

ACCELERATION APPROACH: MICRO WATER SERVICE PROVISION

Rural drinking water systems like community handpumps and micro grids currently often rely on donor investments for construction and on community based management models for its operation and maintenance. This management model builds on the sustainability principle of local ownership. A precondition for the management model to work, and thus for the sustainability of the water services, is a strong local management structure, which needs to be built in parallel with the water systems hardware. Many of these community based management structures (often voluntary Water User Committees – WUC's) have members drop out and new members join. Continuous follow-up visits and trainings are needed to keep the knowledge and skills required for effective technical and financial management up to par.

With these systems depending on donor investments and continued follow-up, it does not qualify as a model to accelerate rural water supply. As an alternative to overcome donor-dependency and allow for acceleration, the professional and more commercial approach of rural Micro Water Service Provision (MWSP) is presented here.

MWSP can play a key role to accelerate rural drinking water supply. Micro Water Service Providers (MWSP's) can either be fully commercial companies, social enterprises or cooperatives. What they have in common is that they make the investment decisions based on economic parameters, operate and maintain the systems on a cost-recovery or for-profit basis, replace system elements when required to serve their customers, expand existing systems and expand the number of systems to serve more people and expand and improve their social or business objectives.

ACCELERATION OF RURAL WATER SERVICES THROUGH MWSP

Expanding rural coverage of improved water supply through Micro Water Service Provision is achieved by creating the financial incentive and business opportunities for establishing and operating rural water systems. Profit margins allow for expansion of the (number of) systems managed by the provider, opens the market for competition on price and/or quality and triggers new MWSP's to enter the arena, looking for unserved customers.

Acceleration is also achieved when successful management leads to capital inflow in the sector by investors and banks.

The following basic conditions will allow for MWSP (and acceleration):

- The service provider is owner of the water systems, or has a long term concession, an agreement to have the exclusive right to operate, maintain and carry out investments for a given number of years, for the water services in the area. Without this condition, the service provider will probably not have a long term vision and invest in the water systems.
- Water tariffs are regulated and performance of water service providers are supervised by a (governmental) body that defends public interests and balances water prices against water investment opportunities and profit margins.
- The local financing sector is ready to invest in MWSP: Investment cost need to be amortized over periods of 5 to 10 years so long term loans are needed at acceptable rates.
- There is a common acceptance and willingness of water payment by users. Payments are linked to use (volumes) and improved and continues service rather than to contributions to repairs in case of non-functionality. The government should have favourable policies towards payment for water services.
- Water users are informed on the level of service they can expect and the payments required for that. They are organized and able to demand these services from the MWSP's.

One of the risks is that the business approach of MWSP compromises the 'Leave no one behind' principle; poor and marginalized people and small or far-away communities may not be profitable to serve. There is a clear role for central and local government to provide the framework in which the companies can operate:

- Operation of different schemes and water points may depend on the expected profitability of the system, combining different levels of investment of MWSP's and owner of the water scheme (government). That is, for profitable systems, the MWSP's can pay for the concession whereas for system that are unlikely to generate profit, the MWSP's can work under a management contract where they are being paid for providing the water service to the community. At national or regional level, this will allow for cross-subsidizing systems.
- The MWSP model has the risk of disallowing access for those who cannot afford. Smart use of payment structures like graduated tariffs when using payment per volume, differentiated tariffs for different service levels (standpipe vs. yard connection) or smart subsidies on community level.
- When using groundwater sources, initial investment in the borehole is very high; a hybrid model may be needed where the cost of the borehole is covered by the government or NGO and this is taken out of the total investment costs or included as lease costs in the concession.

MWSP AS A BUSINESS OPERATION

The model of MWSP is built on a business model opposed to the voluntary models for operation and maintenance of water systems. It includes a financial stimulus to generate more profit by either expanding the services or by improving the efficiency of the services. Both water users and government have a role in monitoring and controlling that the services meet the standards. Especially compromising water quality to maximize profit is something that should be avoided at all costs.

Running the MWSP as a business means applying common business principles of 1) optimizing investment cost, 2) minimizing operational costs and 3) maximizing income from water sales.

Strategies for optimizing investment costs are the following:

- Use a modular design approach and start with a minimum viable business; expand the business based on increasing demand and avoid over-designing the system.
- Make use of what is already in place. Rehabilitation and upgrading of existing non-functional systems and boreholes reduces the investment costs.
- Where national standards allow, consider low-cost alternatives like manual borehole drilling.
- Strategies for minimizing operational costs are the following:
- Reduce investment costs so that financing costs (interests) and amortization remain as low as possible
- Use solar energy as power source (higher initial investment costs are easily outweighed by avoidance of fuel use) where possible.
- Optimize business operations and scale to reduce overhead costs.
- Avoid over-use of water by payment per volume (instead of per month or per connection or household). (Ground)water in itself may be for free, but increasing volumes used adds to pumping and distribution costs.
- Reduce the costs of billing and collection of fees by using technologies like pre-paid technologies for standpipes, house connections and handpumps. Use non-cash transactions where possible like mobile money.

Strategies for the maximizing water income are the following:

- Minimize non-revenue water by using water meters.
- Offer upgrades from public water points to yard connections, offering easier access to water. Extra pipe investments are outweighed by higher water use, and can partially be paid by users.

METHODOLOGY

As the approach builds on local markets and depends on contextual factors like laws & regulations, hydrological conditions and availability of financial and technical support services, there is no blueprint methodology. The approach relies on action from the local private sector so the focus is on creating the preconditions and enabling environment for the sector to be able to take these actions. It includes advocacy, lobby and capacity building & training rather than hardware construction.

The fastest path to scale is an approach with a strategically planned regional or national introduction of Micro Water Service Provision, starting with the enabling environment. An alternative approach could be to take a more incremental pathway, and start with building upon (and supporting) existing initiatives from a bottom-up perspective. This second option allows for a more natural growth, building on evidence and relying on the spill-over effect to neighbouring villages, town and districts. Both approaches allow for acceleration, be it on a different pace. With the NGO's facilitating the process, the role of the NGO is different in the two approaches. The following steps apply to both approaches:

Step 1. Mind-set

Change your mind-set. Social objectives of water provision can only be achieved and accelerated sustainably if they are economically and financially viable. This means:

- Think big. Whichever approach you choose, you should keep in mind the objective of sustainably changing the rural water sector.
- Analyse the financial viability of potential water investments, and prioritize the most financially viable investments. This will help to build up experience and working capital.
- Build up your knowledge and experience around cost saving technologies, management and payment systems, or work together with those who have this.

Step 2 Sector analysis

An analysis is required to build your strategy per country, as this highly depends on each institutional setting and existing practices. Focus this analysis on business development opportunities. This analysis would include:

- Stakeholder mapping of roles, responsibilities and attitudes, water rights and regulatory framework and legal mandates of different stakeholders. Identification of allies, co-operators and opportunities versus adversaries, bottlenecks and threats.
- Water and financial market analysis. What materials and financial services are available at what place, price levels of different materials and services, and investment options? What are the existing water price levels and tariff structures? Analyse coverage, existing systems, needs, population densities, settlement patterns, availability and characteristics of water sources.
- Capacity analysis. What relevant capacities exist where, at what level, and how can they be used? What capacities need to be strengthened at what stakeholder?

Step 3 Advocacy, policy influence and campaigning

The advocacy strategy should be based on your sector analysis. In general, the following advocacy issues can be identified towards different stakeholders:

| Stakeholder | From | Towards | Issues |
|----------------------------|-------------------------------------|--|---|
| Government | Investor in services | Regulator, facilitator and supervisor of the water sector. | <ul style="list-style-type: none"> - Water tariffs and cross subsidy policies - Performance contracts and monitoring - Long term concessions and legal ownership of water infrastructure - Investment climate and conditions - From design norms and standards to service delivery norms and standards |
| Financial institutions | Virtually absent in water sector | Providing appropriate finance for water investments | <ul style="list-style-type: none"> - Risks and risk perception of investments - Interest rates and other loan conditions that match the needs of MWSP - Guarantee funds - Judgement of Business proposals / water business expertise |
| Water users and committees | Local water system managers | Informed choice consumers | <ul style="list-style-type: none"> - Quality / service level/ continuity / proximity / safety of water supply - Willingness to pay / water tariffs - Performance monitoring of providers / problem reporting / complaint procedures |
| Water service providers | | Operators of, and investors in, water service provision | <ul style="list-style-type: none"> - Water tariffs - Transparency and performance - Optimization of business operations - Technology choice - Operational format |
| Donor agencies | Coverage support for infrastructure | System support focused on market, financial conditions and capacities | <ul style="list-style-type: none"> - Harmonization of approaches - New funding/financing tools |
| Knowledge institutes | Theoretical research | (Commercial) applied and action research to support the private sector | <ul style="list-style-type: none"> - Market research - Product development - Tool development - Business support |
| NGO's | Un(der)paid service delivery | Facilitators of dialogue and co-operation | <ul style="list-style-type: none"> - Facilitating MWSP transformation process - Creating enabling environment - Defending users rights - User education |

Step 4 Capacity Development

This should be based on your capacity analysis. In general, the following capacity issues can be identified at different stakeholders:

| Stakeholder | Issues |
|--------------------------------|--|
| Government | Water tariff establishment and supervision Performance contracts and monitoring Cross subsidy policies |
| Financial institutions | Water business expertise; judgement of business proposals, risk assessment |
| Sourcing & supporting industry | Availability of right technology (including affordable / low-cost alternatives) After-sales service delivery Maintenance and repair services of hardware, spare parts supply IT / data communication services |
| Water users and committees | Water rights and why pay for water Performance monitoring of providers / problem reporting /complaint procedures Social arrangements for ultra-poor and vulnerable groups to assure inclusion |
| Water service providers | Financial analysis and planning Optimization of business operations / business skills Technology choice and water system design Transparency & accountability |
| NGO's | Defending user rights Performance monitoring of service providers Market facilitation |

EXAMPLES AND FURTHER READING

1. [Handpump-based water businesses in Kamwenge district, Uganda: Water for People, Water as a Business \(WAAB\)](#)
2. Challenges of community-based management of handpumps: Blueprint for breakdown? [Community Based Management of rural groundwater in Uganda; Van de Broek](#)
3. Guarantee funds supporting investments in small and medium enterprises: [Credit Guarantee Schemes for Small Enterprises: An Effective Instrument to Promote Private Sector-Led Growth?](#) Green, 2003; UNIDO;

MWSP ACCELERATION INDICATORS

While applying the Micro Water Service Provision approach to accelerate access to and use of water, how can we know our approach is working? Monitoring private sector initiatives is far more challenging than monitoring direct results of hardware construction. When focussing on supporting MWSP, there are a number of indicators showing progress. Especially when organized on national level and when combined with internet-connected smart meters or pre-payment systems, it will be possible to quantify the reach of the MWSP's. Indicators for success of MWSP are:

- Number of MWSP's established
- Number of households being served by MWSP's - either by expanding existing systems or by establishing new systems
- Number of new water facilities established
- Total turnover of MWSP's
- Loans (number or total amount) provided to MWSP's

On the impact level, special attention need to be paid to water use rather than to water access; vulnerable groups are prone to shifting to unsafe sources when access to the safe water source is denied due to lack of payment. The WUC's can be organized in a way that they take responsibility for these marginalized people and set up structures to guarantee access to the safe source for this group without undermining the business model for the MWSP's. Impact indicators include:

- Actual use of safe water by marginalized families and individuals
- Effective policies in place at water point by MWSP's or WUC's to guarantee access to the water points for marginalized families or individuals

TIMELINE

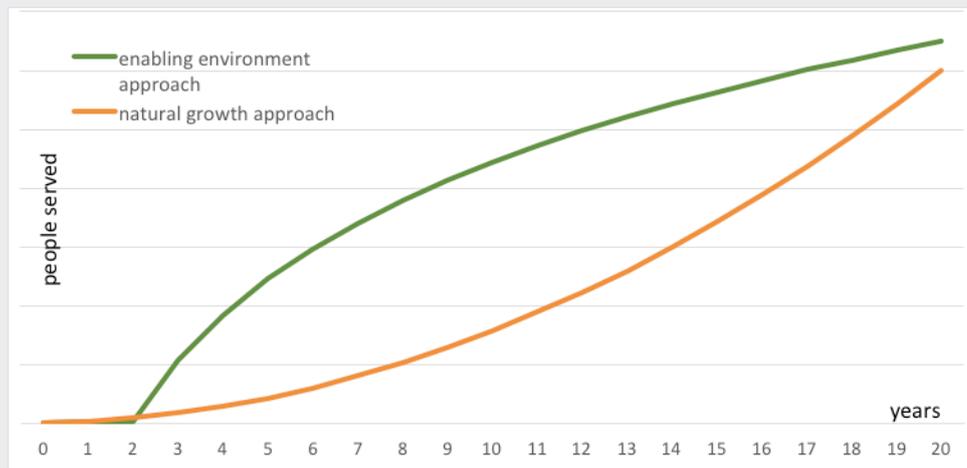
The MWSP is typically an acceleration approach. Starting point can be the national or regional level, working on the enabling environment or the grassroots level, fostering and facilitating natural growth and expansion. In both approaches, acceleration takes place by expanding the MWSP business in combination with other MWS providers entering the market; a typical timeline of a single MWS business would show a linear growth, expanding slowly as demand increases. The acceleration comes in when other MWSP's are starting. The approaches differ in the way of acceleration as a result of the time when new MWSP's enter the market: The 'enabling environment' takes time to establish prior to launching the first MWS businesses. Once the framework is

in place, it is possible to increase the number of MWSP's more quickly. In case of the 'natural growth' approach, it starts directly from local initiatives and grows exponentially based on increasing exposure, confidence and demand.

EXPERTS

Especially for rural settings, the approach is new in the sector and still needs to prove its success. However, it builds on two key elements - improved service levels for the customers and sustained profit for an entrepreneur - that have already proven to be key in sustaining and accelerating rural water facilities. Expert organizations include:

- **PRACTICA foundation** (for experiences with MSP's for other services like manual well drilling and faecal sludge management)
- **WASTE** (for building the Diamond model, involving the different stakeholders, including the required financial arrangements)
- **Water for People Uganda** (having a Water as a Business program in Uganda based on water from rural handpumps)
- **University of Portsmouth** (for an extensive knowledge based on common sustainability issues with rural water points managed by Water User Committees and alternative rural handpump management models)



TOOLS

Franchising; an efficient umbrella to reach national coverage.

One of the main challenges with accelerating programs using local and small scale entrepreneurs is the high level of support these business require to excel in their product or service and to maintain a profitable and sustainable business at the same time. When working with small scale entrepreneurs, technical training is as important as training in business skills like cost calculation, bookkeeping, financial planning, contracting, advertising, branding etc.

For the model to be truly sustainable, these support services should be part of the business model. Services need to be highly standardized and cost-efficient.

The franchise model offers potential to provide services and products to the MWS providers in a for-profit model:

The franchise model :

A franchise model enables the franchiser (franchise holder) to replicate an operation by licensing it to autonomous third parties (franchisees or franchise takers). This enables the franchiser to expand a business and access new markets with limited capital investments. In return, the franchisee can use the business concept to enter a market with a finished, proven and successful product. The franchisee pays a membership fee and buys core business inputs from the franchiser at agreed conditions.

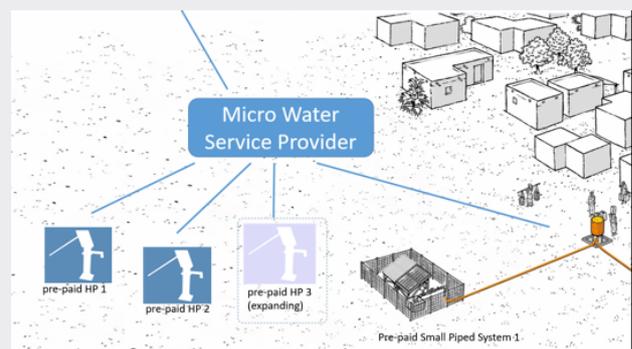
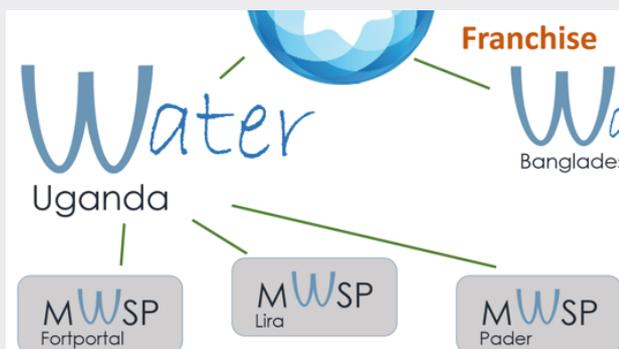
The franchiser provides a framework for capacity building of the franchisee, for which the Franchiser's Operations Manual is the backbone. In terms of market access, the franchisee becomes automatically defined by the brand and its operation; it sets the standard of product and services that customers can expect, it gives access to a guaranteed supply of core-business inputs of known quality and price and it grants the franchisee a credible status for third-party suppliers. For access to credit, the franchiser supplies a solid business plan for the franchisee. This can be combined with close relations with banks that can finance starting franchisees.

(www.wattjet.com/pdf/SocialFranchiseEntreprise.pdf%20)

The franchise model for MWSP has the following advantages that allow for acceleration:

- A recognizable brand name will help to build a good reputation and a positive association with safe and affordable drinking water, creating demand for the service.
- Quality Control will be organized centrally, ensuring high-quality drinking water.
- Sales of hardware can be through the franchiser who can purchase in bulk, allowing easy access to high quality and affordable tools and products.
- Support in business processes is organized at a central level and fully standardized, minimizing the risk of mismanagement of the business.
- Franchiser can facilitate access to finance for the franchisee at agreed rates and conditions with limited risk for the financier.

The organization can look as follows:



Under this franchise structure, the following tools, technologies and services are essential; some of these have already been developed to an extent while others still need to be developed:

1. Franchiser and franchisee business model canvas

The Business Model Canvas is an existing tool and template for developing new business models. It can be used to evaluate the potential of your business in its environment. The specific tool for MWSP's needs to be developed, but the existing general Business Model Canvas can function as a good starting point.

2. Franchiser's operation manual

This manual describes all the processes of the franchiser. To be developed when starting the franchise.

3. Financial & technical feasibility study tool

A Small Piped Systems financial and technical feasibility study tool has been developed by PRACTICA. It consists of a step-by-step approach to explore the viability of a water business based on a small piped system, which includes source development, extraction, storage, treatment and distribution of the water. It combines hardware investment costs estimates based on local parameters with potential income from water sales based on information from potential users. The tool is currently available as training only. Applicability of the tool has been tested with WAI partners in Bangladesh and Nepal. Testing of the tool in a real situation is still required to optimize and finalize the tool.

4. Calculation & design tool for Modular Small Piped Water Systems / Modular Micro Grids

One of the challenges with Small piped water systems (or Micro Grids) is the design horizon, making sure that the design capacity matches the anticipated increased demand. Due to the high up-front investment costs and thus high financing costs, oversized systems have problems with short term profitability. As a potential solution, PRACTICA has developed a modular approach, which allows for a small start with optimized capital costs and system expansion with growing demand. This results in reduced investments, reduced financing costs and faster break-even. The tool is optimized for solar-powered SPWS's but is also applicable for electricity grid connected systems or conventionally powered systems. The tool is under development and is expected to be

ready in beta-version by Q2 2017. For more information on this tool, please contact PRACTICA Foundation.

5. Pre-payment technology hardware and Dashboard

This technology is available through Susteq. Current technology allows for pre-payment for water by the customers and collection of revenues by the MWSP entrepreneur for handpumps and piped systems through water kiosks and pre-paid public standpipes. If pre-paid house connections are needed, additional technology needs to be developed.

The Susteq technology includes communication with an on-line database and dashboard in which the MWSP entrepreneur can monitor sales and incomes. In case of a franchise model, the franchiser can have access to the data as well and use this to support the franchiser businesses or to collect contributions from franchisees based on water volumes sold.

6. Business software

Custom-built software can help the MWSP enterprises to streamline operations. The Franchiser can provide this software and use this to monitor performance of the franchisees and report to financial institutions or funding organizations. This software is still to be developed. It could be shaped as Android tablet application to reduce complexity and IT investment costs of the franchisees.

FINANCING MWSP

The acceleration model is built on capital from the financial markets; cooperation with banks need to be established to enable medium-term loans (5 to 10 years) at favourable conditions. A guarantee fund may need to be required to reduce the risks for the banks.