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CASE STUDY

Quezon City: Making Waste Management a Rewarding Investment

One of the challenges facing rapidly growing cities in Asia is how to improve their waste management system and at the same time make it operationally sustainable. Photo credit: ADB.

One of the most populous cities in the Philippines examines ways to make its waste collection system financially sustainable.

Overview

Quezon City, one of the most populous cities in the Philippines, does not have a financially sustainable waste collection system for a range of reasons. One relates to fees for waste management, and another is on how long private waste collection companies can be contracted for to operate this service.

The Asian Development Bank (ADB) provided technical assistance on mainstreaming solid waste management to Quezon City and four other cities in Asia. Key assistance involved reviewing current activities and upgrading 10-year solid waste management plans to improve the overall system as well as delivering one tailored project for each city. Issues covered were waste avoidance, minimization, and recycling; waste haulage and disposal; and information, education and communication campaigns.

After consulting stakeholders, the project team and the Quezon City government designed and agreed

on an enhanced 10-year integrated solid waste management plan. A pre-feasibility study was conducted on setting up a waste-to-energy facility with a modular waste capacity of 1,000 tons per day using a stoker-type incinerator.

Project snapshot

Dates	• **April 2015:** Project start • **March 2017:** Project end
Cost	• **US$ 1.4 million:** Total cost of technical assistance over 2 years
Institutions and Stakeholders	**Financing** • Asian Development Bank **Others** • Quezon City government: Stakeholder

Challenges

In Quezon City, waste is managed by private companies in each of the city's six regions. Contracts are limited to one year due to restrictions in the national procurement law. Therefore, private operators are not guaranteed a payback period for modernizing equipment. This means there is limited incentive for investing in better equipment, such as specialist compactor vehicles and processing plant, which would lead to more effective and efficient service delivery,

Quezon City does not have a financially sustainable waste collection system because the city is not collecting garbage management fees. This is due to a legal issue on how waste management fees are calculated. Even though local government units in the Philippines have budget allocations for solid waste management under the 20% development fund, the cost of collection is often higher.

Residual waste is hauled to the Payatas dumpsite, which was converted into a controlled landfill some 15 years ago. About 5 years ago, a lined landfill was established on the site, which accepts all residual waste from the city. The site is operated and maintained by a private contractor and has more than 5 years of life remaining with just the current landholdings.

There is also a lack of centrally funded information, education, and communication program to change behavior and attitudes toward solid waste management. However, Quezon City does fund its own promotional campaign aimed at achieving widest possible participation and support for environmental protection, and more specifically, for solid waste management.

Solutions

One solution is to provide more incentives to private companies to invest in solid waste management by extending contracts to a term of 7 to 10 years or more. This would allow a private company to schedule repayment of purchase costs for specialized equipment, such as compactor vehicles and processing plant. However, this would require changes to the country's procurement laws.

The project provided a range of technical assistance:

- Updating the city's 10-year solid waste management plan according to ADB's solid waste management plan template to the point that it was accepted by the municipality.

- Conducting a waste tonnage audit in October 2016 with the assistance of the collection section of the city's solid waste management department to establish the target capacity of a planned waste-to-energy facility.

  The city's priority is to establish a waste-to-energy facility and knowing the target capacity allows for unsolicited proposals to be evaluated.

  The project also presented alternative options to the city with corresponding pros and cons.

- Preparing a pre-feasibility study of a waste-to-energy facility with a modular waste capacity of 1,000 tons per day using a stoker-type incinerator. This can handle a large quantity of waste and a wide range of waste types.

- Assisting with the contractual mechanics of a possible public-private partnership for a waste-to-energy facility, including the associated social, legal, and financial issues that need to be clarified and simplified.

Results

The new integrated solid waste management plan will be implemented in three phases over 10 years.

- Phase 1, in years 1 to 3, will focus on initial research and planning for improvements; information, education, and communication campaigns; and enhanced waste collection and disposal.
- Phase 2, in years 4 to 6, will concentrate on closing Payatas Controlled Dump and Landfill facility.
- Phase 3, in years 7 to 10, will include acquiring a new disposal site and developing a sanitary landfill at Payatas area.

The project investigated the cost of establishing a waste-to-energy facility under a public-private partnership. The estimate is 13.1 billion pesos. The crucial financial metric in any private sector participation is the expected return on equity (RoE). The project was modelled with the required RoE

and minimum debt service coverage ratios as objectives and then calculated what the annual revenues for the operator then should be offsetting the capital expenditure and operating expense, and the equity return.

A tipping fee of P1,600/ton is required (in addition to the subsidy of P600/ton) resulting in a RoE of 17% and a minimum debt service coverage ratio of 1.2x. The RoE is justified in light of the uncertainties in the feed-in electricity tariff.

Note that the tipping fee accounts for 44% of total revenues as the main revenue earner is the injected power into the grid at a feed-in tariff of P5.97 per kilowatt-hour. This represents a 10% reduction in the current renewable energy tariff rate of P6.63/kWh for the biomass category in which waste to energy is placed. It accounts for possible downward revisions during at least two rate reviews within the project development and construction period.


Quezon City Payatas landfill development. Photo credit: Lyndsay Chapple.

Lessons

Potential conflicts between local and national legislation must be addressed when preparing local regulations on waste collection fees. National procurement regulations currently prevent Quezon City from issuing multi-year collection contracts.

The strong commitment of the city's solid waste management staff to the project empowered the project team to meet deliverables. However, simultaneously, city officials and elected representatives continued considering unsolicited waste to energy bids against the project team's recommendations. This indicates that while the city officials were committed to the project approach, higher level political imperatives overrode the project recommendations from both technical and public-private partnership mechanism

perspectives. Political level engagement is difficult in large cities and can result in a range of project implementation issues.

The technical assistance provided by the project enabled the city to acquire some capacity in reviewing, assessing, and evaluating unsolicited waste to energy project offers. The study indicated that significant gate fees would have to be applied to make the waste to energy concession economic. This finding aligns with industry experience, but conflicts with marketing claims of many waste to energy proponents.

The project also assisted with the contractual mechanics for a waste-to-energy facility under a public-private partnership, including the associated social, legal, and financial issues that need to be clarified and simplified. The projected cost of the facility is P13.1 billion.

Resources

Asian Development Bank. 2017. *Integrated Solid Waste Management for Local Governments: A Practical Guide*. Mandaluyong City.

Asian Development Bank. *Regional Capacity Development Technical Assistance on Mainstreaming Solid Waste Management in Asia*

Mainstreaming Solid Waste Management in Asia

Related links

Summary: *Improving Waste Management - Solutions from Five Asian Cities*

Case Study: *Buriram: The Economics of Refuse Derived Fuel Production*

Case Study: *Mahasarakham: Privatizing Landfill Operations*

Case Study: *Mandalay City: Outsourcing Waste Collection Services*

Case Study: *Sorsogon City: Options for Developing a New Landfill*

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Andrew McIntyre heads the project administration unit of the East Asia Urban and Social Sectors Division at ADB. Earlier, he led ADB’s Future Cities Program, operationalizing a One ADB approach to better engage with Asian cities over the long term, by facilitating cross-sectoral knowledge and

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