

Sensitive Study of the City/Nature Relationship Associated to the Montevideo Waterfront

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Abstract

Montevideo is located on the banks of the River Plate. The coastline makes evident the evolution of ideas and meanings associated with the city/nature relationship. Given its accessibility, its extension, and its intensive use, the waterfront is a paradigmatic public space of the Uruguayan capital. For this reason, for its heritage value and its status as city/nature frontier, it was the object of some projects and work tool for others. It allowed the development of a theory for the study of the landscape. In turn, this theory also enabled the development of other projects that generated thematic, theoretical and methodological contributions. Building one more turn in the spiral of knowledge, we now propose gathering these contributions to enrich the sensitive study of urban open spaces.

It is essential to address the complexity of reality, with a multi, inter and transdisciplinary approach that contributes to landscape design and planning in pursuit of an integrated coastal management. It is enriching in this regard to link humanities, social sciences, art and natural sciences. In this regard, it is also fundamental to integrate the scientific culture with local traditional knowledge and with the work of decision makers. On the other hand, involving the population strengthens the identity and contributes to shape a collective conscience. Finally, for this reason, the integrated practice of university functions is as strategic as the articulated use of cartography, collaborative work, and ICTs (Information and Communication Technologies).

Introduction

This article is a reflection that synthesizes the confluence of several research projects, teaching and college extension programs developed within the framework of the University of the Republic¹, Architecture, Design and Urbanism School, over more than 15 years. They have in common that they include the city/nature relationship subject and that they relate directly or indirectly to the Montevideo waterfront.

Montevideo is located on the banks of the River Plate. The waterfront (Fig. 1) extends itself along the river bank as a paradigmatic public space, with heritage value² and as a key factor in the urban landscape

1 Institutional abbreviations: Udelar_ University of the Republic (Uruguay) / FADU_ Architecture, Design and Urbanism School (Udelar)/ idD_ Design Institute (FADU Udelar) / CURE_ East regional university center (Udelar) / CSIC_ Sectoral Commission for Scientific Research (Udelar) / MEC_ Ministry of Education and Culture (Uruguay) / ENSAPLV_ National High School of Architecture of Paris La Villette (France) / UP8_ Université Paris VIII Vincennes-Saint-Denis (France)

² The National Commission of the Cultural Heritage, in its 1986 resolution: 584/986, defines the "coastal zone comprised from the West towards the East, including its two sidewalks and the public spaces adjacent to it" as National Historical Monument. In 2010 it was nominated for the Unesco World Heritage List.

identity. It spatially and symbolically represents the frontier between the city and nature. To the south it is bordered by alternation of sandy beaches and rocky points and to the north by a belt of variable-width open spaces.

The sea was the main access to the city at the dawn of Montevideo, although it was founded facing backwards. Then, when the idea of nature changed and the sea was perceived as a landscape, the city opened its doors to the estuary. Thus, the waterfront was built at the beginning of the 19th century.

Throughout history, landscape paradigms have changed and this was reflected in the construction of cities and in the practices, representations and meanings associated to nature. In the beginnings, the coast was a residual place of the city; cemeteries, industries, slums and the final disposal of urban waste were located there. Later, when the waterfront construction started, it advanced as much as possible towards the water line in the aim to dominate nature. Afterwards, the coastal zone was valued and so began the recreational use and real estate development. This evolution is also reflected in the uses and activities that take place in the waterfront. It equally influences the design, use and management of open spaces.

Being a border territory, the waterfront is a conflict area from different points of view. Firstly, there is a competition between the desire for a city and the desire for nature. Secondly, the utilitarian vision of nature is confronted with the contemplative vision of nature. Finally, because the notions of city and nature evolve, a continuous adaptation between them and the practices and landscape representations is necessary.

For all these reasons, the waterfront has been the leitmotiv of several works and reflections. These works generated theoretical, instrumental and methodological contributions. This paper takes up aspects of these projects as to raise awareness and sensitize about the value of landscapes and local stories in interaction with natural components in favor of human and environmental sustainability.



Fig. 1 (P2) Montevideo waterfront

Background and Literature Review

It is interesting to start with nature as a cultural construct and take the landscape as the mediator by which society refers to it (Berque, 1999). I start off with the idea of landscape as an articulation between practices and human representations related to nature (Vallarino, 2008). The human condition is interesting as a

trilogy (species / individual / social being) (Morin, 1977 to 2001). The human being then, belongs and is external to nature.

In the study and design of landscape, to think of man as a species, it is important to consider multisensory apprehensions (Luginbühl, 2012). As an individual, life stories are significant. On the other hand, in the consideration of man as a social being, imaginaries come into play that enable the consideration of a temporary unit of measurement that spans several generations, involving the notion of collective identity. Cartography is a key instrument. It is taken as a social process of territorializing by which society, through technical and symbolic operations, marks, appropriates and gives meaning to their living spaces (Besse, 2001). It is a project tool that allows cartographers to represent an interpretation of reality, landscape architects to understand landscapes and artists to interrogate the world. In particular, collaborative cartographies incorporate new actors and collectivize the construction of maps and knowledge. This strengthens the awareness towards our environment and the feeling of identity.

I will number the works that build this paper for future reference:

P1) Project "Sensitive study of the city / nature relationship in Montevideo" (Vallarino, FADU Udelar 2002-2003, funding CSIC, Udelar, Uruguay).

P2) Doctoral thesis "Theory of articulation of moments applied to the city / nature relationship. The case of the Montevideo waterfront" (Vallarino, 2001-2008; UP8 - ENSAPLV, France).

P3) Project «Guidelines for the landscaping of the Montevideo waterfront» (idD FADU Udelar, 2003-2006; FADU Udelar Consultancy Agreement - Municipal Government of Montevideo-Commission of Historical, Artistic and Cultural Heritage of the Nation, Uruguay).

P4) Project "*OMBÚes*. Values associated with nature ", (since 2013, www.ombues.edu.uy): (Vallarino, FADU, Engineering and Agronomy Schools, CURE - Udelar, Figari Museum MEC).

P5) Course "Research methods in Social Sciences", Degree in Landscape Design (Vallarino chair, CURE Udelar, since 2012, Uruguay).

P6) Application of master's thesis in coastal management (Alves & tutors, 2016, Master's Degree in Integrated coastal management, Udelar) to the course "Methodology of landscape assessment", Postgraduate in Landscape Project (Vallarino chair, FADU Udelar, Uruguay).

P7) Line of work "Artistic anatomy of vegetals" (Vallarino, idD FADU Udelar, since 2013).

Methods

I am interested in the sensitive study of the city / nature relationship as much as putting the accent on the actors and significances for which the appropriate framework is the paradigm of complexity¹ and a mainly qualitative approach.

¹ and its three principles, the dialogic, the recursive and the hologramatic (Muchielli, 2004; 23,24)

Although the accent is placed on the human and social sciences, it is interesting to link them with art and the natural sciences. I have also worked linking the three university functions: teaching, research and extension programs. Below are highlighted some of the work methods used.

Information of the material reality (of the inert and the vegetation) has been collected. Cartography has been used as a key method of work and as a link between research and college extension courses (P2-P4). Data was collected by putting the studied scenario at a distance, as in the case of the photographs taken from boats (P1-P2).

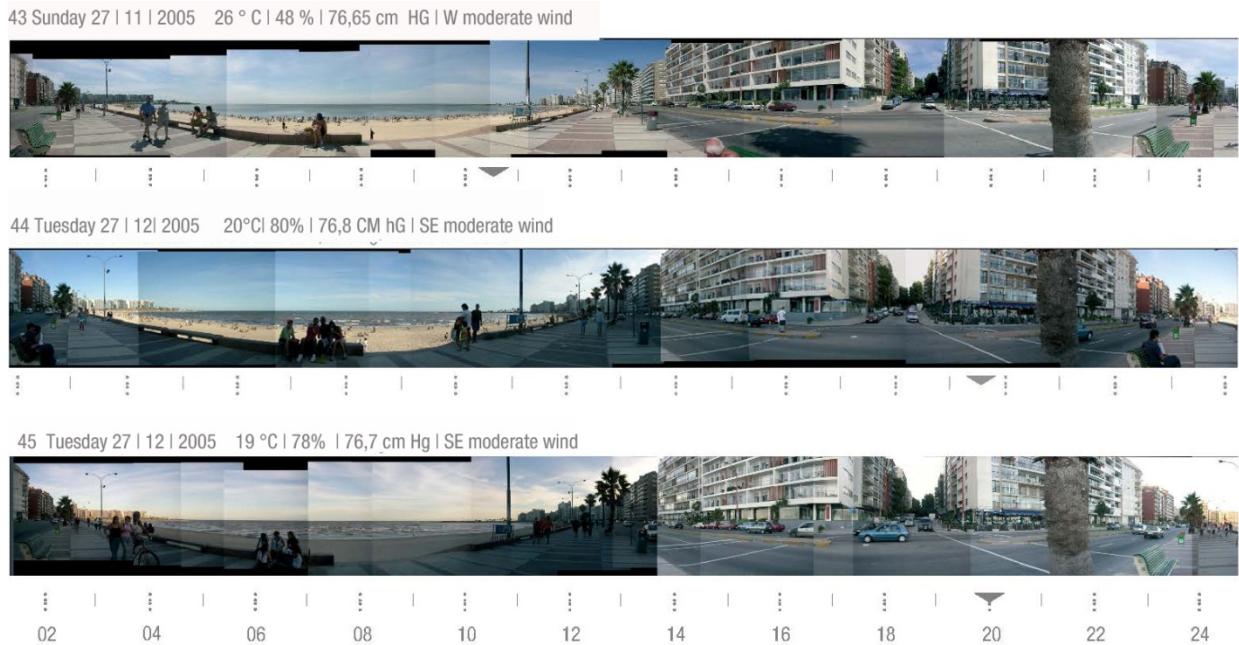


Fig. 2 (P1-P2) Panoramic photos, direct observation technique, Montevideo waterfront

Surveys took place. On the one hand, (P3) to evaluate the role of the coastal avenue as a daily or eventual walk, analyzing uses, users and activities. On the other hand, (P5) annual surveys are carried out to analyze public spaces and to evaluate practices and urban landscape representations.

In-depth interviews were led (P1-P2) with the purpose of getting to know the life story of citizens and to approach a sensitive evaluation of the city / nature relationship, as well as interviews with local actors and qualified informants.

Panoramic photographs were created (P1-P2), product of recording through the direct observation technique (Fig. 2). To this effect, a strategic point of the waterfront was chosen in order to record observations at different times of the day, week, month and year.

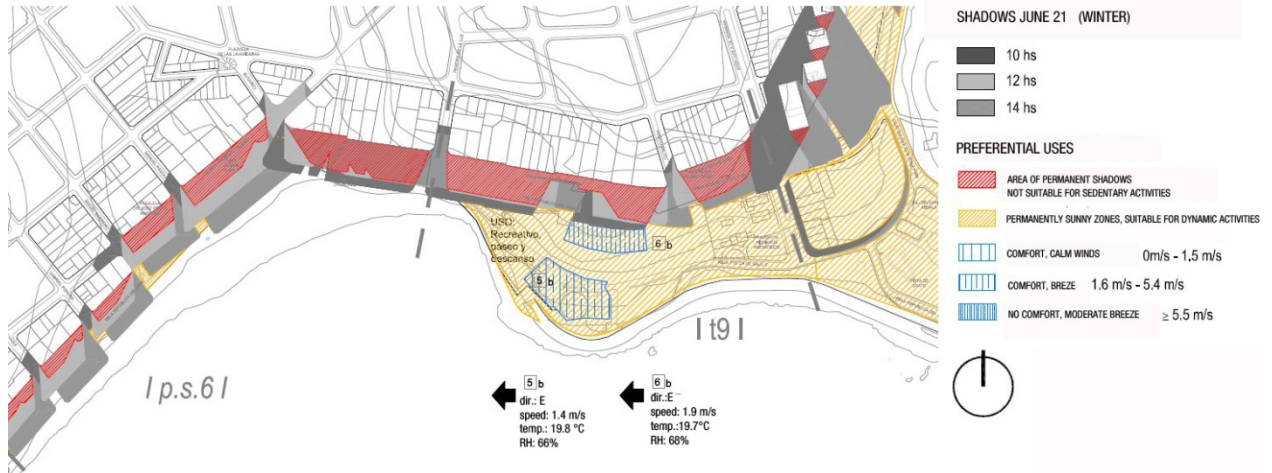


Fig.3 (P3) Microclimatic and comfort conditions, Montevideo waterfront



Fig. 4 (P7) Dissemination activities, outreach and awareness-raising products

The observation was complimented with the record of microclimate values. This connects with the studies carried out by FADU (P3) to evaluate the microclimatic and comfort conditions (studies on temperature, relative humidity, wind, as well as the shadows thrown by buildings at different points of the waterfront) (Fig. 3).

Works that articulate research, teaching and university extension were combined with contributions from citizens, through a collaborative methodology.

Work is being done with ICTs complemented with face-to-face activities and exchanges with local actors, schools and neighbors aiming for dissemination and awareness-raising.

Dissemination activities have been carried out (e.g. art exhibitions) (P4-P7) and outreach and awareness-raising products have been generated (Fig. 4).

Results

The waterfront is a paradigmatic public space of Montevideo, given its accessibility (public transportation), its extension and the intensity of uses. For this reason, for its heritage value and its border condition it was the object of some projects and work tool for others.

Taken as case of instrumental study it allowed the development of a theory for the study of the landscape (P2-doctoral thesis), as open tool and knowledge booster, aiming to solve holistic problems, beyond logarithmic logics (Vallarino, 2013) (Fig.5). This theory was a foundation for the development of other projects (P4-P5-P6-P7) that generated thematic, theoretical and methodological contributions. Building one more turn in the spiral of knowledge, we now propose gathering these contributions to enrich the sensitive study of urban open spaces.

Cartographic representations are taken as a manifestation of the living spaces of societies, where stepping back facilitates simplification in pursuit of a certain abstraction. Christine Buci-Glucksmann's "cartographic eye" concept ((L'oeil cartographique de l'art, 1996) is applied in different dimensions.

A mapping (P1) of the inert material components (surface covering, pavements, mass built-up, urban equipment) (Fig.6) and of the waterfront vegetation was created. A continuous facade of the waterfront (P1-P2) - marine panoramic view- from the Punta Brava to the Carrasco Stream was also produced. Both are inputs for the project, management and research (Fig.7).

We are working with collaborative cartographies built as of the contribution of different actors, which strengthens the appropriation of the results, the feeling of identity and the collective construction (Fig.8). It is important to articulate scientific knowledge with the management of coastal habitat. This can be weighted both in coastal dynamics in general, as in relation to comfort (P2-P3) and vegetation. The roles of vegetation in the coastal zone, from a social and environmental point of view, differ from those in the rest of the city.

MODEL

N: nature
 C: city
 F: force
 M: moment
 d: distance

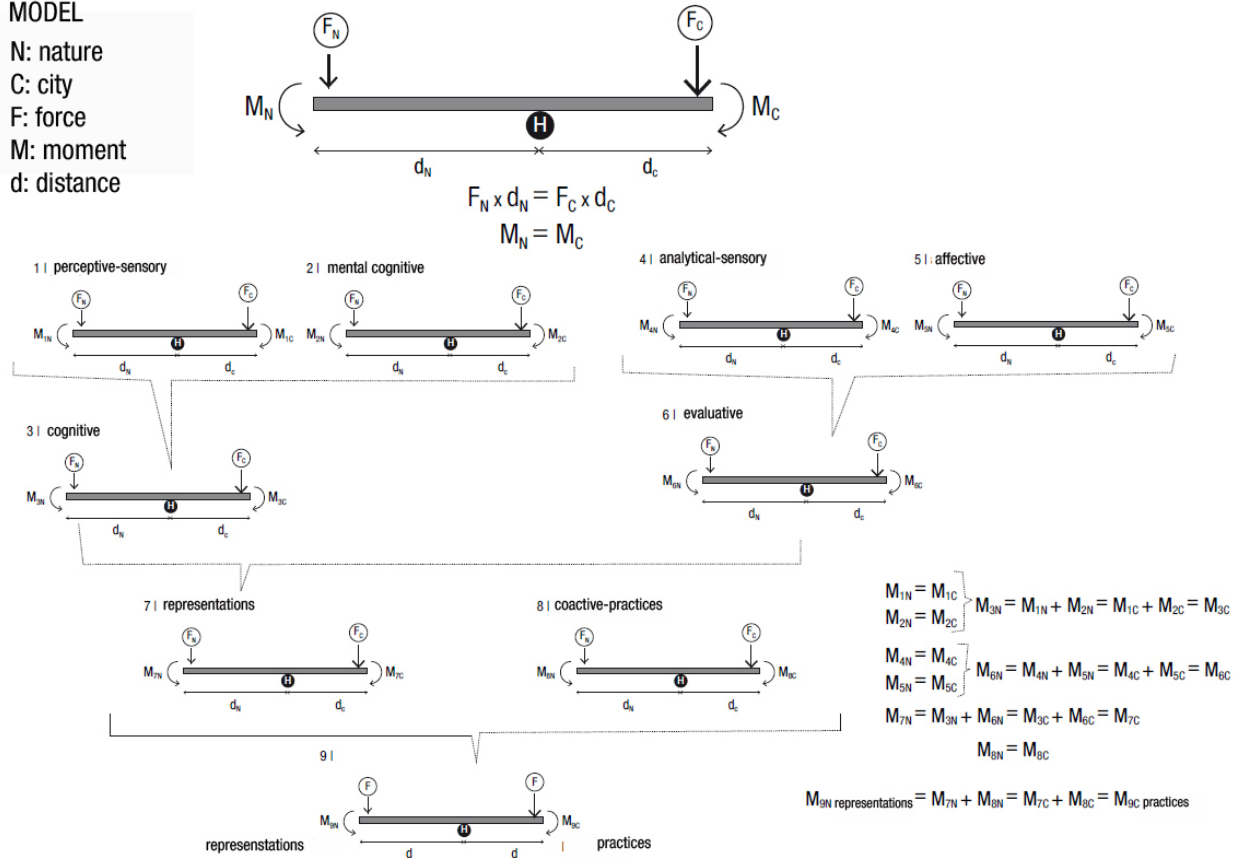


Fig. 5 (P2) Theory of articulation of moments applied to the city/nature relationship

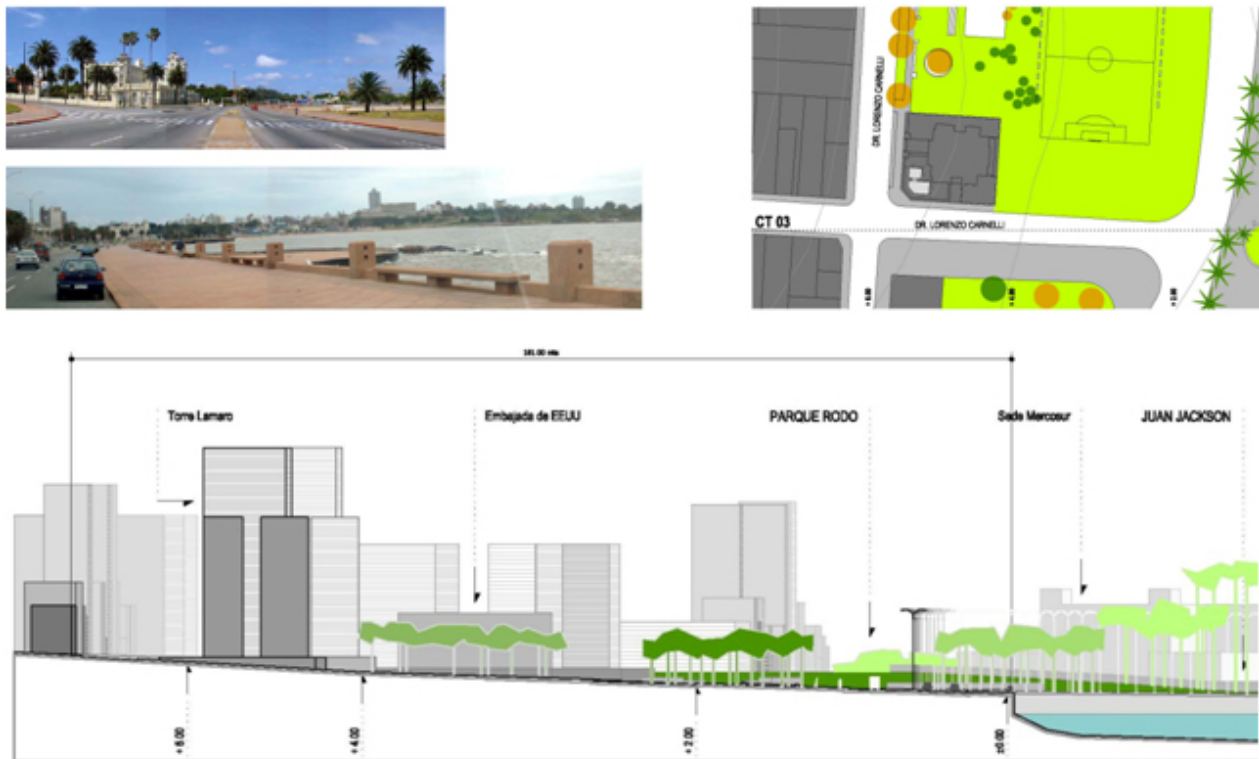



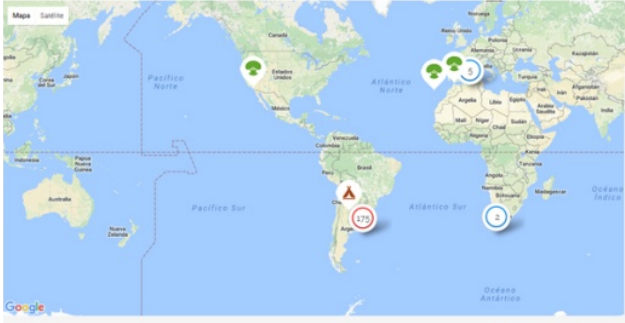
Fig.6 (P3) Photos, plan, section, mapping of components of the Montevideo waterfront



Fig. 7 (P1-P2) Montevideo waterfront continuous facade; photographs taken from boats


LOGIN

[PROYECTO](#) ▾ [LA ESPECIE](#) [REPRESENTACIONES](#) [PRÁCTICAS](#) [NOSOTROS](#) [CONTACTO](#)





Buscar en mapa

Buscar cerca de donde estoy

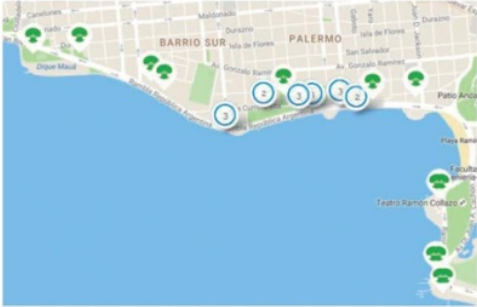
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ombu trees in the Miguele stream



ombu trees in the coastal avenue of the Rio de la Plata

Fig. 8 (P4) collaborative cartographies associated with the ombu trees

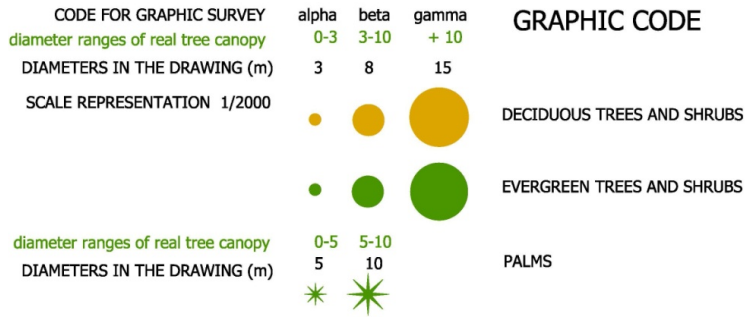


Fig. 9 (P3) mapping of individuals, groups and plant species, Montevideo waterfront

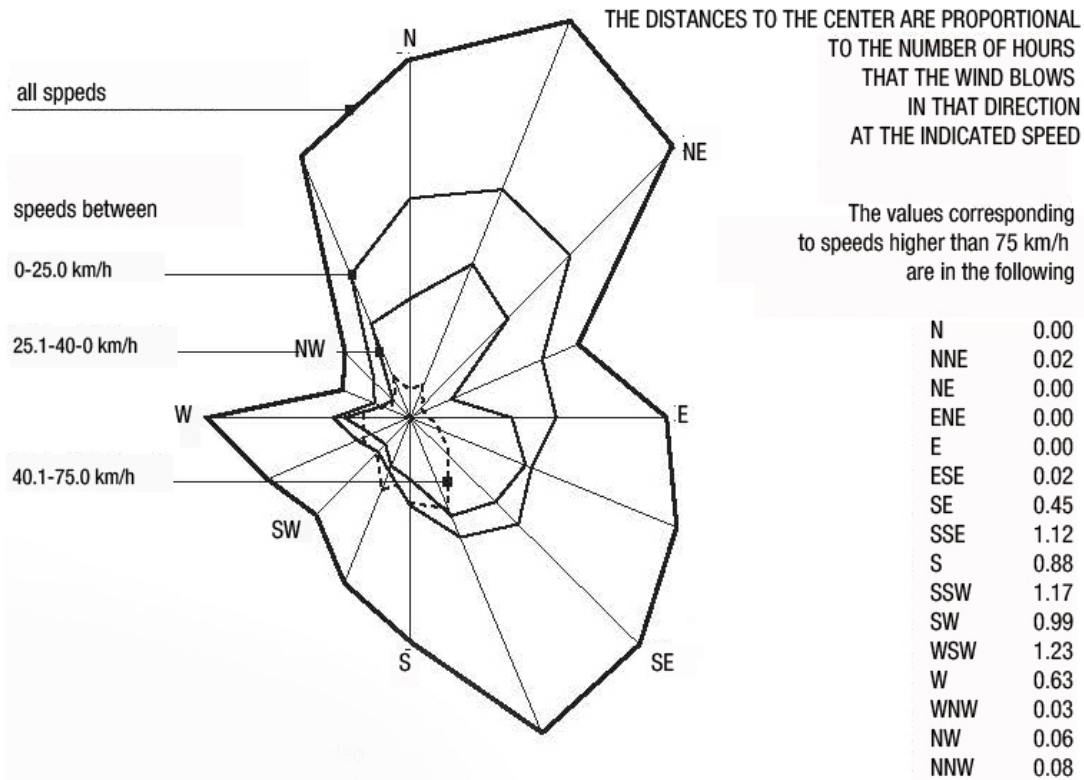


Fig. 10 Climate statistics in Montevideo. Winds, frequency according to the direction.

Worth mentioning is the management work carried out on beaches by the Municipality of Montevideo (since 1989). This is linked to the fact that there has been a constant loss of sand from the beaches towards the sea and towards the urban area, because of the alteration of the coastal dynamics due to the advance of urban constructions.

The municipality has been carrying out a continual improvement process in a sustained way. It was assessed in 2008 by the School of Sciences (PANARIO, GUTIÉRREZ, & PIÑEIRO, 2008). At a worldwide level, Montevideo was the first capital city to certify its beaches ISO 14.001 standard, 2005 thanks to the environmental policies that are implemented by the Beach Participatory Committee (BPC). The municipality follows a policy of continuous management, monitoring and training. Together with the School of Sciences they offer courses and training workshops to their staff. There is a commitment towards an integrated beach management where the BPC plays a fundamental role, involving actors linked to coastal management.

I will focus on the vegetation management actions. In an interview with Engineer Liliana Delfino, technical manager of the Beaches Unit, she explains that cleaning and management tasks have been carried out to mitigate beach erosion. At the beginning, trees were planted (pines, casuarinas, acacias and tamarices). Later began the construction of fences (at first with pickets and then with palm leaves and canes). Finally, once the fences began to generate dunes, these were covered with native herbaceous plants (Fig.11). The latter fix the sand (like pines and acacias) and also stabilize it. Thus, the loss of sand on beaches has been drastically reduced.



Fig. 11. Generation of dunes through vegetation, Montevideo waterfront; Vallarino, 2019

A series of diagnoses was obtained (comfort parameters, uses, users and activities), values and landscape quality indicators (perceptions, practices and landscape representations as well as meanings associated with the ideas of city and nature in the waterfront).

Some highlighted values were the possibility of enjoying the sea and the sky, as well as the openness of the marine horizon ("not having to look up to see the sky"). Likewise, the integral spatial experience that is achieved in the coastal zone – the conjunction of luminosity, wind, the smell of the sea and the natural

sound ambience, that is, the possibility of a multisensorial apprehension, generally scarce in the city – was valued (P1-P2-P3).

ICT in education is being developed (P4), a content portal (www.ombues.edu.uy) is being set up and an app to work with mobile devices (cell phones, tablets, ceibalitas¹) is being built. ICT supports the dilution of spatial and temporal borders, contributing to the universal access to knowledge. Knowledge is an instrument for extension activities, an objective of the research project and tool in teaching activities (P4-P5-P6). The ICTs contribute to the integration of the three university functions, thus enhancing learning. ICTs are complemented with face-to-face activities. Noteworthy are the school workshops that combine classroom work with outdoor field trips where children make drawings by hand. They encourage the ability to observe and connect with the emotional (P4). Linking scientific and traditional knowledge (P4-P5-P7) has been possible thanks to outreach, awareness-raising activities and exchanges with local actors.

Discussion and Conclusion

As I have already clarified, these reflections derive from the confluence of several university works, for which I am interested in using the paradigm of complexity as a general framework. For this reason, the "case study" method is appropriate - be it instrumental or intrinsic - since it demonstrates the evolutionary and complex nature of social phenomena (Collerette, 2004). The duality of roles creating loop processes is also decisive, as when the university functions are integrated (research, teaching and extension) or when knowledge is used as an end and as a means and, therefore, citizens are consumers and creators of culture (Cf. Casacuberta, 2013). Making a parallel with the idea of "The Third Landscape" (Clément, 2007), I consider knowledge as "a shared fragment of a collective consciousness" and as an instrument for diversity and integration.

It is fundamental to define specificities in order to later tear down frontiers and emphasize the establishment of relationships and articulations. Therefore, it is essential to address the complexity of reality, with a multi, inter and transdisciplinary approach. It is also necessary to articulate the scientific culture with local traditional knowledge and with the work of decision makers. It is enriching in this regard to link humanities and social sciences, art and natural sciences.

We must look for elements and strategies that appeal to common qualities among different groups to achieve empathy and awaken interest, seeking the appropriation of initiatives and projects by different actors and the creation of a collective conscience. Nature in general and vegetation often achieve these purposes, as well as appealing to our condition of belonging to nature or extolling the connection with the emotional (i.g. working with freehand drawing, outdoor activities or life stories). It is also achieved with topics or elements that are transborder - from a conceptual point of view (i.g. the botanical), spatial (beyond political boundaries) or social (collective heritage - local and national identity). The Montevideo waterfront - emblematic public space - fulfills this condition.

To face these challenges, it is necessary to develop methodologies and innovative tools that enhance the processes of landscape design. The articulated use of cartography, collaborative work and ICTs is strategic.

¹ mobiles devices for scholars, Plan Ceibal <https://www.ceibal.edu.uy/es>

Applying ICTs to education expands the territorial and social scopes of knowledge and integrates diverse areas, such as rural and urban. ICTs allow the articulation of diverse activities and environments, contributing to "universal access to education, equity in education, delivery of quality learning and teaching " (UNESCO, 2017).

Collaborative work involves citizens, favors appropriation and strengthens local and national identities. The collaborative strategy from the academy is complementary to the participatory strategy at the level of decision makers.

Cartography is a tool and expression of the project. It appeals to artists, landscape designers and cartographers (Besse, 2011). And today, thanks to technology, it increasingly involves different actors in society. Collaborative cartographies reconcile qualities that make them key tools for the study, design and management of the landscape.

It is thus possible to articulate practices and representations, theoretical knowledge and real spaces, as well as to foster their dissemination in order to contribute to a "cultural revolution" (taking up Henri Latorit (1974)), integrating disciplines and spaces. These are strategic issues for landscape design and planning in pursuit of an integrated coastal management.

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