



# WATERWORX

PHASE TWO



ANNUAL  
REPORT

SUMMARY  
2022



# INTRODUCTION

## THE FIRST YEAR OF WATERWORX PHASE 2

This annual report presents the milestones achieved in 2022, the first year of WaterWorX Phase 2. In this year phase 1 was finalised, and the Water Operator Partnerships (WOPs) prepared their project Theory of Change and detailed project plans for Phase 2 on which basis the inception report for WaterWorX phase 2 was prepared and submitted in April 2022. To match the ambitions of the programme in phase 2 the activities in Knowledge Management have been scaled up, and the Communities of Practice (COP) have been boosted in collaboration with GWOPA (UN-HABITAT). Investment mobilization efforts are currently underway to secure the necessary resources to drive the programme's objective to unlock third party financing.



In May 2022 the programme organized the WWX partner days in Amsterdam which served as the official kick-off for Phase 2. This event brought together partners and programme stakeholders, reflected on the achievements of phase 1 and fostered collaboration towards achieving the programme objectives. Many first phase best practices were shared in various parallel sessions. An important investment of the programme is the collaboration with the Young Expert Programme (YEP) as catalysers of change. After two successful batches during phase 1, in 2022 the third YEP batch started its training in the Netherlands in June 2022.

# WATERWORX

## AT A GLANCE



 = number of partner utilities

### WATER

DIRECT 260.257

INDIRECT 172.557



### SANITATION

DIRECT 20.911

INDIRECT 43.745



### OTHER

(PEOPLE EQUIVALENTS, ACCESS TO WATER AND SANITATION IN SCHOOLS AND PUBLIC INSTITUTIONS)

54.449



**PEOPLE WHO GAINED ACCESS TO WATER AND SANITATION IN PHASE TWO (CUMULATIVE):**

**516.616**



**TOTAL EXPENDITURES**

IN 2022

**€14.377.411**

# WWX PARTNER DAYS

MAY 2022 - KICK OFF PHASE TWO

WaterWorX phase 2 officially kicked-off during the WaterWorX partners days in May 2022 in Amsterdam. It was a week full of interesting sessions and discussions with over 100 professionals from 33 utility partners in 13 countries. Since the start on Monday morning partners felt familiar with each other and started exchanging. On Monday we reflected on WaterWorX phase 1, including a session on intercultural communication in which (sometimes funny) anecdotes were shared. Tuesday morning half of the group visited Evides WWTP in Den Hoorn, and the other half Waternet WWTP in Hilversum.



In the afternoon, the group split up in regional groups, and the day ended with a session on Enabling Environment and even a swim in the Amstel River. On Wednesday morning best practices from phase 1 were shared, that can be replicated by other utilities in phase two. The afternoon started with a session on investments, during which 4 interesting cases were shared in smaller group. The WaterWorX days ended with an awarding ceremony of Delft blue tile awards and all partners signed on the WaterWorX map for phase 2. Many sessions in small groups turned out to be a secret for success, it sparked heated discussions! The conversations will continue during regional exchanges, for which appointments have been made during this week. The week set the scene for WaterWorX phase 2, in which exchange between our partners is key.



# INVESTMENT LEVERAGE

## PREPARING TO ACCELERATE

The ambition of reaching an additional 10 million people with sustainable access to water and sanitation services requires the programme to actively seek out and collaborate with other organizations such as (development) banks, governments or development agencies that are in the position to finance large-scale investments. In 2022, the investment pipeline of WaterWorX developed during phase 1 was reviewed. The programme concentrated on a prioritized list of 13 projects considered to have the highest likelihood to reach financial closure.

Additionally, in 2022, the PrI Fund (Pre Investment Fund) in order to keep filling up the investment pipeline. The PrI Fund was established in order to close the existing gap between existing fundable project ideas and the requirements of available financiers such as, for example, the development of a (pre)feasibility study. In order to align with the requirements of third party financiers, projects participating in the selection process of the PrI Fund were requested to provide a commitment from a potential financier. 19 proposals (from 9 different countries) were submitted to the fund out of which 10 proposals were selected for funding. With this, the budget of €950,000 available for the fund (besides budget for Dunea/HornaWasco) was depleted in the first round.



## LINKING TA WITH INVESTMENTS

Linking with financiers is not only needed to obtain our WWX-objectives. The programme strongly advocates for the complementarity between the capacity building efforts of WaterWorX WOPs and the output focussed large-scale infrastructure investment projects of the multilateral and bilateral financiers. In our view, the effectiveness of the infrastructure investments is very much served with a well-designed TA programme. A successful TA programme will create the necessary foundation with the utility for a successful implementation of an investment programme. Also, the success of the TA programme benefits from the implementation of a successful investment programme. Hence we actively seek for cooperation and coordination of our activities with that of the financiers. We hold the view that especially the WWX programme has features that are needed for a successful merging and coordination of both the TA and investment activities. Firstly, our longer-time commitment with the WOP leads to more sustainable utility operations which will lay a good foundation for an investment programme. Secondly, the flexible characteristics of WaterWorX WOPs to provide fit-for-purpose support allow for accommodating to the investment programme.



## INVESTMENT LEVERAGE IN SEMARANG

Thanks to the ongoing collaboration with PDAM Kota Semarang (partner utility), the WOP Semarang recorded in 2022 the first SDG for the programme as part of an 'investment leverage' effort. The project supported the PDAM in retrieving the NUWAS (National Urban Water Supply project) matching grant of 5 million USD for the 'Switching program'. The WOP supported and financed technical assistance to develop the detailed engineering design, implement a large-scale real demand survey and provided input in customer and marketing strategies by support with finance and TA for Detailed Engineering Design executed by local consultant. The aim is to attract disconnected or non-customers to become PDAM customers, contributing to the reliability of sources and reduce the pressure on the groundwater aquifer currently being tapped by private households and industrial users in the area. In 2022, 19.145 people were connected to the network of the PDAM.

# KNOWLEDGE MANAGEMENT

## SCALING UP

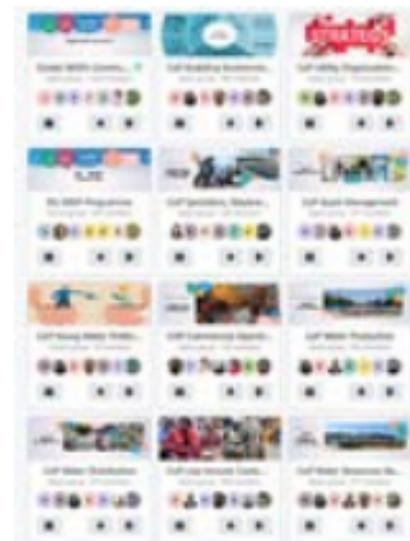
A knowledge manager (0.4 fte) was appointed to lay the foundation for knowledge management (KM) for Phase 2, and ensure its activities are well described, implemented and documented. In Q1 the knowledge manager focused on developing a mainstream Knowledge Management plan and sought alignment with the KM activities scheduled in the EU WOP programme as run by GWOPA. This resulted in an agreement to jointly establish and run a Global WOPs Community of Practitioners on the GWOPA Workplace Platform and ensure that all relevant peers of both WOP programs were registered for expert Communities of Practice (CoPs). The Phase 1 WaterWorX CoPs were restructured and new moderation teams were formed. Since then the CoPs took off quite impressively: by the end of 2022 there were nearly 1000 WOP peers registered on the Global WOPs Community of Practitioners while the thematic CoPs each grew on average by a factor 10. To support the development of content and to increase the participation within the CoPs, the programme appointed and sponsored the time of COP moderators. WOP activities were inventoried and valuable knowledge fields were identified and aggregated for input into the CoPs. Trainings and webinars were organised and good WOP practices were documented.

The CoPs of WaterWorX became in 2022 open to a broader WOP audience, benefitting not only the development of projects within WaterWorX but anybody interested in WOPs and looking for practical operational knowledge to be implemented in the framework of a WOP project.



## GLOBAL COMMUNITIES OF PRACTICE

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# PERFORMANCE IMPROVEMENT UTILITIES

## PROGRESS AND HIGHLIGHTS

The WaterWorX programme adopted in Phase 2 a new methodology to measure outcome changes of the different project results. Inspired by the Utilities of the Future (UoF) Framework and experiences of the Dutch water utilities, the programme identified working processes. The working processes of a utility were split up into 11 main working processes reflecting the main areas of work of a water and sanitation utility. Partner utilities self-assessed themselves on the basis of 'maturity levels' for each of the identified processes. At the end of the first year of WaterWorX Phase 2, the projects report to have registered 111 maturity step increases, which is 12% realization of the total programme ambition (eg. Maturity levels). In 2022, for 48 prioritized subprocesses, projects report to have achieved the envisioned target maturity level. The reported average maturity level across all programme projects (ie. for sub-processes prioritized) stands at the end of 2022 at 2,3, while the overall programme ambition is 3,7.



In 2022, ICT developments captured the attention of many projects. Projects focused on increasing the use of digital tools in order to improve collaboration within the utility or enhance the use of Excel skills in order to process information and visualize performance. As a result, ICT Development registered 22 maturity level increases, which is almost 40% of the total programme ambition for this main process. The WOPs in Ethiopia, the Philippines, Indonesia, Malawi, Tanzania and Uganda have invested in IT solutions to improve the operational processes of production and (water) network distribution. We notice how the ICT developments in 2022 mostly have an impact and develop in relation to the progress registered in main process Water Distribution (10%), albeit timid in 2022. These are activities initiated that link to modelling, creation of DMAs, improvement in maintenance records and procedures, and the development of accurate water balances, require a degree of data availability and visualization. In Uganda specifically, the rollout of Mapkit forms the backbone of the project and has a knock-on effect on other operational issues such as operations and maintenance programmes, as well as investment and planning.



### WATER PRODUCTION

### WATER DISTRIBUTION

### WASTE WATER TREATMENT FSM

### ORGANISATION & STRATEGY

### INFRASTRUCTURE DEVELOPMENT

### ICT DEVELOPMENT

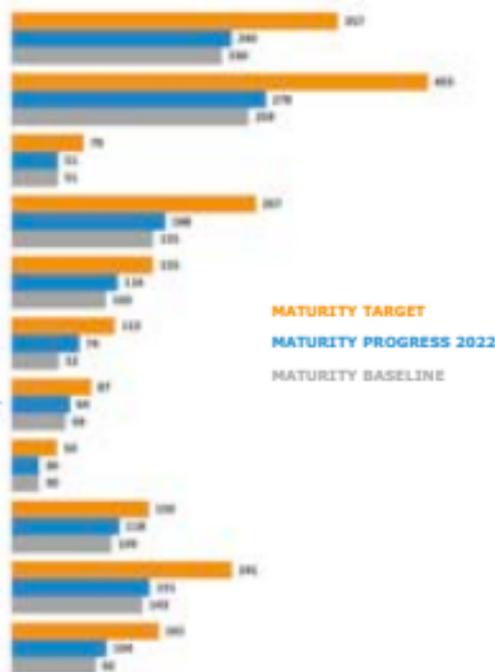
### HUMAN RESOURCES MANAGEMENT

### FINANCIAL MANAGEMENT

### ENABLING ENVIRONMENT

### COMMERCIAL OPERATIONS

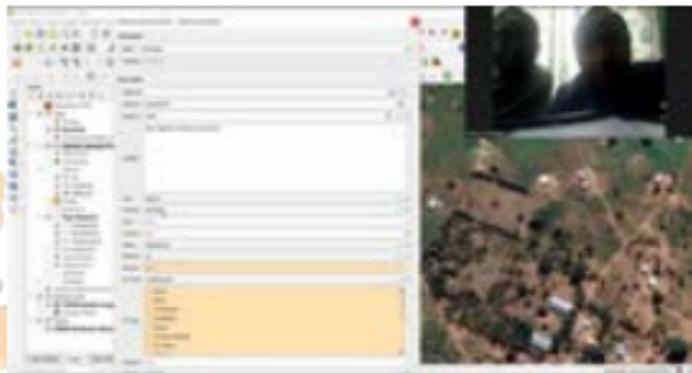
### ASSET MANAGEMENT



# PERFORMANCE IMPROVEMENT UTILITIES

## PROGRESS AND HIGHLIGHTS

In 2022, Mapkit data was used to support network bottleneck discussions. Mapkit data was also used by Altereo to deploy their HpO® Artificial Intelligence system for identifying pipes to prioritize for replacement to improve the efficiency of the Kampala water supply network. Altereo provided recommendations for specific pipe replacements, and a prioritized plan was presented. The KW Asset Management Department and the GIS block mapping team have discussed further alignment of work processes, and drafted the specification for ArcGIS enterprise, which was discussed with ERSRI. A revised proposal for an ArcGIS enterprise license was received from ERSRI. The GIS/Block mapping team introduced Mapkit to Entebbe. Both the Entebbe staff as well as the sewerage department in Kampala received Mapkit training, and are now equipped to use the application (WOP Uganda).



The digitalization process, facilitated by ICT, is usually also appreciated as a transformative way of working, allowing field and office staff to directly interact. This increases the effectiveness in the working process and improves the ownership among office and field staff of Southern Region Water Board (Malawi): " Rather than simply printing schematics of the distribution networks on A0 charts and sending them to the field, Local Project Coordinator, Ed Nhlane, from CRWB WWX adapted the WOP approach to prioritize a combination of onsite and online collaborations with field staff (plumbers, plant operators, and meter readers) in real-time digitization process. The idea behind this approach was that in this process, plumbers can be accompanied in the process of using new tools, show them where the new information that they supply is going and how it is being used. The collaboration online to validate data allows SRWB to verify and plumbers to promptly suggest corrections. This allows the organisation to acknowledge the knowledge and value of the plumbers in the process."

# SUPPORTING UTILITIES

## IN EMERGENCIES AND IN THE CONTEXT OF CLIMATE CHANGE

In 2022, the programme has been in the position to assist individual partner utilities with their needs in relation to impacts due to climate change events. This ambition will be continued in 2024 with the climate adaptation fund top up from the Ministry of Foreign Affairs of the Netherlands (pending approval). For example, the WaterWorX WOP in the Philippines, in an area particularly susceptible to climate hazards, were able to assist partner utilities in the aftermath of Super Typhoon Rai that struck the Philippines in December 2021. The project procured as one-time expenditures generators and fuel in order to restore water supply after the storm. In addition, the project invested in resilience practices and supported partner utilities in the development of an Emergency Response Planning and training on the same. Partners acknowledge the need for these plans that they are currently not able to initiate themselves due to staff shortages. Partners report to be happy that WaterWorX is in the position to support this initiative.



Another aspect in terms of climate adaptation strategies that increasingly gains significance for WaterWorX partner utilities is the optimization of groundwater abstractions either as a complementary or supplementary source of water to meet the increasing demand of water, and increasing unreliability of surface water availability. In the projects in Ethiopia (Addis Ababa, Bahir Dar, Modjo and Dukem) partner utilities did not have a functioning groundwater system in place. In 2022, a number of boreholes were rehabilitated and furnished with 'divers' (to measure groundwater table depth). Staff was trained to read and interpret the readings of the divers which allows them to monitor groundwater level measurements and take necessary action in case of overexploitation. Similar efforts are carried out in Malawi, where the project with Central Region Water Board is investing in trainings and systems to assess sustainable abstraction rates. In Malawi they are building the monitoring system to accommodate sustainable production even if and when climate change impacts become apparent in their (water) sourcing strategy.



In Uganda, with the expansion of NWSC into other (less urban) towns, the relevance of groundwater becomes more predominant in the source mix of the water utility. Historically, upcountry areas have been sourced with groundwater through boreholes. However, lack of expertise in-house led to many of these boreholes to become not operational a short while after commissioning them. The focus in this activity has been in recovering the investments already done and preserving yields: "With support from hydrogeologist and WE consult the Static plant BH unit on study, sighting and drilling of new boreholes reviewed the standards for groundwater studies, siting and drilling supervision for new boreholes. A proposal for investment in a specialized regeneration truck from Q-Flow in the Netherlands was prepared. This specialized truck to address the transportation, safe lifting of pumps and enhanced jetting ability including duty generators, test pump sets and other accessories like column pipes, drop cables, calibrated containers, valves and automated remote monitoring system for every borehole that is regenerated was prepared and submitted for approval. With a dedicated team working with the truck on 40 Boreholes per year and anticipated improved flow per regenerated borehole of 6-8 m<sup>3</sup>/h the investment can be earned back within 18 months. A process automation expert was deployed to train static plant team in design of automated monitoring systems for boreholes" (WOP Uganda).

# ENABLING ENVIRONMENT

## AND IN-COUNTRY COLLABORATION

WaterWorK aims to place the most suitable expertise to answer the requirements of partner utilities. For that, in phase 2 the programme expressed the ambition to increasingly source more expertise from the region where applicable. In 2022, in the projects led by VEI 15% (427 out of 2893 'field' days) of expert input was delivered through so called South-South short term experts sourcing from local teams and partner utilities. In Tanzania, where VEI partners with three utilities the concept of sourcing Tanzanian experts is fully embraced. Experts from Arusha and Mwanza that have been part of the projects during phase 1 of WaterWorK initiated in 2022 the development of NRW reduction strategies in Dodoma, a new partner in phase 2. This approach has been well received in Dodoma and it further facilitates the standardization of NRW approaches within one country.

In November 2022, projects in the region Africa North East (Tanzania, Kenya and Uganda) organized an exposure visit where teams visited projects in the three countries and exchanged knowledge about topics very relevant and better explored in the region than in the Netherlands. For example, in this case projects organized an exposure visit around issues of faecal sludge management and the opportunities of monetizing (business creation) of sludge collection, disposal and reuse, or context specific issues linked to the Lake Victoria basin.



It is the ambition of the programme to create synergies for partner utilities wherever possible. In countries where several projects are active the programme is presented as an opportunity to exchange knowledge and experiences and also to coordinate the existing networks of each individual partner to the benefit of all projects in the country. For example in Kenya, with multiple local utilities and multiple Dutch utilities active, regular coordination meetings take place between the three WOPs, and where opportunity in coordination with the Embassy of the Kingdom of the Netherlands (EKN), or other active stakeholders in the sector. In March 2022, a workshop on enabling environment & investment mobilisation with all Kenyan WaterWorK utilities was organised in Nairobi. Participants included utility management, UNICEF, EKN, and the WWX teams. This event was followed by a meeting in December with the three WWX WOPs at the NL Embassy in Nairobi, where the WOPs presented an overview of the progress of the investment portfolio, and Invest International also took part in that meeting. During some of the Asset Management and NRW trainings organized by the WOP in Nairobi, there were attendees from other WOPs in Kenya (Nakuru, Homa Bay).

Another example of collaboration within countries happened in 2022 in Indonesia. Jointly, WOP Semarang and WOP Sragen organized a roadshow together with the Netherlands Embassy, the Indonesian Ministry of Public Works and PERPAMSI (Indonesian association of water utilities) to promote the value of peer-to-peer training for the Indonesian water sector. As a result of this roadshow all parties agreed to sign an MoU (in May 2023) to initiate a training programme for water utilities on the island of Java.



In Zimbabwe WaterWorK has one of the most ambitious projects in terms of enabling environment. In the cities of Harare, Bulawayo and Mutare, VEI partners with the municipal council. In Zimbabwe, the provision of water and sanitation is still arranged through a department of the council, and unable to autonomously organize, nor to ringfence its revenues. A workshop was held in Gweru on the 25th and 26th October of 2022 with 2 short term experts from the Netherlands where issues, drivers and challenges and plans on the Utility institutional roadmaps were discussed. Key outcomes of this workshop include a 'baby steps' roadmap for the City (council) and commitments to be taken towards institutional restructuring. Also a tariff model prepared by STE was shared with Ministry, Bulawayo, Mutare and a local university (HIT). Model was modified and Mutare used the new model to determine their 2023 tariffs as pilot. If the Ministry is satisfied with the performance of this model, the model can then be applied to other utilities. After years of partnerships in Zimbabwe, the progress realized in 2022 is no small achievement.

# SOCIAL AND GENDER INCLUSION

## TOWARDS A MORE INCLUSIVE WATER SECTOR

Under the umbrella of social inclusion the programme implemented a broad spectrum of activities in 2022. For WaterWorX we understand inclusivity as facilitating access to either improved water and sanitation access or knowledge to those who would otherwise not easily have access.

In 2022, continuing the ambition of the programme to contribute to water and sanitation services of quality, over 280.000 people gained first-time access to water and/or sanitation services. Through the Water for Life foundation, VEI approved 14 new projects which will deliver in the coming years improved services to an additional 400.000 people. In WOP Morogoro in 2022 14 water kiosks were rehabilitated bringing water closer to communities without water. Four of these kiosks were equipped with solar powered ATMs increasing the ease of access to water for the beneficiary communities. Currently, WOP Morogoro is 'still working on a pilot, evaluating the performance of these systems to learn and adjust'. If successful, MORUWASA (partner WOP Morogoro) and World WaterNet are in discussions with the Agence Française de Développement (AFD) to scale up this pilot.

In June 2022, the third tailor-made YEP batch started their YEP training in the Netherlands. In total, 28 YEPpers participated in this batch. The YEPpers came from 9 different countries; Ethiopia, Ghana, Indonesia, Kenya, Malawi, the Palestinian territories, Tanzania, Uganda and Zimbabwe. YEP participants embark in a development trajectory where besides their technical expertise they also develop other skills such as project and change management. Projects where YEP participants are involved also promote the participation of YEPpers in management discussions within the project, bringing young professionals and management teams closer together.

The projects continue to leave an imprint on gender issues although at a modest scale as many report that this is a topic receiving attention by partner utilities. The projects are attentive to involve female staff in trainings and in awareness campaigns and have hired female project staff. Worth mentioning examples of activities realized in 2022 are: the "WOP Harare Zimbabwe, the project recruited 50 female plumbers to join the maintenance team to encourage the girl child to, in the future, join technical work traditionally thought of as a male environment". In Ghana WaterWorX organized and funded a training programme in December 2022, in which 40 women from the Women in WASH/Ladies Association received a two-day "female leadership skills development training workshop" and a one-day "Excel for beginners" training for which specifically the female workforce was invited to attend.

"The YEP position has been relevant for the development of my expertise because it adds a lot of qualities to a young professional which helps to be more confident, innovative, comfortable to work in a different environment." (YEP participant). "The added value of the YEP Programmes network is that we now have a resource place where we can acquire information from young people, share our experiences and help each other." (YEP participant)





water for 10 million people

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