2008, p. 52), but they are explained differently. The first reason is a fear of crime and the second one is the people's desire to be separated from the rest of society, ensuring they are exclusive.

There are other authors who point different reasons to the increase of gated communities. Blakely and Snyder (1997 cited in Carmona et al 2008) *"suggests that this tendency to live in club-like communities with common spaces and facilities arises from a fear of strangers, especially of those who come from a different class, culture, ethnicity, or national origin, and not just a concern for personal and property safety".* But the most important point of this discussion is the consequences for public life and spaces, which according to Madanipour (1999, p.888) is unquestionably exacerbating socio-spatial polarisation through the creation of exclusive enclaves and nodes, which is the opposite way to a healthy society *(see Photos 2.5 and 2.6).*

Photo 2.5. Gated community in São Paulo complete segregated from the public streets.
Source: www.agodoiimoveis.com.br

Photo 2.6. High-security entrance of a Gated community (CCTV and electrified fences), in São Paulo.
Source: www.blindaco.com.br

Most of the effects of this privatisation process, described by the authors, are understood by them as negative, but they also point some effects which could be understood as positive, depending on the point of view. The interpretation of these effects is helpful to reshape the public sphere in face of its last changes. Spatial fragmentation and neglect of open public spaces are undoubtedly negative effects on the city structure, but the despatialisation of public activities can be both positive and negative. It is positive, if you think as an expansion of possible places (including private apart from public spaces) to perform them. It is negative, if you only concern the decline of traditional public space as a consequence. Therefore, the distinction between negative and positive can be very controversial and, consequently, useless.

In this context, what is accepted by many authors is that privatisation process of the public realm and spaces is happening, which demands a clear understanding of its effects. These effects can be seen in several elements of the urban life, as the spatial segregation promoted by gated communities and also the increase of public life inside private spaces, for instance shopping malls and corporate plazas. Therefore, this section describes the main issues of this transformation of urban public sphere towards a private domain, showing what are failing on keeping and improving open public spaces qualities and to present possible answers proposed by the authors to deal with this process. In this sense, this section defines a list of design, management and contextual elements which can work as a framework to analyse different cities, and particularly Fortaleza.

1.2. Why public space is failing? What can be done?

The current privatisation process of public life clearly promotes effects on the city structure, which are the declining use, quality and provision of public spaces. Carmona et al (2008, p.03) says that:

> *"in many parts of the world, considerable evidence has been gathered to demonstrate a shared sense of dissatisfaction and pessimism about the state of urban environments, particularly with the quality of everyday public spaces".*

This reflects that something is going wrong about public spaces. But, this leads us to a question: why these public spaces are failing? There are different opinions about it, and the issues which are contributing to this failure represent distinct categories. Some of them were already commented on the previous section, for instance the neglect of open public spaces or the increase of gated communities.

According to Carmona et al (2008, p.03) the poor quality of design is one of the main reasons for public spaces failure. The new public spaces are typically dominated by parking, roads infrastructure, and are in consequence exclusionary, giving priority to cars. Gehl and Gemzoe (2003) and Whyte (1988) corroborates with Carmona's opinion describing a sort of public spaces qualities which urban design should help to fulfil. This list goes from a good location until pedestrian-friendly concerns. One of the arguments of Whyte (1988, p.10) says *"what attracts people most, in sum, is other people"*. In this sense, the location of public spaces should pay attention on people flows and nodes, which according to Whyte (1988) are concentrated on busy routes, street corners and shop entrances.

Carmona et al (2008, p.03) says that an inappropriate design is not the only issue of the problem, but also an inadequate management system is playing a role. He argues that some of well-designed public spaces did not succeed. According to him the absence of a proper management of these spaces are impacting on key urban qualities as connectivity, free movement, provision of social space, health and safety, public realm vitality, and also on the economic viability of urban areas.

The fail of public spaces management has two different views in the literature. Some of them focus on the problem of over-management of privately-owned public

spaces, while others focus on the under-management of open public spaces. According to Banerjee (2001) and Sorkin (1992) spaces that are only managed by private corporations, for instance the most cases of urban renewal areas, constantly fails as public spaces due to a process of homogenisation and commodification of them *(see Photo 2.7)*. These spaces are been developed as a market value or commodities, following global design tendencies and losing a real public space character. Lloyd and Auld (2003) say that these spaces are missing their vital role to encourage socialisation by a transitory use, linked solely to commercial reasons rather than social exchange. Although, other view of management problem, corroborated by Carmona et al (2008), argues that open urban public spaces are being neglected, and poorly maintained, clearly showing a process of under-management *(see Photo 2.8)*.

Photo 2.7. Corporate plaza in Philadelphia, representing the over-management of public spaces.
Source: www.flickr.com

Photo 2.8. Derelict park in Fortaleza, representing the under-management of public spaces.
Source: Paulo Lima.

Carmona et al (2008, p.09) argues that the best answer to open public spaces decay is a combine strategy between appropriate design and long-term management. He calls this strategy by *"design-led management process"*. For him:

> *"this does not imply that all those involved in the management of public spaces need to be designers [...] It does imply, however, that interventions (no matter how small) should be considered creatively and sensitively, involving weighing-up and balancing options and impacts [...] within the constraints set by context and resources".*

Carmona et al (2008) states that in order to implement a design-led management of public spaces, it is necessary to define a *"public space character",* which is conceptualised in three key dimensions. The first one is related to surrounding buildings, landscape, infrastructure and uses. The second dimension is the particular qualities of public spaces. The third one is the range of socio-economic and physical-spatial contexts.

The failure of design and management processes of public spaces can be fractionate in many other issues like exclusionary design and exclusionary management. According to Carmona et al (2008) exclusionary design is present in many public spaces which are neither prepared for all kinds of disabilities nor to specific groups of people, for instance teenagers and elderly. He says that public spaces design and management should facilitate as much as possible a large diversity of users. Shaftoe (2008) argues that besides exclusionary design, also exclusionary management is happening. He alerts that the way some of the privately owned public spaces are being managed is very exclusionary, enforcing the exclusion of several people who were deemed to be *"undesirable"*.

Another aspect that can be derived from a design concern is the intersubjectivity capacity of public spaces. According to Kohn (2008, p.482) most of the public spaces nowadays are not able to encourage the citizens to identify and integrate with one another. He says that *"we should not simply call for more public space but rather consider how to create spaces that promote reciprocity and intersubjectivity".* Gehl and Gemzoe (2003) corroborate saying that should be created interactive spaces, which enable users to participate in the space, by creating activities on their own *(see Photo 2.9)*.

Photo 2.9. Example of interactive space in Peru.
Source: www.flickr.com

different tool to be used in combination with the planning instruments, which is a development incentive for those places which clearly have a high degree of conviviality. He says that *"perhaps it will be possible for planners to develop a conviviality rating scale for different land uses based on empirical data"*. With this normative instrument it will be possible, for instance *"a case for third places with a high conviviality rating to be exempt from FAR [Floor Area Ratio] calculations, thus giving developers incentives to include such settings in their schemes"*. This instrument could promote an increase of quality on the public activities developed on private spaces.

Coming back to the management problem of public spaces, Banerjee (2001, p.18) notes that today still there is a large number of public spaces exclusively managed by the government bodies. He thinks that this can turn to be a problem due to the continuous reduction of funds and responsibilities from local governments. He says that:

> *"chances are that in the absence of appropriate local government responses such demands will be met through grassroots initiatives, through the nonprofit or even the private sector, through owner participation agreements in exchange for additional development rights, and the like"*.

There is also a common thought, corroborated by Shaftoe (2008), Rio (2004), Banerjee (2001) and Madanipour (1999), that believes on an increase of community participation, besides other sectors, as a successful response to the absence of government on public space improvements. Shaftoe (2008) argues that a bottom-up approach is much better because instead of force people to adapt to a predetermined environment, it will adapt the environment to best meet people's needs. Carmona et al (2008) goes further on this discussion, he suggests as a crucial element the *"three-way partnership"*. This model should integrate the private sector, the community and the public sector *(see Figure 2.2)*.

Banerjee (2001, p.19) defines some actions that urban planners should do in face of public life privatisation and clear decline of public spaces, proposing a review of obsolete urban open space standards. He argues that *"many open space standards were written half a century ago"* and needs to be reviewed. Besides, he suggests a

Figure 2.2. The idealised three-way partnership by Carmona et al (2008).
Source: Carmona et al (2008, p.22).

Involving both dimensions of design and management, Gehl and Gemzoe (2003) argue that a review in the planning policies would give better performance to public spaces. They say that the city should develop a unified public spaces policy, which means to make public spaces be planned in an integrated way with other policies which deal, for instance, with transport and recreation. They presented cases in which these integrated policies were developed. Curitiba, a city in Brazil for instance, combined a public transport policy, and a land-use policy with public spaces policy in order to achieve its goals.

All the issues discussed until now, in a direct or indirect way are related to design and management of public spaces. However, there are also some contextual reasons cited by different authors to explain why public space is failing. These contextual reasons are mainly based on wider aspects of urban society, but are having many

impacts on public spaces. They are: safety, a fear of crime and strangers and the social disparities which affect some countries. In relation to safety, Shaftoe (2008, p.32) says that:

> *"levels of crime and safety are more likely to be determined by bigger socio-economic, cultural, socialisation and geographical factors than they are by the design of our urban spaces".*

But, what he also says is that *"increased safety is seen to derive from improved natural surveillance provided by increases in the numbers and range of people using the streets"*, which means that well-used convivial places seem to be an alternative to promote safety places in the city *(see Photo 2.10)*.

Photo 2.10. Ramblas - example of well-used convivial places in Barcelona.
Source: Author.

According to Minton (2006 cited in Carmona et al 2008):

> *"fear of crime have often been the driver of moves to privatise parts of the public realm, segregating communities in the process".*

Rio (2004, p. 36) agree with Minton when he says that communities, shopping centers, and business parks are walled and fenced and their access is controlled as a response to the fear syndrome of the middle-class. Shaftoe (2008) suggests that appropriate design could contribute to decrease this fear of crime in public spaces.

Caldeira (2001, p.215) discuss also about social segregation, which is a contextual reason to the failure of public spaces nowadays. She says that fortified enclaves, clear element of the public space privatisation process, are the newest form of social segregation in urban life. She argues that:

> *"the new pattern of spatial segregation grounds a new type of public sphere that accentuates class differences and strategies of separation".*

The social segregation is, at same time, promoting the privatisation process of public life, and being promoted by the same process, creating a vicious cycle between privatisation and segregation.

In summary, all issues of public spaces failure described in this section can be grouped in three main categories:

   1-Design issues;

   2-Management issues;

   3-Contextual reasons.

These categories are described in the next table, which organizes the information extracted from the authors putting them in a more structured way *(see Table 2.1)*.

Table 2.1. Main issues of public space failure against its privatisation process and possible solutions.

CATEGORIES	PROBLEM ISSUES	POSSIBLE SOLUTIONS
DESIGN	- Car-dominance environments (CARMONA et al 2008); - Exclusionary design (CARMONA et al 2008); - Introspective buildings (CARMONA et al 2008); - Poor sense of place (CARMONA et al 2008); - Inappropriate location (WHYTE 1988); - Homogenisation of design (SORKIN 1992); - Commodification of design (BANERJEE 2001); - Do not promote interaction and integration (SHAFTOE 2008); - Places without function, but only a left over space (SHAFTOE 2008); - Not compatible with the surroundings and neighbourhood (CARMONA et al 2008);	- Develop pedestrian-friendly design (GEHL and GEMZOE 2003); - Take into account that public life is also happening in private spaces (BANERJEE 2001); - Chose better location, searching for people flows and nodes (WHYTE 1988); - Design facilities for all kinds of people, diversity of users (SHAFTOE 2008); - Develop a design that promotes intersubjectivity and reciprocity (KOHN 2008); - Consider conviviality concept on the design issues (SHAFTOE 2008); - Design with safety and security in mind (SHAFTOE 2008); - Consider having a range of designated spaces for different age groups, but make sure that they are linked and oversee each other (SHAFTOE 2008); - Think about the microclimate and provide protection and shelter as appropriate (SHAFTOE 2008); - Provide opportunities and facilities for people to eat and drink (SHAFTOE 2008);
MANAGEMENT	- Over-management (LLOYD and AULD 2003); - Under-management (CARMONA et al 2008); - Obsolete urban open space standards (BANERJEE 2001); - Obsolete planning policies (GEHL and GEMZOE 2003); - Fragmented planning instruments (GEHL and GEMZOE 2003); - Fragmentation on the involved stakeholders (GEHL and GEMZOE 2003); - Too many restrictions on the use of public space (SHAFTOE 2008); - It is not ensuring adequate maintenance(SHAFTOE 2008); - Still largely based on traditional local government model (CARMONA et al 2008); - Not paying attention on their very diverse categories such as seafront and railway siding (CARMONA et al 2008);	- Promote private and non-profit sectors engagement (BANERJEE 2001); - Promote different uses (SHAFTOE 2008); - Promote community engagement and stimulate a bottom-up approach (RIO 2004); - Manage within and in response to a specific context (CARMONA et al 2008); - Search for a balance of interests between different stakeholders (CARMONA et al 2008); - Stimulate Public-private partnerships, "Three-way partnership" (CARMONA et al 2008); - Develop integral and unified policies (GEHL and GEMZOE 2003); - Develop a long-term management (CARMONA et al 2008); - Develop a design-led management (CARMONA et al 2008); - Review public spaces standards (BANERJEE 2001); - Develop new planning instruments which could stimulate conviviality (SHAFTOE 2008); - Develop building incentives for private engagement (BANERJEE 2001);
CONTEXTUAL REASONS	- Absence of safety; - Fear of crime; - Fear of strangers; - Social and economic disparities;	- It will be probably improved by better management and design, but it has deeper origins which could not be completely answered by them.

All the design, management and contextual issues can be structured into major groups. These groups will help to define the framework to analyse the city. They are organized as follows:

1.3. Design Issues

• **Morphology aspects:** are related to the design capacity to promote appropriate organisation form and structure of the space;

• **Functional aspects:** are related to the design capacity to stimulate diversity of functions, of people and uses;

• **Compatibility aspects:** are related to the design capacity to be compatible with socio-economic and physical-spatial context, like different kinds of users, people's income, age and gender, or the surrounding buildings and infrastructure of the space;

• **Identity:** are related to the design capacity to avoid homogenisation of space and promote a sense of place;

1.4. Management Issues

• **Normative Instruments:** are related to the planning policies which concern public spaces;

• **Involved Actors:** are related to the governance models and proposals which involves the different actors from public spaces;

• **Use and Users:** are related to the strategy to stimulate different uses and in consequence attract diverse users;

• **Surroundings:** are related to specific aspects of the context like land use of the surroundings, location on seafront or railway siding, or even if is a regeneration area or a new development;

• **Maintenance:** is related to the specific operational means of maintenance, such as cleaning times, furniture repairs, etc;

1.5. Contextual Reasons

• **Social:** is related to social disparities, and their representations on safety, mobility, housing, etc, producing effects on public spaces structure;

• **Economic:** is related to the clustering of low-income people and high-income people, generating social segregation, and neglecting public spaces role;

• **Psychological:** is related to aspects like fear of crime and fear of strangers, undermining the use of public spaces.

1.6. Framework for Functional-Spatial Dimension analysis

The methodology of this research defined two dimensions to compose the Analysis of Fortaleza, the Functional-spatial Dimension and the Urban Planning Dimension. The first dimension will be helped by a framework extracted from the issues discussed on this section. In this sense, design and management issues can offer some criteria for the evaluation of public spaces conditions in any city. The contextual reasons, for the scope of this research, cannot generates criteria to evaluate public spaces, due to the fact that they are related to wider social, economic and psychological aspects, which involves other fields besides the urban planning scope. Therefore, the *Table 2.2* establishes a framework for public space analysis, based on the crucial aspects presented by the specialists about design and management.

The final goal of the discussion about design and management issues, on public spaces, is the framework developed on *Table 2.2*. Therefore, *Table 2.2* represents a set of criteria which can be used in any city analysis, but for the scope of this research, which is focused on the city of Fortaleza, just some aspects will be considered as evaluation criteria.

The criteria selected to support the functional-spatial dimension analysis of Fortaleza is composed by the following aspects:

1. Provision of public spaces – which is related with the normative category and management issue *(see Table 2.2)*, but which has spatial consequences on the amount of open public spaces in the city. This aspect should be analysed in order to check how big is the lack of public spaces in the city;

2. Level of maintenance – also related to the management issue *(see Table 2.2)*. This aspect indicates the physical conditions of public spaces, and is crucial to confront with the provision aspect, checking simultaneously the quantity and part of the quality of these spaces;

3. Kind of uses and users – which is related to contextual category, from design issues *(see Table 2.2)*. This aspect concerns the different uses of public space structure and observes the diversity of users related to income and education level (socio-economic characterisation of the area). It is important to detect the demand characteristics and further to propose specific measures;

Table 2.2. Framework of analysis for functional-spatial dimension, derived from design, management and contextual reasons.

ISSUES	CATEGORIES	CRITERIA OF ANALYSIS
DESIGN	Morphology	- location and distribution of facilities within the public space; - distribution of spaces within the public space; - accessibility of the space; - concerns about microclimate and protection for users; - pedestrian-friendly design;
	Functional	- conviviality design; - diversity of facilities; - diversity of spaces; - connection with public transport;
	Contextual	- compatibility with physical surroundings; - compatibility with people's demands and the kinds of users and demanded uses; - compatibility with infrastructure;
	Identity	- related with the neighbourhood, district or city, answering specific demands;
MANAGEMENT	Normative	- appropriate normative standards, avoiding the lack of provision; - integration of policies; - clear and structured planning instruments; - long-term planning;
	Involved Actors	- community engagement and bottom-up approaches; - engagement of private sector; - balance of interests between different stakeholders;
	Use and Users	- offering and allowance of different uses;
	Surroundings	- compatibility of use and design, according to their categories (seafront, railway siding, etc)
	Maintenance	- if exist a maintenance strategy (frequency of cleaning, fixing and refurbishment);

4. Connection with public transport – extracted from the functional category in the design issues *(see Table 2.2)*. This aspect should check if there are clear and appropriate connections with public transport system, which can say for instance if the public spaces development are integrated with other policies;

5. Surrounding buildings and infrastructure – which was derived from the contextual category, on the design issues *(see Table 2.2)*. This aspect should analyse if the public space is compatible to the surroundings (building height, scale, physical appearance), giving an idea about quality concern of the public spaces development;

6. Accessibility of the public space structure – which is derived from morphology category, in design issues

(see Table 2.2). This aspect is responsible to express the compatibility of the public space with its hierarchy;

The research did not make use of all the aspects defined on the framework presented on *Table 2.2* due to the fact that the focus is to analyse aspects which have clear relationship with planning instruments. Besides, due to a matter of research constrain some elements were not selected. Therefore, the six aspects defined here are the ones chosen to support the Functional-spatial Dimension analysis of the city.

2. CONTRIBUTIONS OF EUROPEAN SPATIAL PLANNING TO THE CITY

Taking into consideration that this research already pointed out that planning framework is part of the public spaces problem and the defined approach analyses the planning conditions on the city, this section discusses what can be the contributions of current European Spatial Planning model towards more efficiency on regulatory tools, governance models and implementation actions. In other words, this section presents a discussion about principles, decision-making processes, tools and mechanisms from recent European Spatial Planning debate, which can help the city to establish a better development of public spaces, and also reach more spatial integration on the urban structure.

The discussion about Spatial Planning contributions come into attention since the traditional urban planning based on rigid zoning laws and strict legislation is not anymore being effective on the actual city. The fast urban transformation pace on the last decades is happening too fast, which is demanding also a fast response and adaptation of the main urban rules, in order to keep spatial integration and the urban quality. This mismatch between a static urban legislation control and dynamic urban demands shows to us that zoning laws model is outdated and becoming ineffective.

> *"The problem is usually not a lack of legislation, but rather that the legislation is no longer relevant" (UNECE, 2008).*

There is nowadays a necessity to search for a new model which can be flexible enough to follow the dynamics of the city and at same time be rigid enough to guarantee the protection of remaining natural resources and other aspects. In this context, Spatial Planning model appears to be one reasonable way to cope with this new urban reality.

The discussion about the characteristics of this new model and its tools brings elements to integrate a framework of analysis for planning instruments of a city, in particular the city of Fortaleza. This framework intends to establish the criteria of analysis, answering if the current urban planning model in Fortaleza, with its instruments, is helping or not the city to deal with its dynamic and complex processes and if this model is contributing or not to develop public spaces as a driver of urban transformations and spatial integration. Since urban planning is the main responsible to offer appropriate public spaces structure, the analysis

of planning instruments in general is crucial to help the city achieve better results specifically on public spaces.

The use of European debate to analyse Braziliam reality has many constraints and need to be carefully developed. This thesis is aware of this limitation and is focusing only on the principles of Spatial Planning and trying to interpret them to the specific reality of Fortaleza. The differences on social, political, cultural, economic and spatial configuration are taken into account. The reason to use such debate is related to its capacity to integrate the different actors in the city and its ability to deal with the actual processes of urban and social transformations affecting most cities in the world, wherever located in Europe or in Brazil.

2.1. Main characteristics

Before we can enter on the possible tools and mechanisms offered by Spatial Planning debate it is necessary to present some definitions about it. According to Cullingworth and Nadin (2006) spatial planning is an effort towards *"coordination or integration of the spatial dimension of sectoral policies through a territorially-based strategy"*, which is very similar to what the government from United Kingdom defines: *"spatial planning as going beyond traditional land-use planning to integrate policies for the development and use of land with the other policies and programmes that influence both the nature and function of places"* (UNECE, 2008). These two explanations have in common some elements, for instance the act of integration, the territorially-based approach and also the relation with other policies. These elements are some of the characteristics of Spatial Planning.

Looking to what many countries have understood about Spatial Planning we can see many different interpretations, although they have very clear similarities. Koresawa and Konvitz (2001) says that:

> *"in almost all countries, spatial planning is concerned with identifying long- or medium-term objectives and strategies for territories, dealing with land use and physical development as a distinct sector of government activity, and coordinating sectoral policies such as transport, agriculture and environment".*

In this sense we can identify two more characteristics of spatial planning which are: long or medium-term concerns; and a necessity to have a clear institutional body (sector) to develop it.

According to these definitions and also following other authors, the main characteristics of European Spatial Planning model are:

1- Interdisciplinary / integrative: integrates several policies, from different sectors, in order to search for common objectives and avoid duplicated efforts;

2- Territorially-based: has a concern to translate policies into spatial transformations;

3- Time-based / long to medium-term: is concerned with the definition of agendas and priority of interventions through the time;

4- Criteria-based: in a search for flexibility, this model defines clear and communicative performance criteria which should support the decision-making processes. This is an approach which tries to avoid the static nature of zoning plans;

5- Requires solid planning institution: the government is the main responsible to organize the spatial planning system;

6- Requires proactive actors: demanding proactive actions from all the sectors and actors involved.

These six characteristics defined above are able to outline the scope of this model and their main concerns. The interdisciplinarity aspect represents the concern on involving actors such as government departments, commercial developers, communities and individuals. Besides, Spatial Planning is a cross-sectoral activity which aims to enhance the integration between sectors such as housing, transport, energy and industry, involving the national, regional and local level of administration.

The aspect of territorially-based shows that Spatial Planning is dealing with the territorial impacts of sectoral policies, for instance the location of new developments or the distribution of facilities within the city. In respect to the time-based characteristic, Spatial Planning always operates on medium to long-term agendas, with a definition of strategic interventions according to priorities, knowing which needs must be addressed immediately and which needs could be tackled later on the time-line.

The criteria-based aspect represents the flexible approach towards the urban regulations, which defines clear and unambiguous criteria, based on desired outcomes and

common visions to develop its decision-making processes and plans. This approach allows a debate and dialogue with different actors about the plans and interventions, and it probably have a *"better chance of garnering their widespread support and acceptance"* over the city (UNECE, 2008).

In respect with solid planning institution, this characteristic shows that government still has a major function on the organisation and development of the planning system. Spatial Planning has a regulatory and a development function, which are both a government action. According to UNECE (2008):

> *"As a regulatory mechanism, government (at local, regional and/or national levels) has to give approval for given activity; as a development mechanism, government has to elaborate upon development tools for providing services and infrastructure, for establishing directions for urban development, for preserving national resources, and for establishing incentives for investment, etc."*

The Spatial Planning needs to have its government action on all three levels of administration, and in all of them there must be government departments having each of them specific roles, working as one solid planning institution.

In respect to the necessity to have proactive actors, Spatial Planning only works if all the sectors have proactive behaviour. For instance, the government should be able to anticipate problems and their solutions, the private investors should be able to offer new developments and interventions in the city, the community should be able to demand and fight for their needs, as well as assume responsibility to monitor the city.

2.2. Principles

Although there is no single definition or characteristic for the Spatial Planning model, it is possible to identify some principles which give shape to it. These principles can also be understood as characteristics of actual Spatial Planning, complementing the characteristics presented on last section, but due to their fundamental importance they were defined here as principles. According to UNECE (2008), there are six principles that define the scope of Spatial Planning:

a) The democratic principle;

The democratic principle is a characteristic of Spatial Planning which says that the system should be developed by legitimate authorities and democratic processes. This means that Spatial Planning should be based in laws that ensure fairness and respect of human rights.

b) The subsidiarity principle;

The subsidiarity principle defines that Spatial Planning should share competences between different levels of administration, national, regional and local. The allocation of competences on the three levels of administration should not be rigid, in the sense that some issues needs to be decided on different levels according to the specific context.

c) The participation principle;

The participation principle defines that the community should be involved on the urban planning of the city. There must be tools which will engage community. *"Effective procedures for community involvement will enhance the legitimacy of policy and decision-making by creating a sense of local ownership and ensuring consideration of citizens' and property owners' rights"* (UNECE, 2008). Besides, every citizen should be able to make formal objections against plans for the city.

d) The integration principle;

The integration principle defines an attempt to minimize the conflicts and contradictions between sectoral actors and policies. Spatial Planning should play an important role, making use of territorial strategies, on the integration of government levels, of different policies, and administrative boundaries. This integration can avoid duplicate efforts, avoid costs of non-coordination, facilitate implementation of policies, and reduce possible negative competition across larger territories.

e) The proportionality principle;

The proportionality principle is the continuous concern on finding a balance between robustness and flexibility in policy. Spatial Planning policy should be clear and unambiguous, but at same time *"must also*

be flexible enough to adapt to economic, social and technological trends as well as to stimulate innovation. The proportionality principle facilitate judgements about where prescription should stop and more discretion should be given to citizens, developers and local decision makers" (UNECE, 2008). This means that the best path to chose is defined according to each reality, detecting when and where the city needs strict top-down legislation and also a minimalist approach. There is in every city in the world a continuous struggle between the necessities for a rigid planning and also for a dynamic decision-making process which allows the city to deal with its concrete changing reality.

f) The precautionary principle.

The precautionary principle establishes that facing the uncertainty of how damaging can be an intervention, Spatial Planning should limit and reject it. The impossibility to know the concrete effects of a certain action cannot be an excuse to not take any corrective and defensive measures. It is always better to act against it as a precaution concern. All these principles giving shape to the Spatial Planning model are translating an attempt to correct mistakes on the planning approach of the last decades.

2.3. How Spatial Planning Works?

After an explanation about the main characteristics and principles of European Spatial Planning, one question needs to be answered: how this Spatial Planning model works? The Spatial Planning System is composed by different tools and mechanisms, distributed on the three levels of government administration (national, regional and local). Some of these tools and mechanisms are briefly presented here, in order to understand the functioning of the system:

1- **Policy Statements:** they are policies, mainly elaborated on the national level, which can cover varied subjects such as habitat protection and design standards. *"Policy statements are especially potent when produced through a process of consultation and dialogue, because this has a better chance of garnering their widespread support and acceptance"* (UNECE, 2008);

2- **Spatial Strategies:** they provide an overview for the desired spatial development of the territory for a certain region, also concerning the coordination

with the impacts from different sectoral policies. The formulation of spatial strategies is usually within the competence of regional government;

3- Spatial Framework plan: it is usually a responsibility of regional government and *"a mix of detailed and binding proposals with general policies and proposals. It should also be closely interrelated with other methods of shaping spatial development such as incentives or subsidies"* (UNECE, 2008);

4- Development management (instead of traditional Land-use plans): according to the current Spatial Planning discussion, traditional Land-use plans are inflexible and difficult to keep up-to-date in relation to urban demands, which require a change towards a Development management. This new way defines that *"most decisions on development should be made at the local level based on criteria (decision rules) set out in policy documents (including the framework plan) adopted by the local authority"* (UNECE, 2008). Although Spatial Planning offers a different way to cope with the concerns of a Land-use plan, it also allows flexible interpretations to traditional zoning and Land-use plans, in order to make them more effective;

5- National codes: it is a definition of common standards and procedures on issues such as energy efficiency requirements and key design criteria for new buildings. *"Codes should be legally binding and can provide an effective mechanism for improving the quality of developments across large territories. Codes are also welcomed by the private sector, which values working towards common standards in different locations"* (UNECE, 2008);

6- Enforcement: the first task in relation to enforcement is to ensure that strategies, plans and regulations are not too proscriptive, and that they are communicated in a clear way to population and interested actors. And the second task is that there must be firm actions against unauthorized development;

7- Environmental assessment: is the obligation to measure the environmental impacts of development projects. Some countries also include the environmental aspects together with social and economic implications;

8- Economic Instruments: they are mechanisms to create and to focus investment interest, to improve and keep land and property values, and to reduce risks for investment by administering impact and development compensation fees.

9- Monitoring: in order to help with this topic some countries have implemented regional data observatories, The indicators generated by them will assist a evaluating process of benchmarking, which consist on making comparisons of performance across time and through different organisations;

Looking at the nine tools from Spatial Planning, we can see that the main innovation of this system is the emphasis on a decision-making process based on a set of criteria, instead of a strict zoning legislation. This approach can give more flexibility to the urban planning and allow better results on the urban dynamics of the city, due to its capacity to adapt the planning towards the demands.

This approach is an attempt to offer better understanding of the city than the previous model which was mainly based on modernist views. The previous model was characterized by a total planning, which is a belief that urban planning could define and locate how and where all the functions of a city could be developed. This model was predominant for many years in the city planning, but became completely outdated due to its inability to cope with the diversity of a city and its fast changes. It is impossible to define a city in a plan and expect that this city will follow exactly what was defined. We know that the city has much more complex relations than we can imagine, and every total plan for a city will become irrelevant in few years. The dynamic of the city is much higher than the capacity of plan to predict it.

In the time that the total planning was developed, government had total responsibility for the development of a city, which became completely unsustainable when the development of neoliberal concepts. The process of neoliberalism brought to reality a shrinkage of government institutions, responsibilities and resources, which required a complete new approach towards urban planning. This was exactly the time when new concepts for urban planning started to grow, bringing innovations on funding and collaborative ways to plan the city. It was necessary to search for public-private partnerships and flexible ways to develop the city, in order to attract investment.

In this sense, Spatial Planning debate is offering to the city planning a more flexible and participatory way of planning. The system works as a partnership between different sectors on society and different scales of public government, all interconnected and integrated, steered by a mix of rigid rules and flexible approaches. The balance between commitment and flexibility is defined according to each situation, having no ideal configuration.

2.4. Transfer of Spatial Planning concepts from developed countries to developing countries

The purpose of all this discussion about possible contributions of Spatial Planning debate is to search for specific ideas and principles which can help cities from developing countries to implement a more efficient planning. In this sense, it is important to analyse until what aspect the ideas developed on a specific context can be valid if applied in a complete different and diverse urban and socio-economic reality.

The Spatial Planning debate presented here has its origins on the developed counties from Europe, which demands special concerns when transferring its principles to other urban realities on developing countries. There is a very intrinsic relation between urban planning and the local characteristics and demands for which the planning is defined.

> *Only at very abstract level the Spatial Planning approach can be theorized without a specific context to create its boundaries. In this sense, this discussion will try to extract valuable contributions for urban planning in developing countries, particularly for the city of Fortaleza, being aware that the tools and mechanisms developed in one place cannot always be applied in another one and need to experience different interpretations.*

In order to understand the possible constraints for the transference of a planning theory to diverse context, this research exposes some of the main differences from one reality to another, in relation to the scope of urban planning. These differences can help to develop more adequate interpretations and use of the possible contributions from diffrent Spatial Planning debate:

1- The degree to which urban planning is politically accepted and technically implemented differs very much (KUNZMANN, 2005). Urban planning in countries like Brazil (developing country) is not a high concern from politicians, which we can see on the fact that the last proposal for the territorial development of the country was defined more than 25 years ago. If we take a look on the municipal scale, the urban planning has not a great value for the politicians as well. This level of administration still is mainly based on immediacy and pragmatic management (BRASIL, 2004). Despite the fact that urban planning exist, the involved authorities do not put so much effort to implement it, and the population did not realise yet the power which they have on the matter of planning the city;

2- The value perception of public space differs. Due to several reasons, coming from historical aspects to current insecurity-safety reasons, urban planning on developing countries do not understand public spaces with the same value as on most of the developed countries. For instance, in Brazil, public space is either a residual space, left over due to reservation rules, or a protected area in the city, which was defined by law. The public space functions commonly exercised by developed countries and experienced by developing countries long time ago, such as spatial integrator of flows, element of identity and sense of belonging, among others are neglect by the current planning authorities;

3- The perception of public and private property differs. In developing countries, everything which is private should be enclosed and clear demarcated, where each owner really takes care of it. On the other hand everything which is public is considered to be nobody's space, which nobody takes care. The public properties are understood to be exclusive responsibility from the government, which is considered to be a problem, since there is a huge lack of public resources, requiring more involvement from private sectors and civil society on public matters;

4- The morphology of the city differs. The spatial configuration from cities like Fortaleza is very diverse from the most of European cities. This fact demands a careful interpretation of the principles coming from a European planning system in order to be translated towards developing countries. Some examples of morphological difference is in the configuration of the grid pattern, or the large amount of informal urban developments in cities like Fortaleza, or even the fact that buildings are not anymore the main shaper of openness and built form, but rather the physical presence of walls and fences;

5- The capacity of local city planning departments is usually much lower on developing countries. Most of the developing countries have their planning departments fragmented, with a lack of human and financial resources, which makes difficult the effectiveness of their actions. Besides, there is no clear common vision and objective, which many times leads to a duplication of efforts and conflicts of administration;

6- The timing of projects differs. The urban planning on developing countries is not used to plan actions

for a long-term perspective, being usually concerned with immediate goals and objectives. This fact makes difference on the definition of priorities, timelines and agendas. Besides, on developing countries like Brazil, the political change on every five years have great interference on the development of longer-term policies, the new administration tends to re-plan every subject again, just for political discordances, skipping many of the planning decisions defined by the previous political power .

However, if the interpretation of planning theories, from different realities, is concentrated on technical issues and their ways of functioning, extracting the basic principles, it can be really useful and helpful. The Spatial Planning debate has many things to offer to other planning realities and also many things to learn from them. While this thesis was doing this transfer of knowledge it was observed that developing countries are quite distant to achieve some requirements postulated on developed realities, but at same time are far more advanced in other important requirements.

Since the Spatial Planning debate is already in correlation with the last socio-economic transformations, like globalisation processes and knowledge-based society, it is updated to the main requirements of actual urban society. Therefore, this debate can be defined as a framework to evaluate other planning systems making use of its principles and characteristics. In this sense the next section develops a framework of analysis, establishing criteria for the evaluation of planning instruments performance in such countries like Brazil.

2.5. Framework for Urban Planning Dimension analysis

The methodology of this research is defined by three basic axes already explained, which one of them is the Analysis of Fortaleza. This axis is responsible to develop an evaluation of the current planning instruments (Urban Planning Dimension) related to urban planning and their implications on the urban structure, in particular on public spaces structure. In this sense, the Spatial Planning discussion will offer some criteria for this evaluation *(see Table 2.3)*.

Using as a basis the six main principles of Spatial Planning and some of its characteristics, this research established a concrete framework of analysis *(see Table 2.3)*. The first principle is the democratic principle, which should check if the planning system is based on legitimate authorities elected by democratic rules. According to UNECE (2008):

"this means that decisions are formally taken by elected politicians at different levels, taking into account recommendations made by relevant experts. Their decisions should be made on a consistent basis through procedures established in law that ensure fairness and respect of human rights. The judiciary provides a check that the law has been followed in decision-making".

The second principle, the subsidiarity principle is responsible to allocate responsibilities in the three levels of government administration. The main criteria derived from this principle is that there should be a share of functions, which can support decisions which affects higher scales than the local one, and the distribution of this responsibilities should be flexible enough to make possible adaptations to the circumstances *(see Table 2.3)*.

The participation principle establishes that should be an involvement of community on the elaboration and implementation of plans. The criteria derived from this principle are that there must be public access to information about development plans and proposals, concrete involvement of society on the elaboration of plans and stimulation for people's comments, also ensuring the right to apply formal objections to the interventions *(see Table 2.3)*.

The integration principle defines that must be a clear effort to integrate different policies and translate their objectives on territorial goals for the city. This principle can be derived on the following criteria, which Spatial Planning should: integrate different sectoral policies and integrate different levels of administration *(see Table 2.3)*.

The proportionality principle establishes that Spatial Planning should search for a balance between prescriptive regulations and flexible approaches, which can allow more discretionary decisions, in order to be compatible with the changing demands. The criteria extracted from this principle are that urban planning must have: clear and unambiguous regulations, but at same time offer

flexible criteria for decision-making processes *(see Table 2.3)*.

The precautionary principle says that urban planning should reject and limit possible damaging interventions, even if there is no clear information about the degree of damaging effects. From this principle it can be derived that urban planning should have defensive and corrective measures against possible damaging interventions and also should be able to apply firm actions against it *(see Table 2.3)*.

Besides the principles, some of the characteristics from Spatial Planning discussed here and which do not overlap with the principles were integrated on the framework. These characteristics add specific criteria which can help to evaluate urban planning systems on developing countries. The Time-based aspect discussed on current Spatial Planning debate demands that urban planning actions should be developed on a long-term period,

with a definition of agendas and priorities. Another characteristic to be included on the framework of analysis is the necessity of a solid planning institutional body, on the three levels of administration *(see Table 2.3)*.

This framework of analysis, besides being possible to evaluate any other urban planning system, for this research it will detect specific problems on the urban planning system of Fortaleza. This analysis of the planning system of Fortaleza has the final goal to understand the public spaces failure in the city and find planning solutions which will compose a model for public spaces development.

Table 2.3. Framework of analysis for Urban Planning Dimension, derived from current Spatial Planning discussion.

SPATIAL PLANNING PRINCIPLES AND CHARACTERISTICS	CRITERIA OF ANALYSIS
The democratic principle	- legitimate authorities; - fairness; - human rights; - judiciary as a external control;
The subsidiarity principle	- share of responsibilities between levels of administration; - not rigid allocation of competences, due to a necessity to adapt to new circumstances;
The participation principle	- public access to information on plans, proposals, policies, etc.; - concrete and direct involvement of society on the elaboration and implementation of plans; - possibility of people's comments; - possibility to make formal objections;
The integration principle	- integration of different sectoral policies; - integration of different levels of administration;
The proportionality principle	- clear and unambiguous regulations; - flexible set of criteria; - balance between the two approaches;
The precautionary principle	- presence of defensive and corrective measures against possible damaging interventions; - instruments to apply firm actions against questionable developments;
Time-based	- long to medium-term objectives;
Requires solid planning institution	- clear institutional bodies on the three levels of administration;

Research Questions answered:

What are the main issues affecting public spaces nowadays, in respect to the new society demands?

This research detected, through the debate of different authors, that the main issues affecting the current development and quality of public spaces are related mainly with design, management and some contextual reasons. These issues are the main responsible for the actual failure of public spaces nowadays, in a global context, affecting many cities around the world, including the city of Fortaleza. The design issues are the ones related to design quality, morphology, function, integration with other city elements and capacity to create an identity. The management issues are the ones related to planning aspects, normative instruments, actors, and actions of maintenance and monitoring. The contextual reasons could vary from place to place but usually involves processes of privatisation of public life, absence of safety, fear of crime, fear of strangers, and social and economic disparities on the local context.

How can current Spatial Planning discussion help the city to establish more efficient public space planning and development?

In this sense, the research presented some principles and mechanisms which can help the city planning to promote more efficient public space development. In order to have a city planning able to support an effective public space development, it should be ensured legitimacy of the planning instruments; it should happen a share of responsibilities between the levels of administration in the city ; it should be promoted several ways of community participation and private involvement; there must be an integration between the different sectoral policies; there must be a balance between flexibility and strictness on the urban legislation; and there must be a clear vision and agenda to the city planning and its public spaces development.

CHAPTER III
ANALYSIS OF FORTALEZA

CHAPTER I	CHAPTER II	CHAPTER III	CHAPTER IV
- Problem - Approach - Aims - R. Questions - Relevance - Methodology	- Theory - Criteria for Analysis	- Current spatial conditions of PS - The role of planning on these conditions	- Example of Planning Mechanisms derived from Case Studies

CHAPTER V	CHAPTER VI
- Recommendations to the planning framework - Evaluation of recommendations	- Conclusion
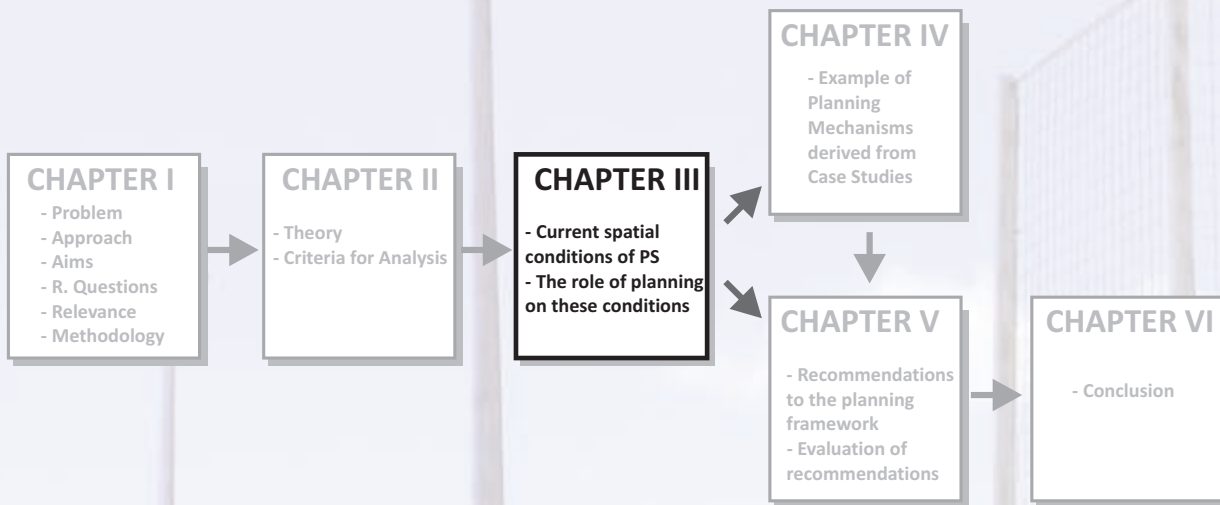
CHAPTER III - ANALYSIS OF FORTALEZA

1. URBAN DEVELOPMENT OF THE CITY

2. FUNCTIONAL-SPATIAL DIMENSION

    2.1. Provision of public spaces

    2.2. Kind of Uses and Users

    2.3. Connection with public transport

    2.4. Surrounding buildings and infrastructure

    2.5. Maintenance

    2.6. Accessibility of the public space structure

    2.7. Connectivity of the sub-centrality

    2.8. Main conclusions

3. URBAN PLANNING DIMENSION

    3.1. Focus and criteria of analysis

    3.2. Provision and distribution of public spaces

    3.3. Defining quality of public spaces

    3.4. Democratic principle

    3.5. Subsidiarity Principle

    3.6. Participation principle

    3.7. Integration Principle

    3.8. Proportionality Principle

    3.9. Precautionary Principle

    3.10. Time-based Goals

    3.11. Solid Planning Institution

    3.12. Main Conclusions

This chapter presents the analysis of the city of Fortaleza, focusing on understanding the functional and spatial conditions of public space structure in the city and also on the performance of urban planning system on offering efficient public spaces development. In order to explore and explain these aspects the chapter is divided into three items: the urban development of the city, which briefly explains the transformation of Fortaleza from a small settlement from 17th Century, on a metropolitan city nowadays, supporting the understanding of the present public spaces conditions; the second part is the functional and spatial analysis of the public space conditions in the city; and the third part presents an analysis about the urban planning framework in the city, checking if this framework is supporting public spaces development and promoting the role of them in the city of Fortaleza.

1. URBAN DEVELOPMENT OF THE CITY

Before we start with the analysis of public spaces in the city of Fortaleza and on the sub-centrality of Washington Soares Avenue, it is important to describe the urban development of the city. The understanding of this urban development helps to define better the urban conditions of the sub-centrality and their relations with the overall structure of the city. Besides it will describe why the city is growing on this specific area and give support to propose a planning model in respect to public spaces.

The first settlement of what would be in the future the city of Fortaleza started on the year of 1649 with the Dutch fort of Schoonemborch. The Dutch explorers were in this area for five years until the Portuguese throw them out and build in the same place of the Dutch Fort another one called *"Forte de Nossa Senhora de Assunção".* Then, the fort was together with a small settlement which started to develop and reached the urban form of a city as it is known nowadays.

In order to explain this process of consolidation of Fortaleza, it will be described some of the historical facts which influenced the development of the city and also how the urban form was organized on the different periods of time. In the year of 1726, Portugal raised Fortaleza to the condition of important village of the colony. This means that some improvements were made by the kingdom of Portugal in the village. Several public institutions were implemented as well as public services to help the growing number of inhabitants. In the year of 1799 the province of Ceará, which Fortaleza belongs, was declared by Portugal as independent from the province of Pernambuco, and the village of Fortaleza was raised to capital of Ceará province. After this fact, Fortaleza was able to trade directly with Europe, which was an important reason to the development of the village.

During this time the village of Fortaleza did not have urban morphology guidelines really clear. Only the public buildings followed an urban form, but all the others, residences or commercial activities, were settled according to the topographic condition. Until this time there was no concern about alignment or building restrictions. Only in 1818 the local government designed the first plan for the village, which was an attempt to solve the complete urban disorder due to the absence of urban or building rules. This plan designed what is today the core of the historic center, imposing a rectangular grid to the natural topography.

The plan of 1818 implemented a rectangular grid for the village which was confirmed by the following ones and by the urban development of Fortaleza. Besides the grid, the plan sketched a radio-concentric urban form, where all the links with the hinterland are connected to the core of the historic center. Another aspect first defined in this plan was the extension line towards the east, which was strongly confirmed by the future developments of the city. The plan included also some building restrictions and sidewalks regulations.

After the independence of Brazil from Portugal, in 1822, the emperor raised all the important villages of Brazil to the condition of city. As a city Fortaleza had a large prosperous time due to the great amount of cotton exported to Europe, mainly to England. The city of Fortaleza was responsible for great part of the cotton trade with England during the XIX Century. This prosperity was responsible for a large development of the city including a port, a railway between the hinterland and the port, a hospital, a new gas lighting system, new churches and some industries. During this time it was built the first public squares and a public transport system for the city.

Due to the growth of the city, the Representative Chamber (municipal legislative power) decided to hire an architect to be responsible for the urban organisation of the city. Adolpho Herbster was the architect contracted to do the

first extension plan for Fortaleza in 1859 *(see Map 3.1)*. This plan confirms the rectangular grid already implemented and clearly shows the historical links between the center and the villages outside, like Parangaba, Messejana, Caucaia e Mucuripe. Nowadays these historic villages are neighbourhoods or even new sub-centralities of the city and the links were largely extended to connect the other cities around with Fortaleza. After this plan, Adolpho Herbster was requested to develop more two new ones, in 1863 and 1875 *(see Map 3.2)*. During this period the city had an efficient control of its urban area through the work of Herbster and the Representative Chamber. The good management of the city at this period is reflected on the development of the sewage system, great boulevards around the city center, definition of extension zones, building restrictions and permanent monitoring of the rules with imposition of fines if the rules were not followed. The growth of the city was totally controlled and a huge concern with beauty was present on the building of many public squares, plenty of trees and nice furniture *(see Photos 3.1 and 3.2)*.

Map 3.1. Plan of the city from 1859.
Source: Muniz, A (2006).

Map 3.2. Extension Plan for the city from 1875.
Source: Muniz, A (2006).

Photo 3.1. Historic Center of Fortaleza on the early 20th Century – View from the inner land.
Source: unknow.
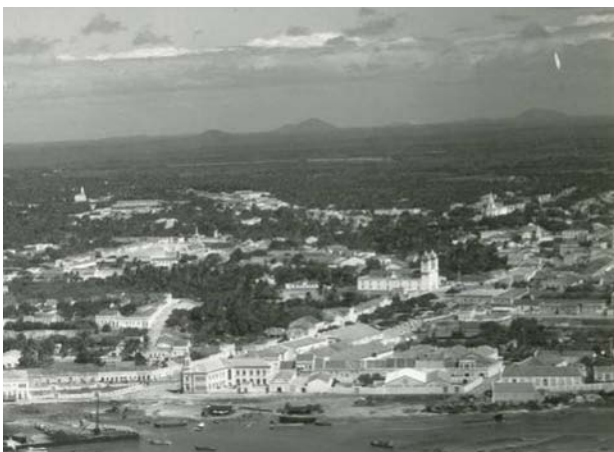
Photo 3.2. Historic Center of Fortaleza on the early 20th Century – view from the sea.
Source: unknow.

Since became a city, in 1823, the urban development of Fortaleza was a responsibility of the Representative Chamber. This public institution developed important interventions in the city until 1889, when Brazil adopted a republican governance model, transferring the administration of the cities for their Municipalities. It took more than 40 years to the new administration of the city develop a new urban plan attempting to take control of the urban development of Fortaleza. Only in 1933 a new urban plan was developed in the administration of the mayor Raimundo Girão. During this gap of 44 years without urban planning the biggest concern was only about beauty and hygiene of the city, regulating the building materials, façades and remodeling some streets.

One interesting rule of this time, defined by the Building Laws of 1893, was the obligation to have a lateral set-backs for all buildings, due to a concern with public health. Later, on the first decades of the 20th century, also the front set-back was obliged by law in some areas. These simple rules started to change the whole character of the city, which used to have the buildings shaping the public areas *(see Photos 3.3 and 3.4)*, with a continuous façade. The impact of this new rule on the urban structure and particularly on public spaces was enormous. Before this new law the open public spaces, including the squares and the streets were shaped by the building structure, which was an easy way to keep the link between different nodes and activities. This network of public areas can be clearly seen on the historic center of the city, which was developed before the changing of the set-back rules. After the introduction of these new rules, first as a concern of health measures, than an influence of *"Garden City"* urban model, the open areas of the city started to be shaped by the walls and fences of the private properties. This change brought a new way to shape the urban structure, which started to lose the continuity between open public spaces *(see Photo 3.5)*. A simple change on a regulatory instrument transformed the whole relation between buildings and urban structure. The biggest transformation provoked by this change was represented by the lost of quality on the public spaces network.

The lack of planning during the years of 1900-1930 brought hard consequences for the city, which experienced an enormous growth, from 50,000 to 500,000 inhabitants, but with few and inefficient control. Another consequence it was the migration of the high-income population due to the overcrowding and disorganized city center, to the east extension of the city, towards the new neighborhood of Aldeota and Iracema Beach. The urban problems of Fortaleza just grew without an adequate response, accumulating spatial, mobility, functional, housing and economic issues to be answered. The public space provision, during this time, started to become completely insufficient due to the large expansion of the city combined to the very weak planning and governance model. From this point on a number of plans were made without being implemented which made even worse the disorganisation of the urban area of Fortaleza. Instead of an integral action on the city only punctual interventions were developed, for instance widening of streets, renewal and construction of squares, pavement of roads, etc., in other words there was no planning but only urban interventions. This neglect of planning and control of the city growth lead to fragmentation of the urban structure.

Photo 3.3. Old Port area - continuous building façade shaping the open public spaces.
Source: Panoramio

Photo 3.4. Historic Center of Fortaleza - continuous building façade shaping the open public spaces.
Source: Panoramio

Photo 3.5. Neighbourhood from the early 20th Century – no continuous façade anymore and obligation to have setbacks.
Source: Panoramio

During the years between 1933 and 1947 the city continued to extend its limits using the radial road system and a rectangular grid. This growth was mainly developed without public control by the private market. This fact brought consequences to the public spaces system which was until that time quite balanced. The provision and maintenance of public spaces in the old and in the new developments were completely neglected making the city experience a number of derelict squares and a lack of many others in most of the new settlements on the city. Looking to one neighbourhood of this period, for instance Aldeota, we can see that only 0,6% of the total neighbourhood area are dedicated to open public spaces. While in comparison with the Historic Center which has a percentage of 8,3%, the provision of public space for these new areas was completely insignificant.

During the years of 30's, 40's, and 50's, due to a rise on the land prices inside the city, great part of the poor population moved to the periphery composed also by the great migration of people from the hinterland. The periphery of Fortaleza started to be massively occupied without any urban rules and health conditions. It was the beginning of the slums in Fortaleza. The municipality at this time decided to not apply the building code in these areas arguing that their poor population did not have financial conditions to follow the rules. During a long period these populations just grew and their problems grew much more, without any public improvements. One example of these areas is the neighbourhood of Pirambu, a self-organizing settlement known nowadays as the biggest "favela" on the city of Fortaleza *(see Map 3.3)*.

In the 60's the biggest problem of the city was the great amount of population without proper housing conditions. The deficit was bigger than 20%, which means at least 100,000 people living in very basic conditions, most of them in slums. The city was continuously growing and asking for improvements. The municipality developed a new urban plan in 1963, aiming to organize the city and minimize the great amount of problems like infrastructure, energy and water supply, housing and public spaces. In relation to public spaces the plan detected a great concentration of these spaces on the city center and proposed to develop new ones on the other neighbourhoods according to its population amount. Some urban parks should be
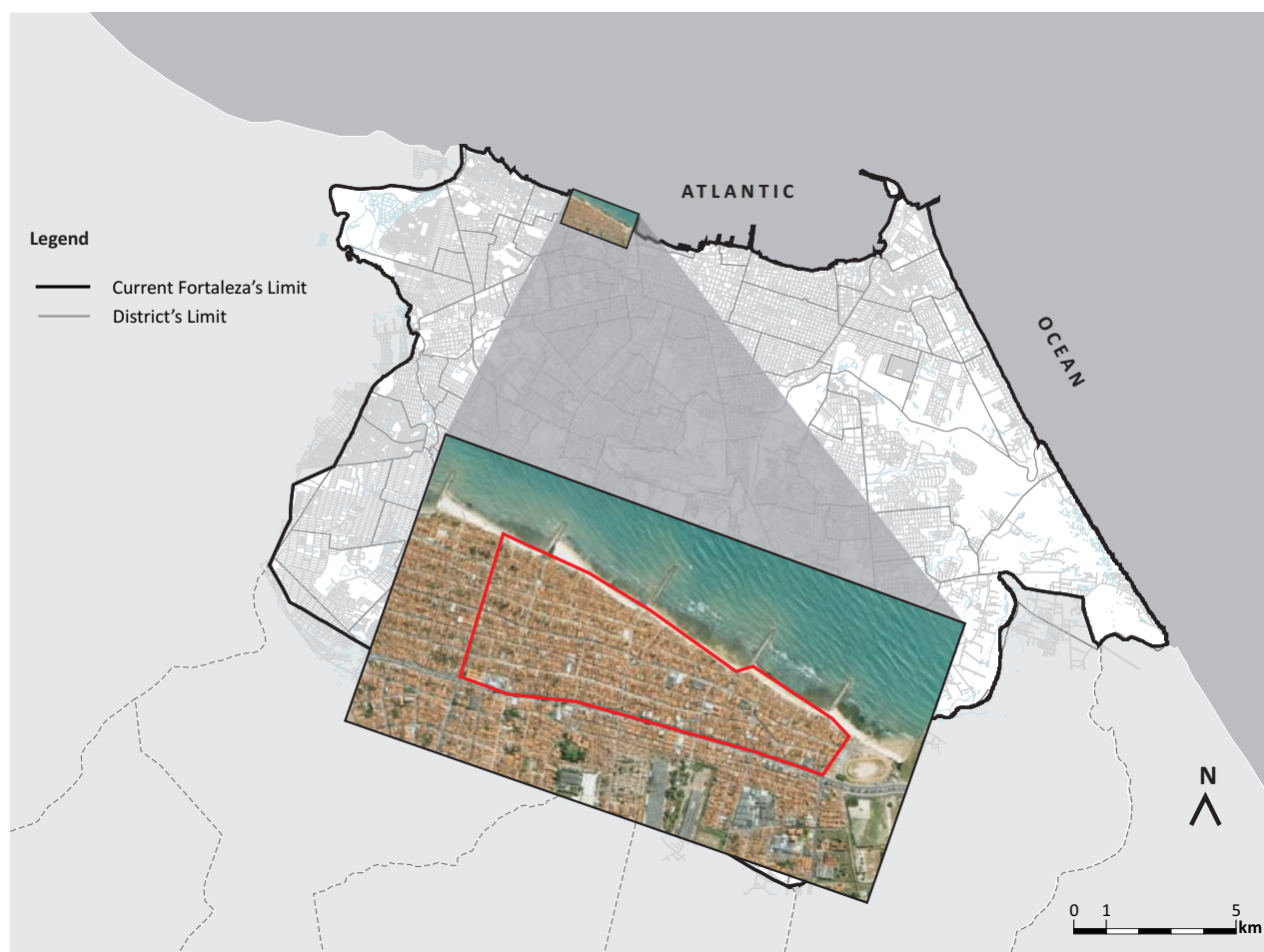
Map 3.3. Pirambu neighbourhood – one "favela" of Fortaleza – occupation of natural areas.

created along the coast, the rivers and around the lakes in order to protect them, but they were not. The non-implementation of these protected areas lead to several illegal occupations, for instance the already commented "favela" of Pirambu *(see Map 3.3)*. Besides these preservation areas, the plan proposed to create urban centers in the neighbourhoods offering to its population public services, commercial activities and leisure. This was an attempt to decentralize the development of the city and distribute the facilities and activities in other less developed areas. But, unfortunately this plan was also just partially implemented; just few actions were followed as planned.

In the year of 1964 Brazil lost its democracy and was forced to change its government model to a military dictatorship which had impacts on the urban planning of the city. During this period the planning system involved different disciplines, got a strict technical sense and got also a regional character. It was defined the metropolitan regions of Brazil, including Fortaleza Metropolitan Region giving to the urban planning regional concerns besides the common city issues. The concept of an integrated plan was borrowed from the French models of regional planning. The great innovation of this model was the analysis of the entire metropolitan region with its functional, territorial and economic relations. All these changes on the urban planning were defined mainly because the central government wanted to have control of the whole territory and less because they were trying to understand better the city. The first plan for Fortaleza which followed this new paradigm was made in 1972, the Integrated and Development Plan for Fortaleza Metropolitan Region.

The plan of 1972 dealt with a city population of 872,000 people and a prediction of 1.727,000 to the beginning of 1990. The main idea was to develop opportunities in the peripheral municipalities as an attempt to stop the continuous migration of people to the city of Fortaleza. Reducing the inequalities between the capital of the state and the other cities around was the best way proposed by the plan to decrease the problems within the city. It was in that time when the government built several popular residential complexes, on the periphery of the city, near the metropolitan links-roads. This was an attempt to decrease the pressure on the center and to put this population near other opportunities and also in a cheap land. This was one of the huge mistakes of that time, putting a great mass of population far from their jobs on the city center and with very few infrastructure to support them.

After this plan some reviews were made and in 1979 it was defined a new Urban Development Plan for the city. The main definition of this plan for public spaces was based on the federal law Nº 6766/1979, which defined how the new developments should divide the land. The plan defined that for all new development should be reserved 15% of the area to open public spaces, 20% for the road system and 5% for the Institutional buildings. This definition was one of the most important ones to shape what the public spaces structure is nowadays. In the analysis of the Urban Planning Dimension it will be deeper explained this regulatory tool about the reservation of land to public spaces, showing the importance and the consequences of this law to the city structure. Before this reservation rule, defined on 1979, the rule had completely different standards with a reservation for open public spaces of only 4,70%, which is incredible insufficient to give a balance between open spaces and built spaces on the city. This reservation of only 4,70% was applied in the city for more than 50 years, according to the data defined on Fortaleza (1980). The impact of this rule in the public space structure of the city, particularly on the provision of them, can be easily seen in the lack of open spaces on many neighbourhoods.

Although the plan of 1979 didn't have great success on improve the conditions of public spaces, it confirmed the concern to protect some natural areas in the city. This was a municipal plan which obeyed the national Land-development Law (also from 1979). This national law together with the municipal plan were the main responsible to define important protected areas. On that time, it were created several parks, all of them related to protected areas, for instance Parangaba lake, Opaia Lake, Papicu Lake, Pajeu Park, Adahil Barreto Park and Cocó Park. These parks are today among the most important public spaces in the city *(see Map 3.4)*.

During the next decades of 80's, 90's and 2000's Fortaleza doubled its population reaching an amount of 2,5 million inhabitants. This growth was one of the reasons for the occupation of many areas in the city like the sub-centrality of Washington Soares Avenue and the densification of neighbourhoods like Beira-Mar, Iracema Beach and Aldeota. These decades were defined by great urban transformations like the opening and widening of streets, building of a massive sewage system, enormous peripheral housing complexes and a consolidation process of decentralisation of urban facilities and urban occupation. During this time the city decentralized its administration and defined some areas as Urban Development Priority Areas. This time was also characterized by political
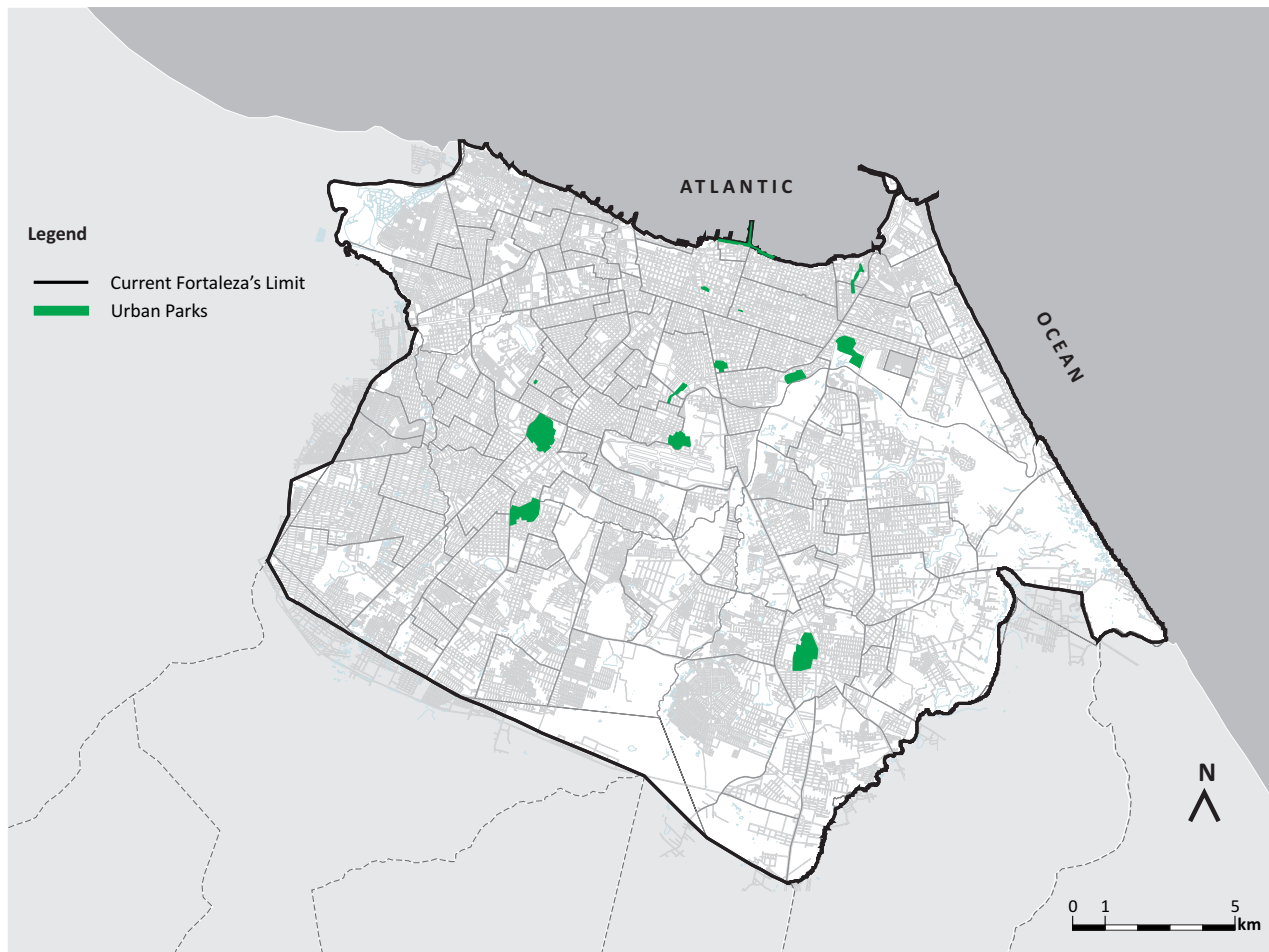
Map 3.4. Urban Parks in the city of Fortaleza – created to protect natural areas.

changes, when Brazil became a democracy again with the consolidation of a new Constitution Charter and several urban laws. The new urban laws were developed according to the City Statute (national urban planning policy), defined on 2001, and started to rule the city supported by tools like TDR, progressive taxes, etc. These regulatory instruments of this recent period, for instance the Urban Development Plan-1992, the Land-Use Plan – 1996 and the Urban Development Plan – 2009, are deeper explained on the Urban Planning Dimension analysis, on this chapter.

Together with the democratisation of the country there was a crucial change on the urban planning system of Brazil, from a centralized approach towards a share of responsibilities. The government realized that was not possible anymore to be exclusively responsible for the urban development in the country.

There was a general pressure, from state, business and industry, popular movements, nongovernmental organisations and political parties, "to reject this centralized conception of state intervention. In its place, they substituted a notion of planning in

which government does not produce space directly but, rather, acts as a manager of localized and often private interests in the cityscape" (CALDEIRA and HOLSTON, 2005).

The country started to implement a new way of urban planning, avoiding the old model of total planning, based on modernist approach, towards a more democratic planning, with an emphasis on the social function of urban property. This means an attempt to correct the distortions on land availability generated by the last urban model, ensuring the *"right for the city"* for every citizen.

This period of time is represented by the huge growth of Fortaleza towards east and southeast sides. Neighbourhoods like Dunas and Praia do Futuro were occupied on the east side, and Luciano Cavalcante, Edson Queiroz, Água Fria and Cidade dos Funcionários were occupied on the southeast side. Both occupations were facilitated by the opening of important avenues towards these areas. On the last decade and the present one the city was massively densified following the real estate market pressure *(see Photos 3.6 and 3.7)*. Transforming low-density areas in high-rise standards and occupying

areas which used to have big lands for agricultural purposes, with several housing complexes.

The urban model of decentralisation was one of the issues from the urban development of this period, which we can see on the relocation of important public services and infrastructure improvement on other areas. Although it was defined on some plans of the period as a model to reach, this decentralisation process mainly occurred unplanned and due to real estate and private forces. The sub-centrality area of Washington Soares Avenue is one of the latest examples of this process. The area crosses many different neighbourhoods and has been constantly increasing its importance on the context of the city. Before the widening of the main avenue, 11 years ago, the area was mainly occupied by small farms or dispersed single family houses. Nowadays, there is a fast substitution of its big plots and single houses for many horizontal housing complexes (such as gated communities), high-rise buildings and many educational and services buildings. These functional and spatial transformations are happening following the avenue and having its impacts in all surroundings, with a huge transformation of uses and densification of activities *(see Photos 3.8, 3.9 and 3.10)*.

The process of development of this new centrality, mainly during the last 10 years, integrates housing and tertiary services, one feeding each other. The tertiary sector has an important role on the last development process of the sub-centrality. This function is qualifying the area, together with a growth on housing occupation. It is a cycle process: more houses have been built; more tertiary growth happens in order to supply the growing demand coming from the population growth; at same time because of the growth on tertiary and facilities provision, there is also a growth of interest to build houses on the same area, this process is fed by both sides. This process has been helped by the improvement of infrastructure and by some relocation of public services like Municipal Court, State Government Bureau and Municipality Bureaus, for the same area, along the avenue.

Photo 3.6. Aerial view of Fortaleza on the year of 2005 – view from the central part.
Source: Gilberto Studart.

Photo 3.8. Washington Soares Avenue – view from the south to north.
Source: Skyscrapercity.

Photo 3.7. Aerial view of Fortaleza on the year of 2005 – view from the coast.
Source: Gilberto Studart.

Photo 3.9. Washington Soares Avenue – high traffic.
Source: Skyscrapercity.

Photo 3.10. Washington Soares Avenue – aerial view
Source: Panoramio.

Looking to the history of the area it can be detected important moments for its development process. First we have the location of the biggest private University of Fortaleza on the area, in 1973. Second, an important Shopping Mall was located on the area, in 1982. Third, the State Government widened the main avenue on the year of 1998. Fourth, the relocation of important institutional functions to the area: the Municipal Court, the State Government Bureau and the Regional Secretary II (SER-II). All these facts were crucial to the development of the sub-centrality.

After this explanation of the urban development of the city it will be easier to make the analysis of the Washington Soares sub-centrality and its relations with the overall structure of Fortaleza. The next part analyses the city of Fortaleza, particularly the sub-centrality of Washington Soares Avenue, focusing on the conditions of public spaces structure and using the criteria defined by the theoretical framework.

2. FUNCTIONAL-SPATIAL DIMENSION

As we explained on the research methodology, this part of the analysis is focused on the spatial conditions of Fortaleza, using the city scale and the sub-centrality of Washington Soares Avenue. For this purpose seven different aspects are considered:

    1. Provision of public spaces;

    2. Kind of uses and users;

    3. Connection with public transport;

    4. Surrounding buildings and infrastructure;

    5. Level of maintenance;

    6. Accessibility of the public space structure;

    7. Connectivity on a macro-level (city scale);

These aspects are used following a sub-criteria as presented on *Figure 3.1*. These sub-criteria are explained on the developing of the analysis.

MAIN CRITERIA

1- PROVISION AND DISTRIBUTION

2- KIND OF USES AND USERS

3- CONNECTION WITH PUBLIC TRANSPORT

4- SURROUNDING INFRA-STRUCTURE

5- LEVEL OF MAINTENANCE

6- ACCESSIBILITY

7- CONNECTIVITY

SUB-CRITERIA

a) Amount
b) Balance
c) Location

a) Income
b) Education
c) Density
d) Land-Use

a) Location of PS
b) Catchment area of public transport

a) Road Hierarchy
b) Built Form
c) Traffic Generators
d) Land-Use

a) Pavement
b) Furniture
c) Vegetation

a) Pedestrian

a) Road Connection on the city scale

Figure 3.1. Methodology scheme for Functional-Spatial Dimension Analysis.

2.1. Provision of public spaces

The analysis started looking at the provision and distribution of public spaces on the area, which was based on the following sub-criteria:

a) Amount of Open Public Space (excluding street network) per total area and per inhabitant;

b) Balance of the distribution;

c) Location of natural areas;

d) Location of Urban voids.

The definition of public spaces on this research also includes the street network, however, particularly for the analysis of provision on the city and sub-centrality scale, the amount of surface occupied by streets and sidewalks was not considered. This decision was done

due to the fact that the measurements used to evaluate and compare the provision of public spaces against global standards and against the parameter defined by law, do not consider as well the street network. Although the role of the street network is very important to the strategy proposed by the planning recommendations and will be tackled later.

Taking a deeper view on official documents this research discovered that a great amount of urban voids in the area are supposed to be public spaces, but instead they were never implemented, or even they were illegally occupied by informal settlements. The area is represented by a lack of implemented public spaces, and the ones which were developed as squares are in derelict conditions.

The regulatory instruments of the city *(see Urban Planning*

Public Space Provision - Sub-centrality

Percentage of PS:

Implemented = 0,2%

Not-implemented = 4,1%

Total = 4,3%

Ratio of PS:

Implemented = 0,46m²/inh

Not-implemented = 8,33m²/inh

Total = 8,79m²/inh

Percentage required by law: 15%

Ratio recommended by UN: 9m²/inh

ATLANTIC

OCEAN

N

Legend

- Public Spaces Implemented
- Public Spaces not Implemented
- Public Spaces Invaded

0   100   500
                     m
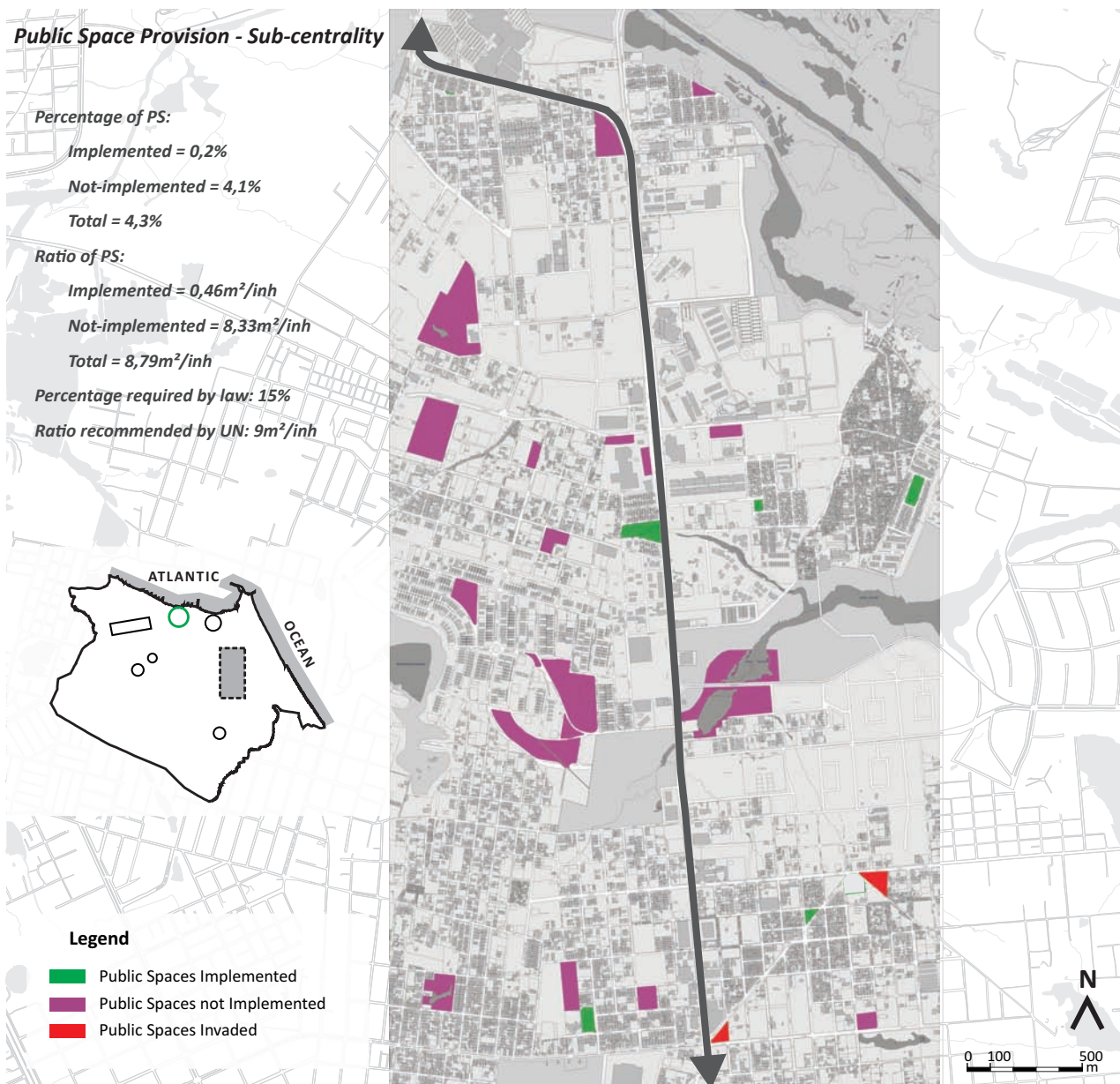
Map 3.5.   Public Space structure on the sub-centrality.
Source: Map observations and Urban Development Plan 2009-Municipality of Fortaleza.

Dimension analysis) defines that the percentage of open public spaces should have at least 15% of the total surface of the area (this percentage does not include the street network). Unfortunately the real percentage on the Washington Soares sub-centrality is not more than 0,2%. If we consider all the spaces which should had been implemented by the Municipality the percentage reaches 4,3%, which is still much less than the minimum (15%) required by law *(see Map 3.5)*.

It is necessary to explain that the analysis of public spaces provision was separated into three different categories: *1-implemented public spaces*, the ones which were implemented by the Municipality, through a square, park, playground or something else, presenting pavement, furniture, planned vegetation, facilities, sport's court, etc; *2-not-implemented public spaces,* which are the ones left empty, without any pavement, facilities or furniture. These spaces are officially defined to be public spaces, they are public property, but they were never implemented as such, being today only urban voids; and *3-invaded public spaces,* which are the ones not-implemented but which were invaded by "favelas" and informal settlements *(see Maps 3.5 and 3.6; and Photos*

3.11 to 3.13). The percentage of 4,3% is the total sum of the three categories of public spaces explained before.

If we use another parameter to analyse the provision of public spaces, which is the amount of square meter (of public space) per inhabitant, we can also confirm the lack of open public spaces. The ratio recommended by United Nations (World Health Organization - WHO/UN) is 9m²/inh, which is not considering the streets but exclusively open public spaces as squares, parks, playgrounds, etc. The calculation for the sub-centrality only reaches 0,46m²/inh for the implemented public spaces. This is not a simple number, this is really an urgent problem to be solved. The good thing on the sub-centrality is that if we consider also the public spaces still not implemented on this calculation we can see that this ratio goes to 8,79m²/inh, which is already very close to the recommended amount by UN *(see Table 3.1)*. However, it should be clear that this recommendation from UN not necessarily should be reached by a Braziliam context, it is just a parameter, based on global standards, to evaluate the present conditions.

If we compare these results of the sub-centrality scale

Public Space Provision - City Scale

Percentage of PS:

Implemented = 0,97%

Not-implemented = 1,38%

Total = 2,35%

Ratio of PS:

Implemented = 1,23m²/inh

Not-implemented = 1,72m²/inh

Total = 2,95m²/inh

ATLANTIC

OCEAN

Legend

— Current Fortaleza's Limit
■ Public Spaces Implemented
■ Public Spaces not Implemented
■ Public Spaces Invaded
▢ Washington Soares sub-centrality

N

0   1   5 km
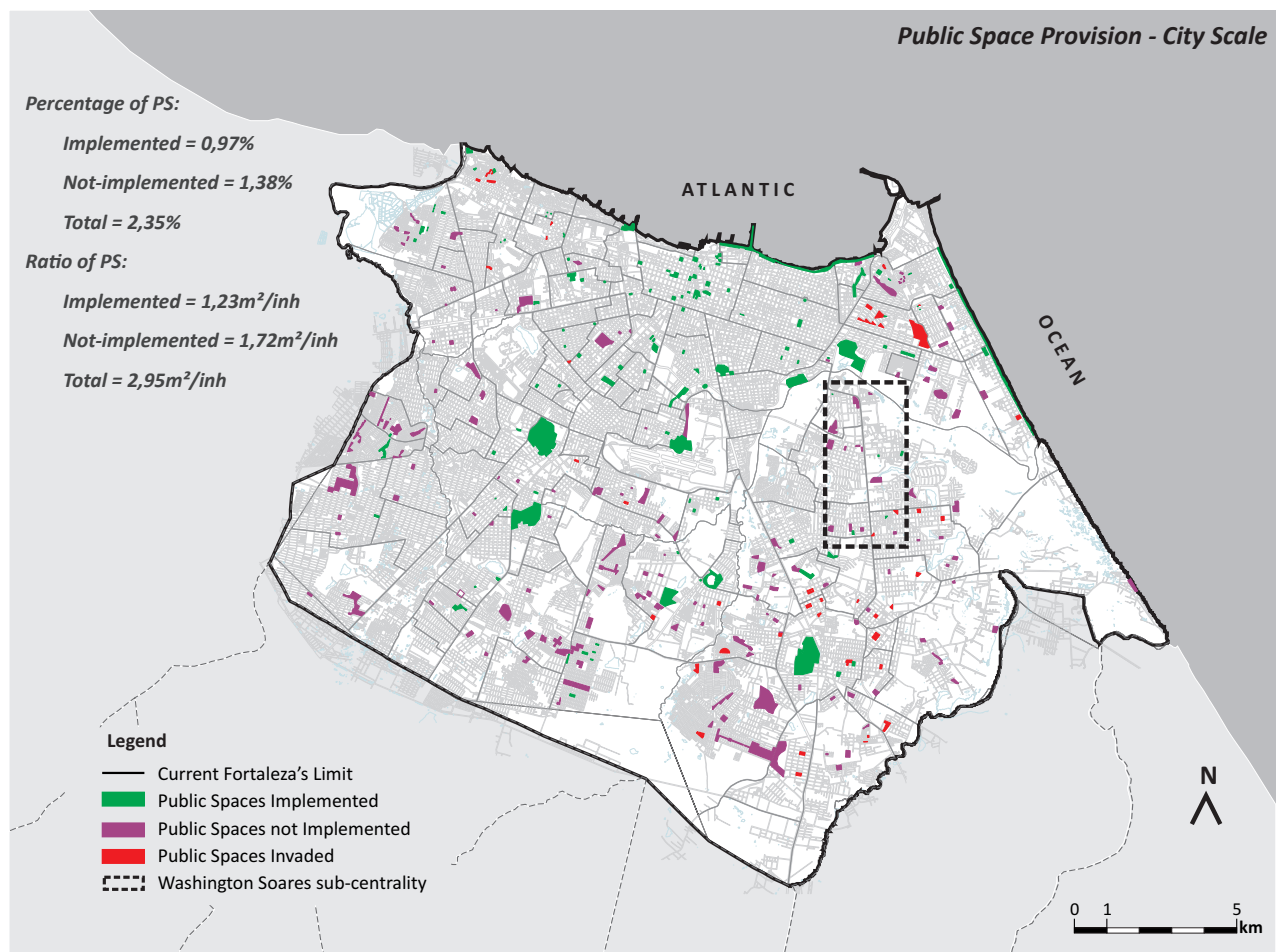
Map 3.6. Distribution of Public Spaces in the City.
Source: Map observations and Urban Development Plan 2009-Municipality of Fortaleza.

Table 3.1. Public space provision on the sub-centrality and in the city of Fortaleza.

SCALE	PERCENTAGE OF PUBLIC SPACES IMPLEMENTED	PERCENTAGE OF PUBLIC SPACES NOT-IMPLEMENTED OR INVADED	TOTAL PERCENTAGE (implemented + not-implemented)	PERCENTAGE REQUIRED BY LAW
Washington Soares sub-centrality	0,2%	4,1%	4,3%	15%
City	0,97%	1,38%	2,35%	
SCALE	RATIO OF PUBLIC SPACES IMPLEMENTED	RATIO OF PUBLIC SPACES NOT-IMPLEMENTED OR INVADED	RATIO PERCENTAGE (implemented + not-implemented)	RATIO DEFINED BY UN
Washington Soares sub-centrality	0,46m²/inh	8,33m²/inh	8,79m²/inh	9,0m²/inh
City	1,23m²/inh	1,72m²/inh	2,95m²/inh	
Source: Map observations and Municipality of Fortaleza.				

with the ones from the city scale, we can see that the sub-centrality has a better performance on both measures, but only if we consider also the not-implemented and the invaded public spaces. This fact does not say that Washington Soares sub-centrality has a good performance on provision, but does say that the area has potentials to improve its public spaces conditions *(see Table 3.1)*.

Looking to the provision of public spaces on the city *(see Map 3.6)*, particularly to the really implemented ones, we can see how serious is the lack of public spaces. The inappropriate performance of the city can be measured by its percentage of implemented public space which reaches only 0,97%. We already know that the minimum percentage defined by law is 15% of open public spaces per total surface of the territory. This number of 0,97% is a very low standard, which defines the city also with very low quality of public space structure. Besides, if we look to the ratio of implemented public space per inhabitant, the

city has only 1,23m²/inh. These numbers says something about the very poor condition of public space provision in the city *(see Table 3.1)*.

Photo 3.12. Example of a space defined to be public square but still not implemented.
Source: Gilberto Studart.

Photo 3.11. Example of public space implemented as a public square.
Source: Gilberto Studart.

Photo 3.13. Example of a space defined to be public square but which was invaded by informal settlements.
Source: Gilberto Studart.

The city of Fortaleza has also a great potential to improve its public space conditions if we consider the amount of natural areas, which are protected areas defined by law, the huge amount of not-implemented public spaces and the beach areas. Despite the fact that some of these areas are gradually being illegally occupied, there is still a large amount of natuaral areas and not-implemented public spaces spread along the city.

Looking to the **Map 3.7**, we can see a great amount of green areas in the city and also on the sub-centrality of Washington Soares. Most of these areas have been not used by the population, remaining completely natural until nowadays. There are some parks which were implemented in natural areas, for instance the National Park of Cocó River. The importance of this Park can really be seen on the map, where most of the central to east part of the city is influenced by the river and its water streams. This is the biggest urban park in the whole South America, with more than 1,155ha of surface *(see Map 3.8 and Photos 3.14 and 3.15)*.

If the city implements new areas open to public use in these natural green areas, the overall provision of public spaces would increase significantly. Besides an improvement in quantitative terms, it would bring much better quality of life to the population. This analysis can be applied both to the city as well as to the selected sub-centrality *(see Maps 3.7 and 3.9)*.

The city has also another important potential, which is the beach areas on the north and on the east part of its territory. These areas are in general heavily used on the weekends, but still are not using in a efficient way their great potential to attract people from all the metropolitam region. Some of these areas are really fragmented from the rest of the city.

Perhaps the biggest potential for public spaces development on the city is represented by the expressive presence of public lands, officially defined as public spaces but which are still not implemented nowadays. These spaces are composing the main priorities on the planning recommendations proposed by this thesis.
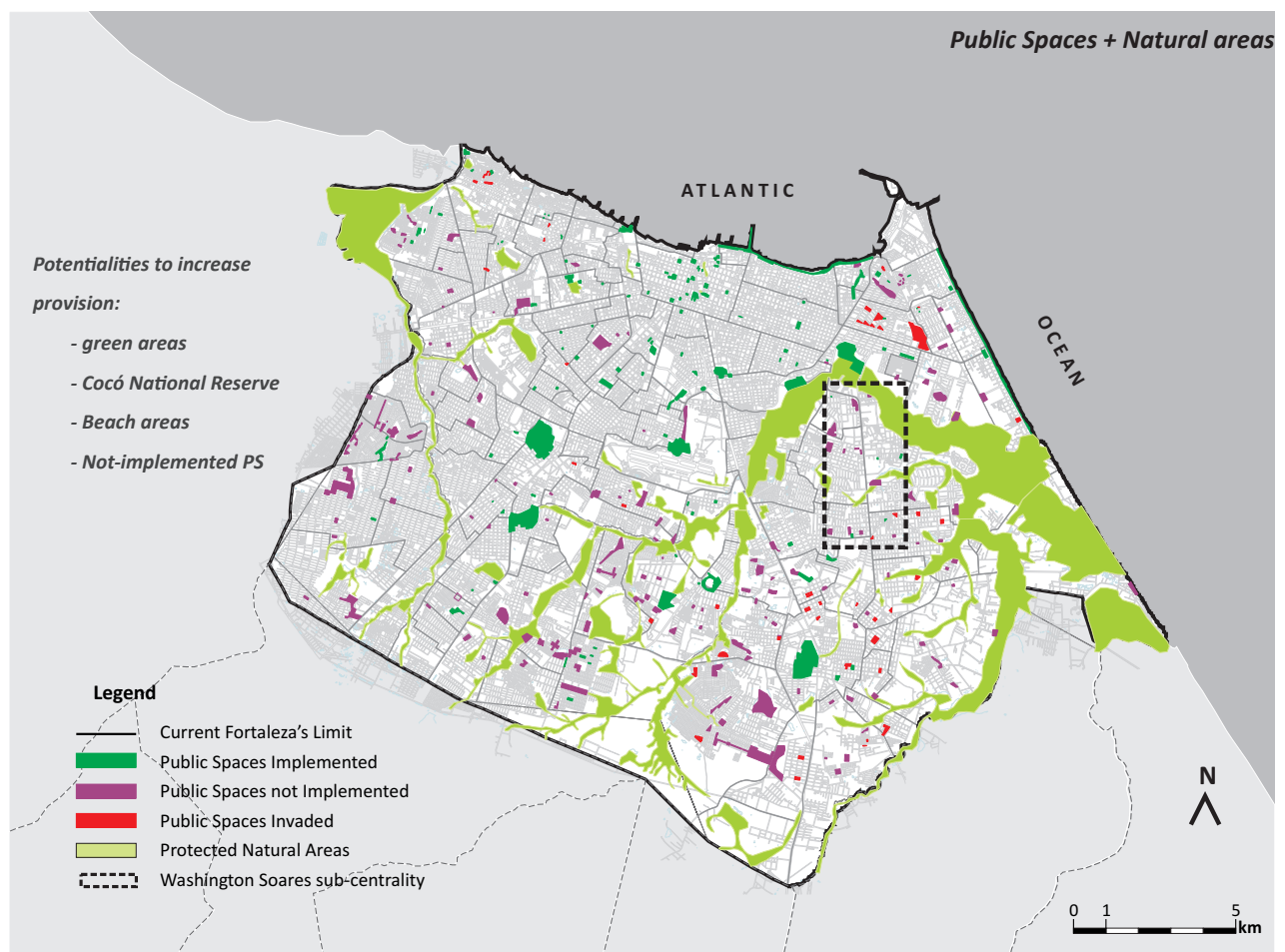
Map 3.7. Distribution of Public Spaces and natural areas in the City.
Source: Map observations and Urban Development Plan 2009-Municipality of Fortaleza.

Photo 3.14. Aerial view of National Park of Cocó River. The biggest Urban park on South-American cities.
Source: Gilberto Studart.

Photo 3.15. Aerial view of National Park of Cocó River. Totally inserted on the urban area of Fortaleza.
Source: Gilberto Studart.
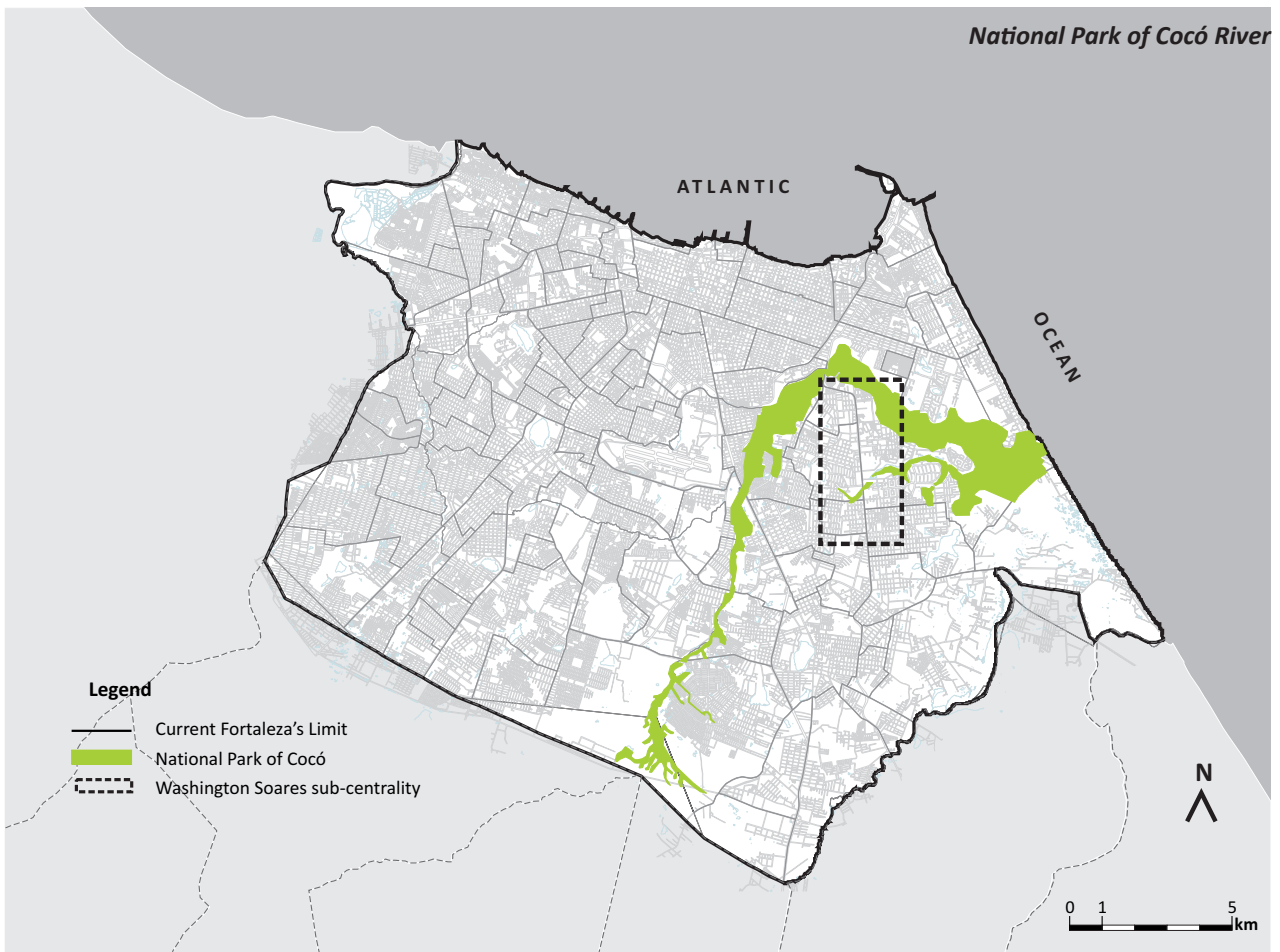
Map 3.8. National Park of Cocó River.
Source: Map observations and Municipality of Fortaleza.

Looking in detail the natural areas of the sub-centrality of Washington Soares we can see also an important presence of them. On the north side there is part of the National Park of Cocó River. On the central part of the sub-centrality we have water streams (part of the water system from Cocó River) and huge natural green areas, which nowadays have no public use at all. These areas can be really important to establish an identity for the area and improve the overall structure of public spaces in the local context. The offering of these areas to the public domain would also have influence on a much wider urban area, due to the good location of them and to the size *(see Map 3.9)*. Just the natural areas located on the central part of the sub-centrality would easily offer to the city more than 75ha of open public space *(see Photo 3.16)*.

Photo 3.16. View of huge natural area on the center part of the sub-centrality.
Source: Gilberto Studart.

Natural Areas - Sub-centrality

Potentialities to increase provision:

- Natural green areas

Legend

National Park of Cocó
Natural Areas
Water Resources
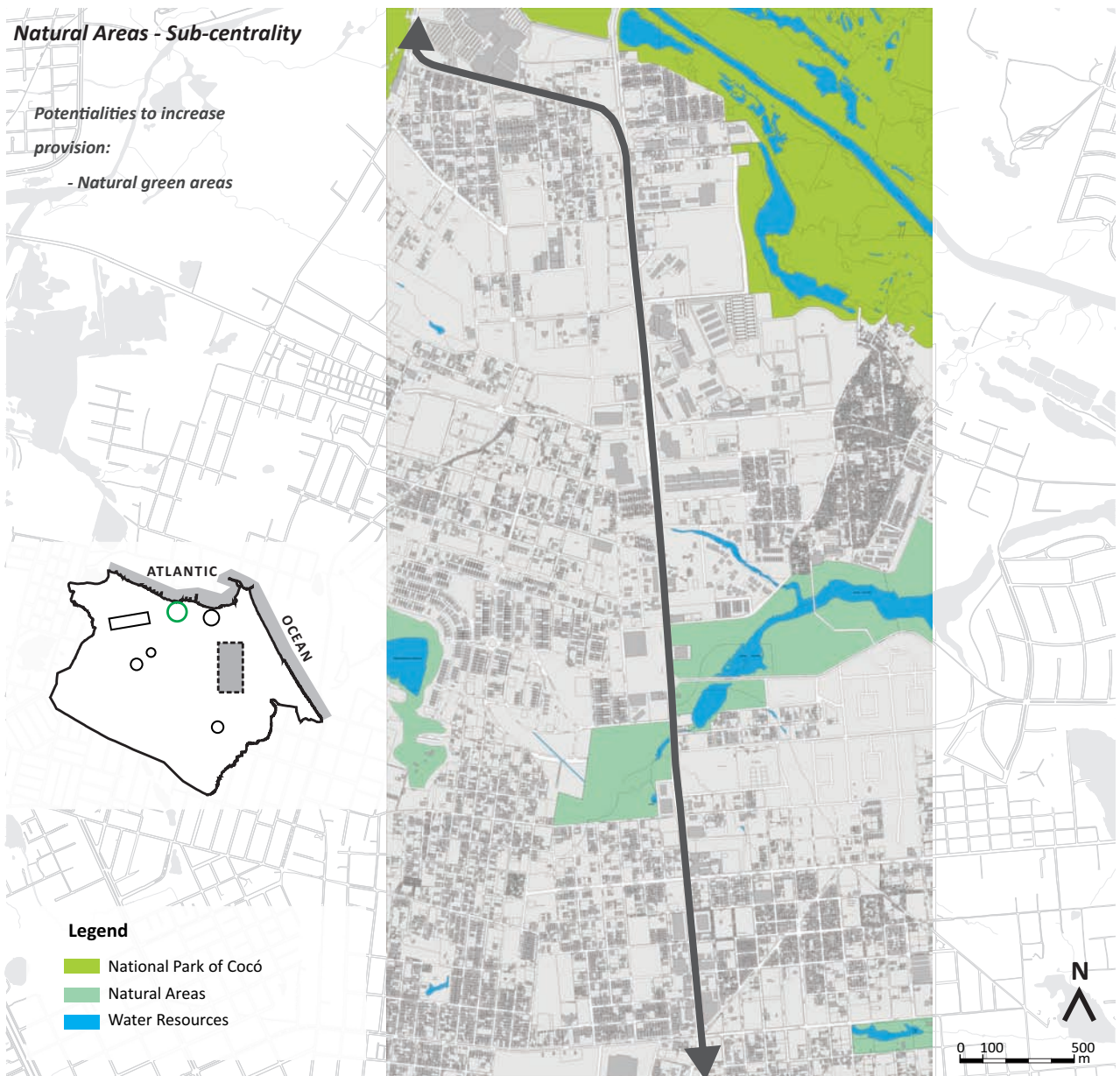
Map 3.9. Natural areas within the sub-centrality of Washington Soares Avenue.
Source: Map observations.

In respect to distribution on the sub-centrality, if we consider just the implemented public spaces, we can clearly see that the area has a public space concentration in few specific points. Looking to the **Map 3.10** we can see that the radius of influence of public space structure (defined with 400m, according to TOD parameters) is completely insufficient to the whole area. These public spaces implemented can cover just a very small part of the population of the sub-centrality. The rest of the area is totally uncovered by these public spaces *(see Map 3.10)*. This fact gives to most of local population no option to use an open public space. For most of them the only public space available is the one composed by the sidewalks and streets.

Although the performance on public spaces provision and distribution is too low, the area still has potential to develop an integrated and appropriate public space structure. The area has many urban voids and natural areas, some of them private some others public. This fact makes easier public interventions in order to give to the area some identity using public spaces as one of the main drivers. If the Municipality implement just the areas designed to be public spaces, this performance would already increase the provision of these spaces towards the minimum recommended by UN (9m²/inh) and with close numbers to the current laws of the city (15% of the total surface).

Public Space Catchment Area

Legend

Public Space Implemented
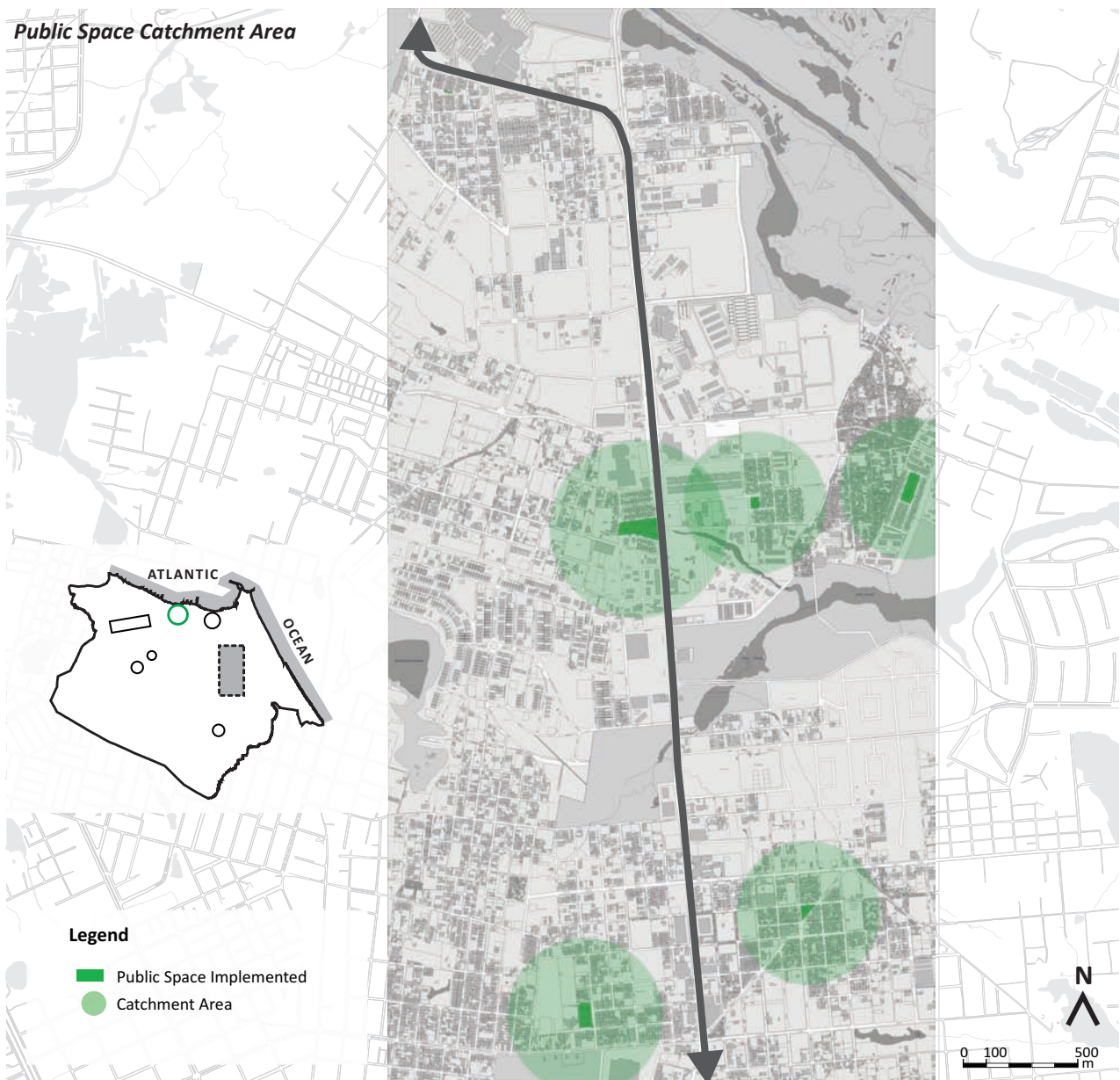
Catchment Area

Map 3.10. Catchment areas of implemented Public Space structure on the sub-centrality scale.
Source: Map observations.

Looking now to the city scale, there is also a clear inequality of distribution of public spaces. There is a concentration of these spaces on the coastal areas, on the historic center and on some other locations in the city *(see Map 3.11)*. The dark green shapes are the actual public spaces structure, and the transparent green circles are the catchment areas of each one of them. All the other parts which are not covered by these catchment areas represent a huge portion of the territory, and also of the population, which are not being addressed by these spaces. This means that a great number of inhabitants have no access to public spaces, except from the street network.

Besides this inequality of distribution, the public space structure in the city of Fortaleza is very fragmented due to the neglect of the importance of street network as fundamental public space. There is no network of public spaces, but only a number of several public spaces spread along the city without any integration between each other *(see Figure 3.2)*. Besides, the actual spatial conditions of most of the streets and their sidewalks are not offering any quality to pedestrian use *(see Photo 3.17)*.

Photo 3.17. Derelict conditions of some sidewalks on the sub-centrality of Washington Soares.
Source: Gilberto Studart.

urban grid
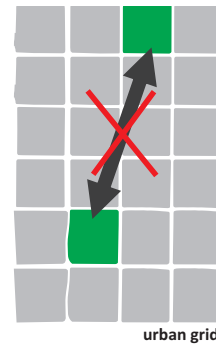
Figure 3.2. Schematic drawing to show the very weak integration between different public spaces.
Source: Gilberto Studart.
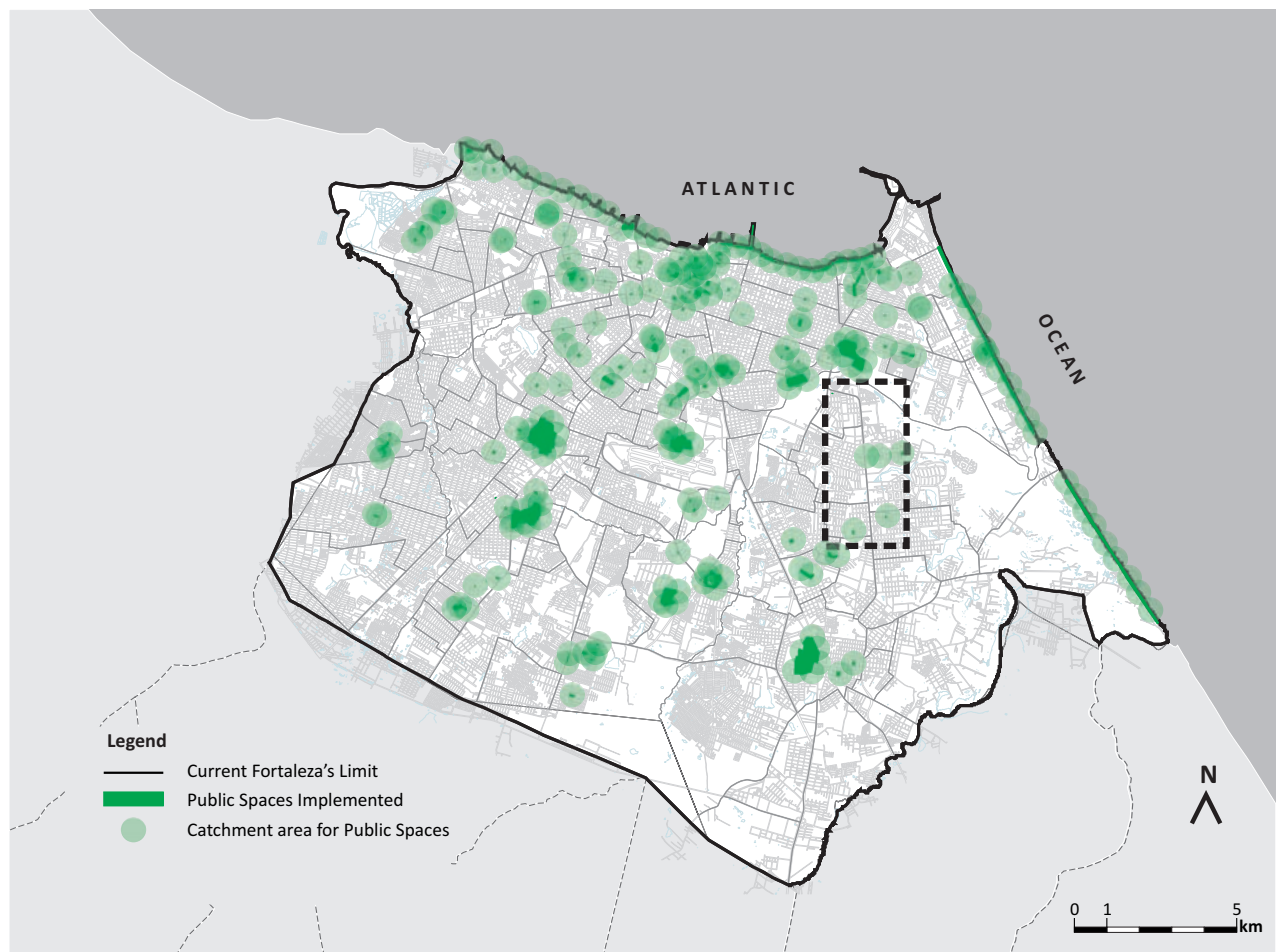
Map 3.11. Catchment areas of implemented Public Space structure on the city scale.
Source: Map observations.

2.2. Kind of Uses and Users

This analysis is also researching about the users of this sub-centrality, concerning the socio-economic characterisation of the affected population. In this sense, it was observed four major aspects:

1- The income level;

2- The density of the area;

3- The education level;

4- The land-use configuration;

This part of analysis has the objective to describe socio-economic characteristics of the Washington Soares sub-centrality and their relation with the same characteristics detected on the city scale. These characteristics helped this research to find specific spatial demands for the sub-centrality, and also offered basic informations to develop an appropriate planning model for the public space structure of the city.

The Washington Soares sub-centrality is not a homogeneous area. This is one of the main conclusions of this analysis. We can see that in the overall scale *(see Map 3.12)* the area concentrates some sectors of medium to high-income population, but also other ones with very low income. We can observe this due to the fact that this area is highly attractive for medium and high income groups, but at same time has a history of some illegal occupation of public and private lands, with the presence of some "favelas" in the periphery of the area. The overall analysis on this aspect defines a population which can be considered mainly composed by medium income, but represented by very diverse income groups.
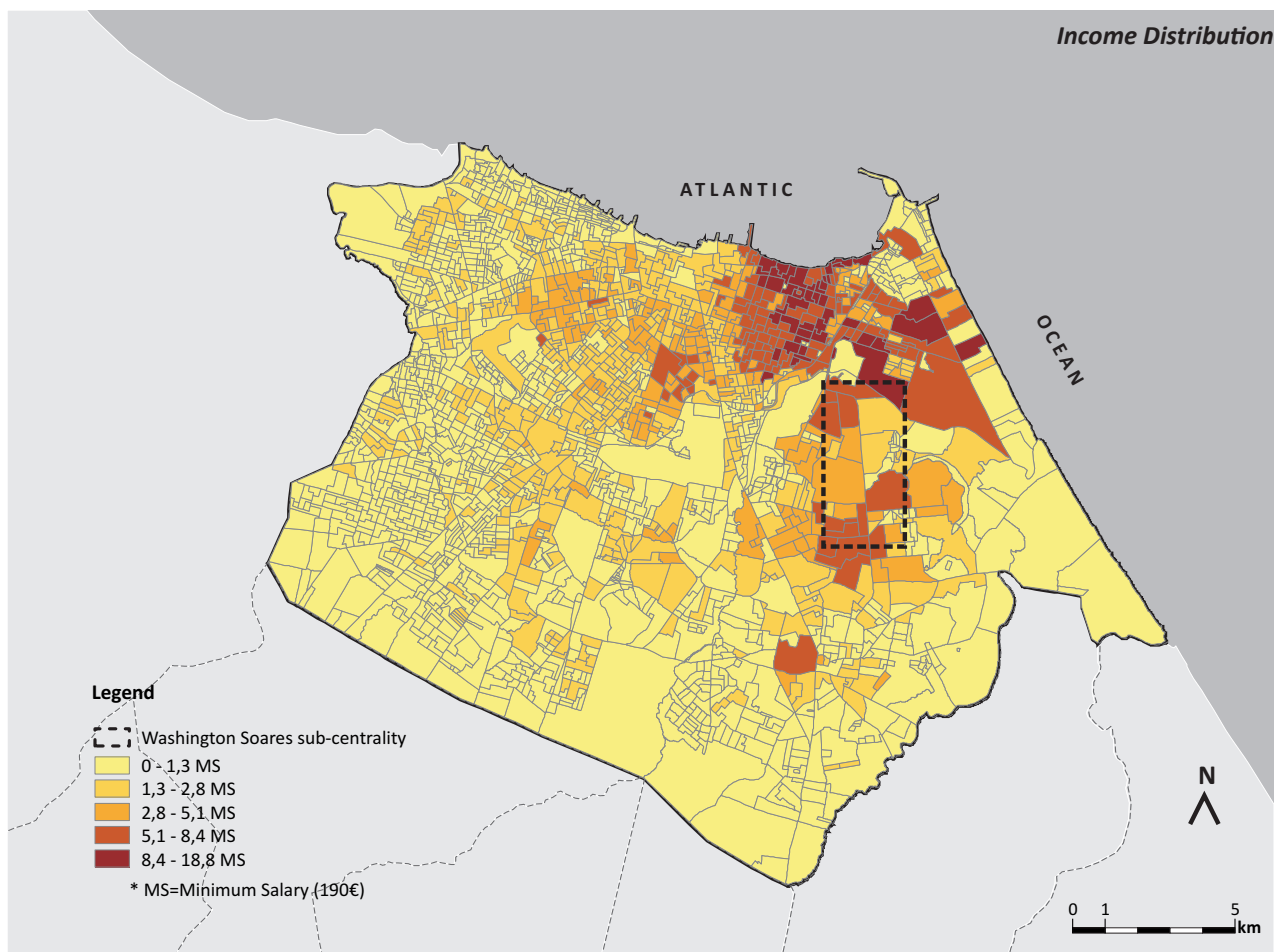
Map 3.12. Distribution of income on the city of Fortaleza.
Source: IBGE 2000.

The analysis on the sub-centrality scale, shows a very complex distribution of income. Although the area is representing an attraction to rich population of the city, we can see that in both sides of the avenue there are sectors with very low and others with medium to high income level *(see Map 3.13)*. Another aspect is that we can easily recognize the low-income population by their spatial concentration on some areas which compose the "favelas" of the area *(see Map 3.13)*. The conclusion of the income analysis is that there is a great diversity in the same sub-centrality. It is clear that the socio-spatial demands from the medium to high income level sectors are different. The area is very diverse, which requires for any intervention, either on planning aspects or on physical sense, a deep concern on the understanding and integration of this diversity of people and spatial characteristics.

Income Distribution on the sub-centrality

Legend

- 0 - 0,7 MS
- 0,7 - 2,1 MS
- 2,1 - 4,0 MS
- 4,0 - 6,2 MS
- > 6,2 MS

* MS=Minimum Salary (190€)
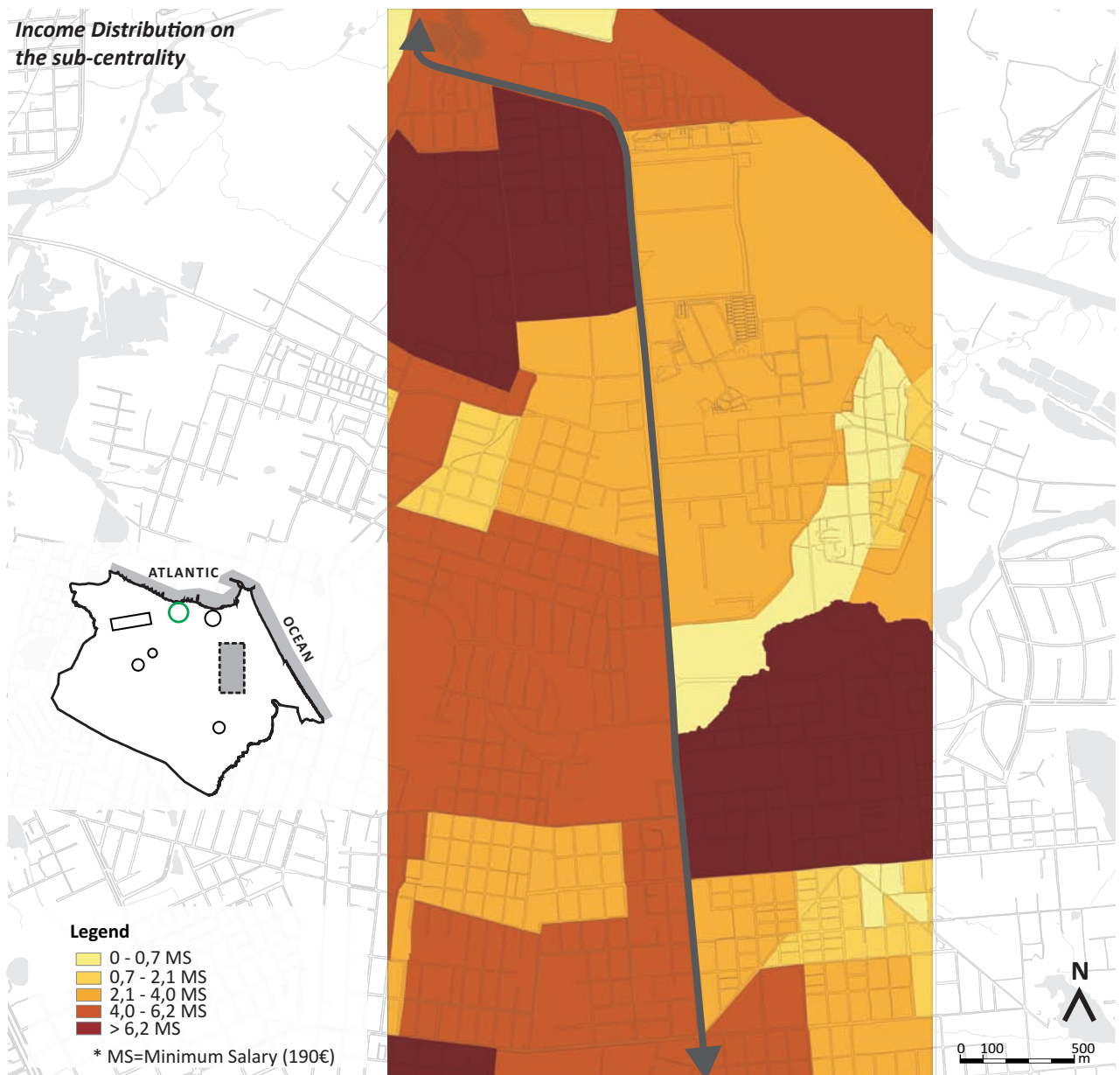
Map 3.13. Distribution of income on the sub-centrality
Source: IBGE 2000.

Looking to the density map of the area, we can detect that on the scale of the city, the sub-centrality still has a very low density *(see Map 3.14)*, having just few parts with high density level. This fact is mainly due to the fact that the area is originally composed by small farms and single family houses on big plots. The transformation process of the area was intensified only around 10 years ago, when the avenue was widened and some public facilities were built nearby. If we calculate an overall density for the sub-centrality we obtain the number of 45inh/ha, which is the same density level of the city of Amsterdam, not so low but also not on high standards. Compared to the rest of the city it is lower than the average for the city, which is 80inh/ha. Making hypothetical calculations to the area, defining the maximum density possible by law, the sub-centrality can probably reaches a density level of more than 90inh/ha, which is a sign of the potential transformations on the area.

Density Distribution

ATLANTIC

OCEAN

Legend

Washington Soares sub-centrality
0 - 92
92 - 176
176 - 296
296 - 488
488 - 1590

* Unit=inhabitants/hectare

N

0   1   5
km
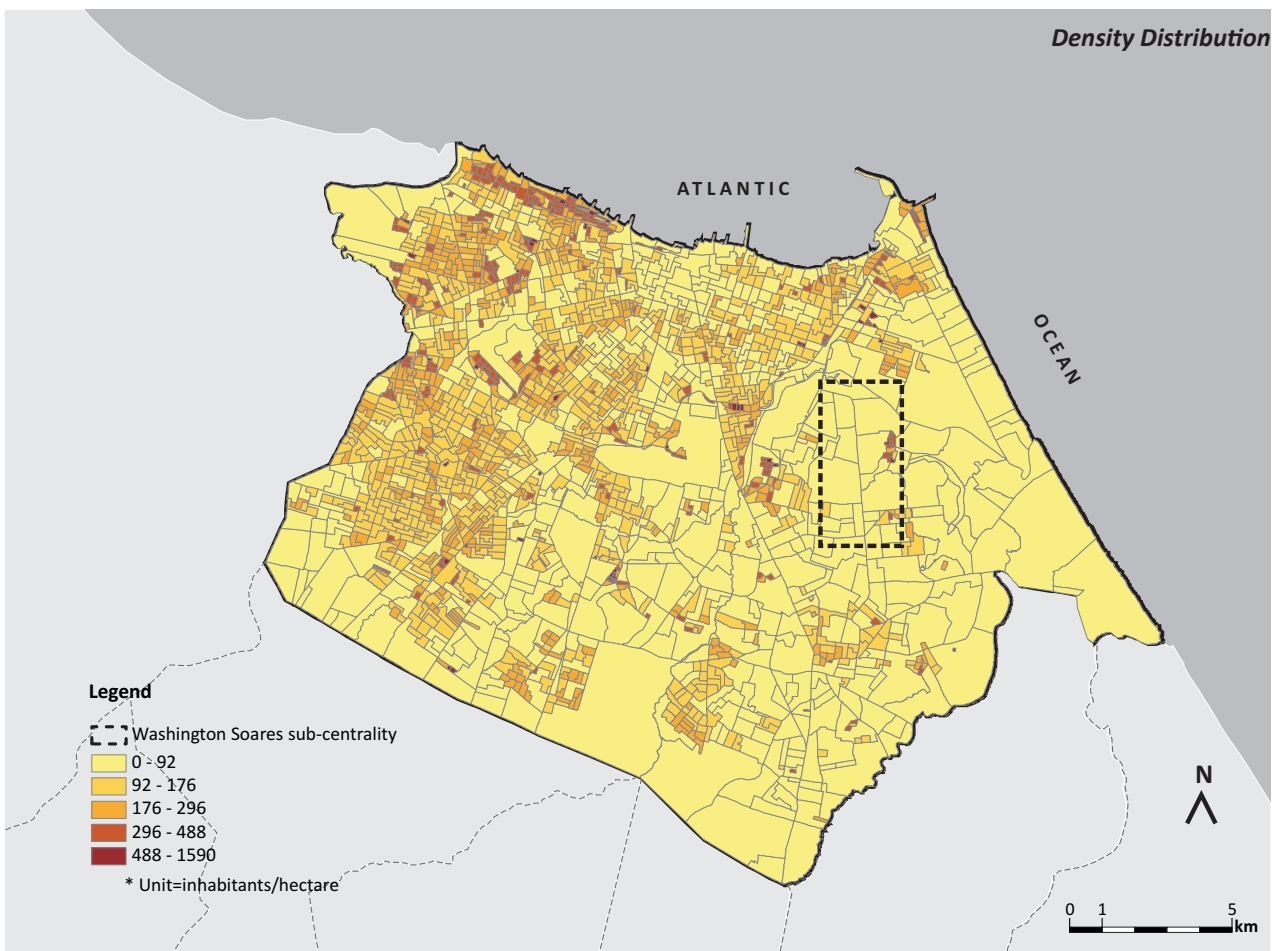
Map 3.14. Density map of the city of Fortaleza.
Source: IBGE 2000.

If we look to the small scale map *(see Map 3.15)*, focused only on the sub-centrality, the analysis shows that the most densified areas are the ones composed by illegal settlements, the "favelas" *(see Map 3.16)*. The density in these areas reaches more than 600inh/ha, which is much higher than the density level of Paris (around 200inh/ha) or even from Manhattan in New York (around 260inh/ha). The interesting fact is that these areas are the same ones which have the lowest income level, which says to us something about the socio-spatial conditions on these sectors. Although there are some high density areas on the sub-centrality, most of the sub-centrality is composed by a low density population going from 5inh/ha to 33inh/ha. These low-density areas are the one which are experiencing most of the spatial and functional transformation.

Density Distribution on the sub-centrality

Legend

- 0 - 33 inh/Ha
- 33 - 70 inh/Ha
- 70 - 133 inh/Ha
- 133 - 270 inh/Ha
- 270 - 620 inh/Ha

Map 3.15. Density map of the sub-centrality.
Source: IBGE 2000.

The physical configuration of these different areas in the sub-centrality, represented by low and high density sectors, has particular characteristics. The areas which have low to medium density are the ones composed mainly by single-family houses distributed on medium to big plots, by many urban voids and services or institutional buildings. However, these areas are also the same ones which are being transformed and being gradually occupied by high-rise buildings. The fact to have many urban voids and other functional uses made the density level of these areas lower than other sectors on the same sub-centrality. Many of the houses in these areas have bigger plot and contain private leisure areas.

At same time of this reality, there are other sectors composed by very small plots, totally occupied by the houses, which live an average of four people per unit, sometime even with a second floor with another housing unit sharing the same plot area *(see Map 3.16)*. These areas are occupying even the streets leaving just few paths of at most 3m wide and without any public space or empty space around, with sometimes the exception of a football field nearby. The population of these areas either have no public spaces or the existing ones are insufficient to the demand.

Specific areas with very derelict conditions

Map 3.16. Location of low-income population on the sub-centrality – biggest density on the sub-centrality.

In respect to the education level of the population we can see that the Washington Soares sub-centrality has some diversity. It has 28% of its population with less than 6,0 years of education, which is a very low level of education. This population is spatially distributed on the same sectors of the high density and also low-income population, which coincide with the "favelas" *(see Map 3.17)*. These numbers confirm the characteristics of particular areas like slums, which demands different spatial concerns and different public space structure. The other part of the population has an education level varying between 6,0 years to 13,7 years. More than 27% of the population has at least 11 years of education and this part of population also coincide with the high income population of the area. We can see that the distribution of more educated people happens also in the north part and south part of the sub-centrality *(see Map 3.17)*.

Education level on the sub-centrality

Legend
- 0 years
- 0,1 - 6,0 years
- 6,0 - 8,6 years
- 8,6 - 11,0 years
- 11,0 - 13,7 years
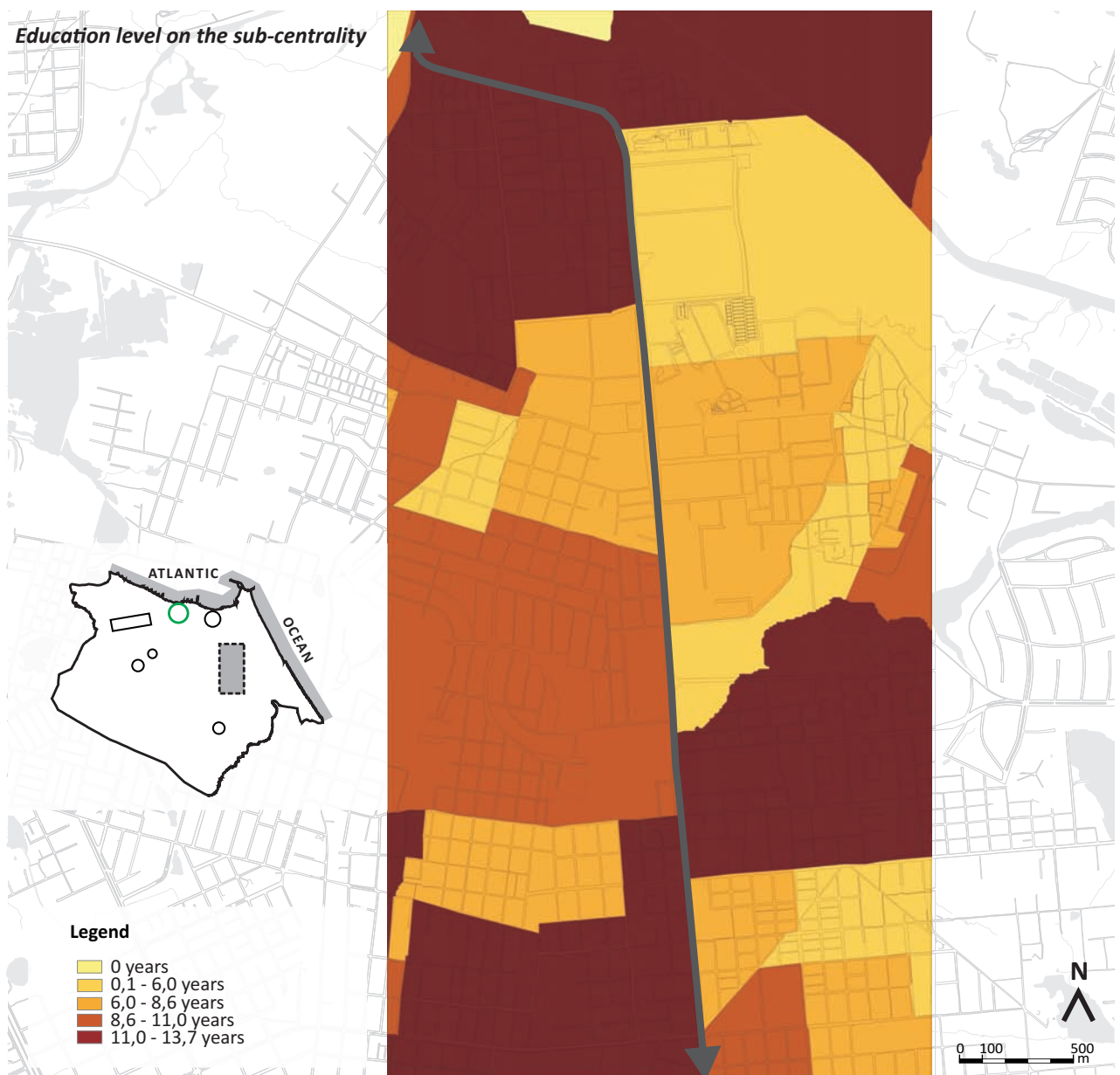
Map 3.17. Education level on the sub-centrality.
Source: IBGE 2000.

Looking to the scale of the city we can see that the biggest concentration of high educated people happens on other areas of the city like Aldeota and Meireles. But it is also clear that the Washington Soares sub-centrality is attracting educated people, showing two areas of concentration. The ***Map 3.18*** shows us that the city does not concentrate anymore its educated people on the historic center, these people is occupying other areas which offers more housing quality and mixed functions. One of these areas is the Washington Soares sub-centrality.
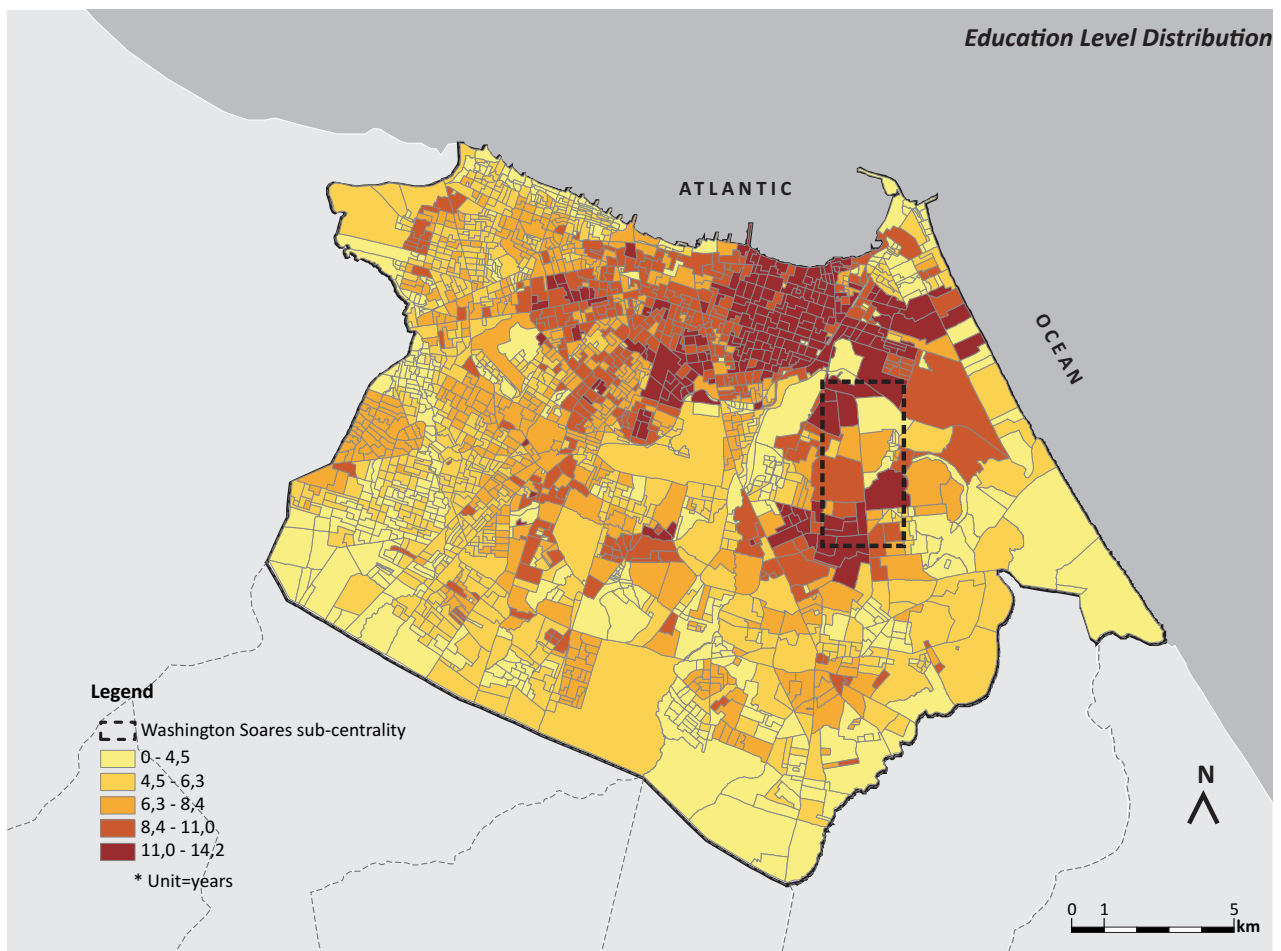
Map 3.18. Education level on the city of Fortaleza.
Source: IBGE 2000.

2.3. Connection with public transport

The analysis of the connectivity between public space structure *(see Map 3.19)* and the public transport system will take into account the location of public spaces and the catchment area of the bus system. The methodology only analysed the bus system due to the fact that this is the only public transport system in use. The catchment area of the bus system was considered to go until 400m far from their routes. According to TOD-Transfer Oriented Development models this distance of 400m is still comfortable to be done by walking. So, if we look to the map which crosses public space information with public transport we can see that all the implemented public spaces are well served by the public transport *(see Map 3.19)*. Even the not implemented or invaded public

spaces are always intersected by the catchment area of the bus system. The sub-centrality of Washington Soares is served by 36 bus lines, which compared to other areas in the city represents not the most served one but still is on the average of bus lines per sub-centrality in the city. Due to the objective of this analysis, a deeper look on other elements of the connection between open public spaces and the public transport is not necessary. The intention is to have an idea if the location of public spaces is well integrated with the bus routes only on a distance matter. This analysis can give to the research elements to evaluate the quality of public space structure in the city.

Public Space + Public Transport

Legend
— Public Transport System (Bus Lines)
▮ Catchment Area (400m)
▮ Public Spaces Implemented
▮ Public Spaces not Implemented
▮ Public Spaces Invaded
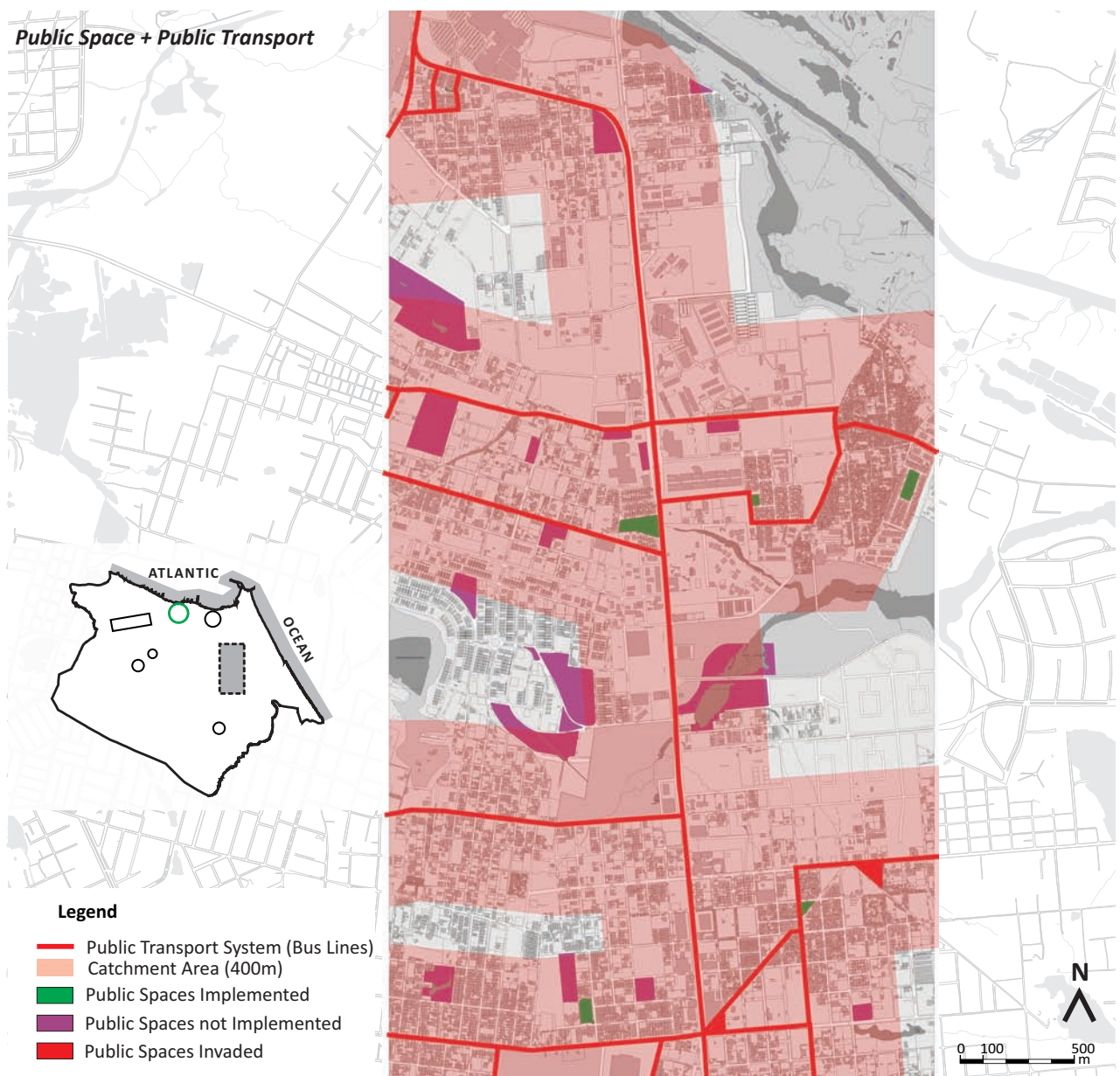
Map 3.19. Crossing information between the public space structure and public transport.
Source: Municipality of Fortaleza.

2.4. Surrounding buildings and infrastructure

In order to know what can be the most appropriate public space structure for the sub-centrality, besides look to the socio-economic characterisation of its population, it is crucial to observe the physical environment following four major aspects:

1- Road Hierarchy and street patterns;

2- Built Form;

3- Traffic Generators - Main activities;

4- Land-Use – Functions.

In this sense, first it will be checked the hierarchy of the road system *(see Map 3.20)*. The area basically has three categories of streets: the main road (Washington Soares Avenue), the secondary streets, which disperses people from the main road, and the very local street network. The main road concentrates besides the flow of activities of the own area another flow which is composed by people who are passing by the area. This second flow perhaps is even bigger than the first because accumulates flows to the eastern cities around Fortaleza and also goes to another sub-centrality of Fortaleza, the neighbourhood of Messejana. The secondary streets on the area are the ones responsible do distribute the local population to their houses and temporary users to their activities. These streets connect the main road to the universities, shopping malls and other neighbourhoods, but also connect people from their houses with all the activities and tertiary services located on the main road *(see Map 3.20)*.

Road Structure and Traffic Generators

Legend

— Main road axis
— Secondary Road Axis
● Traffic Generators

N

0   100   500
                m
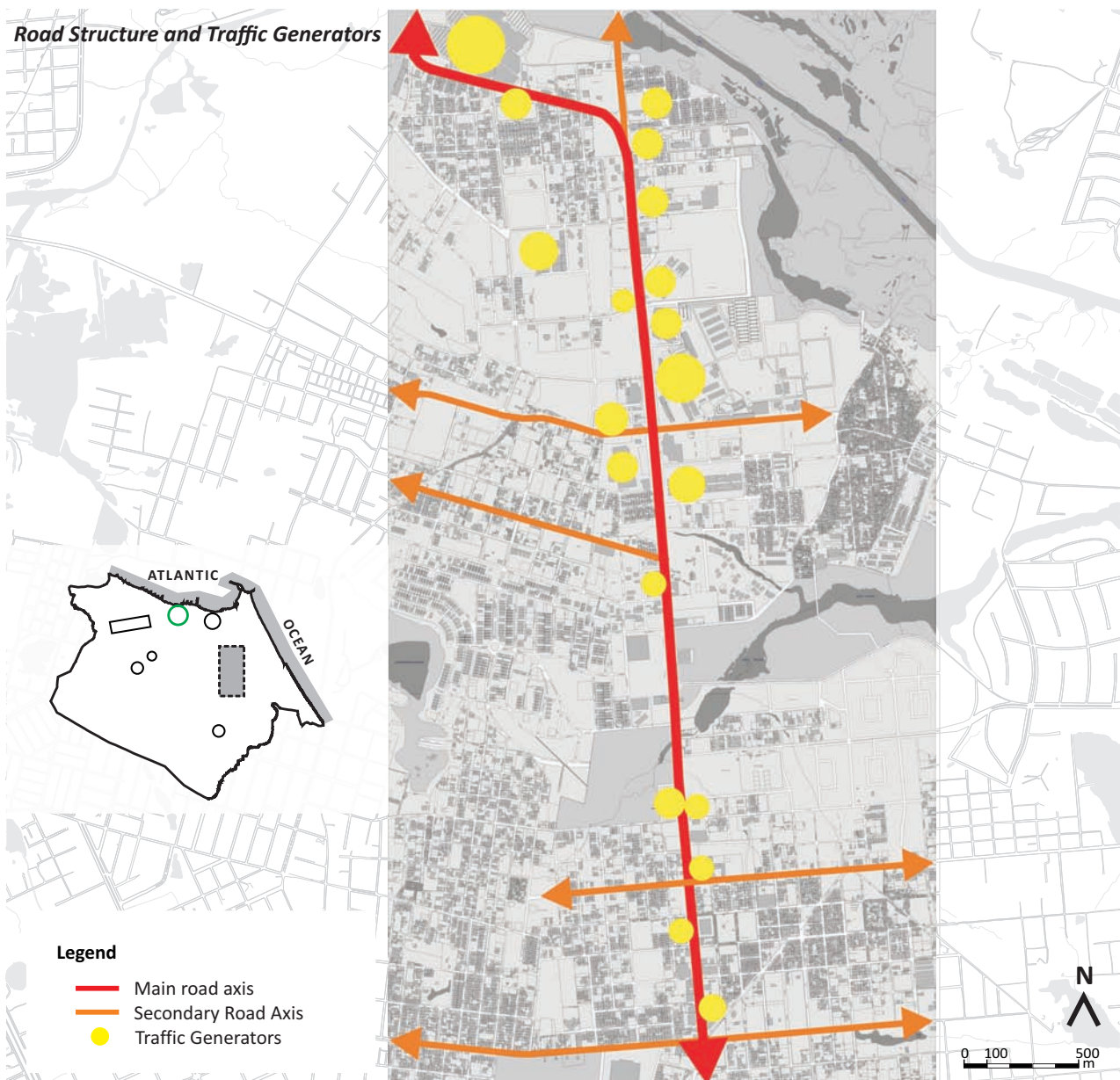
Map 3.20. Road hierarchy and location of traffic generators.
Source: Municipality of Fortaleza.

In respect to the urban grid of the sub-centrality, the analysis observed a huge diversity of patterns. There are since very small and irregular blocks, located on the areas of *"favelas"*, until very big blocks mainly composed by one single plot, occupied by University buildings, Shopping Malls or Institutional functions *(see Map 3.21)*. This diversity of urban form reflects the morphogenesis of the sub-centrality which was originally an area for small farms and weekend houses, and experienced a process of occupation characterised by simultaneous processes of illegal occupations, formal land developments and infra-structure development. All these processes were constrained by huge natural areas with many waters streams.

The diversity of urban grid observed on the sub-centrality also reflects the very weak city planning on the area. The development was mainly carried out by the private developers, which did not have any concern to integrate the different areas already developed or established a cohesive overall urban structure. That is why there is so much fragmentation on the urban form.

The lack of planning or concern to build a cohesive urban structure on the sub-centrality reflects also on the lack of public spaces and on the fragmentation of the public spaces structure. It is easy to see a kind of patchwork of the urban form which has no concern on establish clear connections between the pieces, commonly done by the public spaces structure.

The observed diversity of the urban form and its fragmentation demands urgent interventions in respect to public space, promoting the role of it as an element of integration on the area. Any proposal on this sense must consider this characteristic of the area, which can be also seen if we look for the overall urban structure of the city.
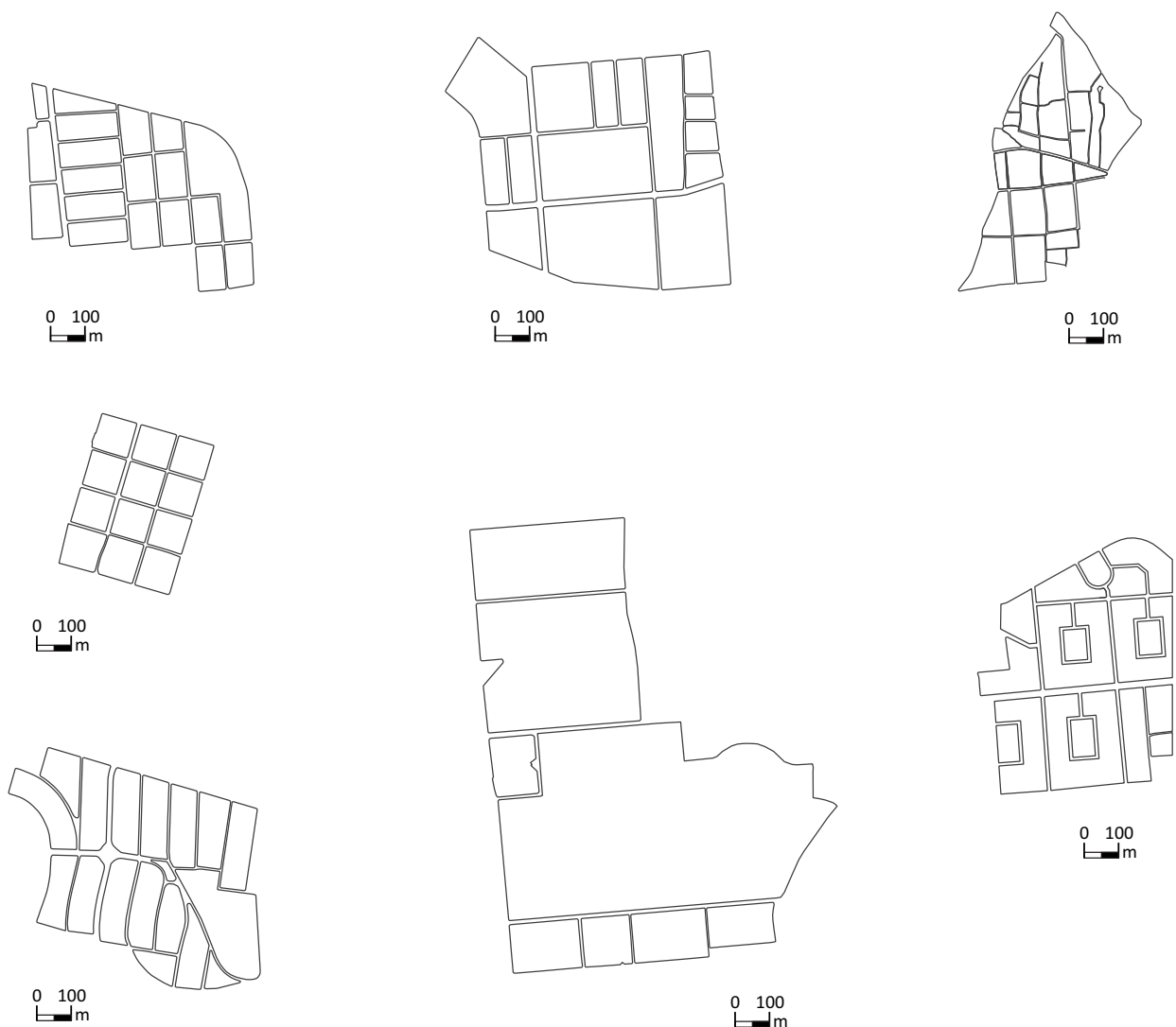
Map 3.21. Diversity of urban grids on the sub-centrality of Washington Soares Avenue.

Observing the land-uses of the area we can see that the Washington Soares Avenue concentrates commercial and service activities *(see Map 3.22)*, and also has almost all the traffic generators of the sub-centrality located at its borders. This fact shows the main characteristic of the area, which is to be an urban corridor, which concentrates several different activities along the linear avenue.

Present Land-use of the sub-centrality

Legend
- Housing
- Retail / Services
- Institutional
- Leisure/Sports/Culture
- Industry
- Educational
- Natural Areas
  Urban Voids
- Public Squares
- PS not-implem.
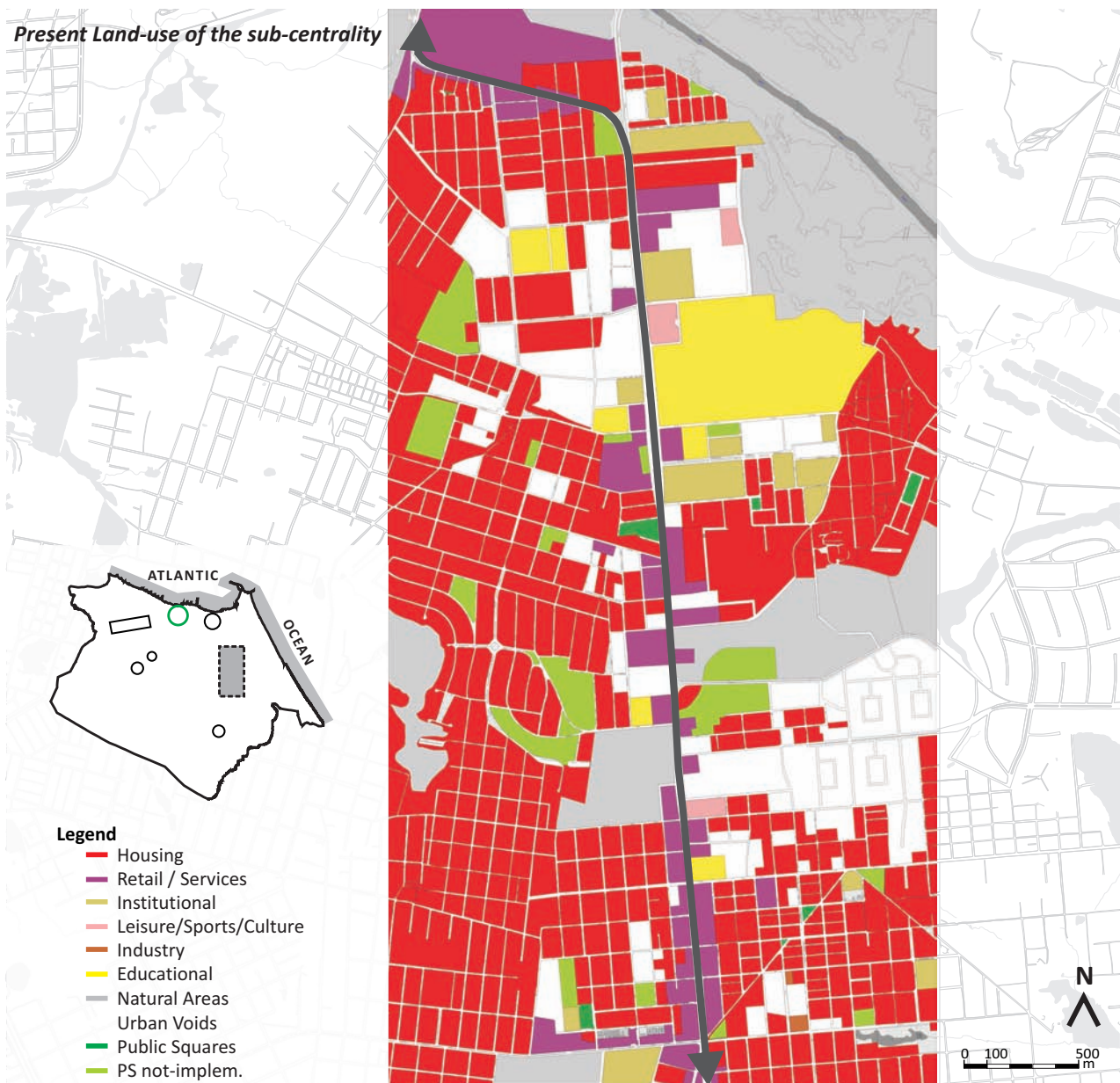
Map 3.22. Current functions on the sub-centrality – land-use.
Source: Author.

This analysis shows a completely separated public space structure from the hierarchy of the street network. There is no relation between the location of the open public spaces and the characteristics of the streets *(see Map 3.23)*. For instance the secondary network is not feeding the public space structure. Besides, on the main street, Washington Soares Avenue, there is only one public space implemented characterized with very local functions. Therefore some public spaces (considering the implemented, not-implemented and the invaded public spaces) are not compatible with the street network around *(see Map 3.23)*.

Road Structure + Public Spaces

ATLANTIC

OCEAN

Legend

— Main road axis
— Secondary Road Axis
 Catchment Area (400m)
 Public Spaces Implemented
 Public Spaces not Implemented
 Public Spaces Invaded

N

0   100   500
              m

Map 3.23. Road hierarchy and public spaces structure on the sub-centrality.
Source: Author.

In order to exemplify the diversity of the area, the analysis looked at the building form of the area and presented some photographs from the area, on which we can see the great diversity on the area *(see Map 3.24)*. This diversity is composed by since very derelict and small buildings, which are inappropriate to have a quality of life, until high-rise buildings and big single houses. The derelict houses are located on areas of "favelas", which have very low infrastructure conditions, while the high-rise buildings are mostly concentrate on the north part of the sub-centrality. The single family houses are spread all over the area, ones with very big dimensions located on big plots, other ones mush smaller but in very good conditions. Besides these ones, another building patterns are composed by the big amount of housing complexes,

organized on gated communities *(see Photos 3.18 to 3.33)*.

Another important aspect of the built form of the area, and actually of almost all the city, is the way people separate what is private from what is public. Most of the plots are surrounded by walls and fences, making the line which separates both worlds. This fact happens due to a cultural aspect, related to the way people understand private, but mainly because of other two aspects: safety reasons and fear of crime.

The city has experiencing huge problems of insecurity which is affecting the way of life of its inhabitants. The sub-centrality of Washington Soares is experiencing the

Location of Photos on the sub-centrality

Legend

(X) Location of photos

Map 3.24. Location of the photos which show the building diversity on the sub-centrality.
Source: Author.

same problem. Many people are becoming very afraid of the urban violence and clustering themselves in gated communities or houses surrounded by high walls, electrified fences and security cameras. This fact is having impacts on the public space structure which is left empty and unsafe because people are avoiding walking on the streets and open public spaces. This emptiness leads to a feeling of insecurity, or fear of crime, due to the fact that nobody is watching the streets. This clustering of people in gated communities, full of barriers to avoid the contact with strangers and neglecting the "outside world" is actually increasing the problem of insecurity. The reflection of this problem on the built form of the sub-centrality is a growing number of small gated communities and a complete neglect of the role of public spaces as an element to improve the quality of life.

Photo 3.18. Location "A" – Huge shopping Malls, mixed with completely natural areas, high-rise buildings and single family houses.
Source: Author.

Photo 3.21. Location "D" – There are still many natural areas on the sub-centrality.
Source: Author.

Photo 3.19. Location "B" - Low-density areas with single family houses and institutional buildings.
Source: Author.

Photo 3.22. Location "E" – Open areas, urban voids.
Source: Author.

Photo 3.20. Location "C" – Starting of densification of building mass.
Source: Author.

Photo 3.23. Location "F"- Main Conference center of the city.
Source: Author.

Photo 3.24. Location "G"- Aerial view from a "favela".
Source: Author.

Photo 3.27. Location "J"- Internal view from a low-income settlement.
Source: Author.

Photo 3.25. Location "H"- Commercial Centers.
Source: Author.

Photo 3.28. Location "K"- Street view from a typical street, showing a single family house and the beginning of verticalisation on the left side.
Source: Author.

Photo 3.26. Location "I" – Relevant institutional buildings, such as the Forum of the city.
Source: Author.

Photo 3.29. Location "L" – Building form on the low-income areas.
Source: Author.

Photo 3.30. Location "M" – Natural areas.
Source: Author.

Photo 3.32. Location "O"- Different profile on the house buildings.
Source: Author.

Photo 3.31. Location "N"- Diverse built form on the same street.
Source: Author.

Photo 3.33. Location "P"- Different heights and built mass of the buildings.
Source: Author.

2.5. Maintenance

In order to evaluate the maintenance of the public spaces on the sub-centrality, it was named by letters, from "A" to "E", the five implemented public spaces *(see Map 3.25)*. All of them are categorized as neighbourhood squares. The analysis was based on observations of aspects like pavement, furniture, vegetation and cleanliness. Besides, a general impression from the public space was taken into account.

Location of Implemented Public Spaces

Legend

(**X**) Location of public spaces

N

Map 3.25. Location of open public spaces, the ones which were implemented by the municipality on the sub-centrality.
Source: Author.

The first public space to be analysed, the square "A", has great amount of vegetation, with since small to big trees, providing shade for its users *(see Photos 3.34 and 3.35)*. In respect to pavement, there is only on the borders of the square, with all the other parts of the pavement on sand. The provision of furniture is too low, although it is in good condition. There is a particular characteristic on this public space which is the water stream on its middle part. This water stream is polluted. The general impression of this square is that it is not in good maintenance conditions, having problems on lack of furniture, pollution of the water stream and deficiency on the cleanliness.

The public space "B" is a very small square which has a football court inside *(see Photos 3.36 and 3.37)*. This square has a good condition on its pavement and furniture, although the amount of vegetation is not enough to provide the necessary shades, allowing more use from the population. In respect to cleanliness, the square is in well maintained. The general impression about the maintenance of this square is that it is in good conditions, offering a reasonable space for the neighbourhood.

Photo 3.34. Public space "A" - general view.
Source: Author.

Photo 3.36. Public space "B" - general view.
Source: Author.

Photo 3.35. Public space "A" - water stream polluted.
Source: Author.

Photo 3.37. Public space "B" – insufficient amount of vegetation, but good conditions of pavement.
Source: Author.

The public space "C" is located on a very low-income neighbourhood but still presents a reasonable maintenance conditions *(see Photos 3.38 and 3.39)*. The furniture is in good conditions, as well as the pavement and the vegetation. There are many shades promoted by the great amount of trees, providing comfortable spaces for its users. There is also a football court in one side of the square which presents a good pavement conditions. The general impression about this square is that it offers to its users a good set of maintenance conditions.

The public space "D" presents the most insufficient maintenance conditions of the ones analysed on the area *(see Photos 3.40 and 3.41)*. The football court is with its pavement and fences completely derelict. There is no sufficient vegetation on the square. There are just few benches and not any other furniture. Besides, there is an illegal occupation of the space in one of its corners, with a small commercial building. The cleanliness of the square practically does not exist. The general impression about the maintenance of this square is that this public space is totally derelict.

Photo 3.38. Public space "C" - general view.
Source: Author.

Photo 3.40. Public space "D" - general view.
Source: Author.

Photo 3.39. Public space "C" - great amount of vegetation and good amout of basic furniture.
Source: Author.

Photo 3.41. Public space "D" – derelict situation.
Source: Author.

The public space "E" is considered to have the best general impression on maintenance, compared with the other ones analysed here *(see Photos 3.42 and 3.43)*. This square has a great amount of vegetation, a great amount of furniture, and good conditions of the pavement. Although the playground facilities are completely out of order, not offering safe conditions to its users. The cleanliness was considered very efficient. The general impression of this square is that it is in very good conditions of use.

The conclusion for this aspect is that on the average the conditions of the public spaces analysed are reasonable. Although, these few cases shows that it is possible to see a great inequality of maintenance of public spaces even in an area not so geographically big, which also shows the inequality of actions from the public department responsible for these spaces.

Photo 3.42. Public space "E" - general view.
Source: Author.

Photo 3.43. Public space "E" - great amount of vegetation and furniture.
Source: Author.

2.6. Accessibility of the public space structure

The accessibility of the public space structure was evaluated in the very local scale. The criterion to analyse was focused on the pedestrian access to the implemented public spaces. In this sense, five open public spaces, the ones which were implemented on the sub-centrality, were the object of analysis. The method consists on determine a degree of accessibility according to the number of sides (geometric sides of the square or park) accessible to pedestrian.

The method establishes that as much accessible sides the public space have, as higher will be its accessibility. The five public spaces are the same ones which were analysed on the Maintenance criteria *(see Map 3.25)*. Each of them was represented also by a small scale map *(see Maps 3.26 to 3.35)*, which have red arrows showing if their sides are accessible or not. An arrow with a cross-line indicates non-accessible.

The public spaces were named by letters, from "A" to "E". The space "A" not achieved a high degree of accessibility due to the fact that pedestrians can approach just from two sides. The street network is disconnected and makes difficult the integration of the square with the surrounding blocks *(see Maps 3.26 and 3.27)*. Besides, this square has one of its side to the Washington Soares Avenue, which is a high busy road, making the pedestrian access only by the pedestrian bridge. This is a situation which decreases the influence area of this square just to the west side of the avenue.

The public space "B" is a square which have all its sides accessible and connected with the street network. In the sense of accessibility, this square has a high degree of performance. All the streets which give shape to the square are local streets, making easier the accessibility to the square *(see Maps 3.28 and 3.29)*.
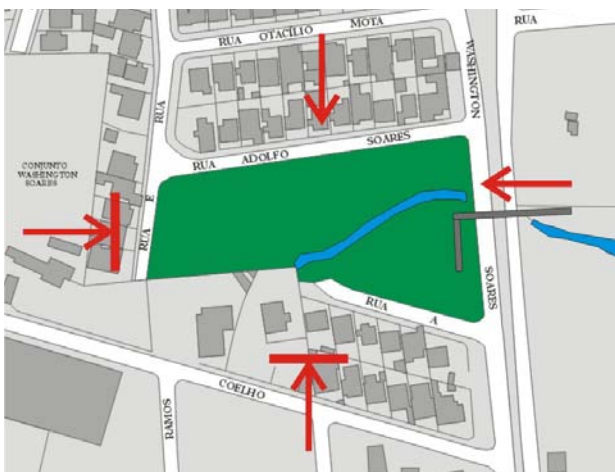
Map 3.26. Accessibility of public space "A".
Source: Author.

Map 3.28. Accessibility of public space "B".
Source: Author.

Map 3.27. Aerial view of public space "A".
Source: Google Earth.

Map 3.29. Aerial view of public space "B".
Source: Google Earth.

The public space "C" is located in a low-income sector of the sub-centrality, just beside a "favela". This fact made the street network very fragmented, resulting in some barriers to access the public space. The square "C" has only two sides really accessible and both of them are bordered by local streets, which are not making a barrier to the access *(see Maps 3.30 and 3.31)*.

The public space "D" is a very small square in a triangular shape, surrounded by the street network. This square has also all sides accessible to pedestrian *(see Maps 3.32 and 3.33)*.
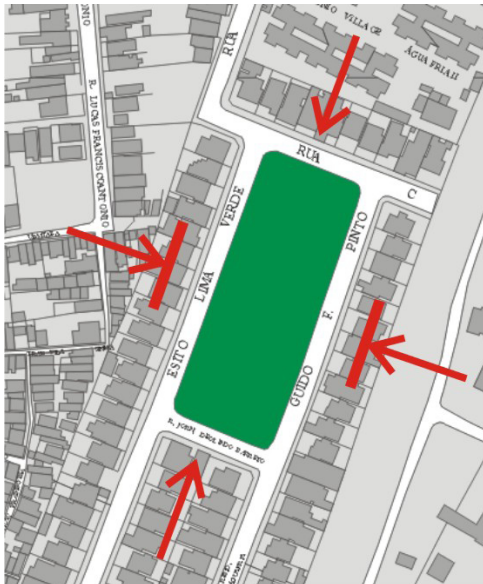
Map 3.30. Accessibility of public space "C".
Source: Author.

Map 3.32. Accessibility of public space "D".
Source: Author.

Map 3.31. Aerial view of public space "C".
Source: Google Earth.

Map 3.33. Aerial view of public space "D".
Source: Google Earth.

The last one, the square "E" is located in a corner of a block, having two of its sides blocked by private plots. The other two sides are directly connected to local streets, making the accessibility of this space reaches a medium level *(see Maps 3.34 and 3.35)*.

Map 3.34. Accessibility of public space "E".
Source: Author.

Map 3.35. Aerial view of public space "E".
Source: Google Earth.

2.7. Connectivity of the sub-centrality

This is the last criterion of the Functional-Spatial Dimension and it discusses the connectivity via street network of the Washington Soares sub-centrality and the other sub-centralities of the city, including the Historic Center. The sub-centrality is connected with all the other ones by important streets, some of them with a high hierarchy on the system. According to the Traffic Bureau (ETUFOR/AMC-Fortaleza) all the connections, except for the one linking the area with the south of the city, are very busy routes. These links have really huge traffic jams mainly on the rush hours. Besides the fact of these routes are seeming to operate above their capacities, the area of Washington Soares is well connected with the other sub-centralities of the city *(see Map 3.36)*.
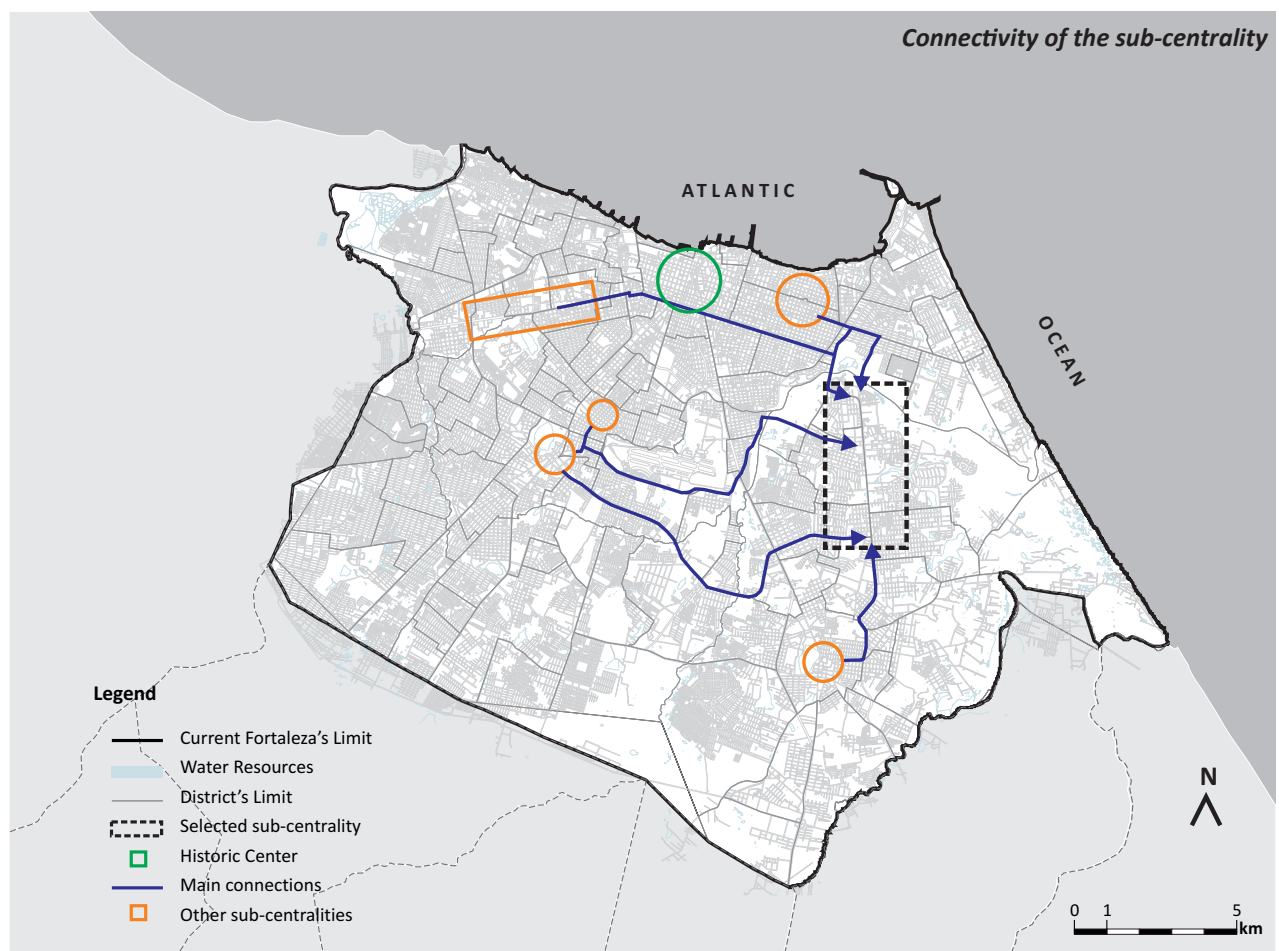
Map 3.36. Connectivity of Washington Soares with the others sub-centralities.
Source: Author.

2.8. Main conclusions

The conclusions of this part of analysis are essential to the recommendations for the actual planning model of public spaces in Fortaleza. This analysis clarified the spatial conditions of public space in the sub-centrality of Washington Soares and also the spatial demands required by the local context. These conditions and their consequential demands can be extrapolated to the city context and help to suggest improvements for public spaces planning and development.

The main results of this analysis show many failures on the functional and spatial conditions of public spaces structure in Fortaleza. The description of these conditions answered one of the research questions, which says: What are the public space conditions on the selected sub-centrality area of the city? Therefore, these conditions explained on the analysis are summarized on *Table 3.2*.

This analysis is also responsible to answer another research question which is: What are the spatial demands on the selected sub-centrality area of the city which should be answered by public space structure? This answer is done by the debate on the actual functional and spatial conditions of public space structure in the area in combination with a definition of potentialities on the sub-centrality of Washington Soares Avenue. These spatial demands are presented on *Table 3.2.*

The *Table 3.2* organizes the aspects discussed on this Functional-Spatial analysis, considering three main aspects:

　　1- The current spatial conditions of public spaces;

　　2- The spatial demands which need to be answered by the public space structure;

　　3- The potentialities of the area;

Table 3.2. Summary of results from the Functional-Spatial analysis.

ASPECT OF ANALYSIS	SPATIAL CONDITIONS OF PUBLIC SPACES	SPATIAL DEMANDS FOR PUBLIC SPACES	POTENTIALITIES
Provision of public spaces	- very low provision, with a performance completely insufficient according to UN standards and also national law; - inequality of distribution;	- demand for at least 20 times more the actual surface; - necessity to improve conditions of streets and sidewalks as open public spaces;	- presence of many not-implemented public spaces; - Presence of huge natural areas; - presence of many urban voids – low-density average; - beach areas;
Kind of uses and users	- weak relation of the public spaces with their users; - weak relation of public spaces with the functions around; - no relation of the public spaces with the density of the area; - understand of public spaces as only to have leisure which leads to a complete neglect of the streets as a public space network;	- demands proportionally much more public spaces for the low-income areas than to the high-income areas; - incredible diversity of people which requires also a diversified public space structure;	- on the low-income areas, in general, the only available open space to be used as public space are the streets; - on the high-income areas, there are many private areas hidden behind walls which can be opened visually to the streets;
Connection with public transport	- well connected with public bus system;		- flexibility of the public transport system;
Surrounding buildings and infrastructure	- no hierarchy for the public space structure; - no interrelation with the hierarchy of road system; - great diversity of urban grids on the area; - weak relation of public spaces with their surroundings; - no relation with the activities corridor which is the Washington Soares Avenue;	- needs more interaction with the corridor of activities in the sub-centrality; - requires a mix of functions around the public spaces, helping them to be attractive to the population; - requires specific approaches in relation to the variety of urban patterns on the urban form, the spatial demands for public spaces are also very diverse;	
Level of maintenance	- inequality of maintenance;	- necessity to establish a minimum level of maintenance;	- there are some successful examples of other actors involved on the maintenance of these spaces;
Accessibility of the public space structure	- considering that all public spaces implemented are directly connected to the street network, they can be considered with a good accessibility, but many times the street network has not adequate sidewalks and are considered only as a car network;	- public spaces requires a better connection between them and the other functions, should be not always isolated from the other blocks and surrounded by streets;	
Connectivity on a macro-level (city scale)	- the sub-centrality is connected with all the other sub-centralities but it has many of these connections overcrowded particularly on the rush hours;		- because of the good connectivity with other areas, the sub-centrality has many potential to develop public spaces on the city scale, instead of only on the neighbourhood scale as it is happening nowadays;

3. URBAN PLANNING DIMENSION

3.1. Focus and criteria of analysis

The Urban Planning Dimension analyses the current urban planning system in Fortaleza in general and its relation to public spaces. In order to cover aspects from public spaces development and planning the analysis observed wider aspects, involving development plans, land-use plans, and other urban planning tools. This analysis checked until which aspect these planning instruments are contributing to the failure of public space structure in the city, and what specific gaps or missing links are really promoting this failure. This dimension was responsible to find an answer for the 3rd Research Question defined on the methodology: Are the actual planning instruments helping the city to establish a balanced and organized public spaces structure? For this purpose, the methodology for analysis focuses on three elements from urban planning: the regulatory tools, the governance model and the implementation actions.

The regulatory tools analysed are composed by seven different laws, which are:

    1- Federal Constitution from 1988;

    2- City Statute from 2001;

    3- Land Development Law from 1979;

    4- Urban Development Plan of 1992;

    5- Land Use Plan from 1996;

    6- Building Code from 1981;

    7- Urban Development Plan from 2009.

These legal instruments are the most important ones to regulate the urban development of Fortaleza and have different hierarchy on the legal system. They can be divided into national and municipal laws *(see Table 3.3 and Figure 3.3)*. Their subjects of regulation are diverse, going from very general definitions without a direct impact on public spaces structure until a very detailed legislation regarding the building and the plots, which gives shape to part of public spaces network.

The governance model is based on the three levels of administration: national, state, and municipal. Compared to the levels described on Spatial Planning in Europe, the state level is equivalent to the regional, and the municipal level is equivalent to the local level. Although they can be considered equivalent, they have slight differences *(see Figure 3.4)*.
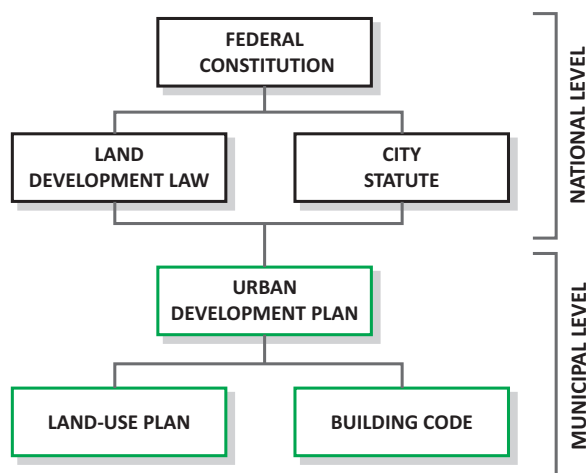
Figure 3.3. Hierarchy of the regulatory tools analysed by the research.

The implementation actions are the ones which translate the urban planning proposals on concrete spatial interventions, how this process works, and how successful has been doing. In this sense, it is analysed aspects related to implementation, which are political will, enforcement power, monitoring systems, and proactive behaviour from the involved actors. This part is intrinsic related with both other elements, the regulatory tools and governance model, although has other components as political behaviours and funding.

The criteria for the analysis of these three elements were derived from the theoretical framework. These criteria followed the three questions already presented on the explanation about Research Methodology *(see item 8, on Chapter I),* but also were defined according to the discussion developed on public spaces issues and on European Spatial Planning contributions.

The discussion about the public spaces issues, particularly about design and management, generated the two first criteria. The other eight criteria were all derived from the theoretical discussion about the possible contributions of current Spatial Planning debate to public space planning and development. These criteria are derived from the main principles of spatial planning, defined on the report *"SPATIAL PLANNING-Key Instrument for Development and Effective Governance with Special Reference to Countries in Transition".* Despite the fact that this report is mainly based on European context, this thesis extracted the main principles developed by its discussion, but being

Table 3.3. List of main legal instruments which determine the urban development and management of the city of Fortaleza.

LEVELS OF INFLUENCE		HOW MEASURE? NORM. INTRUMENTS	WHAT MEASURE? SUBJECT OF REGULATION	SCALE OF INTERVENTION	PERIOD OF VALIDITY
National	1	Federal Constitution 1988 *"Constituição Federal"*	- Supreme law of the country	Municipal	1988-present
	2	City Statute (Law Nº 10.257/2001) *"Estatuto da Cidade"*	- General guidelines for urban policies	Municipal	2001-present
	3	Land Development Law (Law Nº 6766/1979) *"Lei de Parcelamento do Solo"*	- Land development rules and restrictions	Municipal and Neighborhood	1979-present
Municipal	4	Urban Development Plan -1992 (Law Nº 7061/1992) *"Plano Diretor de Desenvolvimento Urbano de Fortaleza – PDDU-FOR"*	- Physical and territorial occupation of the city and metropolitan region; - Provision of land for housing, commercial activities, industries, leisure, mobility and all the other functions within the city; - Zoning regulations and urban control of the development; - Protection of natural zones; - Supply of urban facilities; - Guarantee the social use of the land;	Municipal and Neighborhood	1992-2009
	5	Land-use plan (Law Nº 7987/1996) *"Lei de Uso e Ocupação do Solo - LUOS"*	- Urban functions; - Preservation and protection of Natural and Cultural resources; - Road System; - Transport System; - Land Development; - Infra-structure; - Urban density; - Territorial occupation; - Land-use; - Urban Mobility; - Social function of urban land property; -Urban dynamics;	Municipal and plot	1996-2009
	6	Building Code (Law Nº 5530/1981) *"Código de Obras e Posturas do Município"*	- Building regulations in order to assure public order, hygiene, proper locations and adequate building materials; - Measures of safety, accessibility, health, and spatial distribution inside plots and buildings.	Plot and building	1981-present
	7	Urban Development Plan - 2009 (Complementary Law Nº 062/2009) *"Plano Diretor Participativo de Fortaleza – PDP-FOR"*	- Physical and territorial occupation of the city and metropolitan region; - Provision of land for housing, commercial activities, industries, leisure, mobility and all the other functions within the city; - Zoning regulations and urban control of the development; - Protection of natural zones.	Municipal and Neighborhood	2009-present

| NATIONAL LEVEL | **FEDERAL GOVERNMENT** **Ministry of Cities** | Responsible to develop the urban development policies and sectorial policies of housing, urban environment, urban transport and traffic. |

| STATE LEVEL | **STATE GOVERNMENT** **Secretary of Cities** | Responsible for the elaboration of integrated policies between federal states in order to promote the local and regional urban development, dealing with the organization of the territory, social and economic development. It has the objective to increase the quality of life focusing on the reduction of poverty and inter-regional inequalities. |

	CITY COUNCIL **Secretary of Planning and Budget (SEPLA)**	Responsible for the development of strategic and operational plan related with the Municipal budget as well as the definition of priorities for the government actions.
	CITY COUNCIL **Secretary of Urban Development and Infra-structure (SEINF)**	Responsible for the administration and elaboration of public policies, general directions, control and evaluation of urban development and infra-structure, in order to improve the quality of life of city's population.
MUNICIPAL LEVEL	**CITY COUNCIL** **Secretary of Environment and urban Services (SEMAM)**	Responsible for the protection of natural resources, through the rational occupation of the territory and objecting the conflicts solution. It is also responsible for the efficiency of urban services.
	CITY COUNCIL **Housing Foundation of Fortaleza (HABITAFOR)**	Responsible to promote actions about land-property regularisation, urban renewal, social-housing renewal and development. It has the objective to eliminate the housing deficit on the city and promote housing policies.
	CITY COUNCIL **Regional Secretaries (SER)**	Responsible for the planning and implementation of municipal actions on the level of the neighbourhoods which they represent.

Figure 3.4. Governance scheme for Urban Planning in Fortaleza.
Source: Official website from Federal Government, Ceará's State Government and City Council of Fortaleza.

aware that there are some constraints and limitations of interpretation to the reality of the city of Fortaleza, which was corrected by a clear understood of the differences between the realities. Finally, a set of ten criteria was defined to guide this Urban Planning Dimension analysis:

1. Provision and distribution of public spaces;

2. Defining quality, concerning access, integration with street pattern, minimum size, location, accessibility, etc;

3. Based on a Democratic principle;

4. Based on a Subsidiarity principle;

5. Based on a Participation principle;

6. Based on a Integration principle;

7. Based on a Proportionality principle;

8. Based on a Precautionary principle;

9. Developing Time-based goals;

10. Supported by a solid planning institution;

The first criterion is responsible to check how the planning instruments are being able to provide public spaces structure and if they define sufficient elements to support efficient provision and distribution of public spaces. The second criterion evaluates the planning instruments face to its capacity to qualify public spaces development. In other words, this criterion checks if these instruments are offering elements to guarantee the compatibility of public spaces with its surroundings and population, adequate location, good accessibility, material standards, etc.

The other eight criteria represent spatial planning principles and characteristics. The third criterion is responsible to analyse if the urban planning system, which includes the public spaces planning, is based on a democratic principle. This principle establishes that the

spatial planning system should be defined by legitimate authorities, fairness of interventions and protection of human rights. This legitimacy of the instruments would impact on the acceptability of them from the society, which would facilitate the implementation of concrete spatial interventions in the city.

The fourth criterion, based on the subsidiarity principle, is responsible to check if the urban planning system in Fortaleza is sharing responsibilities between the different levels of administration, but with a not so rigid allocation of competences, allowing possibilities of adaptation of functions according to the situation. This aspect would facilitate the implementation of policies.

The fifth criterion, related to the participation principle is analysing if the current urban planning system is allowing and also engaging the community participation on the definition of plans and interventions. This aspect would ensure a high degree of compatibility between the public spaces and the population.

The sixth criterion, about the integration principle, is responsible to detect if the urban planning policies are integrated with other sectoral policies and if they represent a joint effort between the different levels of administration. If the urban planning from Fortaleza is following this aspect, the possibility to have integration of functions and flows on the public spaces is higher.

The seventh criterion, based on the proportionality principle of Spatial Planning, perhaps is the most innovative one. This principle supports the evaluation of planning instruments of Fortaleza checking if the system brings clear and unambiguous regulations in balance with a flexible set of criteria to foster the urban development, allowing a degree of discretionary decisions. This principle evaluates the urban planning of Fortaleza on its capacity to follow the pace of urban transformation in the city.

The eighth criterion, which is based on the precautionary principle of spatial planning, is responsible to check on the current urban planning system of Fortaleza if there are instruments to take defensive and corrective measures against possible damaging interventions on the city. This aspect could facilitate the avoidance of illegal occupations of public spaces.

The ninth criterion checks if the actual urban planning on the city is concerned with long-term urban development or is more concerned with immediacy, only reacting to the problems. This principle underlines a need for proactive actions, making the public institutions anticipate the problems and their solutions.

The last criterion checks if this urban planning system is being supported by a strong and solid planning institution, anchored on the three levels of administration and with qualified technical and human resources. This aspect would be crucial to ensure effective public spaces development.

3.2. Provision and distribution of public spaces

The regulatory tools of urban planning in Brazil, particularly in Fortaleza, establish very few definitions about provision and distribution of public spaces structure. The most important normative instrument which relates to the provision and distribution of public spaces is the Land Development Law (Law nº 6766/1979 - *"Lei de Parcelamento do Solo"*) *(see Table 3.3)*. This law defined all the general rules to be followed by Municipalities in Brazil about land division and new developments on a city. It has perhaps the most important definition about public spaces in the legal instruments of the country, which regulates the amount of land reservation for open public spaces in all new urban land developments. For every new land development it should be reserved at least 15% of the land as open public spaces, 20% as road system, 5% as institutional area, to be occupied by public buildings, and more 5% to be donated to the Municipal Land Reserves. These reservation of public areas, which originally are privately owned, should have their property domain transferred to the Municipality. This normative instrument is responsible for all provision and distribution of public spaces in the city, although does not say anything about quality measures or contribution towards city urban model.

Besides, this law establishes that all those reservations should be proportional to the occupation density of each area. This definition means that if we check the amount of public spaces on a land development, these spaces should occupy a minimum of 15% surface of the entire area, and in high-density areas this percentage must be quite higher. This law also says that the Municipality should implement the open public spaces, resulted from this reservation rule, as a high priority on the high-density living areas. Another interesting aspect is if the reservation areas were not completely fulfilled (reaching the minimum of 15%), the land developer (which is the responsible to reserve the area for public spaces) should pay the double amount of the missing areas to the Municipality, with similar areas in another region or in

cash. Although there are clear rules defining provision of public spaces for new developments, this research shows that this reservation rule was never strictly applied on the city of Fortaleza, represented by the lack of public spaces in many neighbourhoods, already explained on the Functional-spatial analysis.

In respect to public spaces provision, the Land Development Law from 1979 also determines that for all water streams, provincial and national roads, railways and pipelines a "non aedificandi" zone (protection zone) of 15m for each side should be reserved. Some of these zones are part of open public areas nowadays, but many of them were illegally occupied by informal settlements, or even by the formal urban development. This statement defines by means of infrastructure protection more ways to provide public spaces, but unfortunately these areas have been not understood as public spaces by the population, particular by the low-income groups, which have been occupied these areas for housing.

The provision of public spaces is regulated by a percentage rule, which stipulates the amount of public space per square meter of land development. Although this law concerns about new developments, there is nothing saying about the existing urban fabric, and how the actual city can have its public spaces provision improved. The other aspect concerned in this law is about the compatibility of provision with its surrounding when the law says that the amount of public spaces should be proportional to the density of the area. But, it is important to notice that this concern reflects only quantitative terms, and nothing is defined about qualitative terms.

In the municipal level, the Urban Development Plan from 1992 (*Law nº 7061/1992 - "Plano Diretor de Desenvolvimento Urbano de Fortaleza – PDDU-FOR"*) *(see Table 3.3)* defines important aspects to the urban planning of Fortaleza, presenting also some guidelines for public spaces development. This plan defined that the provision of public spaces and public services should be adequate to the socio-economic local characteristics and also to the demanded population. The problem is that this plan did not define clearly which parameters should be used in order to provide adequate public spaces to their population and local context, which made this recommendation ineffective. This plan presents a clear definition that the Municipality should increase and improve pedestrian areas on the *"Urban Development Priority Areas"*, which are areas defined as strategic for urban development. Although this plan defined elements to support public space development, it concerns with just few aspects about public space, showing a very low

level of importance given to the issue.

The provision and distribution of public spaces was also concerned, even in a small aspect, on the municipal Land-use Plan from 1996 (*Law nº 7987/1996 - "Lei de Uso e Ocupação do Solo - LUOS"*) *(see Table 3.3)*. The law defines that for all commercial streets their plots, when the moment of building and occupying, should give part of it to shape a wider sidewalk with 3,00m. This was an attempt to enlarge the actual 2,00m wide sidewalk. But the problem was that the law did not define all the streets considered to be commercial, which made this definition to enlarge the sidewalk not efficient. Besides, the landlord were forced to donate a portion of his land to the city without receive anything in exchange, which make the process very difficult to really happen.

In the present year of 2009 a new Urban Development Plan (*Complementary Law nº 062/2009 - "Plano Diretor Participativo de Fortaleza – PDP-FOR"*) for the city was made by the municipality *(see Table 3.3)*. This plan continues the neglect of public spaces importance, reserving a small section, which actually talks about green areas, including public spaces as one of their components. The simple fact to understand public space as a mere green space means that there is a clear neglect of the real functions of public space, which are to integrate flows, to support social and spatial integration, to give identity to an area, or to be a driver of urban transformations. The section is called "Green Areas System", which relates to open spaces, with public or private use, functioning as green preservation, spaces for leisure, for recreation or even as a protecting side spaces of the road system. There is a definition of guidelines for strategic actions, for instance the regulation of uses on the public squares. Although this law brings some concerns about public spaces, there are just few guidelines without real effectiveness in the city. In respect to provision there is a recommendation to increase the availability of public spaces in some zones and also to refurbish the existing public spaces, but there is no definition of which spaces should be refurbished or how this provision would be done. This neglect of public spaces importance shows the weak capacity of the actual planning instruments to implement good provision of public spaces structure and there is an urgent necessity to change this condition.

The analysis of the planning instruments in respect to public spaces provision shows two major problems: first, there is only a very weak concern about public spaces development defined on the regulatory tools; and second, even the few elements defined on this matter have not been implemented by the municipality.

In other words, it is clear that, in relation to public spaces provision, both regulatory tools and implementation actions are being insufficient (for instance, there is no definition about public spaces provision for the existing urban structure) and inefficient (for instance, even the reservation rule defined by law is not being followed).

3.3. Defining quality of public spaces

Looking to all regulatory tools, just few of them mention some aspects which are concerned with the quality of public spaces. The Building Code from 1981 (*Law nº 5530/1981 - "Código de Obras e Posturas do Município"*) *(see Table 3.3)*, still valid today, is a law which concerns to the plot and building scale. This law has an impact on public spaces due to its definitions about new land developments, for instance the obligation for the developer to build the curbs around the public areas and also to plant all the pre-defined trees. The law also defines that the land developer is obliged to build the sidewalk pavement, according to Municipality standards. The problem is that the Municipality never defined these standards which resulted in a great variety of pavement along a sidewalk. It is also a responsibility from the landlord to maintain and to fix any damage to the sidewalks, but there is no monitoring of this definition or instrument to enforce this fixing. This law brings some attempts to qualify the public spaces, but which are not efficient.

The City Statute (*Law nº 10.257/2001 - "Estatuto da Cidade"*) *(see Table 3.3)* also refers to some aspects of quality for public spaces when defining that the public facilities should be implemented according local realities and people's interest. This definition concerns the compatibility of public spaces with its surroundings and with its population, which can be understood as an attempt to qualify the public spaces according to the concrete demands of a specific area and a specific population. The City Statute is an evolution and a detailing of what was presented on the Federal Constitution of 1988. This document made possible the use of several legal tools to manage the urban land, for instance: Transfer of Development Rights – TDR; Territorial and Building Progressive Tax; Obligation of Use and Forced subdivisions; Expropriation; Land Surface Rights; Pre-emption Rights; Space Adrift; and Public-private partnerships. These legal tools should help the Municipality to control the urban expansion of the city and might have impacts on the public space structure and its quality.

The Land-Use Plan from 1996 did not define any measure directly related to public spaces, although this law has some indirect effects related to setback definitions, parking design regulations and also general definitions about sidewalk continuity and accessibility. The law establishes that the pavement, height and materials should be compatible to pedestrian use and should promote continuity within the blocks and accessibility for all people.

The definition of quality for public spaces on the urban planning rules of the city is very weak. There is no clear concern about location, facilities, furniture, possible uses, accessibility, vegetation or any other definition which would be a concern related to the quality of these spaces. This fact demonstrates that the theme needs to be discussed by planning actors in order to find ways to guarantee minimum quality parameters to the public spaces development.

The actual planning instruments on the city do not have a clear definition or concern about the quality of the existing public spaces or in relation to the future ones.

3.4. Democratic principle

The urban planning system developed in Brazil, consequently in Fortaleza, addresses very well the democratic principle established by current Spatial Planning discussion. The urban planning instruments are a clear result of legitimate authorities in all the three levels of administration. Following a hierarchic system of laws, which has the major representation on the Federal Constitution, all the other urban planning definitions are anchored on it. The state and municipal instruments obey on the last level to the Federal Constitution. The politicians who approve the planning instruments and policies are elected democratically by the population, in a process that ensures human rights and fairness. If anyone feels discriminated, damaged or affected by any of the elements defined on the urban planning can always appeal to the administrative bodies and also to the Court in order to have his rights respected.

The Federal Constitution of Brazil is the main symbol of the democratisation process of the country. This instrument brings, in respect to urban policy, a strong concern on *"social function of urban property"*. This means a

definition of several legal instruments to ensure fairness of access to the urban land, for instance: progressive taxation, obligation to build, forced subdivisions, and expropriation of private land by the Municipality. These tools are mainly related to the process of democratisation of the country and try to increase the access to land from the low-income population (CALDEIRA, 2005).

The Urban Development Plan from 2009, a municipal law, is really clear on ensuring fairness as well as protecting human rights. On its Chapter Fundamental Principles of Urban Policy *("Princípios Fundamentais da Política Urbana")*, the plan defined that the urban management of Fortaleza should respect the social differences and concerns the justice and solidarity, with a final objective to reduce the socio-economic inequality, the poverty and the marginalisation of low-income population.

> *The urban planning in Fortaleza, as well as the planning in respect to public spaces is totally based on democratic principles ensuring fairness of access to the urban land, and protecting the human rights. Although, looking to the spatial results, this concern cannot be seen very cleraly.*

3.5. Subsidiarity Principle

In order to continue with the analysis following the subsidiarity principle, it is necessary to explain how the responsibilities about urban planning are allocated on the different levels of administration, which means to explain the governance model *(see Figure 3.3)*. The urban planning in Brazil is developed on three different levels: national, state and municipal level. The national level is responsible for the general policies and regulations about urban development and planning, but has no operational power in the city. Everything defined on the national level should be translated on the state and/or municipal level by specific laws, and should be developed by local public bodies. The national level is also responsible for part of the budget used on urban infra-structure, housing and the elaboration of urban development plans.

The state government, through the actions of the Secretary of Cities, is the responsible for the integration of planning and actions between the different states and the state of Ceará, and also between different municipalities inside the state, in order to develop cooperation and integration of objectives on regional scale. One example of the role of the state on the urban planning is related to

the definition of planning interaction on the scale of the Fortaleza Metropolitan Region. Although there is an effort to do so, this interaction rarely happens and therefore the role of the state results very weak. Besides, the state is also one of the responsible for the infra-structure which affects a wider scale than the city of Fortaleza, for instance the Metro infrastructure, regional buses, road infra-structure, harbour, railways, etc.

The urban planning system has a certain flexibility on allocating competences, allowing the interferences of higher level administration on the local level, but it is quite common political problems between the State Government and the City Council, which leads to a fragmentation of actions, many times contradictory between both governments. The state has some power of interventions on the Fortaleza structure, although need to be in agreement with the municipal definitions.

The City Council is the main responsible for the urban planning and development of the city and is the one which has the biggest operation and implementation power. It is exactly on the municipal level where all the building developments, neighbourhood extensions, street network should get permission to build. The planning system of the city is defined by municipal laws, following national directions, and determines all the urban parameters for the city. The main actors involved on this process in Fortaleza are the Secretary of Planning and Budget (SEPLA), the Secretary of Urban Development and Infra-Structure (SEINF), the Secretary of Environment and Urban Services (SEMAM) and the Housing Foundation of Fortaleza (HABITAFOR) *(see Figure 3.3)*. Besides, there are six district administration secretaries, each one responsible for one part of the territory in the city. These are the Regional Secretaries (SER) *(see Map 3.37)*.
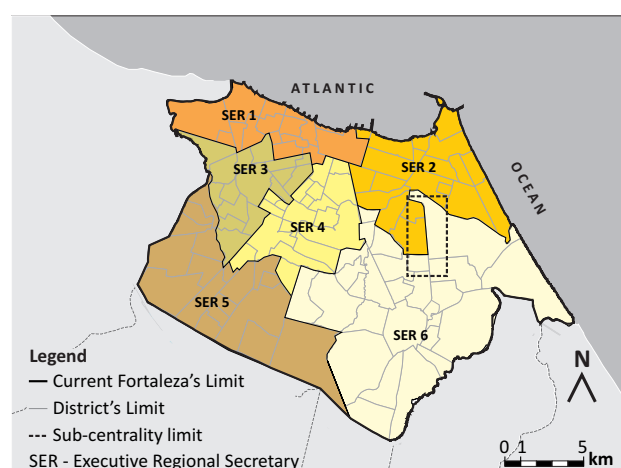
Map 3.37. Political and Administration division into six regional secretaries (SER).
Source: Municipality of Fortaleza.

Looking at this governance model for urban planning it is detected that there is a share of responsibilities between the different levels of administration. Although there is an official distribution of competences and responsibilities between different levels and institutions, the operation of many of them are quite deficient, particularly on the higher levels, national and state. These levels are not following their obligations and are not developing the necessary national and regional urban guidelines and development visions to support the local level urban planning.

Although with some deficiencies, the subsidiarity principle can be seen on the urban planning system of Fortaleza. When the subject of planning is wider than the municipality scope and has regional impacts, the responsibility is shared between the municipality and the state level, or even including the national level. The deficiency happens when the different levels of administration represent also different political views, on these cases it is always difficult to manage efficiently the subject. One example of this problem can be seen on the current proposals to the port area for Fortaleza. Due to be a regional matter, the port area development has been a concern of the state. However, the municipal level is always making objections against and trying to block all the state plans for the area, because they have another view of development and political discordances.

Although the subsidiarity principle can be seen on the urban planning system of Fortaleza, the integration between the different levels of administration in the city has many political conflicts.

3.6. Participation principle

The participation principle defined on Spatial Planning debate is one of the most important aspects of the urban policies in Brazil, and consequently in Fortaleza. The main urban planning instruments have clear statements and actions to support the community participation, ensuring the possibility of people's comments and objections. Looking to the City Statute, which is a national law with strong power on the other levels of administration, we can see that the participation of population on the planning development and its management is defined as compulsory. In other words, all the Municipalities, which are the main responsible for the urban development, are obliged to engage the community in defining and monitoring their plans and actions of urban development.

This law brought two kinds of instruments, the first ones are related to management and the second with regulation. According to Caldeira (2005) *"the great innovations regarding management are basically two: those requiring popular participation in the formulation and implementation of policies, and those considering that urbanisation is to be obtained by cooperation between government and private organisations"*. In respect to community participation, urban planning in Fortaleza is quite advanced, but in the engagement of private interests, in order to promote public-private partnerships, it is quite ineffective.

On the municipal level, the Urban Development Plan from 1992, as well as the new one from 2009, ensures the community participation on the planning, implementing, monitoring and revising of urban planning policies and tools. There are many mechanisms of engagement, for instance the selection of a popular committee which is responsible to follow and monitor all the steps of the planning process. Another example is the development of workshops, debates and public audiences with the community, in order to get closer with the concrete demands of the population. Besides, there are since popular amendments of plans and laws until a process of participatory budget-making.

The city has very strong mechanisms of participatory planning with many instruments to promote community engagement. The population is able to participate on the planning, implementing, monitoring and revising of urban planning policies. However, in respect to private engagement, the urban planning system in Fortaleza is very weak.

The model of urban planning elaboration, since the normative instrument of City Statute in 2001, presented a strong power of popular interference. For the approval of any Urban Development Plan for the city, it is necessary at least 80% of popular signature. The plan is presented for the population in a public audience, which all the people who is there should give your vote to that plan. Before this final audience, several public meetings are done, joining many interested sectors like, private companies, the public sector and civil society. These audiences should be done in order to define priorities and main objectives of the plan. These bottom-up processes are quite strong and important on the development of the plans, although the results of this community participation are not always reverted into their benefit, due to the lack of implementation means and private interest in areas

which most need improvements. Another aspect which should be taken into account is the high valorisation of participation processes in detriment of the urban planning product itself. There is so much effort, when elaborating a plan on the community participation, that usually the technical quality of the product, the definition of a vision, clear objectives and strategies of intervention are neglected.

The participation processes of Fortaleza, which happen in the urban planning elaboration, are defined on the level of the city but not on the level of neighbourhood. This means that people has the power to define some aspects on the Urban Development Plan for the entire city, however has few influence on their real necessities on the scale of the neighbourhood or street. There is no instrument which facilitates the answer of the very local concrete demands of the population, for instance the refurbishment of a square, opening of a street, creation of a football field, etc. It is missing a better link between the spatial demands required by the city population and the city supplies.

> *There is too much emphasis on the participation processes neglecting the product of urban planning.*

3.7. Integration Principle

The governance model in Brazil, and in consequence in Fortaleza, is composed by different levels of administration, with different planning institutions. Although there is a share of responsibilities between these institutions, there is also a lack of integration between their actions and plans. The biggest problem detected is that many times these several institutional bodies are working completely apart, without any interaction. Officially they have different attributions, but on the practice many times they operate on the same subject, generating conflicts. Another problem is that most of them are not planning at all, but just reacting very inefficiently to the problems, there is no proaction but only reaction. If the city does not apply a policy of proactive manners it will never be able to anticipate solutions to the huge number of problems continuously happening in the present city. Besides, there is no integration between their actions and the private interest, the action either is a public one or a private action. The integration between both sides is quite difficult, which results for instance in derelict public spaces due to the fact that the public sector has not enough funds and is not able to attract private

investment.

The integration between levels of administration is difficult to exist on both vertical and horizontal way. Despite the fact that there is a clear hierarchy of the instruments of planning, for instance, the City Statute is a national plan, which gives the guidelines for the Urban Development Plan. Therefore, the national plan has power to regulate the municipal plans. However, there are some guidelines defined on higher levels which are completely neglected on the local level (no vertical integration). For instance, the Lad Development Law (national level) says that the provision of public spaces should be compatible to the density of the area, but this guideline was never followed by the municipal interventions. Besides, the integration between the administrative levels of a same hierarchy (horizontal integration) is also not happening. The impression is that the different institutions in the city are working completely apart from each other, with no coordination of actions and planning interventions.

In respect to the integration between the different sectoral policies, the interaction is also weak. These policies operate according to different instruments, views, objectives and visions. There is no common goal supported by coordinated actions on the elaboration and implementation of these sectoral policies.

> *There is a very weak integration between the different levels of administration. Besides, there is no effective coordination between the different sectoral policies. This fact is clearly present on the development of public spaces structure which usually has no relations with any other functions in the city.*

3.8. Proportionality Principle

Looking to the regulatory tools for urban planning in Brazil, we detect a mixed system which contains both rigid and flexible approaches. There are very rigid regulations as well some flexible definitions. Although we can find this mix, the presence of strict and static rules is much higher than the flexible ones. The urban planning in Brazil does not work with a set of flexible criteria, allowing a decision-making process which would interpret each situation towards specific demands. In Brazil, the urban planning, on the municipal level, is mainly defined by strict zoning definitions, with very static regulations about set-backs, maximum height, floor area ratio, permeability rates, etc.

All the building permits are given based on these issues, which were already pre-defined, and perhaps are defined on the same way for more than 10 years. This fact makes very weak the capacity of the planning to be compatible with the pace of urban transformations.

The flexibility of the Brazilian urban planning system can be found on the same municipal legislation. If we look on the spatial results of the legislation it is possible to see a diversified interpretation of the same rules. For instance, if we look for a typical medium class neighbourhood, none of its houses will have the same form, shape, materials, height, proportion, and facilities from the other ones. Besides, many of the plots will have instead of houses, rather offices, schools, services, commercial activities or even agricultural functions. But how this is possible? This same strict zoning regulation is allowing several interpretations of the law, which somehow characterize a degree of flexibility.

The urban planning in the city is steered mainly by zoning regulations, but allowing a degree of flexibility on their interpretations. This fact can be proved by the great diversity on the built form of the city.

It is true that some of this flexibility is done without the legal approval, but another part is done in agreement with the law, which until a certain extent allows flexible decisions. But, at same time this urban planning system do not have a decision-making committee, composed by different sectors (as suggested on Spatial Planning debate), working in a discretionary way, but rather a governmental bureau following very detailed and specific rules. The fact is what makes this degree of flexibility or strictness to be considered one or another?

The City Statute offered to the urban planning system a powerful instrument which can be one path to create more flexibility in the law requirements based on the exception. This instrument is called Consortium Urban Operations *(Operações Urbanas Consorciadas)*, which is comparable to the Large Urban Projects (LUPs) developed in Europe. With this tool the municipality can define an area which can apply exceptions to the main laws or even create a complete new set of requirements and law definitions, in order to reach a specific goal of redevelopment, regularisation of informal settlements, or building of massive infrastructure. This tool can offer to the urban planning system of Fortaleza two main benefits: first the flexibility of the strict laws in order to be able to promote development in agreement with the current demands; second the possibility to create

strategies to attract private investment to finance the intervention, which would be crucial to its success.

The instrument called Consortium Urban Operation can be one of the elements on the planning system which would allow more flexibility and support the city to implement effective spatial transformnations. This instrument can be a powerful mechanism for public spaces development.

Another instrument which was included on Brazilian urban planning system by the City Statute was the Special Zones for Social Interests *(Zonas Especiais de Interesse Social - ZEIS)*, which brought to the system one more option to turn the rules more flexible. These Zones are used to define current areas in the urban structure occupied by "favelas" and informal settlements, establishing also other set of urban legislation, considering the very particular characteristics of the urban occupation. This was an attempt to make possible to regularize the informal occupation and give to its population their property rights for the land.

Although the urban planning system in Brazil can show a degree of flexibility, most of its instruments are operating based on very strict definitions. The zoning plans, the Land-use plans and the environmental laws are some of the examples from urban planning tools which have a main character of strictness. There is still a necessity to implement more flexible criteria to promote the urban development, which can engage the private sectors as the main investors of the public space structure. One of the problems is the fact that many of the instruments that the system already have to allow this, are not being used.

3.9. Precautionary Principle

This principle is present on the urban planning system of Fortaleza, mostly related to the environmental aspects and national heritage, and their mechanisms which can protect these areas, avoiding damaging interventions. The instruments of defensive or corrective measures against questionable interventions are present on the three levels of administration, with a higher hierarchy compared to the Urban Development plans and policies. On the national level the defensive measures are the responsibility of two institutions: the Brazilian Institute of Environment and Natural Resources *(Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais – IBAMA)*, and the Secretary of National Heritage *(Secretaria do*

Patrimônio da União - SPU). These two institutions are responsible to give the final word about questionable interventions affecting natural resources or building heritage for instance. This final word is supported by Environment Impact reports and Neighbouring Impacts reports.

On the state level, there is another institution which have the function to protect and define corrective measures against interventions impacting the environment. This institution is the Secretary of Environment of Ceará State *(Superintendência Estadual do Meio Ambiente - SEMACE)*.

On the municipal level, the Secretary of Environment and Urban Services *(Secretaria de Serviços Urbanos e Meio Ambiente - SEMAM)* is the one responsible to follow the same function. All of these institutions, either from a national, state, or local level, base its actions on technical reports, which the responsible for a questionable intervention should explain his intentions and prove, by technical argumentation, that his intervention will not damage the environment or national heritage. Although the urban planning system in Brazil has these mechanisms to avoid damaging actions, it is very difficult to avoid them if there is no clear evidence of a future damage.

There are some urban developments in the city that are gradually occupying natural reserves, but the urban planning and legal system have been very inneffective in order to avoid them. This fact has some impacts on the public areas, due to the occupation of natural areas which intended to be public. The observation of this principle by the planning framework would be very important in order to have a system able to avoid damage interventions, particularly on areas which are for public use.

3.10. Time-based Goals

Looking to the regulatory tools it was detected that most of the regulatory tools have definitions about medium to long-term objectives. However in none of them it was detected a clear definition of an agenda, with clear and unambiguous priorities of interventions. Actually, none of them defined clear concrete interventions, although the municipal instruments have defined some priority areas or zones to have interventions. The City Statute established one obligation do the Urban Development Plans which can help them to define goals and an agenda to reach them. This law defined an obligation for every municipal Urban Development Plan to be reviewed in every 10 years. The Urban Development Plan from 1992

defined a horizon of 8 years for the review of the zoning rules, which can mean a complete static zoning regulation for all this period or perhaps an attempt to define a time-schedule for the interventions.

> *Particularly in respect to public space development, there is no plan for the future conditions, no definition of goals to reach or any strategy to deal with the public spaces neglect.*

3.11. Solid Planning Institution

Looking to the governance model for urban planning in Fortaleza, we can see that there is a fragmentation of functions in the three levels of administration, resulted also from a fragmented and weak institutional organisation in some of these levels. The urban planning institution on the national level, the Ministry of Cities, was created just few years ago, in 2003. It is not a solid institution yet, having to organize itself and start to fulfil its role, which is to develop national and regional plans for the urban and territorial development.

Looking to the State level, there is the Secretary of Cities, which was created on 2007. This institution is a result of a re-organisation of the executive structure of the State, joining two other Secretaries from the past. The actions of this urban planning institution have a history of helping other Municipalities to develop their urban plans. This institution has importance on the technical support of small municipalities to develop their urban development plans. Besides, it was responsible for many of the state regional plans developed on the last years. The integration with the municipal level of administration is sometimes very conflicting due to political divergences.

On the municipal level what we have is a great number of different government departments, which none of them have a solid contribution to the urban planning of the city. Their functions are much more related to monitoring of rules than really urban or spatial planning. These institutions work in a very fragmented way, having sometimes duplication of efforts. They are responsible for the elaboration and implementation of the Urban Development Plans for the city, but they have very weak performance on both actions. The elaboration of urban plans has been done in a very slow pace. One of these municipal institutions just finishes the last urban development plan on the present year, but the previous one were defined 17 years earlier. This means a complete

obsolescence of urban planning for a long time. Besides the weakness on elaborating, the biggest problem is on the implementation of the urban development plans. Just few of the definitions established on these plans were really implemented, showing a huge fail on the process of make the plans come true. The weakness on elaboration of plans and implementation of interventions shows how weak are the planning departments on the urban planning system of Fortaleza.

> *The institutional body responsible for the urban development in the city, which includes public spaces, is very fragmented and presents many conflicts of actions. There is a very weak capacity on implementing the policies into concrete spatial results.*

3.12. Main Conclusions

The main results of the Urban Planning Dimension analysis are categorized here according to three elements of analysis. These elements are most of the times overlapping each other, which means that one problem detected on the regulatory tools, for instance, might be also related to deficiencies on the governance model and on the implementation actions *(see Figure 3.5)*.
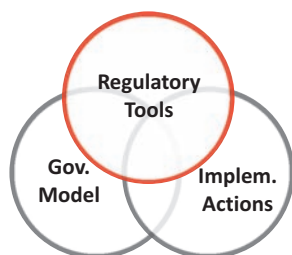
Figure 3.5. Scheme showing that the three elements of analysis are interrelated.

These are the main results:

• Regulatory Tools

In respect to public spaces provision, which is a responsibility of urban and spatial planning, the conclusion is that there is only a very weak control about the quantity of public space in Fortaleza and very few definitions about the quality of them. Besides, the law that establishes the 15% of open public spaces for all new development does not say anything about the existing city structure. This law is from 1979, which had effects only on the land developments from that year on. Before this period, the land development of the city was

ruled by general plan definitions and building codes, which also had reservation rules for open public spaces, but with quite lower rates. This lack of public space provision and qualifying rules can be one of the reasons for the lack of public space in the city. This fact can prove that the spatial planning can influence the built environment, making it more integrated, connected and served by facilities, but also can make it fragmented, segregated and without proper structure.

The power of efficient planning instruments to promote public spaces development is clearly defined in other cities, which have successful public spaces structure *(see Chapter IV-Case Studies)*, helping the city to develop its vision and reaches its goals. The planning does not necessarily need to deal directly with public spaces, but it needs to have efficient influence on public space structure. The city of Fortaleza shows a very weak planning and normative system to regulate the public spaces which need to be urgently improved. The urban planning system instead of help the city to promote a cohesive public spaces structure and be part of the solution, has been in some aspects part of the problem.

The democratic principle established by the Spatial Planning debate is completely addressed on the urban planning system of Fortaleza, although the spatial results on the city do not show the same. It is clear that the regulatory tools in use on the urban planning of the city are developed by legitimate authorities, are concerned with fairness and human rights. Although these concerns are presented on the tools, the spatial reality of the city shows an opposite situation. There is a clear socio-spatial segregation, with an inequality of services, opportunities and infrastructure. A huge mass of the population do not have access to housing, cannot afford to use the public transport system, and has no access to public facilities, includding public spaces. So, there is a mismatch between the urban planning instruments and the spatial reality, which need to be deeper analysed on a wider focused, not only related to public spaces, in order to find the missing link between the intentions (urban planning) and the results (socio-spatial reality). This fact seems to be much wider than the public spaces development, however it has direct effects on public spaces. The quality of housing, public transport and others aspects from

urban planning can always influence the quality of public space structure.

In relation to participation, the urban planning in Fortaleza has clear and unambiguous regulatory tools defining the compulsory community participation on the elaboration, implementation and reviewing of the plans for the city. However, the engagement of other interests like the private sectors is still very deficient. The city still needs to find better ways to promote private engagement on the planning and stimulate private investment on the urban interventions. An important aspect that needs attention is to not put too much focus on the participation process on planning, but rather on the product of planning. It is clear the necessity to involve private sector participation, finding alternatives to fund urban interventions, particularly the ones related to public spaces.

The balance between strictness and flexibility on the urban planning system is not very consistent. Despite the fact that in some aspects it can be considered to promote flexibility of decisions and interventions, the regulatory tools in Fortaleza are much more rigid and static than it would be necessary. The urban planning system is still based on rigid zoning laws, which usually become obsolete and cannot follow the pace of urban transformations and demand of the city. However, this same system since the definition of the City Statute in 2001, brought some attempts to turn the city planning more flexible, which are planning tools like the Consortium Urban Operations and the Special Zones for Social Interests. These are current instruments which could promote more efficiently the public spaces development and which must be used.

In respect to the precautionary principle, the urban planning in Fortaleza has some ways to address this principle, through the actions of some government departments and the legal obligation of the developer to present technical reports proving the non-damaging characteristics of the intervention or at least defining the defensive and corrective measures to be done. However, if there is no technical certainty about the level of damaging from an intervention, it is difficult to reject and stop a questionable intervention, except for some cases already regulated and prohibited by law. This inability to quickly stop damaging interventions and monitoring them, is leading to

a continuous quality decreasing of public spaces such as the private occupation of the beach, some lakes and existing parks on the city.

In respect to the time-based goals, the regulatory tools are usually defined for a medium to long-term goal. But it should be clear that none of them establishes clear agenda and priorities of intervention. The planning of public spaces in the city is very weak, does not consider a long-term perspective and it is made out of immediacy. This means a very fragmented structure in itself and on the general urban fabric. *"One of the biggest obstacles to overcome is the pragmatic perception, usually accentuated by municipal policies in the last decades, that urban problems are just to be solved in the short term, rather than priotising the building up of a futuristic city project based on solid planning considerations"* (Mena, 2003).

• **Governance Model**

In order to analyse the performance of the governance model on the urban planning system of Fortaleza the criteria of subsidiarity principle is crucial. Fortaleza has in its urban planning this principle, allowing the interference of higher levels of administration on the definition of policies and interventions, since they are related to huge infrastructure developments or have regional influence, or any other concern which requires wider involvement them only municipal concerns. However, it is important to conclude that this possibility of external interference on the city planning has sometimes political conflicts which need to be minimised.

Another relevant aspect is the integration of administration levels and sectoral policies within the urban planning scope. In this sense, the urban planning in Fortaleza has many deficiencies. The different government departments, on the three levels of administration have both vertical and horizontal problems of integration, presenting conflict of interests and actions, as well as duplication of efforts. In relation to sectoral policies integration, there are very few concerns about it, resulting in isolated policies, sometimes incompatible with each other. This disconnection between policies and administrative boards has direct relation with the performance of public spaces development, which is highly dependable of the integration with another policies and

should be managed rationally on the three levels of administration.

Another important conclusion in respect to the governance model is that there is no solid planning institution on the three levels of administration. Some of them are quite new, others are quite fragmented or have very weak implementation actions. This means that not only public spaces development, but also other elements of urban development are not being well promoted by the city, due to its weak capacity to plan, implement and control the different requirements of the city.

• **Implementation Actions**

The conclusion of this analysis in respect to implementation actions is that there is a complete mismatch between what is defined on the regulatory tools and what is really implemented. Many of the urban plans already made for the city were just partially implemented, showing deficiencies in the process and also on the monitoring of the results. There are since examples directly related to public spaces development until infra-structure concerns, with many of them having no effect in the city or ending on unexpected or undesirable results. Besides the deficiency of many regulatory tools, there is a bigger problem of weak implementation of the planning definitions.

Another problem is that most of the institutional bodies, responsible for urban planning, are not planning at all, but just reacting very inefficiently to the problems, there is no proaction but only reaction. If the city does not apply a policy of proactive manners it will never be able to anticipate solutions to the huge number of problems continuously happening in the city. Besides, there is no integration between their actions and the private interest, the action either is a public one or a private action. The integration between both sides is quite difficult, which results for instance in derelict public spaces due to the fact that the private investment is not stimulated by the public sector.

The planning tools in Fortaleza are very static and cannot follow the fast pace of transformations in the city. In order to be effective in the city and implemented, every vision, goal, directions, rules, intention, need to be translated in laws, which adds another institutional body on the planning

framework: the Municipal Representative Chamber, which is the legislative power. All the laws should be approved on this chamber before have any implementation power. This fact sometimes leads to political problems which can make barriers to a fast response from the urban planning bodies to the city demands. These implementation processes, necessary to make the intervention official and legal, sometimes are jeopardising the performance of the system. The analysis of the Urban Planning Dimension clearly shows the weakness of the urban planning system in Fortaleza, particularly related to their implementation.

In order to show some of these mismatches between planning and reality due to implementation fail, it is presented some examples related to public spaces here: if we took the Urban Development Law from 1992 we can see a problem concerning implementation means. The plan defines that on the Urban Priority Areas, which also includes part of the sub-centrality researched here, there must be a clear objective to increase the availability of pedestrian areas, although there is nothing concrete on the plan which could make this objective come true. The spatial results are a huge lack of these spaces and also a derelict condition of many of the existing squares. Another aspect of the same problem is the financial and institutional incapacity of the Municipality to build and implement all the reservation areas as public squares, parks or whatever. We can clearly detect on the city urban voids which are supposed to be a square or a park, but which were not implemented by the Municipality. This fact also leaves the possibility to these spaces be illegally occupied by informal settlements and "favelas".

This Urban Planning Dimension analysis besides detect and explain the main issues and failures of urban planning, had the responsibility to answer the research question which says: are the actual planning instruments helping the city to establish a balanced and organized public spaces structure? In this sense, the results of this analysis show that the current planning framework of the city is actually considered to be part of the public spaces problem. The planning instruments, which mean regulatory tools, governance model, and implementation actions, have some positive aspects, but in general are not helping the city to establish a balanced and organized public spaces structure.

Research Questions Answered:

What are the public space conditions on the selected sub-centrality area of the city?

The actual public space conditions on the sub-centrality are composed by many negative aspects and few positive ones. In relation to the negative conditions of public spaces, the area has a huge lack of public space provision, presenting a very low ratio of square meter of public spaces per inhabitant. Besides, the very few implemented public spaces have a weak relation with their users and surroundings, being also not integrated with the other functions and activities around. There is also an inequality of maintenance, presenting some of its public spaces very well maintained and others in derelict conditions. The design quality of these spaces is very poor and it is neglecting the potentialities of the sub-centrality. Although the area has many negative aspects in its public spaces structure, few positive ones must be highlighted: the public spaces implemented in the area are very well connected with the public bus system; some of theses spaces are well maintained; they have in general a good accessibility on the local level; and there is a great potential to increase the provision due to the amount of still not-implemented public spaces, urban voids and natural areas.

What are the spatial demands on the selected sub-centrality area of the city which should be answered by public space structure?

The main spatial demands are: increase the provision of public spaces in the area; improve the conditions of streets and sidewalks, since they are very important element of public space structure; there must be a concern with the spatial quality of these spaces, which on the present situation is quite poor; and also use public spaces structure as an element of spatial integration in the area, avoiding the exarcebation of current processes of spatial segragation.

Are the actual planning instruments helping the city to establish a balanced and organized public spaces structure?

The actual planning instruments in the city of Fortaleza, in fact, are one of the causes for the public spaces problem, and they are not helping the city to promote an integrated public spaces structure. There are so many deficiencies on the urban planning system which are making the public space structure very much unbalanced and disintegrated from the other elements of the city.

Chapter IV
Case Studies

CHAPTER IV

- **Example of Planning Mechanisms derived from Case Studies**

CHAPTER I
- Problem
- Approach
- Aims
- R. Questions
- Relevance
- Methodology

CHAPTER II
- Theory
- Criteria for Analysis

CHAPTER III
- Current spatial conditions of PS
- The role of planning on these conditions

CHAPTER V
- Recommendations to the planning framework
- Evaluation of recommendations

CHAPTER VI
- Conclusion

CHAPTER IV - CASE STUDIES

1. PRIVATELY OWNED PUBLIC SPACES - POPS

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    1.2. Policy Innovations

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    1.4. Contributions to public spaces development in Fortaleza

2. CONSORTIUM URBAN OPERATIONS IN SÃO PAULO

    2.1. Understanding the mechanisms of Consortium Urban Operation

    2.2. Examples of Consortium Urban Operation in São Paulo

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3. METRO IN RUBBER WHELLS

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    3.2. Contributions to public spaces development in Fortaleza

This chapter discusses three interventions related to public space development in other cities, which contribute to clarify the relation between planning instruments and spatial results on public space structure through time. These case studies helped to find planning mechanisms to come up with improvements to public spaces development and ensure them as an element of spatial integration in the city. The contributions of these case studies will be used on the evaluation process of some elements on the planning model proposed.

The first case study presents the Privately Owned Public Space, a policy implemented in New York with the main objective to increase the provision of public spaces on extremely high density areas. The second case is about a specific planning instrument applied in the city of São Paulo named Consortium Urban Operations (similar approach of the so-called Large Urban Projects) and its implementation on two specific urban interventions, the Anhangabaú Valley and the Faria Lima. The third case discusses about the public transport system in the city of Curitiba and its integration with public spaces and land-use regulations. These three cases provided alternatives of planning intervention on the public spaces development, offering its principles and its mechanisms to be interpreted under the conditions of Fortaleza *(see Map 4.1)*.

Map 4.1. Location of the three case studies.

1. PRIVATELY OWNED PUBLIC SPACES - POPS

The urban policy as applied in New York on the last 50 years is an attempt to increase the availability of public spaces within the city. According to Luk, W. L. (2009):

> *"this policy is to increase the light and air on the ground level and control overall bulk design. The propose is to create better and instant public spaces integrated with the urban development, and improve the pedestrian situation. The development of this provide co-operation between the private and public sectors".*

In that time New York already was a high dense city which was experiencing a huge lack of public spaces. This fact concerned the authorities in finding ways to increase the provision of open public spaces in the city, applying a new urban policy which took advantage of the private developers in order to address the shortage of public spaces development.

The mechanism created by the municipality of New York was based in what it is called today "incentive zoning". This incentive zoning is a clear opportunity to open a negotiation between public government and private sectors, in order to deal efficiently with both intentions. According to Kayden (2000):

> *"the City offered floor area bonuses and other zoning concessions to office and residential developers if they would agree to provide plazas, arcades, atriums, and other outdoor and indoor spaces, governed by design standards articulated by the Zoning Resolution and its administration, that would be accessible to, and usable by, the public for as long as the buildings existed".*

This is a simple mechanism of offering benefits to private developers in order to have their contribution on the public space development of the city, based on a kind of partnership between the developers and the public government.

The present discussion will be concentrated on the main principles of this urban policy, and has no intention to define it as successful or not. The main intention is to get contributions of the relation between the law's enforcement or planning's power and its specific spatial outcomes in the public space structure of a city *(see Photos 4.1 and 4.2)*. This discussion is very aware about the controversy of results presented by the New York government and by the specialists. There are since very ineffective results until very positive ones, which shows that this policy can be considered successful in some aspects but in others not. The most important aspect is to detect if there are alternatives which can be translated to the context of Fortaleza, helping the city to develop its public space structure.

Photo 4.1. Lincoln Plaza – Privately Owned Public Space.
Source: cityroom.blogs.nytimes.com.
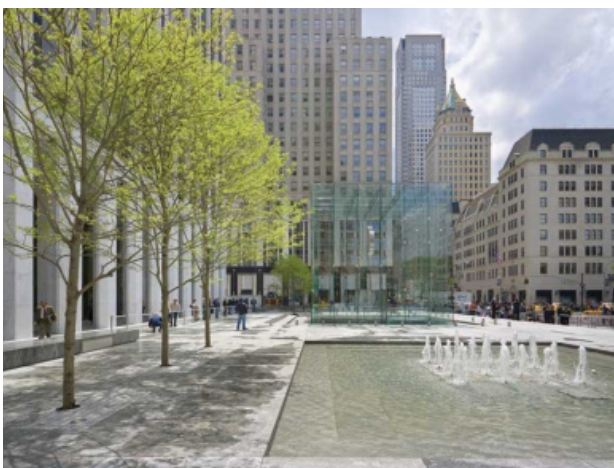
Photo 4.2. Fifth Avenue Plaza – Privately Owned Public Space.
Source: http://mas.org/among-masterwork-winners-adaptive-reuse-is-common-theme/.

1.1. Understanding the policy of Privately Owned Public Spaces

The policy has some elements which need to be clarified in order to understand its mechanisms and enforcement power. The first one is that this policy needs a definition of a zone in the city which it can be applied. In this sense, only the zones which are allowed to have high-density development make sense to experience the Privately Owned Public Space - POPS. This fact happens due to two aspects, first because the product of exchange from the public sector is the extra floor area, meaning in general extra storeys on the building; and second because the private sector have to compensate this bonus with public areas on the ground floor, which would be feasible only if the object of construction is a tall building.

The second element of this policy which needs to be clarified is that the space created in exchange of floor area bonus still is a private property and it is managed by its private owners. This fact has advantages, but also disadvantages. It can bring benefits due to the fact that not only the implementation (construction, vegetation, furniture) of the area is a responsibility of private sector, but also the management (maintenance, security, refurbishment, etc). This private sector responsibility reduces the public costs with implementation and management of these spaces for the population. However, since the private sector is responsible to implement and manage the space, it is difficult to guarantee the quality requirements for real public spaces and also the management requirements which can ensure the public character of the space. One of the biggest critics against this policy is due to the fact that the spaces created by it have been mainly managed with exclusionary definitions and serving only the purposes of the private interests, not attending minimum requirements to ensure free population access, to promote diversity of uses, and to be attractive to the population. Another criticism on this policy relates to its inability to ensure quality measures on a great part of the spaces produced under this policy.

Another element of the policy is the hierarchy of public space which the policy was able to delivery to the city, only the very local. The policy dealt mainly with spaces on the street level, created on the scale of the plot or at most as part of a block *(see Figures 4.1 to 4.6)*. In this sense, there was a limitation of which kinds of spaces this policy was able to promote, skipping the provision from big squares to city parks.

One of the objectives of this policy, as it was already said before, is related to the improvement of the pedestrian
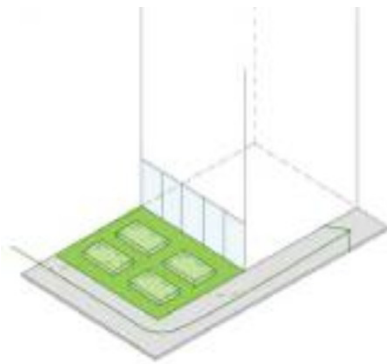
Figure 4.1. Plaza category, Private Owned Public Space.
Source: LUK, W. L. (2009).
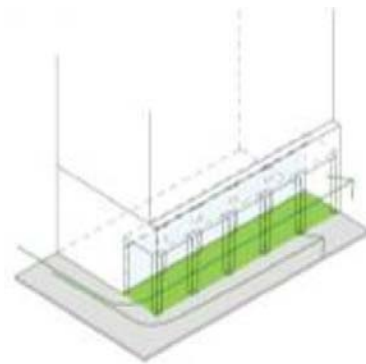
Figure 4.4. Arcade category, Private Owned Public Space.
Source: LUK, W. L. (2009).
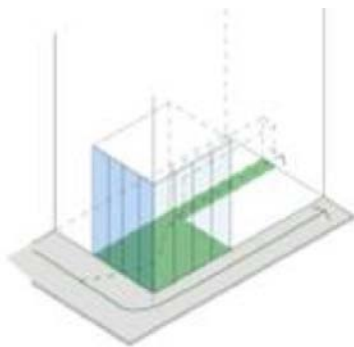
Figure 4.2. Covered Pedestrian Space category, Private Owned Public Space.
Source: LUK, W. L. (2009).
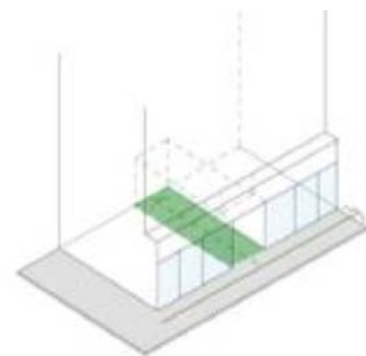
Figure 4.5. Through Block Arcade category, Private Owned Public Space.
Source: LUK, W. L. (2009).
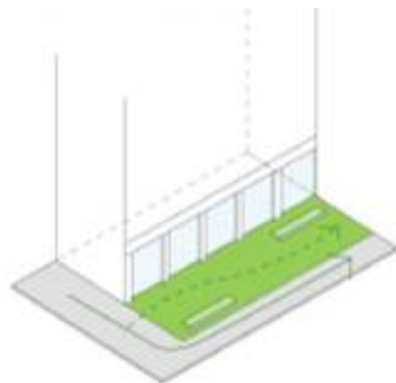
Figure 4.3. Sidewalk Widening category, Private Owned Public Space.
Source: LUK, W. L. (2009).
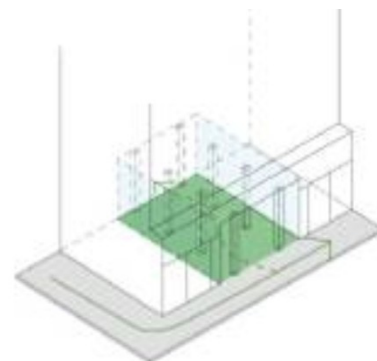
Figure 4.6. Through Block Gallery Category, Private Owned Public Space.
Source: LUK, W. L. (2009).

network, particularly on the Manhattan Island, in New York. The grid pattern of that part in the city is composed by very long blocks with an average of 250m long by 50m wide, which means that if the pedestrian wants to go to the other side of a block, he has to walk a long distance turning around the entire block. This is a spatial condition resulted by the form of the city (grid pattern), which can really influence the quality and the fluidness of the pedestrian network, and the permeability of the block.

In order to promote an improvement of this condition, the POPS policy attempted to stimulate the private developers to provide alternative routes crossing the blocks, in consequence crossing their private properties. These "crossing spaces" were some of the components of several categories of spaces introduced in the city by this policy, and they are dealing with a very specific spatial condition inherent to the city of New York.

1.2. Policy Innovations

In respect to the innovations on the policy approach in the city, the Privately Owned Public Spaces Policy brought two major innovations. According to Kaiden (2000) these two innovations are *"first, the city would deploy its zoning power affirmatively rather than negatively, encouraging rather than requiring, private developers to act in a manner desired by the public sector, and approach that would become known as incentive zoning. Second, the city introduced a new type of space: privately owned public space, located on private property yet, but unlike zoning's yards, courts, and other open spaces, physically accessible to the public-at-large"*. The first innovation can be still considered innovative in many countries nowadays since it is taking advantage of the private interests and shaping it to offer spaces and benefits for the population. These benefits for the population come from a simple widening of the sidewalks until the creation of small squares, public passages, galleries or arcades. Many countries today still don't have instruments to shape the private interests in favour of wider public contributions. The second innovation, create a precedent for many cities in the world which were willing to driver private investments to the development of public spaces areas. This policy was a really smart strategy to use private funding to provide public spaces for the city, although the results are not entirely successful.

Another innovation from this policy was the possibility to change the zoning parameters according to the capacity of private development to return benefits for the city, meaning a kind of flexibility on the requirements. As much public spaces the private developer was able to offer, by means of sidewalk widening, arcades, plazas or other ways, as much floor area bonus he would receive, but of course following some pre-defined requirements. This floor area bonus in some cases could reach more than three times the regular allowance for building up following the regular rules. This policy have a strong incentive to engage private sector which is the enormous financial benefits coming from the extra floor area allowance. According to Kaiden (2000) the ratio of the value of the bonus floor area to the cost to provide a plaza, arcade or some other category of POPS, would be up to 48 to 1.

1.3. Policy advantages and disadvantages

The policy offered to the city a great amount of urban spaces designed to the public use. According to Kayden (2000), more than 500 new spaces were developed, offering to the city very diverse Privately Owned Public Spaces. These spaces improved the quality of the street level widening the sidewalks, defining open passages crossing the blocks, plazas, arcades, galleries, and other different spaces *(see Figures 4.1 to 4.6)*. The greatest advantage of this policy was the fact that these spaces were developed by the private sector, without any public funding, which means a way to deal with the lack of resources from the public sector.

However, particularly on the beginning of the policy implementing, there were some deficiencies on the requirements which led to very ineffective results. According to Kayden (2000) *"the financial rewards generated by the floor area bonus were disproportionately large in relation to the cost of providing the plaza or arcade. [...] Furthermore, the design and administrative requirements for obtaining the bonus were relatively undemanding".* In this sense, the requirements for the quality of these spaces were very low, allowing the developers to offer many unusable spaces. Even just a concrete surface in front or on the lateral of the buildings would already meet the demands for the policy and offer to the city nothing similar to a public space. Many of the passages created were so narrow that would serve only private purposes and were not able to meet the public needs. The Privately Owned Public Spaces presented many problems related to the lack of amenities, furniture or even due to the lack of monitoring, becoming completely privatized, not offering free access to the population. These results from the first decade of the policy put forward a series of reformulations on the policy in order to cope with undesirable outcomes from the past years. Although the policy was continuously being improved until now, the qualitative results were not entirely successful, but the quantitative results, offering spaces for the public use are incontestable.

1.4. Contributions to public spaces development in Fortaleza

Looking to the discussion so far it is already possible to detect the main principle of this urban policy and evaluate if this principle can be translated in the context of Fortaleza. In this sense, the main principle derived from this policy is the possibility to exchange benefits between public government and private interests, with the main purpose to benefit the population in general and create a specific category of public spaces. These public spaces are established according to very specific characteristics generically described before, which are:

• Spaces in high-dense urban development areas. This happens due to the exchange product from public sector be an additional floor building area, which is usually feasible only on high-rise developments;

• Spaces with a very small scale, on the street level. This aspect is a result of spaces developed in the scale of the plot (private plot development);

• Spaces to increase the openness in the city but also to increase the pedestrian network. This means that theses spaces are meant for two general purposes: some of them are spaces to stay (e.g. plaza), and some others are spaces to flow (e.g. covered pedestrian space, through block arcade);

• Spaces which are privately owned. This means limitations of government interventions, but also a logical requirement for incentive zoning.

Looking to these specific aspects from the policy applied in New York, we need to test them against the local reality of Fortaleza, expressed by its spatial conditions and its cultural context. The requirement to be in high-density areas would be not a problem to the interpretation of this policy in Fortaleza. Some areas of the city of Fortaleza have been developed with high density parameters characterized by tall buildings. However, it is clear fact that a huge part of the population and the city would be not affected by the implementation of similar policy, due to most of the urban development is defined with different patterns.

Another aspect from the reality of Fortaleza is that great part of the city is actually developed individually, without any interference of private developers or even public sectors, particularly on the housing provision. This is happening on the building of single-family houses on a formal (officially legalized) and informal ("favelas") way. This fact would exclude the possibility of exchange

benefits between private and public sector on great part of the city.

Looking to the cultural aspect we have to take into consideration that the population in Fortaleza has a different understanding about what is public and what is private space. There is usually a clear boundary between both spheres, despite this aspect has been gradually changing by society transformations. The creation of these Privately Owned Public Spaces in the city would probably have ineffective results, due to the fact that this population would not feel comfortable using these spaces and the private owners would apply completely exclusionary management on these areas, even though there is a clear definition by law of implementation and management requirements addressing minimum public character for these spaces.

One of the most important aspects which might make very difficult the implementation of POPS policy in Fortaleza conditions would be the spatial configuration of the city blocks and its plots *(see Map 4.2)*. The city has all the different plots in a block completely surrounded by wall and fences, without any communication between them and not allowing any eventual pedestrian crossing of the block. This fact happens mainly due to two aspects: first because people in Fortaleza understand private property as completely closed and without any undesirable mix with public functions; and second because there is a huge problem of safety, which make people become more and more afraid from criminality, locking themselves behind walls.

In this sense, the implementation of passages, galleries or arcades for instance, would not make any sense if it is linking one side of the street to nothing else, being blocked by walls from the other plots *(see Map 4.2)*. The implementation of these kinds of spaces would be much more difficult in Fortaleza, due to the necessity to coordinate many different landlords. However, the spatial configuration of the block in Fortaleza would make difficult the implementation of only some of the spaces derived from this policy, the ones which are designed to promote the crossing of blocks (e.g. through block arcade); the other ones related to the provision of openness (e.g. plaza and sidewalk widening) are perfectly possible to happen *(see Map 4.3)*.

Although it is possible to have interpretation of POPS in Fortaleza, it is clear that the implementation of the same mechanism and requirements in the city has to deal with a lot of constraints and would never have the same results. However, if we take the principle of

— Barrier for the block crossing
▓ Possible "Through Block Arcade"
→ Possible pedestrian network

Map 4.2. Constraints for the implementation of similar policy in Fortaleza - no crossing blocks.

▓ Possible "Plaza" or "Sidewalk widening"
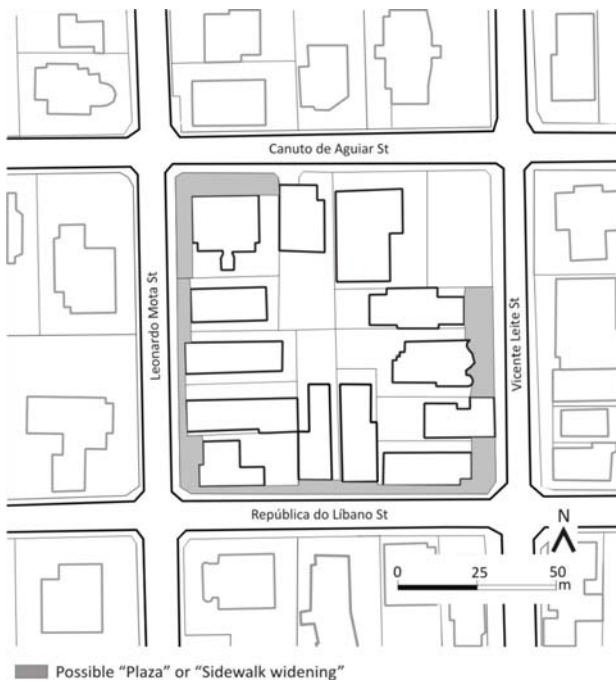
Map 4.3. Possibility of interpretation of some POPS in Fortaleza, for instance the plazas and sidewalk widening.

this policy used in New York and we find another ways to implement this exchange of benefits, the results can be much more effective. The basic principle is to offer to private developers incentives which can come from floor area bonuses, lowering of taxes or flexibilisation of rules in exchange for benefits for the city promoted by them. But in order to make this exchange effective for the majority of the city, first it is necessary to break the condition to have the spatial representations of the benefits stuck to the same plot, building or space. What I mean is that if a private developer receive incentives on a building construction, the product of exchange from him should be possible to be delivered in a complete different spatial location. The developer, for instance, can offer in exchange the implementation of a whole square in another neighbourhood, which has higher demands, or even the refurbishment of the whole sidewalks from some blocks. This spatial separation of exchange products would make possible to take advantage of high density areas, with huge private development and interests, to apply the benefits on other areas, which have a high demand for public spaces and which has no private interest for development. The calculation of the value to be paid by the developer would be done based on the price of a square meter of a new apartment, in the same location, defined by the real estate market.

The city of Fortaleza, as it is described on the Functional-spatial analysis has a huge lack of public spaces, but at same time a great potential to solve this problem. The city has an enormous amount of areas designed to be public spaces but which were not implemented yet mainly due to financial and management failures. Besides, the city has also a great amount of natural areas which can be partially used as public spaces. In this sense, the possibility to make the private developers implement these areas as public spaces is a great opportunity for the city. The separation of the spatial location for the delivery of the benefits can make this implementation possible, transferring the responsibility, by means of an exchange of benefits, to implement these areas to the private sphere. This is only one of the possible interpretations of the urban policy from New York discussed here.

"An alternative for the implementation of similar policy in Fortaleza would be with the possibility to separate the location of the incentive from the location of the public benefit".

Another possibility of interpretation of the Privately Owned Public Spaces urban policy can be used to improve the management of the public spaces. Besides deal with the implementation of new public spaces, this exchange of benefits between public and private sectors can be developed in order to refurbish the existing open public spaces in the city and also to create a maintenance system for them. The same mechanism which can create new public spaces by private development, can also refurbish the existing ones. Besides, another way to interpret the New Yorker's policy is to make the private developers pay for their benefits, creating a funding system to help to finance the management of the public spaces structure in the city.

As it happened already on the New York case, the city of Fortaleza would require a set of quality measures in order to ensure that the provision of these public spaces developed by private sector would be able to reach a minimum quality. This would require a local strategic planning, which would establish specific measures for each case. The advantage to separate the spatial location of the incentive and the spatial location of the public benefits is that the public spaces are really owned by the government, which have all the power to set up the building rules and to define the design conditions for meet the public character and to be compatible with the local context. The public spaces developed by the private sector should meet pre-defined quality requirements, learning the lesson from New York case; otherwise the private developer cannot get the building allowances necessary to legalize the property.

2. CONSORTIUM URBAN OPERATIONS IN SÃO PAULO

This session discusses about the use of Consortium Urban Operations, an instrument which has been used on the city of São Paulo since the year of 1980, and which have several positive impacts on the public space structure of some areas in the city. This instrument was created mainly to counteract the lack of financial resources from the municipality to implement the urban development of the city. In short, it is a partnership between public and private sectors, exchanging benefits. The municipality defines an area in the city which can be applied different urban parameters, for instance allowing the increase of the Floor Area Ratio (FAR) from a specific zone, attracting private investors to develop the specific area defined. This instrument is also based on incentive zoning and can be compared with what the European urban planning call Large Urban Projects. The discussion will be based on some examples of Consortium Urban Operation, for instance the one developed on Anhangabaú Valley and on the avenue Faria Lima.

2.1. Understanding the mechanisms of Consortium Urban Operation

The principle of this urban instrument has some similarities with the urban policy discussed before, from New York. Both of them are based on incentive zoning, which defines a specific area in the city which can happen an exchange of benefits between public and private sectors. But in the case of Consortium Urban Operations, the products of exchange are different and the objective of the operation is diverse, not directly connected to public spaces development. This Consortium Urban Operation is a legal instrument used for the development or renewal of a specific area in the city, which has a potential to be densified, since the main benefit offered by public sector to the private developer is the possibility to increase the Floor Area Ratio of the zone (Bógus, L. 2006). The private developer, in exchange, has to pay for this benefit. The money derived from this payment must be used on the same area, by the public sector, to develop the infrastructure, widening of streets, or to build public spaces, all in agreement with a pre-defined project-law, which establishes the requirements.

This instrument was mainly created as an attempt to solve the problem of lack of financial resources from the

municipality of São Paulo. The city did not have enough resources to develop the necessary infrastructure and defined an instrument to promote public-private partnerships and make possible the private funding of public matters. It is basically an exchange of benefits, like the one described on the New York case, but with different mechanisms. The private sector instead of offer a public area on the ground floor of the buildings has to pay in money for this benefit, and this payment will compose a fund to implement the public interventions.

This instrument was presented on the national level only on 2001, with the definition of the City Statute. The City Statute says that the Consortium Urban Operation is a group of interventions and coordinated actions developed by the municipal government in partnership with landlords, residents, users and private investors, with the objective to promote structural urban transformations, social improvements and environment valorisation. In this sense, all the actors affected by the transformations defined for a specific territory of the city should be involved on the process and have their positions considered on the development of the urban intervention.

2.2. Examples of Consortium Urban Operation in São Paulo

Looking particularly for examples in São Paulo, one of the first is the Consortium Urban Operation of Anhangabaú Valley, defined on the year of 1991. The objective of this intervention was to recovery the quality of the region which used to be a park, but since the end of 1930 this park was replaced by a high-way. In this sense the intervention had the main purpose to develop a public space structure to improve the quality of the area and to organize the different flows (pedestrians, cars, trucks, etc) *(see Photos 4.3 and 4.4)*. This operation offered to the private developers up to 150,000m² of additional building area on the defined zone but was not really successful on its results. The bonuses on the Floor Area allowances did not have sufficient power to attract the investors, since the development was focused on another region of the city. Only around 13% of the available bonuses were used by the private developers (Nobre, 2004). The costs with the public space and infra-structure re-development were just partially paid by the funds derived from the operation.

Photo 4.3. Public spaces developed by the Consortium Urban Operation.
Source: Wikipedia.

Photo 4.4. Infra-structure developed by the Consortium Urban Operation.
Source: Wikipedia.

In opposition to the Anhangabaú Valley example, the Consortium Urban Operation of Faria Lima was much more financially successful. This operation was defined on the year of 1995, in a location which was already been a focus of private investment. The necessity to improve the infrastructure on the area led the municipality to define this operation. The financial resources to do so would come from the changes in the Land-use legislation and in consequence from the payment done by private developers. The benefits provided to private developers were paid and this fund was used on the development of the public interventions, such as the expropriation costs and the extension of the main avenue *(see Photos 4.5 and 4.6)*. Since the area defined for this Consortium Urban Operation already was receiving a real state pressure for private development, the acceptability and participation of the private sector on the operation was much higher than on the Anhangabaú Valley.

Although the Faria Lima operation is considered to have financial success, the results in respect to the social impacts are considered to be very low. The social impact of this operation only contributed to increase the social segregation in the city and did not pay any attention on include, for instance, social housing or social facilities to the population of the area (Nobre, 2004).

Photo 4.5. General view from the Faria Lima Avenue.
Source: Wikipedia.

Photo 4.6. The area of Faria Lima is one of the most expensive areas in the city of São Paulo – concentration of office development.
Source: Panoramio

2.3. Contributions to public spaces development in Fortaleza

This instrument is a very powerful way to make the present zoning legislation more flexible and capable to follow the pace of urban transformations and demands in the city. The use of Consortium Urban Operations can clearly engage the private sectors and take advantage of the private investment on the development of interventions in the city. Besides, the instrument should involve every single actor affected or interested on the interventions defined, which is a clear way to address the real demands of the area subject of transformations and get the acceptability from the different sectors.

However, this instrument has demonstrated to be efficient only in areas which the private developers are willing to invest, not working on derelict areas which the city intends to re-qualify. Looking to the history of the instrument on the city of São Paulo, we can see that only the areas which the private investment were already interested were the areas which have successful Consortium Urban Operations. This observation shows that the Floor Area bonuses are not sufficient to stimulate the private sector to invest on the development of an area. The fact that the spatial location for using the funds obtained on the operation should be the same where the floor area bonuses were offered is not contributing to find a balance for the urban development on the different areas of the city. This obligation is directing the funds obtained from rich and interesting areas of the city to be applied on the same area, instead of use this fund on neglected areas of the city, where no private investment wants to take place. This instrument would reach better results if would be possible to take advantage of already well-developed areas in order to promote the development on more demanding areas of the city.

This instrument, as well as the example from New York, has limited effects on concrete demanding areas due to an obligation to invest the public value of the operation on the same area of the intervention. This fact shows that the public government is taking advantage of a private investment developed on rich areas, and using the money value acquired on exactly the same area.

In this context, we need to know how this Consortium Urban Operations can be interpreted for the public spaces development in the city of Fortaleza. Since Fortaleza is also experiencing urban transformations in the city, presenting specific areas where the private investment is focusing its actions, as it happened in São Paulo cases, it is also possible to apply a similar operation. The interventions done in São Paulo had the purpose to promote the regeneration of an area, in the case of Anhangabáu Valley, and also to finance the implementation of urban infra-structure on the case of Faria Lima, both reasons can be found on the city of Fortaleza.

It is important to say that this instrument is already present and regulated on the urban planning system of the city and can be applied at any time by the public government. The very recent Urban Development Plan for Fortaleza, approved this year, regulated and offered this instrument to the planning system of the city. The problem is that the city did never apply this instrument and therefore has no experience on this policy. The principle behind the instrument is the same presented by the Privately Owned Public Spaces. In this sense, the financial benefits received back from the private developers can be used on the public space development of the city. Besides, the instrument now already made possible the use of the financial resources derived from a Consortium Urban Operation to be used on another spatial location. This was an explicit attempt to correct the problem of being stuck to the same location, exactly as it was described before. With this separation, the city can take advantage of high developed areas in order to finance the development of other non-interesting areas for the private investment. The new Urban Development Plan also opened the possibility to private developers pay the exchange of benefits in building services, instead of a payment on money. This possibility would allow the municipality to directly impose the responsibility, for instance to build a square, to a private developer. Since the developer receives any kind of bonus to build from the government he can be obliged to pay back this benefit through the construction of public spaces.

3. METRO IN RUBBER WHELLS

This session discusses about some aspects from urban planning in the city of Curitiba, Brazil, particularly the ones related to the public transport system. This public transport system is called by many authors as *"Metro on Rubber Wheels",* due to the comparable performance of this bus system from Curitiba with a metro system from other cities. The main discussion is about the integration of different urban policies: first the public transport, second the public spaces of the city, and third the land-use regulations.

The objective of this discussion is to derive successful alternatives on the development of public spaces structure on a city. The study of the case in Curitiba, through the analysis of the public transport system *("Metro on Rubber Wheels")* gives to this research a way to have a good integration between public spaces, public transport and land-use. This integration can be an important step for a better public spaces performance in a city.

3.1. Understanding the public transport system of Curitiba

The public transport in the city is composed by a rapid bus system. The selection of a bus system as the main mean of public transport has some reasons: first, it is a high flexible system, being adaptable to new demands and routes very easily; and second, is a system cheaper than all the others such as trams, metro, or rapid rail systems (Gehl and Genzoe, 2003). However, the bus system developed in Curitiba is very different to the usual ones developed in other cities *(see Photos 4.7, 4.8 and 4.9)*. There are many specific requirements imposed to this system which made it reach a very good performance, even comparable to an underground system. These requirements are related to promote a quick and comfortable get on and get off to the system and to ensure few waiting time to passengers.

The Curitiba public transport system is guide by three main principles (Gehl and Gemzoe, 2003): first, the buses have their own lanes, which make the system achieve a relatively fast transportation; second, there are specially designed bus stops, ensuring fast and comfortable loading and unloading of passengers; and third, the system is integrated with the public spaces structure and the land-uses. The use of exclusive lanes is essential to have an efficient performance of the system, ensuring

fast transportation and a pre-defined time-schedule for the buses. The use of special bus stops is one of the key elements of the system, which ensures the comfortable use of the system and accessibility for all people, promoting a safe access of handicapped and prams inside the buses. The buses were also specially designed for the city in order to be as compatible as possible with the stop stations. The integration of the public transport system with public spaces and land-uses, perhaps is the most important aspect contributing to the successful results of the system. All the major bus stops are integrated to important public squares or pedestrian-friendly streets, easily connecting the users with the activities around *(see Photos 4.10 and 4.11)*. Besides, the main bus routes are defined together with the urban corridors of the city, with the high density development and the major activities, such as services, commerce, business and institutional activities, distributed along the public transport lines *(see Photos 4.12 and 4.13)*.

Photo 4.7. Special buses loading the passengers on the tube stop-station.
Source: Gehl and Gemzoe, 2003.

Photo 4.8. Night view from the public transport system in Curitiba.
Source: www.projetosurbanos.com.br.

Photo 4.9. Special bi-articulated bus from the public transport system in Curitiba.
Source: http://fiscaisdoimtu.zip.net.

Photo 4.10. Integration between public transport and public spaces – Carlos Gomes Square.
Source: Luis Bocian.

Photo 4.11. Integration between public transport and public spaces – Rui Barbosa Square.
Source: milpassosparaalgumlugar.blogspot.com.

Photo 4.12. Integration between public transport and land-use. Urban corridor.
Source: Gehl and Gemzoe, 2003.

Photo 4.13. Integration between public transport, land-use and public spaces. Urban corridor connected with pedestrian routes and squares.
Source: Gehl and Gemzoe, 2003.

The integration between different policies is a crucial aspect for the efficient urban development of the city. The public transport system of the city was developed in coordination with the public space structure and also with the land-use regulations. This integration made possible the promotion of activities on the public spaces, the organisation of flows from the public transport via public spaces and also the support of diverse functions and activities by the public transport system. One system is feeding and being fed by each other, supporting the success of each other. The result is a city very well served by public transport and well spatially integrated by the public spaces.

However, it is important to say that the public transport system nowadays has not the same efficiency which used to have on the last decades of the 20th Century. Recent researches presented that the average speed of the system decrease considerably and the number of delays on the time-schedule of the buses increased a lot. This fact is mainly happening on the rush hours, and due to a huge growth of the number of cars in the streets on the last decade. The percentage of users from the public transport system in the city decreased together with the decrease of the quality of the system. Another contribution to the decreasing quality is the huge expansion in population and in urban occupation, resulting in a dispersion of the city, making more difficult to promote an efficient public transport system for all.

3.2. Contributions to public spaces development in Fortaleza

The main learning which should be taken from the case of *"Metro on rubber wheels"* in Curitiba is the coordination and integration of different policies. This is a different learning if compared with the first two cases, which concerns much more with the quality of public spaces, instead of their provision. The Curitiba's case demonstrated a successful approach on coordinating public transport with public spaces and land-uses of a city. The city managed to have a quite efficient public transport, well designed and very used public spaces, and to have an urban development control through the land-use regulations *(see Map 4.4)*. Looking particularly for the public spaces structure of great part of the city, we can see an intense connectivity between these spaces and the public transport flows. This fact is helping the public spaces to organize the flows in the city and offering a great range of activities supported by public transport. The definition of a high density of activities along the public transport lines, together with public spaces connections, is helping the city to promote these spaces as spatial elements to link the diversity of uses in the city.

Looking particularly to the spatial configuration of this coordination between policies, we can find specific aspects which help to promote a successful integration. First, almost all public squares are working as well as public transport nodes, organizing the flows and offering to the population a pleasant spatial location to use the transport system *(see Map 4.5)*; second, the surroundings of these public spaces are defined by very diverse functions, promoted by land-uses regulations *(see Map 4.5)*. This integration between different elements of the city is one of the main responsible to have very lively public spaces.

This case study clearly shows the benefits which an integration of objectives and actions on the implementation of different city elements can boost a sustainable development. The public spaces structure is a crucial part for urban development, although can only reach successful results if planned and developed in coordination with other policies in the city.
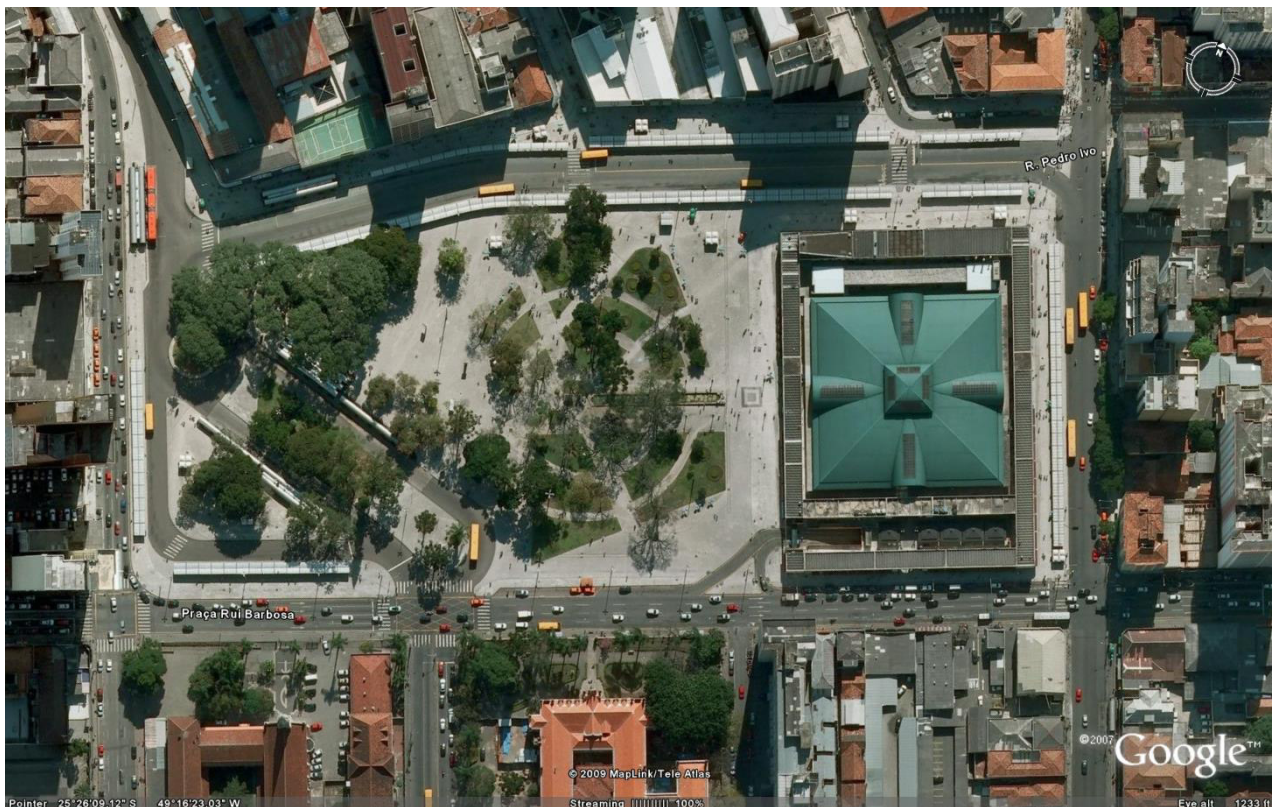
Map 4.4. Example of public space which are integrated with public transport and diversity of uses around. Rui Barbosa Square.
Source: Google Earth.

🟨 Religious functions	🟧 Commercial functions	🟪 Commercial+ office functions	🟩 Public Square
🟦 Intitutional functions	🟨 Tourist center + commercial functions	⬜ Public Transport stations	
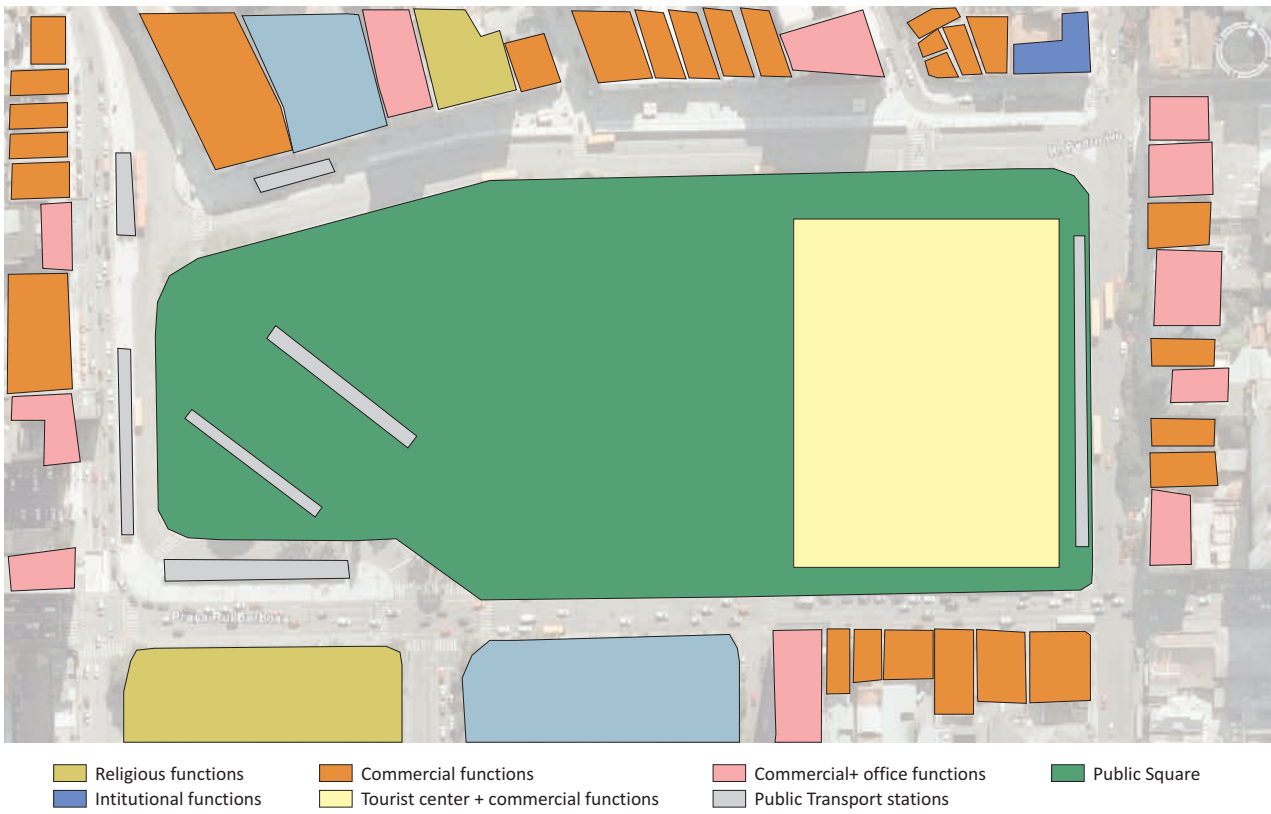
Map 4.5. Demonstration of public space which are integrated with public transport and diversity of uses around. Rui Barbosa Square.

CHAPTER IV

- Example of
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Mechanisms
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CHAPTER VI

- Conclusion
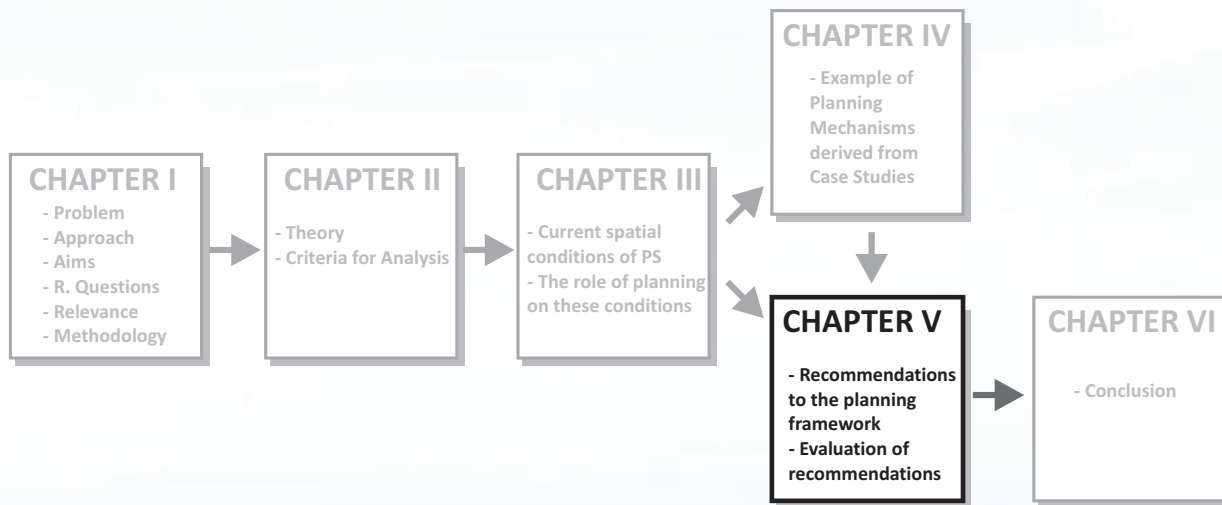
CHAPTER V - IMPROVEMENTS ON THE PLANNING MODEL

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This Chapter presents a set of recommendations to the actual planning framework of the city, which are able to support public spaces development. Besides, it evaluates these recommendations against the concrete spatial reality of the city of Fortaleza. The discussion presented on this chapter is based on planning recommendations and concrete planning mechanisms with their spatial requirements, in order to counteract the gaps detected on the public spaces development.

The results of both dimension analysis, presented on Chapter III, clearly showed that the planning framework of the city is one of the reasons for public spaces failure. The analysis pointed out where are the gaps and deficiencies on the planning framework, which are contributing for the poor spatial conditions of public spaces nowadays. Therefore, since it is clear now which elements are failing on the planning framework it is much easier to focus on them and come up with recommendations to improve public spaces development. Although there are proposals to change the planning framework, this thesis has no intention to solve the public spaces problem in the city

just making use of planning instruments but, it can for sure turn the public spaces planning system as part of the solution and not anymore as part of the problem, offering more efficient background for public spaces development. The improvement of the actual planning framework is an important step which should be done in combination with other actions, such as local community involvement on public space development and maintenance, in order to reach a successful result.

The evaluation is developed on a second part of this chapter, presenting two scales of interpretations for the recommendations proposed: the sub-centrality scale and a local public square scale. These two scales have the intention to show how the propositions defined here are helping the city to reach better spatial integration and more public spaces quality, ensuring the role of public spaces on the city development.

1. RECOMMENDATIONS TO THE CURRENT PLANNING FRAMEWORK OF PUBLIC SPACES

1.1. Limitations of planning instruments

Before presenting the recommendations for the planning framework of the city it is very important to emphasize the fact that the planning instruments have limitations to achieve their results. These limitations can be seen when it is realized that even in cities like Fortaleza, where it is clear that the interpretation of actual planning instruments are part of the problem and not part of the solution, it is possible to find public spaces which are working very well. But how this thing is possible? Why there are public spaces working well and others not, if they both are ruled by the same planning instruments? These are questions which will not be deeper answered here, but which will be used to explain some limitations from the planning actions on public spaces development. The important conclusion is that the planning instruments are not the only responsible from the success or failure of public spaces, many other aspects are involved, for instance the recognition of the public space importance by the community in general, the private sectors and even by the government itself.

There are possible answers for these questions, involving other crucial elements for the success and failure of public spaces, which need to be briefly presented. Looking to some public spaces in the city of Fortaleza, despite the presence of a weak planning of these spaces, some of them are presenting a good performance on their maintenance. This fact can be a result of two main aspects: first, one of the other city actors, despite public government, is taking the responsibility to maintain the space for itself, defining a specific governance model; or second, there are political and electoral concerns with these spaces, related to the image of the political administration of the city.

There are some examples which can clarify these two possibilities. One reason for the good performance of public spaces, despite the neglect of public planning and management of them, is happening when the community around the space take the management responsibility for itself, taking care of the space, even financing the costs

for it. In general, they create a community association to organize this process and collect the monthly donations from the neighbors. This example represents one model of governance for the management of public spaces, which has been very successful in the city.

A second model is when private developers, who have building sites around or near the public space are spontaneously financing the refurbishment and management of the public space by themselves, being aware of the benefits with the rise of the land prices promoted by their improvements. A third governance model is when the public space is surrounded by commercial activities, which their owners decide to take care of the place in order to ensure quality for the space and attract consumers for the area. This is a very common situation in Fortaleza.

A fourth model would be when some spaces are so popular, or they have very important historic value, that would imply results on the image of the actual political administration, making the government be very concerned with its maintenance. If the population recognizes these spaces with very poor quality, they would immediately imply also to a poor quality of the city administration, reflecting in losses of power and public acceptability from the actual political parties.

We can conclude from this discussion that there must be an involvement of the other city actors. The improvement of the planning instruments is an important step towards better conditions on public spaces development, but the combination with other actions is compulsory. The inhabitants, the community associations and the private sectors are also responsible to promote the improvement of public spaces, exercising their roles on the processes of planning, implementation and management of these spaces.

1.2. Main categories of recommendations

The objective to define recommendations to the public spaces planning is mainly to compose a strategy which can promote public spaces as an important element of spatial integration in the city. This thesis argues that this objective can be supported by an efficient public spaces planning and involvement of the different actors. In this sense, the analysis of the city is the main basis for the definition of the recommendations, which is followed by the proposal of concrete operational mechanisms in order to achieve spatial results on the public space structure. These recommendations together with their operational mechanisms compose the improvements proposed to the actual planning model. These improvements are later evaluated against the spatial reality detected on the sub-centrality of Washington Soares Avenue *(see Figure 5.1)*.

The recommendations defined from a deeper look on the analysis results can be categorized according to four groups. These groups are concerned with different objectives in relation to public spaces development and planning. Therefore, there is a necessity to structure them in categories of recommendations, which are able to condense the information and clarify their purpose. These categories are:

1. Increase of public spaces provision. In order to counteract the significant lack of public spaces in the city, taking advantage of the possible benefits which can these spaces bring to have more spatial integration, particularly making use of the already allocated areas, but which were not yet implemented. This increase should focuses on the potentialities of the existing city structure, such as the great amount of natural green areas, beach zones, and urban voids;
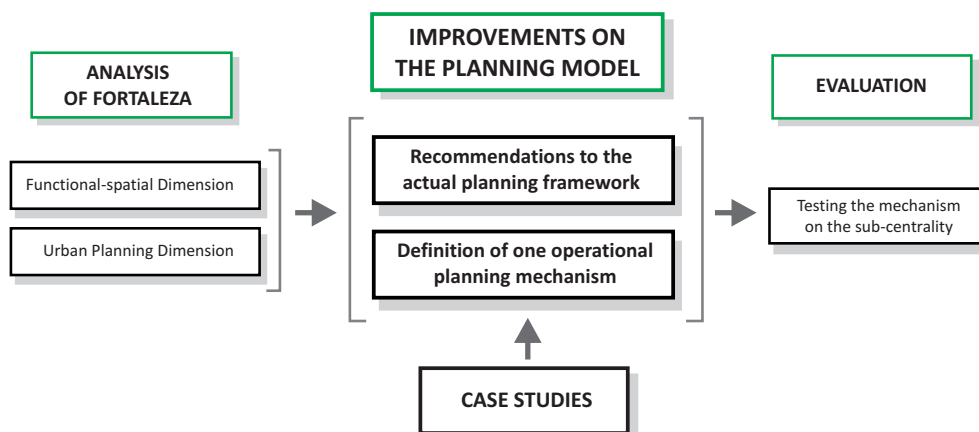
Figure 5.1. Scheme showing the elements of the Improvements on the Planning Model and their relations with the other parts as Analysis of Fortaleza and the Evaluation.

2. Increase of public spaces quality. In order to promote the role of them as an element of spatial integration, connecting flows, people, implementing different functions and attracting people to use it, putting very much attention on the role of the streets and sidewalks to promote a public space network, integrating the fragmented current structure;

3. Improvement of governance model. In order to deal with the lack of financial and human resources from the public government, engaging the other city actors on the public spaces development. This category also deals with the organisation of the city planning institutions, diminishing the conflicts with other levels of administration and integrating other policies to the public spaces planning;

4. Ensuring implementation of policies. In order to deal with the failures on the current planning system, implementing more efficient and effective ways to promote the public spaces development, which includes effective monitoring systems, the changing of city reactive behaviour to a more anticipatory behaviour, and other aspects related to a clear city vision;

These four categories are not composed by recommendations completely apart from each other. The recommendations from one category are very important for the success of the others. There is a clear interrelation between the recommendations, which determines that each of them is helping the other to reach its goals *(see Figure 5.2)*.
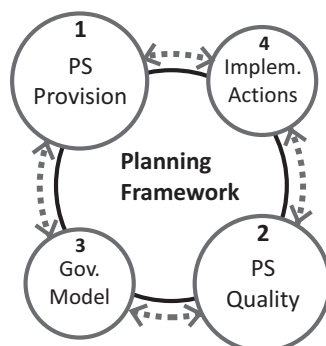
Figure 5.2. Scheme showing the interrelation between the four categories of the recommendations.

1.3. Recommendations to Increase the Public Space Provision

The Functional-Spatial Dimension analysis detected that Fortaleza is experiencing a huge lack of public space provision, lower than any national and international standards, it is also having serious inequality of its distribution and presenting a very fragmented public space structure, with no connectivity between the different public spaces. However, the city has a great potential to increase its public space provision due to its amount of areas allocated for public space function and great amount of natural areas in the city. There is also a potential to create a more balanced and less fragmented public space structure. In this sense, the first recommendations to the planning framework of Fortaleza are:

Recommendation 1. **Increase the provision on the current urban structure, taking advantage of the great amount of not-implemented public spaces** *(see Maps 3.5 and 3.6)*. **These spaces can be implemented by private funding in exchange for additional floor area given to private developers;**

Recommendation 2. **Promote the development of city scale public spaces taking advantage of the huge natural areas inserted on the urban fabric. There is a great number of natural green areas in the city which have no public use today, but which can be developed as great metropolitan recreational areas within the current urban structure** *(see Maps 3.7 to 3.9)*. **The great advantage is that many of these areas are very well connected to public transportation and to metropolitan road connections;**

Recommendation 3. **Stimulate the delivery of public areas, by the private sector, on the huge number of speculative (private) urban voids presented in the city** *(see examples on Map 3.22)*. **These spaces offer a great potential to increase the public space network in the city and in consequence increase the public space quality in the local and city scale;**

The analysis also detected a neglect of the importance of the street network as public space structure. The very poor quality of the streets and sidewalks are not supporting a public space network, not offering any use despite the car dominance of flows. The only way which can the city achieve better integration between the different urban structures and better connectivity between the different public spaces is promoting the understand of the streets as part of the public space structure. In this sense, the streets can be considered as not-implemented public spaces, which urgently need to be redesigned

and integrated with the other parts of the public space structure. Therefore, there is a recommendation wich says:

> *Recommendation 04.* **Include the street network on the strategy to implement the "not-implemented" public spaces. The streets are one of the most important elements on the public space structure which need to receive improvements and be able to support common activities such as walking, cycling and driving with safety and confort *(see Photo 3.17 and Figure 3.2)*;**

The Urban Planning analysis was responsible to explain what is going wrong on the planning framework related to public spaces development in Fortaleza. In this sense, looking to the results presented about the public spaces planning, we can detect some aspects which really need to be corrected or adjusted in order to reach better results. For instance, the actual public space regulatory tools defines only an inefficient quantitative measure to public spaces provision (a reservation rule) to every new urban development, which has not even been followed. This is one example of weakness from the actual planning which demands changes. A critical approach on the results of the Urban Planning Dimension analysis suggests the following recommendations, in order to increase public spaces provision:

> *Recommendation 05.* **Re-evaluate the quantitative standards defined on the regulatory tools, based on the potential future population (estimative of density) of the area and not only related with the amount of surface which the new development is occupying on the present situation;**

> *Recommendation 06.* **Define instruments which can increase the availability of public spaces on the already existing urban structure of the city, instead of just focus on new developments, as it is today. This recommendation reinforces the first three recommendations defined before;**

> *Recommendation 07.* **Stimulate the use of the existing tools able to promote flexibility in the urban planning system of the city, for instance the Consortium Urban Operations, particularly for the purpose of public space development. This instrument is an open door to negotiate with private sector and to shape its interests in favour of public matters;**

1.4. Recommendations to Increase the Public Space Quality

The Functional-spatial Dimension analysis also presented that public space in Fortaleza has, in general, a very weak relation with their users. The public spaces structure is not aware of what kind of population it should address. Another aspect is that there is also no relation between these spaces and the functions around, neither the density of the local area. Besides, the population in Fortaleza generally relates public spaces only with a space to have leisure, neglecting all the other functions such as a space to integrate flows, to boost urban transformations, to promote spatial integration, to provide openness and to integrate public and private domain. This fact leads to two aspects: first, a neglect of the streets as public spaces, decreasing their quality; and second, the isolation of public squares and parks from any other function except leisure, which leads to a fragmented structure and less attractivity of public spaces. In respect to these results, the planning framework of the city can help to counteract this problem, ensuring ways to:

> *Recommendation 08.* **Define public spaces able to address a great diversity of people, having their development concerned with the population demands. In the new developments, it should be ensured a great diversity of spaces, able to address diverse target groups, since it is difficult to predict the population. But, for the existing urban structure, there must be ensured the involvement of the local community, in order to define what kind of spaces they demand;**

> *Recommendation 09.* **Interconnect public spaces with the other functions such as services, commerce and institutional functions. The public spaces structure must be interconnected with a diverse of functions and not only residential, creating a high density of functions. This interconnection would turn the space much more attractive, safe and used;**

The analysis presented some incompatibilities between public spaces structure and the road network and built form of the surroundings. The public space structure is not taking any advantage of the fact that there is a very important urban corridor, full of diversified activities, having its spaces completely disconnected from this urban mainstream. This problem is directly related to the lack of different hierarchies in public space structure, having only local neighbourhood public spaces, which cannot define a proper spatial integration and network on the different scales. Besides, in the very local scale, most of public

spaces are completely disconnected from the buildings around, the link is happening only by walls and fences. This fact is decreasing the quality of sidewalks, which are not offering good conditions, for instance, for pedestrian use. These spatial conditions on public spaces can be counteracted by changes on the planning framework of the city, which are able to:

> *Recommendation 10.* **Organise the public space structure in different hierarchies and scales. This is the only way to ensure a more integrated structure and define a proper public space network. This recommendation is complementar to the other one which defines to promote city scale public spaces;**

> *Recommendation 11.* **Improve the spatial integration between private and public spaces, blurring their boundaries through the use of transition zones, open to the public and without extreme barriers;**

> *Recommendation 12.* **Increase the design quality of sidewalks ensuring their definition as open public spaces, with a crucial importance on the city flows and on the promotion of a public space network;**

In respect to the Accessibility aspect, the analysis considered that the public spaces from the sub-centrality have good pedestrian accessibility, since most of them are surrounded by streets. Although most of the public spaces are directly connected to streets, looking to a wider scale on the neighborhoods, some of them are blocked by the urban grid itself. The fact that in general public space is surrounded by streets sometimes makes the connectivity with other public spaces less integrated, due to the necessity to cross the car path and the poor conditions of the sidewalks. These results demand recommendations in respect to the location of public spaces:

> *Recommendation 13.* **Define qualitative measures related to the location of the public spaces, ensuring accessibility and integration with other functions and important flows on the city;**

Another aspect detected on the Urban Planning Dimension analysis is the weak integration between the public spaces definitions and the other urban elements definitions, such as urban mobility, land-use, and building regulations. The actual planning model does not coordinate these different elements to work in an integrated way. This is a failure which need to be corrected if the city wants to implement a good quality of public spaces. In this sense, this thesis proposes:

> *Recommendation 14.* **Integrate public spaces development with other policies, for instance urban mobility, public transport, land-use, and public**

facilities. **The integration of these different urban elements in the city planning would facilitate the concrete spatial interconnection between public spaces and other functional uses, such as shopping, institutional, services, etc. The case study of Curitiba has successful examples of this integration.**

1.5. Recommendations to improve the governance model

The Functional-spatial Dimension analysis described the city of Fortaleza with a problem related to the inequality of maintenance along the public spaces structure. There are since spaces which have a good maintenance level, which are exceptional cases, until spaces which are completely derelict, meaning no safe use or any quality to stay or to flow. This fact requires that the planning of these spaces should reach at least a minimum level of maintenance and which should be ensured to all of them. The recommendation to the planning model which aims to counteract this problem should concerns the improvement of governance model in use on the city. In this sense, the implication to the planning framework of Fortaleza is:

> *Recommendation 15.* **Promote partnerships to fund the maintenance of public spaces, with local community and/or private sector. This would be possible through the incentive of local community to take care of its public spaces, or through local shop owners or even private developers;**

> *Recommendation 16.* **Re-evaluate the community participation processes and how to allow people to have more influence on their local matters, instead of only intervene on overall definitions for the entire city. It should give power to the very local community associations to intervene on the planning decisions for their neighborhood. This would help the people to have their local demands such as public spaces faster answered;**

The analysis also detected a very weak integration between the municipal bodies related to urban planning and development, resulting in conflicts of planning and actions; there is also a weak connection between the diverse sectoral policies, making the city lose the opportunity to integrate them and take advantage from each other, attracting users, flows, activities to the public spaces structure. In order to counteract these failures, this thesis recommends to the planning model:

Recommendation 17. **Integrate the actions from the different levels of administration and also promote the coordination between the different sectoral policies in order to minimize conflicts and take advantage of the potentialities from every sector on the public space development. This recommendation is very much related with the recommendation 14, however this one is focused on the institutional bodies;**

1.6. Recommendations to ensure the implementation of actions

In respect to the failures on the implementation actions pointed out on the analysis, this thesis described some aspects which need to be adjusted on the actual planning framework. The first problem described was that the government is not really planning the city, which means anticipation of problems. The government is only reacting to the problems, waiting for them to promote some action. There is weak proaction behaviour from the city planning departments. In this sense, this research recommends:

Recommendation 18. **Improve the institutional capacity of the municipality responsible to plan, implement and monitor the urban transformations in the city, as well as the public spaces development. This would help the municipality to anticipate the problems and therefore their solutions;**

Recommendation 19. **Define a clear city vision for the urban development of the city, because until today the definition of goals and objectives are not clear. This common view should guide not only the urban planning policy but also other sectoral policies, such as the ones related to health, education, etc. This could be one way to find the integration between administrative levels and policy sectors, as well as to promote a concrete planning for the city development;**

The analysis presented that many spaces which were designed to be public spaces are being invaded by slums in the city. It is known that this fact is happening, besides wider social and economic problems, but mainly because the failure of urban planning in the city. In this sense, this thesis proposes:

Recommendation 20. **Ensure the implementation of a strong monitoring system based on community participation, in order to minimize the losses of public areas to illegal occupations;**

Another aspect which has crucial importance for the success of all the recommendations proposed here is the perception by all different actors on the city about the clear benefits which public spaces can bring to them. The population would have better quality of life, the developers would increase their financial benefits, the municipality would have a much more integrated urban structure, and many other benefits are possible by the improvements on public spaces spatial conditions. Following this thinking, this thesis proposes:

Recommendation 21. **Promote the debate about the importance of public spaces and make clear their benefits for all city actors. The recognition of public spaces benefits by city actors would facilitate the implementation of interventions related to them. The transformations needed will be only possible through a collective involvement.**

These recommendations are the main suggestions for the improvement of public spaces planning model in Fortaleza. They represent an effort to promote an efficient planning framework able to deal with the main issues of the public spaces problem in the city.

1.7. Role of different actors on the planning model

In order to make clear the importance of the involvement of all actors in the city, it is presented what can be the role of each one of them on this process towards public spaces improvement. The recommendations proposed by this thesis to the public spaces planning needs to be established as a combined effort between the different actors of the city in order to have any effective result. These actors are represented by the urban planners, the public government and its diverse planning departments and agencies, inhabitants and its community associations, private sector and its building developers, commercial associations and industrial organisations. They are responsible to support the conditions defined here by the recommendations on the planning model. It should be clear that despite this thesis is offering improvements for the planning framework, it is crucial that the other involved actors on the city take their responsibility on the effort towards a better public spaces quality.

In this sense, it is presented what is the role of each one of the city actors on developing strategies to cope with the public spaces failure.

a) The role of urban planners:

• Clarify to every involved actors the importance

of public spaces for the city and show clearly the benefits of these spaces for all of them;

• Define alternatives of intervention which could help the city to establish better performance on public spaces development;

• Make clear to the public government the advantages of association with private sectors and show the actual legal means which already allow these partnerships;

• Make clear to the public government the necessity to involve the local inhabitants on the process of public spaces planning;

• Disseminate and make operational the mechanisms which urban planning can use in order to make concrete spatial results on the public space structure;

b) The role of public government:

• Define clear quantitative and qualitative measures for the public spaces development in order to create certainty of the rules;

• Promote strategies which engage the private sector on helping the development of public spaces;

• Offer to private developers benefits in exchange for their involvement on public spaces investment;

• Allow more power to the local communities to come up with proposals to local improvement of their public spaces;

• Organize and structure the institutional departments responsible for the urban and public spaces development;

• Be proactive and develop an anticipatory approach in order to meet the current and future demands of public spaces development;

c) The role of inhabitants and community associations:

• Change the mentality to understand the problem of public facilities as an exclusive responsibility from the public government and assume their role on the public spaces planning and management;

• Engage the community on help the city to take care of public spaces, even assuming part of the funding of the local public space maintenance, since it is a wealthy neighbourhood;

• Offer to the public government alternatives to deal with the lack of maintenance on the public spaces, through the creation of community associations;

d) The role of private sector and its different associated groups:

• Be open to public-private associations in order to make possible the implementation of public spaces, taking advantage of instruments such as incentive zoning;

• Negotiate with public sector possibilities to provide better integration between public and private properties, offering an intermediate zone with public qualities;

The public spaces development is usually defined as exclusive concern from public government, however it will only be successful if all different actors involved assume their roles on the development of a comprehensive strategy and behave in a proactive way, giving their contributions to the implementation of an effective public spaces structure.

1.8. Possible processes of implementation and actors involvement on the planning model

All the recommendations proposed by this thesis have the purpose to support public spaces development by means of an efficient planning framework, suggesting adjustments on the actual planning system. The scope of action from the recommendations goes from the increase of provision until some ways to ensure the implementation of the planning definitions. In order to reach their objectives, which is to promote the role of public spaces as an element of spatial integration in the city, these recommendations also need to be followed by more concrete operational mechanisms and spatial requirements. In this sense, the next table summarizes the recommendations proposed and outline concrete mechanisms and pratical actions in order to make them operational, defining the main actors involved and their scale of intervention *(see Table 5.1)*. The implementation processes defined on the Table 5.1 have the objective to understand the recommendations in a more operational and pratical interpretation.

Table 5.1. Categories of recommendations for the planning model in Fortaleza.

Categories		Recommendations	**Possible Processes to operate the recommendations**	Spatial results	Actors Involved	Governance Scale
	1	Increase the provision on the current urban structure, taking advantage of the great amount of not-implemented public spaces;	**- Make an inventory of all public spaces still not implemented; - It can be implemented by private funding in exchange for additional floor area given to private developers. Make use of the existing tools, according to the planning mechanism defined on the evaluation;**	- Implementation of neighborhood Public squares and small public parks; - Refurbishment of public squares;	- Public government; - Private developers; - Real estate companies; - Community Associations;	- Municipal level; - Local community;
	2	Promote the development of city scale public spaces taking advantage of the huge natural areas inserted on the urban fabric;	**- Search for national funds, designed to environmental protection; - Use the urban/landscape design to transform these areas on huge recreational areas on the city scale;**	- Implementation of city parks, open 24h to the general public; - These spaces can facilitate the integration within the diverse small public spaces fragments;	- Public government; - Private developers; - Diverse kinds of companies; - Community Associations;	- National, state and municipal level; - Local community;
Increase of public spaces provision	3	Stimulate the delivery of public areas, by the private sector, on the huge number of speculative (private) urban voids presented in the city;	**- Make use of the instruments related to incentive zoning in order to stimulate the developers to offer public areas, with free access to all community, on the ground floor; - These spaces must be managed by community associations;**	- Development of public areas such as pocket parks, widening of sidewalks, public playgrounds, etc; - Enrichment of the public space network, providing spatial elements to connect the diverse scales of public spaces;	- Public government; - Private developers; - Community associations;	- Municipal level; - Local community;
	4	Include the street network on the strategy to implement the "not-implemented" public spaces;	**- Use the same planning mechanisms used to implement the allocations for public spaces on the refurbishment of the streets and sidewalks; - Use also the definitions already present on the law, which put the landowner as responsible for the good conditions of the sidewalk in front of their plots;**	- Provision of the street network as real public space, since today it is offering very weak possibilities of use; - Enrichment of the public space network, reinforcing the links between the other kinds of public spaces, such as squares,	- Public government; - Private developers; - Community associations; Landowners;	- Municipal level; - Local community;

Table 5.1. Categories of recommendations for the planning model in Fortaleza.

Categories		Recommendations	Possible Processes to operate the recommendations	Spatial results	Actors Involved	Governance Scale
				parks, beach areas, etc;		
	5	Rethink the quantitative standards defined on the regulatory tools, based on the potential future population (estimative of density) of the area;	**- Create a minimum standard based on density, which should be complemented by quality parameters which can be applied differently on the diverse areas of the city;**	- It offers a compatible provision of public spaces in relation with the population demands;	- Public government;	- Municipal level;
	6	Define instruments which can increase the availability of public spaces on the already existing urban structure of the city, instead of just focus on new developments	**- It can be used instruments such as the Consorted Urban Operations, Incentive Zoning or Transfer of Development Rights, as it was suggested by the recommendation 1;**	- Increase of provision making use of the not-implemented public spaces, urban voids and natural green areas existing on the current urban structure;	- Public government; - Private developers; - Real estate companies; - Community Associations;	- Municipal level; - Local community;
Increase of public spaces provision	7	Stimulate the use of the existing tools able to promote flexibility in the urban planning system of the city;	**- Define the policy-intervention which would allow the Municipality to implement incentive zoning in favour of public space development in the city; - Apply Consortium Urban Operations, Incentive Zoning, progressive taxation, transfer of development rights-TDR, or even expropriation rights;**	- Implementation of public squares, city parks, refurbishment of existing public spaces, including the street network;	- Public government; - Private developers; - Real estate companies; - Community Associations;	- National, State and Municipal level; - Local community;
Increase of public spaces quality	8	Define public spaces able to address a great diversity of people, having their development concerned with the population demands;	**- There must be ensured the involvement of the local community, in order to define what kind of spaces they demand (for the existing urban structure); - In the new urban developments, it should be ensured a great diversity of spaces, able to address diverse target groups, since it is difficult to predict the population characteristics**	- Public spaces adequate to its population, providing different activities and spaces for integration;	- Public government; - Inhabitants and community associations;	- Municipal level; - Local community;

Table 5.1. Categories of recommendations for the planning model in Fortaleza.

Categories	Recommendations		Possible Processes to operate the recommendations	Spatial results	Actors Involved	Governance Scale
	9	Interconnect public spaces with the other functions such as services, commerce and institutional functions;	**- Apply specific zoning regulations on the surroundings of public spaces, stimulating the development of diverse functions on the area;** **- Implement activities and other functions within the public spaces, allowing other uses rather than only leisure;**	- Public Spaces much more attractive, safe and highly used;	- Public government; - Shop owners; - Business companies; - Service companies;	- Municipal level;
	10	Organise the public space structure in different hierarchies and scales;	**- Promote different hierarchies of public spaces rather than only neighbourhood squares;** **- Consider the street network as one of the most important public spaces in the city, since in many areas is the only available public space;** **- Define different strategies to implement the different scales of public spaces;**	- Public spaces network, with clear integration between different public spaces scales, providing a network which can decrease the spatial fragmentation in the city;	- Public government;	- National, State and Municipal level;
Increase of public spaces quality	11	Improve the spatial integration between private and public spaces, blurring their boundaries through the use of transition zones, open to the public and without extreme barriers;	**- Offer incentives to landlords which agree on make the interaction between their private space and the public street less drastic;** **- Define design guidelines able to, for instance, improve the visibility between public and private property;**	- Public spaces with much more quality to flow and to stay, offering better integration between public and private;	- Public government; - Private landlords; - Private developers;	- Municipal level; - Local inhabitants;
	12	Increase the design quality of sidewalks ensuring their definition as open public spaces, with a crucial importance on the city flows and on the promotion of a public space network;	**- Offer incentives to landlords which agree to provide sidewalk widening on important streets of the city;** **- The municipality should ensure ways to make the landlords fulfil their obligations to maintain the quality of "in-front" sidewalks;** **- Define clear requirements for urban design, such as more porosity between the plots and sidewalks, minimum standards for**	- Improvement of the spatial quality on the sidewalks (local scale benefit), and improve of the public space network on the city (city scale benefit);	- Public government; - Private landlords; - Private companies which offer public services like gas, electricity, telephone, public transport, etc;	- Municipal level; - Local community;

Table 5.1. Categories of recommendations for the planning model in Fortaleza.

Categories		Recommendations	Possible Processes to operate the recommendations	Spatial results	Actors Involved	Governance Scale
			vegetation, wider sidewalks, continuity of the path, minimize the conflicts with lampposts, public transport shelters, etc;			
	13	Define qualitative measures related to the location of the public spaces, ensuring accessibility and integration with other functions and important flows on the city;	**- Ensure the pedestrian accessibility (particularly when it is a neighbourhood public space); - For city scale public spaces should be consider the road connections and public transport integration;**	- Public spaces with good accessibility and more attractive;	- Public government; - Private developers;	- Municipal level;
	14	Integrate public spaces development with other policies, for instance urban mobility, public transport, land-use, and public facilities.	**- Maximize the public spaces functions putting other public facilities around and link these spaces to public transport;**	- Facilitates the concrete spatial interconnection between public spaces and other functional uses, such as shopping, institutional, services, etc;	- Public government;	- Municipal level;
Improvement of governance model	15	Promote partnerships to fund the maintenance of public spaces, with local community or private sector;	**- Incentive the local community to take care of its public spaces; - Incentive the shop owners to take care of public spaces around; - Incentive the shop owners to take care of public spaces around;**	- Local scale public spaces with very good spatial quality, maintained private or community associations;	- Public government; - Private sector; - Inhabitants and community associations;	- Municipal level; - Neighbor- hood level;
	16	Rethink the community participation processes and how to allow people to have more influence on their local matters;	**- Give power of decision to neighbourhoods and community associations. Allow them to intervene on the planning decisions from their areas.**	- Spaces much more related to the concrete local population demands, where people identify themselves;	- Public government; - Inhabitants and community associations;	- Municipal level; - Neighbor- hood level;
	17	Integrate the actions from the different levels of administration and also promote the coordination between the different sectoral policies in order to minimize conflicts and take advantage of the potentialities from every sector on the public space development.	**- Ensure the function, already defined by the Federal Constitution, of the Urban Development Plan as the main guideline for all other policies in the city planning, which makes the public spaces planning integrated with other sectoral policies;**	- It would facilitate to have public spaces much more attractive, safe and highly used;	- Public government;	- National, State and Municipal level;

Table 5.1. Categories of recommendations for the planning model in Fortaleza.

Categories	Recommendations		Possible Processes to operate the recommendations	Spatial results	Actors Involved	Governance Scale
	18	Improve the institutional capacity of the municipality responsible to plan, implement and monitor the urban transformations in the city, as well as the public spaces development;	**- Define a clear institutional municipal body, responsible for the urban development and management of the city, which must be composed by interdisciplinary specialists;** **- Promote investment on the qualification of human resources on the city planning institution;**	- It will have impacts supporting the implementation of spatial transformations on the public space structure;	- Public government;	- Municipal level;
	19	Define a clear city vision for the urban development of the city, because until today the definition of goals and objectives are not clear;	**- This common view should guide not only the urban planning policy but also other sectoral policies;**	- It will have impacts supporting the implementation of spatial transformations on the public space structure;	- Public government;	- Municipal level;
Ensuring implementation of actions	20	Ensure the implementation of a strong monitoring system based on community participation, in order to minimize the losses of public areas to illegal occupations;	**- Be fast on the monitoring of the public spaces, avoiding the complete illegal occupation of public areas in the city;** **- Promote the use of these spaces, avoiding the occupation of them;**	- Keep the already allocated land for public spaces with the same purpose;	- Public government; - Inhabitants and community associations;	- Municipal level;
	21	Promote the debate about the importance of public spaces and make clear their benefits for all the city actors.	**- First, convince the public government that it is possible to develop public spaces with private investment, and public spaces are able to deliver a wide range of benefits to the city;** **- Second, show to private developers possible benefits which they can have with their involvement on public spaces development;** **- Show to every actor the role of each one on the improvement of a city, starting on the involvement on public spaces development.**	- The recognition of public spaces benefits by city actors would facilitate the implementation of spatial interventions related to them;	- Public government; - Inhabitants and community associations; - Private developers; - Technicians dealing with the urban develop-ment;	- National, State and Municipal level;

1.9. Relation between problems and the recommendations proposed

The recommendations to the actual planning model in Fortaleza, described on this chapter, have the goal to counteract the main problems detected by the Functional-Spatial Dimension analysis and by the Urban Planning Dimension analysis. These problems are affecting negatively the public space development and planning in the city of Fortaleza, and they are not offering proper conditions to promote a good spatial quality to public space structure in the city. The Figure 5.3 shows the relation between the four categories of recommendations and the main problems which they are counteracting. It is important to show that each one of the categories is related to more than one problem detected, and they need to be developed in combination with the others.

MAIN PROBLEMS
(Results of Analysis)

1. Lack of public space provision and inequality of distribution
2. Very fragmented public space structure
3. Very poor quality of the streets and sidewalks
4. Inefficient quantitative measure to PS provision
5. Definitions on provision only for new urban developments
6. Public Spaces with no relation with the users
7. Public Spaces with no integration with other functions
8. Lack of different hierarchies in public space structure
9. Inequality of Maintenance
10. Weak integration between levels of administration and other sectoral policies

RECOMMENDATIONS
(Improvements to the Planning Model)

1. To Increase Public Spaces Provision
2. To Increase Public Spaces Quality
3. To Improve the Governance Model
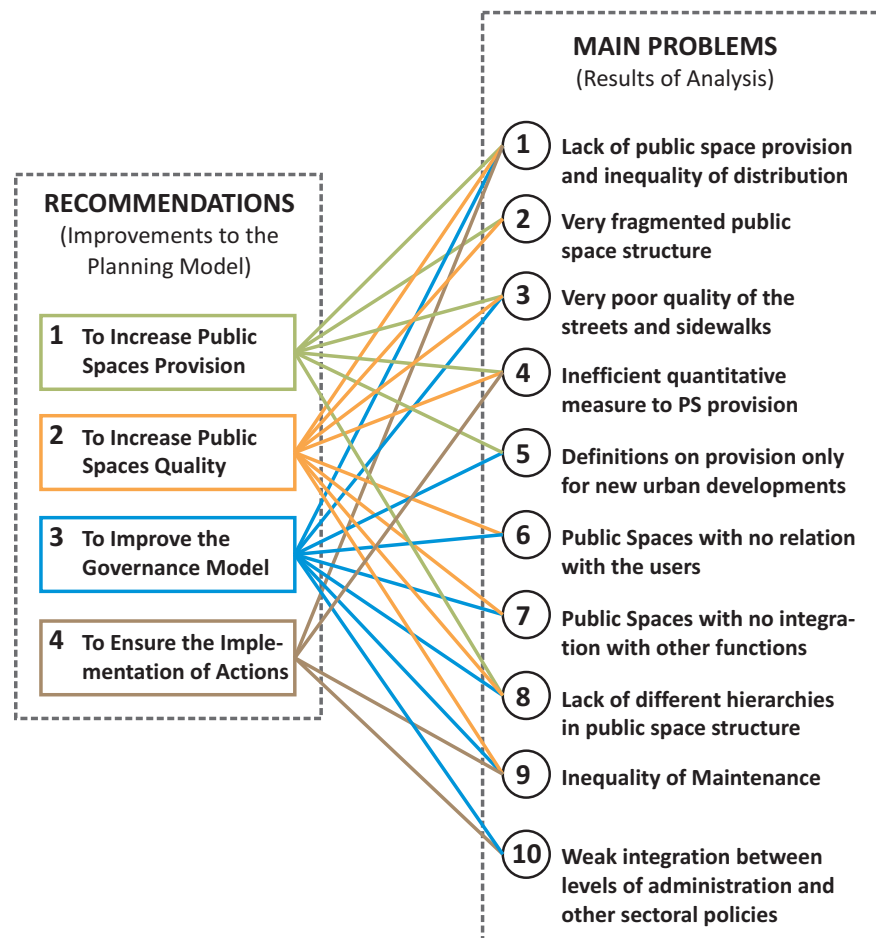4. To Ensure the Implementation of Actions

Figure 5.3. Scheme showing the interrelation between the four categories of recommendations and the problems detected on the analysis.

2. EVALUATION OF THE IMPROVEMENTS ON THE PLANNING MODEL

This section presents an evaluation of the recommendations proposed on the previous section, following two main objectives: first, to outline a strategy to implement the recommendations proposed, suggesting steps to be done and their respective phasing; second, to demonstrate the recommendations on a concrete spatial reality. This evaluation follows two different scales: one is the Washington Soares sub-centrality as a whole and the other is a specific local public square in the same sub-centrality.

2.1. Priority of actions

Due to the fact that there are a diverse amount of failures on the planning framework for public spaces development, it is very important to define some priority actions on the implementation of the recommendations proposed here. First, due to the urgency to solve current spatial problems of public space, and the short term applicability of the recommendations, this thesis defined the first two categories of recommendations as the main priorities of actions. Therefore, the recommendations defined to increase the public space provision and the recommendations defined to increase the public space quality are the high priority actions on the strategy *(see Figure 5.4)*. This strategy should define public space as an element of spatial integration in the urban structure.
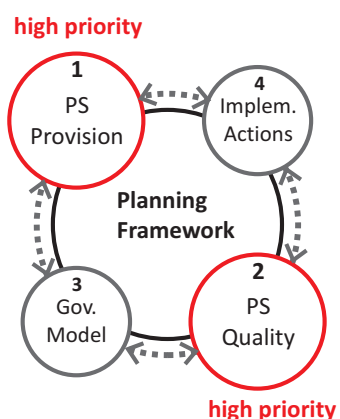
Figure 5.4. Scheme showing the interrelation between the four categories of the recommendations and the priority of actions.

Besides this definition of priority actions related to the four categories of recommendations, this thesis also established some hierarchy inside each one of the categories. In relation to the first category, the increase

of public spaces provision, the main priority is to focus on the development of the existing public spaces allocations. This means to focus on the refurbishment of existing public spaces, such as public squares, parks and sidewalks, as well on the implementation of the public spaces allocations which were not yet implemented, rather than try to develop new public areas in the city.

In respect to the increase of the public space quality, the priority also should be on the existing public spaces and allocations (not-implemented public spaces). However, there are many aspects related to the quality of these areas which also need to define priorities. For instance, it is necessary first to stimulate the diversification of uses around these spaces, facilitating the use and attractivity of these areas, rather than just think about furniture, pavement or facilities.

In respect to the improvement of governance model, it is major priority to promote partnerships between the government and community associations, or between government and private developers, in order to help the financing of public spaces management, ensuring their quality of use to the neighborhood.

In respect to the implementation of policies, two major recommendations must be developed together as a priority action: the strengthening of the institutional body responsible for the public spaces development, and also the promotion of the importance of public spaces to all involved actors, showing to each one of them the specific benefits of a well defined public space structure.

2.2. Phasing

The exercise to do a phasing with the recommendations proposed can be very helpful to understand the proposal, but can be very dangerous as well. It is quite difficult to determine what comes first and after on a strategy, due to the fact that there is always interferences which we cannot predict, such as political changes, economic crises, social urgencies, changes on actors interest and on spatial demands. In this sense, the exercise which is done here is only a suggestion which takes into account the present social, economic and spatial conditions on the city of Fortaleza. However, a phasing exercise is an important and crucial action for every public space planning and development which involves much more than single

spatial interventions, including changes on political behaviour, changes on community behaviour, changes on the way to manage the urban transformations in the city, and also changes on the interaction between a diverse range of actors. These recommendations represent a very complex and interrelated groups of actions which should be activated in different steps and depending on the success of the previous steps, following the priority of actions already described.

Before we start with the phasing exercise, it must be very clear what are the main goals for the strategy. In this sense, the ten main problems defined on the analysis generated ten goals which must be achieved by the strategy defined here *(see Figure 5.5)*.

MAIN GOALS
(counteracting the problems)

1 **Increase the public space provision**

2 **Decrease the fragmentation on the public space structure**

3 **Increase quality of streets and sidewalks**

4 **Define adequate planning measures for PS provision**

5 **Define instruments to provide PS on the existing urban structure**

6 **Define PS with more relation with its users, recognizing the changes on the demands along the time**

7 **Integrate Public Spaces with other functions**

8 **Define different hierarchies/scales within the public space structure**

9 **Define strategies to ensure maintenance of PS**

10 **Ensure integration between levels of administration and other sectoral policies**

Figure 5.5. Main goals to counteract the problems detected on the analysis.

Therefore, this thesis took a summary of the recommendations proposed and put it on a time-line, presenting a strategy for their implementation. As a first group of steps, representing the two priority categories of recommendations, it should be started the following actions simultaneously *(see Figure 5.6)*:

- implement the already allocated land for PS;

- deliver public spaces, using the huge number of private urban voids;

- implement changes on the regulatory tools for PS development, ensuring adequate provision;

- refurbish the existing structure of public space, including streets and sidewalks;

- interconnect public spaces with other functions;

- increase the spatial integration between public and private property, particularly between the plots and the street;

- implement changes on the regulatory tools to ensure minimum design quality for public spaces;

These actions are the most appropriate ones to start a process of transformation on the public space structure, due to their capacity to have immediately positive impacts on the spatial quality of the city and to be activated by existing planning tools such as Consortium Urban Operations, Incentive Zoning, Progressive Taxation, Land-use policy, among others. All these planning tools are already present on the planning framework of Fortaleza. Besides, the changes on the regulatory tools would facilitate to have more provision and quality on the public space structure. Since the city implements these actions, it will happen a real improvement on its public space quality. Then, the second group of actions would be ready to start.

After the improvements on the public space structure, done by the first group of actions, the city should activate the second group of actions, which are *(see Figure 5.6)*:

- use the natural green areas as city scale public spaces;

- create different hierarchies of public space;

- promote partnerships with local community and local private sectors to fund the maintenance of public spaces;

- involve the community on the public space planning, ensuring the answer of their local needs;

- integrate the different sectoral policies with public spaces development, on the municipal level;

- define a clear institutional municipal body for urban development;

- define a clear city vision for urban and public spaces development;

- implement monitoring systems to control the use and quality of public spaces;

- elaborate public campaigns promoting the benefits of public spaces.

The content of these actions, except for the first two, is mainly related to management concerns on governance and on implementation. This means that we need first to start consistent spatial improvements on the public space structure (done by the first group of actions) and then, it will be possible to stimulate the different actors (public government, community and private sectors) to take their responsibility on the transformation process, implementing partnerships, defining a clear institutional body to manage the urban development, developing monitoring systems, etc. The results of the first actions on the city would be the strongest argument to activate the different contributions which can each actor bring to the city, defined on the second group of actions.
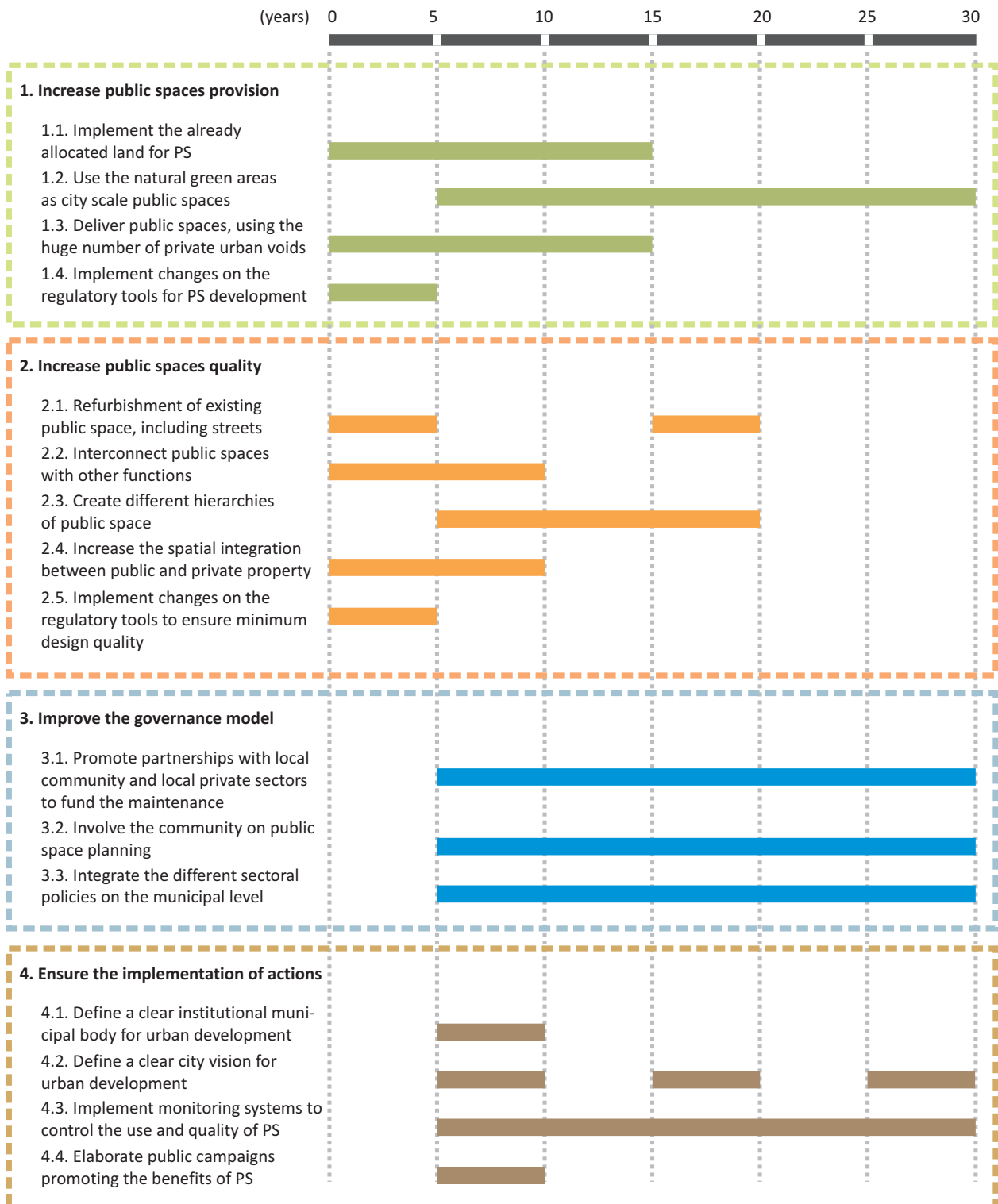
Figure 5.6. Phasing for the implementation of the recommendations on the city of Fortaleza.

This outline of a strategy developed here shows clearly that this transformation process, required by the recommendations proposed, is a long-term approach, but also with very immediate benefits to the public space quality in the city. This strategy would achieve important goals already in a short period of time. For instance, the first results of actions such as implementation of "not-implemented" public spaces, refurbishment of public squares and sidewalks or use of the urban voids to provide public areas, would already increase very much the provision of public spaces, decrease the fragmentation of the public space structure and increase the quality of streets and sidewalks. These goals are directly counteracting the problems detected on the analysis of the city.

The next sub-sections define some mechanisms which can the city use to implement the recommendations, and also spatial requirements related to the increase of provision and to the increase of public spaces quality.

2.3. Example of spatial requirements to help to increase public space provision with quality

In order to reach successful results offering public spaces to the city with quality, it is necessary to define some spatial requirements. The *recommendation 09* defines that public spaces must be interconnected with other functions such as services, commerce and institutional. The actual conditions in the city of Fortaleza shows that many of the public squares, for instance, are surrounded by a monofunctional distribution of activities, which makes the space less used and less attractive. Therefore, this thesis looked at the case study of Curitiba and detected that one of the main reasons for the success of its public space structure was the integration between the public spaces and other elements from the city, such as land-use regulations and public transport. The increase of public spaces provision and the refurbishment of the existing ones should be followed by this integration.The case of Curitiba shows that the most important squares are directly giving space to public transport stations and presenting a great variety of functional uses on the surroundings *(see Figure 5.7)*.

Another spatial requirement to increase public space quality is related to design guidelines for the sidewalks. The *recommendation 12* defines the necessity to increase the design quality of sidewalks, ensuring their definition as open public spaces. In this sense, there are some requirements for the urban design of them, which are:

- ensure more porosity between the plots and sidewalks, establishing a transition zone making the

Figure 5.7. Scheme showing the quality requirement to integrate mixed uses and public transport on the surroundings of a public space.

interaction between public and private property *(see Figure 5.8)*;

- follow minimum standards for vegetation, ensuring shadow and confort for the users;

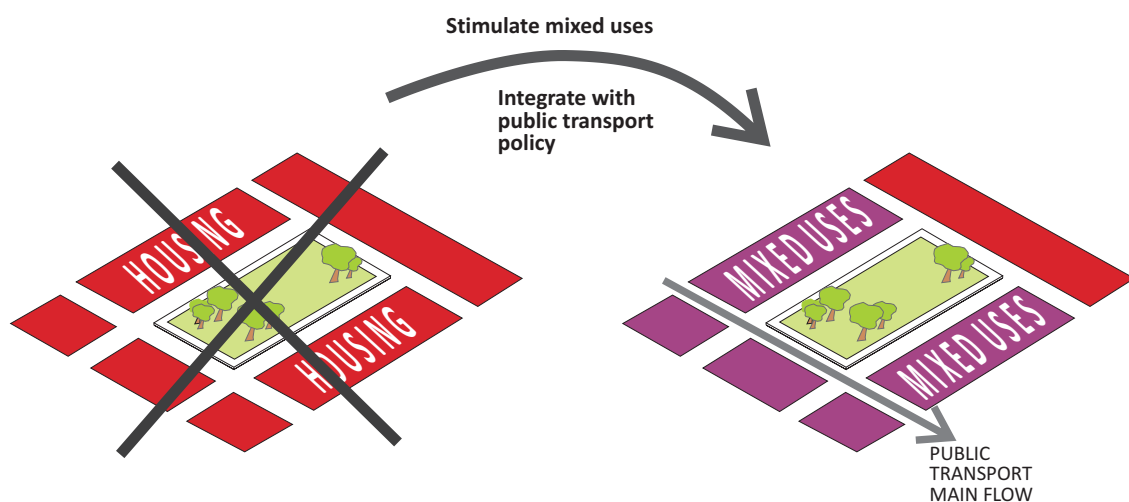- ensure adequate wide of the sidewalks, keeping free path for at least two people together with vegetation, lampposts, trash bins and other furnitures;

- ensure the continuity of the path, facilitating the pedestrian flows, the use by disable people, and enriching the public space network.

These spatial requirements for public space development are some of the examples which can help the recommendations proposed to become true.
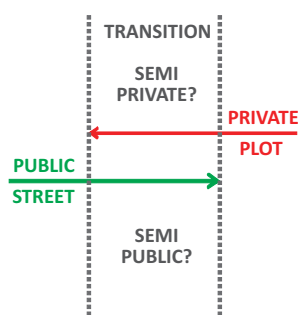

Figure 5.8. Scheme showing the quality requirement to ensure more porosity between the plots and sidewalks.

2.4. Definition of an operational mechanism to help to increase public space provision

The evaluation of the recommendations proposed to the planning framework of Fortaleza makes use of the contributions from the case studies related to public spaces development. In this sense, this evaluation is focused on propose and test planning and spatial mechanisms defined to increase the provision and quality of the public spaces structure (implemented or not-implemented, but already allocated) in the city of Fortaleza. These mechanisms are derived from the cases of New York, São Paulo and Curitiba.

The three cases analysed on the *Chapter IV-Case Studies* give to the research specific and practical recommendations. The lessons from the case studies can be synthesised on two major topics: the first one is about incentive zoning and its contribution to increase the availability of public spaces in the city; the second one is about policy integration and its capacity to promote quality to the public space structure.

In this sense, the recommendations already categorized based on their purpose to increase the provision of public spaces, receives here a very practical input from the case studies. This thesis suggests a policy-intervention and some specific mechanisms to be used in the context of Fortaleza. This policy-intervention is based on the lessons from Consortium Urban Operations in São Paulo and from the incentive zoning developed on New York (Privately Owned Public Spaces).

The policy-intervention developed here has a main aim to increase the provision of public spaces in the city of Fortaleza although it has some others specific spatial objectives. These objectives are the implementation of public squares and parks; the refurbishment of public spaces (squares, parks, sidewalks, etc); the widening of sidewalks; or the opening of the block, searching for better integration of public and private domain.

Since it was already demonstrated the huge lack of public spaces, the city of Fortaleza needs urgently to find mechanisms to correct this failure. However, it is also clear that the city government has no financial means to promote the implementation of these spaces or even the refurbishment of the existing ones. In this sense, this thesis is suggesting to the city to take advantage of the private investment in order to make this improvement and use the already present legal urban instruments.

The municipality should define specific areas in the city where it can be applied the mechanism of incentive zoning, offering benefits such as additional floor area for the private developers, in exchange the private developers should pay for the development of public spaces. These areas should be the ones which there is interest from private developers to build, mainly represented by high dense built areas. In this sense, it can be guaranteed the involvement of them on the policy-intervention. The public government offers additional floor area for the developer in these areas, in exchange for the refurbishment or implementation of public spaces allocations but still not implemented, patly on the same area, and partly on other areas of the city, where there is a bigger demand for public spaces structure. For instance, the government offers incentives on the already growing sub-centralities of the city, and then the private developer has to pay this benefit on another area less privileged of the city *(see Figure 5.9)*. This payment could be done in money to be collected on a Municipal fund or even with direct services from the developers in order to build public spaces. This could be a very efficient way to take advantage of rich areas, very well developed and with huge private investment, to finance and implement

urban interventions on areas which the private investors are not willing to intervene.

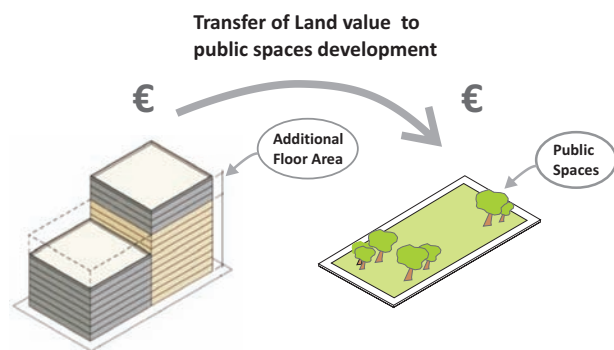**Transfer of Land value to public spaces development**

Figure 5.9. Scheme showing the use of incentive zoning to provide public spaces.

This policy-intervention would be legally possible using the so-called instrument Consortium Urban Operations. This is an instrument defined on the Brazilian legislation in order to turn the urban rules more flexible and engage the private investors on the public matters of the city, negotiating with them, but with the main objective to finance the public facilities development. Although this instrument was created to be applied to reasons such as urban regeneration processes, or implementation of big infra-structure projects, it can be also translated particularly to public spaces development.

The mechanism from Consortium Urban Operations originally establishes that the payment of the benefits given to private developers should be done on the same perimeter area of the building incentives. The New York case study also establishes the exchange of benefits on the same spatial location, specifically on the same plot area. This condition should be avoided in order to make possible to apply the benefits back to more deprived areas, which in general are not the ones where the incentives were allowed. The benefits offered to high-developed areas should not be returned to the same areas, but should be applied on much more demanding locations, helping to balance the distortions of development in the city and diminishing the effects of spatial segregation.

This policy-intervention is composed by specific elements such as a target group, main operators, legal instruments, public incentives and private paybacks. These elements are the ones which characterize the intervention and make possible to transform a planning intention into a spatial intervention. This thesis synthesizes the main elements as follows:

a) Main operators:

• Public government (Municipal level).

b) Target Group:

• Building developers.

c) Public incentives:

• Additional floor area building;

• Less taxation;

• Flexible urban rules, opening for exceptions;

d) Spatial objectives:

• Implementation of public squares and parks;

• Refurbishment of public spaces (squares, parks, sidewalks, etc);

• Widening of sidewalks;

• Opening of the block, searching for better integration of public and private domain.

e) Legal instruments:

• Consortium Urban Operations *(Operações Urbanas Consorciadas)* and Incentive Zoning *(Outorga Onerosa do Direito de Construir)*;

f) Spatial Location:

• Distinctive areas, with the possibility to apply the spatial objectives on a different spatial location from the public incentives;

g) Payment back from the private sector:

• Can be done in money, being directed to a Municipal fund, used to develop public spaces;

• Can be done directly in services, implementing or refurbishing public spaces;

h) Scale of intervention:

• Neighbourhood (since it involves one or few private developers)

• City scale public spaces (since it involves many private developers and a bigger area of intervention)

These elements compose a very important planning mechanism which can help the city to implement with private fund a huge amount of spaces already allocated as public spaces, on the city of Fortaleza. This mechanism will be tested against the Washington Soares spatial reality, on the next sub-section.

2.5. Testing the operational mechanism on Washington Soares sub-centrality

This thesis defined the mechanism described on the previous sub-section, as one of the ways to make the recommendations proposed more operational. Now, it will test the mechanism against the reality of the city, particularly using the sub-centrality of Washington Soares, in order to demonstrate how effective the implementation of this policy-intervention can be on the public spaces development of the city. However, this thesis is aware that this exercise is based on hypothetical calculations which were made according to actual definitions of zoning law and land-prices on the sub-centrality and the results might be not so precise.

In this sense, if we take the sub-centrality area and examine the last changes on the zoning law, it is noticed a change on the urban parameters *(see Maps 5.10 and 5.11)*. These changes defined an increase of the Floor Area Ratio (FAR) allowed in the zones which compose the sub-centrality. The problem is that the city just offered this new condition, which benefits all private developers with additional building area, without ask anything back from them. The exchange of benefits did not happen, only the private developer is taking advantage of the new parameters. The city just lost a great chance to use this condition given to private sector back to the development

Maximum Building Height = 48m
Maximum Building Limit = 2,0(x plot area)

Maximum Building Height = 48m
Maximum Building Limit = 1,5(x plot area)

Maximum Building Height = 15m
Maximum Building Limit = 1,0(x plot area)

ATLANTIC OCEAN

N

0   100   500
              m

Legend

Zone 1 (ZA 2.2-Land Use Plan 1996)
Zone 2 (ZA 4.1-Land Use Plan 1996)
Zone 3 (ZA 3-Land Use Plan 1996)
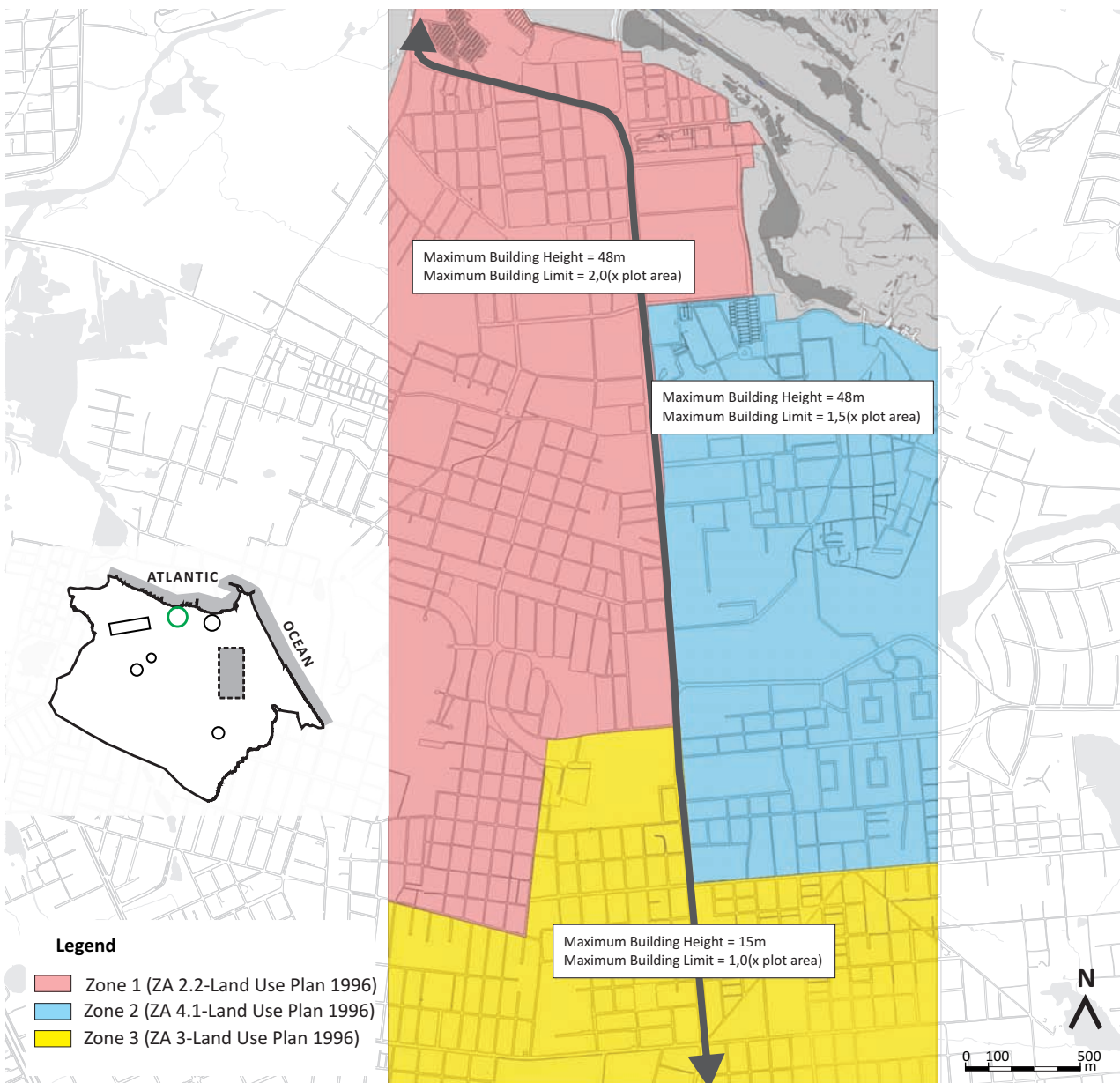
Map 5.10. Zoning regulations from 1996.
Source: Land-Use Plan 1996-Municipality of Fortaleza.

of public spaces. The exercise, which is evaluating this mechanism proposed, follows the question:

> *if the city would have applied the mechanism (based on Consortium Urban Operations and New York case) presented here what would be the benefits to the development of public spaces?*

The answer to this question is very clear: the exchange value of the additional floor given to private developers would make possible the implementation of all not-implemented public spaces existing in the area. This answer is demonstrated on this evaluation part.

First, it is necessary to calculate the amount of additional floor area defined by the new Land-use Plan from 2009 in comparison with the previous Land-use Plan from 1996. Looking at the new zones defined on the newest plan, it is possible to detect in some areas an increase from 2,0 FAR to 2,5 FAR. In other parts the previous zoning law defined 1,5 FAR going now to 2,5 FAR, or even from 1,0 FAR to 1,5 FAR *(see Maps 5.10 and 5.11)*. In this sense, if we define a perimeter where the additional floor area must be exchanged for the implementation of public spaces, and calculate how many square meters of additional floor does this perimeter offers, we can find an amount around **1,65 million** square meters of area. This amount is the potential additional floor area offered to the private developers simply for free, only on a defined perimeter of the sub-centrality of Washington Soares Avenue. This perimeter was defined according to the actual capacity on the infra-structure of the area and also following the

Maximum Building Height = 72m
Maximum Building Limit = 2,5(x plot area)

Maximum Building Height = 48m
Maximum Building Limit = 1,5(x plot area)

ATLANTIC
OCEAN

N

0   100   500
            m

Legend

Zone 1 (ZOM 1-Land Use Plan 2009)

Zone 2 (ZOM 2-Land Use Plan 2009)

Perimeter to apply Incentive Zoning
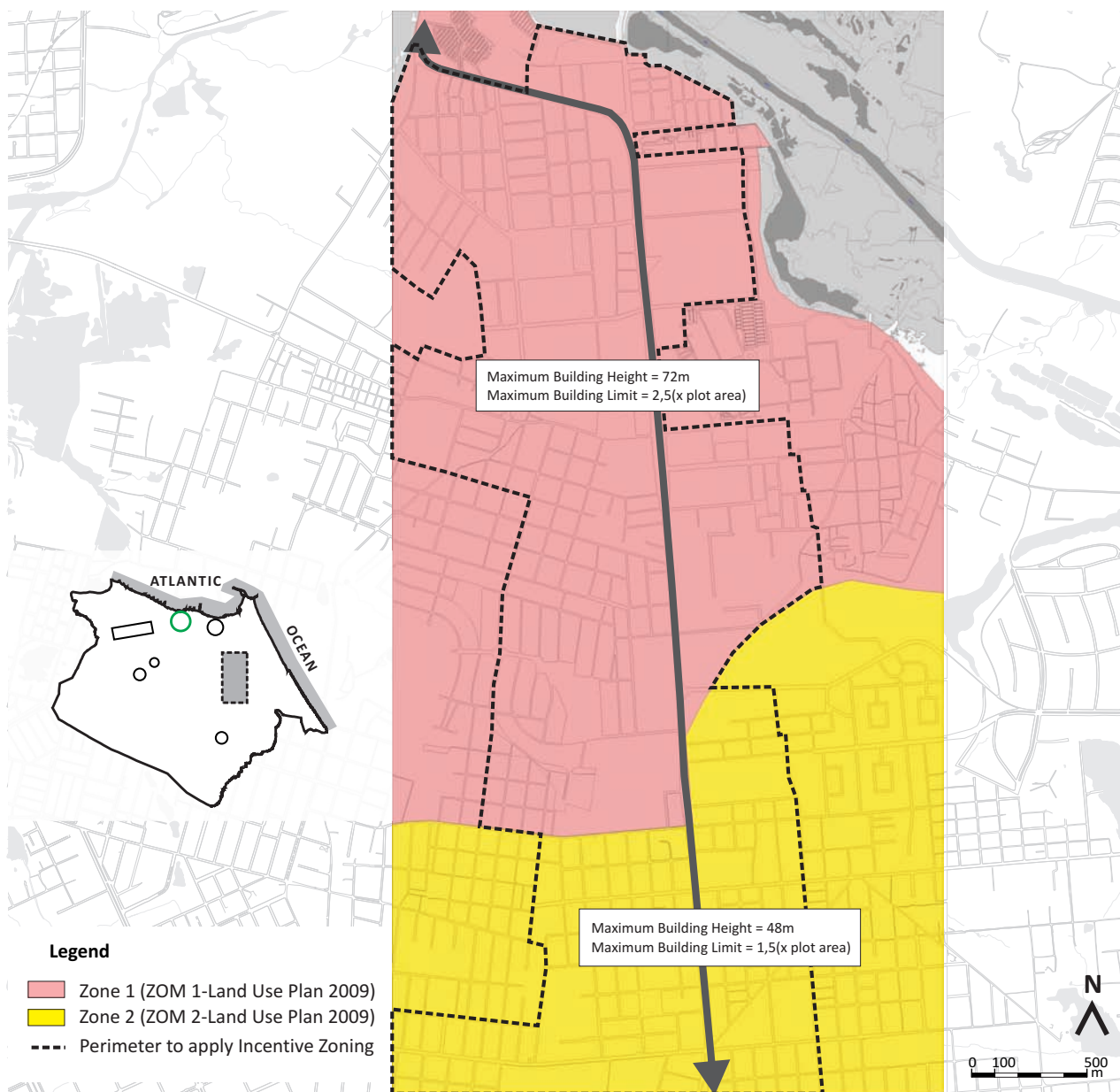
Map 5.11. Zoning regulations from 2009.
Source: Land-Use Plan 1996-Municipality of Fortaleza.

real estate actual tendency to densify this area included on the perimeter.

Second, based on the amount of additional floor area offered for the private sector it is necessary to define the amount of square meters of public spaces which should be returned to the city. Taking the example of New York, the relation used there is around 3 to 1. This means that for every 3m² of additional floor area given to developers should be returned 1m² of public spaces back to the city. However, due to differences on the land price between New York and Fortaleza (New York is much more expensive), the relation used on this calculation is **4 to 1**. Therefore, the amount of square meters which should be returned as public spaces is around **412,500** square meters *(see Figure 5.10)*. The most interesting fact is

that with this amount of public spaces would be possible to implement all the not-implemented public spaces existing in the whole sub-centrality and would be left still 82,500 square meter to be used on other areas of the city. The total area of not-implemented public spaces on the sub-centrality is now around 330,00 squares meters. The implementation of this policy-intervention only on this sub-centrality would offer to the city a potential value which would be able to finance many public spaces in the city.

Looking now on the capacity of this policy-intervention to really stimulate private developers to use this additional floor, it is necessary to calculate the financial rewards promoted by this operation. This calculation was made based on the average selling price of a square meter of
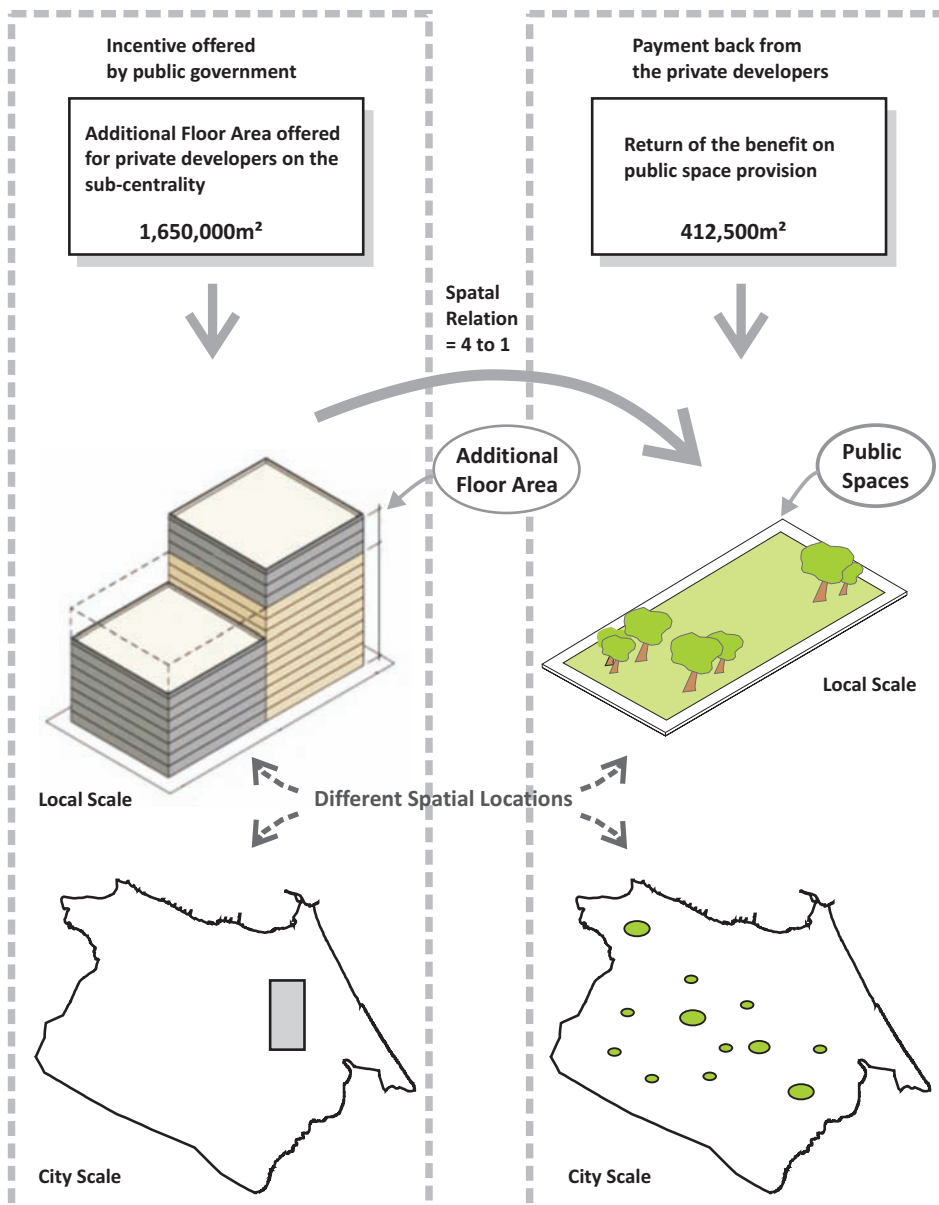
Figure 5.10. Scheme showing some elements of the mechanism proposed to promote public space development.

an apartment on the sub-centrality and the average costs to build a square meter of a public square. The average selling price of an apartment in practice by the real estate market nowadays, on the sub-centrality, is around € 780 per square meter, while the average costs to build a square is around € 39 per square meter. Therefore, the relation between these numbers is defined as 20 to 1. This relation defines a very strong financial incentive offered to the private developer, which even when it is deducted the costs to build one square meter of the apartment would define still a strong financial rewards to private developer around 12 to 1. For instance, the developer would spent €1 on the construction of the public square and would receive in return, through the real estate value of the additional floor area of an apartment, €12.

The spatial results of this policy can already be seen just if we take the sub-centrality and do a future scenario where all the public spaces not-implemented today, would be implemented by the use of this mechanism *(see Maps 5.12 and 5.13)*. This condition would be possible by the implementation of the policy-intervention described on the planning model, which takes advantage of private sector, shaping its interests to promote the public spaces development, helping with the financing of these interventions. There would be a considerable increase of public spaces provision, using private resources, and taking advantage of areas already allocated to be public spaces.

It is important to clarify that the results demonstrated here need a long term development, as it was explained

Legend

■ Actual Public Spaces

Map 5.12. Actual provision of Public Spaces in the sub-centrality.

on the item *"2.2. Phasing"*. The numbers represent the maximum potential of incentives, which would only be true after a very long time of implementation and just if the incentive offered to private developers by the policy-intervention would be sufficiently attractive for many time. Therefore, the results would not happen immediately but rather gradually along some years and depending on socio-economic context of the city development.

In respect to the quality of these spaces, it would be necessary to ensure the integration of them with the other functions around, as it was explained on the item *"2.3. Example of spatial requirements to help to increase public space quality"*. Therefore, the simple fact that there are new implemented public spaces is not enough to guarantee the quality of them. It would be necessary a study of all locations of these spaces first, and then define

if they are in a suitable location for a public space. If not, there is always a possibility to negotiate with private land owners to switch lands with government in order to provide a better public space location.

The impact of this policy on the city would potentially be very effective, providing the city with much more public spaces. It is important to talk about potential results, due to the fact that the calculations presented are considering the maximum use of the Floor Area Ratio for a specific perimeter area, which would require a huge demand for building development.

If it is translated this mechanism for the whole city, taking advantage of some other urban areas with high density development, there should be a considerable increase of the amount of public spaces in the city, particularly

Map 5.13. Potential provision of Public Spaces in the sub-centrality, after the implementation of the mechanisms proposed.

on the most demanding areas. The use of this kind of mechanism in the city would bring a great potential to reach effective results on public space development.

This mechanism defined here has clear relations with the category of recommendations which proposes to increase the public space provision in the city. However, this mechanism is also very much related with the other categories of recommendations, concerning the increase of public space quality and the improvement of governance model. For instance, there are some spatial requirements related to the quality such as integration with other functions and public transport; and there is also improvements on the governance model, since the private sector is directly involved on public space development.

2.6. Potential spatial results on Washington Soares sub-centrality (sub-centrality scale)

This part will continue the exercise done by the "testing of a mechanism" on the previous sub-section, showing other potential spatial results on the sub-centrality scale related to the recommendations proposed. It is developed a scenario where most of the recommendations are implemented. Besides the development of the "not-implemented" public spaces, the city would get city scale parks, defined by the transformation of natural green areas in huge recreational areas *(see Map 5.14)*. These city scale public spaces would have some major functions, which are: keep the function to work as a natural reserve, protecting important fauna and flora; be a crucial colector of drainage water for the raining

Legend

- Actual Public Spaces
- Public Spaces Implemented by the mechanism
- City Parks - using natural green areas

Map 5.14. Potential provision of Public Spaces in the sub-centrality, after the implementation of the mechanisms proposed + the implementation of city scales parks using the natural green areas.

seasons; create an identity to the sub-centrality; and also works as important recreational/sport area in the city.

Besides, if the *recommendation 4, 11 and 12* are implemented, the city would offer to its inhabitants much more quality to use the sidewalks and streets. These recommendations define the street network as important open public spaces, give better integration between public and private property and ensure design quality for the sidewalks in the city. In this sense, the Washington Soares sub-centrality could start developing improvements on some specific streets, particularly on the ones which are already interconnected to public transport, presenting mixed functions and also the major flows on the area *(see Map 5.15)*. But, what does this improvements means? It does means, for instance, the implementation of the defined spatial requirements for public space quality,

presented on the previous sub-section 2.3. These spatial requirements would create transition zones between public streets and private plots, would ensure minimum standards for vegetation, adequate wide of the sidewalks, and ensure the continuity of the pedestrian path.

Another great contribution originated by these spatial transformations derived from the recommendations proposed would be the creation of a public space network. These streets which received considerable improvements *(see Map 5.15)* are responsible to promote a network between the different public spaces on the sub-centrality, ensuring spatial quality on the links, in order to support existing flows and promote new potential flows. This network would also interconnect the different public space scales, since would integrate streets with public squares and city scale parks.

Legend

- ■ Actual Public Spaces
- ■ Public Spaces Implemented by the mechanism
- ■ City Parks - using natural green areas
- ▬ Streets with quality increase

Map 5.15. Potential provision of Public Spaces in the sub-centrality + increase of quality on specific streets which are receiving more flows.

There is another recommendation (*recommendation 03*) which defines public spaces using part of the huge amount of urban voids on the area *(see Map 5.16)*. These urban voids can be partially used as public spaces, and represents a strategy to interconnect different parts of the sub-centrality with small scale public spaces. However, in order to really create a continuous network in the area it is also necessary to expropriate few plots.

The use of urban voids in the city, in order to offer small scale public spaces to its population is part of the overall strategy to increase the provision of public spaces and also decrease the fragmentation of them. This provision would be possible through the use of similar strategy from the case study of New York. The private owners of the urban voids must be stimulated to offer public areas on the ground floor, by incentive zoning, less taxation or other means. The spatial results of this recommendation (*recommendation 03*) would enhance the public space network already in development by the other recommendations *(see Map 5.16)*.

The Map 5.16 shows a scenario on the Washington Soares sub-centrality which have the spatial results of several recommendations proposed. The recommendations used to do this scenario were: *recommendation 01, 02, 03, 04, 06, 07, 10, 11, 12, and 13 (see Table 5.1)*.

Legend

- 🟩 Actual Public Spaces
- 🟩 Public Spaces Implemented by the mechanism
- 🟩 City Parks - using natural green areas
- ▬ Streets with quality increase
- ▬ Public spaces using urban voids and some expropriations
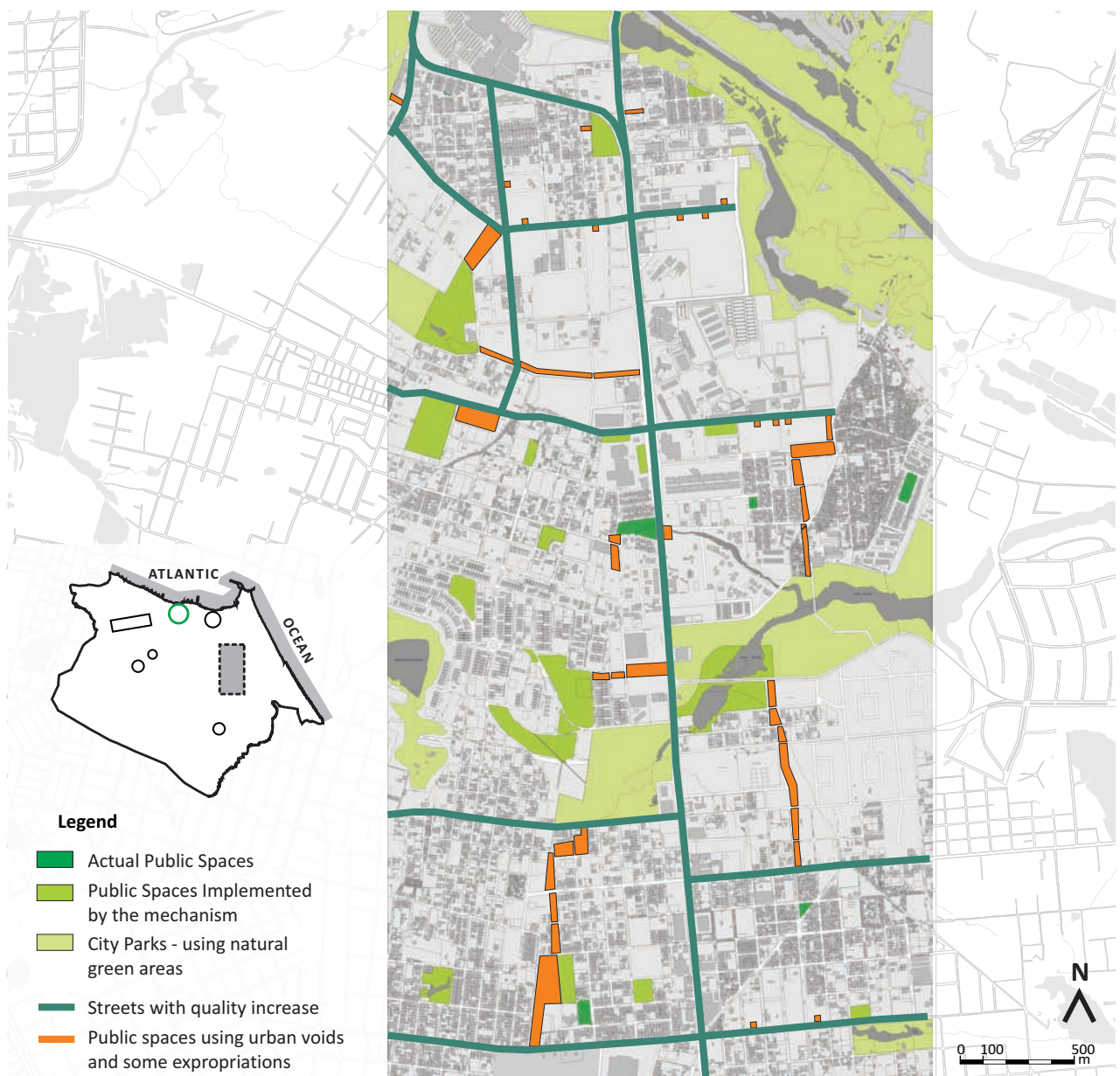
Map 5.16. Potential provision of Public Spaces in the sub-centrality + public spaces using urban voids and few expropriations, in order to increase the public space network.

2.7. Potential spatial results on a specific public square (local scale)

This sub-section continues the scenario execise, started on the previous sub-sections, but now focused on a very local scale. Some of the recommendations are tested against the spatial reality of a specific square on the Washington Soares sub-centrality. The Map 5.17 shows the location of the public square called "Praça das Lavadeiras", which is the one chosed to do a "reality check", demonstrating the spatial transformations defined by the recommendations proposed.

The square is connected to the main avenue of the sub-centrality and other three local streets. The connection with Washington Soares Avenue potentiate the attractivity of the square in the area. In this sense, the scenario change the main uses around the square, taking advantage of the Washington Soares commercial corridor and some other attractions on the surroundings *(compare Maps 5.18 and 5.19)*. It was defined a higher density of functions around the square, with more mixed uses and other functions different from housing. The location of this square is very favourable to this change. It is close to

the Municipal Forum, Universities and Shopping Centers, which means a great potential of users *(see Map 5.18)*. The transformation on the area can be activated with the changes of uses on the surroundings, which would define new flows through the public square, making it much more used and safe than now.

Another transformation in the area can come from the use of existing urban voids and some private land in order to enhance the public space network around the square.   For this, it is necessary to extend the square in the south and east direction, making use of private urban voids and some land expropriations. With this action, the square would be connected to the south part of the neighborhood and also would be integrated with the other side of the Washington Soares corridor. These connections do not exist today. The link with the east side can take advantage of the already existing pedestrian bridge over the Washington Soares Avenue *(see Map 5.19)*.
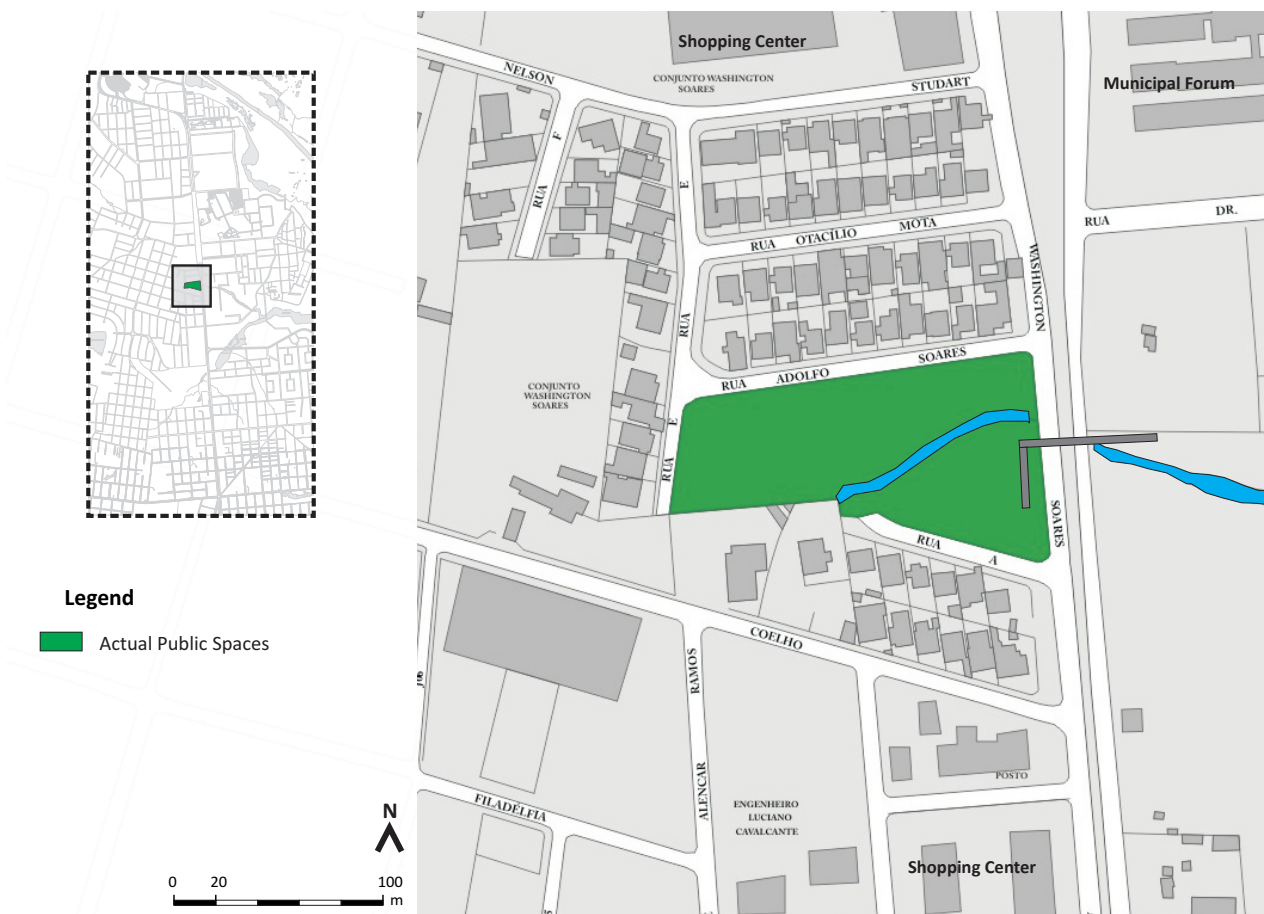
Map 5.17. Location of the public square called "Praça das Lavadeiras". Reality check on a local scale.

Map 5.18. Actual main uses of the surroundings of the square "Praça das Lavadeiras".

Map 5.19. Changes on the uses around the square and also an increase on the size of the square, create new links with other blocks.

Nowadays, the square is integrated with public transport just on the Washington Soares Avenue, but should be integrated with the extension parts proposed as well *(see Map 5.20),* since there are other bus lines passing through. This integration with the bus lines can enhance the attracivity of the square and its use, facilitating the access of users and stimulating the flows through the square.

Following the recommendations proposed, this scenario is also improving the design quality of streets and sidewalks. According to the spatial requirements examples, described on the sub-section 2.3, the design of these pulic spaces should promote better interaction between public and private property, should ensure shadow and confort for the users, should promote continuity of the path along the sidewalks and should minimize the conflicts with lampposts, trash bins and other furnitures. In this sense, many streets around the square need to have their sidewalks widened, in order to offer a minimum confort for their users. One possible solution for doing this is to reduce the car path in one side of the street, avoiding one parking lane, in order to make the sidewalk wider. This design solution would allow to have sidewalks with cycle path, vegetation and proper furniture *(see Figures 5.11 and 5.12)*.

Another intervention composing this scenatio is the definition of diverse uses also on the public square itself, allowing the implementation of kiosks, small snack bars, magazine stores, etc. These functions inside the square would be provided by small buildings strategically distributed along the square, directing the flows and attracting many users to the area *(see Map 5.21)*.

Another very important intervention derived from the recommendations proposed would be the implementation of better design on the public square. The new design must concern aspects like: address diverse kinds of people; ensure accessibility; direct important flows; provide quality to stay and to flow through the square; and also provide minimum furniture, shadow, facilities, etc.

These transformations applied on the public square *"Praça das Lavadeiras"* would increase considerable the spatial quality of the area, and in consequence increase the use and enhance the public space network on the sub-centrality. The scenario exercised on the *"Praça das Lavadeiras"* interpreted some of the recommendations

Legend

- Public Square
- Public Transport Lines
- Public Transport Stations

Map 5.20. Example of spatial integration of the square with public transport lines.

No quality to stay or to flow

Private Plot   Public Street   Private Plot
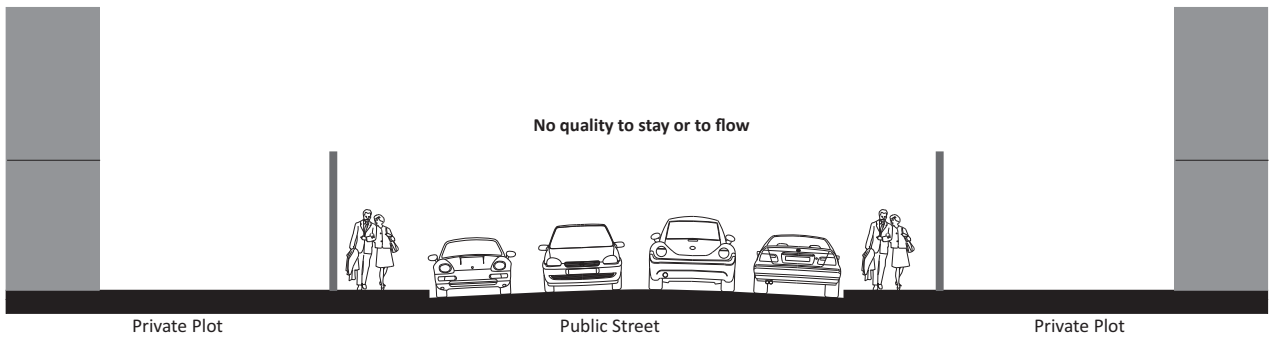
Figure 5.11. Cross-section of actual local street configuration on the surroundings of the public square *"Praça das Lavadeiras"*.

Better quality to stay or to flow

Private Plot   Public Street   Private Plot

TRANSITION ZONE   TRANSITION ZONE

Figure 5.12. Cross-section of a proposed profile for the local street network around the public square *"Praça das Lavadeiras"*.

Legend

Public Square

Buildings for other functions on the square itself

N

0   20   100
                 m

Map 5.21. Implementation of other functions inside the public square *"Praça das Lavadeiras"*.

proposed to the actual planning model. For instance, the scenario used private urban voids in the area in order to extend and integrate better the square with the surroundings. This approach is an interpretation of the *recommendation 03*. The *recommendation 09* is another one which was used on this scenario, creating a higher density of functions on the surroundings. Another recommendations used were the ones related to blurring the boundaries between public and private and to the increase of design quality fo the street network.

These transformations can be part of the strategy already explained before, which make use of planning mechanisms to finance public space development with private funds. The offering of additional floor to private developers could be paid back, for instance, with the refurbishment and extension of the "Praça das Lavadeiras"square and with its improvements around.
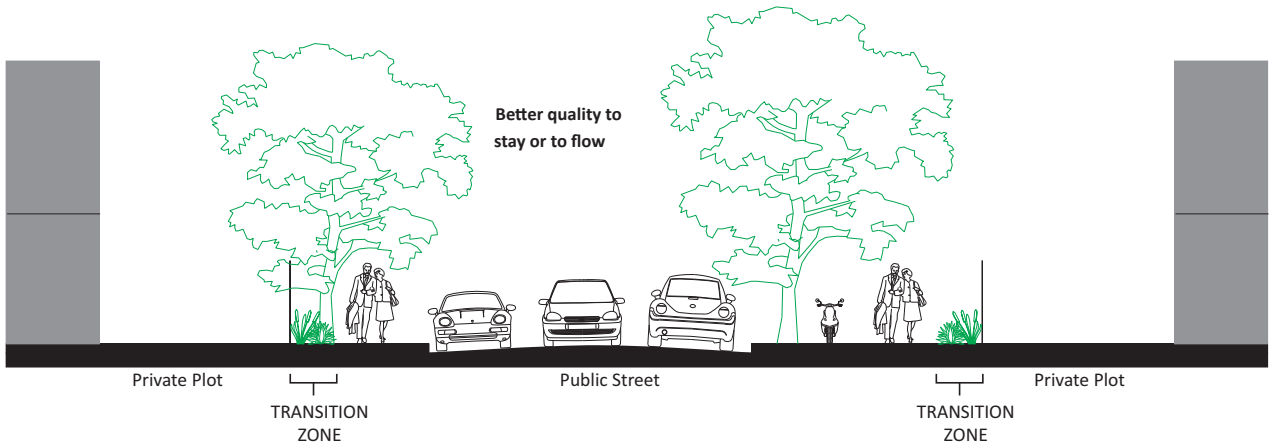
Research Question Answered:

How can planning instruments help public space to fulfil its defined role?

One of the main roles of public space is to work as an element of spatial integration, organizing flows, integrating people and functions and promoting activities for the population. Therefore, the answer to this research question is inserted on the recommendations proposed here to the planning framework of Fortaleza. The planning instruments are very important tools to help the city to promote the public spaces development. This thesis argues that the planning framework can promote an efficient public spaces network only if it integrates the public spaces with other policies, integrating them with public transport, and land-uses for instance. The planning instruments should also be able to ensure design quality, diversity of uses and users; to integrate the spatial and physical elements around; to answer people's spatial demands through time; to ensure maintenance and to avoid the neglect of public spaces importance by the main involved actors. Therefore, since the planning instruments are ensuring provision and quality on public spaces structure, it is, at same time, helping public space to fulfil its defined role.

CHAPTER VI
CONCLUSION

CHAPTER I	CHAPTER II	CHAPTER III	CHAPTER IV
- Problem - Approach - Aims - R. Questions - Relevance - Methodology	- Theory - Criteria for Analysis	- Current spatial conditions of PS - The role of planning on these conditions	- Example of Planning Mechanisms derived from Case Studies

CHAPTER V

- Recommendations to the planning framework
- Evaluation of recommendations

CHAPTER VI

- Conclusion

CHAPTER VI - CONCLUSION

1. THE MAIN QUESTIONS OF THE THESIS

2. THE DEVELOPMENT OF THE APPROACH

3. PLANNING RECOMMENDATIONS AS A RESPONSE FOR PUBLIC SPACES PROBLEM

4. MAIN BENEFITS OF THE PROPOSAL

5. MAIN LIMITATIONS OF THE PROPOSAL

6. FINAL REMARKS

1. The main questions of the thesis

This thesis, as the title already suggests, developed a research based on the concern to promote public spaces structure as an important element of spatial integration in the city. The main questions derived from this concern were related with the actual incapacity of public spaces, on the city of Fortaleza, to follow the fast pace of urban transformations and keep their major role to be an element to integrate the other physical structures, the flows of the city, the different functions, distributing people and goods, and at same time being the space for leisure and recreation.

In this sense, this thesis researched until which extent the urban planning framework of the city of Fortaleza, was contributing to the actual spatial and functional conditions of the public spaces. These conditions were characterized with very poor quality and a lack of sufficient provision of these spaces on the urban fabric. The findings confirmed the negative impacts of the current urban planning on the spatial conditions of public spaces. The urban planning on the city is actually being much more part of the problem rather than being part of the solution.

The analysis presented concrete spatial conditions and demands of the public space structure on the city, particularly on the sub-centrality of Washington Soares Avenue, showing problems such as lack of provision, derelict spaces, incompatibility of public spaces with the surrounding built form and infra-structure, as well as with the population. Although it was detected many negative aspects, the analysis also presented great potentialities on the area, which would facilitate the improvement of the current spatial conditions of public space structure.

Besides, the analysis pointed out specific deficiencies on the planning system of the city which are definitely contributing to the public spaces failure. These deficiencies are for instance: neglect of efficient quantitative and qualitative measures for public spaces development, such as the ones related to compatibility with density, functions and users of the surroundings; weak implementation means for policy-interventions proposed on plans, such as generic definitions, and no anticipatory behavior; fragmented and disintegrated governance structure, resulting on non-coordination between public spaces development and other city policies, among others.

The thesis researched the issues of the public space problem and defined them on a clear structure, showing the elements which are possibly being major causes for the problem. These causes are related to the socio-economic context, but also are related to design issues, regulatory tools, governance approaches and implementation actions of public policies. Besides, one of the causes is the common behaviour of people in general to neglect the importance of public space for the urban quality of a city.

2. The development of the approach

The approach of this thesis argued that the planning framework of the city is one of the major issues of public spaces problem in Fortaleza. Therefore, after understand the spatial conditions of public spaces in the city, it was researched the conditions of planning instruments for public spaces development. This approach was used to find the gaps and faillures on the planning system which need to be corrected in order to make this planning system able to promote the role of public spaces.

The criteria used to develop the analysis was extracted from the academic debate on public spaces issues and the principles of Spatial Planning. This criteria was carefully defined making use of the debate from relevant authors, from diverse contexts including Brazil, with the specific reality of Fortaleza, characterised by a city from Latin American country, which is epitomised by huge diversity and fast urban processes.

In this sense, the failures and gaps of the urban planning system in Fortaleza, in respect to public spaces, were detected and categorized according to three elements: regulatory tools, governance model and implementation actions. The understanding of these failures supported the definition of recommendations to counteract the problem.

3. Planning recommendations as a response for public spaces problem

After a clear understanding of the public space problem in the city, and the definition of the specific failures of the planning system in Fortaleza, the thesis defined several recommendations to the planning framework. These recommendations defined many improvements on the actual planning model for public spaces development, which is the main end product of this thesis. This planning model established twenty-one recommendations which were categorised on four main groups, according to their objectives: 1-Increase of public spaces provision; 2-Increase of public spaces quality; 3-Improvement of governance model; and 4-Ensuring implementation of actions.

After the definition of important recommendations for the planning framework of the city, this thesis defined some examples of practical actions in order to implement them. Besides, it was described the importance of the involvement of all actors on the processes of public space development and management.

In order to be more precise with some of the recommendations proposed, it was defined planning mechanisms, which would be able to make operational some of the recommendations defined for the planning model. In this sense, it was presented a mechanism which mixed the contributions of the case studies analysed, joining elements from incentive zoning and Consortium Urban Operations, characterized by a comprehensive approach.

This thesis also developed an evaluation of the recommendations proposed, which was a reality check against the concrete spatial reality in the city. This evaluation was done in two different scales: first, it was defined a scenario which the recommendations were applied to the Washington Soares sub-centrality, showing theis spatial results on this scale; second, a complementar scenario was constructed to check what would be the spatial transformations resulted from the recommendations on a local scale, particularly on a public square called *"Praça das Lavadeiras"*. These two scenarios showed that many of the recommendations proposed can be immediately implemented and would have very effective results on the increase of provision and quality on the public space structure of the city, taking advantage of the urban transformations already in process and joining forces with the private sector.

However, this evaluation showed that the implementation of the recommendations proposed must be understood as a long-term strategy. It needs to be developed in combination with many other actions explained before and by a multi-actors approach. In this sense, the recommendations proposed by this thesis are steps to be done in a strategy to reach better quality on the city life.

4. Main benefits of the proposal

In this conlusion part of the thesis one question should be answered: What are the benefits generated by the improvements proposed to the actual planning model of the city? The answer is already explained on the previous chapter, but it is here summarized on a more precise way. The proposals defined on this thesis are able to stimulate public space discussion on the city, which can activate people's concerns about the role of public spaces on the welfare of the city inhabitants; it involves different actors, searching for a balance of interests; which means that every single actor has a role and must contribute on the process, besides, it brings to public matters other sectors such as private developers; it defines planning requirements focused on the specific context of the city, which means that the recommendations proposed here were defined according to specific problems of the city and the strategy to implement them should follow local priorities and potentilities; the transformations derived from the implementation of the recommendations can increase the quality of life on the local scale and on the city scale, bringing much more spatial integration within the city.

And who are beneffiting from these transformations? For sure all the city actors will gain. The inhabitants receives much more spatial quality on the city, with better public spaces to recreate, to circulate, to practice sports, to live; the private developers receives much more valorised land to sell; the government get financial help from private sector and community associations, besides receives a much more attractive city to live and to visit.

5. Main limitations of the proposal

Although the proposal developed by this thesis have clear benefits to the city and its actors, it also has some limitations on the approach. This thesis is aware on the fact that it is focusing only on planning instruments,

which are not the only responsible for the success or failure of public spaces. The intention is to offer to the city better conditions to develop its public space structure, but knowing that this is only a step toward a goal which needs to be combined with other interventions in order to be entirely successful. The recommendations proposed by this thesis are composing a process and not a single action, therefore it requires a long-term strategy and other relevant actions, in order to reach its goals. The approach developed here will not "solve" the public spaces problem, it is just one important step to counteract the actual failures of the public spaces planning system, offering more effective instruments to develop a public space structure able to exercise its role.

6. Final remarks

This thesis did not extinguish the possible debate about the relation between planning instruments and spatial results on public space structure, but it provided a crucial understand of specific issues from the public space failure on cities such as Fortaleza. However, there are still some questions which arised during the research process which need to be addressed by further research. Some of these questions are:

1- How can urban planners convince the planning bodies, community and private sector about the positive capacity of public spaces to promote clear improvements on the city and about its capacity to promote concrete benefits to all of them?

2- What kind of mechanisms can be used to promote the engagement of community on the financing, development and management of public space structure?

4- Besides the example mechanism proposed by this thesis, are there any other alternative to shape the private interests in order to promote public spaces development?

These are some of the questions which are not part of this research scope, but which are very much related to the discussion developed by this thesis. The search for their answers would give an enormours contribution to the debate on public spaces planning, complementing the results produced here.

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