



Fecal sludge Management

Technical innovation and smart management models for the service: Gret's approach in the fecal sludge management sector

Fecal sludge is clearly identified by all sector actors as a major hazard for human health and the environment. Worldwide, public authorities, donors and implementing agencies are looking for viable solutions to sustainably solve this issue. Backed by more than 30 years of experience in this area, Gret develops an integrated approach to tackle the challenge by combining technical innovation and smart management models.





Overview of Gret's projects in the sector

Water Supply and Sanitation System Planning and Development in Cambodian Small Towns (Pacepac project)

Cambodia / 2006-2010 / Donors: Fondation Ensemble, French Ministry of Foreign Affairs (MAE), French Development Agency (AFD).

During Pacepac, Gret promoted Public Private Partnerships (PPP) at the commune level. The development of a sludge treatment plant and septic management service is one of the pilot projects implemented within this framework. Because there were no technical options to treat latrine sludge, Gret implemented a sludge treatment plant and structured the private market of latrine desludging services which had previously involved several private entrepreneurs providing services without any quality control (in particular in terms of environmental impacts).

A Decentralized Wastewater Treatment System & Desludging Service for Hin Heup Town (Mirep project)

Laos / 2009-2011 / Donors: Syndicat des eaux d'Ile-de-France, MAE, AFD, City of Paris, UN-Habitat.

This project focused on Hin Heup Town and had the twofold objective to improve the sanitation situation and to provide a model pilot project for other towns in Laos to learn from. The project included the construction of a simplified sewer collection system for 60 households, connected to a small-scale wastewater treatment plant, while 300 more households began to receive a local desludging service. The project also proposed an innovative management model as the wastewater system is run under public-private partnership.

Enhancing the Access to Improved Sanitation Services in Kampot (Madeau Project)

Cambodia / 2011-2016 / Donors: Agence de l'Eau Seine-Normandie (AESN), City of Paris, Aquassistance.

In order to improve the sanitation services in 10 communes of Kampot Province, Gret develops a project based on an integrated approach. The whole sanitation value-chain is improved by facilitating access to latrines through targeted subsidies for poor households, by developing the private market of latrine desludging services and by the implementation of a sludge treatment plant.

Feasibility Study for a Fecal Sludge Treatment Plant in Vientiane Capital

Laos / 2014 / Donors: AESN, Association Internationale des Maires Francophones, Syndicat Interdépartemental d'Assainissement de l'Agglomération Parisienne.

Without a proper sewerage system, households in Vientiane have no facility to treat their wastewater. Fecal sludge collected by numerous operators is directly discharged in open fields without treatment. Without any regulation or monitoring, these practices have a negative impact on health and the environment. Upon the request of the Vientiane municipality, WTA and Gret have carried out a feasibility study for implementing a fecal sludge treatment plant.

GRET's approach in the sanitation sector

For more than 30 years, Gret has been working in this sector with the objective of guaranteeing an equitable and sustainable access to a high quality service for all. Gret's strategy is based on the following principles:

- to **consider the whole sanitation chain** when designing projects;
- to **globally manage the sanitation projects** by always tackling the 4 following crucial issues: stakeholder organization, communication, technical aspects and economic sustainability of services set-up;
- to **foster innovations** from locally existing dynamics;
- to **define comprehensive management and regulation models** involving the entire range of stakeholders (the public and the private sector, national and local authorities, etc.);
- to **strengthen the capacities** of the stakeholders by developing specific training modules and tools to enable each of them to better play their role;
- to **raise the awareness of all** beneficiaries on the fecal sludge management issues.



Implementing technically viable and financially sustainable sanitation schemes is a real challenge. After a decade of experience in working on the complete sanitation value-chain, Gret has identified several key issues to pay a special attention to, as well as new avenues for innovations.

Learning from our experience

- **Land issues and environmental procedures have to be largely anticipated**, especially in urban areas. This is particularly the case when implementing decentralized treatment plants. The geographical location indeed is a key parameter of a plant's design while securing an appropriate piece of land can be a very long process.
- **The diagnosis period is crucial** to define adapted and sustainable sanitation services. A prior and comprehensive analysis of the value-chain (from primary collection to disposal, treatment or reuse) should enable to identify the existing actors (manual and mechanical sludge operators, local authorities, etc.) and their relationships in order to build the future scheme with these key-resources.
- **Treatment processes should be adapted** to local needs and constraints (climatic conditions, qualification of staff, available materials, etc.). A low cost system, easy to operate and to maintain, such as sludge drying beds, should be considered. Technical training of the staff to build and operate the systems is paramount, especially in countries where sludge treatment is a recently tackled issue.

Exploring new avenues for innovation

- **How to encourage the sludge emptying operators to use the treatment facility rather than illegal dumping sites?** Strengthening the legal framework, defining smart financial mechanisms and incentives, and implementing a real regulation scheme should all be part of the recipe.
- **How to sustainably finance the treatment of the sludge?** The valorization of the final products is often the first idea to cross one's mind, but it is rarely enough. Working on financial mechanisms including emptying and treatment, involving local authorities and private contractors, raising the awareness of the users of the desludging services are other avenues to sustain the treatment of the sludge.

Working on the complete sanitation value-chain: Focus on Miasa project in Antananarivo (Madagascar)

Implementation period: 2012-2015 / Donors: European Union, Grand Lyon, Veolia Eau

Inhabitants of precarious *fokontany* (urban districts) of Antananarivo have a poor access to sanitation: less than 10% have an access to a hygienic latrine. In terms of sludge management, the service is usually provided by informal operators who empty pits manually and dispose of the untreated sludge in the nearby environment. Based on this assessment, Gret and Enda initiated Miasa in early 2012. With the objective of improving the access to sanitation for around 5,000 inhabitants of 5 *fokontany* and enhancing the capacities of local actors involved in the sector (local authorities, latrine manufacturers, manual pit emptiers, etc.), Miasa tackles the complete sanitation value-chain:

- **Access:** semi-industrial production of low-cost, robust and hygienic toilets, and selling through a market-based approach.
- **Collection:** implementation of a desludging service operated by the existing pit emptiers, now equipped with manual pumps and trained for sanitary desludging.
- **Treatment:** building of decentralized sludge treatment plants in each *fokontany* (biogas reactors, anaerobic filters).

Thanks to a **strong focus on awareness raising**, to the **involvement and training of local public and private stakeholders** and to the development of **innovative financing schemes**, Miasa is expected to reach its objectives in 2015. By the end of 2014, Miasa had already allowed to build more than 500 latrines, to train 30 operators and to implement 3 sludge treatment plants (a fourth one still being under construction).





Some of Gret's studies and research works in the sector

C. Frenoux and A. Tsitsikalis (2014). *Domestic private fecal sludge emptying services in Cambodia: between market efficiency and regulation needs for sustainable management*, in Journal of Water, Sanitation and Hygiene for Development.

Tsitsikalis and P-H. Dodane. *Gestion des boues de vidange de Vientiane - Etude préalable IV : Synthèse et programmation*. Gret and WTA, November 2014, 45 p.

J. Gabert, B. Gueye, M. Ly, *Etude de faisabilité pour la gestion des boues de vidange d'Ourossogui (Sénégal)*. Gret, April 2014, 41 p.

J. Gabert, *Etude de faisabilité pour la mise en place d'un service de vidange et de traitement des boues de fosses de latrines à Rosso (Mauritanie)*. Gret, October 2013, 39 p.

C. Frenoux et al, *Landscape Analysis and Business Model Assessment in Fecal Sludge Management: Extraction & Transportation Models – Cambodia*. The Bill & Melinda Gates foundation, October 2011, 134 p.

C. Frenoux and A. Tsitsikalis, *Landscape Analysis and Business Model Assessment in Fecal Sludge Management: Extraction & Transportation Models – 10 countries analysis*. The Bill & Melinda Gates foundation, October 2011, 70 p.

Who are we?

Gret is a French development NGO that has been actively fighting poverty and inequalities for more than 35 years on all levels and in a broad range of subjects. Its 700 professionals, currently working in more than 30 countries, provide lasting and innovative solutions for fair development in the field and work to positively influence policy.

Gret has been working for more than 30 years in the water and sanitation sector according to an approach based around 3 objectives:

- to enhance the capacities of the stakeholders in the production, supply and use of the services;
- to organize inclusive governance models of the services;
- to develop technical solutions adapted to the demand and the local constraints.

Contact

For more information on Gret activities in the drinking water, sanitation and solid waste sector:

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