**Overview.** Whave is a social enterprise registered in Uganda in 2012. It operates in two modes:

**Advisory role** toward government regulation of rural water supply, governance capacity development, stakeholder coordination and training. Advocacy includes a shift to preventive maintenance as a norm, Build-Operate-Transfer (BOT) systems for construction and restoration, performance contracting of Service Provider entities by government water authorities such as MWE Regional Utilities and Districts, and performance-payment of local technicians targeting reliable full functionality of water supply, all aimed at achieving SDG 6.1.

**Prototyping and benchmarking** the Service Provider role: Whave directly services over 400 hand-pumps in 7 districts providing construction, restoration and preventive maintenance under a Build-Operate-Transfer (BOT) modality. It is currently conducting baseline assessment in an 8th district and has secured funds to expand to 2 more districts in late 2019. The focus is to generate evidence of cost of full functionality in different climatic zones.

Whave encompasses 4 Local Service Provider (LSP) teams operating in 10 districts in Central, Eastern, and North-Eastern regions; these teams are supported by the Whave Regional Service Provider (RSP) based in Kampala. Whave trains local entities such as Hand Pump Mechanics Associations to become LSPs and all the local technicians it contracts and trains in preventive maintenance are members of the HPMA.

Whave is not purely a MSP as its core mission includes improvement of hygiene and sanitation conditions, through conversion of hand-pumps to piped water supply as a means toward achievement of SDG 6.2. This is done using a Build-Operate-Transfer approach where design and construction and maintenance expenses are optimised within a full life-cycle cost-efficiency perspective, with daily reliable functionality as the key performance indicator.

**Technology:** Whave is investigating low-cost functionality sensors for hand-pumps, working with NGOs and a British consortium. It currently finds on-site monitoring and cross-checking by phone cost-effective. It is investigating reliability and cost of automatic water teller machines (ATMs) as a high priority which will reduce management costs in forthcoming years both for hand-pumps and piped systems. It is embarking on solar-powered pumping both for domestic water distribution and irrigation.

**Functionality:** Whave has consistently maintained 100% functionality over the past 3 years in Kumi District, 99% in Kamuli and 98% in Nakaseke districts, so far serving (as of December 2018) in these three districts 340 communities and 100,000 people, These rates compare with national averages reported by MWE of 85%.

**Operating context:** The Whave model operates in seven districts, with expansion in 2019 to 10 districts. Average population density in Uganda is 207 persons per square kilometre. Transport networks away from national highways are often poor with limited connectivity. GDP per capita (PPP) in Uganda is US$1,863.83 (World Bank 2017).

**Institutional arrangements:**

Whave works in public-private partnerships with district local governments, in accordance with Performance Contract MOUs. Quarterly PPP review meetings are held and Key Performance Indicator results are shared each quarter with central and local government. A key component of the PPP institutional design is that tariff price plans are devised in agreement with local and central government, ensuring that service cost is balanced by tariff at minimised regulated and government-approved affordable levels.

At national level the initiative is part of the broader policy of MWE to involve the private sector in service delivery. Whave has worked closely with the MWE in the design and evolution of the model and Whave contributes to on-going reforms and development of a national O&M framework.

Whave is working with local governments in the pilot PPPs to scale the model, and to ensure it is complementary to structures by the Ministry of Water and Environment (MWE) developed for water supply in small towns, such that the Whave model accelerates progress toward achievement of SDG 6.1, with expectation that the MWE regulated Regional Utilities can absorb the full functionality PPP structures initiated by Whave, as and when appropriate. Whave is using the cost evidence it is generating, to assist central government with costing of national replication.

At community level, Whave operates two organizational modes, known as Pay-as-you-Fetch Hybrid and Improved Subscription. These are combined with Direct Collection and Committee Collection options, with the most appropriate mode being selected according to local conditions and preferences and type of community, whether a rural trading centre or a farming community, and stage of development. These options are part of an institutional transition process which brings all rural communities, moving in different ways, eventually to the same end position, which is universal access to reliable water supply financed through regulated tariffs.
Reliable Rural Water Supply in Uganda: MWE/District PPPs for Improved CBMS

Financing

**Direct and Indirect Service Costs, are distinguished from Investment Costs:** Whave is focused on full cost recovery with all recurrent Direct Service costs incurred by the Service Provider being recovered from service fees paid by water users. **Direct Service** costs are for example procurement and replacement of worn components including both major and minor parts, local technician labour and its management by both LSPs and RSPs. Recurrent costs incurred by government such as regulation of Service Providers, environmental resource management, mobilization of communities, are termed **Indirect Service** costs. Indirect Service costs are not recovered from tariff revenue.

**Investment costs** are distinguished by not being permanent and recurrent; these are temporary system-building and capital costs. This includes conversion of hand-pumps to pipes, equipping unserved areas and “PPP Building”, the process of establishing capability for regulation of Service Providers by government. An example is Recovery Rehabilitation, which is the cost of restoring the technical quality of water supply installations suffering from sub-standard materials. Whave offers Recovery Rehabilitation to communities on condition they sign Preventive Maintenance and Continuous Rehabilitation Agreements (PMCRAs) under which they pay service fees either through Improved Subscription or through PAYF/Hybrid modalities. The PMCRA obliges the Service Provider to meet all future technology wear and replacement costs. In this way, the model establishes financial incentive for life-efficient construction/restoration design and material selection as well as for cost-efficient maintenance, and removes the need for government finance for rehabilitation which currently is a system weakness.

**Discounts as a method of building a self-financing structure.** The service fee required to balance cost, assuming economies of scale, is specified by the PMCRA. In the case of hand-pumps, this is set currently at $310/year, including RSP & LSP management, technician earnings and hardware. This is generally affordable, with community committees ensuring that needy members are exempted. However, a strategy is needed to overcome initial unwillingness to pay amongst some community members. Most local leaders recognize that ad-hoc gifting by politicians and NGOs does not provide the reliable functionality offered by the PMCRA. To help them address recalcitrant members, Whave provides a declining discount to early-adopters. In 2018, under Improved Subscription modality for hand-pumps Whave discounted 70% of the $310/year full service fee, while in 2019 it is discounting 60%, with communities and local government aware that the discount will continue to reduce. In the case of PAYF/Hybrid modality, a PPP partnership agreement has been reached that the early adopter discount is 50% in 2019, with reductions to follow. The finance needed to pay for this declining discount, is an important component of **Investment Cost.** It is categorised as Investment because it is a temporary system building cost.

Government support and integration

The government has started to regulate the price of water collected from tap-stands in rural areas. The Ministry-regulated price of 50 UGX/20-litre-jerry-can is major step because it represents a huge drop in current business-as-usual prices charged in trading centres, commonly 200 to 1000 UGX so excluding poorer community members. It is affordable and socially acceptable in farming communities where tap-stands are introduced because these are acknowledged as a higher service level. In the case of hand-pumps, government has not started to regulate, and Whave’s initiatives are designed to assist the process. Because hand-pumps are expensive to service per capita (one reason amongst others why they are not desirable), Whave has estimated that the PAYF tariffs they require are in the order of 40 UGX/20-litre-jerry-can for domestic consumers’ daily lifeline consumption volumes. The district governments where Whave is applying the PAYF/Hybrid modality are supporting a stepped tariff price plan simplified by the declining-discount approach to become initially a blanket 20 UGX/20-litre-jerry-can for all users, with reduction in discount forthcoming. Hand-pump communities in compliance are favoured in the queue for piped conversion, so introducing an incentive for compliance.

**Understanding Subsidy and Cross-Subsidy.** The division of cost into Direct Service, Indirect Service, and Investment is helpful in clarifying the question about subsidy. Simply, water users pay for Direct Service, Government pays for Indirect Service, and Development Funds (or “Transfer”) plus in-country tax revenue pays for Investment. This approach allows coordinated progress to take place during a transition period while a coherent O&M (and BOT) framework is established. Once the framework is well understood by all and mature, adjustments can be made. For example, urban water revenues may generate surplus which can be used by government to pay part of its Indirect Service and Investment Cost. The government may find it can charge license fees to Service Providers, so effectively drawing part of its Indirect Service and Investment Cost from tariffs. The converse option of subsidy to compensate for below-direct-service-cost tariffs is not recommended by Whave. Because Service Providers operate both in trading and farming communities with piped and hand-pump supply, and charging uniform prices approved by government, they are effectively cross-subsidising, since revenues in trading centres and from piped supply tend to generate surpluses which are used to reinforce service in the smaller farming communities with hand-pumps. Within communities, there is also “community-subsidy” whereby community water committees ensure some members are exempted from tariff-payment in times of need. The Whave PPP approach thus remains a CBMS approach although with rationalized implementation, and is called Improved ICBMS.

Whave makes use of development funds to pay the Investment cost, which includes the early-adopters discount, as well as PPP-building and capital such as Recovery Rehabilitation. These are all temporary costs and not direct service costs, which are entirely met by tariffs. Service, including CapManEx, is not subsidized.