Abstract


In various cities is observed how much is attractive and interesting about the urban and landscape aspect, neighborhoods, regions and occupations adjacent the Urban Lagoons.

Considering the complexity of the subject, the objective of this work is to propose methodology for the study of conditioning factors that can influence the determination of the limits of the alignment of urban lagoons in order to preserve the best conditions and environmental characteristics of the region, using CAD technology and GIS for the analysis and selection of such conditions.

1. Introduction

The choice of this theme was motivated by the desire for plan the use of urban land on the banks of the Urban Lagoons, in order to respect the environment and preserve its natural resources, as subject in evidence today.

Due to population growth that has taken place in various urban centers, the need for densification and expansion of its boundaries, is invariably associated with a planning and redesign pathways to enable and enhance the urban mobility. The margins and adjacent area to the lagoons, just turning into alternative occupation, which undermines the conservation of natural areas, as seen in Figure 01.
Thus, determine a limit to these urban occupations in the margins of the Lagoons is essential to the necessary preservation of the nature of the lagoon systems.

Finally, take the Rodrigo de Freitas Lagoon as "Case Study", was due to its location and importance in relation to our city, and especially the exemplary and historical dualism of its Urban-Environmental context and the strong real estate appeal.

2. Factors Conditioning

With the purpose to confirm and consolidate the knowledge and use of technological tools (CAD / GIS) and consultation with existing database, this study established the idea of electing comparative parameters, possible conditioning factors involved in defining the limits of alignment of urban lagoons. Based on a concept map as can be seen in Figure 02, we analyzed the natural environmental conditions inherent in the region, as well as urban interventions already made, picturing quantitative and qualitative parameters, organized into two groups, according to their characteristics of influence.
In a first level of classification, were designed two groups:

*Environmental Factors* and *Urban Factors*.

Then in each of these groups were identified conceptually other levels now more specific, forming a structure as shown in Figure 03.

Therefore, considering this fundamental structure, we designed study these conditioning factors, using a process to determine a relationship of influence and balance guided by the objectives of this thesis.
3. Methodology and Query Tools

The Obtaining of technical material to form the Geographic Base Georeferenced and Technical Documentation and Specific, was carried out through consultation and access to portals Official Certificates, published and made available online by the various organs and Public and Private Entities involved and responsible for each specific subject, such as the example in Figure 04 - Charter Geological-Geotechnical. This research is to enable the analysis of the geological characteristics of the region, and with the use of the concepts of Geotechnics, will measure and parameterize this conditioning factor.

This is done for all the other defined conditioning factors, will possible the development of a specific diagnosis to define the limits of the alignment of the lagoon Urban studied.
4. Development - Production of Maps

After the research phase we investigate the information in database interpreting the existing maps, and developing others in the various disciplines and conditions involved, as shown in Figures 05 and Figure 06, in order to measure its importance and interference in the context of the defining limits the alignment of Urban Lagoon in study, thus creating a parameterized value system.

Figure 05 – Map Measurement of Borders LRF - Natural and Projected

Figure 06 - Map of the Conditions of Vegetation Cover of the Lagoon Region
Finally, we plan a means of consolidating all the conditioning factors, now parameterized, using comparative graphics, as the examples detailed in Figures 07 and 08, showing conclusively the degree of urban interference compared to the degree of environmental preservation, signaled by these indicators.

![Figure 07 – Bar Chart](image)

**CONDITIONING FACTORS**

**Graph Polar Directional**

![Figure 08 – Graph Polar Directional](image)
5. Conclusion

We understand that this study achieved its objectives, experiencing a line of research that used modern and current tools for collecting and processing of data (CAD / GIS / WEB), to research and propose a methodology for the definition of Conditioning Factors highly, creating a relative scale of values, able to signal and measure the anthropic interventions and the environmental conditions of Urban Lagoons.

A summary of the evolution of the actions developed in the methodology is found in the context shown in Figure 09, forming a conceptual notion of the procedures adopted in this study.

![Table of Evolution of The Actions of The Methodology]

Figure 09 – Table of Evolution of The Actions of The Methodology

Keywords

Environmental-Urban; Fauna-Flora; Legislation Urban and Land Use; Alignments and margins of Urban Lagoons; Lagoon ecosystems; Georeferenced mapping; Relief; Hydrology; Technology CAD/GIS/WEB; Web Portals.