World Health Organization

SSP FOR FAECAL SLUDGE MANAGEMENT

BALIWAG WATER DISTRICT, PHILIPPINES

CASE STUDY

General data

Location	Municipality of Baliwag in Bulacan, Philippines. Approximately 50 km north of Manilla.
Scope: SSP boundaries and focus sanitation activities	Septage collection from household and commercial septic tanks Transport in vacuum tankers Septage Treatment Plant (SpTP) Use of SpTP effluent in small farming area adjacent to plant site Use of recycle water within treatment plant Sludge cake use in vermicomposting and as soil conditioner
Scale of SSP system	Approximately 37,000 septic tanks serving approximately 157,000 population within the franchise area
SSP objectives	The principal objective : • To protect public health while implementing the septage management program (SMP) of Baliwag Water District (BWD). Specific aims: • Safeguard the health of all the exposed groups from the septic tank desludging; transport and treatment of septage; and the disposal of effluent, sludge cake, and other hazardous wastes generated in the septage treatment plant (SpTP); • Protect the health of downstream farmers who use the treated effluent of the SpTP for irrigation and the dried sludge cake for fertilizer or soil conditioner; and, • Protect public health of the users of all produce that used the treated effluent and dried sludge cake.
SSP teams	Core SSP team: 6 (from Baliwag staff includes some staff from a 3rd party contractor responsible for septic tank desludging, fleet management and operations of the SpTP)
Key stakeholders	Representatives from: Municipal Engineering and Health Offices, Department of Environment and Natural Resources- Environmental Management Bureau and farmers' cooperative Municipal Agricultural Office
SSP timelines	First introductory workshop: June 2014 Technical workshop: October 2014 Adoption of SSP report: June 2015 Implementation: Ongoing
Lead organizations and supporting agencies	Baliwag Water District Asian Development Bank, World Health Organization, Department of Health. Project work supported by international and national consultants

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Vacuum tanker operator (get name) ready to unload at the plant.

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Pertinent context

One of the priorities of the Asian Development Bank's Water Operational Plan is for expanded wastewater management and reuse. This SSP development was done in parallel to a similar scheme in Metropolitan Manila to support that context.

Key identified risks

Allowing for existing controls, the highest risks were associated with these hazardous events:

Sanitation step	Hazardous events
Consumption of crops harvested using sludge cake	Consumption of contaminated crops
Sludge cake as farmers' soil conditioner	Exposure to sludge cake due to contact during application to farming activities
Disposal of effluent for farm irrigation	Exposure to effluent due to contact during farming activities
Disposal of trashes by Municipal Trash Collector	Exposure to treated trashes due to contact during disposal
Secondary treatment (filtrate treatment)	Accidental falling into tank during operation, monitoring and maintenance

Operator overlooking Baliwag Septage Treatment Plan.

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Vacuum tanker operator removing sludge from house septic tank.

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Key improvement actions

Some of the key actions proposed under the improvement plans were:

- Disinfection of trashes (washing with disinfectant solution)
- Wearing of farmer's protective clothing – boots/shoes, gloves
- Improvement of farmer's hand washing and hygiene – improved access to good hand and feet washing,
- Education campaign on the proper handling of sludge cake and crop washing after harvesting
- Education campaign on crop washing, peeling and cooking before consumption

Key monitoring proposed

A wide range of operation and verification monitoring was proposed, across all sanitation steps.

Key outcomes and benefits

Model for scale up in the national context. Guides and templates for the SSP development were produced using the various WHO guidelines and the pilot SSP documents.

Vision for scaling and next steps

Before rolling-out, a business model for the fecal sludge produced by BWD SpTP will be developed to establish stronger demand for reuse of SpTP end products. Primary objective is to reduce the volume of sludge which cannot be reused further, and hopefully also cover some of the costs of sludge disposal.

Enabling policy environment linkages and implications

Strong linkages to national polices for increased investment and operationalization in wastewater management and reuse.

Potential for Resource Recovery and Safe Reuse (RRR) business support

This SSP scheme includes third party contractors and has a clear focus on safe resource recovery.

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Success factors

Support by international and national consultants.

Despite the initial natural reluctance for the SSP boundary to go beyond the traditional limits of the sewerage/septage service provider (at the downstream end of treatment plant), BWD went to considerable efforts to understand more about the process steps further carried out to the bio-solids in the vermiculture and, effluent used for agriculture.

Challenges

Dearth of data about quantities of sludge cake *E. coli* and helminth eggs – either before vermiculture treatment or at the end product.

Lack of technical information on pathogen reductions in the vermiculture processing

MORE INFORMATION/REFERENCES

Refer to Model SSP

SSP Manual Example 2.3, page 37 for System Diagram

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