



United Nations
Economic and Social Commission for Asia and the Pacific



Pro-poor Water and Wastewater Management in Small Towns CASE STUDIES

SANITATION BY THE COMMUNITY IN DENPASAR, INDONESIA (SANIMAS)

EXECUTIVE SUMMARY



Indonesia's Sanitation by the Community program (*Sanitasi oleh Masyarakat* or *SANIMAS*) uses a community-based development approach to improve access by low-income households to sanitation services. SANIMAS projects have been implemented in more than 22 provinces and 100 communities since 2003. One of the best examples of a SANIMAS project was the creation of a simple sewage system in Kusuma Bangsa neighbourhood in Denpasar, Bali, in 2004-05, providing off-site sanitation services for 211 households, or about 840 people.

1. Problems addressed

Kusuma Bangsa is part of Pemecutan Kaja Village, West Denpasar District, which is one of the most densely populated areas of Denpasar. Most of the residents come from elsewhere in Bali or from East Java and Lombok Island, and have lived in the area for more than five years, generally leasing rooms or houses on a monthly or annual basis. Many householders earn their livelihood as street sellers, small entrepreneurs and construction workers, or they have home-based businesses. Most of the women stay home to care for children and the house. Monthly family incomes range from IDR500,000 (US\$56) to IDR1.5 million (US\$167).

About 80 per cent of rented rooms or houses in Kusuma Bangsa have small bathrooms and toilets without proper septic tanks. Before implementation of the project, wastewater was discharged to a nearby stream. During floods, rising backwater from the stream pushed wastewater and rubbish into houses. The area experienced a high rate of diarrhoea and other water-borne diseases, especially among children aged below five years, due to a lack of proper sanitation facilities and frequent flooding. Health costs and transport to health centres were a burden for the children's mothers.

2. Activities

The project was developed through several activities conducted over eight months from July 2004 to February 2005. Implementation included awareness-raising in the community, establishing a SANIMAS community-based organization (CBO), capacity building (management and financial issues, operation and maintenance), physical construction, a health and education campaign, and monitoring and evaluation.

The CBO was set up to implement the project with the assistance of BALIFOKUS, an NGO that coordinates and facilitates implementation of SANIMAS projects in Bali and eastern Indonesia. The CBO's members are five heads of families connected to the SANIMAS system and chosen by beneficiaries. They organize meetings, identify beneficiaries, compile action plans, manage funds and mobilize people to contribute.



In deciding on a service to suit Kusuma Bangsa, the community was given the opportunity to choose between three technical options developed to suit different urban poor communities in Indonesia. The first option is to install shared septic tanks, each used by about 10 to 20 households. The second option is a community sanitation centre (known as *Mandi Cuci Kakus*), which is suitable for “non-permanent” slum communities. The third option is a simple sewage system suitable for “permanent” slum communities where each house has a toilet and bathroom but there is no space for individual septic tanks. The people of Kusuma Bangsa opted for a simple sewage system which includes a wastewater treatment plant designed to treat about 60 cubic metres of black and grey water per day.

The project involved installation of 67 household connection boxes that function as grease-trap units, 200 control boxes or manholes, simple sewage pipes from houses, a plant using a decentralized wastewater treatment system (DEWATS) and an anaerobic baffled reactor with no electricity inputs, and a drainage system next to the plant. An electric pump was installed to provide effluent discharge back-up during floods.

The project was supported by a multi-financing scheme, with contributions from the national Ministry of Public Works (in kind), the Denpasar Municipality's Environmental Agency (cash for construction and capacity building), BORDA (cash for construction and capacity building) and the beneficiary community (cash and in-kind contributions). The total cost, including construction and capacity building components, was IDR358,324,500 (about US\$39,814).

The community provided 2.3 percent of the construction costs, in kind or in cash, and agreed on a fee scheme to cover operation and maintenance costs in the long term. It was decided that all users would equally share the costs. The operational cost of the simple sanitation service was calculated to be IDR220,833 (about US\$24.50) a month. Each serviced household would be required to pay IDR1,338 (about US\$0.15) a month to meet this total. The community decided that because the amount was low, it would institute a higher monthly household charge of IDR3,000 (about US\$0.33). In addition, the community decided to combine a solid waste collection service with the new sanitation service. As a result, the overall agreed monthly user fee for the combined services is IDR5,000 (about US\$ 0.56) per household.

The community's contributions to the project were higher than expected, and excess construction funds were available. The residents agreed to use these funds to provide smooth concrete paths in some alleys after pipe-laying and other construction work were completed, as well as to build several dedicated washing spots.

3. Key outcomes

The Kusuma Bangsa community optimized the use of available resources, especially funds, to improve their neighbourhood. The community-based and multi-sourced funding approach facilitated relatively rapid project implementation. As a result, residents now enjoy a more comfortable living environment and quality of life.

A survey conducted in December 2006 found that the project helped the community to resolve local sanitation problems. Improved services resulted in residents enjoying better health, reduced health expenses (and therefore greater monthly savings), more leisure time (especially for women because children were healthier and washing work was made easier) and greater awareness of personal and communal hygiene and health issues. The neighbourhood is cleaner than it was before the services were improved and the quality of shallow groundwater is better preserved.

Men and women benefited, but women in particular note that they are more comfortable, especially during the rainy season, and no longer worry unduly about floods and backwash. Random interviews with some women who have children aged under five indicate that children suffer less from diarrhoea than previously. Women say their children are safer using the new concrete paths and foul smells have been minimized. Some street food sellers feel more secure in preparing their stalls in a more hygienic environment.

Significant unexpected outcomes include, among other things, the initiative to combine a solid waste collection service with the new sanitation service, with the CBO asking the municipality for support in this regard and then including an additional user fee for waste collection. The high level of contributions from the community not only allowed for the pathways to be improved but have ensured excess funds are still in the community account.

More broadly, the community is empowered by its increased awareness and confidence about a range of issues, from technical aspects to health and hygiene to initiatives to improve the area further. For example, the community lobbied the municipal Public Works Agency to conduct checks upstream on the river and has asked for improvements to prevent future flooding.

Residents appreciate the new services, after some initial doubts. Many have told friends and family who live elsewhere about the benefits of the SANIMAS experience while CBO committee members are invited to attend national workshops and seminars to share information about the sanitation services in Kusuma Bangsa.

4. Sustainability

The example of Kusuma Bangsa and other communities shows that the SANIMAS approach is financially, economically, socially and environmentally sustainable.

In Kusuma Bangsa, the local government contributed about 53 percent and the central government about 19 percent of the total cost of implementation. The same amount could be allocated annually in local and central government budgets. BORDA's contribution of 26 percent could be filled by other donors or members of the private sector. The community contribution could be more than 2 percent. User fees cover operation and maintenance costs totally. The CBO committee and operator take care of minor repairs while the municipality has agreed to bear the cost of any major repairs. The DEWATS plant also enhances environmental sustainability by treating domestic wastewater to an environmental standard set by

environmental agencies. The plant requires only simple and low maintenance, without need for a highly skilled operator.



Greater sustainability could be gained by developing a provincial government infrastructure and implementation fund to support local government funds and inviting more private sector involvement; setting up a team of community-based facilitators to work in communities other than their own; promoting a small-scale operation and maintenance provider where there are several SANIMAS projects in one city; setting a benchmark to measure the quality of services delivered by CBO committees; and making available other infrastructure such as de-sludging trucks and services, as well as a sludge treatment plant.

4. Expansion

Following the success of implementation in Kusuma Bangsa, the BORDA partner network is adjusting SANIMAS modules to incorporate decentralized solid waste management programs in other poor urban settlements, while the Kusuma Bangsa CBO committee plans to establish a cooperative saving and credit institution.

Kusuma Bangsa proves that a community-managed sanitation service can be provided in a participatory and sustainable manner, and that this approach may work not only in poor urban communities but also in those that are better off. In 2006, Indonesia's Ministry of Public Works investigated whether a community and a local institution may jointly provide and manage a local sanitation service for low-cost housing and settlements, including housing complexes for low-ranking government, military and police officers. The results are yet to be assessed, but the Directorate of Environmental Sanitation Development now regards SANIMAS as the entry point and a pre-requisite for village and neighbourhood improvement programs.

5. Principal author and contact details

Mrs Yuyun Ismawati, Director
BALIFOKUS Foundation, Mandalawangi No.5, Jalan Tegal Wangi, Sesetan, Denpasar 80223
Bali, Indonesia
Phone/fax: +62-361-233520, Mobile: +62-81-2381 9665, Email: yuyun@lead.or.id,
balifokus@balifokus.or.id
URL: <http://www.balifokus.org>

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