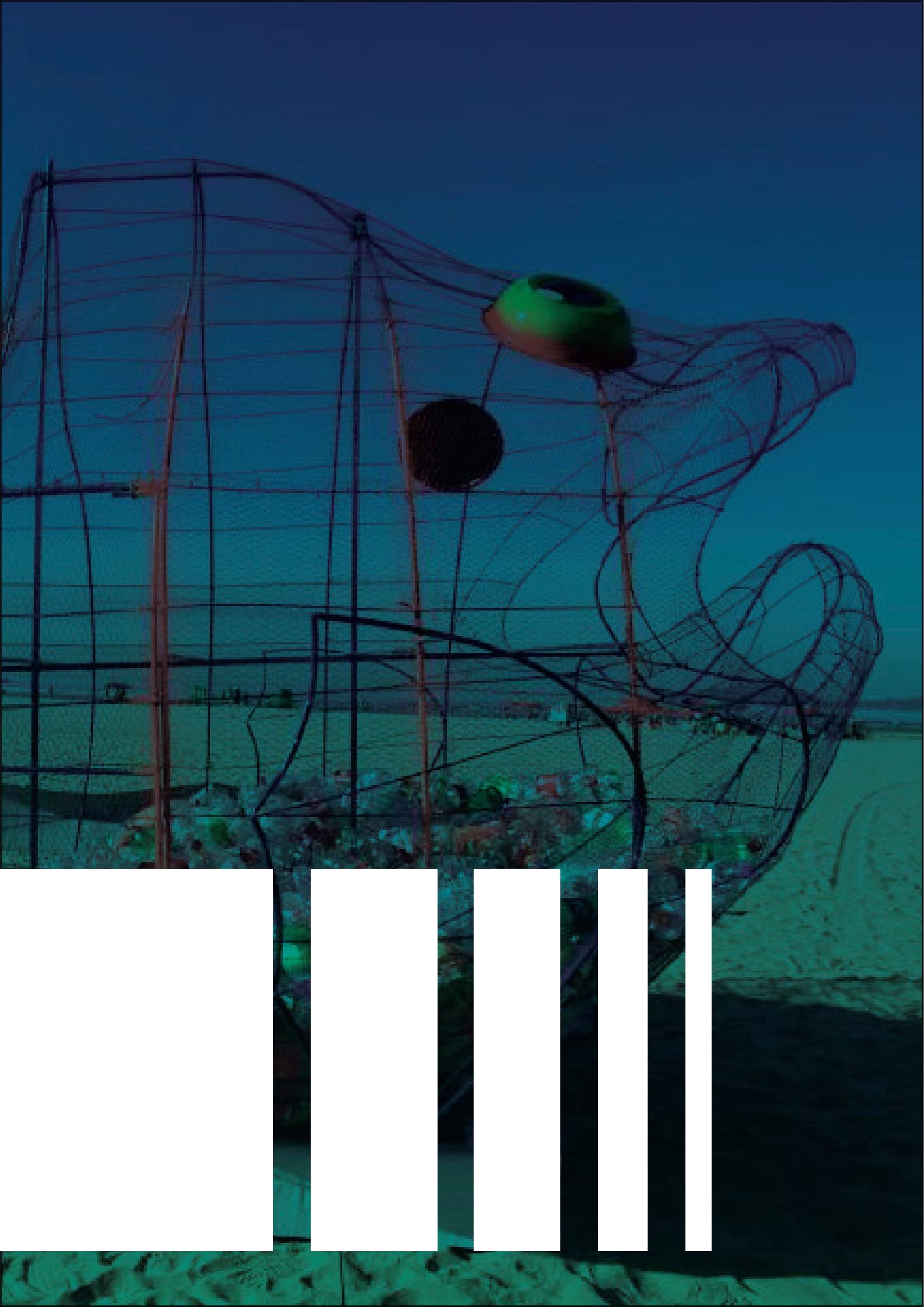




ACTION PLAN



COMBATE ÀS FONTES DE
POLUIÇÃO MARINHA POR
RESÍDUOS SÓLIDOS



CONCEPT AND COORDINATION

Brazilian Association of Public Cleansing and Waste Management Companies (ABRELPE)/
secretaria@abrelpe.org.br.

ABRELPE is a non-profit organization that gathers and represents companies that operate in the urban cleansing services and management of municipal solid waste. Its mission is based on the principles of environmental preservation and sustainable development and its main objective is to promote technical and operational development of the solid waste sector in Brazil.

In an international context, ABRELPE is the representative in Brazil of the ISWA – International Solid Waste Association, the main global entity dedicated to the solid waste matters; it's also the head office of the Regional IPLA Office for South America (International Partnership for the development of waste management services together with local authorities), a well-known program supported by the UN through the UNCRD – United Nations Centre for Regional Development. Moreover, ABRELPE is part of the Municipal Solid Waste Initiative of the CCAC (Climate and Clean Air Coalition), an international partnership for the environment agenda that operates on several fronts to reduce short-lived climate pollutants and fight climate change.



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This Action Plan opens a more proactive phase in the project “Fighting the land sources of solid waste marine pollution”: after investigating the waste management services, hotspots and materials, it is now time to propose programs and projects aiming to improve the local system currently in place in Santos/SP. And, by that, preventing marine litter.

More than a “wish list”, the actions described in the following pages was developed in a joint effort between both teams from the project and the Municipal Secretary of Environment (SEMAM). These programs and projects have a real potential to be implemented by gathering technical, social and environmental aspects under management and educational visions. The common objective is to effectively prevent that tons¹ of solid waste, coming from different hotspots, make their daily way to the marine environment.

Each hotspot identified by the project was discussed under the study tour promoted by the project and held in November 2018 in Sweden with representatives from SEMAM, ABRELPE and the Swedish Environmental Protection Agency (SEPA). The outcomes from the discussions about problems, stakeholders and solutions for each hotspot made it clear that the municipality had already potential projects and actions that should be improved by the current assistance. The next step was then to evaluate existing proposals, incorporate new ones recommended by the project team and define the target groups with distinct roles, potential financial sources and timeline for implementation.

The listed **actions are essentially of short-term implementation** and must be initiated no later than December 2020 when the actual Administration ends its mandate. There is an aim to leave a positive legacy in marine litter prevention but also a concern that it must be sustainable in the long-term horizon. In this sense and looking to broader the results for the region, the project team makes its recommendations at the end of this document.

¹ Source: <http://www.santos.sp.gov.br/?q=servico/limpeza-das-praias>.

1. HOTSPOTS, PROBLEMS AND SOLUTIONS MAPPING

The tables below summarize the joint work between SEMAM, ABRELPE and SEPA teams in identifying problems and demands for solutions for each land-source of solid waste that leads to marine pollution in Santos. They are the basis of the action plan that follows in the next chapter.

#1 PALAFITAS² COMMUNITIES

PROBLEMS	1. Lack of sanitation and infrastructure	2. Lack of awareness/ education	3. Sensitive environment/tide regime
STAKEHOLDERS	- Community and its leaders. - Municipality: Secretariat of Public Services (SESERP); SEMAM; Secretariat of Urban Development (SEDURB) and Secretariat of Education (SEDUC). - São Paulo State Government: Baixada Santista Social Housing Company (COHAB) and São Paulo State Sanitation Company (SABESP). - NGOs: EcoFaxina and Art no Dique. - Schools. - Small businesses and services.		
DEMANDS	- Solid pathways to allow improvement of door-to-door collection schemes. - Smart/designed bins adapted to local conditions. - Community engagement on new and existent actions for improved solid waste management. - Littering behavior prevention by approaching the issue at schools.		

² Stilt houses.

#2 DRAINAGE CANALS

PROBLEMS	1. Unknown littering source	2. Maintenance
STAKEHOLDERS	- Municipality: SESERP and SEMAM. - Businesses/recreational enterprises/households connected to the drainage canals. - Population.	
DEMANDS	- Bins in the sidewalk of the canals. - Awareness campaigns about littering issues. - Measure waste thrown in the canals by interception through booms at the beachfront.	

#3 BEACHFRONT

PROBLEMS	1. Multiple littering sources	2. Geography	3. Behavior
STAKEHOLDERS	- Municipality: SESERP and SEMAM. - State Government: São Paulo State Environmental Company (CETESB) and SABESP. - Tourists. - Population. - NGOs that promote beach cleanups, as Mar Azul Institute; Ecosurf; Ecomov and Surflimpeza. - Recreational boats. - Kiosks and food carts.		
DEMANDS	- Behavior-oriented communication to beach visitors. - Infrastructure such as bins and communication signs for the correct waste disposal. - Kiosks and food carts engagement as messengers of the correct waste management on the beach. - NGOs engagement on expected behavior and preventive actions to fight marine litter with beach visitors.		



2. ACTION PLAN

The eight following actions are organized according to the hotspots they target and have the format of a program or project led by the Municipality of Santos, specially SEMAM. They were all evaluated and improved by the project team and are in alignment with the scope of the assistance, which is to prevent marine litter.

2.1. PALAFITAS COMMUNITIES

SOCIAL-ENVIRONMENTAL PROJECT “ECOLOGICAL FISHERMAN”

The installation of booms at the surround estuary of Jardim São Manoel community and training of local environmental agents to approach the residents.

The municipal waste management system in place for 23 years is a successful case among Brazilian cities and will be expanded to collect solid waste (notably plastics, tires, electronic equipments and furniture) from the estuary/water streams in the Northwest region of the insular area where the palafitas are located.

The project aims to improve the waste management services by integrating local fisherman and residents of the palafitas as environmental agents and waste collectors of recyclable materials trapped by the booms installed in parts of the estuary and water streams. They will also collect the materials stuck in the mangrove in order to mitigate the environmental impacts being caused for years.

The activities concerning environmental education, waste collection at the mangrove and at the booms shall be realized by people from the palafitas communities, notably waste pickers and fisherman selected from the surrounding areas.

The booms will be at first installed in the Northwest area of Santos (insular territory) going from the Bugre river (municipal territorial limit) until Casqueiro river mouth nearby Duas Barras island. Six points were selected to receive booms:

- a) At Bugres river mouth;
- b) In the surroundings of São Jorge river mouth;
- c) Jardim São Manoel plain;
- d) Casqueiro river close to Piratininga;
- e) Casqueiro river close to Criadores Village and
- f) In the surroundings of Duas Barras Island, close to Casqueiro river mouth.



Image showing the boom to be installed at Jardim São Manoel plain.

The activities shall be initiated in the same date as the one for the installation of the first boom, with the amounts of waste collected being measured/registered, segregated and correctly disposed by the public services or commercialized by the agents.

In the case of direct sales, the profits from the sale of recyclable waste should be reverted to the benefit of the local community through the purchase of waste bins, oil storage cylinders or containers to equip the nearest school making it a voluntary recycling station.

Information summary:

Implementation deadline: 12 months (renewable for the same period);

Budget: R\$ 290,000 as initial investment, but open for sponsorship/partnership proposals;

Fund: Municipal Environment Fund;

Status: waiting feedback from the Legal Office of the Municipality (Projur) to publish the call for proposals;

Start date: second semester of 2019;

Stakeholders: Municipal Fund for Environmental Preservation, COHAB, SESERP, Secretariat of Administration, Secretariat of Finance, Secretariat of Social Development, State Public Prosecutor and Federal Public Prosecutor.

ECODIKE PROJECT

Implementation of several activities within the Vila Gilda Dike community such as recycling stations, ecodesign workshops aiming upcycling of materials and vegetable gardens to absorb compost produced with organic waste.

Known as the largest palafita community in the country, Vila Gilda Dike is located in the North-west region of Santos insular area, on the top of an environmental protected area. The settlement spread out alongside four kilometers of the Bugres river margins, which marks the territorial limit with the municipality of São Vicente. The EcoDike Project relies on three axes as environmental education, reuse-creativity-income and learning within the community to be held by three initiatives:

1. Sustainable design workshops

It aims to promote materials reuse by aggregating value; as an example, tires can be refurbished and become sits and other public space furniture; textiles can be manufactured into clothes or decoration articulated, and the same can be applied for PET bottles and so on.

The premise is to use technique and creativity to generate opportunities for jobs and income generation. The targeted group is residents in the ages between 7 and 17 years living a social risk situation at Vila Gilda Dike and Capela palafitas communities. However, adults searching for job opportunities are equally welcome.

2. EcoDike recycling station

The materials utilized by the activity previously described will come from this recycling station that will receive several recyclable waste streams such as PET bottles, wood, cooked oil and cartoon package. All materials that do not gain a second opportunity will be sold for recycling, generating income for the purchase of machinery and other necessary equipments for the workshops.

3. Community vegetable garden

The first vegetable garden in this area is also an important educational strategy to promote connectivity and responsibility with the environment, promoting the contact of the participants with the earth and its components. The garden maintenance will be shared by scholar groups between 7 and 11 years old, demanding four hours/week with 25 kids per turn. A vermicomposter will be added to the activity in order to provide compost for the vegetables, but mainly to show the value of biowaste recycling as well. Weekly capacity building meetings will take place to discuss home-composting.

Information summary:

Implementation deadline: 12 months (renewable for the same period);

Budget: R\$ 337,750;

Fund: Municipal Environment Fund, but open for sponsorship/partnership proposals;

Status: on proposal preparation stage to submit to the Legal Office of the Municipality (Projur);

Start date: 2020;

Stakeholders: SESERP, Secretariat of Administration, Secretariat of Finance, Secretariat of Social Development, State Public Prosecutor and Federal Public Prosecutor.

COMMUNITY WASTE AGENT PROJECT

To capacity build 20 Community Waste Agents (CWA) to promote environmental awareness and waste collection at the palafitas area.

This project is inspired by the Community Healthcare Agents (CHA) Program created at the end of the 1980's by local governments in the Northeast region of Brazil. The objective at the time was to improve health conditions within poor communities by empowering local residents to have this role of taking care of their people and themselves.

In 1991 it became an official program by the Ministry of Health and the CHA career is one of the most studied in Brazilian universities for its role as mediators between government and population. They also develop an important role by promoting dialogue and making information reach out people no matter the educational level – just by listening and creating bonds.

This profile is of great interest when it comes to inform people about good waste management at the palafitas. The agents will focus on the communities of Jardim São Manoel, Radio Clube (where it is located part of Caminhos São José and São Sebastião communities) and Vila Gilda Dike.



Image of the targeted communities where the Waste Community Agents will act.

Nowadays the waste collection inside the palafitas communities is made with a compactor truck at the main streets/pathways; at Jardim São Manoel it has a daily frequency where all household waste is disposed in six containers of 1 thousand liters/each distributed along São Manoel main pathway for vehicles.

However, some of the houses are located 300 meters far from the main pathway and waste containers. “Some of the residents prefer to throw their waste out of the window at the estuary, for convenience or to avoid discussions with neighbors”, says the president of Jardim São Manoel Community Association, Mr. Edmílson de Almeida Duarte. According to him, “each container serves too many houses so its capacity is not enough for the amount of waste generated by the residents”. His arguments, as statements made by residents and previous studies from the municipality and universities, demonstrate the need for a constant and consistent educational approach to last no less than 2 years.

In the future, at the moment of signing a new waste management contract, it will be suggested to include these CWA as part of the service to be provided from Monday to Saturday. More than waste agents, these employees must be compromised with quality of life of their communities.

Information summary:

Implementation deadline: 12 months (renewable for the same period);

Budget: R\$ 241,000;

Fund: Municipal Environment Fund;

Status: on proposal preparation stage to submit to the Legal Office of the Municipality (Projur);

Start date: 2020;

Stakeholders: SESERP, Secretariat of Administration, Secretariat of Finance, Secretariat of Social Development and Jardim São Manoel Community Association.

2.2. DRAINAGE CANALS

BOOMS AT THE CANALS

The drainage canals urban project was developed by the sanitary engineer Francisco Saturnino Rodrigues de Britto, responsible for the basic sanitation program of Santos from 1905 to 1912.

The booms installation aims primarily to stop the floating waste coming from littering alongside the canals and so avoiding its way to the beachfront.

The first boom trial was launched at the World Water Day on the 22nd of March 2019, installed in canal 3. The Minister of Environment, Mr. Ricardo Salles, inaugurated it during the announcement of the National Plan to Fight Marine Litter in Santos. This specific equipment, produced by Flexprint Marine private company, is still installed and currently under tests by the Secretariat of Public Services, responsible for the canals maintenance, and by SEMAM. Depending on the results, the municipality will commission more booms and install them in the other canals.



Information summary:

Implementation deadline: 12 months;

Budget: not defined;

Fund: not defined;

Status: under tests;

Start date: September 2019;

Stakeholders: Federal Government, CETESB, SABESP, SEMAM and SESERP.

Beside the booms, tem new floodgates will be installed in the canals to guarantee more efficiency to the entire drainage system by minimizing flood effects and solid waste going to the estuary and beachfront. The new equipment features remote management and stronger material, unlike the old carbon steel sluice gates, which have existed for about 40 years and are currently operated manually by employees. The replacement is budgeted at R\$ 2,384 million and is financed by the State Fund for Water Resources (Fehidro).

2.3. BEACHFRONT

RECICLA BEACH PROJECT

Santos shoreline is composed of six beaches in almost eight kilometers of extension, with 218,800 m² of urban garden by the sea.

The beachfront public cleaning service starts at 04:30 AM every day of the year and comprises three steps: mechanized cleaning in the soft sand strip near the sidewalk; the mechanized and manual cleaning in the central sand strip, where the food sellers are (carts for beverages, snacks and pastries) and, finally, the mechanized and manual cleaning in the sand strip next to the zone of the tide. Despite all this effort, the material collected is not recycled, as there is no segregation of waste at place.

In order to change this reality, SEMAM started a survey among the 309 registered food sellers and noted the need to expand awareness and inspection actions, reinforced by the approach also carried out by the project team. And it is in this context that the Recicla Beach project is inserted, aiming to allow a wastepickers cooperative, duly registered in the municipal system, to collect recyclable waste at the beachfront, to segregate and commercialize it. The collectors will be trained to act as sensitizing agents for the reduction of waste and the quantity of residues.

Information summary:

Implementation deadline: 12 months (renewable for the same period);

Budget: R\$ 800,000;

Fund: Municipal Environment Fund;

Status: under review by the Legal Office of the Municipality (Projur);

Start date: December 2019;

Stakeholders: Sem Fronteira NGO, Secretariat of Administration, Secretariat of Finance, Secretariat of Social Development and SESERP.

RECICLA BEACH PROJECT FOR ENVIRONMENTAL COMMUNICATION

In January 2019, SEMAM inaugurated a fish-shaped sculpture in the sand strip of Boqueirão beach; baptized by the population as “Ecofish”, the sculpture works like a large recyclable waste bin, but your goal goes beyond that.



The Ecofish is actually part of the Recicla Beach Project for Environmental Communication, which aims to provide a new experience for the beach visitors.

In addition to installing two other similar sculptures, the proposal foresees the remodeling of the current containers of 240 liters that are installed next to the lighting posts of the border. The idea is to create 22 islands with four containers of one thousand liters in each of them, two for recyclables and two for organic waste.

The containers will receive a new identity, as well as the light poles, allowing the waste islands to be viewed from any point in the sand strip. In addition, the new communication aims to signal all the streets that provide access to the beach, as well as service boulevards, showers, foot-washing and rescue stations.

Information summary:

Implementation deadline: 6 months;

Budget: R\$ 90,000;

Fund: not defined;

Status: under review by the Secretariat of Government;

Start date: not defined;

Stakeholders: Sem Fronteira NGO, SESERP, Secretariat of Administration, Secretariat of Finance, State Public Prosecutor and Federal Public Prosecutor.

PREVENTIVE ACTION – POTENTIAL BANNING OF SINGLE-USE PLASTIC ITEMS

A) The Municipality of Santos intends to submit the Draft Law (PL) that aims to propose phased banning of single use plastic items from food sellers on the beach sand and the 73 kiosks.

Deadline for implementation: 2020/21

PROPOSED STAGES:

1) December 2020: the first items are banned such as small plates, trays, toothpicks and some types of cups.

2) December 2021: second set of items stops circulating in the kiosks and food sellers that act in the sand strip of the beaches.

Status: text under elaboration by Legal Office of the Municipality.

Forecast for submission to the Legislative Chamber: second semester 2019.

B) Besides the PL, the municipality also foresees elimination of single use plastic items at all governmental buildings; this stage, under the management of the Public Ombudsman's Office through the Program of Goals (PDR), will not be linked to the PL and is an initiative of SEMAM and the Municipal Ombudsman.

Stages for the municipality:

The single use plastic ban from local government buildings will follow a calendar:

- **By September 2019:** departments and secretariats of the City Hall receive an official determination to send a descriptive report of the single-use plastic items used in each sector;

- **By December 2019:** conclusion of the Environmental Communication Plan to be applied in all municipal public units;

- **By February 2020:** departments and secretariats will have five months to answer a letter stating which single-use plastic items will be banned from public purchases from 2021. They should also send a report with justifications referring to the items that will continue to be purchased and used in each department;

- **By June 2020:** Ombudsman includes, in the PDR for 2021, the exclusions of the single-use plastics from all departments, municipalities and secretariats of the City Hall.

Information summary:

Deadline and foreseen start: according to schedule above;

Budget: not defined;

Fund: Secretariat of Communication (SECOM);

Status: under review by Ombudsman;

Stakeholders: Union of Retailers, Gourmet League and Federal University of São Paulo (UNIFESP).

2.4. REGIONAL SCOPE

OPEN LETTER FROM THE SECRETARIES OF ENVIRONMENT OF THE NINE MUNICIPALITIES OF BAIXADA SANTISTA

In January 2019 the Secretaries of Environment of the nine municipalities from the Metropolitan Region of Baixada Santista launched a Open Letter of Environmental Education³. The document that was handed out on March 22 to the Ministry of Environment, Mr. Ricardo Salles, is not only a political position, but a set of proposals aimed at expanding actions and commitments with environmental awareness.

For the Municipality of Santos and SEMAM, the Letter is part of the efforts that begun in January 2016 to build the first Municipal Environmental Education Plan; at the time, the Intersectoral Committee for Environmental Education was created, responsible for the internal planning stage of the Plan, composed of representatives from all municipal secretariats.

The committee intends to collaborate in the formulation, structuring and implementation of a participatory and comprehensive Municipal Environmental Education Policy, in accordance with the National Environmental Education Policy and the State Environmental Education Policy of São Paulo. The next step, still in the second semester of 2019, is the creation of a Municipal Interinstitutional Commission of Environmental Education, this time with the participation of civil society.

Marine litter prevention is present, directly and indirectly, in the actions proposed by the document, which are:

- **Supporting metropolitan studies to create a Regional Environmental Education Policy;**
- **To develop a regional thematic calendar focused on environmental education actions;**
- **To establish a regional committee on Communication in Environmental Education, capable of developing support materials;**
- **To create a database to define priority themes and goals to be followed by society in relation to environmental education actions, such as sustainable production and consumption; social and environmental responsibility; citizenship and social participation; reverse logistic; recycling; mangrove; beaches; among others;**
- **To elaborate, coordinate, subsidize and implement programs, strategies and actions for the conservation of the environment, with Pronea (National Environmental Education Program) as a reference;**
- **To incorporate curricula and pedagogical proposals into contemporary themes that affect human life on a local, regional and global scale.**

² Source: <http://www.santos.sp.gov.br/?q=servico/limpeza-das-praias>.

³ Full version in www.santos.sp.gov.br/portal/meio-ambiente

2.5. JOINT ACTIONS

The following matrix summarizes the demands identified in the original problem matrix and matches the actions proposed by the municipality within the scope of the project. With the recent renewal of ABRELPE and SEPA assistance to the municipality of Santos, Phase 2 of the Project Fighting the Land-Sources of Marine Pollution will then fulfill some gaps within the proposed set of solutions, always from the point of view of prevention:

DEMANDS											
	Solid pathways	Improved door-to-door collection	Engagement/ local participation	Prevention at schools	Bins in the sidewalk	Awareness campaigns	Waste interception	Behavior-oriented communication	Infrastructure as bins and communication signs	Kiosks and food carts engagement	NGOs engagement
ACTIONS		“Ecological Fisherman” project (\$)					Booms	Recicla Beach project for Environmental Communication	Recicla Beach project (\$)	Plastic items ban (L)	Project tent in partnership with SurfLimpeza NGO and project hotsite
		Ecodike project (\$)						Phase 2. Economic-Financial Balance Axis			
		Community Waste Agent (\$)						P hase 2. Behavior and Capacity Building Axis			
		Phase 2. Behavior and Capacity Building Axis Phase 2. Monitoring and Impact Assessment Axis									
		Phase 2. Regional Governance Axis									
		Open Letter of Environmental Education (L)									

- = Municipality's actions
- = Phase 2 project actions
- = implemented action at Phase 1
- (L) = legal instrument
- (\$)= guaranteed funds

As can be seen, some gaps still persist especially with regard to demands on the palafitas communities and on the sidewalks of the canals. These are urban planning issues that go beyond solid waste management, but the recognition of its importance is already an important step in the future adaptation of these spaces.

The schedule of actions from the municipality can be better visualized in the following table:

ACTIVITIES	2º Semester 2019	1º Semester 2020	2º Semester 2020	1º Semester 2021	2º Semester 2021
“Ecological Fisherman” project					
Ecodike project					
Community Waste Agents project					
Booms project					
Plastic items ban (draft law)					
Recicla Beach project					
Open Letter – Regional Commitment					



3. RECOMMENDATIONS FOR MEDIUM AND LONG TERM ACTIONS

Beyond the duration of the project being implemented by ABRELPE and SEPA (June 2020) and the current Municipal Administration (December 2020), fighting the land-sources of waste that goes to water bodies is a no-return path. Locally and globally.

In this sense, the present Action Plan wishes to record recommendations in the medium and long term that reinforce the programs and projects previously committed, but also adapt and meet future local and regional demands in terms of adequate solid waste management. Its valorization as important resources for different sectors of society is a fundamental step in preventing littering and irregular disposal.

The suggestions are only recommendations that reinforce the message from the project team and the municipality that actions should involve infrastructure, technology and financial balance, but especially education, communication and social engagement. Are they:

1. Installation of a marine litter prevention Observatory, as a digital platform, where data from beaches, mangrove and water courses cleanups by local NGOs are made available and evaluated as a basis for communication actions and planning for infrastructure and public services by the municipality. Not only identify the types of materials most encountered, but also where they focus and so map the hotspots and bad behavior.

2. Creation of a Public Recycling Center, which aims to gather, in a single space, services and equipment to support the 126 local wastepickers registered at the Secretariat of Social Development.

The Center will allow these workers to sell the segregated waste directly to the final purchasers and obtain remuneration according to the prices of the regulated market. There will be provided structure and equipment that allow the sorting, compacting and baling of the materials by the own collectors, aiming at the maintenance or even improvement of the quality and respective commercial value. Training and capacity building courses can be developed as the place consolidates and understands the needs of this group and the city's demands. And as public equipment, one of the Center's main objectives is to offer social and health services to this group that has a difficult access profile and integration into society.

3. Creation of a broad program for food waste prevention and recovery of organic waste, incorporating education in schools, good behavior of private generators and households to reduce leftovers and segregation at source of the inevitable fraction. The benefits of using organic waste are broad and cross-cutting to other sectors, such as mitigation of methane emissions and use of biogas as an energy source. But there is also an indirect collaboration with the recovery of the dry fraction and, consequently, its recycling: segregation at source preserves the quality of the packaging and other materials that will be collected separately or be handed out at a recycling station.

4. Improvement of the drainage network with installation of barriers appropriate to the characteristics of the canals without prejudice to the present forms of marine life existent.

5. "Attractive" containers/bins to pedestrians on the sidewalks of the canals, but also in the city as a whole.

6. AquaMóvel launch, a public awareness vehicle with the purpose of training teachers in water resources and interface with the problem of marine litter. The objective is to equip teachers from different levels of formal education to be multipliers of information and stimulators of good behavior of future generations. At the same time, the circulation of the AquaMóvel through the streets of the city reinforces the message to the citizens that it is necessary to have a good behavior on waste disposal in the city to prevent the marine contamination.

7. Implementation of continuous monitoring system to track the origin-destination routes of solid waste in the insular territory of Santos and neighboring municipalities. A proposal is being drafted by the project team, contemplating from the format to the kind of management that is sustainable and collaborative; its implementation, however, should be decided by the municipalities of the Metropolitan Region of Baixada Santista. There is no doubt of its importance for the consolidation of a preventive behavior of marine litter, specially having accomplished several steps (diagnosis, identification of hotspots and materials littered) provided by the project.



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SWEDISH ENVIRONMENTAL
PROTECTION AGENCY