

Structures for environmental education in Galipán, Parque National El Avila, Venezuela

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The aim of this project is to bring the modern society closer to nature, to unveil the old traditions and help people to identify themselves with nature, since we are compounded of its own elements. The architecture becomes an interpretation of the ecosystem, a constructive way of teaching the compromise between sustainability and exploitation.

This aim has been achieved with a study of the native culture and architecture of Venezuela, focusing on the architecture close to nature and via a detailed analysis of the environmental impact that a sustainable project developed within a nation park will have on the local ecosystem.

The project has been thought as a part of a net of centres for the environmental education, each one focused on a specific topic.

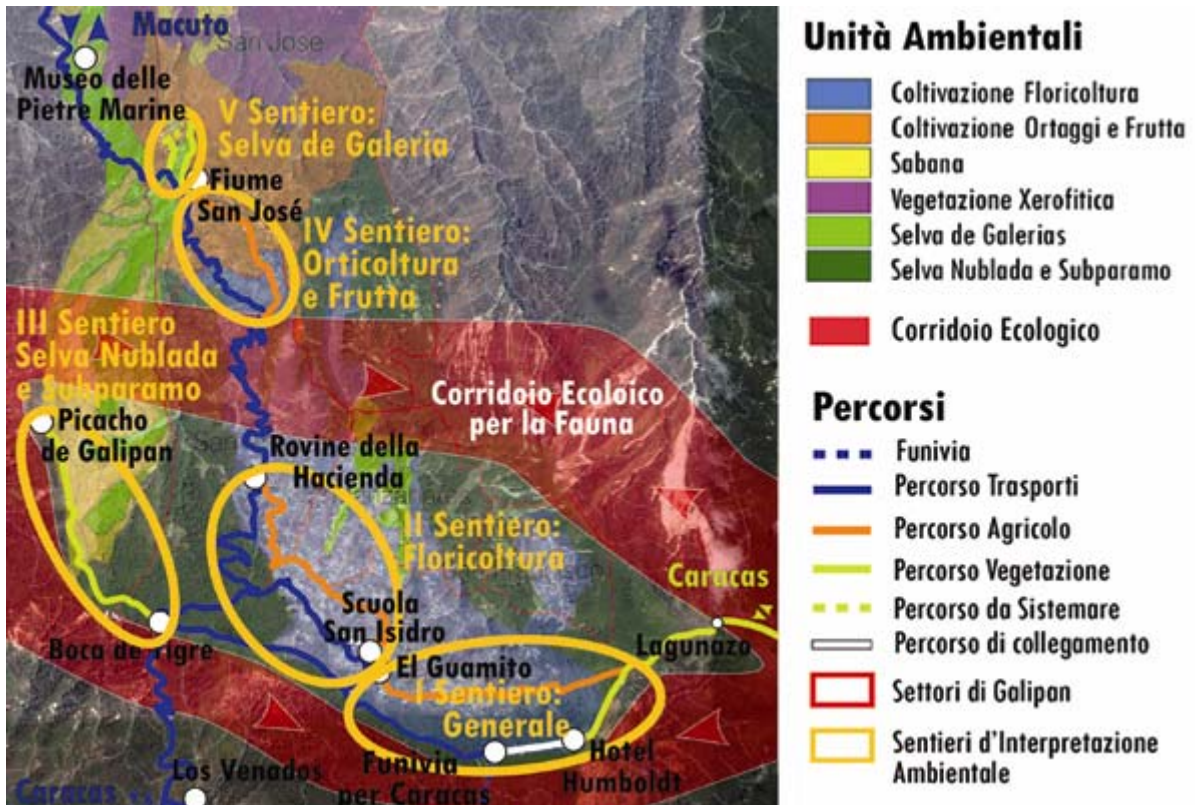
In the area of Galipán **three centres** have been hypothesized, each one focused on a main environmental characteristic of this area:

- 1. The vegetation of *Selva Nublada*** situated in the Boca de Tigre area. (typical of the Parque National El Avila)
- 2. The agricultural area** in the region of Hacienda (this is an area historically used for floriculture; it is relevant for the study of traditional agricultural methods with low environmental impact).
- 3. The vegetation of *Selva de Galeria*** in the area of San José de Galipán (typical fluvial environment, important for its peculiarity and its effects on the water cycle).

These three main areas are connected via “***Environmental Paths of Interpretation***”, paths seen as a circuit and divided into sub-units to highlight specific themes.

The *Environmental Paths of Interpretation* are designed to identify different areas characterised by a particular type of flora or agriculture (**Environmental Units**) and allow the visitors to explore the main environmental features and be aware of the reasons of existing or possible degradation.

Moreover, the project also includes some areas intended to be an “***Ecological Corridor***” in order to allow the local fauna to walk through the Galipán area undisturbed by tourists.

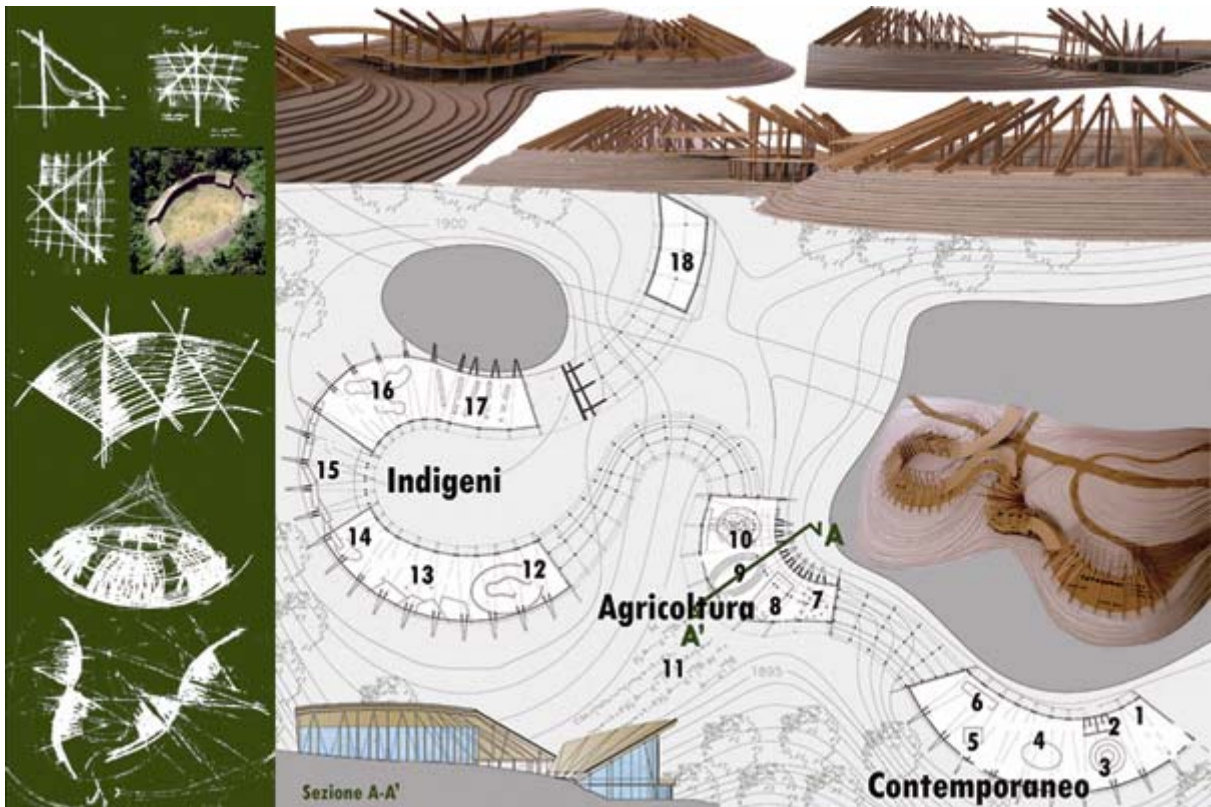


The space organization of the Galipán area show the point of tourist and social interest, the route organization, the environmental units that divided the territory, the environmental path of interpretation planned the ecological corridor

The Environmental Educational Centre of *Selva Nublada* is closely connected with the local environment and it is divided in three pavilions. It represents a path of experiences that allows the visitor to re-discover the relationship between human being and vegetation through the native, colonial and modern history.

An example of environmental sustainability and integration between human being and nature is represented by the native era; in fact, **in the native architecture** the relationship between the building and the nature is dialogic (it interacts with nature).

The project is based on this kind of relation establishing a connection between the project itself and the environment in which it is located. The building techniques are derived from the study of the native architecture. The wood structure, as a reversible material, could be substituted and recycled. The bioclimatic architecture of the centre is in the exploitation of natural ventilation inside the building, which is vital given the high humidity in the area. This is also obtained through climatic data for the orientation of the Centre, the system to collect water rain and solar panels positioned onto connecting bridges between pavilions.



In the three pavilions of the Environmental Educational Centre is developed a path of experiences through the modern, colonial and native history.

The distribution is: 1.reception, 2.toilets, 3.continuation of life 4.carbonio cycle, 5.renovable energy, 6.recycle, 7.forest, 8.fire, 9.empty, 10.sowing, 11.orchard,12.den, 13.tree, 14.search, 15.cycle of water, 16.ecosystems compositions,, 17.ecosystems overpositions,18.bar.

The sketches in the side band are a Venezuelan's native architecture analysis that brought to the development of the project's structure

The environmental impact analysis of the project lay out the guidelines concerning environmental recovery, environmental and economical sustainability; it is based on a Strategic Environmental Evaluation. The analytic and estimative phase has been achieved through the **Leopold Matrix**, by identifying the environmental elements more involved in the project. Later, they have been analysed during the second part of the analysis, processing an environmental relationship on the base of **DPSIR** (Driving force, Pressure, State, Impact, Reply) model.

Matrice di Leopold

		Azioni di Progetto											
		Restaurazione Terra	Restaurazione Acque	Restaurazione Vegetazione	Restaurazione Fauna	Restaurazione Riduzione Emissioni	Restaurazione Riduzione Emissioni	Restaurazione Riduzione Emissioni	Restaurazione Riduzione Emissioni	Restaurazione Riduzione Emissioni	Restaurazione Riduzione Emissioni	Restaurazione Riduzione Emissioni	
Elementi Ambientali	Qualità Aria	/	/	/	/	/	5	/	7	/	/	7	
	Quantità Acqua	/	/	7	9	7	/	/	/	/	/	8	
	Qualità Acqua	/	/	7	/	/	/	/	7	/	/	/	
	Quantità Acqua	7	7	7	4	4	1	1	4	1	/	/	
	Ambiente Idrico												
	Qualità Acqua												
	Quantità Acqua												
	Pezzo Idrico		/	/	/	/	/	/	6	/	/	/	6
	Pezzo Idrico		/	/	/	/	/	/	/	/	/	/	/
	Distribuzione		/	/	/	/	/	/	/	/	/	/	8
Distribuzione		/	/	/	/	/	/	/	/	/	/	/	
Educazione		/	/	/	/	/	/	/	/	/	/	/	
Educazione		/	/	/	/	/	/	/	/	/	/	/	
Qualità Ambiente		/	/	/	/	/	/	/	/	/	/	/	
Qualità Ambiente		/	/	/	/	/	/	/	/	/	/	/	

Modello DPSIR Ambiente Idrico

Determinanti

- Agricoltura
- Urbanizzazione
- Turismo

Risposte

- Riduzione consumo
- Rilascio del DMV
- Uso delle BAT per ridurre il carico inquinante
- Attività di monitoraggio

Pressioni

- Scarichi civili
- Prelievi idrici

Impatti

- Riduzione risorse idriche
- Alterazione sistemi di distribuzione e utilizzo acque
- Riduzione capacità depurative
- Inquinamento delle acque superficiali e sotterranee
- Alterazione dei processi chimico-fisici

Stato

- Qualità e Quantità Acque superficiali e sotterranee

This image show the outline that has been used of DPSIR model about the water ambient (one of the five environmental elements more involved in the project: land, vegetation, fauna and radiations) and the project-reply that have been studied

The results of the environmental impact analysis have conditioned the project bringing the environmental education out of the Centre boundaries, with the intention to educate in an architecture that is in harmony with the environment.

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