

# The 'end of ownership' of water and sanitation infrastructure?

Background paper to the joint IRC – VIA Water event, The Hague, The Netherlands, 25 May 2016

By: Stef Smits (IRC), Dick Bouman (Aqua for All), Rozemarijn ter Horst (VIA Water), Arco van der Toorn (Aqua for All), Cor Dietvorst (IRC) and Ingeborg Krukkert (IRC)

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## Introduction

Inadequate operation and maintenance (O&M), and in particular poor capital maintenance (replacement), is a key cause of infrastructure to break down. This includes water and sanitation facilities. How to break this negative and costly cycle of 'Construction-Use-Breakdown-Construction' concerns many, but there is no easy-to-apply fix.

Part of the solution may lie in the 'end of ownership' thinking. Following this idea, the manufacturer of a piece of infrastructure remains responsible at all times for the raw materials. The client purchases a service instead of a piece of infrastructure and the manufacturer takes care of the construction, O&M, and eventual replacement. This will incentivise the manufacturer to make products that last as long as possible, so as to postpone and reduce the costs of the eventual replacement. Another implication is that consumers or users do not need to make the big upfront investment in the product, but pay regular fees for the service. Examples of innovative projects build on this idea: a company buys "light-hours" instead of light bulbs, households rent a cooled space instead of buying a refrigerator, or people have a Green-wheels subscription instead of buying a car.

A related concept is entrepreneurial activity around the use of waste material. In this set-up, the entrepreneurs do not necessarily own the infrastructure, but provide services to operate - for instance by emptying pit latrines for a fee.

The end of ownership thinking can be applied to water and sanitation services. It also provides guidelines on how to deal with the complex problem of maintenance of capital-intensive infrastructure, and with the use of waste products in a productive manner.

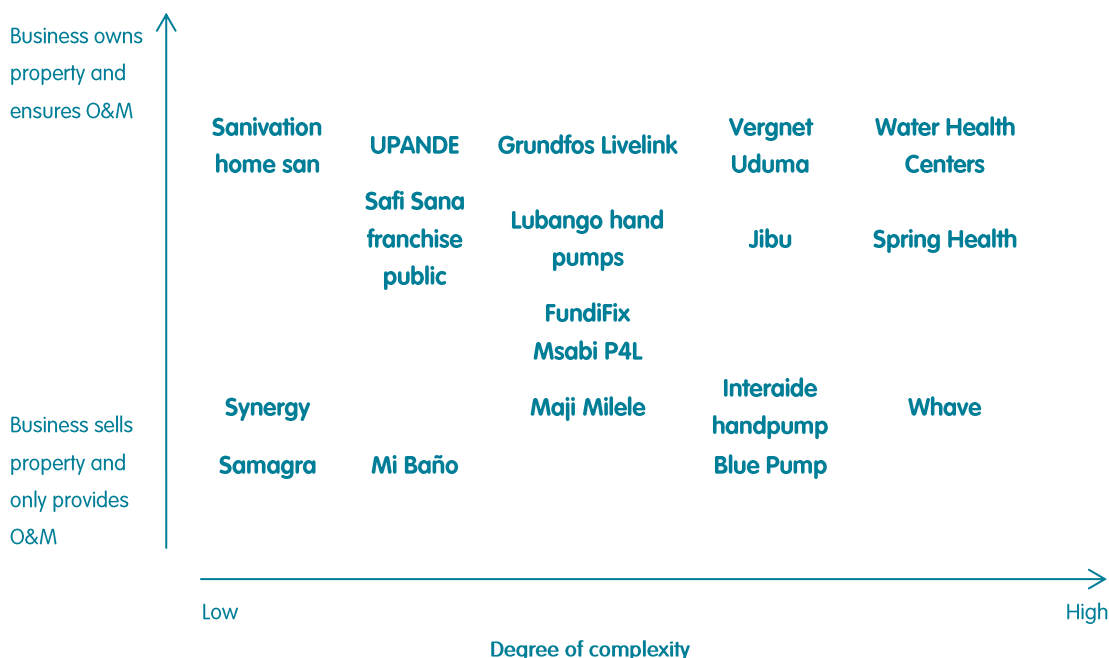
This joint IRC-VIA Water event will show a presentation on the concept of the 'end of ownership' by one of the most influential thinkers on the subject, Thomas Rau. Catarina Fonseca of IRC will provide a reflection on the relevance of this concept for the water and sanitation sector. This background paper maps the different innovations and variations of the end of ownership approach that are already applied in the water sector. It uses that to provide a reflection on

where and how this approach can change operation and maintenance of water and sanitation infrastructure.

## A mix of approaches

We have mapped examples<sup>1</sup> of businesses and projects that are based on the ‘end of ownership thinking’ (see figure 1 below). The examples can be mapped against two criteria:

- Type of ownership. Approaches range from those where a company owns and maintains the products while leasing the right to use, to those where the user owns the infrastructure but a company sells maintenance services.
- Degree of complexity. Some of the approaches are simple arrangements for maintenance contracts; others have a higher degree of complexity, including guarantees.



## Reflections

In water supply, the service delivery approach is common. *Affermage*-lease contracts for rural water supply have been widely used in francophone Africa (Benin, Burkina Faso, Mali, Mauritania, Rwanda and Senegal) since the 1990s. Under these arrangements, the operator takes on all the operating risk and rewards. The operator is responsible for billing and payment collection, and absorbs operational expenditures such as those for energy, maintenance, repairs, and personnel. The operator also pays a lease fee to the contracting authority to cover depreciation and replacement costs, and other charges such as provisions for network extensions.

However in most cases the operator does not directly bear the financial responsibility of replacing the most critical equipment in a piped water operation. The contracts are also shorter

<sup>1</sup> The reference list contains links to full descriptions of these examples.

than normal, ranging from one to five years, rather than five to fifteen years (Hoang-Gia & Fugelsnes, 2010). Less common are models where the suppliers of the infrastructure provide longer-term guarantees and maintenance contracts. A good example is the 15 years lasting Aquavirunga management contract of Aquanet/PWN and Aguarwanda, where the operators have the duty to expand the systems in function of the demand.

Still these models face several issues:

- The model requires a high capital front loading from the supplier/manufacturer or leaser.
- All risks remain with the asset holder, whereas repayment is done over a long period; meaning that interest rates will be high and depreciation needs to be much shorter than formal economic lifetime (risks of economic instability (deflation); risk of looting and political instability; aging of technology, changes in policy etc.). The manufacturer/company selling the service therefore has to ensure the product is sustainable and has a long lifetime.
- In many systems, tariffs are just about right to cover minor operation and maintenance costs. Including the full cost of capital maintenance in tariffs may simply not be affordable. Thinking around the end of ownership will not solve that limitation.

In sanitation, this approach is gaining some ground, but mostly in relation to public or shared sanitation facilities, such as what Sanergy and Safi Sana offer. Though interesting, it must be noted that such shared sanitation facilities are not considered improved by the international JMP standards, and may thus only be adequate as an intermediate solutions whilst people move to household sanitation. It is rarely applied for facilities at household level, yet, though we have an interesting case of Sanivation. Business providing services such as pit emptying and connecting this to value-adding activities such as the production of briquettes or composting could improve the business case for service delivery approaches. But the examples of these remain small and isolated, and mainly related to the presence of markets for such products.

Almost all cases we have found are from Sub-Saharan Africa. Countries in Europe, Latin America and Asia that have achieved much higher levels of coverage, have generally achieved this largely through a model whereby the public sector does most of the initial investment costs. Private parties play a role in the supply chain, though ownership often remains in public hands. This begs the question on whether these 'end of ownership' models emerge largely in places with a limited public sector and unregulated markets, and are only a transitional feature.

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## For more information

Visit the websites

IRC [www.ircwash.org](http://www.ircwash.org) | VIA Water [www.viawater.nl](http://www.viawater.nl) | Aqua for All [www.aquaforall.org](http://www.aquaforall.org)