

“Mercado del Trueque” - barter market project

Mexico City, Mexico 



“Food in return for waste” - Mexico City’s barter market project as an inventive waste management approach

The barter market project “Mercado del Trueque” was established in Mexico City in 2012. In Mexico City, an average of more than 12,000 tons waste are generated every day. Of these, only about 12% is recycled and the rest is shifted to landfills [1]. As of 2011, Mexico City’s main and one of the world’s largest landfills, Bordo Poniente, reached its maximum capacity and closed, which caused the city’s waste management concerns to increase considerably [2]. This, combined with other incidents, led to the invention of the barter market project “Mercado del Trueque”, which aims to raise Mexico City’s residents’ awareness of the importance of recycling and local consumption [1]. The barter market is held monthly and enables citizens to exchange clean and separated household solid waste for locally produced agricultural food. Every month, over 2,000 people attend the market and exchange waste for food [2]. Exchangeable waste is restricted to 10kg per person per market day [1]. Although the project to date is limited in how much it minimises waste, it is seen as highly important in increasing Mexico City’s culture of waste prevention and recycling [3].

Country/ City Profile



Country		City	
Population (2013)	122.3 million [4]	Population (2013)	9 million (city) [5] 21.2 million (metropolitan) [5]
Land area (km ²)	1.964 million	Land area (km ²)	1,485 (city) -4,250 (metropolitan)
GDP per capita (2014, current international \$, at purchasing power parity)	17,167 [10]	GDP per capita (2014, US\$, at purchasing power parity)	n/a (city) 19,239 (metropolitan) [6]
Region	Latin America	Region	inland

City’s physical geography

Location	<ul style="list-style-type: none"> ✓ Closed basin, surrounded by mountains and volcanoes = no natural drainage outlet (flooding risk, frequent seismic activity, weak air circulation) ✓ Placed on an earlier lake bed = soft base (downwelling challenges = challenges in groundwater and waste water management) ✓ Relatively high altitude (-2,250m) = lower atmospheric oxygen levels
Climate	<ul style="list-style-type: none"> ✓ Subtropical highland climate (average temperature: 12-16 C°) ✓ 820 mm/year annual rainfall, anti-cyclonic wind system = weak air circulation

Initiating context

In 2011, Mexico City’s main landfill, Bordo Poniente, closed after reaching its maximum capacity. The city was confronted with a significant solid waste management challenge. Mexico City’s surrounding landfills were overwhelmed with waste usually transported to Bordo Poniente. As a result, the need for inventive landfill alternatives increased, resulting in the implementation of several waste mitigation actions, including Mexico City’s barter market project [2].

The project was, however, not only launched as a result of Bordo Ponientes closing, but also as a mitigation action under Mexico City’s Plan Verde (Green Plan). Mexico City’s Plan Verde was introduced in 2007 to address climate change and reduce greenhouse gas emissions within different areas. Although initially not set as legally binding, these issues are aimed to be addressed by the introduction of several programmes and actions within a 15-year period (2007-2022) [7]. Enhancing waste management within the city is one of the seven key topics addressed in Mexico City’s Plan Verde, which aims to implement a comprehensive and sustainable solid waste management system [8]. The barter market project is also integrated into the Plan Verde, which seeks to raise citizen awareness of recycling and waste minimisation in Mexico City.

Project description

Mexico City's barter market is held every second Sunday of the month. Always located at public places, such as parks and plazas, the market partially takes place around different city districts. Every second month, the market is held in its principal place, the Chapultepec Forest, which creates a regular meeting point for all Mexico City inhabitants. During the months in between, the barter market wanders around different city districts to also reach citizens settled in distant areas. At the market, citizens are able to exchange recyclable waste (min. 1kg, max. 10 kg per person) for "green vouchers," which allow them to buy food produced by local farmers. Tradable waste currently (2015) covers seven categories: glass, paper and combined cardboards, aluminium and thin cans, PET bottles, tetrapak, electronics (except monitors) and cooking oil in plastic bottles. Agricultural food offered by local farmers includes fruit, vegetables, plants, etc., and is grown on farms located in the rural areas of Mexico City. Trading at the market day takes place while stocks last [1, 3].

Implementation process

"Mercado del Trueque" has been designed and implemented by the Mexico City Government and its Ministry of Environment SEDEMA together with various other public city offices and private companies [2]. The table below summarises the project's most important implementation steps and features, demonstrating how free food is used as a financial incentive in Mexico City in order to enhance citizen awareness of recycling and waste minimisation.

Projects implementation details

Process/ Leadership	The implementation of the barter market required: systematic organisation, a proper location, sufficient financing and coordination as well as campaigning in order to win citizens for the project. This overall process was mainly hosted by Mexico City's Government and its Ministry of Environment SEDEMA. The barter market has been implemented as an educational programme and has partnerships with various other public city offices, recycling companies and local farmers [2].
Financing	During the barter market, local farmers receive "green vouchers" in exchange for their products. Products are previously paid for by the Mexico City Government. Also, local farmers receive subsidies from the City in the trading process since the Mexico City Government purchases all of the offered food in advance at above market prices. This results in an estimated total monthly cost of about 6,300 Euros ¹ for the Government. This means that only about half or less than half of the project costs are retracted from selling the collected recyclable waste - the remaining costs are paid for by Mexico City's Government [9].
Involved stakeholders	<p>The project has been designed and implemented through the cooperation of several public authorities [2]:</p> <ul style="list-style-type: none">✓ Mexico City Government✓ Ministry of Environment SEDEMA✓ Office for Environmental Education✓ Directorate of Information and Broadcasting✓ eCitizen Services <p>During its implementation, the project developed partnerships with [3]:</p> <ul style="list-style-type: none">✓ About 80 local producers (local farmers of Mexico City's rural areas, providing food for exchange)✓ Several recycling companies (waste collection during the event, transportation to recycling facilities)✓ Public employees and volunteers (participating in the organization of the activity) <p>Recyclable waste can be exchanged for food by:</p> <ul style="list-style-type: none">✓ Mexico City citizens

Results

In 2014, approximately 128 tons of recyclable waste across all categories was collected by the barter market project (about 151 tons in 2013). In the first three months of 2015, about 38 tons have already been collected [1]. Detailed information on the collected amount of waste is updated frequently on the project's webpage. In addition to the exact amount of collected waste, the webpage also gives information about other environmental benefits of the project, including details about:

- saved tree usage in paper manufacturing
- saved water usage in paper manufacturing
- reduced fuel consumption
- reduced landfilling
- saved kW energy
- reduced red mud production in aluminium manufacturing

¹ Rate of exchange, April 2015

The achieved environmental co-benefits expressed in absolute numbers for 2014 and the first three months of 2015 are listed in the table below [1]:

Project benefits [1]

	Saved tree usage in paper manufacturing	Saved water usage in paper manufacturing [liter]	Reduced fuel consumption [liter]	Reduced landfilling [m ³]	Saved kW energy [kW]	Reduced red mud production in aluminium manufacturing [kg]
Overall 2014	864.5	-1.470 million	~75,000	127	250,690	3,168
Jan-Mar 2015	234.5	441,440	20,693	28	80,012	903

Besides the environmental benefits of the barter market, economic, social and health benefits are also credited to the project. By providing quality food in exchange for waste, the project counteracts malnutrition, which is a recurrent health issues in Mexico. In an economic and social respect, the barter market project benefits e.g. local agriculture and promotes awareness of local food consumption as well as the private waste industry (job generation) [3].

As the project is of limited size, results are achieved on a small scale. However, based on the success of the last few years, the city could consider opening additional markets in order to increase the project's impact. Also, although results have been limited, the barter market project is important regarding citizen education about recycling.

Lessons learned

Mexico City's barter market project is easily replicable. This project has multiple benefits to strengthen sustainability in a city. It not only minimises waste and raises awareness of recycling, but also promotes local consumption and local food production. Thus, the concept may benefit other cities currently facing problems with social inclusion, waste recycling and food security.

References

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