Serra do Mar and the Atlantic Forest Mosaics System

A Social and Environmental Recovery Project

Serra do Mar and the Atlantic Forest

Mosaics System

Secretaria do Meio Ambiente
Secretaria da Habitação
Secretaria de Planejamento e Desenvolvimento Regional
GOVERNO DO ESTADO SÃO PAULO

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A Social and Environmental Recovery Project

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Geraldo Alckmin
GOVERNOR OF THE STATE OF SÃO PAULO

It is a great pleasure for me to present to the reader this book on the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest Mosaics System, an innovative project for social inclusion, environmental restoration and conservation, and tragedy prevention.

The largest area of preserved Atlantic Forest of Brazil is in the state of São Paulo, in the territories of the Serra do Mar State Park and its three mosaics: Paranapiacaba, Jureia-Itatins, and Jacupiranga. The Serra do Mar State Park alone consists of 332,000 acres in 24 municipalities of São Paulo state, which contribute to climate regulation, promote the quality of water supply, and provide shelter for mammals, amphibians and reptiles, and half of the bird species of the biome.

Preserving ecosystems and, at the same time, prioritizing concrete improvement of the living conditions of needy people who had lived those risk areas for decades requires knowledge, planning, investment, and high technical competence in the performance. Thanks to the valuable partnership with the Inter-American Development Bank (IDB) and the work of Companhia de Desenvolvimento Habitacional Urbano – CDHU (Housing Urban Development Company), of the Forest Foundation and of the Environmental Police, the Social and Environmental Recovery Project of the Serra do Mar has become an international standard in combating these issues.

Today, more than 5,000 families living in risk areas and protected areas have been assisted with housing and upgrading works, with all the infrastructure and real opportunities for progress. Living in new structured communities, they also have benefited from professional training programs, such as the Senai and CDHU partnership that has graduated 203 construction professionals and the project that has trained gardeners and nurserymen to work with the reforestation of recovered areas. We have already started the second phase of the Project, which intends to assist approximately 25 thousand families, with removal and relocation, or upgrading works.

In 2009, the CDHU accepted the challenge to participate in the United Nations Environment Program for the Sustainable Social Housing Initiative (Sushi), which consists of building sustainable social housing for low-income population. The Residencial Rubens Lara in Cubatão has been widely recognized by the United Nations Environment Program (UNEP) as a replicable model in other countries.

In 2012, the Serra do Mar Social and Environmental Recovery Project earned the Greenvana GreenBest award, the highest distinction conferred in Brazil to quality initiatives in the environmental field. For the Government of São Paulo, the victory in the Government Initiative category, by popular vote, is a good reason for pride, mainly because the evaluation of public means population awareness on environmental issues.

This is also the purpose of this book: to promote environmental education, a critical aspect of preservation. This publication explains the achievements of the Serra do Mar Social and Environmental Recovery Project and its new challenges. Today, as the reader will see, scholars can now say that the Serra do Mar is reasonably free of greatest threats. It is time to move forward, and also to celebrate the mobilization of the civil society sectors and the dedicated work of researchers, environmentalists, and many public officials who, with sensitivity and hard work, contribute to making the program a success, now and in the future. Enjoy your reading!

Daniela Carrera-Marquis
IDB REPRESENTATIVE IN BRAZIL

Supporting the state of São Paulo in the implementation of the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest Mosaics System has allowed the Inter-American Development Bank (IDB) to further expand its operations and experience in integrated development projects.

The salient features of the region have given the keynote of a project that seeks to balance environmental best living conditions for the local population, with the expectation of resettlement of more than 6,700 families and improving water quality, strengthening the management and protection of conservation units, plus an additional 20,000 protected hectares of the Atlantic Forest, and the recovery of 1,240 hectares of the Serra do Mar State Park, in a context of intense commercial activity at the Port of Santos, in Cubatão, on the Northern Coast, among other activities.

The geographical, social, and economic complexity in such a rich region has asked for a combined action among multiple instances of the public sector, civil society, and the private sector. To meet this multi-sector condition, different methodologies have been developed and applied, offering family assistance that combines social, cultural, economic, and environmental aspects. The IDB is proud to have helped build these methodologies.

The resettlement action, for example, which has benefited 4,300 families and other 1,000 in urban improvements, has brought innovations that enabled families to feel sufficiently assisted before and after moving out from their homes, to the point of seeking for one of fifteen housing options offered.

This is perhaps an unprecedented move for this type of program, considering that the housing units have not been donated. Leaving the house in which one had lived for a long time, due to external factors, it is not an easy decision, even if it is to live in better conditions. For families who live in rural or semi-urban areas, other methods have been developed.

To anchor all actions, the synergy between the three institutions has proved decisive: the Urban Housing Development Company (CDHU), the Forest Foundation, and the Environmental Police. The IDB has had the opportunity to contribute to the design of this joint work, and that is precisely why we are confident that the integrated vision of the development is the way to ensure social and environmental sustainability in the long run, benefiting future generations.

Promoting citizenship and better living conditions is the responsibility of all the spheres that are involved. Surely, we will take the innovations practiced in Serra do Mar to other regions of Brazil, Latin America and the Caribbean, and we thank the State of São Paulo for the opportunity to be part of the Project.

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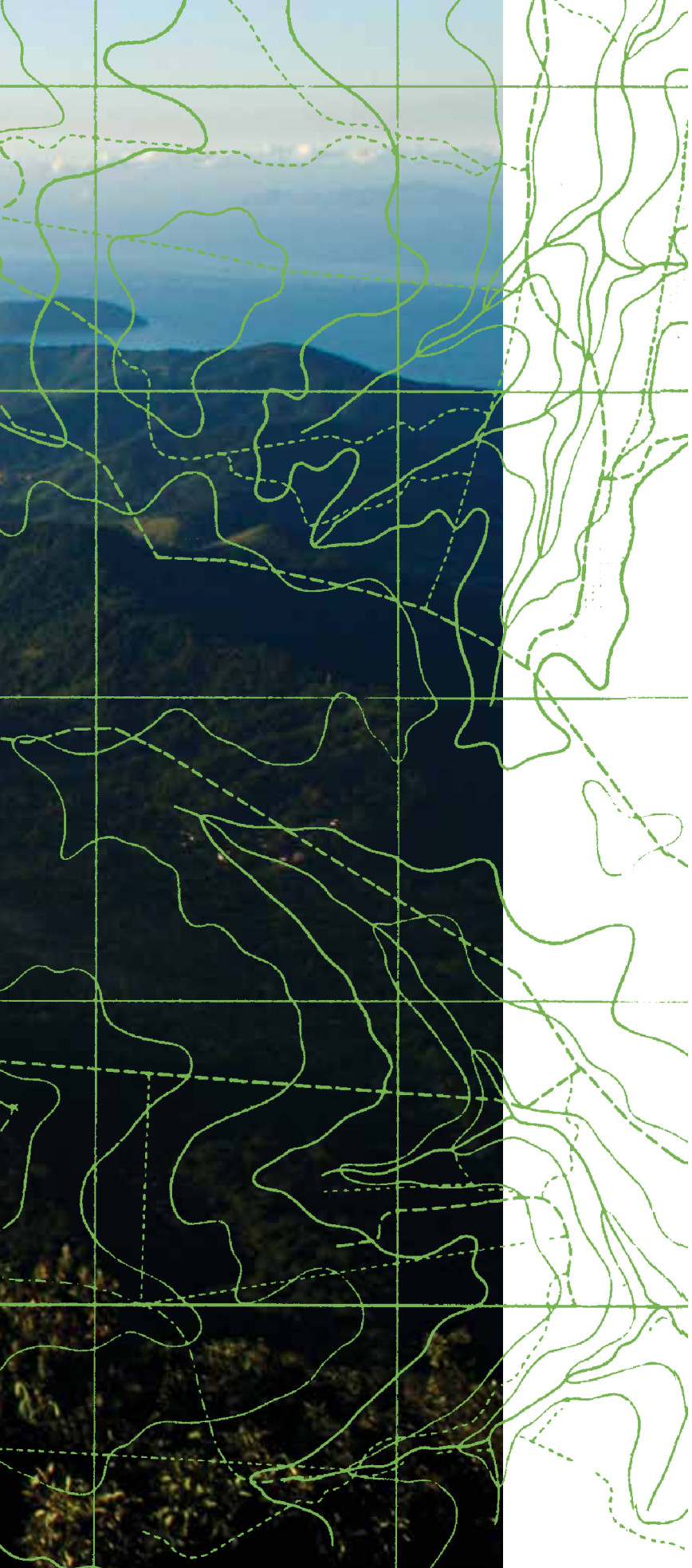

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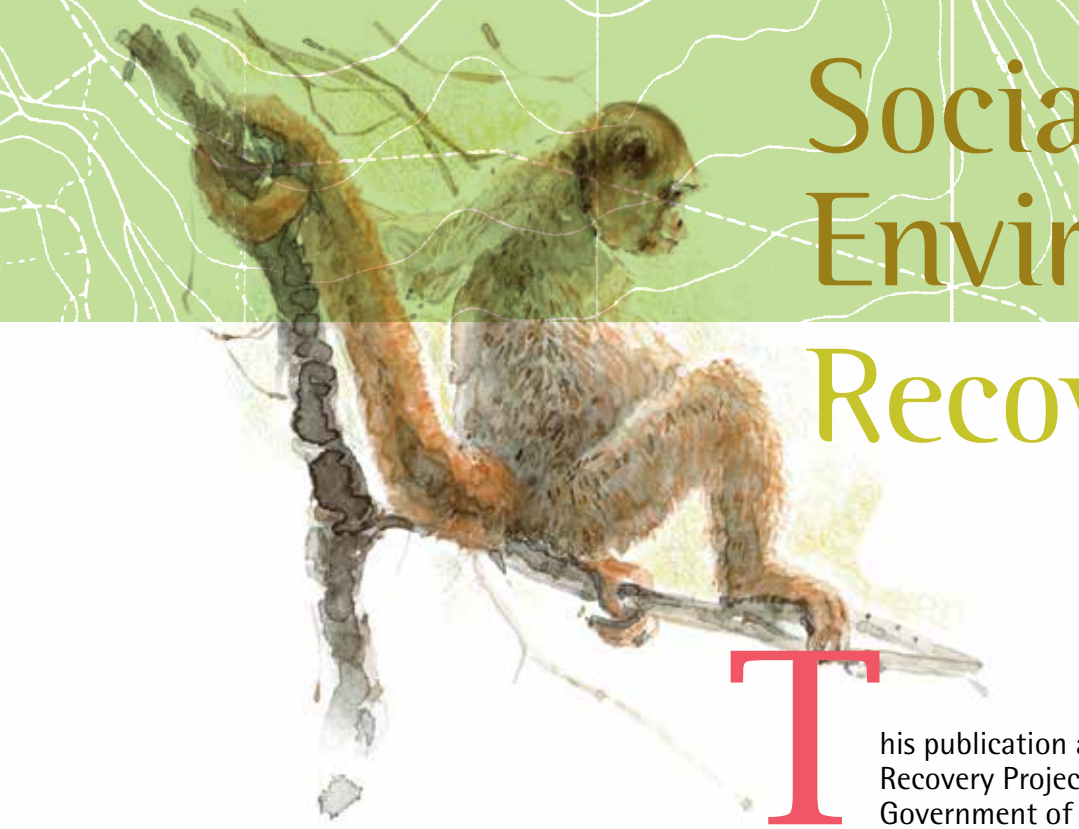


Social and Environmental Recovery

This publication aims to present the experience of the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest Mosaics. Carried out by the Government of the State of São Paulo (through the Secretariats of Planning, Housing, Environment, and the Housing and Urban Development Company (CDHU), the Environmental Police, Forestry Foundation, and the Instituto de Botânica (Botanical Institute), the Project is the result of a partnership with the Inter-American Development Bank (IDB), and in recent years it has become one of the most successful socio-environmental management of the State of São Paulo.

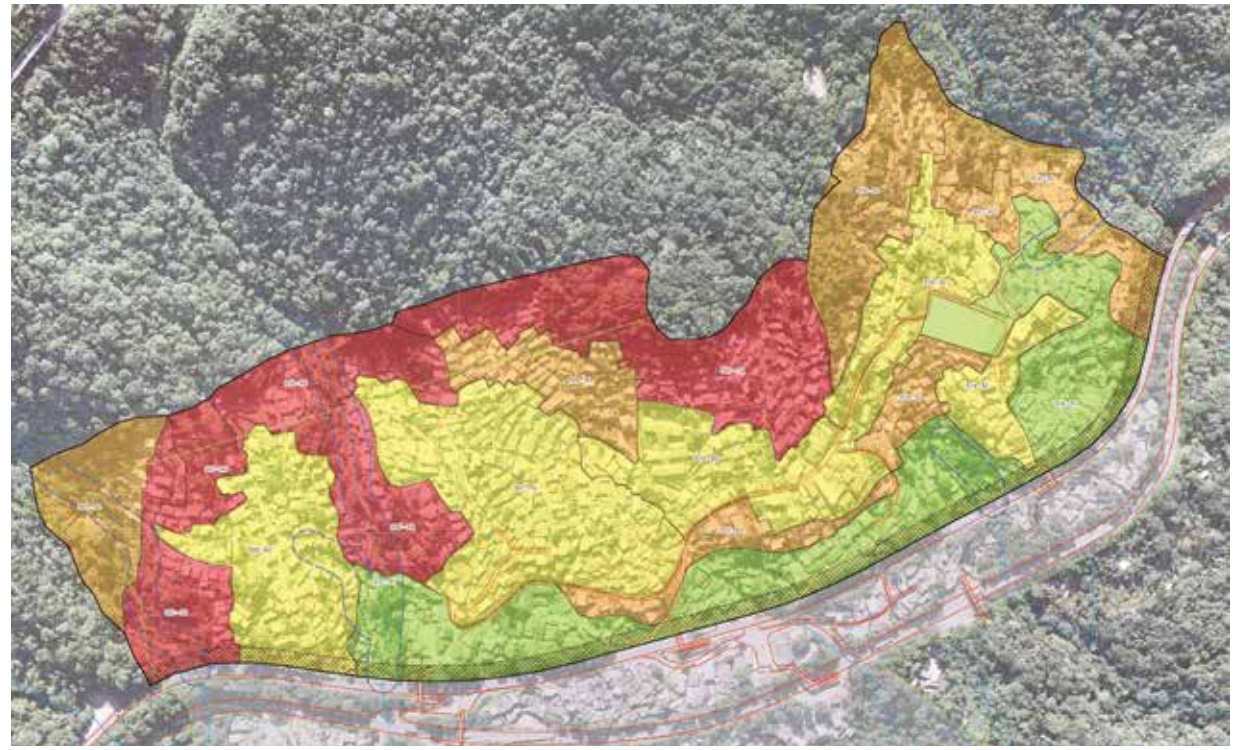
The Project Background

Saving and restoring the Atlantic Forest has been one of the major focuses of the state of São Paulo in recent decades; after all, the largest continuous portion of the remaining forest is located in the State territory. The devastation began in the sixteenth century, with the Brazil wood cycle and increased in the following periods with the expansion of agriculture and livestock, industrial development, and technological expansion. The remaining portions of the forest have still been under pressure, demanding planning and implementation of action plans for preservation, conservation, and rehabilitation of the forest ecosystem set

The IPT Risk Map, 2007

Cota 200.

- LOW DEGREE OF RISK – R1
- MEDIUM DEGREE OF RISK – R2
- HIGH DEGREE OF RISK – R3
- VERY HIGH DEGREE OF RISK – R4



by both government institutions and the society in general.

The most emblematic situations of socio-environmental vulnerability of Atlantic Forest in the State of São Paulo had their origin in the construction of Anchieta (1939-1953) and Imigrantes (1974-2002) highways. Economically strategic for the development of São Paulo and Brazil's paths, these highways demanded years of studies and innovative engineering solutions, plus the arriving of thousands of workers from all over Brazil to perform their works. Over time, in case of the Anchieta Highway construction, each worker brought or started his family, transforming the old camps built by the Departamento de Estradas de Rodagem - DER (Department of Roads) in informal neighborhoods. The bairros-cota in the city of Cubatão originated from this period[1]. In the following decades, the bairros-cota had a significant increase in population, expanding in areas bordering the Serra do Mar State Park.

The irregular settlement and the density of these areas have brought harm not only to the preservation of the Park, but also for its resident population. The bairros-cota were built in one of the narrowing points of Serra do Mar - so in one of the most fragile parts of the forest, with high geotechnical risk. In over 60 years of occupation, the social and environmental impacts have become increasingly severe. Families lived on the verge of geographic accidents, many in precarious homes built in risk areas or next to highways.

Due to the large amount of risk areas and the vulnerability of households, a court ruling issued by the Cubatão/SP jurisdiction (Case 944/1999) required the State Government of São Paulo and the Municipal Government of Cubatão to remove thousands of households located in these risk areas from the Park. The State became codefendant[2] of the action for being legally responsible for the Serra do Mar State Park area, having to provide an adequate solution for families and a program of action for the forest recovery.

In 2007, the Government of the State of São Paulo initiated the Social and Environmental Recovery Project in Areas of Permanent Protection in the Cubatão municipality, which became known as the Serra do Mar Project. The Project aimed to improve the quality of life for residents living in bairros-cota and to recover these environmental preservation areas. During this period, the Housing and Urban Development Company of the State of São Paulo (CDHU) carried out a registration of the neighborhood families that identified 7,242 households and established a precise diagnosis of the socioeconomic conditions in the population.

Concurrently with the registration completion, the CDHU commissioned a technical report about the bairros–cota to the Instituto de Pesquisas Tecnológicas do Estado de São Paulo – IPT (Technological Research Institute for the State of São Paulo). This survey has been instrumental in

1. The Serra do Mar hillside areas are defined by their height above sea level (elevation). The bairros-cota names in Cubatão derive from there: Quota 95/100 (located outside the Highway Anchieta, Km 52/53 ascending lane, 3 km from the center of Cubatão); Cota 200 (50 Km of the ascending lane of the Anchieta Highway); Cota 400 (Km 47/48 of the ascending and descending lane of the Anchieta Highway); Cota 500 (45 Km of the ascending lane of the Anchieta Highway).
2. The Municipality of Cubatão was also cited as a defendant by the prosecutor in Case N. 944/1999.
3. OGURA, Agostinho Tadashi; YOSHIKAWA, Nestor Kenji; GOMES, Luiz Antonio; MIRANDOLA, Fabrício Araújo; ALAMEDDINE, Nabil. Programa de recuperação socioambiental da Serra do Mar: mapeamento de risco de escorregamentos nos bairros-cota, município de Cubatão. *In:* CONFERÊNCIA BRASILEIRA DE ESTABILIDADE DE ENCOSTAS, 5, 2009, São Paulo. Anais. São Paulo: ABMS, 2009. v. 2, p. 231-236. 8 p. (IPT. Comunicação Técnica 168750)
4. Instituto de Pesquisas Tecnológicas. Relatório Técnico n 97 082-205 – 5/34. p. 8.
5. GOVERNMENT OF THE STATE OF SÃO PAULO. *Revista Serra do Mar.* November 2007. Year 1. N. 1. p. 11.

the planning of future interventions in the region, since it presented a report on the geotechnical condition, through a mapping of risk areas, classified into 4 degrees: R1 low; R2 medium; R3 high; and R4 too high[3].

The basic scope adopted by IPT obeyed two criteria for defining risk sectors. The first one was related to the sensitivity analysis of the terrains and likelihood of slope instability, from the situation analyses of the surface water runoff and the terrain movement features, such as cracks, fissures, and degraus de abatimento (TN: a floor indentation due to collapsing substrate) in the households and on the terrain.

The second criterion estimated the potential damage to dwellings and their residents, considering the position of the households on the slopes and their distances to the critical slopes – besides the degree of vulnerability of the buildings themselves – and assessing their constructive pattern and level of urban consolidation[4].

The joint analysis of these criteria allowed us to establish a mapping risk sectors, whose spots revealed, as you can see in the example of Cota 200, that most households were located in areas of high and very high risk.

This set of information subsidized an important decision in 2007: the bairros-cota freeze. The freeze was accomplished through supervision of the Military Police, which had 130 policemen, of whom 76 were environmental police. The action basically consisted in controlling the growth of the neighborhoods, preventing their expansion and the progress of deforestation, fires, capture of wild animals and extraction of plant species of the State Park. With this, no new family could move to one of the neighborhoods and no new room or home could be built, which stopped the bairros-cota expansion[5].

Between 2007 and 2008, a series of activities and actions continued the Serra do Mar Project, such as: beginning of the environmental education with the population; completion of the buildings' listing and the sealing process; hiring of the basic housing and urbanization projects; public hearing for the publication of notices of the Project works (July 2008). During this period, the Áreas de Proteção Ambiental Marinhas (Marine Environmental Protection Areas) were also created and the Mosaic of Islands and Marine Protected Areas was implemented, in order to enhance the management of these areas and conservation of marine biodiversity, combating industrial and predatory fishing and protect traditional fishermen and caiçaras (TN: traditional people who live on the coast).

IDB and Forestry Foundation
Staff gathered in the Southern Coast

Also in 2008, the Government of the State of São Paulo started to negotiate the financing of part of the actions of the Serra do Mar Project with the Inter-American Development Bank (IDB), in order to expand it and make it even more comprehensive. In 2010, the partnership with the IDB was initiated. With this, the Project exceeded the Cubatão limits and the activities began to be planned within the whole scope of the Atlantic Forest of São Paulo, extending throughout the Park (north and south of the state), to the Jureia-Itatins territory and the Marine Conservation Units, being calling, thereafter, the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest Mosaics System.

Serra do Mar State Park
Itutinga-Pilões Unit.

Jureia-Itatins Mosaic
Barra do Una.

Guidelines of the Agreement

With the expansion of the action in the municipality of Cubatão to other regions, the initial scenario became even more complex. Issues peculiar to parts of the Northern and Southern costs, of the Mosaic of Islands and Marine Protected Areas, and the Jureia-Itatins Mosaic have been added up to the Cubatão critical situation and its section in the Parque Estadual da Serra do Mar – PESM (Serra do Mar State Park). These areas have been in very different stages of preservation and sustainable use, requiring different management and recovery actions, through dialogue with communities of quilombolas (TN: slave descendants), caiçaras, fishermen, landowners, settlers and other traditional population, as well as a detailed analysis for the appropriate practices of ecotourism, environmental education, and scientific research.

To equate this plurality of situations, the Project has been organized in several fronts, involving several public administration teams. Thus, in this first phase more than BRL$ 1 billion resources were allocated to the achievement of conservation and restoration of the Atlantic Forest, for the resettlement of families from the bairros-cota, and for the resettlement of families living within the PESM in other municipalities on the coast.

The actions have been organized and grouped into three major components: 1) Protection Conservation Units; 2) Social Investments in the Serra do Mar State Park; 3) Monitoring of Protected Areas. Each of these components has specific objectives, whose actions have been undertaken by the implementing agencies of the Project: (a) the State Environment Secretariat, through the Forest Foundation, and (b) the State Housing Secretariat, through the Companhia de Desenvolvimento Habitacional e Urbano – CDHU (Housing and Urban Development Company of the State of São Paulo Development.

To operate these components, the contract between the State Government and the IDB has established the creation of the Unidades de Execução do Programa - UEPs (Project Implementation Units) in the Environment and Housing Secretariats - each with a minimum team necessary to carry out the work. The contract has also required, as a precondition for the start of activities that these executing agencies and their teams would make a general agreement with the Secretariat for Regional Planning and Development, and in this regard, it has also indicated that the Forest Foundation would hold specific agreements with the Institute

Resources of First Phase of Program

SOURCES OF FUNDING	AMOUNT BRL $	AMOUNT US$ (BRL$ 2,28)	%
Inter-American Development Bank	369,360,000	162,000,000	35
State Government of São Paulo and others	702,240,000	308,000,000	65
TOTAL	**1,071,600,000**	**470,000,000**	**100**

of Botany and the Environmental Police to develop their actions.

With so many teams working on such a complex process, the contract has also highlighted the establishment of an Unidade de Gerenciamento do Programa - UGP (Project Management Unit), to ensure the success and integration of actions taken: the UGP of the Serra do Mar Social and Environmental Recovery and the Atlantic Mosaics Systems.

Connected directly to the Office of the Governor of the State and the Secretariat for Regional Planning and Development, the UGP has been established with the task of managing the fulfillment of the strategic objectives of the Project and performing the necessary actions for interagency coordination, carrying out the physical, technical, institutional, and financial monitoring of the different components and their activities. In addition, the UGP is responsible for interfacing with the IDB technical teams in the Project implementation process, since it is the official spokesman of the government authorities of the State Government and other relevant public bodies.

The integration between the technical teams of the State of São Paulo and of IDB has also been very successful, being responsible for the smooth progress of the implementation and management actions. Besides the financial support, this partnership has also planned the evaluation of the entire methodology of family resettlement and the monitoring of targets and the social and environmental impacts of the Project.

Serra do Mar, Jureia-Itatins, Mosaic of Islands and Marine Protected Areas

In terms of performance on the territory, the actions of the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest Mosaics System can be observed in three main areas: 1) Serra do Mar State Park; 2) Jureia- Itatins Mosaic; 3) Mosaic of Islands and Marine Protected Areas. Each of these territories have administrative núcleos (hubs) and specific conservation units, in which a series of actions have been implemented:

SERRA DO MAR STATE PARK

Bertioga Administrative Hub
Caraguatatuba Administrative Hub
Cunha Administrative Hub
Curucutu Administrative Hub
Itariru Administrative Hub
Itutinga-Pilões Administrative Hub
Padre Dória Administrative Hub
Picinguaba Administrative Hub
Santa Virginia Administrative Hub
São Sebastião Administrative Hub

JUREIA-ITATINS MOSAIC

Jureia-Itatins Ecological Station
Itinguçu State Park
Prelado State Park
Despraiado Sustainable Development Reserve
Barra do Una Sustainable Development Reserve
State Wildlife Refuge of the Abrigo and Guararitama Marine Islands

MOSAIC OF ISLANDS AND MARINE PROTECTED AREAS

Marine Protected Area of the Northern Coast
Marine Protected Area of the Central Coast
Marine Protected Area of the Southern Coast
Marine Protected Area of Ilha Comprida
Ilha Anchieta State Park
Ilhabela State Park
Marinho Laje de Santos State Park
Xixová-Japuí State Park
Ilha do Cardoso State Park
São Sebastião ARIE
Guara ARIE

In the case of the Serra do Mar, the Project has included actions through the entire territory. Regarding housing projects, there has been a focused effort in the bairros-cota in Cubatão with the resettlement of 5,300 families and infrastructure that will benefit other 2,400 who will remain in parts of bairros-Cota 200 and Pinhal do Miranda, which will have upgraded areas. The resettlement of 1,400 families living in areas of the Serra do Mar State Park in other municipalities in the state of São Paulo has been also planned.

With regard to environmental issues, the implementation of the Plano de Manejo do Parque Estadual da Serra do Mar (Management Plan of the Serra do Mar State Park) has been also planned by means of the adequacy of the Park boundaries, improvement of its public use and protection infrastructure, and the recovery of environmental liabilities, with reforestation and restoration of approximately 90 acres in Cubatão. Other 200 acres will be cleared of exotic species and will be reforested, and also 850 acres of forests will be enriched, in order to recover their biodiversity. Finally, within the environmental recovery actions, the construction and operation of the Cubatão Botanical Garden has also been planned - the first garden exclusively with the species of the Atlantic Forest of the country.

In relation to the Jureia-Itatins Mosaic territory, the developed works have aimed at completion of the Mosaic Management Plan, besides improvement of management structure, public use and protection infrastructure, training of people, and incentives for the adoption of sustainable economic activities in the communities.

As for the Mosaic of Islands and Marine Protected Areas, the drawing up and the beginning of the implementation of the Management Plan of the Marine APAs have been planned, as well as the strengthening of the management system and works to raise awareness of the fishermen populations for the promotion of sustainable fishing, tourism, and marine sports practices.

It is worth emphasizing that in all the Conservation Units covered by the Project, the supervision of their territories has been reinforced by the actions of the Environmental Police. This is an integrated study, developed by the competent bodies, which has shown impressive results.

In the following chapters, each Conservation Unit will be presented in its entirety, with the previous features, proposals, and its partial result (until 2013). This will be done in such way that it - one of the most important environmental projects underway in the country and the world, given the rich biodiversity of the Atlantic Forest – can be analyzed in its various fronts, what will certainly provide new perspectives for future phases and disseminate the good practices already developed, which can be replicated in other activities and environmental conservation and recovery projects.

São Paulo

Map of the Social and Environmental Recovery Program of Serra do Mar and the Atlantic Forest Mosaics System

1. Marine Protected Area of the Southern Coast
2. Marine Protected Area of the Central Coast
3. Marine Protected Area of the Northern Coast
4. Ilha Cardoso State Park
5. Ilha Comprida Protected Area
6. Jureia-Itatins Mosaic
7. Serra do Mar State Park
8. Xixová-Japuí State Park
9. Marinho Laje de Santos State Park
10. Ilhabela State Park
11. Ilha Anchieta State Park
12. Area of Ecological Importance of Guara
13. Area of Ecological Importance of São Sebastião

The Serra do Mar: Environmental, Cultural and Historical Heritage

Characteristics of the Serra do Mar Mountain Range

Under on the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest Mosaics System, the actions developed in Serra do Mar have corresponded the greatest recovery efforts and socio-environmental conservation of São Paulo state. Such a commitment has been achieved not only by environmental richness of this mountain range (serra), but also the historical and cultural heritage that it represents to São Paulo, Brazil, and the world.

Serra do Mar is one of the most important remnants of the Atlantic Forest in the State of São Paulo. For this reason, and in order to preserve it, in 1977 Serra do Mar was listed as heritage by the State Government, and the Serra do Mar State Park (PESM) was created (Decree N. 10251), currently with 332,000 hectares covering part of 24 municipalities. Due to its vast size and its location, the PESM is a true ecological corridor linking the most significant remnants of the Atlantic Forest in Brazil – from Paraná to Rio de Janeiro.

Physically, "Serra do Mar corresponds to slope mountain of the eastern edge of the Atlantic Plateau, following the SW/NE geographical and structural direction of the Brazilian southeastern coast, overcoming average unevenness of 1,000 meters, with widths ranging from 5 to 10 kilometers, and stretching for approximately 1,000 kilometers from the State of Rio de Janeiro to the State of Santa Catarina" (SANTOS, A.R. 2004: 17).



In relation to its vegetation cover, the forest that characterizes Serra do Mar is called Dense Ombrophilous Forest or Slope Forest, which features: (a) diversity of flora; (b) great variety of species; (c) trees that reach 30 feet tall; (d) dense forest of leafy canopies; (e) internal environment with dense shade, hot, and humid; (f) dense forest mantle; (g) forest interior with wide variety of Pteridophyta (TN: fern), orchids and lianas; and (h) intense and dense surface and subsurface rooting.

Because of these characteristics, the Serra do Mar escarpments – coupled with the steep slopes and the presence of geological/geotechnical and weather constraints, and those related to land cover and land use – have often been the scene of soil instability processes involving from the nearly imperceptible soil creep of the upper soil horizons to large landslides with catastrophic consequences.

In the picture on the side one can see the average temporal and spatial distribution of rainfall throughout the PESM, with emphasis on the high rainfall in the central portion, which corresponds to the Vale do Itapanhaú region.

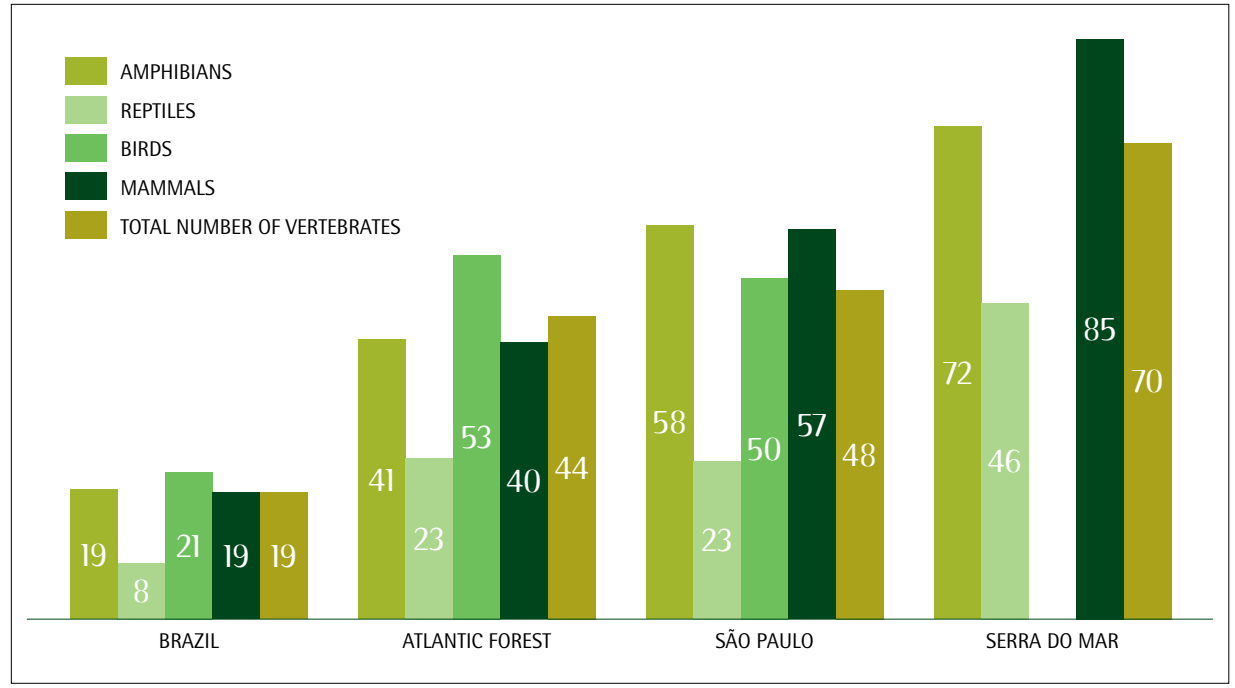
The Northern Coast and the Baixada Santista (TN: region around the city of Santos) comprise distinct climatic regions. The Picinguaba and Caraguatatuba Administrative Hubs and part of the São Sebastião, which are located in the Northern Coast, is controlled by equatorial and tropical masses, with the humid climate of the coasts exposed to the Atlantic tropical mass, subject to a lower participation of the polar masses. On average, it is 30% to 40% less prone to invasions of cold.

The Serra do Mar position, very close to the coast, is responsible for severe rainfall in the winter. This is the case of the Central Coast, which covers the Cubatão municipality and it is controlled by polar and tropical masses of humid climate in the eastern and subtropical side. The increased participation of polar masses, where Serra do Mar gets near the coast almost eastbound, combined with the opponent direction to the disturbed currents of the south, is responsible for the Brazil's highest rainfall in part of this section – which makes the region rich in water resources, ensuring the activity of various industries and the water supply of the population.

Regarding biodiversity, over the nine administrative hubs that comprise the Serra do Mar State Park (PESM), 373 bird species, 111 mammals, 144 amphibians, and 46 reptiles were recorded in the Plano de Manejo (Management Plan). In addition, the Park contributes to the conservation of 19% of vertebrate species from all over Brazil and 46% of the Atlantic Forest. It protects 53% of bird species, 39% of amphibians, 40%

Existing Vertebrates

Representativeness of existing vertebrates in the Serra do Mar State Park (% of species in relation to the Brazilian, the Atlantic Forest, the São Paulo State and the Serra do Mar wealth).



of mammals, and 23% of listed reptiles throughout the biome.

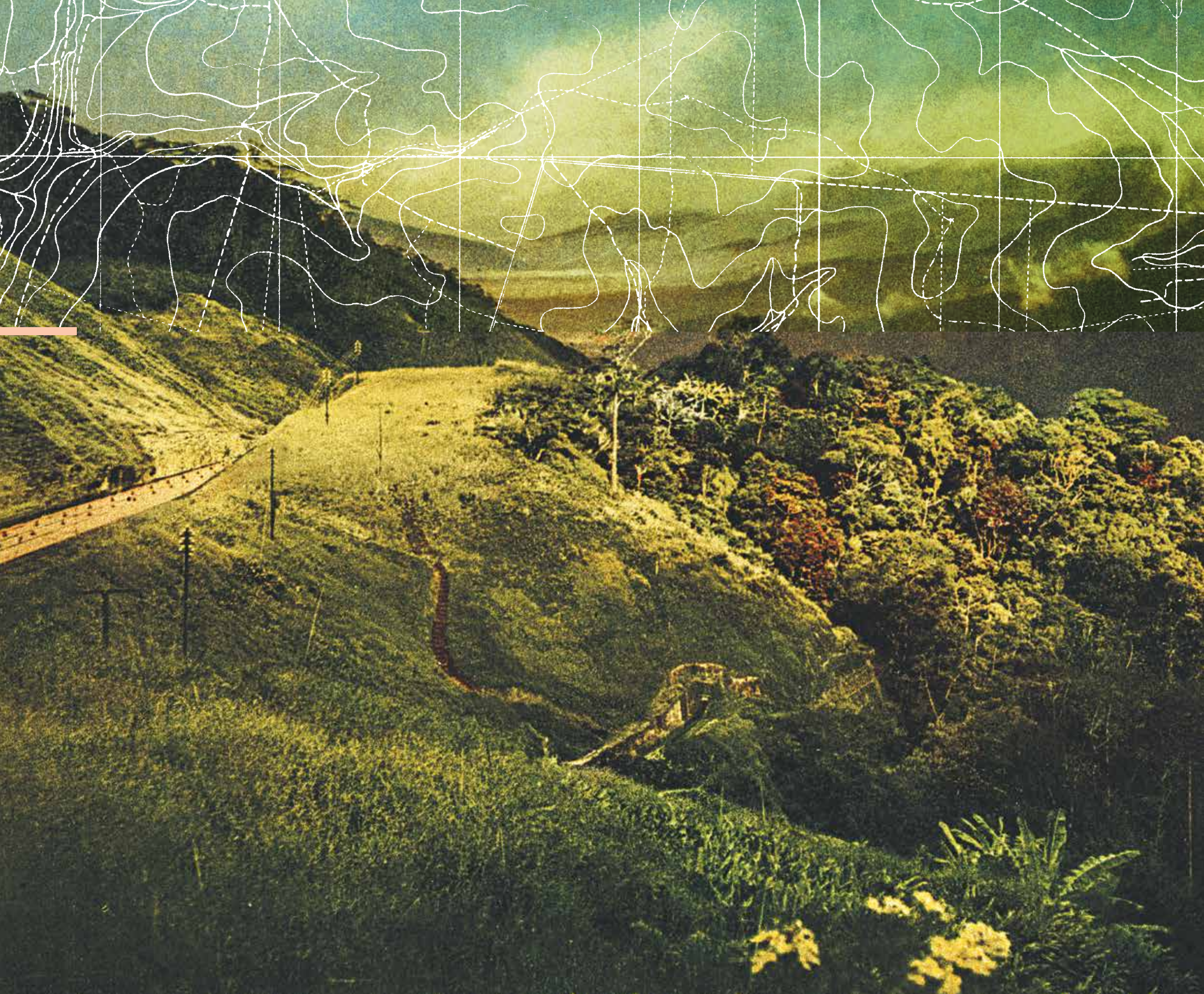
Among 704 vertebrate species listed in the PESM, 70 (10%) are included in the lists of threatened species (in the international, national or state level), being 42 species of birds, 21 of mammals, four of amphibians, and three of reptiles.

Of all endangered birds are noteworthy: the macuco, jacutinga, papagaio-da-cara-roxa, papagaio-chauá, sabiacica, pararu, pixoxó, cigarra-verdadeira, gavião-pombo-grande, gavião-pomba. Four of the five species of primates (monkeys) listed in the Park are endemic to the Atlantic Forest and considered endangered: sagui-da-serra-escuro, sauá, bugio and muriqui or mono-carvoeiro.

Among large mammals, the jaguar, tapir, cateto (TN: white-lipped peccary) and queixada (TN: collared peccary) are the most endangered ones. The paca, agouti, armadillo-chicken and anteater are also considered vulnerable species, mainly because of the amount of hunting carried out.

Regarding plant species, the most endangered is undoubtedly the palmito-juçara (NT: palm tree), with high market value and stocks concentrated within the protected areas, where reproduction has been already threatened, mainly in Serra do Mar. Since the palmito-juçara seeds provide food to more than 70 species of birds – mainly jacutinga –, rodents and primates (monkeys), the species is classified now as critically endangered in the state of São Paulo.

Historically, Serra do Mar is one of the elements forming the Paulista (TN: people from São Paulo State) character and his or her particular identity. The difficult crossing of the coast to the Piratininga Plateau demanded tireless persistence and courage – outstanding traits of Paulista character – from those who were born here and those who have decided to live here. From a cultural standpoint, Serra do Mar is a priceless heritage, and its whole transformation process – from the colonial period to the present environmental recovery – will be presented below.



The Sea Routes

Benedito Lima de Toledo
Titular Professor of History of Architecture at FAU-USP (School of Architecture and Urbanism, University of São Paulo)

SERRA DO MAR
Postcard from the early twentieth century.

During the first century of colonization, São Paulo de Piratininga was the only urban settlement away from the coast. The discoverers assumed that there would have paths leading to the Plateau because the main Indian chiefs were there on the coast two days after the arrival of Martim Afonso de Souza.

It would be soon discovered that there was a trail along Mogi River. This path corresponds approximately to the path used in the 19th century by the British engineers in the construction of the Santos-Jundiaí railroad. It was the trail with least declivity and it reached the Borda do Campo, in a place called Paranapiacaba – a native-language word that means "place where one can see the sea." From this point, the railroad follows a mostly flat stretch until it reaches the Estação da Luz (TN: train station).

When the Jesuits arrived on the coast, they decided to establish an urban settlement up the mountain. Guided by André Ramalho, João Ramalho's son, they eventually opted for an acropolis surrounded by Piratininga (Tamanduateí) and Anhangabaú rivers.

In the early days, they used the Rio Mogi trail, but the proximity of hostile tribes led them to consider the opening of a new trail, away from that river. Vale do Perequê was chosen, and Jesuit Father José de Anchieta, still very young, presided the opening of this new trail, which was named after him – Caminho do Padre José. The projects undertaken by this Jesuit contradict the idea that his health would be fragile.

Cruzeiro Quinhentista

Symbolic name of the monument erected to mark the point of convergence of the main ways that overcome Serra do Mar. The set includes exedras on the banks of the Caminho do Mar.

Calçada do Lorena

Pioneer work in the use of cobbled streets and an innovative zigzag route with 180 curves between the valleys of the Pedras and Perequê River.

The trail would only allow traffic in single file and loads were carried on the shoulders of Brazilian Indians. The same carriers took sick people on nets. The path was considered one of the "worst in the world", where they went up "clinging to the roots of the trees," in the words of a contemporary chronicler.

At the time of Morgado de Mateus (1765-1775), the trail had to be improved among other reasons, because of the need to transport the artillery to the Iguatemi Fort. Small bridges were built, and cuts and embankments, retaining walls, and a corduroy road on the plateau were made.

In 1979, with a team, I carried out a research trying to delimit the old path. Combining by land expeditions with photointerpretation, after many entries, some retaining walls were found, as well as embankments and cuts, traces of bridges and the corduroy road. Results of this research were published in the Jornal da Tarde Newspaper (May 07, 1980, and June 24, 1980). In conclusion, the design of the Caminho do Padre José was mapped, with gaps resulting from landslides occurring on the Serra do Mar.

In Cubatão, there is a monument named Cruzeiro Quinhentista - an allegorical denomination of a work built in 1922. The Monument establishes the convergence point of the old paths leading down Serra do Mar. Cruzeiro Quinhentista has unfortunately received disastrous "restorations".

The Caminho do Padre José, even after the improvements made at the time of Morgado de Mateus, has became insufficient and impractical in times of heavy rains.

Bernardo José de Lorena, who ruled the Captaincy of São Paulo between 1788 and 1798, arrived in São Paulo accompanied by officers from the Real Corpo de Engenheiros (Officers of the Corps of Royal Engineers). These officers had originally come to Brazil with the mission to carry out cartographic works aiming to comply with the Treaty of San Ildefonso, signed in 1777 between Portugal and Spain. Being their presence no longer necessary in those operations, Bernardo José de Lorena entrusted them to

TOMBSTONE

Placed on Padrão do Lorena monument, which reads: Omnia vincit amor subditorum (TN: Love conquers all), inscription that Lorena ordered to be made in honor of Queen Maria I.

carry out works in his captaincy, being one of them, the construction of a road between São Paulo and Cubatão that would allow regular traffic of mule troops.

Based on the pioneering mapping that they conducted at the time, officials opted to open the new path by a watershed divide between the valleys of the Pedras River and the Perequê River. The sharp declivity of the terrain resulted in a zigzag design with 180 curves and, amazingly, without going through a single stream, in the middle of Serra do Mar. This prevented the construction of bridges, a work difficult to be maintained in that climate. The biggest innovation, however, was the cobblestone paving, with stones brought from long distances, perhaps from the São Bento quarries in Santos.

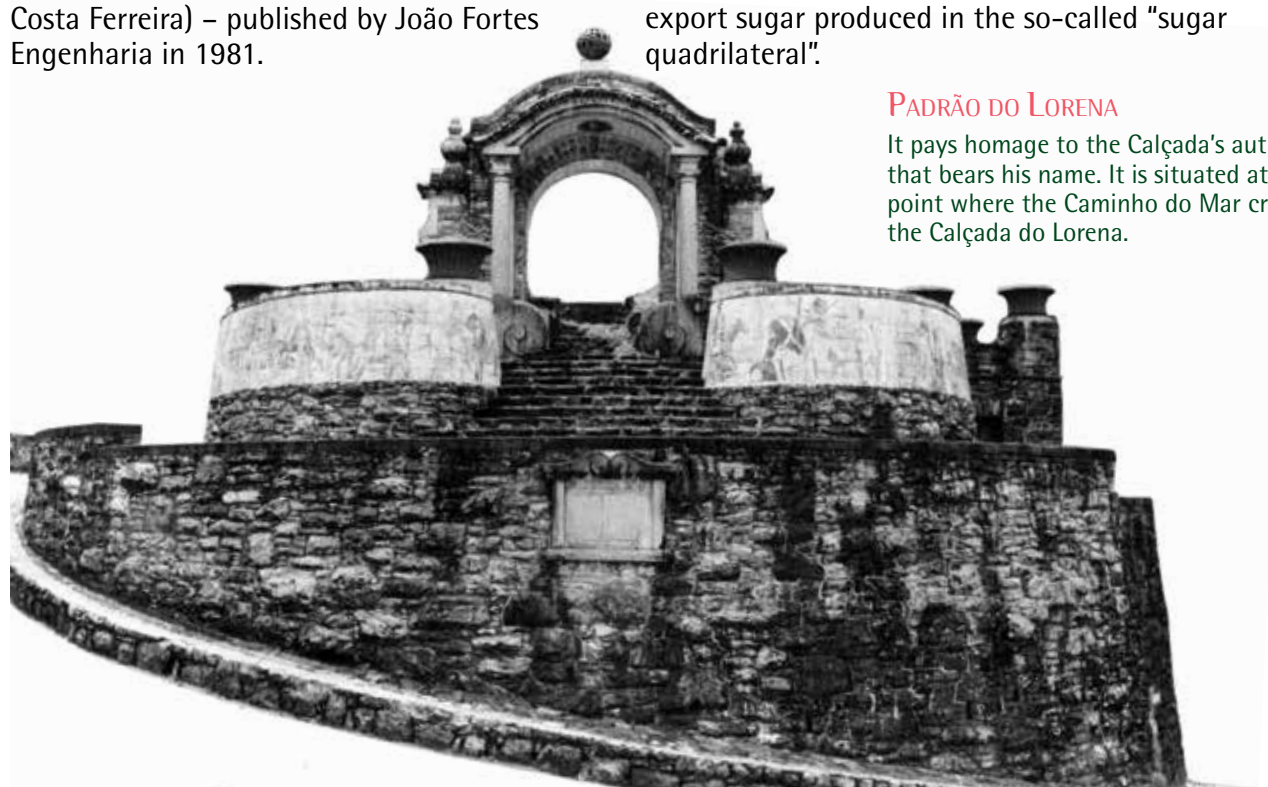
Travelers hailed the work as the "best in the country and a similar one is rare to be seen in Europe."

The Benedictine Friar Gaspar da Madre de Deus, who had traveled the old road between Santos and São Paulo six times, i.e. several times this same route, described it with frightening details and concluded: "(...) Serra (do Mar) was in another time, in short, very arduous step, a continuous succession of dangers." On the other hand, the new Calçada was "a cobblestone-paved large slope, where one climbs with little fatigue, and safely comes down." Remarkable information for the monk, who was about 80 years old!

Known as the Calçada do Lorena, this unusual work of colonial engineering has been often hidden amid the vegetation of Serra do Mar. After a few years of research, I could rediscover and reconstitute its delineation, piece by piece, research that integrated my doctoral thesis (1973) – O Real Corpo de Engenheiros na Capitania de São Paulo, Destacando-se a Obra do Brigadeiro João da Costa Ferreira (TN: The Corps of Royal Engineers in the Province of São Paulo, highlighting the work of Brigadier João da Costa Ferreira) – published by João Fortes Engenharia in 1981.

The São Paulo City Council had a monument erected in 1790, with a tombstone in honor of Bernardo José de Lorena, in gratitude and recognition for his works. The Captain General transferred the honor to the Queen by having another post placed on which was written the inscription "Omnia vincit amor subditorum" (TN: Love conquers all) (photo above). These tombstones were located by Washington Luís in 1920 and placed on the monument known as the Padrão do Lorena (photo below) in the Caminho do Mar.

The Calçada had allowed the transit of troops and mules and had opened a way to export sugar produced in the so-called "sugar quadrilateral".



PADRÃO DO LORENA

It pays homage to the Calçada's author that bears his name. It is situated at a point where the Caminho do Mar crosses the Calçada do Lorena.

Calçada do Lorena

In the foreground, the Calçada do Lorena and Baixada Santista in the horizon. Oscar Pereira da Silva's painting, from Hercules Florence's drawing (original black and white).

Prince D. Pedro used this route – the best country in its time –, in the memorable journey on September 7. Calçada do Lorena constitutes, therefore, a true Estrada da Independência (TN: The Independence Road).

Charles Landseer and William John Burchell, English proficient designers who walked here in 1825 integrating the mission of Sir Charles Stuart, bequeathed to us magnificent drawings depicting the new path and its users, the tropeiros (troopers). Hercules Florence, in turn, drew a design that allows one to see the horizon and Baixada Santista and, in the foreground, the Calçada and travelers, among them, perhaps the artist himself.

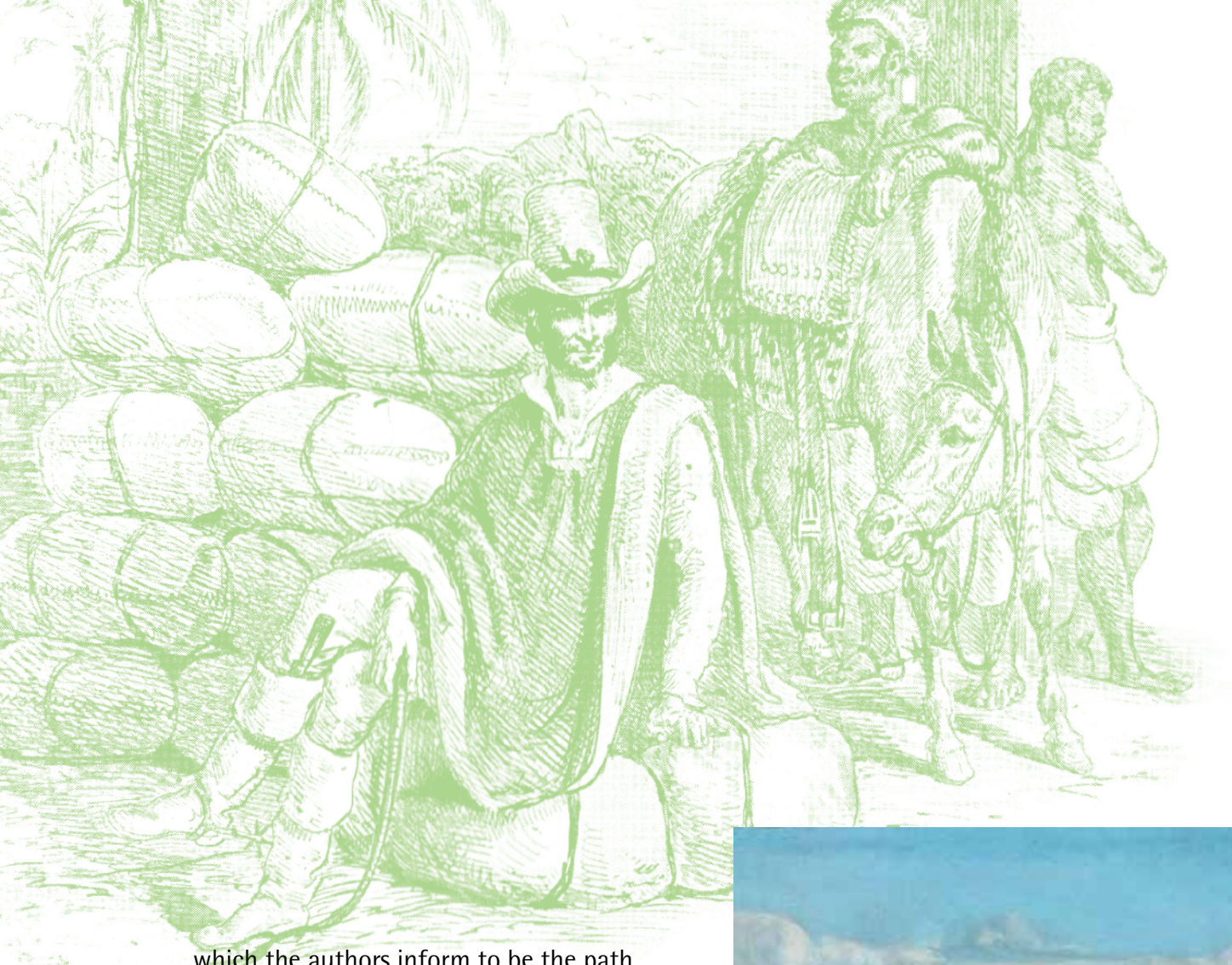
A Estrada da Maioridade (The Adulthood Road)

In 1836, the Marshal of the Corps of Engineers, Daniel Peter Müller, was in charge of "forming the plan of a road car since the Cubatão de Santos to the most considerable urban settlements that exported their products there."

Under the management of Rafael Tobias de Aguiar, in 1841, the construction works became operational for the traffic flow under the guidance of John Bloem. The road was 20 feet wide, and the stretch of mountains 3,580 fathoms (about 7,876 meters).

On February 18th, 1846, Dom Pedro II and Teresa Cristina Santos arrived in Santos and on February 25th, they went to São Paulo, accompanied by a large retinue. In tribute to the distinguished visitor, the new road was named the Estrada da Maioridade (Adulthood Road).

Reverends Kidder and Fletcher edited, in 1857, Brazil and Brazilians, which became a classic work. They used "daguerreotype views taken on the spot" in this work. An engraving entitled "The bridge and Serra do Cubitão" (sic) shows the covered bridge, built by the Jesuits, over the Cubatão river and Serra do Mar in the background. One can see two paths. One of them, almost perpendicular,



Tropeiro (trooper) on the Caminho do Mar

Charles Landseer, drawing (1825) showing a trooper from São Paulo as described by various travelers: "...with Chilean spurs, knife in his boot, poncho, and wide-brimmed hat."

Bridge and the Cubatão Mountain Range

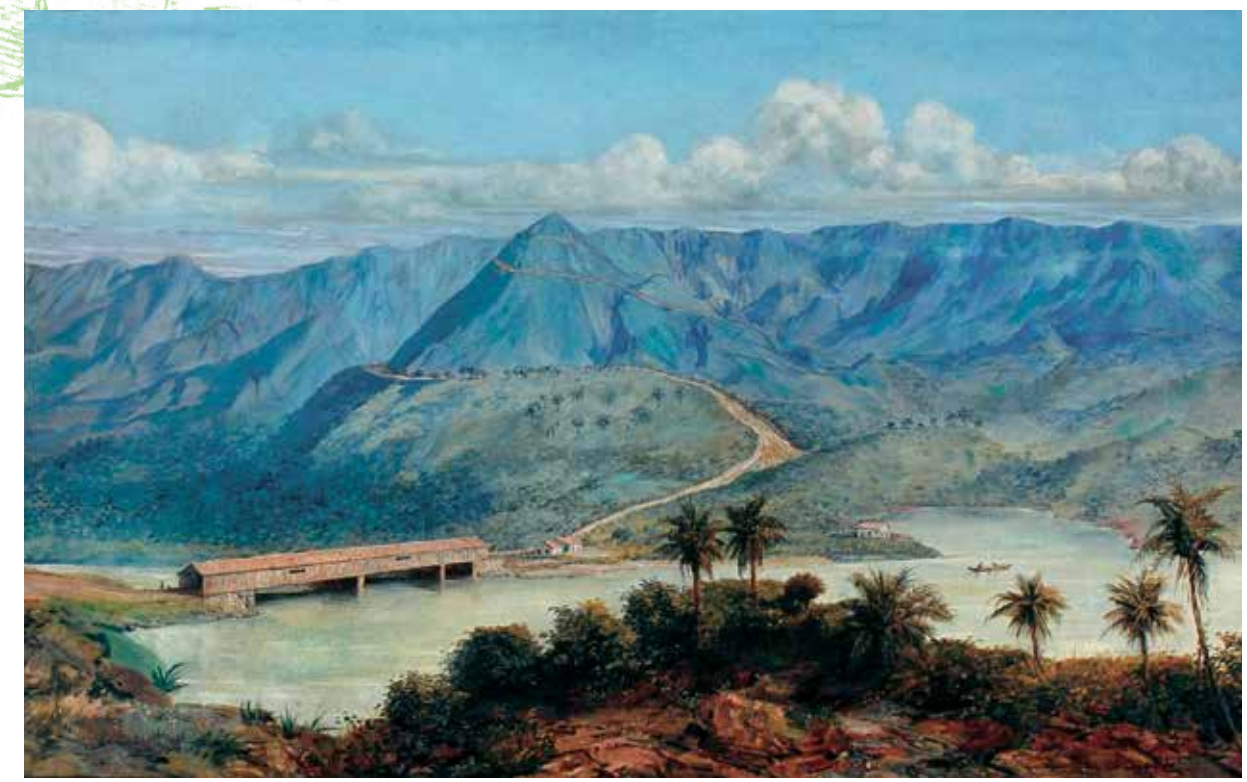
Oscar Pereira da Silva's painting, made from engravings based on the Kidder & Fletcher's daguerreotype work – Brazil and Brazilians (1857).

which the authors inform to be the path made by the Jesuits – in fact, by the position, it would be the Calçada do Lorena, inaccurately represented – and the other is the Estrada da Maioridade, which these travelers would follow. Undoubtedly, it is a valuable iconographic document.

Estrada do Vergueiro (Vergueiro's Road)

Holding the Presidency of the Province in 1862, Vicente Pires da Motta gave José Vergueiro the direction and management of the road to Santos (Vergueiro's Road). The new administrator carried out extensive improvement works such as cuts, embankments, bridges, retaining walls, and slope stabilization.

Vergueiro devised a new route between the city and Alto da Serra, which started in the Largo da Pólvora in the center of São Paulo. Between that Largo and Baixada Santista, the road became known as the *Estrada do Vergueiro* (Vergueiro Road). The current



First road trip by automobile between São Paulo and Santos

Held on April 16th and 17th, 1908. Oscar Pereira da Silva's painting, from a photography.

Vergueiro Street is a remnant of that era, as well as the stretch of road that remained near the Via Anchieta (Anchieta Highway).

The Railroad

On February 16th, 1867, the Santos-Jundiaí Railroad was opened to traffic – a construction that demanded remarkable engineering works on the stretch of mountain and caused a real revolution in economics and customs of São Paulo State. With the railroad, the Vergueiro Street has experienced progressive abandonment. The landfill in the lowland between Cubatão River and Santos was ceded to the railroad. Thus, the road has been seldom used.

But the troopers – who enjoyed the confidence of people from São Paulo State – did not get discouraged and, with their rates, have competed with the railroad for a long time.

The Automobile Age

The first road trip by automobile between São Paulo and Santos was undertaken on 16th and 17th April of 1908. The cars were a French Motobloc and a Sizaire et Naudin, high-wheeled vehicles that caused the chassis to be raised.


CUIDADO

The feat was accomplished by Antonio Prado, Clovis Glicério, Mário Cardim – reporter of Estado de S. Paulo newspaper –, Bento Canabarro, and the driver Malle. The trip took 37 hours.

The road situation was precarious and the roadbed was almost completely destroyed by the floods. This situation would only get better in 1913, when Rudge Ramos decided to found a company intended to build a road between São Paulo and Alto da Serra. The project would be financed with toll collection. The road became known as The Caminho do Mar (Sea Route).

That year, Counselor Rodrigues Alves had the stretch of mountains macadamized. There was the beginning of the automobile era. The "raids" multiplied, promoted by fans of the new sport. One of them was Washington Luís – President of the State, whose motto was "To govern is to open roads."

On the occasion of the Independence Centenary, Washington Luís decided to undertake significant works to commemorate the event. In the capital, he had the Ladeira da Memória set erected around the Obelisk that marks the starting point of the road to Sorocaba (Consolação Street). In Serra do Mar he promoted the construction of the set of landmarks along the Caminho do Mar, evoking stages of the conquest of the Plateau. Victor Dubugras, the most original architect of his time in São Paulo, was called to design these important works.

Rancho da Maioridade (Adulthood Ranch)

Built in a place with privileged view of the landscape, with area for automotive repair shops and stopping point for an eventual overnight.

Pouso de Paranapiacaba

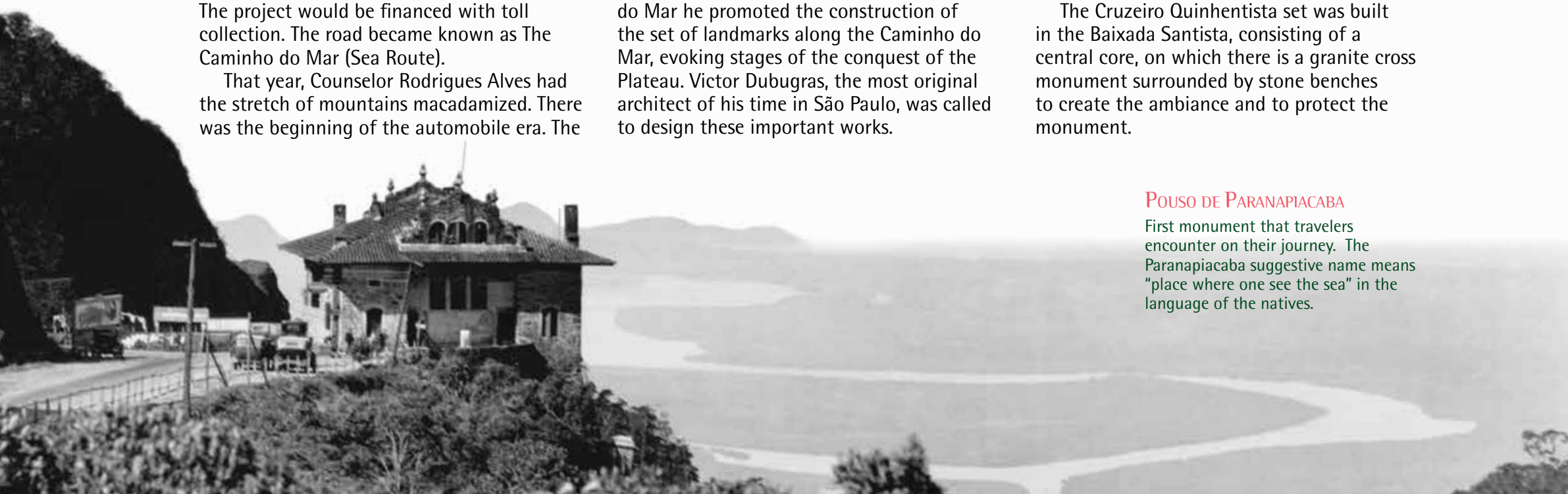
First monument that travelers encounter on their journey. The Paranapiacaba suggestive name means "place where one see the sea" in the language of the natives.

The first monument that the traveler found at the beginning of the descent, the first point where one could see the sea, was named Pouso de Paranapiacaba – meaning "place to view the sea" in the native language of people from the region.

The journey of Dom Pedro II is evoked in another monument, the Rancho da Maioridade (the Adulthood Ranch).

The Padrão do Lorena and the Pouso Circular were deployed at points where the Caminho do Mar crosses the old Calçada do Lorena. At the Padrão do Lorena, signs were posted in honor of Bernardo José de Lorena, which were rediscovered in Serra do Mar by Washington Luís in his wanderings.

The Cruzeiro Quinhentista set was built in the Baixada Santista, consisting of a central core, on which there is a granite cross monument surrounded by stone benches to create the ambiance and to protect the monument.



Pouso de Paranapiacaba

First monument that travelers encounter on their journey. The Paranapiacaba suggestive name means "place where one see the sea" in the language of the natives.

First concrete-paved road

Bronze plaque on the small bridge at the base of Serra do Mar.

At the highest point of the Calçada do Lorena, the Monumento do Pico was erected, a visible monolith of city of Cubatão on sunny days, the work of the Mayor Firmiano de Moraes Pinto (1922).

These works have not been only evocative. They have served as a stopover for the fearless traveler. They have had easy access to water fountains for cooling the engines.

The Rancho da Maioridade had garage, car repair shop for small repairs, and accommodation for an eventual overnight. At Pouso de Paranapiacaba, there was a restaurant surrounded by a balcony, with exceptional views of Serra do Mar, on sunny days.

These stopovers have been built in the landscape privileged spots and built in granite with wide eaves and tile panels by J. Wasth Rodrigues, which have recounted decisive moments in the history of the Caminho do Mar. The materials used have proved to be extremely suitable for the unpredictable climate of Serra do Mar. It was the time when the State Government paid great support to the history of São Paulo.

Concrete Paving

Some years later, the Caminho do Mar was awarded a pioneering technique: the use of concrete pavement.

A bronze plaque, placed on a small bridge at the root of Serra do Mar, bears the inscription: "1926 First Brazilian road paved with concrete." The works were completed in the government of President Carlos Campos.

The road has endured the transit of all types of vehicles for many years, including trucks, until the construction of the Anchieta Highway. From then on, it has been gradually abandoned by the government, to the point to the present state of near ruin.

Natural Heritage

The special conditions of the region's topography and its relative isolation by the dam waters have allowed the maintenance of a plant cover, which have created a reservation whose importance should be emphasized.

The region between the Perequê River and the Pedras River, which flow down Serra do Mar, the Cubatão River, in the Baixada (Lowland), and the reservoir of Rio das Pedras, in the Planalto (Plateau) should be emphasized and protected as a nature reserve by the government of the State of São Paulo, for their extraordinary natural resources, without loss to the subsequent extension of this benefit to the area located between the Pilões River. The Anchieta Highway runs through this valley. The Santos-Jundiaí Railroad is near the Mogi River.

Such a rich region in terms of historical evocations should be an area reserved for geological studies of flora and fauna, composing an authentic open-air museum where people could meet our story, narrated in the landscape and monuments.

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Caminhos do Mar Map

Saí-andorinha
Tersina viridis

Araça-branco
Eugenia kleinii D. Legrand

Memorabilia or Caxinguelê
Sciurus aestuans

Lapa
Tietê River
Penha
SÃO PAULO
Centro
Piratininga River
Vila Mariana
SÃO CAETANO DO SUL
Caminho do Padre José
Saúde
SANTO ANDRÉ
Jabaquara
SÃO BERNARDO DO CAMPO
DIADEMA
Anchieta Highway
SP-150
The Billings Reservoir
Alvarenga
The Estoril Municipal Park
Estrada da Maioridade and Caminho do Mar
Grajaú
Immigrants Highway
SP-160
The Anchieta-Imigrantes Interconnection
Sorocabana Railroad
CIDADE OCEAN

Manacá-da-serra
Manacá-da-serra

São Mateus

Martim-pescador-pequeno
Chloroceryle americana

MAUÁ

Trail of the Tupiniquins Indians

Veado-mateiro (TN: Kind of Forest Deer)
Mazama americana

N

RIBEIRÃO PIRES

RIO GRANDE DA SERRA

Calçada do Lorena

Paranapiacaba

Santos-Jundiaí Railroad

The Paranapiacaba Resting Place

Cruzeiro Quinhentista

Itapanhaú River

BERTIOGA

CUBATÃO

Atlantic Ocean

Suspension Bridge

SÃO VICENTE

SANTOS

GUARUJÁ

PRAIA GRANDE

Queen of the Mountains

Manuel Alves Fernandes
Journalist, working as a reporter in Santos.

From Disaster to Recovery of Serra do Mar

I

A donkey after another, pulling a cart up and down the dirt road opened in the Serra de Cubatão (the Cubatão mountain range) in 1949. A teenager, who was jokingly called "pinel de burro" (TN: Donkey's Pinel), rode each mule. The load of earth that was carried by them was to build the second lane, southern direction (downward), of the Via Anchieta (Anchieta Highway).

Romeu Magalhães, born in the Vila Fabril, Cubatão, remembers those times. "I was 14 at the time, and I was a pinel de burro. I lightly whipped with a stick the donkey's head, to lead it in line." Romeu believes the nickname could be a popular reference to Philippe Pinel, a French physician who became famous for considering that human beings suffering from mental disorders were sick. From 1920 to 1950, treatment institutions and guidance of patients with mental disorders

Workers of the DER (Highway Department)
During construction of the Anchieta Highway.

Lodging of the DER workers
Facilities located in Serra do Mar during construction of the Anchieta Highway.

Workers
Picture of the difficult construction of the Anchieta Highway, with carts and manual labor of thousands of men.

proliferated, with reference to Pinel 's name in the world.

The tradition of using donkeys to overcome the escarpment of the mountain and to carry loads came from the Portuguese engineers in the eighteenth century, when building the Calçada do Lorena. It was repeated in the 1930s and the 1940s. By the end of the 1950s, the first lane was already there, started in 1939 by the intervener Adhemar Pereira de Barros, which he completed as the state governor in 1947.

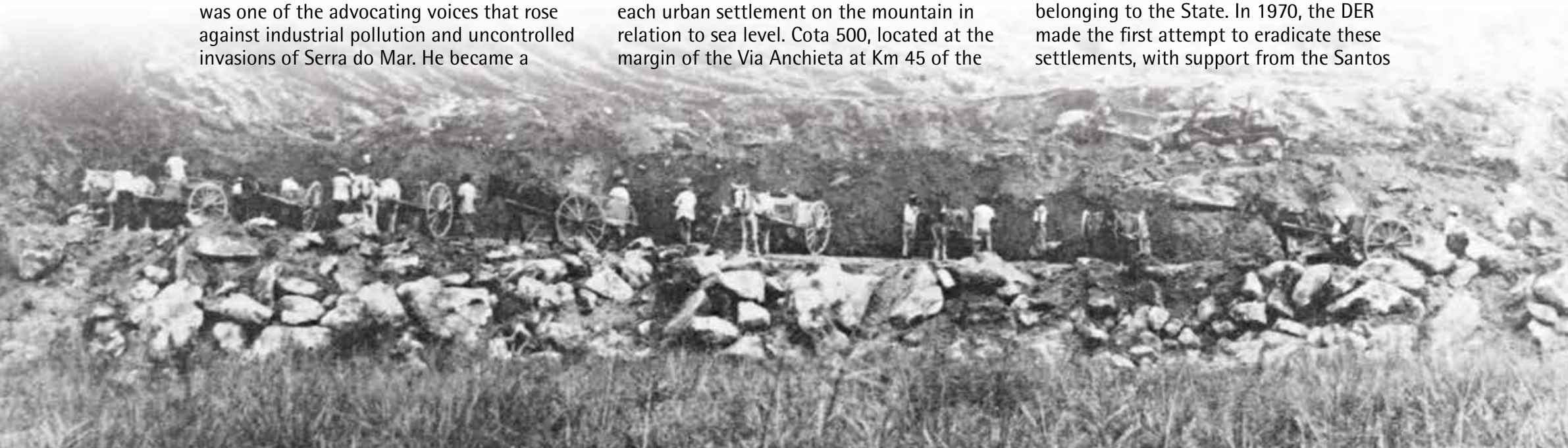
Six years later, Adhemar de Barros would also inaugurate the southern lane. But Romeu' s speech is not mainly about roads or donkeys. Nearing the age of 80, he became a reference for the cubatenses (TN: people from Cubatão). Former town councilor, he was one of the advocating voices that rose against industrial pollution and uncontrolled invasions of Serra do Mar. He became a reference cited by Aziz Ab'Saber, Paulo Cezar Naum, Reinaldo Azoubel, and Paulo Nogueira Neto, whenever they spoke about Cubatão.

He gave the first warnings about the uncontrolled growth of bairros-cota, urban settlements installed along the two lanes of Via Anchieta, and its suffering population. "The next thing I remember, the cotas have already been occupied. In 1941, the Departamento de Estradas de Rodagem – DER (Highway Department) built a camp at the time of Cota 200, with offices, hospital, and accommodations. And then, they allowed workers to build homes for their families", he says.

11

The cota name was given by the DER engineers, in reference to the elevation of each urban settlement on the mountain in relation to sea level. Cota 500, located at the margin of the Via Anchieta at Km 45 of the ascending track, was 500 meters above sea level. There was also Cota 400 and Cota 200, located on the edge of the Via Anchieta at Km 50 of the ascending track, and Cota 95, in the area known as the Pinhal do Miranda. The mountain stretch is located about 7 km from the center of Cubatão and about 15 km from the industrial center of the town.

"Initially, the residents of the bairros-cota were just employees working for the DER and their descendants," the historian Benedict Rosalino explains. Once the road was finished, the State let the DER former workers and their families to continue living in the cotas. Some of them sold the properties, which are now occupied by low-income families, turning into stable urban settlements, although installed in areas belonging to the State. In 1970, the DER made the first attempt to eradicate these settlements, with support from the Santos



Cohab, finding – with the support of doctors from the Hospital do Servidor Público do Estado de São Paulo – that this population lived in unhealthy areas without basic sanitation and drinking water, subject to serious diseases such as tuberculosis. But only 20 families received houses and only ten moved away. The proposal was aborted. And the bairros-cota became a growing stain in Serra do Mar, which could be seen from far way. Managers at industries complained: when a shareholder came from abroad to visit the factories of multinational Cubatão, he or she was amazed with the slums on the hillsides and asked: "Why does a city as rich as Cubatão still have them?" recalls former President of Carbocloro, Mario Cilento. In an interview to a Santos newspaper, *A Tribuna*, already in the 2000s, he would exalt the proposal of the State Government to relocate the cota residents. But he did not understand why part of the occupants remained in the Cota 200 region, whose fragile soil – such as the Serra do Mar – is subject to landslides in the summer rains.

Orestes Barbosa de Souza, who died in 2010, was one of the first of many residents of the cotas from a mixed origin, different from the families of road builders settled by the DER. Although his name is a reference to a Brazilian composer known for Chão de Estrelas, Orestes from Cotas had nothing to do with the poet.

Coming from the Northeast in the 1950s, he started working in the construction sites of the Presidente Bernardes - Cubatão Refinery. And then, as a *macheteiro* (TN: a person who is professionally engaged in opening a path with the machete (ax) in the areas covered by vegetation), he broke stones to open the tunnels of the Anchieta and Imigrantes Highways. Settled in one of the houses on the mountain, he was best known in the Cota 400 as "Marangó". He was a brave Northeastern person, who did not hide being, in the past, a member of the corpo de volantes (TN: state police troops) who hunted bandit Lampião in the siege of Angicos Farm in Sergipe.

Luiz Rosa – former councilor who had lived since the 1960s in Cota 500, and later "migrated" to the center of Cubatão – remembers Marangó's stories. "He told me in his last years in the Cota that he was sorry to have hunted Lampião", Rosa says.

The census carried out in 1950 indicated that Cubatão had 11,803 inhabitants, with 4,680 identified as immigrants (40% of the population). Most of these immigrants lived

"My father was the first (worker) that came to the Cota, he helped build the Anchieta (highway), manually working because he had no machine. Then, my father and my mother got married and they kept living here, here where the workshop is now used to be my mother's house."

Aracy Mariano Potásio
April 9, 2014

COSIPA

Deployment in the industrial pole of Cubatão in the 1960s.

in the Cotas, attracted by the construction of the industrial pole.

According to a writer from Cubatão, Joaquim Miguel Couto (Industrialização, Meio Ambiente e Pobreza – O caso do município de Cubatão, Editora da Universidade Estadual de Maringá – Eduem. 2012), "in the Cota 95 in 1982, only 6% of the remaining workers were working in construction of the Via Anchieta and 70% of them worked for other contractors" in the industrial pole. In less than 60 years, the population of Cubatão would be multiplied by 10, due to the pole expansion and the construction of two-lane of the Imigrantes Highway.

O ESTADO DE S. PAULO

Tragédia espera a próxima chuva

Uma questão de lucro

Nada foi feito para impedir a repetição do que aconteceu em Caraguatatuba

Nas experiências, apenas frustração

Desastrosa intervenção

IV

The first warning about the settlement growth risk in the Atlantic Forest was initiated on August 30, 1977. Due to the environmentalist campaigns, the State Government created the Serra do Mar State Park, with the legislation establishing a five-year deadline for the government to develop the Management Plan of the communities that have invaded the mountain areas, relocating them to urbanized areas. But nothing was done in this regard.

In the crises of the 1980s, and due to the valuation of properties in the urban center, the poorest population was forced to take shelter in tents in the Cotas. The

Report of Planning Secretariat of the Cubatão municipality indicated that in 2000, there were five residents in Cota 50; 682 in Cota 400; 5,971 in Cota 200; and 2,982 in Cotas 95/100.

In 1988, a landslide in the Grotão da Cachoeira of Cota 95 caused ten deaths and destroyed dozens of shacks built in the passage of this intermittent stream. It was a time when the landslide slopes took over Serra do Mar. The industrial pollution destroyed much of the vegetation layer that had covered the fragile soil in the mountain slopes of the valleys of the Cubatão and Mogi rivers, where the industries were located.

And in the bairros-cota, the vegetation destruction for the construction of houses resulted in similar pollution effect. "The Serra do Mar landslide is certain, and there is not enough time to reverse the situation, which is more than serious: it is extremely serious." From this statement of the IPT Geologist, José Pedrosa, on May 29, 1985 at the Cubatão City Hall, the *A Tribuna* newspaper

began a series of articles under the general heading of "Catástrofe na Serra" (Disaster in Serra do Mar), which extended beyond July of that year.

A Tribuna newspaper addressed all risk of aggravating environmental framework in Cubatão, town that at the time became internationally known as "Death Valley" because of the industrial pollution. The series of articles, developed by journalists Valiengo Lane, Leda Mondim, and Manuel Fernandes Alves, rewarded to *A Tribuna* with the Esso-Southeast Region Award that year.

V

When the State Government created the Serra do Mar State Park, the legislation stipulated that the government would have five years to develop the Management Plan of the local communities. But after 1970, none of the squatters was relocated to urban areas in Cubatão.

In 1984, Governor Franco Montoro issued, based on this law, a decree regulating the occupation of the Serra do Mar State Park, listing the remaining areas of the mountain – at that time destroyed by industrial pollution – as protected ecological heritage, recognizing the importance of a public good that should be recovered and preserved. On June 5th, 1985, Montoro was in the town and announced the creation of the Comissão Especial para a Restauração da Serra do Mar (Special Committee for the Restoration of Serra do Mar) in the Cubatão region, chaired by Werner Zulauf.

"We're going against many interests, but defining a social character policy," Montoro said. "The Serra do Mar preservation means that now no one will touch with these forests without paying attention to the community. The community health is above the profits of some." And displaying the decree listing Serra do Mar as a heritage area he added, "This document will generate many problems, a thousand problems. The area listed as heritage protects the last remaining 5% of the original forests of the State of São Paulo." Present at the ceremony, the then Special Secretary of the Environment Ministry, Paulo Nogueira Neto, was prophetic: "Father José de Anchieta has accounted in one of his writings that to climb the hill, already in his time, one had to hold on tree trunks and roots. Now, we see the assaulted nature reacting in the opposite direction. Trunks and roots roll down hills threatening to fall over all the Baixada Santista. The Bible says that man must use nature without damaging it. The reaction is always fulminating." At the time, 40 people died in the landslides of mountain stretches of the Espírito Santo State, and the Vale do Itajaí (Itajaí Valley) was flooded with losses to agriculture, industries, and human life.

VI

At the time, Paulo Nogueira Neto also recommended the immediate removal of residents from Cotas 95, 100, 200 and 400. And he stated that, besides the risks of landslides during the rainy seasons, the Cota areas represented one of the unhealthiest places of the area where "the highest rate of tuberculosis in the country" was registered. And – the analysis of the Instituto Adolfo Lutz would prove to be true later – the majority of residents were drinking water with high levels of fecal coliform. The IPT technicians researched in the areas of the Cubatão Refinery lying on the foothills of Serra do Mar where there was the Estrada Velha do Caminho do Mar (TN: the Caminho do Mar Old Road) and concluded that the highest risks of landslides were there. In the vast area of 60 sq. km from the Refinaria Presidente Bernardes-Cubatão – RPBC (TN: President Bernardes Refinery in Cubatão) to the Vale do Quilombo (TN: Quilombo Valley), the risk of mudslides was patent.

The State Government – concurrently with the Programa de Controle Ambiental de Cubatão (the Cubatão Pollution Control

Cota 200

Houses located in the area after upgrading.

Project) developed by Cetesb (The Technology and Environmental Sanitation Company), requiring the installation of pollution-control equipment in industries – began replanting vegetation of the mountain slopes, which showed the scars of the crater opened by acid rain in the forest area.

By the end of the decade, a mudslide reached the RPBC administration building, destroying the refinery garden and flooding the tanks. Petrobras built rock-fill dams to contain new landslides in the following years.

Likewise, the next municipal governments relocated residents from Vila Parisi to Jardim Nova República, next to the Jardim Casqueiro region.

But, despite decree of the Governor Montoro listing Serra do Mar as heritage area and approval by the Legislature of the bill that subjected to alienation part of the areas of the bairros-cota without risk of landslides, the bairros-cota have remained flooded and the landslides have continued during rainy seasons, some followed by death, according to the Institute for Technological Research (IPT).

VII

In the 1990s, new actors joined the campaign against the invasions of mountain stretches: the prosecutors of the Environmental Justice of Cubatão. At the time, the size of occupations frightened, which interestingly were most noticeable during the night: Serra do Mar seemed a poetic Christmas landscape lit by hundreds of lights.

In 1999, the court of the 4th Civil Court of Cubatão began examining representation of the prosecution against the Municipal and the State Governments for tolerating this risk situation. In early 2007, in order to resolve these irregular housing deadlocks in in the bairros-cota, then-governor José Serra consolidated a partnership with the Municipal Government to implement actions of the Serra do Mar Project, with the goal of developing housing projects to shelter residents of risk areas.

The sentence of Judge Ariana Consani de Gregório Gerônimo, on September 6th, 2007, put an end to doubts. It jointly and severally condemned the Cubatão Municipality and the State Public Treasury. It determined the physical extinction of neighborhoods or urban settlements created within the Serra do Mar State Park, relocating the squatters to other areas not subject to restrictions on environmental grounds. It also ordered the State and the Municipality to permanently monitor the area to prevent further invasions into the Park, and to submit the recovery plan for the degraded area, "besides the replanting of native vegetation."

Meeting with Residents of Bairros-Cota

Presentation of urbanization and resettlement projects.

According to the judge, the Municipal and the State Governments had neglected the monitoring duty and would have a constitutional obligation to preserve the environment, since the Serra do Mar State Park is defined as Conservation Unit. "The prosecution arguments reinforced by expert evaluations show that, although the occupations had been initiated during the construction of the Via Anchieta, over the years new squatters have been aggregated to the urban settlements created by former workers, intensifying environmental degradation because of the disorderly occupation," she wrote. "And it is quite clearly that the household within the State Park is incompatible with its purpose, because the squatter population performs unauthorized intervention in the ecosystem, carrying out constructions that clearly endanger the nature and the function of that area", she pointed out in the sentence. "The experts indicated that in Cubatão there are areas that could serve to the urbanization and relocation of families to be removed", she concluded.

VIII

The State Government did not appeal the decision. It implemented the Programa de Recuperação Socioambiental dos Assentamentos Irregulares de Cubatão (Social and Environmental Recovery Project of Irregular Settlements in Cubatão), understanding that it should recover and preserve the ecosystems of the Serra do Mar State Park and protect families who now occupy risk areas within the Park *desafetadas* (subjected to urban alienation) by the Legislative Assembly decision – from the proposal of then-State Congressman Oswaldo Justo, presented by the Cubatão councilmen, led by Manrique Liberato da Silva. This desafetação (urban alienation) or separation of the areas considered that there was no risk of the permanence of the residents in the areas delimited by the IPT in Cotas 95/100 and 200.

In late 2009, José Serra detailed the social and environmental recovery project of Serra do Mar, considered by the IDB (Inter-American Development Bank) as the largest environmental restoration Project in the world with investments of approximately BRL$ 1,000,000. He announced the removal of 5,350 families (about 20,000 people) living in risk areas or in the Serra do Mar State Park, a place that cannot be inhabited by judicial decision. José Serra was keen to stress the statesman view of former Governor Franco Montoro, in 1985, when he took the first step towards environmental recovery of Cubatão.

Of the 5,350 demarcated properties in the mountain preservation areas, 1,579 were brought down in four months, within a project conducted by the Companhia de Desenvolvimento Habitacional e Urbano – CDHU (Housing and Urban Development Company of the State of São Paulo). The government's goal is to reforest with native species the mountain area that had been occupied. In the Cotas, only 700 dwellings will remain in areas that are being upgraded.

IX

When the management process began in 2008, with the removal of the cota residents to apartment buildings that began to be built in the Jardim Casqueiro region, there was an initial resistance on the part of the population, which had been already expected by political leaders who led the process.


PARE

Residencial Rubens Lara

"Many people were used to living in houses with backyards, where they raised animals that could not be taken to the apartments. Others imagined that they could not afford to pay the property installments or live in condominiums ", said Agenor Antonio de Camargo. Son of Paulino Antonio de Camargo, one of the first DER employees to live in the mountain, Agenor was born in Cota 200, on April 22nd, 1954. Eventually, he became one of the leaders in the area called "Cubatão de Cima", praised in the verses of the author of the Cubatão Hymn, Edístio Dias Rebouças: "Hail, hail, queen of the hills, my beloved Cubatão".

Camargo lived very close to the area demarcated by the design of Via Anchieta highway, increasingly congested in high seasons. He realized that the children had to walk up and down the hills to study and to have better opportunities. He was one of those who moved with his family to the buildings of up to eight floors in the housing projects built at Jardim Casqueiro. At the time, Agenor was one of the interlocutors who were most listened by Rubens Lara, Special Advisor to the São Paulo State Government and executive director of the Metropolitan Agency of the Baixada Santista (Agem).

Former Congressman, popular and respected figure in Cubatão, Rubens Lara knew that throughout history there has been encouragement of occupations in exchange for political support in the bairros-cota. "Candidates who have the support base there or others who want to ingratiate themselves" might say: "do not leave, stay here, we are making improvements." For this reason, we have worked a lot talking with people and with the freeze (of houses). So far, it has been a success," said one of his latest project evaluations that he has skillfully led. He died, victim of a heart attack on March 12, 2008, with 64 years old.

Today, Rubens Lara gives its name to the huge housing development built in the Jardim Casqueiro to receive the ancient residents of bairros-cota (paying installments of up to 15% of household income). And Agenor Camargo is one of the síndicos (TN: condominium administrator) of the apartment blocks of this housing project, from which windows one can view, in the distance, on a clear night, the illuminated region of all that remained of the bairros-cota and of the stories of the times of the donkey went and down the mountain.

> As soon I moved here, to the Rubens Lara, I started as a síndico (TN: administrator) of my condominium. I received the property tax bills to deliver to my community and nobody likes to have bills to pay, right? (...) In our case it was different because when I handed property tax bill to the resident, I realized that he was glad because that was a document of citizen recognition."

Carlos Guilherme Campos Costa
April 2, 2014

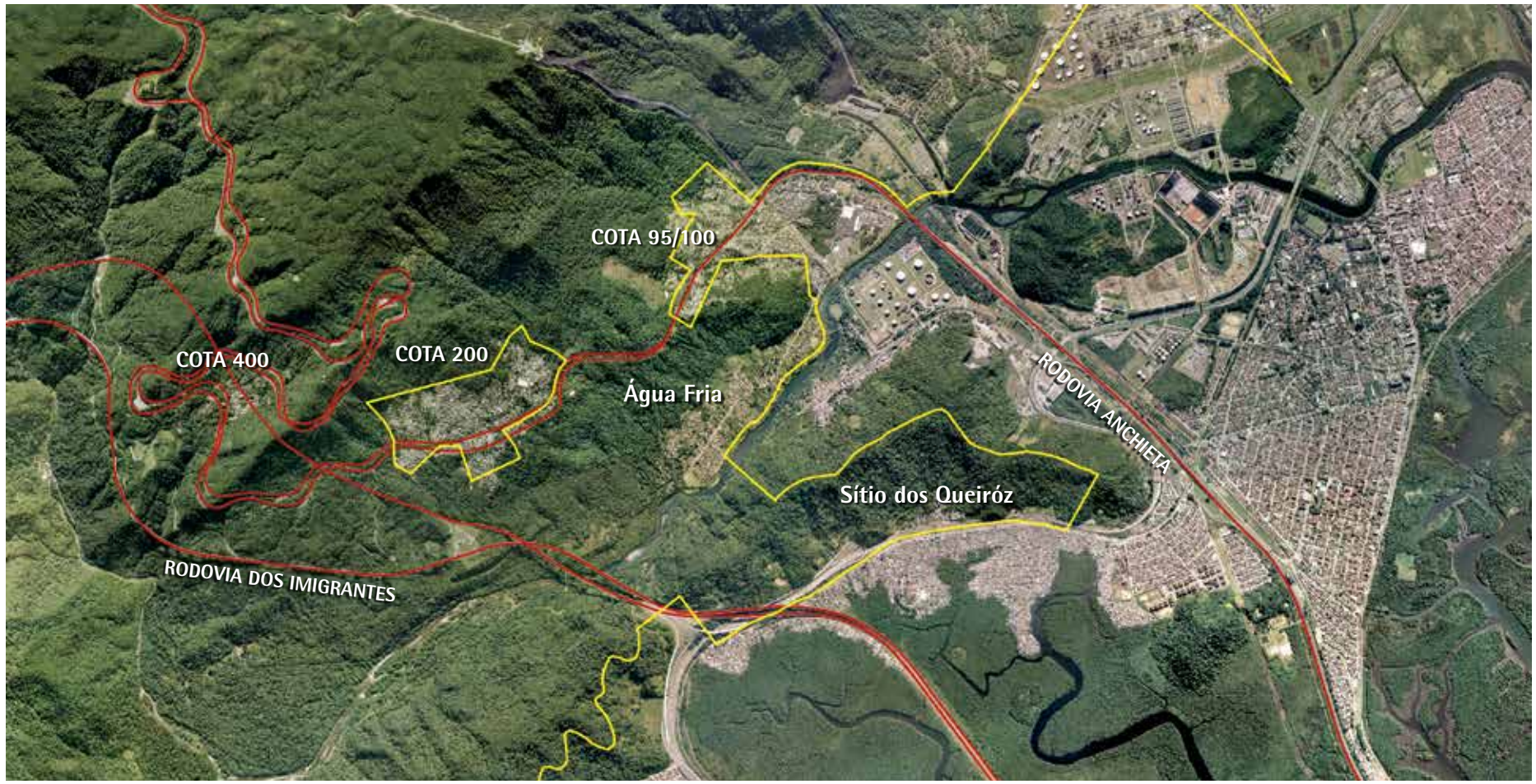
Social and Environmental Recovery: Housing Solutions

The text of journalist Manuel Alves Fernandes traces the trajectory of the emergence and development of the bairros-cota in Cubatão, through the mishaps caused by risk situations and social vulnerability, until the beginning of the process of resettlement of families and environmental recovery of the forest currently underway.

The diagnostic process of the area and registration of families began in 2007, when the Government of the State of São Paulo began to comply with the sentence imposed in Case N. 944/1999 filed by prosecutors. The first undertaken actions aimed to diagnose the quantity and the living conditions of the bairros-cota families in the Cubatão region.

Under the coordination of the Housing and Urban Development Company (CDHU) a registration was carried out between April and July 2007, which identified the socioeconomic status of families and the household conditions of all settlements. The diagnosis revealed that 7,242 families lived in the bairros-cota facing different situations that could be evaluated according to their characteristics.

Concurrent with this process, the CDHU requested a survey to the Institute for Technological Research (IPT) on geotechnical conditions of the bairros-cota. From this report, which diagnosed the risk in each cota, the State Government, through the CDHU, could draw an effective action plan for the family assistance.



Due to the risk and aiming to carry out the environmental recovery of the forest, the CDHU developed a plan for the total or partial resettlement of families depending on the situation of each urban settlement.

After the consolidation of data collected by registration of families in the bairros-cota and diagnosis made by the IPT, the upgrading and resettlement projects begun and the dialogue with residents became the foundation for the development of the whole process.

Within the guidelines of the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest Mosaics System, the activities carried out in the bairros-cota belong to Component 2 (Social Investments in the PESM) of the contract signed between the State Government and the IDB. This component comprises the assistance to residents in the bairros-cota and also the families living in other regions of the Park.

In total, the Project will assist 9,100 families through upgrading and resettlement actions, divided into two phases: the first focused on the resettlement of families in Cubatão; the second phase, in the municipalities of the northern and southern coast of the State.

For the first phase, Resettlement Plan for 5,300 families from the bairros-cota was developed. The Água Fria neighborhood was not indicated in the initial Project activities. However, in 2011, a huge flood left its residents homeless. Thus, the actions were reorganized and its families included among the emergency and priority assistance.

The early work involving resettlement has usually caused discomfort, distrust, uncertainty, and doubt on the part of residents. Due to discredited government actions – because of the historic urban interventions in Brazil – many families have not believed in the project implementation. In the case of the bairros-cota, this people's perception has been corroborated by the lack

of infrastructure in various sectors, such as water and sewage networks, street lighting, and paving, among others.

To reverse that value judgment, the field teams in the process of family resettlement, formed by professionals from various fields – engineers, social workers, architects, environmental officers, psychologists, pedagogy experts, geologists, historians, among others – had to start a transparent dialogue with the population. In this process, the freeze that took place in the area proved to be very efficient. As the Environmental Police remained 24 hours in the fields, when the Project was announced, there was no change or expansion of irregular settlements of the sectors. Residents that had to carry out some kind of repair or works in their dwellings informed the Environmental Police team, who authorized the entry of building materials just for the requested case.

Next, 11 polytechnic offices (with the presence of professionals from various fields) were spread across the bairros-cota, where the family assistance was carried out and the projects were developed with the community, besides serving as the basis for technical support. Ongoing activities were carried out with the residents, both for training and socioeconomic and cultural development, and housing assistance.

Between December 2010 and February 2011, 41 meetings were held in the areas to present the Project with the presence of more than 1,800 residents. At these meetings, the population was informed about the issues involving the need of resettlement, from environmental remediation to risk situations in which many households were. Next, possibilities for housing assistance were also presented, as well as the architecture and urban designs of the new housing projects that were being built by the CDHU.

This process is not as simple as it may look through the description. It is complex and, in general, it shows the conflict between the need for change and the desire to stay from the part of residents. The negative reaction has been common in the first presentations of the Project, which has required new approaches of the teams, in a forward and backward process, dialoguing, explaining, and coming up with new solutions that take time, weeks, months, and even years to be equilibrated.

Along the way, working with the memory of families is critical to establish the relationship that residents have with the place and, at the same time, to help to redesign future projects under personal and collective perspectives.

> “Every day, meetings were made with the population and everything was sectored in these meetings. Each person talked about his anger and history, and the State told us that the place where we were going to would be a totally new neighborhood, and people who would move from there to here would be able to make the ends meet in the new neighborhood, because a part of the Project remained there and other areas came here. The part that came here was from the environmental, conservation areas, and this project guideline still exists today.”
>
> *Severino Ferreira da Silva*
> April 2, 2014

Meeting with residents

Presentation of projects of urbanization and resettlement.

For this reason, the social work and the project presentation with the families begun with the retrieved heritage and the memories they had of the bairros-cota formation, and not with the resettlement that was to come. This broke a big taboo between the population and the government and, in a way, it valued as never before, the story that those residents they had built over decades.

Speaking about bairros-cota, its formation and its evolution meant to anchor the work in people' origin, with the goal of making the new housing truly sustainable. This choice of work methodology performed by the CDHU is

bound to the origins because the population life takes place in these territories. When the government acknowledges them, the population begins to respect the Project, in a mutual and feedback interaction. This makes it possible to identify the social fabric in communities already formed, the power relations, relations that existed in that space, what people believe it worth keeping, what they believe not to be important to keep, among other circumstances.

Thus, the collectively expectations could be worked, focusing all the social networks established among all the territory, also valuing achievements and expectations as something shared by all families. Otherwise, the risk taken is to individualize the understanding and needs of each individual, focusing on the work only in the new dwelling, without favoring the understanding of the social process that has triggered all stages of its history.

From this approach, from the knowledge of the details of the Project, from the transparency in the information dissemination, and from the constant permanence of the teams in the neighborhoods, the Project has gained credibility among the locals, who have began to adhere to its proposals.

Right now, it is important to emphasize that the understanding and unrestricted membership of the residents are required in order to carry out the resettlement of the families relocated from their old house to a housing unit subsidized by the government. After all, the change implies not only a shift in geographical property, but also on a new budget organization for every family.

The bairros-cota households were informal dwellings, i.e. their residents did not have the charges and expenses of a common property. Moving into a house or apartment built and regularized for social housing, the families begun to pay for the property and utilities, such as water and electricity, and condominium, among others. No doubt this has been one of the most important changes in the process

“I came here still a child, I lived on rent my whole life, when the opportunity arose to buy a house in Água Fria to try to change my life. Then, we bought our house where we stayed a couple of years, and then there was that flood that ended with everything.”

Janeide Santos da Conceição
April 4, 2014

through which they have gone, and all these issues have been dealt at meetings, courses and discussions with residents, so they could have the best planning for this new situation.

In the case of units built and delivered by the CDHU through the Project, the largest portion is subsidized within the existing social housing parameters and when the residents move, they begin to pay installments corresponding to a portion of the total property value. The values of the installments vary according to the characteristics of the property (house, apartment, two-story houses, etc.) and the income of each family.

The first families called to be assisted were those who were in high-risk areas, such as Grotão, Pinhal do Miranda, and Cota 200. Meetings were held according to the blocks and sectors, so that these neighboring families could get familiar with the Project and, at the same time, could be aware of how it would be like to their sectors. At these meetings, in addition to discussing the Project, residents elected their representatives, known as “community agents”.

At each meeting, residents could elect as many representatives as they wanted. With this, more than 200 were chosen in different sectors at the beginning of the works. All elected agents attended a course called Formação de Agentes Comunitários de Urbanização (TN: Training Program of Community Urbanization Agents). The aim of this course was to strengthen the representation and participation, as well as to promote the creative potential and the ability to reflect on the transformations of the neighborhood, providing the creation of a network of multipliers able to identify problems, propose solutions, and involve the whole population in the urbanization process. The course, lasting about six months, was divided into modules on the following subjects: I) Urbanization and Community Protagonism; II) Memory, Citizenship, and Community Communication; III) Social Inclusion and Human Promotion; IV) Environmental Transformation and Sustainable Local Development. At the end, all participants received certificates.

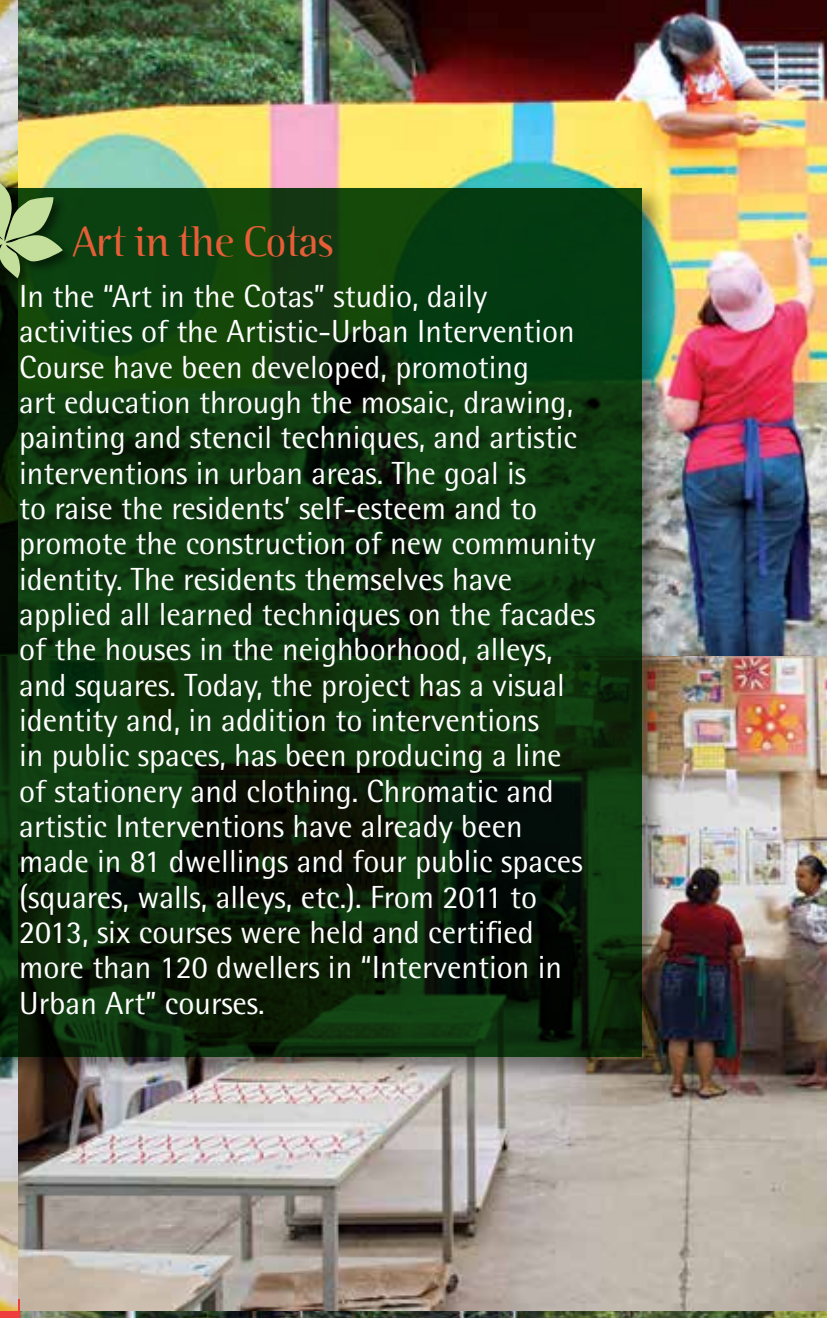
To further strengthen the families in the urbanization and resettlement process, a series of actions has been put in place, which aimed to promote citizenship and social inclusion of residents through income generation, community organizations, and local and sustainable development activities:

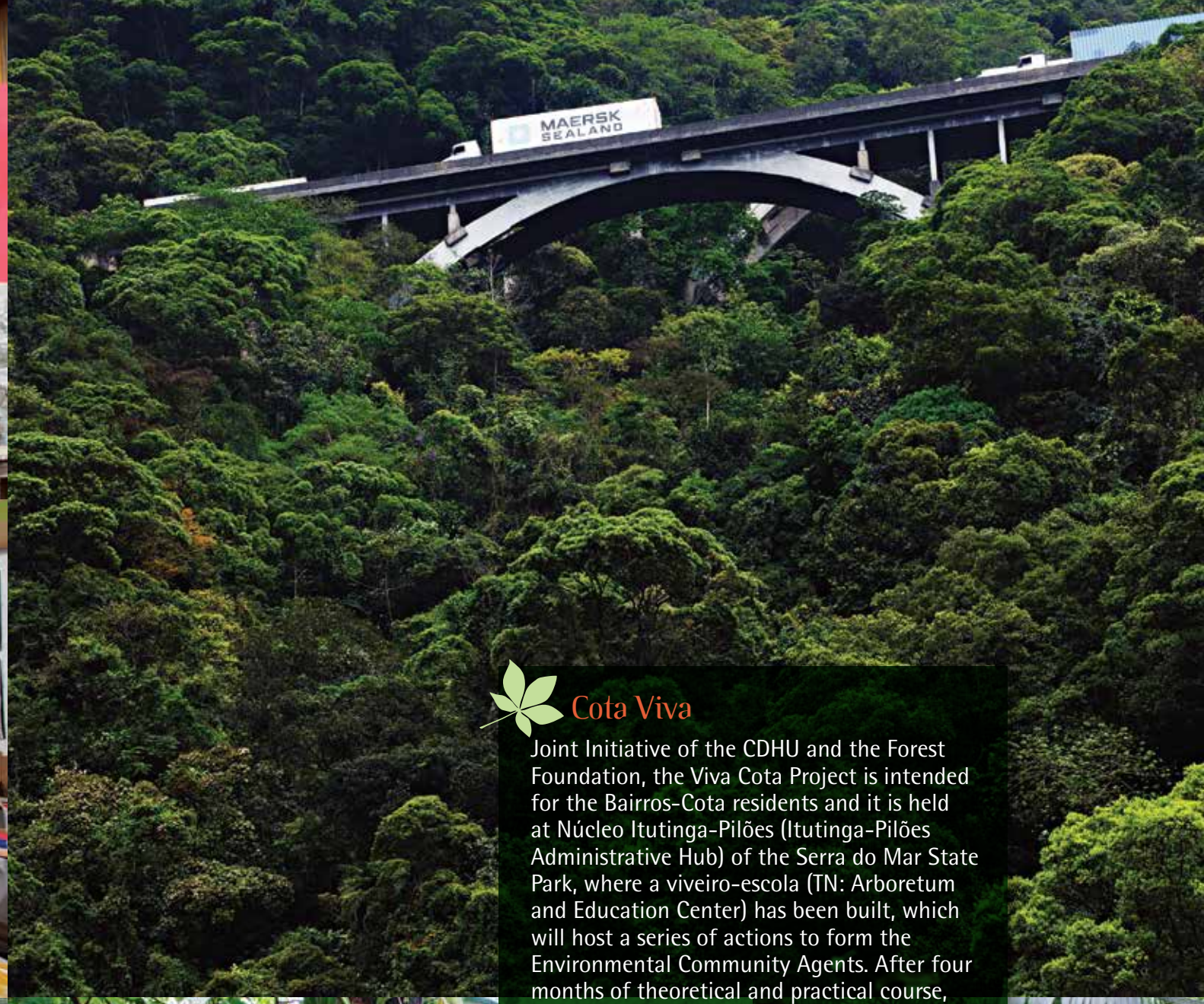
“After we had graduated, the Housing Project begun. Hence, they decided to make the urban intervention in the houses, and as we had already graduated they gave us a chance to us, people from the *ateliê*, because there we could practice what we had learned. Then, we started in the Cota 200, which was very difficult. Trucks, tractors, those streets still unpaved, all was just mud. We began to paint the walls, to make research because we had to visit the residents, get their signatures and more or less list the ones who wanted the painting. We created the drawings, showed them to people, prepared the material, it was a very complicated step-by-step action. Now there are those beautiful things in the Cota 200, because the painting has improved it a lot, and you look and you think that you did it.”

Maria José de Araújo Silva
April 9, 2014

Art in the Cotas

In the “Art in the Cotas” studio, daily activities of the Artistic-Urban Intervention Course have been developed, promoting art education through the mosaic, drawing, painting and stencil techniques, and artistic interventions in urban areas. The goal is to raise the residents' self-esteem and to promote the construction of new community identity. The residents themselves have applied all learned techniques on the facades of the houses in the neighborhood, alleys, and squares. Today, the project has a visual identity and, in addition to interventions in public spaces, has been producing a line of stationery and clothing. Chromatic and artistic Interventions have already been made in 81 dwellings and four public spaces (squares, walls, alleys, etc.). From 2011 to 2013, six courses were held and certified more than 120 dwellers in “Intervention in Urban Art” courses.





Cota Viva

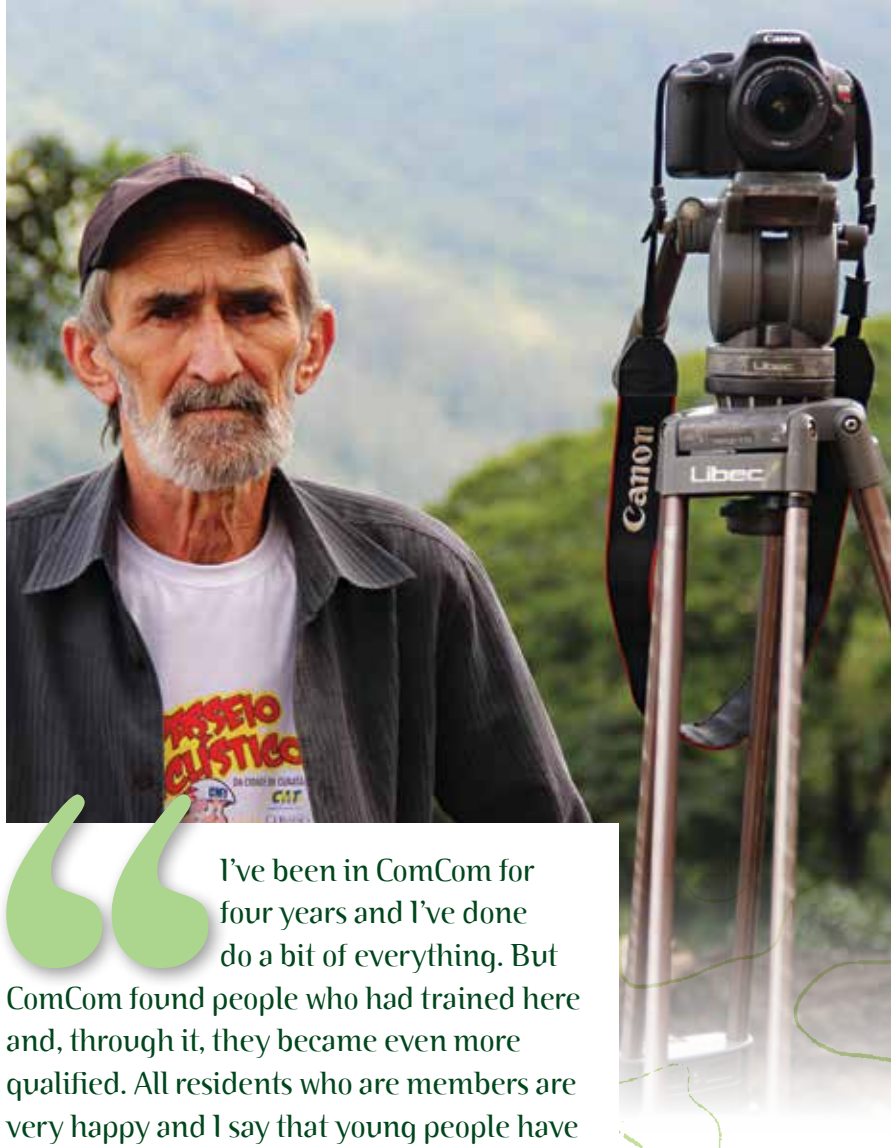
Joint Initiative of the CDHU and the Forest Foundation, the Viva Cota Project is intended for the Bairros-Cota residents and it is held at Núcleo Itutinga-Pilões (Itutinga-Pilões Administrative Hub) of the Serra do Mar State Park, where a viveiro-escola (TN: Arboretum and Education Center) has been built, which will host a series of actions to form the Environmental Community Agents. After four months of theoretical and practical course, participants enrolled in the project receive a certificate and are fit for work at, for example, in the very reforestation planned in the Project, which indicates the 90 hectares of vacant degraded areas by the irregular settlements. These agents can also participate in the implementation of the Botanical Gardens scheduled for 2016 in the area of the Água Fria current neighborhood.
The first class has 30 students, and the plan is that others will follow them, forming a total of four classes over 12 months.

Nesdel

The Núcleo de Economia Solidária e Desenvolvimento Local - Nesdel (Center for Solidarity Economy and Local Development) operates valuing the local culture and potentials, promoting training, debates, and mechanisms for generating income based on solidarity economy and fair trade. This project was organized by a group of women that articulates with other activities and projects of other Programs managed by the CDHU. The Nesdel has promoted and enabled activities to the professional and industrial cooking, besides crafts, stimulating participatory entrepreneurship through partnerships, networks of ongoing formation, professionally acting at events and fairs (receptions, coffee breaks, brunches, lunches, etc.). Currently, the Project has involved 21 women, who are divided into two groups: Empreendedoras da Serra do Mar (TN: food-related) and Fabricoteiras (TN: handicraft related).

ComCom Project

ComCom means Community Communication. This project has promoted training in different media, with the purpose of appropriation, production, and dissemination of information by the community. In addition to training in newspaper, radio, TV and social media, the ComCom has done much to mobilize the families from the Serra do Mar Social and Environmental Recovery Project. More than 1,500 bairros–cota residents have already participated in the more than 400 project activities, including workshops, film screenings, memory booths, mobilization events, and documentaries. The ComCom has produced the bi-monthly newspaper called Morro Vivo! Viva o Morro, which is in its 17th edition with a circulation of 3,000 copies. There is also a radio program, called Voz do Morro, broadcast live three times a week, already totaling 220 editions. There are two TV programs entitled Comunidade em Ação (Community in Action), through partnerships with TV Polo and TV UNISANTOS. So far, 26 programs have been made. The training activities have also produced good results, and ComCom has already delivered certificates to 75 residents trained in the techniques of reporting, editing, video, photography, writing, and speech.



“I’ve been in ComCom for four years and I’ve done do a bit of everything. But ComCom found people who had trained here and, through it, they became even more qualified. All residents who are members are very happy and I say that young people have to carry on with it. I am old, I am helping in a thing or two, but young people have to take care of it there. We managed even a headquarter building that they will renovate for us. Now we’re after (...) we are with the newspaper and the radio program here in Cubatão, in the local area, and we have the program in UniSantos too, twice, three times a week, and we’re opening a NGO to be regularized, getting all property documents. Now, just hard work so this will last for many years there.”

Expedito Silva

April 9, 2014

Upgrading and Resettlement Projects

In addition to the socioeconomic and cultural activities that have qualified this Program, it is important to highlight that the Cota 200 and the Pinhal dos Miranda upgrading projects, as well as the quality of new housing units constructed for the residences to resettle the families, were key factor for the success of this work.

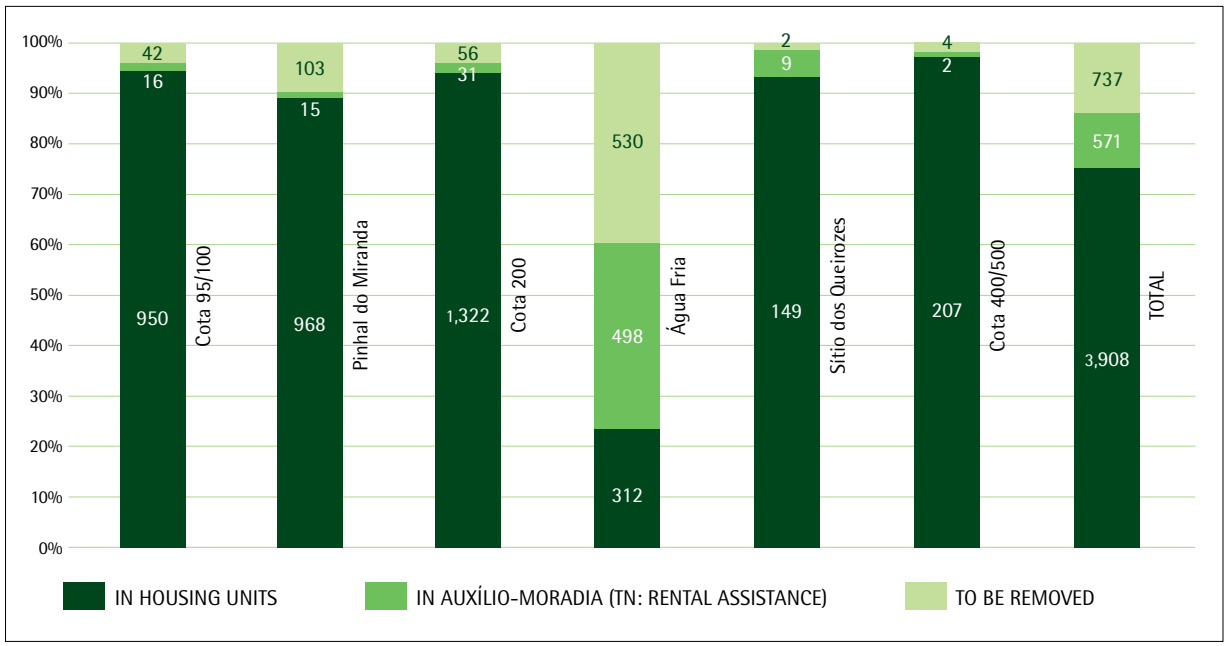
In recent decades, the CDHU has been improving the social housing projects that it has implemented throughout the State of São Paulo. Today, the housing units have a number of items that bring more comfort to the residents and more sustainable use of resources, such as solar heating, individual water consumption meters, self-draining floor tiles, higher ceilings, greater ventilation and lighting environments, universal design of units – ensuring accessibility –, elevators in buildings of four floors or more, plus all the leisure equipment for children, landscape work in gathering places and recreational areas, trade structures, among others.

In case of the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest Mosaics System, the quality of the new units has also been associated with the plurality of the offered types. The families, from the established criteria – involving income range, accessibility, how long they have lived in the bairros-cota, age etc., could opt for apartment with two or three rooms in four or nine-floor buildings, houses, and overlapping houses. This diversity of the Project has aimed to create a qualified neighborhood, with commercial units and public and community equipment.

Thus, the role of the Unidade Gestora do Programa – UGP (Project Management Unit) has been to coordinate with other state secretariats, such as Health, Education, Transport, the deployment of schools, childcare centers, basic health units, bus lines etc. that could meet the population needs.

As families moved to the new units, the Project also identified new demands, some never thought at the time of the development of basic and executive projects for the housing developments. This type of situation cannot always be predicted,

Community Center, Rubens Lara



but the link with the residents beforehand, during, and after the delivery of new homes is fundamental to make the change less intrusive and more comfortable, generating better quality of life for all.

With this, and from all the stages of interaction and housing assistance options from which residents could choose, from March 2010 to January 2014, the Project resettled 3,908 families in new housing units; other 571 are receiving auxílio-moradia (TN: rental assistance) while they were waiting the completion of the works of new housing units and apartments; and 737 will be removed from their homes in the bairros-cota to projects that will be built by the CDHU until 2016.

After moving to the apartment or house, the residents have been monitored by the post-occupation teams, who have guided them through the new roles they have now in the condominium life.

“When people started to really to move, my husband and I looked at each other and we did the math and started saving on credit card expenses not to get financially stressed. Because I see a lot of people failing to pay the condominium fee, light, these things (...). But if everyone who is in Cubatão succeeded, we can too. I just planned and, thanks God, I had no financial hardship and I’m slowly making improvements to my home.”

Flávia Aparecida M. de Figueiredo
April 2, 2014

The Cota 200 Upgrading

Throughout the development of the Social and Environmental Recovery Project of Serra do Mar and Mosaics of the Atlantic System, the technical studies and discussions with residents identified the possibility of upgrading some sectors of Cota 200, allowing approximately 752 families to continue living in the neighborhood. This solution was made possible by the Law N. 8.976/1994, which *desafetou* (subjected to alienation) part of the area of Cota 200 of the Serra do Mar State Park. However, in order to ensure better quality of life to the residents, the basic infrastructure works had to be carried out and public services had to be implemented, such as public transport, street lighting, among others.

Since the project began, geotechnical consolidation works, paving, drainage, lighting, and installation of water and sewage networks have been implemented, as can be seen on the opposite page:

Intervention

GEOTECHNICAL CONSOLIDATION
DEEP HORIZONTAL DRAINS: 5,150 M
ROCK VENEER: 1,100 SQ. M
STONEWALL: 3.910 SQ. M
SOIL NAILING: 7,056 SQ. M

PAVING
STREET PAVING: 10,500 SQ. M
PAVING OF PEDESTRIAN ALLEYS: 16,500 SQ. M

DRAINAGE
RECTANGULAR DRAINAGE CHANNEL WITH LID: 4,690 M

WATER DISTRIBUTION NETWORK AND SEWAGE COLLECTION NETWORK
WATER DISTRIBUTION NETWORK: 2,905 M
WATER PIPELINE: 2,965 M
SEWAGE COLLECTION NETWORK: 4,260 M
PUMPING STATIONS: 5 UNITS
DISCHARGE LINES: 756 M
OUTFALL: 3,129 M
OCEANIC INTERCEPTOR: 2,018 M

The Pinhal de Miranda Upgrading

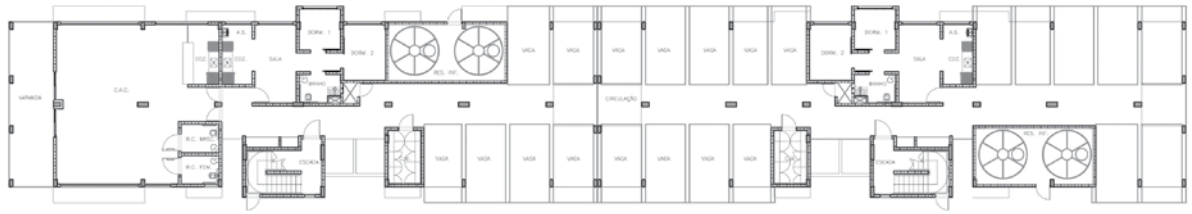
Pinhal do Miranda

Urbanization and reforestation project. Picture from 2009 with full occupancy. Aerial view from 2014, where one can observe the removal stage for reforestation of Cota 95-100. Total families in the living area: 1,282 (January 2014).

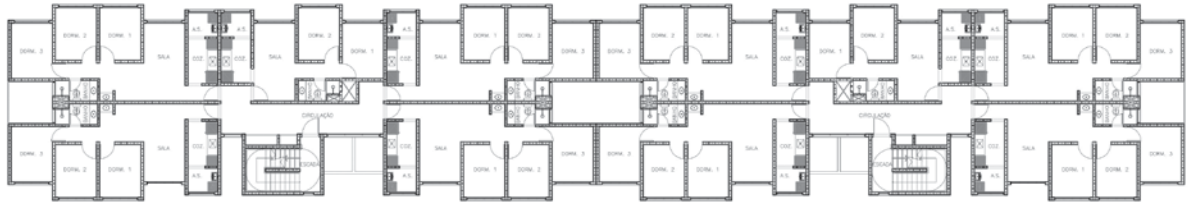
2014

Residencial Vila Harmonia (Pocket 7)

The Residencial Vila Harmonia received infrastructure projects and 600 new units, with 264 overlapping houses with 3 floors with two bedrooms; 42 units in building with 4 floors, with two and three bedrooms; 252 overlapping houses 3 floors with three bedrooms; and 42 single-family two-story houses with three bedrooms.

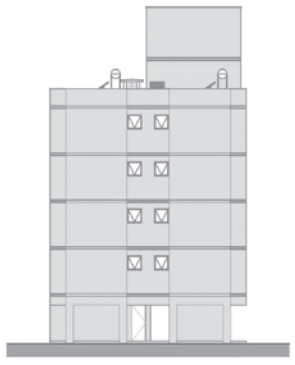


Floor Plan



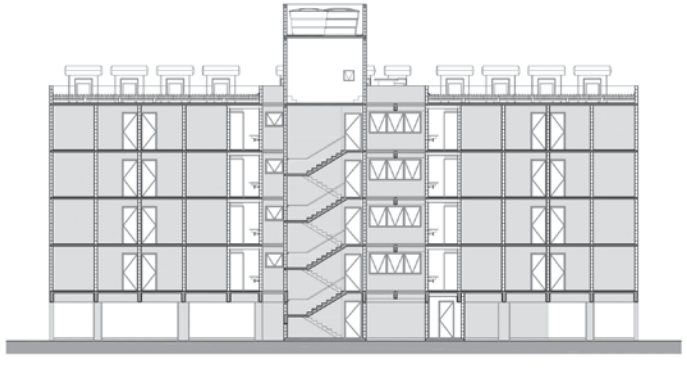
Standard Floor

Typology V052 – 3 bedrooms

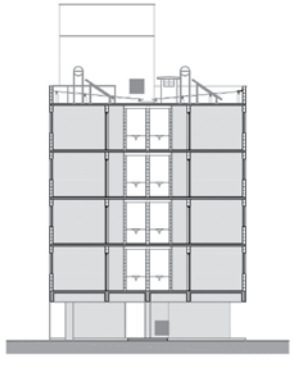


Lateral Elevation

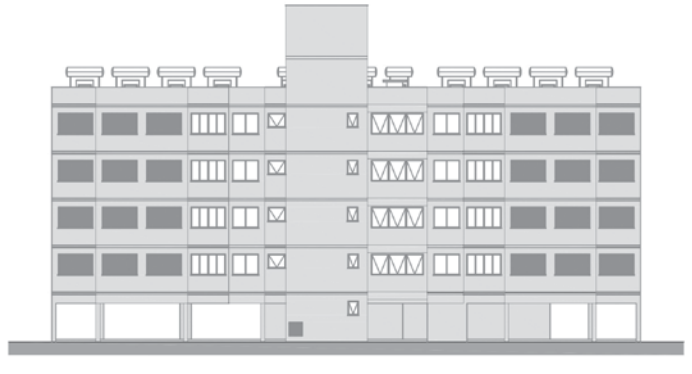
Front Elevation



Section A-A



Section B-B



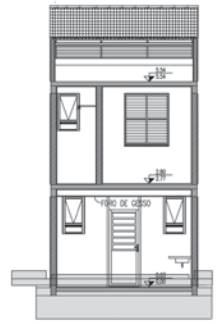
Rear elevation

Residencial Parque dos Sonhos (Pocket 9)

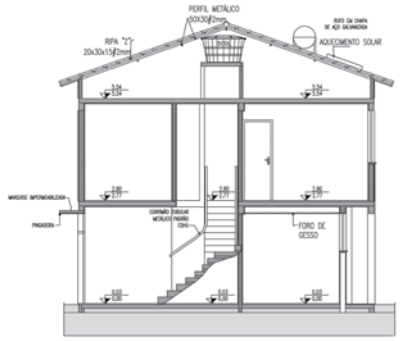
Located in a Special Zone of Social Interest (ZEIS), the Residencial Parque dos Sonhos has the following characteristics: 1,154 housing units in tract of 14,610 sq. m, divided between: 186 units with two bedrooms (49.78 sq. m of floor area); 232 three-bedroom (59.96 sq. m of floor area); 40 units of mixed use (three bedrooms + trade/service, 78.90 sq. m of floor area); 424 overlapping units with three bedrooms (49.77 sq. m of floor area); 272 overlapping units with two bedrooms (40.58 sq. m of floor area).

Front Elevation

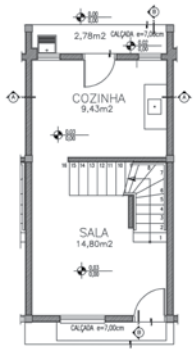
Rear Elevation



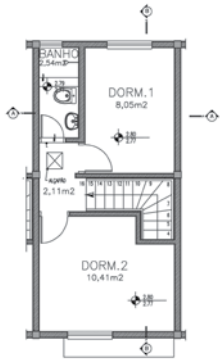
Section A-A



Section B-B



Ground Floor Plant

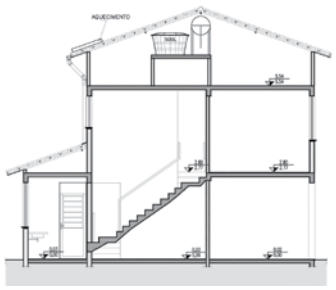


1st Floor Plant

Two-story overlapping houses with 2 bedrooms

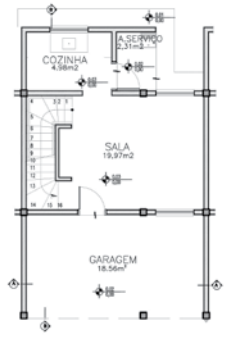
Front Elevation

Rear Elevation

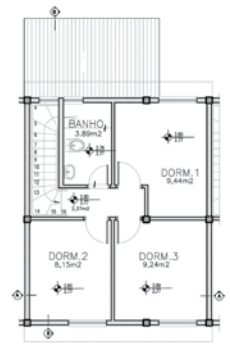


Section B-B

Section A-A



Ground Floor Plant



1st Floor Plant

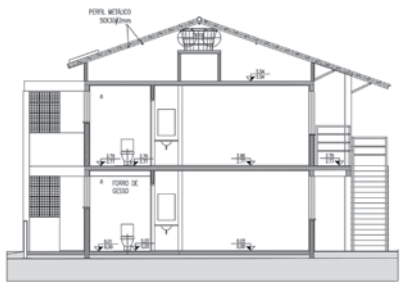
Overlapping house with 2 floors and 3 bedrooms

Ground Floor
Plant

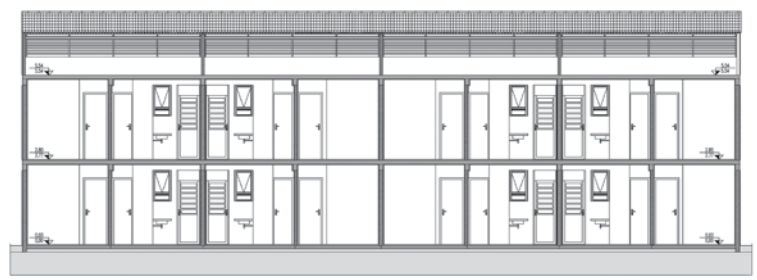
1st Floor
Plant

Overlapping houses with 2 bedrooms

Front Elevation

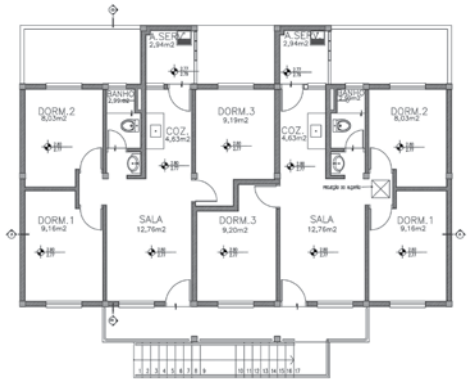


Section B-B

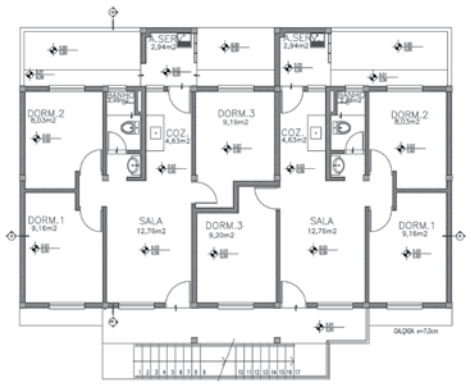


Section A-A

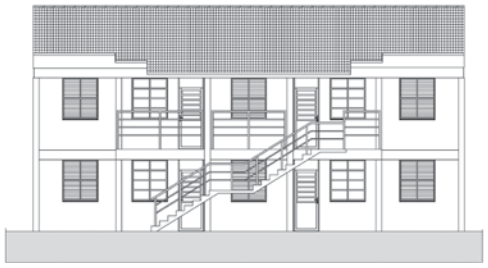
Rear Elevation



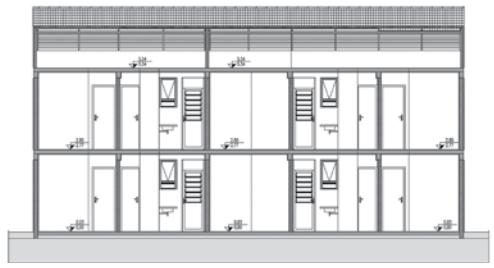
Ground Floor Plant



1st Floor Plant

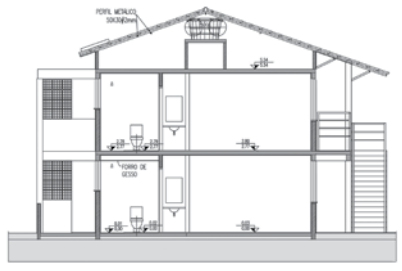


Front Elevation

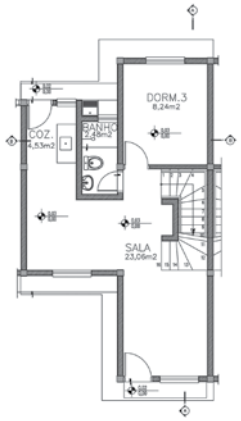


Section A-A

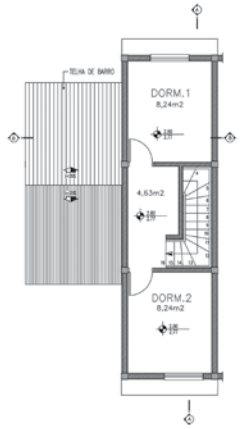
Rear Elevation



Section B-B



Ground Floor Plant

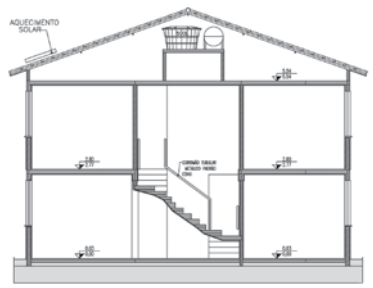


1st Floor Plant

Front Elevation

Rear Elevation

Overlapping houses with 3 bedrooms



Section A-A

Section B-B

Casas sobrepuestas con 3 dormitorios

Residencial Rubens Lara

Adriana Levisky
Architect and urban planner.

Reporting on the Rubens Lara construction project is a matter of luck, pride, learning, satisfaction, and gratitude.

The development of this project has brought unique opportunities for reflection and bringing on the Social Housing theme in Brazil, as well as greater understanding of the processes of urbanization and upgrading historically adopted in the country.

It has been of utmost satisfaction working with fundamental concepts of civility, citizenship, social, and urban integration, clean technology, universal design, and sustainability. Since the diversity recognition found in Bairros-Cota 95, 100, 200, Pinhal do Miranda, Água Fria e Sítio dos Queiroz – their types, personalities, family composition, economic, social and cultural activities – to the exercise of rereading, which going down the slope, discovers the Baixada Santista.

The Residencial Rubens Lara project is situated in the 197,475.50 sq. m plot in the Jardim Casqueiro, in the Cubatão municipality. Originally, the land of flat topography was empty and non-afforested. A single plot with existing trees has remained in place as Permanent Preservation Area.

This project, which was conceived to absorb 1,840 families removed from bairros-cota after approximately 15 months of construction, is a complex integrated action of the State Government through the Housing Secretariat and the Environment Secretariat.

In line with the social and environmental proposal of the Project, the Rubens Lara construction project has relied on sustainable guidelines from the environmental, social, urban, and economic viewpoints.

Environmental, social, urban and economic sustainability in a social housing development: what does this mean?

It means that treating social housing in an innovative way, from the political and cultural point of view, represents a paradigm shift.

Boldness, courage, and idealistic and visionary attitude have welcomed and supported these proposals, which have left the drawing board and have become reality.

From the sustainability point of view, one of the key concepts of this construction project is reflected in the inclusion of the population living in the bairros-cota in the urban context. That means offering urban situation able to insert the resident in the city life, giving him or her the opportunity to create new links in the neighborhood scale. With this, the Residencial Rubens Lara project has gone beyond the discussion of the viability of only the housing unit and has tried to fit it into urban situation in which all the physical aspects of a city, such as sidewalks, street furniture and equipment, recreational areas and public afforestation, as well as the offer of mixed uses through the allocation of institutional, commercial, and service areas, have been part of a single project. It has also tried, through the proposed road layout, the integration with the existing urban fabric, structured in consolidated neighborhoods, neighbors to the development.

The option to offer, not only residential lots, but also commercial lots reflects the concept of urban and socioeconomic sustainability that has permeated this project. Admitting the premise that public intervention in social housing ensures the implementation of uses that are complementary to housing is vital measure for proper action of the precarious settlement urbanization and/or upgrading. Bringing home close to work, to leisure, to health, and to education is a model that deserves study and attention, in order to ensure guidelines for housing projects and projects that will be designed and implemented in the near or distant future.

Land Use

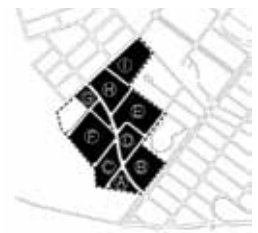
- INSTITUTIONAL
- HEALTH
- SAFETY
- ELDERLY CARE
- SPORTS
- MUNICIPAL LIBRARY
- CHURCH
- CHILDCARE
- GREEN AREAS
- RESIDENTIAL
- COMMERCIAL

Implantation

Color of Coatings in Buildings

Adjacent Routes

Connections/Integration



Blocks

Lots

Buildings

Building Height

Conceptual Diagrams

Overlapping Dwellings

Optimizing the cost of land associated with the horizontal residential typologies. The small size of the condominium provides easy post-occupation administration.

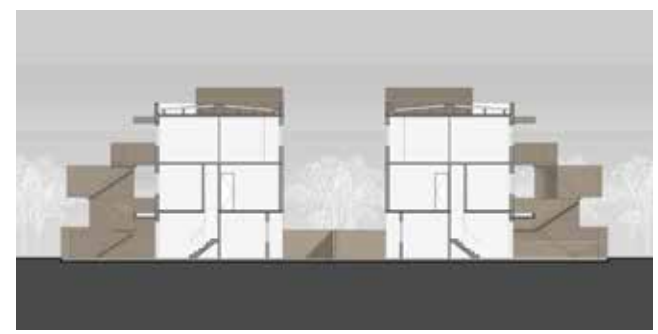
0 1 2 5m

Elevation

Ground Floor Plant

1st Floor Plant

2nd Floor Plant

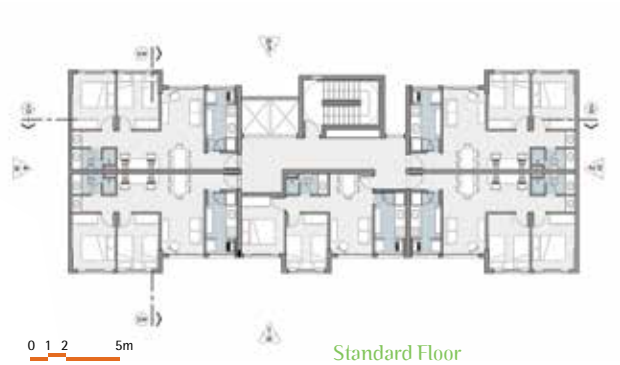


0 1 2 5m

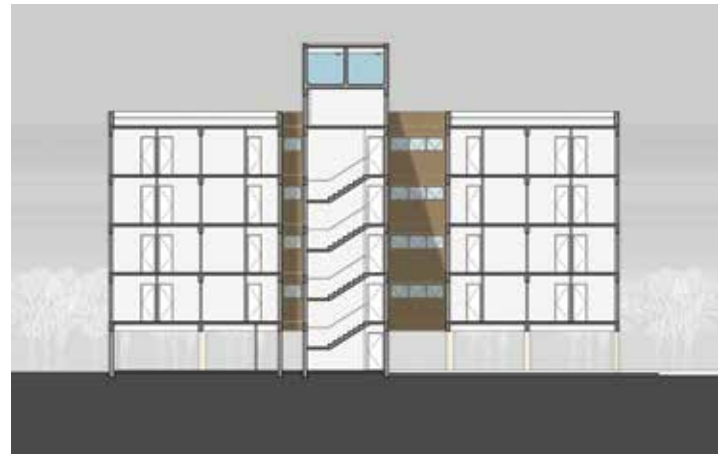
Section A-A

Building with 4 floors and 2 bedrooms

The building has space for future installation of lifts, allowing accessibility to all units.



Standard Floor



Section A-A

The decision to regularize a division sums up to the option to implement a mixed-use project, instead of a single large residential condominium as the social housing production has been traditionally structured over the decades. Once approved the allotment from a large tract of 197,475.50 sq. m, 75586.52 sq. m (corresponding to 38.28% of the total area) became public areas devoted to green areas (recreation and sport system), to the pedestrian and road system, and to institutional areas for installation of educational health units, childcare centers, among others.

These areas will no longer be a burden to the condominium residents, making future maintenance of each housing project consistent with the financial condition of residents and favoring the future quality of the development. In summary, the creation of a neighborhood has been proposed, not a condominium. Needless to say that, by becoming feasible the maintenance of the living space, it has also stimulated each resident' bond not only with his or her housing unit but also with his or her neighborhood and surroundings.

The possibility of implementing a subdivision against the grain of traditional housing project deployed during the history of our country has showed the socioeconomic character of the Project.

They are 121,888.98 sq. m of land area, organized into 28 lots, being 26 residential condominiums and two commercial lots. Each condominium will have up to 200 units, enabling their administration and future management by the residents themselves.

These condos are accessed by strictly local roads – many dead-end streets – which, by meeting the guidelines of the Universal Design, prioritize pedestrians through the provision of accessible and signalized traffic lanes, generating regulations for placing of poles, street lighting and other urban furniture, and afforestation. It is worth mentioning that integrated infrastructure actions have become feasible in this project and have served as a reference for the review of public policies that seek a qualified and efficient management of the cities.

The subdivision is connected to its neighborhood through structural connection means that provides public recreation areas, a community center, a bus a stop integrated to the municipal public transport network and the beginning of the interconnection of a bike path that runs through the neighborhood and integrates to the bicycle system proposed by the municipality. These condos blend into 5 typologies in the urban landscape, with buildings with ground floor + 4 floors, with apartments of 2 and 3 bedroom; ground floor + 8 floors; and condominiums of overlapping houses. The facades of these typologies, together with the volumetry, height and color variation, bring together a rich variation, aiming the composition of an urban situation that can create niches, surprises, differences, and identities.

From an environmental perspective, this project has proposed construction solutions aimed at agility and cleaning work, reduction of debris, saving time and, therefore, energy, which means the choice of modular construction system for structural masonry. Among the building facilities, this project has included solar heating and individual water meter – favorable to the energy-saving consumption measures.

In line with the Baixada Santista features, we chose porcelain coatings for facades, minimizing maintenance and ensuring better thermal performance. Similarly, electrostatic-coated aluminum frame was specified, which spans, broader than the ones commonly used, in four panes, favoring lighting and natural ventilation in the living spaces, ensuring greater hygiene, health, and energy saving in the housing units. The residents can use saving bulbs with the specified lamps.

0 1 2 5m

Elevation

Section A-A

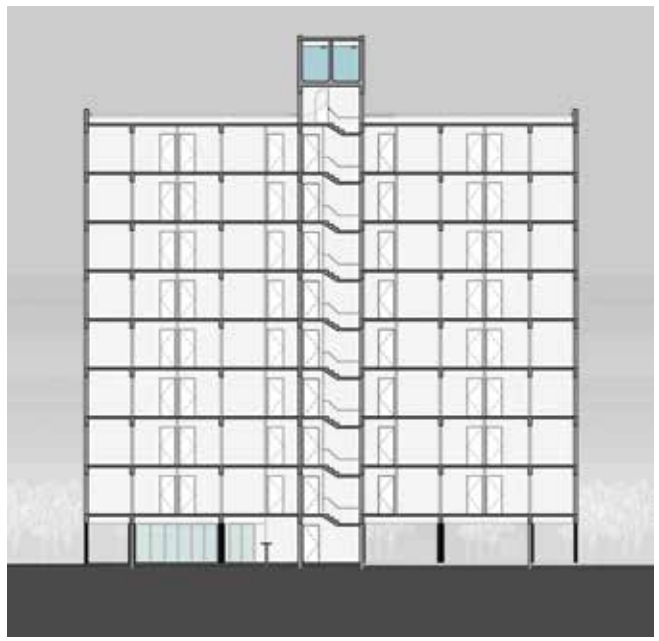
Building with 4 floors + Ground floor + 2 and 3 bedrooms

On the ground floor: apartment for people with special needs or community center. On the standard floors, flexible floor plans favoring universal design.

0 1 2 5m

Standard Floor

Elevation



Section A-A

Building with 8 floors and 3 bedrooms

On the ground floor: apartment for people with special needs or community center. On standard floor, flexible plants favoring universal design.

0 1 2 5m

Standard Plan

RESIDENCIAL RUBENS LARA: Total Housing Units: 1,840, divided among the following types: 11 buildings with 8 floors on pilots, with a total of 352 units; 53 buildings with 4 floors on pilots, with a total of 1,098 units; 65 blocks of 3 floors with 390 units in total.

CREDITS: Works: Residencial Rubens Lara CDHU; Job site: Jardim Casqueiro, Cubatão, SP; Project: 2007; Contractor: State Housing Secretariat/CDHU; Architecture: Levinsky Arquitetos/Estratégia Urbana; Architect: Adriana Levinsky, Eduardo Martins Ferreira Arquitetura; Supervision: Sistema Pri-Enerconsult Consortium; Management: COBRAPE-ENGEVIX; Duration of work: about 15 months; Building: Schahin Engenharia; Land area: 197,475.50 sq. m; Built residential area: 140,503.80 sq. m; Institutional areas: 16,320.00 sq. m; Commercial areas: 4,646.31 sq. m; Public green areas: 28,224.35 sq. m; Designer of structural masonry: Somatec; Facade: Inserts Atlas; Steel: Gerdau; Aluminum frames: Crystal Line; Lighting Fixtures: Fortlight; Metal fittings: Bognar; Sanitary metals: Deca, Celite and Icasa; Glasses: Santa Marina and Cebraci; Coats: Atlas and Gyotoko; Concrete block: Concremix, Dimension, Presto, Bechelli, Renger and Oteplem; Ceramic block: Selecta; Electrical Finishes: Walma; Electric cables: Nambei.

The plant of housing units proposes to offer the third bedroom, whether to increase the family or to have a workspace in the house, plus a social environment of flexible layout, increasing the household longevity by complying with any fitness needs of the living space along the life of a family. The project, at the request of the CDHU, proposes to build higher ceiling – to 2.60 m –, and to employ ceramic floors and walls in wet areas, slab, additional restroom expanding comfort and use of the sanitary environment.

From the point of view of urban drainage, all public or condominium paving is made with interlocking elements. It is worth emphasizing that the choice of the same flooring solution for both the public road and the private system, has positively acted on the integration between the public and private equity experiences. Such experiences have certainly strengthened the bond and the population's sense of citizenship. Regarding the infrastructure used for sanitation, the Project makes plans for a wastewater treatment plant.

The State Government established the concept of Universal Design by State Decree 53.485/2008 creating, under the Centralized and Decentralized Administration of the State of São Paulo, the policy for implementation of this concept in the social housing production. The subdivision, adapted to the Universal Design guidelines, has sought to ensure to the common condominium areas, to the public spaces, and to the private spaces, conditions for the neighborhood longevity, enabling the maintenance of the families in their living spaces over time.

These guidelines have been translated into solutions that allow from the universal accessibility and democratization of open-space access to the flexibility and adaptability, renovations and reconfiguration of residential areas, according to the demands of families throughout life.

This concept has been made possible through the adopted constructive solution, which allows the removal or repositioning of internal partitions without impacting the structural solution of the buildings or the condominium hydraulic and electrical infrastructure. This has resulted from the fact that the project of typologies that form the Rubens Lara Project has preferably sought peripheral structural solutions, as well as the routing of electrical and hydraulic installations, allowing, thus, internal flexibility of the plant.

Thus, over time, the future adaptation needs to meet the new demands of each resident family will be simpler, of low cost, and mostly practical. Reinforcing this condition, some internal walls of some typologies are drywall type, easy and quick to assemble and disassemble. They have not historically been usual solutions in social housing projects that, at no additional cost to construction, provide a significant range of opportunities to the residential unit. Still emphasizing the ability and adaptability means of the housing unit over time, the five-story buildings have planned space for future installation of elevators – similar to the buildings eight floors that they already have them.

Start of project implementation

Implementation Proposal

Residencial Rubens Lara

Social and Environmental: Recovery Solutions

In the context of environmental solutions for the environmental recovery of Serra do Mar, various activities have been planned and developed by the Government of the State of São Paulo, through the Institute of Botany, Forest Foundation, the Environmental Police, and the State Environment Secretariat.

The following are among the main actions of Social and Environmental Recovery: the implementation of the Plano de Manejo do Parque Estadual da Serra do Mar – PESM (Management Plan of the Serra do Mar State Park), highlighting the recovery of environmental liabilities through reforestation and recovery of approximately 90 hectares in Cubatão; recovery of about open-space of 200 acres of exotic species; recovery of 850 hectares of forests in biodiversity enrichment process; and construction and operation of a Botanical Garden.

Pressure Factors

Throughout its history, the Serra do Mar State Park has suffered various pressures because of its large size (332,000 hectares covering 24 municipalities in the State of São Paulo). Its southern-central region, where the municipalities that make up the metropolitan areas of São Paulo and Baixada Santista are located, brings together the most emblematic situations of

Reforestation of Cota 400

Above, image of planting in 2012; below, picture from 2014 where one can notice the growth of trees planted two years before.

Grotão/Cota 95

Below, picture from 2012; above, development reforestation in 2014.

pressure on the forest, causing impacts that require different approaches for the recovery, conservation, and preservation of entire biome.

In the Cubatão municipality – where great part of the efforts of the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest System Mosaics is gathered – the main pressures on the Park are concentrated, dating back to the early decades of the twentieth century, when the continuous forest sectioning of this stretch of Serra do Mar begun, with the paving of the Caminho do Mar (1926). And the Park suffered impact multiplied by soil instability with the construction of the Anchieta (1940-1950) and Imigrantes (1976-2002) highways.

Human occupation has also started from these events – milestones for the Serra do Mar transposition – with the emergence and growth of the bairros-cota, affecting hundreds of acres of the original Atlantic Forest region, suppressing a lot of the flora and fauna species, affecting the soil and water quality, due to the fact that these precarious settlements had no official service network such as water supply, sewage, and garbage collection.

This situation has highlighted the risk of mudslides and landslides in this stretch of Serra do Mar, causing accidents of great human and environmental impact, since, to build their homes, residents had undertaken disordered actions of deforestation, as well as land cuts and fills. All this, added to water leaks that favor infiltration into the soil and to the lack of waterproofing and drainage, has emphasized the instability of the ground.

Over time, the risk situations have further worsened. Historically, the precarious settlements in Brazil have not been transitory. They have consolidated and continued to cause negative environmental impacts, given its perennial and constant growth conditions. It has not been different in the case of the bairros-cota. Only with the beginning of the actions of the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest Mosaics System is that this expansion was blocked with the freeze of the areas, which was accomplished through the registration of all dwellings and the monitoring by the Environmental Police, who controlled the entry of construction materials in the neighborhoods. With this, and from the resettlement of most families who lived in these sectors, the environmental remediation of the worst affected areas has been possible.

However, in other respects, the vast network of towers and high tension lines that had been built, as well as the

pipelines, the hydroelectric plants, antennas, railroads, dams and quite intensely, the implementation of the industrial center has also contributed to the pressures in Serra do Mar, in the Cubatão region. The high concentration of polluting industries has intensified the fragility of the region banks, which collapsed in hundreds places in the 1990s, due to the volume of torrential rains with effects of acid rain on forests.

Thus, in general, the main pressures in Serra do Mar can be summarized as follows: (a) expansion of the drilling in the forest matrix; (b) severe consequences of edge effect; (c) practice of illegal activities of deforestation, burning, *cortes seletivo e raso* (TN: selective and clear cuttings); (d) uncontrolled extraction of forest products; (e) opening of access roads and impediment of the natural regeneration and of the ecological succession of degraded forest; (f) the potential threat to biodiversity; and (g) entry of exotic species, hunting, and captures of wildlife elements.

Cota 400

To the left, pictures from 2012;
to the right, the pictures from 2014
show the reforestation evolution.

Cota 400

Above, picture from 2012;
to the left, photo from 2014.

Environmental Rehabilitation of the Serra do Mar State Park

The Serra do Mar socio-environmental recovery actions could become truly effective for the conservation of this unit only from the resettlement of the bairros-cota families.

One of the first positive impacts of this change – besides the significant improvement in quality of life for residents, as shown in the previous chapter – has been the decrease of anthropogenic pressures on the forest. After all, the direct effects of the bairros-cota removal have occurred by immediate interruption of waste disposal, clearing of trails, paths and unnatural clearings, animal raising, cutting and burning the forest.

Altogether, adding all the areas with vegetation cover, 141.7 acres were cleared for environmental rehabilitation, of which about 90 acres have been in the process of recovery, with replanting actions, and other large land portions have been in process of biodiversity enrichment.

It can be asserted that the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest Mosaics System is an unprecedented project of recovery and conservation of the Atlantic Forest carried out in Brazil, both by the challenge posed by the very geography of space and the richness of species – all meticulously selected taking into account the variety criteria and ideal amount for each location of the territory. The work was initiated in the Sítio dos Queiroz area, where 3,959 units of 109 different species were replanted.

In the future, in the Água Fria neighborhood, the Cubatão Botanical Garden will be built with species exclusive to the Atlantic Forest, allowing greater control and conservation of this forest stretch.

In addition to the environmental rehabilitation of areas cleared by irregular settlements, the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest Mosaics System has planed to carry out the sustainable consolidation of *áreas urbanas desafetadas* (urban areas subjected to alienation) of the PESM in 1994. These urban settlements have undergone urban upgrading works, which will be finalized with the urban and land tenure regularization, as described in the previous chapter. However, it is worth to mention that at the time of the activities of construction demolition and debris removal, geotechnical stabilization efforts of the areas were made to ensure that there was no accumulation of debris under the soil during the forest recovery.

In the free spaces, with no obvious instability problems, the surface soils will be protected with the forest recovery, i.e., the planting of native species of the Atlantic Forest.

Serra do Mar State Park

Visitor Center of the Curucutu Administrative Hub (above).
Protection Base of the Caraguatatuba Administrative Hub.

Infrastructure and Ecological Tourism

Major infrastructure projects and actions to promote ecological tourism have been implemented through the Social and Environmental Recovery Project of Serra do Mar and Mosaics of the Atlantic System, improving the environmental management of the Conservation Unit.

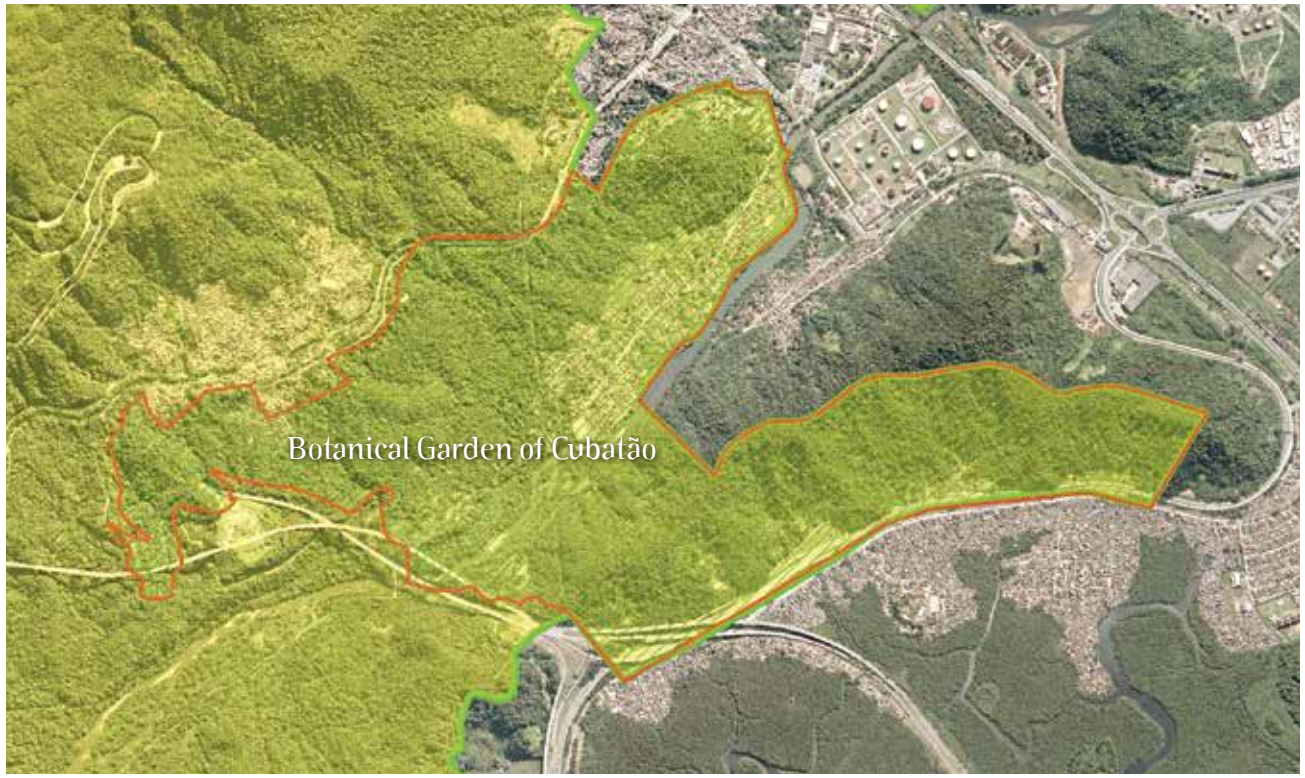
Protection Bases have been implemented in the Itariru, Caraguatatuba, Cunha, Santa Virginia Administrative Hubs, and also a Visitor Center at the Curucutu Administrative Hub and surveillance posts in Itutinga-Pilões and Curucutu.

A Visitor Center is is about to be finished, as well as a Protection Base and a surveillance post in the Itutinga-Pilões Administrative Hub, in the municipality of Praia Grande.

A system of signposting for trails has been also deployed, with improving communication with the visitors, through exhibitions, leaflets, posters etc., which will contribute to intensify environmental education, providing the proper use of the areas by visitors.

Cota 400

Seedlings and planting.



Perimeter of the Botanical Garden of Cubatão
Água Fria.

Botanical Garden

To ensure that efforts invested in the resettlement of families and clearance of the bairros-cota areas are effective, the creation of a botanical garden has been developed and approved in the area cleared by the occupation of the Água Fria community. This action benefits will be of utmost importance for the Serra do Mar environmental recovery.

First of all, the construction of the Botanical Garden where the irregular settlements were located will prevent that a new occupation occurs in the space. In Brazil, unfortunately, reoccupation of the environmental protection areas after the resettlement of the first families of the area has frequently happened. This has usually happened due to the slowness in implementing the project phases, or even the absence of recovery alternatives and solutions for areas that are cleared.

In this sense, the Social and Environmental Recovery Project of Serra do Mar and Mosaics of the Atlantic System has also demonstrated a unique character of action planning in the State of São Paulo, and in a scale that is difficult to be compared to the ones anywhere else in the world. The actions organized and carried out in integrated way between the Housing Secretary and the Environment Secretary, by their respectively executing agencies, the CDHU and Forest Foundation, have ensured instantaneous continuity of the activities, streamlining the process of recovery of the forest and its fauna and flora species.

At a second phase, the Botanical Garden will enhance conservation in this area, as well as environmental education and protection of the Atlantic Forest – one of the richest biomes in the world's biodiversity.

Thus, according to the documents that establish the Botanical Garden, it will have the mission to "preserve species of Atlantic Forest Biome, especially the Serra do Mar State Park, promoting research, education, awareness of society about the importance of plants in the environmental recovery and in the maintenance of the human population quality of life and culture, thinking over the ways of the region land use and the social and environmental impacts resulting from them, creating didactic-pedagogic space of contemplative and educational leisure, promoting care for life, human relationships and the culture of peace."

To accomplish this mission, the Project – approved by the Conselho Estadual do Meio Ambiente – CONSEMA (State Environment Council) – has stated that the Botanical Garden will occupy a perimeter of 364 acres with an environmental education center, an auditorium, and an administrative building. Access will be through the main roads of the Baixada Santista region, such as Padre Manoel da Nobrega and Cônego Domênico Rangoni highways, which intercept Anchieta and Imigrantes highways.

The Cubatão Botanical Garden will have eight collections of unique plant species of the Atlantic Forest. It will also be deploying an onsite plant nursery, which will be responsible for the spread of seedlings in the Baixada Santista region.

Jureia-Itatins: Diversity and Environmental Protection

Jureia:
A Natural Jewelry

Located on the southern coast of São Paulo, the Jureia mountain range has triggered much debate between government, researchers, investors, environmentalists and civil society in the State of São Paulo for at least 30 years. Indeed, it has long been known for its natural wealth, but it can be said that only from 1977 this area – one of the best-preserved area of the Brazilian Atlantic Forest – has awakened conflicting exploitation and conservation interests among different groups of people.

In his article "Breve História da Área Jureia-Itatins como Unidade de Conservação" (TN: A Brief History of Jureia-Itatins Territory as Conservation Unit), Professor Emeritus of the University of São Paulo, Paulo Nogueira Neto, describes how this immense area, which was owned by Pio Correa and after by his grandson, Carlos Telles Correa, had 2000 acres transferred in loan for use to the Secretaria Especial do Meio Ambiente (Special Secretariat for Environment), with the specific purpose of preservation. In this agreement was explicit the following condition: if a nuclear plant is built in the area, the lending will be canceled.

During this period, and even in the early 1980s, the Brazilian government intended to build nuclear power plants in the country for power generation. The Jureia-Itatins mountain range was listed as one of the potential sites for the installation of a power plant and an ecological station. Nogueira Neto has reported that in a meeting held in Brasilia, it was argued that an ecological station should not be inside a nuclear power plant. But at that moment, the arguments seemed to have no effect on the certainty of the need to implement power plants.

Indeed, the government purpose were at odds with the actions that the Special Secretariat for Environment wished to carry out in the region, with the main objective to transform the whole area into a Conservation Unit, expropriating the land parcels for preservation and research.

The urgency of the Federal Government prevailed. Shortly thereafter, Nuclebrás started to manage the area under the coordination of a retired Army colonel. However, if on the one hand, the scientific researches that were being developed by the University of São Paulo teams had to overcome friction with the managers, on the other land, the military presence in the Nuclebrás area inhibited the advancement of real estate speculation in the region - not without conflict. This contributed to the reservation preservation and pressed forward the process of planning for the expropriation of plots from their official owners.

However, the nuclear power generation faced considerable public resistance and a few years later, the Federal Government decided to stop the Brazilian Nuclear Program, also supported by the costly estimates that this type of power generation would cost.

What at first appeared to be good news for those who wished to preserve the entire Jureia region became a concern. With the departure of Nuclebrás from the area, there was no one to protect it from property speculation, and from the squatters and miners[1]. Given this scenario, the São Paulo environmentalists, researchers and some politicians began an articulated movement to protect the region, seeking to strengthen the idea and the need to preserve the entire region of Jureia-Itatins with the Government of State[2]. At the time, Franco Montoro was the governor of São Paulo and, at an event held in Southern Coast, with the presence of the then governor of the Paraná state, José Richa, he signed the State Decree N. 24646/1986, creating the Estação Ecológica Jureia-Itatins (Jureia-Itatins Ecological Station), with an area of 80 hectares.

Subsequently, the State Law N. 5649/1987 established that the basic objective of Jureia-Itatins Ecological Station was to ensure the integrity of the ecosystems of the region, as well as providing their use for environmental education and scientific research.

Since then, many debates and discussions have been held about the development and preservation of the territory. Among the Unidades de Conservação de Proteção Integral (Full Protection Units), the Ecological Station category is more restrictive, not allowing the presence of resident populations in the area, the existence of private property, or the use of natural resources. Of course, an intense debate has been held, which has lasted about 20 years and has gone through numerous stages.

In 2006, in response to the demands of the population, the Banhados de Iguape (State Law N. 50664/2006) and Jureia-Itatins Mosaic (State Law N. 12406/2006) were created. With this, a new solution was presented for the region, distinguishing areas, needs, and possibilities of uses for the traditional community, households, and tourists. The Mosaic creation – advocated by experts like Professor Paulo Nogueira Neto[3] – enabled the territory preservation at the same time that small portions were aimed at sustainable development of families and transformed into public use areas such as parks.

Thus, the State Law 12406/2006 established that the Jureia-Itatins Mosaic of Conservation Units would be made by Jureia-Itatins Ecological Station, which was expanded with the incorporation of the Banhados de Iguape Ecological Station, becoming the greatest importance area of the mosaic, consolidating the protection of the territory.

The State Law also created the Reservas de Desenvolvimento Sustentável – RDS

1. In the early 1980s, news was spread that there was gold in southern region of the Serra Itatins, in the northern boundary with Jureia Ecological Station. Although armed conflict has happened because of this speculation, with people's deaths, the fact has never been confirmed.
2. According to the article by Professor Paulo Nogueira Neto, this was the moment that spurred the creation of SOS Mata Atlântica Foundation, which marks a new moment in the Brazilian society and in the discussion on civil action in the country.
3. "However, already in 1992, in my book *Estações Ecológicas – uma saga de Ecologia e Política Ambiental*, I have pointed out a solution. The Jureia-Itatins should be an Environmental Mosaic, formed by the juxtaposition of areas with different characteristics: Ecological Station, Park, Extractive Reserve, and Areas of Ecological Interest. The new Federal Law N. 9.985/2000, which created the Sistema Nacional de Unidades de Conservação National (National System of Conservation Units), has already made possible the Environmental Mosaic." Nogueira Neto, Paulo. Breve História da Área Jureia-Itatins como Unidade de Conservação. In: MARQUES; DULEBA. *Estação Ecológica Jureia-Itatins*. Ribeirão Preto: Holos Publisher, 1st edition, 2004.

Jureia-Itatins: History

1958

Creation of the Itatins State Reserve.

1979

The Serra do Mar and Paranapiacaba was listed as an official heritage by CONDEPHAAT, covering the Maçico (TN: Mountain Range) da Jureia and Serra Itatins.
Free Lease Agreement signed by the Special Secretariat for the Environment (Federal Government), establishing an area of 1,100 hectares to the Maciço da Jureia Ecological Station.

1980

Declaration by the NUCLEBRÁS of the following public utility areas for expropriation purposes: the Jureia and Parnapuã Mountain Ranges and all the plain of the Una do Prelado river.

1984

Part of the area is encompassed in the Environmental Protection Area (APA) of Cananéia, Iguape and Peruíbe – Federal Decree 90347/84.

1985

Increase of the APA area, jointly expanding the protected area in Jureia.
The free Lease Agreement was not honored by the NUCLEBRÁS and the whole area was given back to their former owners.

1986

The biota of the Atlantic slope of the Serra do Mar is enacted as a Special Protection Area of the State.
The Ecological Station Decree, encompassing the former Itatins State Reserve, reaching almost 80 acres.

1987

Deployment of the Jureia-Itains Ecological Station; State Law 5649/87.

2006

Creation of Mosaic of Jureia-Itatins Conservation Units with six Conservation Units: the Jureia-Itatins Ecological Station (EEJI); the Itinguçu State Park (PEIT); the Prelado State Park (PEP); the Wildlife Refuge (SVR) on the Abrigo and the Guararitama islands; and the Sustainable Development Reserves in Barra do Una (RDSBU) and Despraiado (RDSD). Altogether, the units covered about 110 hectares (State Law 12406/06).

2009

The ADIN suspended the Mosaic activities and the area would once again be administered only as an Ecological Station, with only 79,240 hectares.

2013

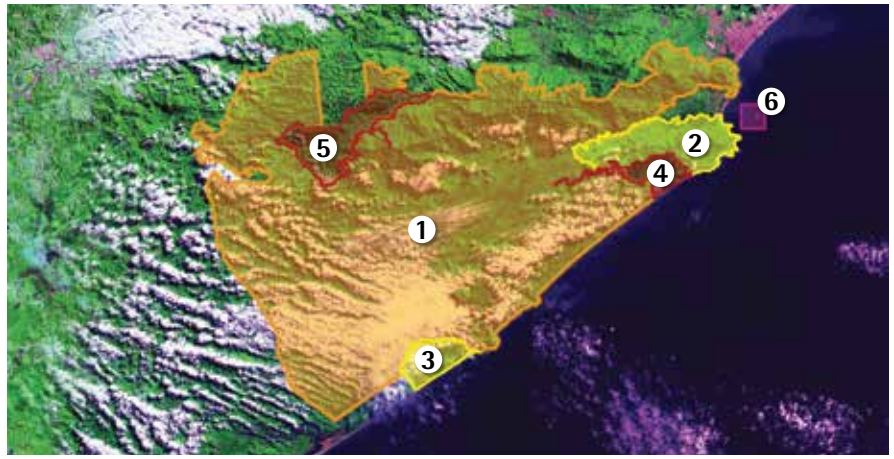
Executive Branch initiative for the new Law N. 14982/13 approved at the Legislative Assembly the State of São Paulo. The prosecutor presented a new ADIN.

2014

The Court unanimously overturned the ADIN, legitimizing the Law 1982/13, which created the Mosaic of Jureia-Itatins Conservation Units.

Map of the Jureia-Itatins Mosaic

1. Jureia-Itatins Ecological Station
2. Itinguçu State Park
3. Prelado State Park
4 Barra do Una SDR
5. Despraiado SDR
6. Ilhas do Abrigo and Guararitama SWR



(Sustainable Development Reserves), in the main urban settlements of traditional populations: the Despraiado RDS and the Barra do Una RDS. Two parks were also created, making feasible the activities of public use, ecological tourism, and income generation: the Itinguçu State Park and the Prelado State Park. Finally, to ensure the preservation of the habitats of animals and migratory birds, a State Wildlife Refuge was established, covering the Abrigo or Guaraú and Guararitama islands.

The question, however, had not been defined yet. In June 2009, the judiciary upheld the Ação Direta de Inconstitucionalidade – ADIN (Direct Action of Unconstitutionality) proposed by prosecutors, who argued that the imposition of the mosaic was a *vício de iniciativa* (TN: Invalid Initiative), as it had been proposed by the Legislature, and for this purpose, the technical studies were insufficient. Thus, the territory returned to the category of Ecological Station, intensifying the dialogue between the authorities and the local population, who for nearly three years, have participated in the construction of management plans and other actions for the development of the region.

With this judiciary decision, the actions that had been developed and deployed (period 2006-2009) had to be discontinued or revised, as the Management Plan design and implementation; the definition and setting of diagnoses and zoning of areas with the participation of the residents; the expansion of the Project Supervision and Management; the creation of councils of the Barra do Una RDS, the Itinguçu State Park and the Prelate State Park RDS; the restructuring of the Council of Jureia-Itatins Ecological Station; among others.

In April 2013, the Government of the State of São Paulo presented a new bill to the Legislative Assembly (Bill 14982/13), delimiting an area of 97,213 hectares for the Mosaic – larger than the area of the Ecological Station, with 79,240 hectares. The Assembly approved the bill, and soon after that, the prosecution presented a new ADIN (Direct Action of Unconstitutionality). However, in 2014 the Court unanimously overturned the ADIN, and the area was categorized as Mosaic.

The categorization of Jureia-Itatins as Mosaic represents the expansion of the fully environmental protection and sustainable development area, and points to the resolution of conflicts that have existed in the region for decades.

With the new law, the preservation of the region will be more appropriate. The Jureia-Itatins Ecological Station, which had 79,240 acres, expanded its area of protection to 84,425 acres in the new configuration. The area is one of the last places of São Paulo that shelters sandy beaches, rocky shores, and a number of other environments, such as swamps, lagoons, dunes, mangroves, matas de restinga (TN: coastal floodplain vegetation) sandbanks, lowland forest and slope forest, and altitude forests in a continuous segment of the Atlantic forest.

A Wildlife Refuge also makes up the Mosaic, ensuring that the many endemic and migratory species that use protected areas can rest and reproduce. Thus, with its large tracts of forest, the Mosaic will allow the genetic flow from northern ecosystems, from the escarpments of Serra do Mar to the ones from the south, from the estuarine or lagoon area of Baixo Ribeira (Lower Ribeira), besides entangling them to the São Paulo and Paraná state parks in the Vale do Ribeira (Ribeira Valley).

Regarding the Traditional Communities, the Mosaic created two Sustainable Development Reserves, which regularized the situation of the traditional population, as required by law. Thus, cabocla and caiçara and communities who inhabit rural neighborhoods, with low population density and keep traditional production systems –

artisanal fisheries, agriculture etc. – may remain in these specific areas.

Moreover, with the new law, the Itinguçu and Prelado parks will satisfy the need of the municipalities and the population for tourism development in the region, thus generating new sources of revenue, with no negative impact to forest preservation.

Jureia-Itatins and the Social and Environmental Recovery Project

When the State Government decided to expand its Serra do Mar recovery operations in partnership with the IDB, it expanded it to other areas of the Atlantic Forest in São Paulo, and the territory of Jureia-Itatins and others were incorporated into the Project, which began to be called the Serra do Mar Social and Environmental Recovery Project and the Atlantic Forest Mosaics System.

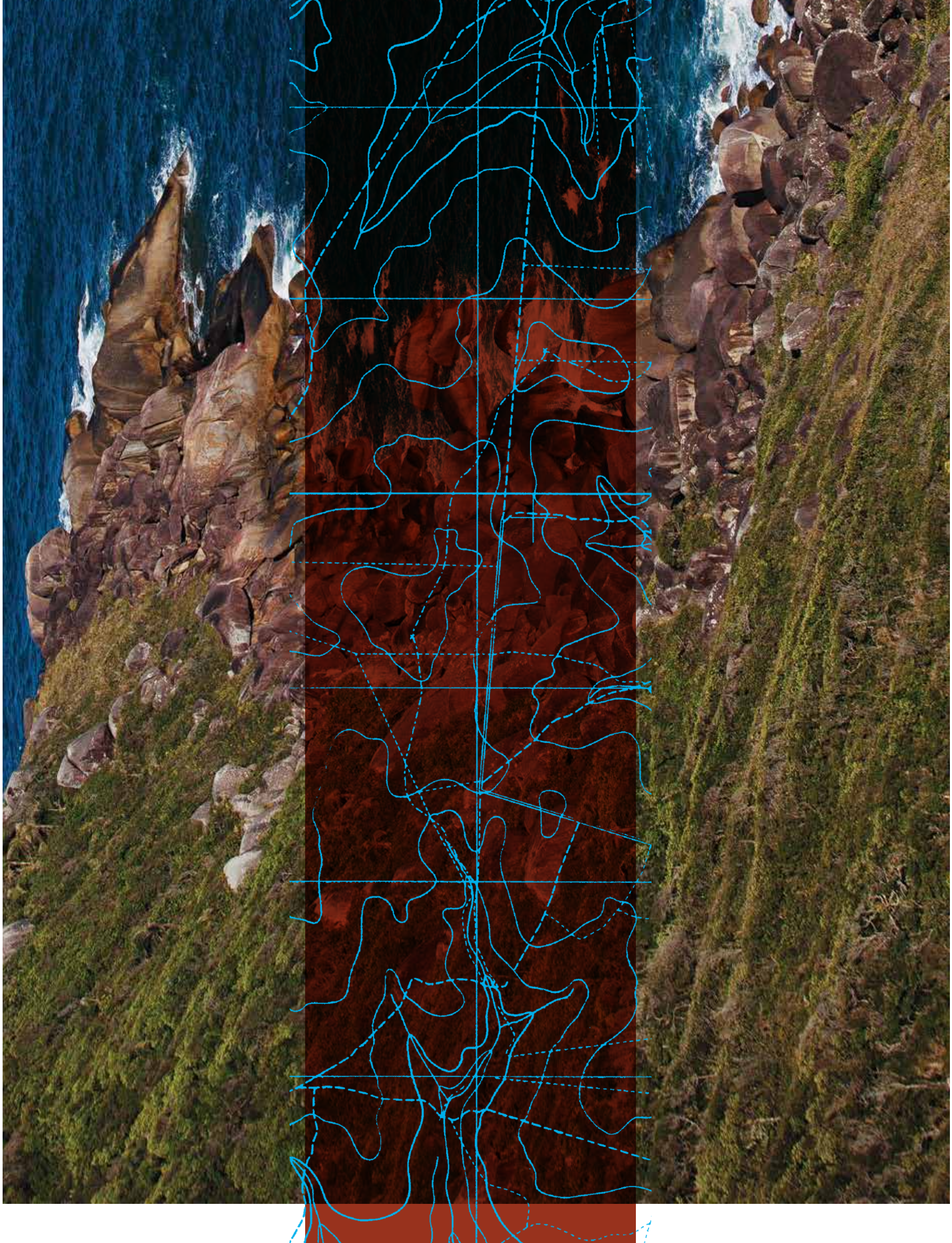
At this time, the context of involving the Jureia-Itatins situation endured its classification conflict. Therefore, the Project proposal for the area aimed to readjust the conservation status to reflect its real social, economic, and cultural characteristics, proposing the reestablishment of the Mosaic of Conservation Units.

With the Mosaic becoming effective in 2014, from the Court decision that overturned the ADIN presented by the prosecution in favor of the Law 14982/13, one can say that one of the main actions of the Project has been successful. The reclassification of Ecological Station Unit to Mosaic is one of the key actions that will ensure the preservation of this important biome: the Atlantic Forest. Thus, some actions have been planned as a direct consequence of the Project development.

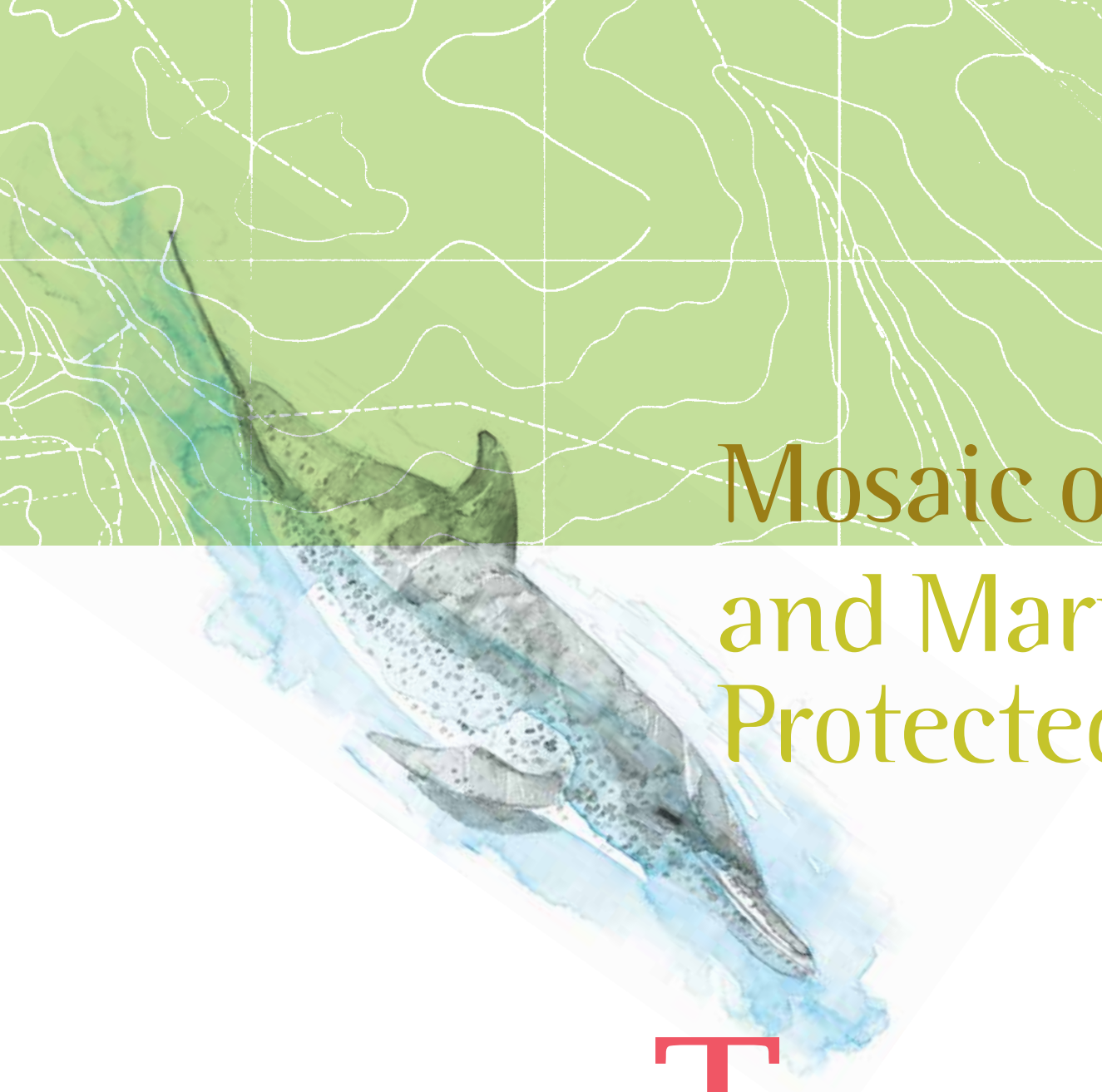
With the effectuation of the Mosaic, the six units of the Management Plans have to be completed – Jureia-Itatins Ecological Station; Itinguçu State Park; Prelado State Park; Despraiado Sustainable Development Reserve; Barra do Una Sustainable Development Reserve; State Wildlife Refuge of the Abrigo and Guararitama Marine Islands – establishing and implementing actions appropriate to each area according to their specific category.

Other important actions include the adequacy of infrastructure management, protection and public use; management training, and communication and dissemination system; signaling and access to the headquarters and five administrative hubs; implemented trails and assistance to 50% of school-age people from neighbor municipalities, and to 100% of the population of residents and visitors.

The last direct result expected for the Jureia-Itatins Mosaic within the Project is the socioeconomic sustainability through the implementation of two administrative hubs as Sustainable Development Reserves and the recovery of areas of traditional communities located within the Mosaic.



Mosaic of Islands and Marine Protected Areas



Mosaic of Islands and Marine Protected Areas

The creation of the Mosaic of Islands and Marine Protected Areas along the São Paulo coastal zone, simultaneously to the creation of three large Áreas de Proteção Ambiental Marinhas (TN: Marine Environmental Protection Areas, i.e., Marine Protected Area), in October 2008, changed the character of the institutional vision regarding biodiversity conservation and sustainable development of the wealth of the coastal and marine region. Consequently, actions for the immediate hiring of managers and for team setting up for the management of these areas were undertaken.

These Marine Protected Areas cover 1,138,067.69 acres, where four areas of ecological importance are located, as well as 14 areas of special management[2] for biodiversity protection. In this process the 2,119,000 hectares of territorial waters of the São Paulo coast were defined, of which 53.71% are the APAMs[3]. Altogether, the Marine Protected Areas cover 15 municipalities, with a length of 700 km and a population of 3.1 million inhabitants (10% of the State).

1. This text has been edited for this book, from the original one written by Fausto Pires de Campos, Felipe Augusto Souza Zanusso, Lucila Pinsard Vianna, and Priscilla Saviolo Moreira.
2. Management areas include and balance areas where environmental conservation needs to be stricter, with stricter preservation, and spaces for maintaining caiçara and artisanal culture with the permanence of the resident families.
3. The characterization of the São Paulo Territorial Sea was held from the Linhas de Base Retas (TN: Straight Baselines) established by Federal Decree N. 4.983/2004, according to Federal Law N. 8.617/1993.

4. The act of creating the Mosaic of Islands, Article 2 calls on the federal Conservation Units for integration, citing the ecological stations, the Federal Protected Area of Cananea-Iguape-Peruibe and the Mandira Extractive Reserve. The mosaic will feature Participatory Management Council of civic and governmental representatives from across the coast of São Paulo State.

Table 1 – The São Paulo State APAs

MARINE APAS	AREAS (HA)	MUNICIPALITY
Marine Protected Area of the Northern Coast State Decree n. 53.525, of Oct. 08, 2008	316,242.45	Ubatuba, Caraguatatuba, Ilhabela and São Sebastião
Marine Protected Area of the Central Coast State Decree n. 53.526, of Oct. 08, 2008	453,082.70	Bertioga, Guarujá, Santos, São Vicente, Praia Grande, Mongaguá, Itanhaém and Peruíbe
Marine Protected Area of the Southern Coast State Decree n. 53.527, of Oct. 08, 2008	368,742.53	Iguape, Ilha Comprida and Cananeia
Total of Marine APAs	**1,138,067.69**	**53,71% of Territorial Sea**

Thus, the Mosaic of Islands and Marine Protected Areas covers the Tupinambás and Tupiniquins Federal Ecological Stations, and the Ilha Anchieta and the Marinho da Laje de Santos State Parks. It also includes the Ilhabela, Xixová-Japuí and Ilha do Cardoso State Parks; the units of coastal conservation of the Jureia-Itatins and Jacupiranga State Mosaics; and the state mosaics that integrate the Federal Mosaics of Bocaina and of the São Paulo Southern Coast (in composition with northern of Paraná State). Finally, the Ilha Comprida State APA and Alcatrazes Municipal APA (São Sebastião) integrate this Mosaic, as well as the Áreas de Relevante Interesse Ecológico – ARIE (Area of Ecological Importance) of São Sebastião and Guará[4].

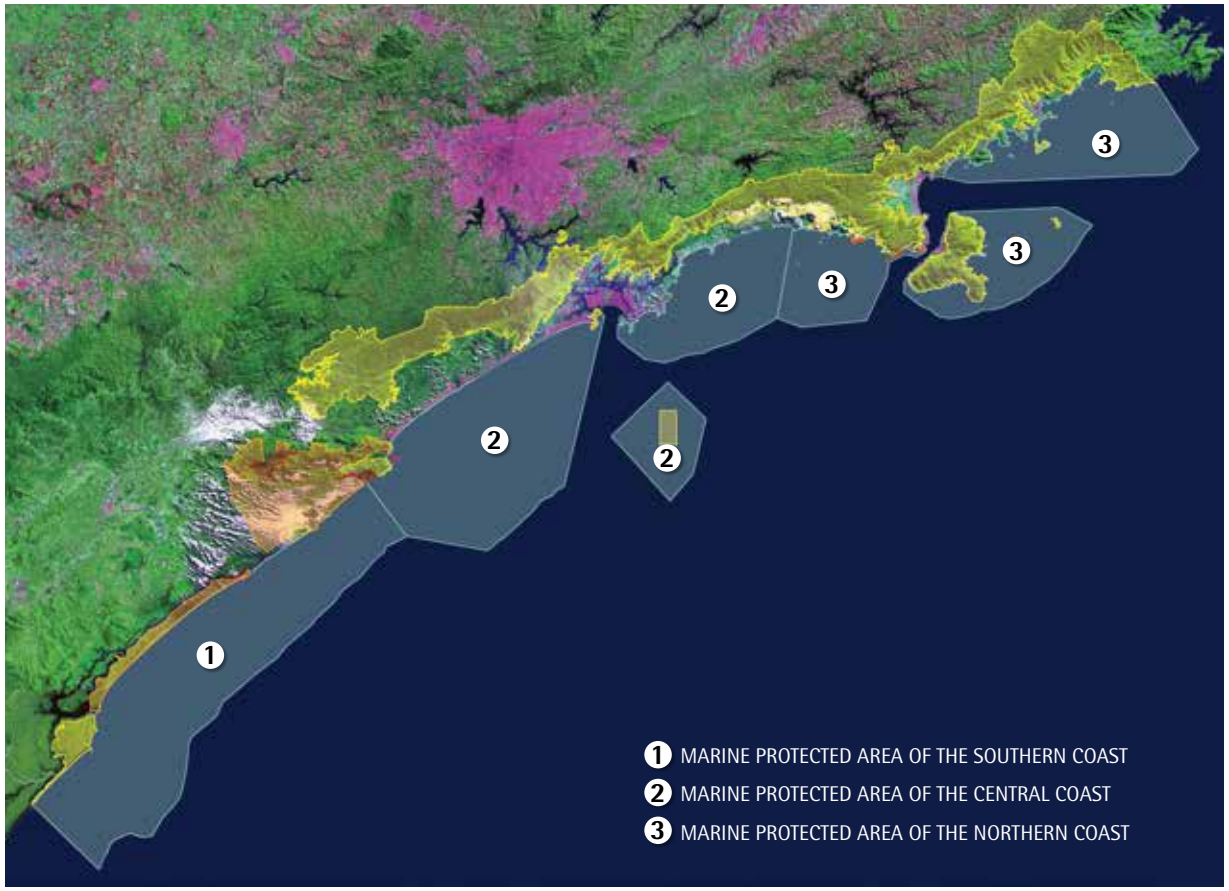
Marine APAs

Since its creation, the Marine APAs (Environmental Protection Areas) have been successful in implementing coordinated management actions. The management councils were quickly created and there was the creation of the Pelotão Marítimo da Polícia Ambiental (Marine Unit of Environmental Police); the prohibition of pair trawling (SMA Resolution 69/2009); the ban on fishing in Itaguaçu Sector; and the hiring and development of Management Plans. Many of these actions have been followed or have been articulated from the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest Mosaics System.

After approval of the Management Plans, the Unidades de Proteção Integral (Full Protection Units) will be defined and created, which will perpetuate, among other environmental factors, the insular and endangered seabird colonies, and concentration and feeding locations of turtles and marine mammals. These measures will contribute to the sustainability of the sea, preserving its species from the decisions taken by management councils.

However, it should be noted that several problems have interfered with the management of the Marine APAs and, consequently, their consolidation: solid waste (overflow); population growth; irregular settlements in the Áreas de Preservação Permanente Areas – APPs (Permanent Preservation Areas), that is, risk areas; overfishing; large-scale works; and disorderly tourism.

Some of the biggest recurring impacts on municipalities have been monitored and discussed: pollution and contamination



with domestic and industrial sewage; land speculation and of environmental degradation; pair trawling; disrespect to closed seasons; arson; the bombings in Alcatrazes; theft and trampling of seabird eggs; the capture and killing of turtles, petrels, albatrosses and dolphins; contamination with oil and tank washing; destruction of mangroves and siltation of rivers and estuaries; submarine trophy hunting; theft, and trafficking for aquarium.

In addition, there have been a number of threats to marine biodiversity – such as habitat loss, contamination and pollution, invasive species, decline in quality of coastal water, and declining fish stocks – that need to be fought with actions addressed in managing councils and solved through public policies and the creation of the APAMs.

Given this scenario, the shared management between the government and civil society has been through decision-making carried out with dialogue and negotiation, so that the preservation of areas and species occurs in an effective and sustainable manner. The management council has a fundamental role in this process. It consists of representatives of civil society – industrial and artisanal fishermen, mariculture businessmen and marine tourism, NGOs and universities – and the Government, in the municipal, state and federal levels.

The Conselho Gestor – CG (Management Council) is participatory and permanent in the APAMs, representing the users and sea stakeholders. It works to reconcile different interests in marine territory for decision-making. The management occurs with the interaction of different actors for the conservation and sustainable use of marine environments. The CG has consultative status to promote participatory management and the integration of the areas in shared decisions, aiming conservation and sustainability.

Among the main activities of the management board are: the social participation mechanisms; creation of Thematic Discussion Groups and Working Groups; local, sectoral, and plenary meetings; periodic evaluation of management; negotiation and conflict mediation; appropriate language; collective definition of guidelines and policies; transparent management (constant electronically availability of information, anticipated agenda, dissemination, meetings); institutional articulation and partnerships, and training and development.

Thus, social participation in the CG leads to strengthening citizenship, and directs the government to fulfill its inclusive and distributive functions. Participants realize that social protagonism implies rights and duties (responsibility and commitment), establishment of rules and forms of democratic coexistence, inclusive and fair, and wellbeing combined with environmental conservation.

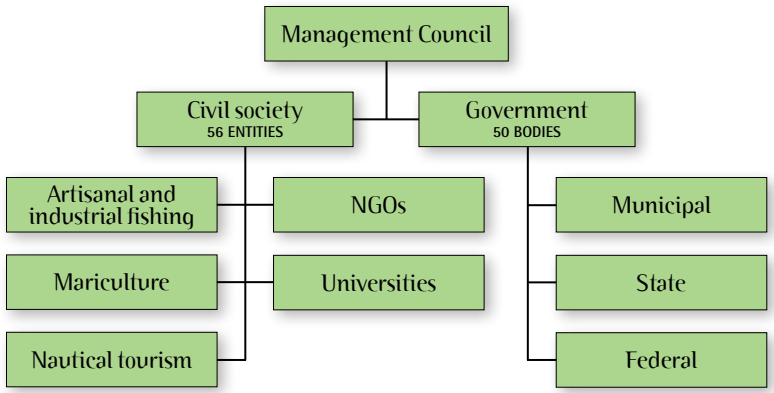


FIGURE 2 – COMPOSITION OF THE MANAGEMENT COUNCILS
Source: Marine APA of the Northern Coast Archive.

Management Plans

In March 2013, the preparation of Management Plans[5] (PM) began of the three areas of Marine APAs (Environmental Protection Areas) of the State of São Paulo: (1) Marine Protected Area of the Northern Coast, including the Area of Ecological Importance (ARIE) of São Sebastião; (2) Marine Protected Area of the Central Coast; (3) Marine Protected Area of the Southern Coast, including the Area of Ecological Importance (ARIE) of Guará.

These Management Plans are documents created jointly with society to guide the management of the Marine APAs, always with the monitoring and the participation of their management board. They aim to promote the development of the region, avoiding negative impacts caused by disorderly and predatory exploitation of fishing resources, protecting the unique biodiversity sheltered in seas and on islands, promoting sustainable tourism, and respecting the way of life of the traditional population.

In general, the Management Plans of the Marine APAs are elaborated from a detailed study and diagnosis of the current situation of physical, biological, and socioeconomic resources within the study; from the technical staff contributions appointed by the contractor for their elaboration, based on their professional experience, providing a strategic and practical approach to ensure appropriate management of the Conservation Units; from the contributions of the Forest Foundation technical staff, the technical staff of the Marine APAs and their management boards; and from the participatory process that will be implemented in parallel to the phases of diagnosis and definition of activities to ensure sustainable development in the Conservation Units.

MEETING OF THE MARINE APA OF THE NORTHERN COAST

5. According to what the Sistema Nacional de Unidades de Conservação – SNUG (National System of Conservation Units), the Management Plans are strategic and technical documents establishing the Zoneamento da Unidade de Conservação – CU (Conservation Unit Zoning) and the rules that should govern the use of the area and the natural resource management. Therefore, the Management Plan constitutes an essential document to the management and conservation of nature in the CU territory.

Phases of the Management Plans

To achieve its objectives, the Management Plans of the three Marine APAs have been made from pre-established phases:

Phase 1 • Environmental and Socioeconomic Diagnosis

A technical-environmental and socioeconomic characterization has been performed to enable a broad understanding of the Marine APAs and, mainly, to subsidize the proposals for Zoning and Management Projects. This diagnosis has been currently finalized and it covers the gathering of secondary data, such as publications, reports, and documents on existing planning activities and workshops carried out with various social actors, and their further analysis. Complementing this diagnosis, fieldtrips are expected to consolidate concrete information on the geographical delimitation and environmental characterization of the different spaces in those Conservation Units.

These data will allow an objective assessment of the conservation conditions of the marine APAs and their industries, the Áreas de Manejo Especial (Areas of Special Management), mangroves and the ARIEs, in order to identify uses, actors (users and administrators), conflicts, threats (problems) and opportunities, and to enable the mapping of knowledge gaps.

Phase 2 • Participatory Diagnosis and Strategic Assessment

Aiming to ensure the participation of different segments of society, a participatory diagnosis has been held in parallel to the development of technical diagnostics.

The discussion with society and institutional partners during the preparation of the Management Plan (MP) has been key to make it to be adjusted to reality, through the exchange of knowledge, the establishment of dialogue, and incorporation of the society vision and the demands, especially of the local communities. This process has represented a unique opportunity for the São Paulo state coast to have the importance of the Conservation Units recognized and its contribution to society acknowledged, while allowing the identification of leaders who can support the solution of deadlocks occurring in the territory.

With the results of the technical and participatory diagnoses, an analysis of all the different elements of the environment will be held in 2014, as well as their interrelations, trends and connection to the demands and concerns of different segments of society.

This analysis will result in a strategic review to be submitted to the approval of the Forest Foundation staff, the Marine APAs and their management councils, providing the basis to justify and to support the management strategy to be developed.

Throughout 2014, this process will continue, with phases of utmost importance for the completion of the Management Plans.

Phase 3 • Zoning

Information obtained from the technical and participatory diagnostics will help to elaborate a proposed zoning consistent with the environmental and socioeconomic characteristics, as well as with the management objectives of the Marine APAs. This zoning proposal will be submitted for discussion during two specific zoning workshops, aiming to obtain a proposal potentially supported by consensus.

Phase 4 • Project Management

Finally, a management model will be developed for the Marine APAs that will include guidelines and lines of action for three major projects: the Management Sustainability, Environmental Sustainability, and Socioeconomic Sustainability. Likewise, the main strategic lines of such management projects will be also shared and discussed with the segments of society in a specific participatory process.

Phase 5 • Consolidation of the Management Plans

All information obtained, processed, and generated along these phases will progressively feed the preparation of management plans of the Marine Protected Area of the Northern Coast, including the Area of Ecological Importance (ARIE) of São Sebastião; the Marine Protected Area of the Central Coast; and the Marine Protected Area of the Southern Coast, including the Area of Ecological Importance (ARIE) of Guará.

After their respective conclusions, the Management Plans (PM) will be submitted to the State Environmental Council (CONSEMA) for approval. Only after this phase, the PMs will be implemented.

The Participation of the Managers' Council

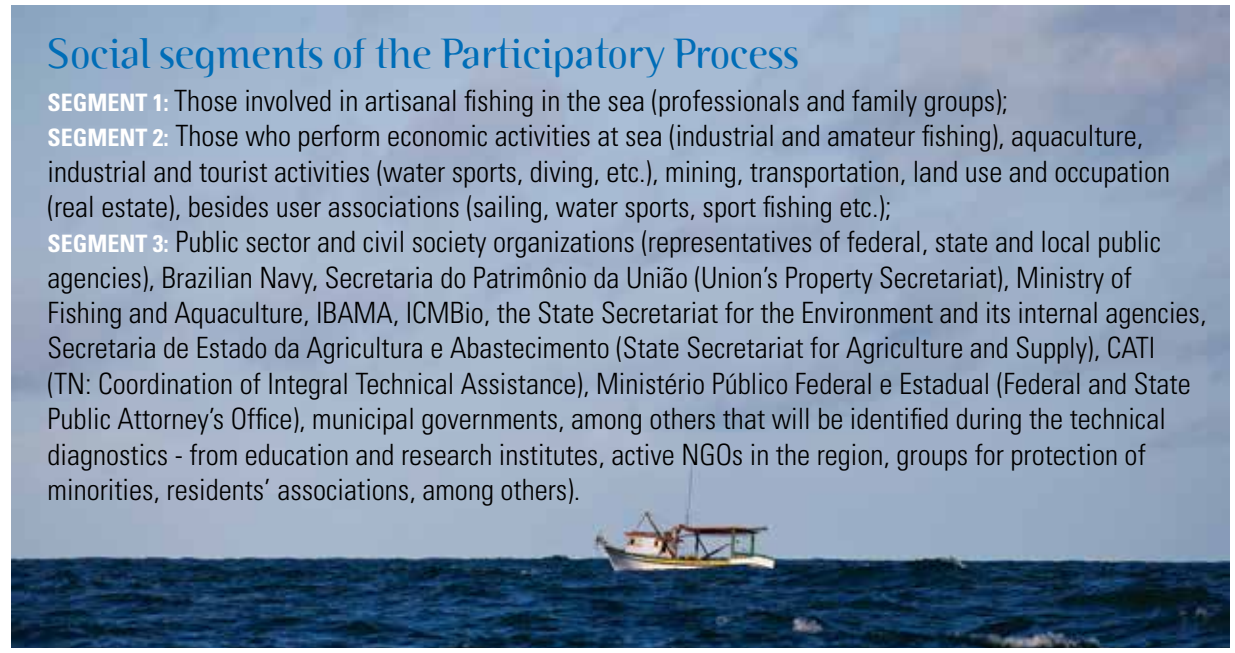
As established by Decree N. 53525, on the creation of the Marine APAs, the Management Plans are countersigned by the management councils. Given this principle, the presence of representatives of the APA management councils has been established in the Marine Technical Coordination Group to monitor the elaboration process of the Management Plans.

These representatives then could participate in the decision-making about each phase of the works, in periodic meetings in São Paulo: (1) technical meeting to discuss the Consolidated Plan of Work; (2) General meeting for presentation of the Management Plan; (3) Feedback session meeting after the completion of the participatory diagnosis; (4) Technical meeting for presentation and discussion of the preliminary Management Plan; (5) Technical meeting for presentation and discussion of the consolidated Management Plan.

In other stages, the management councils have been invited to participate in Participatory Diagnosis Workshops; Zoning Workshops; Project Management Workshops – performed with the populations of each region.

Social segments of the Participatory Process

SEGMENT 1: Those involved in artisanal fishing in the sea (professionals and family groups);
SEGMENT 2: Those who perform economic activities at sea (industrial and amateur fishing), aquaculture, industrial and tourist activities (water sports, diving, etc.), mining, transportation, land use and occupation (real estate), besides user associations (sailing, water sports, sport fishing etc.);
SEGMENT 3: Public sector and civil society organizations (representatives of federal, state and local public agencies), Brazilian Navy, Secretaria do Patrimônio da União (Union's Property Secretariat), Ministry of Fishing and Aquaculture, IBAMA, ICMBio, the State Secretariat for the Environment and its internal agencies, Secretaria de Estado da Agricultura e Abastecimento (State Secretariat for Agriculture and Supply), CATI (TN: Coordination of Integral Technical Assistance), Ministério Público Federal e Estadual (Federal and State Public Attorney's Office), municipal governments, among others that will be identified during the technical diagnostics - from education and research institutes, active NGOs in the region, groups for protection of minorities, residents' associations, among others).



This participatory process aims to inform and involve the population from all municipalities of the Northern Coast in the preparation of the Management Plans of Northern, Central and Southern Marine Protected Areas, in order to aggregate the interests of different social segments that make use of the sea area, here divided into three segments (see table).

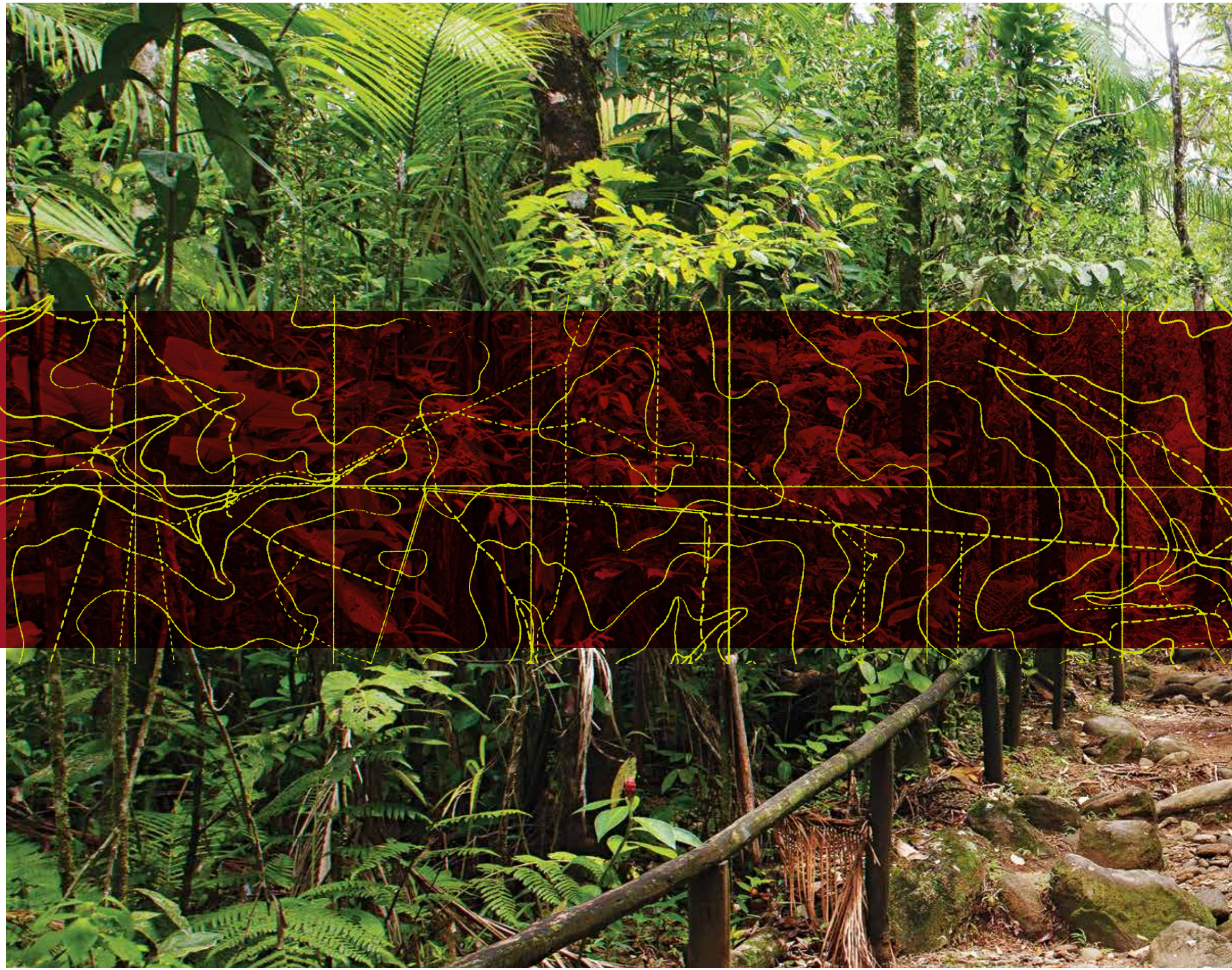
Altogether, 27 presentation meetings have been carried out with each segment described above with the purpose of: presenting information about what the Marine APAs are; explaining the differences between Plano de Manejo (Management Plan), Zoneamento Ecológico-Econômico Costeiro – ZEEC (Ecological-Economic Zoning of the Coast) and Gerenciamento Costeiro (Coastal Management); providing relevant information on the discussion of the management plan process; disclosing the phases and timelines of the participatory process; and sensitizing the segments of the importance of their participation in the process.

Specific meetings have been also organized for the artisanal fishing sector, so that participants could be aware of the schedule of activities and could have the opportunity to submit suggestions and nominate representatives for the further phases.

In the Marine APA of the Central Coast: 9 meetings were held distributed as follows: 1 in Bertioga; 2 in Guaruja (North and Center); 1 in São Vincente; 1 in Praia Grande; 1 in Mongaguá; 2 in Itanagar; and 1 in Peruíbe.

In the Marine APA of the Northern Coast: 10 meetings were held distributed as follows: 3 in Ubatuba (North, Center and South); 1 in Caraguatatuba (Center); 1 in Caraguatatuba (South) along with São Sebastião (North); 2 in São Sebastião (Center and South); and 3 in Ilhabela (North-Center, South, Baía de Castelhanos), considering residents of the Búzios and Vitória Islands.

In the Marine APA of the Southern Coast: 5 meetings were held distributed as follows: 1 in Ilha Comprida (The Pedrinhas neighborhood); 2 in Iguape (Barra do Ribeira and Icapara); 2 in Cananeia (Pontal do Leste, including the Ariri and the Barra do Ararapira communities, and the city center).



Supervision System of the Conservation Units


Polícia
DJL-8717
Polícia
Polícia
DJL-8908

Environmental Supervision

Preserving protected areas requires preparation, technology, knowledge, and supervision. Component 3 of the contract between the State Government and the IDB is one of the most important aspects of the Social and Environmental Recovery Project of Serra do Mar and the Atlantic Forest Mosaics System: Supervision of Conservation Units. Basically, this component involves the training and the equipment provision to the Polícia Militar Ambiental – PMA (Environmental Division of the Military Police) for implementing the supervision activities in the terrestrial and marine Conservation Units, as well as for the development of a monitoring system.

Its execution is the responsibility of the Forest Foundation and the Environmental Police and it is the result of an agreement made through this Project, with guidelines for the environmental monitoring and inspection. The innovative aspect of Component 3 is a value that should be highlighted. It is an integrated work undertaken by competent bodies that has shown impressive results, in an unprecedented way.

The role of the Environmental Police has been critical to the Project since its inception, especially in the freeze action of the bairros-cota, with supervision of the areas 24 hours a day, preventing them from getting denser after the announcement of the Project. With the implementation of other actions of the Project, this fieldwork has been enhanced, both from the management point of view and from the equipment conditions for holding land and sea operations.

1. It's Important to note that in 2011 there was a delivery of police vehicles only at the end of June, and still in small amount compared to the total investment. That year, however, the data on miles traveled were not considered because they were about the global data of the measured units, making it impossible specific measurement in the Program area.

Under management, the most important phase has been the beginning of the integration of the Environmental Management System of the Environmental Police with the Operational System of the Military Police. The data integration has allowed establishing the environmental offender profile and connecting with his or her background records. The data were made available to the whole system of the State, enabling the controller to access the Operational System at the time of occurrence, guaranteeing security in performing the inspection and control activities and in the management of ongoing occurrences and its developments. With the possibility of data entry by the user at the time of occurrence, there will be reduction in the manual labor of entering data into the system.

To perform the operations, two important plans for monitoring the protected areas have been created: the Plano de Policiamento e Fiscalização das Unidades de Conservação – PRO-PARQUE (TN: Policing and Supervision Plan of Conservation Units) and the Plano de Policiamento Ambiental Marítimo – PRO-MAR (TN: Maritime Environmental Policing Plan). Respectively, these projects have guided the actions of monitoring the terrestrial areas – parks, ecological stations, eco-tourism trails, roads, among others –, and of monitoring in marine areas – marine islands and the APAs.

Table 1 – Operational Effort

	CARRYING OUT OF WORK	2007	2008	2009	2010	2011	2012	2013	TOTAL
EFFORT	Miles traveled by police car	125,513	105,206	117,751	116,955	135,845	191,964	144,482	**937,716**
	On foot policing	203	195	317	613	719	818	643	**3,508**
	Personal search (number of people)	825	815	1,124	906	795	2,531	1,556	**8,552**
	Inspected cars	37	43	51	75	94	261	124	**685**
	Inspected bikes	5	9	17	13	12	103	79	**238**
	Inspected trucks	3	7	4	3	2	5	-	**24**
	Inspected vessels	107	70	164	279	57	74	138	**889**
	Flagrant arrests (number of people)	6	7	11	16	31	30	7	**108**
	Seized firearms (units)	11	9	15	14	27	17	13	**106**

Table 2 – Record of Occurrences

	OCCURRENCE BY MODALITY	2007	2008	2009	2010	2011	2012	2013	TOTAL
FLORA	Removal of Vegetation (ha)	26.00	27.00	11.00	2.00	27.00	2.48	1.89	**97.37**
	Seized palm jars (empty)	350	115	180	135	6	420	-	**1,206**
	Palm jars (unit)	950	1,052	323	1,384	131	435	52	**4,327**
	In natura hearts of palm (unit)	10,892	1,049	2,204	869	1,585	725	434	**17,758**
	Other forest products (unit)	123	141	138	181	22	319	-	**924**
HUNTING	Live animals (unit)	25	15	33	49	55	57	-	**234**
	Dead animals (unit)	6	5	8	11	7	4	6	**47**
	Meat of animals (kg)	2	5	3	2	-	31	-	**43**
	Hunting gears (unit)	55	61	42	75	70	99	-	**402**
	Located hunting ranch (unit)	5	3	1	2	5	1	1	**18**
FISHING	Seized Fish (kg)	26,329	11,426	6,718	62,600	3,136	332	3,000	**113,541**
	Fishing nets (unit)	190	89	39	61	25	13	-	**417**
	Fishing nets (meters)	20,139	2,562	2,043	26,157	22,355	637	-	**73,893**
	Other fishing gear (unit)	168	36	16	47	26	62	-	**355**
	Seized vessels (unit)	7	0	4	4	2	5	-	**22**

These plans have enabled the information integration, as well as the management and rational use of available resources, since all the operational action planning and their assessments have been discussed at monthly meetings of representatives of the involved agencies and institutions. Thus, unified data could be produced and information of common interest could be socialized. The integration from the management level to the operational level has been improved and ended up being expanded for use in all Conservation Units, reaching the level of the Government Program, under the management of the Secretariat for the Environment.

The result of the effort of implementing supervision plans in the Area of Ecological Importance of the Project has been a significant improvement in indicators related to the supervision activities, as seen in Table 1 (TN: Operational Effort).

We may note that in the table, there has been significant increase in the numbers related to the indicators as the investments have been implemented. It should be stressed out that the figures for 2013 are only for the semester, supporting the thesis that increased effort has been directly connected to the investment implementation[1].

This analysis should take into consideration the effects of increased effort without losing sight of the preventive potential aggregated to the increase in the action of presence. The first result of the supervision increase is the increased operational indicators up to a certain extent, which will decline due to the inhibitory effect caused by the constant presence of

> The Environmental Police began to explain to us that new seedlings were going to be planted there (...). We followed (actions) from beginning to end, they removed the houses and began to implement different things, plazas, soccer field for the kids, and they showed us what would actually happen when we got out of there."
>
> *Damiana Maria da Silva*
> April 2, 2014

Table 3 – Infraction Reports

		2007	2008	2009	2010	2011	2012	2013	TOTAL
AIA	Flora	174	64	73	34	133	71	19	**568**
	Fauna	35	41	38	29	26	33	2	**204**
	Fishing	327	127	124	140	34	56	3	**811**
	Other	11	9	13	8	14	5	-	**60**
	TOTAL	**547**	**241**	**248**	**211**	**207**	**165**	**24**	**1,643**

the field teams. Thus, it is natural that the greatest amount of infractions has been recorded at the beginning of the Project, gradually declining over time, as shown in Table 2, Record of Occurrences.

Table 3, Infraction Reports, below, supports the line of reasoning of the most repressive effort in the first year and the order maintenance and prevention in the others.

Finally, with regard to the operational indicators, the presented results have clearly demonstrated the amount of routine actions in the areas covered by the Project, as can be seen below in Table 4, Routine Actions and Operations. Once more, it is worth mentioning that the implementation of the Project investment is the support for the operational effort increase, which main results are the significant numbers in the prevention and prosecution of environmental offenses. As the routine actions and operations increase, due to the increased presence of patrolling, the action indicators and the degraded areas raise until the repression curve reverses, when the preventive effort begins to take effect, keeping the falling infraction rates.

To support this growth in the enforcement actions, 65 vehicles, 5 vessels and 1 airplane – which have provided enough mobility to the Environmental Police in order to achieve the results – were acquired. With it, the patrol of land and sea areas covered by the Project can be intensified.

However, investments have not been only restricted to the acquisition of equipment. In order to effectively implement it, the work teams had to be trained, developing and improving skills in the supervision area. Specific supervision courses on mining activities, recognition of flora, recognition of the fish population, recognition of sawn timber, 4 x 4 vehicle driving, recognition and management of wildlife and geo-processing were developed. All these courses have become part of the training curriculum of the Military Police of São Paulo and have been expanded to the entire state.

In addition to these courses, officers had to be trained to operate new vessels in waters outside the limits of the coast, since part of the Marine Conservation Units is located more than 20 miles from the mainland. With technical support from the Brazilian Navy, the experience has been used to create a course in Técnicas de Policiamento Náutico (Nautical Policing Techniques), which has been also expanded to the entire state. Because of its unique nature, it has ended up attracting interest from other agencies around the country, such

Architecture Project

1st Battalion of the Environmental Police.

as the Federal Highway Police, Federal Police, and State Police.

A modern platform on distant education has been hired to follow-up the implementation of the training matrix of the Environmental Policing and to assume the training of military police specialists in environmental monitoring. It is estimated that this platform, besides spreading and disseminating the technical expertise, has contributed to the improvement of the existing workforce, and it can be also used as a way of selecting candidates who want to join the Environmental Policing.

Among other results, an Environmental Education project has been conceived, which has been geared to the existing communities in the Project area. Called "Espiral de Sustentabilidade" (TN: Sustainability Spiral), it was designed by the Fundação Instituto da Administração in order to reach about 30,000,000 children of elementary school of the public network. To run it, environmental officers have been selected within the predetermined profile, receiving specific training for educators. The Project was fully developed in early 2013, and only in this first year of implementation it reached 18,000 children.

To increase the comfort of the supervision teams, new equipment has been purchased for individual protection, which has also changed the whole supervision outfit, with changes in cut and design of clothing and textile technology of the fabrics used.

Finally, the construction of the new headquarters have been projected, which will give support to supervision, where several of them can be brought together and be integrated, putting in the same place several institutions of the Sistema de Administração da Qualidade Ambiental (TN: Administration System for Environmental Quality). Planned to be modern centers of reference in environmental enforcement, the new headquarters will be built based on the concepts of sustainability and certification of high environmental quality, enabling the delivery of excellent services to the population.

All projects were certified with the Alta Qualidade Ambiental – AQUA (High Environmental Quality) seal by Vanzolini Foundation, and the Training Center design was awarded the highest score of the AQUA accreditation in the country and recognized by the French government, with the delivery of the certificate at the Embassy of Brazil in France in October 2013.

Moreover, in the medium term the new headquarters will enable the economy of financial resources that are now allocated in funding various sparse headquarters and adapted for the use of the environmental control. The integration of human resources in the office and supervision activities is also noteworthy, which will provide greater availability of the police in the supervision activities.

Table 4 – Routine Actions and Operations

ACTIVITY	2007	2008	2009	2010	2011	2012	2013	TOTAL[2]
Inland operations	203	235	305	331	187	541	502	**2,304**
Marine operations	43	29	35	47	36	50	13	**253**
Actions of inland operations	1,315	1,449	1,225	1,721	1,815	2,699	1,386	**11,610**
Actions of marine operations	97	125	105	156	275	134	39	**931**

2. Data only of the 1st half of 2013, from January to June.
3. See the certificates in the Appendixes of this book.

Appendixes


Processo AQUA
CONSTRUÇÃO SUSTENTÁVEL

Certificado

Nº: AQUA-E-0024 de 31/01/2013

EMPREENDIMENTO
1º BATALHÃO DE POLÍCIA MILITAR AMBIENTAL
Av. Ida Kolb, s/n - Casa Verde
São Paulo / SP

EMPREENDEDOR
1º BATALHÃO DE POLÍCIA MILITAR AMBIENTAL
Av. Rio Branco, 1.312 - Campos Elíseos
São Paulo / SP

Características certificadas

A certificação Processo AQUA - Construção Sustentável baseia-se nos desempenhos de eco-construção, de eco-gestão, de conforto e de saúde de um empreendimento de construção.

ELA ATESTA:

- A implantação de um sistema de gestão do empreendimento permitindo fixar os objetivos ambientais, organizar o empreendimento para atendê-los, controlando os processos de realização operacionais.
- Que é atingido um nível excelente para ao menos 3 objetivos ambientais e superior para ao menos 4 objetivos ambientais.
- O perfil ambiental do empreendimento, estabelecido pelo solicitante e verificado por meio de auditorias, é identificado na página seguinte.

A Fundação Vanzolini atesta que o empreendimento aqui identificado foi avaliado em conformidade com o Referencial Técnico de Certificação - Edifícios do Setor de Serviços - Processo AQUA - Escritórios e Edifícios Escolares - versão Outubro de 2007, nas fases definidas abaixo. O empreendedor está portanto autorizado a utilizar a marca Processo AQUA.

FASE PROGRAMA: 31/01/2013
FASE CONCEPÇÃO: não avaliado
FASE REALIZAÇÃO: não avaliado

JJAFERREIRA
Diretor de Certificação

Salvo revogação, suspensão ou modificação, este certificado é válido para a(s) fase(s) avaliada(s) acima, até o final da parceria conclusão, desde que as três fases tenham sido avaliadas conformes. O referencial de certificação e a lista de certificados atualizada estão disponíveis no site www.vanzolini.org.br.

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Pág. 1 de 2

Processo AQUA
CONSTRUÇÃO SUSTENTÁVEL

Certificado

Nº: AQUA-E-0024 de 19/07/2013

EMPREENDIMENTO
1º BATALHÃO DE POLÍCIA MILITAR AMBIENTAL
Av. Ida Kolb, s/n - Casa Verde
São Paulo / SP

EMPREENDEDOR
1º BATALHÃO DE POLÍCIA MILITAR AMBIENTAL
Av. Rio Branco, 1.312 - Campos Elíseos
São Paulo / SP

Características certificadas

A certificação Processo AQUA - Construção Sustentável baseia-se nos desempenhos de eco-construção, de eco-gestão, de conforto e de saúde de um empreendimento de construção.

ELA ATESTA:

- A implantação de um sistema de gestão do empreendimento permitindo fixar os objetivos ambientais, organizar o empreendimento para atendê-los, controlando os processos de realização operacionais.
- Que é atingido um nível excelente para ao menos 3 objetivos ambientais e superior para ao menos 4 objetivos ambientais.
- O perfil ambiental do empreendimento, estabelecido pelo solicitante e verificado por meio de auditorias, é identificado na página seguinte.

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FASE PROGRAMA: 31/01/2013
FASE CONCEPÇÃO: 19/07/2013
FASE REALIZAÇÃO: não avaliado

JJAFERREIRA
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Processo AQUA
CONSTRUÇÃO SUSTENTÁVEL

Certificado

Nº: AQUA-E-0038 de 26/03/2013

EMPREENDIMENTO
SEDE DO 3º BATALHÃO DE POLÍCIA MILITAR AMBIENTAL - GUARUJÁ
Rua Cornélio Corrêa, s/n - Vila Ligia
Guarujá / SP

EMPREENDEDOR
3º BATALHÃO DE POLÍCIA MILITAR AMBIENTAL DO ESTADO DE SÃO PAULO
Praça Getúlio Vargas, 56 - Jardim Guaiuba
Guarujá / SP

Características certificadas

A certificação Processo AQUA - Construção Sustentável baseia-se nos desempenhos de eco-construção, de eco-gestão, de conforto e de saúde de um empreendimento de construção.

ELA ATESTA:

- A implantação de um sistema de gestão do empreendimento permitindo fixar os objetivos ambientais, organizar o empreendimento para atendê-los, controlando os processos de realização operacionais.
- Que é atingido um nível excelente para ao menos 3 objetivos ambientais e superior para ao menos 4 objetivos ambientais.
- O perfil ambiental do empreendimento, estabelecido pelo solicitante e verificado por meio de auditorias, é identificado na página seguinte.

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FASE PROGRAMA: 26/03/2013
FASE CONCEPÇÃO: não avaliado
FASE REALIZAÇÃO: não avaliado

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Pág. 1 de 2

Headquarters of the 1st Battalion of the Environmental Police

Program

Headquarters of the 1st Battalion of the Environmental Police

Conception

Headquarters of the 3rd Battalion of the Environmental Police

Program


Processo AQUA
CONSTRUÇÃO SUSTENTÁVEL

Certificado

Nº: AQUA-E-0038 de 26/06/2013

EMPREENDIMENTO
SEDE DO 3º BATALHÃO DE POLÍCIA MILITAR AMBIENTAL - GUARUJÁ
Rua Comélio Corrêa, s/n - Vila Ligia
Guarujá / SP

EMPREENDEDOR
3º BATALHÃO DE POLÍCIA MILITAR AMBIENTAL DO ESTADO DE SÃO PAULO
Praça Getúlio Vargas, 56 - Jardim Guaiuba
Guarujá / SP

Características certificadas

A certificação Processo AQUA - Construção Sustentável baseia-se nos desempenhos de eco-construção, de eco-gestão, de conforto e de saúde de um empreendimento de construção.

ELA ATESTA:

- A implantação de um sistema de gestão do empreendimento permitindo fixar os objetivos ambientais, organizar o empreendimento para atendê-los, controlando os processos de realização operacionais.
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FASE PROGRAMA: 26/03/2013
FASE CONCEPÇÃO: 26/06/2013
FASE REALIZAÇÃO: não avaliado

JJAFERREIRA
Diretor de Certificação

Salvo revogação, suspensão ou modificação, este certificado é válido para a(s) fase(s) avaliada(s) acima, até o final do período conclusão, desde que as três fases tenham sido avaliadas conformes. O referencial de certificação e a lista de certificados atualizada estão disponíveis no site www.vanzolini.org.br.

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Processo AQUA
CONSTRUÇÃO SUSTENTÁVEL

Certificado

Nº: AQUA-E-0025 de 31/01/2013

EMPREENDIMENTO
CENTRO DE TREINAMENTO DA POLÍCIA MILITAR AMBIENTAL
Rua dos Etruscos, 41 - Vila Guarani
São Paulo / SP

EMPREENDEDOR
COMANDO DE POLICIAMENTO AMBIENTAL DO ESTADO DE SÃO PAULO
Rua Colônia da Glória, 650 - Vila Mariana
São Paulo / SP

Características certificadas

A certificação Processo AQUA - Construção Sustentável baseia-se nos desempenhos de eco-construção, de eco-gestão, de conforto e de saúde de um empreendimento de construção.

ELA ATESTA:

- A implantação de um sistema de gestão do empreendimento permitindo fixar os objetivos ambientais, organizar o empreendimento para atendê-los, controlando os processos de realização operacionais.
- Que é atingido um nível excelente para ao menos 3 objetivos ambientais e superior para ao menos 4 objetivos ambientais.
- O perfil ambiental do empreendimento, estabelecido pelo solicitante e verificado por meio de auditorias, é identificado na página seguinte.

A Fundação Vanzolini atesta que o empreendimento aqui identificado foi avaliado em conformidade com o Referencial Técnico de Certificação - Edifícios do Setor de Serviços - Processo AQUA - Escritórios e Edifícios Escolares - versão Outubro de 2007, nas fases definidas abaixo. O empreendedor está portanto autorizado a utilizar a marca Processo AQUA.

FASE PROGRAMA: 31/01/2013
FASE CONCEPÇÃO: não avaliado
FASE REALIZAÇÃO: não avaliado

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Processo AQUA
CONSTRUÇÃO SUSTENTÁVEL

Certificado

Nº: AQUA-E-0025 de 12/07/2013

EMPREENDIMENTO
CENTRO DE TREINAMENTO DA POLÍCIA MILITAR AMBIENTAL
Rua dos Etruscos, 41 - Vila Guarani
São Paulo / SP

EMPREENDEDOR
COMANDO DE POLICIAMENTO AMBIENTAL DO ESTADO DE SÃO PAULO
Rua Colônia da Glória, 650 - Vila Mariana
São Paulo / SP

Características certificadas

A certificação Processo AQUA - Construção Sustentável baseia-se nos desempenhos de eco-construção, de eco-gestão, de conforto e de saúde de um empreendimento de construção.

ELA ATESTA:

- A implantação de um sistema de gestão do empreendimento permitindo fixar os objetivos ambientais, organizar o empreendimento para atendê-los, controlando os processos de realização operacionais.
- Que é atingido um nível excelente para ao menos 3 objetivos ambientais e superior para ao menos 4 objetivos ambientais.
- O perfil ambiental do empreendimento, estabelecido pelo solicitante e verificado por meio de auditorias, é identificado na página seguinte.

A Fundação Vanzolini atesta que o empreendimento aqui identificado foi avaliado em conformidade com o Referencial Técnico de Certificação - Edifícios do Setor de Serviços - Processo AQUA - Escritórios e Edifícios Escolares - versão Outubro de 2007, nas fases definidas abaixo. O empreendedor está portanto autorizado a utilizar a marca Processo AQUA.

FASE PROGRAMA: 31/01/2013
FASE CONCEPÇÃO: 12/07/2013
FASE REALIZAÇÃO: não avaliado

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Pág. 1 de 2

Headquarters of the 3rd Battalion of the Environmental Police

Conception

Training Center of the Environmental Military Police

Program

Training Center of the Environmental Military Police

Conception

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Implementation Project

CHROMATIC, LANDSCAPING AND URBAN PLANNING PROJECT
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POWER GRID PROJECT
Engineer José Serra Netto

Proyecto de Edificaciones

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Implementation Project

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INSPECTION OF THE WORKS
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CH Cubatão A2 – Bolsão (Pocket) 9

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