



## **Sustainability in an architectural project: proposal for the Lagoa do Açú State Park (PELAG) headquarters – architectural project elaboration**

*Davi Couto Fernandes*<sup>1</sup>, *Vicente Mussi-Dias*<sup>2</sup>, *Maria das Graças Machado Freire*<sup>2</sup>, *Ronaldo de Sousa Araújo*<sup>3</sup>

*(1) PIBIC/CNPq Scientific Research Student PIBIC/CNPq – Architecture Course; (2) Collaborative Researcher – Chemistry and Biomolecules Laboratory - LAQUIBIO/ISECENSA; (3) Guiding Researcher - Urban and Environmental Studies Laboratory - LEUA/ISECENSA – Research and Post-Graduation Center – CPPG – CENSA-ISECENSA Superior Education Institutes, Rua Salvador Correa, 139, Centro, Campos dos Goytacazes, RJ, Brazil*

Sustainability is based on the concept of using natural resources available in the present so that the same availability is assured for future generations. This research aimed the elaboration of a sustainable architectural project for the Lagoa do Açú State Park (PELAG) headquarters by taking into account the value of natural resources, users comfort and aesthetic itself, and by minimizing environmental impact without renouncing modern technology. Firstly, a topographic survey was made on the land in which construction of the park's headquarters will take place; the park is situated between Campos dos Goytacazes and São João da Barra municipalities. Then, the making of the architectural project considered suggestions and solutions of how to deal with local environmental conditions such as high solar incidence, strong winds and constant marine spray. The outcoming project suggests building the headquarters in four separate buildings, three of them placed in a plateau close to the Lagoa do Açú itself in order to allow the contemplation of this hydraulic body from within. Then, high ceilings and glass were used both to allow visibility, and natural ventilation and lighting. Besides, using those elements contributes for a less environmental impactful architecture regarding either energy consumption or ecosystem adaptation. Environmental constraints were met, as by integrating intervention landscaping to natural restinga vegetation in the buildings' surroundings. In conclusion, this sustainable building plan proposes conscious alterations in the area, but does so in a way that it meets modern men housing and work necessities while preserves the environment and its natural resources – and assuring good quality of living for the present and future generations.

**Keywords:** Environmental impact. Ecological architecture. Restinga.

**Supported by:** ISECENSA.