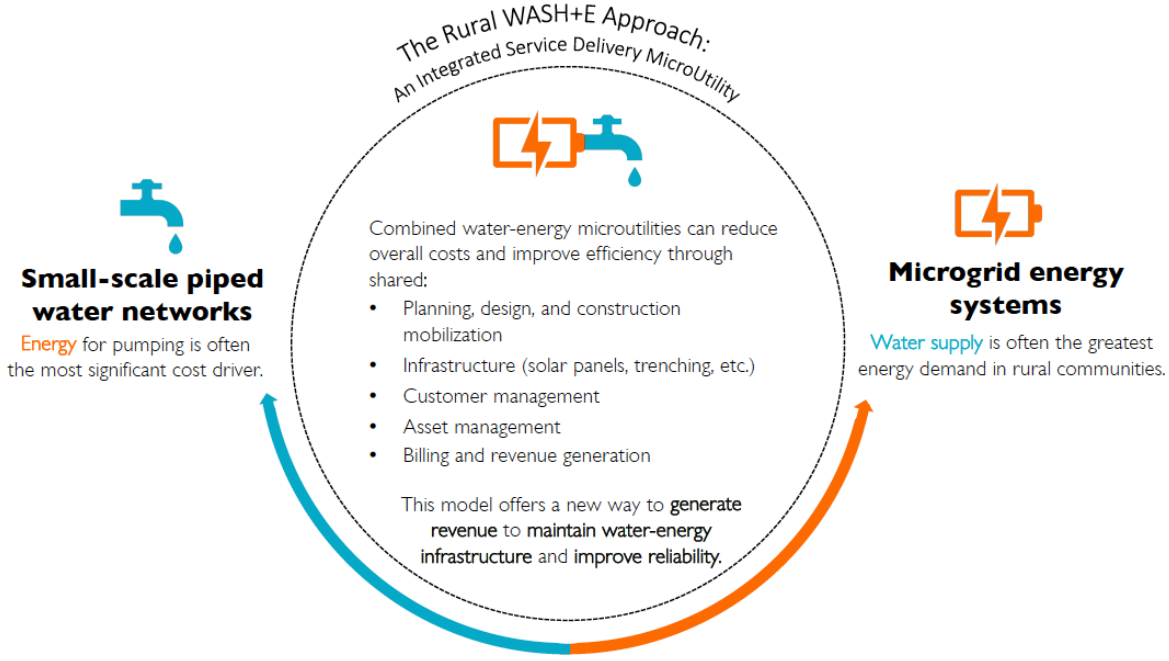
World Vision

WASH+ENERGY: AN INTEGRATED SERVICE DELIVERY APPROACH

SUMMARY

As the Sustainable Development Goals prompt strategy shifts from hand pumps to more robust piped-water systems, there is often a reliance on solar energy for pumping in rural areas. Since pumping water can require significant power demand, World Vision and our partners are evaluating the feasibility of combined WASH and electricity service delivery to leverage economies of scale and shared resources to meet multiple power needs in a cost-effective manner. This approach includes installing microgrid energy systems to meet institutional power demands (healthcare facilities [HCFs] and schools), then expanding to meet community demands and other productive uses of both water and electricity. We believe that implementing and managing these combined utilities can improve reliability and expand outcomes related to education and health, and provide new economic opportunities in rural communities.

Electrification of the Renzva Primary School in Kenya provides hands-on learning technology.



WHY WASH AND ENERGY?

Rural electricity access is lacking: In response to Sustainable Development Goal 7, universal access to affordable and reliable energy, many countries have outlined strategies for energy service expansion. However, due to limited capacity and resources, their efforts primarily focus on cities and more densely populated towns. As a result, only 29% of sub-Saharan Africa rural populations had access to electricity in 2020. Additionally, only 40% of 121,000 HCFs surveyed across 46 low- and middle-income countries had access to reliable electricity in 2018. Similarly, only 31% of primary schools surveyed in sub-Saharan Africa had electricity access in 2020.

Water pumping already requires significant power demand: Depending on the size and type of facility, water pumping can require more than 40% of the entire power demand. This finding suggests that expanding water-focused energy systems is likely more cost-effective than implementing a separate electricity system since the critical initial infrastructure is already in place. In addition, costs for mobilization, design, and construction supervision can be shared when implemented together.

Combined management is more effective: In some regions, willingness to pay for electricity may be higher than for water. Therefore, combining the customer management and fee collection for both may result in new revenue streams to support the operation and maintenance of both systems. In addition, with adequate capacity building, asset management and maintenance can be provided by the same technicians, operators, or government officials for both systems.

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WHAT ARE THE CHALLENGES?

Governance roles and responsibilities: Governments are developing new ways of managing utilities and therefore, time is needed for thorough engagement on alternative service delivery approaches.

Operation and maintenance: Managing both utilities requires building the capacity of available technicians to maintain each system appropriately.

Limited funding for integrated delivery: This approach requires new and expanded funding to provide both services and meet the multiple education and health outcomes.

Economic viability of small systems: The overall energy demands may be lower in rural areas; therefore, it is important to carry out thoughtful feasibility studies and identify appropriate productive uses of water and energy to support a financially viable utility.

Staff and students benefit from a World Vision school electrification system at Lutumba Primary School.

WHAT ARE THE BENEFITS?

HCF ELECTRICITY BENEFITS

- Adequate lighting to carry out medical procedures
- Refrigeration for vaccines and life-saving medicines
- Improving health worker satisfaction
- Expanded operating hours and security
- Telehealth opportunities
- Better WASH practices, including water purification and sterilization

SCHOOL ELECTRICITY BENEFITS

- Extended studying hours, leading to better school performance
- Internet and computer technology access
- Enhanced staff retention and teacher training
- Community benefits and improved WASH practices (such as water purification or latrine cleaning) and strengthened resilience through communication systems

WHAT ARE WE DOING?

Our global teams have participated in rural electrification projects for schools and HCFs. However, the integration of electrification and WASH delivered concurrently has not been widely implemented. To begin understanding the benefits of this integrated approach, World Vision is gathering data and learnings from two key projects.

HealthGrid Sierra Leone: World Vision is part of a USAID Global Development Alliance, providing renewable electricity, internet connectivity, and WASH systems to off-grid healthcare systems in Sierra Leone. This project is expected to include integrated service delivery of power, water, and internet, supported by cloud-based monitoring and a sustainability fund to improve long-term operation of the system. In addition, public kiosks are planned to generate additional revenue for system maintenance.

Water 4 Life+ Project in Ethiopia: This project was developed jointly with the Children's Investment Fund Foundation and the Government of Ethiopia to improve access to safe water, electricity, and sanitation facilities at 281 HCFs, 415 schools, and their surrounding communities in 10 woredas (districts) across eight regions. World Vision is providing WASH service delivery and is working with project partners to improve integration and disseminate lessons learned on how service integration can be achieved.

PARTNERSHIPS

Through ongoing implementation, conference co-presentations, and strategic planning activities, World Vision has partnered with implementers (Abt Associates, RESOLVE, GivePower), strategic planners (Bechtel.org), and technology providers (Grundfos) to continue refining this new delivery model. Through a partnership with Grundfos, World Vision purchased over 400 pumps and 1,000 solar panels last year and benefitted from bulk discounts and high-value technical support from Grundfos' technical team. World Vision is also leading the WASH subcommittee under the recently launched USAID's Healthcare Electrification and Telecommunications Alliance where we will be working with existing and new partners to better align WASH programming with planned energy projects.