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ASSESSMENT OF LANDSCAPE PREFERENCES IN A PARTICIPATORY URBAN PROCESS: FLORIANOPOLIS - SC, BRAZIL

II. LEVEL MASTER'S THESIS

Talita Weissheimer Abraham de Lemos

Mentors: Prof. Luigi Fusco Girard
Prof. dr. Renato Tibiriçá de Saboya

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABSTRACT

After the implementation of the City Statute in Brazil in 2001, the city of Florianópolis started to develop its first Participatory Urban Plan. In order to give attention to the necessity of planning its landscape, this research proposes a 'Landscape Budget' Instrument as an operational tool to public landscape assessment.

The present thesis presents the elaboration of a multi-attribute methodology as a means to achieve a landscape plan which respects the opinion of the population. In a second step, the research carried out a survey that required the deliberation of 215 residents of Florianopolis-Brazil, promoting the citizen involvement in this democratic process. This study attempted to understand some landscape preferences in an experimental manner, so long-term urban policies could build upon this information and guide society towards desired and effective urban development.

The first part of the landscape assessment questionnaire aimed to know the importance that people attach to landscape in relation to other urban concerns by ranking people's priorities; the second practice was the assessment of landscape preferences by ranking possible public investments/actions in relation to current landscapes; and the third practice held a quantification of landscape preferences by rating 24 scenarios (6 scenarios for each of the 4 selected landscapes). By eliciting the scores attached to different elements of the landscape (volume of construction, green area, alternatives of transport, etc.) and by comparing them, it is possible to evaluate how these elements matter in the residents' landscape preference.

It is important that people understand that their landscape reflects who they are and also their social, environmental and economic interests. The purpose of a landscape preference assessment in a Participatory Urban Plan is the acquisition of a local cultural awareness. Thus, it is intended to introduce the analysis of landscape into participatory urban processes in order to understand, but also to preserve and assist in managing our heritage. It is expected that these measures may contribute to the sustainability of the landscape, to the social learning of the local population and to minimize the lack of communication between stakeholders.

Keywords: Participatory Urban Plan, Brazilian City Statute, Assessment of Landscape Preferences, Florianópolis-Brazil.

POVZETEK

Po uveljavitvi mestnega statuta v Braziliji leta 2001, je mesto Florianopolis začelo razvijati svoj prvi participatorni urbanistični načrt. Da bi se opozorilo na potrebo po načrtovanju krajine, se v raziskovalnem delu predstavlja "Landscape budget "- krajinski proračun kot operativo orodje za oceno javne krajine.

Disertacija predstavlja izdelavo večparameterske metodologie kot sredstva za doseganje načrta krajine, ki vključuje mnenje prebivalstva. V drugem koraku raziskave se izvaja anketa, ki vključuje posvetovanje z 215 prebivalci Florianopolisa v Braziliji, za spodbujanje vključevanja državljanov v demokratskem procesu. Študija je poskušala razumeti krajinske preference na eksperimentalen način, na osnovi katere bi se gradile dolgoročne urbane politike, ki bi vodile družbo do željenega in učinkovitega razvoja mest.

Cilj prvega dela vprašalnika za oceno krajine je bil spoznavanje pomena, preko razvrstitve prioritet, ki ga ljudje pripisujejo krajini v primerjavi z ostalimi urbanimi vprašanji; v drugem delu so se ocenile krajinske preference preko razvrstitve možnih javnih investicij/ ukrepih v primerjavi s obstoječo krajino; v tretjem delu je potekala kvantifikacija krajinskih preferenc z razvrstitvijo 24 scenarijev (6 scenarijev za 4 izbrane krajine). S komparacijo rezultatov vezanih na različne elemente krajine (obseg gradnje, zelenica, alternative prevoza, itd.), je bilo mogoče oceniti, kako ti elementi izražajo preference prebivalcev.

Pomembno je, da ljudje razumejo, da njihova pokrajina odraža, kdo so, kakor tudi njihove socialne, okoljske in gospodarske interese. Namen ocene krajinskih preferenc v participativnem urbanističnem načrtu je pridobitev lokalne kulturne ozaveščenosti. Torej, namen uvajanja krajinske analize v participatorni urbani proces je razumevanje, kakor tudi ohranjanje in pomoč pri upravljanju dediščine. Pričakovati je, da bi lahko navedeni ukrepi prispevali k trajnosti krajine, k socialnem izobraževanju lokalnega prebivalstva in zmanjševanju pomanjkanja komunikacije med interesnimi skupinami.

Ključne besede: participatorni urbani načrt, brazilski mestni statut, ocena krajinskih preferenc, Florianópolis-Brazilija.

1 Introduction

The ongoing transformation of landscapes due the densification of population, massive urban growth, economic pressures and limited opportunity to expand the protected areas represent a challenge for landscape management. This study is therefore motivated by the need for a strategic focus on assessment of landscape to assist in its planning and in urban decisions that promote sustainable development.

The landscape management is a process of decision-making that should explicitly consider the opinion of the population. The landscape and its public perception obtained legal recognition of their importance by the European Landscape Convention, in which the landscape is defined as: "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" (COUNCIL OF EUROPE, 2000). Decisions related to landscape are complex, seek tangible and intangible values and are surrounded by conflicting interests. All these issues make the design process difficult and require the use of auxiliary instruments for the selection of alternative policies, programs and development projects in the city. Also UNESCO (UNESCO, 2012 - Recommendation on the Historic Urban Landscape) commented on the possibility of approaching the landscape as a way to preserve and manage the heritage of cities. UNESCO recommends that members adopt this new instrument and that adapt it to their local context in order to disseminate and facilitate its implementation. This way of managing cities also requires public participation and asks consensus to be reached “using participatory planning and stakeholders consultations on what values to protect for transmission to future generations, and to determine the attributes that bear these values” So, to monitor the growth of the city regarding the development in a sustainable manner, it becomes necessary to know their values in order to keep and reproduce them.

This research proposes to study and to explore the values aggregated to landscape in order to contribute to its discussion, development, preservation and / or conservation. From the opening to public participation in the development of master plans in Brazil, it is aimed to increase the debate of landscape as a way of understanding the environment in which we live. It is known that besides the analysis of the landscape,

also the development of a participatory master plan is a complex procedure, consisting of several stages and actors. Thus, as a way of joining analysis, it is intended to use a methodology that meets the needs of this multidisciplinary research involving both quantitative and qualitative data.

The project is based on the study of the importance that the topic landscape features within the Brazilian urban planning and the public analysis of different aspects that compose the landscape of Florianópolis. This information would serve to understand which is the influence that landscape has over other criteria of urban action and also to understand how people value it, that is to say, why a landscape is more valued than another and which elements affect more markedly the way people value landscape.

The structure of this work is as follows. Section 2 develops the topics discussed in the Literature Review, being the bases of the research. Section 3 provides information about the city that features the case study and its process of urban management. Section 4 presents the methodology used to assess landscape. Section 5 discusses the result. Section 6 concluded the research and gives some statements about the methods used and the results.

1.1 Definition of the problem

Since 2001, when the Brazilian City Statute regulation was admitted, the development of its Master Plans officially started to depend on public participation to be approved. For this to be respected, it is essential to incorporate on the process, the views/needs of the population on urban issues. Since the landscape fits as a collective urban good, it should also be evaluated and discussed in a participative way. The purpose of a collective approach on the landscape is the acquisition of cultural awareness and the appropriation of the place we live. We value the landscape to protect, manage and plan it.

The present work concerns the study of values of the landscape according to residents of the city of Florianópolis, Santa Catarina - Brazil, reflecting a limited sample of the Brazilian territory. Complying with the Brazilian City Statute, the new Master Plan should propose an Integrated Management system conducted with the participation of the population. During this procedure the plans of the municipality and its priorities are discussed and approved, as the allocation of public funds to implement strategies, guidelines, policies, programs and projects. The first participatory process of a Master Plan of Florianópolis started officially with the realization of the 2nd Conference of the City in 2005 and has been developed until now (2013). The opening to the public participation resulted in a large social movement that demonstrates the population's interest in participating and the need to incorporate their intentions as a contribution to urban planning and to the environmental management of cities.

The aim of this study is to describe how landscape is seen by the population. This description could be done by analysing the landscape aspects that influence on the perception of the value of landscape. This would be done in order to clarify the preferences and desires of the population in relation to the future of their landscapes. The elements measured in this study, would serve as a sample of supplementary information to the landscape management. So, this investigation supports the start of a perceptive data base that will sustain the description of the landscape interventions to be followed in the development of master plans. This data should be regularly updated to continue showing the actual values of the population. The research

problem, therefore, is the study of the perception of Florianópolis landscapes in order to enhance the development of future urban projects.

Formulation of the problem:

How the landscape can be evaluated in a participatory way?

This work is based on two main reasons:

1. The landscape must be assessed in a multidisciplinary way, seeking quantitative and qualitative aspects;
2. The public participation is essential to the management of landscape;

1.2 Objectives

1.2.1 General

To study the public preferences regarding landscapes of Florianópolis and to explore how it could be done in a participatory way.

1.2.2 Specific

- To study the values aggregated to landscape;
- To analyze the importance of landscape features within the concepts of urban planning in Brazil (case study partially generalizable to Brazil);
- To carry out, through a public assessment, a study of the landscape perception of Florianópolis;
- To list and measure the landscape preferences of the Florianópolis' population.

1.3 Justifications

There are three justifications that support this work:

1. The change that the City Statute brought for the development of Brazilian municipal master plans;
2. The concept of landscape, that with the implementation of the European Landscape Convention (ELC) it is declared that all landscapes should be considered, both those that are of excellence as well as the everyday or degraded landscapes (Article 2 of the ELC);
3. The lack of Brazilian alternatives / public policies / approaches / methodologies / instruments covering the public perception of the landscape as a tool for urban and communicative planning.

The City Statute (2001) and the ELC (2000), both documents approved at the same time, prioritize the need for public participation in the development of the city. One

discussing the municipal master plans in Brazil, and the other focusing on the landscape in the European territory. Undoubtedly the focus on democracy highlights the urgent need to include the opinion of people in public management measures.

The European Landscape Convention states that the landscape has an important role in the cultural, ecological, environmental and social fields. The landscape is also a feature in favour of local economic activity, whose protection, management and planning can contribute to job creation and improving quality of life of the population. So, in order to know how to manage our landscapes, it is important to know them.

Before any evaluation it is important to know how much the landscape matters in the opinion of the population. In comparison with other priorities taken into account in a participatory process, it is indispensable to know how the role of landscape is seen in daily life. This concern is reflected in the inhabited environment, manifesting itself in manicured landscapes or in neglected ones, depending on the attention spent on them. While some landscapes contain no use, they demonstrate a loss of cultural significance of place, resulting in degraded landscapes or without interest to the population. When in one hand, people are interacting with the environment, the landscape also responds dynamically. On the other hand, when people have less functional relationships with the landscape, phenomenon exacerbated by economic speculation of landscapes, it creates an urgency to reconnect local communities with their territory (PEDROLI and VALK, 2010). For this reason it is important to consider the landscape as a participatory project in order to raise awareness about the need for attention that landscapes require.

Due to the participatory planning, the debate on the landscape and on environmental issues can be reported outside the inner circle of experts, involving people in decision-making. It should be enjoyed that people are increasingly interested in discussing plans, schematics and representations in connection with alternative scenarios developed from the current state of the landscape. Thus, the crux of the problem is to increase social awareness, communication and discussion of opportunities and threats related to different scenarios and visions of the landscape (PALAZZO, 2010).

The participatory planning of landscape requires making decisions processes and choices about complex systems. Given the worries of all stakeholders, planners are faced with the challenge of integrating conflicting viewpoints. In these circumstances, multidimensional assessments, along with participatory methods, can help to structure the process of decision making, resulting in a "social learning process."

To safeguard the landscape, it is important that people understand that their landscape reflects who they are and is the product of their actions and also their social, environmental and economic interests. The purpose of a landscape approach is to stimulate the debate on landscape and consequently the acquisition of cultural awareness of a place. Thus, the concern with the landscape occurs only when the community has a use as much as an intangible value attached to them and that is why the gaze to the landscape needs to be extended. The culture of the landscape requires an educational effort to provide proactive strategies and actions that sensitize the society (FARINA, 2010). Urban development strategies need to strike a balance between the public commitment, private investors and community initiatives in order to understand the meaning that an urban heritage brings to the community. This is an important step towards a solid project of landscape management.

A landscape design should be seen as an instrument of construction of the landscape that can contribute to the sustainability of the human environment. The role of landscape management is to design, coordinate and implement projects of intervention in the landscape in their different scales, taking human values and natural systems in an interdisciplinary perspective. The first step to take care of the landscape is to identify and understand its character and that can be started by evaluating it. The public participation in the evaluation system can begin a process of social learning that transforms uncoordinated individual actions in collective actions that support and reflect the collective desires. In this way, citizen participation should increase public awareness and civic education of those involved in the process.

After 2000, the date of implementation of the Convention, many studies focused on public perceptions of the landscape began to be realized. The existing studies show

that this issue is much more complex than expected and is not well understood. Before starting to ask which the public's preferred landscapes are, the research objectives should be defined and the possible methods and procedures of analysis should be exposed. According to each process of assessment, very different types of results are possible. In general, the only rule shared by most assessments, is that the earlier public participation is included in the design of the intervention on landscape, the better the chances of success (ANTROP, 2010).

The analysis of landscape is not a concern officially inserted in the participatory urban processes in Brazil. Besides, it is not included in the process of Participatory Budgeting. In the latter process cited, among the topics to be voted, arguments such as basic sanitation, education, tourism, traffic and transportation, recreation, street lighting, etc. are concerned[1]. For these reasons, the landscape and many of its components are not formally part of the public debate. The present work aims to encourage a critical thinking of landscape, and aims to introduce the public perception of landscape as a tool for an urban planning process that 'meets the needs of the development of medium and long term projects'[2].

Based on this framework, what is proposed is a landscape assessment based on the analysis of the priorities of the population (through the use of a model of participatory budgeting, taken as a premise of the City Statute) and the integrated interpretation of landscape (by evaluating landscape). Landscape assessments could be seen as one of the instruments of public consultation which seeks to establish a connection between the needs of the population and urban proposals.

It is expected that this measure can enhance landscape attractiveness, contribute to social learning and minimize the lack of communication between stakeholders in the development of municipal master plans. The research on landscape values can serve as useful information for urban planning policies that seek consultation and participation of local people, resulting in a public approximation to the urban scope signed as a communicative action.

[1] See complete lists of topics in the text 2.1.5.1 Example of PB in Porto Alegre
[2] Critique published by Lacher (1995, p. 219, our translation).

2 Literature review

This chapter presents a literature review on the different themes used as theoretical basis for the research. It is included the opinion of many authors on the concepts of urban planning, public participation, participatory urban plans, participatory budget, creativity in cities, landscape and methods of assessment.

The three structuring themes of this work are:

- Participatory Urban Plans
- Landscape
- Assessment Methods

2.1 Participatory Urban Plans – Brazil

2.1.1 Statute of the City

Starting from the 1988 Brazilian Constitution (BRASIL, 1988), which guarantees the municipal authorities the power to define the use and occupation of urban land, it is approved the law No. 10.257 on July 10, 2001, known as the City Statute. It is this statute that regulates articles 182 and 183 of Chapter II – Title VII of the 1988 Constitution, presented below[3]:

> **Article 182.** The urban development policy carried out by the municipal government, according to general guidelines set forth in the law, is aimed at ordaining the full development of the social functions of the city and ensuring the well-being of its inhabitants.
>
> § 1- The master plan, approved by the City Council, which is compulsory for cities of over twenty thousand inhabitants, is the basic tool of the urban development and expansion policy;
> § 2- Urban property performs its social function when it meets the fundamental requirements for the ordainment of the city as set forth in the master plan;
> § 3- Expropriation of urban property shall be made against prior and fair compensation in cash;
> § 4- The municipal government may, by means of a specific law, for an area included in the master plan, demand, according to federal law, that the owner of unbuilt, underused or unused urban soil provide for adequate use thereof, subject, successively, to:
>
> 1. compulsory parcelling or construction;
> 2. rates of urban property and land tax that are progressive in time;
> 3. expropriation with payment in public debt bonds issued with the prior approval of the Federal Senate, redeemable within up to ten years, in equal and successive annual instalments, ensuring the real value of the compensation and the legal interest.
>
> Article 183. An individual who possesses an urban area of up to two hundred and fifty square meters, for five years, without interruption or opposition, using it as his or as his family's home, shall acquire domain of it, provided that he does not own any other urban or rural property.
>
> § 1- The deed of domain and concession of use shall be granted to the man or woman, or both, regardless of their marital status;
> § 2- This right shall not be recognized for the same holder more than once;
> § 3- Public real estate shall not be acquired by prescription.

[3] Translation available at: http://pdba.georgetown.edu/constitutions/brazil/english96.html

Since this Constitution submitted essential urban policies to a local level, but conducting it in a vague and imprecise way, as emphasizes Souza[4], the City Statute (BRASIL, 2001) provides objectivity to their arguments: describes which cities must have a master plan and compile a comprehensive set of guidelines and urban instruments. The Statute reinforces the priority for action by the municipal government from establishing and implementing the Master Plan through participatory processes. It is presented some segments[5] of the first two articles of the City Statute, Brazilian Law 10.257/01:

> Art. 1° - [...] establishes norms of public order and social interest which regulate the use of urban property in favour of the common good, safety and well-being of citizens, as well as environmental equilibrium;
> Art. 2° - The purpose of urban policy is to give order to the full development of the social functions of the city and of urban property [...]

From **Art. 2°**, it is worth highlighting the following general guidelines:

> **II -** democratic administration by means of participation by the population and the representative associations of the various sectors of the community in the formulation, execution and monitoring of urban development projects, plans and programmes;
> **III -** cooperation between governments, the private sector and other sectors of society in the urbanisation process, to satisfy the social interest;
> **X -** adaptation of economic, taxation and financial policy instruments and public expenditure to suit the goals of urban development, in order to give priority to investments which generate general well-being and enjoyment of the assets by different social segments;
> **XII -** protection, preservation and recovery of the natural and built environment, and of the cultural, historic, artistic, landscape and archeological heritage;
> **XIII -** public hearings involving municipal governments and members of the population interested in the processes of execution of developments or activities with potentially negative effects on the natural or built environment, the comfort or safety of the population.

It would also be necessary to point out some very important measures contained in the new law, which are the increase in number of covered cities and the inclusion of participatory management tools. In Article 41, the City Statute extends the mandatory

[4] SOUZA, 2011.
[5] CARVALHO and ROSSBACH, 2010, p. 91-93.

completion of a Master Plan, before defined only on the population size (cities with more than twenty thousand inhabitants), for cities that comprise metropolitan areas and urban agglomerations, cities that comprise regions of special tourism interest, inserted in the areas of influence of developments or activities with significant environmental impact of regional or national level or those in which the government intends to use the instruments provided in § 4 of Article 182 of the Federal Constitution, because it deals with the use of urban land.

About the democratic management of the city, it is included the need for achievement of a participatory budget (line f of sub-clause III of Article 4) and the inclusion of population and associations in the decision making process. In Chapter IV, Article 44 states that within the municipal context, participatory budget management shall mean conducting debates, hearings and public consultations about the proposals of the multi-annual plan, the budget guidelines law and the annual budget as a mandatory condition prior to their approval by the City Chamber. As a complement, Article 45 states that Administrative Entities of metropolitan regions and urban conglomerations must "assure the compulsory and substantive participation of the population and of associations representing different segments of the community in order to guarantee to them direct control of administrative activities as well as assuring the population of complete exercise of citizenship".

It is regulated that from 2001 the new Master Plans must be reviewed and updated every ten years due to the Brazilian urban reality (e.g. quickly urbanization and demographic transition). The mayors who do not provide the required preparation of the plan and its ten-year review, according to Law n° 10.257, may be punished for the crime of administrative misconduct (Art. 40, § 3, Art. 50, Art. 52, section VII).

However, according to the national report of 2011[6], the municipalities have many difficulties to implement their Master Plans. The majority do not present an appropriate administrative structure for the exercise of urban planning, with regard to technical, human, technological and material resources, not to mention the low diffusion of the councils of participation and social control aimed at building a culture of participation and implementation of urban development policy.

[6] Os Planos Diretores Municipais Pós-Estatudo da Cidade: balanço crítico e perspectivas, 2011.

2.1.2 Ministry of Cities

With the purpose of assist the Brazilian municipalities to respect the guidelines and instruments regulated by its City Statute, the Brazilian government[7] created the Ministry of Cities in 2003. This support was necessary because although currently planning and land management are of local competence, the municipalities are not completely prepared to perform that task. Urban problems discussed in the participatory process are of difficult solution, requiring support from both national and state levels.

Within the Ministry, was established the National Urban Programs (SNPU), which is responsible for the coordination of actions related to urban planning. The department has been trying to mobilize, sensitize and empower municipalities and to provide means and resources so that they are able to perform an urban policy in accordance with the Statute of the City. The support policy development and revision of Master Plans, coordinated and executed by SNPU, aims[6]:

- to encourage municipalities to implement participatory management practices and territorial planning;
- to provide the conditions for the formulation and articulation of urban policies to ensure better conditions of life; and
- to promote sustainable urban development, inclusive and focused on reducing social inequalities.

2.1.3 Council of Cities

In 2004 was created the Council of Cities, an instrument of democratic management and an integral organ of the Ministry of Cities structure. Among its responsibilities, established by the Decree No. 5790 of May 25, 2006, it is the *ConCidades* responsibility to support the participatory planning by issuing guidelines and recommendations on the implementation of the City Statute and to propose guidelines for the formulation and implementation of the National Urban Development - PNDU. It is also attributed to *ConCidades*, to promote cooperation between governments, to encourage and to strengthen the advice pertaining to the

[7] The social movement composed of professionals, union leaders and social NGOs, intellectuals, researchers and academics was instrumental in the creation of the Ministry of Cities.

urban development policy.

The Council of Cities shall allow the continued discussion of urban policy, respecting the autonomy and specificities of the segments that compose it, such as social organizations, workers, NGOs, professional bodies, academic institutions, research organizations, the productive sector and government agencies. Among the topics discussed are the issue of housing, environmental sanitation, transport and urban mobility and territorial planning.

Four National City Conferences have been held from 2003 to 2010. Referring to the Table 1 below, you can monitor the performance of the Conferences, which held respectively 3.457, 3.120, 3.277 and 2.282 Municipal Conferences with 2.095, 1.820, 2.040 and 2.047 delegates from 26 states and Federal District.

	1ª Conference 2003	**2ªConference 2005**	**3ª Conference 2007**	**4ª Conference 2010**
Municipal	1.430	869	1.554	2.248
Regional	150	243	150	34
Total Municipalities	3.457	3.120	3.277	2.282
States	27	27	27	27
National (n° of delegates)	2.095	1.820	2.040	2.047

Table 1 - Evolution of the number of City Conferences held in Brazil
Source: BRAZIL, 2010.

Both the Conference as the Councils have been of great importance to the advancement of democratic thought to the development of cities. The Conferences serve as tools of democracy meant to expand and strengthen public participation on the development and monitoring of urban public policies; and the Councils are mechanisms that enable the delivery of policies nationally, in the form of space for discussions and recommendations.

The Resolutions 25 and 34 of the City Council of March 18, 2005, guide the municipalities on the implementation of Participatory Master Plans. The Resolution 25 considers that the effectiveness of the tools provided in the City Statute as well as the environmental balance, depend largely on the preparation of municipal Master Plans and that these should include mechanisms to ensure its effective implementation, monitoring and update also through its incorporation into the

municipal budget law. It also contemplates that the period of five years made available to meet the constitutional obligation of developing master plans, established by Art. 50 of the City Statute, was running out in 2006. It is therefore recommended to finalize the process of development of master plans meeting the participatory requirements, once reinforced by its Art. 4°:

> In the participatory process of elaboration of the master plan, the advertising, as determined by paragraph II of § 4 of Art. 40 of the City Statute, shall contain the following requirements:
> I - wide public communication, in accessible language, through the available mass media;
> II - knowledge of schedule and locations of meetings, the presentation of studies and proposals on the master plan in advance of at least 15 days;
> III - publication and distribution of results of the discussions and proposals adopted at various stages of the process.

Resolution 34 directs the minimum requirements regarding the content of the master plan. It states that are the destinations of the portions of the municipal territory and also the identification of its properties that define the functions of the city. The spaces listed, which location must be assured, are the collective spaces of life support in the city. These areas contain urban and mobility equipments, transportation and utilities, as well as areas of protection, preservation and restoration of natural and built environment, cultural, historical, artistic, landscape and archaeological heritage.

According to a survey conducted since 2001 by the Brazilian Institute of Geography and Statistics (IBGE), there was a clear evolution of the number of municipalities that held its Master Plan. Figure 1, which covers the period from 2001 to 2009, show that from 2005 there was a large increase in the number of plans made, from 805 to 2318, in 2009.

Assuming that the universe of municipalities with more than twenty thousand inhabitants (Figure 2), the proportion of plans prepared in relation to the total is more significant: in 2009, from 1644 municipalities with more than twenty thousand inhabitants, 1433 reported having the Master Plan, which corresponds to 87 % of the total.

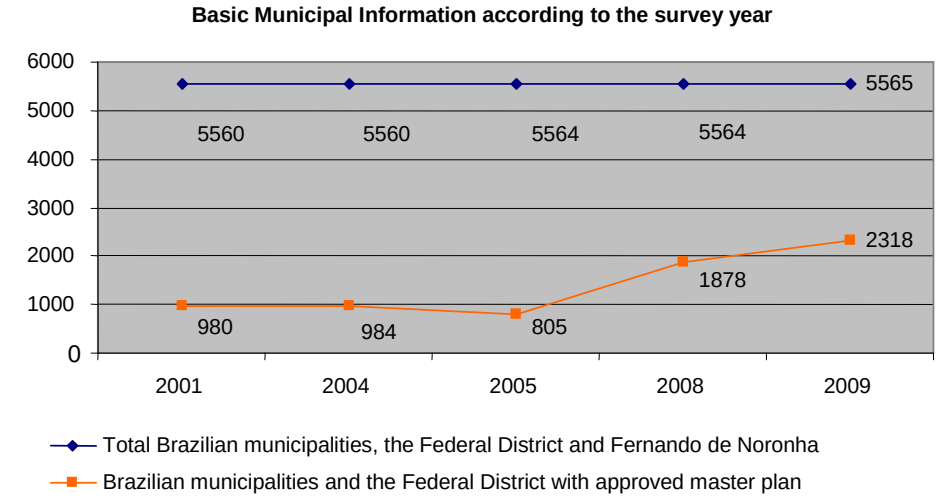

Figure 1 - Evolution of Master plans in Brazil from 2001 to 2009: total Brazilian municipalities and total municipalities with mandatory elaboration

Source: IBGE - Profile of Brazilian municipalities

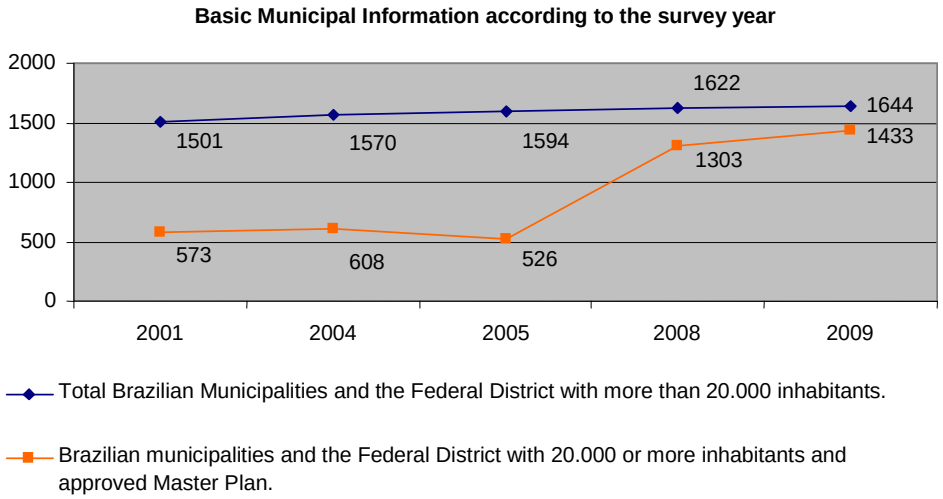

Figure 2 - Evolution of Master plans in Brazil from 2001 to 2009: total Brazilian municipalities and total municipalities with mandatory elaboration - with more than 20.000 inhabitants

Source: IBGE - Profile of Brazilian municipalities

These numbers could be exciting if we did not know that the great majority of master plans executed was not really done deliberatively. As the finding of the research published in the Observatory of the Metropolis[6], you can see "the predominance of advisory Councils or of hybrid nature (consultative and deliberative), which in most cases provide some specific deliberative assignments and not allow society debate and discussing plans, programs and projects for urban development. That is to say, the participation of society has only opinionated character in most states evaluated".

So, what lacks is the illustration of the different forms of participation and their instruments. Hereafter, will be presented scales that demonstrate the possible levels of public participation and that define differences between a consultative participation (pseudo participation) or deliberative one (active participation).

2.1.4 Public Participation in the development of Master Plans

The discussion on how to build democratic cities has been undertaken in various forms. Throughout national territory are taken lectures, seminars, conferences with agenda in the development of Participatory Master Plans. The Brazilian government makes available some materials, NGOs create online forums for information and public discussion, and workshops are developed with the population. In many cases, the spaces created for the debate on urban issues led a process of knowledge about the problems and potentials of cities on the alternatives and urban development strategies. This process allowed us to think about the future of cities, and especially to learn about what is urban planning and what is the role of the different actors involved. As stressed by Junior and Montandon (2011, our translation), "the richness of these participatory processes may be on the public and social appropriation of the City Statue and on its implementation across multiple channels, forums and spaces for participation and not necessarily on the formal character of the spaces that were established".

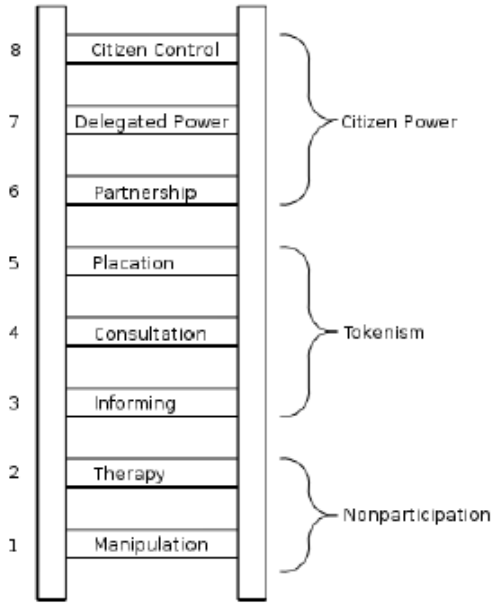

Figure 3 - Sherry Arnstein "Ladder of Citizen Participation"
Source: ARNSTEIN, 1969.

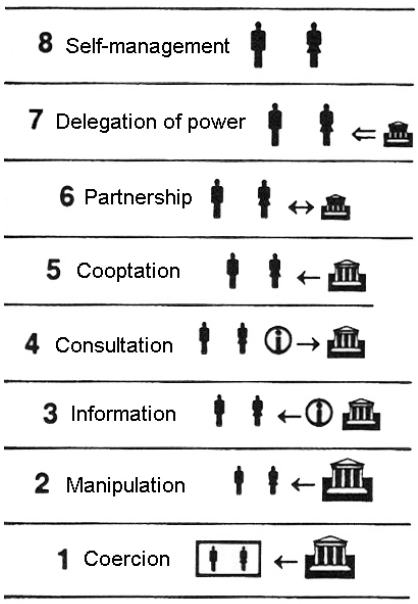

Figure 4 - Souza's participation scale
Source: SOUZA, 2011.

As a way of understanding and better evaluation of the degree of participation that has been done in participatory processes in Brazil, we referred to the classic "Ladder of Citizen Participation" presented by Sherry Arnstein (1969), where are related eight categories, ranging from outright manipulation of individuals and groups by the state to citizen control. In this ladder, are formed three stages of participation: non participation, tokenism and citizen power.

In sequence it is presented a reinterpretation of the ladder mentioned. The adjustments have been made essentially on the scope of each category, starting with a completely non-existent participation, namely coercion (a category that was not fully covered on Arnstein ladder) to self-management. Figure 4 reflects the new scale proposed by Souza (2011, p. 207).

The alternative proposed classification comprises in decreasing category:

Authentic Participation	**Pseudo Participation**	**Non-participation**
8-self-management	5-cooptation	2-manipulation
7-delegation of power	4-consultation	1-coercion
6-partnership	3-information	

Table 2 - Souza's participation scale
Source: SOUZA, 2011.

Self-management: assumes a society essentially autonomous. There would be no need for the state as a regulatory power;

Delegation of power: already with the presence of the state, but abdicating from responsibilities in favour of civil society. Situation of co-management between state and society;

Partnership: the last degree of authentic participation. State and civil society collaborate and co-operate in a transparent manner;

Cooptation: cooptation of popular leaders who occupy permanent posts in government serving the community. The population is represented by this selected leader, but being held as a form of consultation. The difference to a simple consultation of the population is that on cooptation, there are permanent instances continuously updating the views and wishes of the community, there is no need to conduct specific research, public hearings or similar measures;

Consultation: there is no guarantee that the information / intentions condensed by the population are incorporated into the state projects;

Information: the Statute provides information to the public about planned interventions, which can be communicated in a more or less complete manner;

Manipulation: the population is induced to accept the intervention by public advertising or other mechanisms. The State has no intention of dialogue; much less create any kind of public participation;

Coercion: usually found in dictatorial or totalitarian regimes, where the very representative democracy does not exist;

As pointed Allegretti (2003), the results achieved in the experience of participatory budgeting in Porto Alegre[8] invite us to reflect on the participatory scales proposed. This author says that Sherry Arnstein ladder continues to be a valuable tool for the analysis of reality, but holds that by putting the "delegation of power to the people" in its upper stage, it does not seem to recognize the value of co-management process, underestimating the role of "mutual learning" that the continued ‘decision-making tension' between people and politicians can produce. This process would be characterized by having constructive and complementary features between the participating parties. This critique would also serve to the proposed new table.

Brazilian experience

The City Statute brought to the Brazilian population a new way of thinking and acting in the city. This instrument of democracy lists guidelines and provides tools that enable public participation for the entire process of development of municipal master plans. This participation is still growing and adapting and, as any change in social behaviour, needs time to evolve. Also the new planning instruments, for the most relevant and creative they are, only acquire real importance on having their operationalization and implementation influenced and monitored by concerned citizens. As add Souza (2011), the "instruments and plans, even when supported into laws, are, in principle, just resources that will become into effective wealth when there are conditions for effective implementation of these instruments and plans”.

[8] See section 2.1.5.1 - Example of PB in Porto Alegre

Innovative governance has the fundamental role of promoting creative activities and sustainability through initiatives in local economic development and planning[9] and the City Statute shows the intentions to do so. It intends to regenerate the Brazilian democracy by integrating participative processes in urban decisions. The promotion of people's participation in the construction of public choices, by the involvement of associations, voluntary organizations, non-governmental organizations (NGOs), non-profit enterprises, social/cooperative enterprises and foundations**,** helps to build citizenship[9] and is a tool of awareness, of training for a critical spirit and responsibility, insofar it is revealed as an educator instrument for citizens. By participating in decisions, the population begin a process of accountability for projects and consequently will take care over its heritage. Therefore, public participation not only makes the urban planning process more legitimate and effective, but also causes the growth of all actors involved, in relation to their understanding of the city[10].

A strategic urban approach that addresses the public is a fundamental tool for democracy. "The companies which set forms of participatory and deliberative democracy, with which stimulate citizens to publicly debate on alternative proposals, tend to be more 'careful' with the objectives of equality / fairness / justice"[11]. With the intention of promoting a city able to rebuild their balance every time it is reinvented, this process should be based on a shared strategic vision[11], built by democratic methods that respect the citizens and the environment in which they live.

The public participation will not solve problems and does not guarantee a better urban design, but contributes to reduce incorrect sources of information. Experts are not the only ones who should decide the direction of the city, but society as a whole. Each portion of the population should discuss and present their values and criteria in a way that are demonstrated the needs and perceptions of the majority.

> The target communities of regularization programs should be involved and called to contribute to their reading of the local reality to the proposals, expressing their needs and desires. Making urban

[9] FUSCO GIRARD et al., 2011.
[10] PEREIRA, 2008.
[11] FUSCO GIRARD, 2004

> interventions more democratic and sensitive to local context is a way to legitimize them and consolidate them, because the ”top down" charges in the decision-making and the making changes which ignore the views of beneficiaries are artificial and more likely to failure. (PEREIRA, 2008, p. 233, our translation)

As potentialities of a process where direct democracy is practiced, we have a territorial decentralization, the practice of delegation (which allows the participation of a large number of people on the decision-making process without the need of presence) and also the use of communication technology resources which facilitate information and participation at distance. The combination of new technologies and the decentralization allows waiving the use of the device "delegation" since it already allows the direct and in real time participation. Thus, the disadvantage of not being present on the meeting place is softened by the great advantage of multiplying the number of accessible people without any intermediate.

2.1.5 Participatory Budget

The Participatory Budget (PB) is a potential tool that enables people to participate directly in decisions about the goals of public investment and features a bottom-up decision approach. The people gathered in assemblies, organized by neighbourhoods or districts (spatial units that aggregate several neighbourhoods), debate and decide on investment priorities for each city. The monetary resources are managed by the Executive Government, which informs its availability, as well as provides care of the budgets of previous years.

According to the Statute of the City, the participative budget management is essential to the coherence of the participatory process (Chapter II - Section I - Section 4 - III), but the few settings on the operation of the process restrain its full implementation and monitoring. As a result, "local governments have been classifying as PB a variety of formats of consultation to people that have huge differences in conception"[6]. These differences are illustrated on:

- the nature of decisions (deliberative, advisory);
- the object of deliberation (on a percentage of investment, on all investments, on the whole budget); and
- the opportunities for participation (public hearings in the neighbourhoods, specific advice, sectoral councils, municipal hearings by theme or combination of more than one mechanism).

Although the Statute of the City has instituted mandatory debates, public hearings and consultations as a condition for approval, few plans have established this type of mechanism or established other similar instrument (Table 3). In plans that have established mechanisms for democratization of the process of budget formulation, stand out, in addition to public hearings, the previous consultation to the City Council or the Council of Urban Development and the PB.

States / Total of evaluated Urban Plans	Number of municipalities that predict mechanism of budget democratization	Number of municipalities that don't define mechanisms of budget democratization
Acre / 1	1 municipality	-
Amapá / 1	1 municipality	-
Amazonas / 8	2 municipalities	6 municipalities
Ceara / 22	6 municipalities	16 municipalities
Espírito Santo / 14	8 municipalities	6 municipalities
Goiás / 14	1 municipality	13 municipalities
Para / 21	2 municipalities	19 municipalities
Paraná / 33	7 municipalities	24 municipalities
Pernambuco / 35	26 municipalities	9 municipalities
Piauí / 4	1 municipality	3 municipalities
Rio de Janeiro / 28	17 municipalities	11 municipalities
Rio Grande do sul / 42	4 municipalities	38 municipalities
Roraima / 1	-	1 municipality
São Paulo / 92	20 municipalities	72 municipalities
Tocantins / 4	2 municipalities	2 municipalities
AL, BA, DF, MA, MG, MS, MT, RN, RO, SC e SE.	The state reports do not bring information regarding the mechanisms of budget democratization.	

Table 3 - Establishment of mechanism for democratization of the budget
Source: The Municipal Master Plans Post- Statute of the City, 2011.

The emphasis on management and pioneering Public Budget is given to Porto Alegre, the Brazilian city that started its PB in 1989. This instrument is seen in the institutional field as an interesting example of creativity[12] in cities management. The Brazilian experience is characterized as an innovative tool based on co-management[13], allowing both municipal and state governments as new forms of self-organization of civil society to approve decisions of territorial transformations in a participatory manner. It is an innovative tool able to stimulate coordination of actions, cooperation, trust, citizenship and, at the same time, the satisfaction of private needs (Fusco Girard and Nijkamp, 2004). Currently its example is known

[12] Fusco Girard and Nijkamp, 2004.
[13] Allegretti, 2003.

internationally, obtaining evidence after the 2001 World Social Forum. The project also received attention of the UN, that declared the experience as one of 40 best practices in urban governance in the world and the World Bank acknowledged the process of popular participation in Porto Alegre as a successful example of joint action between government and civil society.[14]

2.1.5.1 Example of PB in Porto Alegre

The process of Participatory Budget in Porto Alegre is governed by its Internal Regulations, a document updated annually by the participants that ensures a dynamic process and is on constant improvement. Consulting these regulations, one can understand the basic principles of its operation. The process has a previously scheduled annual calendar and its cycle is characterized by three main priority moments: the Preparatory Meetings, the Single Regional and Topic Assemblies (the city is divided into regions) and the Municipal Assembly.

First, citizens realize their accreditation, an action that enables them to participate in regional voting. Once done, they receive a ballot that allows them to vote in four priorities within the seventeen topic priorities previously defined. Each citizen votes, in order of priority (1st, 2nd, 3rd and 4th places) according to the topics:

- Basic Sanitation - Drainage and Dredging
- Basic Sanitation - Water and Sewer Cloacal
- Housing
- Paving
- Education
- Social Assistance
- Health
- Circulation and Transportation
- Recreation Areas
- Sports and Leisure
- Public Lighting
- Economic Development, Taxation and Tourism
- Culture
- Environmental Sanitation
- Youth
- Urban Mobility and Accessibility
- Tourism

The distribution of resources among regions and subjects is done through three general criteria and their weights:

[14] Prefeitura Municipal de Porto Alegre, 2011.

	Total population of the region: Weight 2	Lack of service or infrastructure: Weight 4	Topic priority of the region: Weight 5
Note 1	Up to 25.000 inhabitants	0,01% to 14,99%	Fourth priority
Note 2	Of 25.001 to 45.000	15% to 50,99%	Third priority
Note 3	Of 45.001 to 90.000	51% to 75,99%	Second priority
Note 4	Above 90.001	76% on	First priority

Table 4 - Definition of the notes, according to the weights and criteria
Source: P.A, 2011.

To determine the three global priorities, a calculation must be performed consisting of six steps:

1. each region elects four priorities within the 17 themes available;
2. grades are assigned to each priority (1° Priority- Note 4, 2°- Note 3, 3°- Note 2 and 4°- Note 1);
3. the three priorities selected are those that, by summing the scores of all the priorities of the regions have the highest score;
4. resources are allocated to subjects in proportion to priorities;
5. only those regions that give priority to the subject “paving” will have access to the resource;
6. the decisive criterion to choose between the regional and topic priorities will be the greater participation in the Assemblies.

The whole process can be followed online by its participants and other citizens. The data available regards the financial reports, the process of execution of works and services determined by the population as well as those responsible for doing so. The participatory process also progresses with the implementation of new technologies; in November 2011 the city of Porto Alegre launched the iPhone application "APP Porto Alegre." The tool, developed by Procempa (Data Processing Company of the city of Porto Alegre), allow citizens to access to information of works and services of the Municipality. In the application, one can follow the demands and evolution of PB and access updated news of traffic produced by the Public Company of Transportation and Circulation (EPTC). The tool also allows citizens to monitor the action, sending photos and comments to the Municipality about the works and services.

Porto Alegre was stated as an example of the implementation of the Participatory Budget, but the project is not a prototype. As said Souza (2011), "there is no such thing as a single model or a ‘foolproof recipe’, because the success of a particular

experience always is partially connected to very specific and not transferable local or regional factors. (...) Successful experiences of other cities (like Porto Alegre) can serve as sources of inspiration, but never as ‘models’ to be simply copied."

The way of thinking of Participative Budget (PB) management not only enables financially the priorities of the population, but also serves as urban educational policy. In the long term, its effects will be the awareness of rights and duties and the self-confidence of citizens. Besides allowing the budget debate, this process serves as an attraction and stimulus to the discussion of urban space and its method to evaluate could be used as a methodology for future discussion of values of the city. The present study considers that the topic previously described and used in the PB of Porto Alegre could be complemented with a wider vision to assess the landscape of the city as a whole. Aspects of the use of urban space could be included in the analysis in order to understand the approval of the population regarding the development of the city.

There is no feasible way to understand and explain exactly how the population perceives the city, experiences places and what affective meaning spaces evoke. By demonstrating their common opinion of the urban development, it might be possible to justify the alteration or maintenance of projects and investments, after all, to change and maintain the city is a collective task.

2.1.5.2 Example of International Participatory EcoBudgeting

Decision makers in local government face the challenge of how to provide services with limited resources. Based on the explanation of the project presented by Robrecht and Meyrick (2008), the EcoBudgeting is an environmental management system designed with and for local governments. It allows municipalities to “manage natural resources as efficiently as they manage financial resources”. Here, the traditional PB system is complemented by an environmental budget, in which natural resources are measured instead of money.

The idea of environmental budgeting was first published in 1987 by Konrad Otto-Zimmermann. The ecoBUDGET model was developed to be applied in global level and its approach was pilot-tested in a number of cities and counties. The approval of

the project has been demonstrated in municipalities in Germany, Greece, India, Italy, the Philippines, Sweden and the United Kingdom.

While local budgeting usually addresses only financial resources, the EcoBudgeting manage natural ones. This new way to approach the environment aims to plan, control, monitor, report on, and evaluate the consumption of natural resources (examples of resources are: climate stability, air quality, land, water, raw materials, and biodiversity). Its final objective is to keep environmental spending within limits set in an environmental "Master Budget." This Master Budget identifies indicators for short and long-term environmental (and potentially social) targets orientated to the sustainable management of environmental resources.

The Master Budget contains the priority natural resources to be protected or effectively managed by the local government; strategic long-term targets for these resources to be accomplished in a given period, formulated on the basis of political decisions and lead by the principles of sustainable development; and the budget limits within the forthcoming environmental budgetary year, represented by the individual indicators and operational short-term targets as an aid for achieving the long-term goals.

The main aims of ecoBUDGET are to:

- build a comprehensive political management approach to local sustainability;
- present the state of the environment to politicians and the public;
- enable decision makers and the administration to set priorities for environmental protection;
- limit the amount of pollution and use of natural resources in the community;
- plan and control the consumption of environmental goods throughout the budgeting period;
- integrate instruments for sustainable management of all resources, financial, human and natural;
- perform a periodical budgeting process for natural resources and environmental quality.

In concrete terms, with an approach of Environmental Budgeting it is possible to[15]:

- plan, manage, monitor, evaluate the quantity of environmental resources, their changes, the effects of anthropogenic pressures and policy outcomes;

[15] Fini and Garzillo, 2004. pg 500.

- develop a budget for the consumption of natural resource and emissions;
- maintain the "environmental debt" within the limits set by the budget;
- develop a tool to support local authorities for the evaluation of proposals during the planning and land management, for performance analysis pursued with respect to the target set of actions.

The ecoBUDGET cycle reflects the 3 phases of the municipal financial budgeting cycle including budget planning, budget spending and budget balancing. At the end of the budgetary year a Budget Balance presents a statement of the environmental situation and the degree to which the previous year's Master Budget was met. Two more reports, the Statement of Environmental Assets and the Sustainability Analysis, supplement the municipality's snapshot of its level of sustainability.

The phases of the ecoBUDGET

1st phase: Budget Planning

Based on the current environmental situation in the municipality, departments identify the natural resources they require for budget planning, identify budget priorities, set targets and prepare the environmental master budget which is presented to the Council for approval.

2nd phase: Budget Implementation

Following the Council's approval, programmes and measures are undertaken to meet the environmental targets. The implementation measures and compliance with the targets are monitored and accounted for.

3rd phase: Budget Balancing

At the end of the budget year, just as with financial budgeting, a statement of the environmental accounts is prepared – the (environmental) Budget Balance.

The advantages of putting environmental resources through a budget are that the annual cycle of the project places environmental concerns on the political agenda and provides the opportunity for decision makers to consider the implications of their policies; Budget planning emphasises issues of highest priority and set goals for environmental quality and resource use when delivering services; Monitoring and accounting of the full cost of municipal activities help to keep control over the impact of decisions and actions during the budget period. Thus, accounting aids to understand the cause-effect relationship of political decision making in relation to natural resources.

Robrecht and Meyrick (2008) sustain that citizen and stakeholder participation is the key to success. It is an advantage to engage community and stakeholder groups from the start and to continue to engage them throughout the entire ecoBUDGET cycle. The project cycle offers a platform for improved local environmental governance based on community engagement in setting targets, agreeing on activities, implementing measures and evaluating progress towards municipal sustainability. Improved participation and communication between local government, stakeholder groups and the community have been recognised by municipalities which were already involved in ecoBUDGET. As it strongly supports community involvement, the project ecoBUDGET could be seen as a continuation of the PB project developed in Porto Alegre, but with its focus on environmental governance.

In fact, the evaluation purposes of the approach of Environmental Budgeting are descriptive and interpretive, but are also closely related to future-oriented thinking. The prediction is relative to all selected resources in the proposed budget and shall be assumed on the existing basis or planned actions (FINI and GARZILLO, 2004. p. 520). Therefore, the Environmental Budgeting is a tool for policy makers to know the status of the environment of the area, to evaluate the effects of policies and then to decide. The innovation consists in the iterative sequence "decision-implementation-monitoring-new decision", which constitutes a continuous, flexible, integrated and participatory process (FINI and GARZILLO, 2004. p. 501).

2.1.6 Urban parameters and zoning

The urban parameters consist of magnitudes and ratios (relations between the two quantities) that prescribe important aspects of density and the urban landscape. They are, besides the zoning, the tools most commonly used in urban planning (SOUZA, 2011).

The zoning can drive both inclusion as social segregation, so it is an instrument that should be used with caution. On the other hand, the urban parameters, integrated within the zoning, express aspects of urban density and spatial forms.

Most common urban parameters in Brazilian legislation:

- maximum number of floors and / or the total height of the building;
- distance from front, side and back;
- building area;
- maximum occupancy rate for lot;
- floor-area ratio, which represents the maximum possible area being constructed divided by the area of the lot;
- permeability rate;
- ratio of green areas;

The conventional zoning is usually characterized by a map of use and density. It can be presented in different scales and levels of detail, coming up occasionally to locate urban facilities. The main objectives of zoning are[16]:

- control of urban growth;
- protection of areas unsuitable for urban settlement;
- minimize conflicts between uses and activities;
- control traffic;
- maintenance of property values and the status quo.

The zoning seeks to achieve these objectives through the control of two main elements: the use and the size of lots and buildings (SABOYA, 2007). Working with the zoning in favour of a balanced mix of uses in the city the Master Plans may use such devices as:

- Limitations on zones - determining the categories of possible uses (residential, commercial, industrial, agricultural ...) in zones of the city;
- Parametrical Regulation - the permission or prohibition for an activity to be installed in a particular location is defined based on parameters of discomfort;
- Limitations of the road system - also classify the uses and activities into categories, and define, for these levels of discomfort in accordance with the size of the roads.

The zoning can also be characterized between micro and macro-zoning. The macrozoning, encouraged by the City Statute came to solve a problem of microzoning (which plot uses in small portions). Since the Urban Plan should cover the entire length of the city, conducting a pre macrozoning ends up generating "a logical consistency to their urban development"[17].

[16] SABOYA, 2007.
[17] SABOYA, 2009.

The macrozoning is characterized by being a reference for the development of the municipality. It outlines the general principles of the guidelines of the master plans and allows the realization of a more coherent and organized plan. The macrozoning should be used as a spatial base for the other instruments of the master plan, as well as to

> incorporate and serve as more strategic space-based guidelines, such as setting priorities, time horizons, programs, actions, etc. and not only to the regulations of use and occupation. Under this view, the macrozoning acts as a great organizer of the guidelines and instruments of the plan, working to ensure that they all are in harmony with each other and working together to achieve the defined objectives. (SABOYA, 2009, our translation)

To perform a careful analysis which precedes a consistent proposed zoning, a comprehensive and updated study of the urban reality is required. For this, it is necessary to carry out preparatory studies, which are the basis of the recommendations and restrictions contained in zoning (SOUZA, 2011). These analyzes will have its contents incorporated into land use, density and priorities zoning in the form of topic maps. Some examples of topic maps of environmental constraints that are used by urban planning are the maps that assess the topography, hydrology, geology, vegetation, land use, etc. With respect to these maps, Souza (2011, p. 272, our translation) elucidates:

> The potential analysis, in which are highlighted positive aspects, will originate potential maps (e.g., map of tourist potential); the sensitivity analysis, which X-rays the vulnerability (of the environment, for example) will result in a map of sensitivity; the risk estimate, considering one or more risks (e.g., several environmental hazards such as flooding, landslides and mudslides), will result in hazard maps, where these are located and classified according to its level (very low, low, medium, etc.); the estimated impact, which is based on the knowledge of the sensitivity, of the potential and of the risks will derive maps of impact; the analysis of land use conflicts, concerned to locate and assess the incompatibility between geographic objects or uses (residential use and pollutant sources, for example), originate maps of land use conflicts.

2.2 Landscape

2.2.1 Definition of landscape

Before describing definitions of landscape, it is important to report an observation of Franco Zagari in the book *Landscape as a Project*, which stresses the importance of not confusing "Landscape" with "Land" and "Environment". *Land* is described as the physical space in which many different systems of ecosystems interact. Otherwise, *environment* is commonly perceived as the system of physical, chemical and biological conditions in which groups of animals and plants can organise their own life. So, *landscape* takes into account the relations of interaction, interdependence and time evolution in a system of ecosystems, and *land* is finally, covered by a mosaic of *landscapes*.

To reach a common definition of Landscape is not simple. The term landscape assumes, in relation to the different disciplines, different meanings and, consequently, different definitions. From the aesthetic point of view, the definition of landscape can not be separated from a person who observes and interprets the land. According to a geographical perspective, the landscape is a reality, even if in perpetual transformation, independent from the observer or the act of observation. The ecology has introduced a new point of view which has replaced the term landscape with the environment, namely: the mix of all elements, processes and interrelations that make up the ecosphere[18].

For Franco Zagari, the landscape must never be separated from its deep symbolic value, its concreteness. The risk otherwise is that, deprived of his memory and his utopian projection, it loses its distinctiveness. The landscape is a living entity that changes over time: "an infinite sum of individual actions that interpret and modify a site favouring or opposing habits, norms, laws. (…) It is driven by traditions, reforms, revolutions and the community that there lives will be recognized as a text in perpetual evolution"[19].

In common usage, the landscape is also linked to the concept of panorama, that is the

[18] GENCARELLI, 2012.
[19] ZAGARI, 2006.

view of a portion of territory from a certain sight. This means that there is also a subjective component in our definition of landscape: in fact, our sensibilities, our culture, our state of mind contribute to define it in that precise moment in history when we look at the landscape itself. The text *L'Arguzia del Paesaggio*[20] *(*The Wit of the Landscape), describes the "symbolic landscape" *as*

> a way of seeing the product of the tension between subject and object, between the personal and social, between cultural data and natural field, it starts to produce new trends. (...) On the set of existing things, and therefore tangible and countable, it begins to look now at the landscape as a universe of subsistent things, so that you can neither touch nor see: again, but in an unthinking way, it takes no more the aspect of a complex of objects, but the nature of a way to see it (p. 575, our translation).

Apart from this subjective aspect, we can say that to the physical definition of a landscape contribute various items related to one another, the lines of the ground and the elevation, the volumes, the dominant color, green cover, the water system, the organization of agricultural and urbanized areas, building types, etc. As described by the *Guide to Good Practice* of ECOVAST (2006), a proposal where people are invited to assist on the implementation of landscape protection, the most obvious elements in a landscape may be the buildings, the trees and the vegetation. But underlying these are the soil, the rocks and the form of the land. In turn, overlaid on the buildings and the land cover are the light and colour of the scene and the overall feeling that the landscape brings. All these layers contribute to the character of a landscape. Each landscape may be seen as an overlay of natural and human factors. To complement, Bertrand asserts that the "landscape is not the simple addition of disparate geographical elements. It is, in a particular portion of space, the result of a dynamic combination, therefore unstable, of physical, biological and human elements that dialectically reacting on each other, make the landscape a single and indivisible set, in perpetual evolution" (2004, p. 141, our translation).

Involving arguments like culture and identity correlation between people and their land, Elvira Petroncelli (2010) states: "Landscape is the expression of deep and rooted cultures and identities of single territories, related to the people living and working in them. It identities and makes the different parts of a territory

[20] Farinelli, 1991.

recognizable; it shows their history and the signs of their transformation, which occurred over the course of time and are linked to man's work and care".

Since a landscape is shaped by human activity, we may use the expression "cultural landscape" (GREFFE, 2010) and according to UNESCO World Heritage definition (1972), cultural landscape is considered as the result of the interaction between man and nature over a long period of time. The notion of cultural landscape in the Council of Europe definition mainly refers to 'cultural heritage areas'. Recently in Brazil, the Institute of National Historical and Artistic Heritage (IPHAN), established the concept of the Brazilian Cultural Landscape (through the *Portaria* 127 of April 30, 2009, published in *Diário Oficial da União* of May 05, 2009), aiming to meet the public interest and cooperation in the preservation of cultural heritage. The seal determines the Brazilian Cultural Landscape as "a peculiar portion of the national territory, representing the process of human interaction with the environment, to which life and human sciences marks printed or assigned values."

In Florence, October 2000, the European Landscape Convention (ELC) took place, an important event in which was finally set an official definition to landscape. It is seen as "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors"; it is understood as "an essential component of people's surroundings, an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity"[21]. The aims of this Convention are to promote landscape protection, management and planning and to organise co-operation on landscape issues.

One of the important aspects of the European Landscape Convention is the consideration that everything is landscape (Art. 2 of the ELC). Before it, only particular landscapes were selected to be protected and managed, while the others were left to free-market development or became neglected. The result is a severe fragmentation and loss of diversity of landscapes[22]. The ELC explicitly states its purposes:

- "Landscape protection" means actions to conserve and maintain the significant

[21] Council of Europe, 2000.
[22] Antrop and Eetvelde, 2010.

or characteristic features of a landscape, justified by its heritage value derived from its natural configuration and/or from human activity;

- "Landscape planning" means strong forward-looking action to enhance, restore or create landscapes;
- "Landscape management" means action, from a perspective of sustainable development, to ensure the regular upkeep of a landscape, so as to guide and harmonise changes which are brought about by social, economic and environmental processes.

A great change on the official definition is that, according to the ELC, the aspirations of the public counts to the perception of landscape. The aim of this Convention is to encourage people and governments throughout Europe to care for all the landscapes, through processes of identification, assessment, protection, management and planning**.** According to Franco Zagari (2010), to implement the new policies recommended by the convention it is necessary to encourage local communities to be active protagonists of the processes that concerns their surroundings; to interact between different disciplines in order to make protection, management and innovation projects different from each other but at the same time interactive; to encourage a constant exchange of ideas between the projects; and also to define new methods and practical instruments in order to make the projects adaptable to multi-layer issues, discontinuous in space and time.

The ELC states that the landscape has an important public interest role in the cultural, ecological, environmental and social fields, and constitutes a resource favourable to economic activity and whose protection, management and planning can contribute to job creation. It is also an important part of the quality of life for people everywhere: in urban areas and in the countryside, in degraded areas as well as in areas of high quality, in areas recognised as being of outstanding beauty as well as everyday areas. So, in order to know how to manage our landscapes, it is important to know them first.

To develop a complete landscape analysis it is necessary an interdisciplinary approach. This process needs to be set up by diverse studies, just as: economy, spatial planning and design, anthropology, agronomy, ecology, geography, sociology, history, aesthetics and semiotics; and also in diverse levels in order to encourage the interaction between those sciences that concern land use from different points of view, use different instruments and aims. Thus, landscape is seen as an integrating

concept, as a holistic, perceptive and dynamic phenomenon (ANTROP, 2010).

After 2000, the date of implementation of the Convention, many studies focused on the perception of the population on the landscape began to be realized. The existing studies in landscape perception and public preference (examples will be given below) show that this issue is much more complex and not yet well understood. Using public preferences must also consider the methods and procedures by which these were obtained as very different outcomes are possible. In general, the sooner the public's involvement is included in the project, the better the chances of success (ANTROP, 2010).

Santos (1988) relates landscape and region in his book *Metamorfoses do Espaço Habitado:* "both the landscape and the space result from superficial and deep movements of society, a reality operating unit, a mosaic of relationships, forms, functions and senses". The author explains the term as "all that we see, what our vision reaches, is the landscape. It can be defined such as the realm of the visible, that which embraces the view. It is not only composed of volumes, but also of colors, movements, smells, sound, etc." (1988, p.21, our translation). In this way, the landscape takes different scales according to our perception and knowledge, as Santos says "the dimension of the landscape is the dimension of perception, what comes to the senses" (1988, p.22, our translation). And as the perception is an individual process of apprehension and interpretation and if the reality is only one, each person sees it in a different and deformed way. So, our task, according to the author, is to overcome the landscape appearance as and get to its meaning.

Each person sees the landscape in a different way because we have different values. Thus, perception is not limited to just viewing the landscape, but to interpret it by assigning values and meanings to objects. A tourist notices the aesthetic value of landscape, the lights, colors and nature composition. A rural worker is concerned with the climate, the soil, with the ease of transporting goods. A child notices the spaces available for play and the activities it carries out around the house. That is to say, for each observer the landscape has a sense of contemplation; it could be utilitarian, aesthetic and even indifferent (BOLSON, 2004, our translation). The important thing now is to analyze the landscapes that we have, so we can care for and

manage it the best way possible. The care for a landscape is best stimulated by affection for it, or for things, events and people who are associated with it. We can perceive a landscape through eye, ear or physical feeling (rain, sunlight or wind), but also through emotion. Many emotional and spiritual elements in the landscape can not be adequately described by words and this is a challenge to be studied. People do not always have the idea of what the landscape is or never stopped to think about it. Many do only realise that landscapes are valuable and vulnerable when something is changing in them (MAGNANI and PEDROLI, 2010, p. 11) and sometimes it is already late to repair it.

2.2.2 Landscape as Social Learning

Our landscapes are suffering of a fast transformation over recent decades due to the effects of modernization and internationalization. Together with these changes, questions about identity of places, architecture, towns and more generally territories appear. When our ‘familiar’ landscapes start to transform rapidly, and as we are confronted with other cultures, we at the same time become aware of the mental and aesthetic patterns that have shaped them, of the relativity of our own relationship to the world (NUSSAUME and LAFFAGE, 2010). To estimate the components of our landscapes is to approach the relationship between society and its environment.

To the safeguard of landscapes it is important that people understand that their landscape reflects who they are and is the product of their social, environmental and economic interest and acts. The aim of a landscape approach is the acquisition of the specific cultural awareness of a place, an intellectual principle enabling, in a responsible way, a political and aesthetic action to express the quality we refer to as “landscape”, generally connected to the name of a place, a communicable value to protect, manage, and in some cases to reinvent (ZAGARI, 2010).

When people are in interaction with their environment, landscape changes also in a dynamic way, but since people have less functional relationships with the landscape and the global economy increasingly determines the fate of even remote landscapes, there is a growing urgency to reconnect local communities with their landscapes (PEDROLI and VALK, 2010). That is why it is so important to see the landscape as a participatory project. Due to the participative planning, communication about

landscape and environment issues can be brought outside the inner circle of experts, towards the population involved in planning decisions. People are increasingly interested in discussing plans, schemes and renderings (PALAZZO, 2010) related to alternative scenarios issued by the present state. Thus, the core of the problem is to raise social awareness by communicating and discussing opportunities and threats related to different scenarios and visions[23] of the state of the landscape.

Also to a successful implementation of the ELC intentions, the public engagement in the cause of landscape is a central focus. People have to be enabled, encouraged and supported on this. The enabling starts by ensuring that people have the rights to participate in the management processes and also to be encouraged to do it on the development of assessments of landscapes. Raising awareness and understanding of landscapes needs to be a continuous process, starting in schools, during college and professional degrees. Moreover, it is also necessary to be implemented in diverse social levels, that is at the individual, group, organizational and institutional level. Perceive processes of social culture in the long term that assist some players to better understand how to play a constructive role and to suggest ways to structure institutions, organizations or trades, can make more probable an effective learning. (STAGL, 2004, pg 264) Landscape culture requires an educational effort to provide proactive strategies and actions in order to produce awareness in society (FARINA, 2010).

The first step in caring for the landscape is to understand, or identify its character and this can be started by valuating it. “Valuation methods and assessment procedures should help to better integrate conservation in the social agenda, enhancing social justice and equity in the provision and management of cultural heritage“(Riganti and Nijkamp, 2004). The public participation in the valuation process can begin a process of social learning that transforms uncoordinated individual actions in collective actions which support and reflect the collective desires. Thus, citizen participation should increase public awareness and civic education of those who participate. By Social Learning it is intended:

[23] PALAZZO, 2010.

> The social learning refers to the process by which changes occur in the social condition, particularly changes in popular consciousness and the changing world in which individuals perceive their private interests related to the general interests of their fellow citizens. This is a product of individuals' learning how to solve common problems in a responsible manner towards both interests. (Webler et al., 1995 apud STAGL, 2004)

Bandura, 1977 (apud STAGL, 2004, p. 264), with his *Social Learning Theory* (SLT) stresses that people learn by watching and imitating others, as well as by their direct experience or through language and media. Under this view, individuals have an intermediate degree of individual autonomy. They are not totally conditioned by the environment, nor completely free to become whatever they want. Bandura's SLT recognizes that people learn from one another, via observation, imitation, and modelling.

According to Stagl (2004), the social learning takes place inside of the public participation process and outside of it. At the internal process, people do experience a very intense work and interactive learning. But the success of a policy choice also depends on its legitimacy seen by people. Within a participatory process, she argues that the social learning consists of several components that can be organized into three behavioural dimensions:

- cognitive learning and mutual understanding;
- learning behaviour, preferences of others and behavioural norms;
- culture of social needs.

Achieving mutual understanding is to develop an assessment of values and others' worldviews and the ability to judge what is right and what is wrong. In a participatory process it involves: the acquisition of information and description of interests and values of other people and other groups; reflection on our own personal interests; the ability to build on others' perspectives; the development of a sense of respect and responsibility from one to the others (regardless of how they may impact on our own interests and values). On the learning behaviour, preferences of others and behavioural norms it is included: understanding the underlying reasons for behaviours related to themselves and others, learn the consequences of such behaviours, learn to cooperate with others to solve common problems.

Understanding the social needs allows us to practice a holistic or integrated

approach, developing a sense of solidarity with the group (adaptation of collective interests and our own) and learn what can be done to a collective change.

In the exterior of the participation process, the first aspect of a social learning process is how the results are translated into policy changes and also by whom. The model of Hall (1993), is an attempt to understand the depth of this policy changes, and is divided into three orders:

1. the first-order change occurs when the instrument settings are changed in the light of experience and new knowledge, while the overall goals and instruments of policy remain the same;
2. the second-order change is when the instruments of policy as well as their settings are altered in response to past experience even though the overall goals of policy remain the same;
3. third-order change is the process which entailed simultaneous changes in all three components of policy: the instrument settings, the instruments themselves, and the hierarchy of goals behind policy. These changes in policy occur relatively rarely, but when they do occur, based on a reflection on past experience, reflect a very different process, marked by the radical changes in the overarching terms of policy discourse.

Following this political way of thinking, Hall (1993) compare “learning” and “social learning”:

> Learning is conventionally said to occur when individuals assimilate new information, including that based on past experience, and apply it to their subsequent actions. Therefore, we can define social learning as a deliberate attempt to adjust the goals or techniques of policy in response to past experience and new information. Learning is indicated when policy changes as the result of such a process.

The landscape planning requires making decision processes and choices about complex systems. Taking into account the interests of all stakeholders, the economic growth of the sector and environmental issues, planners are faced with the challenge of integrating conflicting viewpoints. In these circumstances, multidimensional evaluations, along with participatory processes, can help to structure the process of decision making. Within such a structure, the process should be understood as a "social learning process", where multidimensional evaluations can have a great potential in order to choose the policy instruments.

2.2.3 Landscape valuation

According to IPHAN (BRASIL, 2009), the concept of landscape is seen as cultural heritage and to economists it is also a public good. In order to be a pure public good, the good must have two properties: to be non-excludible and non-rival in consumption. By being non excludible, it means that it is technically infeasible to keep users from enjoying the good; and by being non-rival in consumption means that two different people can enjoy the public good at the same time without interfering with each other's enjoyment. Because these goods are not traded in market, the methods developed for valuing them are referred to collectively as non-market valuation techniques.

The non-market valuation methods provide information that can be of use when addressing policy issues related to cultural heritage. Some advantages of using these methods are[24] that:

- values estimated by using them can help inform decisions over the level of funding of cultural heritage, knowing that public values for cultural heritage goods can provide a strong argument in favour of public funding for those goods;
- public preferences can help when making decisions among cultural heritage goods. The information collected from the general public's preference over such decisions is a useful complement to expert judgement;
- they can show the possibilities and limitations of relying on contributions or access changes in supplying a good that generates values to a much broader set of people than just those few who choose to visit the good or donate to its preservation.

Economic good

According to Francesco Maragon (2010, p.101), the landscape can be seen as an economic good, as it satisfies a human need or want. For the EFTEC document (2005), the term 'economic good' applies to anything that generates flows of human wellbeing, for anyone and for whatever reason. But, as a pure public good and also an externality[25], landscape can neither have a price nor be managed by private citizens. As a positive externality its quality in a market economy would always be lower than the socially optimal level, so a government intervention is necessary to

[24] NAVRUD and READY, 2002.

[25] Providing the public good often also affects people outside the borders of the community that "owns" the good, and this is called externalities. They can be separated into positive and negative depending on good of bad impact resulted of the consumption of the good. All externalities are considered market failures, because you can not control or price it.

correct this market failure. In order to implement a policy on it, it is necessary first to identify the benefits deriving from landscape and estimate it using the preferences of all stakeholders involved. A correct approach to sustainability requires managing the landscape by creating a process able to control the economic, environmental, social and cultural aspects of landscape, in order to safeguard, but also to value it (MARAGON, 2010). Protection and management of landscapes (cultural landscapes) is a cultural problem. However, it is very much an economic and social as well as political problem (JOKILEHTO, 2010).

As an economic good, the landscape generates use and non-use values (or passive use value). Use value is defined as the maximum amount of money that people are willing to pay (WTP) to gain access to a site. However, a cultural heritage site might generate values even to those who do not visit the site. Non-use values include benefits that people enjoy because they know that the site is being preserved. These benefits might be motivated by a desire that the site be available for other to visit (altruistic values), that the site be preserved for future generations (bequest values), that the current non-visitor may decide to become a visitor in the future (option value), or simply that the site be preserved, even if no one ever actually visits it (existence values).

Cultural good

One reason for thinking that heritage assets deserve a different, 'non-standard' treatment is that they embody other notions of value besides economic value. For example, Throsby (2001) argues that cultural assets generate both economic value and cultural value:

> [a heritage project] does not involve a piece of ordinary economic capital for which an assessment of economic costs and benefits could be regarded as a sufficient appraisal. The heritage project is concerned with an item of cultural capital yielding both economic and cultural value. Thus an evaluation of net benefit streams in both economic and cultural terms will be required (p.77).

As emphasised on the EFTEC document, the quotation from Throsby above suggests that it must be possible to set out economic benefits and cultural values for heritage projects. Throsby even outlines a possible approach whereby a conventional cost-

benefit analysis is supplemented by what is in effect an expert assessment of the aesthetic and other values. Throsby speculates that it may even be possible to 'score' these values using cardinal scales, ascribing absolute magnitudes to the differences between option A and B or B and C, so that they can be compared. He also suggests that the experts could assign weights (measures of relative importance) for the different cultural values. Finally, EFTEC concludes that what he is in fact doing is a 'multiattribute analysis' or 'multicriteria analysis' (MCA), but not wanting to describe it as so.

Cultural value, in turn, is "multi-dimensional, unstable, contested, lacks a common unit of account, and may contain elements that cannot be easily expressed according to any quantitative or qualitative scale" (THROSBY, 2003). The characteristics of cultural goods which give rise to their cultural value might include their aesthetic properties, their spiritual significance, their role as purveyors of symbolic meaning, their historic importance, their significance in influencing artistic trends, their authenticity, their integrity, their uniqueness… So, to approach the values of a heritage, it is needed instead of an economic or cultural separated approach, one that estimates cultural and economic values together. As a cultural good, the heritage has cultural values how suggests Throsby[26]:

- aesthetic value: beauty, harmony;
- spiritual value: understanding, enlightenment, insight;
- social value: connection with others, a sense of identity;
- historical value: connection with the past;
- symbolic value: objects as repositories or conveyors of meaning;
- authenticity value: a site that is real, unique; integrity.

In addition to Throsby, Riganti and Nijkamp (2004) foster the necessity of a valuation process based in a socio-economic analysis, because, besides being an economic good, the cultural heritage is also a social and irreplaceable good, in the sense that, once lost, the original cannot be recreated.

The strategy presented by Brown (2006) at Kangaroo Island, South Australia is an example which used survey research techniques that spatially locate public perceived landscape values (economic, environmental, cultural and social values) and development preferences. The spatial study was carried by asking residents to map

[26] THROSBY, 2002.

landscape values and places perceived to be appropriate and inappropriate for both residential and tourism development. The preferences zones were mapped in order to be overlaid with existing zoning plans to assess the consistency of current zoning designations or to act as conservation or development data for land use planning. As a matter of justification of values, the places values that composed this analysis were:

- Aesthetic/scenic – for the attractive scenery, sights, smells or sounds;
- Economic – for economic benefits such as agriculture, tourism or commercial activity;
- Recreation – they provide outdoor recreation activities opportunities;
- Life sustaining – they help produce, preserve and renew air, soil and water;
- Learning (knowledge) – we can use them to learn about the environment;
- Biological diversity – they provide for a variety of wildlife, marine life and plants;
- Spiritual – they are spiritually special to me;
- Intrinsic – their existence, no matter what I or others think about them or how we use them;
- Heritage – they have natural and human history;
- Future – they allow future generations to know and experience them as they are now;
- Therapeutic – they make people feel better, physically and/or mentally;
- Wilderness – they are wild.

Landscape approach

As a suggestion of how to sustain the approach to landscape planning, Antrop and Eelvelde (2010, p.41) indicate some steps:

- carry out a research on landscape as a resource, from the perspective of providing goods and services (functions) to environment and society, including the economic dimension;
- conduct studies on landscape perception and public preference;
- generate, test and evaluate new methods of valuating landscape qualities in a multifunctional and transdisciplinary context;
- initiate communication between stakeholders and policy makers in order to make it clear that values are always assigned by people in a specific context, meaning making choices and thus taking responsibilities. This also means that values can change over time and context and so it is also necessary to learn how to handle change as well.

In a time where new tools and methodologies capable to account for social differences and preferences are needed, the dialogue and participation to the city governance process are the major promising factor in minimising conflicts. Understanding the public perception of cities, their heritage and their transformations seems a crucial element to achieve social cohesion (RIGANTI and NIJKAMP, 2004).

Therefore,

> (…) it is important to develop new cultural heritage management tools that may account for urban changes and help decision makers to develop appropriate policies, accounting for people's preferences, considering minority and disadvantaged groups and their interests. Within this framework, valuation methods acquire specific relevance. Economic valuation of non-market goods has represented an important step towards incorporating economic considerations in decision-making about natural resources, environmental quality, and the quality of life in urban areas (RIGANTI and NIJKAMP, 2004).

Multidimensional evaluation

The nature of the intangible cultural heritage has highlighted the need for appropriate assessment methods, which are capable of responding to the specificity of these goods, such as "their long life, their external benefits, their inexistence on the market, their historical identity, their versatility of use"[27]. The three classes of methods to assess cultural heritage (RIGANTI and NIJKAMP, 2004b; LAZRAK et al., 2009) are:

- Revealed preference methods (hedonic pricing, travel cost) - aims to determine the costs and benefits of a public project focused on market outcomes;
- Stated preference methods (contingent valuation, choice modelling/ conjoint analysis) - people give their willingness to pay for a change in the supply of the asset being valued. Particularly suitable for non-use values;
- Multicriteria analysis - is able to incorporate the economic and non economic, quantitative and qualitative aspects of the good. Can reflect the political context of complex decision-making processes, including various alternatives and interactive evaluations.

The estimation of the economic value of cultural heritage conservation has increasingly been recognized as a fundamental part of cultural policy. As Mourato and Mazzanti (2002) argue,

> (…) for the future, the task is to develop and establish a comprehensive multitool and multidisciplinary framework for the measurement of cultural values, as a response to the complex, multifaceted, and multivalue nature of cultural heritage. (…) economic instruments should be used as complementary means for socioeconomic analysis, together with a range of other tools from other disciplines. Measuring cultural benefits/values in this context

[27] RIGANTI and NIJKAMP, 2004b.

> should therefore be the output of a multidisciplinary teamwork that includes not only economists and conservation specialists but also other social scientists.

The landscape management is a decision-making process that must also explicitly consider the variable valuation of the population, since the ELC considers it as its official agent of perception. Decisions related to the landscape are complex, seek for tangible and intangible values, involve quantitative and qualitative aspects and are surrounded by conflicting interests. All this matters difficult the projectual process and require the use of auxiliary instruments for the selection of alternative policies, programs and projects on city development. In a way to monitor the city growth respecting the development in a sustainable way, it is becoming necessary to maintain, but also "to produce new values and wealth through creative actions. (…) [The sustainable strategy is characterized by] the capacity to manage growing urban complexity and solve conflicts with new synthesis capacity, integrating multiple elements and components, generally considered in conflicts/contradiction, identifying new connections, synergies, and networks" (FUSCO GIRARD, 2011).

Creativity in cities (FUSCO GIRARD, 2011; LAZRAK et al., 2009) concerns new technologies and innovative networks among public, private and civic sectors, and it happens when people manage to combine/integrate old values into a modern vision, resulting in a new way of living the city. As sustained by Fusco Girard (2011), the creative city is the one that is able to successfully face economic, environmental and social problems, improving the choices of governance/management/planning with the result of reproducing order also in conditions of turbulent change, preserving and improving the quality of life of its inhabitants. The mentioned author actually considers that the quality of life improvement is an indicator of the success for undertaking creative actions.

For Lazrak et al. (2009), the concept of the 'creative city' means a new mantra for urban architecture and urban planning in which the urban way of life forms a breeding place for (inter)cultural interaction of residents, businessmen and visitors who engage themselves in shaping a place. The urban creativity movement would ask for a joint effort from all actors and stakeholders involved (businessmen, planners, economists, artists, environmentalists, NGOs, policy-makers) in order to assemble original concepts that could shape a new creative and vital urban society.

More specifically, following the descriptions given by the European Creative Cities Project[28], the creative city aims to:

- improve framework conditions and to initialize creative industry clusters;
- promote entrepreneurial skills and competitiveness of creative industries, creating positive climate attracting different investments and exchanging know how;
- improve its external visibility through transnational marketing and networking;
- exploit potentials in the development of decayed urban areas through the allocation of creative industries in those city districts.

Apart from the promotion of creative clusters in city, Fusco Girard (2011) is focused on the role of the creativity in urban governance, toward a new ecological economic base, where evaluation processes are proposed as fundamental tools in managing the transition to the eco-city. Therefore, Fusco Girard sustain that new evaluation approaches are required, because a creative city promotes the culture of evaluation as a general rule to deduce priorities in its actions. These evaluations, realised by all actors on the urban scene in order to understand the impacts of actions, projects or plans, are an important process to the city, seen as the expression not only of expert knowledge but also as interpretation by its inhabitants.

Some characteristics of evaluation processes[29]:

- is a fundamental process for an innovative governance;
- means interpreting a general context, foreseeing impacts of new ideas before using resources, land, spaces, etc., and comparing alternatives with some anchor elements;
- is necessary for decision-making processes where there is scarcity of resources and energies to improve governance, urban planning, design and management;
- make possible to deduce priorities, alternatives, and consider multiple, multidimensional and conflicting criteria/ objectives;
- may suggest how to improve experiences, whether to transfer them into ordinary practices or totally change them;
- aims to assess existing values attached by the population with the purpose to understand, to preserve and to manage the heritage;
- aims to contribute to the "valorization" of the capital, adding new value to existing ones and becoming a critical step in the management of cultural heritage.

[28] Available at: http://www.creativecitiesproject.eu/en/objectives.shtml
[29] According to RIGANTI and NIJKAMP, 2004b and FUSCO GIRARD, 2011.

Thus, Fusco Girard (2011, p. 134) considers that the evaluation process can become the engine of creativity in the city, being an iterative process of decision making updated through continuous feedback. The creative city would collect data, information and knowledge that should be structured in a systematic way, to enable comprehensive and complex assessments to aid in urban planning. Through this integrated assessment, it would be possible to identify a ranking of various alternatives, considering multidimensional and conflicting criteria.

The evaluation of the creative potential of a city is increasingly required for a city/region development so that the areas of strength and the ones of weakness can be properly characterized and then, managed. This project requires new tools like multicriteria evaluation procedures that go beyond economic and financial goals and are able to understand all the values in question and the distribution of net benefits between all actors and groups (FUSCO GIRARD, 2011).

2.2.4 Landscape as a Participatory Process

The necessity of introducing public participation into planning and management projects has been reinforced not only by governments[30] and associations but also by several international conventions (LOURES and CRAWFORD, 2008). Examples include Rio Declaration on Environment and Development (1992); the Aarhus Convention (1998); and the European Landscape Convention (2000). Furthermore, the recognition that the economic and social dimensions cannot be dissociated from the environmental and cultural ones (LOURES and CRAWFORD, 2008), contributed to increase the relevance of public participation.

The emphasis on public participation in the European Landscape Convention (ELC) is closely related to maintenance of the diversity of landscapes as an important common value and to recognition of the usefulness of diverse approaches to landscape protection, management and planning (JONES, 2010) rather than a single universal approach. According to the ELC, the landscape policy is defined as “an expression by the competent public authorities of general principles, strategies and guidelines that permit the taking of specific measures aimed at the protection,

[30] In Brazil, the law which established the participatory process on Urban Planning was the Statute of the City, approved in 2001.

management and planning of landscapes". So, it is a public authority's competence to formulate the landscape objectives, including the aspirations of the public with regard to the landscape of their surroundings. Thus, should be established procedures for the public participation with interest in the definition and assessment of their landscape.

> Landscapes policies need to take into account the perception of people, by involving them in the decision-making process and in the planning procedure. Encouraging public participation in the project is an essential condition for getting people to accept and share the decisions regarding their landscapes, to define the limits of social equity and justify the acquisition of further economic resources. (ZAGARI, 2010, p. 17)

Some authors like Sherry Arstein's (1969), Desmond Connor (1988), Jules Pretty (1995) and Marcelo Souza (2011) have developed a ladder of participation, all of them with the aim of assess the degree of genuine participation achieved in participatory procedures. Another author concern with public participation processes was Jurgen Habermas, who provided a systematic approach to the issue. He argues that the rational way to make collective decisions is through fair and competent discourse (DIETZ, 1995).

There are a number of obstacles to a successful transition to a more participatory decision-making process, ranging from low indices of trust in government, to administrative and policy driven constraints and to the choice of the appropriate and most effective methods of public engagement. Another aspect that is considered to be indispensable in any project with an objective to serve the public is transparency. As quoted by Faga (2006 apud Loures and Crawford, 2008) "Transparency is an essential part of any fair process," and it is also included characteristic such as openness and honesty.

Loures and Crawford (2008) systematized some reasons why citizens should have the opportunity to participate in planning:

- Public involvement is a significant form of enforcing land use laws, once citizens are informed about planning laws and with access to the planning process, they can cooperate so that the laws are applied properly;
- The public should be involved in the collection and production of the information needed to develop, implement and maintain a comprehensive plan. Professional planners and local officials should collect and use comments and ideas from those who know the community best: people who

live and work there;
- Public participation educates citizens about planning and land use, contributing to the creation of an informed community, which in turn leads to better planning, giving sense of ownership of the plan to the members of the community;
- It fosters cooperation among citizens and between them and their government, leading to fewer conflicts and less litigation, reducing costs for re-planning and conflict resolution and leading to a higher acceptance of results.

Citizen Involvement in landscape assessment aims to understand landscape, that is to say, to comprehend the image and perception a community gets hold of the landscape, to raise public awareness among the various participants about the construction of landscape and also to incorporate their demands in the projects. The participation in landscape reclamation and management can take several different forms: Public meetings, workshops, citizen juries, focus groups, internet, mail interviews, face to face interviews, etc. but, following the thinking of Loures and Crawford (2008), public participation is mostly accomplished through public workshops, where the different perspectives and possibilities are presented and discussed: “For environmental policies to be effective and legitimate, we need to involve the people who are or will be affected by the outcomes of these policies. There is no technocratic solution to this problem. Without public involvement, environmental policies are doomed to fail” (RENN, 1995).

To provide examples of participatory processes, it is presented the program of Flanders[31], which the problems to fulfil the measures of the ELC were: first, the definition of landscape entities and the formulation of the landscape qualities and values; and second, the determination of the stakeholders, their time schedule and who is the public to be involved.

According to the two projects presented:

- the first one exposed a spatial planning project that intended to designate their heritage landscapes. The project was based on an inventory of the Landscape Atlas in Flanders, which scope was to manage the heritage landscapes. The involvement of the population remained mainly indirect or with little influence, because the analysis were done by external experts judgements;
- the second experience consisted in a project to protect some special vegetation. The participation of landowners was more direct but it was not a

[31] Work presented by Eetvelde, 2011.

positive experience, because of the indifference of the authorities and the misinformation of the landowners.

Michael Jones was also involved in a comparative assessment[32] of the adequacy of public participation in landscape characterization assessments in England, Norway, Slovakia and Malta. In this work, three important conclusions in the functioning of public participation processes were drawn:

1. there is need to incorporate better public perceptions of landscape, since landscape characterization is based disproportionately on expert opinion;
2. in view of shortcomings found in the participatory mechanisms used, there is need to develop more effective methods of public engagement, tailored to different local contexts;
3. there is need for more explicit assessment of public participation procedures, introducing a stronger element of rigour.

To help on landscape assessment, the Ecovast (European Council for the Village and Small Town) council developed a guide, claiming that the citizens themselves can start characterizing the landscape. When this process is done by experts, it results in a high cost to the government, but Ecovast (2006) sustains that this job can be done by the citizens themselves, consulting and involving people who live in each landscape. The purpose of this guide (characterising a bottom-up approach) is to help them if they wish to do so. But people's responsibility with the landscape is not just on its assessment, we all have to continuously care for landscape. Our own actions can change it, for good or ill, ex.: by planting or by cutting down a tree; by painting, or neglecting, our houses; by taking an active interest in proposed changes to the landscape, such as the building of a new road or the design of a new housing estate (Ecovast, 2006).

Appropriate consultation of the public is essential already from the beginning, it is a fundamental part of the landscape assessment process, establishing the value of landscape and contributing to the design and implementation phases (FONTANARI, 2010, pg 36). A good experimented form of assessment is the experience realized by the Observatories of the Landscape, the first being held in the Region of Catalonia, Spain. They use the participatory process to create a database of landscapes that are evaluated and catalogued. Consultation takes a variety of forms and fulfils many purposes at different stages in the assessment process and it is through a constant

[32] Study not yet published but commented on Jones, 2011.

flow of inquiries, debates and other communication tools that a consciousness of landscape is built. It is important to encourage its growth, involving a wide range of organisations, individuals, local communities and authorities, interest groups and professionals.

Public participation may encourage awareness of "belonging to" a community, sharing common culture and creating identity. It improves community consciousness and responsibility while fostering a "collective sense" (LOURES and CRAWFORD, 2008). These are "feelings" of considerable importance in the development of new, satisfying and concerted projects.

Examples of public representation of landscape

In a previous study conducted by the author in the city of Florianopolis (2011), the residents were asked to draw a representation of their daily lives landscapes. In some examples presented below[33] (Figure 5), it was noticed the attention that residents give to the environment in which they live. By viewing the drawings of the population, it may be noted that are represented more than just the topic presented in the PB of Porto Alegre. People represent their concerns about Housing, Paving, Circulation and Transportation, Recreation Areas, Sports and Leisure, Public Lighting, Urban Mobility and Accessibility, but they also represent their perception of the scale of constructions and the use of the territory.

In the population's drawings stands out the presence of:

- urban landmarks such as the 'Hercilio Luz' bridge;
- activities on the outside, as well as traditions and emotions;
- green areas;
- the integration of traditional and new buildings into the natural environment;
- different types of transport;
- different heights of buildings inserted in different urban contexts; and also
- hills, with or without the presence of occupation.

A depth and interpretive evaluation becomes necessary to complement the analysis of mental maps already developed by Kevin Lynch (1960), where urban elements are identified as a form of urban legibility.

[33] A bigger selection of the most representative landscape drawing is compiled in Appendix 1

Figure 5 - Examples of landscape representations made by residents

2.3 Assessment Methods

2.3.1 Research Paradigms

Before listing some methods of approaching landscape, I would like to stress the paradigms in which these methods are inserted. Consulting Taylor, Zube and Sell (1987), the paradigms described are:

The Expert Paradigm

The expert paradigm provides a description of the landscape from the viewpoint of experts, like designers, planners or managers. It is claimed that only professionals are capable of making value judgements and that, although capable of being educated, the general public has no intrinsic capacity for judging landscape value. Descriptions are derived from artistic or ecological principles and tend to include attributes of the landscape that are within the technical training of the respect live professions and that can be manipulated through design, planning, and management decisions. The landscape properties that are important to expert assessments are those which experts have been trained to see, either through principles of art and design (such as form, balance, contrast, or points of focus), or through principles of ecology and resource management (such as species, diversity, quality of timber, or lack of evidence of humans). It is generally assumed that at least some training in art or ecology is necessary for a person to appreciate landscape aesthetics fully, and there is some caution about incorporating the views of the general public, who may lack such training.

The Psychophysical Paradigm

The evaluation of landscape quality, under the psychophysical paradigm, is done by the general public or by special interest groups, instead of experts. This approach assumes that if one wishes to identify or design landscapes of aesthetic appeal for the public, the most direct way is to test samples with the general public to learn what they find appealing.

The psychophysical paradigm provides a means of predicting which landscape dimensions will be associated with public perceptions of scenic beauty. These associations are derived from ratings done by the general public obtained from

controlled, experimental manipulations of landscape views, landscape surrogates or simulations. The landscape variables, as in the expert paradigm, are usually selected with reference to specific planning or management needs such as species or size composition of forest cover or the areal amount of surface water, forest vegetation, and meadow within a specified landscape.

An example of the application of psychophysical method to landscape assessment is based on ratings of landscape photographs, which are then measured in terms of qualities foresters would use in forest management. Rank-order preferences were determined simply by asking respondents to place the photographs in order from the most to the least preferred scenes.

The Cognitive Paradigm

The cognitive paradigm provides an understanding of people's judgments of scenic beauty. It is similar to the psychophysical paradigm as it is also based on public responses for statistical analysis. It differs, however, as it does not usually emphasize physical landscape attributes or variables that are directly manipulatable by designers, planners, and managers. Rather, studies within this paradigm tend to search for meanings associated with landscapes. The qualities emphasized as important, such as complexity, mystery, degree of naturalness, and prospects and refuges, are decidedly influenced by human cognitive processing.

Much of the cognitive work has been especially concerned with verbal evaluations of landscapes, using techniques as survey questions, adjective checklists, or semantic differentials. The simplest form of verbal response tool is the adjective checklist. Here a list of adjectives potentially useful for describing landscapes is compiled, and the respondents check all those terms which apply to the specific landscape under examination.

The Experiential Paradigm

In the experiential paradigm the focus of attention is not on human or landscape components as independent of one another, but on the experience of their interaction. The experiential paradigm provides descriptions of the processes of interaction between and among individuals, groups, and landscapes. The unit of analysis for the

experiential is the human-landscape interaction, unlike the cognitive, which focuses on the human, or the expert and psychophysical, which emphasize landscape features. Also, unlike the other approaches, experiential research emphasizes the importance of varying modes of experience, including the nature of activity, the degree of awareness of the landscape, the social and cultural context, and the purposes to be achieved. It also recognizes that there is a wider range of landscape values than merely the aesthetic, and seeks to place these values in balance.

A useful way to explain the experiential approach would be as it relates to the components of our model. Humans are seen as active participants in the landscape, and human qualities such as intentions, needs, knowledge, abilities, and culture, affect judgments. The landscape is the landscape as experienced, whether it is the setting for everyday activities, scenic wonder, or creative inspiration. The landscape gains meaning and value through the situations in which it is experienced.

Combining Paradigms

Each one of the previously discussed paradigms takes an approach to landscape assessment. Each differs methodologically, substantively and with respect to emphasis on applications or theory. However, each also strives to measure or learn something about landscape aesthetics and other values important to people. Expert and psychophysical paradigms emphasize landscape management applications, while cognitive and experiential seek to understand the importance of valued landscapes to people.

Cottet, et. al. (2010, p. 60) adds that the psychophysical paradigm, together with the cognitive paradigm results in a wider category called experimental paradigm. They consider that there is a dependency between the landscape attributes and the individual preferences, characteristic that allow us to take into account the aspirations of the public when the subject is landscape.

It is also suggested by Taylor et al. (1987, p. 389), that paradigms may be more useful at different stages of a research project. An experiential approach, exploring the experience of landscape, could be better spent at the beginning of the study to provide guidelines for research. Psychophysical and cognitive techniques can then be

used to isolate human values and features of the landscape in representative landscapes. Finally, armed with this knowledge, the experts could work and provide detailed maps of landscape value. Thus, the paradigms can complement each other, creating a useful program to manage landscape and publicly defensible on both theoretical and methodological viewpoints.

Panagopoulos (2010, p. 77) sustain that landscape studies may help to assess adverse visual impacts of land development and suggest mitigation measures and design alternatives. So, public participation could help planners and other professionals involved in the design of sustainable landscapes. It could also enrich the decision-making process and help governmental officials to take the appropriate decision. He also suggests that the incorporation of aesthetic concepts may help to minimize the visual impact of development projects in landscapes, especially now when government has the responsibility to work together with the population in the development of urban plans.

2.3.2 Evaluation Methods

As previously mentioned, some examples of the considered classes of methods to assess cultural heritage are:

- Revealed preference methods (travel cost, hedonic pricing);
- Stated preference methods (contingent valuation, choice modelling/ conjoint analysis);
- Multicriteria analysis.

Revealed preference methods

The Revealed preference method, as a monetary evaluation, aims to determine the costs and benefits of a public project based on market outcomes. This evaluation can determine the monetary value of a good through the data that are obtained from the past behaviour of consumers. It is assumed that the value of a good or a place is determined by the specific feature of the place, and a context-dependent, as the conditions of the environment, accessibility, etc. (RIGANTI and NIJKAMP, 2004b). There are a number of ways to pick-up the clues which real market transactions give about the economic value of cultural heritage (HANLEY et. al, 2001 and Individual Committee Members, 2009.). One is the travel cost people are prepared to pay to visit particular cultural locations and another is the price actors are willing to pay for

real estate objects that can be considered as cultural heritage or are located in the proximity of such objects. The travel cost and hedonic price methods use these two pieces of information to investigate the willingness to pay.

Travel cost method

To visiting a cultural heritage site means that we have to travel up to this place. The associated travel costs indicate the price for the visit and indicate the consumer's willingness to pay for the cultural heritage good. The costs of visiting the cultural heritage good do not only refer to monetary outlays but also to the time spent at the site and all other costs which stem from that visit.

Some data that may hinder the travel cost methods to know the actual costs used in the consumption of cultural goods are the multipurpose trips and the opportunity costs of a visitor. Thirdly, with travel cost methods substitutes of cultural heritage can cause disturbances and provide difficulties to address the direct effect of cultural heritage.

Hedonic price method

Contrary to the rather direct valuation by the travel cost method, the hedonic price method measures the value of cultural heritage in an indirect way. The hedonic price method is based on the observation of the values that surround a specific good.

An important problem for hedonic price analyses is that, in principle, there can be many variables that influence the value of real estate. In a conventional cross section, limited information about potentially relevant characteristics implies the risk of omitted variable bias. On the other hand, there is the possibility that some other determinants of value are strongly correlated with the variable of interest which makes it difficult to pin down its effect.

Stated preference methods

The core concept of these economic evaluation methods is the marginal willingness to pay of a consumer for a particular commodity. For market goods, the marginal willingness to pay is equal to their price (LAZRAK, 2009). However, many valuable commodities are not traded on market. Stated preference valuation techniques makes

use of questionnaires to directly approach potential customers and try to discover what they are willing to pay (WTP) or are willing to accept (WTA) about a good, a service or an improvement of a good. These methods have shown to be particularly suited for the elicitation of non-use value and the interviewees are usually confronted with questions on option values, existence values, bequest values and the like. It is useful for the realization of a comparative analysis of trade-offs between different values of the landscape, including the economics.

The strength of stated preference techniques is that they can be applied in circumstances in which consumers do not reveal their preferences in other ways. However, this strength is also a weakness, because the hypothetical character of the statements made by consumers raises questions about the reliability to investigate the willingness to pay of consumers in real cases.

The Stated Preference Method is basically divided into 2 categories (PEARCE et al.,2002):

Contingent Valuation:

The contingent valuation method is a widely used nonmarket valuation method especially in the areas of environmental cost–benefit analysis and environmental impact assessment. They form an important sub-class of preference elicitation methods and focus directly on willingness to pay by using open ended questions.

Contingent valuation is based on understanding what people would be willing to pay for a particular good or service. The techniques are based on constructing a hypothetical market for the non-market goods to be valued and then attaching prices to them by asking people directly about their willingness to pay or willingness to accept compensation for it.

Multi-attribute Valuation: Choice Modelling (choice-based) / Conjoint Analysis (preference-based)

This technique is especially appropriate if a policy maker seeks to understand the value of particular or individual characteristics of a good and how that characteristic relates to others. With the Multi-attribute Valuation, respondents are presented with various alternative descriptions of a good, differentiated by their attributes and levels

and are asked to rank the various alternatives, to rate them or to choose their most preferred. By including price/cost as one of the attributes of the good, WTP can be indirectly ascertained from people's rankings, ratings or choices (Castellò, 2003). So, Individuals are not directly asked for their willingness to pay, but rather their valuations are derived from their responses or choice of options. The options can include a financial value, as a price or taxation level, to produce a monetised valuation of individual's preferences for particular attributes or characteristics of a good.

Although choice experiments extract the willingness to pay in a more indirect way than contingent valuation methods, their focus on concrete choices is generally regarded as an advantage, because it reduces the risk that respondents indicate a willingness to pay on the basis of a superficial impression of the value of the good in question (LAZRAK, 2009). The various forms of this multi-atribute valuation are: choice experiments, contingent ranking, paired comparisons and contingent rating.

Multicriteria analysis:

Another strand of the project evaluation literature focuses on methods which do not require a monetary translation of project impacts, but are able to capture in principle all relevant intangible effects (LAZRAK, 2009). These methods are usually captured under the heading of multicriteria analysis. Multicriteria analysis (MCA) offers an opportunity to assess and weight qualitative and quantitative effects. With the broad range of value-generating aspects of cultural heritage, multicriteria analysis makes it possible to deal with categorical information in economic evaluation and to address policy tradeoffs by assigning weight to the different attributes of cultural heritage.

Multicriteria analysis or multiobjective decision making is a type of decision analysis tool that is particularly applicable to cases where a single-criterion approach falls short, especially where significant environmental and social impacts cannot be assigned with monetary values. MCA allows decision makers to include a full range of social, environmental, technical, economic, and financial criteria. The multicriteria methods can be used to organize the general information and combine it in a structured way with the social preferences or as part of a process for open discussions, thus favouring the decision of different options. This procedure is

conceptualized as part of a process of social learning (STAGL, 2004)

Multicriteria analysis deals essentially with complex decisions that involve a large amount of information, a number of alternative outcomes and criteria to assess these outcomes. The outputs of this method are a single most preferred option, ranked options, short list of options for further investigation or characterization of acceptable or unacceptable alternatives. Performing a MCA foresees the understanding and agreement by stakeholders in the definition of the weights of criteria and in obtaining scores. This feature can become a challenge when it comes to a participatory assessment of the landscape open to a wide diversity of population.

The following are considered to be key features of MCA (CLG, 2009, p. 20):

- MCA establishes preferences between options (alternatives) by reference to an explicit objective or set of objectives for which measurable criteria have been established to assess the extent to which the objective (or goal) has been achieved; and
- MCA emphasizes the judgement of a team. This may be in relation to the objective or objectives, the estimation of the relative weights for performance criteria and the contribution of each option to achieving the objective.

MCA has important advantages over informal judgement that is unsupported by analysis. These advantages include the following (CLG, 2009, p. 21):

- MCA is an open, transparent and explicit process;
- The choice of objective or objectives and criteria used by the decision-making group are open to analysis and to be changed, if it is necessary;
- Scores and weights are explicit and used according to established techniques;
- Scores and weights can be cross-referenced to other sources of information on relative values and can provide an audit trail;
- MCA can provide an important means of communication, within the decision making body and between that body and the wider community.

In the application of numerical analysis to a performance matrix, MCA techniques commonly apply scoring and weighting in two stages (CLG, 2009, p. 22):

- *Scoring*: In this stage the expected consequences of each ranking are assigned a numerical score on the strength of a preference scale for each option for each criterion. The more preferred option scores higher on the scale and the less preferred lower. Intermediate values represent a constant linear expression.
- *Weighting*: The assignment of numerical weights to define the relative scores for each criterion with respect to the objectives or overall objective of the exercise occurs during weighting. Relative scores will then be adjusted on the preference scale.

Some MCA approaches (CLG, 2009):

- Direct analysis of the performance matrix;
- Preference Elicitation;
- Multi-attribute utility theory;
- Linear additive models;
- Outranking methods;
- Analytic Hierarchy Process.

3 Case study – City of Florianopolis

3.1 Physical, economic and social aspects:

The city under study is located in the southern region of Brazil, being the capital of the state of Santa Catarina (Figure 6). The municipality of Florianópolis comprises the entire island of Santa Catarina, plus the *Estreito*'s sub-district (12.10 km^2 in mainland, totalling 436.5 km^2 of territory) (Florianópolis, 2008). It's island portion occupies an area of 424.4 km^2 in elongated north-south parallel to the mainland (54 km long and 18 km at its widest). The Santa Catarina Island is located between 27° 10 'and 27° 50' south latitude and 48° 20 'and 48° 35' west longitude. Its border measures 172 km, with very rough outline, consisting of beaches, bays, coves, plus several adjacent islets.

Figure 6 - Location of Florianópolis (Brazil, South Region, State of Santa Catarina)
Source: Image created from maps of Wikipedia [34]

By its geographical configuration, the insular portion is classified as a continental island, being separated from the mainland by the north and south bays, forming a large estuary environment. Still coexist on the island, rainforest ecosystems, coastal vegetation of beaches and dunes, mangroves, wetlands, forests of slopes, headland, rocky shores and sandy ridges that created the two largest lakes of the Island: the Lagoa da Conceição (brackish water) and Lagoa do Peri (fresh water).

Figure 7 -Santa Catarina Island
Source : Portal da Ilha [35]

[34] Original images available at: <www.wikipedia.org>. Accessed on October, 2012.

This diversity of coastal environments provides to Florianópolis more than a hundred beaches (considering the island and the mainland) and comprises an archipelago of about 36 islands. However, as confirms Morari (2010), in the last thirty years this coastal system has been fragilized due to occupational expansion, which has caused impacts and has endangered this natural heritage, particularly through the development of seaside resort tourism.

Florianópolis, whose territory is composed of approximately 50% of permanent preservation areas (as a result of federal, state and municipal environmental laws), suffers constantly irregular occupations, which trigger many problems both in environmental and in social and economic fields. The current situation of the study area, both at land occupation and population growth, is due to a strong momentum of urban expansion in the last decades, which led to a new physical profile of the study area and also the appreciation of the soil and its speculation, bringing changes in the characteristics of the formal standards and social occupation.

According to IBGE, Demographic Census 2010, the population of Florianópolis is formed by urban population basically: of its 421.240 inhabitants, 405.286 were living in urban areas, representing 96,2%, and only 15.954 were living in rural areas. The city's economy is concentrated in the tertiary sector, being the only capital of the South and Southeast Region that is not industrialized and is directed to the provision of services, trade, tourism and construction (MORARI, 2010).

Years	00-04	05-09	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99
Men	12883	13669	15091	17412	17403	15010	13413	13665	11799	10067	7789	5514	4262	2802	2311	1317	883	293	90	20
Women	12547	13169	14362	17457	17690	15342	14462	15120	13291	11458	8705	6154	5321	3890	3202	2205	1160	693	222	110

Table 5 - Age of Resident Population
Source: Demographic Census, IBGE, 2000.

According to values consulted in Table 6, we can understand the provenance of the

[35] Original image available at: < http://portaldailha.com.br/turismo>. Accessed on May, 2013.

municipal income of Florianopolis. Unquestionably it is a city based on the provision of services (86.6% of the economy), while values in the same industry for the state of Santa Catarina and Brazil are still high, but not with such predominance.

Economy	Agropecuaria		Industry		Services	
Florianópolis	31.756	0,4%	914.040	13%	6.134.479	86,6%
Santa Catarina	6.225.443	8,3%	25.317.920	34%	43.017.306	57,7%
Brazil	105.163.000	5,7%	539.315.998	29,3%	1.197.774.001	65%

Table 6 - Comparative study on the percentage of Gross Domestic Product in the City - State - Country (Gross value added at current prices - thousand reais)
Source: IBGE, 2009.

According to the Brazilian Superior Electoral Court (BRAZIL, 2012), the population of Florianopolis with the regularized situation and able to vote result of a total of 322.245 inhabitants. In the following table (Table 7) we can confirm the proportion of voters by age.

	16	17	18-20	21-24	25-34	35-44	45-59	60-69	70-79	79-	total
Female	315	624	8229	13625	39737	33174	44816	17345	7538	4918	170321
Male	230	600	7944	13060	37596	30590	38063	14351	6212	3278	151924

Table 7 - Total voters in Florianópolis by age and genre
Source: Superior Electoral Court - BRAZIL, 2012.

3.2 The city growth and its impact on the landscape:

Entering in the twentieth century, the urban development process of Florianópolis resulted in profound changes in the physiognomy of the city, as well as the way of life of its population. At this time is built the first connection between the island and the mainland, the 'Hercílio Luz' bridge (1922-26), a work that closes a period of favorable economic development. The construction of the bridge changed the hierarchy of the central island road system, facilitated the entry of goods and reduced the transit of small sailing vessels. The central region of the island, which once communicated with the mainland portion of the city by rafts and ferry, in 1926 changed its commercial and human panorama, especially by the waterfront. By modifying the access, the bridge facilitated locomotion, and later, increased trade and the development of villages by the countryside.

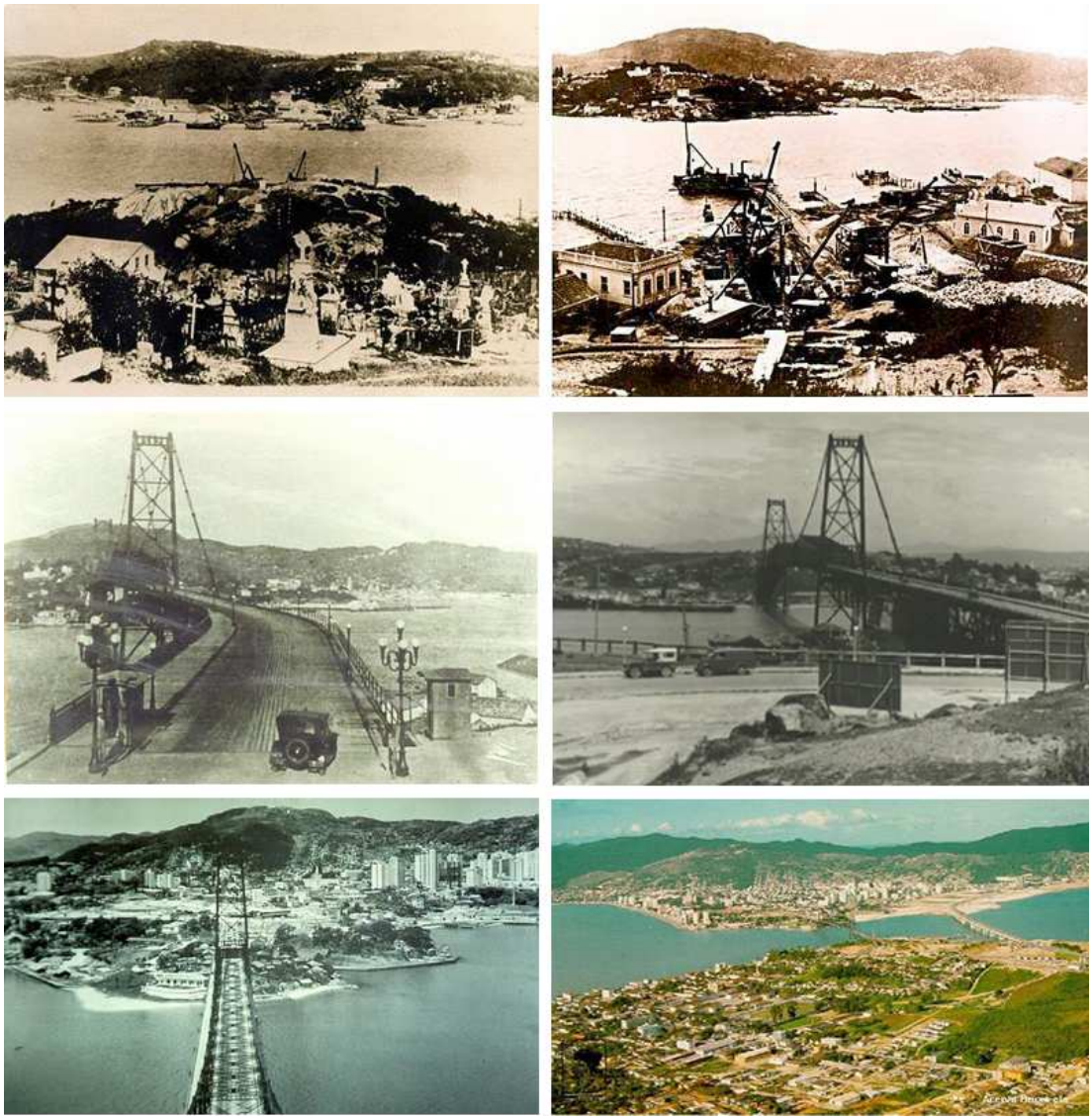

Figure 8 - Photos of Florianopolis - The construction of the bridge (1922) / Bridge Hercilio Luz (1930s and 1940s) / Panoramica from the city center (1950s and 1970s)
Source: SILVA E., 2012

Florianópolis until the mid-'60s was described as a quiet and provincial town. But, in the following decades, the city has undergone significant changes. The 60s and 70s were marked by intense growth of the city and municipal interest in occupying the coastal areas, with significant aggravation of the problems of infrastructure. From the 60s the central area begins to grow vertically and the occupation of slopes has become increasingly pronounced due to the expulsion of the low income population of the, increasingly valued, flat and central areas.

From the 70's onwards, the demographic structure of the capital has changed due to rural exodus, immigration and intensified flow of tourists. The encouragement of the

tourism industry, associated with the formation of seaside resorts and civil construction, has produced complex consequences. It is during this period that starts its largest real estate expansion, a fact that continues until the present day. The main modifications in the city were the construction of two new bridges, Colombo Salles (1975) and Pedro Ivo Campos (1992), the landfill of six square kilometers of the South Bay (70s) and the landfill of North Bay (80s) (see landfill areas in Figure 9).

To better characterize the occupation held on the central polygon of Florianópolis, Veiga (2010) conducted a study shown in Figure 9. This representation, highlighted for the present research, shows where are the first filled areas of the city and the axes of expansion of the urban center. These areas are classified based on four sets:

- Set 1 - consisting of the initial settlement or origin of urban development around the central square;

- Set 2 - formed by the initial clusters to the east of the main square;

- Set 3 - concentrations to the west of the square and its axis expansion;

- Set 4 - defined by axes of more recent expansion.

Figure 9 - Representation of the landfill area and urban clusters
Source: Image crafted from study conducted by Veiga (2010).

The central region has suffered major changes after the completion of the landfill of South Bay, work which changed the relationship of the population of the city with the sea. Also Colombo Salles bridge caused big changes since it modified the access road. Already in the 80's, with the construction of the Pedro Ivo bridge, it was even greater the concentration of activities in the region (Figure 10).

In the last decades of the twentieth century and during the first decade of the XXI, the migration process produced a significant population increase in the city. In a 40-year period, from 1940 to 1980, the island's population tripled in number, and from 1980 to 2010, it more than doubled (see Table 08). The new residents were attracted

to the capital of the state of Santa Catarina, either by the decrease or stagnation of economic activities in their places of origin, or by the publicity of the city with the best quality of life as disseminated by the media. People from all economic and cultural strata abandoned their regions of origin to change lives, generating an unprecedented demographic, economic and multi-cultural phenomenon.

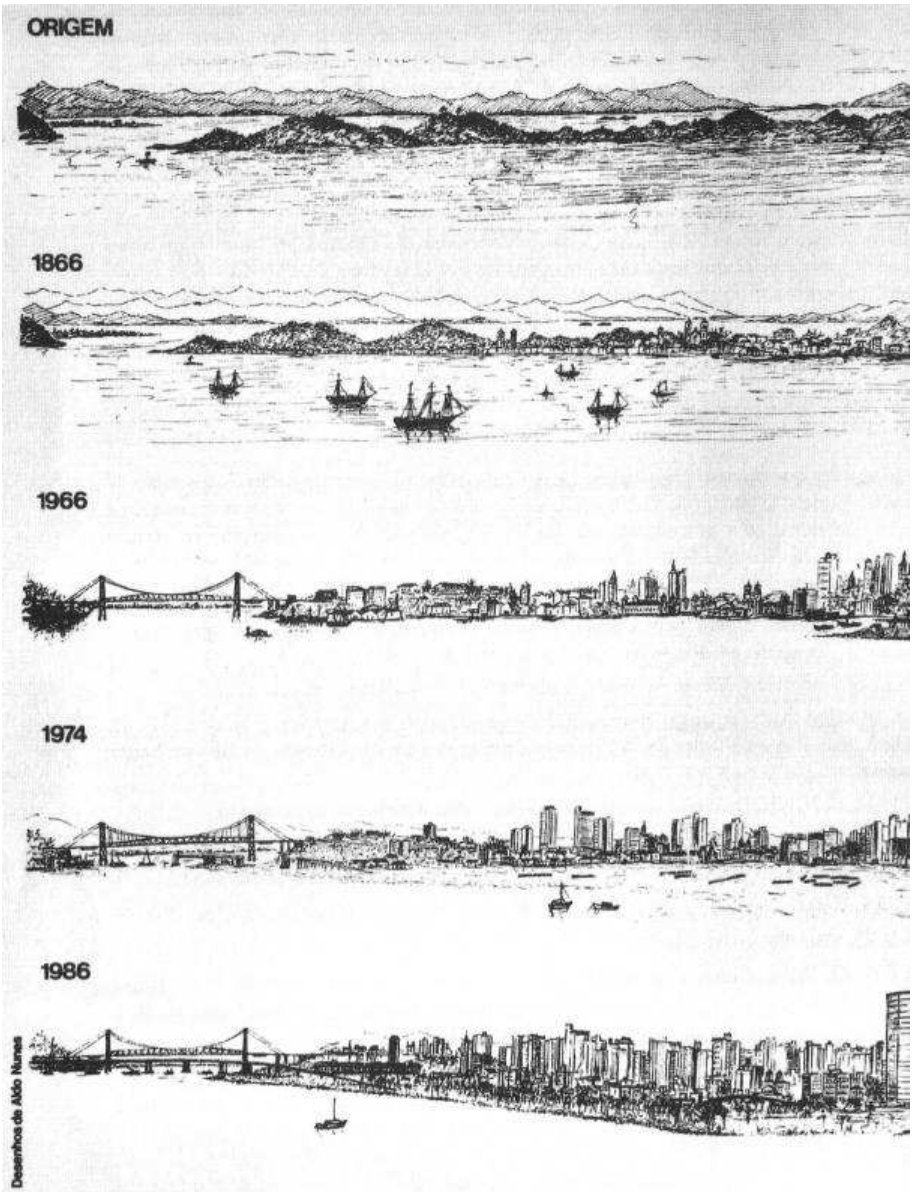

Figure 10 - The mutation of Landscape: Origin, 1866, 1966, 1966, 1974 and 1986 - Drawing by Aldo Nunes Source: VEIGA, 2010.

Year	Total Population	Growth (%)
1900	32.229	-
1920	41.338	28%
1940	46.771	13%
1950	67.630	44,50%
1960	98.520	45,50%
1970	143.414	45,50%
1980	196.055	36,50%
1991	254.941	30%
2000	341.781	34%
2010	421.240	23%

Table 8 - Evolution of the population of Florianopolis from 1900 to 2010
Source: IBGE, 2010.

The prevalence and encouragement given to the 'tourism vocation' of the capital contributed to promoting an unfettered growth and generated a series of structural changes in the island's landscape. Its natural beauty, characterized as one of the main justifications for the expansion of activities for leisure and tourism, face to such a process of consumption, put into question its preservation for the benefit of economic development. Thus, on the one hand tourism represents one of the most prosperous economy potential of the island of Santa Catarina; on the other hand, it generates urban problems due to its density and unrestrained growth (Figure 11[36]), assuming a predatory character, unbalancing the natural system and destructuring the traditional communities.

The fast population growth combined with the lack of planning and to the geographical limitations of the Island of Santa Catarina have generated different effects in the landscape. Emerge, besides the high density of constructions, also the irregular buildings, traffic congestion, increased pollution on the beaches, increasing slums, violence and drug trafficking in the hills and even changes in cultural dynamics.

[36] Original ortophotos from PMF – Prefeitura Municipal de Florianopolis – Geoprocessamento Corporativo, available at: < http://geo.pmf.sc.gov.br/geo_fpolis>. Accessed on September, 2012.

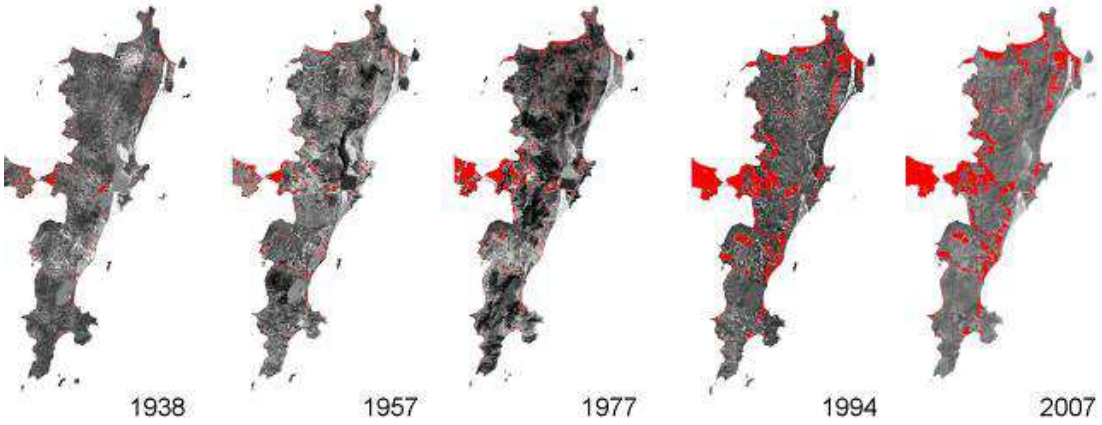

Figure 11 - Growth of built area in Florianopolis 1938-2007
Source: Graphic created from ortophotos by PMF

To be able to intervene in the city, it is essential to know its history and to understand how its landscape was transformed over the years. By using a registry of images, it is possible to recreate the profile of the city at different times (Veiga, 2010) and to verify how the decisions are reflected in the urban environment in which we live. Thus, as refers Veiga, the man, acting upon the landscape, leaves a testimony of its adaptation to the environment, being the landscape "one of the most eloquent testimony of the cultural reality" (Ibid. pg 163).

Having exposed panoramic views (Figure 12) as a comparison method, it can be noticed the different stages in which the center of Florianópolis passed through. The first photo depicts a period where there was still no Hercílio Luz Bridge and consequently the transport between island to continent was done only by sea; the mainland was not nearly utilized; the occupation was still concentrated on the island near the main square and; it was beginning to occupy the interior of the center towards North Bay. During the transition from 1928 to 1937, the city still maintained the low level of urban occupation; important palaces stood out among the residential occupation; green areas were still very much present in the center but; traffic routes began to stand out in the landscape. Now, with the comparison of the present day (photo of 2011), it can be seen the complete urban occupation with large buildings; the palaces of the past lost prominence in the landscape; green can be seen only occasionally in sparse areas of the city and; neither even public roads can be identified between 'the sea' of buildings.

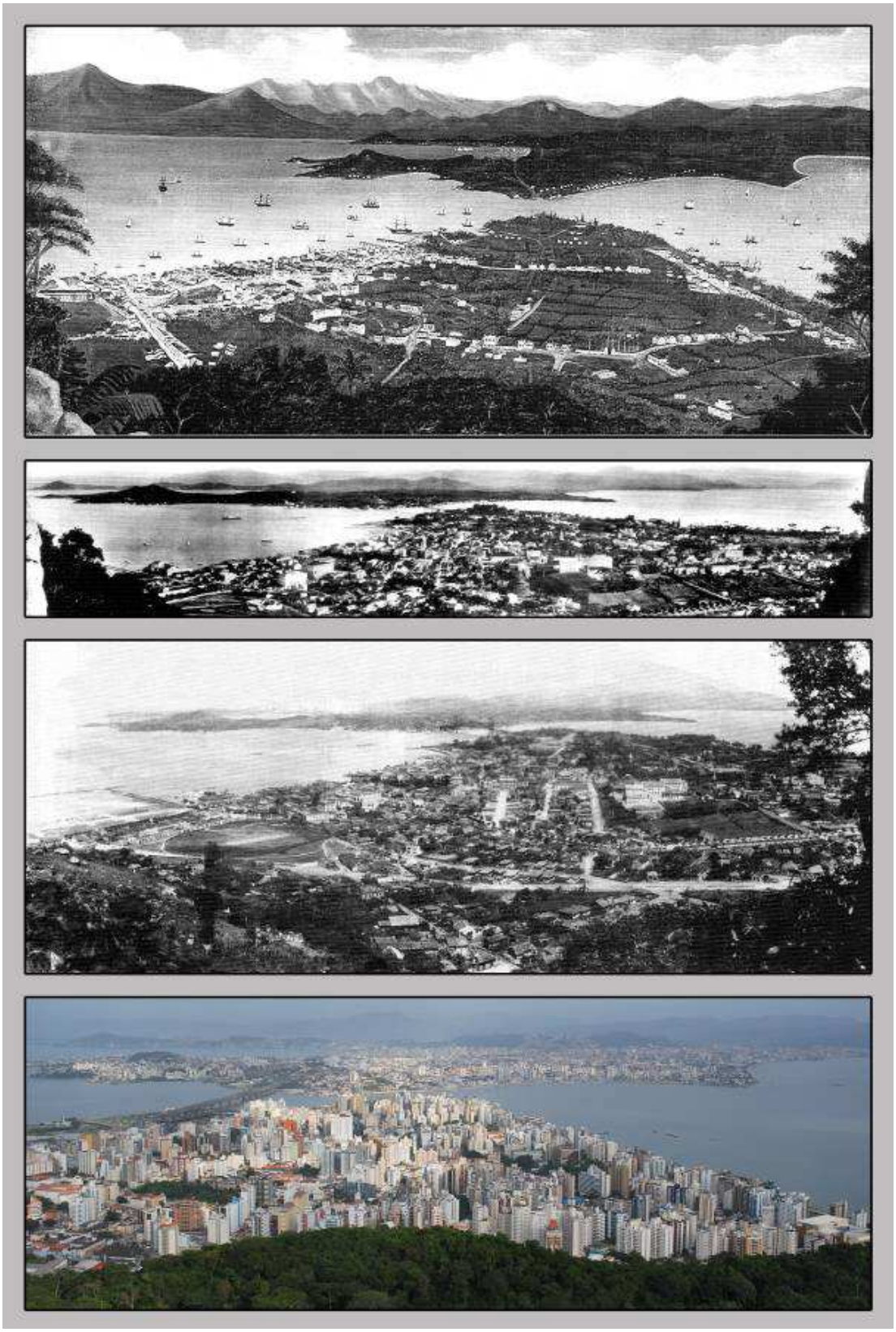

Figure 12 - Panoramic views the center of Florianópolis

Source: Painting Eduardo Dias / 1928 - Eliane Veiga collection / 1937 - Anacleto / 2011 – Talita Abraham

Following the fast urbanization process of Brazilian cities, Florianópolis - which is no exception - suffers the common dilemmas of social dichotomies, urban congestion, challenges for fighting the infrastructure issues relating to sanitation, health, education, transportation and public safety. There is no time or attention to the discussion on the landscape. What ends up happening as a result of public disregard, is the action without planning and strategic vision. If the population was better informed and educated to think about the impact on the landscape, the major interventions performed in Florianopolis would have been better utilized and qualified.

Thinking about landscape

Rescuing the historical process of change undertaken by the city becomes extremely necessary because "understanding the evolution of urban spaces helps its inhabitants to live better with the changes, restoring information that can contribute as a reference to know more deeply the origins and transformations of the city" (VEIGA, 2010, p.22, our translation).

It becomes necessary to inform the population about the modifications that the city is suffering, so that they can express their opinions about future. By having knowledge about their own values and site meanings, the population inevitably transforms it more consciously. By printing their mark, either modifying or creating new elements in the landscape, new relationships and dynamics are created. The integration of man and the natural environment results in the creation of landscape, a set of interrelated characteristics that confer the differential of each locality. The process of creating landscape is not static, but follows the evolution of society. Thus, as warranted by Santos (1986, p. 38, our translation): “Each time that society is undergoing a process of change, the economy, the social and political relations also change in varied rhythm and intensity. The same thing happens in relation to space and landscape, that changes to suit the changing needs of society”.

The difficulty lies in deciphering the various interpretations of the same landscape, as it is associated with different forms of perception, depending on the viewer. The vision of a landscape does not lead directly to knowledge about it. It is necessary to overcome its image and reach its meaning.

The occupation of the South Bay landfill (Figure 13) exemplifies the lack of attention and ignorance of the population about the potential that thinking about landscape can offer. Thus, if the concern about landscape remains in the background, it will have consequences in the daily lives of residents and in the perception of tourists who visit the island. Besides not creating areas of aesthetic and functional quality, the postponement of the discussion on the future of landscape may bring relevant problems of urban, environmental and economical nature and may cause serious consequences on issues related to loss of identity and memory location.

As an example of the importance of landscape thinking, in the 1970s, a design was proposed by the landscape architect Roberto Burle Marx to the landfill of 630 km². The proposal provided "installation of government buildings, residential buildings for staff, parking lots, helipad, plus recreation areas with sports fields, lake with islands and mini-road system for children." But according to the presented interview[37] with José Tabacow (landscape architect that was co-author of the project) "only the bus terminal and the road system were built".

[37] SILVA L., 2012.

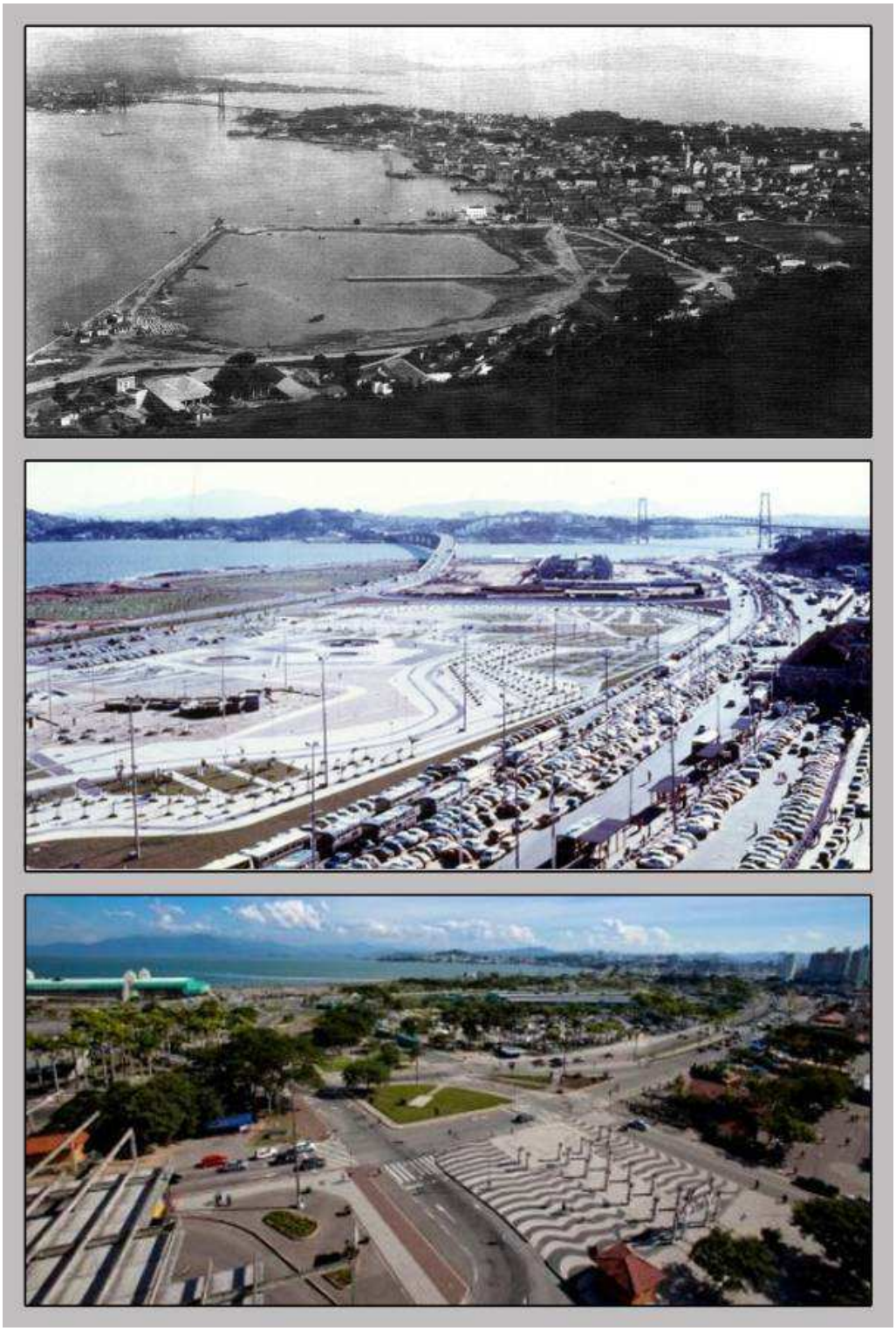

Figure 13 - Landfill of South Bay: 1942, 1970 and 2012
Source: SILVA L., 2012.

Part of the landscaping project of Burle Marx was applied, but nothing was preserved. "The islands within the lake were even made, but ended up being used as a skating rink" said José Tabacow. The landscaping project of Burle Marx was a large

green area for leisure, respecting the zoning area required by law. "The culture was not focused in it (the landfill recreation area), it was focused on the beach. So the site was a transit area and its use has been deteriorating", said Jose Carlos Rauen, superintendent of the Urban Planning Institute of Florianópolis (IPUF) at that time.

Competitions have already been made searching for qualifying projects for the area, but they did not pass of intentions without concrete achievements. To make it possible to intervene in this privileged area of the city, it is necessary that the population considers it as an essential point of occupation, so that, it can receive the urban care it deserves.

Being the landscape a witness of the culture of a people (Veiga, 2010), its responsible management is important for all its inhabitants. While we occupy a space, we are giving uses and meanings to the landscape and this manifests the values of society. We must be alert to urban transformations and environmental degradation, because besides the risk of the city losing its identity, this can constitute a problem for economic sustenance.

If the growing urbanization of the city is not accompanied by a competent planning, it will not happen effectively and sustainably. To avoid further damage to the landscape and to the environment of the island, it is not only necessary to control the population growth driven by tourism, but also to have a greater concern to the ways and places of its occupation and with the discussion of the future of the landscape.

3.3 Master Plans of Florianópolis:

A well-designed urban planning, that is applied effectively, becomes a strong supporter to a sustainable development of a municipality. For the understanding of the urban development passed by Florianopolis, it will be objectively summarized the course of the Master Plans already designed to the city.

The first Plan – 1954

Florianópolis started to expand itself in the 60s and its first master plan was developed in 1952 and approved in 1954. The plan was proposed by a technical team from Porto Alegre, without any participation of society and aimed at the industrialization of the capital of Santa Catarina in order to contribute to its development and to stimulate economy. According to Rizzo (1993), this Master Plan proposed the densification of urban areas around a main axis that connected the island to the mainland.

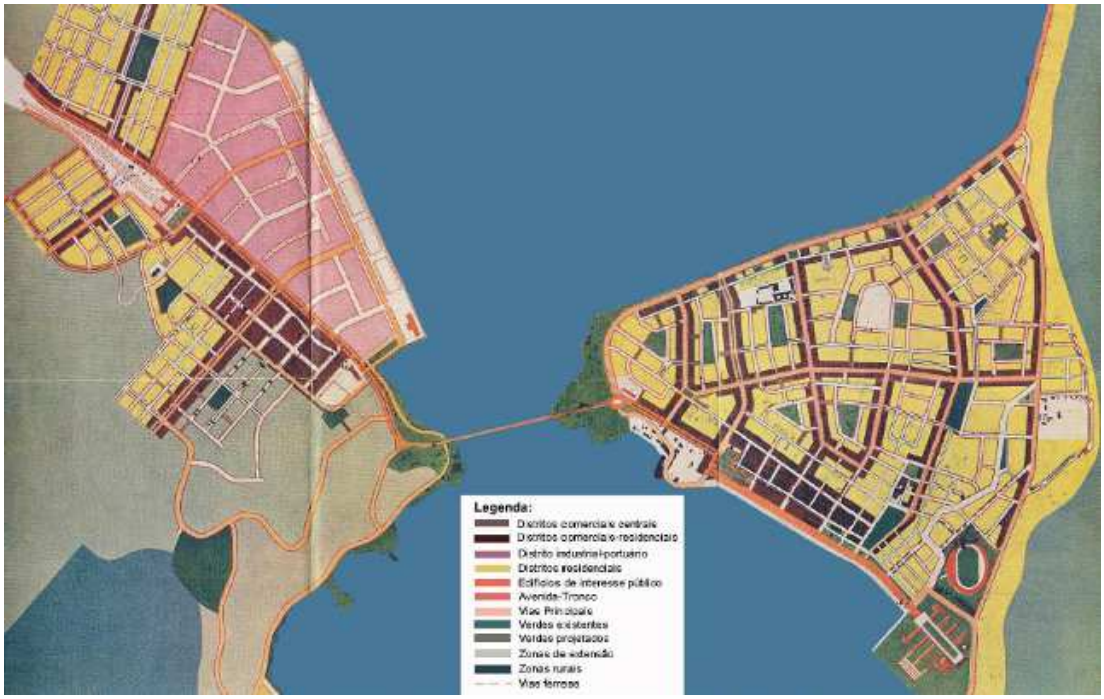

Figure 14 - Master Plan - 1954
Source: SOUZA, 2010.

As reported by Dias (2005), the plan proposed general guidelines of economic development, of urban expansion and of spatial reorganization of the functions of the city. The proposal was based on the establishment of a port in the continental area, which would be the inductive element of the development of the city. It would be

located next to the port, a new commercial, industrial and residential zone; the center would retain its business, administrative and residential functions. The plan, by setting the permanence of the activities of the central area, ended up contributing indirectly to maintain the original urban fabric and therefore the maintenance of old buildings.

The plan's intervention area covered only the central part of the mainland and of the island. Among the deficiencies and problems triggered, are highlighted the expansion of slum areas, resulted from the appropriation of the city center by the middle and upper classes. Even having become ineffective since the beginning of its implementation, this first plan survived until 1976, when it was elaborated a new Master Plan for the city.

The second Plan – 1976

The second master plan started to be developed in 1967 by the Council of Engineering, Architecture and Urbanism - Administrative Organ of Florianópolis - and was approved in 1976. As it was realized during the Brazilian dictatorship, obviously it does not have any public participation.

The central idea of this plan was to transform the capital into a large urban center, into a polarizing center of development and integration of the state (RIZZO, 1993). It was attributed to Florianópolis a great potential for population, services and construction growth. Among the works realized by this plan are the construction of a new bridge between the island and the mainland, landfills in bays and the expansion of the road system that facilitated the access to the center and directed the urban sprawl.

Not reaching the goal of placing the region of Florianópolis as a metropolis, the Florianopolis' City Hall approved in 1976, just the city's Master Plan. When it comes to the urban dimension understood for the municipal plan, the "area included in the plan was slightly larger than that of Plan of 1952 (...) with several neighborhoods not being included" (RIZZO, 1993).

Once again, the delay to implement the plan and the lack of long-term projects

resulted already in an outdated plan right at the time of its approval. As it received alterations, modifications and updates right after its implantation the plan was losing its effectiveness, resulting in the need for a new plan that could control the large real estate expansion that was occurring toward the seaside resorts on the island. Of this urgent need emerges the Master Plan of the Seaside Resorts.

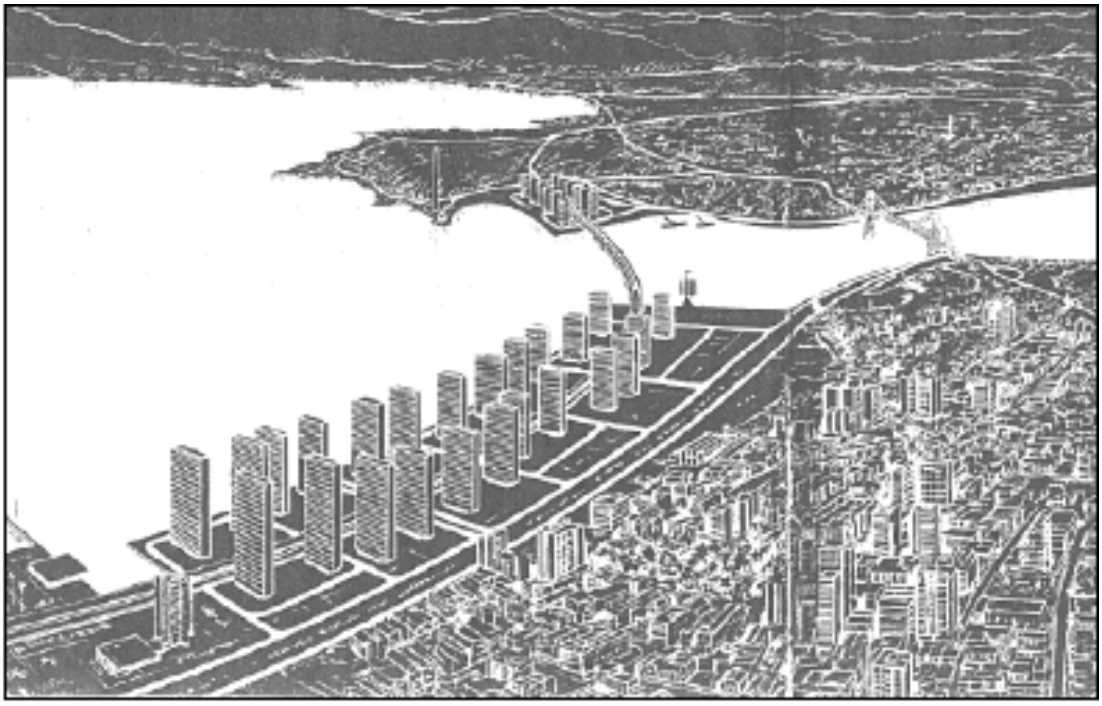

Figure 15 - Project of the Metropolitan Center proposed to the integration area of the State
Source: SOUZA, 2010.

The third Plan - The Master Plan of the Seaside Resorts -1985

In 1977 was created the Institute of Urban Planning of Florianópolis (IPUF), which among its tasks is the preparation of studies for the implementation and update of the city's Master Plans. In its first year of functions, as a reflection to the model introduced by the dictatorship, the IPUF introduces the question of 'community participation' as a paradigm in urban planning. But as Rizzo reports, the Planning Bodies do not define how this participation would be held: "The problem of the community participation is political and defined in function of the force that has every social segment that composes the community" (RIZZO, 1993).

The plan, presented by IPUF, was toward the tourism development of the city, covering almost the entire district, but with the exclusion of the central area and the mainland. So, there is still no plan that gives unity to the city's urban development.

This plan regulates the zoning, use and occupation of the land of the Seaside Resorts of the Santa Catarina Island, declaring them special areas of turism interest. As stated by Pippi (2004), the plan provided that there would be community participation, but this participation only occurred when there were business interests.

The Master Plan of the Seaside Resorts emerged as a result of the urban expansion occurred in Florianópolis during the seventies and early eighties. At this time, construction entrepreneurs envisioned, on the beaches of the island, an excellent source of income and profits. This plan had as original objectives to preserve the landscape and the natural environment of the island, to control the urban growth, to prevent the urbanization of rural large gaps, to define urban areas required by tourism development, providing them with appropriate zoning and road system and to preserve historical areas and traditional culture. It sought, in short, to control the use and occupation of the coastline of the island of Santa Catarina, to prevent the destruction of natural resources as well as to maintain the landscape and the natural elements (CAMPOS, 2004).

The fourth Plan – 1997

The current Master Plan was approved in 1997 and is originally focused on the environmental preservation and economic and tourism development in the city. As the need for popular participation in planning already appeared in the previous plan, according to the then Director - President of IPUF Mr. Carlos Alberto Riederer, it was already included in the production of the current plan. According to Riederer, this version of the Master Plan was discussed extensively with 22 organized communities for a period of more than 6 months, having been presented 159 amendments, 78 of which were incorporated. The amendments rejected, or represented a misinterpretation and were already contemplated in the Plan, or were not relevant (Florianópolis Master Plan, 1998, p. 15).

The Master Plan presents, in its conception, the following general guidelines:

- prevent the urban occupation in areas that, by its landscape, its natural resources, by the safeguard of the ecological balance and its instability or unhealthiness, were considered by the Federal and State legislation as Preservation Areas;
- create and maintain urban references with emphasis on the historical, cultural

and landscape values of the city;
- maintain the urban identity of homogeneous residential areas, ensuring spaces for the different social classes;
- recover and enlarge the area of exclusive pedestrian circulation;
- ensure better and bigger spaces for leisure and recreation;
- ensure spaces for productive activities, with particular focus in the areas of trade / services, public administration, tourism and "high technology";
- encourage the improvement of tourism infrastructure in the city;
- create mechanisms for community participation in planning.

Within the proposals of the Plan it is included:

- Participatory Planning;
- Rescue of the Urban Identity through the maintenance of Clusters or Relevant Architecture Buildings;
- Creation of Referentials of the Urban Landscape;
- Preservation of the Environment.

Not having conquered the intended industrialization, tourism and high-tech industry appear as a possibility of economic development for the capital of Santa Catarina. Rizzo says that "the environmental and cultural qualities of the city begin to constitute a value, a good. Preservation assumes a determining factor for maintaining tourism. It is for sale the proximity or contact with nature in hotels or condominiums, not always built in a way to preserve the environment and / or culture".

With the increasing occupation of the city, the concerns on preservation of the natural and cultural heritage increase and require new approaches and tutelage. It is noticed that during the evolution of the urban planning of the city, it perfects itself and improves, increases its operating area and includes new measures of performance. Regarding the environmental question, supervision becomes the responsibility of Floram, created in 1995, and about the management of the heritage, the National Institute of Historical and Artistic Heritage (IPHAN), organ created in 1937, structures its strategic planning framework. Another important point is the question of popular participation in the management of cities. Its inclusion is a necessity already stated, but that needs to be democratically implemented.

Florianópolis already met several proposals for land appropriation, but these processes have not always respected the greatness of your heritage. The natural landscape, sometimes seen as "merchandise" is overtaken by economic logic and is

associated with weak plans of land occupation, resulting in a fragile city. As reaffirms Pimenta (FLORIANÓPOLIS, 2005, p. 35), "this is the bold attempt of combining two apparently irreconcilable procedures: economic growth and preservation of natural and cultural landscape."

The city needs a Master Plan with a strategic vision in the short and long term, to guide the development and the consolidation of a project carried out jointly with the society. As stated by Pimenta (FLORIANÓPOLIS, 2005), the University also holds an important value for the discussion and dissemination of knowledge. It is necessary to create mechanisms for effective participation in decisions of the city, because only the opinion of many people can reduce misconceptions and offer truly innovative projects.

3.4 Participatory process in Florianópolis:

The participatory process to the development of urban plans emerged as a result of a national struggle for democratization in urban decisions. The National Law 10.257 of 2001, called the City Statute[38], compelled a large number of Brazilian cities to hold their Urban Plan in a participatory way. However, according to the National Report of 2011[39], it is confirmed that the municipalities have many difficulties to develop it.

Figure 16 - Logo of the Participatory Process of Fpolis
Source: IPUF, 2012.

The development of the participatory process of the Master Plan of Florianópolis was officially initiated with the realization of the 2nd Conference of the City of Florianópolis in 2005. In the following year, during its first Public Hearing was constituted a 'Management Center', whose function is to monitor and evaluate the different stages of revision of the Master Plan and it is composed of government and civil society organizations representatives. Were also incorporated into the Management Center one representative from each district of the city, elected with the purpose of promoting public and institutional events (forums, workshops and meetings).

Also in 2006 it was established a Basic Steps Schedule of Development of the plan, which established the completion of its elaboration in February 2008. In 2008, the IPUF presented the document entitled: 'City diagnostics', a document which should have been written in response to the participatory work developed by the municipality, civil society and the IPUF together, but that actually, only compiles the already existing readings. Through the community reading, the population of

[38] See section 2.1.1 Statute of the City
[39] JUNIOR, 2011.

Florianopolis, divided into 13 municipal districts, was supposed to detect their everyday problems and discuss the general functioning of the city. The diagnosis of problems and needs of each city would be used to determine the guidelines for the master plan. This document would represent a very important step for the development of participatory activity.

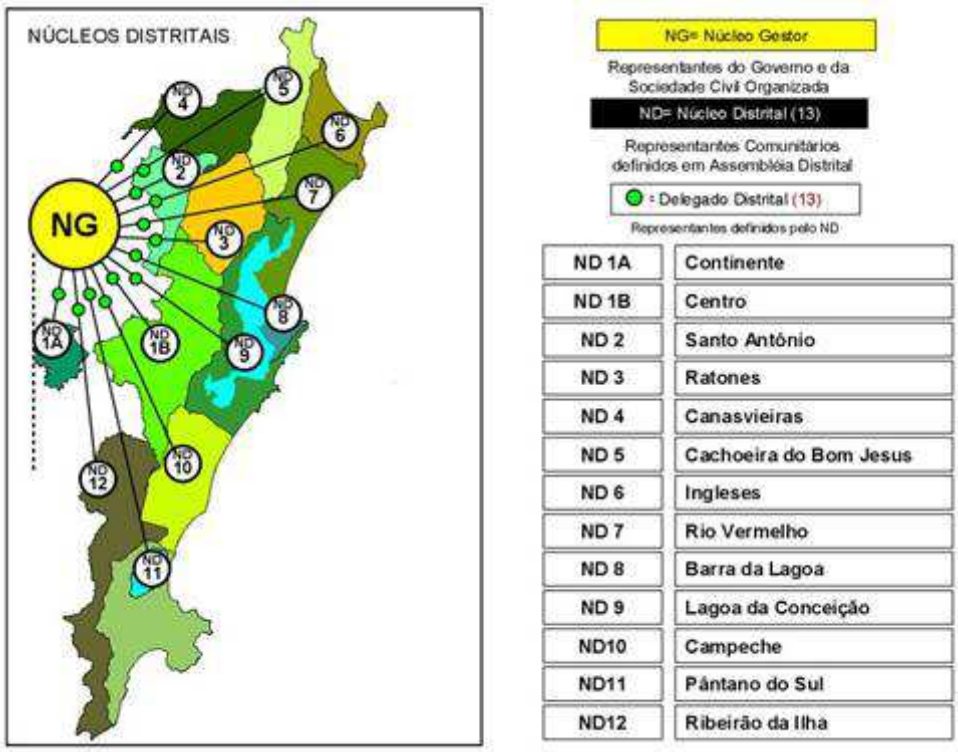

Figure 17 - Municipal districts division
Source: IPUF, 2011.

In February 2009, after the re-election of the government, the City ordered the interruption of participatory activities undertaken in district bases. The justification transmitted by the municipality was that the construction of the Master Plan entered into a technical phase, in which the studies and proposals would be examined by a specialist consultancy, the Foundation CEPA. This Foundation was hired to develop the synthesis document of the guidelines written by the districts, to write the Draft Law of the Sustainable and Participatory Master Plan for Florianopolis and to develop the audiovisual materials that would be used for divulgation of the plan.

From the over 2000 guidelines forwarded by the municipal districts, were produced 33 synthesis guidelines, presented in a macrozoning plan. According to the

community, their guidelines did not receive considerable attention from the entity responsible for making the plan, not configuring a real participatory process of decision. In the plan, as released in a summary by a newspaper of general distribution, the company proposes: landscape conservation, regions of accelerating change and innovation and decentralization of urban occupation. As the proposal is presented only in a macrozoning scale, it did not clarify how it will be done and for whom the plan was conceived. Thus, the proposed plan was not considered satisfactory by population, since they already used the workshops for the thought and development of microzoning in their district.

After the presentation of the work undertaken by the foundation, the population, not satisfied with the measures taken, prevented the realization of the Public Hearing of March 2010 and also the forwarding of the Draft Law to the City Council. The lack of understanding and agreement between the population and government resulted in the continuous postponement of the municipal urban proposal and in the production of alternatives plans by the population (Figure 18 and Figure 19).

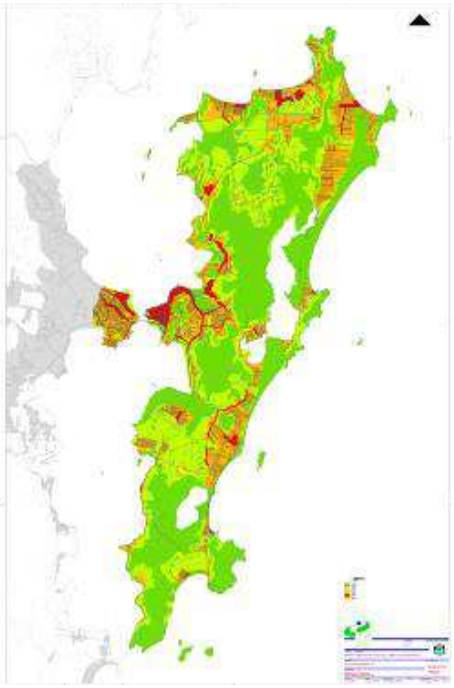

Figure 18 - Government's proposal (03/2010) – macrozoning
Source: IPUF, 2010.

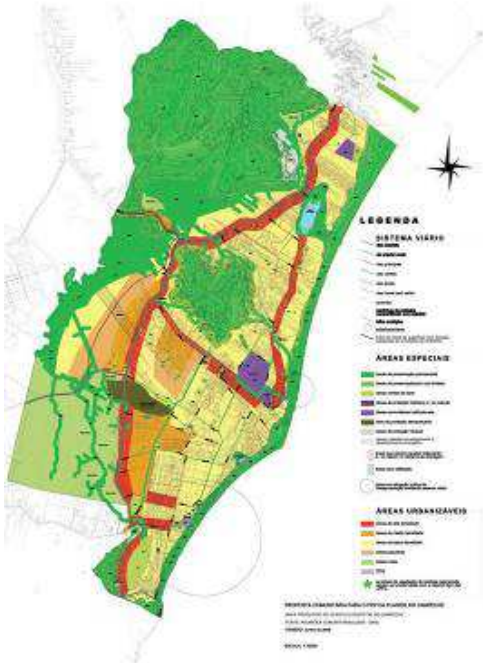

Figure 19 - Campeche's proposal (06/2009) – microzoning
Source: Núcleo Distrital do Campenhe, 2009.

The experience of Florianópolis brings some unprecedented measures that can renew the practice of negotiation between citizens and municipal organs. It is the case of the Community Planning Workshops of *Ingleses Sul*, *Santinho* and *Campeche* (PERES, 2008). This process involved the communities of the areas, teachers and students of various courses at the Federal University of Santa Catarina, in an effort to qualify the regions through a plan of occupation that was social, economic and environmentally sustainable. This activity, carried out independently of the project of IPUF, has shown a wealth of interdisciplinary and transdisciplinary nature.

The work developed with the communities is unprecedented in the state and important even nationally. These are experiences that integrate the communities affected by the Master Plans and/or mega-projects and the University. This joint effort, with the absence or even in opposition to the state, aims to offer real alternatives to the methods and content of official master plans. Some of the problems about the participatory process that has been happening in Florianópolis and that justified this response by the society are based on the insufficiency or lack of institutional and technical support of the city council; insufficient resources for infrastructure, media, technical and logistics advice; lack of foresight budget; lack of a clear and effective participative methodology; absence or lack of a greater commitment by the Municipal organizations and Municipality itself (PERES, 2009).

Considering the problems mentioned and the fact that the Municipality did not kept the community meetings throughout the development process of urban planning, the assessments of community representatives, academic and technical sectors suggest a regression in the method and the reproduction of old traditional practices of urban planning. The assessments hold that it runs a serious risk of experiencing a simulacrum of Participatory Master Plan of institutional and social unpredictable consequences.

Based on the analysis of the levels of participation[40] conducted by Anstein and by Souza, one can try to frame the stages so far undertaken in the process of elaboration of the Participatory Master Plan of Florianopolis. Initially, when the Management

[40] Reference present in the literature review – Section 2.1.4

Center is made up of public representatives and society, the author believes that it is the case of a 'delegation of powers'. In this category, the state works together with society in co-management regime. Already during the phases of workshops, where the population expose their expectations and opinions about the future of the city, as it is not guaranteed the incorporation of such measures, it constitutes the category of 'consultation'. Although, it is not possible to evaluate the outcome of the public participation in the whole process, since this is not finished yet. Are still to come the voting, the implementation and management process of the Master Plan. Depending on the respect to the obligation of the constant public participation, legitimized by Statute of the City, it can be determine whether the levels of participation configure an authentic participation, a pseudo-participation or, at worst, a non participation.

After that population disapproved the proposed plan in 2010, the then mayor Dario Berger decreed an adjustment of the committee with new members to coordination, monitoring and forwarding of the draft of the Master Plan. In August 2011, the process of reintegration of the Managent Center began, representing the second mark in democracy for the construction of urban planning. Already in April 2012 it was conducted a cycle of presentations about the New Master Plan proposed by the municipality (Figure 20). This event, without deliberative character, was just a presentation of the new Master Plan prepared by the CEPA Foundation.

After these presentations, the project returned to society for discussion. The regional discussions were separated into 13 district public hearings, one for each region. They were an opportunity for people to expose what they want/reject to the city. Each one of these meetings generated a set of recommendations / suppressions of the Master Plan. Then, their deliberations should be forwarded to the City Council for approval. Until today the plan was not approved, and still brings discord between stakeholders.

The participatory process in Florianopolis resulted in a large social movement involving thousands of people over three thousand public meetings. The fundamental goal of Participatory Master Plan is to enforce the social function of the city, seeking a fairer, inclusive, creative and democratic society. For this to happen, there must be transparency in conducting the politics, so that social control can be exercised (SABOYA, 2011, our translation).

Figure 20 - Proposed New Master Plan for the central area of the city
Source: IPUF.

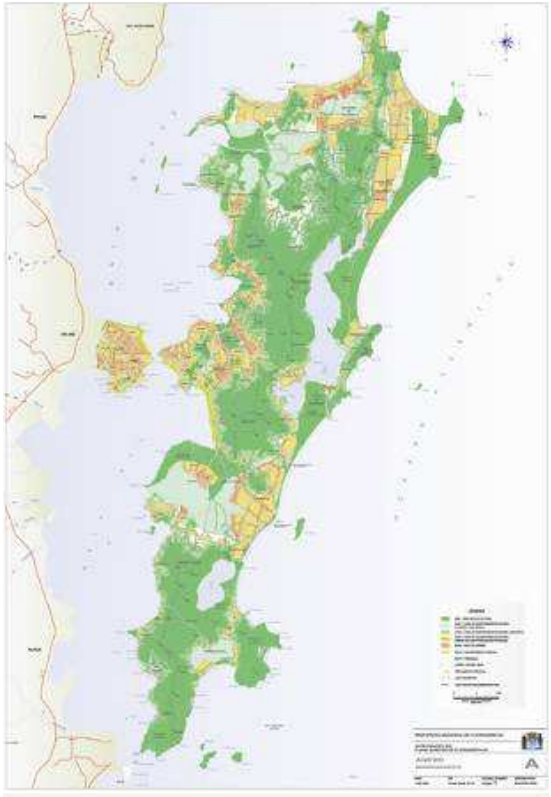

Figure 21 - Government's macro proposal (04/2012)
Source: IPUF.

Figure 22 - Government's micro proposal for Campeche
Source: IPUF.

4 Methodology of the study

One of the main goals of a responsible urban planning is to ensure that a transformation project of a particular place is done sustainably and an essential feature to this process be carried out is the opening of the studies for citizen participation[12]. As the example of Brazilian urban planning intends to become an entry point to improve democratic participation[41], it is necessary to develop urban assessments open to public participation. As previously mentioned in the section of the City Statute, this Brazilian law provides for public participation by conducting participatory budgets during the execution of Municipal Master Plans. This participatory process shall mean conducting debates, hearings and public consultations about the proposals of the multi-annual plan, the budget guidelines law and the annual budget as a mandatory condition for the approval of plans. This research proposes to complement the example of the Brazilian PB held in Porto Alegre[42] with a Landscape Assessment in order to assess the city as a whole.

In this study the landscape is addressed as a heritage, a witness of the culture of a people (VEIGA, 2010) and as a tool to access the perception of the population. Landscape is a concept much discussed by experts, but it must be more assessed publicly in order to respect the urban preferences of the population. Landscape Assessments should become frequent and with broader capacity, so that the population get used to think about 'landscape'. As Mourato and Mazzanti (2002) argue, for the future, the task is to develop and establish a comprehensive multitool and multidisciplinary framework for the measurement of cultural values, as a response to the complex, multifaceted and multivalue nature of cultural heritage.

This study intends to introduce the thematic landscape to the Brazilian urban public discussion. Thus, based on studies of the Literature Review it was possible to elaborate and apply a method of Landscape Assessment that aims to understand the perception of residents about their landscape preferences. This methodology is divided into two steps as shown in Figure 23.

[41] Reference to section 2.1.1 Statute of the City
[42] See section 2.1.5.1 Example of PB in Porto Alegre

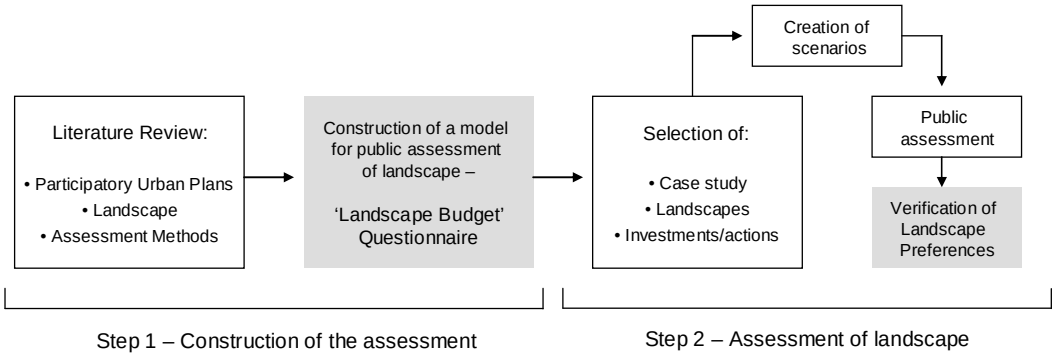

Figure 23 - Methodology steps

The first step of the research is composed of the theoretical study of topics such as: development of Brazilians Participatory Urban Plans; concepts of Landscape and its values, methods and paradigms for the evaluation of cultural heritage. This process resulted in the construction of a landscape assessment model that could complement the current Brazilian Participatory Budgeting. Thus, the 'Landscape Budget' instrument could be used to build useful knowledge to the management of landscape along to participatory urban plans.

The second step consists in the application of the questionnaire to the city chosen as Case Study. Four landscapes of Florianópolis and six possible types of investments / actions were selected to create 24 scenarios to be evaluated. The questionnaire has the purpose of generating public knowledge about the preferences regarding landscape, it also structures and quantify them. With this practice, which was based on the model built in the first step of the work, it was possible to verify and discuss how the landscape assessments could be done in a participatory way.

4.1 Urban public evaluation through the assessment of Landscape

A Landscape Assessment is one of the instruments of public approach which seeks to establish a connection between the needs of the population and urban proposals. These assessments stimulate critical thinking about the development of the city and become essential for supporting the protection of natural and cultural heritage in local development processes and on urban planning[43]. As already stated by Panagopoulos (2010, p. 77), landscape studies may help to assess adverse visual

[43] UNESCO, 2012.

impacts of land development and suggest mitigation measures and design alternatives. So, public participation through landscape studies could help planners and other professionals involved in the design of sustainable cities.

Through the evaluation of landscape as a public policy it is intended to: enhance landscape attractiveness; protect local resources; restore the character of places and, preserve the identity and natural vocations of the areas[44]. These goals, in addition to being essential to an environmentally sustainable development, let create economic rotation[45], an essential fact to justify interventions in the city.

With the need to include the population in the landscape management[46], public evaluations are necessary to allow the population to engage qualitatively in urban discussions. UNESCO (2012) also suggests a Landscape approach for "identifying, conserving and managing historic areas within their broader urban contexts, by considering the interrelationships of their physical forms, their spatial organization and connection, their natural features and settings, and their social, cultural and economic values", all this carried out by local, national, regional, public and private actors together. These public approaches can result in a 'communicative planning' (INNES, 1998), where information becomes gradually embedded in the understandings of the actors in the community. It happens through processes in which participants, including planners, collectively create common urban meanings by the discussion of several types of 'information', like tables, photographs, drawings and other representations. Planners/researchers should make good use of the increasing interest that people spend in discussing plans, schematics and representations towards a collective growth.

The participatory planning of landscape requires making decisions processes and choices about complex systems. Given the worries of all stakeholders, planners are faced with the challenge of integrating conflicting viewpoints. In these

[44] FUSCO GIRARD and NIJKAMP, 2004.
[45] By using the landscape, people can also demonstrate a willing to pay (WTP) for it, a fact that can justify its economic value. According to Francesco Maragon (2010, pg.101), the landscape can be seen as an economic good, as it satisfies a human need or want; for the EFTEC document (2005), the term 'economic good' applies to anything that generates flows of human wellbeing, for anyone and for whatever reason; See section 2.2.3 Landscape valuation.
[46] Topic already mentioned in section 2.2.4

circumstances, we think that multidimensional assessments, along with participatory methods, can help to structure the process of decision making, resulting in a social learning process[47].

Florianópolis has all the natural elements needed to develop rich and diverse landscaping plans, but in practice, there is lack of political will, institutional arrangements mature enough for this, and a conscious population that can press the Government accordingly. The city has been shown to have a population with growing willingness to participate and to use this desire and openness to participate in urban decision-making is a promising opportunity. The moment that the city is experiencing, of political transition but also of social change, is a great moment to discuss the future of its landscapes. The intentions of this research are to stimulate the debate on landscape and to investigate how the landscape can be described in a participatory way by studying how the local population values their landscapes.

4.2 A Landscape preference assessment

Bearing in mind that present and future challenges require the definition and implementation of a new generation of public policies identifying and protecting the historic layering and balance of cultural and natural values in urban environments (UNESCO, 2012) and the need to create public awareness and new evaluation instruments that facilitate an intercultural dialogue, it was created a variant of the Participatory Budget tool[48]. The present investigation assumes that the interpretation/discussion of the city through a landscape preference assessment could bring benefits not yet reached by the urban instruments already tested[49]. It is believed that new types of assessments and methods are needed in order to produce more thorough knowledge on landscape users' preferences. Thus, this research proposes a 'Landscape Budget' (LB) instrument as an operational tool to the landscape assessment. This instrument makes use of a public questionnaire and is focused on the importance of landscape perception in urban planning and on the identification

[47] See section 2.2.2 Landscape as Social Learning

[48] This instrument, involving citizens in the choices of economic-financial nature of the municipal authorities, represents one of the most significant and visible forms of democratization of local government (PEREIRA, 2008).

[49] Consult reasons outlined in section 2.1.5.1 Example of PB in Porto Alegre

and study of the preferences on the management of landscape.

Regarding the choice of Paradigms to assess landscape, the research agrees with the procedure suggested by Taylor et al. (1987, p. 389) when he says that different paradigms may be more useful at different stages of a research project. For the realization of the present study, an experiential approach, being held by the public, could explore the experience and intentions of the population and could be better used at the first and last steps of the study. The experts, could participate in the creation of the analysis to be answered by the population and in the evaluation of the shared knowledge. There could also be an evaluation carried out separately by experts (evaluation not performed in this study), so that both could be compared. Thus, the paradigms can complement each other, creating a useful program to manage landscape.

Regarding the Classes of Methods, the research makes use of Stated Preference Methods, as they comprehend evaluations particularly suitable for non-use values. These methods are useful for the realization of comparative analysis of trade-offs between different values of the landscape, including the economics. With a multi-attribute valuation, respondents can be asked to rank the various alternatives, to rate them or to choose their most preferred. By including price/cost as one of the attributes of the good, WTP can be indirectly ascertained from people's rankings, ratings or choices (Castellò, 2003). So, individuals are not directly asked for their willingness to pay, but rather their valuations are derived from their responses to a choice of options. This technique is especially appropriate if a policy maker seeks to understand the value of particular or individual characteristics of a good and how that characteristic relates to others.

By using these multi-attribute analysis, it is expected to evaluate landscape in a participatory way in order to understand why a landscape is more valued than another. In this sense, it is no use just knowing if a specific landscape is more 'preferred' or 'valued' than another, but rather to understand why one is more valued than another, and that means knowing how its sub-aspects interfere in this process. For this reason, it was elaborated a questionnaire that approached landscape in three different stages.

The proposed landscape assessment begin with a ranking of 16 urban topics; then it is followed by a raking of 6 options of investments/actions for each selected landscape; and, in a third moment, by a rating of the residents' preference in relation to the 6 scenarios created for each one of the 4 landscapes that are being evaluated. In particular, for the evaluation of the scenarios, a contingent rating procedure was taken. Contingent rating method (like all Conjoint Analyses) represents a way to indirectly elicit the people's preference structure starting from specific stated preference[50]. It used the rates attached by respondents to each scenario and regressed them against variables denoting the presence of the variable elements inserted for the evaluation. Instead of being asked to express a WTP for accepting an environmental effect, respondents were asked to rate several scenarios and these scores then represent their order of preference. Each scenario included a different landscape element to be valued using a scale from 0 to 10 according to their preferences. The idea is that the score obtained by each scenario depends on the presence of its variable attributes. "Generally, the demographic characteristics of the interviewed people are inserted into the regression, as they affect the valuation; the demographic variables can be considered *per se* and/or in interaction with the attribute"[50] to be studied. Alternatively, "the sample can be split according to the demographic characteristics of respondents, in order to check whether different evaluations emerge, as demographic characteristic change" [50].

As a result, the LB questionnaire covers these three major landscape evaluations:

1. The 'Ranking of urban topics' – studies the importance of the topic 'landscape' among other urban concerns;
2. The 'Ranking of urban investments/actions' – performs a landscape preference study based on the preference between the description of the urban investments/actions in relation to the current state of the landscape;
3. The 'Rating of urban scenarios' – performs a landscape preference study based on the preference between six scenarios that represent the urban investments/actions.

Scenario preference method

After studying various possible assessment methods for landscape, the methodology that best adapted to the participatory process of study interventions in landscape was

[50] CUCCIA and CELLINI, 2007.

the scenario preference method. Photo-based questionnaires might be the appropriate public way to approach landscape, because by scoring photos, it is possible to identify a single most preferred option, to rank options, to support types of comparison, to short-list some options for subsequent detailed appraisal and also to control changes on landscapes by isolating the aspects that are being analyzed.

This proposed method, based on scenario assessments, comes as a response because the “complexity of the information presented can make it difficult for the public to fully understand the potential impacts of changing land use and management on natural resources and landscape values” (SMITH et al, 2012, p. 230). Due to this difficulty of assessing values of landscape, it becomes necessary to present to people the impacts of these decisions, because only with a means of comparison they can assess changes in the landscape.

However, one should be careful when presenting a scenario for public assessment. As already pointed out by Smith et al, to present a range of potential future landscape options for public assessment, it is required that the information is made available in an understandable and easy accessible manner, because if the participants do not understand what they should evaluate, the study will have no value. “For many people, understanding the options is linked to seeing their effects, and visual simulation has an increasingly important role in communicating landscape change” (Smith et al, 2012, p. 231).

As examples of scenario assessments, it is worth mentioning the study of Smith et al. (2012) and Barroso et al. (2012), that calls for the development of scenario-based planning tools that can communicate consequences of landscape management and thereby help in understanding public trade-offs among the outcomes of management. Scenario assessments might answer some doubts just as the already presented by Smith et al: “How can the different economic, environmental and social outcomes be communicated accurately and meaningfully to facilitate an informed choice? What forms of communication are more useful?”

Although on-site surveys could be preferable to photograph-based surveys, the research of Barroso et al. states that “photos provide visual stimuli that can be very

close to the real-life experience of the landscape and that “it has been shown that judgments provided by photo surveys are close (correlation 80% or more) to those from on-site surveys”. Therefore, the assumption that is made by the previously mentioned research is that photos are capable of providing stimuli that enable the mind to associate sensory information with other knowledge and thus form opinions about what is perceived through intuitive recognition of an aesthetic quality. This justification, added to the literature review and the definition of landscape, allow us to believe that people do not judge a landscape (or a representation of the landscape) just by a visual criterion of aesthetical beauty. Rather, the theoretical references show that people attach multiple values (aesthetic, functional, historical, moral, environmental, etc.) to the elements that compose each landscape and, on that basis, perform their preference judgments. Another advantage of using photos is that they can make the scenarios accessible to a larger sample of observers at the same time, and this counts when a participatory process takes place.

In order to ensure the quality of results, the survey design has to be addressed carefully, particularly with regard to the choice of photos (scenes) to be used. The scene selection must ensure the presentation of an overview of each landscape to be evaluated, so that people can understand the impact that each intervention performs in the landscape as a whole. For the present research, photographs were adopted as "representations of the landscape". Some components of these representations were then selected to be analyzed (volume and height of constructions, green area, alternative transportation, proposed activities and interventions on built or environmental heritage) in order to evaluate qualitatively that landscape. The use of digital manipulation of photographs was chosen because it has shown to be the best solution as an auxiliary method of comparison. Thus, changes done in the landscapes presented to respondents were properly controlled and also easily recognized by respondents. By manipulating photos, it is possible to control and alter every content of the elements present in the images, allowing the creation of plenty of scenarios.

When instruments like “Photoshop” are used, it makes possible to isolate variables and thereby assign a value to each intervention in the landscape. However, manipulation needs to be sensitive, so that clarification of patterns does not result in over simplification and a landscape in the photo discordant with reality and therefore

difficult for people to relate to (Barroso et al., 2012).

4.2.1 The Landscape Budget Instrument

As stated earlier, the LB tool aims to understand the role that the landscape has among the urban public measures and to know what are the public preferences in relation to landscape interventions. This research is conducted in the city of Florianopolis and has focused its study on the perception of the landscape in a participatory way. The target audience is the voting population of the city and is restricted to residents aged over 16 years, a fact highlighted in the enunciate of the questionnaire. Before replying, the respondents were given a short introduction about the purpose of the study51. The objectives of the research were embedded in a web-browser questionnaire organized as follows:

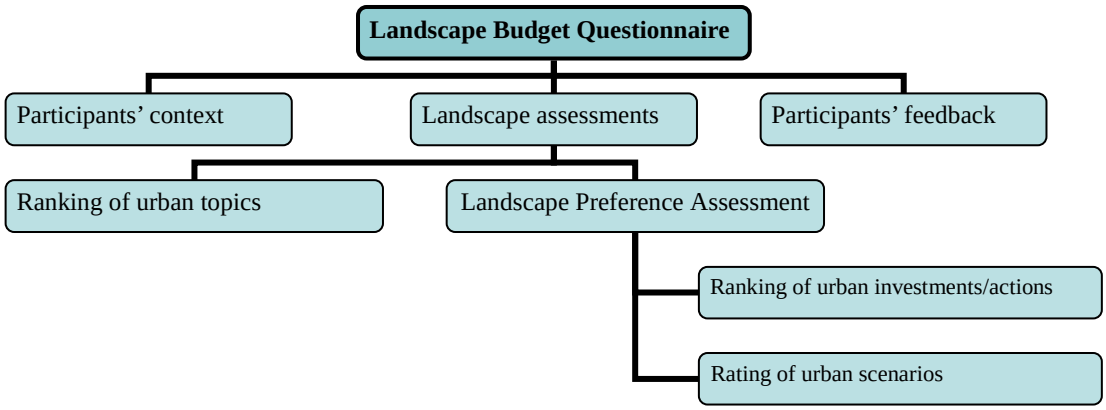

Figure 24 - Structure of the questionnaire

a. Participants' context:

The purpose of this part of the questionnaire is the contextualisation of the participants. This objective is realised by the selection of options which caracterize the participants profile (age, genre and education) and by the description of their social characteristics (profession, origin, place of residence). The advantage of outlining the profile of the participants is that it is possible to seek a coherent and representative sampling of the population of the city that is being studied and also to create different social groups for future comparison of responses.

[51] See 8.3 APPENDIX 3 – Questionnaire

The content of the questions are:

- Age;
- Genre;
- Completed education;
- Profession / Occupation;
- Origin;
- District of residence;
- Previous Participation in the Participatory Urban Process (PUP) of Florianópolis.

b. Landscape assessments:

b.1 Ranking of urban topics

This second part of the questionnaire is based on the analysis already applied in the Participatory Budget of Porto Alegre. This Brazilian approach presents urban topics52 for public voting and, as a result, people can order their priorities for public investments. The objective of the introduction of 'Landscape' between the topics already analised is to determine the importance of landscape perception among them. By doing this, it is created a more complete urban priority list, since concepts like degraded areas, land use, density and verticality were subjects not previously treated in the PB. When residents performe a ranking of priorities for action in their urban space, one can understand the importance that landscape has on their daily lives. The limitations of this assessment is that people are are not yet used to think about landscape, so the answers may not absolutely represent their priorities. This question would serve also as a mean to call their attention to the subject.

The proposed ballot allows choosing between sixteen topics (including 'landscape') where people should vote in only six options according to their priorities. The order of apparition of the topics is changed periodically so that their position in the list does not condition the result. So, the final topics to be evaluated are:

Culture	Activities / cultural facilities; actions and events of culture.
Economic Development and Taxation	Employment and income generation; support to popular initiatives.
Education	Education of children, youth and adults; special needs education.
Health	Construction and expansion of specialized network; renovation,

[52] Presented in Section 2.1.5.1.

	expansion and construction of health facilities.
Housing	Construction and improvement of popular residences.
Leisure Áreas	Renovation and expansion of community centers; leisure and recreation facilities.
Paving	Paving of streets and roads.
Public Lighting	Installation and repair of the public lighting.
Sanitation	Investment in the installation and maintenance of basic sanitation.
Social assistance	Assistance to children, adolescents and families; refurbishment, extension and / or implementation of social assistance units.
Sporting Goods	Construction and improvement of sports equipment.
Tourism	Activities and incentives to tourism.
Transportation and Circulation	Paving of roads; duplication and expansion of roads; opening of roads and roundabouts; qualification terminals and bus stops.
Urban Mobility and Accessibility	Road safety; integrated system of transportation; assistance to the disabled; less need for displacement.
Youth	Activities and social services focused on the young.
Landscape	**Actions which favor the environment; the recovery of degraded areas; the protection of environmentally fragile areas; Measures that control urban occupancy, density rates and verticalization.**

Table 9 - Urban topics

Source: Adapted from Porto Alegre' PB

The evaluation of results will be conducted using an indicator termed 'intensity of use'. This method is used to know how much each element was selected during the assessment. The data is derived from the ratio of the total number of topics recorded in the question to the number of participants selecting that topic.

b.2 Landscape Preference Assessment

To assist in the identification and study of the preferences on the management of landscape, the methods of scenario ranking and rating were selected. This part of the questionnaire is structured in two evaluations. The first assessment deals only with the ranking of the written description of the distribution of investment under observation of the current state of landscape. Then a second analysis presents six different scenarios created from the four landscapes already presented. Each scenario represents an intervention to be evaluated for public investments. This second rating completes the previous analysis, clarifying the research objectives. In order to frame the issues to be addressed in these two evaluations, possible criteria that underlie the analysis were discussed. The discussion is presented below.

Scenario criteria

This process requires the help of an expert to display a corresponding set of criteria used to estimate landscape. These criteria correspond to stimuli performed by the values which we attach to landscape, they are derived from the environmental, social and economic fields. Since the objective of the research is to evaluate feasible interventions[53] through measures of urban planning, it will study scenarios that result from modifications based on Urban Parameters and Zoning[54]. Some examples of the macro interventions that could be evaluated on the creation of the scenarios are:

- green x built area;
- area of construction;
- height of construction;
- infrastructure;
- city's accessibility.

The landscape values used in the research were based on the bibliographic references contained in the Landscape valuation literature review (Throsby[55], Brown[56] e Riganti and Nijkamp[57]). To justify the values to be studied, the selection process is presented below.

As a cultural good[55], the landscape is composed of:

- Aesthetic value: beauty, harmony;
- Spiritual value: understanding, enlightenment, insight;
- Social value: connection with others, a sense of identity;
- Historical value: connection with the past;
- Symbolic value: objects as repositories or conveyors of meaning;
- Authenticity value: a site that is real, unique; integrity

But landscape is not just a cultural good, it is also seen as an irreplaceable good[57], expressing social and economic values. To complement the social-economic analysis, it can be presented the places values that composed Brown's analysis:

- Aesthetic/scenic – for the attractive scenery, sights, smells or sounds;
- Economic – for economic benefits such as agriculture, tourism or commercial activity;
- Recreation – for their provision of outdoor recreation activities opportunities;
- Life sustaining – because they help to produce, preserve and renew air, soil

[53] Some of the scenarios reflect projects currently under discussion in the city.
[54] Section 2.1.6 of Literature Review
[55] THROSBY, 2002.
[56] BROWN, 2006.
[57] RIGANTI and NIJKAMP, 2004.

and water;
- Learning (knowledge) – for their use to learn about the environment;
- Biological diversity – because they provide a variety of wildlife, marine life and plants;
- Spiritual – for the spiritual connection with the place;
- Intrinsic – for their existence, no matter what I or others think about them or how we use them;
- Heritage – for their natural and human history;
- Future – because they allow future generations to know and experience them as they are now;
- Therapeutic – because they make people feel better, physically and/or mentally;
- Wilderness – because they are wild.

As a result, to sum and organize[58] the collected values of the landscape, they are presented into three aspects:

Social			Economic	Environmental
Aesthetic/scenic	Historical	Social	Economic activity	Biological diversity
Authenticity	Intrinsic	Spiritual		Life sustaining
Future	Learning (knowledge)	Symbolic		Wilderness
Heritage	Recreation	Therapeutic		

Table 10 - Values of landscape

People can not evaluate all the collected values of the landscape at once. For this reason, to decide the amount of information to be included in the research, it was consulted an article written by Miller59 (1994). It comprises the area of psychology and inquires about the limited amount of information that people can process at the same time. It argues that the number of data that people are able to receive, process, and remember simultaneously is about 7 ± 2. The point is that "as we add more variables to the display, we increase the total capacity, but we decrease the accuracy for any particular variable. In other words, we can make relatively crude judgments of several things simultaneously." Therefore, in order to increase the reliability in the research, Miller states:

> there is a clear and definite limit to the accuracy with which we can identify absolutely the magnitude of a unidimensional stimulus variable. I would propose to call this limit the span of absolute judgment, and I maintain that for unidimensional judgments this span is usually somewhere in the neighborhood of seven.

[58] Values were organized according to dominant criteria. A value may be present in more than one aspect.
[59] MILLER, 1994.

After studying the limitation on the number of variables it was performed a selective choice of the landscape values60, reaching up to six values that summarize the arguments needed for this evaluation:

- Aesthetic/scenic – for the attractive/harmonic scenery, sights, smells or sounds;
- Economic – for economic benefits such as agriculture, tourism or commercial activity;
- Heritage – for their natural and human history;
- Intrinsic – for their existence, no matter what people think about them or how we use them;
- Life sustaining – because they help to produce, preserve and renew air, soil and water;
- Recreation – for their provision of outdoor recreation activities opportunities;

In order to make this research more realistic, during the process of creating scenarios, some current urban trends were appreciated. The six scenarios for each landscape were created also taking into account the landscape elements previously stated by the drawings of the population61, the macro alterations already presented and its relation to the values of the landscape62.

Instruments and target audience

As the target audience is the general population of Florianopolis, being the people that vote as the only restriction, the interface used in this research must be very clear and of easy comprehension and filling. In addition, it was essential that the system be able to record the participant's interaction with the interface so that we could understand and correlate the information and choices made by each person.

Two approaches to development were considered, a presencial research and a web browser application. The browser-based approach to development was chosen because:

- The general public are often already familiar with web page operation using a graphical interface and standard mouse (click and drag) operations;
- The web-browser has a higher coverage, with reference to the amount of people interviewed and the time available;

[60] Teachers and researchers from the fields of economics, environmental and architectural heritage were consulted to help in the selection of the values.

[61] See Figure 5 in section 2.2.4 Landscape as a Participatory Process

[62] The scenarios were created as an example of intervention that reflects the values listed. This also does not mean that only one value is changed by the alterations made.

- The web-browser does not need an intermediary who leads the research and can be done from anywhere;
- Interactive controls for manipulating data are easily implemented; and
- Text, graphic and interactive media are all supported.

To carry out this questionnaire it was used the virtual program SurveyMonkey (surveymonkey.com), which is an application that meets the requirements of presentation, data collection and analysis. In the second stage, the data systematized in an Excel spreadsheet for evaluation of all information.

Landscapes selection

The selected landscapes for analysis are located in the central zone of the island of Santa Catarina, with its views starting from mainland portion of the island (Landscape 1) to the coast (Landscape 4). The landscapes selected are:

- Landscape 1 – City Center;
- Landscape 2 – Trindade e Itacorubi;
- Landscape 3 – Lagoa da Conceição;
- Landscape 4 – Praia Mole.

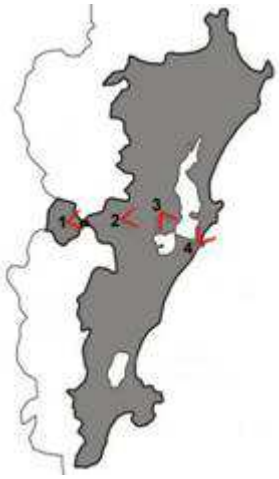

Figure 25 - Location of the selected landscapes

The photos taken[63] respect a lighting pattern and scale of coverage. All photos were taken from points of easy access to the population, consisting of public viewpoints.

b.2.1 Ranking of urban investments/actions

This method of assessing landscape has the purpose to perform landscape preference studies based on descriptive questions. Basically people build a ranking of the described urban interventions that they think are important for the current state of a specific landscape. This ranking is done by the analisys of a photo-based questionnaire and intends to verify if the preference of the type of intervention changes depending on the analyzed landscape or is always a constant regardless the diversity of landscapes. By presenting different landscapes, it is expected to

[63] The photo of landscape 1 was taken by Prof. Dr. Renato Saboya in 2013 and the photos of landscapes 2, 3 and 4 were taken by the author in 2011.

emphasize the diversity of needs between them. In the case of a descriptive questionnaire, the interventions that are carried out are not exemplified, this is a limitation of the method since it allows an immense interpretation of scenarios.

This third analysis was added to the study after conducting the pilot questionnaire. This addition was due to the great constant in the results of the analysis of the scenarios. When performing a prior ranking of investments in each landscape, we intend to emphasize the diversity between landscapes and to insert the participant into deeper possibilities of comparison.

This part of the research examines the preference of the population between public investments in relation to the current state of landscape. From the photograph of each of the four selected landscapes, is evaluated the investment options (these were always presented randomly order not to constrain results) that consists of:

- maintenance of the current landscape;
- creation of green recreational areas;
- creation of alternatives aimed at environmental sustainability;
- preservation of environmental or built heritage;
- restriction and control of constructions in the hills;
- restricting the increase of the height of buildings.

Figure 26 - Photo of Landscape 1 – City Center

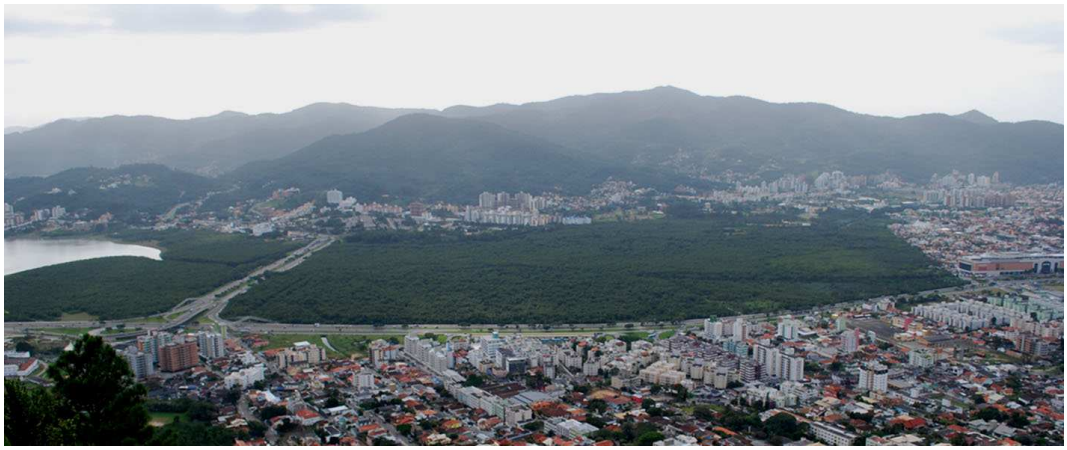

Figure 27 - Photo of Landscape 2 – Trindade e Itacorubi

Figure 28 - Photo of Landscape 3 – Lagoa da Conceição

Figure 29 - Photo of Landscape 4 – Praia Mole

b.2.2 Rating of urban scenarios

The objective of this analisys is also to perform landscape preference studies, but these are based on scenarios rating (using a Contingent Rating method). Sub-aspects of the landscape, such as volume of construction and the presence of green recreational areas are isolated and separately represented in scenarios created from

the landscapes already presented in the descriptive analysis (Figure 26 to Figure 29). The created scenarios are then rated and compared in order to determine the trade−offs between the elements analised in that specific landscape. By scoring several types of hypothetical scenarios, it is possible to know which elements people prefere and also with which intensity. This second assessment completes the previous analysis, clarifying the research objectives. With the use of scenarios, the participant is provided with the possibility to anticipate the visualization of the consequences of urban decisions and it is also a flexible manner of comparison between future interventions. One limitation is that, by using hypothetical scenarios, only one specific interpretation of that element is being examined. It could be an advantage if used to analise projects of interventions that are already being thought to the city.

Considering the limitations in assessing a significant preference distribution in the previous assessment, this part of the questionnaire was conceived to exemplify the kind of interventions that could be proposed to the city. A scenario preference method was chosen so that it could be created an open and flexible analysis covering also qualitative and quantitative aspects. Following the rules of isolation of variants, six (6) different scenarios were created for each one of the four (4) landscapes. The alterations on each scenario were done through virtual manipulation and each urban intervention proposed represent an independent variable[64].

In this analysis, the population of the city that is being studied is invited to rate the scenarios created. This method elicit the weight of each intervention, showing their relative investment importance by assigning a score to each criterion. The participant, working as a decision maker, has to give his/her preferences with respect to the evaluation criteria incorporated into each scenario. These preferences are expressed in priorities or weights and indicate trade−offs between the criteria. Thus, scores are being used as an objective measure to assist investment decision making.

Since this is a participatory activity, the population of the city is able to vote, showing their landscape preferences by the scores given to them. By studying the difference between these scores it is possible to analyse and quantify the

[64] The creation of the independent variables resulted from the process described in section 4.2.1 b.2 Scenario criteria

values/criteria that have priority for them. The comparison of the scores happens depending on each manipulated element and allows to understand how people value that element, that is to say, it generates knowledge about which proposal affects more markedly the value people attach to landscape. The issues with higher punctuation, being the most valued by the public, would have priority in the planning approach, and the proposals with lower scores, should receive a different approach, since it was not well accepted by the population.

The scenarios were identified by using number icons. They were presented in a diagram arranged in two columns, with three scenarios each. Every landscape had its scenarios randomly arranged, but the status quo was always been presented as the first option. The scenarios were created using the following variables:

1. Status quo;
2. Creation of green recreational areas;
3. Creation of alternatives aimed at environmental sustainability;
4. Intervention on environmental of built heritage;
5. Increase in construction in the hills;
6. Increase in the height of buildings.

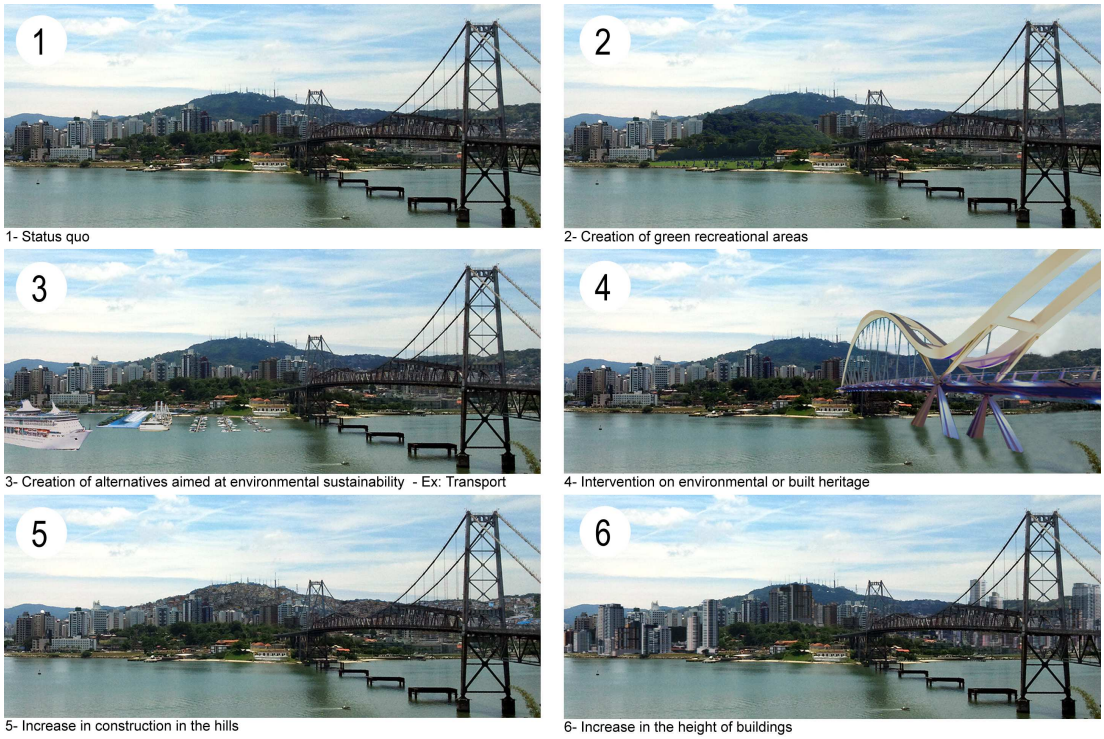

Figure 30 - Scenarios of Landscape 1

1- Status quo

2- Increase in the height of buildings

3- Creation of green recreational areas

4- Increase in construction in the hills

5- Creation of alternatives aimed at environmental sustainability - Ex: Transport

6- Intervention on environmental or built heritage

Figure 31 - Scenarios of Landscape 2

1- Status quo

2- Creation of alternatives aimed at environmental sustainability - Ex: Transport

3- Increase in the height of buildings

4- Creation of green recreational areas

5- Intervention on environmental or built heritage

6- Increase in construction in the hills

Figure 32 - Scenarios of Landscape 3

Figure 33 - Scenarios of Landscape 4

The total of 24 scores (6 scenario scores by each of the 4 landscapes) given to the scenarios were systematized in a semantic scale associated with numbers that respected a significance degree (0-Terrible; 2,5- Insufficient; 5- Regular/Indifferent; 7,5- Good; 10- Excellent). This scale provides a reference that makes sense to people, helping them to understand the proposed scale and also to standardize the answers. By using this method, the comparison between criteria is also more accurate. The same rate method was used to analyze the status quo and all the proposed scenarios of each landscape. In the end, it was organized in a table containing the mean and the median scores given by the population.

Considering the score of the status quo scenario as the reference point for the assessment, it can be carried out a comparison to all scores obtained by each intervention/element in the landscape. In this way, each element changed will be assessed individually. Thus, it will be possible to find out the preference that people have for these landscape elements, that is to say, to find out if they prefer with or without the element X and with which intensity they prefer or do not prefer this element.

c. Participants' feedback:

The purpose of the questions presented in the feedback is to measure the level of availability of people for public participation and their evaluation of the usefulness of studies about landscape. They are also asked which method they consider the most appropriate for assessing landscape proposals in order to know their opinion about the assessments that were just made by them. An advantage of asking people about their opinion of the questionnaire is that they can demonstrate if they are satisfied with the information exchanged or they need another type of approach to demonstrate their perceptions. At last, it is added an open question in order to set people free for any public opinion that they think is necessary.

The questions were as follows:

- Do you think that landscape assessments would be useful for the development of the master plan of your city?
- Would you like to participate in these evaluations, if this study was real?
- Which method you consider the most appropriate for assessing proposals for the landscape:

( ) Ranking of urban investments/actions;

( ) Rating of urban scenarios;

( ) Other: _____

- If you like, leave a message: (open question)

5 Results

The Landscape Budget (LB) questionnaire was conducted online from May 8th to May 21st 2013. Its design had to support the respondents in answering multiple choice questions, descriptive questions and in assigning scores without further assistance of an interviewer. This design required a questionnaire that allowed the incorporation of interactive elements and which could be easily and quickly evaluated. It was decided, therefore, to choose an online survey (Surveymonkey.com) and to organize it by using the Excel program being a widely used software that allows a greater possibility of crossing data. The questionnaire was available in Portuguese language (APPENDIX 2 – Questionário) as it was addressed to the residents of the Brazilian city. The English version of the questionnaire can be found in APPENDIX 3 – Questionnaire.

To make the final questionnaire, a pilot questionnaire was carried out with a total of 30 participants. This practice helped to test the operability of the proposed instrument. With the completion of the pilot questionnaire it was possible to explore and understand the questionnaire difficulties; settle the issues to the research objectives; adjust the order of presentation of the issues and verify the number of questions needed for the research. Once its flaws were found, the questionnaire was reformulated by expanding and changing items and by explaining better some issues. The changes resulted from the completion of the pilot questionnaire will be described during the presentation of the results.

The final questionnaire was visualised by 265 people, but only 215 questionnaires were completetly answered. As 50 people did not finish it, their evaluation were not used for the analysis. Once the research used an online instrument, participants could spend the time they considered necessary, both to read the instructions and to answer questions. An average of 19 minutes were needed to complete the questionnaire.

During the realization of the final questionnaire, it was tried to diversify the field sampling of participants so that it could coordinate with the characteristics of the respondents of the current voters of the city. Not all the characteristics of the sample

truly represent the voting population of Florianopolis. Nevertheless, 215 valid responses from a sample that showed interest in freely respond to the questionnaire can not be considered negligible.

The questionnaire begins with an introduction to the LB study and the purpose of the survey. Then, it is divided in five parts. The first and fifth parts consist mostly of multiple-choice questions and descriptive questions and the second, third and fourth parts of the questionnaire support multiple-choice questions and scoring assessments.

The questionnaire is divided in:

1. Participants' context;
2. Ranking of urban topics;
3. Ranking of urban investments/actions;
4. Rating of urban scenarios;
5. Participants' feedback.

The data[65] of the final questionnaire are analyzed below.

[65] All the collected data is described in APPENDIX 5 - Questionnaire data.

5.1 Participants' context:

Age and Genre

According to the research of social context in the first part of the questionnaire, the most frequent age category of the participants of the questionnaire (59,1% women and 40,9% men) is between 25-34 years old (36,3%). This category is followed by the ranges 16-24 and 45-59 years (22,8% and 18,6%, respectively). The Table 11[66] organizes the percentages of the Florianopolis' voters by age and genre; the following Table 12 reproduces the participants' characteristics. As the distribution of the percentage of participants' age is not in accordance with the voting population of Florianopolis, graphs were created which show what are the main differences in distribution (see Figure 36 and Figure 37). These differences are justified basically due to greater participation of young people in the research.

	Genre			
Age	**Female**	**Male**	**Percent**	**Count**
16 - 24 years	22793	21834	14%	44627
25 - 34 years	39737	37596	24%	77333
35 - 44 years	33174	30590	20%	63764
45 - 59 years	44816	38063	26%	82879
+ 60 years	29801	23841	17%	53642
Total	**170321 (53%)**	**151924 (47%)**	**100%**	**322245**

Table 11 - Total voters in Florianópolis by age and genre
Source: Based on data of Superior Electoral Court - BRAZIL, 2012.

	Genre			
Age	**Female**	**Male**	**Response Percent**	**Response Count**
16 - 24 years	31	18	22,8%	49
25 - 34 years	47	31	36,3%	78
35 - 44 years	21	17	17,7%	38
45 - 59 years	24	16	18,6%	40
+ 60 years	4	6	4,7%	10
Total	**127 (59,1%)**	**88 (40,9%)**	**100%**	**215**

Table 12 - Age and genre of the participants

[66] Based on the data presented in Section 3.1.

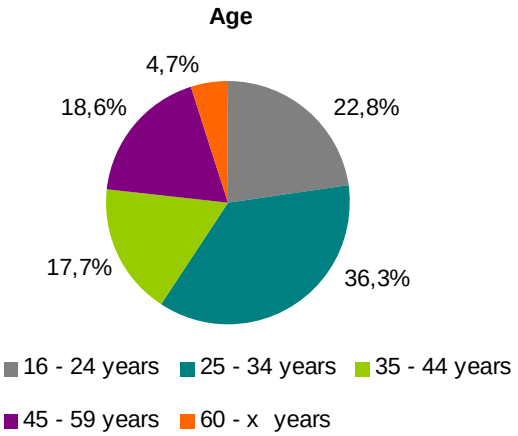

Figure 34 - Age of participants

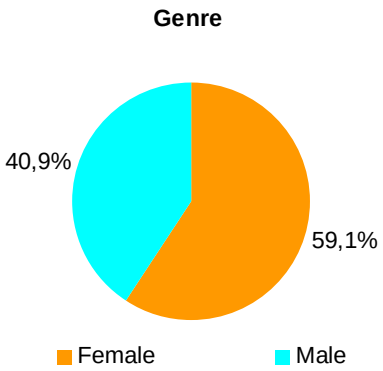

Figure 35 - Genre of participants

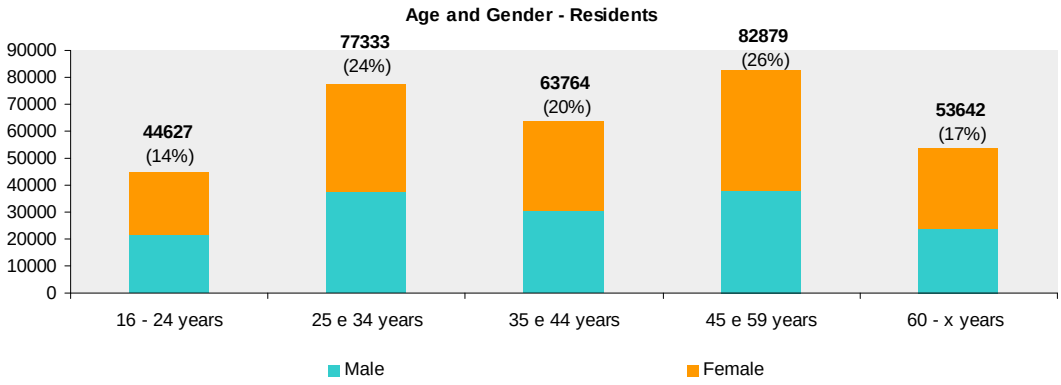

Figure 36 - Age and genre of residents

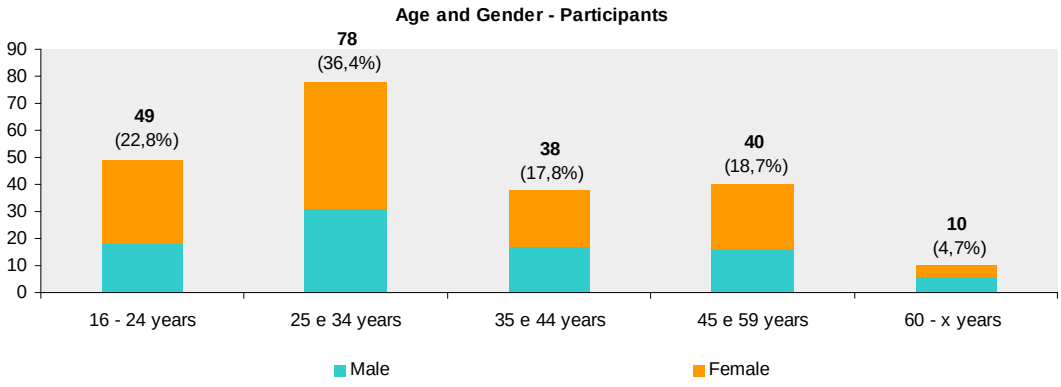

Figure 37 - Age and genre of participants

Education

According to a survey consulted in IBGE 2010, the education of the population of Florianopolis, among people of 10 years of age or older, is as follows:

Education	Percent	Count
Without education and incomplete elementary school	26%	97248
Elementary school and incomplete high school	15%	57447
High school and incomplete graduation	34%	127752
University Graduation	24%	90436
Not determined	1%	1104

Table 13 - Education of the population of Florianopolis – people older than 10 years
Source: IBGE, 2010.

Education	Response Percent	Response Count
Without education and incomplete elementary school	0,0%	0
Elementary school and incomplete high school	0,5%	1
High school and incomplete graduation	22,3%	48
University Graduation	42,3%	91
Postgraduated	34,9%	75

Table 14 - Complete education of the participants

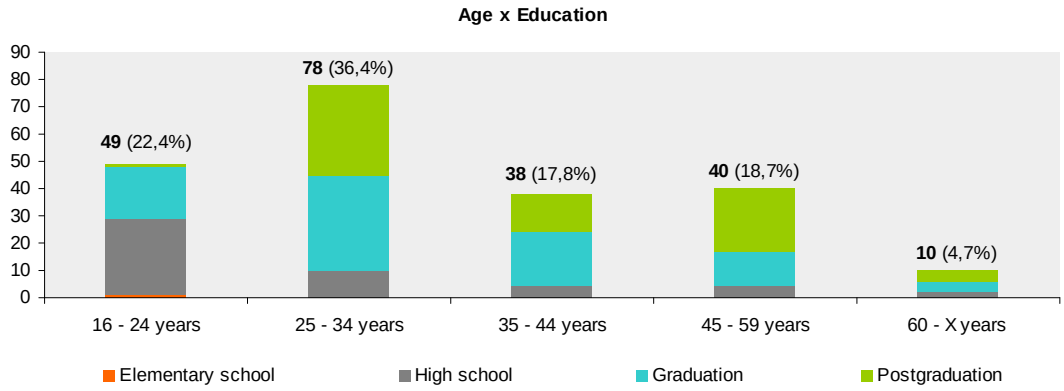

Figure 38 - Age and education of participants

Regarding the level of education of respondents (Table 14 and Figure 39), the options that predominated were the respondents who completed Graduation (42,3%) followed by those who have completed a Post Graduation (34,9%). The sample reached reveals a population with education above the city average, which could prove a class with more developed critical thinking. It would be necessary, for the realization of a future complete analysis of the city, to add the evaluation of people with lower level of education.

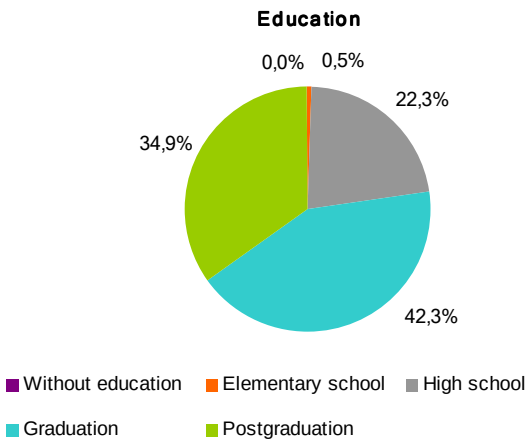

Figure 39 - Completed education of participants

Profession / Occupation

To collect the information regarding the profession and/or occupation of participants, an open question was carried out. To summarize this information, there were used the Knowledge Areas categories from CAPES[67] and introduced the topics 'Student/Trainee' and 'Other'. All the participants who are not graduated or did not specified their areas of occupation were included in the category 'other'.

The sample of this research is represented by a large population in the area of Applied Social Sciences. This area is formed by professionals responsible for meeting the needs of society. Thus, by having social aspects as their priorities, and particular technical skills, they could have a big contribution in the attempt of the public integration in collective activities and decisions toward a sustainable development of the city.

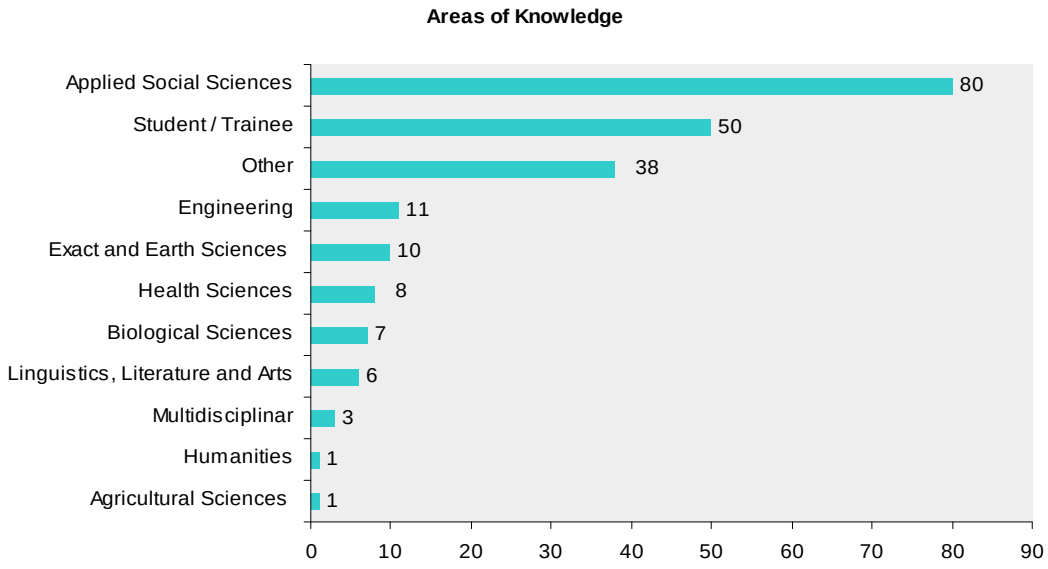

Figure 40 - Areas of knowlegde of participants

Origin and District of residence

Observing the origin of the respondents, about 64% of them, who currently are living in Florianópolis, were not born in the city. Concerning the residence distribution of the participants, their districts of residence are: Central Business District, with about

[67] CAPES - Fundação Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (Foundation for the Coordination of Improvement of Higher Education Personnel). Availvable at: www.capes.gov.br/. Accessed on May, 2013.

73% of respondents, followed by districts Lagoa da Conceição (13,5%), Campeche (3,7%) and Santo Antonio de Lisboa (2,3%). The Table 15 and Figure 41 compare the number of residents and participants of the city.

Order	District of residence	Residents %	Residents Count	Participants %	Paricipants Count
1	Central (includes mainland)	67%	228.869	73,0%	157
2	Ribeirão da Ilha	6%	20.392	0,9%	2
3	Campeche	5%	18.570	3,7%	8
4	Ingleses do Rio Vermelho	5%	16.514	1,4%	3
5	Cachoeira do Bom Jesus	4%	12.808	1,4%	3
6	Canasvieiras	3%	10.129	1,9%	4
7	Lagoa da Conceição	3%	9.849	13,5%	29
8	São João do Rio Vermelho	2%	6.791	1,4%	3
9	Pântano do Sul	2%	5.824	0,5%	1
10	Santo Antônio de Lisboa	1%	5.367	2,3%	5
11	Barra da Lagoa	1%	4.331	0,0%	0
12	Ratones	1%	2.871	0,0%	0

Table 15 - Distribution of residence of the residents and participants of Florianópolis
Source: IBGE, Censo 2000.

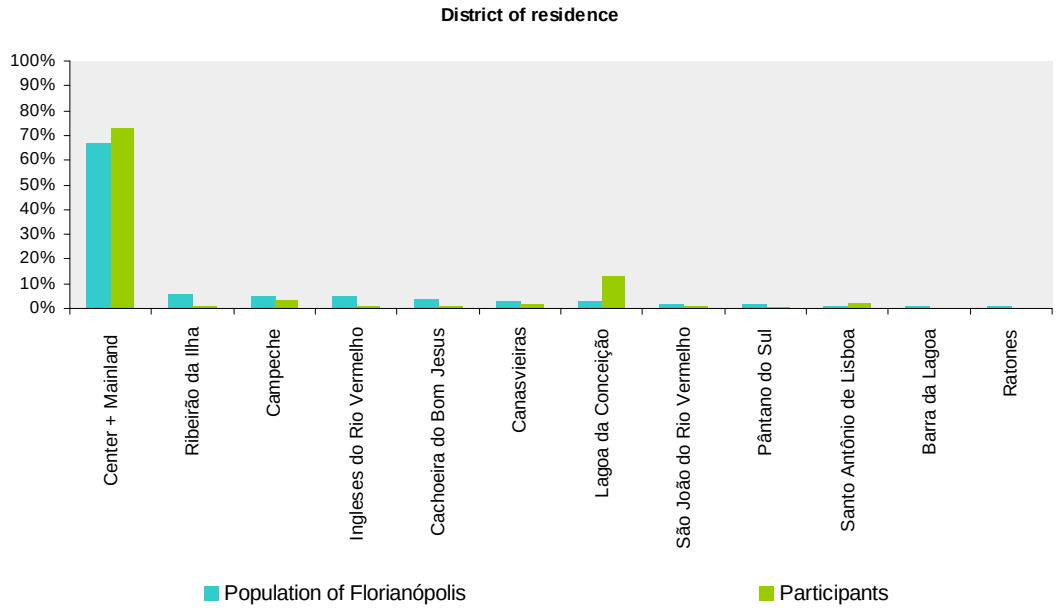

Figure 41 - District of residence of population and participants

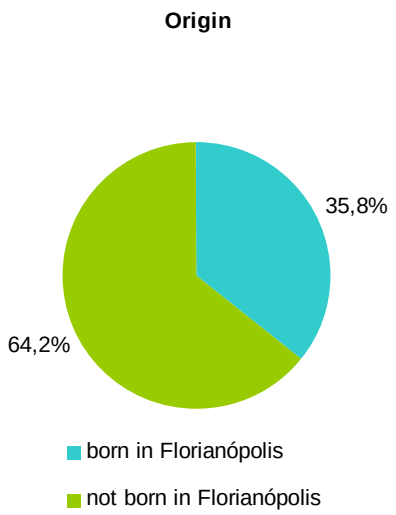

Figure 42 - Origin of participants

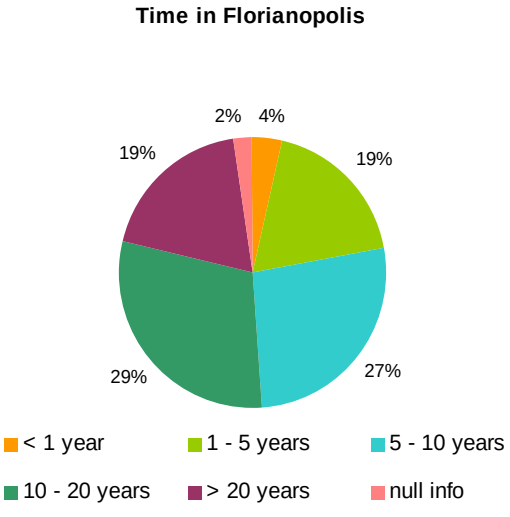

Figure 43 - Residence time of participants not born in Fpolis

Participation in the Participatory Urban Process (PUP)

As a way of warning, to analyze the responses of the last question of the social context, the number of people who participated in some way in the Participatory Process the city's Master Plan was collected. The number of participants who somehow took part, at least once, in this process (16.7%) can be considered modest compared to the potential participants of the city. Therefore, attention is drawn to the need to better publicize the process and also to create new forms of participation. On the other hand, this is a very high number with respect to these recent proceedings in Brazil. This number can be explained by the diversified ways in which they had happened. There were considered participation such as in: meetings and public hearings, public internships, seminars, debates or even being a member of the neighbourhood association or as listener in a meeting.

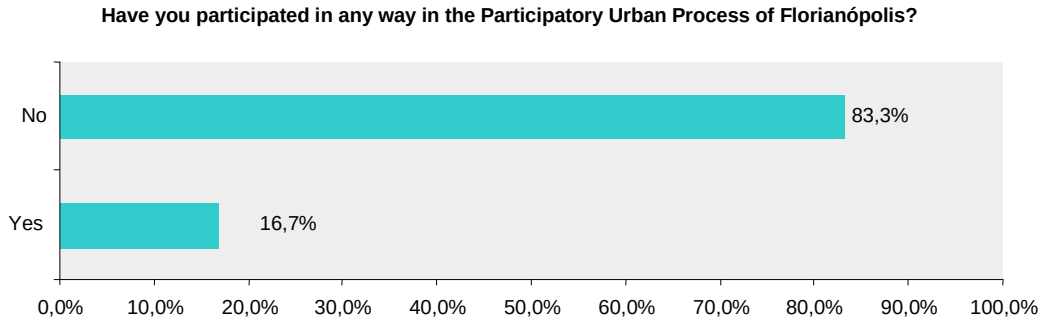

Figure 44 - Percentage of participants who previously participated in the PUP

5.2 Ranking ‘urban topics’

The first question on the evaluation of the landscape is a ranking of urban topics. This is an activity in which questions concerning the priorities among the topics of action are done. Here, the residents emphasize what they would like to see done in their neighborhood. This question allowed choosing six priorities between the sixteen presented topics. Their response is in accordance with the following Table 16 and Figure 45:

Urban Topics	Response Percent	Response Count
Urban Mobility and Accessibility	83,7%	180
Sanitation	68,4%	147
Education	64,2%	138
Transportation and Circulation	62,3%	134
Health	54,9%	118
Culture	54,0%	116
Landscape	46,0%	99
Leisure Areas	36,7%	79
Sporting Goods	31,2%	67
Housing	27,9%	60
Social Assistance	14,0%	30
Economic Development and Taxation	13,5%	29
Public Lighting	13,0%	28
Paving	11,6%	25
Tourism	10,2%	22
Youth	8,4%	18

Table 16 - Ranking of urban topics

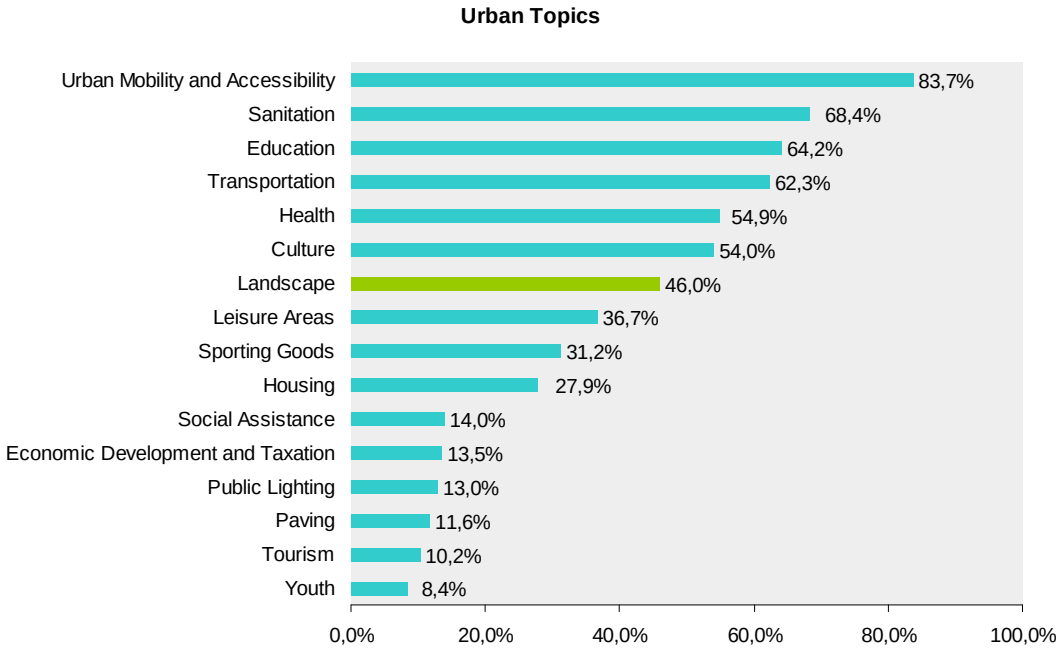

Figure 45 - Ranking of urban topics

The Figure 45 is based on an indicator called ‘intensity of use’, which presents the ‘intensity’ of times that the participants selected the topics during the assessment. This ‘intensity’ graphic shows that the most intensely selected topics were: 'Urban Mobility and Accessibility' (mentioned by 83,7% of the respondents), followed by 'Sanitation' and 'Education' (mentioned by 68,4% and by 64,2% of the respondents, respectively). The topic 'Landscape' was mentioned by 46% of the population, which positioned it in the 7th place of the ranking. This survey reveals that the landscape is not a topic that expresses one of the biggest concerns in the urban population. Even so, the numbers show that it does represent a high preoccupation for them.

The result is either way affected by the survey sample. Among the professionals of Architecture who answered to the questionnaire (27,4% of the participants), the landscape was marked by 64% of the sample. In relation to all the other participants, the landscape was marked by 39% of them. These percentages show that the high intensity of use obtained by the topic landscape was increased by the help of professionals who were trained to think the city. On the other hand, almost 40% of the population being concerned about landscape is also a considerable number.

5.3 Ranking ‘urban investments/actions’

In this study, participants were asked to do a ranking by carrying out the analysis of six landscape interventions/actions. For the evaluation of the results, the order of priorities was presented in a range of values 1-6. The lower the value, the higher the priority investment / action taken.

The investment/action options were:

1. Maintenance of the current landscape;
2. Creation of green recreational areas;
3. Creation of alternatives aimed at environmental sustainability;
4. Preservation of environmental or built heritage;
5. Restriction and control of constructions in the hills;
6. Restricting the increase of the height of buildings.

The obtained data are organized below:

Options	Landscape 1	Landscape 2	Landscape 3	Landscape 4	Mean
1-	4,29	3,60	3,61	3,17	3,67
2-	3,46	3,87	4,16	4,66	4,04
3-	3,38	2,96	2,96	3,20	3,13
4-	3,12	2,99	3,23	3,44	3,20
5-	3,29	3,62	3,74	2,78	3,36
6-	3,46	3,96	3,30	3,75	3,62

Table 17 - Ranking data

The analysis of the Ranking of Urban Investments/Actions is divided in:

5.3.1 Standard / differences between investments / actions

5.3.2 Standard / differences between landscapes

5.3.1 Standard / differences between investments / actions

The first verification performed shows the general order of priorities according to the investments / actions proposed. With the aid of Figure 46 and Table 18, it is possible to visualize the average value of the priorities of the respondents and their classification in the ranking.

Regarding the category of interventions/actions with higher priority, the concern 3 - ‘Creation of alternatives aimed at environmental sustainability’, demonstrated to be the central point of the needs of the population, being mentioned by most participants

in 2 of the 4 landscapes (see Table 19). The option with the second highest priority is 4 - ‘Preservation of environmental or built heritage’. Both options with the highest priority, also demonstrated greater concordance in responses (see Figure 48). In the category of lowest priority, there are the options 1 and 2, neither of which have consistent priority values between landscapes (see disagreement in the values represented in Figure 48). For option 2, this result was not expected since, during the scenario comparison in the pilot version (Part 4 of the pilot questionnaire), the population has shown great value about the 'Creation of green recreational areas." For option 1, referring to the 'Maintenance of the current landscape', this result was expected, since people have difficulty in determining the value of a public good that already exists without a means of comparison.

The information obtained from this analysis show that, in general, the population of Florianopolis shows to be more concerned with the necessity of developing new urban alternatives that aim at the sustainable development and the preservation of its heritage, being either the built and the environmental.

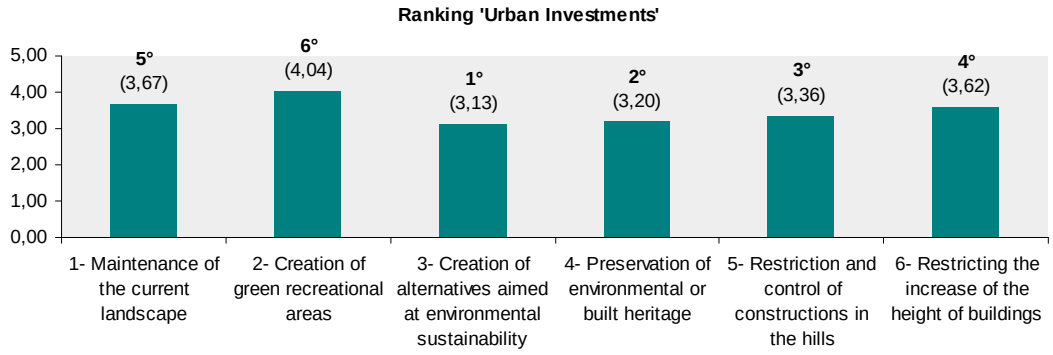

Figure 46 - General ranking of Urban interventions/actions

The Table 18 shows the general order of priorities and its average classification:

Ranking	Opt.	Mean	Urban Investments/Actions
1°	3-	3,13	Creation of alternatives aimed at environmental sustainability
2°	4-	3,20	Preservation of environmental or built heritage
3°	5-	3,36	Restriction and control of constructions in the hills
4°	6-	3,62	Restricting the increase of the height of buildings
5°	1-	3,67	Maintenance of the current landscape
6°	2-	4,04	Creation of green recreational areas

Table 18 - General order of priorities among the interventions/actions

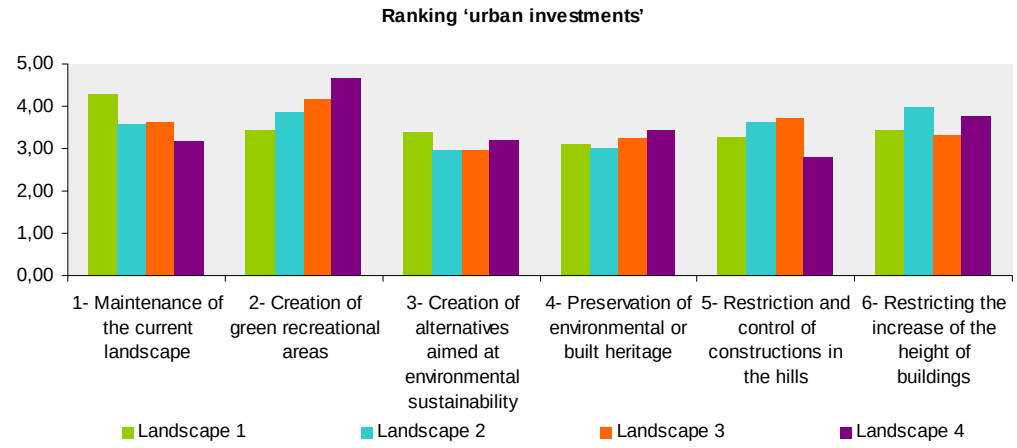

Figure 47 - Intensity of urban interventions/actions priorities according to the 4 landscapes

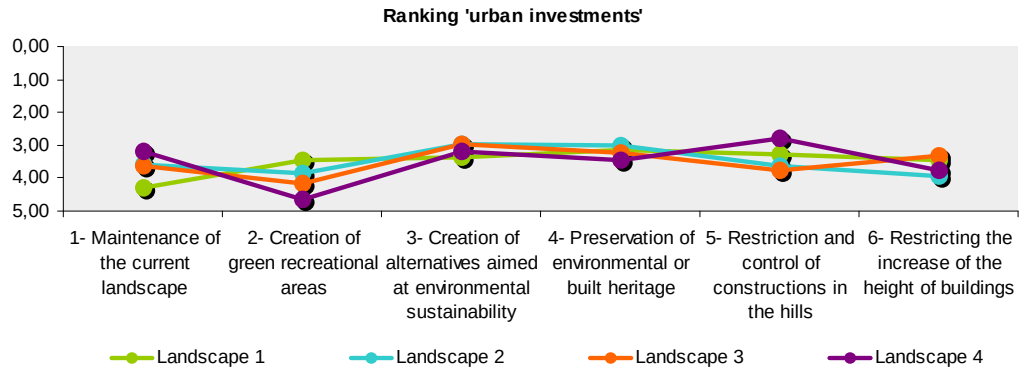

Figure 48 - Ranking of urban interventions/actions according to the 4 landscapes

Table 19 shows the order of priorities for each landscape and its average classification:

Options	Lands. 1		Lands. 2		Lands. 3		Lands. 4		Mean	
1-	6°	4,29	3°	3,6	4°	3,61	2°	3,17	5°	3,67
2-	4°	3,46	5°	3,87	6°	4,16	6°	4,66	6°	4,04
3-	3°	3,38	1°	2,96	1°	2,96	3°	3,2	1°	3,13
4-	1°	3,12	2°	2,99	2°	3,23	4°	3,44	2°	3,2
5-	2°	3,29	4°	3,62	5°	3,74	1°	2,78	3°	3,36
6-	4°	3,46	6°	3,96	3°	3,3	5°	3,75	4°	3,62

Table 19 - Ranking data according to the 4 landscapes

5.3.2 Standard / differences between landscapes

This second verification presents the order of priorities for each analyzed landscape and demonstrates its diversity between investments (Figure 49 and Figure 50). Figure 49 displays the intensities of priorities in each landscape, while Figure 50 displays its place in the ranking and the concordances of responses.

The graphs presented in this stage show that the classification of investment/action priorities should not be generalized. People recognize that to each landscape is required an individual approach that respects the characteristics of the place.

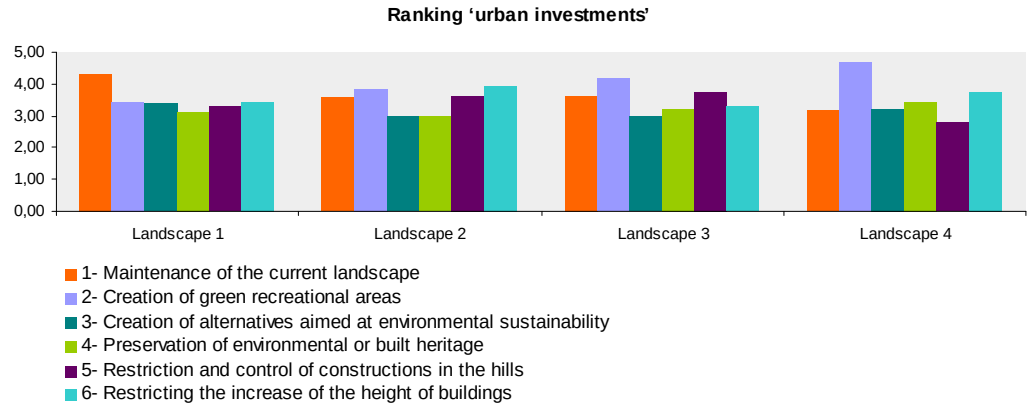

Figure 49 - Intensity of landscape priorities according to the urban interventions/actions

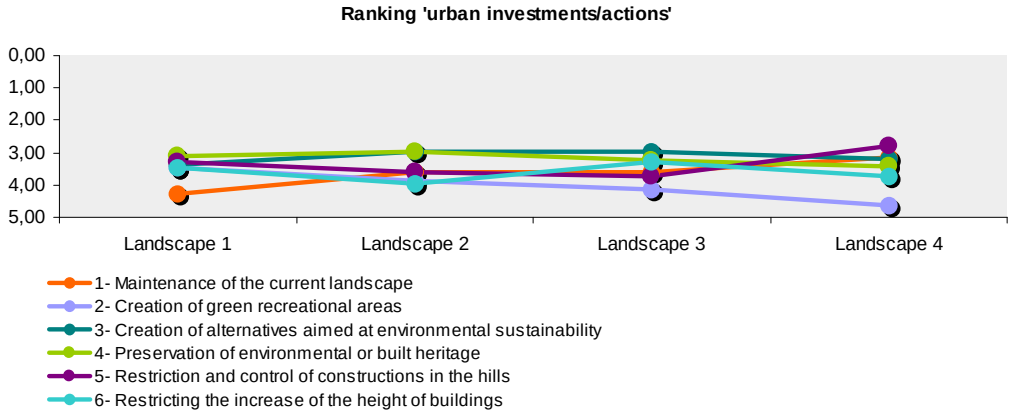

Figure 50 - Ranking of landscape priorities according to the interventions/actions

Table 20 shows the priority order according to each investment / action:

Options	Lands. 1		Lands. 2		Lands. 3		Lands. 4	
1-	4°	4,29	2°	3,60	3°	3,61	1°	3,17
2-	1°	3,46	2°	3,87	3°	4,16	4°	4,66
3-	4°	3,38	1°	2,96	1°	2,96	3°	3,20
4-	2°	3,12	1°	2,99	3°	3,23	4°	3,44
5-	2°	3,29	3°	3,62	4°	3,74	1°	2,78
6-	2°	3,46	4°	3,96	1°	3,30	3°	3,75

Table 20 - Ranking data according to the interventions/actions

The data obtained in this descriptive phase of this research indicate that, according to the investment/actions options, the priorities are:

1- a landscape of predominantly natural character, with little urban intervention (Landscape 4), is strongly expressed as a landscape to be maintained;

2- measures aimed at creating green recreational areas are not a priority when a predominantly natural landscape (Landscape 4) or a landscape with vast natural heritage and increasing urbanization (Landscape 3) are analyzed. Regarding a landscape from the city center (Landscape 1) this measure is already considered as strongly necessary;

3- measures aimed at environmental sustainability are considered necessary in any landscape, particularly in landscapes with presence of natural heritage and increasing urbanization (Landscape 2 and 3);

4- measures to heritage preservation are necessary in all analyzed landscapes, especially landscapes with vast natural heritage and increasing urbanization (Landscape 2) and landscapes of the city center (Landscape 1);

5- landscapes which still prevails the presence of natural elements (Landscape 4) have a greater need to protect their hills from constructions than landscapes with more pronounced urbanization (Landscape 2 and 3);

6- measures that restrict the increase of the height of the buildings are very necessary in landscapes with vast natural heritage and increasing urbanization (Landscape 3).

The following is the analysis of each landscape:

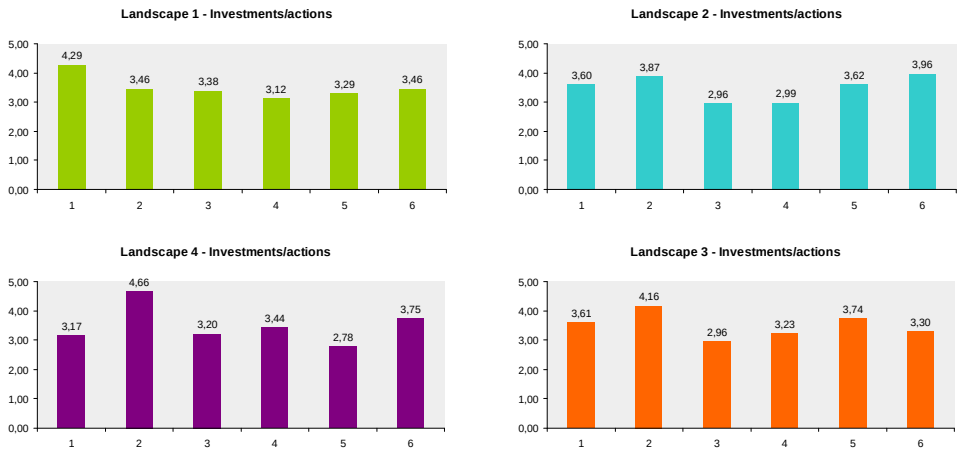

Figure 51 - Ranking of Urban Interventions/actions according to each landscape

Landscape 1:

Figure 52 - Photo of Landscape 1

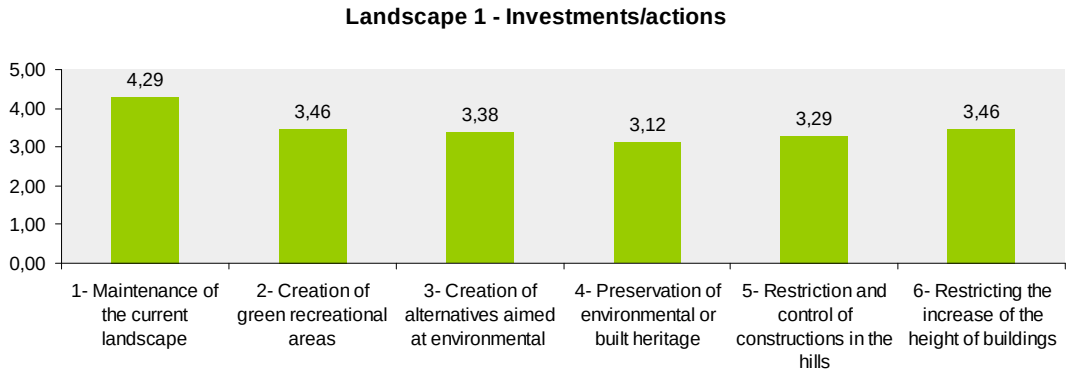

Figure 53 - Ranking of Landscape 1

Table 21 presents the number of participants who voted according to each rank position. The final classification is done according to the average values obtained for each investment/action.

Landscape 1	1	2	3	4	5	6	Ranking	Rating Average
1-	21	19	23	39	39	74	6°	4,29
2-	34	39	37	39	32	34	4°	3,46
3-	35	39	35	40	47	19	3°	3,38
4-	53	34	37	34	39	18	1°	3,12
5-	37	43	45	27	36	27	2°	3,29
6-	35	41	38	36	22	43	4°	3,46

Table 21 - Data of Landscape 1

In Landscape 1, the investments/actions that represent the priority of the participants were:

Ranking	Mean	Urban Investments – Landscape 1
1°	3,12	Preservation of environmental or built heritage
2°	3,29	Restriction and control of constructions in the hills
3°	3,38	Creation of alternatives aimed at environmental sustainability
4°	3,46	Creation of green recreational areas
5°	3,46	Restricting the increase of the height of buildings
6°	4,29	Maintenance of the current landscape

Table 22 - Order of priorities among the interventions/actions – Landscape 1

The Landscape 1 represents the center of Florianópolis seen from the mainland. In this photo, historic landmarks of the island as the center, the Hercílio Luz bridge, the Fort of Santana and also part of the Beira Mar Norte and Morro da Cruz are represented.

The top priorities of the population, while choosing the 'Preservation of environmental or built heritage' and 'Restriction and control of constructions in the hills' may have justification due to the presence of Hercílio Luz bridge as an example of built heritage and the presence of Morro da Cruz, an important central hill which was already occupied illegally. Regarding the "Maintenance of the current landscape," being the item with fewer votes, it demonstrates that people prefer to perform measures and projects than just keeping the landscape the way it is.

Landscape 2:

Figure 54 - Photo of Landscape 2

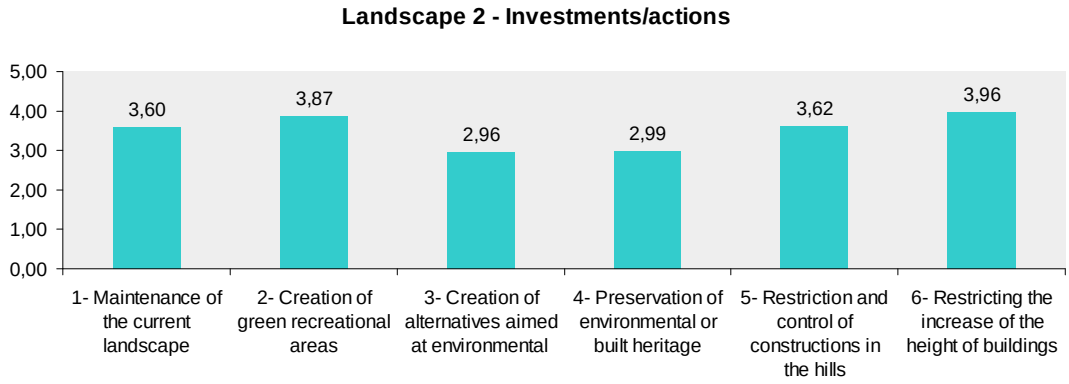

Figure 55 - Ranking of Landscape 2

Table 23 presents the number of participants who voted according to each rank position. The final classification is done according to the average values obtained for each investment/action.

Landscape 2	1	2	3	4	5	6	Ranking	Rating Average
1-	40	34	24	37	35	45	3°	3,60
2-	15	30	53	31	41	45	5°	3,87
3-	48	46	43	35	30	13	1°	2,96
4-	58	37	36	35	31	18	2°	2,99
5-	33	36	32	30	47	37	4°	3,62
6-	21	32	27	47	31	57	6°	3,96

Table 23 - Data of Landscape 2

In Landscape 2, the investments/actions that represent the priority of the participants were:

Ranking	Mean	Urban Investments – Landscape 2
1°	2,96	Creation of alternatives aimed at environmental sustainability
2°	2,99	Preservation of environmental or built heritage
3°	3,60	Maintenance of the current landscape
4°	3,62	Restriction and control of constructions in the hills
5°	3,87	Creation of green recreational areas
6°	3,96	Restricting the increase of the height of buildings

Table 24 - Order of priorities among the interventions/actions – Landscape 2

The Landscape 2 represents the region of Itacorubi, covering its urban area and also a large area of mangrove vegetation. The photo was taken from the Morro da Cruz and leaves in the foreground the Trindade Quarter. This photo represents an area with increasing urban sprawl and a large natural heritage protected by law.

In this landscape the presence of the mangrove area and its increasing urbanization may have conditioned the priority for providing environmental sustainability alternatives. This area has been increasingly occupied, even when it comes to natural protected area. The second priority is precisely the importance of preserving its heritage. In this landscape, it is remarkable the presence of natural heritage and the population is concerned about preserving it. The lowest priority action is the 'Restricting the Increase of the height of buildings'. The fact that the area currently is already very urbanized may have influenced the perception of priority on this factor.

Landscape 3:

Figure 56 - Photo of Landscape 3

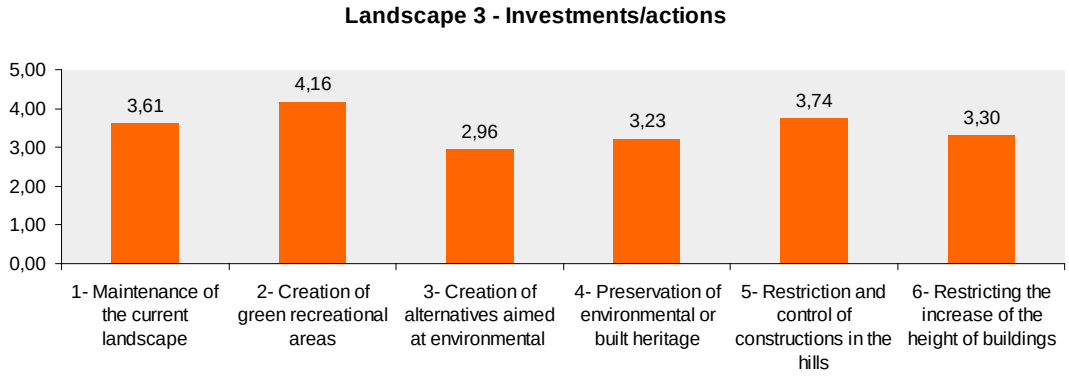

Figure 57 - Ranking of Landscape 3

Table 25 presents the number of participants who voted according to each rank position. The final classification is done according to the average values obtained for each investment/action.

Landscape 3	1	2	3	4	5	6	Ranking	Rating Average
1-	36	28	39	38	28	46	4°	3,61
2-	15	27	27	44	44	58	6°	4,16
3-	53	49	32	38	21	22	1°	2,96
4-	43	37	46	28	39	22	2°	3,23
5-	24	38	31	37	46	39	5°	3,74
6-	44	36	40	30	37	28	3°	3,30

Table 25 - Data of Landscape 3

In Landscape 3, the investments/actions that represent the priority of the participants were:

Ranking	Mean	Urban Investments – Landscape 3
1°	2,96	Creation of alternatives aimed at environmental sustainability
2°	3,23	Preservation of environmental or built heritage
3°	3,30	Restricting the increase of the height of buildings
4°	3,61	Maintenance of the current landscape
5°	3,74	Restriction and control of constructions in the hills
6°	4,16	Creation of green recreational areas

Table 26 - Order of priorities among the interventions/actions – Landscape 3

The Landscape 3 represents the central region of Lagoa da Conceição seen from the highest belvedere on the hill that divides the center of Florianópolis and the eastern coastal region. This place represents one of the most tourist places of the island, comprising different uses, such as fishing activities, tourism, transport and leisure. Lagoa da Conceição is a target much coveted as a privileged residential area because it is located close to the downtown and to the beaches.

Like the previous landscape, Landscape 3 has prioritized the 'Creation of alternatives aimed at environmental sustainability'. A common feature in both landscapes would be the presence of natural heritage and their increasing urbanization. These common aspects call the attention of the population regarding a sustainable development of the areas and also to the 'Preservation of environmental or built heritage', this being its second priority. For this landscape, the lowest priority shown to be the investment in 'Creation of green recreational areas'. This finding is possibly due to the presence of existing large green areas and also recreation areas on land and in water.

Landscape 4:

Figure 58 - Photo of Landscape 4

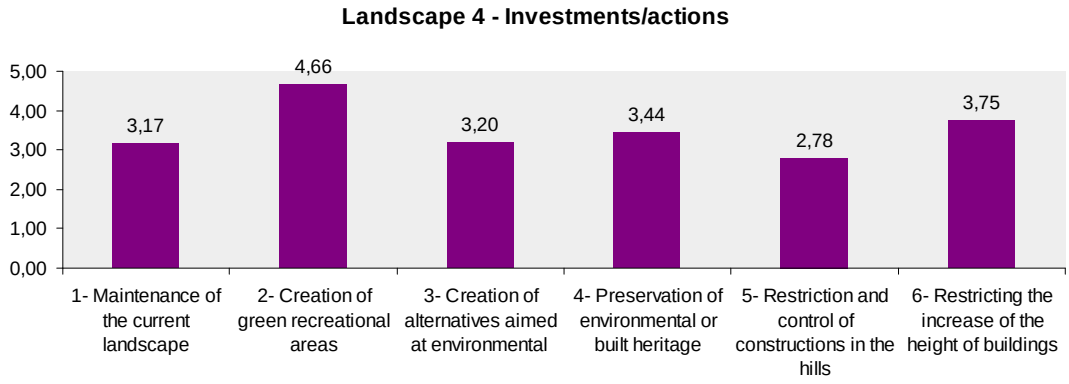

Figure 59 - Ranking of Landscape 4

Table 27 presents the number of participants who voted according to each rank position. The final classification is done according to the average values obtained for each investment/action.

Landscape 3	1	2	3	4	5	6	Ranking	Rating Average
1-	54	43	26	30	29	33	2°	3,17
2-	11	15	28	18	54	89	6°	4,66
3-	38	33	47	53	32	12	3°	3,20
4-	32	35	46	44	25	33	4°	3,44
5-	64	46	32	30	32	11	1°	2,78
6-	16	43	36	40	43	37	5°	3,75

Table 27 - Data of Landscape 4

In Landscape 4, the investments/actions that represent the priority of the participants were:

Ranking	Mean	Urban Investments – Landscape 4
1°	2,78	Restriction and control of constructions in the hills
2°	3,17	Maintenance of the current landscape
3°	3,20	Creation of alternatives aimed at environmental sustainability
4°	3,44	Preservation of environmental or built heritage
5°	3,75	Restricting the increase of the height of buildings
6°	4,66	Creation of green recreational areas

Table 28 - Order of priorities among the interventions/actions – Landscape 4

The Landscape 4 represents the Praia Mole, a bathing area that has been receiving increasing urbanization. This landscape represents the least urbanized landscape being evaluated.

The predominantly natural characteristic of this area and the lowest occupancy rate may have influenced the perception of respondents. This was the landscape with greater contrast between the first and last priority. The main priority of the population was the 'Restriction and control of constructions in the hills'. Perhaps because it is an area with low occupancy, the level of discomfort is even greater if the hill start being urbanized. The intervention standing as second priority was the 'Maintenance of the current landscape', emphasizing the will of 'no occupation' of the area. Again, the investment in 'Creation of green recreational areas' showed no priority, certainly for the natural characteristic of the area that meets this function.

5.4 Rating ‘urban scenarios’

In the assessments of the landscape scenarios, each created scenario was an interpretation of the landscape values. Five changes were made in each of the four landscapes selected for the study and these modifications were made in isolation, i.e. for each scenario it has been changed one feature at a time. It is important to emphasize that the goal of the investigation was to manipulate individually the scenarios to determine separately what influences the judgment of the participants. Since the methodology aims to determine the landscape preferences of the population, the LB instrument could be seen as a useful tool for the process of democratic urban politics.

During the evaluation of the results obtained in this phase of the pilot questionnaire, an uniformity in the scores of the scenarios was found, and it also happened in the differences in scores between the scenarios. In order to prevent their order of presentation from conditioning the responses of the public, for the realization of the final questionnaire it was used the method of random presentation of scenarios. Thus for each of the four landscapes, they were presented to respondents in a different order. To facilitate the understanding of the analysis, for the presentation of the results, the scenarios always followed this order of presentation:

Scenario 1 - Status quo;
Scenario 2 - Creation of green recreational areas;
Scenario 3 - Creation of alternatives aimed at environmental sustainability;
Scenario 4 - Intervention on environmental of built heritage;
Scenario 5 - Increase in construction in the hills;
Scenario 6 - Increase in the height of buildings.

In this analysis, the participants working as decision makers, had to represent his/her landscape preferences by scoring each scenario/criterion. Thus, these preferences were expressed in priorities/weights and indicate trade−offs between the scenarios. The evaluation of corresponding weights was performed using the method of 'direct estimation', thereby indicating their relative importance. For this evaluation, it was used a rating scale from 0 to 10, where participants could rate the scenarios by giving scores that correspond to a semantic scale represented by: 0 – Terrible; 2.5 – Insufficient; 5.0 - Regular / Indifferent; 7,5 – Good; 10 - Excellent.

The score of the scenarios[68] and their mean/median are shown in the following tables:

	Lands. 1	Lands. 2	Lands. 3	Lands. 4	Mean	Difference to the Status quo
Scenario 1	4,9	5,7	6,1	7	5,9	0
Scenario 2	7,6	7,3	7,7	7,1	7,4	1,5
Scenario 3	6,6	7,5	8,1	7,9	7,5	1,6
Scenario 4	2,0	1,1	2,8	1,5	1,9	-4,0
Scenario 5	0,8	0,8	0,7	0,9	0,8	-5,1
Scenario 6	1,6	2,4	1,9	2,5	2,1	-3,8

Table 29 - Scores of the scenarios - according to the mean value

	Lands. 1	Lands. 2	Lands. 3	Lands. 4	Median	Difference to the Status quo
Scenario 1	5	6	6	7,5	6,1	0
Scenario 2	8	7,5	8	7,5	7,8	1,7
Scenario 3	7,5	8	8,5	8	8,0	1,9
Scenario 4	0	0	2	0	0,5	-5,6
Scenario 5	0	0	0	0	0,0	-6,1
Scenario 6	0	1,5	1	1,5	1,0	-5,1

Table 30 - Scores of the scenarios - according to the median value

The analysis of the Rating of Urban Scenarios is divided in:

5.4.1 Standards / differences between scenarios

5.4.2 Standarts / differences between landscapes

[68] See APPENDIX 4 – Scenarios Histograms

5.4.1 Standards / differences between scenarios

The first analysis performed shows the general order of preference according to the scenarios proposed. With the help of Figure 60, Figure 61 and Table 31 the participants' preferences and their classification in ranking is shown. Regarding the category of most preferably scenarios, the two scenarios that received the highest scores were scenarios 3 and 2, representing respectively the 'Creation of alternative aimed at environmental sustainability' and the 'Creation of green recreational areas'. The scenario 2, however, showed the highest agreement in responses (see Figure 63 e Figure 65). The scenario with the third best score was the 'Status Quo', which means that people prefer that the landscape remains the same as having: the height of existing buildings increased (scenario 6); its heritage modified (scenario 4), or their hills filled by buildings (scenario 5). These last three hypothetic interventions received the worst grades, and were listed in descending order of preference. The scenario 5 was confirmed as the worst hypothesis of change, and also with the greater agreement among the worst scenarios (Figure 63 e Figure 65).

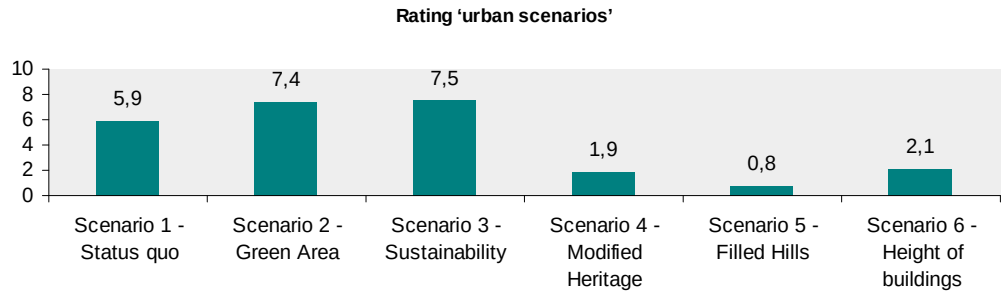

Figure 60 - Rating of Urban Scenarios - mean value

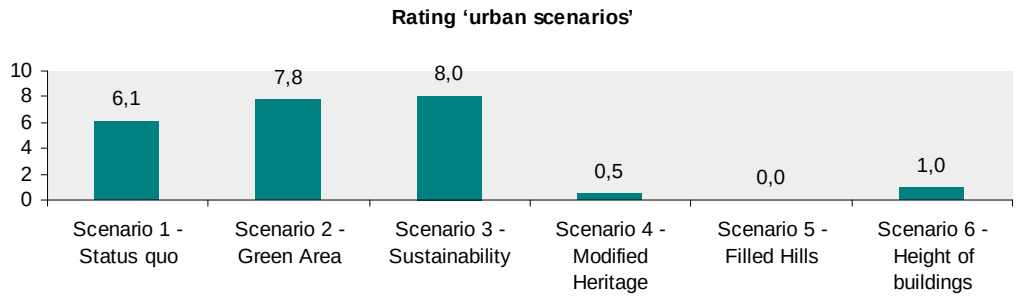

Figure 61 - Rating of Urban Scenarios - median value

The information obtained from this analysis show that, in general, the population of Florianopolis proves to be more attracted to the necessity of creating new alternatives

aimed at urban sustainable development and to the creation of recreational green areas. The last scenarios they would like to see happen in their landscape would be to see their heritage changed and even more to have their hills occupied by buildings.

Table 31 shows the general order of priorities and its mean/median classification:

Ranking	Options	Mean	Median	Urban Investments
1°	Scenario 3	7,5	8,0	Creation of alternatives aimed at env. sustainability
2°	Scenario 2	7,4	7,8	Creation of green recreational areas
3°	Scenario 1	5,9	6,1	Status quo
4°	Scenario 6	2,1	1,0	Increase in the height of buildings
5°	Scenario 4	1,9	0,5	Intervention on environmental of built heritage
6°	Scenario 5	0,8	0,0	Increase in construction in the hills

Table 31 - Order of the population priorities among the scenarios

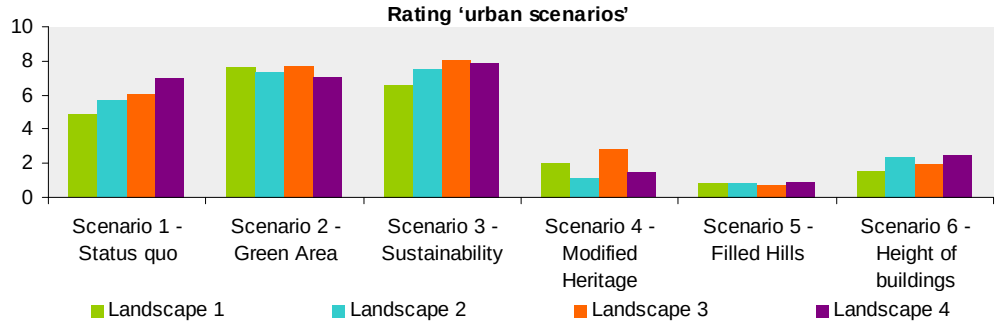

Figure 62 - Intensity of Scenario's score according to each landscape – mean value

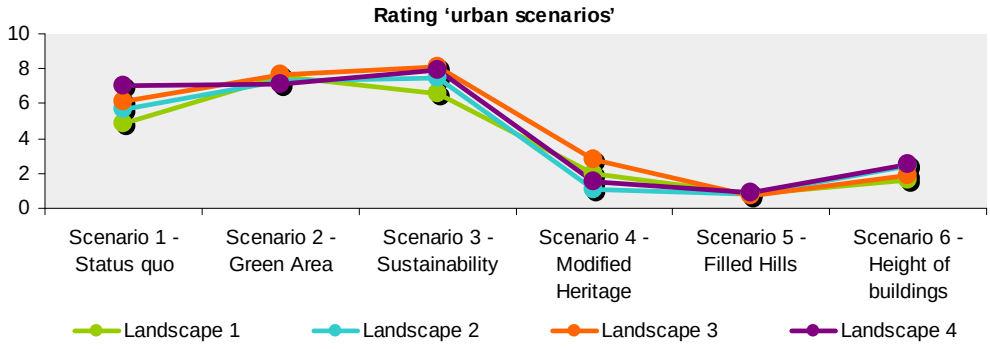

Figure 63 - Ranking of Scenario's score according to each landscape – mean value

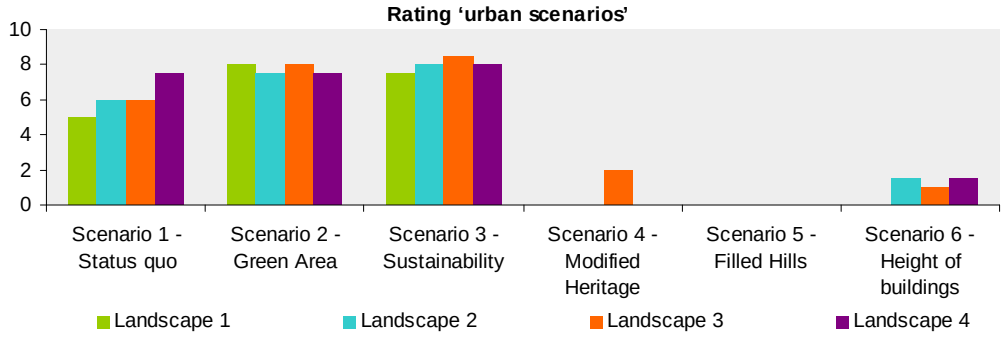

Figure 64 - Intensity of Scenario's score according to each landscape – median value

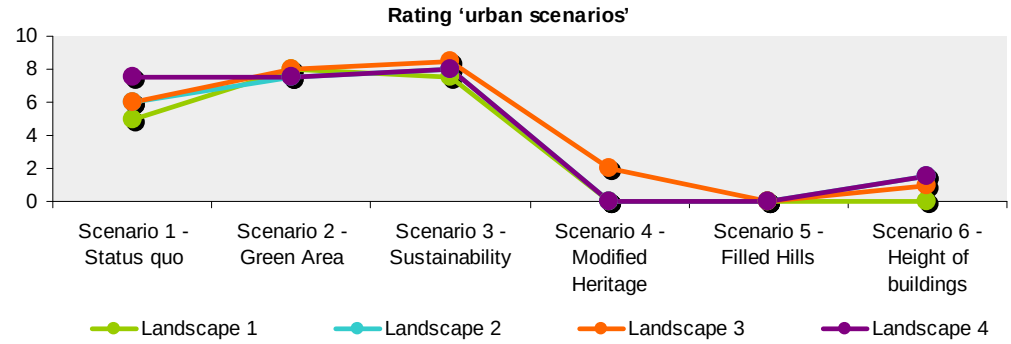

Figure 65 - Ranking of Scenario's score according to each landscape – median value

5.4.2 Standarts / differences between landscapes

During the analysis of the following ratings (Figure 68, Figure 69, Figure 70 and Figure 71), an almost regular pattern of preference between scenarios was observed. This fact may represent the verification of a pattern of preference among the types of interventions proposed. If the scores were not contributing to a consistent preference and intensities of preferences, a random set of answers would be found. Referring to the table of scores of scenarios (Table 29 and Table 30) and the graphics that represent the intensity of impact between scenarios (Figure 66 e Figure 67), the average intensity of people's preferences regarding the evaluated landscapes can be seen. Based on the current state of the landscape (Scenario 1 - Status Quo) and using a scale of 0-10, the quantification of values that represent this preference is shown below.

The public preference according to the mean/median value:

Options	Difference in points	Mean	Median
Scenario 2	The creation of green recreational areas improves on average	1,5	1,7
Scenario 3	The creation of sustainable alternatives improves on average	1,6	1,9
Scenario 4	The intervention on envir. or built heritage worsens on average	-4,0	-5,6
Scenario 5	The increase in construction in the hills worsens on average	-5,1	-6,1
Scenario 6	The increase in the height of buildings worsens on average	-3,8	-5,1

Table 32 - Difference in points between scenarios

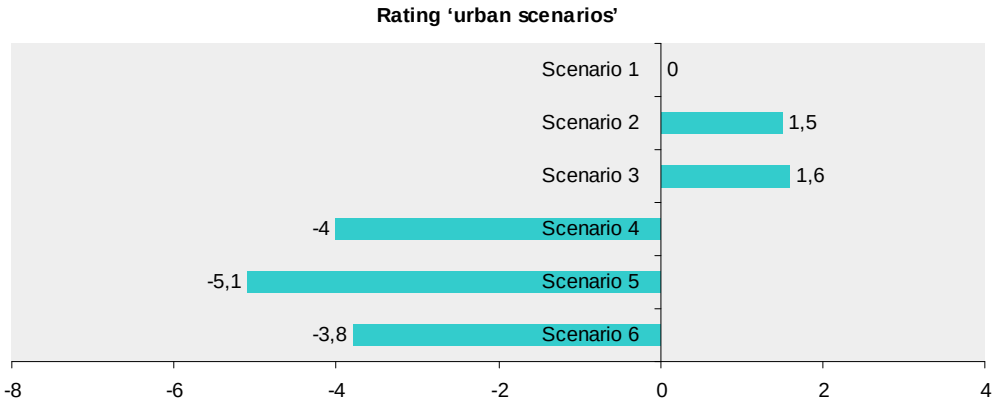

Figure 66 - Intensity of Scenarios' preference in relation to the Status quo – mean value

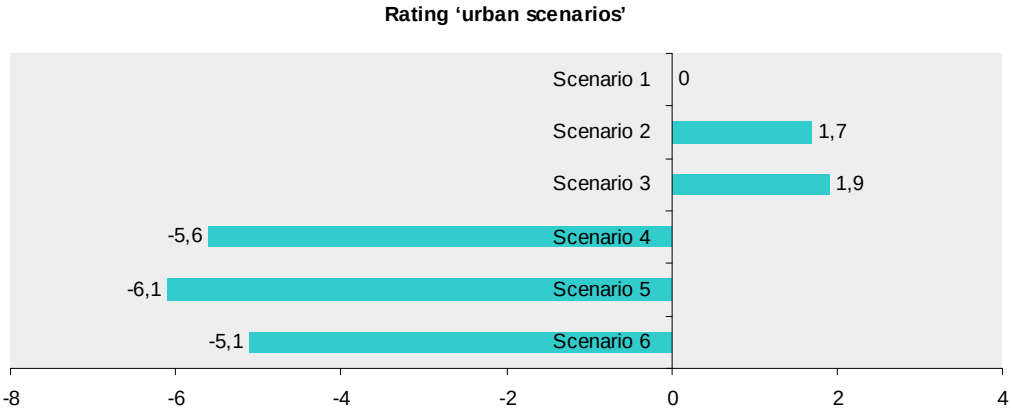

Figure 67 - Intensity of Scenarios' preference in relation to the Status quo – median value

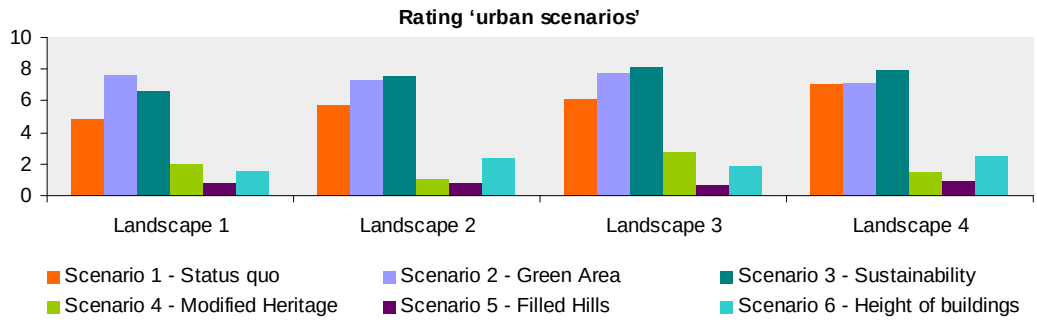

Figure 68 - Intensity of Landscape's score according to each scenario – mean value

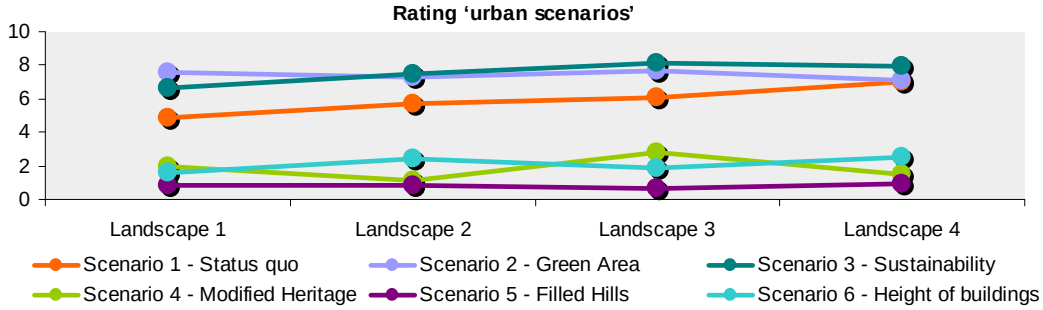

Figure 69 - Ranking of Landscape's score according to each scenario – mean value

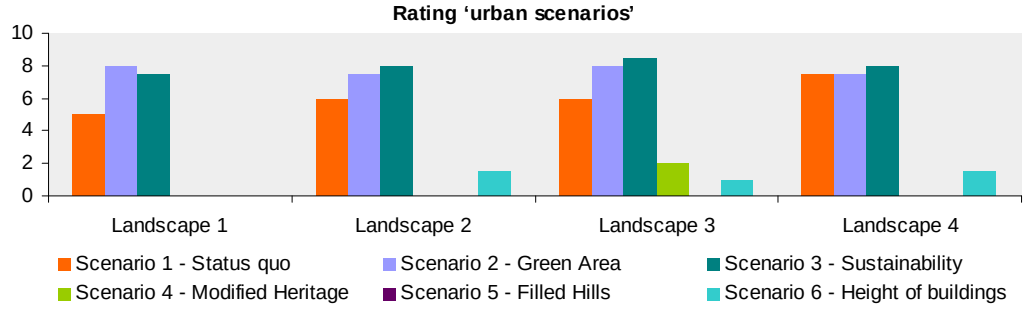

Figure 70 - Intensity of Landscape's score according to each scenario – median value

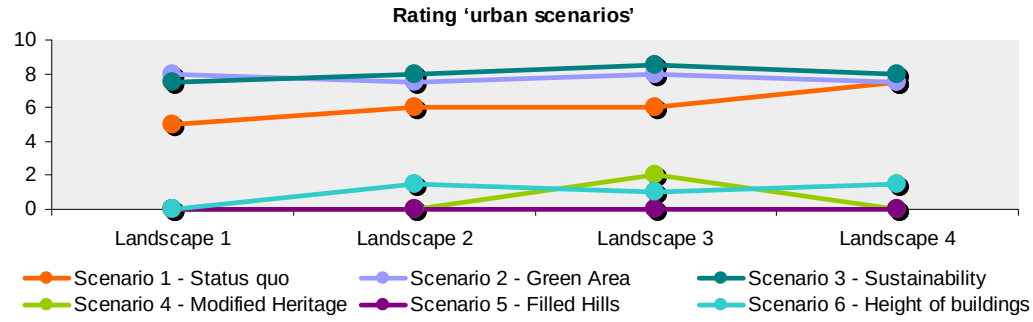

Figure 71 - Ranking of Landscape's score according to each scenario – median value

Below a comparison of the performance of each criterion to each landscape is performed, using mean and median scores (sc) given by the participants (Table 33 and Table 34) and their graphic representation (Figure 68, Figure 69, Figure 70 and Figure 71):

	L. 1	SQ = 0	L. 2	SQ = 0	L. 3	SQ = 0	L. 4	SQ = 0	Mean	Difference to the Status quo (SQ=0)
Sc. 1	4,9	0	5,7	0	6,1	0	7	0	5,9	0
Sc. 2	7,6	2,7	7,3	1,6	7,7	1,6	7,1	0,1	7,4	1,5
Sc. 3	6,6	1,7	7,5	1,8	8,1	2	7,9	0,9	7,5	1,6
Sc. 4	2	-2,9	1,1	-4,6	2,8	-3,3	1,5	-5,5	1,9	-4
Sc. 5	0,8	-4,1	0,8	-4,9	0,7	-5,4	0,9	-6,1	0,8	-5,1
Sc. 6	1,6	-3,3	2,4	-3,3	1,9	-4,2	2,5	-4,5	2,1	-3,8

Table 33 - Scores of the scenarios and its difference to the Status quo - mean value

	L. 1	SQ = 0	L. 2	SQ = 0	L. 3	SQ = 0	L. 4	SQ = 0	Mean	Difference to the Status quo (SQ=0)
Sc. 1	5	0	6	0	6	0	7,5	0	6,1	0
Sc. 2	8	3	7,5	1,5	8	2	7,5	0	7,8	1,7
Sc. 3	7,5	2,5	8	2	8,5	2,5	8	0,5	8,0	1,9
Sc. 4	0	-5	0	-6	2	-4	0	-7,5	0,5	-5,6
Sc. 5	0	-5	0	-6	0	-6	0	-7,5	0	-6,1
Sc. 6	0	-5	1,5	-4,5	1	-5	1,5	-6	1,0	-5,1

Table 34 - Scores of the scenarios and its difference to the Status quo - median value

Scenario 1- Status quo:

the average perception of the current status of the landscapes is positioned as Regular / Indifferent (sc 5.9 and 6.1). The landscape that punctuated its status quo as the best placed was L4 - Praia Mole (sc 7.0 and 7.5), which means that this landscape is the most valued among the landscapes presented, and it is almost to be considered as a 'good' example (sc >7.5). The landscape with the worst score was L1 - City Center (sc 4.9 and 5.0), being positioned just at the limit between the concept of Regular / indifferent (5.0 <sc <7.5) and Insufficient (2, 5 <sc <5.0). One can almost say that, when analyzing the score given to scenarios that represent the status quo, the scores increased when increased the natural character of the landscape.

Scenario 2- Creation of green recreational areas:

this criteria followed a very linear perception in the different landscapes, with a pattern of score that configures the level 'good' (sc 7.4 and 8.6). The only landscape that had hardly changed their perception with the addition of green area was the L4 - Praia Mole (sc 7.1 and 7.5), fact which represents that the reconstitution of the vegetation in this landscape does not have an impact as positive as the creation of green areas in the other landscapes evaluated.

Scenario 3- Creation of alternatives aimed at environmental sustainability:

the criteria ‘sustainability’ was evaluated and exemplified in the landscapes in the form of alternative transportation. This intervention has been consistently ranked above the standard of 'good' (sc 7.5 and 8.0) and the evaluation of the mode values[69] has even received scores relating to the scale of 'excellent' (sc = 10). The creation of sustainable alternatives was highlighted (by analyzing the difference with the status quo) when applied to L3 - Lagoa da Conceicao (sc 8.1 and 8.5) and also the L2 - Trindade and Itacorubi (sc 7.5 and 8). However the lowest prominence obtained was in relation to L4 - Praia Mole (sc 7.9 and 8). As they were represented by various means of transport (tram, chairlift and boats) and the highest score was not related to any specific type of transport, it is confirmed that there is not a preference for the type of transport, but by their adaptation to the needs of each landscape.

Scenario 4- Intervention on environmental of built heritage:

the lower values obtained in these scenarios (considered 'Terrible' with sc <2.5) mean that people value their heritage, since all scenarios created did not respect the environmental and the built heritage. Interventions on the heritage were better accepted when incorporated into the L1 - City Center or L3 - Lagoa da Conceicao and had a minor acceptance when applied to L4 - Praia Mole or L2 - Trindade and Itacorubi. This represents that the replacement of the Hercílio Luz bridge by a new one (L1) would be better accepted than the urban occupation of the natural territory of the Praia Mole (L4) or the mangrove vegetation (L2).

[69] See Table 47 for mean, mode and median scores of the scenarios

Scenario 5- Increase in construction in the hills:

the scenarios that increased the volume of construction in the hills were those who received the lower scores of the research, always with values close to the level of 'terrible'. This means that the construction in the hills of the city generates large negative impact on the population. According to the analysis of the difference between their scores and the scores given to the status quo of each landscape, a pattern of perception was confirmed. The least urbanized the landscape is, the more impact the hypothetical construction in the hills causes, eg.: L1 = -4,1/-5, L2 = -4,9/-6, L3 = -5,4/-6 and L4 = -6,1/-7,5.

Scenario 6- Increase in the height of buildings:

even though presenting differences in perception between landscapes, no scenario that had the height of its buildings increased surpassed the level of 'insufficient'. This means that the intervention is not well accepted by the public. As well as the increase of constructions on the hills, the scores corresponding to the increase of the height of the buildings followed a gradation according to the urban density of the place. The least urbanized landscape is, the more impact the hypothetical increased in height of buildings causes, eg.: L1 = -3,3/-5, L2 = -3,3/-4,5, L3 = -4,2/-5 and L4 = -4,5/-6.

The following is the analysis of each landscape. It is important to stress that during the public assessment the scenarios were presented randomly. For the evaluation of results, for a better comparison, all the scenarios followed the same order as shown above.

Analysis of the Landscape 1

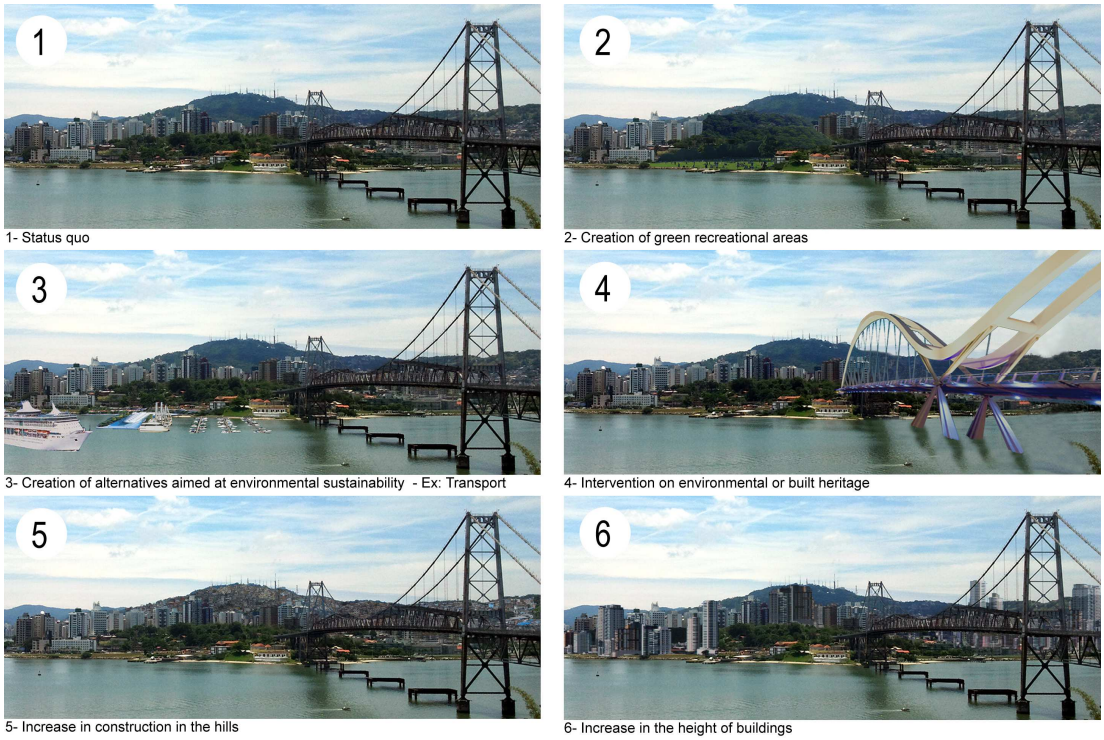

Figure 72 - Scenarios created to Landscape 1

Landscape 1 Mean	Difference to the Status quo	Ranking	Scenarios	Landscape 1 Median	Difference to the Status quo
4,9	0	3°	Sc 1	5	0
7,6	2,7	1°	Sc 2	8	3,0
6,6	1,7	2°	Sc 3	7,5	2,5
2,0	- 2,9	4°	Sc 4	0	-5,0
0,8	- 4,1	6°	Sc 5	0	-5,0
1,6	- 3,3	5°	Sc 6	0	-5,0

Table 35 - Scores of the scenarios and its difference to the Status quo - Landscape 1

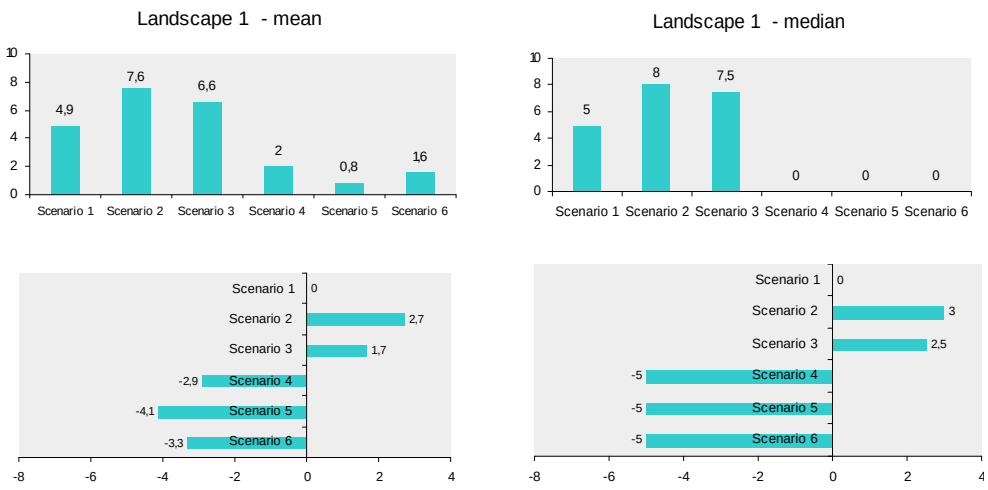

Figure 73 - Classification and Intensity of scores - Landscape 1

Based on the current state of the landscape (and using a scale of 0-10), the quantification of values that represent the public preferences is shown below.

The public preference according to the mean/median value:

Sc.	Difference in points	Mean	Median
2 -	The creation of green recreational areas improves on average	2,7	3,0
3 -	The creation of sustainable alternatives improves on average	1,7	2,5
4 -	The intervention on environmental or built heritage worsens on average	-2,9	-5,0
5 -	The increase in construction in the hills worsens on average	-4,1	-5,0
6 -	The increase in the height of buildings worsens on average	-3,3	-5,0

Table 36 - Difference in points - Landscape 1

The following analyses are according to each proposed scenario:

Scenario 1 - the Status quo received on average a score of 4.9 points and 5.0 as the median value. These values characterize this landscape, currently present in Florianópolis, as a ‘Regular / Indifferent’ landscape.

Scenario 2 - the increasing of green area received the highest score among the scenarios of this landscape. It obtained 7.6 points (mean value), which represents 2.7 points above the current state of the landscape. In relation to the evaluation by the median value, this criterion got 8.0 points and improved the landscape in 3.0 points. Both results classify the scenario as 'Good'. The difference in relation to the average score given to the status quo scenario (see Table 33 and Table 34) shown to be the highest in comparison to the other landscapes, this demonstrates the importance of creating green areas in this region.

Scenario 3 - the proposal for alternative transportation received a score of 6.6 with the mean value and 7.5 with the median value. These results classify it between the categories of ‘Regular / Indifferent’ and ‘Good’. Both results improve the landscape in the perception of the resident, but this improvement is more emphasized when using the method of analysis according to the median value, since the mean value also includes the few notes that lower its score.

Scenario 4 – the proposal for interventions in the environmental or built heritage was one of the scenarios that were not well rated by the population and it was ranked below the level ‘Insufficient’. This demonstrates that the historical value represents a lot in their perception. This intervention scored a 2.0 in the mean value and 0.0 in the median value, which shows a decrease of 2.9 points and 5 points, respectively.

Scenario 5 – the proposal for increasing the constructions in the hills was almost classified as 'Terrible' in both evaluation methods, having 0.8 in the mean value and 0 in the median value. This change in the landscape was the worst scenario rated by the population, representing a decrease of 4.1/ 5.0 points comparing to the Status quo.

Scenario 6 – the proposal to increase the height of existing buildings was the second alternative with the lowest score, receiving 1.6 and 0, respectively. This alternative was classified as ‘Terrible’. It is also a modification to be considered when reviewing the city's Master Plan.

Analysis of the Landscape 2

Figure 74 - Scenarios created to Landscape 2

Landscape 2 Mean	Difference to the Status quo	Ranking	Scenarios	Landscape 2 Median	Difference to the Status quo
5,7	0	3°	Sc 1	6	0
7,3	1,6	2°	Sc 2	7,5	1,5
7,5	1,8	1°	Sc 3	8	2,0
1,1	- 4,6	5°	Sc 4	0	-6,0
0,8	- 4,9	6°	Sc 5	0	-6,0
2,4	- 3,3	4°	Sc 6	1,5	-4,5

Table 37 - Scores of the scenarios and its difference to the Status quo - Landscape 2

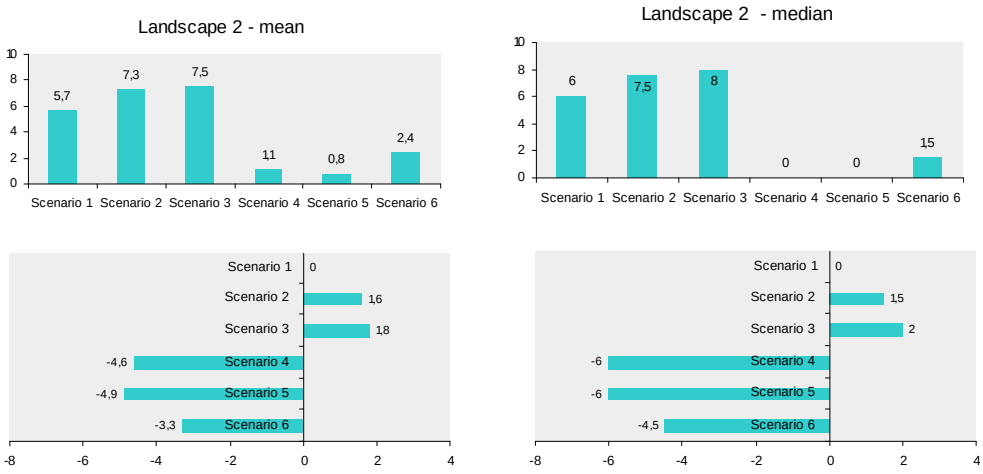

Figure 75 - Classification and Intensity of scores - Landscape 2

Based on the current state of the landscape (and using a scale of 0-10), the quantification of values that represent the public preferences is shown below.

The public preference according to the mean/median value:

Sc.	Difference in points	Mean	Median
2 -	The creation of green recreational areas improves on average	1,6	1,5
3 -	The creation of sustainable alternatives improves on average	1,8	2,0
4 -	The intervention on environmental or built heritage worsens on average	- 4,6	-6,0
5 -	The increase in construction in the hills worsens on average	- 4,9	-6,0
6 -	The increase in the height of buildings worsens on average	- 3,3	-4,5

Table 38 - Difference in points - Landscape 2

The following analyses are according to each proposed scenario:

Scenario 1 - the Status quo received on average a score of 5.7 points and 6.0 as the median value. These values characterize this landscape, currently present in Florianópolis, as a ‘Regular / Indifferent’ landscape.

Scenario 2 - the increasing of green area received the second highest score among the scenarios of this landscape. It obtained 7.3 points (mean value), which represents 1.6 points above the current state of the landscape. In relation to the evaluation by the median value, this criterion got 7.5 points and improved the landscape in 1.5 points. Both results classify the scenario as 'Good'.

Scenario 3 - the proposal for alternative transportation received a score of 7.5 with the mean value and 8.0 with the median value. These results classify it as a ‘Good’ alternative of proposal, actually being the best alternative between the scenarios proposed to this landscape. Both results improve the landscape in the perception of the residents, increasing its value in 1.8 and 2.0, respectively.

Scenario 4 – the proposal for interventions in the environmental or built heritage was one of the scenarios that were not well rated by the population and it was almost classified as 'Terrible' in both evaluation methods. This demonstrates that the historical value represents a lot in their perception. This intervention scored a 1.1 in the mean value and 0 in the median value, which shows a decrease of 4.6 points and 6.0 points, respectively.

Scenario 5 – the proposal for increasing the constructions in the hills was almost classified as 'Terrible' in both evaluation methods, having 0,8 in the mean value and 0 in the median value. This change in the landscape was the worst scenario rated by the population, representing a decrease of 4.9/ 6,0 points comparing to the Status quo.

Scenario 6 – the proposal to increase the height of existing buildings received 2.4 and 1.5 points, respectively. This alternative was classified below the level ‘Insufficient’. Even with a low score representing that the population is not in accordance with the increase of the height of the constructions in this region, this was the landscape that felt less impact (see Table 33 and Table 34).

Analysis of the Landscape 3

Figure 76 - Scenarios created to Landscape 3

Landscape 3 Mean	Difference to the Status quo	Ranking	Scenarios	Landscape 3 Median	Difference to the Status quo
6,1	0	3°	Sc 1	6	0
7,7	1,6	2°	Sc 2	8	2,0
8,1	2,0	1°	Sc 3	8,5	2,5
2,8	- 3,3	4°	Sc 4	2	-4,0
0,7	- 5,4	6°	Sc 5	0	-6,0
1,9	- 4,2	5°	Sc 6	1	-5,0

Table 39 - Scores of the scenarios and its difference to the Status quo - Landscape 3

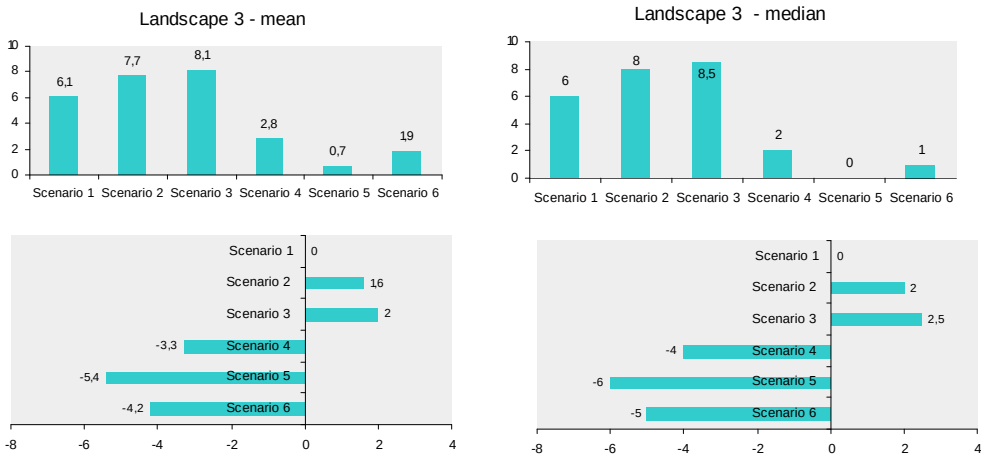

Figure 77 - Classification and Intensity of scores - Landscape 3

Based on the current state of the landscape (and using a scale of 0-10), the quantification of values that represent the public preferences is shown below.

The public preference according to the mean/median value:

Sc.	Difference in points	Mean	Median
2 -	The creation of green recreational areas improves on average	1,6	2,0
3 -	The creation of sustainable alternatives improves on average	2,0	2,5
4 -	The intervention on environmental or built heritage worsens on average	- 3,3	-4,0
5 -	The increase in construction in the hills worsens on average	- 5,4	-6,0
6 -	The increase in the height of buildings worsens on average	- 4,2	-5,0

Table 40 - Difference in points - Landscape 3

The following analyses are according to each proposed scenario:

Scenario 1 - the Status quo received on average a score of 6.1 points and 6.0 as the median value. These values characterize this landscape, currently present in Florianópolis, as a ‘Regular / Indifferent’ landscape.

Scenario 2 - the increasing of green area received the second highest score among the scenarios of this landscape. It obtained 7.7 points (mean value), which represents 1.6 points above the current state of the landscape. In relation to the evaluation by the median value, this criterion got 8.0 points and improved the landscape in 2.0 points. Both results classify the scenario as 'Good'.

Scenario 3 - the proposal for alternative transportation received a score of 8.1 with the mean value and 8.5 with the median value. These results classify it between the categories of ‘Good’ and ‘Excellent’. Both results improve the landscape in the perception of the resident, but this improvement is more emphasized when using the method of analysis according to the median value, since the mean value also includes the few notes that lower its score. The difference in relation to the score given to the status quo scenario (see Table 33 and Table 34) shown to be the highest in comparison to the other landscapes, this demonstrates the importance of proposing alternative transportation to this region.

Scenario 4 – the proposal for interventions in the environmental or built heritage was one of the scenarios that were not well rated, being ranked close the level of ‘Insufficient’. This intervention scored a 2.8 in the mean value and 2.0 in the median value, which shows a decrease of 3.3 points and 4.0 points, respectively. However, this landscape was the least scored against interventions proposed in their heritage (see Table 33 and Table 34).

Scenario 5 – the proposal for increasing the constructions in the hills was almost classified as 'Terrible' in both evaluation methods, having 0.7 in the mean value and 0 in the median value. This change in the landscape was the worst scenario rated by the population, representing a decrease of 5.4/ 6,0 points comparing to the Status quo.

Scenario 6 – the proposal to increase the height of existing buildings was the second alternative with the lowest score, receiving 1.9 and 1.0, respectively. This alternative was almost classified as ‘Terrible’.

Analysis of the Landscape 4

Figure 78 - Scenarios created to Landscape 4

Landscape 4 Mean	Difference to the Status quo	Ranking	Scenarios	Landscape 4 Median	Difference to the Status quo
7	0	3°	Sc 1	7,5	0
7,1	0,1	2°	Sc 2	7,5	0
7,9	0,9	1°	Sc 3	8	0,5
1,5	- 5,5	5°	Sc 4	0	-7,5
0,9	- 6,1	6°	Sc 5	0	-7,5
2,5	- 4,5	4°	Sc 6	1,5	-6

Table 41 - Scores of the scenarios and its difference to the Status quo - Landscape 4

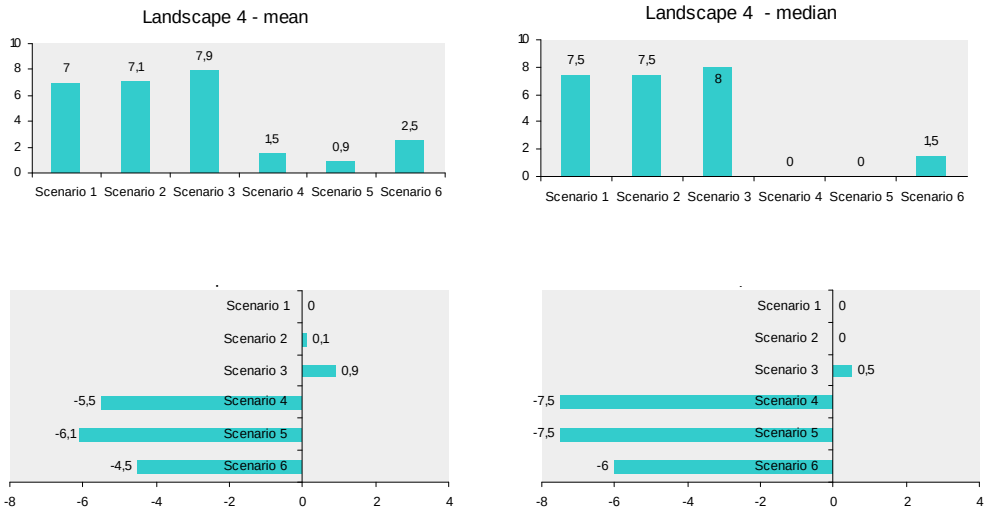

Figure 79 - Classification and Intensity of scores - Landscape 4

Based on the current state of the landscape (and using a scale of 0-10), the quantification of values that represent the public preferences is shown below.

The public preference according to the mean/median value:

Sc.	Difference in points	Mean	Median
2 -	The creation of green recreational areas improves on average	0,1	0
3 -	The creation of sustainable alternatives improves on average	0,9	0,5
4 -	The intervention on environmental or built heritage worsens on average	- 5,5	-7,5
5 -	The increase in construction in the hills worsens on average	- 6,1	-7,5
6 -	The increase in the height of buildings worsens on average	- 4,5	-6

Table 42 - Difference in points - Landscape 4

The following analysis are according to each proposed scenario:

Scenario 1 - the Status quo received on average a score of 7.0 points and 7.5 as the median value. These values almost characterize this landscape, currently present in Florianópolis, as a ‘Good’ landscape. These scores represent that this landscape is the most valued between the analyzed landscapes (see Table 33 and Table 34).

Scenario 2 - the increasing of green area obtained 7.1 points (mean value), which represents 0.1 points above the current state of the landscape. In relation to the evaluation by the median value, this criterion got 7.5 points and did not show improvement in relation to the status quo. Both results almost classify the scenario as 'Good'. The difference in relation to the average score given to the status quo scenario (see Table 33 and Table 34) shown to be the lowest in comparison to the other landscapes, this demonstrates that creating green areas in this region is not a priority.

Scenario 3 - the proposal for alternative transportation received a score of 7.9 with the mean value and 8.0 with the median value. These results classify it as a ‘Good’ proposal. Both results improve the landscape in the perception of the resident, but this is the lowest improvement if compared to the inplementation of this criteria in the other landscapes. The alternative transportation proposal increased 0.9 points (mean value) and 0.5 points (median value) in relation to the score given to the status quo (see Table 42).

Scenario 4 – the proposal for interventions in the environmental or built heritage was one of the scenarios that were not well rated by the population and it was ranked below the level ‘Insufficient’. This intervention scored a 1.5 in the mean value and 0.0 in the median value, which shows a decrease of 5.5 points and 7.5 points, respectively. These differences in relation to the status quo represent the highest values in comparison with the same criterion inserted in other landscapes, representing that the natural heritage of this landscape has immense value in the perception of the population.

Scenario 5 – the proposal for increasing the constructions in the hills was almost classified as 'Terrible' in both evaluation methods, having 0.9 in the mean value and 0 in the median value. This change in the landscape was the worst scenario rated by the population, representing a decrease of 6.1/ 7.5 points comparing to the Status quo. This reduction was the highest score reduction accounted for all scenarios. This is due to the high note received by the status quo of this landscape and due to the importance of preserving the hill of this landscape.

Scenario 6 – the proposal to increase the height of existing buildings in this landscape was less acceptable in comparison to the implementation of this criterion in other landscapes, and received 2.5 and 1.5. These scores lowered the perception of the landscape in 4.5 and 6.0 points respectively. This alternative was ranked below the level ‘Insufficient’.

5.5 The post-user questionnaire

The questions of the feedback are used to measure the level of availability of people for public participation and their evaluation of the usefulness of studies about landscape. They also inform about which method the population considered the most appropriate for assessing landscape proposals. At last, an open question was added for the accretion of any further opinion.

5.5.1 Question 1

Do you think that landscape assessments would be useful for the development of the master plan of your city?

When the population was asked about the usefulness of the landscape for the development of the Master Plan of your city, the population proved to be quite concerned about the matter. Over 98% (see Figure 80) of the population that participated in the survey said they think landscape assessments would be useful for the development of the Urban Plan of their city. Only less than 2% of the population voted against its usefulness.

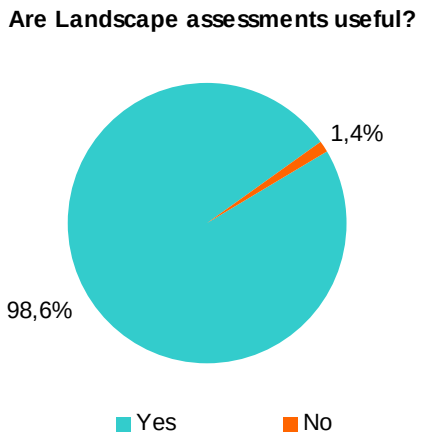

Figure 80 - Opinion about the usefulness

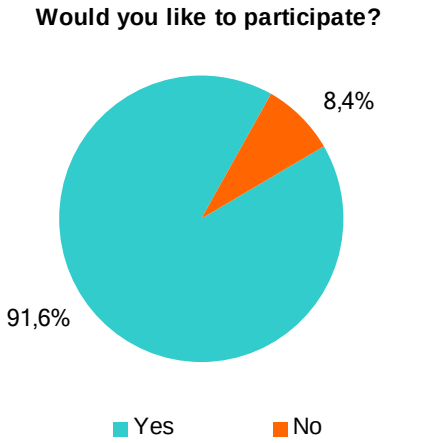

Figure 81 - Opinion about the participation

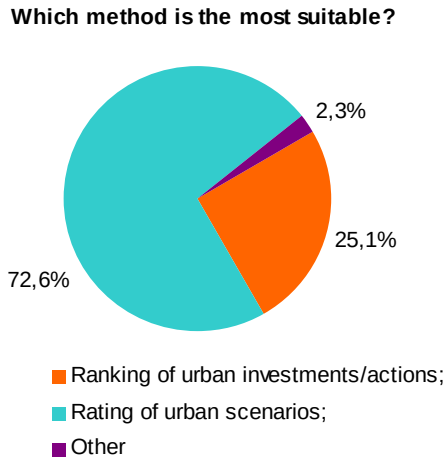

Figure 82 - Opinion about the method

5.5.2 Question 2

Would you like to participate in these evaluations, if this study was real?

The second question feedback survey asked whether people would like to participate in the evaluations performed if this study were real. The people who showed interested represents 91.6% of the population (see Figure 81), confirming that the great majority of the survey participants also would be willing to participate in a future real study.

5.5.3 Question 3

Which method you consider the most appropriate for assessing proposals for the landscape:

When respondents had to evaluate which method considered the most appropriate to assess proposals for landscape, the responses followed the percentages below (see Figure 82):

72.6% - Rating of urban scenarios;
25.1% - Ranking of urban investments / actions;
02.3% - Other

Some people in the space intended for open answers, emphasized the need to be able to indicate both assessment options for Ranking of urban investments / actions and Rating of urban scenarios. This statement is consistent with the intention of this research, which emphasizes the need to complement the evaluation of landscapes through different assessments.

5.5.4 Question 4

In the space for the open participation, 53 people left their declaration spontaneously. This number represents almost 25% of respondents and was considered a high number of adherences in view of the extension of the questionnaire. The themes discussed by the sample covered a wide variety of subjects. Reading with attention all these opinions, the participation of the people was synthesized; so, people:

- Emphasized the need to think about the city's urban development;
- Discussed the methodology used to assess landscape;
- Argued about the difficulty of performing an evaluation that demonstrates the opinion of the entire population;
- Congratulated for the research initiative and the opportunity for reflection.

All opinions helped to perceive the difficulties that people have come to answer the questionnaire and also their opinion on how to assess landscape. Their views helped both in the evaluation of landscape as in the improvement of the methodology.

5.6 Comparing results: Standard / differences between groups

Being the target audience of the survey all the voting population of Florianopolis, as an additional analysis, four groups were created. The comparison of preferences will be held between the following groups:

1. Age;
2. Genre;
3. Education;
4. Architectural area / Other areas;
5. People who marked / did not marked the theme 'landscape' as a concern of urban topics;

5.6.1 Ranking ‘urban topics’

As shown previously, this question allowed choosing six priorities between sixteen urban topics. In the general analysis, the topic 'Landscape' was mentioned by 46% of the population, which positioned it in the 7th place of the general ranking.

As the result is affected by the survey sample, the Table 43 shows its classification in the general ranking according to 5 groups for analysis. It was found that only the groups among different ‘ages’ and ‘areas of work’ had responses influenced by their sub-groups. The difference in numbers can be compared in the following table. This table also shows the number of people who fit each category and who voted for the topic 'Landscape' and the percentage that this number represents of the total number of participants on the category.

Ranking ‘urban topics’		n°/Total	%	Ranking	General Ranking
Age	16 - 24 years	29/49	59%	1°	6°
	25 - 34 years	28/78	36%	4°	8°
	35 - 44 years	17/38	45%	3°	8°
	45 - 59 years	22/40	55%	2°	6°
	+ 60 years	3/10	30%	5°	6°
Genre	Female	61/127	48%	1°	7°
	Male	38/88	43%	2°	7°
Education	Elementary school	1/1	100%	1°	-
	High school	20/48	42%	4°	7°
	Graduated	40/91	44%	3°	7°
	Postgraduated	38/75	51%	2°	7°
Area	Architectural area	38/59	64%	1°	3°
	Other areas	61/156	39%	2°	7°
Land.	Selected	99/215	46%	2°	-
	Not selected	116/215	54%	1°	-

Table 43 - Standard / differences between groups - Ranking 'urban topics'

5.6.2 Ranking ‘urban investments/actions’

In this phase of the questionnaire, people build a ranking of urban interventions or actions that they think are important for the current state of a specific landscape. This analysis aims to verify whether the order of preference of the general ranking suffers any influence when analyzed separately by four groups selected for comparison. For the evaluation of the results, the order of priorities was presented in a range of values 1-6. The lower the value, the higher the priority investment/action taken. For this analysis, the sub-group 'Elementary school' should not be counted because it makes reference to only one respondent.

The investment/action options were:

1. Maintenance of the current landscape;
2. Creation of green recreational areas;
3. Creation of alternatives aimed at environmental sustainability;
4. Preservation of environmental or built heritage;
5. Restriction and control of constructions in the hills;
6. Restricting the increase of the height of buildings.

Ranking ‘urban investments/actions’		**1**	**2**	**3**	**4**	**5**	**6**
Age	16 - 24 years	3,6 (3°)	4,0 (6°)	3,2 (2°)	2,9 (1°)	3,6 (3°)	3,7 (5°)
	25 - 34 years	3,6 (4°)	3,9 (6°)	3,1 (1°)	3,2 (2°)	3,5 (3°)	3,7 (5°)
	35 - 44 years	3,8 (5°)	4,1 (6°)	3,3 (2°)	3,4 (3°)	3,1 (1°)	3,4 (3°)
	45 - 59 years	3,8 (5°)	4,3 (6°)	2,9 (1°)	3,4 (3°)	3,0 (2°)	3,7 (4°)
	+ 60 years	3,6 (4°)	3,9 (6°)	3,3 (1°)	3,3 (1°)	3,7 (5°)	3,3 (1°)
Genre	Female	3,8 (5°)	4,1 (6°)	3,1 (1°)	3,1 (1°)	3,4 (3°)	3,5 (4°)
	Male	3,5 (4°)	3,9 (6°)	3,2 (1°)	3,4 (3°)	3,3 (2°)	3,7 (5°)
Education	Elementary school	3,5	3,8	2,0	5,3	2,5	4,0
	High school	3,6 (5°)	4,0 (6°)	3,3 (2°)	3,2 (1°)	3,5 (3°)	3,5 (3°)
	Graduated	3,6 (4°)	4,1 (6°)	3,1 (1°)	3,2 (2°)	3,3 (3°)	3,6 (4°)
	Postgraduated	3,7 (4°)	4,1 (6°)	3,1 (1°)	3,1 (1°)	3,3 (3°)	3,7 (4°)
Area	Architectural area	3,8 (4°)	4,0 (6°)	3,0 (2°)	**2,8** (1°)	3,6 (3°)	3,8 (4°)
	Other areas	3,6 (4°)	4,0 (6°)	3,2 (1°)	3,3 (2°)	3,3 (2°)	3,6 (4°)
Land.	Selected	3,7 (4°)	4,1 (6°)	3,1 (2°)	3,0 (1°)	3,5 (3°)	3,7 (4°)
	Not selected	3,7 (5°)	4,0 (6°)	3,2 (1°)	3,3 (3°)	3,2 (1°)	3,6 (4°)
	Total	**3,7 (5°)**	**4,0 (6°)**	**3,1 (1°)**	**3,2 (2°)**	**3,4 (3°)**	**3,6 (4°)**

Table 44 - Standard / differences between groups - Ranking 'urban investments/actions'

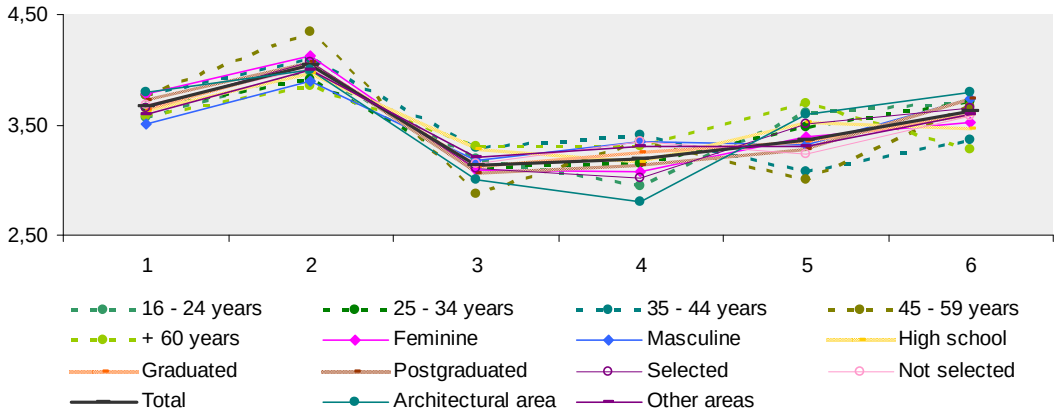

Figure 83 - Ranking of urban interventions/actions priorities according to 4 groups

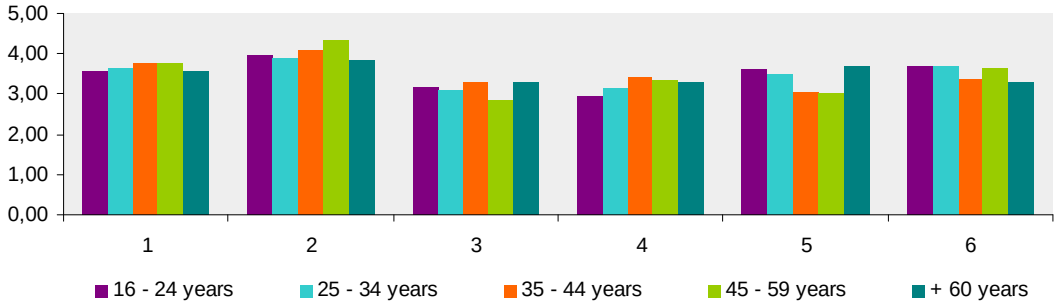

Figure 84 - Ranking of urban interventions/actions priorities according to the age

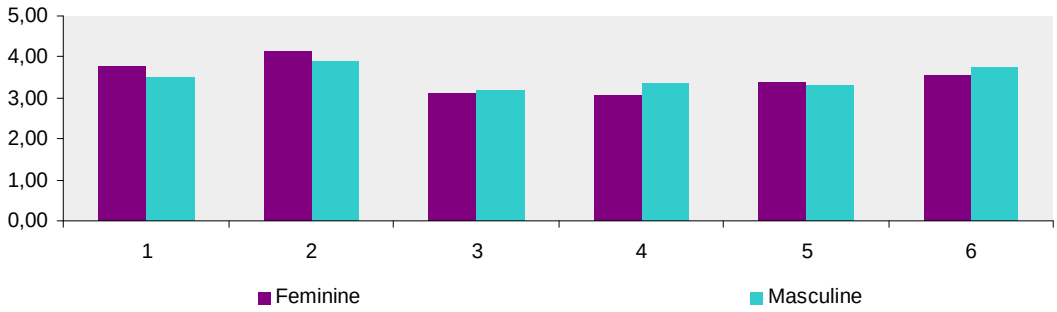

Figure 85 - Ranking of urban interventions/actions priorities according to the genre

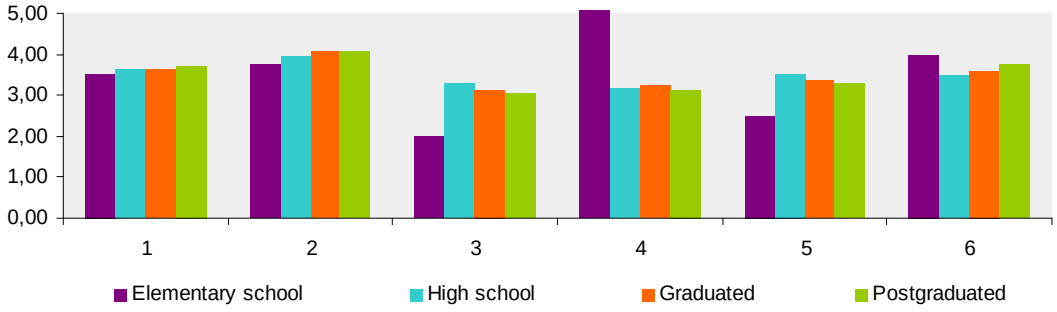

Figure 86 - Ranking of urban interventions/actions priorities according to the education

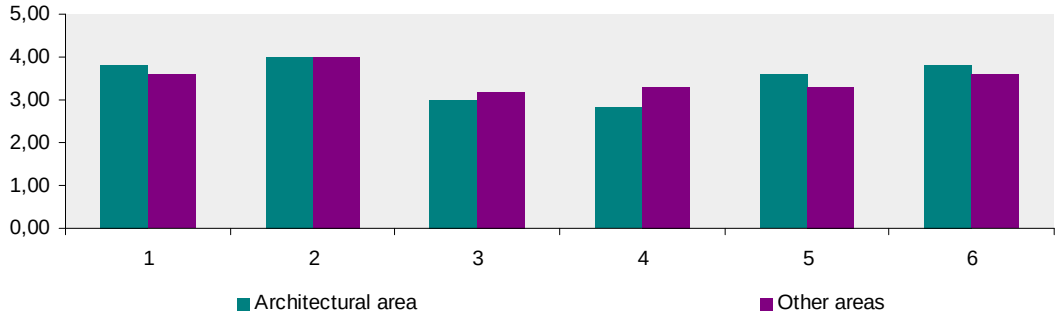

Figure 87 - Ranking of urban interventions/actions priorities according area of occupation

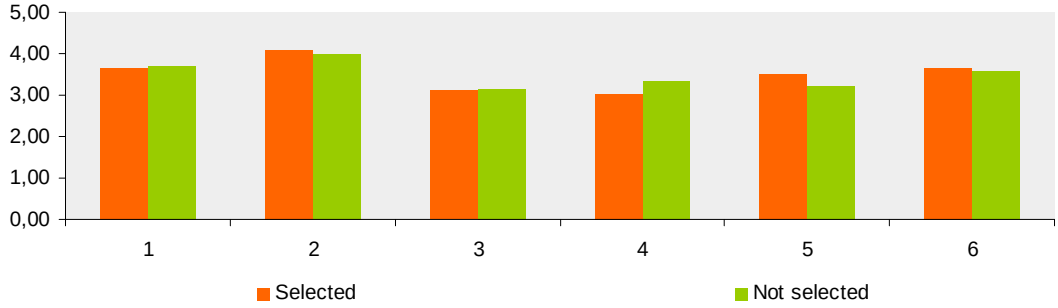

Figure 88 - Ranking of urban interventions/actions priorities according to the selection of topic 'landscape'

As shown in both Table 44 and in Figure 83, according to the intervention/action options, the greatest differences between the scores were in:

- Option 2 (< priority in the category 45-59 years);
- Option 4 (> priority in the category 16-24 years and Architectural area);
- Option 5 (> priority in categories 35-44 and 45-59 years and < priority in the category +60 years);
- Option 6 (> priority in the category +60 years).

According to the classification of the ranking in each category (see Table 44 and Figure 84 to Figure 88), small differences that change the classification in each category were found. The only constant in the classification ranking happens on the Option 2, always presenting the lowest priority.

5.6.3 Rating ‘urban scenarios’

In this analysis, the population of the city rated the scenarios created based on six variables. This method elicit the relative importance of each variable by assigning a score[70] to each intervention. Thus, the scores are being used as an objective measure to assist investment decision making. For this evaluation, it was used a semantic scale from 0 to 10, where: 0 - Terrible, 2.5 - Insufficient, 5.0 - Regular / Indifferent, 7,5 - Good, 10 - Excellent. Also for this analysis the sub-group 'Elementary school' was not accounted because it makes reference to only one respondent.

The scenarios were created using the following variables:

1. Status quo;
2. Creation of green recreational areas;
3. Creation of alternatives aimed at environmental sustainability;
4. Intervention on environmental or built heritage;
5. Increase in construction in the hills;
6. Increase in the height of buildings.

Rating ‘urban scenarios’		Sc. 1	Sc. 2	Sc. 3	Sc. 4	Sc. 5	Sc. 6
Age	16 - 24 years	6,2 (3°)	7,5 (1°)	7,4 (2°)	1,5 (5°)	1,2 (6°)	2,7 (4°)
	25 - 34 years	5,8 (3°)	7,4 (2°)	7,5 (1°)	2,0 (5°)	1,1 (6°)	2,3 (4°)
	35 - 44 years	5,9 (3°)	7,6 (1°)	7,6 (1°)	1,9 (5°)	0,6 (6°)	2,1 (4°)
	45 - 59 years	6,1 (3°)	7,3 (2°)	7,8 (1°)	2,1 (4°)	1,0 (6°)	1,9 (5°)
	+ 60 years	5,4 (3°)	7,0 (2°)	7,1 (1°)	2,3 (4°)	1,3 (6°)	1,7 (5°)
Genre	Female	6,0 (3°)	7,6 (1°)	7,6 (1°)	1,8 (5°)	0,8 (6°)	2,1 (4°)
	Male	5,9 (3°)	7,2 (2°)	7,4 (1°)	2,1 (5°)	1,3 (6°)	2,5 (4°)
Education	Elementary school	3,9	6,9	3,4	0,0	0,0	0,0
	High school	6,0 (3°)	7,5 (1°)	7,5 (1°)	2,0 (5°)	1,2 (6°)	2,6 (4°)
	Graduated	5,8 (3°)	7,3 (2°)	7,6 (1°)	1,9 (5°)	0,9 (6°)	2,4 (4°)
	Postgraduated	6,1 (3°)	7,5 (2°)	7,6 (1°)	1,9 (4°)	1,0 (6°)	1,9 (4°)
Area	Architectural area	5,7 (3°)	7,3 (2°)	7,5 (1°)	1,6 (5°)	0,8 (6°)	2,6 (4°)
	Other areas	6,0 (3°)	7,5 (1°)	7,5 (1°)	2,0 (5°)	1,1 (6°)	2,1 (4°)
Land.	Selected	5,9 (3°)	7,5 (1°)	7,2 (2°)	1,7 (5°)	0,8 (6°)	2,2 (4°)
	Not selected	6,0 (3°)	7,4 (2°)	7,8 (1°)	2,1 (5°)	1,2 (6°)	2,3 (4°)
	Total	5,9 (3°)	7,4 (2°)	7,5 (1°)	1,9 (5°)	0,8 (6°)	2,1 (4°)

Table 45 - Standard / differences between groups - Ranking 'urban scenarios'

[70] Only the mean values were compared in this evaluation.

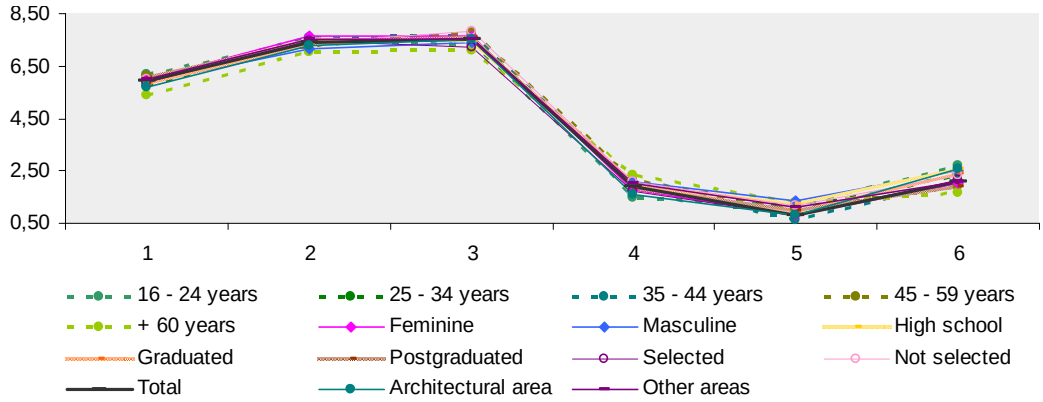

Figure 89 - Ranking of urban scenarios according to 4 groups

Rating 'urban scenarios'		Sc. 1	Sc. 2	Sc. 3	Sc. 4	Sc. 5	Sc. 6
Age	16 - 24 years	0,0	1,3	**1,2**	**-4,7**	-5,0	**-3,5**
	25 - 34 years	0,0	1,6	1,7	-3,8	**-4,7**	**-3,5**
	35 - 44 years	0,0	1,7	1,7	-4,0	-5,3	-3,8
	45 - 59 years	0,0	**1,2**	1,7	-4,0	-5,1	**-4,2**
	+ 60 years	0,0	1,6	1,7	**-3,1**	**-4,1**	-3,7
Genre	Female	0,0	1,6	1,6	-4,2	-5,2	-3,9
	Male	0,0	1,3	1,5	-3,8	**-4,6**	**-3,4**
Education	Elementary school	0,0	3,0	-0,5	-3,9	-3,9	-3,9
	High school	0,0	1,5	1,5	-4,0	**-4,8**	**-3,4**
	Graduated	0,0	1,5	1,8	-3,9	-4,9	**-3,4**
	Postgraduated	0,0	1,4	1,5	-4,2	-5,1	**-4,2**
Area	Architectural area	0,0	1,6	1,8	-4,1	-4,9	**-3,1**
	Other areas	0,0	1,5	1,5	-4,0	-4,9	-3,9
Land.	Selected	0,0	1,6	**1,3**	-4,2	-5,1	-3,7
	Not selected	0,0	1,4	1,8	-3,9	**-4,8**	-3,7
	Total	**0,0**	**1,5**	**1,6**	**-4,0**	**-5,1**	**-3,8**

Table 46 - Intensity of Scenarios' preference in relation to the Status quo – mean value

As shown in both Table 45 and in Figure 89, according to the scenarios' scores, the greatest differences between the scores were in:

- Scenario 1 (> score in the category 16-24 and < score in the category +60 years);
- Scenario 2 (< score in the category +60 years);
- Scenario 3 (> score in categories 45-59 and 'not selected' and < score in the category +60 years and 'selected');
- Scenario 4 (< score in the category 16-24 and 'Architectural area' and > score in the category +60 years);

- Scenario 5 (> score in categories 16-24 and +60 years, man, ‘High school’ and ‘not selected’);
- Scenario 6 (< score in the category +60 years and > score in categories 16-24 years, man, ‘High school’, ‘Graduated’ and ‘Architectural area’).

According to the classification in the ranking according to each category (see Table 45 and Figure 90 to Figure 94), small differences that change the classification in each scenario were found. The constants in the classification ranking happens on the Scenario 1- ‘Status quo’, scenario which always occupy the 3° place in the ranking and Scenario 5 – ‘Increase in construction in the hills’, always accuping the 6° place. The Scenarios 2 and 3 occupy the 1° and 2° classification and Scenarios 4 and 6 accupy the 4° and 5° classification.

According to the intensity of scenarios’ preference in relation to the score given to the Status quo (see Table 46), the greatest differences between the scores were in:
- Scenario 2 (< preference in the category 45-59 years);
- Scenario 3 (< preference in categories 16-24 years and ‘selected’);
- Scenario 4 (< preference in the category 16-24 and > preference in the category +60 years);
- Scenario 5 (> preference in the category 25-34 and +60 years, man, ‘High school’ and ‘not selected’);
- Scenario 6 (< preference in the category 45-59 years and ‘Postgraduated’ and > preference in categories 16-24 and 25-34 years, man, ‘High school’, ‘Graduated’ and ‘Architectural area’).

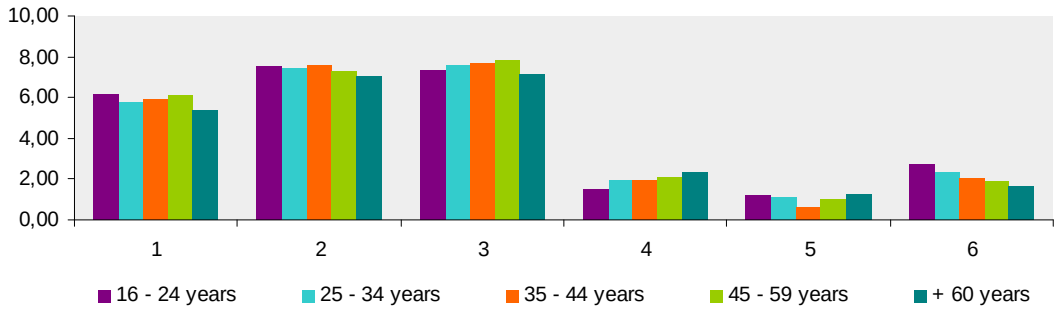

Figure 90 - Ranking of urban scenarios according to the age

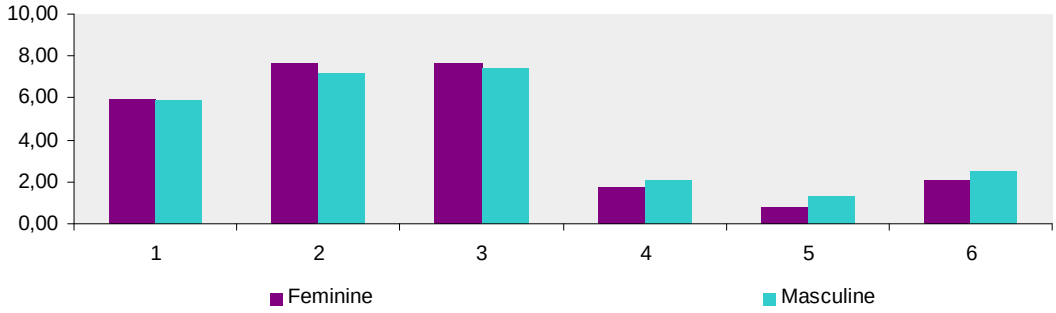

Figure 91 - Ranking of urban scenarios according to the genre

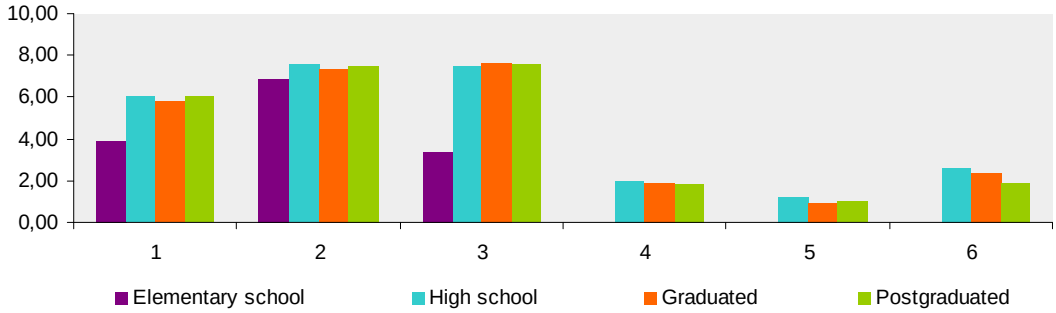

Figure 92 - Ranking of urban scenarios according to the education

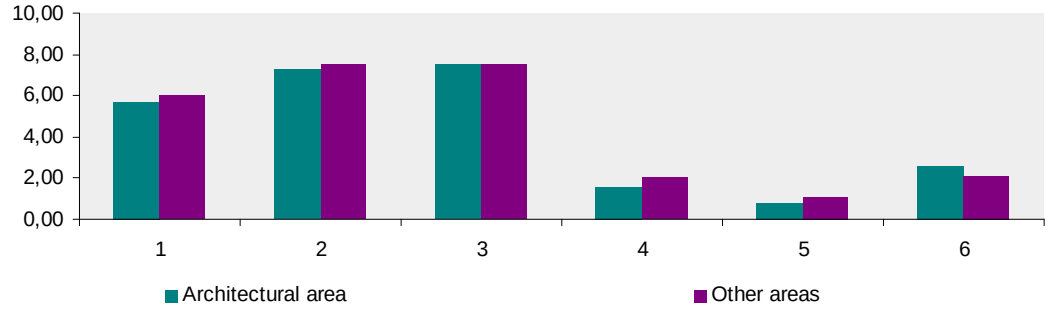

Figure 93 - Ranking of urban scenarios according to area of occupation

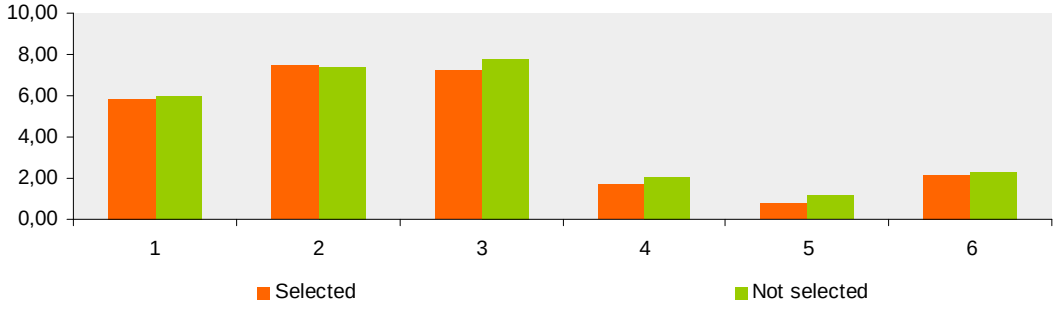

Figure 94 - Ranking of urban scenarios according to the selection of topic ‘landscape’

6 Conclusion

As research proposal, the present study aimed to examine the public preferences in relation to landscapes of Florianópolis and explore how these preferences could be described in a participatory way. To this end, after the realization of the literature review, a 'Lansdcape Budget' questionnaire was developed to conduct an landscape assessment using three different tools. This tripartition of the questionnaire was useful to conduct a broader reflection on landscape preferences, serving to relate the obtained preferences with the high complexity of reality. In front of the proposed landscape assessment, it is worth summarizing the significant points emerged both from the methodological point of view, as from the results obtained.

First, under the methodological point of view, it was found that the ‘Landscape Budget’ Questionnaire is of some interest in the current debate about procedures for the public assessment of landscape. In general, it was very well accepted by the population, although it has received some critics regarding the complexity of the issue. Below, some comments will be written on the method used, based on the observation of the assessment implementation and on the final comments left by participants:

About the method in general:

- The operation of the proposed 'Landscape Budget' Questionnaire has proved to be well understood by the population, and this is an essential fact for a correct evaluation. The questionnaire was described by most participants as a process of universal and intuitive understanding that allows people to reflect on the landscapes of Florianópolis.
- The complexity of standardization of landscape preferences proved to be a topic to explore when it comes to public assessments. The critics made by the population highlight the need to complement the opinion of the population with technical advice to guide the process in pursuit of an effective perception.
- The obtained results from the ranking and rating questions provide evidence that a multiple representation approach, incorporating both visual and non-visual outcomes, is useful in assessing public perception and in communicating the consequences of landscape change.

About the first approach:

The 'Ranking of urban topics' was the process that encouraged less interaction/comments from people, receiving only one critique. This lack of comments may have happened because it is a process already used in the existing participatory processes, therefore with easy recognition by the population. The single observation pointed out by one participant was the need to include the topic "Security" to the options to evaluate.

This tool was useful to alert the public to the need to also think about the consequences of their urban interventions, because the future of its landscapes depends on the care expended in their planning. As previously mentioned by Riganti and Nijkamp (2004)[71], the landscape being considered a cultural heritage, is also a social and irreplaceable good in the sense that, once lost, the original can not be recreated. People should be warned about the danger of acting on the landscape without thinking of the consequences of their actions, because the value of a good landscape may be recognized only when it is too late to recover it.

About the second approach:

The 'Ranking of urban investments / actions' was the second tool that received more comments from the respondent population. The critics are based on the lack of information to trace priorities for action, that is, this ranking was seen as a useful tool for public opinion survey, but inappropriate to draw plans that seek optimal solutions to urban problems of Florianópolis.

This tool proved to be useful to introduce the participant to the comparison between the needs of each landscape and the various types of investments/actions. As the urban proposals can not be generalized because all landscapes are different and behave differently, this second ranking helped to define priorities for each one of them. The use of written descriptions of preferences has a wide range of investment/action possibilities, leaving the participants free to consider various interpretations and future proposals.

[71] See section 2.2.3 Landscape Valuation

About the third approach:

The ‘Rating of urban scenarios’, according to the interviewed people, has shown to be an interesting and polemical tool for the evaluation of landscape. The visualization of the urban possible scenarios simplified the reflection and clarified how the development of landscapes could be proposed. The critics however, were based mainly on the materialization of proposals for each intervention/action. The choice of the proposals was accused of impartiality and to limit other possible interventions/actions. It was also emphasized the need for more space for the description of public opinion on the scenarios presented, that is to say, to allow a further development of discussions on the creation of scenarios, where the view of each participant could be fully or sufficiently expressed.

The proposal to hold a rating of scenarios fulfilled its function when it proved to be useful to the task of understanding and measuring the value of particular interventions in the landscape and how that intervention could be compared to other ones. But attention is drawn to the fact that, since the visual communication is responsible for simplifying the exposure of the proposals, people must be aware of the contents that want to evaluate. One feasible use of this assessment would be the approval of projects already planned for the city. In this way, the impact that each intervention would cause would be directly assessed in comparison to other urban projects. The use of this simple tool of creating scenarios should be enhanced, as it facilitates the understanding by the public about urban projects. It is believed that more specific studies for each place, with different comparisons for each intervention (degree of occupation of the hills, different heights of buildings, different types of green areas, several solutions for alternative transport or other solutions aimed at environmental sustainability...) should be explored. The polemic generated by the method accentuates the debate on landscapes because it objectively discusses the proposals, making clear which ideas would be installed in landscape.

By comparing the methodological approaches of investment/action priorities between the comprehensiveness of the texts of the second ranking and the visual objectivity of the ratings by scenarios, it is clear that the two tools have very different results and understandings. This statement is supported by Smith et al (2012) "For many people, understanding the options is linked to seeing their effects, and visual

simulation has an increasingly important role in communicating landscape change. Unlike technical language and data, visual images are easily readable and understood by the public". The research considers that an option or tool of communication is not above the other. They have specific times of use and the combination of these different available tools characterize the ideal analysis so the choices are close to the complexity that is the reality of an urban planning. Simplifying just to get an objective result does not necessarily express a correct overview (correct in expressing the intent). Finally, it is believed that this research contributes to the debate of the future of landscapes and to the constant challenge existent in participatory urban planning tasks.

About the feedback of participants:

In relation to the open question at the end of the survey, it can be pointed out that it is an important tool that serves to alert the population to the importance of participating in public urban evaluations. Participants, when asked about the usefulness of evaluations of the landscape, are invited to think about it. With the question about the best method to assess their landscape preferences, respondents can indicate which method they feel more understood. Along with the free space for intervention, the remaining feedback questions make permanent the improvement of this method of assessment.

Under the results perspective, some findings are worth stressing:

About the first approach:

The first approach of the ‘Lansdcape Budget’ questionnaire has led to find that the concern with ‘Landscape’ plays an important but limited role (7° placed in 16 options), while ‘Urban Mobility and Accessibility’, ‘Sanitation’ and ‘Education’ are the three most important topics in the public perception. The limited importance attached to 'Landscape', among other urban issues suggests that within the current public debate, the emphasis on issues that include the concern with the landscape, is not as pronounced. However, based on the fact that at the participants feedback, people stated that landscape assessment are important, leads us to suggest that there is large room for promoting ‘Landscape’. To this end, the proposals of Landscape Assessments may play an important role in future urban discussions.

About the second approach:

Analyzing the results of this ranking, a great diversity in investment/action priorities was noted. Since the priorities between landscapes are different, a big divergence between the needs of each landscape was demonstrated. In general, the categories with the highest priority for action are the ‘Creation of alternatives aimed at environmental sustainability’, 'Preservation of environmental or built heritage’ and 'Restriction and control of constructions in the hills’, not necessarily in that order because all landscapes presented different orders of priorities. The categories that showed the lowest priority are ‘Restricting the increase of the height of buildings’, ‘Maintenance of the current landscape’ and ‘Creation of green recreational areas’.

It was interesting to see that in this second analysis, the 'Creation of green recreational areas' (which has one of the highest scores when analyzed by the scenarios comparison) was hardly mentioned as a priority in all landscapes seleciondas for analysis. Another feature observed is that people have higher priority to 'maintain the current landscape' according to their level of urbanization. The less urbanized landscape is, the higher the priority for maintenance. A particularity found in the comparison between methods of landscape evaluation was that in the evaluation by ranking investment, a large difference between landscapes priorities was noted. This did not happen during the analysis of scenarios. When the proposals were represented in scenarios, they received scores that indicated a pattern in their preference between the types of investments.

About the third approach:

In the analysis of scenarios, the ‘Creation of green recreational areas’ and also ‘alternatives aimed at environmental sustainability’ are the most relevant proposals in the evaluation made by residents. Speaking generally, the ‘Creation of alternatives aimed at environmental sustainability’ appears to be the most important scenarios. Interventions on environmental or built heritage, the increase of construction in the hills or of the buildings’ height are the choices that are not well accepted by the population; being the 'Increase of construction in the hills' always the worst scenario described. The intensity of these preferences varies according to the landscape evaluated, but it follows a range of values that allows us to point out a pattern of preferences.

The socio-demographic characteristics of residents play some role in determining the relative impact of the variable interventions upon landscape. The age and area of occupation seem to be the characteristics that most influence their perception. Just to give some examples, when comparing scenarios 2 and 3, it was seen that young people between 16-24 years prioritize the creation of green recreational areas instead of providing alternative of environmental sustainability; this information goes in disagreement with all other ages. When comparing scenarios 4 and 6, younger people prefer that their buildings have their height increased to have their environmental or built heritage modified. The occupation of the hills appears to be more acceptable for men than for women. And finally, by analyzing the scenario 6, the increase of the height of the buildings seem more disturbing when analised by people with post graduation and less when it comes to people who work in the area of architecture.

It is generally agreed that every landscape requires an individual urban proposal. But as a relative constant in scores was observed, which expressed an order of preference according to the proposed interventions, it is believed that one can follow the indications found in this research to guide future interventions in landscape.

Final remarks:

This research responds to the call for the creation of new tools for landscape approach undertaken by UNESCO (2012) and also believes that public landscape approachs allow us to learn from the traditions and perceptions of city residents while respecting their opinions and values. Another shared observation is that academic institutions, universities and other research centers need to encourage the development of cooperative tools of landscape perception and the use of the information collected to document and study its complexity.

The findings of this research can not yet be generalised with confidence. However, if they were confirmed by larger landscape assessments and methods of evaluation and comparison, they would appear to strengthen and extend existing arguments in favour of the creation of policies to better manage the landscape. Future landscape interventions could be justified by/benefit from the assessments of the priorities voted on the LB Questionnaire. This method of assessment could also be a way of

testing the public acceptability in regard to new municipal proposals. It would be important if these landscape studies could be of continuous performance, creating a sort of live database, just as landscape. With a living instrument of landscape perception, residents would possess a way to constantly express their opinions and intentions for the future of the city.

It is expected that this proposed research can contribute to a high-quality landscape planning and to minimize the lack of communication between stakeholders in the development of municipal master plans. It is believed that the study on public landscape preferences can serve as useful information for urban planning policies that seek consultation and participation of local people in order to support and improve negotiations.

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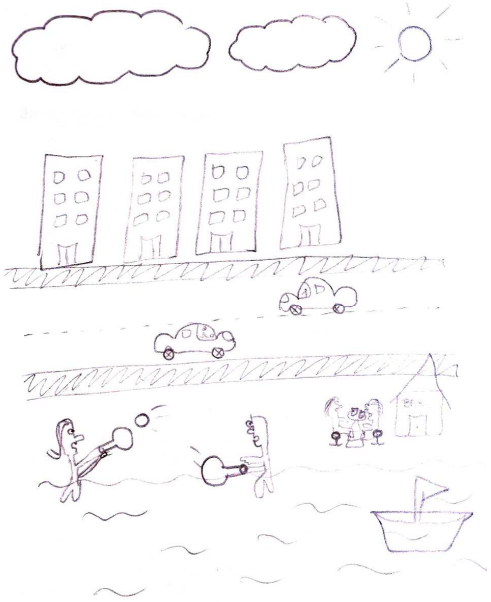
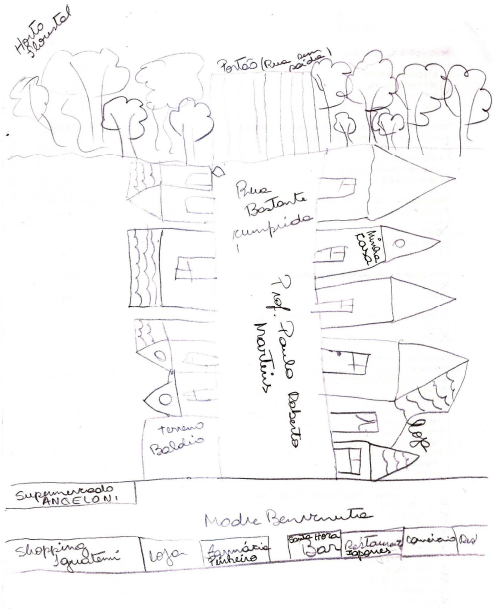
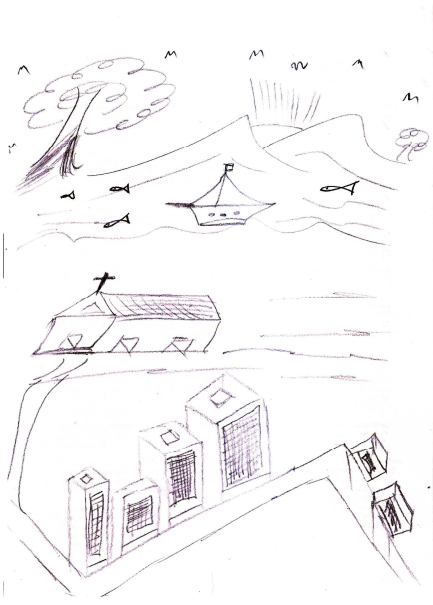
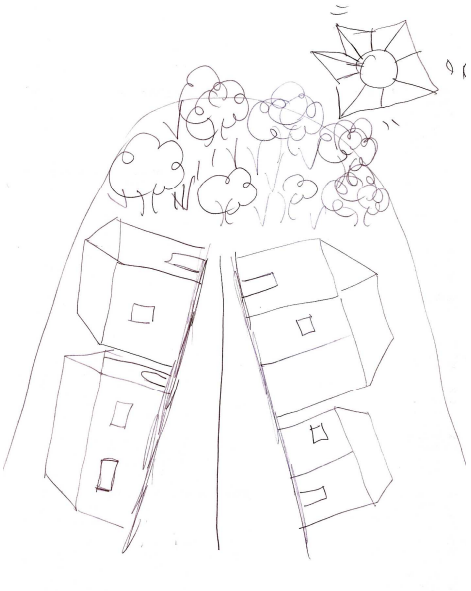
8 Appendix

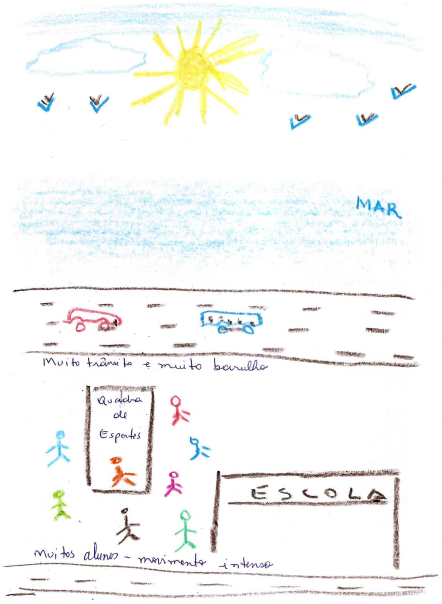
8.1 APPENDIX 1 - Landscape representations made by residents

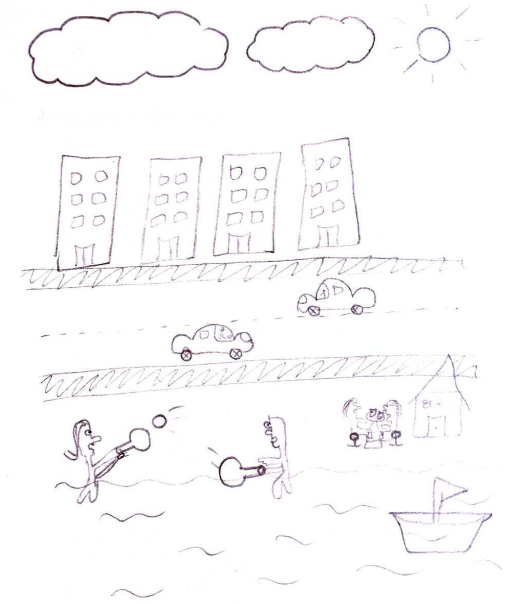


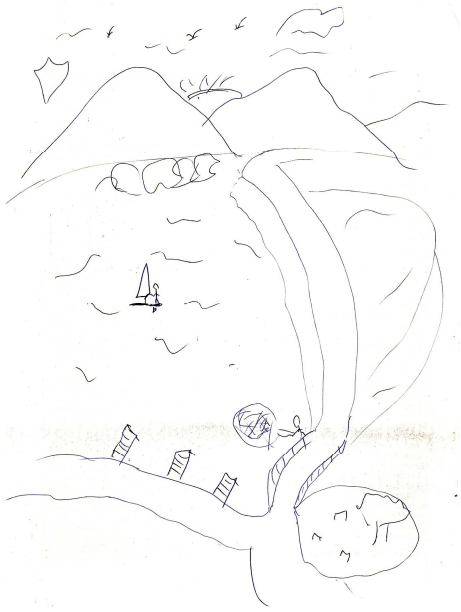


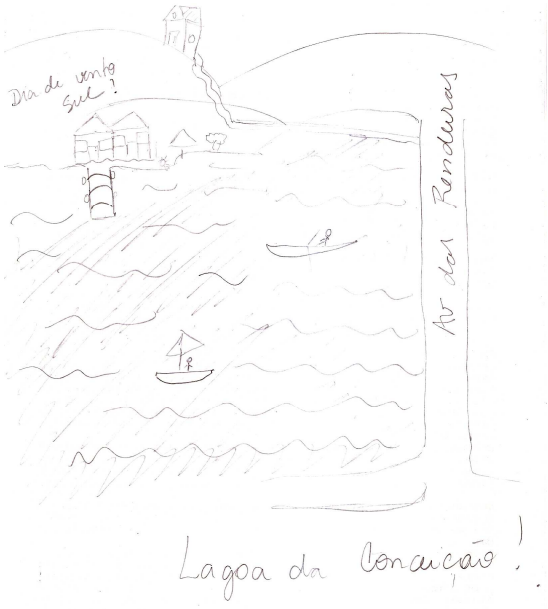


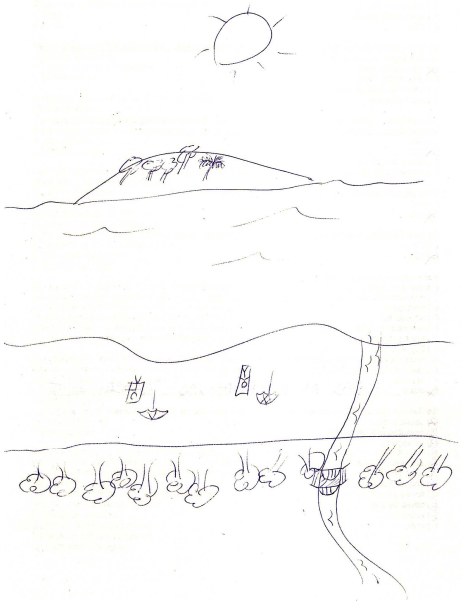



MAR
Muito trânsito e muito barulho
Quadra de Esportes
ESCOLA
Muitos alunos - movimento intenso





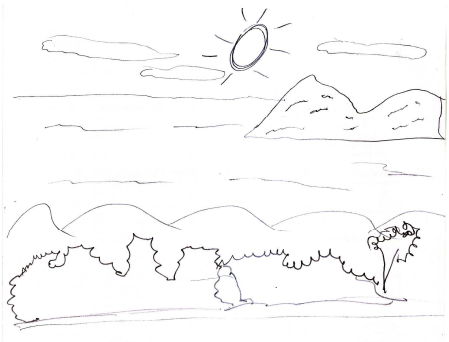

Dia de vento sul!
Ar dos Remadores
Lagoa da Conceição!

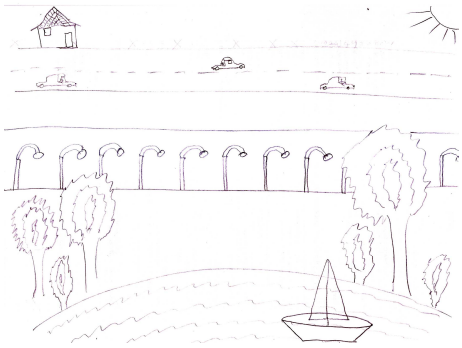


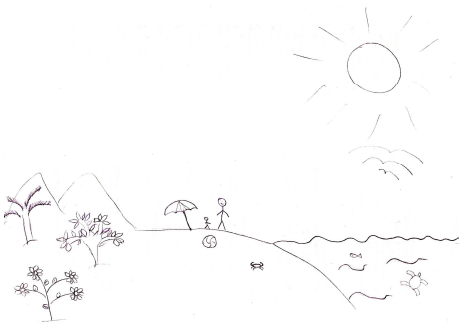

RIO

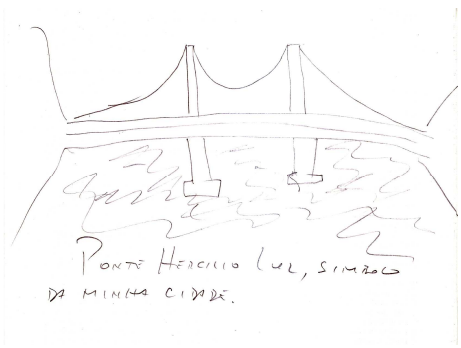

MAR

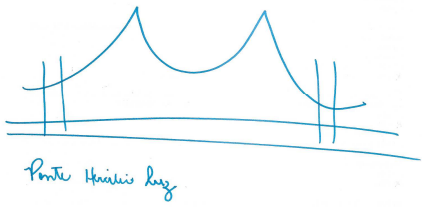

HOSPITAL
SUPERMERCADO
CINEMA
ESTRADAS
SHOPPING CENTER
RESTAURANTE

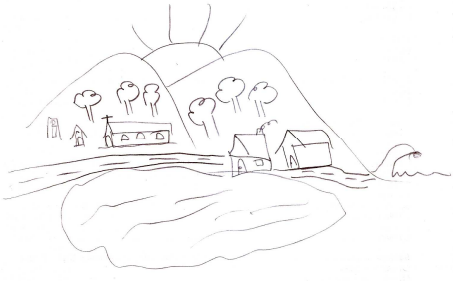







PONTE HERCILIO LUZ, SIMBOLO
DA MINHA CIDADE.


Ponte Hercilio Luz




Lagoa da Conceição
Avenida das Rendeiras


morro
vegetação
praia
mar

8.2 APPENDIX 2 – Questionário

Prezado morador/a de Florianópolis,
O presente questionário faz parte da pesquisa que está sendo realizada por mim através de uma parceria entre a UFSC, UNG (Eslovênia) e IUAV (Itália). A pesquisa tem o intuito de identificar como os moradores de Florianópolis atribuem valor a aspectos diversos da paisagem. Este conhecimento poderia ser usado, por exemplo, para aprimorar políticas urbanas e também o Plano Diretor da cidade.
O questionário pode ser respondido por moradores de Florianópolis com idade a partir de 16 anos e só será válido se todas as perguntas forem respondidas.
A sua participação é muito importante!
Obrigada,
Talita Abraham

Parte 1 – Contextualização dos participantes

Faixa Etária:
( ) entre 16 e 24 anos
( ) entre 25 e 34 anos
( ) entre 35 e 44 anos
( ) entre 45 e 59 anos
( ) acima de 60 anos

Sexo: ( ) F ( ) M

Instrução completa:
( ) sem ensino
( ) ensino Fundamental
( ) ensino Médio
( ) ensino Superior
( ) pós-graduação

Profissão/Ocupação: _____

Origem:
( ) nasceu em Florianópolis
( ) não nasceu em Florianópolis
Se assinalou 'não nasceu', há quanto tempo mora em Florianópolis?:_____

Distrito de residência:
( ) Barra da Lagoa
( ) Cachoeira do Bom Jesus
( ) Campeche
( ) Canasvieiras
( ) Centro - Sede
( ) Ingleses do Rio Vermelho
( ) Lagoa da Conceição
( ) Pântano do Sul
( ) Ratones
( ) Ribeirão da Ilha
( ) Santo Antonio de Lisboa
( ) São João do Rio Vermelho

Já participou de alguma forma no Processo Participativo do Plano Diretor de Florianópolis?
( ) Sim ( )Não Se 'sim', por favor, descreva a sua participação: _____

Parte 2 - Ranking das temáticas urbanas

Imagine-se durante um processo de Orçamento Participativo de sua cidade. Neste processo, cada pessoa poderia votar nas prioridades de ação que gostaria que fossem realizadas no seu bairro. Esta cédula permite escolher entre dezesseis (16) temáticas. Deve marcar <u>apenas as seis (6)</u> opções que representam as suas prioridades urbanas:

( ) Acessibilidade e Mobilidade Urbana
( ) Áreas de Recreação
( ) Assistência Social
( ) Circulação e Transporte
( ) Cultura
( ) Desenv. Econômico e Tributação
( ) Educação
( ) Esporte e Lazer
( ) Habitação
( ) Iluminação Publica
( ) Juventude
( ) Paisagem
( ) Pavimentação
( ) Saneamento
( ) Saúde
( ) Turismo

Acessibilidade e Mobilidade Urbana	Segurança viária; sistema integrado de transporte coletivo; auxilio a pessoas com mobilidade reduzida; diminuição das necessidades de deslocamento.
Áreas de Recreação	Reforma e ampliação dos centros comunitários; equipamentos de lazer e recreação.
Assistência Social	Atendimento à criança, ao adolescente e à família; reforma, ampliação e/ou implantação de unidades de assistência social.
Circulação e Transporte	Pavimentação de estradas; duplicação e alargamento de vias; abertura de vias e rótulas; qualificação de terminais e paradas.
Cultura	Atividades / equipamentos culturais; ações e eventos da cultura.
Desenvolvimento Econômico e Tributação	Geração de trabalho e renda; apoio às iniciativas populares.
Educação	Educação de crianças, jovens e adultos; educação especial.
Esporte e Lazer	Construção e melhorias de equipamentos esportivos
Habitação	Construção e melhorias de residências populares
Iluminação Publica	Instalação e conserto da iluminação publica
Juventude	Atividades e atendimento social voltados ao jovem
Paisagem	Ações que favoreçam o meio ambiente, a recuperação de áreas degradadas, a proteção de áreas ambientalmente frágeis; medidas que controlam a ocupação urbana, as taxas de densidade e a verticalização.
Pavimentação	Pavimentação das ruas e estradas
Saneamento	Investimento na instalação e manutenção do saneamento básico
Saúde	Construção e ampliação da rede especializada; reforma, ampliação e construção de postos de saúde.
Turismo	Atividades e incentivos ao turismo

Parte 3 – Ranking das opções de investimentos/ações urbanas
Imagine-se novamente durante um processo de Orçamento Participativo de sua cidade. Nesta fase, cada pessoa pode votar nas prioridades de investimento/ação que gostaria que a paisagem apresentada recebesse.

As opções de investimento/ação são:

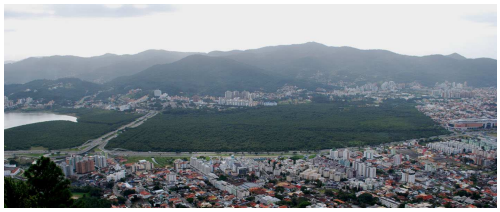
- manutenção da paisagem atual;
- criação de áreas verdes recreativas;
- criação de alternativas que visam a sustentabilidade ambiental;
- preservação do patrimônio ambiental ou construído;
- restrição e controle de construções nos morros;
- restrição do aumento da altura das construções.

IMPORTANTE: Comece marcando a prioridade número 1 (um) e depois a número 2 (dois), 3 (três)... Note que as opções se reposicionam automaticamente formando uma lista logo que o número é selecionado. Confira se a sua lista realmente está de acordo com as suas prioridades nesta paisagem e só depois prossiga para a próxima questão.

Obs.: As imagens a seguir representam o estado atual da paisagem.


Paisagem 1


Paisagem 3


Paisagem 2


Paisagem 4

Parte 4 – Avaliação de cenários urbanos

Nas seguintes avaliações serão apresentadas 4 (quatro) paisagens, cada uma com 6 (seis) cenários diferentes. Pontue cada cenário usando uma escala de 0 a 10. Note que a cada cenário é modificado um elemento da paisagem a ser analisado (conforme legendas) e que cada nota representa a sua importância para futuros investimentos públicos / futuras ações públicas:

Obs.: O cenário 1 representa o estado atual da paisagem;

Peso equivalente das notas:

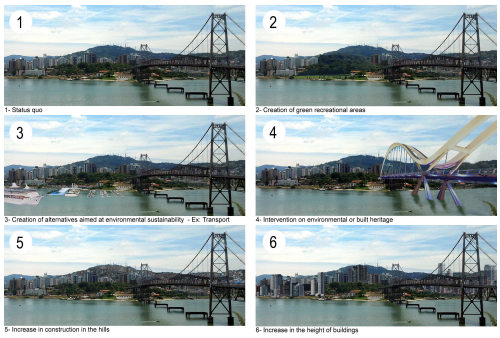
0 – Péssimo

2,5 – Insuficiente

5,0 – Regular/Indiferente

7,5 – Bom

10 - Excelente



Paisagem 1

Paisagem 3

Paisagem 2

Paisagem 4

Parte 5 - Comentários dos participantes:

- Acha que avaliações da paisagem são úteis para o desenvolvimento e planejamento urbano da sua cidade?

- Gostaria de participar nestas avaliações, se este estudo fosse real?

- Que método você considera o mais adequado para avaliar propostas para a paisagem:
( ) Ranking das opções de investimentos/ações urbanas;
( ) Avaliação de cenários urbanos;
( ) Outro: _____

- Se desejar, deixe o seu recado:

Obrigada pela sua participação!
Se gostaria de receber mais informações sobre o estudo, favor contactar pelo e-mail: talitawa@hotmail.com.
Clique em 'Concluído' para validar suas respostas.

8.3 APPENDIX 3 – Questionnaire

Dear resident of Florianópolis,
This questionnaire is part of research that is being conducted by me through a partnership between UFSC, UNG (Slovenia) and IUAV (Italy). The research aims to identify how the inhabitants of Florianópolis assign values to different aspects of landscape. This knowledge could be used, for example, to improve urban policies and also the city's Master Plan.
The questionnaire can be answered by residents of Florianópolis aged from 16 years old and will only be valid if all questions are answered.
Your participation is very important!
Thank you,
Talita Abraham

Part 1 - Participants' context:
Age:
( ) Between 16 and 24 years
( ) Between 25 and 34 years
( ) Between 35 and 44 years
( ) Between 45 and 59 years
( ) Over 60 years

Genre: ( ) F ( ) M

Completed education:
( ) Without education
( ) Elementary school
( ) High school
( ) Graduated
( ) Postgraduated

Profession / Occupation: _____

Origin:
( ) Was born in Florianópolis
( ) Was not born in Florianópolis
If you ticked 'not born,' how long do you live in Florianópolis?: _____

District of residence:
( ) Barra da Lagoa
( ) Cachoeira do Bom Jesus
( ) Campeche
( ) Canasvieiras
( ) Centro - Sede
( ) Ingleses do Rio Vermelho
( ) Lagoa da Conceição
( ) Pântano do Sul
( ) Ratones
( ) Ribeirão da Ilha
( ) Santo Antonio de Lisboa
( ) São João do Rio Vermelho

Have you participated in any way in the Participatory Urban Process of Florianópolis?
( ) Yes ( ) No If 'yes', please describe your participation: _____

Part 2 – Ranking of urban topics

Imagine yourself during a process of participatory budgeting in your city. In this process, each person can vote on the priorities for action that would like to see done in your neighborhood.

This ballot allows you to choose between sixteen (16) topics.

Should mark only six (6) options that represent your urban priorities:

( ) Culture
( ) Economic Develop. and Taxation
( ) Education
( ) Health
( ) Housing
( ) Landscape
( ) Leisure Areas
( ) Paving
( ) Public Lighting
( ) Sanitation
( ) Social assistance
( ) Sporting Goods
( ) Tourism
( ) Transportation and Circulation
( ) Urban Mobility and Accessibility
( ) Youth

Culture	Activities / cultural facilities; actions and events of culture.
Economic Development and Taxation	Employment and income generation; support to popular initiatives.
Education	Education of children, youth and adults; special needs education.
Health	Construction and expansion of specialized network; renovation, expansion and construction of health facilities.
Housing	Construction and improvement of popular residences.
Landscape	Actions which favor the environment; the recovery of degraded areas; the protection of environmentally fragile areas; Measures that control urban occupancy, density rates and verticalization.
Leisure Areas	Renovation and expansion of community centers; leisure and recreation facilities.
Paving	Paving of streets and roads.
Public Lighting	Installation and repair of the public lighting.
Sanitation	Investment in the installation and maintenance of basic sanitation.
Social Assistance	Assistance to children, adolescents and families; refurbishment, extension and / or implementation of social assistance units.
Sporting Goods	Construction and improvement of sports equipment.
Tourism	Activities and incentives to tourism.
Transportation and Circulation	Paving of roads; duplication and expansion of roads; opening of roads and roundabouts; qualification terminals and bus stops.
Urban Mobility and Accessibility	Road safety; integrated system of transportation; assistance to the disabled; less need for displacement.
Youth	Activities and social services focused on the young.

Part 3 – Ranking of urban investments/actions

Imagine yourself again during a process of participatory budgeting in your city. At this stage, it is possible to vote in investment/ action priorities that you would like to see done in the presented landscape.

The investment options / actions are:

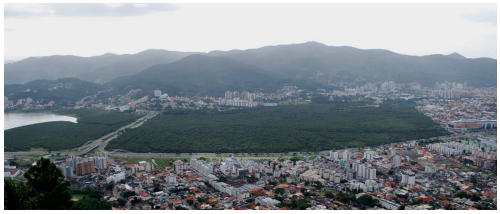
- Maintenance of the current landscape;
- Creation of green recreational areas;
- Creation of alternatives aimed at environmental sustainability;
- Preservation of environmental or built heritage;
- Restriction and control of constructions in the hills;
- Restricting the increase of the height of buildings.

IMPORTANT: Start by checking the priority number 1 (one), 2 (two) 3 (three) ... Please note that the options automatically reposition themselves. Make sure your list is actually in accordance to your priorities in this landscape and only then proceed to the next question.

Note: The following images represent the current state of the landscape.

Landscape 1

Landscape 3



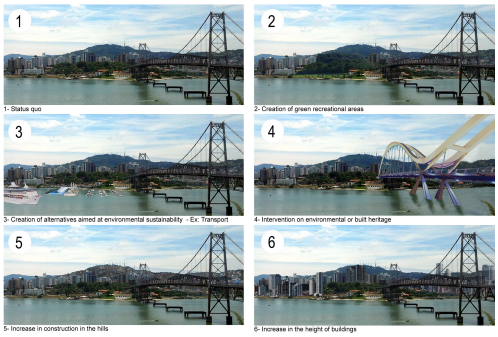
Landscape 2

Landscape 4

Part 4 – Rating of urban scenarios

In the following evaluations will be presented five (5) landscapes, each one with six (6) different scenarios. Rate each scenario using a scale of 0 to 10. Please note that in each scenario is modified an element of landscape to be analyzed (as subtitles) and that every note represents its importance for future public investments / future public actions:

Note: - Scenario 1 represents the current state of the landscape;
- Equivalent weight of notes:
0 - Terrible
2.5 – Insufficient
5.0 - Regular / Indifferent
7.5 – Good
10 - Excellent



Landscape 1

Landscape 3

Landscape 2

Landscape 4

Part 5 - Feedback from participants:

- Do you think that landscape assessments would be useful for the development of the master plan of your city?

- Would you like to participate in these evaluations, if this study was real?

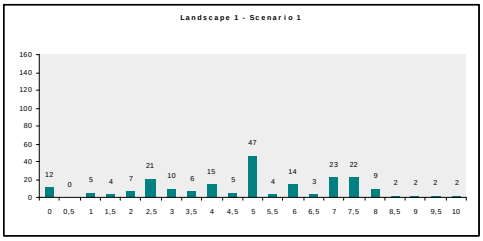
- Which method you consider the most appropriate for assessing proposals for the landscape:
( ) Ranking of urban investments/actions;
( ) Rating of urban scenarios;
( ) Other: _____

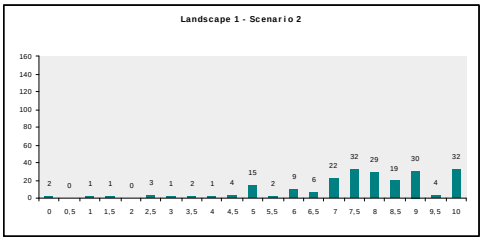
- If you like, leave a message:

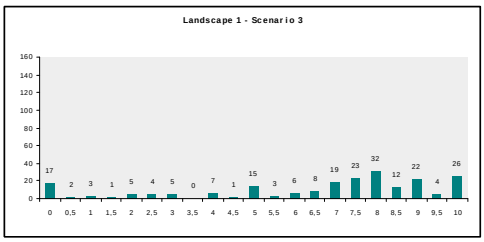
Thank you for your participation!
If you would like more information about the study, please contact by email: talitawa@hotmail.com

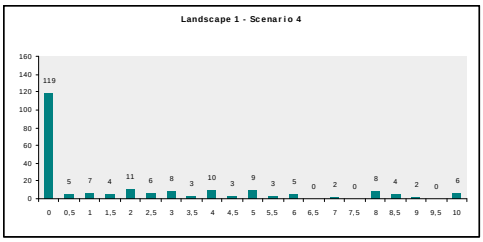
8.4 APPENDIX 4 – Scenarios Histograms

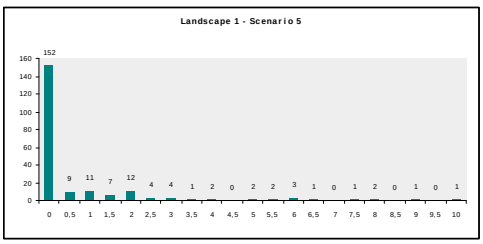
Landscape 1

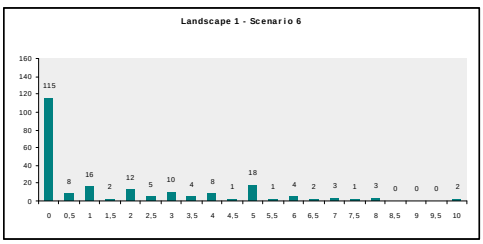




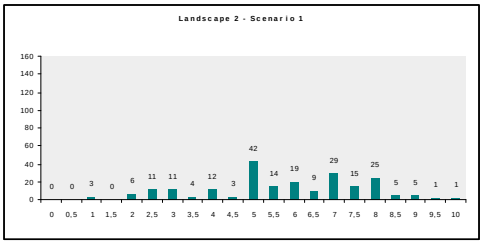


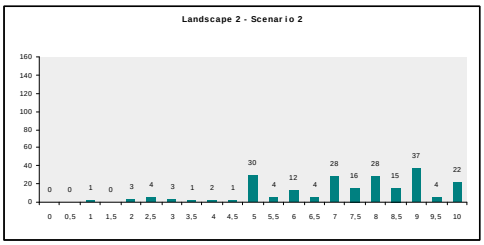


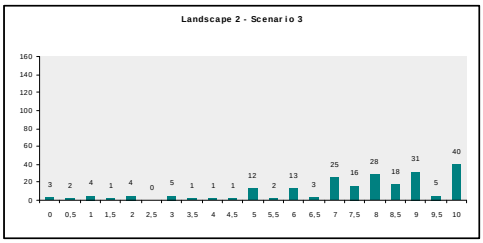


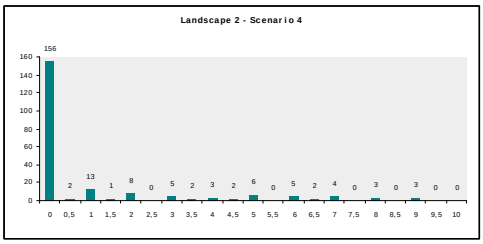


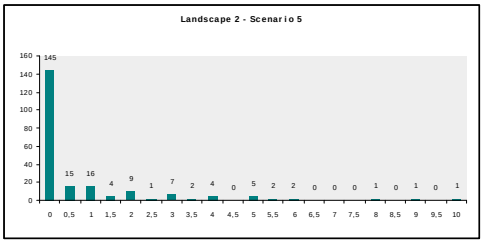
Landscape 2

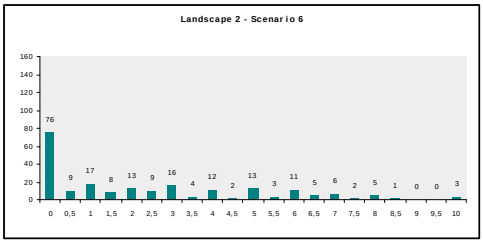




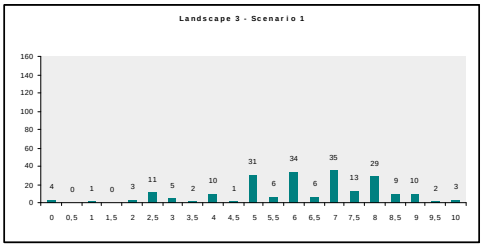


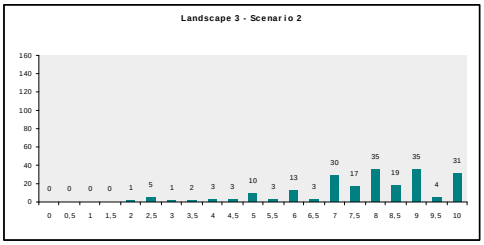


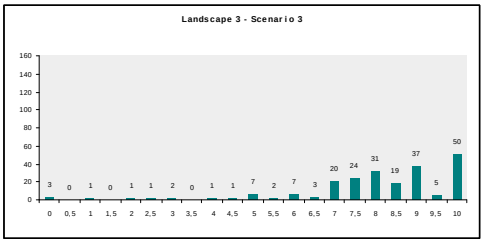


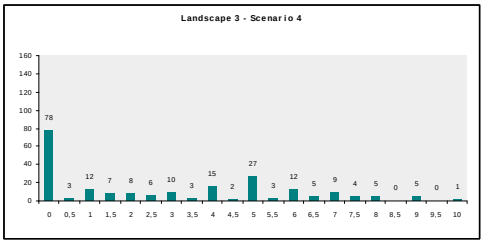


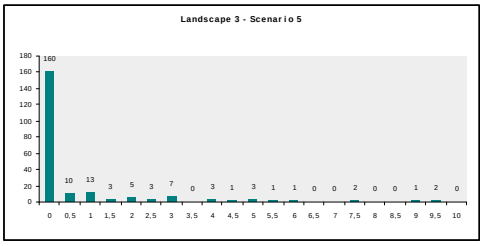
Landscape 3

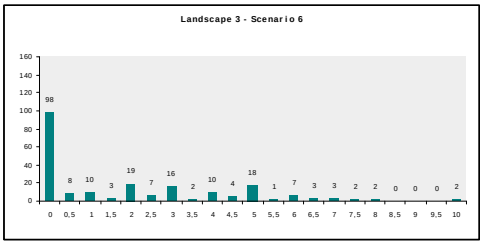




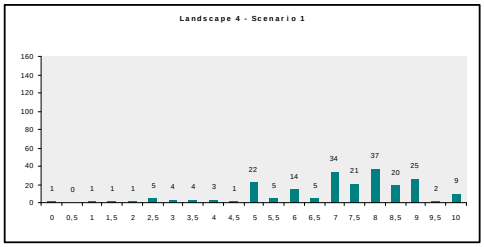


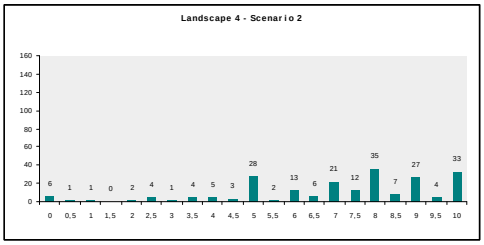


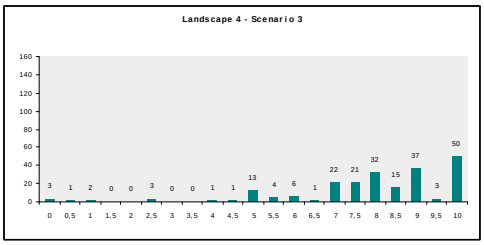


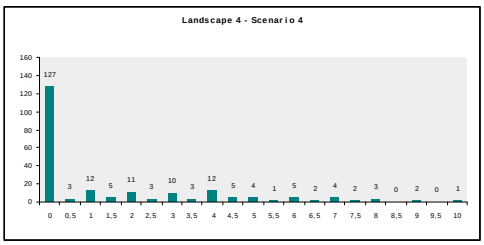


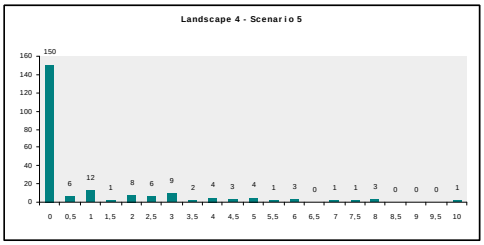
Landscape 4

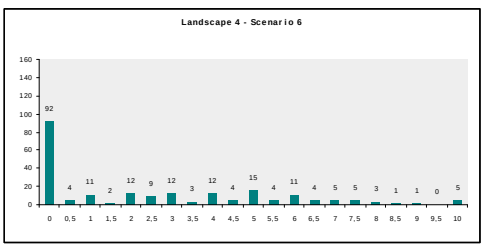












8.5 APPENDIX 5 - Questionnaire data

L. 1	0	0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8	8,5	9	9,5	10	Mean	Mode	Median
Sc 1	12	0	5	4	7	21	10	6	15	5	47	4	14	3	23	22	9	2	2	2	2	4,9	5	5
Sc 2	2	0	1	1	0	3	1	2	1	4	15	2	9	6	22	32	29	19	30	4	32	7,6	8,75	8
Sc 3	17	2	3	1	5	4	5	0	7	1	15	3	6	8	19	23	32	12	22	4	26	6,6	8	7,5
Sc 4	119	5	7	4	11	6	8	3	10	3	9	3	5	0	2	0	8	4	2	0	6	2	0	0
Sc 5	152	9	11	7	12	4	4	1	2	0	2	2	3	1	0	1	2	0	1	0	1	0,8	0	0
Sc 6	115	8	16	2	12	5	10	4	8	1	18	1	4	2	3	1	3	0	0	0	2	1,6	0	0
L. 2	**0**	**0,5**	**1**	**1,5**	**2**	**2,5**	**3**	**3,5**	**4**	**4,5**	**5**	**5,5**	**6**	**6,5**	**7**	**7,5**	**8**	**8,5**	**9**	**9,5**	**10**	**Mean**	**Mode**	**Median**
Sc 1	0	0	3	0	6	11	11	4	12	3	42	14	19	9	29	15	25	5	5	1	1	5,7	5	6
Sc 2	0	0	1	0	3	4	3	1	2	1	30	4	12	4	28	16	28	15	37	4	22	7,3	9	7,5
Sc 3	3	2	4	1	4	0	5	1	1	1	12	2	13	3	25	16	28	18	31	5	40	7,5	10	8
Sc 4	156	2	13	1	8	0	5	2	3	2	6	0	5	2	4	0	3	0	3	0	0	1,1	0	0
Sc 5	145	15	16	4	9	1	7	2	4	0	5	2	2	0	0	0	1	0	1	0	1	0,8	0	0
Sc 6	76	9	17	8	13	9	16	4	12	2	13	3	11	5	6	2	5	1	0	0	3	2,4	0	1,5
L. 3	**0**	**0,5**	**1**	**1,5**	**2**	**2,5**	**3**	**3,5**	**4**	**4,5**	**5**	**5,5**	**6**	**6,5**	**7**	**7,5**	**8**	**8,5**	**9**	**9,5**	**10**	**Mean**	**Mode**	**Median**
Sc 1	4	0	1	0	3	11	5	2	10	1	31	6	34	6	35	13	29	9	10	2	3	6,1	7	6
Sc 2	0	0	0	0	1	5	1	2	3	3	10	3	13	3	30	17	35	19	35	4	31	7,7	8,5	8
Sc 3	3	0	1	0	1	1	2	0	1	1	7	2	7	3	20	24	31	19	37	5	50	8,1	10	8,5
Sc 4	78	3	12	7	8	6	10	3	15	2	27	3	12	5	9	4	5	0	5	0	1	2,8	0	2
Sc 5	160	10	13	3	5	3	7	0	3	1	3	1	1	0	0	2	0	0	1	2	0	0,7	0	0
Sc 6	98	8	10	3	19	7	16	2	10	4	18	1	7	3	3	2	2	0	0	0	2	1,9	0	1
L. 4	**0**	**0,5**	**1**	**1,5**	**2**	**2,5**	**3**	**3,5**	**4**	**4,5**	**5**	**5,5**	**6**	**6,5**	**7**	**7,5**	**8**	**8,5**	**9**	**9,5**	**10**	**Mean**	**Mode**	**Median**
Sc 1	1	0	1	1	1	5	4	4	3	1	22	5	14	5	34	21	37	20	25	2	9	7	8	7,5
Sc 2	6	1	1	0	2	4	1	4	5	3	28	2	13	6	21	12	35	7	27	4	33	7,1	8	7,5
Sc 3	3	1	2	0	0	3	0	0	1	1	13	4	6	1	22	21	32	15	37	3	50	7,9	10	8
Sc 4	127	3	12	5	11	3	10	3	12	5	4	1	5	2	4	2	3	0	2	0	1	1,5	0	0
Sc 5	150	6	12	1	8	6	9	2	4	3	4	1	3	0	1	1	3	0	0	0	1	0,9	0	0
Sc 6	92	4	11	2	12	9	12	3	12	4	15	4	11	4	5	5	3	1	1	0	5	2,5	0	1,5

Table 47 - Scenarios data