

## SUCCESS STORIES

### GGGI SUPPORTS THE MUNICIPALITY OF LIMA TO INNOVATE WITH CIRCULAR ECONOMY FOR WASTE MANAGEMENT



► In January 2019, the new municipal administration of Lima was faced with a key challenge: what to do with the problem of increasing solid waste in the ‘Cercado de Lima’, the urban core comprised of the historical area and a mixture of the city’s oldest neighborhoods.

As with most developing countries, much of the municipal solid waste produced in Peru is organic. Leftovers, food scraps and discarded fruits and vegetables exceed 19,000 tons per day throughout the country.<sup>2</sup> In the Cercado, around 60% of the solid waste managed by the municipality is organic, much of which comes from households and commercial activities from its 47 markets.<sup>3</sup>

Waste management in the Cercado area was based on a conventional waste collection system with poor segregation practices that relied on aging infrastructure. More critically, the city’s main landfills were quickly running out of space to accommodate the waste of an increasing population demanding sustainable services. Implementing a circular economy solution was paramount in the eyes of the new administration of the city, led by the new mayor Jorge Muñoz.

<sup>2</sup> Peru’s Solid Waste NAMA, 2015

<sup>3</sup> Solid Waste Characterization Study for Cercado de Lima, 2019

Early 2019, GGGI and the Municipality of Lima decided to partner to tackle this problem and reduce organic waste in the city center by promoting waste management sustainable practices that directly benefit citizens. GGGI's expertise and international experience, through its Green Cities thematic strategy, was the perfect fit.

It was the first time for GGGI to work directly with a municipality in Peru, which proved exciting: *“working with a local government allows us to see our project's results in the short-term,”* says Paola Córdova, GGGI senior officer, who is overseeing the project from Peru's office.

The plan was to help the municipality explore options to increase the organic waste that is diverted from the waste management system through household composting, and create valuable products from the organic waste ready for disposal, such as through waste-to-energy solutions.

There are several ways to deal more effectively—and sustainably—with organic waste than dumping it in landfills. It can be converted to compost through small, simple household efforts or through city-wide collection of the organic waste that is then sent to large-scale composting facilities adjacent to landfills. Compost can then be used to fertilize house plants or public parks, or sold to provide extra income to households or revenue for the municipal solid waste system, lowering the total cost of operations to residents. Also, organic municipal solid waste can be sold to other types of composting facilities, such as the ones used by agribusiness companies that need organic raw material to elaborate the amounts of fertilizer they demand.

But organic waste also has the potential to be converted to energy through different methods. One is bio digestion. *“Biodigesters are devices that capture methane using a process much like the digestion that occurs in animals' (and peoples'!) stomachs,”* notes Córdova. Methane can then be burned for heating or cooking, or used in power generators for electricity.

The first step to explore the best options for valorization of organic waste was to review available data from past studies, as well as to understand people's attitudes towards options like waste segregation and composting, through interviews with different actors. Some respondents that are part of the Municipality's Recycling Program, but only recycle inorganics are willing to do home composting. So is as a small percentage of residents that are not in the municipal program yet. This group of current non-participants has not been addressed previously by the municipality and could be engaged for future participation. These respondents indicated they were interested in participating and that technical support was key.

GGGI then set out to test the biodigester option in partnership with Tereo, a specialized local company that installed a small pilot in the municipal plant nursery in the Barrios Altos neighborhood. The location was selected for its strategic position nearby two markets that could provide their discarded fruits and vegetables.

*“To put a municipal biodigester, even a pilot one for testing, was a very innovative idea, the first experience of its kind in Peru,”* says Córdova.

The plan is for this to also be an educational experience for residents of Barrios Altos who can learn about the circular economy in practice by reusing waste from their local markets. The pilot biodigester will provide key information to decide on the feasibility of scaling up these systems in the future.

Pamela Bravo, Deputy Director of Environmental Management at the Municipality of Lima, notes that GGGI has been a critical player in the project, and not only because of the organization's technical expertise.

*“There were trust issues in the beginning with residents and other stakeholders being apprehensive, but GGGI's professionalism allowed all parties to understand the safety of the pilot and its benefits,”* says Bravo.

Building local technical capacities was also a key part of the project. GGGI and the municipality organized a workshop in early December 2019 for the different departments that have a key role in the waste management chain. GGGI presented relevant experiences from different countries and discussed the opportunities for applying some of their lessons for Lima Cercado with the municipal technical staff.

Among the most important recommendations, GGGI pointed at strengthening the home composting program with more funds, looking for synergies with the private sector and exploring climate funding options to finance investment. GGGI's study suggests important constraints to consider, however, like the need to insert the organic waste valorization within municipal strategies and plans, the importance of creating synergies with other public institutions to increase organic waste recovery and the recognition of technologies and innovative practices of organic waste recovery.

*“This is why the work of GGGI is key,”* explains Bravo. *“We need to understand all of these green options to know what works best for the city to make informed decisions sooner.”*

Deputy Director Bravo concedes that this is a long-term work but stresses that GGGI is helping them build the conditions to green their waste management system. *“This work will ensure that our population has a service that takes full advantage of the opportunities that the circular economy has to offer for city's residents,”* she concludes.