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# VALE DO PARAIBA (PARAIBA VALLEY): BETWEEN BRAZILIAN METROPOLISES

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## Summary

The Group Built Environment of the University of Taubate' s Post-Graduation Program has been developing studies in order to comprehend the dynamics of the Paraiba Valley's geopolitical region. The Group of doctor-researchers aims at analyzing the uniqueness of this region inserted between the two largest Brazilian metropolises, the city of Rio de Janeiro and Sao Paulo. This special territory has three regional environments which limit and define its history-culture-environment: The Channel of the Paraiba do Sul River, Serra da Mantiqueira and in another edge, the North Coast of Sao Paulo. The region has a total population of about 2,500,000 inhabitants. However, its peculiarity is the settlements organization, characterized in medium, and small cities. Along the industrial pole, there are cities with over 100,000 inhabitants, and surrounding them, the cities with around 50,000 inhabitants, or even those cities with less than 10,000 inhabitants, which are responsible for the agricultural and cattle-breeding and tourism belt, in this case, transversal to the urban-industrial axis of the Paraiba do Sul River and the metropolises of Rio de Janeiro and Sao Paulo. Significant parts of this regional territory consist of important areas of environmental patrimony and they also express an urban and rural built patrimony of important cultural value. Another relevant factor is the social-economic, politic and cultural dynamics itself, because there is an interdependence among the cities, both in the field of productive activities, health, education and leisure infrastructures, among others and concerning the regional sustainability, regarding the natural environment, expressed, above all, by the existing environmental preservation areas and parks, inclusively the agricultural and cattle-breeding production areas, still remaining from the economic subsistence cultivation techniques. Such dynamics has generated a built environment pervaded by various cultural plans, because beside a built environment linked to the international economic globalization, other built patrimonies are established linked to a national, regional and sometimes local or even a subsistence economy. Those environments are materialized in the architecture and the urban and rural collective settlements, or in some cases, materialized in the conurbation areas in the urban-industrial axis, as in the city of Sao Jose dos Campos, Jacarei, Taubate, and Pindamonhangaba. The Group Built Environment of the University of Taubate' s Post-Graduation Program in Environment Sciences has been developing efforts so as to stimulate a Sustainable Development Policy in the region. The research in development joins teachers and professionals with complementary academic education, who work in the following areas: historical process of the built environment production emphasizing the urbanization and industrialization; urban-regional design and the collective habitat development; also upon studies and interventions about the historical-cultural and environmental patrimony valorization; and even, researches related to the environmental construction technological process; besides the interfaces with the agrarian production environment.

## 1. Presentation

The present research it the result of two years of work of the Group of Constructed Environment Sciences of the University of Taubate. It is an institutional program that comprises several departments of the UNITAU and counts on the collaboration of other education units and research institutions, and it constitutes an important research center for the Paraiba Valley region and all national territory.

The Master Program recommended by the Professional Improvement Coordination of College Education of Brazil has started in 1998 with the objective to make the society aware and to interject with the governmental institutions and companies as to the preeminent need to adopt measures that concretize an environmentally sustainable future.

With five concentration lines in research: constructed environment, social cultural aspects and environment quality, terrestrial and aquatic ecosystem, integrated management of hydrographical basins and integrated management of waste, promote the multidisciplinary exchange among different areas of knowledge, related to the environmental question.

As a reflex of such professional exchange, graduates in Sciences, Arts, Architecture, Engineering, Biology and others, perform studies and researches both under the technical scientific point of view and under the social cultural aspect of the Constructed Environment and the Landscape.

## 2. Introduction

### 2.1 The Paraiba Valley

The Paraiba Valley has built one of the most promising Brazilian regions, whether in the social side, with approximately 2,500,000 inhabitants, or in the economic side by its strategic location among the two major productive, financial and consumer centers of the metropolis of Sao Paulo and Rio de Janeiro.It also constitutes a landmark in the environmental side, as a growing expansion of its constructed environment has been occurring over a natured marked by a unique singularity, in the case, formed by the channel of the South Paraiba River (average altitude of 550m) surround by Sierras like the Mantiqueira (1,500m to 1,780m altitude) and Sierra do Mar (altitudes between 1,200m to 1,360m). This configuration of geographic relief, added to other environmental factors: the geological ones, the vegetable ones and the pluvial ones, have allowed the formation of a rich hydro network, with a number of riverheads in the heights of the Sierras, unfolding in important rivers and aquatic reserves, natural and repressed.

This Constructed Environment, historically, have been suffering environmental impacts in different scales. From an almost imperceptible scale, in the case of the presence of Indian population, linked to a stage of technical subsistence culture, this practically did not affect the regional sustainability. Out of this scale, it has gradually passed to other degrees of environmental impacts, moreover with the advance of the Potuguese-European colonization, dated from more than 500 years.

The degradation scale will follow the new economic modalities, in the case of exploration of the wealthiness of the coastal Atlantic Forest – the pau Brasil – in the first five decades of this colonization, passing to the production in scale as the sugar cane, besides the exploration of gold and precious metals, in the transversal direction to the coastline, in route to the countryside, interior of Brazil.

However, the great environmental intervention impact will take place with the coffee production, from the formation of the Brazil Empire, after 1830, extending up to the first three decades of the XX Century. In this period, the vegetable coverage of the region gives up place to the intense coffee crop, with objective to large-scale production to the European and North American market, aiming at strengthening the workers, in replacement to the alcohol.

The production of the Constructed Environment of the Paraiba Valley region will follow this profile and these economic scales as witnesses the historical estate of the edified cities, as well as the nucleus of the rural villages. Whether they are marks of the Sugar Cane Cycle period in the coastline, old mills, or in the Gold Cycle, among other expressed in the historical site of the pioneer village of Taubate and its centennial churches, as the Pilar Church and its urban frame.

Be it also the landmarks of the Coffee Cycle itself, of the Farmhouses and their slave houses, be it the commercial and administrative main offices, be it also the landmark of the railway construction, joining Sao Paulo and Rio de Janeiro, close to the riverbed of the South Paraiba River, practically connecting all the Paraiba Valley region to the international market, via port system of Santos and Rio de Janeiro.

To the impact of the coffee culture it shall be added other of great environmental impact, in the case, the agriculture and cattle breeding, forming large pastures for cattle in the rural regions, moreover occupying the coffee lands, after the beginning of the thirties in the twentieth century, period of the coffee crisis. The Constructed Environment in its contemporary expression marked by the urban crowding, more intense in a network of more than forty municipalities (confirm the data) of medium (over 100,000 inhabitants) and small size (between 10,000 and 40,000 inhabitants), this Environment is the result of other productive and economic process implying in other impacts as to the sustainability of the medium, in the case

industrialization process of goods in large scale, also in great part dedicated to serve the international market.

To the urban-industrial crowding correspond also levels of environmental impacts, in the case especially concentrated, in the urbanizations present along with the riverbed of the South Paraiba River. In its principle (end of the XIX century until the beginning of the XX century) the industrialization has polarized along with the railway axis and of the Paraiba River itself. The expansion of this industrialization, in great part, still of national capital (up to the 50's), corresponded to the unordered growth of the cities as workers living place, commercial and financial activities, besides the public structure.

If in the first industrialization period, the environment impact was still contained – despite being present – already in the expansion period, the urban activities, incorporating areas alongside a watercourse as the central zones of Taubate (Cesar Junior, 2001),as in the formation of swamps(Rosa Filho, 2002), as well as it shall be observed the social space segregation phenomena and the enlargement of the city tissue (Amorim, 2003). As it related to the environment, the vegetable coverage shall be replaced by the edification of houses and infrastructure, practically extinguishing the native species (Guimaraes, 2005) e (Faria, 2004), replacing by exotic vegetables. The water quality shall also be affected, with hydro channels interrupted and buried, besides serving as ducts for residential and industrial waste. Other phenomena to highlight shall be the erosion of soil and the silting up of areas, resulting from higher urban concentration, unnecessary cuts and embankment, evidencing the lack of planning and compatibility between nature and the constructed environment. On top of all, it must be addeb the air pollution, due to sources of industrial pollution and the difficulty of atmospheric renovation.

### 2.2. Evaluation of the Regional Environmental Impact

The dimensioning of the impact of this constructed environment to the society, either in the country (impact to the coffee crop and pasture areas), or urban (industrialization and settlement of workers) can be better evidenced with the presence of the multinational industrialization. After the 50' s, the industrialization impact has been bound to other production level, directed to the international market, including to replace part of the supply of goods, then produced in regions like North America, Europe and, most recently, Asia.

The Constructed Environment required by this international productive process shall demand new channels of circulation of goods, in the case resulting in the construction of national, state and municipal highways. The urbanization basis will also be enhanced, incorporating in an improper way, the already scarse watercourses, hills, hydro resources, vegetable coverage, for the implantation of industrial plants, living areas and supports to the urban life (Sasaki, 2000).

The urbanization scale, per se, besides the industrial waste, shall also suffer an environmental impact arising from the flow of the residential sewage flow, in general, without treatment, affecting the ground waters and hydro watercourse (Dos Anjos, 2003).

The new industrialization stage, headed by the multinationals shall represent the emergency of new social segments, represented by the middle class, which has unfolded new consumption demands and expectation. After the 60' s of the XX century, other environment impact has been unleashed, in the case, by the production of new territories devoted to the mass tourism and leisure, implanted in the coastal region of the Northem Coast, and in the heights of the Sierra Mantiqueira.

The dimension of this environmental impact can be observed in the process of alteration of the quality of air, also in changes to the vegetable coverage and soil instability have occurred in an expressive way to the tourist site of Campos do Jordao (between 1,500m to 1,700m high). This site has been affected by the industrial pollution of the located in lower altitudes, in the cities of the channel of the Paraiba Valley (average 550m) (Oliveira, 1991).

Besides these, other common problems to the large urban centers have also been replicated in these tourist locations, moreover regarding the precarious living conditions in areas geologically unstable, result of the lack of social policies, real estate speculation and low salary standards of the Latin American countries.

Regardless of the environmental impact following that of the industrialization, other set of real estate, edifications and supports have been constructed in the region, constituting a historical, cultural and also environmental estate. The cities of the channel of the Valley possess architectonic and urban sets arising from industrial plants, worker villages and inclusive electric power plant ( Oliveira, 1999). It is also important to highlight a set of edifications devoted to the modernity – witnessing the cultural stage of these periods. Also, during the already gone forty' s (XX century), the first reserves have appeared like the Horto Florestal in Campos do Jordao (1/3 of the municipality' s total area), as well as a number of other parks in the region, important as a counterpart to the concentrated urbanization, besides ecological reserves, including, unleashing after the eighties the urban parks, like those in Taubate and Sao Jose dos Campos.

### 2.3 The regional sustainability

In fact, during the already past eighties of the XX century, the need to think the regional ecosystem sustainability shall emerge in the preoccupation agenda. In this period, the environmental problems appear: the level of water potable for human consumption; the soil stability in the tourist cities, moreover in the occupation of hills in Sierras; the level of air purity, some times affected by industrial hazard waste and by the scarce mass of vegetable coverage, making it difficult higher renovation. These and other environmental problems are added to the more precarious degree of environmental comfort arising from the urban and architectonic edified estate in the XX century. Historical constructive techniques have been renounced in favor of other industrial ones, not always culturally assimilated in the appropriate way. Thus, the existing estate in the region, prior to the XX century, has an indispensable referential value for us think and project new ways of sustainability and compatibility between nature and constructed environment (Lacava, 2004).

To this picture are added, from the XX century to today, the impact of new forms of exploration of rural regions, currently represented by the new stage of the industrialization of the field, arising from the reforestation industry and the mineral exploration industry. The impact of this production with technology of intensive productions has redefined the landscape of small cities, transversal to the channel of the Valley, located in route to the Sea and Mountain. Peaceful cities, many of them dedicated to tourism, part in subsistence economy or small business production and commonly familiar, are faced now with a new scale and intensity of exploration, “instantaneous”, challenging the soil, the hydro resources, the fauna and flora, besides also of the social cultural impact (Guimaraes, 2005) e (Tassara, 2004).

In this picture, the regional sustainability is a challenge to the Group of Constructed Environment Studies associated to the Program of Environmental Sciences of the University of Taubate. To study the impact, historically, unleashed by these social productive systems, to survey the resulting and expressive urban and regional architectonic constructed estate of each historical cultural stage, to evaluate the impact degree between this constructed material estate and the then existing nature, gauging standards of environmental sustainability (Barbosa, 2003).

## 3. To conduct the conclusions

The University of Taubate develops research projects and programs intended, mainly, to the regional context of the geopolitical and cultural region polarized by the bed of the Paraiba do Sul river. Covering important Brazilian states, portions of the States of Sao Paulo and Rio de Janeiro besides the bordering areas of the State of Minas Gerais. Regarding the process that researches the regional sustainability, we find the “Built Environment” Research Group linked to the Environmental Sciences Program. Doctor researches have being developing and orienting studies in which processes, ranging from the producing the social space to the urbanization, the regionalizing and the constitution of the architectonic and urban assets, as well as the supports and infrastructures that are demanded for the organization of the social-productive, economic and political life of the Paraiba Valley’ s and the Brazilian society, are highlighted.

This Research Group focuses on a unique region formed by small and medium urban centers that are part of a gradual common urbanization process represented by the shafts of the industrial urban centers in the direction of the Sao Paulo and Rio de Janeiro metropolises. This industrial shaft polarizes other part of this region, which, in a perpendicular direction, is being gradually and quickly incorporated to the present economy. The singularity of this region in its urban, economic and cultural aspects adds to its peculiar geography, being located in a valley surrounded by mountains. This unique context has being encouraging the Research Group to develop analogies with other Brazilian regions and also to seek analogies with similar contexts in other countries, where urban areas linked to Valley, Sea and Mountains are emphasized. An expression of these experiences has occurred with the realization by the Group of the I National Seminar about Built Environment, held in October 2003 (Cocco, 2003).

The participation of these researches in this International Seminar in Tokyo aims at the presentation of a contextualizing of the social-historical and cultural picture of this Paraiba Valley region. In the first place, this text presents a historical picture about the implementation and occupation of the region, highlighting stages and the main impacts of the process of producing the environment regarding the existing nature. In the second place, the text, starting from many footnotes, establishes the stage of the already performed researches, which are forming the background for a deeper understanding of the regional environment, as well as proposes the possibilities of developing planning policies for this asset, in the areas of the preservation, renewal and of its own constructive compatibility necessary for the demands and expectations of the local society, witch respect the perspectives of the new generations.

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