N°3

STRUCTURING AND MANAGEMENT OF A SEWAGE SLUDGE CHAIN

With a filter by plant system, Vientiane implements a gentle and durable technique for the treatment of sewage sludge

URBAN FIELD

OVERVIEW

- Organization data:
  - ✓ Name: **Technical service of Vientiane municipality**
  - ✓ Organization type: **Public body / local authority**
  - ✓ Year of foundation: **1999**
- Beneficiaries : **790,000 inhabitants**
- Donors and financing: **Seine Normandy Water Agency (AESN), International Association of Francophone Mayors (AIMF), Greater Paris Sanitation Authority (SIAAP) - 1 220 250 €**

- Location: **Vientiane, Laos**
- Beginning date: **August of 2015**
- Motivations: **Structuring the management of sewage sludge in the municipality of Vientiane, to address current health and environmental problems. Use a gentle method of plant treatment.**

CONTEXT AND ACTION

Summary | Initiated by the Vientiane municipality, this project to treat sewage sludge with filters planted with reeds was launched in 2015. It is coordinated by the International Association of Francophone Mayors (AIMF) which has been requested by the Vientiane municipality, and which coordinates the project and co-finances it with other financial partners (Seine Normandy Water Agency, SIAAP). The AIMF and the Vientiane municipality have recruited a prime contractor, the WTA (Water Technical Assistance) for the design, construction and commissioning of the treatment plant, as well as the GRET, which is working on the organizational framework and the awareness and communication strategy, which are also essential for the proper functioning of the service.

From a technical point of view, eight beds for drying sewage sludge have been set up, planted with reed plants that act as filters, aerate and reduce humidity. After cleaning the beds, the sludge is stored. Once dry, they can be used for soil fertilization (humus) in agriculture. The idea is to reproduce, and intensify, the mechanism at work in natural rose gardens. The Vientiane plant is capable of treating 36,000 m3 of sludge per year, corresponding to Vientiane's wastewater production, within 15 years.

Finally, household awareness and a good communication strategy are essential for households to understand the importance of treatment for urban hygiene and to properly drain their wastewater.

URBAN FIELD

Local challenges |

- High urbanization rate: increase in wastewater and excreta production;
- Rough sanitation system: septic tanks not emptied regularly;
- Illegal dumping of untreated sludge into the environment by private discharge operators: health risks and nuisances for inhabitants and the environment;
- Physical constraints: low soil permeability and high groundwater level.

Local responses |

- Installation of a sludge treatment plant: limitation of risks to public health;
- Treatment by plant system: avoids the release of products that are harmful to the environment;
- Development of an institutional and regulatory framework: definition of technical standards for septic tanks, control of the activity of private emptying operators, involvement of local authorities in the monitoring of the sector.
- Raising household awareness: awareness of the issues, encouraging regular emptying to reduce hygiene risks, use of approved emptying operators.

BENEFITS

Environmental | Thanks to the regulatory framework in place, uncontrolled discharges of sewage sludge into the environment are greatly reduced. As a result, the quality of soil, plants and water, less impacted by these polluting wastes, is improved. In addition, the technology of the planted drying beds allows, compared to conventional drying, a better disinfection and transformation of organic materials.

Social | By creating a better environment, there is an increased improvement in the living environment and health of the population of Vientiane and the surrounding area.

Economic | At the local level, the sanitation by plant system implemented has an impact on the economy through the improvement of the living environment (economic attractiveness, land value added, development of tourism and activity...). In addition, a circular economy is created by the valorization of emptying by-products as an amendment for agriculture.

SUCCESS FACTORS

- In-depth diagnosis thanks to a multi-stakeholder network with a variety of skills;
- The establishment of a regulatory framework and its proper application;
- Involvement of local authorities;
- Adapted communication strategy for socio-economic acceptability.

OBSTACLES

- Ownership by local authorities: changes of regular interlocutors, limited human and financial resources;
- Technical adjustments;
- Authorization to market a biofertilizer of human origin;
- Selection of plants resistant to different types of stress (water, carbon, nutrients and toxic products).

« The structuring of the urban sanitation sector has a positive impact on climate change. »
AIMF

- Contact:
  - ✓ Name: **Arianna ARDESI**
  - ✓ Status: **MSS Project manager in AIMF**
  - ✓ E-mail: a.ardesi@aimf.asso.fr

- Related link(s):

http://www.aimf.asso.fr/IMG/pdf/aimf_plaq_vientiane.pdf

https://www.gret.org/projet/gestion-boues-de-vidange-a-vientiane/

Realized by the International Office of Water (IOWater) as part of International Network of Basin Organizations (INBO)

International Office for Water