



Urban Agenda Platform

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# Sustainable Solid Waste Management Program in the city of Carhuaz and the School of Planning and Environmental Municipal Management

Partner	CONAM
Region	Latin America and the Caribbean
Sustainable Development Goals	Goal 11 - Make cities and human settlements inclusive, safe, resilient and sustainable

## Summary

Worldwide, tens of millions of people suffer from improper disposal of solid wastes-- through contamination of air and water, and as a vector for transmission of disease, to cite just a few examples. Ciudad Saludable (CS) saw in the pollution issues that were challenging the city of Carhuaz not only an intractable problem, but also an opportunity: building a community-based industry of efficient solid waste management systems that facilitate cleaner cities and healthy individuals.

## Background and Objective

**SITUATION BEFORE THE INITIATIVE BEGAN** The municipal waste collection department collected 60% of waste and disposed all directly into the Santa river creating health-related and pollution problems. Local authorities did not have a clear picture of the negative impact of waste mismanagement and only 35% of the population paid their dues for waste collection services. **ESTABLISHMENT OF PRIORITIES** The integrated solid waste management plan for Carhuaz was a mechanism built with direct involvement of authorities, institutions and the general public through workshops, survey polls, and field visits. During these activities, priorities were established which are reflected in the objectives of the plan. These objectives attack directly the solid waste problems with an integrated approach: promoting environmental awareness and achieving active participation of all parties involved in an effective manner with appropriate infrastructure and qualified personnel for the micro-enterprises. In this way, this environmental-conservation model was able to be replicated in the region, the country and abroad. **FORMULATION OF OBJECTIVES AND STRATEGIES** The main objective was: reinforcing environmental management capacities of local governments, public and private institutions and community organizations in regards to solid waste management in the Carhuaz province. Most important, our strategy was based on the implementation of an educational program that resulted in the increase of environmental awareness among citizens; capacity development for decision makers at a local, regional and national level; and the implementation of solid waste management system that is technically, financially and environmentally sustainable. **MOBILISATION OF RESOURCES** Ciudad Saludable provided technical support drawn from Albina's and her board members' internationally recognized expertise in solid waste management, and the relationships developed through years of consulting with government ministries, educational institutions and the waste management industry. To develop our work we mobilized resources from international cooperation, the national government, local authorities, private sector and the communities. On the international level, we received financing from the Open Society Institute and AVINA foundation. At a national level, the Consejo Nacional del Ambiente (National Council of the Environment) provided technical and institutional support by promoting participation of other institutions to support the project. At a local level, the municipality of Carhuaz contributed financially by paying the wages of employees and technically by providing heavy machinery to build the landfill. At the community level, the Association of Farming Women of Carhuaz, 18 women who manufacture a variety of products made of recycled waste, also provided financial support for the sustainability of the project. Finally, the people of Carhuaz played a critical role by segregating their solid waste in-house in order to lower the costs of collection, processing and final disposal of waste; and by paying monthly fees for the waste collection services.

## Actions and Implementation

The process of our initiative can be subdivided in 6 parts: Raising awareness among the population We aim to turn citizens into environmental conscious individuals by promoting : i) the use of reusable containers by providing households with trash cans; ii) the segregation of waste in organic and organic by teaching in workshops the benefits of doing this practice; iii) the implementation of new waste collection routes and schedules by coordinating with the municipality; iv) the payment for collection services by monitoring this process closely; and v) the use of compost and humus as effective fertilizers among farmers. Raising awareness in the educational system Ciudad Saludable trains teachers, students, and parents in environmental issues. We promote the implementation of small farms inside the school. Also, we coordinate cleaning campaigns in the schools and their surroundings. Finally, we make sure



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to include fun activities like: crafts workshops with recycled material, “Queen of Mother Nature beauty pageant” event, and visits to the landfill and solid waste treatment plant. Association of Farming Women of Carhuaz Founded in 2004, this is a group of 25 women that make a living of manufacturing paper, envelopes, greeting cards, masks, folders, notebooks, etc out of recycled items. Most of their final products are sold to national and international tourists. Collection and transportation This is an area that we faced some problems. We had to change completely how waste collection is done in Carhuaz from implementing new routes, schedules to training the municipal personnel and encouraging them to use gloves, protection masks and boots. One problem is that municipal employees were not held accountable for violating regulations like not wearing proper safety tools. Ciudad Saludable wrote memos to the proper authorities and things improved. Also, there is a big street market fair on Wednesdays and Sundays in Carhuaz that brings vendors from out of town. At the end of the fair, the place is a mess and most waste is not separated. Waste collectors need to double the work they do by coming back to that specific place more often and staying longer. Also, for rural areas that are not accessible for the waste collection truck, tricycles with waste compartments were implemented whereby a waste collector would ride his/her tricycle and do the collection on door to door basis. Final disposal and treatment of waste Before Ciudad Saludable involvement, the municipality disposed all solid waste by the Santa river. However, once CS was involved in this project a treatment plant (for organic waste) and a landfill (for inorganic waste) were implemented. Creation of Solid Waste Management School It was on this project (Carhuaz) that this initiative started and then expanded on a national and even international level. In 2003, Ciudad Saludable taught 6 courses to 30 environmental professionals from Carhuaz. A year later, CS formed a partnership with a university in Lima to launch a year-long course on a national level. Recently, we have trained professionals from Venezuela via an online course.

## Outcomes and Impacts

The objectives set at the beginning of the initiative were fulfilled. The improvement of people’s lives in Carhuaz is evident since the city looks cleaner and there is no pollution in the Santa river. This river, the main water source in the region, has been spared from receiving 6,500 Tons of waste. Organic waste that represents 70% of total waste have been processed and transformed into compost and humus that provide enormous benefits when compared to chemical fertilizers. The inorganic waste with commercial value have been properly processed and sold with the remaining (non-commercial inorganic waste) being disposed in a environmental-approved landfill. The local government is aware of the important role they play in this initiative. Now, they have the capacities and regulations in place to foster this development at a local level. Also, the local government has passed four regulations that are being enforced very efficiently. They have partnered with other public and private entities to launch new initiatives to improve the environmental conditions of the region. The people of Carhuaz participates actively by segregating 95% of their waste. This has been verified by reports carried out by municipal employees and by survey polls as well. In addition, 80% of people pay for waste collection services—a great improvement in only 3 years. Finally, over 400 local authorities, professionals, and government authorities have visited the city of Carhuaz which have shown great interest to replicate this model in different parts of Peru—as of today Ciudad Saludable has implemented its model in 35 cities in Peru.

## Sustainability and Scalability

To develop our work we have mobilized resources from international cooperation, the national government, local authorities, private sector and the communities. All these resources allow the implementation of our projects and it is up to each city to make sure they are sustainable – the initial resources are considered as seed funding that allow them to be sustainable through time. Ciudad Saludable is working to expand and replicate their model. The Diploma on Solid Waste Management and the virtual platform of knowledge dissemination will make possible the training of local civil servants. We are planning an important dissemination campaign with videos and the systematization of the work and results. We are looking for the active engagement of more and bigger firms to implement the Integral Solid Waste Management Program in low-income communities where they are based. Also, we work in coordination with our partners since everyone has its own role and competence. They are: Municipalities: they undertake the role of facilitators and they are responsible to provide the services and make sure private and public interests are coordinated. Micro-enterprises: They provide services thanks to alternative technologies efficiently and generating employment in decent conditions. Recyclers: they are organized in associations and they are part of the solid waste management system. National Council of the Environment (CONAM) allows the implementation of regional and national policies and initiatives. General Directorate of the Health Ministry: provides the general legal and normative framework at the national level. Organized Community: participates in the decision making and guarantees the adequate implementation of the initiatives. Private Firms: provide the financial support to many projects implemented successfully. Ashoka: dissemination and promotion of the initiative, training in various fields since Albina Ruiz is an Ashoka Fellow. Avina Foundation and Open Society Institute: Financial support and experience exchange, since Albina Ruiz is a selected leader. Schwab Foundation: Promote social entrepreneurship in academic and business since Albina Ruiz was selected Schwab Entrepreneur in 2001.

## Gender and Social Inclusivity

We are ready to start a new initiative in the city of Pucallpa located in the jungle of Peru. Objective: To organize families working on recycling activities into small micro-enterprises. They will improve their current working conditions, increase their income level and also achieve healthier cities. Needs and beneficiaries: Direct: 300 families who make their living from recycling residues. They suffer from parasitism, diarrhea, typhus, among other diseases. Indirect: 400,000 inhabitants of Pucallpa will have a healthier city to live in. Currently, about 320 tons of residues are disposed daily into an open dump in



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the center of the city. As a result of this, the Ucayali river and Yarinacocha lake are becoming increasingly polluted threatening the health of people that use the water for different activities--laundry, bathing, or fishing. Project activities To create organized groups of micro-enterprises in charge of collecting waste materials from homes, schools, hospitals and businesses; to implement a waste collection center; and to build/operate an organic waste treatment plant to obtain natural fertilizers. Project expected outcomes Decent jobs for 300 families through the implementation of sustainable micro- enterprises and a healthier city for 400,000 inhabitants of Pucallpa, through the implementation of an active surveillance system, where civil organizations can participate.

## Innovative Initiative

Contrary to popular opinion, poor people value sanitation services and have an 80 percent payment rate for services that are affordable and reliable. Having said that, Ciudad Saludable has learned the following: Technical: Local governments have no incentives to implement environmental waste management systems because there are not sanctions. Effective solid waste management systems can be customized depending on the region and the technology available. Financial: If a city has an efficient waste management system, more tourists will visit the city which promotes economic growth. Although the treatment plant brings financial resources to the model, it is very important the payment rate for waste collection and public cleaning services since these funds make the model sustainable. It also creates employment opportunities for people involved in the collection, cleaning of public place, processing and final disposal of waste. Environmental Against the beliefs that people and authorities do not pay attention to environmental issues, once there is an efficient and sustainable program in place, people care a lot because their health, environment and social activities improve considerably. Social: Through participation in workshops, people gain leadership skills and community involvement. Moreover, when environmental parades or cleaning campaigns are promoted, people get very involved and develop new relationships making many sectors of society integrated for a single cause.