

**DESCRIPTION OF THE MUNICIPIO VERDE AZUL PROGRAM  
IN THE CITY OF QUADRA – SP**

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**ABSTRACT:** This work presents the results of the participation of City of Quadra-SP in the Município Verde Azul Program (MVAP). For this purpose, a document analysis which aimed to examine all records relating to the implementation of MVAP in the city. A semi-structured interview was also performed with the municipal manager of the program. It has been concluded that the implementation of the program in the city can be considered a success, since Quadra has reached high positions in the state ranking. Several initiatives that impact on environmental quality in the city have been implemented in recent years, a fact that is due to the involvement of different local agents with the program guidelines.

**Keywords:** Sustainability. Environmental Agenda. Municipal reference tool.

## **1 INTRODUCTION**

Since the first industrial revolution which started in the end of the 18<sup>th</sup> century, the natural resources have been used relentlessly. Furthermore, this great change in the productive system led to the migration of populations from the field to urban centers, in search of better life conditions. Thus, the rural exodus became more and more intense, the urban centers became more populous, the quality of life decreased, the cities grew disorderly, marginalized districts started to appear and life conditions became more and more precarious. Along the years, the natural landscape of the cities has changed turning into a competitive center.

Growth came by means of production, the industrial expansion of factories had a significant increase, and little was said about the environmental quality. Since development could not be stopped, the field became a place of extraction to ensure mass production. Along the years, constant degradation of the environment could be observed.

Only in 1972 it was held in Stockholm, Sweden, the United Nations Conference on Environment, in order to discuss ideas about a sustainable development concept. As of this moment, the importance of enjoying and preserving the natural resources starts to be consolidated in the international ideology, making it a common place for the population, without the wrong use of these resources.

With the growing population of the cities, the consumption of industrial goods tends to grow even more. Every day new technologies come to the market, the society lives in a constant consumerism, always in search of practicality, such as in the search of fast-food, easy access to credit, among others.

However, environmental concern starts gaining importance in the holistic scenario; the environmental laws undergo changes, in order to mitigate damages without stopping production, within a context where environmental dimension becomes more valued.

In the year of 2007, the Government of the State of São Paulo started the Blue Green City Program (MVAP), which highlights difficulties and proposes solutions in order to make environmental commitment and responsibility into a habit of the cities. According to the Secretary of State of the Environment, the Blue Green City Program (MVAP) has the purpose of stimulating and qualifying the Municipalities to plan and develop a strategic environmental agenda. The Program also proportioned the development and application of municipal Environmental Plans of short, medium and long terms, aiming at the improvement of the life conditions of its population by means of an agenda composed of 10 guidelines (Chart 1). The 645 cities in the State of São Paulo signed a Protocol of Intention with the state government, in which they commit themselves to the development of actions based on these guidelines, which would improve the environmental quality of their territory (Secretary of the State of São Paulo, 2012).

**Chart 1 – MAP Guidelines**

<b>GUIDELINES</b>	<b>MAIN CHARACTERISTICS</b>
Treated sewage	Assists in the adequate collection, transport, treatment and disposal indices of urban sewage.
Solid Waste	Involves post-consumption Programs and/or liability actions.
Biodiversity	Aims at protecting and recovering ciliary areas.
Urban Forestation	Planning and priority actions for forestation.
Environmental Education	Implement Transversal Environmental Education.
Sustainable City	Aims at the rational use of the natural resources.
Water Management	Strengthen and assess the municipal management, in order to ensure quality in public supply.

Air Quality	Initiatives that contribute to the improvement of air quality, and control of emission of greenhouse gases.
Environmental Structure	Strengthening and Integration of environmental entities, secretariats and departments.
Environmental Council	Stimulates the correct functioning of the Municipal Environmental Councils.

Source: Municipal Secretary of Agriculture and the Environment, 2012.

At the end of each year, the works carried out are forwarded to the Secretary of State of the Environment for evaluation, where a ranking is made of the cities that mostly developed the socio-environmental function.

Within this context, this present work proposes to assess the Blue Green City Program of the City of Quadra – SP.

## 2 METHODOLOGY

### 2.1 Study sites

The city of Quadra-SP is located West of Guareí, South of Itapetininga, East of Tatuí and North of Porangaba, Cesário Lange and Pereiras. Its plateau relief and its geographical location, 23°28' latitude South and 48°03' longitude West, favor the cultivation of different agricultural species. The territorial origins of the city, currently known as Quadra, date from the 18<sup>th</sup> and 19<sup>th</sup> century. However, the original Village of Quadra would have appeared mid-1870s. Since 1875 there are records of the “Quadra district” of the city of Tatuí, being raised to District of Tatuí on December 18, 1912. By means of popular referendum, it obtained emancipation in the year of 1993. Only in 1997 the city was fully installed. For years, cotton, yellow corn and coffee crops competed with the production of white corn and cattle breeding. From mid-20<sup>th</sup> century to the present only white corn crops and cattle breeding significantly continue pushing the city's economy. The main accesses and production flow ways is made by Presidente Castelo Branco Highway, municipal road “Monsenhor Murari”, which connects the city of Quadra to Tatuí and Highway SP 127, which connects the city to the southern region of the State of São Paulo (CITY OF QUADRA, 2013).

### 2.2 Data survey

During year 2013, a documental analysis was carried out of all data related to the MAP in the city of Quadra. Besides analyzing the documents, a semi-structured interview was also made with the responsible for the implementation of the MVAP in the city of Quadra. The interview followed a script of preconceived questions that allowed the answers to be open, and the interviewed to have the freedom of expressing opinions beyond those foreseen in the questions.

### **3 RESULTS AND DISCUSSION**

The City of Quadra, by means of the Municipal Secretary of Agriculture and the Environment, shared with all Secretariats and the City Council, competed with the 644 cities of the State of São Paulo for the Blue Green City Program of the State Secretary of the Environment. The program established 10 environmental guidelines. Several actions within these guidelines were executed. The Classification contemplated the City with approximately R\$ 300.000,00, in the year of 2013.

Next, the data related to the MAP in the City of Quadra are presented, organized in function of the guidelines of the program, i.e.: Treated sewage, Solid waste, Biodiversity, Urban forestation, Environmental education, Sustainable city, Water management, Air quality, Environmental structure, Environmental council.

#### **3.1 Treated sewage**

In this Guideline, water and sewage are periodically collected to know if the treatment is efficient. The sample is collected by a CETESB technician followed by a technician from the Secretary of the Environment.

The sampling is made twice a year, and these are analyzed as to the BOD (biochemical oxygen demand), COD (chemical oxygen demand), water temperature, air temperature, oils and greases.

#### **3.2 Solid waste**

##### **3.2.1 Collection of recyclables**

The association Associação de Coleta e Manuseio de Materiais Recicláveis de Quadra was established in 2010, with the support of the Municipality, and collects recyclables from Monday to Friday in the morning. In the afternoon, the materials are separated and a

screening is made with the assistance of a scale and press. The recyclables are marketed. The association is made up of 29 persons, of which 5 work in the collection and selection of the materials. The selective collection work propitiates an income of approximately R\$ 600,00 per person/month. The weight per month of waste from the selective collection is around 4,500 kg. It should be highlighted that in January 2014 the income of the workers reached R\$ 1.100,00.

The success of the work is due to awareness building in the population that separates the waste, increasing the workers' income and contributing to the useful life of the landfill.

### 3.2.2 Disposal of bulky waste

In 2012 it was started the work of transformation of bulky waste, where the same is disposed by the population in the domestic solid waste collection points and this is collected by the team of Associação de Coleta e Manuseio de Materiais Recicláveis, who transport the bulky waste, i.e., furniture and domestic equipment, which is taken to Fundo Municipal de Solidariedade where it is restored and sold for an affordable price. The work has shown satisfactory results and each year the search for restored bulky waste is increasing.

### 3.2.3 Disposal of used tires

The used tires are taken to company Pneus Sarapuí, by means of a commitment term signed in 2013. Following the standards required for recycling rubber and tires, Pneus Sarapuí develops quality products with a large variety of applicability. Examples of products developed by the company: mason line, boot heels, elastic belting for upholstery, boot soles, storm water pipes, regenerated rubber and sandal soles.

The number of used tires is low, requiring collection and delivery once a year. Before the delivery, the tires are stored in sheds by the labor secretariat.

### 3.2.4 Disposal of electronic waste

The Municipality signed a commitment term in 2013 with LED Reciclagem Tecnológica of Mococa-SP, to deliver electronic materials belonging to the City such that the company may dispose of these materials correctly. The company has a permit from CETESB.

The campaign for collection of electronic materials is made once a year. Only in 2013 240 kg of used batteries were collected, among other electronic waste, which thus was correctly disposed of.

### 3.3 Biodiversity

#### 3.3.1 Planting and recovery of ciliary areas

##### 3.3.2

Three ciliary areas were planted and recovered in 2013. These areas lacked trees, suffering intervention of animals, causing silting of the permanent preservation areas.

The planted areas belonged to Mr. Amâncio José Tavares, from Aleluia District, Mr. Luis Carlos Pereira, from Matão District, and Mr. Célio Valdrighi, totaling a recovered area of 3,100m<sup>2</sup>.

Native seedlings were planted like Manacá, Canafístula, Quaresmeira, Resedá, Aroeira Salsa, Aroeira pimenteira, Ingá, Figueira, Sangra d'água, Pau ferro, Pitanga, Araçá, Pau de viola, Jequitibá branco, Angico Branco, Cerejas do Rio Grande, Guarantãs, Saraguagis, Jatobás, Louros, Cajaranas, Gabirobas.

In total, 750 trees were planted. Maintenance is under the owner's responsibility. New areas are expected to be recovered in 2014 and the number of planted trees is expected to increase.

#### 3.3.2 Actions that inhibit the contamination of Permanent Preservation Area

Adopting the techniques recommended for conservation and preservation of the soil and water, in 2013, Mrs. Arminda Valêncio Miranda implemented the construction of terraces on the surface, aiming to improve the infiltration of water in the soil and consequently avoiding carrying the soil, hindering the silting of the permanent preservation area (PPA) of Santa Rosa Ranch. The property is located in José Mascarenhas de Moraes road, Cruz de Cedro district in Quadra-SP. There are other properties adopting this same technique.

#### 3.3.3 Model Spring

It is understood as spring the flourishing of the ground water that will give origin to a source of accumulated water (dam) or waterways (streams, brooks and rivers). In virtue of its inestimable value, it should be treated with special care.

The preservation of springs helps ensuring the quality and quantity of the waters of rivers, creeks and other waterways, especially those that contribute to human supply (important source of fresh water).

The Modelo spring in the City of Quadra is located in the Guaraná District, in the property of Modelo Horse Breeding Farm, where the recovery was started in 2011, when seedlings were planted. In 2012, the seedlings were staked and fertilized and in 2013 were crowned to avoid competition of seedlings with weeds.

6,480 trees of native species were planted. The spring is protected by fences to avoid animals entering. The Model spring is open for visitation by the schools of the City, which has the purpose of teaching the students on how to preserve a spring and about the importance of protecting springs and ciliary areas, and avoiding silting, erosion and contamination of the soil and water.

### 3.4 Urban forestation

#### 3.4.1 Evaluation of the distribution of trees in the urban area

In 2009, the kick-off was given to the implementation of the urban forestation project of Quadra, adopting the criterion of planting according to the characteristics of each street, sidewalk with or without cabling, width of the walkway and aesthetic aspect. The planting was made by a single species per block, keeping the diversity per street. The streets where the planting was made are: Coronel Cornélio Vieira de Camargo, José Carlos da Silveira, Agenor Francisco Vieira, Avenida Francisco Lobo, Candido José de Oliveira, Antônio Vieira Filho, Dr. Renato Mota, Agenor Soares, with diversity of species like oiti, quaresmeira, escova de garrafa, ipê branco, tipuana, manacá, cerejeiras, canafístula.

From 2009 to 2013 the urban forestation project planted approximately 300 trees in the urban area, taking into consideration the biodiversity and the lack of trees per district.

#### 3.4.2 Nursery

In 2013, 679 trees entered the municipal seedling nursery. From these, 550 were planted in the urban forestation and in the recovery of permanent preservation areas.

#### 3.4.3 Seeds bank

In 2013, the Seed Bank of the City of Quadra was started. Native seeds were collected from 3 species, Sibipiruna (*Caesalpinia peltophoroides*), Pau Ferro (*Caesalpinia férrea*) and Ipê Amarelo Cascudo (*Tabebuia chrysotricha*).

The seeds were collected from 60 points for each species, with the purpose of keeping the diversity between the same species. The seeds that were collected will be enhanced for subsequent dispersion, aiming at recomposing the diversity of squares, green areas and reforesting areas in the City of Quadra.

The expectation for 2014 is for the collection of seeds per species to increase and to exchange seeds with neighbor cities, increasing even more the diversity of the species.

### **3.5 Environmental education**

The municipal schools “João Inácio Soares” and “José Ayres” from the City of Quadra have as partners the environmental education project, the Municipal Secretaries of Education and of Agriculture and the Environment, which was prepared by pedagogical coordinator Inês Eleutério Campos, under the direction of Renata Stahl Rodrigues and developed by the teachers of the Municipal Education Network.

The First Municipal Environmental Education Program started in 2011 and remained effective in 2012 and 2013.

The project aims to stimulate the change of habits and attitudes for the conscious use of natural resources, awakening the ecological conscience of the reducing, reusing and recycling policy (3Rs), building awareness in the educators and the community to contribute and develop healthy habits that do not pollute neither degrade the environment.

The program will have a 5 (five) years duration, starting in 2011 and ending in 2016. In this period, pedagogical meetings, lectures and presentation will be made by the management and coordination of the school to the teachers and employees.

This way, the purpose is to build awareness in the students developing an environmental consciousness that contributes to the reflection on inadequate attitudes for the environment in which they lives in, noticing that their actions could affect the sustainability of the planet:

- a) Participate in the construction of a sustainable future for our community, our city, our region, for Brazil and the planet;
- b) Debate on the social and environmental problems of the community and notice how they relate with the world;
- c) Seek reflection on the individual attitudes that reflect on the nature and the need of changes in attitudes.

The content will be presented in an interdisciplinary manner, where the constant search on the reflection of each one of the themes approached and practical activities will be proposed.

### **3.6 Sustainable City**

#### **3.6.1 Inter-municipal training**

In this guideline, the concern with the environment is under the responsibility of all municipal secretariats and departments. The City makes inter-municipal consortiums in order to discuss with the other Cities the possible problems and solutions.

The speakers and substitutes of each city exchanged information among themselves to have better resourcefulness in the program. The meetings with the consultant are held once a month, when an evaluation of what is being accomplished is made.

### 3.6.2 Organic herbs garden

In 2013, the project of the organic herbs garden was developed in the State School of Quadra by teacher José Lino Ferreira.

The herbs are used in the preparation of the meals made in the school for the High School students.

## 3.7 Water Management

An official letter is requested from Sabesp to know the amount of losses in the water supply system, whose purpose is to show the problem and look for a solution, if required.

A monitoring is made in Sabesp's network of supply wells, in order to ensure quality for the population. The deep wells of the City of Quadra-SP are from underground water sources from the Palmeiras Creek micro basin, lower Sorocaba sub-basin and Sorocaba Medium Tietê water basin.

## 3.8 Air Quality

### 3.8.1 Drought Operation workshop

On the 15th and 16th of May, 2013, the Drought Operation workshop was held in the SEST/SENAT auditorium located at Rua Alberto Panzan No. 180, Boa Vista District, Sorocaba-SP, which had as main purpose to train the civil defense agents acting in the cities of the region of Sorocaba-SP, taking knowledge to those that directly or indirectly are committed with such matter.

The training aims to qualify agents in the fight against forest fire and venomous animals. This qualification of civil defense agents occurs once a year.

### 3.8.2 Vehicle inspection

By means of Municipal Law No. 451 of September 23, 2011, all municipal fleet vehicles must undergo every six months through the black smoke inspection by the card method – reduced Ringelmann scale. However, an inspection icon was created for the vehicles.

### **3.9 Environmental Structure**

This guideline allows inter-municipal actions and agreements to be made, i.e., exchange of information between cities, the municipal secretaries assume commitment to help and participate in the actions.

The city makes inter-municipal consortia in order to discuss possible problems and solutions. In 2013, the city of Quadra made partnerships with neighboring cities like Cesário Lange; the cultural event of theater with recyclable wardrobe was made aiming at the preservation of the environment.

### **3.10 Environmental Council**

The Municipal Council of Defense of the Environment was created through Brazilian Law No. 366/2009 of September 08, 2009, which holds ordinary meetings every 2 months; if necessary, extraordinary meetings are held. COMDEMA discusses environmental problems and solutions for the City. The Council is made up of 50% from the Public Power and 50% from the civil society, which keeps the parity. The meetings are held at the Secretary of Agriculture and the Environment at Rua Dr. Renato Mota nº 249 at 15h00min, on the fourth Wednesday of the month.

The new board of directors of the Council was elected in 2013 and is in office until 2015.

## **4 FINAL CONSIDERATIONS**

The implementation of the MAP in the City of Quadra, SP faced difficulties along the years, which demanded hard work from the local administrators, with the integration of the Municipal Secretaries, the City Council and the Civil Society being extremely important for the success of the work.

Awareness building in people about the environmental problem proportioned a mobilization of the involved agents. It is worth to remember that the performance of the last years was positive, and in 2009 the City obtained 66.74 points, qualifying in 273<sup>rd</sup> position in the State. In 2011, it obtained the 8<sup>th</sup> position, with 94.36 points. In 2012, it was graded with

93.58 points, placing the City in the 13<sup>th</sup> position in the environmental ranking of the State, and in 2013 it ranked 18<sup>th</sup>, with 89 points.

Each year, the program is stricter in classification. In 2012, 134 cities were certified, while in 2013, 67 cities were certified.

In the last three years of certification, the city counted with the awarding of approximately R\$ 900.000,00, which was reverted into machines and equipment to ensure the quality of the work performed.

It could be said that the advancement of the City is due to awareness building of the people in relation to the environmental issue. It is expected for the commitment of the authorities and the civil society to be constant, such that each year everyone may share from the positive results having as principle the responsibility with the environment.

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