

# EXPERIENCING THE URBAN GREEN SPACE

An exploratory study of visiting behaviour, perceptions  
and preferences in the urban green spaces of São Paulo, Brazil





## Experiencing the Urban Green Space

An exploratory study of visiting behaviour, perceptions and preferences in the urban green spaces of São Paulo, Brazil

In fulfilment of the requirements for the Master's thesis in:

Sustainable Development - International Development  
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## Executive summary

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In an ever more urbanising world the role of urban green space is crucial to maintain and enhance the quality of life in cities. Green spaces provide cities with a flexible instrument to adapt to climate change, they encourage social interaction, community identity and promote an active lifestyle, green spaces generate local employment and increase property values and urban vegetation shapes a city by providing it with a natural and historical structure. Apart from these functions, urban green space is a venue for events and a place where people recreate, escape from everyday stress and routine, meet other people, and where children play in a natural environment. This recreational function of urban green space is explored by profiling the green spaces and their users in the metropolis of São Paulo, Brazil.

Through time, recreational patterns evolved from hunting games in palace gardens to shopping malls and theme parks. The use of urban green space for recreational purposes was initiated when the rural society turned into an urban-industrial society that lost the connection with nature and so the first public parks and gardens emerged in the nineteenth century. Today, outdoor recreation is influenced by a general trend of health and well-being and this is reflected in the increase of eco-tourism destinations and the presence of joggers in city parks. The ways in which urban green space is utilised is related to socioeconomic factors and to the physicality of the green space in question. Women for example, are found to engage more in walking, meeting friends, playing with children and enjoying the landscape whereas men prefer to exercise or play team sports. Men are also found to visit parks more and likewise young people dominate urban green spaces in São Paulo. Persons with higher incomes have the possibility to travel further in search for a green space to their liking and this makes that the green space public can be very park specific. The most common transport means are the car and a large share of the park visitors comes on foot, in particular in smaller parks that welcome predominantly visitors that live in the same area. The longer people travel, the longer they stay and the more infrequently they come to the green space. In the studied parks in São Paulo most people visit the park once or multiple times a week and their main reasons are to be in contact with nature and to relax. Sports are also a popular reason and it is mostly running, cycling and playing soccer which is done by male visitors of urban green spaces.

An interesting aspect of urban green space utilisation and perception in São Paulo is the influence of the socioeconomic context. Green spaces in more deprived urban areas are being perceived as less well-maintained, less safe, offering fewer leisure facilities and play and sport equipment is of a lower quality. Education and income levels are related with the activities of park users, the means of transport they use, house, garden and car ownership, the time of the day that people visit the park, and with the way in which people perceive the offer of urban green spaces on the city level. The latter is also influenced by people's nature experience seeing that people who grew up in a big city are more eager to encounter nature in the green spaces than people from villages do. Altogether, the visitors, use and perception of urban green spaces in São Paulo varies substantially, for a large part due to socioeconomic characteristics and to physical green space elements.

Recommendations that can be given to green space designers, planners and managers are related to the number of green spaces, their distribution, the range and quality of available leisure equipment and activities and to safety and maintenance issues. Green space policy needs to be better informed about the people who use urban green areas, about the neighbourhoods in which they are located or will be created, about the recreational demands of current and future users and about the functionality of existing green spaces as it often happens that parks and other managed green areas are being perceived as inadequate in certain aspects and green space managers need to be informed about that through park councils but also by establishing contacts with the actual users of urban green space. Only then the use of urban green space will increase and the quality of life for urban residents can be sustained and enhanced.

## Preface

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When I look back at the times when I as a child was feeding the ducks and watching the deer in a city park in my hometown, these memories contain a certain feeling of happiness that only arises when I am in a green, open and natural environment. It can be described as a feeling of freedom, of unlimited space and time that makes you want to run around smiling and makes all other feelings disappear. During travels and five years of living in other countries it seemed to me that this feeling is universal, but I also noticed that the possibilities for experiencing such a feeling are not equally divided over places, that urbanisation has decimated the availability of green space, and that not everybody is in a position to reach green areas. This realisation is the main reason why I chose to write my Master's thesis about urban green spaces and their users.

Underlying report is written as to fulfil the final requirements for the Prestige Master's programme Sustainable Development – International Development at Utrecht University. It contains an exposition of theories regarding urban green space and the results of a field research that has been performed in São Paulo, Brazil. Urban green space is a research field gaining importance at a time in which sustainable development, green cities, renewable energy, ecosystem services, biodiversity, corporate social responsibility and many more 'sustainable' thoughts and topics are juxtaposed with a continuing increase of the world's population living in cities. In addition, global climate change makes that national and local governments need to rethink current spatial planning and design of the urban areas where a majority of the people live, where jobs are generated, identities are shaped and where the heart of their economy beats. Urban green spaces are essential elements of the urban structure that are indispensable for a city bearing in mind the function of urban green space in biodiversity conservation, social cohesion, image building and aesthetic attractiveness, environmental education and in protecting cities from the impact of climate change. With a focus on the social dimension of urban green space and a field study carried out in a South American metropolis this report aims to deliver a substantial contribution to the interdisciplinary field of urban green space research.

## Note of appreciation

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My gratitude goes out to all the persons in São Paulo who have been willing to support this study by sharing their thoughts, opinions and experiences with me: green space users, residents, park managers, policy makers and academics. I wish to thank Gery Nijenhuis from Utrecht University who agreed to be my supervisor and guided me through this research project. Gery counselled me during the thesis process with frequent meetings and quick responses to my questions, she provided constructive comments and helped in particular with regard to the working method and planning during the writing process. In Brazil I received guidance from Wagner Costa Ribeiro from the University of São Paulo whose support in the start up phase of the research project has been especially helpful. Professors from the University of São Paulo whom I am very grateful for their contribution to the topical content of this work are Vladimir Bartalini and Demóstenes Ferreira da Silva Filho. In the field I received great support from Frederico Jun Okabayashi who works at the Municipal Secretariat of Green and Environment (SVMA) and who thought me most of my knowledge of the green areas of São Paulo. Fred showed me various urban parks, natural areas and took me to interesting meetings – together with Fred I also wish to thank Julia, Guilherme and Newton. Carlos Roberto Fortner and the entire SVMA have enabled me to visit and research the parks of São Paulo. Furthermore, I would like to thank all park administrators that supported my research and informed me about the ins and outs of their parks: Roberto Rosa in *Villa-Lobos*, Felipe Frascarelli Pascalichio and Fábio Pellaes in *Carmo*, Heraldo Guiaro and Helena Quintana Minchin in *Ibirapuera* and Rodrigo Bisanson Cavalin in *Pinheirinho d'Água*. Finally, I am very grateful to Fernanda, Odete and Otavio who welcomed me in São Paulo, made me feel at home and make that I look back at my stay in Brazil as a very pleasant and happy period. *Obrigada*.

*Marthe Laura Derkzen*

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## Section One





# 1 Introduction

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Underlying thesis is the outcome of a research project performed as part of the final stage of the Research Master in Sustainable Development - International Development at Utrecht University. The study has been performed under supervision of Dr. Gery Nijenhuis from International Development Studies, Utrecht University and received support from the University of São Paulo and São Paulo's municipal government. The research project concerns the topic of urban green spaces and city parks in particular. Visiting behaviour, perception and preferences of urban green space users have been explored in the Brazilian metropolis of São Paulo and current report contains the study results. Hopefully the findings will contribute to a better understanding of the user viewpoint related to urban green spaces, and also to the body of knowledge at Utrecht University, São Paulo University, the São Paulo city government and possible other organisations.

## 1.1 Problem definition, aims and objectives

Urban green spaces are vital city assets. They contribute to the quality of life and are essential to attract residents, visitors and businesses. Since the perceived quality of urban green areas is highly dependent on the valuation of its users, it is important to be informed about their visiting behaviour, perceptions and preferences. When known to what degree the current green spaces correlate with users' preferences green area planning and management can take up this information in order to increase user benefits. Nonetheless, there is a lack of urban green space research that combines the ecological setting with the academic fields of sociology and geography. This research project responds to the need for more in-depth investigation after the interrelations and factors affecting peoples' differentiated visiting behaviour, perceptions and preferences regarding urban green spaces.

The theoretical aim of this study is to explore the visiting behaviour, perception and preferences of users of urban green spaces and identify factors that influence these. The applied aim is to inform policy (planning, design and management practices) concerning the user functionality of urban green spaces. The objectives of the research project are as follows:

- Explore who makes use of urban green spaces and construct a user profile;
- Characterise the visiting behaviour of urban green space users;
- Explore peoples' perception of urban green spaces and nature in general;
- Better understand people's preferences for urban green spaces;
- Analyse factors that influence peoples' use, perception and preferences regarding urban green spaces;
- Make recommendations for planning, design and management of urban green spaces, based on the study results.

In order to fulfil the above objectives, the following research question guides the study: What factors influence the visiting behaviour, perceptions and preferences of urban green space users and to what extent can the planning, design and management of these areas increase user benefits?

## 1.2 Relevance for science and society

The relevance of this research project is both scientific and societal. Scientifically, current study concerns three dimensions of urban green space research that are underrepresented, namely the social aspect, the context of the Global South and that of fast-developing cities. The societal relevance embodies a better understanding of urban green space user behaviour, perception and preferences which can inform management and design, leading to enhanced user functionality, social interaction, community identity and a general improvement of a city's quality of life.

### *Scientific relevance*

Studies concerning urban green space can be seen as an element within urban ecology, an interdisciplinary research field that studies the improvement of people's living environment. Going beyond the monetary focus and analytical methods of environmental and ecological economics, urban ecology stands out with research that is problem-oriented and that has proved to be highly valuable in local and regional planning (Baycan-Levent, Vreeker & Nijkamp, 2009).

The scientific relevance of this research project is threefold. First of all, the research project aims to uncover the behaviour, perception and preferences of urban green space users. It goes beyond the ecological and economic functionalities of urban green spaces and tries to reveal its function and meaning for different social groups. Priego, Breuste and Rojas (2008) suggest expanding cross-social research in the field of urban green spaces and Lo and Jim (2010, 2012) indicate that there is a need for better understanding of public perception towards urban green spaces. Secondly, the research project is set in Brazil. Priego, Breuste and Rojas (2008) point out that there is a lack of knowledge regarding urban green spaces and their utilisation in the Global South. Just 17.7 per cent of the urban landscape studies originate from the Global South, and only three per cent come from South America. Thirdly, the project uses case study sites in the city of Sao Paulo. Qureshi, Breuste and Lindley (2010) state that there is a demand for research into green spaces in fast-developing megacities since such studies have not been performed in the past few years. Taken together, different urban green specialists indicate the niches in urban green space research and thereby make a clear case for a study as intended by this research project. The project aims to gather data and generate knowledge within three areas that are currently lacking attention: the social dimension, the Global South and fast-developing cities.

### *Societal relevance*

The societal relevance of this research project is high, since the project has a specific focus on the social aspects of urban green spaces. With an urban environment that is constantly changing (Qureshi, Breuste and Lindley, 2010, p. 284), research into the social dimension of this environment is crucial for retaining a city's quality of life. Seeing the many benefits that urban green spaces can have for city dwellers, it is important to investigate the user functionality and perceived quality of urban green. Better knowledge of people's behaviour, experiences and preferences can aide urban planners and decision makers in designing and managing the city and help them live up to sustainability ambitions such as the Agenda 21 or Millennium Development Goals. This is confirmed by Baycan-Levent, Vreeker and Nijkamp (2009, p. 193) as well as by Tyrväinen, Mäkinen and Schipperijn (2007, p. 6). The research project can also lead to a better understanding of how to improve the quality of life for all residents, regardless of their socioeconomic and cultural background, and discover potential ways to increase social interaction and community identity. When the outcomes of the proposed project are taken into account in urban planning policies, residents will benefit in various ways. Park design can be adjusted to better fit users' needs (Lo & Jim, 2010, p. 430) and new initiatives such as ecotourism can generate jobs, capacity for neighbourhood improvement and be used for environmental education (Cohen & Da Silva, 2010).

### 1.3 Urban green space: a brief introduction

Urban green space denotes all the green space existing in a city, from a tree lined avenue to an urban forest. The research project focuses on those green spaces that are of a substantial size, are accessible to the public and of which the function is primarily recreational. Green spaces that meet these criteria are above all city parks.

Urban green space is gaining increased attention from urban planners and within academic debates. The importance of the availability and quality of urban green spaces is acknowledged and taken up by city managers as green space is found to contribute positively to residential satisfaction and place identity. The benefits that urban green spaces bring to a city make a long list of social, ecological, economic and aesthetic functions. Green spaces offer a location for leisure activities and sports and promote community identity, they generate ecosystem services such as a reduction of air pollution and water retention, and green environments boost up property values, structure neighbourhoods and give a city its unique character.

#### *Urban green space in research*

An evaluative study by Bentsen *et al.* (2010) of contributions to Urban Forestry & Urban Greening, a leading scientific journal principally focusing on urban green space research, reviewed eight years of green space studies in order to improve the journal's future content. From the review it appeared that with regard to the type of green space, research papers covered urban parks much less compared to overall green structure, woodland and trees. The reviewers state to be surprised that as little as 3.8% of all articles predominantly focus on urban parks. Moreover, Bentsen *et al.* found that a dominant share of contributions originates from Europe and North America, and that little is known about the social dimension of urban green space. Academic research has mainly covered the physicality and management of green spaces, leaving studies with a behavioural and social focus underrepresented. The few studies that consider the social side mostly investigate the recreational use of green spaces without asking people about their motivations, perceptions and preferences. Or it happens the other way around, as is the case with a study of Tyrväinen *et al.* (2007) who acknowledge that the understanding of residents' social values and meanings regarding urban green space is limited, though refrain from linking these social values to actual behaviour.

Current research project attempts to relate differentiated patterns in visiting behaviour to socioeconomic indicators as well as to public perceptions and preferences regarding urban green space and hopes to come across factors that influence those. Priego *et al.* (2008) are one of the few who touched upon the topic and found that people do not use urban green in a similar way, but that green space use depends on socioeconomic status. Although hardly researched, the differentiated visiting behaviour and perception of urban green areas is very interesting, especially when combined with a study about the underlying factors. This report contains such an interdisciplinary study, and what is more, the study is not performed in Europe or North America but in the metropolitan city of São Paulo, Brazil.

## 1.4 The Brazilian setting

This study is set in Brazil, the largest and only Portuguese-speaking country in South-America and the fifth largest country of the world by geographical area as well as population. The reasons why Brazil is chosen as a research location is explained here. First, Brazil is one of the emerging economies; a country in transition that is exceptionally dynamic. Together with the other BRIC countries (Russia, India and China), Brazil is expected to become one of the most dominant economies by 2050 (Goldman Sachs, 2009). The country's large labour pool and its mounting export rates make that Brazil is the world's eighth largest economy already. Still, Brazil ranks 73rd out of 169 on the Human Development Index (UNDP 2010), indicating that national economic growth does not automatically coincide with human development on the local level. Brazil knows quite some inequalities both between rural and urban areas and within cities, making it an interesting scene for the research project proposed. Socioeconomic and cultural differences are expected to play a major role in the ways in which city dwellers use and perceive urban green spaces and in what they prefer in these areas. Another interesting feature for this research is Brazil's rising middle class (Goldman Sachs, 2010, p.1), which could lead to people having increased time and resources to engage in recreational activities, thereby accelerating the demand for urban green spaces. In that case, knowledge of the preferred features and functionality of urban green spaces is very useful.

A second reason is Brazil's green reputation. On the one hand, the country is infamous for the large-scale deforestation in the Amazon rainforest and its share in global greenhouse gas emissions. On the other hand, Brazil is the world's second bio ethanol producer (Hofstrand, 2009) and the cities Curitiba and Porto Alegre are often brought up as examples of sustainable cities. A more environmentally conscious mindset seems to be developing and cities start to acknowledge the importance of urban sustainability. The Agenda 21 has been adopted by the state of São Paulo (Secretaria de Estado do Meio Ambiente, 2002) and the metropolis itself is an example of a city with growing attention for the environment seeing that it recently developed twenty one green initiatives and aims to increase its number of parks from thirty two in 2006 to one hundred in 2012 (De Mello-Théry, 2011; Raub, 2009; Secretaria de Estado do Meio Ambiente, 2011). Such developments indicate a growing interest for environmental sustainability and 'urban greening', offering an interesting context in which to perform this research project. Especially the example of São Paulo offers appealing possibilities for studying the functionality, perception and preferences regarding urban green spaces.

**Figure 1.1** Map of Brazil with São Paulo located in the southeast



Source: Intermarine, 2006



## 1.5 Report structure

Eight chapters structure this thesis, of which the current Introduction is the first. This chapter serves to inform about the research motivation, aims and objectives and to give a first glance on the topic of study, urban green spaces, and the Brazilian context. Chapter two provides the theoretical foundation of the research project and includes a discussion of leisure, recreation and urban green spaces in science, resulting in a conceptual model. Following is a third chapter that reveals the research questions and explains all facets of the chosen methodology: research design, sampling, data collection, analysis, location and case study selection. A profile of the research area, which extends from the city of São Paulo to the selected case studies, is given in chapter four in order to illustrate the area in question. The fourth chapter also gives a sketch of the development of and policy related to urban green spaces in São Paulo. The report gets to the research findings in the fifth chapter, where a thorough analysis is provided of data obtained in the field. This chapter is based upon the research questions and constructed around different research variables, comparing the studied cases with each other, searching for relationships and explaining factors, and relating the findings to theory. Chapter six frames the research findings in a synthesis and points out factors that influence park use and perception, plus a number of policy and management recommendations. Finally, this leads to drawing the conclusions and an answer to the main research question in chapter seven. Chapter eight serves to discuss the research project in relation to the literature and proposes further research possibilities.



## 2 Literature review and theoretical framework

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The world is becoming a place for the urbanites. More than ever cities determine life on earth: cities are home to more than half of global population; they are the engines of economic growth; cities are major producers of art, culture and social values; and above all cities are the principal reference to a country's image and global position. And more than ever these changes occur in developing and emerging economies. In such a context it is not surprising that city design, planning and management are being reviewed, not only because the unprecedented growth of cities brings along negative side-effects such as slums, spatial segregation and environmental degradation, but also because policy makers, planners and academics come to see the city as an environment that bursts of opportunities – economic, social and cultural ones. Urban growth leads to a growing urban surface and this means that a city surroundings endure a constant pressure from urban sprawl (UNFPA, 2007). One consequence it that especially in large metropolises urban dwellers become increasingly alienated from nature. The time is now for recognition of the ecological opportunity of cities. One reason is the threat of global climate change which makes realise that something has to be done to enable a continued existence and growth of cities. The State of World Population 2007 report gives a list of possible climate change impacts for cities: "...changes in average and extreme temperatures, or in the intensity and length of seasons, can have a significant influence on such things as economic activities (...); productivity of workers; use of urban space for social interaction; comfort index; water supply, distribution and quality; and energy demand" (UNFPA, 2007, p. 63). Renewed environmental awareness has led to a growing interest for sustainable building practices, renewable energy solutions, innovative transport systems and other solutions for a 'greener' society.

In the same line urban green space has been moving up on the political and academic agendas. On a large scale, urban green space can contribute considerably to adaptation measures for climate change seeing its functions for water retention and temperature control and it plays a major role in biodiversity protection – something else that is gaining increased attention both globally and locally. On a smaller scale, urban green space is found an important contributor to residential satisfaction and place identity, and to the general quality of life. Green space offers a location for leisure activities and promotes community identity, raise property values, structure neighbourhoods and give a city its unique character. Functions of urban green spaces are social and cultural, ecological, economic, educational and aesthetic and much discussed in academic literature.

The main literature related to urban green space is reviewed in this chapter. First of all, a definition of urban green space as used in this report is given. Section 2.1 presents an overview of the development of urban green space over time from the first imperial gardens to Ebenezer Howard's garden city. The second section provides a theoretical overview of the services urban green spaces offer at present time to people, cities, ecosystems and the economy. Third is a literature review of studies regarding recreation theories and the changes in recreation patterns over time, including a future outlook. In a fourth section the various recreational uses of urban green space are discussed. Finally the chapter sheds light on theories of landscape perception, appreciation and preferences.

### *A definition of urban green space*

For a definition of urban green space a clear understanding of the main terminology is essential. With urban space is meant the open space existing between and among the built space in a city. Urban open space exists of what Swanwick *et al.* (2003) in James *et al.* (2009, p. 66) call 'grey space' and 'green space': "Grey space is land that consists of predominantly sealed, impermeable,

'hard' surfaces such as concrete or tarmac. Green space land, whether publicly or privately owned, consists of predominantly unsealed, permeable, 'soft' surfaces such as soil, grass, shrubs, trees and water". Where the term urban green space is employed in this study, it follows the definition of Swanwick *et al.* (2003) for 'green space'. Furthermore, the term 'urban' denotes that the green space is located in an urban environment, i.e. in a city. This study confines itself to urban green space that is accessible for the public such as landscapes squares, green corridors, parks and woodlands. Gardens and other private green areas are excluded from the research.

## 2.1 Urban green space in a historical context

From a nomadic way of life, large parts of the world transformed into agricultural societies in which people still lived in close relation to nature. Along with the Industrial Revolution a wave of urbanisation confronted rural societies in Europe and northern America, changing those into urban-industrial societies. Other societies followed soon and continue to transform (Bartalini, 1999). Urban planning and design structure, of which green space is part, is closely related to developments in architecture. The first examples of public open space in urban settlements are found in ancient Greek cities around 400 BC where the Agora served as a communal gathering space in the open air. In Roman cities high-rise buildings and water systems were constructed, and the first private gardens emerged there by 100 AD. In Islamic cities houses were secluded from the outside and within private domains the dry climate made that canals and fountains became installed. Medieval cities were small with irregular streets (e.g. small streets in Paris) and encircled by defensive walls wherein unadorned squares served for trade and exhibitions, whereas castles were built with extensive symmetrical gardens (Caesar de Andrade, 2006).

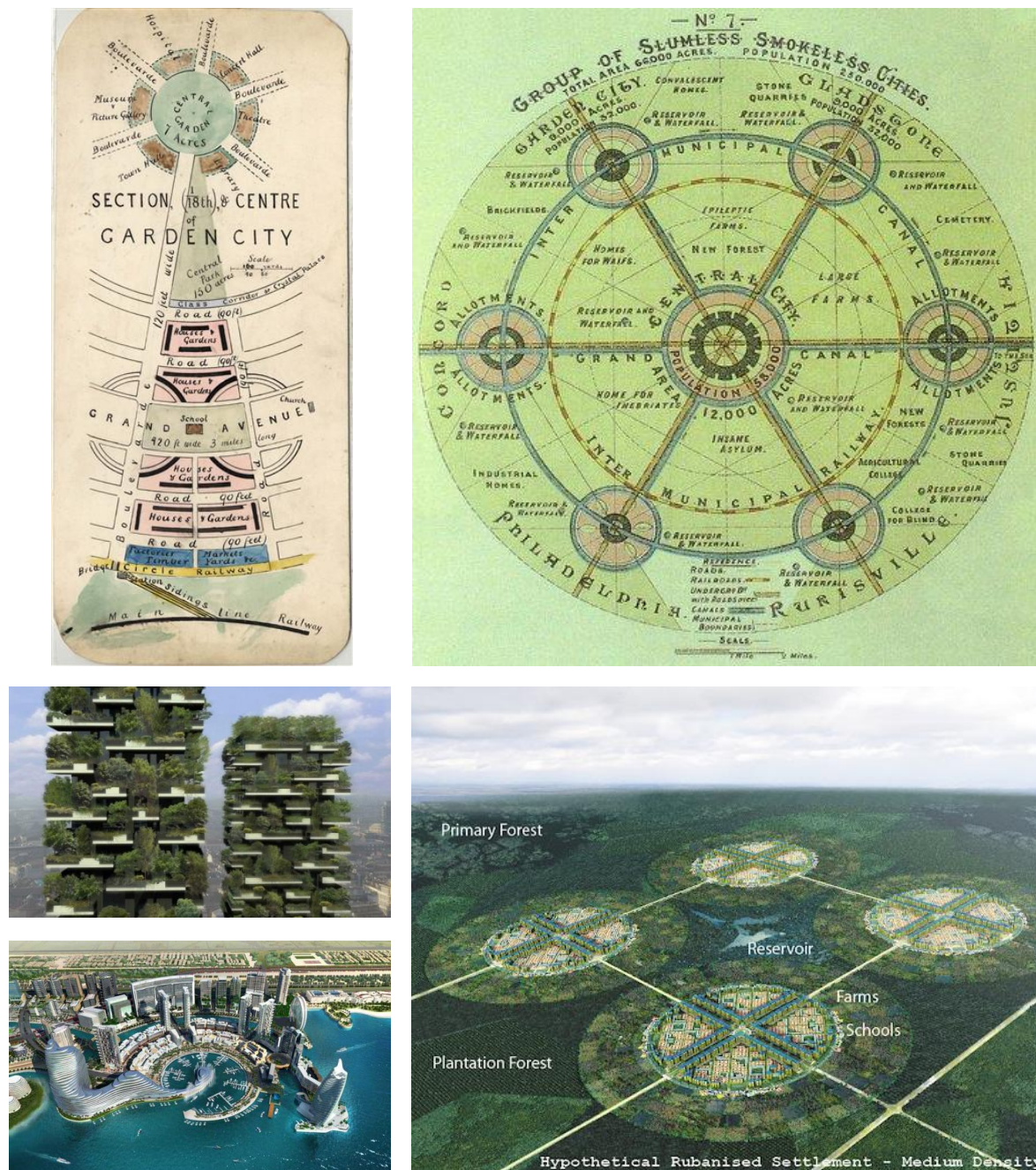
Symmetry was still fashionable during the Renaissance in which commerce, arts, and science evolved and wide avenues characterised the city and gardens such as those of Versailles. The commercial city developed further in the industrial era when the first megacities arose and together with urban growth also violence, poverty, dirt, pollution and segregation<sup>1</sup>. But the Enlightened view of nature as a source of beauty and recreation brought nature back into the city by the creation of open spaces that served for beautification of the city (Konijnendijk, 2008). During this age it became fashionable to mould nature, visible in the many shapes given to trees; triangular, round, square, and build the typical tree lined avenues that originate from Parisian urban design in the time of Haussmann and his garden architect J.C. Alphand (Leupen *et al.*, 2005, p. 152). Washington is built after the same idea of straight lines, parks and large streets with trees that should open up landscapes when walking through them, inspired by L'Enfant who gave great importance to public open spaces in city planning (Bednar, 2006). Another step further are the Garden Cities of Unwin and Parker in the nineteenth and early twentieth century that consist of numerous yards and courts and were inspired by attention for the human scale in architecture and the wish to create "a new, healthful community with good housing for the less well-off on the edge of London. [...] Unwin felt that the physical form of street and building layouts directly influenced social behaviour and the well-being of the community." (Southworth & Ben-Joseph, 2003, p. 50-51). In the same line lies Ebenezer Howard's famous work 'Garden Cities of To-morrow' from 1902 in which Howard lays down his theory that health and industry can coexist and that the natural surroundings or rural belts should become natural elements incorporated within the city, and accessible to all (Southworth & Ben-Joseph, 2003, p. 51-53). Howard's ideas for a new urban form are depicted in Figure 2.1, jointly with contemporary interpretations of the Garden City that exemplify a growing interest in green and sustainable building and overall city planning.

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<sup>1</sup> Information obtained during a lecture in Urban Forestry by Prof. Demóstenes Ferreira da Silva Filho at the Superior School of Agriculture in Piracicaba, State of São Paulo



**Figure 2.1** Designs from Howard's work 'Garden Cities of To-morrow' and modern interpretations



Sources clockwise, starting with the top left image: Jordan, 2010; Mieterschutzverband, 2012; The Green Leap Forward, 2009; Green Cleaning Ideas, 2011; Schipfer, 2012

Various European architecture and design movements have been applied to tropical cities, and parks have been strongly influenced by colonial landscape design which is visible in the use of flower beds, water bodies, wide views and ample lawns (Abendroth *et al.*, 2012). Brazilian examples are the parks in Curitiba and university campuses in Piracicaba and Rio de Janeiro which are designed following English and French landscaping styles and Eclecticism. Brasília, the capital of Brazil, has been designed in the 1960s in a completely Modernist style<sup>1</sup>. As is the case with many contemporary cities, São Paulo is a multifaceted city in which people work, live and recreate but which experiences an increasing segregation in the intra-urban space. Children used to play in the streets but today the fluxes of people outside of their homes and offices are getting smaller and smaller, a phenomenon that Demóstenes Ferreira da Silva Filho, professor in urban forestry at the University of São Paulo, calls the “alienation from the city”. His research



describes the function of trees and urban green space in the recovery of urban landscapes plus touches upon green space services such as air filtering, temperature and humidity regulators and sun absorbers – his work is thereby a clear example of the way in which urban green space is approached presently, namely as a valuable contributor to every facet of a modern urban society and an essential element in the ecological, social and economic urban structure.

## 2.2 Functions and services of urban green space

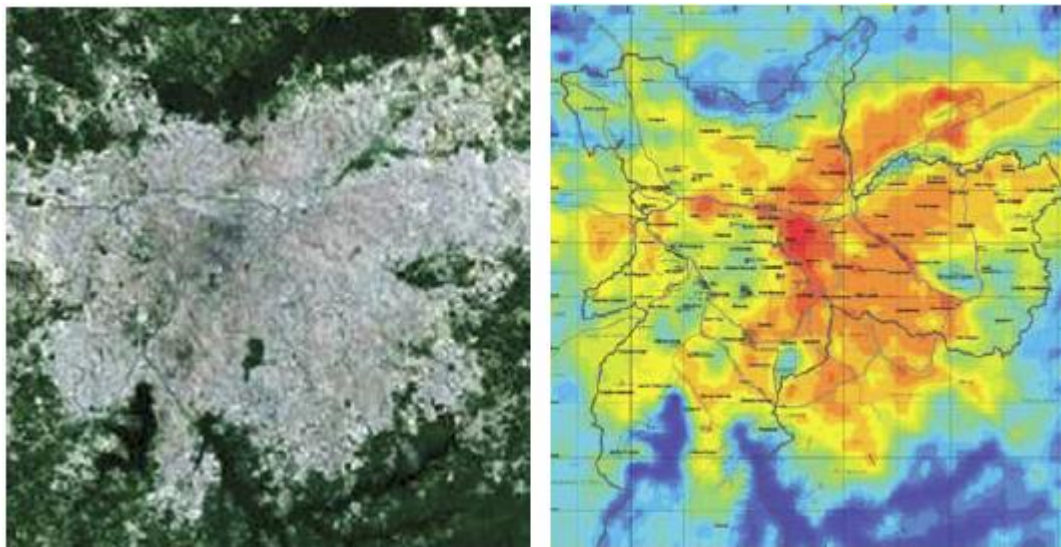
According to Bartalini (1999) who wrote the first comprehensive research about municipal parks in São Paulo, urban green space boasts three main functions; the first is beautification of the city, the second supplying citizens with recreational spaces and the third is environmental. In the years after his research and after the UN Conference on Environment and Development in Rio de Janeiro in 1992, the services that urban green space provide have been studied more intensively and led to a number of papers regarding the ecological, social, economic and planning and design function of green space, mostly from Europe, North America and increasingly also from China. Current section will discuss the main literature on the subject of each green space function, starting with the ecological function.

### *Ecological function of urban green space*

Ecological and environmental services of urban green space are substantial and proved to have a positive impact on ecosystems and human liveability. Urban green improves air quality, abates noise, sequester carbon dioxide, creates sustainable drainage systems, prevents soil erosion and has positive energy effects on the local scale which reduces costs for heating and air-conditioning (Baycan-Levent *et al.*, 2009; Lo & Jim, 2010; Tzoulas & James, 2010). Such functions are particularly beneficial in large urban agglomerations such as the one of São Paulo in which air and noise pollution are incalculable and where an ‘urban heat island’ exists. Temperature differences between a metropolis and neighbouring rural areas can be as big as twelve degrees Celsius, within the city temperature diverges between one and five degrees where the lowest measured temperatures are found in green spaces (Spangenberg, 2007, p. 56). Research proved that the larger a green space, the larger is its capacity in temperature reduction. But also on the neighbourhood level significant differences exist, as is proved in São Paulo where deprived residential and former industrial quarters with little green space, if any, to the east of the city centre show higher surface temperatures than the green ‘Garden Neighbourhoods’ in the south-west (see Figure 2.2). The contribution of green space to urban thermal comfort is considerable.

Furthermore, numerous studies found that urban parks conserve and increase biodiversity, provide a habitat for wild life and support the protection of natural resources (e.g. by Anwar & Breuste, 2008; Priego-González de Canales & Breuste, 2008, p. 44-48; Reyes Päcké & Figueroa Aldunce, 2010). Oishi (2012) sees the recent attention for urban biodiversity preservation as a logical consequence of the high rate with which urban flora and fauna are disappearing. Urban green spaces play an essential role in maintaining the typical green character and structure that shape a city’s identity through so-called ecosystem services. Examples of such services are the spread of plant species through pollination or the function of green areas as habitat and genetic reservoir for plant and animal species. Another ecosystem service is a green space’s regulation function which Baycan-Levent *et al.* (2009, p. 197) explain as a function that “moderates the impact of human activities by absorbing pollutants [...], releasing oxygen and improving the urban climate”. Thus apart from the intrinsic value urban green spaces hold for the human and natural system, green space provides indispensable services for a continuation of the presence of nature within urban agglomerations and a healthy living environment.

**Figure 2.2** Land use in São Paulo and the resulting urban heat island



Source: Spangenberg, 2007

### *Social function of urban green space*

The social functions of urban green space make a long list of subjects ranging from health and recreation to social inclusion. Benefits that urban green spaces have for society start with the improvement of people's health and well-being by being a resource for physical activity, a place where mental fatigue is restored and where stress and mortality levels are reduced (Maas, 2008; Schipperijn *et al.*, 2010). Anwar and Breuste (2008, p. 111) add that parks provide a sense of peacefulness and tranquillity and that they may enhance contemplativeness and Lo & Jim (2010) mention green space's function in allowing people to have more contact with nature. From the societal viewpoint urban green space offers benefits related to the development of community identity, and social inclusion and cohesion (McCormick *et al.*, 2011; Peters *et al.*, 2010). A sense of belonging develops when urban green space inspires local customs and supports those by providing a venue for celebrations and events with cultural ties, an illustration is the Cherry Blossom Festival held each year in a park in São Paulo for the commemoration of Japanese immigration to Brazil. Place and community identity is also created by urban green space in its function as a social meeting point. Being a public place where people are free to interact with each other, green space is an arena where all cultures, classes and ages come together and it serves as a mirror of a city's diverse population (Baycan-Levent *et al.*, 2009).

The recreational function of urban green space is embodied by creating a setting for sight-seeing, events, recreation, play and sports. Generally, together with the aesthetic attraction of urban green the recreational value is the main appeal of green areas to residents. Green spaces are a refuge from the congested city where people can escape their daily routines and give over to play and leisure (Konijnendijk, 2008). Urban green space also boasts what Baycan-Levent *et al.* (2009) call a 'substitution value' in that they serve as an alternative option to leisure clubs, gyms, and cultural podiums for people who are not in the position to visit such places, for instance because they do not have a car or because of limited financial resources. For persons living in flats or apartments, green areas can serve as alternative gardens and this is much seen among the student population who leaves for the park as soon as the first hot spring day shows itself. An aspect that is perceived as less positive is that public green space also acts as a place for illegal or criminal activities and as an overnight stay for the homeless (Lo & Jim, 2010).

A final social value of urban green space that is endorsed by many studies is their role in the promotion of healthy lifestyles and support of environmental conscience and education (e.g. in Tzoulas & James, 2010; Priego-González de Canales & Breuste, 2008; Tyrväinen *et al.*, 2007).

Sports are increasingly seen as essential in everyone's life for living the new ideal of a healthy lifestyle that originated in the growing number of diseases of the rich such as heart and vascular disease, diabetes and lung cancer – diseases that are caused by wealthy lifestyles and are most evident in the so-called developed societies (Walsh, 2009). The facilities that green spaces offer encourage outdoor physical exercises as they enable urban residents to sport in the open air and conduct an active lifestyle of which their health will benefit (Lo & Jim, 2010). Next to health, information and an orientation on ecology are key pillars of current societies and this is reflected in the use and perception of urban green space. Konijnendijk (2008, p. 87-90) points out that recreation is becoming more nature-based and urban green areas start to feature nature playgrounds, mountain bike tracks and off-trail hiking, adventure games and GPS-led hikes. Finally, the educational value of green areas is increasingly exploited by community centres, environmental education courses and nature associations that organise activities with nature and the environment as a subject for children. Recent studies show that nature is becoming a more and more distant concept to children; that children today are unable to distinguish an oak from a birch tree and that they believe that yogurt grows from trees. In his book *Louv* (2005) names this phenomenon the nature-deficit disorder and links an absence of nature in children's lives to the rise of obesity and depression among the youngest generation. Environmental education aims to raise natural awareness and teach city children about nature, about life on earth and about sustainability – and urban green spaces are a suitable place to facilitate this.

### *Economic function of urban green space*

As is often the case, research after the economic functioning and value of urban green space started well before other dimensions of urban green were researched. Rodenburg *et al.* (2001, p. 107-110) distinguish three economic dimensions of urban green space, starting with the utilisation of green space. People visit a green area for their daily walk, to jog, to have lunch and to meet people and, preferring green spaces above other places, they choose to spend their time and money on reaching and staying in the green area that offers a multitude of recreation options. The use of urban green space has positive effects for welfare and quality of life.

Better measurable are the ecological, or production and employment functions of urban green space that may lead to economic gains, for instance on the community level where temperature moderation, run-off retention and dust filtration can lower the costs for households and the municipal government. A temperature difference of five degrees Celsius can substantially lower the costs for air-conditioning and the permeable soils of green space reduces flood risk and the costs of repairing, rebuilding and insurance claims (Baycan-Levent *et al.*, 2009). The natural produce of urban green areas such as wood, young trees and compost and the capacity for energy production also represent a market value. Moreover, management and maintenance of green space generate local employment and a work load for planners and policy makers, plus for related facilities such as bicycle hire and catering services (Rodenburg *et al.*, 2001).

A third economic dimension consists of educational institutes and places that are used for nature education such as petting zoos and school gardens, and workshops and courses that are organised in urban green areas. Green space itself can also be the subject of study, in research areas such as geology, environmental economics, human geography, urban forestry, environmental and landscape planning or genetics. For centuries, botanical gardens have been important study objects and a place for academic research experiments (Rodenburg *et al.*, 2001).

Finally, urban green spaces have proved to increase property values and neighbourhood attractiveness. Anderson and Cordell (1988) performed a study after the relationship between housing prices and landscaped gardens and found that the number of trees is positively related to the selling price of properties, meaning that a house with more trees in its yard will sell for a higher price and will lead to higher tax revenues for the local government. Another direct economic value that can be gained from urban green space are the revenues from tourism, as it is proved that the presence of green space is closely related to the attractiveness of a city for locals as well as outsiders, and urban green spaces also possess the power to attract businesses



and institutions that wish to be associated with a natural environment (Anwar & Breuste, 2008; Priego-González de Canales & Breuste, 2008, p. 52).

**Figure 2.3** Salesman in Ibirapuera Park and bicycle rental store in Villa-Lobos Park



### *Planning and design function of urban green space*

At last, urban green spaces boast a number of design and planning functions that are worth mentioning from various viewpoints. Urban nature defines the city structure and gives a city its identity by conveying its own aesthetic, historical and cultural image. Like many other cities, São Paulo was founded during colonial times so that the first gardens and parks have been designed after European fashion, and by now this colonial green structure is part of local history and identity (Abendroth *et al.*, 2012). It provides the city with a unique landscape and character to distinguish itself from others, something that is of key importance for a city's success in global competition (Anwar & Breuste, 2008; Nadal, 2006). A park like Central Park in New York is a symbol of the city's ambitions and national status and Gaudí's park Guell is the personification of art and culture from Barcelona that become 'one' with the city and are determinative in the profiling of cities for tourism and for attracting the innovative and creative class. Likewise, the wide, tree lined avenues of Paris and the *Palais de Versailles* are shapers of Parisian and French identity and international position as a ruling power. The competitive value of urban green space can boost the appeal of a city for working, investment, living and tourism (Baycan-Levent *et al.*, 2009).

Then, urban green space is a key element in spatial plans that shapes the urban landscape and defines the city structure. The aesthetic attraction of urban green landscapes contributes to the quality of life and helps people to orientate within a city, not only in place but also because green spaces are an indicator of time, for instance through their representation of seasonal change and by embodying a natural, cultural and historical museum that preserves local heritage for next generations. Another function of green space is to moderate negative urban characteristics by functioning as a windbreaker and buffer zone for noise in residential neighbourhoods, as an instrument to separate or pull together distinct quarters, as a buffer to protect homes from an unattractive view and to provide shelter from the sun in hot climates to save on energy use, and a green belt around the city can prevent further urban sprawl (Baycan-Levent *et al.*, 2009). All these applications of green space are common parts of urban planning and design strategies.

**Figure 2.4** Urban green space as a visual buffer



Source: Biotope City Journal, 2012

### *Urban green space as an important contributor to the quality of life*

Whereas ecological functions are inherent to green space, social, economic and design functions have developed over time together with the development of cities. Urban growth and expansion have led to a renewed appreciation of nature in many parts of the world – nature is juxtaposed to the densely built and noisy city and seems to have achieved an almost nostalgic status in a time that people have a desire to feel connected and be in touch with nature (Konijnendijk, 2008, p. 16). Within the city urban green space is mainly used as a place for recreation and relaxation, however, it also fulfils less visible but highly important functions as an identity shaper, place maker, habitat provider, temperature regulator, instrument in planning and design, educational and therapeutic landscape, promoter of health and well-being and as a community linker. It is clear that the presence of green areas in an urban environment enhances numerous aspects of the quality of life.

### *Research dimensions that need attention*

The exposition of functions and services of urban green spaces for ecology, people, economy and city planning shows that these are quite well researched and by now reasonably well understood. James *et al.* (2009) developed a research agenda for urban green space and found that dimensions that are currently lacking attention are the physicality, experience, valuation, management and governance of urban green space. Underlying research focuses on the visiting behaviour, perception and preferences of urban green space users and thereby attempts to contribute to the second missing research theme, experience. The results of the study are expected to contribute as well to a better insight into the planning, design and management process of urban green space.

Subsequent sections narrow the focus to a review of literature with regard to recreation theory, the utilisation of urban green space, and landscape perception.

## 2.3 Leisure and recreation theory

Recreation has not always been as common in our lives as it is today. Capitalism, the industrial revolution and urbanism created new ways for people to relate to time and space, work and nature. Where leisure time used to be a luxury good that only the privileged layers of society enjoyed, the transformation from a rural to an urban-industrial economy made that leisure time became part of the life of the common man. Rest, family life and work don't mix any longer as they used to in rural societies, as the time to work and the time to rest are strictly separated now, creating free leisure time. The increase in working hours led to a fight for reduction of the workday and annual leave. Free time becomes a social and institutional problem, requiring action from institutions such as the state and the bourgeoisie who realised that the new industrial society led to a degrading relationship between workers and nature. Their social conscience resulted in the proliferation of public green areas and together with government strategies in an increase in programs, spaces, equipments and studies about leisure and free time (Bartalini, 1999). Today the leisure and recreation sector continues to expand as can be concluded from household expenses for recreation and culture and from the growth of hotels and restaurants (Williams & Shaw, 2009, p. 329).

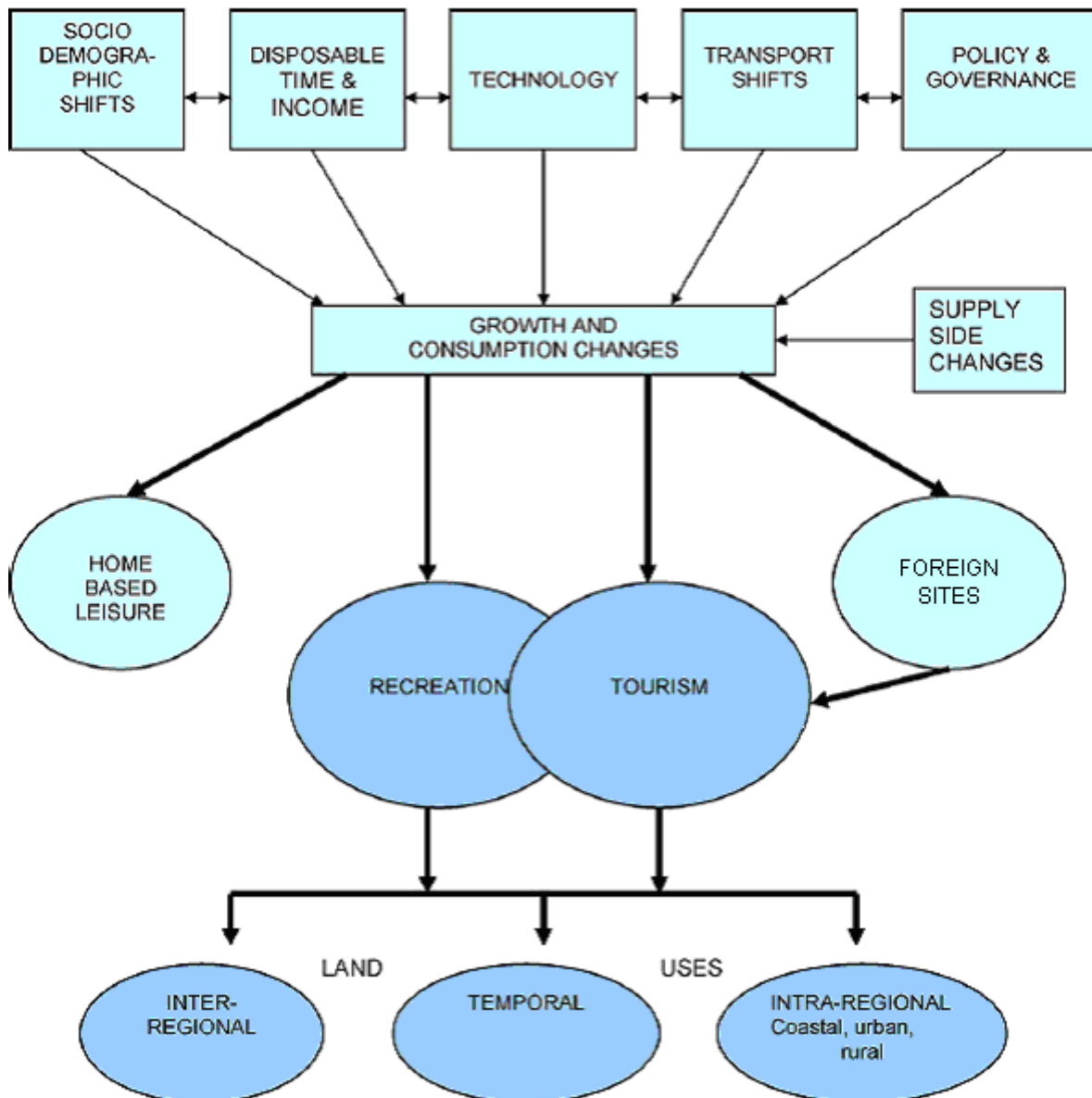
### *Leisure and recreation in science*

Since that time the interpretation of leisure and recreation, and also of tourism – the three are generally discussed together, has changed continuously. Whereas the academic interest in tourism and travel patterns was established long ago, research concerned with leisure and recreation have been very limited until after 1945 even though the importance of leisure was growing rapidly. In the 1960s a geography of leisure and recreation is evolving, mainly in Germany and mainly with a focus on the impact of outdoor leisure activity on the natural environment and it needs until the 1970s before geographers and planners start studying recreation patterns in an urban setting – where leisure is consuming space theorists attempt to create a framework in which to place and explain recreation patterns, leading to a definition of the geography of leisure that is later criticised for being too functional and individualistic. New insights by Eggeling in 1982 contest the power of leisure demand and individual choice by stating that the supply pattern of leisure is much more the result of land use policies and land speculation. In the 1980s leisure theory is complemented with an international branch, new insights from social and culture studies, a focus on young people and on the aging population (Jansen-Verbeke & Dietvorst, 1987).

The general belief today is that recreation determines land use but that recreation is also determined by land use. Williams and Shaw (2009) visualised the drivers shaping recreation and tourism activities and resulting land use patterns in a framework that is widely applicable, stressing that relationships between recreation and land use patterns are not uni-causal. As is illustrated in Figure 2.5 the five drivers are socio-demographic shifts (e.g. household composition, migration), disposable time and income (e.g. reduced workweek, paid holidays), technology (e.g. home-based entertainment, GPS), transport shifts (e.g. car, low-cost airlines), and policy and governance (e.g. governance of the public good, urban regeneration) and together with changes on the supply side these drivers influence the changes in growth and consumption. Since the mid-1980s consumption preferences for leisure and recreation were shaped as shopping malls, theme parks, adventure seeking and outdoor activities, nature recreation, ecotourism and historical and cultural leisure options – recently technological innovations and an interest in health, sports and well-being have been added to the list. Growth and consumption changes influence the location and time spent on recreation patterns and thereby the recreational land uses. Day recreation continues to primarily take place locally and not far from people's home leading to a concentration of recreation places and activities in urban areas, whereas domestic tourism shows different preferences through time for coastal, rural or

urban places. In the UK, coastal recreation has diminished in attractiveness and rural recreation such as hiking, farm and eco-tourism has become more popular, which can be related to the present attention for health and well-being. In cities traditional recreation sites have been complemented with heritage and cultural recreation places that take the form of festivals and museums, but also a new interest in former industrial sites. Recreation patterns show a particular temporal dimension that is increasingly short as higher incomes, time flexibility and modern transport means enable people to plan more trips and do so with a higher frequency (Williams & Shaw, 2009).

**Figure 2.5** Main drivers of recreation and tourism land use



Adapted from: Williams & Shaw, 2009

### *Emerging trends*

Leisure is a socially produced concept and very much related to societal change and development (Bartalini, 1999). This makes that the future trends in leisure and recreation can be read from emerging patterns in production, consumption, governance, innovation and increasingly also global trends such as a rising awareness for the environment and ecological



matters, and the attention given to climate change. Williams and Shaw (2009) provide a list of future trends that are expected to influence recreation patterns:

- Uneven growth of disposable time and incomes: uneven distribution of disposable time by gender, age, social class and ethnicity, and a halt of increasing incomes due to the 2008 recession may have polarising effects in recreation patterns;
- Incorporating new technologies into recreation: entertainment devices (mobile phone, internet, camera, GPS) that can be used en route, and personalised recreation activities that may lead to more individual and spatially diffuse recreation patterns;
- Policy and governance: managing public goods and externalities: land use pressure will increase the need for partnerships between leisure actors, government and community
- Tourism and recreation in the face of climate change: changes in climate can be a pull or push factor and change spatial recreation patterns, temperature rises can trigger cities to invest in urban green space, iconic landscapes can become altered and degraded, and climate change can lead to reduced mobility due to higher transport costs;
- Ageing: growing silver-segment recreation: the older generation of today has increased longevity, is more healthy and active which can lead to a growth of their participation in cultural and heritage visits, walking and nature recreation;
- Transport; carbon-conscious travellers?: environmental awareness may lead to an increase in ethical and sustainable recreation, but it is unsure how people will respond to price changes or adjust their recreational habits;
- Changing consumption preferences: couch recreationists or sporting heroes?: internet and technology results in a growth of self-service recreation by gaming and searching for leisure and holiday options from home, however the healthy lifestyle trend counters this development in part with people that search for active leisure time.

### *Worldly differences*

Leisure and recreation patterns have not developed in a same way across the world. Leisure in the form of shopping malls, adventure activity, museums and health centres, watching television and eating out is typical for wealthy urban societies where people work from Monday to Friday and generally have the time and financial resources to spend on recreational activities. In urban societies with less time and money to spend the recreation pattern may look quite different. Research into the recreation patterns and the influence of socioeconomic and demographical changes on such patterns in developing and emerging economies is currently lacking. Focusing on recreation in urban green spaces, the bulk of green space studies from non-Western countries are from the growing economic power China where city planning is of major importance to guide the country along its rapid development path (e.g. Chen, Adimo & Bao, 2009; Chen, Bao & Zu, 2006; Jim & Chen, 2006). Other studies are from India (e.g. Chaudhry, 2011), South Africa (e.g. Ward, parker & Shackleton, 2010), Kenya (e.g. Rabare, Okech & Onyango, 2009) and Brazil (e.g. Cohen & Ferreira da Silva, 2010), however a common factor is that recreation or the actual use of green space is not the studies' main focus. Most studies seem to relate to economic valuation, management and governance or perceptions of urban green space and concern emerging economies, something that can be explained by their rapid urbanisation trend and growing investment in urban renewal and upgrading to counter negative consequences from urbanisation such as slum development, environmental pollution and falling safety perceptions (Chaudhry, 2011, p. 70-71).

The next section explores the utilisation of urban green space by local residents and also shows a lack of studies from developing countries, plus it adds that studies in large urban agglomerations and metropolises are almost nonexistent.



## 2.4 Utilisation of urban green space

Urban green space boasts a variety of possible uses: utilitarian, recreation, education, research and so forth of which the recreational use is most commonly known and valued in today's city life. Urban green areas are used by people to spend their leisure time in, ranging from the place to have a quick lunch or work break to the venue of a sports or music event. Lo & Jim (2010) name a number of green space visiting purposes: while away time, breathe clean air, exercise or stroll, enjoy the peaceful ambience and relax, enjoy the natural landscape, chat or gather with friends, take children to the playground and enjoy the cool environment. The use of urban green space has not always been as such. Before the Renaissance and Enlightenment periods broadened society's view on green spaces as places of beauty and recreation; natural areas were seen from a purely functional use – the elite started to use parks as their hunting grounds and later on parks became part of the mansions of high society where recreation used to go hand in hand with livestock keeping. Gradually on, landscaped green space and with those recreation became available to the urban working class (Konijnendijk, 2008). Today, policies are shaped to increase the use of urban green space since a stay in natural environments has proved to work positively for people's health and well-being (Schipperijn *et al.*, 2010).

### *The recreational use of urban green space*

A recreational use of urban green space is foremost found in urban parks (Konijnendijk, 2008, p. 14); planned and designed inner-city areas with a dominant green structure that is landscaped for beautification and for the provision of recreational amenities such as spacious lawns, woody patches, lakes, playgrounds, jogging trails and in bigger parks sport and cultural facilities. The openness and easy access of parks and other urban green places makes them vulnerable for perceived negative effects such as dark areas and meeting points for criminal activities, furthermore the messy nature, light blockage and space occupation can be viewed as a problem. Area specific problems can be that the green space is too small, does not offer enough or the right sports facilities, is at too great a distance, is too crowded, has a landscape that is not aesthetic or green enough (Lo & Jim, 2010, p. 435-436), is not adapted to all age groups or that the area lacks shade. However, the fact that almost all urban residents perceive green space as a valuable contribution to their living environment (see section 2.5) and the positive effects and functions of green space as described in section 2.2 clearly outweigh the negative ones.

Urban nature has been used for recreation in various ways, ways that evolve over time together with society as the recreational use of green space reflects social, political and economic developments. Traditional 'soft' recreation such as walking has seen new forms of recreation come that are more active or include cultural elements. Konijnendijk (2008) illustrates that during the 1960s sunbathing, picnicking and swimming were popular forms of green, outdoor recreation while in the 1980s walking, jogging, and taking the dog to the park were the main activities. Today exercise and sports are in fashion as green space activities, something that is influenced by the rise in typical urban diseases and the search for healthy lifestyles. The previous section described upcoming trends in leisure time spending; here the use of green space will be elaborated, and especially the factors that influence diverse green space use.

### *Differences in urban green space use and their underlying factors*

As the urban population is very diverse, people engage in different types of green space recreation: relaxing, enjoying the landscape, meeting friends, organising picnics, jogging and playing team sports. Also, the frequency of which people visit urban green spaces and the distance they are willing and able to cover differs. For one part, these differences are due to

differences in the physicality of green spaces and their recreational offerings. Large city parks with playgrounds, soccer courts, woodlands and catering facilities attract a more varied visitor public than small neighbourhood parks with limited amenities. But also people's personal preference for certain sport facilities or for more or less vegetated areas plays a significant role (Schipperijn *et al.*, 2010). Explanations are sought and found in socioeconomic indicators such as gender, age, income, household composition and education.

Favourite activities to perform in urban green spaces are first of all walking, something that does not seem to alter through time. The enjoyment of natural landscapes and relaxing are popular as well, and in Karachi Qurishi, Breuste and Lindley (2010) found picnics to be very popular among park users who organise these with friends and family. Priego *et al.* (2008) researched study sites in Germany, Chile and Spain and found no differences in the degree of use among socioeconomic groups; however residents from higher income groups seem to make use of alternative green spaces more often, such as private gardens and large natural areas, which can be related to their financial and time resources. Another example comes from Crow *et al.* (2006, p. 291) who investigated the differentiated perception of green community environments for gender and age and found higher valuations for women and persons in the age of 20 to 44.

A study after urban parks in Ankara, Turkey showed that men visit urban green space more often than women, but found no gender-related differences in park preferences. The study does accord with age, income and education level as factors affecting park use and preferences. People aged 19 to 44 make most often use of urban green spaces, walking, relaxing and eating in the park are the most popular activities, and the preference for particular parks differs for income and education levels. Reasons to visit the park are to spend free time outdoor in the open air, to rest and relax in a peaceful natural landscape, to escape daily life stress and to meet with friends. Most satisfaction is found with the landscape elements of natural areas such as water bodies and green retreats and most dissatisfaction with amenities such as food and sanitary services, as well as with the limited offer of cultural events and activities, safety situation, maintenance, improper behaviour of park users and with the accessibility for disabled persons. Also, urban green space users in Ankara miss a library facility within parks and they would like to see the creation of a botanical garden – services for which a majority of residents is willing to pay for, provided that the quality is high and the accessibility is well organised (Oguz, 2000).

In Denmark Schipperijn *et al.* (2010) have found that size and distance are influential in people's choice for an urban green space. When green areas size more than five hectares people are more eager to prefer that area above a green area near their home. Generally it applies that how farther the green space, the less frequent residents visit that space. The study uncovered that dog ownership increases the frequency with which people visit the park, which is once a week on average for the nearest green space. Still, almost half of the people in the case study city of Odense does not use the nearest green space most and is willing to travel a greater distance in search of nature within the city. This indicates that in many cases urban green spaces are not in total adapted to the demand of its users and that people search for other green space characteristics and qualities which they are willing to spend the time and money traveling to – if they are capable to do so, seeing that elderly people, households with young children and people in poor health who all experience a reduced mobility most often choose the green space that is located closest to their home. An interesting finding from Schipperijn *et al.* (2010) is that people living in a house with a private garden make more frequent use of urban green spaces, while it could be expected that the having of an own green alternative would diminish the urge to spend time in public green areas. An explanation can be that people with gardens are more attracted to outdoor time spending (Maat & De Vries, 2006).

One of the few studies that have been performed in non-European countries is that of Qureshi, Breuste & Lindley (2010) who researched the functionality of green space in Karachi, Pakistan. A first finding that is in contrast with western studies is that urban green space use is low; over half of the respondents in the Pakistani study says to visit urban spaces never or only rarely. But when natural areas are visited, people tend to stay very long – where European studies find that the time spent on recreation per activity (not in the whole) diminishes because of more frequent but shorter stays, in Karachi urban green space users are found to spend multiple hours in a

park or natural area. Next to socially and culturally different views of green space, the low frequency and long length of stay are related to the few well-maintained green spaces, long travel times and situations of overcrowding. People also complained about the insufficient lighting in green areas, few amenities and the dirtiness of places. In Karachi several urban green spaces have been renovated to become more attractive to residents and over 70% of the people states that this is noticed and appreciated, however people remain doubtful in regard to the preservation of the urban green areas in their current state on the long term (Qureshi, Breuste & Lindley, 2010).

Thus, the ways in which urban residents recreate in green areas varies over time with trends coming up and disappearing again. What has been a constant factor is that the socioeconomic background of people influences their outdoor recreational activity. From the nineteenth century aristocrats who were free to go hunting and strolling through their beautiful woods and gardens and the industrial working class that found new ways to relate to nature in outdoor recreation, to residents in Karachi who take their families for picnics and people in Odense that visit the park to walk the dog and maintain their healthy lifestyle – they all experienced the liberating character of green space in an ever more urbanised living environment.

## 2.5 Landscape perception

Landscapes exist in various types. To distinguish are natural landscapes such as mountains and volcanoes, natural landscapes with human influences for recreation and tourism such as beaches, natural landscapes with human influences that are built structures and are seen as natural, cultural and historical landscape such as the Machu Picchu in Peru, urban landscapes with natural features of which the city Rio de Janeiro in Brazil is an example, and finally urban landscapes that are exemplified by the city of São Paulo. Landscapes can also be classified according to their use in which industrial use is differentiated from energy use, the latter mainly consisting of natural resource exploitation like hydro dams. The use of landscapes for urbanisation can take various forms, from a clear three-zone city in Chicago (CBD, industrial, residential) to the city of São Paulo where gated communities with swimming pools and tennis courts can exist next to a slum in one neighbourhood, as is shown in Figure 2.6. It is especially cities in the Global South where the urban landscape can exhibit such extreme differences.<sup>2</sup>

**Figure 2.6** Contrast in urban landscapes: rich and poor can be found right next to each other in São Paulo



Source: BBC, 2012

<sup>2</sup> Information obtained during a lecture on Landscaping and Environmental Planning by Prof. Yuri Tavares Rocha at the University of São Paulo, August 15, 2011

According to urban forest researcher Konijnendijk (2008, p. 4) landscapes emerge on the interface of nature and culture, and “urban space does not just ‘exist’; it is produced, reproduced and shaped in people’s actions”. The dynamics of a landscape are very different for urban, rural and natural landscapes and often human induced, which is for instance the case when landslides occur because industrial activities damaged or killed trees and vegetation essential to keep the land in place. Also residential structures pose a threat to areas at risk of erosion since housing and infrastructure such as water pipes affect the natural landscape. Brazil knows many of such examples and in few but a growing number of cases the loss of land and green space is restored through methods of environmental recovery. Environmental recovery and ‘renaturalisation’ are popular practices in Europe as well as cities endeavour to green their cities and retrieve intrinsic landscape features. An example is Berlin in Germany where canals have been transformed back to the original or at least natural looking water courses, aligned with trees and native vegetation.<sup>2</sup>

### *Urban green space perception and preferences*

Landscape and urban planning researcher Yuri Tavares Rocha states that landscapes are an ecological, psychological and social construct, seeing that each landscape triggers different perceptions by the people who see and enjoy them<sup>3</sup>. Recognition of the importance of landscape valuation for effective urban green space management is endorsed by Dandy & Van der Wal (2011) who claim for acknowledgment of the importance of ‘experiencing’ urban green space instead of just ‘viewing’ it. Also James *et al.* (2009) see the need of a more thorough insight in the perception of urban green space as to better inform policy and decision making, and above all to create green areas that provide in the needs and wishes of its users.

A study that incorporated the aspect of perception into urban green space research is that of Priego, Breuste and Rojas (2008) who compared the perception and value of nature of green space users in cities in Germany, Spain and Chile. Their study is as well one of the few that focuses on the social dimension and that has been performed, although in part, in a non-Western country. Priego, Breuste and Rojas found that residents from all countries showed to be positive towards nature, but that persons living in more deprived neighbourhoods with social problems and limited green space in Chile particularly appreciate nature, and that they regard nature preservation as more important than their better-off counterparts in Germany and Spain. Their study also showed that persons in the lower-class Spanish case study participate most in protecting nature, followed by persons living in high-income neighbourhoods in Germany and Chile. As an explanation Priego, Breuste and Rojas give rich people’s financial and time resources and the closer contact that they have with nature. As a conclusion Priego, Breuste and Rojas state that there needs to be more research done after the utilisation of urban green space in cities in the South as currently a clear knowledge gap exists.

That residents appreciate the availability of green space close to their homes is confirmed by Qureshi, Breuste & Lindley (2010) and by Crow, Brown and De Young (2006) who studied two suburbs in Chicago, USA. The researchers also found that a diverse landscape is better valued than a monotonous landscape and that woody vegetation, size, shape and present built structures are decisive in residents’ satisfaction. Another finding is that native plants and mature trees that provide shade contribute positively to community quality and that socio-demographic factors influence peoples’ perception; women and people aged 20 to 44 assign greater value to a green neighbourhood, similarly families with young children perceive a green living area as highly attractive. The benefits of urban green space are perceived as greater among women, persons aged over 55, higher educated people and persons with a high income. Not surprisingly, the study found that urban green space is an important consideration in buying a house and that neighbourhoods are frequently perceived as not green enough. What may be surprising though

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<sup>3</sup> Information obtained during a lecture on Landscaping and Environmental Planning by Prof. Yuri Tavares Rocha at the University of São Paulo, August 15, 2011

is that differences in landscape have not proved to influence the perception of nature much. Respondents in both case studies perceive urban green space as important for escaping the daily working routine, in the search for peacefulness and tranquillity, and for a better health and well-being. The only negative aspect of urban green space is related to it being a place for criminal activity (Crow, Brown and De Young, 2006).

Another significant study in regard to the perception of urban green space is of the hand of Tyrväinen, Mäkinen and Schipperijn (2007) who searched for tools to measure the experienced qualities of urban green space. They state that “while experiences remain personal, they are the most crucial part of how people perceive, utilise, or *live* their green areas” and that experiences may be based on cultural values and meanings plus social and aesthetic factors (Tyrväinen, Mäkinen and Schipperijn, 2007, p. 6). Just as the former studies this research found a high importance of urban green areas to residents and that the benefits of open-air leisure, stress relief, contact with nature and aesthetic experiences were perceived slightly more significant than environmental benefits such as air purification, which importance is found to augment with age. Interesting is that the study uncovered that planned parks are more popular among lower-educated residents and retired persons whereas more natural green spaces are preferred by all other groups, in particular large areas and open landscapes with a rural character. Another interesting fact is that Tyrväinen, Mäkinen and Schipperijn (2006) note that peoples’ former natural experience is closely related to their expectations and desires for recreational use.

Finally, Qureshi, Breuste & Lindley (2010) have discovered that not only theorists view landscapes as a dynamic result of the mix of nature with culture, but that local residents as well perceive nature as transitory and changeable. Urban dwellers experience the impact of air and noise pollution, see environments change and witness the realisation of new green areas – all such things make local residents aware of the need to protect remaining urban green space. Qureshi, Breuste & Lindley (2010) found that not only the quantitative presence of green space but also the perceived quality of it has a significant influence on environmental awareness.

The scarce information about the meaning, value and appreciation of urban green space makes research after green space perception much needed to uncover the experiences, preferences and demands of users, so that the design and planning of urban green areas can become more user-focused and effective, leading to an increase in well-being and life quality for local residents. Existing studies have shown that such a focus will not lead to environmental degradation or less care for natural areas as residents show to have much concern for the natural spaces that surround them. It should be reminded that a regular update of the utilisation and perception of urban green space is necessary seeing that meanings and values change over time, together with changes in the urban structure, recreation activities and environmental knowledge (Tyrväinen, Mäkinen and Schipperijn, 2007, p.17).

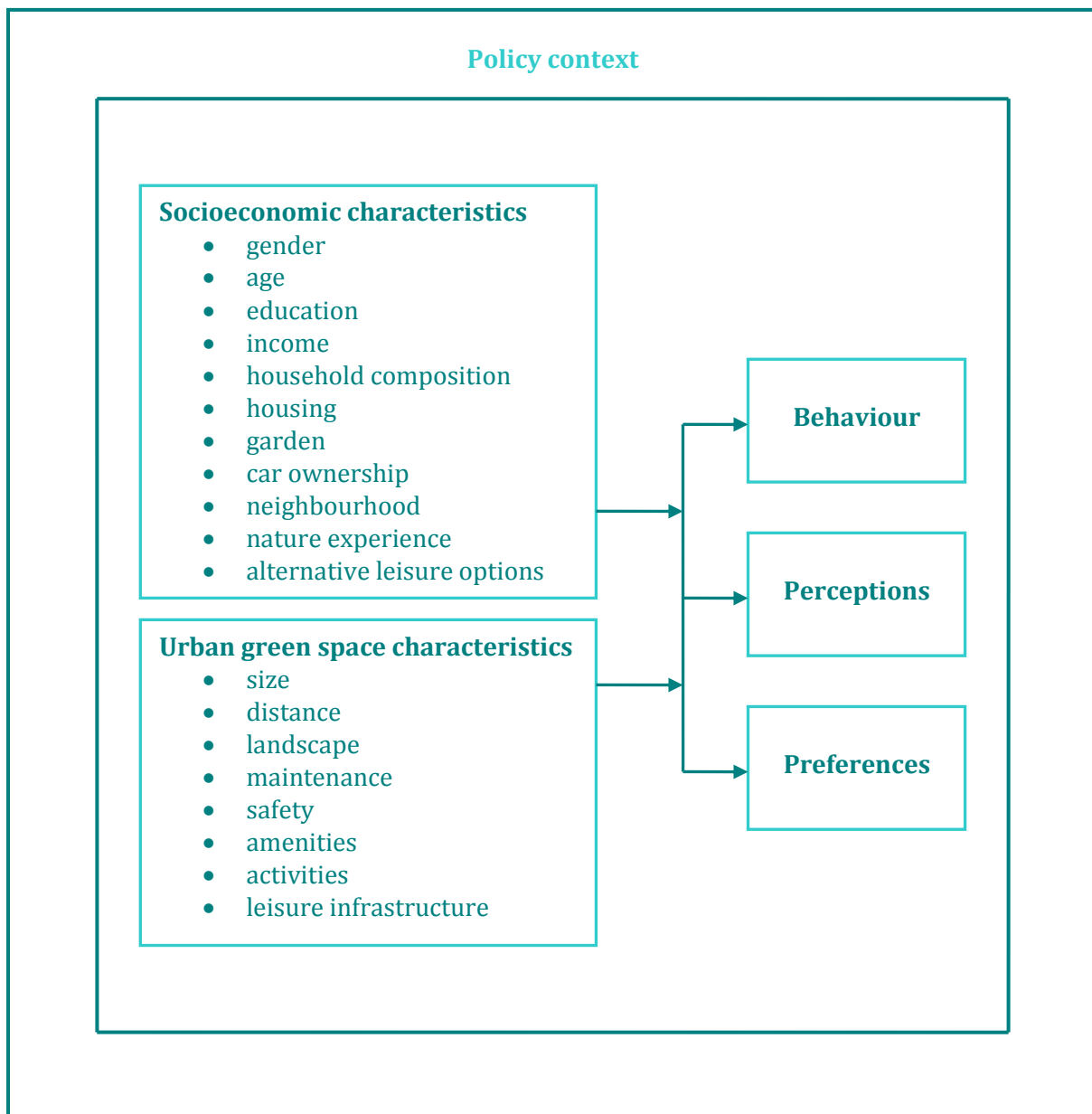
## 2.6 Conceptual model

The literature review revealed several missing themes in urban green space research, of which recreational experience is chosen as a study domain. Three other research choices have been derived from the theory for the reason that these are currently underexposed: the type of green space is to be the urban park since not even four percent of all urban green space research has focused on parks while these are often the first type of green space that people relate to when thinking of green areas in a city; the choice to conduct a research off the beaten paths in an emerging economy, the dynamic metropolis of São Paulo in Brazil; and finally to focus on the social dimension of urban green spaces, relating utilisation and perception to socioeconomic factors. The conceptual model in Figure 2.7 on the next page illustrates how the theories regarding urban green space, recreation and landscape perception shape this research project.



The conceptual model consists of two layers. The first represents the more abstract level of policies regarding urban green space design, planning and management, but also housing policy, policy related to social inclusion and other urban planning policies. Within the first layer is a lower level that contains the visiting behaviour, perceptions and preferences of urban green space users; elements that are found to be missing in existing research and for which this study tries to find a pattern among green space users in São Paulo. In addition, the study seeks factors that influence green space user behaviour, perceptions and preferences; these are derived from the theory in this chapter and indicated in two boxes that group the influencing factors into socioeconomic characteristics and urban green space characteristics. The arrows indicate a causal relationship between the three boxes to the left and those to the right. A note is that behaviour, perception and preferences are interrelated as for instance a preference for sportive recreation will lead to the conduct of sports activities in the green space.

**Figure 2.7** Conceptual model





### 3 Methodological framework

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The research project is a combination of literature study and field work activities and makes use of case studies. Current chapter describes and motivates the choice for the research design structure and the research methods together with their respective sampling strategies. Furthermore, the choice for a research location is considered here, motives for the case study selection are revealed and a preliminary overview of the methods of analysis that are employed to answer the research questions is given. An enumeration of limitations encountered with the employed methodology is given in the final section.

#### 3.1 Research questions and research design structure

The study is designed as an exploratory research with case studies and is structured around one main research question and eight sub research questions which are derived from the conceptual model and each investigate an aspect necessary to answer the main question.

##### *Research questions*

The following main research question guides the project: What factors influence the visiting behaviour, perceptions and preferences of urban green space users and to what extent can the planning, design and management of these areas increase user benefits? In order to cover all relevant aspects several sub research questions have been developed. Together they build up to the main question as given above.

1. What are the main characteristics of the urban green spaces in the selected case studies?
2. What are the main characteristics of urban green space users?
3. How can the visiting behaviour of urban green space users be characterised?
4. How do urban green space users perceive urban green space and nature in general?
5. What are urban green space users' preferences regarding urban green space?
6. What are residents' visiting behaviour, perceptions and preferences regarding urban green space and in what way do they differ from user preferences?
7. What factors help explain differences in visiting behaviour, perceptions and preferences among urban green space users?
8. In what way can the perceived quality of urban green space be translated into policy and management recommendations for the purpose of increasing user benefits?

##### *Research design structure*

Structured as an exploratory research, the study aims at in-depth description and understanding. This research uses a comparative case study design which will generate detailed understanding of the respective urban green spaces and their users, while at the same time add to broader theoretical knowledge. The element of comparison gives the project more depth as it can describe similarities and differences between cases and discuss possible explanations. A strong feature of case study research is the high context validity, or the degree to which the researched context represents real life. In order to give the study substantial external validity as well, cross sectional design is adopted in the form of a questionnaire survey with the aim of drawing conclusions about the characteristics of urban green space users (Bryman, 2008, p. 33-62; Newing *et al.*, 2011, p. 46-52).



## 3.2 Research methods

This study draws on various research methods: literature study, qualitative interviews, focus groups, unstructured observation and a large quantitative survey by means of a questionnaire. Such a mixed-methods approach generates a complete picture of the functionality and perception of urban green spaces as it results in objective data as well as in knowledge of the views and experiences of green space users and managers. Data collection took place in São Paulo, Brazil and consists of five phases in which different methods are employed. The phases are described here and derived from books on social and geographical research methods written by Bryman (2008), Clifford, French and Valentine (2010) and Newing *et al.* (2011).

### *Phase one: explore the topic of urban green space in literature*

Before anything else, a literature study into urban green space took place at Utrecht University in the Netherlands. This first exploration consisted of studying research papers, books, journals, newspapers and magazines on the topic of urban green space and related research fields in urban ecology, geography, planning and environmental economics. With this initial orientation a number of niches in urban green space research were discovered, and the choice for a study into the behaviour, preferences and perceptions of green space users in a South-American metropolis materialised. A research proposal containing a concise thematic and regional framework, a first sketch of the methodology and a time planning was submitted and accepted, after which more research regarding the situation of urban green space in Brazil led to the selection of São Paulo as a study location and the start of preparations for a field stay in Brazil.

### *Phase two: explore the topic of urban green space with experts and key informants*

Once in Brazil an exploration of the local urban green space context was needed to provide background and in-depth information, for example regarding state and municipal policy and the development of green space over time. In São Paulo knowledge of the local context was necessary for the selection of suitable case studies. In order to gain this knowledge unstructured and semi-structured interviews have been held with experts from the Municipal Secretariat of Green and Environment of São Paulo and with academics from the University of São Paulo (USP). The interviewees were chosen for the reason that the research project needed input from both academics and policymakers and the sampling strategy used is non-probability sampling by targeted sampling. Several meetings took place with professors from the Faculty of Geography and the Faculty of Architecture and Urbanism in São Paulo, and with a professor in urban forestry from the Superior School of Agriculture *Luiz de Queiroz* in Piracicaba. At the Secretariat of Green and Environment meetings were organised with the head of and experts working at the Secretary Office, and with specialists at the Department of Parks and Green Areas. These connections at the prefecture were needed to gain official permission to visit and study the parks and for support in the communication with park administrators. Persons from the Secretary Office also enabled visits to various parks and natural areas in São Paulo.

With an idea of the local situation regarding urban green space and after visiting various parks, four case study locations could be selected in different parts of São Paulo. In order to profile the respective urban green spaces these have been visited multiple times and meetings have been arranged with key informants. Unstructured and semi-structured interviews with park administrators, park council members, regular visitors and other local experts took place at or near the four selected parks. These persons were approached through the State Secretariat of Environment, the Municipal Secretariat of Green and Environment and through neighbourhood associations. The interviews concerned park history, design, management, visitor numbers, visitor characterisations, park use, facilities and infrastructure, and future plans.

The expert interviews led to a better understanding of the urban green space context in São Paulo; from the number, spread and variation of green areas to the history of green space in the city and current policy goals. Challenges in the management and creation of green spaces also surfaced from meetings at the Secretariat of Green and Environment, meetings with park administrators and a range of other get-togethers. The key person interviews provided information regarding the case study parks and green space in general, information about visitor types and numbers, park use and about park specific challenges such as safety or maintenance. Apart from expert and key person interviews, a number of lectures on the subject of urban forestry and landscaping were participated in at the University of São Paulo in order to gain more theoretical insight. For the same reason the library of the Open University UMAPAZ (*Universidade de Meio Ambiente e Cultura de Paz*) has been consulted several times, as it contains documents from municipal departments and a collection of books about the environment, public space, architecture and peace culture. Finally, the participation in a seminar by and for park administrators, meetings with park councils, a meeting in the context of the local Agenda 21, and a three day conference about green areas in São Paulo gave further insight in the present green space situation, challenges faced by park managers and the ambitions of park administrators and policymakers.

### *Phase three: explore the case study locations*

Now the case study locations are selected these are explored by non-participant, unstructured observation to determine the variety of activities, activity hotspots and peak hours at the case study sites in order to plan the survey. Unstructured observation happens in the parks by identifying routes and paths, walking these at different times and days and noting down information regarding the area, people and activities, aided by photography and memory. This phase also entails an analysis of secondary data sources such as websites, newspapers and park documentation which should be seen as a preparative study that is indispensable for organising a survey – the same applies to the pilot study that was performed in two out of four parks.

### *Phase four: explore the views and experiences of urban green space users*

The fourth phase generates the most important data source for this study by means of a survey among 600 respondents in four case study parks. The aim of the survey is to create a profile of urban green space users and explore their visiting behaviour, perception and preferences for urban green spaces. A questionnaire in the shape of a structured interview is distributed among urban green space users at the case study sites and filled out by individuals. The amount of questionnaires that is performed in each case study is determined by the size of the green space and foremost by the number of visitors it receives. One hundred is decided to be the minimal number of questionnaires that should be filled out in each park; this threshold is set so that statistical analysis remains possible. Table 3.1 displays the case studies with their respective size, weekly visitor number and amount of performed questionnaires.

**Table 3.1** Case studies with their size, visitor number and questionnaire amount

Case study	Size (ha.)	Weekly visitors	Questionnaires
Pinheirinho d'Água	25	1500	100
Villa-Lobos	73	65,000	150
Carmo	150	65,000	150
Ibirapuera	158	300,000	200

The performed sampling strategy is one of non-probability sampling by quota sampling, using a predefined gender balance as the quota. Probability sampling is not an option in a research project like underlying study for the reason that the population of a green space is unknown; a sampling frame does not exist and it is impossible to create one<sup>4</sup>. Therefore, a sample can never be representative for the total study population which in this case constitutes the visitors of an urban green space; results of this study apply only to the 600 respondents that have filled out the questionnaire during the park survey. In order to gain the most complete possible insight into the functioning of the parks the survey moments are spread over several months and over all days of the week and moments within the day – questionnaires have been distributed on weekdays, weekends, holidays and in the morning, afternoon and evening. The survey took place at several points in the parks that were decided upon earlier during the unstructured observation in phase three. Examples of such points are park entrances, points where paths form a junction and crowded areas such as those near sport courts and playgrounds.

Regarding the use of the gender balance for quota sampling, city parks generally see more male than female visitors and current research project reveals an overall gender balance of 55% male and 45% female visitors. The quota sample varies per case study as it is based upon gender balances found in earlier studies after the parks. For one case the gender distribution is derived from a citywide study which was carried out in São Paulo's municipal parks in 2008. The quotas are shown in Table 3.2. As for ensuring that the gender balance from former studies coincides with the current balance in male and female visitors, a first part of the questionnaires was distributed randomly among park visitors. In practice, this comes down to handing out the questionnaire to every tenth or twentieth person aged over fifteen that passes by, depending on the visitor flux. When the end of the sample amount neared, the distribution of men and women in the survey was checked for each case study and it turned out that the gender balances largely corresponded with those found in earlier studies. From that point on, the survey was completed in a similar way until the predefined gender balance was reached.

**Table 3.2** Case studies with their respective gender balance, including the reference study

Case study	Balance men/women	Reference study	Year
Pinheirinho d'Água	59/41	Whately <i>et al.</i>	2008
Villa-Lobos	50/50	GAUSS Estatística & Mercado	2010
Carmo	60/40	Bartalini	1999
Ibirapuera	54/46	Coopeme & Technikós	2007

### *Phase five: reflect on survey findings with the views and experiences of local residents*

The final phase in research methodology consists of a reflection on the findings from phase four, the survey, which investigates the use, perceptions and preferences of park visitors. In order to see whether people other than park users show similar green space patterns, phase five explores the views and preferences of local residents regarding urban green space and compares these with findings from the survey. Focus groups have been arranged with residents from the neighbourhoods in which Villa-Lobos Park and Carmo Park are located who did not participate in the case study survey. The first group was gathered with the help of a prominent member of a neighbourhood association and the second group was brought together at a school close to the park. In a group of five to eight people, residents discussed about urban green space. In the neighbourhoods of the other two case studies, Pinheirinho d'Água and Ibirapuera, short street interviews were held about similar topics: which green spaces are visited, how the green areas are used, what services and benefits they provide, their perception of the quantity, quality and distribution of green spaces in both the neighbourhood and city, their personal preferences, plus ideas for the improvement of present green space and suggestions for the future.

<sup>4</sup> Information obtained from Gideon Bolt, researcher at Urban and Regional research centre Utrecht

### 3.3 Selection of the research location and case studies

The city in which this study has been carried out is São Paulo, the largest city of Brazil, located in the southeast and the country's financial and cultural centre. Why Brazil is selected as a research country is clarified in the first chapter. The choice for São Paulo as the research location is based on four criteria and also motivated by practical considerations, since Utrecht University and the University of São Paulo engage in an official partnership that enables cooperation with academics knowledgeable on both urban green space and the context of São Paulo. The research location supposed to be a city meeting the following criteria:

- a city in which urban green spaces are present, preferably at the neighbourhood level, city level and in the city's surrounding area;
- a city of which the population is diverse in the socioeconomic sense;
- a city that is fast-developing, preferably a metropolis;
- a city in the Global South.

#### *Case study selection*

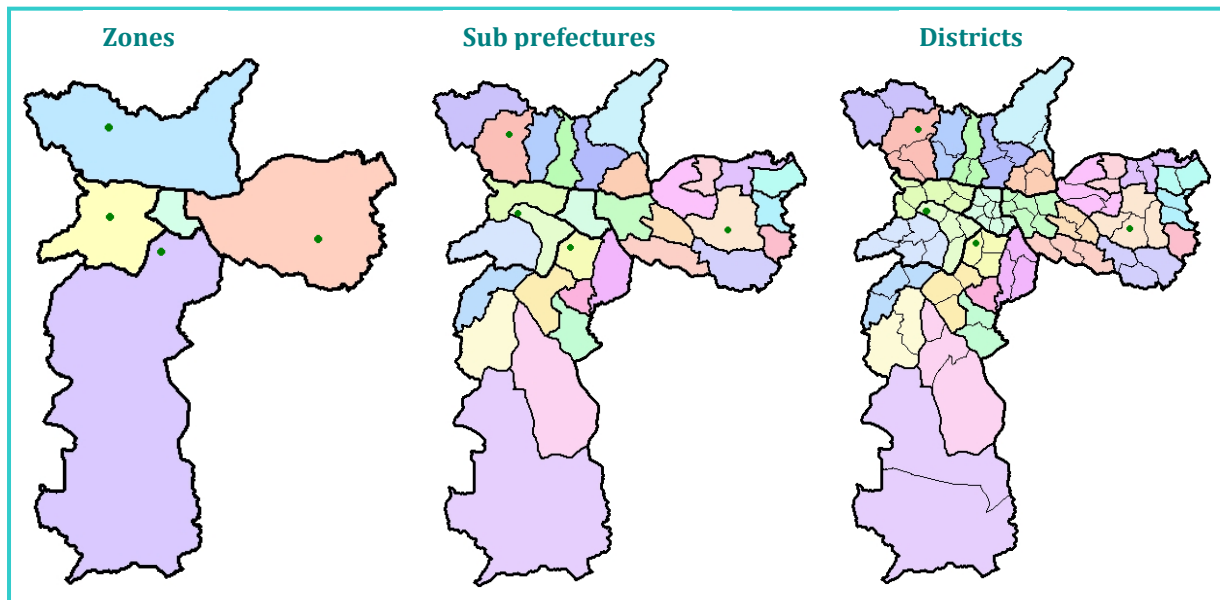
Possible urban green spaces for the case studies in this research project are neighbourhood and city parks, botanical gardens, nature preserves and forested areas within the city limits. Since this research is structured as a comparative case study design, four urban green spaces are selected to serve as case studies. The selection of suitable case study sites is for a large part informed by the interviews with experts and key persons that took place in phase two, soon after arriving in São Paulo. The following criteria have been used in selecting case studies:

- urban green spaces that are larger than 1 ha;
- urban green spaces with a central function for adjacent neighbourhoods and/or the city;
- urban green spaces of which the main function is recreational;
- urban green spaces that are publicly accessible and free of charge;
- urban green spaces that differ in three interesting factors, being size, location and age;
- urban green spaces that are otherwise as alike as possible;
- urban green spaces to which access can be gained during the field period.

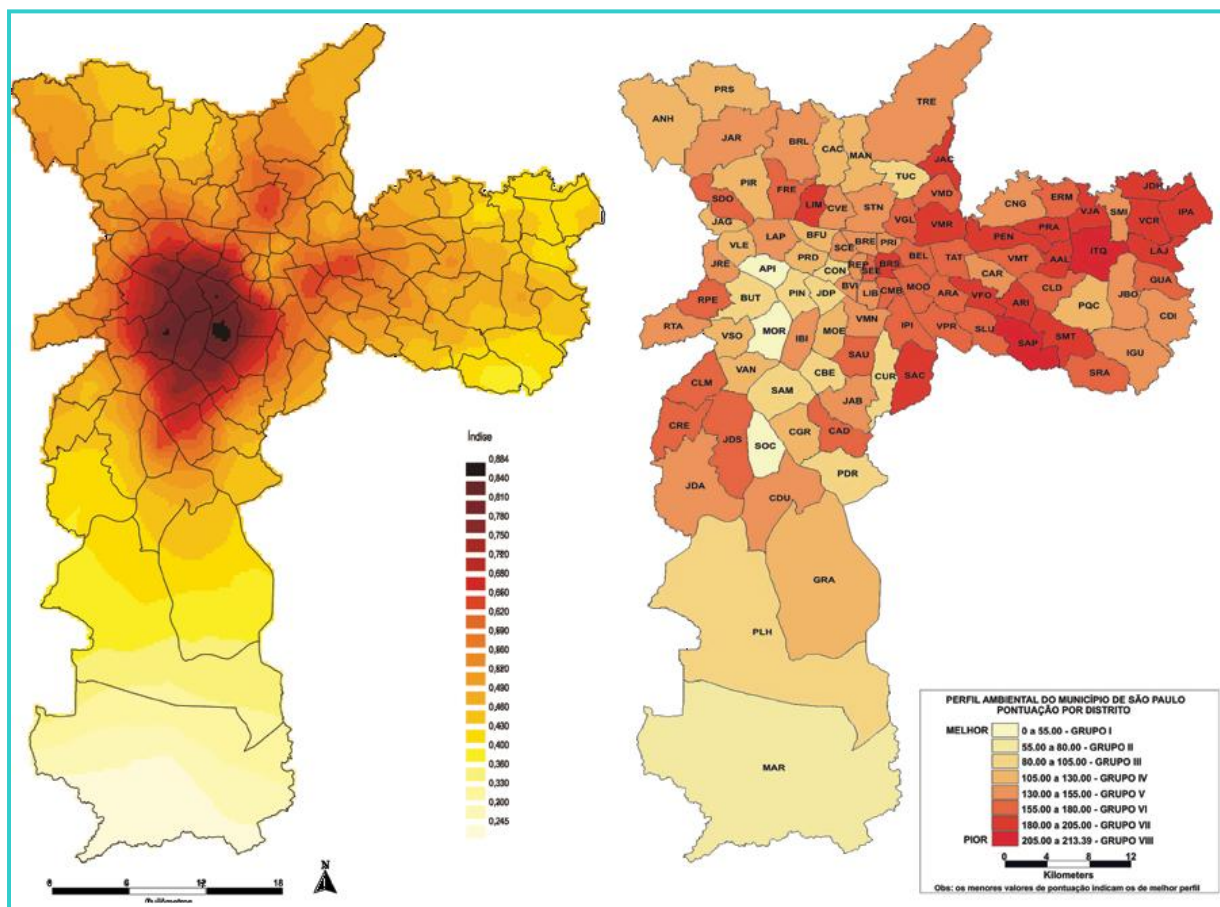
From the above mentioned possibilities of green spaces only neighbourhood and city parks remain an option since the nature preserves and urban forests principally serve for conservation purposes and not for leisure and recreation, and because São Paulo's botanical gardens charge an entrance fee. From all urban parks the so-called linear parks, which is a new type of park created to protect rivers from irregular occupation, are excluded from the selection (though several short interviews have been conducted there to characterise this type of park in chapter four) so that the case studies are chosen among traditional parks. Traditional urban parks have certain common features such as an onsite administration, sanitary facilities, security, cleaning and maintenance teams, a fence circling the park and official opening hours. A second decision was to search for case studies in different zones of São Paulo: one in the north, one in the east, one in the south and one in the west zone (see Figure 3.1). Each zone is characterised by different resident groups, housing types, infrastructure quality and economic activities. Such characteristics come forward in the case study parks and in the visitors of those. The first map in Figure 3.2 on the next page is based on Human Development Index (HDI) scores and displays the variation in quality of life in São Paulo, whereas the second map presents a socio-environmental profile on a district level. Both maps helped to decide in which district the case studies were selected. Thirdly, four green areas with ascending years of inauguration were selected, starting in the 1950s and subsequently choosing a green space from the 1970s, 1990s and one that has

been created recently. A final consideration was that the green spaces needed to be of a different size so that comparison is enabled between users of neighbourhood parks and users of larger scale city parks. After selecting four parks in São Paulo their administrators were contacted in order to receive permission for researching and conducting questionnaires in the parks.

**Figure 3.1** Administrative divisions of São Paulo, indicating the case study locations with a green dot



**Figure 3.2** HDI (red signifies a high score) and socio-environmental profile (red signifies a low score)



Source: Spangenberg, 2009



### 3.4 Methods of analysis

The five phase methodology described in section 3.2 generates the information required for answering the research questions. Current section explains the ways in which the acquired data is analysed. A concise overview of the eight sub research questions with associated data collection methods is given first, followed by a more elaborate exposition of the methods of analysis that will help in comprehending the statistical tests performed in chapter five.

#### *Research questions and associated methods*

Each of the research methods serves a specific goal in answering the sub research questions. The qualitative interviews serve to obtain background and in-depth information in regard to urban green spaces in Brazil, the policy context, and the situation at the case study locations. Observations are a method to collect primary data from the case study sites that aide in planning the survey. Questionnaires serve to collect data that informs about park users' personal background, visiting behaviour, perception and preferences. Finally, the focus groups and street interviews aim to explore the views and preferences of residents and parallel these findings with those of the questionnaire. Table 3.3 gives a schematic presentation of the eight sub research questions together with the research methods that provided the necessary data.

**Table 3.3:** Sub research questions with data providing methods

Sub research question	Method
1. What are the main characteristics of the urban green spaces in the selected case studies?	<ul style="list-style-type: none"><li>• Interviews</li><li>• Observation</li></ul>
2. What are the main characteristics of urban green space users?	<ul style="list-style-type: none"><li>• Interviews</li><li>• Observation</li><li>• Questionnaire</li></ul>
3. How can the visiting behaviour of urban green space users be characterised?	<ul style="list-style-type: none"><li>• </li><li>• Interviews</li><li>• Observation</li><li>• Questionnaire</li></ul>
4. How do urban green space users perceive urban green spaces and nature in general?	<ul style="list-style-type: none"><li>• Questionnaire</li></ul>
5. What are urban green space users' preferences regarding urban green spaces?	<ul style="list-style-type: none"><li>• Questionnaire</li></ul>
6. What are residents' visiting behaviour, perception and preferences regarding urban green spaces and in what way do they differ from user preferences?	<ul style="list-style-type: none"><li>• Focus groups</li><li>• Street interviews</li></ul>
7. What factors help explain differences in visiting behaviour, perception and preferences among urban green space users?	<ul style="list-style-type: none"><li>• Questionnaire</li><li>• Observation</li></ul>
8. In what way can preferences for urban green spaces be translated into policy and management recommendations for the purpose of increasing user benefits?	<ul style="list-style-type: none"><li>• Interviews</li><li>• Observation</li><li>• Questionnaire</li><li>• Focus groups</li><li>• Street interviews</li></ul>



## Analysis

The research analysis is spread over three chapters. Chapter four presents a profile of the research area and treats the first research question by characterising the case studies. Based on observations, information obtained from secondary data sources and conversations with park managers and policy makers the city of São Paulo and the development of green spaces within the metropolis are portrayed first. Subsequently similar research methods are employed to construct a profile of each case study park telling about its location, landscape, history, and leisure character. These profiles are useful to take notice of before coming to the main research findings in chapter five and serve to better position the outcomes about user behaviour and perceptions later on.

Chapter five constitutes a large body of research findings as it deals with sub questions two to six. The research results are for the most part based on questionnaire data which is analysed with the help of the statistical programs Excel and SPSS, and completed with data derived from the focus groups, street interviews, unstructured observation and specialist interviews. Several statistical tests are performed to uncover variation and relationships between research variables. Cross tabulating is the most common technique used and together with the association measure Cramér's V (V) it indicates whether a relationship exists between two research variables. Cramér's V ranges from 0 (no association) to 1 (perfect association) whereby a V-value above 0.10 can be interpreted as an indication of a substantive relationship between two variables, and is based on the chi-square ( $\chi^2$ ) which tells that an association is or is not statistically significant. Analysis of variance (ANOVA) is another statistical technique adopted in the analysis of field data and serves to show whether the means of different groups for one variable are equal to each other or not, performed through a One-Way ANOVA test together with a *Bonferroni* test that is able to show exactly which group means differ from each other and which do not. Finally, in case of two interval or ratio variables the measure Pearson's Product-moment correlation coefficient  $r$ , in short correlation coefficient or  $r$ , serves to express the strength and direction of an association. The correlation coefficient ranges between 0 and 1 with a higher correlation coefficient indicating a stronger relationship between two interval or ratio variables. Cramér's V, One-Way ANOVA and *Bonferroni* are interpreted with the help of a significance level  $p$ ; meaning that in compliance with a reliability of 95% a  $p$ -value up to 0.05 leads to rejection of the null hypothesis – which always states that the variables are statistically independent – and thereby validates the existence of a statistically significant association between two variables (De Vocht, 2005, p. 163-176, 189-194, 201-207). Throughout the next chapters it should be reminded that the survey does not allow for generalisation to a study population, meaning that research findings purely tell about the sample of 600 park users who filled in the questionnaire and the residents spoken with during focus groups and interviews.

Chapter six discusses the final two research questions and serves as a synthesis of the research findings by denominating factors that explain differences in park users' visiting behaviour, perception and preferences. Knowledge of the various uses of and preferences for urban parks can inform green space management and thereby lead to improved user functionality if park design and facilities become better adapted to the wishes of their users. Urban green space preferences are not the same for everyone and the ways in which green areas can be designed and managed to the satisfaction of specific user groups is exemplified in chapter six, building on the results from chapter five. This section makes use of the main findings that materialised from the qualitative and quantitative research methods and translates these in ways to inform policy and recommend improvements in the urban green spaces of present day São Paulo.

### 3.5 Limitations

Current study comes across several limitations in the research methodology. A part is related to the sampling method and another part to the data collection methods. Starting with the former, it has not been possible to perform non-probability sampling which makes that generalisation to the entire study population is not viable. The study results tell about the sample but cannot be used to characterise all visitors of an urban green space. A second limitation is that not all park users have a similar chance to end up in the sample. A daily visitor has a seven times higher chance to be included in the sample than a person who visits the park once a week. The spread of survey moments across various days and times partly makes up for this limitation, however a certain bias continues to exist. Thirdly, the view from non park users is underrepresented in this study. Inclusion of their view consists of two focus groups and a number of street interviews whereas the view of park users is represented in a large-scale survey. This makes that the study predominantly tells about the use and perception of urban parks and less so about other green spaces found in the city. A focus group revealed that wealthy households do not make much use of parks in their free time as they prefer other leisure options, which are often private alternatives such as clubs and country or beach houses. Also, people who do not visit the park but do visit other urban green spaces such as landscaped squares and woodlands are poorly represented by this study that focuses on city parks.

Considering the methods of data collection a first limitation is that just two case studies have been organised. The initial plan was to organise a focus group in each case study neighbourhood, four in total, however due to a lack of temporal and financial resources this was not achieved. The biggest challenge was to find the people to participate in the focus group and a venue to organise a meeting. Thanks to a willing neighbourhood association and school two discussions could be organised, but in the other neighbourhoods schools and organisations did not reply to the request or only individual persons were found to be enthusiastic to tell about their views and experiences. In that case, interviews were held with individuals but this entails the bias of persons who are above average interested or knowledgeable in the topic of green space. In addition, the language barrier did not make it easier either.

Finally, the data collection methods provided a fairly limited overview of peoples' judgment of the services and benefits of urban green space. This topic was discussed more in-depth in the qualitative part of this study during focus groups and street interviews than in the survey based on a questionnaire. Because the questionnaire was quite lengthy and already contained many questions and statements, there was no more room for a set of inquiries regarding the services green spaces provide according to park users. Now the perception of green space benefits is for the most part confined to those related to leisure.



## Section Two



## 4 Profile of the research area

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Current chapter provides an overview of the research area which is the city of São Paulo in Brazil. The first section profiles São Paulo as a dynamic metropolis where extremely wealthy families share the urban space with extremely poor households, leading to specific economic, residential and infrastructural patterns. That these patterns become reflected in the use of urban green space is proved in the next chapter. Section 4.2 tells about the development of green space in São Paulo over time, from the creation of the first city park in 1825 up to the parks that are being created today and plans for the near future. The third and most extensive section of this chapter presents the four case studies: the urban parks Pinheirinho d'Água, Villa-Lobos, Carmo and Ibirapuera. Characteristics such as size, history, visitor types, amenities, location, and management issues become clear for all four parks.

### 4.1 São Paulo – A dynamic metropolis

São Paulo is the largest city of the southern hemisphere, located in the south-east of Brazil, capital of the populous state of São Paulo and one of the richest cities in the world. With 20 million people São Paulo is the world's third largest urban agglomeration (UNFPA, 2011, p. 77). The city is Brazil's financial headquarters, a cultural centre that boasts art, creativity and culinary highlights and an important political centre. It is also the country's most ethnically diverse city. Together with Brazil's rapid economic growth, São Paulo's international influence increases. This status is visible in the urban architecture that is surprisingly modern and features some of the tallest skyscrapers in the country. More infamous are the city's unpredictable climate and never-ending traffic jams that are a great source of irritation and make that São Paulo is home to the largest helicopter fleet in the world.

**Figure 4.1** Map of the state of São Paulo with the city of São Paulo indicated in red



Source: Serra, 2010

The city is located 70 kilometres from the coast on a plain amidst the subtropical highlands of the *Serra do Mar* forest, 800 meters above sea level and horizontally crossed by the *Tiête* River of which a branch, the *Pinheiros* River, flows to the west of the city (Biblioteca Virtual do Governo do Estado de São Paulo, 2012a). Both rivers have been canalised and greatly contaminated so that today it is no longer possible to make use of the rivers in any manner.



Instead, São Paulo's most important highways run next to the waterways. The only existing water bodies are two large reservoirs in the sparsely populated extreme south of São Paulo that generate electricity and are more and more used for the purpose of leisure. To the far south and north of the city are two nature reserves that include remainders of native Atlantic Rainforest. However, the era of colonisation saw the destruction of most native forest and today the city as well as surrounding regions are characterised by a mix of native and exotic vegetation species. Most natural areas are found at the outskirts of São Paulo and in hilly areas which are less suitable for construction so that urban sprawl is halted there. The only occupation in these areas consists of illegal settlements by poor migrants who cannot afford a home in the city.

São Paulo's history starts in 1554 when a village was established by Jesuits who founded a mission to convert the indigenous population and which served to explore the interior from. Here the Portuguese started with deforestation of the hills and flat highlands in order to grow coffee on large-scale plantations which was harvested by slaves and transported from São Paulo to the harbour city Santos from which it was shipped to Europe. Coffee production made that the city underwent high economic growth in the nineteenth century and lured hordes of European immigrants to São Paulo, whereof many Spanish, Portuguese, Germans and Italians. For some years Italian descendents constituted the largest share of São Paulo's population and today still many inhabitants bear Italian and Portuguese last names. During the first half of the twentieth century São Paulo developed an industrial society which attracted new migrants from Lebanon, Syria, Japan, and from deprived regions within Brazil, mainly the northeast. In the second half of the past century São Paulo attracted Chinese and Korean immigrants and today it is Bolivian migrants who are arriving (Biblioteca Virtual do Governo do Estado de São Paulo, 2012b).

**Figure 4.2** European migrants arriving in São Paulo

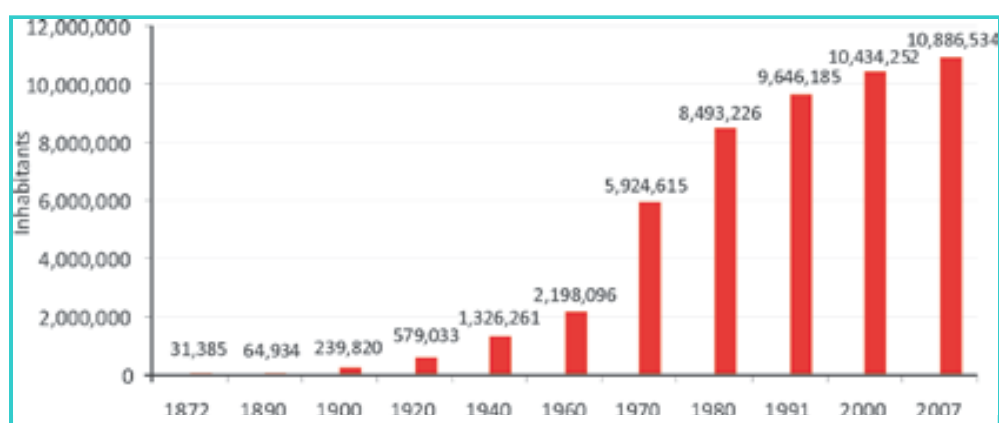


Source: Biblioteca Virtual do Governo do Estado de São Paulo, 2012

Demographic change was immense; in twenty years São Paulo's population doubled and from that point on the city continued to grow, reaching eleven million people within the city today and twenty million in the São Paulo metropolitan region. Figure 4.3 and Table 4.1 display a number of demographic and economic statistics for São Paulo. This demographic transformation demanded a change of the urban structure. First of all new thoroughfares and a subway system were created to alleviate the road pressure that was caused by a mounting car fleet; nevertheless traffic congestion persists to be a dire problem. Spatial development in São Paulo is characterised by irregular practices and sprawl since all expansion before the 1930s took place without any urban plan. But even after a first zoning plan was revealed in 1972 no genuine urban planning came to pass, resulting in a city that lacks a clear urban structure (Indriunas, 2012). One consequence is that only privileged residential quarters have experienced some degree of urban planning so that these are among the few neighbourhoods where residential,

industrial and commercial uses are not mixed. The British company *City CIA*. designed plans to modernise several high-end residential quarters, called garden neighbourhoods, between 1915 and 1950 of which *Alto de Pinheiros* in which the case study park Villa-Lobos is located is one example. Such quarters are mainly found in the area where west, south and central São Paulo touch each other and can be recognised by the wide tree lined avenues, absence of tall apartment buildings and informal constructions, and their green character<sup>5</sup>. Around the richer neighbourhoods business districts evolved and are still rising, such as *Faria Lima* and *Moema* southwest of the city centre – districts that embody the transformation into a service economy that turned São Paulo into the national centre of banking, law and commerce. Urban growth and high land prices made poor families move to peripheral areas where a collection of irregular settlements exists and where the economic standard is much lower than in central São Paulo. The extreme north, south and east of São Paulo show a lower Human Development Index score and are generally regarded as poor, neglected and dangerous parts of the city (UN-HABITAT, 2010, p.7). Crime statistics tell that São Paulo is becoming a safer place to live, however, social inequality continues to be an apparent trouble (Barrionuevo, 2009; The Economist, 2008). Since the turn of the century a Strategic Master Plan has gone into effect that should better regulate urban growth and related challenges that diminish the quality of life, such as urban mobility, environmental pollution and spatial segregation (Convention on Biological Diversity, 2010).

**Figure 4.3** Population growth in São Paulo from 1872 to 2007



Source: Spangenberg, 2009

**Table 4.1** São Paulo statistics: population and economy

São Paulo	
Population	
Population size <sup>1</sup>	11,337,021
Population density <sup>1</sup>	7,443.92/km <sup>2</sup>
Degree of urbanisation <sup>1</sup>	99%
Annual population growth rate <sup>2</sup>	0.76%
Population younger than 15 <sup>1</sup>	21%
Population older than 60 <sup>1</sup>	12%
Economy	
Agriculture <sup>3</sup>	0.01%
Industry <sup>3</sup>	21%
Services <sup>3</sup>	79%
Monthly per capita income <sup>4</sup>	1,229 US\$

Source: Fundação Sistema Estadual de Análise de Dados, 2012

<sup>1</sup>Data for 2011

<sup>2</sup>Data for 2000-2010

<sup>3</sup>Data for 2009

<sup>4</sup>Data for 2010

<sup>5</sup> Information obtained during a meeting with Dr. Wagner Costa Ribeiro from the University of São Paulo

## 4.2 Urban green space in São Paulo: policy and development

São Paulo is far away from having the image of a green city. Usually the city is typified as a dirty, crowded, unhealthy city where you are stuck in traffic all day long, where the sky is always blurred by smog and where you better refrain from going out after dark. In return the city is famed for its great universities and career opportunities, its artistic and cultural life, and for its splendid gastronomy. Still, few persons speak of the forests and nature reserves that surround São Paulo, or of the numerous parks that are being used intensively by residents. Maybe this is the case because São Paulo has only been promoting and investing in the green side of the city since recently. Today the municipal government aims to increase the number of urban green spaces, the amount of bicycle lane kilometres and starts to invest in sustainable building and solutions. The development of green space is closely related to societal transformations and happened in four stages of which the first three are depicted in Figure 4.4. The fourth phase started in 2008 with the '100 Parks for São Paulo' programme and is discussed later on.

**Figure 4.4** All existing municipal parks in São Paulo that have been constructed between 1899 and 1998



Adapted from: Bartalini, 1999

### *A first commence to beautify a novel city for the bourgeoisie*

The first public park of São Paulo, *Jardim da Luz*, dates from 1825 and fulfilled the function of Botanical Garden before it became accessible to the public. Brazil followed the European example in creating open spaces to allow the bourgeoisie to stroll through beautiful esplanades and city gardens. A new element was added to the urban structure: landscaping of open and public spaces out of aesthetic considerations (Robba & Macedo, 2003). In the second half of the nineteenth century Europe brought the ideal of beautiful, modern and healthy cities to the new Republic of Brazil that adopted this ideal in the first green space policy. In São Paulo the growing

coffee economy led the compact town transform into a big city with wealthy coffee farmers moving to villas in exclusive residential quarters in west São Paulo and immigrants living in downtown precarious housing. Inspired by French garden architecture the first parks emerged as places of culture and meeting points for São Paulo's high society (UNEP *et al.*, 2008, p. 15-16). That time also saw the originating of the so-called landscaped square which combined the former paved plaza with its exact opposite, the garden. Such landscaped squares are still visible throughout the city, in particular in the residential quarters of the west zone. Urban beautification created some of the most pleasant areas in São Paulo, however, it also engendered social exclusion and spatial segregation by 'cleaning' the central city from the lower social classes consisting of poor immigrants and ex- slaves (Spangenberg, 2009, p. 39-40).

### *Post 19<sup>th</sup> century greening for a new phenomenon in the industrial era: leisure*

The second chapter in the historical telling of São Paulo's urban parks sets in when the city turned into a true metropolis in the twentieth century. The coffee economy collapsed with the economic crisis in the 1930s and São Paulo changed its focus to industrial development. Flows of migrants arrived and São Paulo soon became the most populous city of Brazil, leading to urban sprawl, the creation of gated communities and the degradation of public space (Spangenberg, 2009, p. 49, 52). The change from a rural to an urban-industrial economy led to a new way of life in which family life, rest and work were pulled apart so that a new concept emerged: leisure time. As in advanced capitalist societies, the bourgeoisie realised that the industrial society led to a degrading relationship between workers and nature. Their social conscience resulted in the proliferation of public green areas and the search for outer city trips, also by the working class. Within Brazil, particularly São Paulo exhibited this development since the city received many European immigrants who brought their leisure habits with them. It was in this context that leisure spaces like gardens and sport clubs emerged, spaces that also serve to facilitate informal meetings out of reach from the moral ties of civil and religious authorities (Bartalini, 1999).

In the beginning, a large share of the green space administered by the provincial and municipal governments was destined to beautify the city or supply leisure areas for residents – functions that can easily be confused with each other. Slowly on, some employees of the municipality began to see the importance of the ecological function of green areas. This environmental conscience set off with concerns about the water quality of rivers and related fisheries and has led to the creation of conservation areas. Another indicator of rising environmental awareness can be found in a report from the General Directorate of Hygiene that warns for an insufficiency of parks in São Paulo and advises to create, next to existing parks at the neighbourhood level, large parks with abundant vegetation. The Directorate states that green space in the form of city parks is needed to clean the air and provide a place for recreation. According to Bartalini (1999, p.1) efforts of the municipal government, who prepared a range of plans and projects designed to provide for green space, were countered by the rapid destruction of natural green areas and private greeneries that had to make way for road infrastructure, residential neighbourhoods and industrial sites. At this time, the remaining ranches, farms and properties of the urban elite served for the creation of public park grounds. Examples from the second green space wave are the parks *Carmo* and *Piqueri* (UNEP *et al.*, 2008, p. 16).

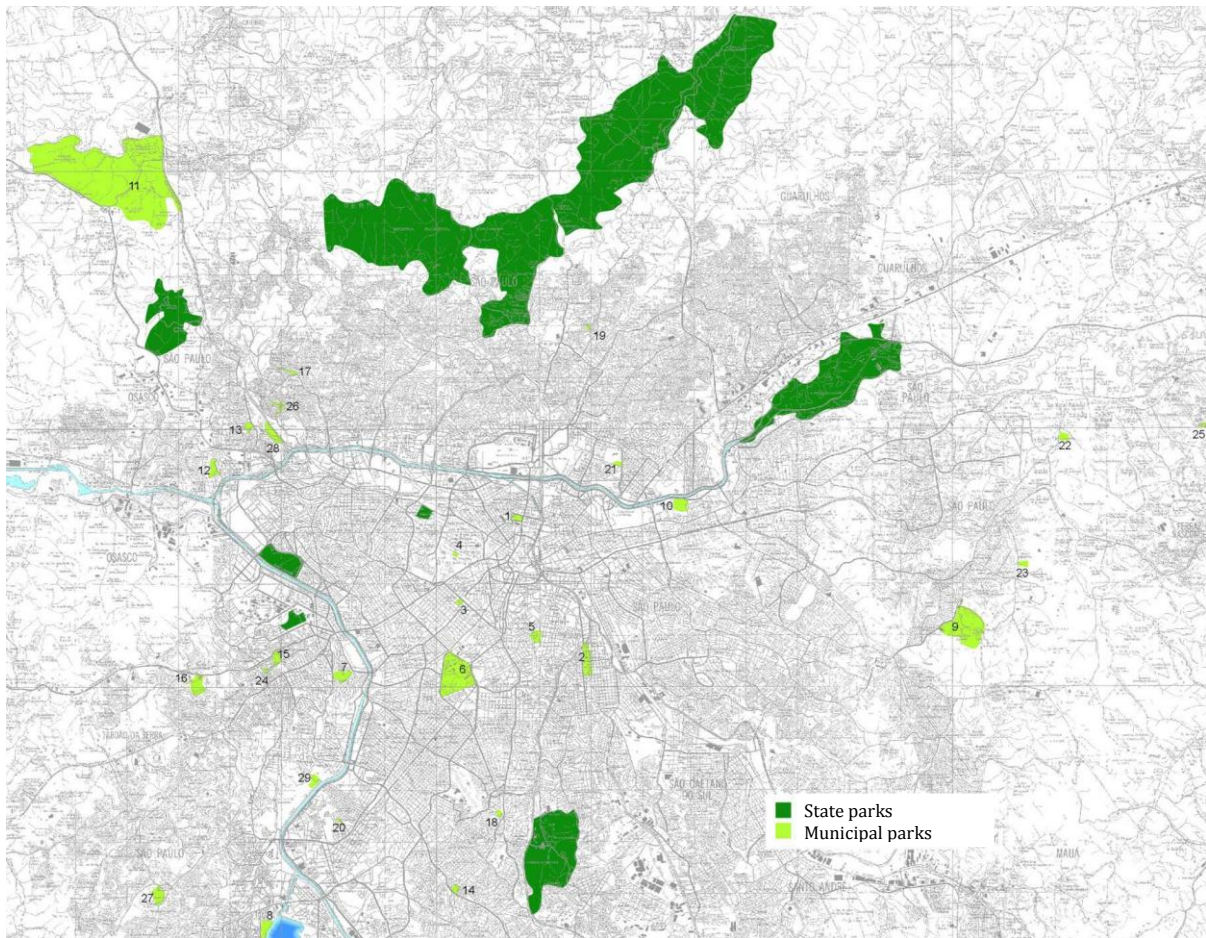
### *A fresh mindset is growing: green space to improve urban quality of life*

Finally, the third stage extends from the 1970s up until present day and is marked by the insight that new green areas need to be created. Research by Bartalini (1999) into the technical archives of the Department of Parks and Green Areas revealed a hundred municipal green areas in 1998. Only 29 of these were considered parks according to official city administration, which demands the areas to be fenced and include onsite administrative headquarters – something that resulted from new security measures in the 1960s that were implemented at a time that slums and social



inequality were growing rapidly (Spangenberg, 2008, p.51). Municipal parks are managed by the Department of Parks and Green Areas, whereas the remaining 71 green spaces are landscaped squares (which can also contain small leisure facilities such as playgrounds) which belong to the jurisdiction of the Regional Administrations. A second distinction is made between municipal parks and state parks. Municipal parks differ from state parks as the latter's function as leisure provider is generally secondary and restricted since state parks usually serve to protect water sources, host livestock or for reforestation purposes (Bartalini, 1999, p. 150). Figure 4.5 displays 29 municipal parks in 1998 in light green and the state parks in dark green. The outsized state park in the north is a preserved remnant of Atlantic Rain Forest named *Serra da Cantareira*.

**Figure 4.5** State and municipal parks in São Paulo by the year 1998

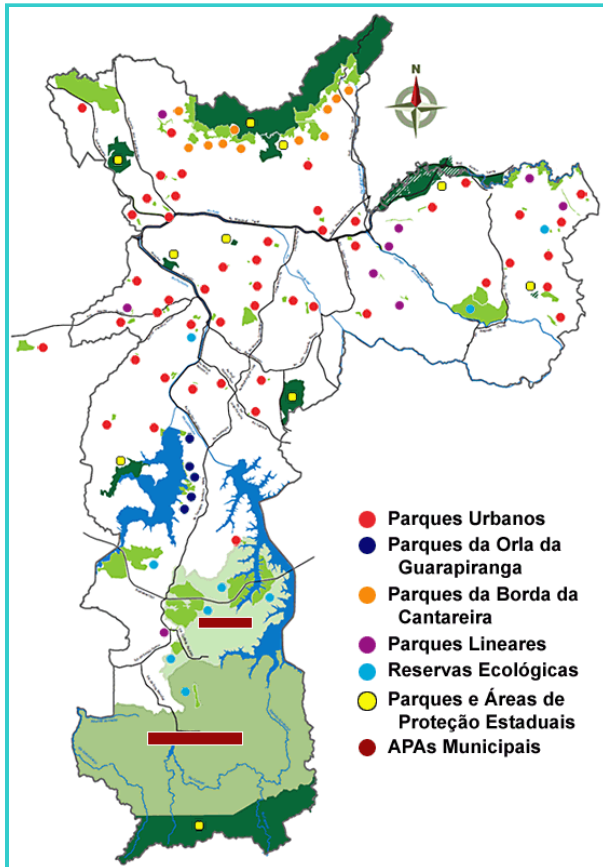


Adapted from: Bartalini, 1999

Ten years later in January 2008 the municipal government launched the 'Programme 100 Parks for São Paulo'. From 34 parks and 15 million square meters of municipal park area in 2005, the city should feature a hundred parks that measure 50 million square meters by the end of 2012. Besides an increase of the number of parks the programme aims to better distribute urban green space as the green areas used to be concentrated in certain city parts. Above map shows that most urban parks are situated in the western part of São Paulo and that the north, south and east parts are poorly endowed. The programme will create a new green infrastructure by implementing three green space types: traditional parks with natural elements that serve as a place for leisure and culture; natural parks for the protection of biodiversity; and linear parks that enable urban reform, environmental restoration, flood risk management and also include leisure elements. Linear parks are a novel park type in São Paulo and the principal element within current green space policy – their number should grow from zero to fifty in four years (Secretaria Municipal do Verde e do Meio Ambiente, 2012a). A recent map of São Paulo's parks is

displayed in Figure 4.6 with in light green municipal parks and in dark green state parks. In light blue and red are green spaces that strictly serve for ecological preservation. Red dots signify traditional urban parks, yellow dots are placed in natural parks and fall under jurisdiction of the state of São Paulo. With orange the parks under construction bordering the *Serra da Cantareira* are indicated and dark blue dots signify parks that will border the *Guarapiranga* water reservoir in the south. Finally, nine purple dots show the locations of recently constructed linear parks.

**Figure 4.6** Parks in São Paulo in 2010



Source: Prefeitura de São Paulo, 2010

### *The park of the future*

Like green spaces, water networks are vital elements in shaping urban structure, hence the Strategic Master Plan brings in the 'Programme for Environmental Recovery of Water Courses and Valleys' in which linear parks are the main line of action. Linear parks are supposed to supply leisure facilities on the neighbourhood level while at the same time protect river banks from irregular occupation and water networks from the pressure of urbanisation; the parks are generally planned in degraded areas where water courses suffer from pollution and are on the brink of disappearing. Waterways should become free from constructions on the river banks and turn into green belts that restore the environment and provide residents with leisure possibilities (Secretaria Municipal do Verde e do Meio Ambiente, 2012a). Figure 4.6 contains a linear park design and two examples of already implemented linear parks in the north zone of São Paulo. The images exemplify the type of neighbourhood linear parks are constructed in; areas consisting of self built residences that lack basic infrastructure and where residents from lower socioeconomic strata live. According to Geraque (2012) two million persons in São Paulo live illegally on river shores. Usually a linear park is constructed as follows. All housing that is built along a water course in the area where the park is planned is destroyed and residents are



required to leave, in most cases alternative housing is provided in public housing units nearby. After the land has been recovered the park is implemented, which means that grass and young trees are planted, sport and play equipment is set up and a security team is installed. Linear parks are generally managed by administrators from nearby parks; the parks do not dispose of administration buildings or sanitary facilities as it is not allowed to build close to water courses<sup>6</sup>.

Experiences with linear parks are not all positive. First of all it is hardly ever the case that residents are willing to move out of their homes which they often built by themselves and in which they have lived for several years. The alternative of public housing is promoted by the prefecture as a safe, comfortable option that is to be much better appreciated than living in informal settlements – however, many residents do not feel much for an apartment that will substantially raise their monthly expenses and above all, people want to be free in the choice for a living location. Therefore it is not surprising that many relocated families are found living in irregular occupation again after their houses have been demolished, something that goes directly against the purpose of linear parks. Also park administrators face various challenges with the newly implemented parks, ranging from the abuse of playground and sport materials (linear parks are not fenced so accessible day and night) to problems with trees that refuse to grow. Apart from relocated families, users are generally grateful for the new green space that enhances neighbourhood attractiveness and community identity. Residents gain valuable new leisure options – something that is limited in such neighbourhoods, and in particular for children and mothers the parks are true meeting points. Unfortunately, the parks become meeting points for loiterers and drug users at night<sup>7</sup>. A final deficiency of the 100 Parks Program is that the prefecture is behind on schedule with 21 parks to be implemented before the end of the year (Folha de São Paulo, 2012). Furthermore, the question is whether the linear parks are able to bear a same function as traditional parks, which is to be a natural place of recreation and tranquillity in an urban environment. A majority of recently developed parks in São Paulo are characterised by sport infrastructure in a setting that seems more concrete than natural and far away from the nineteenth century aim of urban beautification.

**Figure 4.7** Examples of linear parks in São Paulo



Sources: Ideosfera, 2011 and Arthur, 2010

<sup>6</sup> Information obtained during a meeting with Carlos Roberto Fortner in August 2011 and during a field visit with linear park administrator Rodrigo Bisanson Cavalin in September 2011

<sup>7</sup> Information obtained during a seminar with administrators of linear parks in October 2011 and from visitors of linear park *Fogo*

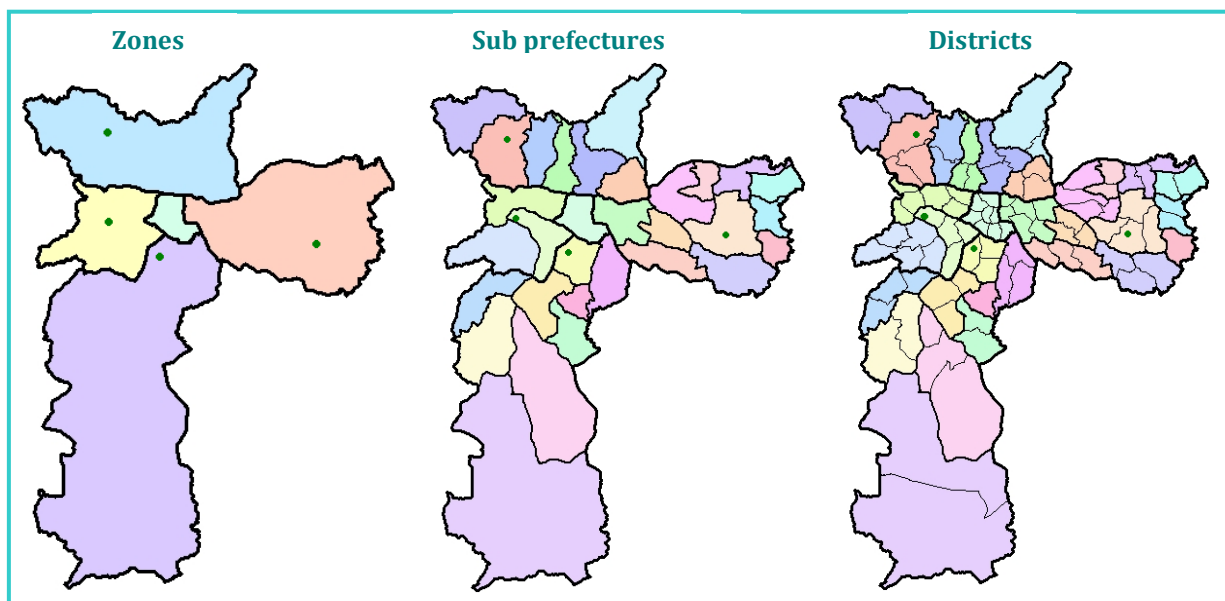
### 4.3 Case studies

The research project is structured around four case studies in São Paulo which served for the collection of main field data. During the case study selection process several aspects have been complied with. Each case study is an urban green space of which the main function is recreational and not nature conservation. The four selected green spaces are all parks, meaning that they are fenced, have certain visiting hours, an administrative building and personnel onsite, cleaning and security teams and people for maintenance and gardening. Also, all urban parks have a park council with representatives of civil society (neighbourhood associations and residents) and the state or municipality of São Paulo, who meet in monthly meetings with the park administrator to discuss everything concerning the park – from security and cleaning to events and parking problems.

In order to represent the city of São Paulo as much as possible case studies have been selected in each city zone: north, east, south and centre-west. Figure 4.8 is displayed in the previous chapter and repeated here to designate case study locations. The case study parks are of varying size with the purpose of having a proper representation of both neighbourhood and city parks. Another aspect that guided the case study selection is the year in which the parks have been built, choosing parks from different time periods. Finally, parks have been chosen in neighbourhoods of diverse socioeconomic characters. Thus the common factor of the case studies is that all are official and recreational parks, either municipal or state managed, and the elements that vary are size, location and year of inauguration.

This section describes four case study parks selected for the research project and will answer research question number one: What are the main characteristics of the urban green spaces in the selected case studies? The parks are characterised with information obtained from field observations, secondary data sources and the help of park administrators, employees, visitors, park council members and persons working for the municipal Department of Green and Environment of São Paulo and the state Department of Environment. In order of size the parks are Pinheirinho d'Água, Villa-Lobos, Carmo and Ibirapuera. Each is illustrated in current section, and Table 4.2 on the next page gives a preliminary overview of park characteristics such as the offer in sports and cultural facilities in order to get a first idea of the four parks.

**Figure 4.8** Three administrative levels of São Paulo, the case study parks are indicated with green dots



**Table 4.2** Case study parks and their main features

Park features*	Pinheirinho	Villa-Lobos	Carmo	Ibirapuera
<b>General</b>				
Inauguration	2009	1994	1976	1954
Size (ha)	25	73	150	158
Location	North	West	East	South
Opening hours	6 a.m. – 6 or 7 p.m.	6 a.m. – 6 or 7 p.m.	6 a.m. – 6 or 7 p.m.	5 a.m. – 12 a.m.
Visitors are from	Neighbourhood	Surrounding districts	Surrounding districts	Entire city
Visitors per week	1,500	65,000	65,000	300,000
<b>Landscape</b>				
Landscape design	Contemporary	Contemporary	Modern	Modern
Elevation	Some altitude	Flat	Some altitude	Flat
Flora	Eucalypt	Native & lawns	Atlantic Rainforest	Native & tropical
Fauna	Birds	Birds	Birds, fish, rodents	Birds, fish
Water body	No	No	Yes	Yes
Plant nursery	No	No	Yes	Yes
<b>Sport infrastructure</b>				
Gym equipment	Yes	Yes	Yes	Yes
Soccer court	Yes	Yes	Yes	Yes
Basketball court	No	Yes	No	Yes
Tennis court	No	Yes	No	No
Running track	No	Yes	Yes	Yes
Bicycle lane	No	Yes	Yes	Yes
Group exercise	Yes	Yes	Yes	Yes
<b>Culture and education</b>				
Library	No	No	Yes	Yes
Museum	No	No	Closed	Yes
Amphitheatre	No	Yes	Yes	Yes
Planetarium	No	No	Closed	Yes
Workshops/courses	No	No	No	Yes
Environmental educ	No	Yes	Yes	Yes
<b>Amenities</b>				
Sanitary facilities	Yes	Yes	Yes	Yes
Parking	No	Yes	Yes	Yes
Food stands/kiosks	No	Yes	Yes	Yes
Barbecues	Out of use	No	Yes	No
Playground	No	Yes	Yes	Yes
Bike/skate rental	No	Yes	No	Yes
<b>Socioeconomic indicators of the neighbourhood</b>				
District name	Jaraguá	Alto de Pinheiros	Parque do Carmo	Moema
Housing types	Public, irregular occupation	Apartments, detached houses	Public, irregular occupation	Apartments, detached houses
Income above 10 minimum salaries <sup>8</sup>	1.31	50.73	2.10	63.93
Income beneath 1 minimum salary <sup>9</sup>	29.23	2.68	27.40	2.37
HDI score	0.791	0.955	0.799	0.961

\*For detailed information about the administrative units in which the case study parks are located please see Appendix IV.

<sup>8</sup> Year 2000, in percentage of the total, derived from: SEADE – Fundação Sistema Estadual de Análise de Dados, 2012

<sup>9</sup> Year 2000, in percentage of the total, derived from: SEADE – Fundação Sistema Estadual de Análise de Dados, 2012

## 1. Pinheirinho d'Água

Pinheirinho d'Água, in short Pinheirinho, is a municipal park located in the district Jaraguá in the northern zone of São Paulo. The park opened in 2009 which makes it just two years old at the time of the survey, and with its 25 hectares it is the smallest of the case study parks. The fact remains, however, that Pinheirinho is one of the largest city parks recently created (ZNna Linha, 2007). Close to Pinheirinho is a very large natural area, the state park Jaraguá, home to the highest peak of the city and a reason why the area encloses the third highest amount of green space per inhabitant in São Paulo: 91 square meters. Note that this green space consists for the most part of areas that are inaccessible to the public and not meant for leisure. Pinheirinho's opening hours are from six in the morning until six or seven in the evening, depending on the season, but as in all parks there is a 24-hour security team present. There are no kiosks or eateries found in or nearby the park. Pinheirinho is a typical neighbourhood park that attracts people who live in its direct surroundings and welcomes about 1,500 visitors each week<sup>10</sup>. Pinheirinho d'Água is part of a participatory project to revitalise and improve the neighbourhood, in collaboration with architecture students of the University of São Paulo (USP) who co-designed the project and involving students of the elementary school adjacent to the park. Residents feared the transformation of their neighbourhood into a big slum and advanced the plan to turn the empty land susceptible to illegal occupation into a park (ZNna Linha, 2007). In fact, the slum that used to be situated in front of the park area is demolished, residents are relocated to public housing units and on the same site a new linear park is built, named Fogo<sup>11</sup>.

**Figure 4.9** View from Pinheirinho d'Água Park on the surrounding area



Pinheirinho d'Água consists of two fenced areas that are separated from each other by a road. Both parts of the park are used for leisure and sport in particular. The public consists for the most part of youngsters and children who come to play soccer or watch the weekend matches. Some families visit the park to take their children to play outside and various people – of which many stay-at-home mothers, make use of the gymnastic equipment. Eucalyptus is the main vegetation type in Pinheirinho and some native tree species are found, next to young trees that have been planted recently. Animals are not seen regularly although birds are common from September to March when migratory birds are visiting the area (Prefeitura de São Paulo, 2012).

The first part of Pinheirinho d'Água features two sport courts, a small area with physical exercise equipment, a basic room for security staff and a skateboard rink that is out of use due to drainage problems. The main part is bigger, houses the administration building and consists of three levels that can be reached by a flight of stairs in the middle of the park. A larger soccer field is located here with in front of it seating areas and a small fitness place, and behind it barbecue

<sup>10</sup> Information obtained during a face to face interview with Rodrigo Bisanson Cavalin in September 2011

<sup>11</sup> Information obtained during a face to face interview with Carlos Roberto Fortner in August 2011



places that nobody uses anymore for the reason that they are all broken. Further to the back is a vegetated and woody area with a small path winding through that is used by some visitors who live on that side of the park, but avoided by most people out of safety reasons. The mid level is not much more than a trail leading to the street that separates the park in two, but should be mentioned because it is an area which park users keep away from. During the survey period the police and park administration warned for drug users, prostitution and robbery and their advice was not to go there. The trail stretches along a small, polluted watercourse that separates the park from the slum on the other side and is littered with garbage, glass shards and empty bags of drugs. Some trees along the path are damaged as they have been put on fire; the vandalism and abuse is a real waste since this is the most vegetated and natural part of Pinheirinho Park. At the highest level is another recreation area with gymnastic equipment, a covered area designed for the ball sport bocce, plus an environmental education and community centre. After construction it turned out that nobody uses the bocce court and the community centre is not in use either, for environmental education purposes nor for community meetings. Some visitors hold the park administration responsible for the few activities that take place in Pinheirinho, exemplified by a visitor who wonders why the empty building is not used for organising computer courses. Some activities do take place though these are not organised by the park. Twice a week there is a gymnastic class for elderly people and the soccer school gives a daily training to children before or after their class which should help in keeping them off the streets.

**Figure 4.10** Soccer field with public housing units in the background, right: park users at main entrance



Pinheirinho's park administration is small with two part-time employees and one administrator who also manage the linear park Fogo which is located in front of Pinheirinho d'Água Park. The administrator changed to another park during the survey period and there was an alteration of the security, maintenance and cleaning teams. The latter took some months, leaving the park in an undesirable state with filth and garbage spread all over the park, closed toilet facilities and no gardening or other upkeep of the park. Numerous visitors complained about the dirt when they were interviewed during the survey and once a new cleaning and maintenance team was contracted people welcomed the positive change. Something that still needs attention from the park administration and municipal Department is the creation of playgrounds for young children. Their exact locations are known, the places have been prepared, and the only thing that has not been taken care of is the installation of slides, seesaws and climbing frames<sup>12</sup>. Just as with changing the cleaning and security contracts it will probably take a long while before the playgrounds are realised, since cooperation between the park and the Department of Green and Environment seems everything but efficient.

<sup>12</sup> Information obtained during a face to face interview with Rodrigo Bisanson Cavalin in September 2011

## 2. Villa-Lobos

The urban park Villa-Lobos is situated in the district Alto de Pinheiros in western São Paulo at the banks of river *Pinheiros*, close to the train station and next to an important thoroughfare. On the east side the park borders a shopping mall that bears the same name. Residents of Alto de Pinheiros belong to the higher socioeconomic classes and are generally not part of the public that visits Villa-Lobos Park on weekends, but visit the park during the week to jog or walk the dog. On weekdays an average of 3000 people visit Villa-Lobos, whereas on a Saturday, Sunday or holiday the park sees as much as 25,000 visitors per day who come from all over town. Villa-Lobos has a peculiar history. Before 1989 the area existed as a dumping site for construction and industrial waste where some eighty families lived from collecting food and packaging. In 1987, the year in which the city commemorated the birth of the famous composer Heitor Villa-Lobos a hundred years earlier, the first plans arose to turn the site into a thematic and contemporary park. A former governor of the state of São Paulo, who used to overlook the area from his residence, decided that the 73 hectares should become a park for culture, leisure and sports and the project gained support from residents. Families who lived at the site were relocated and debris and soil was removed so that in 1989 implementation could start and on top of the former construction deposit a new urban park was built, open to the public since 1994 (Governo do Estado de São Paulo – Sistema Ambiental Paulista, 2011). The park administrator describes Villa-Lobos Park as an example of nature creation, environmental recuperation and a gift to the people of São Paulo<sup>13</sup>.

**Figure 4.11** Plan of Villa-Lobos Park, the number (2) indicates the main entrance



Source: Image received from the park administrator

Contrary to the other case studies and most urban parks, Villa-Lobos Park is not owned by the municipal government but by the state of São Paulo, which means that employees work for the state Department of Environment. Green spaces that are under state control generally have a primary function of nature conservation and not one of recreation, such as the *Serra do Mar* Park in the south and the *Serra da Cantareira* in the north of São Paulo. Villa-Lobos is an exception to the rule as it is a genuine city park meant for the purpose of leisure and recreation. The fact that Villa-Lobos is a state park does not affect its functionality for park users. The park is easily

<sup>13</sup> Information obtained during a face to face interview with Roberto Rosa and Ivi Piotto in August 2011



accessible by car, bus and train and within walking distance of the neighbourhoods Boaçava, Vila Leopoldina and Alto de Pinheiros. In front of the main entrance kiosks sell food and drinks at the weekend and inside the park smaller cafes offer various refreshments. Bicycle and car parking (750 spaces) is available and opening hours are similar to those of Pinheirinho d'Água: in winter from six to six and in summer from six to seven.

Although the park is less than twenty years old it is well known in the city and since five years very popular owing to the range of leisure options it has to offer, especially its suitability for bicycles. Yet this “sporty” image of Villa-Lobos is not in line with the original project idea. The park is named after the Brazilian composer Heitor Villa-Lobos and the idea were to create an urban park that breaths the musical theme throughout: a “city of music”. To be build were a musical island, auditoria, an Opera Theatre and exposition space for ballet and music schools where workshops and classes could be organised (Sabbag, 1988; Governo do Estado de São Paulo – Sistema Ambiental Paulista, 2011). Such an infrastructure cannot be found in Villa-Lobos Park today, in part because parking and other facilities are inadequate<sup>14</sup>, in part because from 1998 to 2004 park affairs were monitored by the state Department of Sports which changed the centre of attention from music to the development of sport courts. In 2004 the Department of Environment took over the baton and guided the park towards a strategy of less constructions and more nature. Today the park does feature some references to the initial idea such as an installation with which children can produce and try out different sounds and a lounge area with chairs and benches where Villa-Lobos’ music is played through a speaker system. The administrator would love to widen the park’s horizon and create a real musical park in which you hear classical or jazz music whenever you walk or jog through the green surroundings.

**Figure 4.12** Villa-Lobos is a typical park for sport and play



The general picture of the park can be described as wide and structured, with young trees that are small in number and a large part that consists of paved surface. Villa-Lobos is a park with a spacious and open landscape, trees have been placed along the path on the edges of the lawn so that large open spaces are available for recreation and the wide concrete lanes are very suitable for running, skating and cycling. Also, the paved and flat pathways make the park easily accessible for all users. The landscape design is from the architect Rodolfo Geiser and a legal

<sup>14</sup> Information obtained during a face to face interview with Maria Helena Bueno in December 2011

patent makes that he has the final word on landscape and design changes so that the park management encounters difficulties to implement changes. Finally in 2006 the park could complete planting 24,000 seedlings and young trees of primarily native species, some of them already three metres high so that they can provide shade for visitors. However given that the park is created on top of waste material – which makes the soil layer rather thin and not so fertile as it would be naturally, this complicates tree growth and encumbers the development of big trees, to the disappointment of both visitors and the park administrator (Governo do Estado de São Paulo – Sistema Ambiental Paulista, 2011). Still, Villa-lobos is a young park and in some areas trees grow under better conditions which makes that the park administrator is positively minded and, what is more, the present park management decided to plant another 30,000 trees of which 11,000 have been realised since 2010<sup>15</sup>.

**Figure 4.13** Playground with orchid nursery in the background and ample lawn, realised after the design for Villa-Lobos pictured below



Source: Tozzi, 2009

The park organises cultural and sport events on a regular basis and almost every weekend a music show is performed in the amphitheatre. Villa-Lobos also hosts weekly activities such as Chinese therapeutic exercise workshops, yoga classes and dog trainings. In 2011 the park served as the venue for the international Cirque du Soleil. Such events yield financial resources that the park administration uses to improve its infrastructure, for reparations or the construction of

<sup>15</sup> Information obtained during a face to face interview with Roberto Rosa in August 2011

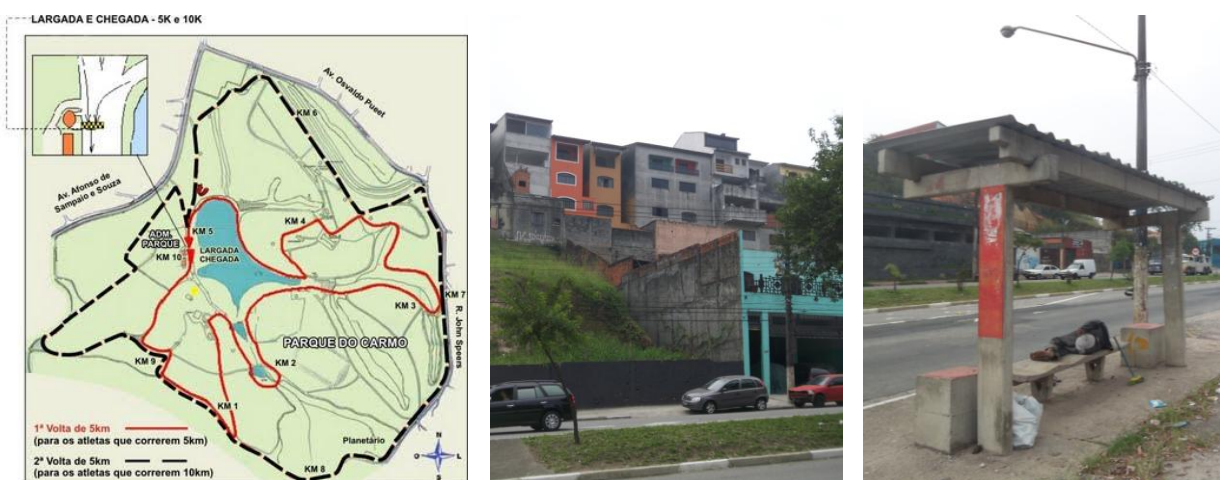


new facilities. A new environmental education centre is under construction – a modern building with lots of glass and water in front of it – and should have been delivered in December 2011, though the upcoming elections for a new state governor lead to insecurity about budgets and policy priorities<sup>16</sup>. Also, a third expansion is planned for the near future since the state Government made the adjacent construction site of the new subway line available to the park, extending the park with twelve hectares. According to the park administrator the new area will focus less on sport and diminish concrete surfaces and symmetry; the ambiance should become one of tranquillity and peace with a water surface, flower beds, wooden structures, butterfly spots, a plant labyrinth, native *Ipê* trees and above all more music. The reason that Villa-Lobos presently does not contain a water body is due to the contaminated water of nearby river Pinheiros. The park learns by doing and tries to pick up signals from visitors leading to knowledge about their preferences and desires such as a half pipe for skateboarding or a children bicycle lane. A final novelty for the park is that the administration tries to engage in public private partnerships to acquire resources for concerts and events.

### 3. Carmo

Carmo Park is a municipal park in the east of São Paulo, inaugurated in 1976 and measuring 150 hectares – it is one of the largest city parks. Carmo mainly receives visitors from the east zone, but when the park hosts events or festivals people make their way to the park from all over town and the visitor number easily exceeds the normal 65,000 a week<sup>17</sup>. A sizeable part of Carmo Park's visitors come from the east zone and have a socioeconomic standing comparable to that of visitors of Pinheirinho d'Água Park; they attained low to medium level schooling and earn a medium class income. The history of Carmo Park is mirrored in its current design. The old coffee farm became a family leisure area and in this state it was sold to the municipality of São Paulo in order to retain its leisure function and enable communities in the region to enjoy the beautiful place. The park's pathways still resemble old country roads and there are more design elements that refer to the origins of the area; the lakes, ample views, extensive lawns and the woods that have been preserved. Of course the area has been adapted to the needs of urban recreation and playgrounds and sport infrastructure have been implemented throughout (Macedo & Sakata, 2002). Today the park still acts as a history teller, for instance through the cherry tree orchard that commemorates the flow of Japanese immigrants who came to São Paulo since the 1920s and serves as the venue for the yearly cherry blossom festival.

**Figure 4.14** Plan of Carmo Park, the inset indicates the main entrance. Right: surroundings of Carmo Park



Source: Gulinno, 2011

<sup>16</sup> Information obtained during a face to face interview with Maria Helena Bueno in December 2011

<sup>17</sup> Information obtained during a face to face interview with Fábio Pellaes in November 2011

Of all case studies Carmo is the most natural urban green space; located in the *Aricanduva* river basin the park includes remnants of native Atlantic Rainforest and the overall landscape can be typified as a designed green leisure space with dominant natural elements; the lake for example is fed by natural springs, and the park houses an important nursery where trees are grown and botanists experiment with herbal plants and woody species for reforestation. This is not surprising since the park is part of the *APA Parque e Fazenda do Carmo*, which is an area of environmental protection comprising Atlantic Rainforest tree species, plants and flowers, birds, snakes and other animals. Part of the *APA* is used by Carmo Park and another leisure facility, the cultural centre *SESC Itaquera*. Within the protected area residential use, farms and some industry coexist, making the area prone to landslides. Illegal occupations often cause erosion as they are generally built in risky areas; the *APA* was created in 1993 to legally preserve the Atlantic Rainforest by recovering degraded areas and preventing the development of other land uses – for which the need is emphasized by the state of São Paulo: “*Conservation of this APA as green leisure area is of high importance for maintaining the quality of life for São Paulo’s east zone.*” (Secretaria de Estado do Meio Ambiente, 2012). As Villa-Lobos Park, Carmo expects to expand its boundaries soon with an area that borders the park to the southwest. Carmo’s park management is in doubt whether the expansion should become a public leisure area or whether the area is to be kept unchanged in order to preserve the place and let nature regenerate itself. In the latter case the new park area will be used for research and educational purposes, just as the *APA Parque e Fazenda do Carmo* is at present<sup>18</sup>.

**Figure 4.15** Natural area in Carmo Park and the park during the cherry blossom festival



Carmo Park has an infrastructure typical for a recreational green space: a lake, densely forested areas, soccer fields, gymnastic equipment, running and bicycle tracks, playgrounds, ample lawns where people play and relax, barbecue facilities, benches and picnic tables, food stands, a parking area, plus cultural facilities such as a small library where visitors can read books and magazines and where environmental education classes are offered to school children. Interesting is the natural amphitheatre used for musical performances and the planetarium that is the most modern planetarium of Brazil but unfortunately no longer in use, just as the park’s Environmental Museum. On paper, Carmo has everything to offer to become a city park of the same status as Ibirapuera; its size, landscape design, amenities and infrastructure for sport, recreation, cultural activities, shows and events are comparable and what is more, Carmo has fewer parks in its vicinity to compete with. Nonetheless, Carmo does not even receive one quarter of the visitors Ibirapuera does. One reason will be that Carmo is less centrally located

<sup>18</sup> Information obtained during a face to face interview with Fábio Pellaes in November 2011



than Ibirapuera and more difficult to reach by public transport, however the fact that Ibirapuera receives much more funds, donations and publicity probably weighs heavier since this makes it easier for the park to attract festivals and famous artists. Next to this difficulty the management of Carmo Park has stated to receive resistance from environmental groups when the park tries to organise events or attract big names from the music scene. These groups fear that the noise, garbage and great number of people will harm the natural environment – which is a relevant concern as it has proved to do so with former happenings. Carmo's administration finds itself in a dilemma since it cannot invite popular artists who will draw large crowds to the park whereas less famous performers attract so few people that it is hardly worth the effort. Also, without the big names Carmo will never reach a status comparable to the one of Ibirapuera<sup>19</sup>.

Another challenge faced by the park administration is the safety situation in and around Carmo Park. In surrounding residential quarters as well as in other parts of São Paulo several people state to perceive the park as dangerous or indicate to feel unsafe – mothers refuse to let their children visit the park unaccompanied. The park is large and especially the forested and remote parts of the park are difficult to oversee; even though the park gates close at dusk there are always places where the fence is broken and persons creep in after dark – the most tragic case being a woman found raped and murdered. Consequences are that potential visitors prefer another park to spend their free time in and parents who are afraid to let their children go to the park unattended. Carmo Park is illuminated, guarded day and night by a security team and often an additional patrol group from the police is present. These precautionary measures do not make the gossip about sexual assaults, prostitution, drug use and meeting places for homosexuals disappear which contributes to a negative perception of the park by some green space users – certainly not by all, Carmo Park is much loved by a majority of its visitors.

**Figure 4.16** Photo impression Carmo Park



<sup>19</sup> Information obtained during observations together and interviews with Frederico Jun Okabayashi in September 2011

#### 4. Ibirapuera

Ibirapuera is the most famous and popular park of São Paulo, located in the southern district Moema and close to the city centre. Ibirapuera has a sporty and cultural character and is much appreciated for its architecture and landscape design. The park features several museums, exhibition halls, and activities are organised for all audience types. In 1954 the city of São Paulo celebrated its fourth centenary with the inauguration of a new city park, Ibirapuera. Ibirapuera is a name from the Tupi language; the swampy area used to be an indigenous village before it was turned into pasture and farmland. Already in the 1920s the mayor of São Paulo had the idea of transforming the area into a modern urban park in American or European style, following the examples of Central Park in New York, Hyde Park in London and Bois de Boulogne in Paris. Yet the marshy soil obstructed the development of a new park until one of the city bureaucrats, Manequinho Lopes (after whom the park nursery is named) came up with the idea to plant hundreds of eucalyptus trees to drain the soil. In 1951 a committee of public and private representatives decided that Ibirapuera Park would be the mark of the city's fourth centenary commemoration, leading to the park's inauguration three years later (Parque Ibirapuera.org, 2011).

**Figure 4.17** Plan of Ibirapuera Park, a house across the street of the park and the road alongside the park



Source: Parque Ibirapuera.org

Ibirapuera is characterised by the work of the renowned architect Oscar Niemeyer who designed many of the park's buildings that were used as public offices before they became transformed into today's cultural spaces (Macedo & Sakata, 2002). Niemeyer designed the '*Grande Marquise*' which holds the Museum of Modern Art, the round *Oca* exhibition building shaped as a traditional house and the famous Auditorium with the striking red entrance. Other landmarks are the Japanese Pavilion, Obelisk, *Bandeiras* Monument, the Afro Brazil Museum, Museum of Contemporary Art and exhibition halls where big events such as São Paulo's Art Biennial and Fashion Week take place. Ibirapuera Park is home to one of the three municipal plant nurseries where trees and plants are cultivated, a public library, the iconic planetarium and the Open University of Environment and Peace Culture (UMAPAZ) which offers free courses,



workshops and lectures and has an extensive collection of books about architecture, environmental and peace studies including publications from various municipal departments.

São Paulo's most iconic park is also one of its major urban green areas with a size of 158 hectares, slightly bigger than Carmo Park and only inferior to Anhangüera Park in northwest São Paulo. With up to 300,000 visitors per week Ibirapuera's visitor numbers are higher than those of Hyde Park in London and almost half of those of Central Park in New York (Central Park Conservancy, 2011; Hitchcock, Curson & Parravicini, 2007). Each day 32,000 people visit the park and weekends are good for 120,000 to 150,000 visitors<sup>20</sup>. Ibirapuera opens its doors from five in the morning until midnight so that early birds can go jogging before they start their job and others are able to enjoy an evening walk. These opening hours are convenient as exhibitions in *Oca* and concerts in the Auditorium often happen at night.

**Figure 4.18** Indigenous Oca house and the modern version by Oscar Niemeyer in Ibirapuera Park



Source: Spangenberg, 2009



The landscape plan of Ibirapuera Park was designed by Roberto Burle Marx but another plan became implemented by the agronomist Augusto Teixeira Mendes. As other parks from the 1950s, 1960s and 1970s Ibirapuera is designed in the style of Modernism; to be recognised by less formally designed pathways, a mix of native and tropical vegetation and building design – Niemeyer is a Modernist architect (Macedo & Sakata, 2002; Secretaria Municipal do Verde e do Meio Ambiente, 2012b). The park features extensive lawns and many tree covered areas such as the “reading forest” and a 1500 meter long jogging trail. The paved main route that runs through Ibirapuera is twice as long, borders the eastern lakes along with the Japanese Pavilion and is in use by walkers who enjoy the landscape, runners and cyclers who come to exercise and skaters practicing their skills. Food stands border the lane to sell candy, ice cream and coconut water, there are several kiosk selling snacks and Ibirapuera is the only municipal park with an onsite restaurant. A 6500 meter trail winds through the outer parts of the park and runs along the western lake and museums in the north. Ibirapuera's three artificial lakes are interconnected and as is the case in Carmo Park these are one of the chief attractions with ducks, fish, swans and geese swimming in it and people sitting along the lake shore who love to watch them.

You could say that Ibirapuera Park is used as an outdoor gym; people come jogging in the morning and evening, use the stretching or gymnastic equipment and take their bicycle inside to exercise, seeing that cycling in the street is quite dangerous and Ibirapuera offers a special bicycle lane. The bicycle rental is popular on weekends when families come to teach their children how to ride a bicycle and friends go cycling through the park together. Also popular are the sport courts where volleyball, soccer and basketball are played and a large, flat, cemented plain of which skaters and yoga practitioners make use. Children run and play on the wide lawns, with ducks from the lake, at the various playgrounds or with art objects that are spread throughout the park. Ibirapuera is known to give priority to reforming the park and its facilities

<sup>20</sup> Information obtained during a face to face interview with Helena Quintana Minchin in August 2011

in such a way that all become accessible to visitors with a physical disability, such as activities for children with a hearing or sight impairment and special exercise equipment for persons bound to a wheelchair<sup>21</sup>.

**Figure 4.19** Photo impression of Ibirapuera Park



<sup>21</sup> Information obtained during a face to face interview with Helena Quintana Minchin in August 2011





## 5 Research findings

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Current chapter serves to present the empirical findings of the research project. Survey data are the starting point for an analysis of socioeconomic profiles, perceptions, preferences and actual use of urban green space visitors. The field data are obtained through questionnaires in four urban parks in São Paulo, as introduced in the previous chapter: Pinheirinho d'Água, Villa-Lobos, Ibirapuera and Carmo. In order to answer all research questions the field data are complemented with interview data from experts and key persons and with data derived from focus groups that were held with residents. Next to describing the findings in general and separately for each case study, the parks will be compared with each other so that interesting differences and similarities come into view. The following research questions will be discussed in four sections:

- What are the main characteristics of urban green space users?
- How can the visiting behaviour of urban green space users be characterised?
- How do urban green space users perceive urban green space and nature in general?
- What are urban green space users' preferences regarding urban green spaces?
- What are residents' visiting behaviour, perceptions and preferences regarding urban green space and in what way do they differ from those of users?

The fifth research question is answered through qualitative focus group data and will be integrated with the analysis of the former questions as it adds up to the quantitative outcomes. Each section starts with a brief introduction, followed by the analysis of relevant research variables supported by data presentation in tables and diagrams and ending with a final paragraph that sums up the main findings and conclusions. In order to enhance readability and enable comparison between case studies the main research variables with their associated frequencies are structured in an overview table at the end of section one and two.

An important part of current analysis is the search for variation within and associations between the various research variables. The first is attempted through a comparison in words of the four case studies, seeing what pattern each of them shows for the dependent and independent variables, and through analysis of variance by comparing means of different groups – e.g. the four parks, age groups or income categories – for a variable. Associations are explored by performing cross tabulation and computing the association measure Cramér's V which tells about the strength of a relationship, and, where park appreciation is measured through grading and statements, with the correlation coefficient  $r$ . Throughout current chapter the value of Cramér's V, the correlation coefficient and the p-value are designated below tables or where these are not shown mentioned in footnotes. Note that the survey does not allow for generalisation to a study population and therefore the p-value purely serves as an indicator of the significance of relationships within the survey. Tables displaying the statistical tests performed in this chapter are included in Appendix VI.

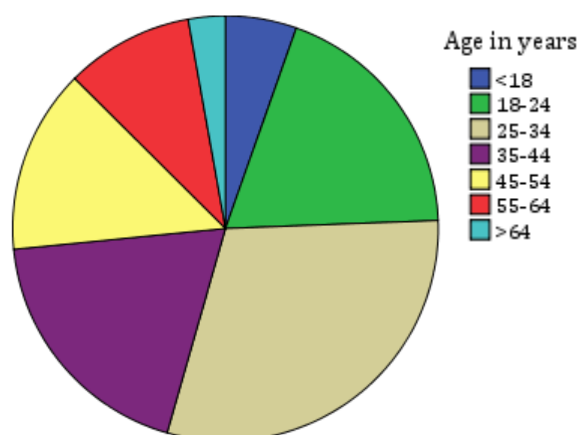
## 5.1 Visitor profiles

The goal of this section is to characterise the people that visit the four case study parks. A total of 600 park users filled in a questionnaire about their visiting behaviour, perceptions and preferences, of which 100 in Pinheirinho d'Água, 150 in Villa-Lobos, 150 in Carmo and 200 in Ibirapuera. For the total survey and for each park specific various socioeconomic indicators are discussed such as age, education, employment, residential situation and income. With this information a visitor profile of the case studies is created that informs about the type of people that visit the park, and a second objective is to demonstrate variation and consistency among the various variables, making use of cross tabulation to examine possible relationships between these and performing analysis of variance to compare means.

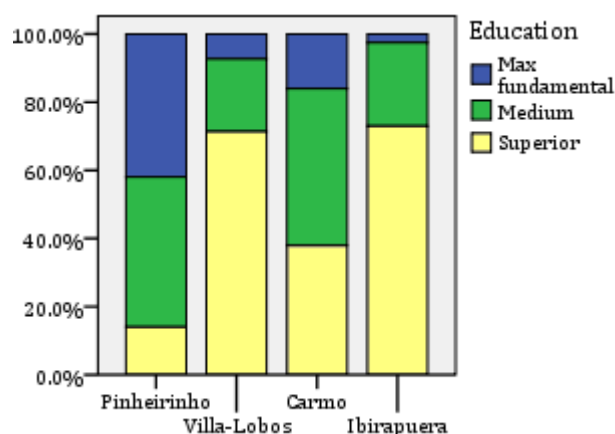
### *Socioeconomic characteristics of park visitors*

Starting with the gender balance among park users, the proportions differ from census statistics but approximate those found in green space studies. According to the 2010 population census 47% of São Paulo's inhabitants are male and 53% female (Instituto Brasileiro de Geografia e Estatística, 2011), however, a citywide study that has been carried out in the parks of São Paulo found more male than female visitors (Whately *et al.*, 2008). Current research project reveals a balance of 55% male and 45% female park visitors who are relatively young: thirty percent find itself in the age category 25 to 34 and the next biggest categories are persons aged 18 to 24 and 35 to 44 (see Figure 5.1). Most persons under 35 are found in Ibirapuera Park, whereas park users under 18 are mostly found in Pinheirinho and Carmo which can be related to the fact that many of their visitors live close to the park and indicated to have little other leisure options. Comparing the percentages found in the parks with the age distribution of São Paulo, it turns out that people aged 18 to 24 and 25 to 34 are overrepresented in the green spaces and that persons older than 64 are underrepresented (Instituto Brasileiro de Geografia e Estatística, 2011). This relatively young visitor profile is in accordance with other studies after the use of urban green space.

**Figure 5.1** Age – all parks



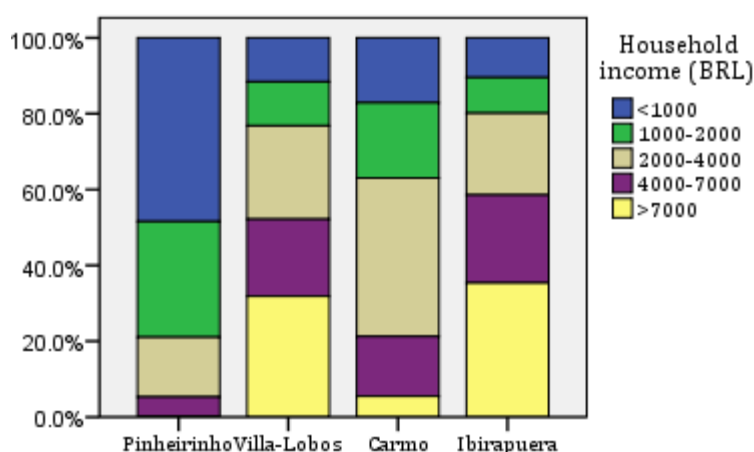
**Figure 5.2** Education level – per park



Considering education half of the park visitors completed a superior schooling level, meaning that they have obtained a college, university or post-graduate degree. This group is followed by one third of respondents who enjoyed medium level education, equal to twelve years of schooling or high school, and a minority who enjoyed education up to the fundamental level. Yet education levels differ substantially among the four parks, as can be seen in Figure 5.2; the parks Pinheirinho and Carmo showing lower schooling levels than Villa-Lobos and Ibirapuera. This might be of influence on the greater share of housewives and unemployed persons in the first

two parks, and indeed cross tabulation points out that education level and employment situation are correlated<sup>22</sup>. Of all park users a majority is engaged in a job and most of them work in services, finance and trade, which is logical since São Paulo serves as Brazil's financial headquarters. Although park visitors work in similar sectors, their incomes diverge significantly. Comparing monthly household incomes of park visitors with Brazilian averages, park users earn quite a high income, which will at least be partly related to the high income standards in São Paulo. This does not mean that none of the respondents fall into the lowest economic classes; in fact the lowest class is bigger in the case study parks than averagely in Brazil. It is especially the middleclass which is underrepresented in the parks. Looking at each park in specific, Carmo's large size, history and aesthetic quality make the park of interest to people of various socioeconomic classes; Pinheirinho receives mainly visitors with small family incomes; and high income classes are principally represented by. Notice that both Ibirapuera and Villa-Lobos are located in rich neighbourhoods, opposed to Carmo and Pinheirinho which are situated in poorer areas. These context factors are reflected in the statistics, as becomes visible from Figure 5.3 showing high incomes in the first two parks and lower incomes in the latter<sup>23</sup> – this indicates as well that a majority of park visitors live in the parks' vicinity. Also household income and education level are correlated; less education leads to fewer earnings and more schooling to a higher income<sup>24</sup>. Finally, family income is correlated with car ownership as is visible in Table 5.1; the higher the income, the higher the car ownership rate and vice versa.

**Figure 5.3** Household income – per park



**Table 5.1** Cross tabulation of household income versus car ownership

Car ownership	Household income					Total
	< 1000	1000-2000	2000-4000	4000-7000	>7000	
Do not have a car	69 65.1%	47 51.6%	51 34.2%	22 22.4%	9 7.8%	198 35.4%
Have a car	37 34.9%	44 48.4%	98 65.8%	76 77.6%	107 92.2%	362 64.6%
Total	106 100%	91 100%	149 100%	98 100%	116 100%	560 100%

N = 560, V = .417, p = .000

<sup>22</sup> V = .233, p = .000

<sup>23</sup> V = .453, p = .000

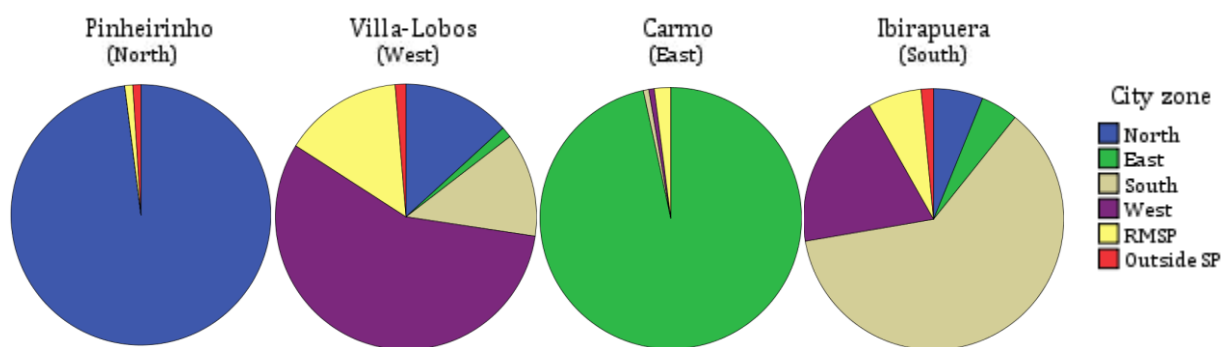
<sup>24</sup> V = .372, p = .000



### *Residential situation of park visitors*

To get an idea of the reach of each park visitors were enquired after their residential location. Figure 5.4 reveals that the parks Carmo and Pinheirinho stand out for attracting almost only visitors from their own zone, whereas in Ibirapuera and Villa-Lobos just about half of the respondents come from the same zone and a substantial share from other urban zones or from the São Paulo Metropolitan Region (RMSP). The expectation that Pinheirinho Park can be typified as a neighbourhood park is supported by the perception of its own park users seeing that two thirds of them state that the park predominantly receives visitors who come from the same neighbourhood. In Carmo this is just over one third of the total as the park welcomes visitors from neighbourhoods all over the east zone, and in Villa-Lobos and Ibirapuera a majority of the users perceives the park as attracting a mixed public which is in accordance with Figure 5.4.

**Figure 5.4** Residential location



The parks are located in neighbourhoods with dissimilar characteristics. The neighbourhoods in which the parks Pinheirinho and Carmo find themselves are characterised by low-income residential quarters, few job opportunities and lacking recreational facilities; there are no cinemas, theatres or museums to be found. Maternal mortality rates are high, prenatal services very poor, over 15% of pregnancies consist of teenage mothers and the areas show most deaths from traffic and homicide, especially amongst male juveniles. The direct neighbourhood of Pinheirinho is characterised by public housing and slums – the latter comprising over 20% of all homes in the district (Observatório Cidadão Nossa São Paulo, 2012). In Carmo Park area slum housing makes up 18%, an indicator of it being one of the poorer districts in the metropolis; in fact the entire east zone is regarded as a poor and neglected part of São Paulo. This stereotype is easily recognisable in the surroundings of the park where many illegal constructions are found, a number of shady motels, prostitutes waiting in the streets, low quality roads, people sleeping at bus stops or on the sidewalk, few apartment buildings and garbage everywhere. Few trees have been planted along the roads and there is a lack of green areas in the entire east zone.

A contrary image appears when neighbourhoods of the parks Villa-Lobos and Ibirapuera are concerned. Villa-Lobos Park is located in a high-income residential neighbourhood designed in the 1930s with wide, tree lined avenues, detached houses, no high-rise apartment buildings and many neighbourhood squares, sport facilities and cinemas. The neighbourhood is known as the greenest in São Paulo. Ibirapuera's district, densely populated, is a prime capital area that continues to attract investments, ranks highest in the Human Development Index (HDI; an index measuring the socioeconomic indicators education, life expectancy and income) and has the second highest mean income within São Paulo. The neighbourhood features green plazas, detached houses with gardens and luxury apartments, and many cultural facilities. The two rich districts do show high rates of deaths caused by respiratory diseases and cancer, which apart from life style may be related to the highly built-up area and dense traffic (Observatório Cidadão Nossa São Paulo, 2012; Secretaria Municipal de Coordenação das Subprefeituras, 2012).

Considering housing, the most common type among park visitors is owner occupancy, followed by public housing in Pinheirinho and private tenancy in Ibirapuera, Villa-Lobos and Carmo. However it could be the case that some persons are not completely frank about owning the home they live in, either because they are not really sure (e.g. in case the respondent lives with relatives) or because they do not fully comprehend the meaning of ownership (e.g. in case of a public housing scheme that eventually can lead to ownership). It is also quite probable that persons living in self-built housing or another form of irregular occupation chose the 'owner occupancy' option. Cross tabulation points out that a high income is predominantly found among home owners and a lower income among households in public housing<sup>25</sup>. It also shows that the type of housing in its turn influences the type of outdoor area respondents have access to, as private homes more frequently include a garden (see Table 5.2). A consequence may be that persons without a garden, who are mostly found living in public housing, more frequently pay a visit to the park. However the data prove otherwise and tell that people who visit the park multiple times a week are for the most part persons who have access to a garden<sup>26</sup>. It could be that a natural environment is of greater importance to these people.

**Table 5.2** Cross tabulation of housing type versus type of garden

Type of garden	Housing type			
	Owner	Private	Public	Total
Garden	143 32.1%	21 19.1%	5 1.4%	169 28.2%
Quintal, balcony or communal area	261 58.5%	58 52.7%	30 68.2%	349 58.2%
None	42 9.4%	31 28.2%	9 20.5%	82 13.7%
Total	446 100%	110 100%	44 100%	600 100%

N = 600, V = .172, p = .000

A third aspect of the residential profile consists of household composition. According to the Brazilian statistical bureau the average number of residents per housing unit in São Paulo was 3.14 in 2010 (Instituto Brasileiro de Geografia e Estatística, 2011), slightly smaller than the survey average of 3.38. Most common in the parks are three and four person households, followed by two and five person households. More than half of all households in the survey do not include any children living at home although the number varies among the parks as an analysis of variance points out nicely. It appears that visitors of the parks Pinheirinho d'Água and Carmo statistically differ in household size and number of children from Ibirapuera and Villa-Lobos, the parks that are located in higher-class neighbourhoods. In Ibirapuera a large majority does not have any children younger than fifteen living at their home which corresponds with the park's large share of one and two person households. The contrary occurs in Pinheirinho where families are big and a majority includes young children.

### Wrapping up

With the aim of creating green space user profiles this section analysed a range of socioeconomic indicators and their mutual relationships, together with similarities and differences that exist between the parks. As a verification of urban green space literature the research project found a domination of male and young park visitors. The higher share of male park users is related to the quota sampling method that used a preset gender balance in which more male persons were to be included in the survey sample. Still, it appeared from observation and from earlier studies that parks receive more male than female visitors, which justifies the higher share of male park

<sup>25</sup> V = .246, p = .000

<sup>26</sup> V = .094, p = .031

users. Additionally, park users state to have obtained a high level of education and likewise an above average household income. These two socioeconomic indicators do vary substantially between the four parks seeing that the parks Carmo and particularly Pinheirinho d'Água show lower education and income levels than Villa-Lobos and Ibirapuera. Household income is associated with the type of house respondents live in since a higher income leads to a higher rate of home owners and smaller incomes are found among families in public housing – similarly, income is related to car ownership which increases when earnings increase. Regarding the residential situation of park visitors Ibirapuera and Villa-Lobos distinguish themselves as parks that attract one and two person households or small families with few children, and people from beyond the region they are situated in. Carmo and Pinheirinho on the other hand welcome visitors with larger households and more young children that live in the same zone; being the eastern and northern part of São Paulo respectively.

The frequencies belonging to the discussed variables are displayed in the overview table.

**Table 5.3** Overview of socioeconomic characteristics of park visitors

Socioeconomic characteristics*	All parks	Pinheirinho	Villa-Lobos	Carmo	Ibirapuera
<b>Gender</b>					
Male	55%	59%	50%	60%	54%
Female	45%	41%	50%	40%	46%
<b>Age</b>					
< 25	25%	25%	21%	28%	26%
25-54	63%	63%	63%	61%	64%
> 54	12%	12%	16%	11%	11%
<b>Education</b>					
Up to basic	14%	42%	7%	16%	3%
Medium	32%	44%	21%	46%	25%
Superior	54%	14%	71%	38%	73%
<b>Employment</b>					
Employed	73%	63%	73%	67%	83%
Jobless	4%	8%	3%	7%	2%
Retired	6%	5%	9%	7%	5%
Housewife	5%	12%	3%	7%	3%
Student	11%	12%	13%	12%	9%
<b>Income class</b>					
A	21%	-	32%	5%	35%
B	44%	21%	45%	58%	45%
C	16%	31%	12%	20%	9%
D	16%	43%	10%	15%	8%
E	3%	5%	1%	2%	3%
<b>Residential zone</b>					
North	22%	98%	13%	0%	6%
East	26%	-	1%	95%	5%
South	23%	-	13%	1%	60%
West	21%	-	57%	1%	19%
RMSP	7%	1%	15%	2%	7%
Other	2%	1%	1%	1%	4%
<b>Housing type</b>					
Owner	74%	67%	80%	81%	69%
Tenancy	18%	6%	16%	16%	28%
Public	5%	25%	1%	1%	1%
<b>Household</b>					
Persons (mean)	3.44	4.06	3.13	3.63	3.21
<b>Children under 15 living at home</b>					
Persons (mean)	0.59	1.09	0.53	0.60	0.36

\*Please see Appendix V for complete frequency tables of all variables.

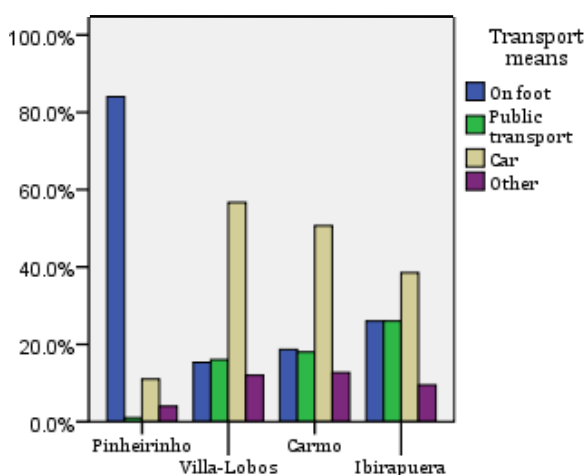
## 5.2 Visiting behaviour of urban green space users

Now it is known who the people are that visit the urban green spaces of São Paulo it is time to explore the ways in which visitors make use of the parks and in what way these differ among the case studies. In this section research variables that typify user behaviour are discussed, such as the range of activities visitors carry out and the frequency with which they visit the park or the time spend inside it. Cross tabulation will show whether associations between the variables exist, for example if there exists a relationship between education level and preferred activities.

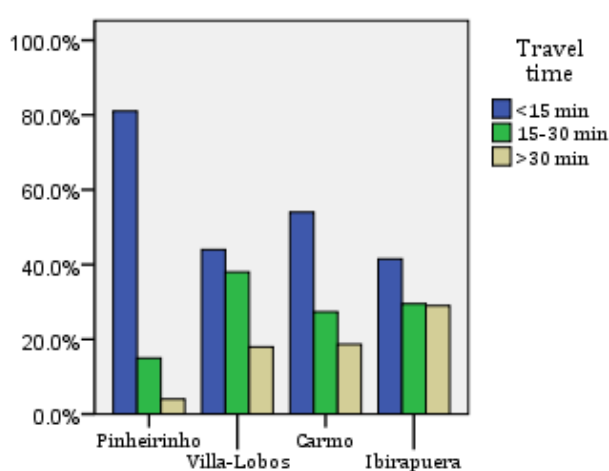
### *Transport means and travel time*

A majority of the visitors find their way to the park by car, followed by walking in the second and public transport in the third place. Other means of transportation used to reach public parks are taxi, bicycle, motorcycle, skateboard and rollerblades. Cross tabulation reveals an association between the parks and the means of transportation used by their visitors<sup>27</sup> and also a correlation with household income, seeing that park visitors with low incomes more frequently use public transport or come on foot than visitors with high incomes who are more habituated to take the car<sup>28</sup>. Figure 5.5 exemplifies this by visualising that in Pinheirinho almost everyone comes on foot whereas the largest share of car users is found among the public of Villa-Lobos. The second chart demonstrates that most park users travel less than fifteen minutes to get to the park and visitors in Ibirapuera are willing to travel longest, followed by Villa-Lobos, Carmo and finally Pinheirinho which sees no visitors travelling for more than an hour. These findings correspond with those about living locations, indicating that most visitors of Pinheirinho d'Água live nearby, come on foot and travel shortly, while respondents in Ibirapuera come from all over town which makes them more eager to take the bus or car and their trip more time- consuming.

**Figure 5.5** Transport means – per park



**Figure 5.6** Travel time – per park



On public transport accessibility Pinheirinho Park scores very well even though just one respondent states to make use of public transport to reach the park; it could be that park users do not base their perception on their own experience but perhaps on the buses they see stopping in front of the park. In Villa-Lobos the share of public transport users is relatively low and although the park is located next to a train station and buses stop very near, just as is the case with Ibirapuera, visitors perceive the two parks as less accessible than Pinheirinho or Carmo. First of all this can be explained by the parks' location near to the central part of São

<sup>27</sup>  $V = .311, p = .000$

<sup>28</sup>  $V = .216, p = .000$

Paulo where traffic is intense, and secondly by the fact that Ibirapuera and Villa-Lobos receive numerous people who live at some distance from the popular city parks. Cross tabulation indicates a substantial relationship between the perception of public transport accessibility and the type of transport means used to reach the park, namely that visitors who perceive public transport access as easy are either users of public transport or come on foot whereas people who use the car or other means of transportation more frequently perceive public transport access as difficult<sup>29</sup>. This does not necessarily relate to access to a specific park, as some people perceive travelling by public transport as difficult under all circumstances and car owners are much more eager to travel by car<sup>30</sup>. This is another possible explanation of why the parks Ibirapuera and Villa-Lobos, visited by relatively rich people and with a high rate of car owners, score low on public transport accessibility. A member of the Park Council in Villa-Lobos believes that park visitors need to become more willing to travel by public transport and that the park plays a role in enthusing them. Villa-Lobos is very favourably located next to a train station and a pedestrian bridge has been constructed to connect the park with the station directly<sup>31</sup>.

Figure 5.5 shows that Ibirapuera welcomes a smaller share of car users than Carmo while the park attracts people from further away; something that might be related to accessibility issues. Ibirapuera is situated in a much denser urban area and what is more, car parking is perceived as inadequate in all parks except in Carmo which indeed features a large parking area, free of charge. Pinheirinho does not offer parking facilities aside from two or three places in front of the park and during the survey in Villa-Lobos and Ibirapuera complaints were heard about insufficient parking spaces, high fees and poor service. In Villa-Lobos more than half of the park users perceive car parking as insufficient. Not surprising, parking issues are a recurrent topic at the monthly meetings of Villa-Lobos' park council in which the representative of City Boaçaava, an adjacent residential quarter, boycotts all park events because the neighbourhood suffers from the many cars parked there when the park's parking lot is full<sup>32</sup>.

The use of bicycles is everything but common in São Paulo. During the survey a substantial part of the interviewees looked around themselves to check whether bicycle parking was available or not, indicating that they normally fail to notice bicycle facilities and it is of little importance to them. Yet, cycling is an upcoming trend as by now several people engage in it for their daily commute, cycling communities arise and quite a number of people ride the bicycle for recreational purposes. The municipal government continues to develop bicycle lanes, but it is a long way to go before they will be available throughout the city. Unfortunately São Paulo is a dangerous city to travel through by bicycle, which is again proved recently with a deathly accident in the west zone (Ribeiro, 2012).

**Figure 5.7** Parking lot at Carmo (left) and Villa-Lobos (right)



<sup>29</sup>  $V = .142, p = .000$

<sup>30</sup>  $V = .495, p = .000$

<sup>31</sup> Information obtained during a face to face interview with Maria Helena Bueno in December 2011

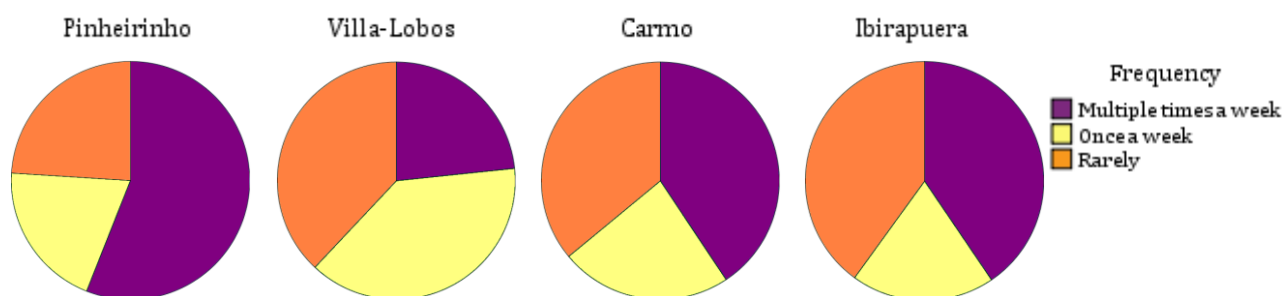
<sup>32</sup> Information obtained during a face to face interview with Maria Helena Bueno in December 2011



### Frequency of park use, length of stay and visiting moment

All parks are visited on a regular basis by a majority of the visitors, however it appears that the longer people travel the less often they come<sup>33</sup>. Figure 5.8 illustrates clearly that Pinheirinho d'Água sees a large share of daily visitors, Villa-Lobos is mostly visited on a weekly basis and Carmo receives many respondents multiple times a week while others come rarely – a pattern that is also visible in Ibirapuera, which is of a similar size. This supports the conclusion that Pinheirinho can be typified as a neighbourhood park, Villa-Lobos as a park with mainly weekend visitors and Ibirapuera and Carmo as parks with a combination of daily and infrequent visitors.

**Figure 5.8** Frequency of park visits



Regarding the length of stay, findings suggest that the time spent in a park is in part related to its size. Pinheirinho is small and compared to the other parks it has a large share of respondents staying less than one hour. Villa-Lobos is a mid-sized park and a large majority spends one to three hours there. Respondents who spend more than three hours in the park are for the most part present in the large parks Ibirapuera and Carmo. The duration of people's park stay is influenced by their travel time in the sense that visitors stay longer when they need to travel longer and vice versa<sup>34</sup>, and also by the day on which people go to the park, seeing that park users who prefer weekdays spend less time in the park than those who prefer weekend visits, as is exemplified by Table 5.4.

**Table 5.4** Cross tabulation of visiting day versus length of park stay

Length of stay	Visiting day		
	Weekdays	Weekends	Total
< 1 hour	22 26.2%	16 5.6%	38 10.3%
1-3 hours	56 66.7%	21 73.7%	266 72.1%
> 3 hours	6 7.1%	59 20.7%	65 17.6%
Total	84 100%	285 100%	369 100%

N = 369, V = .303, p = .000

The parks Ibirapuera and Carmo both welcome an above average share of visitors that solely come on weekdays, maybe because people who come to exercise prefer to do so on quiet days. Villa-Lobos is a typical weekend park and in Pinheirinho visitors come any day of the week or during the weekend when soccer matches are played. A member of the Ibirapuera management team illustrates the variation in visiting behaviour by user groups. Monday to Wednesday the park mainly welcomes residents from neighbouring quarters who come for their daily walk, run or cycle exercise. Thursdays and Fridays are popular with students and at weekends and holidays everybody finds his way to Ibirapuera; visitors come from all parts of town, from São

<sup>33</sup> V = .240, p = .000

<sup>34</sup> V = .195, p = .000

Paulo's metropolitan region, from other states and even foreign tourists are interested in the park and its cultural attractions<sup>35</sup>. Carmo Park also has some distinctive user patterns that emerge among specific groups. The park's major attraction is the lake with fish, ducks and swans along which families stroll and joggers make their rounds. During the weekend many children can be found playing on the hill next to the lake where a Japanese artist placed his artwork made out of smooth carved stones that symbolise the world's continents and turn out to be ideal to climb and play on. The area close to the parking lot in the north of the park is popular among families and groups of friends, who go there to barbecue, drink, listen to music and play soccer at weekends<sup>36</sup>.

**Figure 5.9** Children playing in Carmo (left) and a mix of uses in Ibirapuera (right)



With regard to the visiting moment, the morning is most popular among park users, especially in Villa-Lobos – possibly because many visitors complain about the lack of shade in the park, whereas the afternoon is less popular and only Ibirapuera Park is opened in the evening. A relationship is found between the visiting moment and income level, namely that respondents with high incomes visit the park in the morning (and evening in the case of Ibirapuera) whereas respondents who earn less rather come in the afternoon<sup>37</sup>. One explanation is that part-timers and unemployed park users who usually have a lower income have the possibility to visit the park during the day, whereas people with full-time jobs who generally earn more are forced to come in the morning before work starts or afterwards in the evening. In the four parks it turns out that students and stay-at-home parents are the main user groups visiting the park in the afternoon, evenings are preferred by employed park visitors and mornings are particularly in vogue among retirees.

### *What to do in the park and who to take along*

In order to characterise the actual use of urban green space, this part will at last explore the activities park users undertake and with whom people visit the park. Starting with the latter, visiting the park by oneself is popular in all case studies – as illustrated by Figure 5.10. Next to that it turns out that respondents in Pinheirinho and Carmo are accustomed to visit the park with their families and children and in Ibirapuera and Villa-Lobos people rather bring their friends. People's company is of influence on the activities performed in the park, seeing that visitors with children predominantly engage in playing<sup>38</sup>, while individual park users are the

<sup>35</sup> Information obtained during a face to face interview with Helena Quintana Minchin in August 2011

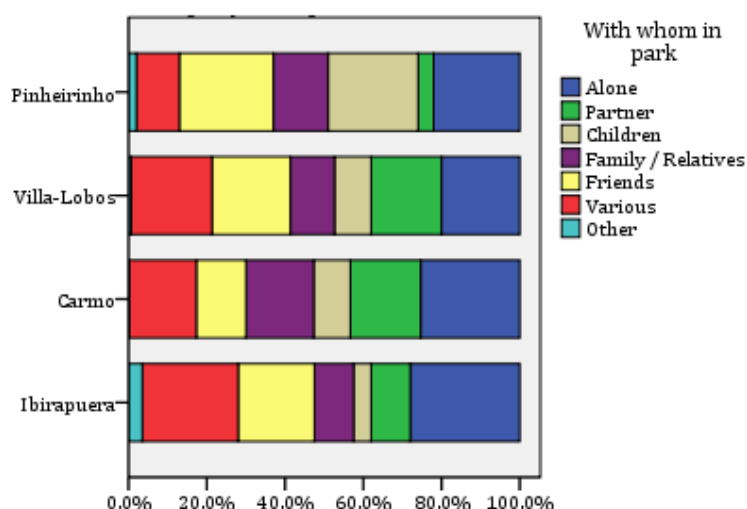
<sup>36</sup> Information obtained during observations together and interviews with Fábio Pellaes in October and November 2011

<sup>37</sup>  $V = .162, p = .028$

<sup>38</sup>  $V = .513, p = .000$

ones who most frequently come to exercise<sup>39</sup>, and people who bring friends come to watch or play team sports<sup>40</sup> and spend their time meeting other people<sup>41</sup>.

**Figure 5.10** Company – per park



Regarding the way in which green spaces are used, the most popular activity in all case study parks is walking, followed by exercise such as running and cycling – Carmo Park excepted where relaxing and enjoying the landscape is slightly more popular. In Ibirapuera and Villa-Lobos relaxing is in a third place and in Pinheirinho relaxing comes fourth as there the third place is occupied by team sports, which is understandable since the park is used by a soccer school to organise trainings and matches. Less popular activities are meeting friends, playing, organising picnics or barbecues and visiting cultural sites and events. Yet, during a focus group in Carmo Park women tell to visit the park with their children to fly the kite and have picnics. What these women like about the park are the organised walk and yoga activities, shows and the unique natural environment. Table 5.5 displays the frequencies of performed activities in each park and consists of a large number of answers for the reason that respondents were able to specify multiple activities.

**Table 5.5** Frequencies of park activities in order of popularity

Park activities	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Walk	49	26	98	33	146	31	107	32	400	31
Exercise	43	23	71	24	105	22	61	18	280	22
Relax, enjoy	24	13	43	15	88	18	62	19	217	17
Meet friends	13	7	20	7	49	10	34	10	116	9
Play	17	9	29	10	26	5	32	10	104	8
Team sports	28	15	16	5	17	4	6	2	67	5
Events	7	4	11	4	30	6	7	2	55	4
Picnic	4	2	7	2	10	2	20	6	41	3
Other	0	0	2	1	5	1	5	1	12	1
<b>Total</b>	<b>185</b>	<b>100</b>	<b>297</b>	<b>100</b>	<b>476</b>	<b>100</b>	<b>334</b>	<b>100</b>	<b>1292</b>	<b>100</b>

N = 600

<sup>39</sup> V =.200, p =.001

<sup>40</sup> V =.151, p =.032

<sup>41</sup> V =.269, p =.000

So as to check for differences in activity popularity among the four parks cross tabulation is performed, telling that walking<sup>42</sup>, meeting friends<sup>43</sup> and enjoying the landscape<sup>44</sup> are popular activities in Carmo and Ibirapuera whereas team sports<sup>45</sup> are above all played in Pinheirinho and picnics and barbecues<sup>46</sup> are mainly in vogue in Carmo. How park users spend their time partly depends on the available infrastructure and activities. Carmo Park for example is the only park featuring barbecue places, and therefore it is little surprising that barbecuing is mainly done there. The previous chapter also informed about the soccer school that organises trainings and matches in Pinheirinho d'Água, which is an explanation for the above average participation of park users in team sports. Villa-Lobos is a park with excellent road infrastructure and it turns out that walking, running, cycling and skating are the most popular activities there. Much more than Pinheirinho d'Água, Villa-Lobos is a park with a variety of leisure facilities. Next to numerous soccer courts and fields, of which two are of official size, the park has various basketball courts and also tennis courts which is a unique feature for a São Paulo city park. Each year an important tennis match (*Aberto de São Paulo*) is organised at Villa-Lobos which attracts many spectators and receives media attention. Villa-Lobos Park is known for having lengthy running and bicycle tracks and in the weekend cycling is very popular among young people and families. The queue at the bicycle rental just in front of the main gate seems endless on sunny weekend days and security employees have their hands full ensuring that cyclers stay on the bicycle lane and others do not cross there. For children there is a large playground with modern toys and play equipment and throughout the park picnic tables and benches are installed. A special site of Villa-Lobos is the orchid nursery and the park also features an 'Environmental Villa' where school children learn about nature and the environment. Many schools take children to sport in the park and the park organises a project that supports public school students in their formation of linesmen, ball boys, tennis teachers and professionals (Governo do Estado de São Paulo – Sistema Ambiental Paulista, 2011). A similar story applies to Ibirapuera, complemented with the park's much appreciated landscape, the many cultural institutions and the variety of shows and events that take place. A new phenomenon in the parks Ibirapuera, Villa-Lobos and Carmo are people who come to work out with a personal trainer in the park, who coach them for example in running<sup>47</sup>.

Secondly, cross tabulation points out that morning visitors like to walk through the park<sup>48</sup> whereas park users who play with children<sup>49</sup>, meet friends<sup>50</sup> and relax<sup>51</sup> predominantly visit the park in the afternoon and people who come in the evening prefer to jog and ride the bicycle<sup>52</sup>. The day on which respondents visit the park does not influence their activity, except for weekend visitors in Ibirapuera who are more eager to relax and enjoy the landscape<sup>53</sup> and weekend users in Carmo who come with their children to play<sup>54</sup>. A fourth test shows that the way in which park visitors spend their time is associated with the frequency with which the park is visited, given that respondents who visit the park on a regular basis engage more in exercising<sup>55</sup> and those who come rarely rather spend their time playing<sup>56</sup>, with picnics<sup>57</sup>, friends<sup>58</sup> or enjoying the landscape<sup>59</sup>. What respondents do when they are in the park is related

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<sup>42</sup> V =.181, p =.000

<sup>43</sup> V =.132, p =.015

<sup>44</sup> V =.169, p =.001

<sup>45</sup> V =.251, p =.000

<sup>46</sup> V =.149, p =.004

<sup>47</sup> Information obtained from observations and during a face to face interview with Maria Helena Bueno in December 2011

<sup>48</sup> V =.129, p =.022

<sup>49</sup> V =.144, p =.008

<sup>50</sup> V =.204, p =.000

<sup>51</sup> V =.136, p =.014

<sup>52</sup> V =.138, p =.012

<sup>53</sup> V =.318, p =.001

<sup>54</sup> V =.363, p =.001

<sup>55</sup> V =.226, p =.000

<sup>56</sup> V =.188, p =.000

<sup>57</sup> V =.130, p =.006

<sup>58</sup> V =.101, p =.047

<sup>59</sup> V =.220, p =.000

to gender and age as well, since men prefer exercising<sup>60</sup> and team sports<sup>61</sup> where women walk<sup>62</sup>, play with children<sup>63</sup>, meet other people<sup>64</sup>, enjoy the landscape<sup>65</sup> or go for a picnic or barbecue<sup>66</sup>. Regarding age, the rate of visitors who go for a walk in the park increases with age<sup>67</sup> whereas meeting friends<sup>68</sup>, enjoying the landscape<sup>69</sup> and picnicking<sup>70</sup> are activities that become more popular when age decreases. Team sports are mostly taken part in by park users younger than twenty five<sup>71</sup> and playing occurs namely among middle aged park visitors who are found to have more children than persons in other age categories<sup>72</sup>. A final cross tabulation is performed for park activities versus education and income, indicating that respondents with a higher education and income are more involved in exercising<sup>73</sup> whereas participation in team sports increases as income and education levels decrease<sup>74</sup>. These outcomes again characterise Pinheirinho d'Água as a park with visitors from the lower socioeconomic classes.

### *Wrapping up*

This section aimed to characterise the visiting behaviour of green space users in São Paulo and found that the way in which people make use of a park differs per green area and is related to a number of indicators. A first finding is that the type of transport park visitors use is related to the park they go to, as in Pinheirinho d'Água most people come on foot while in Villa-Lobos visitors rather take the car; and secondly to income levels seeing that respondents with lower incomes use public transport or come walking whereas respondents with higher incomes are more accustomed to come by car. The indicator travel time has demonstrated to influence the frequency with which people visit a park and the time that is spent inside; the longer people travel, the longer they stay and the less regularly they pay the park a visit. The length of park visits is also associated with the type of day, given that people tend to stay longer during the weekend. Concerning actual park use, survey findings show that respondents visit the park individually and otherwise with children, family or friends and that a majority comes to walk or exercise, which can either be running, cycling, skating or working out. The company that park users bring along influences their activities, an example being visitors who come with friends to play soccer or basketball together or parents who come to play with their children. The type of activity that people carry out also depends on the frequency and time of their park visit seeing that people go walking in the morning, meet friends in the afternoon and make their jogging rounds at night – an activity that is particularly popular among regular visitors and park users with high education and income levels.

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<sup>60</sup> V =.115, p =.005

<sup>61</sup> V =.106, p =.010

<sup>62</sup> V =.213, p =.000

<sup>63</sup> V =.147, p =.000

<sup>64</sup> V =.180, p =.000

<sup>65</sup> V =.161, p =.000

<sup>66</sup> V =.169, p =.000

<sup>67</sup> V =.139, p =.003

<sup>68</sup> V =.275, p =.000

<sup>69</sup> V =.112, p =.022

<sup>70</sup> V =.157, p =.001

<sup>71</sup> V =.238, p =.000

<sup>72</sup> V =.134, p =.005

<sup>73</sup> V =.215, p =.000

<sup>74</sup> V =.167, p =.003



Major findings related to respondents' visiting behaviour are displayed for the survey total and each case study park in the overview table below.

**Table 5.6** Overview of visiting behaviour of park visitors

Visiting behaviour	All parks	Pinheirinho	Villa-Lobos	Carmo	Ibirapuera
<b>Transport</b>					
Car	42%	11%	57%	51%	39%
On foot	31%	84%	15%	19%	26%
Public transport	17%	1%	16%	18%	26%
<b>Travel time</b>					
<5 min	13%	32%	6%	13%	8%
5-15 min	39%	49%	38%	41%	34%
15-30 min	29%	15%	38%	27%	30%
>30 min	20%	4%	18%	19%	29%
<b>Frequency</b>					
Daily	12%	21%	4%	13%	10%
> 1/week	28%	35%	19%	27%	31%
1/week	25%	20%	39%	23%	20%
Rarely	36%	24%	38%	36%	40%
<b>Visiting day</b>					
Weekdays	14%	5%	7%	17%	21%
Weekend	48%	47%	67%	43%	37%
Any day	39%	48%	26%	40%	42%
<b>Length of stay</b>					
< 1 hour	12%	26%	6%	9%	11%
1-3 hours	71%	61%	83%	70%	67%
> 3 hours	18%	13%	11%	21%	23%
<b>Activities</b>					
Walk	31%	26%	33%	32%	31%
Exercise, run, bike, skate, etc.	22%	23%	24%	18%	22%
Team sports	5%	15%	5%	2%	4%
Play	8%	9%	10%	10%	5%
Meet friends, talk	9%	7%	7%	10%	10%
Relax and enjoy landscape	17%	13%	15%	19%	18%
Other	8%	6%	7%	10%	9%

\*Please see Appendix V for complete frequency tables of all variables.

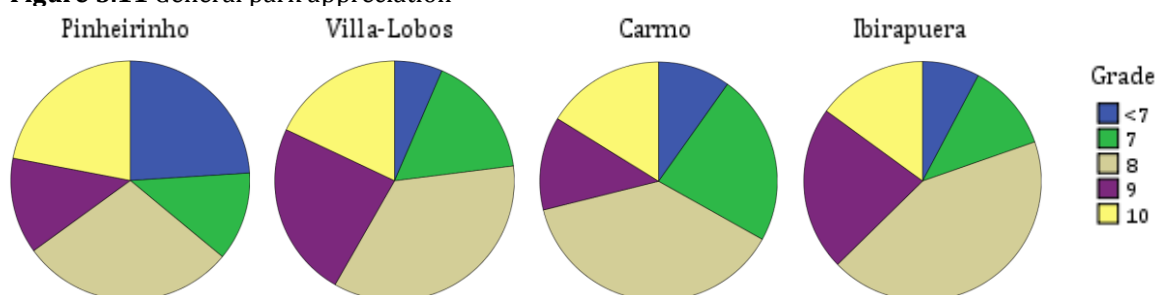
### 5.3 Park users and their perceptions of urban green space

Current section looks into the ways in which urban green space users perceive the parks they visit and is measured by respondents' general valuation of the park as well as through the degree of agreement with specific statements. The general park appreciation is measured by means of a grade on a scale from one to ten and statements with a five point measure scale cover topics ranging from safety and design to parking facilities and maintenance. Another five statements gauge park users' opinion regarding the importance of the visited park, the availability of green space in their neighbourhood and city, and considers the significance nature has to them. Grades and statements are discussed for the survey total plus an analysis of variance is performed to test whether the case study means are equal to each other or not. The mean scores are displayed in tables throughout this section. Finally, the correlation coefficient is used to indicate whether a statistically significant relationship exists between the statements that measure specific park appreciation and the grades measuring general park appreciation, and when relevant, cross tabulation is performed in order to reveal associations between the variables that measure perception, socioeconomic characteristics and park use.

#### General park appreciation

For a general indication of visitors' appreciation of the park, park users were asked to grade the park with a mark from one to ten. The marks one to six are hardly given except in the park Pinheirinho d'Água where visitors appear to be less satisfied. Most users value the park with an eight and a nine is common as well, particularly in Villa-Lobos and Ibirapuera, and even the ten is assigned by quite a number of park users – surprisingly most often in Pinheirinho which makes the park criticised on the one hand and much loved on the other. Figure 5.11 displays the scores for each park and makes clear that variation between the parks exist, something that also appears from cross tabulation<sup>75</sup>. No relationship is found with gender or age; the parks are appreciated equally by men and women and by younger and older park users. Testing for correlations enables the indication of park elements that influence peoples' park appreciation. Correlations that are most decisive in park appraisal are high-quality facilities<sup>76</sup>, fine maintenance<sup>77</sup> and the number of facilities<sup>78</sup>. Additional park characteristics that are influential on the grade visitors assign to the park are, in order of relevance, design<sup>79</sup>, landscape<sup>80</sup>, good paths and roads<sup>81</sup>, cleanliness<sup>82</sup>, safety<sup>83</sup> and presence of nature<sup>84</sup>.

**Figure 5.11** General park appreciation



<sup>75</sup>  $V = .155, p = .000$

<sup>76</sup>  $r = .447, p = .000$

<sup>77</sup>  $r = .405, p = .000$

<sup>78</sup>  $r = .391, p = .000$

<sup>79</sup>  $r = .322, p = .000$

<sup>80</sup>  $r = .313, p = .000$

<sup>81</sup>  $r = .301, p = .000$

<sup>82</sup>  $r = .282, p = .000$

<sup>83</sup>  $r = .270, p = .000$

<sup>84</sup>  $r = .266, p = .000$

An important part of the study consists of statements for which park users indicated to what degree on a scale from one to five, one signifying complete disagreement and five signifying total agreement, they agree with each statement in order to measure appreciation of specific park features. The first statement ‘I am satisfied with the park’ serves as a control variable and should be more or less in accordance with the grade visitors assign to the park, which it is, as can be observed from the table below and is proved by the correlation coefficient which is the strongest correlation generated in this section, meaning that visitors who assign high marks to the park also state to be satisfied and vice versa<sup>85</sup>.

**Table 5.7** Analysis of variance: general satisfaction

Analysis of variance	All parks	Pinheirinho	Villa-Lobos	Carmo	Ibirapuera
<b>General satisfaction</b>					
Grade*	8.06	7.72	<b>8.27</b>	7.96	8.17
I am satisfied with the park	3.93	3.80	3.96	3.92	<b>3.98</b>

The highest scores for each variable are in bold.

\*The mean difference is significant at the 0.05 level.

### *Specific park appreciation: landscape and ambiance*

The four statements under the header ‘Landscape’ reach their highest scores in Carmo Park; according to visitors the park features the most natural and diverse landscape with many trees and plants and only on design the park has to give in to Ibirapuera Park, which is not surprising since Ibirapuera is praised for its famous design – leaving the parks Pinheirinho d’Água and Villa-Lobos behind with less appreciated landscape features. The fact that the landscapes of Pinheirinho and Villa-Lobos are less green and natural already came forward in chapter five and is in part due to the parks’ young histories and different leisure foci such as sport infrastructure. Also, Pinheirinho is the smallest park which makes that there is little space for varied natural landscapes. Statistical testing demonstrates that a diverse park landscape is correlated with the presence of nature<sup>86</sup>, the abundance of plants and trees<sup>87</sup>, the quality of facilities<sup>88</sup> and roads<sup>89</sup> plus the park design<sup>90</sup>. Interesting is that respondents who grew up in a city are more eager to agree with the statement ‘I can find nature in this park’ than respondents who grew up in a village, pointing at a relationship between the type of surrounding people grew up in and their perception of what constitutes nature<sup>91</sup>. A comparable association is found for the place where park users grew up and the statement ‘The park has many trees and plants’, namely that visitors who grew up in an urban setting agree more with the statement than visitors from a village<sup>92</sup>.

For the theme ‘Ambiance’ the parks Villa-Lobos and Ibirapuera score high for being lively and busy, sometimes too busy according to visitors, whereas Pinheirinho and Carmo are perceived as quiet and peaceful parks. The survey tells that all case study parks, Ibirapuera in particular, are perceived as attractive by a majority, however to a lesser degree in the small and new park Pinheirinho which loses on its uniform landscape and few natural elements. So a conclusion is that unless Ibirapuera is at times perceived as too lively, the park is still appraised as highly attractive. This may be influenced by its famous design, landscape, wide range of amenities and citywide popularity. And indeed an exploration of correlations shows that a diverse landscape<sup>93</sup> goes hand in hand with an attractive park; likewise design<sup>94</sup>, the presence of nature<sup>95</sup> and a high

<sup>85</sup>  $r = .541, p = .000$

<sup>86</sup>  $r = .408, p = .000$

<sup>87</sup>  $r = .385, p = .000$

<sup>88</sup>  $r = .404, p = .000$

<sup>89</sup>  $r = .381, p = .000$

<sup>90</sup>  $r = .369, p = .000$

<sup>91</sup>  $V = .175, p = .000$

<sup>92</sup>  $V = .158, p = .005$

<sup>93</sup>  $r = .383, p = .000$

<sup>94</sup>  $r = .333, p = .000$

<sup>95</sup>  $r = .339, p = .000$

number<sup>96</sup> and quality<sup>97</sup> of facilities positively influence park attractiveness. Also a lively and busy park enhances user attractiveness<sup>98</sup>.

**Table 5.8** Analysis of variance: landscape and ambiance

Analysis of variance	All parks	Pinheirinho	Villa-Lobos	Carmo	Ibirapuera
<b>Landscape</b>					
The park's landscape is diverse*	4.04	3.76	3.94	<b>4.23</b>	4.12
The park has many trees/ plants*	4.19	3.76	3.62	<b>4.61</b>	4.52
I like the design of the park	4.10	4.08	4.11	4.02	<b>4.17</b>
I can find nature in this park*	4.17	3.82	3.91	<b>4.45</b>	4.34
<b>Ambiance</b>					
The park is lively and busy*	4.09	3.61	4.23	3.96	<b>4.32</b>
The park is attractive*	4.13	3.86	4.11	4.11	<b>4.28</b>
The park is quiet and peaceful*	4.02	<b>4.18</b>	4.01	4.10	3.88

The highest scores for each variable are in bold.

\*The mean difference is significant at the 0.05 level.

**Figure 5.12** Landscapes in Villa-Lobos (left) and in Ibirapuera (right)



### *Specific park appreciation: facilities*

Part of Ibirapuera's attractiveness originates in the variation and quality of services the park offers to its users. The celebrated park has been assigned the highest scores for the category 'Facilities' which consists of statements regarding the quantity and quality of park facilities and road infrastructure. Villa-Lobos receives the second highest appreciation scores, Carmo the third highest and Pinheirinho comes in last with respondents who are displeased about the quality and especially the number of facilities. Compared to Villa-Lobos and Ibirapuera the small park features few different sport courts and no running track, playground, food stands, bicycle hire or cultural happenings. A similar story applies to Carmo Park which offers more facilities than Pinheirinho but is less organised than Villa-Lobos and Ibirapuera and some of the park's play and sport equipment is outdated. A *Bonferroni* test shows that the mean scores of Pinheirinho and Carmo for the statement 'The park has many facilities' significantly differ from those of Villa-Lobos and Ibirapuera. Cross tabulation points out another association, namely that household size influences the satisfaction level regarding the number of facilities; smaller households believe that the park offers many facilities whereas larger households are more eager to

<sup>96</sup>  $r = .375, p = .000$

<sup>97</sup>  $r = .338, p = .000$

<sup>98</sup>  $r = .367, p = .000$

disagree<sup>99</sup>. An explanation can lie in the different needs of user groups. Larger households including young children are interested in playgrounds, bicycles and customised activities; services that are not available in each green space whereas for single or two person households a more common infrastructure such as walking tracks and exercise equipment could suffice. A second explanation is that larger households are for the most part encountered among users of the parks Pinheirinho d'Água and Carmo, the parks where sport and play infrastructure is much less available and of a lower quality than in the parks Villa-Lobos and Ibirapuera.

Regarding the quality of road infrastructure respondents are quite satisfied with an average score of 4.14 and only Pinheirinho's mean score differs significantly from those of other parks. The park in northern São Paulo features a lower and upper part and between these visitors have to climb a staircase that is quite long and can restrict users to move through the park, likewise a vegetated area along a stream is regarded as less accessible as the path there can be very slippery. A correlation is found between the scores for road infrastructure and maintenance<sup>100</sup>, indicating that the roads are better appraised in a well maintained park. Also good facilities<sup>101</sup>, a varied landscape<sup>102</sup> and nice design<sup>103</sup> positively influence the perception of road quality.

**Table 5.9** Analysis of variance: facilities

Analysis of variance	All parks	Pinheirinho	Villa-Lobos	Carmo	Ibirapuera
<b>Facilities</b>					
The park has many facilities*	3.31	2.90	3.47	2.95	<b>3.66</b>
The park has good facilities*	3.52	3.21	3.62	3.35	<b>3.72</b>
The park has good paths/ roads*	4.14	3.86	4.19	4.19	<b>4.22</b>

The highest scores for each variable are in bold.

\*The mean difference is significant at the 0.05 level.

**Figure 5.13** Sport court in Villa-Lobos (left) and in Carmo (right)



### *Specific park appreciation: safety and maintenance*

Villa-Lobos is perceived as the cleanest park and also on maintenance issues the park proves to be performing well, in contrast to Pinheirinho which shows a significantly lower mean score than other parks. Park users spoken with during the survey in Pinheirinho mentioned that the park was dirty, toilet facilities were closed and that the park management team did not function optimally. Part of these complaints can be attributed to the fact that at the time of the survey no

<sup>99</sup>  $V = .137, p = .001$

<sup>100</sup>  $r = .403, p = .000$

<sup>101</sup>  $r = .385, p = .000$

<sup>102</sup>  $r = .381, p = .000$

<sup>103</sup>  $r = .394, p = .000$



cleaning and gardening teams were contracted at Pinheirinho Park. By the end of 2011 maintenance conditions improved substantially due to new personnel working in the park. Residents of the Carmo Park area say to help the prefecture in keeping neighbourhood squares clean. Testing for correlations, it appears that park users who appreciate a clean park also appreciate a well maintained park<sup>104</sup>. And a well maintained park leads to visitors who feel safe<sup>105</sup> and have a positive perception of the amount<sup>106</sup> and quality<sup>107</sup> of facilities and likewise road infrastructure<sup>108</sup>.

Getting to the perception of park safety, the topic is split in two; safety during the day and safety after dusk. During the day the perception of safety is most positive in Villa-Lobos and Ibirapuera and their mean scores significantly differ from those of Carmo which is perceived as being less safe. No evidence is found for a relationship between gender and safety as the data show that park safety is perceived equally by men and women. When park users assess the safety situation at night the average score declines from 4.00 to 2.59 with Carmo and Pinheirinho being characterised as the most unsafe parks. Equally, the neighbourhoods in which the parks Carmo and Pinheirinho are located have a reputation of being unsafe at night. Ibirapuera presents a significantly higher mean score than the other cases on this statement for which the reason will be that Ibirapuera Park is opened during the evening and receives many visitors at those hours, in contrast to the other three parks where people are not supposed to enter after the park closes down at sunset.

**Table 5.10** Analysis of variance: safety and maintenance

Analysis of variance	All parks	Pinheirinho	Villa-Lobos	Carmo	Ibirapuera
<b>Safety and maintenance</b>					
The park and facilities are clean	3.70	3.62	<b>3.85</b>	3.59	3.70
The park is well-maintained*	3.68	3.19	<b>3.88</b>	3.67	3.78
I feel safe here during the day*	4.00	3.89	<b>4.15</b>	3.72	4.14
I feel safe here after dark*	2.59	2.28	2.74	2.26	<b>2.87</b>

The highest scores for each variable are in bold.

\*The mean difference is significant at the 0.05 level.

### *Perception of urban green spaces in São Paulo*

Apart from statements that measure the appreciation of various park aspects, an extra four statements relate to the importance of the parks and to the presence of urban green areas on the city and neighbourhood level. Park users generally perceive the park they visit as very important for the neighbourhood, as becomes visible from Table 5.11. Focus group participants from the district in which Villa-Lobos is situated confirm that green spaces on the neighbourhood level such as small parks and green belts are used on a daily basis by numerous people that come for a run or bicycle tour. According to the visitors all four parks are of great importance to the city as well. The park that is perceived as most important on a city level is Ibirapuera, followed by Villa-Lobos. For this statement a *Bonferroni* test indicates that the mean differences between Ibirapuera and Pinheirinho are significant, or in other words, that Ibirapuera is perceived as being of greater importance to the city of São Paulo than Pinheirinho d'Água.

Following the high importance visitors attribute to urban green space, park users confirm that an increase of green space in their living area is very welcome. The need is less high in the neighbourhoods of park users from Ibirapuera and Carmo. Carmo Park is located in a part of São Paulo that contains few municipal parks or plazas but the region is located at the city outskirts

<sup>104</sup>  $r = .553$

<sup>105</sup>  $r = .369$

<sup>106</sup>  $r = .367$

<sup>107</sup>  $r = .510$

<sup>108</sup>  $r = .403$

where some green areas are still intact, e.g. on the hilly parts, which can to some extent reduce the need for green space. Ibirapuera Park is not surrounded by any natural areas; still the residential neighbourhoods around the park are rich and well taken care of with tree-lined streets, plazas and small green spots. This is less the case in the regions of Pinheirinho and Villa-Lobos. Pinheirinho Park is located in a region similar to that of Carmo in the socioeconomic sense, but as it is a small park it does not offer as much leisure options as the much bigger Carmo Park and although a large natural area is located to the west of Pinheirinho, for residents Pinheirinho is the only option within walking distance. Finally, even if the richer quarters around Villa-Lobos are green, the surroundings of the park do not offer much green space since one of the important ring roads runs close to the park. There is an opportunity for more green space to be created along the banks of the highly polluted river Pinheiros, but this would need large investments to clean the river and revitalize the area.

Park users perceive São Paulo as a city that lacks sufficient green space. A *Bonferroni* test clarifies that Pinheirinho d'Água's mean agreement score is significantly higher than those of the other parks. Also Villa-Lobos shows a score that is significantly higher than that of Ibirapuera. Whether people agree or disagree with this statement can be related to their knowledge of the city and green spaces therein, and also with their personal perception of the amount of green areas needed in a metropolis like São Paulo. Cross tabulation supports this explanation as an association is proved between education levels and the level of agreement with the statement<sup>109</sup>, namely that high educated park users less often believe that São Paulo offers much green space than less educated park users.

**Table 5.11** Analysis of variance: neighbourhood and the city

Analysis of variance	All parks	Pinheirinho	Villa-Lobos	Carmo	Ibirapuera
<b>Neighbourhood (ngb.) and city</b>					
The park is important for the ngb.	4.55	4.57	4.46	<b>4.62</b>	4.56
The park is important for the city*	4.55	4.39	4.52	4.21	<b>4.68</b>
My ngb. needs more green areas	4.21	<b>4.33</b>	4.27	4.21	4.10
The city has many green areas*	2.54	<b>3.15</b>	2.64	2.44	2.25

The highest scores for each variable are in bold.

\*The mean difference is significant at the 0.05 level.

A focus group with residents of Villa-Lobos' neighbourhood revealed that although people judge that São Paulo currently lacks green space, the city recently managed to amplify the public green surface, partly owing to a new way of thinking which has led to recuperation of areas and better respect for plus control of laws. Focus group participants also point at the spread of green areas across the city which is very poor, with the south and west of São Paulo being much richer and greener than the north and east zones. As one participant states: *"The east zone is worst, they only have Carmo Park while half of the city population lives in the east zone."* Interesting is that residents who live in the east zone perceive their neighbourhood as quite green, which is for a large part due to the presence of Carmo Park. Still, also they point towards the disproportionate presence of green areas in the east zone when the large sized population is taken into account. A final point is that residents in São Paulo's east zone notice that bigger parks and historically important green spaces which attract many visitors and tourists, such as Ibirapuera Park and the Zoo, are better preserved than small parks and green areas without a leisure function. Residents living near Carmo Park wish for more parks closer to their homes and more diversity in the type of neighbourhood parks, as they lack the means to visit other city parks and leisure places.

<sup>109</sup>  $V = .212, p = .000$

### General perception of nature

Nature is of high importance to a majority of the park users, and the few visitors who disagree on this probably visit the park purely for its sport and play facilities, while other users actually appreciate the natural environment offered. One focus group contributor in Villa-Lobos cites that nature is highly important for our psychological health and that it improves the quality of life, others name green space benefits such as visual beauty and the potential it offers for physical exercise. Participants from the Carmo focus group add other services: improved air quality, a place for reflection and relaxation, trees, energy, as well as barbecue and other leisure areas. One woman states that parks are an escape from the urban environment: *“Next to São Paulo’s buildings, urban green spaces are a treasure for us”*. With a majority of the urban dwellers living in apartments, green spaces offer an opportunity to be outside in the open space away from the busy streets. Important as well is the role of urban green space as a social meeting point and as a place where children can play. Focus group participants speak of the development of citizenship and a feeling of responsibility in Brazil, which seems to lead toward citizens who are more involved in social, cultural and also ‘green’ city matters, as appears from the willingness of residents to engage in park maintenance and management in Ibirapuera.

**Table 5.12** Analysis of variance: nature

Analysis of variance	All parks	Pinheirinho	Villa-Lobos	Carmo	Ibirapuera
<b>Nature</b>					
Nature is important to me	4.66	4.67	4.62	<b>4.73</b>	4.64

The highest scores for each variable are in bold.

\*The mean difference is significant at the 0.05 level.

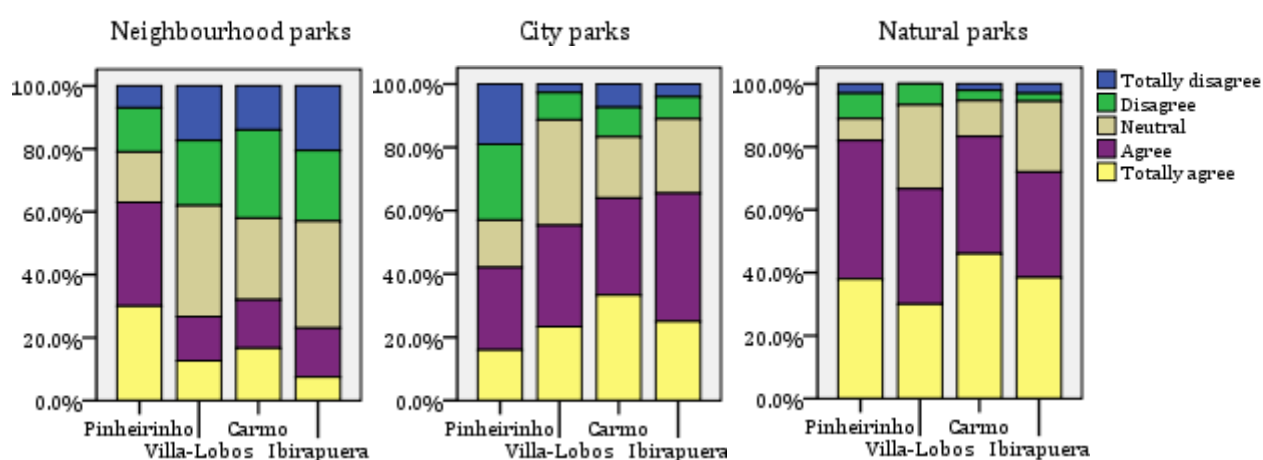
### Wrapping up

This section aimed to elucidate the way in which park users perceive urban green space and found that visitors are in general quite positive about the park they visit. The highest satisfaction levels are found in the parks Villa-Lobos and Ibirapuera, which are green spaces in rich neighbourhoods with a wide range of sport and cultural facilities, high safety and maintenance levels and perceived as of great importance to São Paulo. The most natural park with a diverse landscape and green character is Carmo Park, which is found to play an important role in the east zone. The variety and quality of leisure facilities as well as safety and maintenance levels are less positively perceived, something that also applies to the park Pinheirinho d’Água. Shocking is that as little as eight percent of all park users point out to encounter a sufficient amount of green areas in their neighbourhood, which means that São Paulo has a dire need for more green space.

## 5.4 User preferences for urban green space

The final section of the analysis is concerned with the preferences of urban green space users, who are in this case the users of the case study parks. Firstly, three statements in the questionnaire investigated the type of green space park users prefer: small neighbourhood parks, large city parks or natural parks and forests. The latter are favoured by respondents in all case studies, indicating that natural areas are better valued than manmade green spaces that serve for the purpose of leisure. Considering the preference for neighbourhood or city parks, only in Pinheirinho d'Água a majority of respondents prefer small parks above large city parks, probably because Pinheirinho is a small park itself. Respondents in the other parks say to be fonder of large parks. The results of the statements are displayed in Figure 5.10.

**Figure 5.14** Preference of park visitors for:



Secondly, the questionnaire informed about what it is that respondents like most about the park they visit, what is liked less or even disliked and what features or services are missed in the park. Answers to these questions are discussed in the present section and are much related to the analysis of park appreciation measured through statements in section 5.3. The discussion of user preferences can be seen as an explanation of user perception because factors that influence perception can pop up here.

### *Most appreciated park features*

In order to determine which features users find important and attractive in urban parks the survey included a question asking respondents what they like best in the park. Almost all respondents answered this question with the result that nature, trees and green areas are the favourite park elements of a third of the interviewees. The same appeared from a focus group held with residents living near Carmo Park who much appreciate the park's distinctive natural elements and the lake, and who are not happy with the crowds and rubbish that shows and events bring along. Especially in the large parks Ibirapuera and Carmo the natural surrounding is much appreciated, much more than in Villa-Lobos or Pinheirinho. An explanation can be that the big and older parks Ibirapuera and Carmo feature much more planted areas, big trees and lawns than Pinheirinho and Villa-Lobos. In fact, many visitors of the latter two parks complain about the few tall trees and green areas present, resulting in a lack of shade on sunny days. This finding supports those of the previous section which proved that Carmo and Ibirapuera score higher on comprising a natural landscape.

The second most popular park characteristic is size and space, liked by Villa-Lobos respondents in particular. Villa-Lobos Park has a wide and open landscape design, partly

because of the small number of trees, which makes the park feel spacious and ample. Sport options come in the third place of most appreciated park features. Focus groups found that the role parks have in generating entertainment and fun is much appreciated as well, and in Carmo people are grateful for the presence of children playgrounds. Respondents from Pinheirinho most frequently state to like the park's sport amenities whereas the opportunities for walking, running and cycling are better appreciated in Villa-Lobos and Ibirapuera where special bicycle lanes have been created. Thus while Pinheirinho is regarded as a park with limited facilities, its users much appreciate the available sport infrastructure. Respondents stating to like everything in the park are most common in Pinheirinho and Carmo.

### *Less appreciated park features*

The response rate of the enquiry what is liked least about the park is rather low at an average of 64%, indicating that a substantial share of the survey respondents are satisfied and do not have anything to complain about. Here differences in response rate between the parks are interesting since a lower response rate may denote a higher level of satisfaction with the park. The lowest response rate is found in Carmo and Pinheirinho, then in Villa-Lobos, and finally Ibirapuera shows the highest rate of people stating what they do not like in the park. However whether people indicate what they value less about a park may also depend on education, for example whether persons are used to criticise something. From the data it appears that the share of higher educated park users who answered this question is larger than that of lower educated visitors.

Coming to what it is that people do not like about a park, also here the results differ per case study. The category 'maintenance, cleaning and security' scores very high in Pinheirinho and Carmo which is in accordance with stories told about broken play and exercise equipment, negligent management and deficient cleaning and security teams. Also in Ibirapuera a number of respondents indicate to be dissatisfied about park maintenance and during the survey complaints about construction work and tree pruning came up, but also about security. In Villa-Lobos the share of respondents that is discontent with maintenance, cleaning or security is smaller and from the statement analysis in the previous section as well as from on site observation this can be verified. The only aspect that some users complain about in Villa-Lobos is the availability and cleanliness of sanitary facilities.

The second biggest category of disliked park aspects is crowdedness and again findings are in accordance with the earlier discussion of statements measuring park appreciation. Whereas in Pinheirinho and Carmo no or few objections are uttered against the park being too busy, all the more protest comes from respondents in Villa-Lobos and Ibirapuera in particular where visitors are annoyed by crowdedness, especially during weekends and holidays. Park users coming for their daily exercise, to run or to cycle feel hindered by the sauntering crowds that occupy roads and lanes. Others are irritated because they want to relax and enjoy the peaceful environment of the park but are disturbed by music, commotion or people cycling at high speed. Either way, the various uses get into conflict with each other at moments that the park public reaches its maximum.

Thirdly, respondents are in the opinion that park amenities and food options are insufficient. Although Pinheirinho is the only case study park without any selling points, respondents there do not mention it as a negative aspect as regularly as in Villa-Lobos or Ibirapuera. Ibirapuera is the park with the greatest offer of food options and amenities such as bicycle hire, followed by Villa-Lobos. Still, in these parks respondents complain most about what is present and especially, about what is not. Examples of facilities that park users would love to see but that are not offered at the moment are showers, lockers and cloakrooms. Other criticism is related to high or fluctuating food prices in Ibirapuera and Carmo and to the absence of a "real" restaurant in the parks Villa-Lobos and Carmo.

Then a feature that is missed by respondents in Carmo and Pinheirinho mainly: the lack of events, leisure and sport facilities. It is true that of the four case studies Carmo Park and



especially Pinheirinho Park have little to offer when it comes to entertainment and sport activities, something that also came forward in the statement analysis. Although the parks are big enough and demand is certainly there, few activities and events are organised. Financial matters are to blame for a great part. The municipal government invests much more in Ibirapuera than in Carmo for example, even though the parks are of a similar type and size. Above that, Ibirapuera receives quite some private donations from residents and organisations what helps to maintain the park but also in enabling events. Another point is that visitors of Villa-Lobos and Ibirapuera are more eager to pay for events and activities while in Pinheirinho and Carmo events with an entrance fee will not be visited much simply because people have fewer means.

Earlier it came forward that the parks Pinheirinho and Villa-Lobos have less of a “green” character than the parks Carmo and Ibirapuera. The findings for park perception back this up by showing that in Pinheirinho and Villa-Lobos an above average share of respondents are unhappy about the amount of green areas, trees and shade. Also, some respondents say to miss the presence of a lake or swimming pool. Natural elements are more abundant in Carmo and Ibirapuera which leads to few people complaining about this.

A source of irritation among survey respondents in Villa-Lobos and to a lesser extent in Ibirapuera is car parking facilities. Many visitors use the car for travelling to these parks and have difficulty finding a spot or do not agree with the parking fares. Villa-Lobos’ parking area fills quickly at the weekend, leading to an undesirable situation in which visitors search for a parking spot in residential quarters. In Ibirapuera Park car parking follows a system that allows visitors to park for a maximum of four hours, which some users experience as inadequate. Although the survey shows that in Carmo Park most respondents arrive there by car, few park users complain about parking facilities. As mentioned earlier, Carmo’s parking area is extensive, and also, free of charge.

Yet other specific points of dissatisfaction are user disrespect, neglect and vandalism, which some users of the parks Pinheirinho and Carmo point out as unattractive elements. Residents living close to Carmo Park say that the park has improved substantially during the past few years, in its organisation and by reforming old play and exercise equipment. This category is to some extent related to issues with maintenance and security which are rather disliked in the parks Pinheirinho and Carmo as well. Also related is the annoyance caused by loose dogs that respondents in Carmo respondents bring up. The park is known for the many dogs that are nobody's and seem to be "adopted" by the park. Safety or actually the unsafe situation on bicycle lanes is an annoyance among respondents in Villa-Lobos and Ibirapuera. The special bicycle lanes are used by professional as well as recreational cyclists and also by people on skateboards and inline skates, making the lane a chaotic and sometimes dangerous part of the road. Parents teaching their children to ride a bicycle are irritated by speeding cyclists, while professional cyclists get annoyed by amateurs.

Taking together, maintenance and security issues are the biggest source of dissatisfaction among survey respondents, although this does not apply to Villa-Lobos where parking capacity, lacking amenities and food options and the minimal quantity of green space are perceived as most unpleasant. Moreover, survey respondents state that Ibirapuera suffers from crowdedness and that Pinheirinho and Carmo miss out on leisure and sport facilities plus the organisation of events and activities.

### *What visitors currently miss in the park*

In sequence of asking what is most and least liked about a park, the questionnaire inquired after what it is that respondents would like to see in the park and is not there at present. Of all survey respondents 35% did not answer the question, implying that for them the park is complete in its present form. Villa-Lobos and Ibirapuera show a lesser degree of respondents indicating what they miss than Carmo and Pinheirinho do, indicating that the former two parks are quite

complete in the eyes of their users. The findings of this variable are quite similar to the findings of the previous variable about unsatisfactory park features and characteristics.

What is missed most in the parks Carmo and Pinheirinho and what already materialised from discussing the previous variable are events and leisure and sport facilities. According to many respondents these two parks do not offer enough or not the right recreation services. In Villa-Lobos and Ibirapuera less people miss events or sport facilities but what these parks lack according to respondents are food options and amenities such as an ATM. This finding already came forward from the above discussion about less appreciated park features. A third aspect that is being missed by respondents in Pinheirinho in particular is related to maintenance, cleaning and security. Ibirapuera and Carmo have average scores for this category and Villa-Lobos scores extremely low as the park did earlier which indicates that visitors in Villa-Lobos are much more satisfied with maintenance matters than in Pinheirinho. In Villa-Lobos though, again the few trees and green areas appear as a failing aspect and also proper toilet facilities and a pool or lake are attributes that especially Villa-Lobos respondents would like to see more.

### *The influence of class: different green spaces for specific user groups*

With what frequency a person visits a park, who he takes with him, how he gets there, whether he plays soccer or enjoys the landscape, on which day he comes and at what time, what he likes best about a park, and what he misses – all these depend on his socioeconomic background. This chapter illustrates that the ways in which people make use of and perceive urban green space is related to their age, income, residential situation, education level, household composition and other factors. As the parks in this study are located in different parts of São Paulo, both in a geographical and a socioeconomic sense, they attract a different public – depending not just on the park but as well on the day of the week and time of the day. That green space visitor behaviour varies among different social strata is endorsed by focus group participants from the neighbourhood of Villa-Lobos Park. These residents are part of the highest socioeconomic classes of São Paulo and point at the difference in leisure types offered by urban green spaces. They distinguish between leisure options for poorer citizens such as barbecue areas and those for richer urban dwellers of which the planetarium in Ibirapuera Park is an example. Villa-Lobos is surrounded by rich neighbourhoods but a part of the visitors is from lower social classes – particularly on weekends – and according to the focus group members there is a sensible difference in leisure requirements between the highest class and people from middleclass and lower. The first prefer to stay at home or go to their country house because the parks are too crowded. The latter are short of leisure options in their neighbourhood and make their way to Villa-Lobos Park, thereby restraining residents from coming because local residents feel alienated from what they call ‘the people’. For this reason, focus group participants advocate the creation of leisure options in each neighbourhood and an even distribution of green spaces in São Paulo. Additionally, the design of green space should be adapted to the needs of local residents as in their view the various social groups are unable to blend when it comes to the use of green areas as recreational places.



## 6 Synthesis

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The previous chapter illustrates that the people who make use of urban green spaces are not always alike, that patterns in visiting behaviour diverge, and also that the perceptions and preferences of park users vary. The greatest disparities are visible between the parks in neighbourhoods with a higher socioeconomic status, Villa-Lobos and Ibirapuera, and parks in neighbourhoods with a lower socioeconomic status, Carmo and Pinheirinho d'Água. These differences not only relate to the type of visitors the parks receive but also to the activities that people perform in the park and to the ways in which the green spaces are perceived. Current chapter is a synthesis that comes forth out of the research findings in chapter five and appoints the factors that help explain differences in visiting behaviour, perception and preferences of park users, plus in a second section it presents recommendations that can inform green space design, planning and management policies about ways to increase user benefits.

### 6.1 Explaining factors

This section looks back at the findings from the previous section with regard of visitor profiles, behaviour, perceptions and preferences. Research findings tell that in São Paulo significant differences exist between the visitors of urban parks that particularly become clear when parks in poor areas are compared with parks in rich areas. Income and education are found to be important factors of influence on the ways in which urban green spaces are being used and perceived, but also other factors have proved to be significant. Here the explaining factors will be summarised for each topic: visitor profiles, behaviour, perceptions and preferences.

#### *Visitor profiles*

First of all the gender balance of park visitors turns out to be in favour of men, though since gender has been used in the quota sampling this is not a dependent variable and cannot be analysed as such. Age is found to differ for the parks Pinheirinho d'Água and Carmo where visitors are younger and where people are less educated and receive a lower income. The fact that these parks welcome more jobless park users and housewives is related to the lower level of education which in turn causes that the income level is below that of the parks Villa-Lobos and Ibirapuera. There the high income levels induce that park users are in most cases house owners with a car and a garden and the fact that people are disposed of a garden makes them visit the park more often, probably because nature has a great attraction on them.

#### *Behaviour*

Again with regard to the actual use of urban green space, income is an influencing factor. Because persons with higher incomes more often have a car to their disposal they are found to visit the parks by car more than poorer people who take the bus or come on foot. Car owners are found to be less positive about the accessibility of the parks by public transport but also complain quite a lot about the shortage of parking places. Next, the frequency of park visits is found to be influenced by the travel time in the sense that people come more frequently to the park when their travel time is shorter, something that is especially the case in Pinheirinho Park where most visitors come from the same residential quarter and walk within ten minutes to the park. They do not stay too long, opposed to visitors of the parks Carmo and Ibirapuera who are

found to have a longer park stay and indeed travel time is related to the length of stay so that people who travel longer, which is the case in Ibirapuera, tend to spend more time in the park. That visitors tend to have a long stay in Carmo and Ibirapuera is related to park characteristics as well, such as size and landscape diversity – moreover, the day of the week influences the length of stay seeing that people use the weekdays for short park visits and the weekend for longer ones, in the case of poorer households such visits are perceived as a unique day out.

Income is found to be related to another aspect namely to the time that people visit the park. High income groups tend to visit green spaces in the morning and low income groups are more frequently found in the park during the afternoon. In part, this is related to employment situations as people with fulltime jobs have higher incomes and less time for afternoon visits, they are much more engaged in short park stays during which they exercise before or after work while persons who earn less choose to play soccer or basketball with friends. The same activities are found to happen more among park users that visit the park just rarely, while daily visitors come to exercise. Activity is the first aspect of park use that differs significantly between men and women. Where men engage more in sport and exercise, women prefer walking, playing with children, meeting others, enjoying the landscape and organising picnics and barbecues. Also age plays a role in what people do in the park with older people preferring to walk through the park, middle aged people engaging more in playing because of their family cycle (children) and young people are seen to prefer team sports.

### *Perceptions*

The perceived quality of the urban parks in this study is quite high but varies significantly between the parks; again the greatest source of differences is the socioeconomic context of the parks as the 'rich' parks Villa-Lobos and Ibirapuera are perceived more positively than the parks Pinheirinho and Carmo which have a lower socioeconomic profile. Park size and landscape seem to matter a lot in the eyes of park visitors and are much more appreciated in the older and largest parks Ibirapuera and Carmo, which have been designed as spacious parks with natural landscaping that is visible in lakes, woody areas and much vegetation. The less green characters of Villa-Lobos and Pinheirinho make that the parks landscapes are perceived as less enjoyable and also that visitors claim to need more green space in their neighbourhoods. Next to physical park characteristics, nature perception is dependent of the place where people have grown up since city dwellers more often perceive parks as having natural elements and many trees and plants than persons from a village.

A factor that is found to influence the perceived abundance and quality of leisure facilities such as playgrounds, running trails and sport areas is household composition. It turns out that smaller households are happier with the available leisure structure than large households who complain more frequently. One reason is that larger households generally consist of people of varying ages with varying recreation demands; such households are more existent among users of the parks Pinheirinho d'Água and Carmo, of which the first in particular offers few park facilities. Park aspects that are found to be much related to each other are cleanliness and safety, seeing that a clean and well-maintained park leads to better perceptions of safety. It is true that Ibirapuera and Villa-Lobos are better maintained and cleaner and indeed these parks are viewed as safer.

With regard to the importance of the parks, the small park Pinheirinho Park is perceived as being important for the own neighbourhood mainly whereas large Ibirapuera Park is seen as very important for the city of São Paulo, of course this has much to do with size and leisure offer and above all with the popularity of Ibirapuera Park as the most famous park of the city. A final factor of influence on park and nature perception is education which influences people's view of the amount of urban green spaces in São Paulo seeing that better educated park users are in the opinion that the city does not offer a sufficient amount of green areas whereas less educated park users are more often found to believe the city's green spaces are satisfactory.



## Preferences

Finally, park users' preferences are for a part determined by personal characteristics but as well by many physical park elements such as size and the offer of leisure facilities. Users of the small park Pinheirinho prefer small parks, users of Ibirapuera prefer large parks. Wealthy visitors who come by car miss appropriate car parking facilities in the parks Villa-Lobos and Ibirapuera, and such complaints are not heard in the other two parks but there the fewer events, sport and play facilities make people unhappy, just as vandalism, lacking maintenance and security do. In the higher class parks visitors complain about more luxury aspects such as the absence of an ATM or a real restaurant and about crowded parks during the weekend that create unsafe situations on the bicycle and running lanes. In Pinheirinho Park are no special bicycle tracks and zero food selling points, but nobody complains about those things. All this indicates that the available leisure structure creates expectations for more and better facilities and that apparently there always is something left to be unsatisfied about. This is not at all bad seeing that in this way park managers are being kept up to date of the ever changing leisure habits and demands.

## 6.2 Ways to increase user benefits

Municipal governments have an aim to increase the use of urban green space as green spaces work positively for health and people's well-being, thereby enhancing the general quality of life in cities (Schipperijn *et al.*, 2010). In order to increase urban green space use it is crucial to have knowledge of the people that use urban green space, of the ways in which they are used, of the perception of green spaces, of the ease of access, of the availability and of user preferences with regard to landscape, size and amenities. Also, insight is needed into aspects in the green space structure that are currently insufficient, that need improvement or that are missing. The function of urban green space for the urban population needs to be clear and therefore policymakers and planners should be informed about all such green space aspects, as is confirmed by Schipperijn *et al.*: "It is necessary to have a good insight in who the neighbourhood residents are and what their wishes and preferences are, as well as an insight in how other green spaces in the neighbourhood look and which possibilities they offer" (2010, p. 31).

### *Recommendations for urban green space planning and management*

From this study several recommendations can be derived for a better design, planning and management of urban green space, for the city of São Paulo and probably for other large scale urban settings that face challenges to preserve and create green areas. A first finding for a better green space structure is an increase in the number of green spaces. The city of São Paulo attempts to create one hundred parks by the end of 2012 and this is a huge increase in both the amount and the area of urban green space in São Paulo. Whether this increase will be enough to satisfy the demand is the question and much related to the design of these new parks and their functioning, since each neighbourhood has different inhabitants with different leisure patterns. Moreover, an increase in the number of parks does not necessarily make the city greener when no trees are planted in the streets, no landscaped squares are created on the level of residential blocks and with a majority of the urban residents living in flats or shacks. It is a great challenge to increase the green character of a densely built city like São Paulo.

A second point of improvement that appears from this study and especially from meetings and interviews is the unequal spread of urban green areas in São Paulo. The south-western residential 'Garden Neighbourhoods' are known to be much greener than other quarters and districts in the city, and since these are inhabited by the higher strata of society the urban structure of São Paulo is a good indicator of spatial segregation and social exclusion. Neighbourhoods in the extreme parts of the city hardly have any parks and there the urban

constructions are much poorer in sustainable and aesthetic quality, not even getting to the numerous slums and other illegal settlements. Not only parks are distributed unevenly across the city, also street trees and squares are concentrated in the richer neighbourhoods – and this while the municipality offers a service to plant trees in the street for free. But knowledge of such programmes and awareness of the importance of those are much more developed among people in already green areas since they generally enjoyed more schooling years and work in other sectors. The 100 parks for São Paulo plan also tries to tackle down the distribution problem and indeed the number of parks in the far south, east and north of town is increasing rapidly. Interesting are the developments near the water reservoir in the south where several parks are being created in order to trigger water recreation and also to prevent urban sprawl in these ecologically sensitive areas. Whether the new parks will work as planned and diminish the uneven spread of green areas will be learned in the future. A recommendation is to pay much attention to the spread and keep tracing people's recreational patterns in order to see whether the right green spaces have been created at the right places.

Thirdly, park users express the wish for more and better leisure equipment such as playgrounds and sport courts but also cultural facilities like libraries and museums. At the moment leisure facilities are sometimes inadequate for the public, an example is the lane for the *bocce* game in Pinheirinho d'Água Park which nobody uses and even park employees do not know how it functions. With a lack of recreational services in this neighbourhood such wastes of space and money should be noticed and then action needs to be undertaken – something that seems to work very slowly in São Paulo's municipal government bodies. This is admitted by Neves and Branco who state that “as regards obstacles, part of these result from the considerable resistance to change in the public sector, both on the part of administration and of employees (eds., 2009, p.44). From underlying research it appears that an array of leisure options is not restricted to traditional parks as Ibirapuera seeing that a relatively new park as Villa-Lobos, realised in 1994, is seen as the second best park with regard to the offer of recreation options after Ibirapuera. Yet the availability of facilities will be much related to the size of an urban green space and to the capacity to organise and manage the place. Smaller green areas have limited personnel to control the use of the park and external parties such as catering services will not be too eager to locate themselves in a little visited leisure area, which decreases a green area's options to invest in better or more recreation facilities. The same applies to the organisation of activities, workshops and sport and educational courses.

A fourth perceived recommendation is related to the feeling of safety, or rather the unsafe character of certain green areas such as Carmo Park. These parks are difficult to oversee, have many hiding and dark places, have an image of being a gathering place for drug users and prostitutes and this makes parents afraid to let their children go to the park unattended. This is a clear example of the missing potential of green space as a better perceived safety situation will increase user intensity for various visitor groups, children as well as women and elderly. Park users offer solutions for a better security situation in their park that range from more security staff to a better education of park users and employees. This challenge should be relatively easy to take up for green space managers, for example by an inventory of unsafe places and hideouts and by asking green space users about their experiences and comments. Safety is related to urban green space maintenance, another point of annoyance for numerous park visitors. Complaints are heard about dirt, closes sanitary facilities, loose tree branches, full waste bins and invasive vegetation. That maintenance can be almost perfect in green spaces is exemplified by the park Villa-Lobos where people are very satisfied about the cleanliness and safeguarding of the park, it might be that this is because the park is under jurisdiction of the State of São Paulo and not of the municipality like most urban parks. If this is the case, maintenance and security issues are proved to be a doable subject of improvement for green space managers. Still, the way in which people use a park and its facilities are much related to maintenance and safety questions, as vandalism and crime are not easy to counter and the people who cause these undesirable actions are often not very willing to cooperate, however many positive experiences exist as well with a direct approach of improper behaviour.

Of extreme importance in the planning of new green areas is to know who the users of the areas are and how they can be attracted to the new space. The people determine whether a green space will become popular as an intensively used park will for instance keep away unwanted uses such as prostitution, violence or crime. Of course the design and management of urban green space are crucial in ensuring a proper use of parks, squares and green belts and the number one responsibility lies at the government body in charge. But knowledge of the user groups and the neighbourhood is essential, as Schipperijn *et al.* agree: "It is necessary to have a good insight in who the neighbourhood residents are and what their wishes and preferences are, as well as an insight in how other urban green spaces in the neighbourhood look and which possibilities they offer [...] Providing more green areas within a short distance from residents is not always the solution to increase the use of the spaces, which is good news for planners as adding new green space close to residents often is difficult" (2010, p.31).

All of the above mentioned areas of discomfort and dissatisfaction experienced within urban green space and the imperfect spatial dispersal and lacking sufficiency of green areas inform spatial planners, green space designers and green area managers of domains that need immediate attention and a quick result so that in the end the benefits for users, and with that the benefits for the natural environment, increase.

### *Linear parks as a solution?*

The '100 Parks for São Paulo' programme aims to create new urban green spaces for a greener São Paulo for more people. The question now is whether the main element of this programme, the linear parks (see chapter four), are a solution for the existing challenges in São Paulo's green spaces and whether these parks are able to supply in the need of residents and urban green space users. As far as it is possible to evaluate the functionality of already implemented new city parks and linear parks, the outcomes are varied. First of all, the goal of creating more urban green spaces is definitely reached by this programme as the number of parks was 35 in 2005 and in the beginning of 2012 there were almost 80 parks. Secondly the spread of green areas has also improved thanks to the programme that implemented a large share of the new, mostly linear, parks in the city parts that were left behind with green area development: the extreme north, south and east zones.

A third challenge is to offer a more and better quality leisure infrastructure and the performance of the linear parks on this aspect varies. Some parks seem to perform as planned by being a medium to enhance social inclusion and a feeling of community identity as is the case in the new, small Brás Park east of the city centre. This park is created on a former dumping place for old cars and all types of waste material where residents felt unsafe due to the gangs that came together in this area for illegal trade and other business. Now the park is used intensively by residents who are able again to freely stroll through the area and this time in a more peaceful and green setting. Also the sports facilities that have been installed are popular, especially among young people who have little other leisure options in that area<sup>110</sup>. Then, the success of other linear parks such as Fogo Park in the north close to Pinheirinho d'Água Park is more dubious. On the one hand the creation of the green space was needed to protect the area from further environmental degradation and from becoming a big slum. Yet, the result of the park is not very satisfying to the residents as the park exists just for two or three years and already most of the playground equipment is broken or otherwise out of use. Then the trees are still very short which makes the area too hot to spend time in on sunny days and also there are no sanitary facilities – as is the case in all linear parks. Residents are happy with the green area that makes their neighbourhood more beautiful and attractive and they come together there on the way back from the market or school. Still the park is not seen as ideal because the maintenance is terrible and nothing seems to improve, and what is more is the safety situation which is not

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<sup>110</sup> Information obtained during a meeting with Carlos Roberto Fortner at SVMA in August 2011

very well as the parks are not fenced and although security teams are onsite 24 hours a day, local residents are afraid to pass through the park at night<sup>111</sup>.

Such problems are heard a lot among linear park administrators; actually almost all existing linear parks face them as appeared from a meeting between linear park managers. An additional challenge is formed by the residents that are being relocated and often do not want to move, this makes it all the more difficult to create an urban green space that makes everybody happy<sup>112</sup>. Thus the challenges of better park maintenance, leisure equipment and safety do not seem to be tackled by the linear park concept, although also more positive stories are heard and it must be remembered that the park are very new and part of the problems will be due to start up problems which makes it difficult to say at this moment whether the linear park concept will increase the use of green space and whether these parks will fulfil the demands of green space users.

All together it seems to be of the greatest importance for urban green space planners and designers to study the local context, target groups and wishes and demands of possible users in order to maximise user benefits and with that the utilisation of urban green space that can truly add to urban quality of life by enhancing health and well-being of local residents, by creating a place for social interaction, by generating local employment and by making the city more beautiful and attractive so that people can be proud of the place where they live.

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<sup>111</sup> Information obtained through short interviews with park users and residents and also from the park administrator Rodrigo Bisanson Cavalin

<sup>112</sup> Information obtained during a one day seminar of linear park administrators in October 2011

## 7 Conclusions

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The world of today is one of increasing urbanisation. New cities are sprouting and existing cities need to concern themselves with handling processes of urban sprawl, maintaining the historical structure and ensuring a healthy and safe living environment for their inhabitants. Urbanisation brings a long list of negative side effects with it, ranging from environmental pollution and the development of slums to an increase of ‘urban diseases’ and stress. With the mounting expansion and emergence of cities in the so-called Global South such negative aspects are even more visible. Therefore it is essential to protect and also create urban green space which is found to play a positive role in maintaining and enhancing the urban quality of life. Urban green spaces are vital city assets that attract residents, businesses and tourists and what is more, green areas play an important role in climate change adaptation as they supply several indispensable ecosystem services. The fact that green space is also needed to shape the basic city structure, for aesthetic reasons and for fostering social interaction, outdoor mobility and an active lifestyle make urban green space a key subject in the planning for a sustainable urban future.

In order to inform planning and design about the functionality of urban green space, the people who use those spaces and the recreational demand of urban residents this research attempted to find out more about the use, perceptions and preferences of urban green space users in the São Paulo metropolis. The research is guided by the following main question: What factors influence the visiting behaviour, perceptions and preferences of urban green space users and to what extent can the planning, design and management of these areas increase user benefits? To facilitate an answer to this question several sub questions have been developed and this chapter will discuss each of them, finally leading to an answer of the main question.

### *1. What are the main characteristics of the urban green spaces in the selected case studies?*

Four urban green spaces have been selected in different city zones. Each park has a central function for the neighbourhood and in the case of Ibirapuera Park an important role for the city. Ibirapuera is the most popular park of São Paulo with 300,000 visitors a week, created in 1954, and is endowed with the largest variety of leisure facilities of which the museums, planetarium, university and numerous events are examples. The park is one of the largest of the city, situated in the richest district, designed by famous architects and has a traditional park landscape which is natural with woody patches, high trees, lawns, lakes and flower beds. It features all possible sport facilities, a bicycle rental service, restaurant, playgrounds and exercise equipment adapted for persons in wheelchairs, moreover, many yoga and thai chi schools give classes in Ibirapuera and there are a number of environmental education programmes and workshops to be followed, often free of charge. The second park located in a wealthy district is Villa-Lobos, about half the size of Ibirapuera and also with a wide range of amenities, in particular sport and play facilities are abundant. Villa-Lobos has less of a cultural image although the park was meant to carry out a musical theme and is mostly known for being a park for cyclists, also featuring a rental service and with wide, flat and paved paths that characterise the park’s landscape which is occupied by lawns and road infrastructure mostly and where mature trees are few – the park is built in the 1990s and welcomes 65,000 visitors a week that for the most part arrive during weekends.

The other two case studies are parks in poorer districts of São Paulo, starting with Carmo Park in the east zone which is as large as Ibirapuera and has been opened to the public since 1974, seeing about 65,000 visitors on a weekly basis. Carmo is located in a neighbourhood with a low socioeconomic status where irregular settlements are common and safety is a challenge. The landscape can be compared with that of Ibirapuera as it consists of many green areas, a lake and what is very special in São Paulo, the park contains remnants of Atlantic Forest which makes it a habitat for various animal species that can be spotted at times. Carmo offers playgrounds,



barbecue areas, food selling points, a library and a number of sport facilities though these are not always in such a good state. Cultural elements such as the planetarium and museum are closed and event organisation happens on a much smaller scale than in Ibirapuera. Finally, the park Pinheirinho d'Água in the north of the city is the smallest and youngest (2009) with around 1,500 visitors each week. The number of amenities and cultural facilities is negligible and the main attraction of the park is the exercise equipment and soccer courts, since also the landscape is rather barren and not that diverse which is partly due to the young age of the park.

## *2. What are the main characteristics of urban green space users?*

Park users are predominantly male, young and well educated but large differences exist between the parks. Considering age, a young visitor profile unfolds itself with over half of the park users being younger than 35 and most young public present in the 'poor' parks Pinheirinho and Carmo where visitors have been found to be less educated and earning a lower income than in Villa-Lobos and Ibirapuera. This is reflected in the residential situation that tells that higher income households generally own a house and that lower income households more often live in public housing. Visitors of Pinheirinho and Carmo have larger families that more often include young children and the parks also differ significantly in their users' living locations seeing that park visitors from these two parks almost only come from the same city zone whereas Villa-Lobos and Ibirapuera see visitors from all over town; apparently they attract a broader public.

## *3. How can the visiting behaviour of urban green space users be characterised?*

A majority of the park visitors arrives at the park by car or on foot; the first option is mostly seen in Villa-Lobos and the latter in Pinheirinho which together with the short travel time indicates that Pinheirinho is a neighbourhood park. Users of Villa-Lobos and Ibirapuera Park are willing to travel much longer and this makes that these parks see more infrequent visitors for which a trip to the park is seen as a nice day out and can take over three hours in the weekend. On the other hand Ibirapuera also sees many daily park users who come to jog and exercise in the early morning or when they return from their jobs in the evening, these people are highly educated and big earners. The morning is popular with many park users and most people visit the park regularly; once or multiple times a week. The most popular activities are to walk, relax and enjoy the landscape and to meet other people. Team sports are practised more by young people and park visitors with low income and education levels in Pinheirinho Park, playing is mostly done by persons with children in Carmo and individuals prefer to exercise, men in particular where women are more likely to walk, see the landscape and meet friends.

## *4. How do urban green space users perceive urban green space and nature in general?*

Nature in general is perceived as very important by green space users and as little as 8% thinks that São Paulo currently features enough green space, in fact most of the park users claim the need for more green areas in their neighbourhood. The parks are seen as essential parts of the residential quarters and the city as a whole, the latter is especially the case for Ibirapuera Park. Park visitors perceive Ibirapuera as the park with the most and best leisure facilities and road structure – Pinheirinho scores worst on these items. The latter park is also perceived as the least clean and well-maintained park. On these aspects Villa-Lobos scores best and that park is perceived as the safest as well, as opposed to Carmo Park which does not have such a positive image when it comes to safety, but the park is positively perceived as very green and natural and offering a diverse landscape. While São Paulo is known as a noisy, busy city the parks are seen as places of peace and quietness, something which confirms their role in offering an escape from city life. Therefore it is little surprising that the overall perception of green spaces is positive.

### *5. What are urban green space users' preferences regarding urban green space?*

First of all, park users prefer natural areas and forests above more designed, man-made parks and next large city parks above smaller neighbourhood parks. Only in Pinheirinho users show a preference for smaller parks, indicating that people's preferences are related to their experience and knowledge of green areas. Taking a look at park specific characteristics, clean, safe and well-maintained parks as well as a wide range of leisure and sport facilities and cultural activities are important to green space users. Park users are annoyed by vandalism and disrespect on the part of other park users and in the more crowded parks Ibirapuera and Villa-Lobos the jam-packed weekends and insufficient car parking facilities are a source of irritation. But above everything are the presence of nature, trees and green areas that are preferred park elements among urban green space users, followed by size and spaciousness and third sport facilities.

### *6. What are residents' visiting behaviour, perceptions and preferences regarding urban green space and in what way do they differ from user preferences?*

The views and experiences of residents have been explored in focus groups and short street interviews and are for a large part in accordance with those of urban green space users. Green space is visited for recreational purposes during the weekend mostly and on weekdays people go to the park for exercising but also to enjoy the landscape and escape the working routine. Residents with young children appreciate parks and other green recreational areas in particular as they offer playgrounds and contact with nature. Really rich people do not visit the park regularly because they have a range of alternative leisure options to choose from such as private clubs and country houses, besides that, rich persons say to feel alienated from the urban parks as they cannot feel at ease with the public visiting the park – this is best exemplified during the weekend when the parks are visited by inhabitants from all over the city. Still, all people say to perceive urban green spaces as essential elements in a modern urban environment and they plead for an increase in the amount of green areas and in a better distribution of those. According to focus group participants the city planners need to have a sharper eye on the public for whom the park is created so that the design of the park can be adapted to the people who will make use of it. Thereby they utter the hope that parks are created in each neighbourhood so that people no longer come from far to use 'their' green spaces. What the consequences will be for spatial segregation and social exclusion do not seem to cross their minds at present.

### *7. What factors help explain differences in visiting behaviour, perceptions and preferences among urban green space users?*

Factors that are found to influence visiting behaviour, perceptions and preferences are related to socioeconomic characteristics and to the physicality of the urban green space in question. From the first, personal characteristics, gender only seems of influence on the activities that park users perform and on no other aspects, also not on safety. Age is related to park activities as well and so are income and education, which likewise influence living situation, car ownership, used transport means and the time of the park visit. Considering the perception of urban green space, people's nature experience plays an important role and also education does, seeing that higher educated park users believe that the need for an increase of green space is more urgent. Household composition is found to determine whether park users are satisfied with the offered facilities as single and two person households are easier to satisfy. Physical characteristics that influence the perceived quality of a park are size, location, accessibility, available amenities and leisure equipment, safety, cleanliness and maintenance. The preferences of park users are also much related to the design and leisure structure of green spaces such as in Villa-Lobos where people miss more trees and vegetated areas and in Pinheirinho where park users would like to see a greater offer of activities and sport facilities.

### *8. In what way can the perceived quality of urban green space be translated into policy and management recommendations for the purpose of increasing user benefits?*

Six points of attention in the improvement of São Paulo's urban green spaces emerge out of this study: the number of green areas, the spread of green areas, the offer of activities, safety, maintenance and the state and quality of leisure equipment. The first two are part of the '100 Parks for São Paulo' programme and will improve substantially. A recommendation is that policymakers need to evaluate whether the parks are functioning well and whether they are serving their goal by offering enough and the right leisure facilities for the people who use them. Second, the offer of activities and the state and quality of leisure equipment are another thing as the existing parks in which these are perceived as inadequate do not seem to have the will or resources for improvement and the new linear parks still need to prove their functionality and success. At the moment a majority of the linear parks faces problems that are complex to resolve within the framework in which park administrators are operating (e.g. no limited opening hours, no sanitary facilities, difficulties with tree growth). Challenges related to safety and maintenance should be easier to work with, seeing that there are many examples of parks that are perceived as safe and well-maintained, an example is Villa-Lobos. The socioeconomic context seems to play a significant role as the parks that are known as unsafe and not well-maintained are mostly located within poor and degraded urban areas where park users might feel less responsible for a well care of the park but also where administrators are less capable to find ways to escape the perceived problems. Here lies a task for the government in making administrators aware of their role in improving the parks and in organising awareness and capacity trainings. Finally, it is of great importance that green area planners and managers know the neighbourhood in which new green spaces are to be realised, who the people are that are going to make use of them, what their wishes and leisure demands are, and also which alternative leisure services the area offers.

### *Main research question*

The main question that shaped this research is: What factors influence the visiting behaviour, perceptions and preferences of urban green space users and to what extent can the planning, design and management of these areas increase user benefits? For an answer to this question information was needed about the behaviour, perception and preferences of green space users in São Paulo and those of residents, and profiles of the park users and case study locations were to be made. All are discussed above. The influencing factors are found to be of a socioeconomic type such as age, income, education, living situation and household composition as well as from the physical type that relates to the size, landscape, maintenance, and leisure structure of the green space in question. For an enhanced user benefit, São Paulo needs to plan more green areas that are better spread across the city, of which the design is tailor-made for the neighbourhood in which they are located and also for the leisure demands of their users. Green space managers need to be better informed about the people who visit their parks and about the way in which those people perceive the current state of the park so that administrators can adapt the physical park features to users' needs and also seek ways to improve more subjective perceptions such as safety. Finally, green space policy should not underestimate the basis of a green space, namely its green character. Today this aspect seems to loose importance while park users state that for them the natural landscape is the number one reason to visit the urban green spaces. When all these challenges are taken up by designers, planners and managers and when they find suitable ways to tackle them, the use and perceived quality of the urban green spaces of São Paulo will improve substantially, thereby improving the general quality of life for the people in São Paulo.

## 8 Discussion

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With a research after the visiting behaviour, perceptions and preferences of urban green space users in São Paulo, Brazil, this study aimed to contribute to the research gaps that exist for research after the social dimension and experience of urban green space, green space studies in southern countries and metropolises, and to the research gap in park studies. The latter three lacking research fields are targeted with the choice to select São Paulo as a study region and by choosing urban parks as a main focus. The first two, the social dimension and experience of urban green space, have been addressed by choosing the users of urban green space as a study population and by exploring their recreational visiting behaviour, perceptions and preferences.

### *Differences and similarities found in urban green space theory*

Regarding the visitor profile, the dominance of male and young urban green space users that is found in all studies is confirmed by this research. A difference is that park users in São Paulo are found to be quite high educated whereas other studies have found that green space visitors show a below average education level. A study from Oguz (2000) performed in Ankara, Turkey indicates that education level makes people prefer other green spaces and in São Paulo this is found to be true, although a factor of bias is that lower educated persons often have less means (education and income are associated) to visit green spaces far from their homes which makes their leisure pattern geographically restricted. A study from Odense, Denmark (Schipperijn *et al.*, 2010) revealed that many residents choose to travel to a green space that is more to their liking than the one near their homes; this is also seen in São Paulo where richer people prefer quieter, natural green areas above the populous urban parks. The factor gender is found to be of less influence in this study than in others as in São Paulo's parks the only differences between men and women are related to the activities they undertake in the park.

The visiting behaviour of urban green space users in São Paulo does not differ much from that found in studies performed in other, more western countries. Walking and relaxing and enjoying the natural landscape are the preferred activities, followed by sports and exercise and a trend is that less time is spent per green space visit. The findings of this study are in accordance in two ways with those of Schipperijn *et al.* (2010) who firstly state that size and distance influence the choice for a green space and that farther green areas are frequented less, and secondly that garden owners frequent green spaces more, both patterns appear as well from this study. Some differences exist though. Priego *et al.* (2008) found no differences in the degree of use among socioeconomic groups while in this study park users with higher incomes are found to come almost daily and engage most in exercising. A study in Karachi, Pakistan found that picnicking with friends and family is popular among park users and that the frequency of visits is low but the length of stay long (Qureshi, Breuste & Lindley, 2010). It might be expected that São Paulo shows similarities with Karachi as both are large urban agglomerations in less developed countries. And indeed, picnics and barbecues are activities that are more popular in São Paulo than they seem to be in other countries, though it is mainly park users from lower socioeconomic strata who engage in picnics in São Paulo. A second similarity with the Karachi study is that some urban green spaces are perceived as overcrowded, something that has not appeared from studies in other countries, and that this might be due to a lack of alternative options and to the few well-maintained green spaces in the city. In São Paulo this is certainly the case as the crowded parks Ibirapuera and Villa-Lobos are the parks that offer the best recreational facilities and that are best maintained which makes that everybody goes there – except for more wealthy persons that visit private clubs. Moreover, in São Paulo visitors come to the park with a high frequency and this is different from most other studies. In part, this will be

related to the climatic context as in many European cities the green spaces are mostly used for recreation in spring and summer.

With regard to perceptions and preferences, a study of Crow *et al.* found that women and people in the age of 20 to 44 perceive green space as more important than men and other age groups. This study did not find any such differences in gender or age, except for people of around that same age that are less positive about the leisure facilities of urban green spaces which is related to their family cycle as a household with members of various ages, children and adults, seek for more diverse leisure options in a park. For gender being of no influence on perceptions and preferences this study is in accordance with that of Oguz (2000) in Turkey. Another point on which both studies agree is that green space users find most satisfaction with landscape elements such as water bodies and green retreats and most dissatisfaction with a limited offer of events and activities, food and sanitary amenities, maintenance and safety, and with inappropriate behaviour of other park users. Finally, from talking with park users in São Paulo it appeared that the zoological gardens were mentioned very often as an urban green space that people like to visit and in the study in Karachi (Qureshi, Breuste & Lindley, 2010, p.289) this appeared to be the same, whereas none of the other green space studies mention the zoo as an urban green space example.

### *Recommendations for further research*

The above exposition reveals a number of similarities between existing urban green space studies and this research, but also quite some differences. Similar are for instance the reasons for which people visit a park, the majority of male and young visitors, the influence of income and education and the importance of size and distance. Examples of disparities are the frequency of urban green space visits that is higher in the studied parks in São Paulo and the minor effect of gender in this study. Interesting is that this study is on several points comparable with studies from Turkey and Pakistan and on those points differ from Western European studies. This indicates that culture and nationality as well as different climatic conditions are factors that influence urban green space use and perception, something that needs to be researched more in to depth. Also, existing studies do not always offer a thorough and complete visitor profile. A third aspect that misses in current research is that most research takes the neighbourhood as a starting point, and not the urban green spaces themselves. This has the advantage of retrieving the total picture of people's green space use, but does not characterise the green spaces that much and due to that, few practical points of improvement and planning recommendations are advanced by existing green space studies. A fourth point for further research is that other research methods might help in creating a more complete idea of urban green space users, visiting behaviour, perceptions and preferences. Like this study, most research is based on large-scale surveys while other, more qualitative data collection methods might lead to different insights as this study proves with a focus group in which very wealthy participants tell to hardly use public green spaces because they prefer other types of recreation. Fifth, in the case of São Paulo other green space locations such as the linear parks should be studied in order to explore the use and perceived quality of this new park type, and also the protected natural areas could be studied better as they may receive a different public than the average city park and will be used in different manners.



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## Annexes

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Annex I	Questionnaire format
Annex II	Interviews and focus groups
Annex III	Maps
Annex IV	Tables with socioeconomic indicators on different administrative levels
Annex V	Frequency tables
Annex VI	Statistical tests

Annex I  
Questionnaire format

Park:	Interview no.
Date:	Time:
Interviewer:	Weather:

*This questionnaire is part of a study into the use, perception and preferences of urban park users in São Paulo. Thank you for supporting this study by completing the questionnaire. Please choose the answer that is closest to your personal situation and average, usual visits to this park.*

### The park

Which transport means do you use to come to the park:

- ☐ on foot      ☐ bike, skate      ☐ public transport  
☐ car      ☐ taxi      ☐ other: \_\_\_\_\_

How long does it take you to reach the park:

- ☐ less than 5 min      ☐ 5 to 15 min      ☐ 15 to 30 min  
☐ 30 to 60 min      ☐ 1 to 2 hours      ☐ more than 2 hours

With what frequency do you visit the park:

- ☐ daily      ☐ multiple times a week  
☐ once a week      ☐ once a month      ☐ rarely

When do you visit the park:

- ☐ any day      ☐ weekdays      ☐ weekends/holidays

Usual visiting moment (*multiple answers possible*):

- ☐ morning      ☐ afternoon      ☐ evening

On average, how much time do you spend in the park:

- ☐ less than 1 hour      ☐ 1 to 3 hours      ☐ more than 3 hours

For what reason do you choose this park: \_\_\_\_\_

Are there any hindrances limiting your visits: \_\_\_\_\_

What do you like most about this park: \_\_\_\_\_

What do you dislike about this park: \_\_\_\_\_

With whom do you normally visit the park:

- ☐ alone      ☐ partner      ☐ children  
☐ family/relatives      ☐ friends      ☐ other: \_\_\_\_\_

Can you give a top 3 of activities you practice in the park (*1 = highest*) :

- ☐ walk      ☐ run/bike/skate      ☐ team sports  
☐ play (children)      ☐ meet friends, talk      ☐ relax, see landscape  
☐ picnic, barbecue      ☐ visit sites/events      ☐ other: \_\_\_\_\_

Visitors of this park are predominantly from:

- ☐ the neighbourhood      ☐ elsewhere      ☐ both

Is there anything you miss in the park: \_\_\_\_\_

How would you grade the park on a scale from 1 (*low*) to 10 (*high*): \_\_\_\_

Please indicate to what degree you agree with each of the next statements by circling the corresponding number, meaning:

**1 totally disagree – 2 disagree – 3 neutral – 4 agree – 5 totally agree**

The park and its facilities are clean	1	2	3	4	5
I feel safe here during the day	1	2	3	4	5
I feel safe here after dark	1	2	3	4	5
The park's landscape is diverse	1	2	3	4	5
The park is well-maintained	1	2	3	4	5
The park is lively and busy	1	2	3	4	5
The park is attractive	1	2	3	4	5
The park has many facilities	1	2	3	4	5
The park has interesting facilities	1	2	3	4	5
The park has many trees and plants	1	2	3	4	5
The park has good paths and roads	1	2	3	4	5
The park is quiet and peaceful	1	2	3	4	5
I like the design of the park	1	2	3	4	5
I can find nature in this park	1	2	3	4	5

Public transport access is easy	1	2	3	4	5
Car parking is sufficient	1	2	3	4	5
Bike parking is sufficient	1	2	3	4	5
I am satisfied with the park	1	2	3	4	5
The park is important for the neighbourhood	1	2	3	4	5
The park is important for the city	1	2	3	4	5
There is a need for more green areas in my neighbourhood	1	2	3	4	5
The city has many green areas	1	2	3	4	5
I prefer small neighbourhood parks	1	2	3	4	5
I prefer large city parks	1	2	3	4	5
I prefer natural parks and forests	1	2	3	4	5
Nature is important to me	1	2	3	4	5

Which other parks and green areas in São Paulo do you visit: \_\_\_\_\_

Which other places do you visit for leisure and recreation: \_\_\_\_\_

Do you find these places in your neighbourhood: ( ) yes ( ) no

### Personal background

Gender: ( ) female ( ) male  
Age: ( ) <18 ( ) 18-24 ( ) 25-34 ( ) 35-44  
( ) 45-54 ( ) 55-64 ( ) 65-74 ( ) >74

What is your highest completed education:

( ) none ( ) adult literacy ( ) fundamental  
( ) medium ( ) superior ( ) post-graduate

What is your main activity:

( ) profession: \_\_\_\_\_ ( ) housekeeping  
( ) student ( ) unemployed ( ) retired

How would you evaluate your health:

( ) less good ( ) good ( ) very good

Where did you grow up:

( ) village ( ) small city ( ) big city

As a child, did you play outside (almost) every day: ( ) yes ( ) no

Do you recycle your waste: ( ) partly ( ) yes ( ) no

Where do you spend your holidays: \_\_\_\_\_

Where in São Paulo do you observe nature: \_\_\_\_\_

### Living situation

Neighbourhood: \_\_\_\_\_

Reference streets: \_\_\_\_\_

In what type of housing do you reside:

( ) owner occupancy ( ) private tenancy ( ) public housing

( ) squatting ( ) other: \_\_\_\_\_

How many persons reside in your house: \_\_\_\_\_

If this includes children, how many are aged under 15: \_\_\_\_\_

What is your family income (*per month, in R\$*):

( ) less than 500 ( ) 500-1,000 ( ) 1,000-2,000

( ) 2,000-4,000 ( ) 4,000-7,000 ( ) 7,000-12,000

( ) more than 12,000










Does your house have: ( ) garden ( ) balcony ( ) common area

( ) quintal ( ) none

Do you have a car: ( ) yes ( ) no



Below you find a schedule that depicts different qualities and characteristics of green areas. Please, fill in the schedule by putting a 'X' in one of the boxes for the first three questions, and by naming examples of green areas in and around São Paulo for the fourth question.

Type of green area according to its characteristics	Description	What area type do you prefer? (X)	How would you typify this park? (X)	Which area type(s) do you find in your neighbourhood? (X)	Could you give an example of each type? (with name)
	<b>Forest feeling:</b> area that feels like a “real” forest				
	<b>Valuable nature site:</b> valuable nature area with a special feeling of nature (natural flora and fauna)				
	<b>Space and freedom:</b> area where you can enjoy space and freedom				
	<b>Attractive park:</b> constructed park that is exceptionally beautiful ( flowers, trees, landscaping, buildings and constructions)				
	<b>Peace and tranquillity:</b> area that is peaceful and quiet				
	<b>Opportunities for activities:</b> area with good amenities for play/hobbies (fields, equipment)				
	<b>History and culture:</b> area with interesting local history and culture				
	<b>Unpleasantness:</b> area that is neglected, abused and damaged, or unaesthetic				
	<b>Scariness:</b> area that feels dangerous or threatening				

Based on: Tyrväinen et al. (2007, p. 18)

Thank you very much for contributing to this study. Please note down any final comments: \_\_\_\_\_

## Annex II

### Interviews and focus groups

1. List of experts and key informants in São Paulo spoken with during interviews, meetings and in the field
2. List of meetings, courses, seminars and congresses joined
3. Summary of an interview with Villa-Lobos park council member
4. Summary of a focus group held in Alto de Pinheiros
5. Summary of a focus group held in Jardim Nossa Senhora do Carmo

#### 1. Key informants

##### *University of São Paulo*

- Wagner Costa Ribeiro  
University of São Paulo, Faculty of Philosophy, Languages and Literature, and Human Sciences, Geography Department
- Yuri Tavares Rocha  
University of São Paulo, Faculty of Philosophy, Languages and Literature, and Human Sciences, Geography Department
- Vladimir Bartalini  
University of São Paulo, Faculty of Architecture and Urbanism, Project Department
- Demóstenes Ferreira da Silva Filho  
University of São Paulo, ESALQ – Superior School of Agriculture Luis de Queiroz, Forest Science Department
- Larissa Tosetti  
Agronomist and Master student at ESALQ, research into landscape appraisal and valuation in Ibirapuera Park (São Paulo) and in Piracicaba, SP

##### *Municipal Secretary of Green and Environment*

- Carlos Roberto Fortner  
Chief of Cabinet Staff
- Frederico Jun Okabayashi  
Technical assistance Cabinet (civil engineer and lawyer in environmental control)
- Newton Simões  
Technical assistance Cabinet (civil engineer)
- Julia Nogueira de Souza  
Environmental engineering trainee
- Guilherme Andrade  
International relations trainee

##### *Park managers*

- Rodrigo Bisanson Cavalin  
Former administrator of Pinheirinho d'Água
- Roberto Rosa  
Administrator of Villa-Lobos Park
- Maria Helena Bueno  
Villa-Lobos Park Council member

- Felipe Frascarelli Pascalicchio  
Director of Carmo Park
- Fábio Pellaes  
Administrator of Carmo Park
- Heraldo Guiaro  
Director of Ibirapuera Park
- Helena Quintana Minchin  
Accessibility manager Ibirapuera Park

#### *Other interviewees*

- Caetano Becali  
Resident of Moema district who gave lectures and organised tree painting projects in São Paulo

#### *Persons spoken with during visits to parks and green areas:*

- Eliana de Andrade  
Administrator of Buenos Aires Park
- Lincoln Yassuo Yoda  
Administrator of Cidade de Toronto Park
- Person in replacement of Tathiana Popak Maria  
Administrator of Vila dos Remédios Park
- Vanessa Guimarães Ramos  
Event manager at Carmo Park
- Hugo Alexandre Calixto Antonio  
Director of the green area cluster in the east zone of São Paulo
- Audrei Costa  
Administrator of Shangrilá Park and Linear Park Parelheiros
- Maria Angela  
Municipal Secretary of Green and Environment
- Ivi Piotto  
State Secretary of Environment, communication employee
- Daniel Chang Yuan  
Architect
- Julia Alves  
Member of the neighbourhood association of Alto de Pinheiros district and previously employed as environmental economist at the Environmental Protection Agency of the state of São Paulo

## 2. Meetings, courses, seminars and congresses

### *Meetings*

Name: Buenos Aires Park Council meeting  
Venue: Buenos Aires Park  
Date: August 20, 2011

Name: Local Agenda 21 meeting  
Venue: CESC Itaquera  
Date: October 15, 2011

Name: 12<sup>th</sup> APA Parque e Fazenda do Carmo Management Council meeting  
Venue: Carmo Park  
Date: November 24, 2011

#### *Courses*

Name: Urban Forestry  
Venue: ESALQ – Superior School of Agriculture Luis de Queiroz, Piracicaba, SP  
Date: August 11, 2011

Name: Landscape and Environmental Planning  
Venue: University of São Paulo  
Date: August 15, 2011

#### *Seminars*

Name: Megolopolis Seminar  
Venue: University of São Paulo  
Date: August 18, 2011

Name: Palestra internacional: Aproveitamento de água de chuva de telhados princípios, normas e exemplos (International lecture: Use of rain water from roofs, norms and examples)  
Venue: São Paulo City Hall  
Date: August 23, 2011

Name: 1<sup>st</sup> Encontro sobre Parques Lineares  
Venue: UMAPAZ – Universidade Aberta do Meio Ambiente e Cultura de Paz  
Date: October 7, 2011

#### *Congresses*

Name: 1<sup>st</sup> Congresso de Áreas Verdes – Florestas Urbanas  
Venue: Bienal, Ibirapuera Park  
Date: October 27, 2011 and October 29, 2011

Name: 5<sup>th</sup> Mostra FIESP/CIESP: Responsabilidade Ambiental  
Venue: FIESP – Federação das Indústrias do Estado de São Paulo  
Date: November 22, 2011 and November 23, 2011

### 3. Interview with one member of the Villa-Lobos Park Council

Location: Administration building, Villa-Lobos Park, São Paulo  
Date and time: 05 December 2011, 18.00 – 19.10  
Interviewee: Maria Helena Bueno

#### **Introduction**

I live in Alto de Pinheiros since 1999 where I am President of the neighbourhood association SAAP. In this position, I have joined the Council of Villa-Lobos Park. Alto de Pinheiros neighbours the park to the southeast and has 5500 houses. City Boaçava borders at the park's northeast and is much smaller with just 520 houses. The President of their neighbourhood association, SAB (located in Praça Amundsen, the little park across the avenue with a dog area – VL has a special

dog area too but MHB doesn't go there because there is little shade), is Sergio. Both districts are part of the sub prefecture Pinheiros.

### **History**

The Council exists since the park's existence, now 18 years ago. Its goal is threefold: keeping the park to the people, make sure the park functions well, and that the park is well taken care of.

### **Members**

- Lu: President. She is a journalist and friend of the previous state Secretary of Environment, and she lives across the street. She has difficulties keeping the order because of Sergio.
- Darcy: lives in Av. Padre Pereira de Andrade in a condominium of more than 1000 residents. Has been with the Council since the very beginning.
- Jeany: represents a NGO focusing on violence issues.
- Cecília: represents Pinheiros sub prefecture, and is with the council since the beginning.
- Sergio: represents the neighbourhood of city Boaçava (President of SAB).
- Maria Helena Bueno: represents the neighbourhood of alto de Pinheiros (President of SAAP)
- One person from OAB, the association for lawyers in Brazil.

Roberto, Lu and Sergio were the last to join the Council, this was some years ago.

### **Meetings and main points of discussion**

Meetings are once a month. General topics are the plans for next month, events (e.g. Cirque du Soleil or the Tennis Cup in January), approvals from Roberto (e.g. new playground equipment), gardening, cleaning, security and changes or developments (e.g. new security company). Events like Cirque du Soleil bring large amounts of money to the park, which are used for the park itself. In the case of Cirque du Soleil the earnings have been used for the Administration buildings. Other new constructions are from the Military Police and SEMU, the ambulance service. They both serve the neighbourhood and not exclusively Villa-Lobos Park.

The council members always argue with the representative of City Boaçava, Sergio. As his neighbourhood is located right in front of the park, visitors park their cars in the streets of City Boaçava – to the dislike of residents. This makes Sergio reluctant to agree with many initiatives and proposals, such as music shows, activities and events, and the park expansion. SAB also objects to the crowdedness in Villa-Lobos during the weekend. The other members prefer to retain the park as it is. Another point of discussion with SAB is the bicycle lane on Sundays. As the cycling zone prohibits the parking of cars from Av. Prof. Fonseca Rodrigues until Praça Pan Americana, even more people park inside City Boaçava.

### **The park**

#### *Users*

From Monday to Friday the park is visited by residents of City Boaçava, Alto de Pinheiros, Perdizes and Pinheiros. Saturday and Sunday are the days that people from all over the city visit Villa-Lobos, including people who live at great distance from the park. There is one thing we need to teach the public: the use of public transportation. The train station for example, is very favourably located for park visitors. There is even an elevated pedestrian bridge that connects the station with the park.



### *Use*

Most popular uses of Villa-Lobos Park include the following: biking, skating, skate boarding, running, picnicking, sporting and walking the dog. At weekends, visitor numbers are huge and the number one activity among park users is riding the bike. During the week fewer people visit the park, and the use is mostly running, walking the dog and children that practice sports with a (free) sports school (e.g. the tennis school). "Monday morning the park is a mess." There are empty coconuts everywhere, spread throughout the park. This is one of the problems we are trying to solve in the Council. Large containers will not be placed because they are too ugly to distribute in the park. We are thinking of stopping to sell coconuts. We could start selling just the coconut water in bottles or boxes, as in Ibirapuera Park. This will mean that the traditional coconut drinking and eating the inner part is no longer possible.

### *Maintenance and security*

The companies that take care of maintenance (cleaning, toilets) and security have been changed last month, in November. For now, the new team works better but the question is what the situation will be in six months. Cleaning and security are functions employed by simple people, who do not have any instructions about what to do or how to behave towards the park visitors. They don't know how to approach people or how to communicate park regulations. Park users do not respect the security functionaries much. The guards come from the north of Brazil and are either violent or scared when it comes to approaching the public. "They are poor", meaning that they do not know how to communicate with the people.

Security: 50 on Saturday and Sunday, 32 during the week (of which 3 or 4 are good at their job)

Cleaning: 30 in total, 15 each day

Gardening: 45 from *Áreas Verdes* (municipality) and 6 from the state

### **Plans**

2012 will see the area which was used to construct the new subway line (*Linha 4*) being adjoined to the current area of Villa-Lobos Park.

Construction of the building for Environmental Education is supposed to be completed this month (December 2011), but seeing its current state this is highly unlikely. With the elections for São Paulo's new mayor next year, it is difficult to say when the building will be ready. The current Secretary of State for the Environment is planning to run for the mayor's position in 2012, and will therefore leave his Secretariat by March next year. This denotes the arrival of a new Secretary and with that a revision of all current projects and plans, bringing a factor of insecurity to the park's Environmental Education building. The most likely outcome is that construction work will halt until somebody appoints the necessary budget to continue building.

### **Relationships and collaboration**

The relationship with the Park Administration is very good; Roberto Rosa is a good administrator. He is patient and always present at meetings where he is the one to introduce discussion topics.

The Council does not include any representatives from Security, Cleaning or Gardening. Also the people operating the eateries in and outside the park do not take part in Council meetings. Neither are users of the park other than the Council members.

So how does the Council know what is going on in the park? Members of the Council are park users themselves and when they walk around, they talk with other users and employees. During the week the Council members meet their neighbours here and talk about the park with them. That is the way in which the members try to be up to date and informed. For example, a

neighbour told Maria Helena that many personal trainers are active in Villa-Lobos, e.g. for yoga and running.

### **Personal preferences**

Maria Helena would like to see more musical performances in the park, after all it is the composer Villa-Lobos the park is named after. At times there is a music show or event at the *Esplanada* (large concrete area near the main entrance), but classical music is not very popular. If we would play samba, wow, Sergio would complain heavily because of all the people that will come to see such an event. We need to educate the people by getting them into contact with other music.

The western part of the park could be greener because that area consists of too many concrete and impermeable surfaces.

## **4. Focus Group I – Alto de Pinheiros: Neighbourhood Villa-Lobos Park**

Location: Restaurante Ponteio, Av. Jaguaré 1600, São Paulo

Date and time: 28 November 2011, 19.00 – 22.00

Present:

- Julia Alves: lives in Alto de Pinheiros since more than 30 years, retired, economist, two environmental masters in the US, used to work for the Environmental Protection Agency of the state of São Paulo
- Mario: lives in Pinheiros since 55 years, Business Administrator
- Lino Eduardo Real Fechio: lives in Alto de Pinheiros since 35 years, retired, economist, President of a beneficial institution that helps young people aged 16 – 20 through education and working experience (CAMP)
- Luiz Augusto: lives in Alto de Pinheiros since 32 years, President/entrepreneur
- Hans van Baggem: lives in Alto de Pinheiros since 22 years, President of Olver do Brasil
- Arnaldo Bottari Pinheiro de Mello: lives in Vila Mariana
- Manoel de Oliveira Maia: lives in Alto de Pinheiros, President of the Rotary Club Alto de Pinheiros 2011-2012

### **Introduction**

Pinheiros is a mixed neighbourhood: mainly residential with some commercial services and four million inhabitants. Alto de Pinheiros is a district of sub-prefecture Pinheiros, designed in the 1930s by City Company from the UK. Building started in the 1940s and Alto de Pinheiros is a purely residential area. With over twenty plazas, Alto de Pinheiros remains to be the greenest neighbourhood of the city. The prefecture cannot make any changes in Alto de Pinheiros (the same accounts for the *Pacaembu* area) because of a document written at the time of construction that goes above the law. This has led to a neighbourhood dominated by single level houses, without any flats or apartment buildings. In Hans's street this 'law' becomes visible: the left side of the street is part of Alto de Pinheiros and solely occupied by low houses while the right side is part of Vila Madalena neighbourhood which allows residential buildings up to eight levels.

### **Urban green space visits**

Villa-Lobos – Alto de Pinheiros

Ibirapuera – Vila Mariana

Praça Vicentina de Carvalho – Alto de Pinheiros

Praça Província de Saitama – Alto de Pinheiros

USP cidade universitaria - Butantã  
Praça do Sol (Coronel Custódio Fernandes Pinheiros) – Alto de Pinheiros

Praças: used during the week when passing through

Ibirapuera is older and has a better infrastructure. Villa-Lobos is smaller and since five years more popular. Hans: There used to be few visitors but today Villa-Lobos Park is too crowded, there are too many people especially during the weekends. Mario: Park users are from the low and middle classes. I stay at home in the weekend or go to my country house. Paulistanos do not travel far to visit a park.

Mario: I used to visit the park with my children, but rarely on my own. Some years ago Villa-Lobos Park was better because of the smaller visitor flux. Hans: We will not visit VL on the weekend when the park gets too crowded and 'popular' with people playing loud music in their cars. We listen to a different type of music.

### **Services and benefits**

#### City

Leisure (difference Ibirapuera and Villa-Lobos: Ibirapuera has leisure facilities as the planetarium, shows and museums whereas in Villa-Lobos the park itself constitutes the leisure), decrease pollution, weekend exercise, escape from the urban environment (from the buildings e.g. Trianon Park in Av. Paulista), mental health, visual beauty.

#### Neighbourhood

Place to walk and pass through, morning circulation: many people running and doing other exercise, USP campus as exercise area.

Mario: Residents living near the park (Ibirapuera) are becoming to get more involved in maintenance and management of the parks. Before people were more individualistic, today a feeling of co-responsibility is evolving. Citizenship and the feeling of responsibility are better developed in 'older' countries (post-war Europe). People are more mature in this sense. But Brazil is changing momentarily and developing this citizenship.

### **Situation in the city**

#### Quantity

Julia: few urban green spaces

Lino: increase in the last twenty years (m<sup>2</sup>/person)

Luiz Augusto: no urban green spaces

Mario: laws against deforestation. People need a place to live, a house in this big metropolis. The government tries to recuperate areas. The way of thinking about green areas and also peoples' conscience has changed in the past ten years. Laws are better respected nowadays and also, controlled and sanctioned.

#### Spread

Arnaldo: very poor, there are no urban green spaces in the east zone. Only now it is beginning with an USP university location there. The west and south of São Paulo are more wooded, greener; these are residential areas with a richer population. The north and east have less urban green spaces. The east is the worst; they only have Carmo Park while half of the city population lives in the east zone. At least the north is limited by the *Serra da Cantareira* state Park.

Mario: Zona Leste (the east zone) is a "sleeping city": purely residential, everybody travels to the centre for work.

## **Situation in the neighbourhood**

### Quantity and quality

(Alto de) Pinheiros is a privileged neighbourhood; it is the oldest planned neighbourhood of São Paulo. Trees are big and old. However, they did not choose the right trees for the neighbourhood. A big problem is caused by woodworms. The prefecture searches infected trees and cuts them down in big quantities. The same occurs in Lapa neighbourhood which is also an above average green area.

Lino: since fifteen years birds are returning to the neighbourhood. With more fruit trees, this would increase even more.

### Use

Leisure, weekends.

Mario: many people use urban green spaces daily. Av. Sumaré has a greenbelt in the middle which is intensively used in the morning. Hans: also Lapa has several small-scale parks with running tracks and these are well-used. But these urban green spaces are not lit which makes them dangerous during the night. People therefore choose to run in the streets or bike in groups.

## **Preferences**

Mario: There is a difference in leisure types offered by urban green spaces. There is 'cheap' leisure for people from the lower socioeconomic classes, such as barbecue areas. Then there are higher class options such as the planetarium in Ibirapuera. Villa-Lobos is located in an expensive neighbourhood (300 m<sup>2</sup> sized apartments), but the park visitors come from the lower classes. These people don't encounter any green spaces in their own neighbourhoods. There is one example; CEMUCAM (far west) which is used only by lower-class people.

Hans: VL is surrounded by rich neighbourhoods while the park public – especially on weekends – comes from a lower socio-economic class, class C and lower. Monday to Friday the park is used by people from the region, they don't visit the park on weekends. In front of Villa-Lobos on the other side of the avenue is a small park that has a special area for dogs, this little park is very popular.

Mario: who visits the park, does not want us to go there.

Hans: there is a sensible difference between class A and class C and lower. We have different necessities. Where 'the people' comes, we don't and vice versa. They use the park mainly during the weekend; they don't have any other options in their neighbourhood, no park or other leisure areas. So they go to Villa-Lobos.

## **Suggestions**

Create leisure options where 'they' live. Make sure that green spaces are evenly distributed among the city zones. Urban green spaces should 'feel' the necessities of the residents and provide them with these. Adapt urban green spaces to the social class of the area. Open parks there, for them.

### *Is nature important to you?*

Mario: Definitely. The soul reaches balance when you are in nature. The quality of life improves, nature is very important for our psychological health. It is better when the fun, entertainment of life is natural.

## 5. Focus Group II – Jardim Nossa Senhora do Carmo: Neighbourhood Carmo Park

Location: EMEF Professor Aurélio Arrobas Martins, Av. Afonso Sampaio e Sousa 2051, São Paulo

Date and time: 06 December 2011, 12.00 – 13.30

Present: five employees of the school living in the Carmo Park neighbourhood

### **Urban green space visits**

Parque do Carmo - frequently

Ibirapuera – rarely

Zoo – rarely

Jd. Bot - rarely

Carmo Park is near; we walk or bike to the park. The park offers entertainment, fun and recreation. There are shows, playgrounds, Festival de Cerejeiras and a different nature to observe. There is a very large and old tree I like to see there. In Carmo Park we walk, the children play and fly the kite, we have picnics. During the week there are organised walks with a professor in the morning, as well as yoga and Thai Chi activities. The park has been improved during the past few years, organisation has improved and there have been reforms on e.g. the gymnastic equipments. Variety is big in Carmo. The park was neglected, but has changed positively.

Sometimes we visit Ibirapuera Park, the Zoo or the Botanical Gardens, but these places are far, you need a car, and our financial situation doesn't allow us to go. But Ibirapuera Park is beautiful. Carmo Park is the same as Ibirapuera, but closer to our homes.

### **Services and benefits**

Air quality, quality of life, trees, energy, reflection, anti stress, take of shoes and relax, barbecue places, rest. "Next to São Paulo's buildings, urban green spaces are a treasure for us".

Children go to the park (Carmo) very often, they ask permission to go every day. The park offers open spaces, a place where they can play, etc. We live in apartments and Carmo Park is the opportunity to go outside. Playing in the streets is too dangerous nowadays, with the traffic and all. But also in the park we accompany our children; they are not allowed to go alone until they are 17 or 18 years old. My son is 14 years old and I always go together with him. All the children go with their parents because it is too risky to let them visit the park on their own. Carmo has some areas that are very dense and closed. There is police present, but it is still dangerous, we will not take the risk. We ourselves do not visit the park alone either.

Carmo Park is a meeting point for us and especially for the children.

### **Situation in the city**

#### Quantity

There are few urban green spaces. The biggest are Carmo, Ibirapuera, Jardim Botânico and Parque Ecológico Tiête. There are also some plazas but they are small in both size and number. São Paulo has more constructed areas than green areas.

#### Type

UGS are mostly leisure areas, and when it concerns a natural space it is generally combined with leisure infrastructure/facilities. The Zoo and Ipiranga Park and Museum are well conserved, the same is true for the bigger city parks that see many visitors and also tourists. But also the small



plazas in our neighbourhood and here across from the school are well taken care of, both by the prefecture and by the residents themselves who help to keep these spaces clean.

### Spread

Urban green spaces are badly spread around the city. The greenest areas are to be found in Jd. N.S. Do Carmo, Zona Leste and Zona Sul (because of Ibirapuera Park).

## **Situation in the neighbourhood**

### Quantity and quality

Our neighbourhood has quite some green areas, which are squares or plazas with trees and plants. And of course there is the big area of Carmo Park. But together it is not enough for the population of this region, for the number of people. We are known with the 'planta uma árvore' project in which residents are able to plant trees with the help of the prefecture.

## **Preferences**

For the children it is clear: playgrounds and areas to play are most popular. For us, adults, this is what we like most in the park: walk, sit, and see the lake and ducks. We do not like shows, because this always brings a big crowd to the park which results in busy toilets and the park getting dirty. The same happens in the weekends, when it is very crowded in Carmo Park.

## **Suggestions**

More parks to diversify more, the options in our neighbourhood are few. Other parks (Ibirapuera, Zoo, Jardim Botânico, Ipiranga) are too far, we just visit them once a year or once in two years. We need parks closer to our houses.

## **Conclusion**

The women live in Jd. N.S. do Carmo, work at the EMEF Prof. AAM School and have children on the same school. They are best known with their own region, the rest of São Paulo is fairly unknown to them. The region knows little variation in urban green spaces, the choice is limited. Carmo Park is frequently visited by the residents of Jd. N.S. do Carmo. To play with their children and also on their own for morning exercises during the week. Carmo Park has improved recently, but is still too dangerous or risky to let children play alone. But with Carmo around the corner, it is not necessary to visit many other places in search of leisure. It seems sufficient for the residents; they don't miss anything in their neighbourhood. The only thing is maybe that they would like to see some more variation in the offer of urban green spaces in the region. The Zoo, Ipiranga, Jardim Botânico, Ibirapuera are attractive options but difficult to reach because of distance, money and accessibility. To Carmo Park you can go walking or by bicycle.

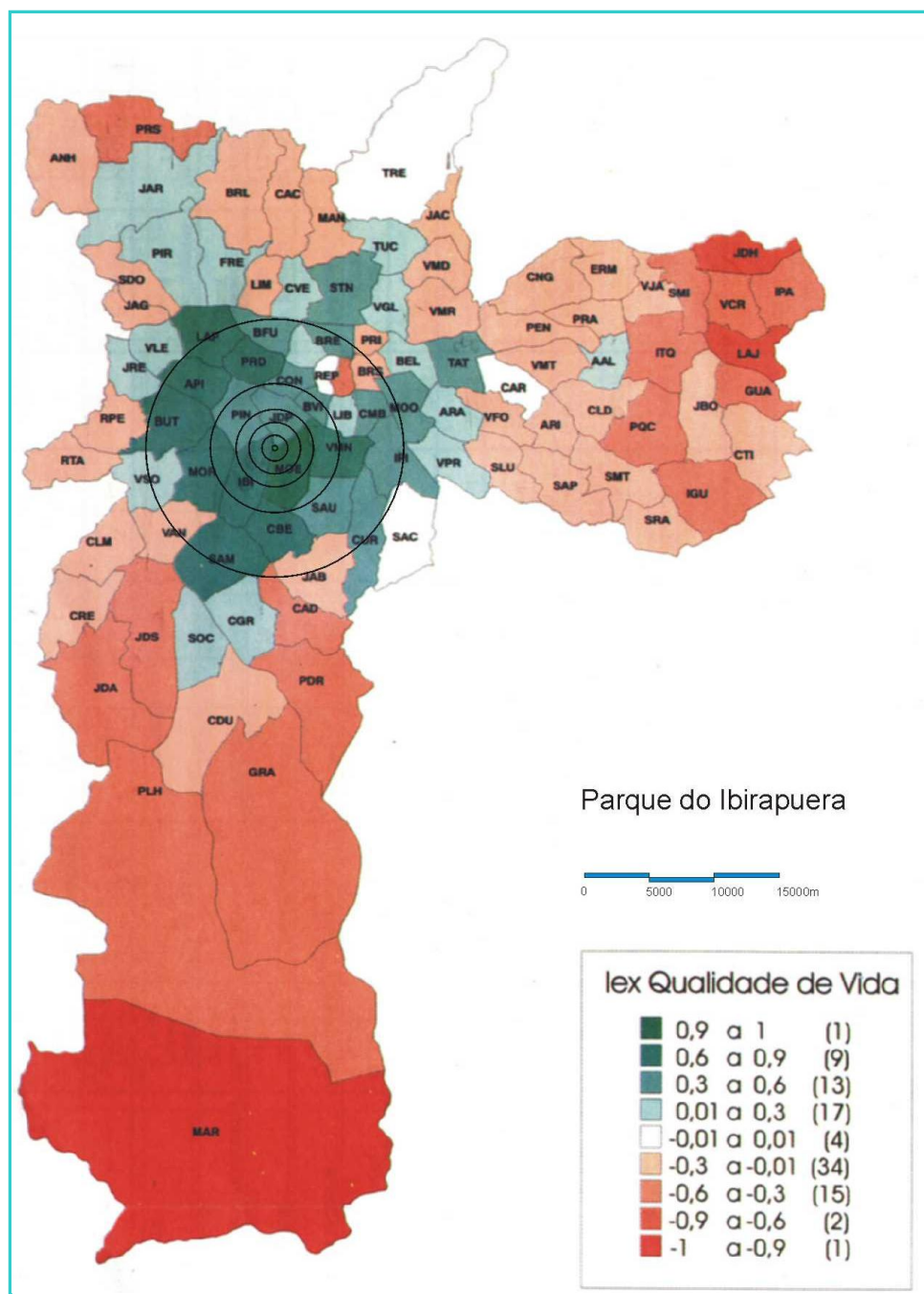
## Annex III

### Maps

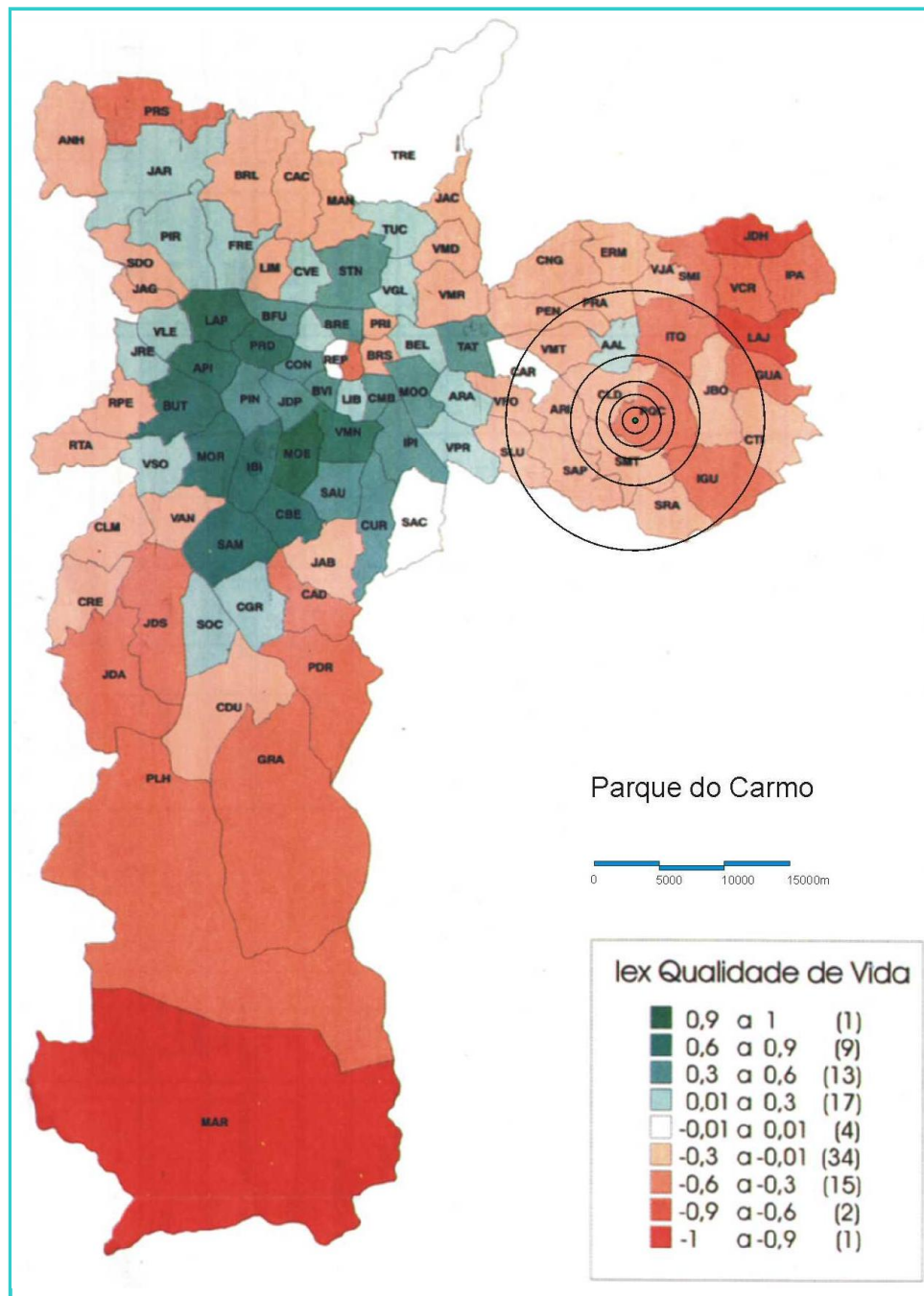
All maps are derived from Bartalini (1999):

1. Quality of life index: Ibirapuera Park
2. Quality of life index: Carmo Park
3. Vegetation cover: Ibirapuera Park
4. Vegetation cover: Carmo Park

**1. Quality of life index:** Ibirapuera Park is located in an area with a high quality of life standard



**2. Quality of life index:** Carmo Park is located in an area with a low quality of life standard



### 3. Vegetation cover: Ibirapuera Park



### 3. Vegetation cover: Carmo Park





## Annex IV

### Tables with socioeconomic indicators on different administrative levels

#### 1. District data

District features	São Paulo	Jaraguá	Alto de Pinheiros	Parque do Carmo	Moema	UN Goal
Park	-	Pinheirinho d'Água	Villa-Lobos	Carmo	Ibirapuera	-
<b>General</b>						
Location (zone)	-	North	West	East	South	-
Sub prefecture	-	Pirituba	Pinheiros	Itaquera	V. Mariana	-
Size (km <sup>2</sup> )	1,522.99	28.12	7.52	15.66	9.13	-
Inhabitants, 2010	11,253,503	184,818	43,117	68,258	83,368	-
Density, 2010 (inhabitants/km <sup>2</sup> )	7,389	6,572	5,734	4,359	9,131	-
<b>Socioeconomic indicators</b>						
Human Development Index, 2000	0.841	0.791	0.955	0.799	0.961	-
HDI rank, 2000 (out of 96 districts)	-	77	5	74	1	-
Green space, 2000 (% of surface)	41.02	34.64	18.45	32.80	9.95	
Green space, 2000 (m <sup>2</sup> /inhabitant)	58.10	91.30	18.74	84.90	8.95	
Municipal parks (% of surface)	1					
Municipal parks (m <sup>2</sup> /inhabitant)	2.65					12
Jobs, 2010 (% of city total)	100	0.37	0.56	0.46	2.40	
Homes in slums, 2008 (%)	12.65	21.47	0.00	18.20	0.00	
<b>Leisure facilities</b>						
Cinemas, 2009	319	0	7	0	4	1
Theatres, 2009	280	0	2	2	5	1
Museums, 2009	71	0	0	1	5	
Public sport facilities, 2009	459	6	14	0	0	1
<b>Health</b>						
Basic units of public health care, 2010 (per 20,000 inhabitants)	0.80	0.65	0.46	1.47	0.48	1.33
Hospital beds, 2010 (per 1000 inhabitants)	3.08	2.03	1.81	10.27	22.98	
Births from mothers aged 19 or less, 2010 (%)	13.12	17.18	2.12	14.88	0.86	2.50
Births from mothers who had less than 7 prenatal consults, 2010 (%)	22.75	26.44	4.24	16.51	2.89	
Newborns under 2.5 kg, 2010 (%)	9.54	8.97	9.28	10.61	8.35	
Infant mortality, 2010 (per 1000 live births)	11.51	12.90	7.52	18.82	2.18	
Maternal mortality, 2010 (per 100,000 live births)	51.94	163.61	0.00	85.54	0.00	
Deaths from respiratory diseases, 2010 (per 100,000 inhabitants)	72.79	34.63	106.69	42.49	77.97	
Deaths from neoplasm (cancer), 2010 (per 100,000 inhabitants)	117.73	91.98	185.54	109.88	179.93	
<b>Safety</b>						
Deaths from external causes: accidents & violence, 2010 (per 100,000 inhabitants)	34.48	38.96	9.28	32.23	8.40	
Deaths by traffic accidents, 2010 (per 100,000 inhabitants)	10.83	14.07	4.64	8.79	2.40	
Deaths by homicide, 2010 (per 100,000 inhabitants)	11.49	14.07	2.32	13.19	1.20	
Juvenile deaths by homicide, 2010 (per 100,000 males aged 15-29)	34.41	56.88	0.00	43.59	0.00	

Source: Observatório Cidadão Nossa São Paulo, 2012; Portal Brasil, 2012; Secretaria Municipal de Coordenação Subprefeituras, 2012

## 2. Sub prefecture data

Sub prefecture features	Sub prefectures				
	São Paulo	Pirituba	Pinheiros	Itaquera	Vila Mariana
<b>Economy</b>					
Mean income, 2010 (R\$)	1,523	1,290	2,773	1,063	2,523
Unemployment rate, 2010	12.08	12.48	9.42	13.57	10.16
<b>Culture</b>					
Books available per inhabitant of 7-14 years	1.13	0.59	4.57	0.37	4.94
Books available per inhabitant of >15 years	0.55	0.28	0.12	0.11	0.01
Cinemas	262	0	35	3	19
Theatres	190	0	18	1	10
<b>Education</b>					
High school dropout rate	6.02	5.67	3.23	7.62	2.53
Age/year distortion (% gap ≥2 years)	27.01	28.99	13.31	29.08	13.70
Primary education dropout rate	1.24	0.55	0.24	1.18	0.46
Age/year distortion (% gap ≥2 years)	9.09	9.36	3.73	8.59	4.21
Illiteracy	4.15	5.26	2.54	4.49	2.49
Enrolment of day care vacancies (%)	48.08	56.67	55.08	49.85	56.89
Enrolment of preschool vacancies (%)	86.84	88.80	93.88	94.58	94.49
<b>Safety</b>					
Hospitalisation of women for reasons of potential attacks, per 100,000 women	123.04	121.55	60.64	145.00	61.26
Fatal violent crimes, per 100,000 inhabitants	22.60	18.20	11.80	19.09	8.97

Source: Movimento Nossa São Paulo, 2009

## 3. Satisfaction levels and perceptions of life conditions in São Paulo

Satisfaction levels and perceptions of life conditions in São Paulo	Zone			
	North	West	East	South
<b>Leisure and lifestyle</b>				
Time available for leisure	4.7	5.4	4.9	5.2
Frequency of reading newspapers, books and magazines	5.2	5.6	4.9	5.3
Frequency of going out with friends	4.8	5.6	5.0	5.2
Frequency of contact with nature	4.7	5.0	4.4	5.0
Frequency of physical activity	4.2	4.9	4.1	4.5
Frequency of visits to clubs, leisure and recreation places	3.8	5.0	3.9	4.4
Frequency of travels	3.8	5.0	3.6	4.5
Frequency of visits to the cinema	3.3	4.7	3.3	4.2
<b>Sport</b>				
Frequency of practicing sports at school	4.6	4.5	4.2	4.3
Frequency of sport activity	4.3	4.7	4.1	4.4
Proximity of public sport facilities	3.7	4.7	4.1	4.1
<b>Culture</b>				
Artistic and cultural manifestations at school	5.0	5.3	5.0	4.9
Frequency of participating in cultural activities	4.4	4.8	3.9	4.4
Proximity of public libraries	4.3	4.7	4.0	4.5
Proximity of cultural centres	3.9	5.1	3.8	4.2
Proximity of theatres	3.2	5.0	3.3	4.1
Entrance fees for theatres, cinemas and shows	3.5	4.1	3.6	4.2
Frequency of visits to museums and expositions	3.3	4.1	3.0	4.0
<b>Housing</b>				
Quality of dwelling	6.4	5.9	6.5	5.7
Quantity of subway stations in neighbourhood	3.6	5.2	4.5	4.6
Policies that allow the acquisition of homeownership	4.1	4.5	4.7	4.3
Provision of housing plans for all income ranges	4.0	4.0	4.4	4.0
Policies for redevelopment of slums	3.9	3.8	3.9	4.0
Solutions created for housing in risky areas	3.4	3.7	3.6	3.7

<b>Transport and mobility</b>				
Waiting time at bus stops	4.1	3.7	4.1	3.9
Bus punctuality	4.2	3.7	3.9	3.8
Public transport tariffs	3.9	4.0	3.9	3.6
Quality of sidewalks	3.6	4.2	3.6	3.7
Number of bicycle lanes in the city	3.3	3.9	3.9	3.5
Respect for the pedestrian	3.5	3.6	3.4	3.4
Traffic safety	3.5	3.6	3.4	3.3
<b>Personal and social values</b>				
Citizenship: participation of population in city life	4.7	4.3	4.7	4.5
Culture of peace and rejection of violence	4.4	4.9	4.5	4.5
Solidarity, team spirit and respect for others	4.9	4.6	4.8	4.6
Shared responsibilities and collective consciousness	4.6	4.5	4.8	4.6
Ethical behaviour: honest and beneficial human conduct	4.3	4.6	4.5	4.3
<b>Environment</b>				
Environmental consciousness and responsibility	6.7	5.6	6.4	5.8
Selective collection for recycling in neighbourhood	5.5	4.5	5.7	5.5
Proximity of parks and green spaces	5.3	5.6	5.1	5.0
Quantity of green areas in the city	4.8	5.1	5.2	4.9
Revitalisation and preservation of parks and plazas	4.7	4.8	4.8	4.7
Environmental education campaigns	4.3	4.8	4.7	4.3
Cleaning service of public and vacant spaces	3.9	4.2	4.4	4.3
Control of noise pollution	3.6	4.1	4.2	3.9
Monitoring of pollution from vehicles and industries	3.6	4.1	4.2	3.9
Air quality	3.7	3.9	3.7	3.8
Pollution control and preservation of rivers, lakes and reservoirs	3.6	3.7	3.7	3.7
<b>Youth</b>				
Access to technical, vocational and university education	4.7	5.1	5.1	4.8
Access to information about preventing drug use	4.8	5.3	4.9	4.7
First job opportunity	4.7	5.2	4.8	4.6
Programs to prevent teenage pregnancy	4.5	5.3	4.8	4.4
Cultural and youth centres in neighbourhood	4.1	5.0	4.2	4.3
Attractiveness of schools	4.2	4.9	4.4	4.3
Police treatment of young people	3.6	4.5	3.5	4.1
<b>Seniors</b>				
Cultural, recreational and sport activities for seniors	5.3	5.1	5.0	4.6
Special health care for seniors	4.9	4.7	4.7	4.4
Courses for seniors	4.7	5.0	4.5	4.1
Respect for seniors	4.5	4.5	4.4	4.1
Job opportunities for seniors	3.7	3.5	3.4	3.3
<b>Safety</b>				
Public illumination	5.2	5.8	5.6	5.0
Safety of relatives	4.7	5.1	4.7	4.3
Quality and humanisation of police treatment	4.8	4.8	4.5	4.1
Safety in neighbourhood	3.9	4.7	3.9	3.9
Police patrol	4.0	4.4	3.9	3.8
Safety in the city	3.7	4.1	3.7	3.7
<b>Social inequality</b>				
Equal access to education	4.2	4.1	4.6	4.3
Equal access to health service	3.7	4.0	4.2	4.0
Equal access to job opportunities and employment	3.8	4.2	4.1	3.9
Equal access to housing	3.4	3.9	3.9	3.6
Equal access to justice	3.3	3.7	3.7	3.8
Income distribution	3.3	3.5	3.6	3.6

Source: Movimento Nossa São Paulo, 2010

## Annex V

### Frequency tables

#### 1. Socioeconomic

##### Gender

Gender	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Female	41	41	75	50	92	46	60	40	268	45
Male	59	59	75	50	108	54	90	60	332	55
Total	100	100	150	100	200	100	150	100	600	100

##### Age

Age	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
>18	11	11	6	4	4	2	13	9	34	6
18-24	14	14	25	17	48	24	29	19	116	19
25-34	24	24	40	27	74	37	44	29	182	30
35-44	27	27	33	22	24	12	26	17	110	18
45-54	12	12	22	15	29	15	22	15	85	14
55-64	9	9	16	11	15	8	13	9	53	9
>64*	3	3	8	5	6	3	3	2	20	3
Total	100	100	150	100	200	100	150	100	600	100

\*The categories 65-74 and >74 have been joined because only two out of six hundred respondents indicated to be older than 74.

##### Highest completed education

Education	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
None/literacy*	16	16	2	1	0	0	4	3	22	4
Fundamental	26	26	9	6	5	3	20	13	60	10
Medium	44	44	32	21	49	25	69	46	194	32
Superior	14	14	91	61	120	60	55	37	280	47
Post-graduate	0	0	16	11	26	13	2	1	44	7
Total	100	100	150	100	200	100	150	100	600	100

\*The categories 'no education' and 'adult literacy' have been joined because there are few respondents who gave these answers.

##### Main activity

Main activity	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Employed*	63	63	109	73	165	83	101	67	438	73
Housekeeping	12	12	3	2	5	3	10	7	30	5
Retired	5	5	13	9	9	5	11	7	38	6
Unemployed	8	8	5	3	3	2	10	7	26	4
Student	12	12	20	13	18	9	18	12	68	11
Total	100	100	150	100	200	100	150	100	600	100

\*The categories 'employed' and 'work and study' have been joined since the latter did not make up more than 2% of the total.

##### Employment per economic sector

Economic sector	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Agriculture <sup>1</sup>	1	2	0	0	0	0	0	0	1	0
Manufacturing <sup>2</sup>	18	29	13	12	8	5	12	12	51	12
Services <sup>3</sup>	41	65	89	82	143	87	83	82	356	81
Education <sup>4</sup>	3	5	5	5	12	7	3	3	23	5
Unspecified	0	0	2	2	2	1	3	3	7	2
Total	63	100	109	100	165	100	101	100	438	100

<sup>1</sup>Agriculture, forestry and fishing

<sup>2</sup>Manufacturing, construction and engineering

<sup>3</sup>Services, finance and trade

<sup>4</sup>Education, science and IT

#### Household income

Household income in R\$	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
<500	5	5	2	1	4	2	3	2	14	2
500-1000	41	41	14	9	15	8	22	15	92	15
1000-2000	29	29	16	11	17	9	29	19	91	15
2000-4000	15	15	34	23	39	20	61	41	149	25
4000-7000	5	5	28	19	42	21	23	15	98	16
7000-12000	0	0	22	15	28	14	2	1	52	9
>12000	0	0	22	15	36	18	6	4	64	11
Unspecified	5	5	12	8	19	10	4	3	40	7
Total	100	100	150	100	200	100	150	100	600	100

Income classes	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
A1	0	0	22	16	36	20	6	4	64	11
A2	0	0	22	16	28	15	2	1	52	9
B1	5	5	28	20	42	23	23	16	98	18
B2	15	16	34	25	39	22	61	42	149	27
C	29	31	16	12	17	9	29	20	91	16
D	41	43	14	10	15	8	22	15	92	16
E	5	5	2	1	4	3	3	2	14	3
Total	95	100	138	100	181	100	146	100	560	100

Economic class (BRL)*		Brazil <sup>1</sup>	All parks	Pinheirinho	Villa-Lobos	Carmo	Ibirapuera
A1	> 12000	1	11	0	16	4	20
A2	7000 - 12000	4	9	0	16	1	15
B1	14000 - 7000	9	18	5	20	16	23
B2	2000 - 4000	19	27	16	25	42	22
C	1000 - 2000	49	16	31	12	20	9
D	500 - 1000	17	16	43	10	15	8
E	< 500	1	3	5	1	2	3

\*1 BRL = 0.42 EUR / 1 BRL = 0.55 USD

<sup>1</sup>Source: IPC Marketing, 2011

#### Car

Car owner	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Yes	45	45	115	77	130	65	99	66	389	65
No	55	55	35	23	70	35	51	34	211	35
Total	100	100	150	100	200	100	150	100	600	100



## 2. Residential situation

### Housing type

Type of residence	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Owner <sup>1</sup>	67	67	120	80	137	69	122	81	446	74
Tenancy <sup>2</sup>	6	6	24	16	56	28	24	16	110	18
Public housing	25	25	2	1	2	1	2	1	31	5
Occupation <sup>3</sup>	1	1	1	1	1	1	2	1	5	1
Other	1	1	3	2	4	2	0	0	8	1
Total	100	100	150	100	200	100	150	100	600	100

<sup>1</sup>Owner occupancy

<sup>2</sup>Private tenancy

<sup>3</sup>Irregular occupation

### Household

Persons in household	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
1	2	2	12	8	17	9	13	9	44	7
2	12	12	36	24	53	27	20	13	121	20
3	29	29	51	34	49	25	34	23	163	27
4	24	24	34	23	49	25	43	29	150	25
5	16	16	11	7	24	12	29	19	80	13
6 or more	17	17	6	4	8	4	11	7	42	7
Total	100	100	150	100	200	100	150	100	600	100

### Children under 15

Children <15 in household	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
0	33	33	86	57	149	75	87	58	355	59
1	38	38	48	32	32	16	38	25	156	26
2	18	18	16	11	17	9	23	15	74	12
3 or more	11	11	0	0	2	1	2	1	15	3
Total	100	100	150	100	200	100	150	100	600	100

### Garden

Type of garden	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Garden	12	12	62	41	66	33	29	19	169	28
Quintal <sup>1</sup>	66	66	71	47	104	52	108	72	349	58
None	22	22	17	11	30	15	13	9	82	14
Total	100	100	150	100	200	100	150	100	600	100

<sup>1</sup>Quintal, balcony or communal area

### Zone

City zone	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
North	98	98	20	13	12	6	0	0	130	22
East	0	0	2	1	9	5	143	95	154	26
South	0	0	19	13	120	60	1	1	140	23

West	0	0	85	57	38	19	1	1	124	21
RMSP <sup>1</sup>	1	1	22	15	13	7	3	2	39	7
Outside SP	1	1	2	1	3	2	0	0	6	1
Unspecified	0	0	0	0	5	3	2	1	7	1
Total	100	100	150	100	200	100	150	100	600	100

<sup>1</sup>São Paulo Metropolitan Region

### 3. Nature experience

Self-evaluated health

Health	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Less healthy	7	7	8	5	15	8	12	8	42	7
Healthy	63	63	89	59	121	61	93	62	366	61
Very healthy	30	30	53	35	64	32	45	30	192	32
Total	100	100	150	100	200	100	150	100	600	100

Grow up

Grew up in	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Village	13	13	7	5	4	2	5	3	29	5
Small city	36	36	35	23	46	23	33	22	150	25
Big city	51	51	108	72	150	75	112	75	421	70
Total	100	100	150	100	200	100	150	100	600	100

Play in the street

Play in the street	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Yes	72	72	125	83	155	78	120	80	472	79
No	28	28	25	17	45	23	30	20	128	21
Total	100	100	150	100	200	100	150	100	600	100

Recycle

Recycle waste	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Yes	35	35	59	39	79	40	35	23	208	35
Partly	41	41	63	42	93	47	68	45	265	44
No	24	24	28	19	28	14	47	31	127	21
Total	100	100	150	100	200	100	150	100	600	100

Holidays

Holidays spent in	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
São Paulo	37	37	19	13	32	16	60	40	148	25
Travelling	4	4	27	18	23	12	8	5	62	10
Beach/rural	41	41	72	48	100	50	64	43	277	46
Other state	15	15	20	13	31	16	14	9	80	13
Abroad	0	0	11	7	13	7	2	1	26	4
With family	3	3	1	1	1	1	2	1	7	1
Total	100	100	150	100	200	100	150	100	600	100

#### 4. Use of urban green space

##### Transport means

Transport means	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
On foot	84	84	23	15	52	26	28	19	187	31
Bike, skate	4	4	11	7	8	4	13	9	36	6
Public transp.	1	1	24	16	52	26	27	18	104	17
Car	11	11	85	57	77	39	76	51	249	42
Car + Public T	0	0	6	4	6	3	3	2	15	3
Other	0	0	1	1	5	3	3	2	9	2
Total	100	100	150	100	200	100	150	100	600	100

##### Travel time

Travel time	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
<5 min	32	32	9	6	15	8	20	13	76	13
5-15 min	49	49	57	38	68	34	61	41	235	39
15-30 min	15	15	57	38	59	30	41	27	172	29
30-60 min	4	4	21	14	32	16	22	15	79	13
1-2 hrs	0	0	6	4	24	12	4	3	34	6
>2 hrs	0	0	0	0	2	1	2	1	4	1
Total	100	100	150	100	200	100	150	100	600	100

##### Frequency

Visit frequency	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Daily	21	21	6	4	20	10	20	13	67	12
>1 / week	35	35	29	19	61	31	41	27	166	28
Once a week	20	20	58	39	39	20	35	23	152	25
Once a month	7	7	30	20	33	17	23	15	93	16
Rarely	17	17	27	18	47	24	31	21	122	20
Total	100	100	150	100	200	100	150	100	600	100

##### Day of the week

Visiting day	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Weekdays	5	5	11	7	42	21	26	17	84	14
Weekends	47	47	100	67	74	37	64	43	285	48
Any day	48	48	39	26	84	42	60	40	231	39
Total	100	100	150	100	200	100	150	100	600	100

##### Time of the day

Visiting hour	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Morning	44	44	97	65	77	39	73	49	291	49
Afternoon	27	27	35	23	49	25	45	30	156	26
Evening	0	0	0	0	16	8	10	0	26	4
Combination	29	29	18	12	58	29	32	21	137	23
Total	100	100	150	100	200	100	150	100	600	100

### Length of stay

Length of stay	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
<1 hr	26	26	9	6	21	11	14	9	70	12
1-3 hrs	61	61	124	83	134	67	105	70	424	71
>3 hrs	13	13	17	11	45	23	31	21	106	18
Total	100	100	150	100	200	100	150	100	600	100

### Company

Company in the park	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Alone	22	<b>22</b>	30	<b>20</b>	56	<b>28</b>	38	<b>25</b>	146	<b>24</b>
Partner	4	<b>4</b>	27	<b>18</b>	20	<b>10</b>	27	<b>18</b>	78	<b>13</b>
Children	23	<b>23</b>	14	<b>9</b>	9	<b>5</b>	14	<b>9</b>	60	<b>10</b>
Family	14	<b>14</b>	17	<b>11</b>	20	<b>10</b>	26	<b>17</b>	77	<b>13</b>
Friends	24	<b>24</b>	30	<b>20</b>	39	<b>20</b>	19	<b>13</b>	112	<b>19</b>
Combination	11	<b>11</b>	31	<b>21</b>	49	<b>25</b>	26	<b>17</b>	117	<b>20</b>
Other	2	<b>2</b>	1	<b>1</b>	7	<b>4</b>	0	<b>0</b>	10	<b>2</b>
Total	100	<b>100</b>	150	<b>100</b>	200	<b>100</b>	150	<b>100</b>	600	<b>100</b>

### Activities in the park

Park activities	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Walk	49	<b>26</b>	98	<b>33</b>	146	<b>31</b>	107	<b>32</b>	400	<b>31</b>
Exercise, run	43	<b>23</b>	71	<b>24</b>	105	<b>22</b>	61	<b>18</b>	280	<b>22</b>
Team sports	28	<b>15</b>	16	<b>5</b>	17	<b>4</b>	6	<b>2</b>	67	<b>5</b>
Play	17	<b>9</b>	29	<b>10</b>	26	<b>5</b>	32	<b>10</b>	104	<b>8</b>
Meet friends	13	<b>7</b>	20	<b>7</b>	49	<b>10</b>	34	<b>10</b>	116	<b>9</b>
Relax	24	<b>13</b>	43	<b>15</b>	88	<b>18</b>	62	<b>19</b>	217	<b>17</b>
Picnic	4	<b>2</b>	7	<b>2</b>	10	<b>2</b>	20	<b>6</b>	41	<b>3</b>
Events	7	<b>4</b>	11	<b>4</b>	30	<b>6</b>	7	<b>2</b>	55	<b>4</b>
Other	0	<b>0</b>	2	<b>1</b>	5	<b>1</b>	5	<b>1</b>	12	<b>1</b>
<b>Total</b>	185	100	297	100	476	100	334	100	1292	100

### Difficulty to visit more often

Difficulty to visit the park	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Transport	0	0	8	5	16	8	4	3	28	5
Time, work	1	1	8	5	8	4	2	1	19	3
Distance	1	1	4	3	6	3	3	2	14	2
Crowdedness	0	0	8	5	10	5	0	0	18	3
Security <sup>1</sup>	4	4	1	1	3	2	1	1	9	2
Other	1	1	1	1	5	3	4	3	11	2
None	93	93	120	80	152	76	136	91	501	84
Total	100	100	150	100	200	100	150	100	600	100

<sup>1</sup>Physical condition and security

## 5. Perception

Grade

General grade for park given	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Yes	100	100	139	93	193	97	142	95	574	96
No	0	0	11	7	7	4	8	5	26	4
Total	100	100	150	100	200	100	150	100	600	100

General grade for park	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
1	1	1	0	0	1	1	1	1	3	1
2	0	0	0	0	0	0	0	0	0	0
3	2	2	1	1	1	1	0	0	4	1
4	1	1	0	0	1	1	0	0	2	0
5	12	12	1	1	5	3	4	3	22	4
6	8	8	7	5	7	4	9	6	31	5
7	12	12	23	17	23	12	33	23	91	16
8	29	29	49	35	83	43	54	38	215	37
9	13	13	33	24	43	22	18	13	107	19
10	22	22	25	18	29	15	23	16	99	17
Total	100	100	139	100	193	100	142	100	574	100

Public

Public is from	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Neighbourhood	66	66	27	18	29	15	55	37	177	30
Elsewhere	6	6	23	15	29	15	13	9	71	12
Both	28	28	100	67	142	71	82	55	352	59
Total	100	100	150	100	200	100	150	100	600	100

S1 The park and its facilities are clean

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	10	10	5	3	1	1	5	3	21	4
Disagree	12	12	8	5	17	9	19	13	56	9
Neutral	11	11	29	19	56	28	32	21	128	21
Agree	40	40	71	47	92	46	70	47	273	46
Totally agree	27	27	37	25	34	17	24	16	122	20
Total	100	100	150	100	200	100	150	100	600	100

S2 I feel safe here during the day

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	8	8	1	1	1	1	6	4	16	3
Disagree	7	7	6	4	7	4	19	13	39	7
Neutral	10	10	19	13	28	14	24	16	81	14
Agree	38	38	67	45	90	45	63	42	258	43
Totally agree	37	37	57	38	74	37	38	25	206	34
Total	100	100	150	100	200	100	150	100	600	100

S3 I feel safe here after dark

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	34	37	24	18	24	12	47	35	129	23
Disagree	23	25	28	21	50	26	40	29	141	25
Neutral	18	20	53	39	64	33	27	20	162	29
Agree	9	10	21	15	44	22	11	8	85	15
Totally agree	8	9	10	7	14	7	11	8	43	8
Total	92	100	136	100	196	100	136	100	560	100

S4 The park's landscape is diverse

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	4	4	1	1	2	1	0	0	7	1
Disagree	11	11	8	5	6	3	4	3	29	5
Neutral	19	19	27	18	30	15	17	11	93	16
Agree	37	37	77	51	89	45	70	47	273	45
Totally agree	29	29	37	25	73	37	59	39	198	33
Total	100	100	150	100	200	100	150	100	600	100

S5 The park is well-maintained

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	17	17	3	2	4	2	9	6	33	6
Disagree	18	18	7	5	16	8	16	11	57	10
Neutral	15	15	28	19	40	20	25	17	108	18
Agree	29	29	79	53	100	50	65	43	273	46
Totally agree	21	21	33	22	40	20	35	23	129	22
Total	100	100	150	100	200	100	150	100	600	100

S6 The park is lively and busy

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	6	6	1	1	1	1	1	1	9	2
Disagree	14	14	3	2	1	1	8	5	26	4
Neutral	21	21	13	9	18	9	29	19	81	14
Agree	31	31	77	51	94	47	70	47	272	45
Totally agree	28	28	56	37	86	43	42	28	212	35
Total	100	100	150	100	200	100	150	100	600	100

S7 The park is attractive

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	4	4	1	1	1	1	2	1	8	1
Disagree	8	8	2	1	2	1	3	2	15	3
Neutral	14	14	22	15	25	13	19	13	80	13
Agree	46	46	79	53	83	42	78	52	286	48
Totally agree	28	28	46	31	89	45	48	32	211	35
Total	100	100	150	100	200	100	150	100	600	100



S8 The park has many facilities

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	18	18	4	3	4	2	13	9	39	7
Disagree	27	27	20	13	15	8	46	31	108	18
Neutral	17	17	47	31	65	33	45	30	174	29
Agree	23	23	59	40	77	39	28	19	187	31
Totally agree	15	15	20	13	39	20	18	12	92	15
Total	100	100	150	100	200	100	150	100	600	100

S9 The park has good facilities

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	12	12	5	3	6	3	5	3	28	5
Disagree	24	24	15	10	20	10	29	19	88	15
Neutral	13	13	34	23	43	22	51	34	141	24
Agree	33	33	74	49	87	44	39	26	233	39
Totally agree	18	18	22	15	44	22	26	17	110	18
Total	100	100	150	100	200	100	150	100	600	100

S10 The park has many trees and plants

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	9	9	8	5	1	1	1	1	19	3
Disagree	12	12	21	14	1	1	0	0	34	6
Neutral	9	9	32	21	4	2	1	1	46	8
Agree	34	34	48	32	82	41	53	35	217	36
Totally agree	36	36	41	27	112	56	95	63	284	47
Total	100	100	150	100	200	100	150	100	600	100

S11 The park has good paths and roads

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	6	6	1	1	5	3	0	0	12	2
Disagree	9	9	5	3	4	2	9	6	27	5
Neutral	13	13	10	7	18	9	13	9	54	9
Agree	37	37	82	55	89	45	68	45	276	46
Totally agree	35	35	52	35	84	42	60	40	231	39
Total	100	100	150	100	200	100	150	100	600	100

S12 The park is quiet and peaceful

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	2	2	1	1	3	2	3	2	9	2
Disagree	4	4	8	5	13	7	6	4	31	5
Neutral	9	9	21	14	43	22	19	13	92	15
Agree	44	44	79	53	88	44	67	45	278	46
Totally agree	41	41	41	27	53	27	55	37	190	32
Total	100	100	150	100	200	100	150	100	600	100

S13 I like the design of the park

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	0	0	1	1	1	1	1	1	3	1
Disagree	7	7	4	3	3	2	7	5	21	4
Neutral	14	14	20	13	26	13	28	19	88	15
Agree	43	43	78	52	101	51	66	44	288	48
Totally agree	36	36	47	31	69	35	48	32	200	33
Total	100	100	150	100	200	100	150	100	600	100

S14 I can find nature in this park

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	10	10	2	1	1	1	3	2	16	3
Disagree	7	7	9	6	3	2	2	1	21	4
Neutral	8	8	27	18	15	8	3	2	53	9
Agree	40	40	74	49	90	45	58	39	262	44
Totally agree	35	35	38	25	91	45	84	56	248	41
Total	100	100	150	100	200	100	150	100	600	100

S15 Public transport access is easy

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	5	5	4	3	12	6	7	5	28	5
Disagree	6	6	13	9	25	13	15	10	59	10
Neutral	15	15	62	41	71	36	32	21	180	30
Agree	31	31	47	31	56	28	49	33	183	31
Totally agree	43	43	24	16	36	18	47	31	150	25
Total	100	100	150	100	200	100	150	100	600	100

S16 Car parking is sufficient

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	27	27	30	20	48	24	11	7	116	19
Disagree	20	20	47	31	46	23	27	18	140	23
Neutral	25	25	30	20	73	37	35	23	163	27
Agree	15	15	26	17	20	10	44	29	105	18
Totally agree	13	13	17	11	13	7	33	22	76	13
Total	100	100	150	100	200	100	150	100	600	100

S17 Bike parking is sufficient

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	11	11	12	8	22	11	15	10	60	10
Disagree	10	10	20	13	19	10	16	11	65	11
Neutral	18	18	64	43	99	50	60	40	241	40
Agree	31	31	34	23	41	21	35	23	141	24
Totally agree	30	30	20	13	19	10	24	16	93	16
Total	100	100	150	100	200	100	150	100	600	100

S18 I am satisfied with the park

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	6	6	1	1	2	1	4	3	13	2
Disagree	7	7	4	3	5	3	11	7	27	5
Neutral	17	17	26	17	35	18	22	15	100	17
Agree	41	41	88	59	112	56	69	46	310	52
Totally agree	29	29	31	21	46	23	44	29	150	25
Total	100	100	150	100	200	100	150	100	600	100

S19 The park is important for the neighbourhood

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	1	1	1	1	1	1	1	1	4	1
Disagree	1	1	1	1	2	1	0	0	4	1
Neutral	4	4	7	5	12	6	3	2	26	4
Agree	28	28	60	40	54	27	47	31	189	32
Totally agree	66	66	81	54	131	66	99	66	377	63
Total	100	100	150	100	200	100	150	100	600	100

S20 The park is important for the city

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	2	2	1	1	1	1	2	1	6	1
Disagree	3	3	0	0	0	0	4	3	7	1
Neutral	5	5	6	4	8	4	5	3	24	4
Agree	34	34	56	37	45	23	43	29	178	30
Totally agree	56	56	87	58	146	73	96	64	385	64
Total	100	100	150	100	200	100	150	100	600	100

S21 There is a need for more green areas in my neighbourhood

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	5	5	4	3	5	3	4	3	18	3
Disagree	4	4	3	2	14	7	9	6	30	5
Neutral	3	3	14	9	30	15	19	13	66	11
Agree	29	29	56	37	57	29	38	25	180	30
Totally agree	59	59	73	49	94	47	80	53	306	51
Total	100	100	150	100	200	100	150	100	600	100

S22 The city has many green areas

	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	21	21	31	21	56	28	42	28	150	25
Disagree	12	12	45	30	76	38	44	29	177	30
Neutral	13	13	35	23	38	19	32	21	118	20
Agree	39	39	25	17	22	11	20	13	106	18
Totally agree	15	15	14	9	8	4	12	8	49	8
Total	100	100	150	100	200	100	150	100	600	100

S26 Nature is important to me

Nature is important to me	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	2	2	2	1	2	1	1	1	7	1
Disagree	0	0	0	0	1	1	0	0	1	0
Neutral	1	1	6	4	10	5	2	1	19	3
Agree	23	23	37	25	40	20	32	21	132	22
Totally agree	74	74	105	70	147	74	115	77	441	74
Total	100	100	150	100	200	100	150	100	600	100

## 6. Preferences

S23

Preference for small park	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	7	7	26	17	41	21	21	14	95	16
Disagree	14	14	31	21	45	23	42	28	132	22
Neutral	16	16	53	35	68	34	39	26	176	29
Agree	33	33	21	14	31	16	23	15	108	18
Totally agree	30	30	19	13	15	8	25	17	89	15
Total	100	100	150	100	200	100	150	100	600	100

S24

Preference for big park	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	19	19	4	3	8	4	11	7	42	7
Disagree	24	24	13	9	14	7	14	9	65	11
Neutral	15	15	50	33	47	24	29	19	141	24
Agree	26	26	48	32	81	41	46	31	201	34
Totally agree	16	16	35	23	50	25	50	33	151	25
Total	100	100	150	100	200	100	150	100	600	100

S25

Preference for natural park	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Totally disagree	3	3	0	0	6	3	3	2	12	2
Disagree	8	8	10	7	5	3	5	3	28	5
Neutral	7	7	40	27	45	43	17	11	109	18
Agree	44	44	55	37	67	34	56	37	222	37
Totally agree	38	38	45	30	77	39	69	46	229	38
Total	100	100	150	100	200	100	150	100	600	100

Like most in the park

Like most answer given	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Yes	99	99	146	97	195	98	147	98	587	98
No	1	1	4	3	5	3	3	2	13	2
Total	100	100	150	100	200	100	150	100	600	100

Like most	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Everything	15	14	13	8	10	5	17	11	55	9
Size and space	10	9	33	20	28	13	21	13	92	14
Maintenance <sup>1</sup>	1	1	11	7	9	4	3	2	24	4
Design <sup>2</sup>	3	3	19	12	18	8	6	4	46	7
Nature	20	18	31	19	100	46	67	43	218	34
Tranquillity <sup>3</sup>	11	10	10	6	14	6	11	7	46	7
Recreation <sup>4</sup>	5	5	2	1	3	1	8	5	18	3
Cultural activ. <sup>5</sup>	0	0	2	1	6	3	3	2	11	2
Sport options	41	37	6	4	7	3	14	9	68	11
Walk/run/bike	3	3	29	18	22	10	6	4	60	9
Other	1	1	6	4	1	0	0	0	8	1
Total	110	100	162	100	218	100	156	100	646	100

<sup>1</sup>Maintenance, cleaning and security

<sup>2</sup>Design, beauty and landscape

<sup>3</sup>Tranquillity and ambiance

<sup>4</sup>Recreation, leisure and social meeting place

<sup>5</sup>Cultural activities and events

Like least in the park

Like least answer given	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Yes	60	60	96	64	139	70	88	59	383	64
No	40	40	54	36	61	31	62	41	217	36
Total	100	100	150	100	200	100	150	100	600	100

Like least	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Maintenance <sup>1</sup>	32	49	11	11	41	28	39	43	123	31
Size, distances <sup>2</sup>	3	5	11	11	8	5	2	2	24	6
Parking	0	0	16	16	12	8	2	2	30	7
Crowdedness	0	0	14	14	37	25	6	7	57	14
Vandalism <sup>3</sup>	5	8	3	3	3	2	5	6	16	4
Amenities <sup>4</sup>	5	8	15	15	21	14	7	8	48	12
Lack of events <sup>5</sup>	9	14	3	3	7	5	13	14	32	8
Lack of green <sup>6</sup>	8	12	14	14	3	2	4	4	29	7
Bike safety <sup>7</sup>	0	0	7	7	9	6	1	1	17	4
Dogs	1	2	2	2	5	3	9	10	17	4
Other	2	3	3	3	2	1	2	2	9	2
Total	65	100	99	100	148	100	90	100	402	100

<sup>1</sup>Maintenance, cleaning and security

<sup>2</sup>Size, distances and accessibility

<sup>3</sup>User disrespect, neglect and vandalism

<sup>4</sup>Amenities and food options

<sup>5</sup>Lack of events, leisure and sport facilities

<sup>6</sup>Lack of greenspace, shade and a lake or swimming pool

<sup>7</sup>Safety issues related to bicycle track

## Miss in the park

Miss answer given	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Yes	77	77	87	58	114	57	110	73	388	65
No	23	23	63	42	86	43	40	27	212	35
Total	100	100	150	100	200	100	150	100	600	100

Miss	Pinheirinho		Villa-Lobos		Ibirapuera		Carmo		Total	
	#	%	#	%	#	%	#	%	#	%
Maintenance <sup>1</sup>	23	25	3	3	17	14	15	13	58	14
Proper toilets	5	5	10	10	8	7	7	6	30	7
User respect <sup>2</sup>	3	3	0	0	1	1	1	1	5	1
Amenities <sup>3</sup>	10	11	26	27	64	54	14	12	114	27
Events, sport <sup>4</sup>	36	39	13	13	18	15	66	56	133	31
Greenspace <sup>5</sup>	6	7	19	20	2	2	6	5	33	8
Good tracks <sup>6</sup>	4	4	2	2	1	1	5	4	12	3
Bike safety <sup>7</sup>	0	0	3	3	3	3	1	1	7	2
Pool or lake	5	5	14	15	2	2	3	3	24	6
Other	0	0	6	6	3	3	0	0	9	2
Total	92	100	96	100	119	100	118	100	425	100

<sup>1</sup>Maintenance, cleaning and security

<sup>2</sup>Care and respect from users

<sup>3</sup>Amenities and food options

<sup>4</sup>Events, leisure and sport facilities

<sup>5</sup>Greenspace and shade

<sup>6</sup>Good tracks for walking/running/biking

<sup>7</sup>Safety on bicycle track



## Annex VI

### Statistical tests

#### 1. Cross tabulations

<i>Parks - Household income</i>	Pinheirinho & Carmo	Villa-Lobos & Ibirapuera	Total
<1000	71 29.5%	35 11.0%	106 18.9%
1000-2000	58 24.1%	33 10.3%	91 16.2%
2000-4000	76 31.5%	73 22.9%	149 26.6%
4000-7000	28 11.6%	70 21.9%	98 17.5%
>7000	8 3.3%	108 33.9%	116 20.7%
Total	241 100%	319 100%	560 100%

C = 0.453, p = 0.000

<i>Education level – Household income</i>	Up to fundamental	Medium	Superior	Total
<1000	32 42.1%	57 30.6%	17 5.7%	106 18.9%
1000-2000	20 26.3%	41 22.0%	30 10.1%	91 16.2%
2000-4000	21 27.6%	51 27.4%	77 25.8%	149 26.6%
4000-7000	2 2.6%	24 12.9%	72 24.2%	98 17.5%
>7000	1 1.3%	13 7.0%	102 34.2%	116 20.7%
Total	76 100%	186 100%	298 100%	560 100%

C = 0.372, p = 0.000

<i>Household income – Car ownership</i>	< 1000	1000-2000	2000-4000	4000-7000	>7000	Total
Do not have a car	69 65.1%	47 51.6%	51 34.2%	22 22.4%	9 7.8%	198 35.4%
Have a car	37 34.9%	44 48.4%	98 65.8%	76 77.6%	107 92.2%	362 64.6%
Total	106 100%	91 100%	149 100%	98 100%	116 100%	560 100%

C = 0.417, p = 0.000

<i>Household income – Housing type</i>	< 1000	1000- 2000	2000- 4000	4000- 7000	>7000	Total
Owner occupancy	63 59.4%	61 67.0%	116 77.9%	79 80.6%	94 81.0%	413 73.8%
Private tenancy	18 17.0%	18 19.8%	30 20.1%	18 18.4%	22 19.0%	106 18.9%
Public housing, other	25 23.6%	12 13.2%	3 2.0%	1 1.0%	0 0.0%	41 7.3%
Total	106 100%	91 100%	149 100%	98 100%	116 100%	560 100%

C = 0.246, p = 0.000

<i>Housing type – Type of garden</i>	Owner occupancy	Private tenancy	Public housing and other	Total
Garden	143 32.1%	21 19.1%	5 1.4%	169 28.2%
Quintal, balcony or communal area	261 58.5%	58 52.7%	30 68.2%	349 58.2%
None	42 9.4%	31 28.2%	9 20.5%	82 13.7%
Total	446 100%	110 100%	44 100%	600 100%

C = 0.172, p = 0.000

<i>Household income – Transport means</i>	< 1000	1000- 2000	2000- 4000	4000- 7000	>7000	Total
On foot	52 49.1%	35 38.5%	32 21.5%	27 27.6%	27 23.3%	173 30.9%
Public transport	30 28.3%	23 25.3%	30 20.1%	10 10.2%	9 7.8%	102 18.2%
Car	18 17.0%	21 23.1%	72 48.3%	49 50.0%	69 59.5%	229 40.9%
Other	6 5.7%	12 13.2%	15 10.1%	12 12.2%	11 9.5%	56 10.0%
Total	106 100%	91 100%	149 100%	98 100%	116 100%	560 100%

V =.216, p =.000

<i>Travel time – Length of stay</i>	< 15 min	15-30 min	>30 min	Total
< 1 hour	50 16.1%	14 8.1%	6 5.1%	70 11.7%
1-3 hours	232 74.6%	121 70.3%	71 60.7%	424 70.7%
> 3 hours	29 9.3%	37 21.5%	40 34.2%	106 17.7%
Total	311 100%	172 100%	117 100%	600 100%

V = .195, p = .000

<i>Travel time – Frequency of park visit</i>	< 15 min	15-30 min	>30 min	Total
Multiple times a week	161 51.8%	50 29.1%	22 18.8%	233 38.8%
Once a week	81 26.0%	46 26.7%	25 21.4%	152 25.3%
Rarely	69 22.2%	76 44.2%	70 59.8%	215 35.8%
Total	311 100%	172 100%	117 100%	600 100%

V = .240, p = .000

<i>Visiting day – Length of stay</i>	Weekdays	Weekends	Total
< 1 hour	22 26.2%	16 5.6%	38 10.3%
1-3 hours	56 66.7%	21 73.7%	266 72.1%
> 3 hours	6 7.1%	59 20.7%	65 17.6%
Total	84 100%	285 100%	369 100%

V = .303, p = .000

<i>Park – Activity</i>	Pinheirinho	Villa-Lobos	Carmo	Ibirapuera	Total
Walk <sup>1</sup>	49 49.0%	98 65.3%	108 72.0%	146 73.0%	401 66.8%
Team sports <sup>2</sup>	28 28.0%	16 10.7%	6 4.0%	17 8.5%	67 11.2%
Meet friends, talk <sup>3</sup>	13 13.0%	20 13.3%	34 22.7%	49 24.5%	116 19.3%
Relax and enjoy landscape <sup>4</sup>	24 24.0%	43 28.7%	62 41.3%	88 44.0%	217 36.2%
Picnic, barbecue <sup>5</sup>	4 4.0%	7 4.7%	20 13.3%	10 5.0%	41 6.8%
Visit sites and events <sup>6</sup>	7 7.0%	11 7.3%	7 4.7%	30 15.0%	55 9.2%

<sup>1</sup>V = .181, p = .000

<sup>2</sup>V = .251, p = .000

<sup>3</sup>V = .132, p = .015

<sup>4</sup>V = .169, p = .001

<sup>5</sup>V = .149, p = .004

<sup>6</sup>V = .147, p = .005

<i>Frequency of park visit – Activity</i>	Multiple times a week	Once a week	Rarely	Total
Exercise <sup>1</sup>	130 55.8%	82 53.9%	68 31.6%	280 46.7%
Play <sup>2</sup>	24 10.3%	23 15.1%	57 26.5%	104 17.3%
Meet friends, talk <sup>3</sup>	39 16.7%	24 15.8%	53 24.7%	116 19.3%
Relax and enjoy landscape <sup>4</sup>	58 24.9%	53 34.9%	106 49.3%	217 36.2%
Picnic, barbecue <sup>5</sup>	9 3.9%	8 5.3%	24 11.2%	41 6.8%

<sup>1</sup>V = .226, p = .000

<sup>2</sup>V = .188, p = .000

<sup>3</sup>V = .101, p = .047

<sup>4</sup>V = .220, p = .000

<sup>5</sup>V = .130, p = .006

<i>Education level – Activity</i>	Up to fundamental	Medium	Superior	Total
Exercise <sup>1</sup>	28 34.1%	82 42.3%	170 52.5%	280 46.7%
Team sports <sup>2</sup>	18 22.0%	25 12.9%	24 7.4%	67 11.2%

<sup>1</sup>V = .136, p = .004

<sup>2</sup>V = .157, p = .001

<i>Household income (BRL) – Activity</i>	< 1000	1000-2000	2000-4000	4000-7000	>7000	Total
Exercise <sup>1</sup>	33 31.1%	38 41.8%	64 43.0%	57 58.2%	70 60.3%	262 46.8%
Team sports <sup>2</sup>	17 16.0%	13 14.3%	19 12.8%	8 8.2%	2 1.7%	59 10.5%

<sup>1</sup>V = .215, p = .000

<sup>2</sup>V = .167, p = .003

## 2. Analyses of variance

<i>Comparison of means</i>	Park (with mean)	Other parks	Mean difference
Persons living in house	Pinheirinho 4.06	Villa-Lobos	.933*
		Carmo	.433
		Ibirapuera	.850*
	Villa-Lobos 3.13	Pinheirinho	-.933*
		Carmo	-.500*
		Ibirapuera	-.083
	Carmo 3.63	Pinheirinho	-.433
		Villa-Lobos	.500*
		Ibirapuera	.417*
	Ibirapuera 3.21	Pinheirinho	-.850*
		Villa-Lobos	.083
		Carmo	-.417*
Children under 15 living at home	Pinheirinho 1.09	Villa-Lobos	.557*
		Carmo	.490*
		Ibirapuera	.725*
	Villa-Lobos .53	Pinheirinho	-.557*
		Carmo	.168

		Ibirapuera	-.067
	Carmo .60	Pinheirinho Villa-Lobos Ibirapuera	-.490* .067 .235*
	Ibirapuera .36	Pinheirinho Villa-Lobos Carmo	-.725* -.168 -.235*

\*The mean difference is significant at the 0.05 level.

<i>Analysis of variance</i>	<i>All parks</i>	<i>Pinheirinho</i>	<i>Villa-Lobos</i>	<i>Carmo</i>	<i>Ibirapuera</i>
<b>Grade</b>					
Grade*	8.06	7.72	<b>8.27</b>	7.96	8.17
<b>Satisfaction</b>					
I am satisfied with the park	3.93	3.80	3.96	3.92	<b>3.98</b>
<b>Landscape</b>					
The park's landscape is diverse*	4.04	3.76	3.94	<b>4.23</b>	4.12
The park has many trees/ plants*	4.19	3.76	3.62	<b>4.61</b>	4.52
I like the design of the park	4.10	4.08	4.11	4.02	<b>4.17</b>
I can find nature in this park*	4.17	3.82	3.91	<b>4.45</b>	4.34
<b>Ambiance</b>					
The park is lively and busy*	4.09	3.61	4.23	3.96	<b>4.32</b>
The park is attractive*	4.13	3.86	4.11	4.11	<b>4.28</b>
The park is quiet and peaceful*	4.02	<b>4.18</b>	4.01	4.10	3.88
<b>Facilities</b>					
The park has many facilities*	3.31	2.90	3.47	2.95	<b>3.66</b>
The park has good facilities*	3.52	3.21	3.62	3.35	<b>3.72</b>
The park has good paths/ roads*	4.14	3.86	4.19	4.19	<b>4.22</b>
<b>Accessibility</b>					
Public transport access is easy*	3.63	<b>4.03</b>	3.52	3.78	3.40
Car parking is sufficient*	2.81	2.66	2.68	<b>3.42</b>	2.52
Bicycle parking is sufficient*	3.25	<b>3.60</b>	3.21	3.26	3.08
<b>Safety and maintenance</b>					
The park and facilities are clean	3.70	3.62	<b>3.85</b>	3.59	3.70
I feel safe here during the day*	4.00	3.89	<b>4.15</b>	3.72	4.14
I feel safe here after dark*	2.59	2.28	2.74	2.26	<b>2.87</b>
The park is well-maintained*	3.68	3.19	<b>3.88</b>	3.67	3.78
<b>Neighbourhood (ngb.) and city</b>					
The park is important for the ngb.	4.55	4.57	4.46	<b>4.62</b>	4.56
The park is important for the city*	4.55	4.39	4.52	4.21	<b>4.68</b>
My ngb. needs more green areas	4.21	<b>4.33</b>	4.27	4.21	4.10
The city has many green areas*	2.54	<b>3.15</b>	2.64	2.44	2.25
<b>Nature</b>					
Nature is important to me	4.66	4.67	4.62	<b>4.73</b>	4.64

The highest scores for each variable are in bold.

\*The mean difference is significant at the 0.05 level.

