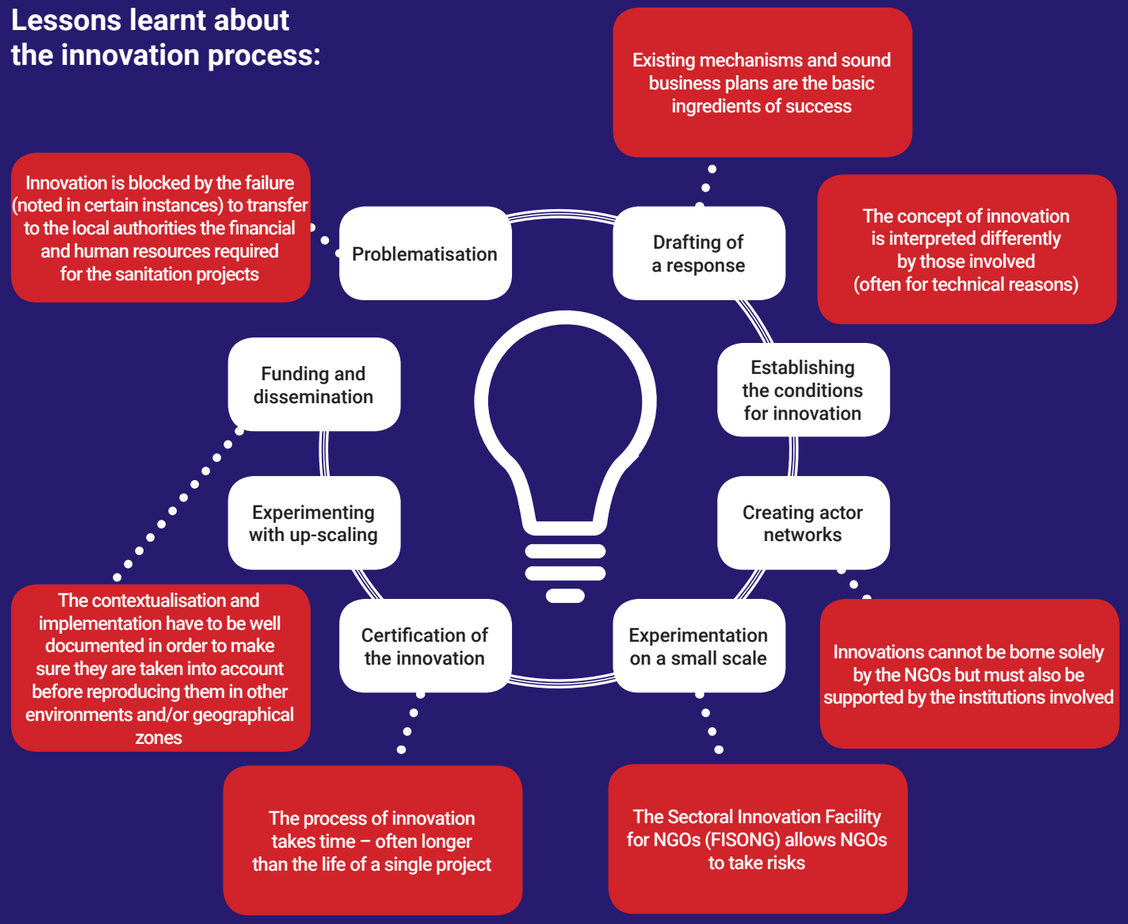
Lessons learnt about the innovation process:



AFD, a public and inclusive financial institution, is the main actor in France's development policy. AFD commits to projects that genuinely improve the daily lives of people, in French overseas territories and in developing and emerging countries, in line with the Sustainable Development Goals (SDGs) and the priorities for France's external action. AFD operates in 109 countries via a network of 85 agencies and is currently supporting over 3,500 development projects.

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«Sanitation»

Sectoral Innovation Facility for NGOs FISONG 2012 Knowledge capitalisation Booklet

June 2018

The FISONG in a nutshell:

In 2007, the Agence Française de Développement (AFD) created an instrument specifically designed to help finance innovative projects set up by non-profit organisations: the Sectoral Innovation Facility for NGOs (FISONG).
Its aim is to encourage innovation and develop a close dialogue with NGOs in the different sectors for the purpose of:

- Taking better account of specific details of the NGOs' operations
- Enlisting their innovative expertise on the ground pursuant to AFD sectoral priorities
- Promoting sectoral dialogue and creating synergies between AFD and the international non-profit organisations in sectors and geographical areas that are of common interest

Why this knowledge capitalisation booklet?

In order to ensure dissemination of the lessons learnt, the innovations have had to be identified, classified and evaluate.

The Booklet includes:

- "Project Sheets", which presents the five projects financed by FISONG 2012
- "Innovation Sheets", which relate to the 13 identified innovations, describing and evaluating them
- "Experience Sheets", which describe the experiences gained with respect to the axis of knowledge capitalisation and the principal lessons learnt

For AFD, what is innovation?

Research into new intervention modalities, that bring added value to technical, methodological and organisational processes as well as to partnerships, all able to create new dynamics and act as a driving force in specific sectors.

FISONG 2012 - Sanitation:

In 2012 a call for proposals for FISONG projects was launched in the field of "Sanitation, hygiene and waste: long-term mechanisms and local capabilities" aiming at improving sanitation services in the context of the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs) today.

Five projects were selected and implemented between 2013 and 2017 by the NGOs CARE France, Gret, PAD, CIDR and Enda Europe, at a total cost of € 2,841,141 of which 83.45% was co-financed by AFD.

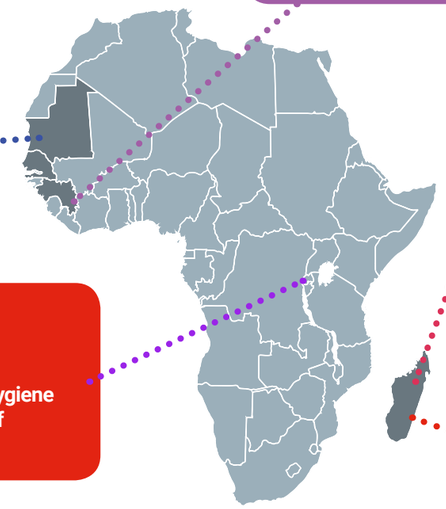
Bonus :

- **Video teaser for sensibilisation: https://www.afd.fr/en/teaser-innovate-for-sanitation/**
- **Article posted on the ID4D blog: https://ideas4development.org/en/innovate-sanitation-pressing-need/**
- **Publication to come in the AFD Ex-post Evaluation collection: https://www.afd.fr/en/evaluate-our-actions/**

The 5 projects in brief ...

NGO: Enda Europe
Country: Senegal / Guinea
Project: Urban waste sorting and recycling centres: integrated, social and collaborative approaches to liquid and solid sanitation in Pikine and Kindia

NGO: GRET / Eau Vive
Country: Senegal / Mauritania
Project: Innovating with local sanitation and waste disposal stakeholders



NGO: CIDR
Country: Madagascar
Project: Launching of a pilot network on "Urban sanitation and municipal policies" in SAVA

NGO: PAD
Country: Burundi
Project: Innovative approach to hygiene and sanitation in the Commune of Mutimbuzi

NGO: CARE France
Country: Madagascar
Project: Innovative Urban Sanitation Project

Among all the innovations tested, 13 were analysed:

1. NGO position as assistant to the local authorities
2. Delegated Public Service for waste management to an association of users
3. Sanimarket managed by a private-sector operator – Output based aid
4. Context-adapted technologies for sludge emptying and processing
5. Tripartite agreement for the management of a small-scale sewer system
6. Formalised centre for the dismantling of waste electronic and electrical equipment (WEEE)
7. System for sorting organic waste
8. Inter-municipal Urban Solid Waste Management Plan
9. Partnerships between local authorities for the management and recycling of solid waste
10. Financing mechanism self-managed by community structures for solid waste management and latrine sales
11. Decentralised faecal sludge treatment system, adapted from a technology for animal manure, together with capacity building for faecal sludge management operators
12. Introduction of ECOSAN latrines in Burundi
13. Design of the WAST - Waste and Sanitation Transformation - approach

How was managed the knowledge capitalisation?

The aim of the transversal evaluation and knowledge capitalisation of the 2012 FISONG was:

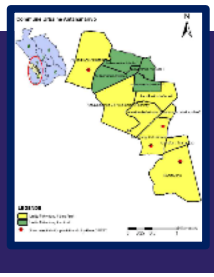
- To evaluate the innovations introduced across the projects with the participation of and in consultation with all parties concerned; and
- To learn from the projects financed so that all those involved in the innovations could carry them forward beyond the perimeter of the projects

Workshops were conducted with the actors in the field and the competent local authorities in Senegal and Madagascar to discuss: i) the lessons learnt from the projects; ii) the conditions required for replication and up-scaling; and iii) new ideas to be tested. The results of these discussions were then presented and discussed in Paris.

The knowledge capitalisation process was conducted around four axes chosen to reflect the diversity of the innovations tested.

- Axis 1 – How to get households to invest in improving their toilets?
- Axis 2 – The forgotten links: what arrangements for the emptying and treatment of faecal sludge and solid waste?
- Axis 3 – Recycling of waste: what long-term value chains?
- Axis 4 – Who does what in the sanitation chain?

Innovative Urban Sanitation Project
FAMAFA - CARE France Project
Madagascar



Project Sheet

Objectives of the project:

- General objective:
  The project aims to improve the living and sanitary conditions of the vulnerable populations of the urban commune of Antananarivo. Improved access to sanitary facilities for the management of waste and water allied to proper collective and individual behaviour contributes to a reduction in water-borne illnesses, notably among infants.

- Specific objective
  To improve the hygiene and sanitation conditions for the 11,053 most vulnerable households including 28,186 women in the target areas of the action by deploying local resources.

Context of the intervention zone:

The project covers the urban environment of 12 Fokontanies within the Urban Commune of Antananarivo (UCA) in Madagascar.

- 17% of the UCA(1) are not covered by the Autonomous Maintenance Department of the City of Antananarivo (SAMVA) and have no access to any collective sanitation network or to any waste management service.
- The management of liquid and solid waste is not covered by any long-term, recycling and economically stimulating procedure. In Fokontanies and the SAMVA, budget restrictions apply and make it impossible effectively to meet the need.
- 75% of the inhabitants use traditional dry-pit latrines that are more often than not emptied by small informal-sector operators (60% of cases according to CARE) working in unhygienic conditions.
- Improving hygienic conditions is not a priority of households.
- Environmental and sanitary problems that are linked to floods caused by topographical factors and drainage management, accentuated by growing solid waste mountains that obstruct water flows and the abnormal use of latrines.

(1) Report on studies on the proposal for the sanitation strategic plan for Grand Tana, SOMEAH /WSUP, 2010.

Duration and financing:

- 42 months, from April 2013 to October 2016
- Executed budget of €560,990, with funding of €503,040 from AFD, i.e. 90% of the total (co-financed by CARE and WSUP)

The main local partners:

- Urban Commune of Antananarivo (UCA)
- CARE Madagascar
- Water and Sanitation for the Urban Poor (WSUP), project owner and principal technical partner for the faecal sludge treatment system
- Association Fiombonana, local partner organisation
- RF2 (Rafitra Fikojàna ny rano sy Fidiovana), local community structures for integrated WASH management

Principal achievements of the project:

- Institutionalisation and strengthening of 12 RF2
- Establishment of an integrated system of solid waste management and structures for the pre-collection and sorting of waste using a long-term mechanism: 8 RF2 out of 12 able to cover their costs linked to the pre-collection of waste
- Establishment of an integrated system of liquid waste management by the construction/refurbishment of 453 improved family latrines and of a faecal sludge treatment site (Biobolsa)
- Facilitation of local operator professionalisation: 21 desludging operators and 18 trained and equipped masons
- Strengthening the ability of women to become advocates and entrepreneurs by facilitating their integration into consultation and decision-making bodies
- Awareness-making and social marketing for the promotion of healthy and responsible behaviour in H&S: 120,000 people sensitized; 2 Sanimarkets established
- Strengthening of the commune's monitoring and follow-up mechanism

Some results in figures:

- 20 local structures deployed for a long-term local self-financing mechanism to fund integrated waste management systems: 12 RF2s, 1 RF2 platform, 3 women's groups, 4 desludging operators and mason groups
- 99 women involved in influencing H&S decisions throughout the complete chain
- 7,471 households contributing to the operation of the full cycle of the integrated management of solid waste and 1,605 households doing the same for liquid waste

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Innovative Urban Sanitation Project
FAMAFA - CARE France Project
Madagascar 2013-2016

Innovations

INNO-01/CARE – Financing mechanisms self-managed by community structures for solid and liquid waste

Type of innovation: Organisational
Nature of the innovation: Contextual

> Innovative Nature:
The innovation lies in the integration of a self-financing mechanism for both liquid and solid sanitation

Description of the innovation:
In the Urban Commune of Antananarivo, the RF2s are local structures at Fokontany level, responsible for coordinating community actions linked to cleanliness and hygiene. The innovation involved the establishment by the RF2s of self-financing mechanisms for liquid and solid sanitation.
Funding the pre-collection of solid waste is based on: i) fees paid by subscribing households; ii) contributions by Fokontany bodies (businesses, schools,...); iii) a standard contribution paid by Fokontany water user associations (WUA).
Each RF2 also manages a revolving fund mechanism for the construction of family latrines and Sanplat slabs, offering a system of payment facilities to interested households. A marketing approach is developed through the operation of 2 Sanimarkets, based on the products and services offered by the RF2s.

Results observed and lessons learned:
8 out of 12 RF2s now manage to cover their costs with income generated by the collection of solid waste. The main difficulties encountered are the conflicts between the Fokontany and RF2 presidents and the high degree of vulnerability by part of the population to flooding.
288 latrines have been built and 165 latrines have been refurbished with Sanplat slabs affecting a total of 1,605 of the 2,660 households intended. The refund rate of new latrines during the project is high, with 268 out of 288 latrines fully reimbursed. Although the system has worked well during the implementation of the project, it has been difficult for it to continue afterwards with only 16 new latrines being constructed after the project.

INNO-02/CARE – Decentralised system for treating faecal sludge with "Biobolsa" technology and capacity building for faecal sludge management operators

Type of innovation: Technical
Nature of the innovation: Contextual

> Innovative nature:
The innovation lies in the introduction of this Biobolsa technology to Madagascar

Description of the innovation:
The innovation involves the operation of a decentralised system for treating faecal sludge adapted from the Biobolsa technology for treating animal manure, together with a system for support for the professionalisation of the faecal sludge management sector (raising the skills of initially informal desludging operators). The Biobolsa system is a decentralised faecal sludge treatment technology originally designed for the treatment of animal droppings on small and medium sized farms. It is based on a system of anaerobic digestion by tubular, prefabricated bio-digesters in a geotextile. On leaving the Biobolsa digesters, the effluent is subject to a series of processes: i) sedimentation in a basin; ii) filtration and secondary aerobic treatment and iii) passing through a final treatment basin.

Results observed and lessons learned:
With an average of 12 m³ treated per month, the plant has so far failed to achieve its initial objective of 60 m³ after 10 months of operation. The recycling of by-products is below target. The production of gas, which is not measured, is consumed locally.
The dried sludge is recycled every two years. Social marketing campaigns have been run to try to increase household demand.
21 desludging operators have been trained in hygienic emptying and provided with desludging equipment. Some of them have stopped their activity because of difficult working conditions and because of the lack of appreciation and recognition by part of the population. Only 8 are still in business today.

Launching of a pilot network on "Urban sanitation and municipal policies" in SAVA CIDR – Madagascar

Project Sheet

Objectives of the project:

- General objective:

  The project aims to set in place in Madagascar a pilot network of urban communes engaged in implementing innovative policies and projects in the field of sanitation and hygiene

- Specific objectives:
  - ✓Enhancing the technical, organisational, governance and financing skills of the TIA SAVA inter-communal association and of the four urban communes in order to cover better the need for urban sanitation
  - ✓Involve the inhabitants and civil society, notably the women, in the implementation and follow-up of territorial policies
  - ✓Experiment, capitalise and disseminate new practices and/or innovative approaches that make a significant improvement in managing the sanitation chain

Context of the intervention zone:

The project covers the urban environment in 4 communes in the SAVA region in the north of Madagascar: Sambava, Antalaha, Vohémar and Andapa.

- Strong uncontrolled urbanisation of the land and obsolete local town planning
- Most of the waste, both solid (around 140t/d for the 4 urban communes) and liquid, absorbed by the natural environment and capable of polluting the drinking water
- Management of the sanitation sector carried out mainly by the communal technical departments that are confronted by several technical, financial and organisational difficulties (e.g. shortage of available land)
- Low rate of access to sanitation in the 4 communes, and far below the national average: 15% for the central districts and 1% for the new districts, as opposed to 31% nationally
- Very frequent open defecation
- Insufficient information given to the inhabitants on basic rules of hygiene in an area where there is high resistance to behaviour change. Those most frequently affected: women and rural migrants.

Duration and financing:

- 46 months, from May 2013 to March 2017
- Initial budget of €823,701, with funding of €599,071 from AFD, i.e. 72.7% of the total (with 26.1% European Union co-financing and 1.2% financed by the Communes)

The main local partners:

- TIA SAVA, a Malagasy inter-communal association bringing together the 4 urban communes (UC) of SAVA, members of civil society and economic operators in the UCs
- The 4 urban communes (UC) of SAVA
- Territoire et Développement (T&D), a Malagasy NGO specialising in the strengthening of local authorities and governance
- Mada Compost, a Malagasy NGO in partnership with GEVALOR
- Deconcentrated Technical Services (DTS)

Principal achievements of the project

- Elaboration of an inter-communal Urban Solid Waste Management Plan ("SASU") and of the Vohémar Communal Sanitation Policy (CSP); evaluation and renegotiation of 48 collaboration charters between the Fokontanies and the Commune
- Making consultation and coordination bodies in the sanitation sector operational: a sanitation committee set up and run within the Local Fokontany Development Committee (LFDC) of each commune and 810 women members of these expanded bodies
- Implementation, financing, experimentation and management of innovative pilot projects: 11 community projects carried out
- Strengthening of the TIA SAVA in human resources (managerial and support staff) and in technical capabilities (project management, sanitation, strengthening of the communes)

Some results in figures:

- 568 man/day deployed to training and support for municipal departments and elected representatives
- 2 pilot actions or "learning projects" carried out in the urban communes
- 13,000 beneficiaries of a waste collection service in Vohémar and Andapa

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Launching of a pilot network on "Urban sanitation and municipal policies" in SAVA CIDR – Madagascar 2013-2017

Innovations

INNO-01/CIDR – Elaboration of an Inter-municipal Urban Solid Waste Management Plan in the Sava Region

Type of innovation: Institutional

Nature of the innovation: Conceptual

Description of the innovation:
The innovation relates to the elaboration of an Urban Solid Waste Management Plan in the Sava Region: SASU-SAVA. As a result of participatory sanitation diagnoses conducted in the 4 district capitals of this region (Sambava, Antalaha, Andapa and Vohémar) and highlighting the similarity of the problems encountered by each, this document defines the strategic guidelines to be followed until 2025 for the improved sanitation actions to be carried out in the 4 Urban Communes (UC). It presents a situational analysis of solid waste management, the prior conditions for an improved system of waste management and the different scenarios that can be envisaged for the collection, recycling and management of waste.

Innovative nature:
The innovation lies in the definition of an inter-communal waste management strategy between non-adjacent communes.

Results observed and lessons learned:
The UC of Vohémar has set out the broad lines of its Municipal Sanitation Policy (MSP). It was decided at a participatory workshop that the system should be managed by the local authority. Pre-collection is carried out voluntarily by households, sorting at the source. Ten brick-built twin-compartment containers have been installed in the districts. Evacuation to the landfill is carried out by the Commune using a tractor-trailer supplied by the project. Currently the containers are used by households but the sorting at source is not done properly. The Commune tips the waste in an unsuitable place despite the existence of a landfill site.

At Antalaha, a difference of opinion became apparent between the commune and the project, meaning that it has not been possible to complete the elaboration of the MSP. The service has been delegated to SENAM, a private company which is responsible for transporting and recycling the waste. At the moment the collection is carried out at the markets by a tractor-trailer provided by the Commune. It has not been possible to establish the waste processing plant.

Lastly in the two other communes of Sambava and Andapa, the process has rapidly run out of steam.

INNO-02/CIDR – Development of partnerships between local authorities for the management and recycling of solid waste

Type of innovation: Organisational

Nature of the innovation: Contextual

Description of the innovation:
The development of partnerships between the communes for the management and recycling of solid waste:

- ✓ A public-private partnership for the recycling of compost between the Commune of Vohémar and a private vanilla production company
- ✓ A public-private partnership between the Commune of Antalaha and the private company SENAM to delegate waste management to a private operator
- ✓ A contract between the Urban Commune of Vohémar and the Rural Commune of Ampondra for the provision by the latter to the town of Vohémar of publicly-owned land for the final dumping of waste, in the form of a long-term lease

Innovative nature:
The innovations relate to new forms of governance: i) by associating public-sector operators and private-sector operators in the recycling of compost and the management of waste; ii) by creating new forms of partnership between public-sector operators (Urban and Rural Communes) for the provision of land for the final disposal of waste.

Results observed and Lessons learned:
Two trials for waste sorting, characterisation and composting of waste have been carried out under a PPP aimed at recycling compost. Despite its interesting prospects, the private-sector partner considered that there were still too many pollutants present, meaning that its cultures would be at risk of contamination, so it pulled out.

At Antalaha a company, the SENAM, has been set up by the Mayor who has managed the delegation process without the support of the project. The results are not known, but doubts exist as to the viability of the organisation.

Publicly-owned land has been made available to the UC of Vohémar under a long-term lease and is operated as the municipal landfill.

"Urban waste sorting and recycling centres: integrated, social and collaborative approaches to liquid and solid sanitation in Pikine and Kindia"
ENDA EUROPE – Senegal and Guinea

Project Sheet

Objectives of the project:

- General objectives:
  - ✓Contribute towards the improvement in the living conditions of the inhabitants of the towns of Pikine (Senegal) and Kindia (Guinea) and in general cleanliness throughout the districts
  - ✓Contribute towards the creation, stabilisation and/or improvement in jobs in the solid and liquid waste sectors, in particular through the promotion of informal businesses run by women and young people
  - ✓Contribute towards the reduction in environmental pollution by solid and liquid waste from Pikine and Kindia

- Specific objective:
  - ✓Promotion of integrated, social and collaborative approaches to liquid and solid sanitation

Context of the intervention zone:

The project covers an urban commune (Pikine in Senegal with 870,000 inhabitants) and a semi-urban commune (Kindia in Guinea with 200,000 inhabitants). Their rate of demographic growth is fairly high at 2 to 4% per annum.

- Rampant uncontrolled urbanisation of land combined with high-density populations in certain districts leaving little space for treatment infrastructures
- Increased exposure to flooding enhanced by topographical characteristics (low-lying areas and a rise in water tables from the Niayes to Pikine, the confluence of three rivers at Kindia), and several fly-tipping zones encouraging the collection of stagnant waters favourable to the incubation of water-borne bacterial and parasitic illnesses
- Inefficient if not inexistent public-sector liquid and solid sanitation systems in these districts and little interest shown by the conventional private sector: cover provided by grassroots operators in the informal sector but with little or no coordination with the local authorities and uncontrolled impacts on the environment

Durations and financing:

- 42 months, from June 2013 to December 2016
- Initial budget of €445,417 with AFD funding of €392,784, i.e. 88% of the total budget (co-financed by the F3E, Canal+, Oxfam, the Gates Foundation, beneficiaries)

The main local partners:

- Fondation France Libertés, a French foundation
- Senegal :
  - ✓Enda Rup, a Senegalese association
  - ✓EVE, a Senegalese association
  - ✓CF2M, a Belgian association
  - ✓The Communes of Keur Massar and Diamaguène Sicap Mbao
- Guinea:
  - ✓CA-Guinée 44, a French association
  - ✓The Urban Commune of Kindia and the Municipal Water and Sanitation Agency (MWSA)
- ONAS

Principal achievements of the project

- Raising awareness among and training of the population in best practice regarding the prevention, management and sorting of solid waste, the evacuation of sewage and flood prevention
- Training of local entrepreneurs in the business of collecting, processing, recycling and reuse of solid (targeting WEEE) and liquid waste

Some results in figures:

Senegal:

- 9 people trained in the dismantling of electronic waste (1 converted WEEE recycling centre)
- 1 small-scale sewer system set up in Pikine, but not operational
- 12 local entrepreneurs trained in the sanitation business: small-scale sewer system and management of solid waste
- 20 "clean district" committees trained in the pre-collection of solid waste and evacuation of liquid waste and rain water
- 3,132 households benefiting from pre-collection and anti-flood trenches

Guinea:

- 1 operational solid waste management 'GIE' (economic interest group) in Kindia (13 employees)
- 10,500 people made aware and benefiting from the collection of solid waste

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EVE, Abdou Diouf, abdoudiouf@eve-sn.org

"Urban waste sorting and recycling centres: integrated, social and collaborative approaches to liquid and solid sanitation in Pikine and Kindia"
ENDA EUROPE – Senegal and Guinea
2013-2016

AFD AGENCE FRANÇAISE DE DÉVELOPPEMENT

Innovations

INNO-01/ENDA – Tri-partite agreement for the management of a small-scale sewer system in Pikine

Type of innovation: Institutional

Nature of the innovation: Contextual

Description of the innovation:
The innovation relates to the involvement of the Commune in the management of a small-scale sewer system through the signature of a tripartite agreement (between the National Sanitation Office of Senegal (ONAS), the Commune and local entrepreneurs) in the Sam 3 District of the Commune of Diamaguène Sicap Mbao (Pikine). The assets are transferred to the ONAS which manages the operation and rehabilitation of the system and carries out technical inspections of domestic facilities. The Commune authorities are responsible for raising households' awareness about payment, while the local entrepreneurs are responsible for maintenance. The scheme is initially designed to cover 50 households.

Innovative nature:
The innovative aspect consists in the involvement of the Commune in the management of the small-scale sewer system which is normally entrusted entirely to the ONAS.

Results observed and lessons learned:
The implementation of this agreement did not go according to plan. The proposed innovation was blocked by proving to be incompatible with institutional reality. The project was subject to delays and administrative problems when it came to contracting process with a works company. In the end the work carried out was smaller than planned: works have not been formally commissioned and the plant has still to become operational. Over two years after the completion of the work, the tripartite management agreement has still to be signed by the parties. The Commune authorities show little interest in the system.

INNO-02/ENDA – Establishment of a formalised centre for the dismantling of Waste Electronic and Electrical Equipment (WEEE)

Type of innovation: Topical and technical

Nature of the innovation: Conceptual

Description of the innovation:
The innovation relates to the establishment of a formalised centre for the dismantling of Waste Electronic and Electrical Equipment (WEEE) in the Commune of Keur Massar, Pikine, Senegal, run by a civil society operator. The activities of the centre are focused on the reconditioning of data processing equipment for resale and on the dismantling of non-recoverable material.

WEEE dismantling centre at Pikine, Senegal

Innovative nature:
The innovative nature of the project is to be found at two levels: firstly the type of waste, WEEE, little understood by the Senegalese authorities, and secondly the establishment of a formalised centre for the dismantling of this type of waste (sorting, dismantling, recycling).

Results observed and lessons learned:
The centre started work in September 2015 since when around 1,000 computers have been dismantled. The scope for recycling is still fairly limited, as for example the recycling of plastic components into rubbish bins or flower pots. The business has still to become profitable. Only two protocols have been signed with private-sector companies for the recovery of their IT equipment. The underlying business plan is fragile. The staff consists of around ten employees most of whom are paid on piece-work. The WEEE dismantling sector has still to be fully developed in Senegal, but the NGO aims to do so at national level.

"Urban sorting and recycling centres: integrated, social and collaborative approaches to liquid and solid waste disposal systems in Pikine and Kindia" ENDA EUROPE – Senegal and Guinea – 2013-2016

Innovations

INNO-03/ENDA – Establishment of a system for sorting organic waste, for the selective collection of such waste and the development of outlets for biomedical and plastic waste

Type of innovation: Methodological

Nature of the innovation: Contextual

Description of the innovation:

At Kindia, the use of unsorted waste as fertiliser is extremely common. Rather than composting it, the priority of the project has been to improve the quality of the sorting of waste used directly on farm land in order to reduce pollution and health risks. A selective collection system has been set up with two types of trailer placed in the neighbourhoods, one for organic waste, the other for the everything else. The strategy of awareness enhancement is focused towards sorting practices at source and selective collection through radio announcements, festivals and home visits.

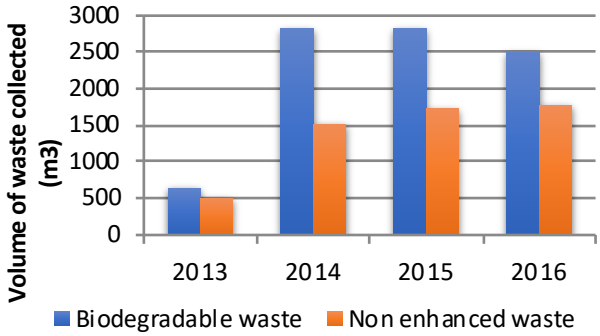
Innovative nature:

The innovation relates to a new way of intervening in the management of household waste (sorting at source of organic material and selective collection) and in market gardening practices (recycling of sorted organic waste).

Results observed and lessons learned:

In the end, awareness was raised among 2,642 households and 3,528 merchants and shop-owners. The volume of biodegradable waste that was collected almost quadrupled during the project, indicating a gradual change in behaviour regarding sorting at source. Even so, achieving financial autonomy for the waste collection service remains a challenge. At the end of the project, 48% of its funding came from outside in the form of subsidies.

The NGO was also involved in the management of biomedical waste through the provision to the regional hospital of Kindia of a modern incinerator in March 2015 and by making operators aware of the problem. In addition to that a study has been made into the possibility of establishing recycling outlets for plastic waste and its resale to a specialised company. The study revealed the high costs of the system in comparison with the fairly low and volatile sale prices.



Progress in the volume of waste collected (CAG 44)

"Local sanitation and waste disposal operators: innovation in two West African countries" (ALADIN)
GRET – Eau Vive – Senegal and Mauritania

Project Sheet

Objectives of the project:

- General objective:

Improved access to infrastructures and services for sanitation and waste management for the inhabitants of 7 communes in Mauritania and Senegal in the interests of public health

- Specific objective:

Testing and capitalisation of innovative schemes for the organisation and strengthening of local sanitation operators in different (rural, semi-urban) contexts and production of a long-term sanitation system.

Context of the intervention zone:

The project covers 7 communes in a rural and semi-urban environment: 3 communes in Mauritania (Rosso (pop. 45,000), Boghé (pop. 20,000) and Maghta Lahjar (pop. 12,000)) and 4 communes in Senegal (Ourossogui (pop. 24,000), Diawara (pop. 13,000), Gainte-Paté (pop. 16,212) and Keur-Baka (pop. 26,500).

- 61% of rural households in Senegal have no access to improved sanitation facilities, 91% in Mauritania
- Emptying of septic tanks by a member of the household or by a desludging operator doing so by hand in sanitary conditions that pose a risk to health result in an uncontrolled disposal of sludge in the countryside or in the street
- Fly-tipping of household waste in towns, some of it burnt, with serious consequences for the health of people and animals and, as a result, for the local economy (expenditure on health, reduction in income from animal husbandry)
- Local authorities, which are project owners for sanitation and the management of waste, are often strapped technically and financially and frequently find themselves sidelined by national investment programmes
- The cost of works proposed generally exceeds what households can afford

Duration and financing:

- 39 months, from May 2013 to July 2016
- Implemented budget of €724,739 with AFD funding of €653,160 – i.e. 90% of the total budget (co-financed by the EU and Eau Vive)

The main local partners:

- The 7 partner communes
- Central and devolved departments of the ministries concerned

NB: GRET and Eau Vive have an on-site presence and intervene directly to help the communes in their project ownership, doing so without any intermediary.

Principal achievements of the project:

- Capacity building of the local authorities with respect to their role regarding sanitation and/or waste management, notably in the provision of services
- Establishment of local frameworks for consultation on sanitation
- Definition and implementation of the organisation, financing and communication of sanitation services and/or waste management
- Development of sanitation and waste management technologies at prices that households can afford
- Identification of and support for local private-sector craftsmen and operators
- Capitalisation and dissemination of good practices

Some results in figures:

- 7 communes consolidated in their role as project owners for sanitation and/or waste management, 2 of which gave up during the project
- Identification and capacity building of small qualified private-sector operators: waste service operator in Diawara, Sanimarket operator in Rosso, craftsmen in Boghé, masons in Keur Baka and Gainde Pathé
- 4 municipal decrees establishing the public-sector management framework setting up local sanitation consultation committees
- Establishment of 6 schemes for the organisation of sanitation services and waste management and the elaboration of 5 toolkits for monitoring sanitation services
- 1 innovative model for the financing of latrines: test of an Output Based Aid subsidy in Rosso: 100 latrines built + 1 methodology adapted and resumed in other projects

Contact: Thomas Lejeune, lejeune@gret.org

"Local sanitation and waste disposal operators: innovation in two West African countries" (ALADIN)
GRET – Eau Vive – Senegal and Mauritania
2013 - 2016

Innovations

INNO-01/GRET - Eau Vive - NGO position as assistant to the local authorities

Type of innovation: Methodological

Nature of the innovation: Contextual

Description of the innovation:
The innovation relates to the GRET/Eau Vive position regarding Assistance for Project Ownership (APO) by intervening communes. It is no longer an NGO that proposes a project to a commune: rather it is the commune that requests technical support by the NGO to help it create a vision for its territory and then set up a public service. These intervention procedures, based on six-month agreement protocols between a Commune and the NGO that can be renewed during the intervention period of the project, make it possible to ensure that Communes are involved technically and financially by committing an obligatory counterpart to the implementation of the project and the funding of investments.

Results observed and lessons learned:
The project has advanced the organisation of operators with the publication of municipal decrees relating to consultation frameworks and "hygiene and sanitation" committees, the elaboration of organisation schemes and tool kits for monitoring sanitation services.

But actually running the institutions on a regular basis is still a challenge. One year after the project ended the technical department of Rosso is still active in the sanitation sector but no further consultation meetings are being held. The hygiene and sanitation committees are just ticking over at Keur Baka and Gaindé Pathé, and the tools for monitoring the desludging service in Rosso are not fully understood. 5 of the 7 Communes have agreed to come on board as partners, even though there are few formalities when it comes to monitoring the agreement protocols with the NGO.

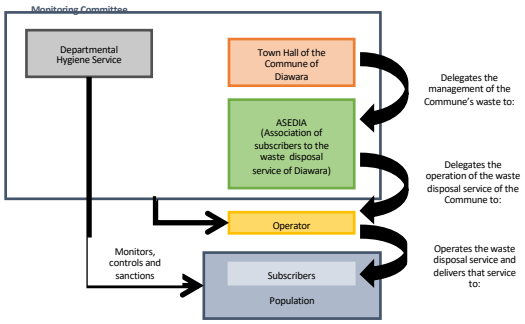
Innovative nature:
The innovation relates to the methods of intervention by GRET/Eau Vive with regard to the Communes, involving an assistance-offering approach to project ownership rather than the adoption of the conventional position of the NGO as a provider of means. This aims to build the capacity of the local authorities when fulfilling their roles in planning, financing, contracting, coordination, monitoring and supervision.

INNO-02/GRET - Eau Vive – Support to the Commune when formalising a Delegated Public Service (DPS) for waste management at Diawara

Type of innovation: Methodological

Nature of the innovation: Contextual

Description of the innovation:
The innovation relates to the support given to the Commune when putting the Delegation of a Public Service (DPS) for waste management on a formal footing at Diawara. The Commune has delegated the Project Ownership to ASEDIA, an association of users which itself has entrusted the running of the service to a private company.



Innovative nature:
The innovation lies in the fact that a small Commune delegates the entire waste management service to an association of users.

Results observed and lessons learned:
After one year, despite achieving 875 subscribers against an expected 800, the operator encountered financial difficulties through the inadequate recovery of fees. These difficulties led to a gradual deterioration in the service.

ASEDIA and the mayor's office reacted rapidly and responded accordingly: they took over the service and managed it directly. In two months, following actions to train households and make them aware, the waste management service was relaunched. At the end of the project, 80% of the population have subscribed to the service.

"Local sanitation and waste disposal operators: innovation in two West African countries" (ALADIN)
GRET – Eau Vive – Senegal and Mauritania
2013 - 2016

Innovations

INNO-03/GRET - Eau Vive – Marketing strategy to promote low-cost improved latrines in Rosso, combined with an Output Based Aid subsidy

Type of innovation: Organisational

Nature of the innovation: Contextual

Description of the innovation:
The innovation consists in the elaboration of a marketing strategy for the promotion of low-cost improved latrines in Rosso through the development of a 'Sanimarket' managed by a private-sector operator combined with a results-based subsidy (Output Based Aid) for the construction of improved latrines. The Soutoura Sanimarket set up in Rosso is a unit for the production, display and sale of low-cost improved latrines managed by a local private-sector operator who is also responsible for managing the administrative and financial aspects of the Sanimarket and implementing a marketing strategy.
A results-based system for subsidising the latrines has been set in place: the private-sector operator is paid directly by the project once the latrine has been installed in the home; the household has access to all the promotional offers proposed by the operator without him feeling the "subsidy effect" of the project.
The subsidy rates decline over time (50%, 30%, 15%) in order to permit the market to progress dynamically and take over from the project.

Innovative nature:
Since 2010, GRET has been working on the marketing of sanitation through the establishment of Sanimarkets: Cambodia (2010), Madagascar (2010), Mauritania (2013) and Burkina Faso (2015). According to GRET, the Aladin project tests the marketing approach to sanitation in Mauritania for the first time.

Results observed and lessons learned:
Having produced 100 of the projected 250 latrines, the private-sector operator has abandoned the business as being less profitable than other lines it pursues. The results of the test have nevertheless enabled GRET to adapt this method to the Mauritanian context, by entrusting the management of Sanimarkets to women cooperatives who have then gone on to sell over 1,000 latrines throughout the country. This experiment has fed into the national strategy.

INNO-04/GRET - Eau Vive – Experimentation of context-adapted technologies for the emptying and treatment of faecal sludge in Rosso

Type of innovation: Technical

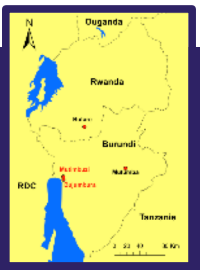
Nature of the innovation: Contextual

Description of the innovation:
The innovation relates to experimentation with technical solutions adapted to the emptying and treatment of faecal sludge in Rosso: improved desludging technologies (equipped carts/scooters, manual pumps) and the design of a sludge-handling site combining water filtration and sludge land-filling.

Innovative nature:
The innovative relates to low-cost rural technical solutions in the evacuation and processing chain.

Results observed and lessons learned:
Gulper-type manual pumps developed and tested by GRET in Madagascar have been manufactured locally. They make it possible among other things to evacuate the bottoms of septic tanks that are difficult for motorised pumps to access.
When it comes to transporting sewage and sludge, the first step was to improve donkey carts equipped with tanks. This form of transportation was then abandoned because it didn't allow for a sufficient number of evacuations per day. It was therefore decided to improve three-wheeled motorcycle trucks and equip them with tanks. For the processing of sewage and sludge, a treatment site was designed combining the filtration of liquid sewage and land-filling of the sludge.

"Innovative approach to hygiene and sanitation in the Commune of Mutimbuzi" Pro-Action Development – Burundi



Project Sheet

Objectives of the project:

- General objective:

Improvement in population health and improvement in drinking water provision and waste management

- Specific objective:

Sustainable improvement in behaviour-patterns regarding hygiene as well as in sanitation infrastructures (taking account of the whole sanitation chain) in the Commune of Mutimbuzi

Context of the intervention zone:

The project covers the peri-urban commune of Mutimbuzi in the province of rural Bujumbura in Burundi, to the west of the capital and close to the Congolese border.

- Situated near Bujumbura airport, this zone is undergoing rapid demographic expansion and, even though over 80% of the population depend on farming for their living, it is subject to property problems and anthropogenic pressure from suburban zones.
- The zone is situated on the Ruzizi plain where the ground level water table is responsible for frequent flooding and persistent pools of stagnant water. Furthermore, the sandy soil on the plain increases the risk of collapse. The water table and the land is therefore at high risk of pollution if sanitation work is not suited to the circumstances, while the main farming activities of the economy are dependent on the state of the water and the soil.
- The region is very poor (the GDP of Burundi is one of the lowest in the world), and largely populated by women who have to meet their own and their families' needs on their own, particularly in returnee sites whose populations have been displaced during the successive crises that have assailed Burundi and Congo.
- Diarrhoea is one of the three most frequent causes for consultation in the health centres, while access to basic sanitation is less than 35% in Burundi.
- The roads are often impassable for the trucks operated by sewage companies.

Duration and financing:

- 42 months, from April 2013 to October 2016
- Initial budget of €285,300, with AFD funding of €222,755, i.e. 78% of the total budget (co-financed by the Region of Wallonia through the Fast Start project)

The main local partners:

- Oeuvre Humanitaire pour la Protection et le Développement de l'Enfant en difficulté (OPDE), a local association
- Commune of Mutimbuzi and its municipal water board

Principal achievements of the project

- Initiation of a participatory methodology, awareness raising and training at the ADH: development of the "Waste and Sanitation Transformation (WAST)" method based on the "Participatory Hygiene and Sanitation Transformation (PHAST)" method
- Creation and training of Hygiene and Sanitation Committees (HSCs) responsible for monitoring and assessing the entire sanitation chain from the construction of infrastructures (ECOSAN latrines) to the recycling of collected waste
- Prior assessment of the innovation regarding its impact on health (surveys of villages and health centres)

Some results in figures:

- 13,274 people trained/made aware through the PHAST/WAST approach
- 14 village communities having completed the training process (participatory approach, hygiene, construction technique, follow-up)
- 1,436 ECOSAN latrines and 1,467 Arborloo latrines produced, i.e. 2,903 families benefiting
- 11 Committees operational out of the 14 trained and supported (leadership training schemes, backing from the communities, use of the ECOSAN latrines)
- 2 income generation (IG) projects developed by 2 HSCs: eco-sanitation and soap works

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"Innovative approach to hygiene and sanitation in the Commune of Mutimbuzi" Pro-Action Development – Burundi 2013 - 2016

Innovations

INNO-01/PAD - Introduction and popularisation of ECOSAN latrines in Burundi

Type of innovation: Technical

Nature of the innovation: Contextual

Innovative nature:
The innovation relates to the introduction of a new type of latrine in Burundi: using the ECOSAN technology.

Description of the innovation:
The ECOSAN latrine has been introduced in the zone of Mutimbuzi. It encourages the diversion of urine from faeces by using dry latrines. The human excreta collected by this latrine is hygienised with a view to its reuse in agriculture. The hygienised faeces and urines are used respectively as fertilisers and urea (mineral fertilisers).

As a result the innovation also relates to the development of a recycling outlet for excreta (storage, composting, transport and spreading) and the creation of news jobs involving the emptying and processing of such excreta.

The idea of introducing this type of latrine in the project arose from a combination of favourable contextual factors: intensively farmed dense suburban zones, the sandy nature of the soil and a ground-level water table in certain areas, impassable roads for sewage tankers and the unaffordable costs of desludging for households.

Results observed and lessons learned:
The initial objective with the construction of ECOSAN was to provide 1,950 families with latrines. In the end 1,436 ECOSAN latrines and 1,467 Arborloo latrines were built, bringing the number of benefiting families to 2,903. At first households demonstrated a certain resistance to the ECOSAN approach, notably on account of the handling of the excreta, the high cost of the latrine and doubts over the economic implications. So they turned massively towards the ARBORLOO latrines. Thereafter they gradually warmed towards the ECOSAN latrines following awareness raising campaigns and support by the project.

INNO-02/PAD – Design of the WAST - Waste and Sanitation Transformation – approach

Type of innovation: Methodological

Nature of the innovation: Contextual

Innovative nature:
The development of a new participatory approach to raising awareness of the need for hygiene and sanitation that integrates the specific aspects of the ECOSAN and of solid waste.

Description of the innovation:
The innovation relates to the design of the WAST (Waste and Sanitation Transformation) approach which adapts the participatory PHAST (Participatory Hygiene and Sanitation Transformation) method to the specific features of ECOSAN latrine management and the recycling of the excreta. It consists of seven stages: the first two relate to the establishment of contact and the identification of problems; the following three concern the analysis of a subject, the working out of solutions and the planning of change, while the last two concern the monitoring and the assessment of the community project. The first two stages conclude with the election of the community of the Hygiene and Sanitation Committee. The WAST method is an approach involving successive loops. Specific modules have been developed for ECOSAN latrines and the management of solid waste.

Results observed and Lessons learned:
In terms of raising awareness among households, 13,274 people attended the events laid on by PHAST/WAST, i.e. 68% of the initial target. At the end of the project 62% of households declared that they now washed their hands after defecating. Regarding the management of solid waste, almost half the households had learnt to separate their solid and organic waste. Nearly 40% now use a composter or a rubbish pit. Two HSCs have developed income generating activities: a soap works and a business for the recycling of eco-sanitation by-products. The limits to this innovative approach are the risks that they may not continue after the project has closed and the challenges of upscaling.

Marketing of sanitation through a 'Sanimarket' run by a private-sector operator coupled with an Output Based Aid subsidy

Actors involved:

- ☑ Gret / Eau Vive
- ☑ Private-sector operator
- ☑ Households

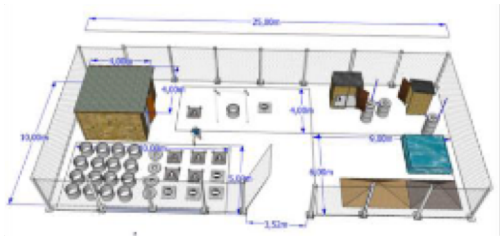
Context:

- ✓ Rosso (Mauritania): pop. 45,000
- ✓ Cost of works proposed that generally exceeds what households can afford.

Case details and intervention strategy:

The objective of the experiment is to test the promotion of low-cost improved latrines in Rosso through the management of a 'Sanimarket' by a local private-sector operator.

This method promotes take-up by the population through a local marketing operation that treats the beneficiary as an active consumer. Using a well-established local private-sector operator makes it possible to secure the future of local toilet sales. The Sanimarket is a latrine manufacturing, display and sales unit.



Typical plan of a Sanimarket (Gret)

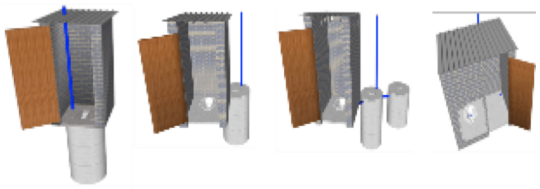
After being selected on the basis of a call for tender, the private-sector operator is entrusted with the organisation of latrine production and with the administrative and financial management of the Sanimarket, as well as with the implementation of the marketing operation aimed at persuading households to acquire a latrine. The parties to the contract are Gret/Eau Vive and the private-sector operator.

Case details and intervention strategy (cont.):

An "Output Based Aid" mechanism is set up under which the private-sector operator is paid directly by the project once the latrine has been installed in the home; the household has access to all the promotional offers proposed by the operator without him feeling the "subsidy effect" of the project. The subsidy rates decline over time (50%, 30%, 15%) in order to permit the market to grow dynamically and take over from the project.

Principal results achieved:

Standardised range of 4 latrines:



Direct pit | **Displaced pit** | **Septic tank** | **Latrine - shower**

Toilet prices have been determined on the basis of: i) the obligations of the operator: production costs, the cost of installing the Sanimarket, market costs and profit margin (5%); ii) the constraints on households: purchasing power; and iii) the co-financing of the project. Prices are as follows:

	Sale price (EUR)		Household share
Model	with superstructure	without superstructure	
Direct pit	292	117	60%
Displaced pit	315	140	60%
Latrines with infiltration pipes	358	157	60%
Septic tank shower	421	188	60%

The operator is paid after the installation of a batch of 10 latrines. Having achieved 100 of the projected 250 latrines, the private-sector operator has abandoned the business as being less profitable than other lines it pursues. The rate of subsidy has stayed at 40% of the amount of the latrines. Following this test, GRET has changed its approach by entrusting the management of Sanimarkets to women rural cooperatives, leading to the construction of 1,000 latrines.

AFD AGENCE FRANÇAISE DE DÉVELOPPEMENT

Axis 1 – How to get households to invest in improving their toilets?

Experience

Cases | Findings | Lessons learned | Recommendations and new ideas

Marketing of sanitation through 'Sanimarkets' run by managers recruited from within the local communities and financed through a "Revolving Fund" mechanism

Actors involved:

- ☑ CARE France & Madagascar, WSUP
- ☑ District Associations
- ☑ Managers from within the communities
- ☑ Local authorities
- ☑ Households

Context:

- ✓ 12 Fokontanies (villages) in the low-lying zones of the Urban Commune of Antananarivo: 55,000 inhabitants
- ✓ 75% of the population use traditional dry-pit latrines

Case details and intervention strategy:

A marketing approach has been developed regarding products and services provided by the RF2s in the field of sanitation as well as payment facilities for the adoption of latrines. To that end 2 Sanimarkets have become operational. Managers have been recruited from within the community through calls for tender. Their income is based on the profit margin on the products and services they sell and on business connected with the Sanimarket (groceries).

Sanimarket in Mandrangobato (Antananarivo)

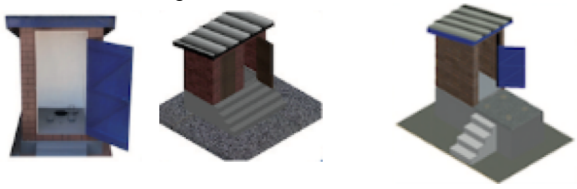
Masons' associations trained through the project undertake the construction of the latrines. A contract is drawn up between them and the RF2s. The RF2s, in partnership with the latrine committees and the Fokontany authorities, monitor progress of the work.

Case details and intervention strategy (cont.):

A "Revolving fund" financing mechanism has been set in place: the project subsidises 20 to 30% of the cost of the latrine (depending on the type), the household releases a guarantee fund on signing the contract (30%) and pays the balance in instalments (over 7 to 12 months). The guarantee fund enables new latrines to be funded. A contract is signed between the household and the RF2 and endorsed by the Fokontany Chief and the District Head.

Main results achieved:

Standardised range of 4 latrines:



Single urine diversion cabin | Double urine diversion cabin | Septic tank brick latrine | ST latrine in reinforced concrete

The pricing of the latrines is based on a study of households:

Model	Total (EUR)	Household share
Single cabin	142	75%
Double cabin	247	72%
Septic tank brick latrine	241	82%
Septic tank latrine in reinforced concrete	436	80%

288 latrines were built and 165 refurbished with Sanplat slabs, affecting a total of 1,605 of the 2,660 households envisaged. The refund rate for new latrines during the project was high, with 268 of the 288 latrines being fully paid back. The defaulting households were summoned by the District authorities and the terms of their contracts renegotiated. However this system has struggled after the project came to an end, with only 16 new latrines being built after it closed.

Mechanism for the contribution by households towards the funding of ECOSAN latrines

Actors involved:

- ☑ PAD
- ☑ Hygiene and Sanitation Committee
- ☑ Households
- ☑ Commune of Mutimbuzi

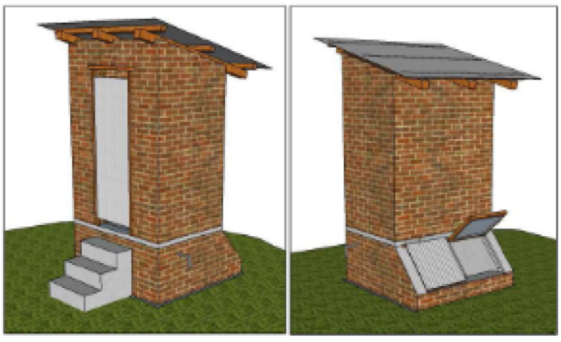
Context:

- ✓ Mutimbuzi, province of rural Bujumbura (Burundi): 69,000 inhabitants
- ✓ Densely populated and intensely farmed peri-urban zones with sandy soil and in places ground level water tables, roads impassable for sewage trucks, and desludging costs which households are unable to afford

Case details and intervention strategy:

The project has introduced a new type of latrine in Burundi: the ECOSAN.

It encourages the diversion of urine from faeces by using dry latrines. The human excreta collected by this latrine is hygienised with a view to its reuse in agriculture. The hygienised faeces and urines are used respectively as fertilisers and urea (in mineral fats).



3D image of an ECOSAN latrine (PAD)

Local masons trained by the project carry out the work under the supervision of the Hygiene and Sanitation Committees (HSCs).

Case details and intervention strategy (cont.):

A household contribution mechanism has been set in place: the household contributes up to 60% of the cost of the latrine, the remainder is covered by the project.

Main results achieved:

The initial objective with the construction of ECOSAN was to provide 1,950 family latrines. In the end 1,436 ECOSAN latrines and 1,467 Arborloo latrines were produced, bringing the number of benefiting families to 2,903.

The cost per latrine is as follows:

Model	Total (EUR)	Share of households
ECOSAN	208	60%

At first households demonstrated a certain resistance towards the ECOSAN approach, notably with regard to the handling of the excreta, the high cost of the latrine and doubts over the economic implications. So they turned massively towards the ARBORLOO latrines. Thereafter they gradually warmed towards the ECOSAN latrines following awareness building actions and support by the project. An experimental field was set up: 320 m², 6 crops, 4 zones (urine; urine + compost; compost; control plot). In comparison with the control plot, all forms of fertilisation increased the number of stems, the total weight of production and the yield per surface.

One year after the end of the project, replications of ECOSAN are to be observed in districts adjacent to the intervention zone. It is difficult to assess how many.

The communal authorities consider that the high cost of the latrine in relation to households' standard of living remains a constraint.

Findings regarding the principles implemented

Strengths	Weaknesses
Output Based Aid	
• High financial contribution by households towards the facilities (initially 60%, rising to up to 85% by the end of the projects), fostering sustainability • Quality of the facilities promoted: operator paid after the technical commissioning of the works • Enables households not to feel the "subsidy effect" of the project by being given access to promotional offers by the private-sector operator • The declining subsidy rates over time permit the market gradually to take over from the project • Local marketing: promotes ownership of the facilities by households	• The subsidy offers no guarantee for the future once the project has ended • Difficulty in setting a latrine price that reconciles the requirements of the operator and the financial constraints of households • In addition to production costs and profit margins, the price of the latrines covers charges for marketing and the installation of the Sanimarket • Difficulty in establishing a market dynamic throughout the duration of the project • Lack of profitability for a private-sector operator • It is complicated to get the operator to cover the sanitation marketing costs
Revolving Fund	
• High financial contribution by households towards the facilities (70% to 80%), promoting sustainability • Introduction of flexible payment facilities allowing access for vulnerable households • High household refund rate of latrines following the introduction of flexible payment facilities and the heavy involvement of the local authorities in monitoring contracts with households	• Revolving fund managed directly by the project without an exit strategy (e.g. discussion with professionals in the field of finance)
Contribution by households	
• High financial contribution by households towards the facilities (60%), promoting sustainability • Gradual awareness by households of the economic value of excreta: latrine test, experimental field	• High cost of works in comparison with what households can afford • No mechanism for autonomous funding

Lessons learned

Marketing of sanitation

- Product: Offering a **range of standardised latrines** makes it possible to guarantee continuity of quality and to target different segments of beneficiaries in terms of their purchasing power.
- Price: Setting the price of the latrines has to reconcile the obligations of the operator (notably in terms of profitability) with the funding constraints of households. An upstream analysis of the ability and willingness of households to pay is essential, as is a serious study on the profitability of the business for the operator.
- Place:
  - The marketing of sanitation makes it possible to **raise demand** through local marketing campaigns.
  - Setting up Sanimarkets makes it possible to pay **greater attention to the needs of households** by adopting a client approach: promotion of facilities and services and an after-sales service.
  - For a private-sector operator, as for a local authority operator, the income generated by the Sanimarkets is small and undermines their future prospects.
- Promotion: Getting a private-sector operator to take on responsibility for "Promotion" is complicated, particularly when it comes to efforts to influence the purchasing behaviour of households. The role of the State is essential (technically and financially) for raising awareness of the need for hygiene and sanitation.

Communication concerning ECOSAN technology

- The adoption by households of ECOSAN technology is facilitated through the establishment of **experimental fields** that demonstrate the advantages of using eco-sanitation by-products and by training model famers to spread best practice among other farmers.

Financing mechanisms

- The **Revolving fund** and **Output Based Aid** approaches promote the autonomous funding of latrines through large financial contributions from households (60-85%), subsidies for facilities that decline over time, and revolving funds that make it possible to finance new latrines. By linking revolving funds with microfinance, it would be possible to make unsubsidised latrine prices affordable and render these mechanisms completely autonomous.
- The **Output Based Aid** mechanism **coupled with a marketing approach** to sanitation fosters the development of the local private sector. It requires the recruitment of an **operator of a certain size** who is able to advance the funds to finance the installation of the Sanimarket and cover its equipment and marketing costs. The approach adopted by this type of operator is not always compatible with the "social" objectives of the business.
- The **Revolving fund** approach relies for its success on the **involvement of the local authorities in monitoring** reimbursements by households on the flexibility of payment facilities.
- The popularisation of improved toilet facilities must be accompanied by **urban regulations** that require toilets to be installed in new-builds.

Recommendations on replication and scaling up

Marketing of sanitation

- Continue research into the development of quality facilities that are adapted to the purchasing power of households (sustainable, hygienic, with hand-washing facilities).
- **Diversify the types of facility** with respect to desludging, representing a major cost to households.
- At operational level, involving operators in the management of urban Sanimarkets requires:
  - **A proper choice of Sanimarket manager profile**: private-sector operator, association involved in a social business
  - An appropriate method for selecting managers
  - Supporting the diversification of commercial activities of the manager
  - Setting a latrine price that reconciles accessibility for households with profitability for the operator
  - Envisaging the possibility of scaling up (management of several Sanimarkets by the operator)
  - Enhancing the (technical and financial) skills of operators
  - Supporting the accreditation and labelling of operators at the same time as raising their skills
  - Enabling project owners to monitor operators more closely at technical and economic level

Financing mechanisms

- Carry out an in-depth reflection on innovative funding methods that closely involve households at sectoral level:
  - Recourse to **micro finance** (guarantee fund,…), with lending to operators and/or beneficiaries or to innovative funding methods relying on existing mechanisms (tontine)
  - Adapting means of payment (in kind,…)
  - Calling on **decentralised financing methods** (cooperation, migrants, …)
  - Develop **community savings systems** (such as a Village Savings and Loans Association - VSLA) to help build a guarantee fund
- Granting of **latrine loans to households**:
  - Systematically involve the local authorities in the drawing up of contracts
  - Establish a **savings plan** tailored to the standard of living of households (% of loan, repayment period) and bearing in mind the seasons at which households may be in difficulties.
- Provide **the most vulnerable members of the population with access** to facilities and take account of financing mechanisms
- Involve the actors and create or apply a **legal framework that encourages**:
  - A closer involvement of the actors (State, local authorities, civil society organisations)
  - The establishment of urban regulations that require the inclusion of toilets in new-builds or, where they already exist, make a plea for them to be applied

Ideas for new things to test

- Innovative finance:
  - A tax system tailored to sanitation
  - Encourage private businesses to invest in sanitation (e.g.: 1 FCFA levied on telephone calls, 1% on each bag of cement sold …)
  - Approaches based on the system of tontines
- Accreditation, labelling of operators

Axis 2 – The forgotten links: what arrangements for the emptying and treatment of faecal sludge and solid waste?

Experience

Cases | Findings | Lessons learned | Recommendations and new ideas

Context-adapted technologies for emptying and treating faecal sludge

Actors involved:
- ☑ Gret / Eau Vive
- ☑ Commune of Rosso
- ☑ Households

Context:
- ☑ Rosso: 45,000 inhabitants
- ☑ Ground level water table, non-permeable soil
- ☑ Desludging operators working in dangerous conditions
- ☑ Mineralised cesspit sludge + supernatant liquid

Human-powered / mechanical mixed emptying

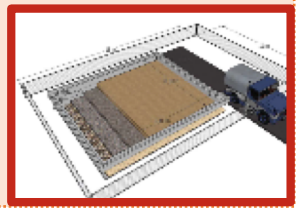
Gulper Pump
4 installed locally
Easy to use
High maintenance

Moto pumps

Donkey cart
No longer used

Filtration over sand and land-filling

- ✓Scale: town
- ✓Filtration of supernatant liquid over sand: site on the outskirts of the city (operated since August 2017)
- ✓Land-filling of pasty sludge: sites spread throughout the city (not effective)
- ✓Public-sector management by the Commune of Rosso
- ✓Enforcement: hygiene policy + decree prohibiting the dumping of sludge



Actors involved:
- ☑ CARE, WSUP
- ☑ Urban Commune of Antananarivo (UCA)
- ☑ Autonomous Maintenance Department of the City of Antananarivo (SAMVA)
- ☑ Associations of Desludging operators
- ☑ Households

Context:
- ☑ UCA
- ☑ Frequently flooded districts
- ☑ Generalise recourse to informal desludging operators
- ☑ Dumping of sludge in canals and ponds
- ☑ Land restrictions

Human-powered Emptying

Gulper Pump
2 pumps

Man-drawn cart
4 carts

Biobolsa bio-digesters

- ✓Scale: district (7,000 beneficiaries)
- ✓Anaerobic reactors, in geotextile
- ✓Treatment capacity: 60m³ sludge/month
- ✓Quantity of sludge actually treated: 12m³/month (after being operational for 10 months)
- ✓Bi-products: dried sludge and biogas (recycled locally)
- ✓Project ownership: UCA
- ✓Delegated management: SAMVA
- ✓Collection and transport of sludge: associations of desludging operators
- ✓Enforcement: underfunded hygiene departments, thin on the ground

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Axis 2 – The forgotten links: what arrangements for the emptying and treatment of faecal sludge and solid waste?

Experience

Cases | Findings | Lessons learned | Recommendations and new ideas

Solid waste evacuation and treatment technologies that are economically suited to the environment

Actors involved:

- ☑ CARE , WSUP
- ☑ District Associations
- ☑ Local authorities

Context:

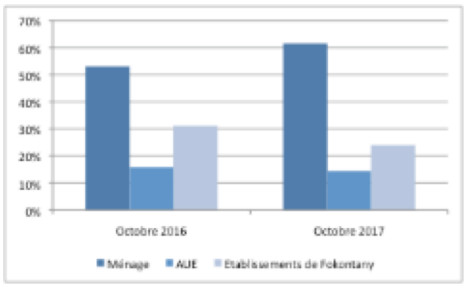
- ✓ 12 Fokontanies in the low-lying areas of the Urban Commune of Antananarivo: 55,000 inhabitants

Case details and intervention strategy:

In the Urban Commune of Antananarivo the links in the solid waste collection and treatment chain are managed by the Autonomous Maintenance Department of the City of Antananarivo (SAMVA). The project is therefore focused on pre-collection – between the household and the bins provided by the SAMVA. A system for the sorting at source of organic waste has been instituted and the pre-collection is undertaken by employees of the RF2 district associations. The financing of this operation is based on: i) fees paid by households; ii) those paid by Fokontany businesses and iii) a standard contribution by the Water Users Associations (WUA).

Principal results achieved:

At the end of the project (in October 2016), 7 out of 12 RF2s managed to cover their costs through generated income by employing 49 collection operatives. One year later, that had been increased to 8, with 57 operatives employed. The share of the contribution by households was increased from 53 to 62% at the expense of that of Fokontany businesses which fell from 31 to 24%. The contribution by the WUAs remained steady at around 15%.



Breakdown according to source of income generated through pre-collection (CARE)

The strengths include the ability of the RF2s to enlist the support of the population, the involvement of the District authorities in the financial management, and the regular posting of simplified financial reports in public places. The weaknesses include conflicts with Fokontany chiefs and the vulnerability of the local population.

Actors involved:

- ☑ CAG 44
- ☑ 'GIE' (economic interest group) in charge of waste collection
- ☑ Households

Context:

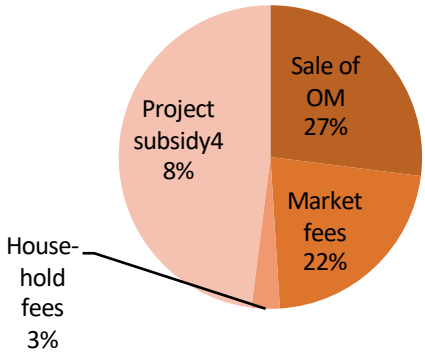
- ✓ Kindia (Guinea), 4 districts

Case details and intervention strategy:

In Kindia, at the end of the project, the waste collection service covers 4 districts and is managed by the GACK 'GIE' (economic interest group. The service is organised thus: sorting at source; voluntary drop-off in trailers situated in the districts/markets; collection and transport to landfill by the 'GIE' (3 times a week). The 'GIE' also sells organic matter to market gardeners. The service is funded by the sale of organic matter to market gardeners, the fees paid by the markets, the fees paid by households (on a subscription basis or ad hoc) and the project subsidy.

Principal results achieved:

The volume of waste collected rose from 1,166 m³ in 2013 to 4,295 in 2016. The volumes of biodegradable waste collected also increased by almost four times during that period. The following chart shows a breakdown of income generated by the service at the end of the project:



Source: CAG 44

At the end of the project the service is unable to support itself financially, being still reliant on subsidies for 48% of its income. The constraints encountered include a lack of stability in market fees (bad management) and inadequate support from households.

Solid waste evacuation and treatment technologies that are economically suited to the environment

Actors involved:

- ☑ Gret / Eau Vive
- ☑ Commune of Diawara
- ☑ ASEDIA Users' Association
- ☑ Private-sector operator

Context:

✓ Diawara (Senegal): 13,000 inhabitants

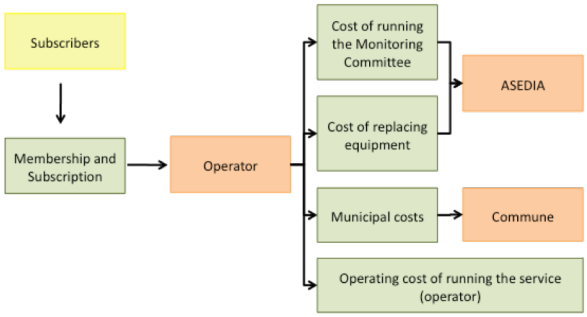
Case details and intervention strategy:

At Diawara (Senegal), the municipal authorities have delegated the waste collection service to a users' association which, in its turn, has delegated a private-sector operator to run it.

The service is organised thus: voluntary drop-off by households at collection points; collection and transport to landfill by the operator.

Revenue for the service comes exclusively from subscribers.

The financial circuits of the collection service can be mapped as follows:

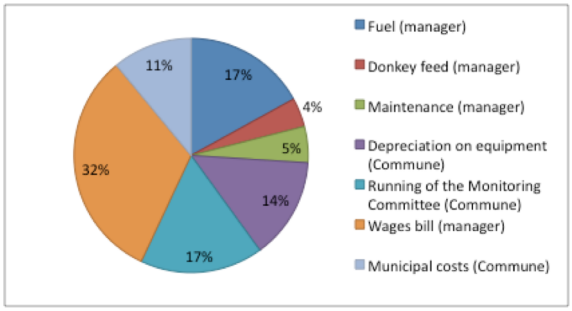


Source: Gret

When they join, subscribers pay 2,000 FCFA to receive a 50 L rubbish bin subsidised by the municipal authorities, after which they pay a monthly subscription of 1,000 FCFA. The operator collects the monthly subscription fees from users. The municipal authorities provide the initial investment in infrastructure and equipment.

Principal results achieved:

The operating costs break down as follows:



Source: Gret

After one year, and despite the signing up of 875 subscribers rather than the 800 planned, the operator has experienced financial difficulties due to the inadequate recovery of fees. These difficulties have led to a gradual deterioration in the service.

ASEDIA and the municipal authorities reacted rapidly and responded accordingly: they took over the service and managed it directly. In two months, following actions to train households and raise their awareness, the collection service was relaunched. By the end of the project, 80% of the population were subscribing to the service.

This strength of membership can be explained by the establishment of an appropriate mechanism for the payment for the service by the population through the delegation of the project ownership to ASEDIA – an arrangement which secures the financing of the waste disposal service because ASEDIA has its own bank account. The involvement of deconcentrated departments of the State (hygiene department) is also a benefit. The ownership of the management system by the households is also bolstered by the participatory approach enshrined in the definition of this type of service (involving the people, district representatives, traditional authorities, the regional government and the Regional Development Agency).

Findings regarding the principles implemented

Strengths	Weaknesses
Faecal sludge - Rosso	
• Technical solutions customised to local skills, notably in terms of maintenance • Financing of the sector: operating costs covered by income generated "Evacuation" link: • Gulper pump: effective, manufactured locally • Three-wheeled motorcycle trucks fitted with tanks "Treatment" link: • Sand filter: a simple, low-cost, technical solution that is easy to maintain and using local materials	• Gulper pump: high maintenance • Under-used motorcycle trucks, high fuel consumption
Faecal sludge – Antananarivo	
• Complete chain: collection, transport, treatment and recycling "Evacuation" link: • Man-drawn carts: suited to narrow streets "Treatment" link: • Biobolsa: compact system, fast and easy to install, standards compliant	• Financing: an unprofitable system if competition by the informal sector is unregulated "Evacuation" link: • Arduous nature of the system (human), inefficient in terms of emptying time, intervention area and volumes transported "Treatment" link: • Imported technology, fairly limited service life and by-product recycling potential
Financing of the waste collection service - Diawara	
• Subscription by households to the service fostered by: i) its quality; ii) the involvement of the beneficiaries in choosing the method of management and in their representation through a users association; iii) involvement of the hygiene department	
Financing of the waste collection service - Kindia	
	• Unviable economic model despite the diversification of income sources: sale of organic matter, fees paid by markets and households • Low level of household subscriptions to the service
Financing of the waste pre-collection service - Antananarivo	
• Financing model: aligned on drinking water revenues • High level of household subscriptions • Good governance of the service	• Sentiment among households in less well off districts that they are being double taxed (pre-collection fee in addition to the organic waste collection fees) • Difficult linkage between collection and pre-collection

Lessons learned

- A **"value chain" approach** to the treatment of faecal sludge and the management of solid waste covers the various stages of collection, transport, treatment and recycling. These stages must be taken into account at each point of the project cycle: planning, implementation, monitoring, financing.
- It is important to design and test **appropriate technical solutions**, for example to negotiate narrow streets or to facilitate the long-term running of a treatment centre.
  In Rosso the Aladin project has tested rustic technical emptying solutions adapted to the technical and financial capabilities of the Commune where the Commune wishes at the outset to go for more technological solutions such as vacuum trucks. This approach has its advantages: it responds to a demand from desludging operators themselves and involves a reasonable investment outlay. Its disadvantages include the fact that it covers only part of the town. While these technologies work well on a small scale, up-scaling them is often a challenge.
- In an urban environment, the establishment of faecal sludge treatment centres requires a **clear standardised legal framework** encompassing the management of sites and regulation of the informal sector. In the Urban Commune of Antananarivo, for example, the formalising of the waste emptying sector through the institution of faecal sludge treatment centres is seriously threatened by informal-sector desludging operators who offer their services at more attractive prices. People fail to appreciate the added value of resorting to certified desludging operators. Hygiene inspectors are short-staffed which means they are unable to carry out their function of supervising such informal-sector operators. The volumes of sludge coming to the centres are thus often small, and that threatens the viability of the sector.
- The **availability of land** on which to set up transfer and treatment facilities must be anticipated by the local authorities.
- The **financing of specific links** in the waste management chain (such as pre-collection) must be in line with the laws in force and fit in with the overall financing framework.
- The **subscription of households** to the solid waste collection service is directly correlated with:
  - The **quality of the service rendered**, requiring professionalism on the part of pre-collection and collection operators (certification, organisation, equipment, contracting)
  - The **confidence of households** in the management of the service, bolstered by: i) the involvement of the people when choosing the way the waste collection service is managed; ii) the integration of a structure representing the users when setting up the management of the service; iii) accountability mechanisms
  - The **involvement of the deconcentrated departments of the State** (hygiene departments), thereby enhancing the legitimacy of the service
- While diversity in the sources of funding for the waste collection service is no guarantee of its success, **fees payable by households** seem on the other hand to be central to the continuity of funding for the service.
- **Problems of governance may hamper** the institution of ongoing funding systems for the collection of solid waste (e.g. bad management in the collection of taxes and/or fees).

Recommendations on replication and scaling up

- Promote the **design of entire** faecal sludge and solid waste **chains** by planning in phases in the light of the time and funding available.
- Systematically adopt **an in-depth technical-economic approach** to faecal sludge and solid waste chains in small centres (demand and market).
- **Enlist the support of society** (social mobilisation) for the different stages at which the service is implemented (planning, implementation, monitoring, financing) through a participatory and inclusive approach and by raising awareness among households.
- Establish a system for the **technical and financial monitoring** of sanitation services by local actors.
- For lenders, commit to the **funding of medium-sized projects** – "meso-projects" – falling between small innovative projects (supported, for example, by NGOs) and large projects (implemented by government departments at national level). Such projects make it possible formally to endorse innovations and to experiment with scaling them up with a view to integrating them into large scale projects. It is also essential to dialogue throughout the sector over time in order to ensure that such experiments can have a bearing on national strategies.

Ideas for new things to test

- Envisage the integrated management of faecal sludge services and solid waste and develop a vision of profitability at territorial scale.
- Explore the possibility of creating an inter-communal structure (profitability scale, pooling of infrastructures and their operation).

Recycling of organic matter

Actors involved:

- ☑ PAD
- ☑ Households
- ☑ HSC, Health and Sanitation Committee

Context:

✓ Mutimbuzi, province of rural Bujumbura (Burundi): 69,000 inhabitants

Case details and intervention strategy:

At Mutimbuzi, Pro-Action Development (PAD) supports the processes involved in the recycling of eco-sanitation products: hygienisation, transport, storage, spreading over crops.

The Hygiene and Sanitation Committee of Maramvya 14 is developing a income-generating activity in the field of eco-sanitation. The objectives are to collect, store and process EcoSan latrine by-products, and redistribute/sell the fertilizers derived from the process. Plans are also afoot for the production of vegetables.

The production potential for the hill of Maramvya 14 and the 3 neighbouring hills (850 Ecosan latrines, 25% of production) is estimated at 42,000 litres/month of hygienised urine and at 4,300 kg/month of faeces ([1]). The projected income from the sale of crops (manioc, maize, sweet potatoes) should make it possible to cover the costs of renting the plot, purchasing seeds and maintaining bicycles.

A storage barn has been converted and equipped. The HSC organises a weekly collection of excreta at 3 linked sites (by bicycle). Initially, most households entrusted their excreta and urines to the HSC of Maramvya 14. Gradually, however, their number declined as people became steadily aware of the value of the compost: today only 100 households are still in the system.

[1] Production per latrine estimated at 200 litres of urine/month and 20 kg faeces/month

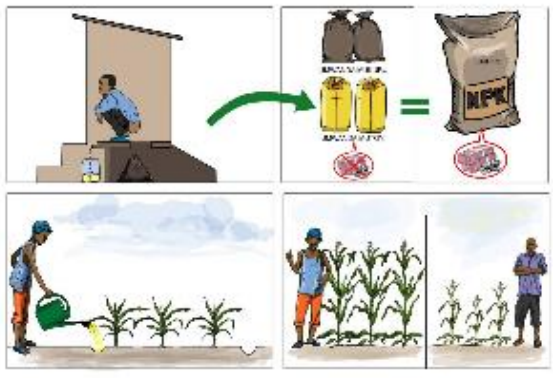
Case details and intervention strategy (cont.):

Over 14 months of operations, 1,850 litres of urine were collected and 4,000 kg of fertiliser produced. The income generated by the sale of these by-products remains modest: 100 litres of urine sold at 250 BIF/litre and 600 kg of compost at 100 BIF/kg. No figures are available for the income generated by the production of crops.

In order to make households aware of the economic value of eco-sanitation products, the project has set up an experimental field: 320 m², 6 crops in 4 zones (urine; urine + compost; compost; control plot). In comparison with the control plot, all forms of fertilisation increased the number of stems, the total weight of production and the yield per surface unit.

Model farmers were also trained to develop best practice and make other farmers aware of the advantages of using Ecosan by-products.

Among the households, according to the final assessment of the project, 50% of those with a functioning latrine state that they use the by-products of eco-sanitation: 33% use hygienised excreta and 20% combine excreta and urines. Almost all the households using these inputs observed an increase in their production. The average annual household expenditure on chemical fertilisers fell by 74%.



Recycling the by-products of eco-sanitation (PAD)

Recycling of organic matter

Actors involved:

- ☑ CARE
- ☑ District Associations
- ☑ Women's Groups

Context:

- ✓ 12 Fokontanies in the low-lying areas of the Urban Commune of Antananarivo: 55,000 inhabitants

Case details and intervention strategy:

CARE has developed district-level small scale composting managed by women's groups that involves sorting at source, the collection of organic matter by RF2 employees, the composting process, packaging of the compost by artisans and its direct sale at or through the Sanimarkets.

Principal results achieved:

31 collection employees have been trained by Madacompost in sorting waste and in composting techniques. Exchanges of experience have been organised with other RF2s of the UCA that have developed composting operations.

120,000 people (compared with the initially estimated 77,370) have been made aware of the need to adopt a system of sorting, thanks to the publication of flyers and brochures and the distribution of sorting bags.

At the end of 2016, only 21% of the targeted households continued to sort their waste at source as opposed to 16% in 2013. This disappointing rate of progress can be explained among other things by the slowness with which households change their behaviour patterns when it comes to sorting their waste.

Between April and October 2016, 13 women in the RF2s of Ambilanibe and Anjezika produced and sold 400 kg of compost at 400 Ariary the kilo, mainly to small businesses (flower sellers), farmers and market-gardening households. This activity provides them with supplementary income.

Actors involved:

- ☑ CAG 44
- ☑ 'GIE' (economic interest group) in charge of waste collection
- ☑ Association of Market-Gardener Groups of Kindia (UGMK)

Context:

- ✓ Kindia (Guinea), 4 districts: 10,500 inhabitants

Case details and intervention strategy:

In Kindia the waste collection service is managed by the GACK 'GIE' (economic interest group). The service is organised thus: sorting at source; voluntary drop-off in trailers situated in the districts/markets; collection and transport to landfill by the 'GIE'.

In this town the use of unsorted waste as fertiliser is very common. Rather than producing compost, the project has therefore prioritised improvement in the quality of the sorting of waste used directly on crops in order to reduce pollution and the risks to health caused by traditional practices. The project approached the *Union des Groupements Maraîchers de Kindia* (UGMK) (the Association of Market-Gardener Groups of Kindia) to monitor the quality of the sorting and the product sold and the improvement in marketing.

Principal results achieved:

2,642 households and 3,528 merchants and shop-owners were made aware of the need for sorting at source, selective collection and hygiene through radio advertising, flyers, community meetings, door-to-door campaigning, festivals and street theatres.

The volume of waste collected increased from 1,166 m³ in 2013 to 4,295 m³ in 2016. The volume of biodegradable waste that was collected almost quadrupled during the project, indicating a gradual change in behaviour patterns regarding sorting at source.

At the end of the project the sale of biodegradable matter to market-gardeners accounted for 27% of the 'GIE' 's income. The analyses by the UGMK on biodegradable matter highlight the clearly visible profit in the respective crop yields in comparison with the habitual use of unsorted waste.

Recycling of organic matter

Actors involved:

- ☑ CIDR
- ☑ Territoire & Développement
- ☑ Gevalor - Madacompost
- ☑ Urban Communes of Vohémar and Antalaha
- ☑ Tia Sava inter-communal utility

Context:

- ✓ Region of Sava, Madagascar
- ✓ Vohémar: 19,000 inhabitants; Antalaha: 100,000 inhabitants
- ✓ Recycling potential: 55% of the total volume of recyclable waste in the form of compost
- ✓ Production of compost envisaged by the project: 810 and 216 T/year for Antalaha and Vohémar
- ✓ Initial business plan for Antalaha and Vohémar: 66% and 44% of solid waste management costs covered by the sale of compost
- ✓ Marketing: participation by substantial certified-organic economic operators (vanilla,...)

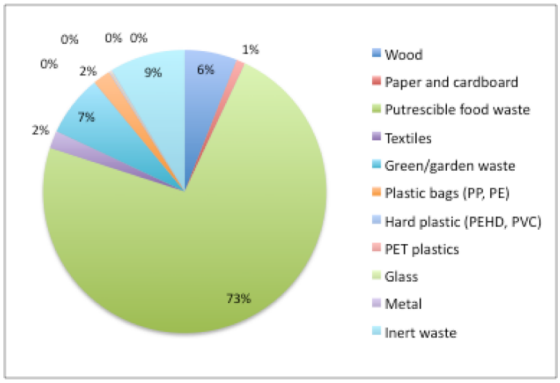
Case details and intervention strategy:

At Vohémar, the Commune has entered into a partnership with a vanilla-producing enterprise in the private sector which is interested in purchasing the organic waste produced by the town. Under the deal it co-finances part of the cost of managing household waste in return for a favourable price for the compost and the guarantee of a minimum quantity.

At Antalaha, the objective was for composting to be developed at a waste recycling and storage facility covering an area of 3,000 m² dedicated to composting, delegated to a private-sector operator thus:

Principal results achieved:

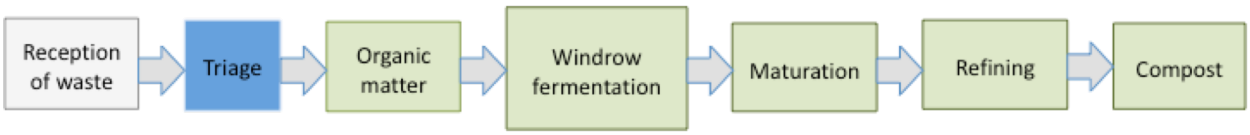
At Vohémar, two sorting attempts – according to type and compostability of waste – were made in collaboration with the vanilla producer (involving 300 households and sales staff and 25 m^3 of sorted organic matter). Sorting according to type carried out by Madacompost has shown a high organic matter content in town waste: 80% is compostable.



Type of waste from the UC of Vohémar (CIDR)

The quality of the compost was attractive, but the private-sector partner considered that there were still too many pollutants (heavy metals) present, meaning that its crops would be at risk of contamination. It remained nevertheless interested in purchasing compost from the Commune. With the latter not having the necessary funds, the partnership fell apart.

At Antalaha the private-sector operator produced compost on non-converted land on which, over a period of 18 months, 15.8 tonnes are purported to have been produced and sold to large local farming corporations at a price ranging between 800 and 1000 Ar/kg. The income thus generated is purported to have covered around 24% of the current solid waste management costs.



Source: SASU - CIDR

Recycling of Waste Electrical and Electronic Equipment (WEEE)

Actors involved:

- ☑ NGO Eau Vie Environnement, EVE
- ☑ Dismantlers
- ☑ Commune of Keur Massar

WEEE dismantling centre at Pikine, Senegal

Context:

✓ Keur Massar, Pikine, Senegal: 201,500 inhabitants

Case details and intervention strategy:

EVE has established a formal dismantling centre for Waste Electrical and Electronic Equipment (WEEE) in the Commune of Keur Massar. The activities of the centre are focused on the reconditioning of data processing equipment for resale and on the dismantling of non-recoverable material.

Principal results achieved:

The centre started work in September 2015 since when around 1,000 computers have been dismantled.

Access to the material is a constraint. Only two protocols have been signed with private-sector companies for the recovery of their IT equipment.

The scope for recycling is still fairly limited – like, for example, the recycling of plastic components into rubbish bins or flower pots. The business has still to become profitable.

The underlying business plan is fragile.

The staff consists of around ten employees most of whom are paid on piece-work. The WEEE dismantling sector has still to be fully developed in Senegal, but the NGO has presented it at national level.

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Axis 3 – Recycling of waste: what long-term channels?

Experience

Cases | Findings | Lessons learned | Recommendations and new ideas

Findings regarding the principles implemented

Strengths	Weaknesses
Organic matter - Mutimbuzi	
• Complete district-wide recycling chain: production, collection, storage, sale / spread • Effective communication strategy (experimental fields, model farmers) with widespread adoption of the technology by the people	• Difficulty in making the sector financially independent • Difficulty in generating, collecting and analysing data on the results
Organic waste - Antananarivo	
• District association bolsters involvement by the population • Sorting at source permits the "integration" of the treatment process: collection and recycling • Diversification of collection and recycling activities	• Difficulty in changing household behaviour patterns regarding sorting at source • Small-scale composting carried out by artisans generating still modest incomes (small quantity, low sale price of compost)
Organic waste – Vohémar	
• The sorting of organic matter at source by households involving twin-compartment bins at collection points makes it possible to prevent contamination from pollutants in non-organic waste • Presence of substantial economic operators interested in purchasing the compost	• Habits and customs can hinder the establishment of best practice (sorting at source, hygiene) • Poorly implemented sorting at source → risk of organic matter becoming contaminated by heavy metals → unsuitable for spreading → unmarketable for lack of quality
Organic waste – Antalaha	
• Presence of substantial economic operators ready to pay high prices for the compost • Initiation of the waste management service by the municipal authorities creates an expectation among users and a void if it is stopped	• Absence of local private-sector operators interested in recycling • Sub-optimal collection of waste means that not all the operating costs of collection are covered by the sale of compost
Organic waste – Kindia	
• Sale of organic matter rather than production of compost because it is current practice. • Volume of organic waste collected has quadrupled over 3 years	• Absence of data on income generated by the sale of organic matter
Waste Electronic and Electrical Equipment - WEEE	
• The training of operators makes it possible to develop a new treatment sector • There is access to the material	• Difficult access to the material • Final treatment of red waste • International rules impede the re-exporting of final waste • Absence of specific e-waste rules

Lessons learned

Reuse of organic matter:

- The preparation of **compost by individuals or families** must be encouraged as it is a model that reduces overall costs and the risks of bad quality, with waste managed at source.
- **Sorting of organic matter** at source is essential for guaranteeing a marketable quality of compost. If the organic part is not collected separately, it will be contaminated by the municipal waste where major pollutants such as heavy metals are concentrated. Changes in household behaviour patterns with regard to sorting nevertheless require time.
- The existence of large-scale **farmers** who consume compost and are prepared to pay good prices for it is a factor promoting the development of urban waste composting. While this is necessary, it is not enough on its own because the collection of the waste still has to be properly organised and the quality of the sorted organic matter attained.
- Medium-sized Urban Communes still find it **difficult to make composting profitable** given the instability of demand in terms of quantities and prices, and the presence of defective equipment which can result in high operating costs.
- In a context where this is current practice, the **direct sale of** properly sorted **organic matter** can provide small-scale private-sector operators with a more profitable alternative to composting.
- **Habits and customs** can hinder the establishment of best practice regarding hygiene and the management of solid waste. It is still a challenge to get people to take a long-term view of the improvements permitted by these changes in practice.
- Basing the **communication strategy on "champions"** makes it possible to speed up changes in behaviour patterns (encouraging people to emulate model famers in Burundi).

Recycling of WEEE:

- The recycling of WEEE is a sector of interest that is still under-explored by states.
- While the raw materials of e-waste are generally available, it is still necessary to make them more accessible, notably by **making operators more aware** of where they are to be found
- **WEEE is a complex form of waste** and potentially highly polluting: metals, plastics, chemicals, glass, precious metals, heavy metals. Only a small fraction can be recycled locally (metals, plastics). Reconditioning the equipment and selling it on second hand is a business to be developed.
- The management of WEEE requires the definition of a **legal and institutional framework at national level** (regulating roles of operators, standards, and sanctions).

Recommendations on replication and scaling up

Recycling of organic matter:

- **Adapting the process of recycling of organic matter to local circumstances**:
  - Preliminary studies: capacity of the Communes and the private sector; marketing outlets: end-client requirements (quality, quantity), profitability
  - Awareness-making and communication: making households aware of the importance of a healthy management of solid waste, taking account of local habits and customs and involving competent government departments (Health, ...), mechanisms to encourage households to sort their waste, finding local influencers ("champions")
  - Capacity building and support by the Communes and the private sector for financial, technical and regulatory plans.
  - Finding other sources of finance for the sector: carbon finance

Recycling of WEEE:

- Advocate a **responsible design** for electrical and electronic equipment (life cycle)
- Conduct reflexions at national level on the levying of **environmental taxes** on this type of waste

Ideas for new things to test

- Understand the importance of recycling organic matter in the light of climate change (reduction in methane emissions)
- Widen the waste expertise with the recycling of plastic, metals, batteries and waste oils

Community-related responses

Support for the District Committees at Mutimbuzi in Burundi:

Pro-Action Development (PAD) has supported the establishment of Hygiene and Sanitation Committees (HSCs) in the hills targeted by the project. These volunteers, elected by their peers as part of the WAST approach, have several tasks: raising awareness in and supporting the community, monitoring the progress of work, representing the group, and forming the link between the project and the community. The members of the HSCs have been trained in the design, construction and use of ECOSAN latrines as well as in procedures for recycling and its application to crops, from the construction of storage facilities and the handling of dry excreta and urine to composting and techniques for the transporting and spreading of inputs over crops. Of the 14 HSCs set up, 2 have developed Income Generating Activities (IGA): soap-making and eco-sanitation. Income is still low and serves mainly to fund social actions (latrine subsidies for vulnerable households). The HSCs of the project do not currently enjoy any legal recognition as the Commune de Mutimbuzi sees them as just another organisation to deal with.

Support for the RF2 in Antananarivo in Madagascar:

The RF2s are local structures in the Fokontany, responsible for coordinating community cleanliness and hygiene actions: street cleaning, clearing of culverts and tertiary and smaller canals, managing household waste and raising awareness on WASH.

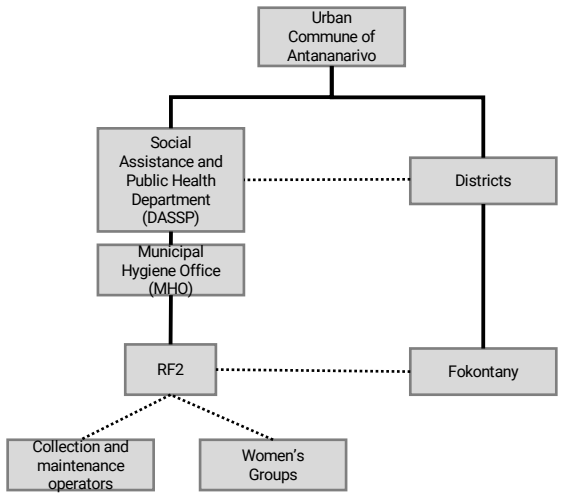
Set up since 2010, these structures consist of voluntary members from the community elected by their peers and are responsible for the collection and management of funds linked to these activities. The RF2s hold accounts in a micro-finance institution through which they manage the funds relating to the management of solid waste (pre-collection) and a revolving fund mechanism for the construction of family latrines.

Municipal Decree N° 300-UCA/DS/CAB.14 of 16 April 2014 establishing RF2 structures in the Fokontanies was published by the Urban Commune of Antananarivo, underpinning their legitimacy with respect to households.

Today, 8 of the 12 RF2s are able to cover the costs associated with the pre-collection of waste.

288 latrines have been built and 165 latrines have been refurbished with Sanplat slabs affecting a total of 1,605 of the 2,660 households intended. The refund rate of new latrines during the project is high, with 268 out of 288 latrines fully reimbursed. Although the system has worked well during the implementation of the project, it has been difficult for it to continue afterwards with only 16 new latrines being constructed after the project. Legally, the RF2s cannot be involved in the loans (IMF-RF2s-households).

At the start of the project, the RF2s were monitored by the UCA through the Municipal Hygiene Office (reports, coordination meetings):



Source: CARE France

This system has evolved over the course of the project without the involvement of the BMH. So the District has taken up the baton and each month supervises the operating accounts of the RF2s, monitoring their income and expenditure, the number of households contributing and the deployment of resources levied on water rates.

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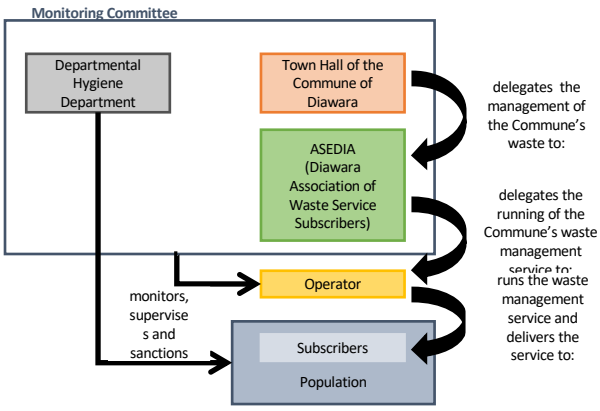
Axis 4 – Who does what in the sanitation chain?

Experience

Cases | Findings | Lessons learned | Recommendations and new ideas

Community-related responses

Support for a users association in Diawara in Senegal:
In Diawara, the Municipality, with the support of Gret/Eau Vive and the Regional Development Agency, has embarked upon a process of dialogue with all parties to create a participatory service that involves the population, district representatives, the local authorities and the regional government. The absence of a technical department and the experiences made with the delegation of project ownership to user associations – successful in the case of drinking water – have led the Municipality to favour a similar model for waste management.
The Commune has delegated the project ownership to a users association – the Diawara Association of Waste Service Subscribers (ASEDIA) – which in its turn has entrusted the running of the service to a private-sector operator.

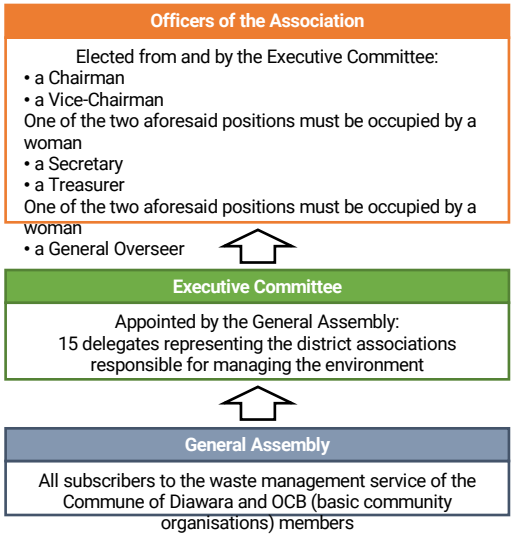


Source: Gret

The **Municipality**, which is the competent authority for the management of waste, signs an agreement with ASEDIA delegating to it its ownership of the waste collection service. The Municipality approves the operator to whom ASEDIA delegates the running of the service and endorses the contract. The Municipality provides the initial investment in infrastructure and equipment.
ASEDIA represents the subscribers before the operator and manages the funds for the renewal of equipment and the funds of the monitoring committee. The Municipality and ASEDIA have a joint role in raising awareness among the population of the need to follow rules on hygiene and in encouraging households to sign up to the service.

The **Operator** undertakes the regular collection of solid waste throughout the communal territory pursuant to the operating contract it has signed with ASEDIA and collects the monthly subscription fees from users. All subscribers are automatically members of ASEDIA.

ASEDIA is structured as follows:



Source: Gret

When launching the waste management service, the Commune published municipal decrees to prohibit the discarding or burning of waste in public places and fly-tipping. The hygiene brigade is responsible for ensuring compliance with those decrees and for imposing sanctions where they are breached.

The operator has experienced financial difficulties due to the inadequate recovery of fees which have led to a gradual deterioration in the service provided. ASEDIA and the Municipality decided not to renew his contract and took over the service to manage it directly. Within two months, following actions to train households and raise their awareness, the collection service was relaunched. By the end of the project, 80% of the population had subscribed to the service.

A weakness is the fact that ASEDIA has no legal personality and cannot issue receipts.

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Axis 4 – Who does what in the sanitation chain?

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Local authority-related responses

The NGO offering assistance with Project Ownership

GRET/Eau Vive offers Assistance for Project Ownership (APO) to intervening communes.

Under the scheme the Commune requests technical support from the NGO to help it formulate a vision for its territory and then set in place a public service.

This approach is based on six-monthly agreement protocols between the Commune and the NGO that are renewable throughout the life of the project. Based on results, it makes it possible to ensure that the Commune is involved technically and financially by effectively providing a counterpart contribution in terms of implementation and in investment finance. By the end, 5 out of 7 Communes had agreed to enter into partnerships. At Boghé, the project enabled the creation of a major leverage effect with 50% of the funding being provided by the Commune and 50% by the project.

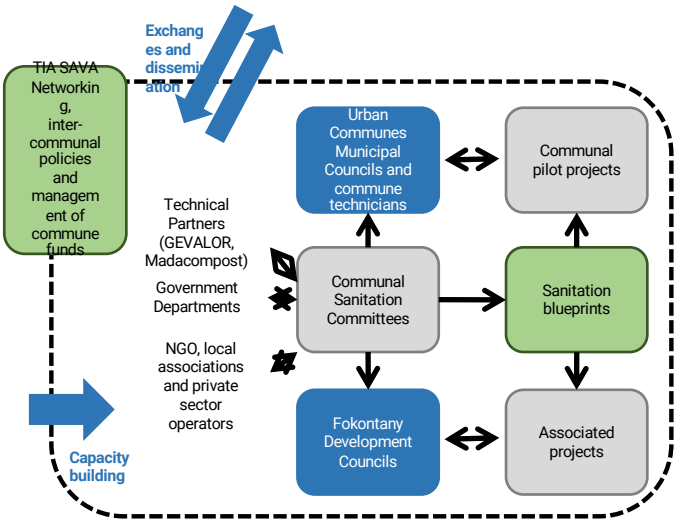
The project helped the actors involved become organised though the publication of municipal decrees on consultation frameworks and "hygiene and sanitation" committees, through the drawing up of organisation charts and the creation of sanitation service monitoring tools. One year after the project ended the technical department of Rosso is fully operational in the sanitation sector although no further consultation meetings are being held. The hygiene and sanitation committees at Keur Baka and Gaindé Pathé are just ticking over, while the tools for monitoring the desludging service in Rosso are not fully understood.

Workshops for exchanging experiences have been organised between Senegalese and Mauritanian local authorities, during which participants have been able to discuss their roles in the management and monitoring of sanitation services, examine ways of managing and financing those services, explore strategies for raising awareness among their populations, and make on-site visits. A common finding has been the lack of funds available to deconcentrated departments wherever they have been deployed.

Support for cooperation between communes in the Sava Region

Created on 10 June 2010, the TIA SAVA Inter-communal Association brings together 4 Urban Communes (UC) in the Sava Region of Madagascar with the aim of strengthening consultation between and participation by the principal local actors of the Communes in deciding issues related to urban development planning.

The purpose of the CIDR action was to enable the TIA SAVA over time to further its sectoral strategy and gain recognition as an inter-communal laboratory for urban sanitation and hygiene at national level. It aimed to create a network of actors in the four UCs, participate in the selection of innovations, organise exchanges of experience and disseminate best practice.



Under the project the TIA SAVA expanded in terms of human resources (managerial and support staff) and technical capabilities (project management, sanitation and capacity building of the communes).

However, as the project evolved, disruptions were noted in its funding through the lack of regularity in the payment of contributions by the UCs which meant that it was unable by the end of the project to achieve financial autonomy. The position of TIA SAVA coordinator has remained unfilled since the resignation of the post-holder in April 2016, and the technicians provided by the project were taken on as employees of the partner NGO from June 2016 until the end of the project.

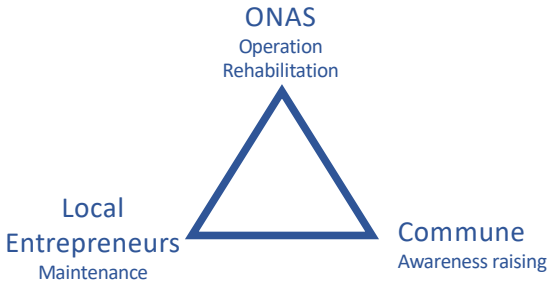
The decision-making bodies of the TIA SAVA have however again been asked to give their opinion and take decisions on how to distribute the intervention funds, to approve the projects to be funded, to evaluate the programme and to find solutions to the main difficulties, etc.

Local authority-related responses

Tri-partite agreement involving the Commune, for the management of a small-scale sewer system in Pikine

Enda-Rup has proposed the establishment of a tri-partite agreement for the management of a small-scale sewer system targeting 50 households in the Sam Sam 3 district of the Commune of Diamaguène Sicap Mbao in Pikine.

In Senegal the management of a semi-collective sanitation system has been entrusted to the National Sanitation Office of Senegal (ONAS). This approach was put forward with the aim of preparing the Commune over time to take up its role of project owner. The roles assigned in the agreement were for the ONAS to run and redevelop the system, for the Municipality to raise awareness among households of the need to pay their fees, and for local entrepreneurs to provide maintenance.



The implementation of this agreement did not go according to plan. The proposed innovation was blocked by proving to be incompatible with institutional reality and by the strategy of the ONAS regarding the management of semi-collective sanitation networks to steer them towards recentralisation rather than towards a system of delegated management.

In the end the works carried out was smaller than planned: works have not been formally commissioned and the plant has yet to become operational. Over two years after the completion of the works, the tripartite management agreement has still to be signed by the parties. The Commune authorities show little interest in the system.

Private and informal sector-related responses

Support for actions to put desludging operators on a professional footing

✓ **Desludging operators trained, equipped and organised into legalised associations in Antananarivo:**
In the low-lying districts of Antananarivo, the desludging of septic tanks is most often undertaken by small informal-sector operators working in unhygienic conditions.
Under the project, 21 informal-sector operators were identified according to their activities and their residence in the Fokontanies. They were trained (in hygienic emptying and the management of human, financial and materials resources) and provided with desludging equipment: a two-wheeled cart for transporting sludge in 50 litre barrels, a Gulper-type manually operated pump and individual protective clothing (suit, mask, gloves). Two operators' associations were formally set up: ZOTOMPO and FANDROSOANA. Of the 21 cleaners deployed, 8 still operate today. The reasons mentioned for people leaving the sector are the difficult working conditions (hand-operated pumps, carts) and the lack of appreciation and recognition by the population.

✓ **Desludging operators trained, equipped and employed by the Commune at Rosso:**
In Rosso, desludging operators operating in the informal sector work under rudimentary conditions: basic equipment, depositing of sludge in a hole dug close to the septic tank, sludge left to dry in the open air for several weeks.
The tank emptying service is currently managed by a public utility run by the Commune. The manual desludging operators of Rosso have been provided with individual protective equipment and gulper-carts and have been trained in a healthier and easier form of human-powered emptying before joining the Commune teams. Three operatives are currently on the payroll. To regulate their interventions, the Commune has drawn up a contract for the provision of the gulper pump and fitted carts. They testify to a genuine improvement in their working conditions and in particular in the state of their health.

Support for actions to professionalise private-sector operators

✓ **Management of the Rosso Sanimarket entrusted to a private-sector operator**
A private sector operator has been recruited by Gret/Eau Vive on the basis of a call for tender for the management of the Sanimarket at Rosso. A contract has been drawn up between the operator and Gret. The operator is responsible for organising the production of latrines, the management of the administrative and financial aspects of the market and for implementing the marketing communication aimed at convincing households to acquire a latrine.
After getting off to a good start, the operator has revealed a tendency to neglect the Sanimarket in favour of activities that are less restrictive in terms of quality and offering scope for greater volumes and profit margins (like the construction of public-sector buildings). Toilet sales toilets thus stagnated at around a hundred in all throughout 2015 against an initial target of 250.

✓ **Delegation of the running of the waste collection service at Diawara to a private-sector operator**
In Diawara, the running of the waste collection service was entrusted to a private-sector operator. After one year the Commune and ASEDIA decided not to renew his contract in the wake of various problems that had arisen: repeated defects, failure to constitute a sinking fund and working capital, suspension of equipment maintenance contracts, management difficulties and problems with the recovery of collection fees, etc.

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Axis 4 – Who does what in the sanitation chain?

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Findings regarding the principles implemented

Strengths	Weaknesses
District	
• Involvement of the population through the establishment of district committees • Involvement of the population in the choice of how the service is managed • Involvement of the communes by: i) officially recognising the structures of the district; ii) establishing a proper legal framework (hygiene brigade, prohibition on the fly-tipping of sludge, …) • Establishing contracts between the Commune, the Users Association and the private-sector operator: definition of the roles and commitments of the parties	• Limited involvement by the local authorities puts the legitimacy of the structures created at risk • The voluntary status of committee members undermines their continuity
Commune	
An NGO approach as a Technical Assistant to the Commune: • Commune = project owner • Commune declares its need for support to help it assume its role as project owner • Agreement protocols defining the commitments by the parties • Implication of the stakeholders through consultation meetings • Establishment of tools to monitor the sanitation services **Inter-communal actions:** • Regional governance of the waste management strategy • Sharing of experiences	• Absence of formalised monitoring of agreement protocols • Local operators don't know how to use their monitoring tools • Communes lack the funds to fulfil their commitments • Problems with the continuity of funding for the inter-communal utility after the project
Private / informal sector	
• Putting of desludging operators on a formalised professional footing • Support by the Commune for desludging operators (equipment) • Marketing communication through the Sanimarket: local marketing	• Gradual loss of dynamic by desludging operators (lack of recognition, drudgery) • Lack of technical and financial support by private-sector operators • Cost of the latrines (for the private-sector operator): difficulty in achieving a balance between the social and economic aspects • Problems for the private-sector operator with meeting his commitments

Lessons learned

District:

- The **Commune plays a pivotal role in providing support** for the structures of the district: legal recognition, an appropriate regulatory framework.
- The establishment of **contracts between the structures of the district and the stakeholders** is essential and makes it possible to formalise the roles and commitments of all parties.
- The development of user associations in the management of solid waste, like those developed in the water sector, **enhances the confidence of users** in the service. These associations can play the role of supervisor of the service or assume its operation.
- The **voluntary status of the members** of district structures **poses a threat to their continuity**. Certain structures find themselves entrusted with increased responsibilities even though they are not "professionals".

Commune:

- The **positioning of the NGO as a Technical Assistant (TA) to the Commune** places the Commune at the centre and fosters its interest in the sanitation sector by motivating it to invest financial, human and material resources in it. The renewable protocol agreements between the ONG and the Commune require close and formalised monitoring. Creating service monitoring tools makes it possible to rationalise the management of the service but requires support in the medium term. The strengthening of deconcentrated departments in this role of TA to the Communes is a pledge for the continuity of this approach.
- By **delegating public services** on an ongoing basis, it is possible to absorb political changes at the local level (elected representatives).
- The services need to be **tailored in size to the budgets available** to the Communes.
- Establishing an **inter-communal system of management for solid waste** makes it possible to define strategies at regional level and, over time, to coordinate resources to make studies and investments in large-scale infrastructures that are often inaccessible to a Commune on its own (e.g. a waste recycling centre). Funding them on a long-term basis is still a challenge, given the often limited financial resources of the Communes.
- In the sanitation and solid waste management sector the **decentralisation of competences** is not always accompanied by a transfer of the necessary resources to the local authorities. Projects to support decentralised structures should take account of the fact that the competences transferred are frequently underfunded.

Private sector:

- In the urban environment, private-sector operators are often absent or show little interest in a solid waste collection service that is only very rarely self-financing and therefore profitable. Strategies need to be found to **make it attractive as a commercial activity**.
- The **local authority must be involved in** defining an effective method for **selecting operators** (calls for tender).

Recommendations on replication and scaling up

- Be **demanding with the local authorities when it comes to providing a counterpart contribution** (human and financial resources). Some increasingly have more and more resources available.
- Extend to the solid waste sector the **experiment of Delegating** the running of a **Public Service (DPS) involving the Commune, a private-sector operator and a structure representing users**:
  - Document all DPS experiments, highlighting the sources of failure
  - Draw up a list of specifications identifying the roles and responsibilities of each of the parties
  - Favour a participatory approach
- Develop **inter-communal cooperation** in sanitation management:
  - Document existing experiments, paying special attention to the risk of politicisation and to how those structures are funded
  - Develop ad hoc institutional arrangements and conduct in-depth financial studies upstream
  - Get the State to underwrite the initiative (deconcentrated competent departments)
- The **creation of user associations in the solid waste management sector** necessitates a clearly defined legal framework, known and applied by local actors. The prerequisites would therefore be:
  - the improvement in existing texts at national level, making them clearer and more operational
  - distribution of these texts among the local authorities
  - support for the local authorities in the application of those texts: publication of decrees

Ideas for new things to test

- Explore sustainable funding mechanisms for district associations.
- Support the Communes in the collection and analysis of key data to enable them to make appropriate decisions: recourse to new information technologies.
- Following the example of the numerous experiments conducted on the Island of Réunion, explore methods of co-managing public services through Local Public Companies benefiting from attractive tax arrangements.