

1. Name of the Project

Country: The Republic of Indonesia
Project: Regional Solid Waste Management for Mamminasata, South Sulawesi
Loan Agreement: March 30, 2010
Loan Amount: 3,543 million yen
Borrower: The Republic of Indonesia

2. Background and Necessity of the Project

(1) Current State and Issues of the Waste Sector in Indonesia

In Indonesia, economic growth has resulted in a surge in the amount of waste. However, a lack of any sanitary waste disposal facilities has meant that many cities have had to rely on landfill disposal based on open dumping. Furthermore, because the administrative capacity for waste management is also inadequate, the percentage of waste that is actually collected and transported is low, and so residents end up dumping their garbage illegally here and there. Serious environmental and sanitation problems have developed from this, making improvement to waste management a critical issue.

The project covers the Mamminasata Metropolitan Area, which has at its core, Makassar, the capital city of the South Sulawesi Province. With a population of about 2 million, the Mamminasata Metropolitan Area is formed by the city of Makassar and the regencies of Gowa, Maros and Takalar. More than just being the center of its own province, the area has also been developed as the economic, industrial and transport center of the island of Sulawesi, and indeed, of Eastern Indonesia. At the same time though, in response to the increasing amount of waste generated, due to the inappropriate treatment of those wastes, they have been ending up littering the rivers, canals and streets, and it leads to pose serious environmental and sanitation problems. Makassar accounts for 90% of the amount of waste being generated in the metropolitan area, and it has been forecast that the amount of waste per capita in this city will increase from 477 grams per day (2006) to between 866 and 1,134 grams (2027). It is expected that the existing final disposal sites in each city and regency will exceed their maximum capacities in about five years, and so also from the view of securing land for disposal sites, a waste management system for the whole metropolitan area needs to be developed.

(2) Development Policies for the Waste Management Sector in Indonesia and the Priority of the Project

In its National Mid-term Development Plan (RPJM: 2004-2009), the Government of Indonesia has included the improvement of waste management in its environmental sector goals. Furthermore, the Government has positioned the prevention of pollution and environmental degradation as one of its development programs, and is encouraging civic participation in the sorting and separation of garbage and in 3R

activities (Reduce, Reuse and Recycle). Moreover, under the Act regarding Waste Management, which was enacted in 2008, local governments are required to close any final disposal sites with open dumping within five years of the act being enacted. Ministry of Public Works intends to promote this project, positioning it as a model case for regional waste management in the nation's metropolitan regions.

(3) Japan and JICA's Policy and Operations in the Waste Sector

"The Country Assistance Program for Indonesia" (November 2004) of the Government of Japan sets support for "the creation of a democratic and fair society" as a priority area. It regards maintaining urban environments at a certain level as extremely important for sustaining economic growth, and it plans to provide support in the area of "environmental conservation and disaster prevention." In response to this policy, JICA has positioned the improvement of urban environments as one of its cooperation programs. The project is in accordance with this policy as well. Furthermore, JICA has set regional development in the South Sulawesi Province as one of its cooperation programs, and the project will also contribute to the promotion of this program.

(4) Other Donors' Activities

The Asian Development Bank views the sanitation sector as a priority area, and has pushed ahead with the formation of the "Metropolitan Sanitation Management and Health Project" in Makassar and two other cities, but this project does not include any waste-related components. The World Bank has raised "Environmental Sustainability and Disaster Mitigation" as a priority area, and in 2008, it approved the "Makassar Landfill Methane Collection and Flaring Project" with an objective of reducing methane emissions from existing landfill sites.

(5) Necessity of the Project

It accords with Japan's and JICA's priority assistance areas, and thus, it is highly necessary and relevant for JICA to provide assistance.

3. Project Description

(1) Project Objectives

By developing a final disposal site and by introducing a regional waste management system which covers several local governments, the project aims to promote the appropriate waste management that is generated in the region, thereby contributing to improving the living and sanitary conditions for local residents, preserving the environment, and strengthening the administrative capacity of local governments.

(2) Project Site/Target Area

South Sulawesi Province (comprised of the city of Makassar and the regencies of Gowa, Takalar and Maros; final disposal site to be constructed in Pattallasang in Gowa Regency)

(3) Project Components

- 1) Construction of sanitary landfill site
- 2) Development of access roads
- 3) Construction of Makassar transfer station
- 4) Procurement of equipment and materials (heavy machinery for operating the facilities, vehicles for relaying waste)
- 5) Consulting services (tender assistance, construction supervision, etc.)

(4) Total Project Costs

Total project costs: 4,947 million yen (Loan amount: 3,543 million yen)

(5) Schedule

It is scheduled from March 2010 to April 2015 (62 months in total). The project will be deemed complete when the facilities come into service (April 2014).

(6) Project Implementation Structure

- 1) Borrower: The Republic of Indonesia
- 2) Executing Agency: Directorate General of Human Settlements, Ministry of Public Works
- 3) Operation and Maintenance System: the decision-making body "Mamminasata Metropolitan Development Cooperation Board," and the new public service unit for operation and management, which will be established within the South Sulawesi Province Government

(7) Environmental and Social Consideration/Poverty Reduction/Social Development

- 1) Environmental and Social Consideration
 - (i) Category: A
 - (ii) Reason for Categorization
The project corresponds to the waste management sector listed in the "Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations" (established in April 2002).
 - (iii) Environmental Permit
The environmental impact assessment (EIA) report for this project was approved by the South Sulawesi Province Government in February 2008.
 - (iv) Anti-Pollution Measures
No particular impact from the discharge of treated water is expected because the wastewater from the final disposal site will be treated to meet Indonesia's effluent standards before being discharged into rivers.
 - (v) Natural Environment
The project site is not located in or around any susceptible areas, such as national parks, and any adverse impact on the natural environment is expected to be minimal.

(vi) Social Environment

The project will acquire approximately 100 hectares of land. The land is being acquired in accordance with the domestic procedures of Indonesia. The project is not expected to involve any involuntary resettlement.

(vii) Other/Monitoring

During the project, noise, water quality and so forth will be monitored by the executing agency before and during construction, and by the South Sulawesi Province once the final disposal site has begun operating.

2) Promotion of Poverty Reduction

None in particular

3) Promotion of Social Development (gender perspective, measures for infectious diseases including HIV/AIDS, participatory development, consideration for persons with disabilities, etc.)

Support is planned for resident-participation 3R activities (Reduce, Reuse, Recycle) as part of the technical cooperation program being run in parallel with the project.

(8) Coordination with Other Donors

A detailed design of the project from January 2010 is currently being produced, funded by AusAID.

(9) Other Important Issues

None in particular

4. Targeted Outcomes

(1) Performance Indicators (Operation and Effect Indicators)

Indicator	Baseline (actual value in 2007)	Target (2016) [2 years after completion of the project]
Amount of garbage disposed (tons/day)	370	723
Amount of materials of value collected at sorting facility (tons/day)	0	18
Amount of compost produced (tons/day)	0	2.6
BOD of wastewater draining from disposal site ¹ (mg/l)	6,900	150

¹ BOD: Biochemical Oxygen Demand

(2) Internal Rate of Return

Based on the conditions indicated below, the economic internal rate of return (EIRR) for this project is 8.1%.

Costs: Project costs, operating and maintenance costs, cost of spare parts (each excluding taxes)

Benefits: Proceeds from the sale of compost and materials of value, amount able to be paid by beneficiaries for a sound garbage disposal service (2% of disposable income), reduction in disposal costs at landfill site due to introduction of sorting and composting facilities, job-creation effect

Project life: 7 years

5. External Factors and Risk Control

None in particular

6. Lessons Learned from Findings of Similar Projects Undertaken in the Past

From past ex-post evaluations of similar Japanese ODA loan projects, it has been learned that, when forming a waste disposal project, it is important to adopt an approach of addressing the project by recognizing the challenge of comprehensive policy-making that is conscious of reconciling interests with neighboring local governments from an early stage, without being biased toward any technological measures for waste disposal. In this project, JICA has formulated the project in close coordination with constituent local governments, and going forward, while also utilizing technical cooperation, it will continue to strive to develop an operation and maintenance system that is in tune with the local situation while engaging in discussions with the constituent local governments.

7. Plan for Future Evaluation

(1) Indicators for Future Evaluation

- 1) Amount of garbage disposed (tons/day)
- 2) Amount of materials of value collected at sorting facility (tons/day)
- 3) Amount of compost produced (tons/day)
- 4) BOD of wastewater draining from disposal site² (mg/l)
- 5) Economic internal rate of return (EIRR) (%)

(2) Timing of Next Evaluation

Two years after the project's completion

² BOD: Biochemical Oxygen Demand