

Rural water services through pre-paid handpump technology

Accelerating sustainable rural water supply through innovative handpump management systems and water payment models

RURAL WATER SERVICE CHALLENGES

The lack of sustainability of rural water supply systems is a major threat in securing safe water access. For community handpumps, carrying out maintenance and repairs to keep the pump operational is challenging. The commonly adopted model of community level operation and maintenance led by water user committees has proven successful mainly in those cases where frequent external support is available. Insufficient or irregular incomes and mismanagement of cash and savings from water user fees often causes long delays in repairs in case of breakdowns. This reduces the quality of service and, as a result, the willingness of users to pay for the service.

Pre-payment technologies for communal standpipes and house connections have demonstrated to allow for more efficient management and a reduction of non-revenue water. As a result, service levels and sustainability of the water system improve and water charges can stay within acceptable limits.



figure 1; pre-paid water from a handpump

THE INNOVATION

The innovation developed by PRACTICA lies in the application of a similar model to community handpumps. This entails shifting from community-owned and managed handpumps to a service contract with a (semi)private operator. Payments will be done per volume of water consumed. Local entrepreneurs are identified to install, exploit and maintain a cluster of handpumps. In this way the exploitation of handpumps becomes financially viable and risks are spread so that sufficient resources are available for timely maintenance and repairs. To make this approach operational, PRACTICA has developed an affordable pre-payment module as add-on for handpumps. Combined with local credit vending points and simple smartphone or tablet-based management software, local entrepreneurs can offer affordable, reliable and high-quality water access and at the same time establish a profitable business.

PRE-PAID WATER FROM A HANDPUMP

The pre-payment module for handpumps combines water volume measurement, user identification, NFC payment, water flow interruption and GSM communication. This unit can be installed in the field on existing Afridev and India MKII handpumps using simple tools. Pre-production models are currently being field-tested for durability.

For the payment technology PRACTICA works with Susteq, a Dutch company offering cutting edge NFC based pre-paid water vending units for water kiosks and standposts, payment tags for customer as well as hardware and software for water credit vendors. Susteq has already gained experience with an early model of a pre-paid handpump technology in Kenya. The full market introduction of affordable pre-paid handpump technology is a joint priority of Susteq and PRACTICA. Current focus is on further reducing the build costs to be able to offer the product at an off-factory price of less than €800.

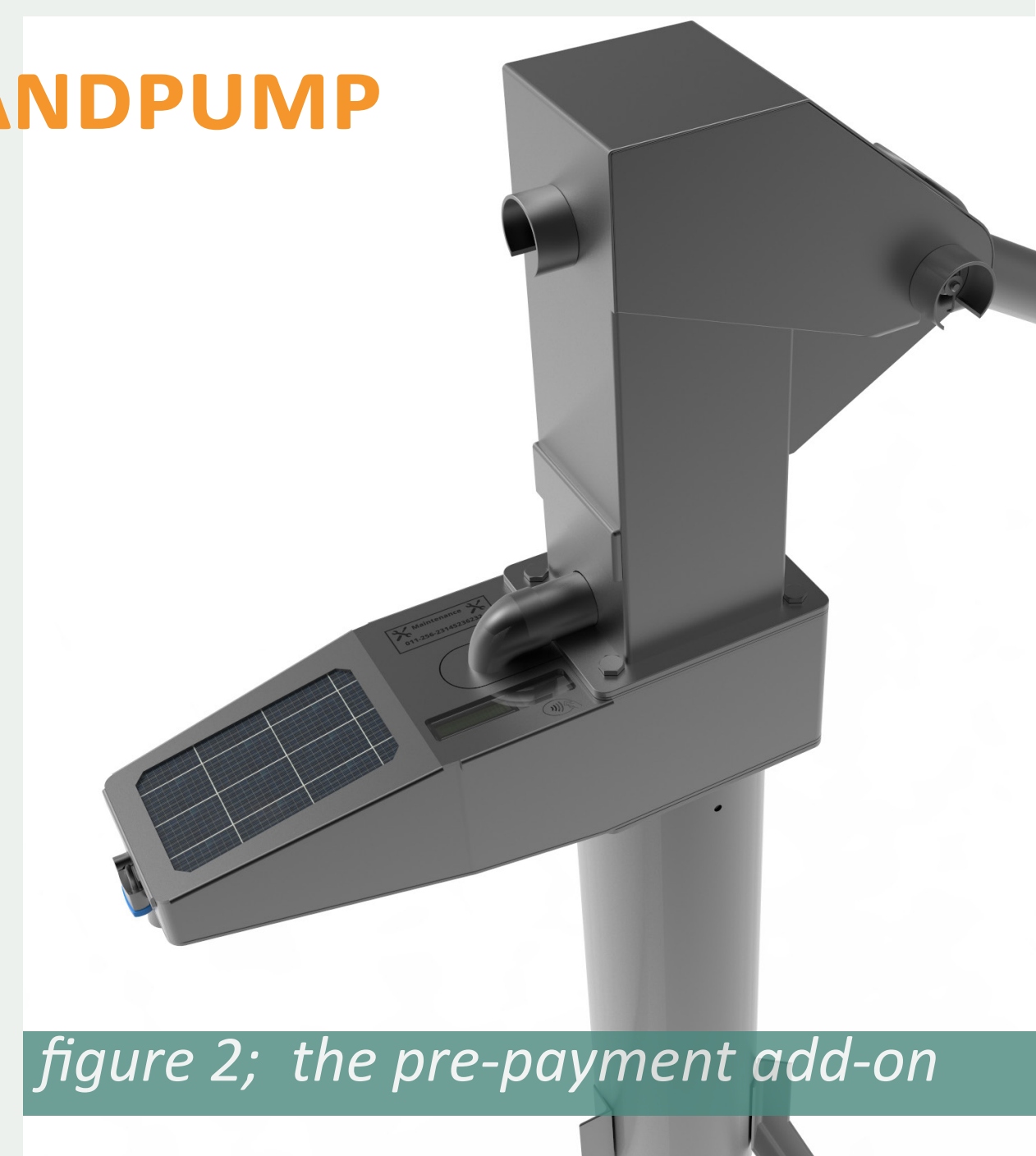


figure 2; the pre-payment add-on

LOOKING FOR PARTNERS

A pre-paid water business requires more than only the technology. PRACTICA has extensive experience in transferring technologies to local businesses. The business case of pre-paid water from handpumps works on paper. It is being backed-up by studies from the field focussing on specific elements only, but evidence from a fully commercial and long-term sustainable business is still lacking.

With the building blocks in place PRACTICA is seeking partnerships with organizations implementing water points for roll-out of this pre-paid water business model, starting with pilot projects with the ambition to go to scale.

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