Community Solutions for Indonesia's Waste

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The deadly landslide at the Leuwigajah landfill near Bandung, Indonesia struck on February 22, 2005, after three days of heavy rains. During the night, some 2.7 million cubic meters of garbage, hazardous waste, and mud swept like an avalanche through the villages of Cilmius and Cireundeu. Witnesses reported that it sounded like an explosion or thunder. The disastrous swath of garbage traveled almost a kilometre in just minutes. More than 140 people were killed and at least 69 houses destroyed.

The tragedy at the Leuwigajah landfill is the most spectacular recent example of Indonesia's challenges in solid waste management. Although less dramatic, the daily struggle of the poorest residents of Indonesian cities with deficient solid waste management also imposes major costs in health and environmental impacts. Urban areas of Indonesia generate about 55,000 tons of solid waste every day. Only about 50 to 60 percent of the waste is collected, and landfill sites are mostly open dumps. Their health impacts lead to premature deaths, serious illness and diminished quality of life. Dengue fever and malaria are spread by mosquitoes that breed in pools of standing water. Contaminated water transmits water-borne diseases such as diarrhea and other gastro-intestinal afflictions. People who work as garbage scavengers face risks of bacterial contamination or exposure to hazardous products. Dioxins circulate when garbage containing polyvinyl chloride (PVC) is burned in neighbourhoods that have no waste collection.

A 2004 World Bank report states that Indonesia's public spending on infrastructure is insufficient to address poverty reduction and economic growth objectives. It observes that poor infrastructure, including the lack of solid waste facilities, has reduced quality of life and contributes to contamination of surface and groundwater, as well as the destruction of eco-systems.

IDRC is responding to the infrastructure gap in waste management by supporting research that emphasizes informed choice, affordability of technical options, and decentralized models. The IDRC-backed initiatives are looking at new ways of managing solid waste in slums, through innovative collection, separation, and disposal mechanisms.

BORDA (Bremen Overseas Research and Development Association), a German NGO, is collaborating in one of the IDRC-supported initiatives. This NGO is a close observer of local government capacity in solid waste management. They see basic problems in Indonesian cities, such as a lack of logistics and equipment to get garbage out of neighbourhoods. In addition, they note that funding for proper management of final disposal sites has become a major constraint for municipalities. Some big cities have had landslides at garbage piles, while others are in conflict with communities living near dumpsites or with other cities that refuse their garbage. According to BORDA, "most local governments only show limited understanding of why they should maintain city cleanliness in the long term".

Another IDRC-supported project begun in 2006 is addressing decentralized solid waste management in

other Indonesian locations. The initiative is supported by BORDA and implemented by three Indonesian NGOs – BEST, Bali Fokus and LPKP. The project team has chosen low-income communities as sites for research and development of options for solid waste management. This project is implemented in four locations -Tangerang, Denpasar, Mataram and Sidoarjo.

The vulnerable social groups targeted by the project are mainly urban poor who have no secure income nor social security, no health insurance, and few means to articulate their rights and needs with local government. The project team works with these groups to set up a community-based organization to coordinate and implement project activities. Residents set an action plan schedule, develop a community map and identify a location for a material recovery facility. A tool called the informed choice catalogue (ICC) is deployed, intended for use by both communities and various levels of government. The ICC uses printed images to present a variety of options for separating garbage at the household level, for composting organic wastes, and for collecting the separated garbage and moving it to the recovery facility. The ICC provides essential information for the beneficiaries so they can choose the system based on their understanding of the risks and consequences.

Central to the approach is the notion of decentralized options for handling waste. In BORDA's experience, these allow for better ownership by the communities, require lower costs for transportation to the landfill site and less space for final disposal at the landfill, and are of a manageable scale. Moreover, the approach provides additional income from compost and recyclables, generates jobs for local workers, and strengthens community capacity, especially in solid waste management.

Local waste management was intended to benefit from Indonesia's huge decentralization program in 1999, which moved many services and responsibilities from the national level to regional and local levels. Despite progress, many low-income communities in large cities are still in dire need of better services. "Local government officials need improved capacity and technical skills, combined with heightened accountability to local constituents," says Husnul Maad, a program manager with Mercy Corps (a United States-based NGO) in Indonesia. "These characteristics were missing prior to decentralization since local government played a minor governance role. Indonesia is now in the valuable, but lengthy, process of overcoming these weaknesses," says Maad.

Mercy Corps is leading an IDRC-supported project begun in 2006 to improve water, sanitation, and solid waste services in Jakarta through economic incentives. The project – known as 'Healthy Places, Prosperous People' or HP3 – is part of IDRC's Focus City initiative, whereby multi-stakeholder city teams research and test innovative solutions to alleviate poverty. HP3 is focusing its efforts in Penjaringan, a large neighbourhood near the harbour of North Jakarta District. This area "exhibits some of the most severe characteristics of poverty, environmental degradation, poor service provision, and health problems in the city," says Husnul Maad.

HP3 will use participatory approaches to identify economic incentives for improving environmental services in Penjaringan. One mechanism for participation by local residents is through the community steering committee. "Based on lessons learned from other projects in Penjaringan, community steering committees generate higher degrees of participation, more grassroots input, and better collective action through the establishment of local advocates for changes in policies, relationships, and resource allocation," says Husnul Maad.

The HP3 project team, led by Mercy Corps, also includes collaboration with three other organizations.

The Urban and Regional Development Institute is a local NGO with expertise in urban planning issues, policy development and advocacy, and knowledge of Jakarta's municipal government. The USAID Environmental Services Program has expertise in community-based environmental infrastructure and service provision. Their staff advises on research and implementation for HP3, drawing on lessons from their work on infrastructure models being tested in other parts of Indonesia. The Swiss NGO Swisscontact has strong linkages with the Jakarta government and private sector, and is helping HP3 develop engagement strategies, as well as advising on business development, income generation, and economic analysis.

The team's methodology depends on finding local residents who are 'positive deviants,' people who have solutions to pervasive problems that others in the community – with access to the same resources – have not discovered. Specifically, the team will look for "successful behaviours currently practiced by poor Penjaringan families which represent positive environmental behaviours or improved environmental conditions, while generating some form of economic benefit to the family," says Maad.

Once the positive deviants and their practices have been identified, the findings will be used to design a community-based, economically oriented program for poor people in Penjaringan. Mercy Corps is counting on market-driven environmental improvements to bring about change. It says there are cases of market-based solid waste innovation related to household separation and composting, although market chains (links connecting transactions in the movement of goods from producer to consumer) are immature. HP3 is conducting value chain analysis – looking at how a series of enterprises add value to a final product – to assess the feasibility of compost and waste markets. In developing the project concept, Mercy Corps looked at successful regional examples of market-driven solutions in sanitation and solid waste management, especially from Vietnam and India.

Mercy Corps considers local government involvement in the project to be of prime importance. "HP3 assumes that in order to achieve policy changes, government officials must better understand the environmental and livelihood burdens in poor communities and then participate in the solution development process," says Maad. The idea is that by participating in researching and piloting this approach, municipal officials will acquire the skills and abilities for scaling up the program and taking relevant policy actions for providing better services to the poor.

The informed choice catalogue (ICC) gives people an idea of the costs of the different options, so the chosen technology will reflect the community's willingness and ability to pay. Service costs are lowered by the expected income from the material recovery facilities. The financial feasibility of the chosen options are calculated at the end of this process, showing how much cost should be borne by the beneficiaries until the community is satisfied with the level of the user fee.

The initiative is looking to carry its successes to larger scales. BORDA cooperates with the National Planning Agency (Bappenas) to prepare for upscaling. The NGO believes that they can develop successful solutions for individual locations, but upscaling is an urgent need, given Indonesia's high population growth. The involvement of national agencies, especially the Water Supply and Environmental Sanitation Task Force, allows the project to include the research and development needed for future upscaling from the beginning of the project.

BORDA anticipates that these projects will lead to real benefits for the communities involved. Not only will exposure to environmental health hazards be reduced and overall health improved, but

BORDA also foresees that local people will have higher incomes, a cleaner environment, increased levels of social awareness and responsibility, and greater self-confidence in dealing with local governments.

Above all, the projects coordinated by BORDA and Mercy Corps are demonstrating the value of exploring models suitable to Indonesia's context, where low capacity and limited resources in local governments require bottom-up, locally driven solutions and even the re-invention of traditional approaches to waste management, when appropriate.