Ministry of Foreign Affairs

Reflections on the Water Operator Partnerships (WOPs) in the FDW portfolio.

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Abbreviation	In full
ADB	Asian Development Bank
AM	Asset Management
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (German Federal Ministry for Economic Cooperation and Development)
CDO	Cagayan de Oro
COP	Community of Practice
CSR	Corporate Social Responsibility
DMA	District Metered Area
DST	Decision Support Tool
D2B	Develop2Build (Invest International Facility)
E&V	Entrepreneurs & Volunteers (Social Enterprise)
ERD	Economic Relations Division (Bangladesh)
FDW	Fonds Duurzaam Water (Sustainable Water Fund)
GIS	Geographic Information System
GWOPA	Global Water Operators' Partnerships Alliance
IGG	Inclusive Green Growth (Dutch Ministry of Foreign Affairs department)
IFIs	International Financial Institutions
IMVO	Internationaal Maatschappelijk Verantwoord Ondernemen (International Corporate Social Responsibility)
IWRM	Integrated Water Resources Management
LICC	Low-Income Consumer Coordinator
LUWA	Local Utilities and Waterworks Authority (Philippines)
MIS	Management Information System
MoWR	Ministry of Water Resources
M&E	Monitoring and Evaluation
MTR	Mid-Term Review
NRC	Netherlands Red Cross
NRW	Non-Revenue Water
O&M	Operation and Maintenance
PES	Payment for Ecosystem Services
PM	Project Management
PRVs	Pressure Reducing Valves
RVO	Rijksdienst voor Ondernemend Nederland (Netherlands Enterprise Agency)

Abbreviation	In full
RWH	Rainwater Harvesting
SDG6	Sustainable Development Goal 6: Clean Water and Sanitation
SHEPs	School Health Education Programs
SIMAVI	Stichting Simavi (Dutch NGO for water and health)
SOPs	Standard Operating Procedures
SPV	Special Purpose Vehicle
TA	Technical Assistance
VEI	Vitens Evides International
WASH	Water, Sanitation and Hygiene
WASAC	Water and Sanitation Corporation (Rwanda)
WASPA	Water Service Providers Association (Kenya)
WOP	Water Operator Partnership
WWX	WaterWorX
YEP	Young Expert Programmes

Introduction

RVO FDW advisors and VEI have reflected on their experiences in supporting the VEI Water Operator Partnerships (WOPs) and have attempted to capture their lessons learnt. This document is not an evaluation or assessment but a contribution toward a potential shared resource between VEI and RVO highlighting insights. It will not capture all the rich experiences and lessons from individual projects, which are documented in their final reports and individual evaluations. The reflections and lessons included in this document aim to connect insights across projects, countries and themes.

Results of the WOPs[1] at a glance

Via FDW, 13 WOPs were supported, of which 8 were led by VEI, in 10 countries. An overview of FDW VEI projects are listed in the table below.

Tender	Role	Country	Project code	Project title
2012*	Lead	Ethiopia	FDW12ET03	Sustainable water services in Harar
2012*	Lead	Ethiopia	FDW12ET06	Source to tap and back
2012*	Partner	Malawi	FDW12MW01	Water demand management to mitigate water shortages
2012*	Lead	Rwanda	FDW12RW01	PPP for increased access to sustainable water services
2012*	Lead	Vietnam	FDW12BD03	Climate change and water supply in the Mekong Delta
2014	Partner	Bolivia	FDW14BO11	AQUACRUZ
2014	Partner	Indonesia	FDW14RI15	Towards pro-poor private investments in water supply Bandung
2014*	Partner	Kenya	FDW14KE13	Performance enhancement of water utilities (PEWAK)
2014*	Lead	Mozambique	FDW14MZ02	Sustainable water services Beira
2014	Lead	Philippines	FDW14PH03	Sustainable and resilient pro-poor water supply project in Cebu
2014	Partner	Uganda	FDW14UG43	Alternative approaches and tools for improved WATSAN
2016	Lead	Philippines	FDW16012PH	PPP for sustainable water supply: Ridge to Coast, Rain to Tap
2017	Lead	Rwanda	FDW17181RW	Scaling universal access to safe and climate-resilient water services
2013	Lead	Ghana	GWW1302	Football for Water

* impact in reducing NRW evaluated in the 2021 publication

[1] See achievements overleaf.

Key outcomes and outputs at a glance

Access

A total of 825,000 people gained first-time or improved access to safe drinking water and sanitation. Service level: Water quantity, supply hours and water quality.

A reduction of Non-Revenue Water (NRW); see this regularly consulted FDW NRW Study on GWOPA 's website).

- Substantial NRW reduction of 6-20% of System Input Volume by 13 water operators:
  - 10 utilities in Kenya
  - 27 DMAs, Kigali
  - 2 branches, Mzuzu (company-wide focus) and Gia Dinh (District of Ho Chi Minh City, Vietnam).
- Moderate NRW reduction of less than 6% of System Input Volume) by 3 water operators:
  - Soc Trang and Tra Vinh (the 2 other beneficiary partners in Vietnam) though minimal Technical Assistance (TA) input was directed towards NRW reduction activities
  - Beira (company-wide focus).
- The Ethiopian operators in Addis Ababa, Harar and Cagayan de Oro did not achieve a sustained reduction in NRW.

The calculated Return on Investment (RoI)[2], typically between 2 and 4 years, confirms the cost-effectiveness of the capital investment(s) in NRW-reduction.

Utility	Population	No. of connections NRW component	Project duration		Business case (ROI) evaluation						
			Start	Finish	Investment amount hardware	NRW reduction (%)	Investment period (years)	NRW reduction **average** per year (1,000 m3)	Monetary value per year (1,000 €)	ROI in years	Operating Cost Coverage (%)
Addis Ababa	no data	1.600	2013	2019	136.211	no data	5	no data	no data	N/A (no data)	no data
Harar	no data	2.000	2013	2019	183.452	45% - 45%	5	no data	no data	N/A (no data)	no data
PEWAK	varies per utility	59.741	2015	2019	1.049.545	50% - 43%	3	676	379	2,8	improved for all but 4 utilities
SUSWAS											
• Remera	51.611	15.546	2013	2017	575.441	42% - 21%	3	320	134	2,6	121-136%
• Kanombe	54.064	17.193	2013	2017		45% - 31%		208	88		
Beira	385.000	62.729	2015	2019	1.179.365	44% - 38%	3	197	96	12,3	80% - 105% (2015-2017)
Mzuzu (2015 - 2018)	187.000	26.743	2013	2018	557.206	43% - 31%	3	272	178	3,1	175% - 300% (2013-2017)
Cagayan de Oro	566.373	101.138	2018	2022	410.000	54% - 54%	3	tbd	tbd	tbd	121%
Mekong Delta											
• Tra Vinh	274.755	42.270	2013	2017		16% - 10%		78	no data		>100%
• Soc Trang	486.551	74.854	2013	2017		16% - 12%		77	no data		>100%
• Trung An	1.220.000					no data	3	no data	no data		>100%
• Gia Dinh	663.565	132.713	2013	2017	822.234	53% - 29%		9.821	no data		>100%

[2] By using the marginal cost of water production (treatment and electricity) cost/m^3 and average water tariff to calculate the monetary value physical/real and commercial/apparent losses respectively.

Spin-offs

- TA support in hiring, establishment, and strengthening Low-Income Consumer Coordinators (LICC)/Units within the utilities, as demonstrated under PEWAK, was mainstreamed in the WaterWorX programme. Many utilities appointed an LICC.
- Business Case-based interventions in operational improvements (for example, NRW reduction and energy efficiency improvement) under FDW have
    - Informed the budget allocation of about 200k euros per WOP for small but smart investment (WWX phase 1);
    - Shaped the design of the Operational Fund under WWX Phase 2 with a total budget of 2.4 million euros spread over 13 business cases in 13 WOPs;
    - Guided the design of the Urban Water Catalyst Initiative with IGG and BMZ (https://www.urbanwaterci.org/about-uwci).
- The 'Source to Tap' approach demonstrated in Ethiopia and Cagayan de Oro guided the design of the WaterWorX Climate top-up by Inclusive Green Growth (IGG), focussing on climate-resilient utilities (Work Stream 1), infrastructure (WS2) and users (WS3). Also, these projects inform further activities regarding Nature Based Solutions (NBS), for which a collaboration between the BlueDeal programme, NWB Fonds and The Nature Conservancy is being developed.
- FDW has laid the foundation for long-term partnerships (continuation under WaterWorX) in
    - Ethiopia: Addis Ababa
    - Ghana
    - Kenya: PEWAK Nakuru, Naivasha, Kisumu
    - The Philippines: Cebu
    - Uganda: NWSC
    - Vietnam Mekong Delta.

In the countries mentioned below, some of the innovative models were or are being supported.

- **Uganda:** Decentralised solar pipe schemes were followed up (by NWSC) by WaterWorX through a feasibility study of innovative renewable energy solutions and similar investments (in Malawi).
- **Rwanda**: School rainwater harvesting & national utility-wide pro-poor strategy: Introducing prepaid water meters on public taps, Water Safety Planning for water quality monitoring and improved billing to reduce NRW by integrating GPS and photos.
- **Rwanda**: The District Metered Area (DMA) approach for NRW reduction, as developed under FDW, was adopted in another USAID-funded project, that focussed on the management of rural water supply systems.
- **Philippines**: Social enterprise for WASH service delivery (daily billing), emergency preparedness plans, management system for improved billing and GIS and investment planning, Payment for Ecosystem Services (PES) for upstream restoration for reducing downstream flooding.
- **Kenya**: Performance Enhancement of Water Utilities in Kenya (PEWAK). The Water Service Provider's Association (WASPA) benchmark has grown from 16 participants in 2015 to 33 in 2019 (the target was 25). It is now registered as a WASPA secretariat. Under WaterWorX, the 'benchmarking approach' is being replicated in Ethiopia, Zambia (Lukanga, Mulonga, Nkana and Southern Water Supply and Sanitation Companies), Zimbabwe (Harare, Bulawayo and Mutare) and the Philippines (6 Water Districts). Furthermore, the benchmarking developed in Rwanda (SCALE) is partially based on the PEWAK benchmarking framework.

- **Bolivia**: The AQUACRUZ project concluded the implementation of individual performance improvement plans for each of the 21 water utilities. This resulted in an extensive enhancement of the drinking water and sanitation service provision for the resident population of the peri-urban area in Santa Cruz. The project enabled SENASBA to provide technical assistance and institutional strengthening to the water utilities in the long run.
- **Ghana:** The project realised newly constructed end-rehabilitated compound sanitation blocks at a hundred schools in the region of Cape Coast. This also entailed improved access to water, while school football competitions helped raise awareness of the importance of hygiene. As such, 39,775 people, predominantly pupils, were provided with access to water and improved sanitation. This approach has been scaled to 113 schools under the WaterWorX Programme and later induced the structural collaboration with Rotary-supported school sanitation programmes and Splash.

Impact contingent on institutionalisation

- The **sustainability of the WOP interventions** is very much contingent on the institutionalisation of outputs and processes of the WOPs. This occurs within utilities with significant capacity, knowledge and resource gaps and conflicting mandates, high staff turnover and challenging political and economic situations. Only a holistic, bottom-up and top-down approach, a long-term vision and strategic partnership (beyond 10 years) at multiple levels can realise this. This is beyond the scope of a single FDW project and the FDW programme objectives. It requires a more programmatic, integral (water resources) and systems approach and requires strategic collaboration with local governmental actors, private sector parties, knowledge institutes, NGOs and potential financiers and strategic collaboration with the Dutch government.

  A long-term bilateral water and climate adaptation programme could support substantial sectoral transformation or reform processes (supported by national policies and champions) at the local, regional and national levels. This should involve working with several utilities (for cross-learning).It is pivotal that this programme has a dedicated knowledge-sharing component. The WaterWorX programme was designed based on these considerations.

- **WOPs**: The underlying assumption of WOPs is that the experiences of Dutch (corporatised) utilities can be contextualised. Also, the national, regional or local utility will be more receptive to TA from a similar but international utility (a partnership of equals). The full-time resident project manager (of the FDW and WaterWorX projects) has experience working with water utilities, half of which are deployed by the Dutch utilities. The international short-termers originate from a Dutch utility, while regional and national experts from VEI 's partner utilities are also deployed to strengthen South-South WOP capacity. The aim is also to have a multi-disciplinary context for dealing with challenges inherent to water utilities, including financial sustainability. Revenue models are key to this.

- **Privatisation:** Privatising utilities has been a high priority on the political agendas of the Philippines and Indonesia. In the FDW CDO project, this was a risk identified at the start of the project. It is likely to impact the sustainability of the project interventions if a future private operator, for example, prioritises commercial gain, that is, shareholder value over un(der)served low-income consumer

needs. While discussions with LUWA (regulator) have been held, a more pro-active engagement and strategic dialogue (for policy influence) could have been considered to weigh up the pros and cons of privatisation and what implications this can have on the operational efficiency of utilities and WOPs.

The PROPOPI (Indonesia) project ran into comparable risks and uncertainties but from a public angle. Water utilities in Indonesia are mostly semi-privatised, better to say liberalised. In most cases, the public entities (local, regional and national) have a strong influence or power and are shareholders in the semi-private utility. Furthermore, it is essential to organise compliance, water quality and quantity guarantees, including follow-up mechanisms. This requires a different regulatory framework, including enforcement.

- **Water pricing:** In the global south, water pricing for agriculture and drinking water) remains a critical issue in effectively addressing water consumption and use. The price consumers pay for water is often well below the production cost or insufficiently high to incentivise users to use it efficiently. Given VEI's deep engagement, experience and insights into urban WASH service provision and their understanding of this sticky development challenge. A dialogue on how to take this further is welcome. This should also include price parities, including energy costs for water extraction. The costs of pumping up water from increased depths boost energy prices. These prices are often not calculated in tariffs on irrigation water. Yet, these do affect the costs. Important note is the competition between irrigation water and water for human consumption.

Reflections on partnerships

- **Due-diligence partner selection**: Few FDW WOPs (FDW17181RW and FDW14KE13 are exceptions) built on previous peer-to-peer partnerships. As a result, the initial years of the FDW WOPs were a period of discovery and getting to know each other. Many of the assumptions in the proposal needed revisiting. This often led to new insights and significant revisions in strategy during project implementation. For example, in the Philippines, this led to a shift from resilience to NRW reduction. WaterWorX addresses this with a flexible approach, reconsidering targets during implementation. There was no go/no go decision moment, but continuous reflections on the quality of the partnerships and required modifications.

- Several FDW projects have laid the foundation for a long-term partnership (see 'spin-offs' earlier).

Partnering with governments

- In Rwanda, the Ministry of Infrastructure is a formal partner. While they are not a day-to-day implementing partner, their engagement has been beneficial to institutionalise practices (still to materialise, though). It includes leak detection, M&E, and decisions on resource distribution throughout sub-branches, including staff capacity.

- In Cebu (the Philippines), the municipality is a formal partner. However, in reality, they have been kept at arm's length. There has been some engagement with the national regulator (LUWA). However, the lack of seeking a strategic partnership seems a missed opportunity. How WOPs align and support national policies and strategies needs further consideration as this may significantly influence the institutional enabling environment and institutionalisation of practices (and hence sustainability). WaterWorX has integrated this better where a large part of the WOPs has regulators (for example, Zambia), water associations (for example, Ethiopia, Indonesia), and governments as partners for an improved implementation.

- **Utility-led partnerships**: The WOP in Indonesia and Uganda (with National Water) are unique in that they are or were led by the national and regional utility. While this worked well in Uganda (they are a regional champion), this only led to issues in Indonesia. In hindsight, the project in Indonesia should have been stopped early instead of trying to fix a dysfunctional partnership.
  The project in Uganda followed a relatively different pattern, namely from an 'aggressive' role-out of water infrastructure to fine-tuning and increased revenue collection. In every supplied village, the local community is involved in best practice sharing and endorsement of supply and cost coverage.

Partnering with NGOs

In FDW projects, VEI partners with the NGOs Rwanda Water Aid and E&V in the Philippines. WaterWorX does not partner with NGOs, although collaborations exist in practice, particularly in low-income areas. This provides a unique opportunity to compare the 2 programmes to identify what added value (but also challenges) there has been collaborating with an NGO. Several unique FDW models include the following:

- In Rwanda, Water Aid is supporting decentralised rainwater harvesting schemes at schools as an interim solution while the utility expands its piped schemes to these areas. Yet, overall annual rainfall patterns, maintenance, water quality management, and the willingness and capacity to pay remain key to successful roll-outs.
- In the Philippines:
    - In Cebu, the social enterprise (E&V) supports the transition of aspiring communities to become the utilities' customers. This is only possible after they are able to afford monthly billing, which E&V supports through savings and phased billing from daily to weekly to monthly.
    - In CDO, wetlands supported an upstream catchments approach (via PES) that would contribute to reduced downstream flooding, ensuring improved water delivery downstream for the utility (who also contributes to the PES).
    - Each partner in the WOP often worked on their separate work packages or results areas. While this is useful for project management (each partner becomes responsible for a specific set of activities), at times, it has led to siloed implementation. Exploring overarching work packages or joint result indicators could help each partner contribute and break these silos.

Partnering with the Red Cross

In both the FDW WOPs in the Philippines, VEI has partnered with the Netherlands and the Philippines Red Cross. This was a strategically sound decision as the WOPs supported the resilience building of low-income communities. However, at times, this resulted in duplications of efforts as E&V and the Red Cross both did similar activities. But, during Covid-19, the Red Cross was one of the only organisations still able to operate. The added value of the Netherlands Red Cross (NRC) was not always tangible, as National Chapters did the implementation. It also led to invoicing issues between National Chapters and NRC, delaying lead partner payments and final reporting. Working directly with the National Chapters seems more logical and efficient.

Partnering with SIMAVI

In the PROPOPI project in Indonesia, SIMAVI were to take responsibility for a pro-poor water services approach, engaging remote communities and establishing communal water stand posts. This failed due to the course or direction of the municipality and consequently changed the vision and approach of the PDAM (partner utility). The PDAM has been the lead and decisive partner of this project; VEI had the pen lead and advised PDAM.

Proposals

IWRM integration in WASH: Kenya (PEWAK) and Indonesia (PROPOPI) projects did not consider nor take up IWRM, only on the marginal edges of the project. The FDW16012PH (Philippines CDO) project and FDW12ET03 (Ethiopia) are the only 2 WOPs that took on a more integrated IWRM with WASH approach

- In Ethiopia, through regional plans and sandbanks;
- In the Philippines, through a PES scheme. Downstream water users financially contribute to upstream landscape restoration initiatives (reforestation, alternative cropping by indigenous communities). This was one of the main reasons RVO granted a subsidy (a traditional WOP would likely not have scored high enough in the 2016-2017 tender). It was later discovered that this (IWRM integration) was included at the last minute in the (Philippines) proposal without it being fully grounded or deliberated between partners. While the intention was good, ultimately, this IWRM mainstreaming became a siloed initiative.

  The importance of integrating IWRM into WASH, however, remains highly relevant. Effective strategies for this within WOPs need further reflection and assessment. Important contextual information is that water meant for human consumption often competes with irrigation water or even industrial water, especially in agricultural-intensive areas. Industries, including the textile industry, are known for untreated effluent discharge, causing water quality problems. The same applies to mining-intensive areas. It would also be interesting to reflect and document lessons on the FDW17181RW (Rwanda) project, which mainstreamed climate resilience in urban water supply, leading to the development of a Climate Resilient Strategy and Action Plan for WASAC (partner utility).

- **Over-commitments at the proposal stage**: Many projects (this is not an exception for VEI) developed a need to reduce targets for access to drinking water, revise strategies (shift from resilience to NRW reduction), as well as extend the project implementation period (on average by 2 years). While we acknowledge the complex and changing contexts, specifically in urban areas, the proposal preparation process (with the utility partners on the ground), the need to build on previous project learnings, (more) focus and realistic targets require more attention. We (RVO) do acknowledge the tension of submitting 'winning proposals' (within a short time frame) that comply with competing FDW subsidy requirements such as climate, pro-poor, business orientation. After all, this may contribute to over-commitment. It could be worthwhile to discuss this 'Christmas tree' approach (high expectations) with policymakers in shaping future programmes.

Project management

- **National vs international project management**: While all VEI projects recruit an international project manager, in Rwanda, a national project manager was recruited with a deputy international manager. This mix had some strategic advantages as it brought together a deep context understanding as well as external critical reflections. However, a balance is needed in terms of technical and managerial skills. Overall, the VEI project's successes highly depend on the VEI project managers and their ability to navigate the complex partnership relationships and support the institutionalisation of FDW project initiatives.

- The **resident project manager** is often (but not always) critical to the success of the project. They are similar to an orchestra conductor and are the key broker in the partnership, have direct (and often sit close to) the utility directors, need to have both technical and social skills, have the administrative burden and are ultimately accountable for results (as lead organisation). Resident project managers have been a resource to the FDW projects as they were open, frank and flexible under challenging situations.

- There is no distinction between Project Management (PM) and Technical Assistance (TA), which the resident project manager makes. While it is important that they fulfil both tasks, knowing how much they spend on both can support efficiencies in project management and budgeting.

- In Cebu, the project manager was budgeted for 60%. For the remaining time, he was required to secure additional financing (beyond the project period). This could be an interesting good practice, or that donors could allow for time allocation of partners to secure additional financing.

- **VEI Head office:** The support from the VEI regional and head office support has been useful. However, there could be additional focus on strengthening linkages with other programmes (such as FDW and WaterWorX), financiers (ADB, Invest, WB) and developing strategic direction and agenda-setting at the national level to inform or advocate for policy reforms.

- **Short-termers**: The added value of short-term experts increases if they are engaged over the entire project period (5 years plus). Understanding the context and contextualising the knowledge can be challenging for Dutch experts. Strengthening of soft skills (by the PM and/or head office-facilitated workshops) will contribute to responsive knowledge transfer.

- **YEPs**: Using YEPs (national and Dutch), with their longer-term presence (1 or 2 years), is seen as strategically significant and good practice.

- **Co-financing:** VEIs primary source of co-financing (an FDW requirement) comes from its 'Water for Life' Fund, which comes from its client's water bills and cash contributions from VEI/Dutch water utilities. These are CSR funds. One of the assumptions of FDW is that if private partners are engaged in ODA and invest in their core business, the results will be more sustainable. Since VEI does not have a commercial interest in the WOPs, this raises questions about the implications for the sustainability of the results.

It is evident, however, that utilities in emerging economies are not in a financial position to finance TA (directly or through WOPs) with internally generated (surplus) revenues. One could also question whether this puts other possible FDW subsidy applicants in an unfair position as they need to find other forms of co-financing. The relatively high fee rates of most consultancy firms (compared to VEI), however, pose an even higher affordability hurdle.

Another source of co-financing is the national utilities' investments (primarily in new piped schemes). Whether these are actual new investments (as a result of FDW subsidy) or already planned investments is often not fully clear. Important here is that financial models are based on actual water sales corresponding to solid customer databases in which double counting is kept to a minimum instead of projected sales based on average human consumption per day and default population statistics.

Monitoring and Evaluation (M&E)

- **External support M&E**: A good practice is the recruitment of an external consultant to finetune the log frame and M&E strategy during the inception period (usually the first 6 months) and to facilitate Mid Term Reviews (MTR) and final evaluations. In the Philippines, the MTR led to a strategic shift from resilience to NRW reduction and, in Rwanda, to place additional focus on a management decision tool. To make this more independent and transparent, the consultant should report to the VEI board (or regional manager), not the project manager. Also, in the Philippines, an overly complex M&E system was established (with multiple indicators), which ultimately led to a tick-the-box exercise and overburdening of project staff time in compliance instead of being a resource.

- The reporting of **access to drinking water** was not always consistent. In Cebu, new connections were reported. However, during a monitoring visit, it was observed that some connections were actually upgraded and, therefore, regarded as having a higher service level of existing connections rather than new connections. The lessons learnt from these FDW projects were incorporated during WWX Phase 2 into a uniform framework of SDG6 counting in alignment with the Joint Monitoring Framework.

Upscaling financing

- In the Philippines, Uganda and Mozambique, attempts were made **to access D2B financing** from Invest International. This has been successful only in Mozambique. It is not fully clear why this was not successful, as lessons learnt are not well-documented. In future designs (of projects and programmes), seeking a more strategic alliance from the onset (with IFIs) could help. Besides, an output is a proposal that meets the D2B/Drive criteria of Invest International.
  It should be noted that the D2B instrument is a government-to-government arrangement in which VEI can only be a broker. Vice-versa, it would help if D2B/Drive were stimulated or expected to successfully complete or approve an x-number of proposals under WaterWorX/Blue Deal.

- RVO commissioned a consultant to explore the **possibilities of attracting angel/impact investors** for FDW projects. One of the challenges with WOP initiatives was to isolate revenue streams within utilities. This limited the establishment of special purpose vehicles (SPVs), which angel investors/impact investments require. Opportunities remain here if public authorities cooperate in aligning private sector investments/aspirations.

- One of the outputs of the FDW16012PH (Philippines) project was a **master plan and utility investment plan** based on a Decision Support Tool (DST)/Management Information System (MIS). The specific objective is to secure additional financing after the project period. How effective this was and whether this realised the stated objective still needs to be evaluated.

Pro-poor strategies

- **Innovative approaches to securing access**: In the Philippines, a social enterprise is managing piped schemes for low-income households and transitioning these to the utility once households can pay monthly water bills (a transition from daily to weekly, and ultimately, monthly billing is facilitated). In Rwanda, rainwater harvesting at schools is initiated in communities where piped schemes are not yet available. In Rwanda, prepaid water meters (often referred to as "water ATM") were introduced on public taps and kiosks. They provide water access to low-income people 24/7 if it is available in the system since they do not require the presence of a kiosk operator.

- The degree to which the utilities supported will **continue their pro-poor services** needs further reflection and post-project monitoring.

- **Providing WASH in urban areas**, including informal settlements, is challenging without formal agreements with the local authorities. There is always the risk that informal structures or areas will be repossessed, losing all investments in water service provisions.

- Whether support in reducing NRW and other operational services leads to **increased investments in low-income communities** needs further assessment. The FDW NRW study concludes that NRW reduction measures typically focus on low-cost, high-impact interventions (company-wide or within specific DMAs) that generate a good return on investment. Achieved cost savings (reduced real/physical losses) and/or revenue increments (increased sales/revenue collection) contribute to improved water availability and financial performance (operating cost coverage level and debt financing capacity) company-wide. This will improve service delivery to existing and un(der)served consumers, both rich and poor, in the medium and long term but not necessarily within the project implementation.

- In Uganda, the WOP has supported the **development of a pro-poor strategy** for the national utility. In other WOPs, this has not been so specific. Most utilities already have 'rising block' tariffs (the more you use, the higher the water tariff) as a strategy for pro-poor service delivery. In some cases, national utility policies restrict the extension of services to low-income communities. In the Philippines, for example, connecting low-income communities via private land is not enforceable. The degree to which WOPs have been effective in institutionalisation of pro-poor WASH service delivery in urban utilities needs further reflection.

Non-Revenue Water (NRW)

- In many WOPs, **extremely high NRW** is found (over 50% is not uncommon). While there are several quick wins (pressure management, meter replacement), one could question whether it is realistic for a WOP, with a limited time window (5-7 years) and budget, to sufficiently address pipeline rehabilitation needs. The NRW Practice Note underlines the need to implement a comprehensive top-down (first 3 months) and bottom-up (first 9 months) assessment and mobilise management support for the implementation of an NRW Reduction Plan.

  The Board of Directors, regulatory involvement and buy-in in this process are pre-conditions that we are currently contemplating as a future good practice. Other important lessons from the SCALE project (Rwanda) that could be replicated in other projects need further exploring.

- NRW reduction is both **a technical and organisational issue**. In the absence of senior management buy-in and accountability to reduce it, technical solutions (DMAs, leak detection, pressure management) remain insufficient and inefficient. However, they still are necessary to solidify financial water models. Focusing on Cagayan de Oro as an example, we observe that the achievements in reducing Non-Revenue Water (NRW) at the utility level are disappointingly low. A privatised bulk water provider, which aims to maximise profits through high long-term concessional tariffs, has shifted attention away from important hydraulic management in the transmission mains, specifically the management of pressure at off-takes using Pressure Reducing Valves (PRVs). This has created significant challenges for our downstream WOP partner, who is struggling to cover the high costs associated with significant water losses downstream. Additionally, there has been declining political support from consumers and the electorate for water tariffs that are needed to cover actual costs, including operational inefficiencies. As a result, we find ourselves trapped in a vicious cycle of declining performance.

- Retroactively, one can argue that this setup does not meet the required pre-conditions. While this risk was underestimated, it is difficult to predict how these political imbalances can or will play out during WOP implementation.

Interventions

- **School WASH:** In the Philippines and Rwanda, school WASH interventions have been undertaken. The sustainability (and quality) in the Philippines is highly questionable because schools with limited financial capacity are responsible for O&M. RVO raised this issue several times at the start of the project, receiving guarantees from the Red Cross that this would be addressed, yet without success. Sustainability in Rwanda is also questionable, given that service level agreements for the maintenance of expensive Rain Water Harvesting (RWH) schemes are still lacking.

  The lesson is not to start WASH interventions at schools unless O&M can be sustained and small add-on activities can be avoided. This requires a more holistic bottom-up and top-down approach and a more programmatic sector programming approach. Furthermore, the Football for Water project also demonstrates that the Service Agreements between schools and their health coordinators (SHEPs) at respective local governments are easily being neglected by the latter. This demands longer-term efforts from the lead implementers, even beyond the project duration. Follow-up is deemed to be very important, but mechanisms such as subsidy programmes cannot always facilitate this.

- **Decision support tools (DST):** Several DSTs have been developed and supported (MIS, Dashboard, and so on). Standard Operating Procedures (SOPs) could be developed to institutionalise these. Lesson documentation and best practices could be considered. Knowledge management within VEI has evolved and in the last years, the Workplace online community has been established by GWOPA (in very close collaboration with VEI) as a platform where GWOPA members maximise exchange, peer-learning and capacity development opportunities between individuals working in and with the water sector.

- Further reflection on **decentralised versus centralised piped schemes** is required. It could be opportune in cities where there is an unregulated urban scrawl (in most cases) to adopt a more decentralised pipe scheme model, thereby leapfrogging the more traditional western city-wide piped schemes.

Strategic alignment WaterWorX and FDW

At the country level, there are **strong synergies** between FDW and WaterWorX. In Uganda, WaterWorX is supporting strategic investments coming out of FDW. In the Philippines, WaterWorX uses emergency simulations and has further supported some FDW projects that have ended (Cebu).

At the Netherlands programme level, however, there has been **little to no structural collaboration** or sharing of lessons between WaterWorX and FDW. IGG has also not stimulated or required this. Whether lessons from FDW have fed into WaterWorX is not always clear (or vice versa). Since, ultimately, both programmes are working towards the same objectives (increasing access), developing a joint knowledge agenda to strengthen each other's initiatives could be worthwhile.

At the Netherlands programme level, WaterWorX has adopted a number of innovative models and best practices from RVO-FDW financed WOPs; see the 'spin-offs'. In addition, internally focussed knowledge sharing activities (targeting VEI short-term experts) were expanded to include utility partner staff through the jointly established Global WOPs Community of Practitioners; demonstrated 'best practices' in FDW-financed WOPs and underlying training material and (assessment) tools are collected in the 'Knowledge Libraries' of the 10 COPs.

Colophon

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