

WaterAid: Submission to the International Development Committee inquiry into aid for community-led energy

1. Introduction to WaterAid

WaterAid is an international not-for-profit organisation working to make clean water, decent toilets, and good hygiene normal for everyone, everywhere within a generation. Founded in 1981, WaterAid engages in service delivery, policy development, advocacy, and campaigns to increase access to water, sanitation, and hygiene (WASH) in 22 countries in Africa, South Asia, the Pacific and the Americas.

2. Reason for submission

Energy and WASH are interconnected and critical to equitable community development. Frequently where one is lacking, both are scarce, and Climate change is exacerbating scarcity of both resources. Water scarcity results in reduced access to clean drinking water, sanitation and hygiene, and it means reduced manageable water as an ingredient of energy generation. WaterAid conducts joint WASH and energy programming and has seen the significant co-benefits – economic growth, social development, climate resilience and mitigation. WaterAid has also seen the importance of locally led adaptation and community leadership and ownership for successful programmes, especially for women and girls. We hope our first-hand experience of the link between locally led energy and WASH will highlight connections, benefits and learnings that will be valuable for this enquiry to demonstrate that investing in community-led energy is investing in water, sanitation and hygiene.

3. Summary

Investing in community-led energy is investing in water, sanitation and hygiene (WASH). In many low-resource communities, particularly in healthcare and educational facilities, the absence of one usually signals the absence of the other. Water is also the connector between WASH and energy – providing communities with access to clean drinking water, sanitation and hygiene, and a source of energy generation for thermal nuclear and hydroelectric systems. Finally, access to energy is usually a pre-condition for communities to also access safe and reliable water supply.

Globally, water utilities use 837 terawatt hours of electricity every year for pumping or treating water, but national grids in many low-income countries often suffer from unreliable power supply. This is in part caused by changes in water availability driven by climate change – key to generate hydropower which is the largest renewable energy source worldwide. Moreover, most of this power tends to be primarily powered by harmful sources of energy like fossil fuels – as such, the water sector contributes around 10% of global greenhouse gas emissions.

Empowering communities with clean local-led energy unlocks their access to clean water, sanitation and hygiene, builds their resilience to climate change and helps mitigate the impact on nearby water sources and ecosystems. Joint community-led energy and WASH programmes also yields multiple economic and social benefits. It creates jobs locally, upskills communities and provides opportunities to increase women's safety, social status and economic independence. It also enhances living standards, improves quality of essential healthcare services, and improves health outcomes.

WaterAid's wide-spanning experience of joint locally led energy and WASH programming in countries like Ethiopia, Zambia, Bangladesh and Papua New Guinea has shown the need for greater consideration of

WASH in locally led energy and vice versa as the two sectors are interconnected and can yield multiple co-benefits. There is wide public support (66% of the UK public) for the UK Government to increase investment in locally led projects that deliver clean water, sanitation and hygiene facilities to communities impacted by climate change. Such initiatives are already being funded by donors like the Green Climate Fund.

4. Investing in community-led energy is investing in water, sanitation and hygiene

Energy poverty and lack of access to WASH often go hand in hand. In many low-resource communities, particularly in healthcare and educational facilities, the absence of one usually signals the absence of the other. For example, healthcare facilities without reliable electricity also frequently lack clean water and decent sanitation. This dual deprivation undermines the ability to deliver basic services, risking the safety of patients and healthcare workers, and hampering the effectiveness of health systems. The World Health Organization (WHO) and United Nations already recognise this overlap, and in December 2023 the UN General Assembly adopted [resolution A/78/130](#) on "Sustainable, safe and universal water, sanitation, hygiene, waste, and electricity services in health-care facilities". This was followed by the publication of the WHO's [Global Framework for action on Universal water, sanitation, hygiene, waste and electricity services in all health care facilities to achieve quality care](#) in June 2024 highlighting how development efforts should address both energy access and WASH together.

WaterAid has been working in Papua New Guinea (PNG) since 2004, in collaboration with the Government of PNG (GoPNG) to deliver sustainable water, sanitation, and hygiene (WASH) programming. Our extensive experience working with rural communities and healthcare settings has highlighted the strong interconnections between off-grid energy and water access as a nexus development solution.

In 2024, WaterAid PNG undertook a scoping to identify how water supply programming can be an effective entry point for community engagement in off-grid energy projects. Through stakeholder consultations across the energy, food security, and livelihoods sectors, the scoping identified significant opportunities for energy-water nexus programming.

Findings suggest that expanding both household and community water supply and off-grid energy services as joint initiatives, enhances living standards, improves quality of essential healthcare services, improves health outcomes, improves women's safety and reduces unpaid domestic work, has potential to improve economic development, and mitigates environmental impacts like deforestation caused by use of traditional lighting sources, delivering strong development impact and value for money.

4.1. Joint community-led energy and WASH programmes yields multiple economic and social benefits

WaterAid has valuable experience addressing the energy-water nexus to drive economic growth and social development. In Bure worda district in [Ethiopia](#), the Derequa community lacked connection to a national electricity grid and faced the failure of diesel-powered systems – which impacted its access to reliable water supply in the community, schools and healthcare facilities. This left the Derequa community dependent on an unprotected spring, posing serious risks to health and forcing women and girls to travel to collect water.

WaterAid worked with the community and identified solar pumping as the most sustainable and cost-effective water supply option and develop a business plan and set an appropriate tariff to cover the costs

of operation and maintenance of a locally led solar power system. This included providing a salary for guards and a water vendor at each water point.

This community-led solution drove local growth and social benefits; it restored reliable access to safe water for 1,000 people, allowing people – especially women and girls – to use the time saved from water collection to attend school and invest in income-generating activities. It also created job opportunities for water vendors, guards and a plumber.

4.2. Community-led energy, such as solar power, builds communities' resilience in the face of climate change and gives them control over their own renewable energy supply, ensuring their continuous access to critical services such as water, sanitation and hygiene.

Climate change threatens community-led energy security and water security. Water scarcity impacts both access to clean drinking water, sanitation and hygiene, and water as a source of energy generation for thermal nuclear and hydroelectric systems. Sustainable water resource management is essential both to guarantee communities access to WASH for the daily and economic needs and ensure sustainable electricity generation in the face of climate change.

National grids in many low-income countries often suffer from unreliable power supply, impacting homes and businesses. This unreliability is in part caused by changes in water availability driven by climate change – key to generate hydropower which is [the largest renewable energy source worldwide](#). As a result, power outages, sometimes lasting for hours or even days, are common, disrupting daily life, access to school, hospitals and economic activity.

For countries like Zambia, where hydropower accounted for approximately [88%](#) of the country's total electricity generation in 2022, water resource management is essential to sustainable energy access for the people, public services and businesses who rely on it. In times of prolonged droughts, like in 2024, Zambia experienced widespread power cuts as much of their electricity comes from the Kariba hydro-electric dam, which in May 2024 was measured to be at [13% of capacity](#). This drastic depletion resulted in unprecedented [21-hour daily load shedding](#), disrupting economic activities and disproportionately affecting the majority of Zambia's population, particularly low-income households and small businesses that depend on a steady power supply for survival.

At the height of the drought in [October 2024](#), water became so scarce that in addition to not having water-powered electricity to cook or heat their homes, domestic water supply was discontinued, making it impossible to flush toilets or shower. Some schools were advising children to bring five litres of water every day to prevent a widespread sanitation crisis and the outbreak of waterborne diseases like cholera. [WaterAid Zambia](#) worked in 87 HCFs and various schools installing solar powered water supply systems to ensure access to water for Infection prevention and control in HCFs as well as provide healthy learning conditions in schools. Following this work WaterAid partnered with the [rural electrification authority \(REA\)](#) a government entity to scale clean energy solutions in rural communities. This partnership is aimed at maximizing each other's strengths, capacitating communities for sustainability and ensuring interventions are complimentary. REA provides energy using off grid solutions using solar plants. They will also train users on how to sustain their energy solutions.

Community-led solar-power allows local communities to take control over their energy supply and have access to renewable energy that is less impacted by climate change – such as variations in water

availability driven by droughts and floods. Thus, communities can ensure the continuous supply of energy for their local needs – their homes, public services, business and critical services such as WASH.

A WaterAid public polling conducted in April 2025 found wide public support in the UK for increased investment in locally-led projects that deliver clean water, sanitation and hygiene facilities to communities impacted by climate change – with 66% of the UK public in support.

4.3. Greater joint community-led energy and WASH programming can drive mitigation efforts

The water sector contributes around 10% of global greenhouse gas emissions – including through water and wastewater treatment, storage and distribution. According to [research](#) funded jointly by the [Resilient Water Accelerator](#) (RWA) incubated by WaterAid, the Voluntary Carbon Market Integrity Initiative (VCMI), and HSBC, this could be reduced by 1.6 billion tonnes of CO₂ per year – equivalent to nearly half of the EU's annual emissions – through improvements in coastal blue carbon, wastewater treatment, drinking water treatment, irrigation, as well as energy efficiency.

Globally, water utilities use 837 terawatt hours of electricity every year. Of that, 70% to 80% goes into pumping for the distribution of treated water and 20-30% is used for raw water pumping and treatment processes. Most of this power tends to be generated by national electricity grids, which in many countries are primarily powered by harmful sources of energy like fossil fuels. Given water utilities' high-power consumption, it is important to replace grid electricity with locally generated renewable electricity using solar photovoltaic for example. Solar pumping through solar panels for example is an intervention implemented in multiple locations by WaterAid as it enables more reliable, climate resilient and low-cost electricity to pump the water needed for communities. 80 percent of electricity used in treatment plants and pumping could be replaced with renewably generated electricity, with the potential to reduce emissions by 422M tCO₂e per year. Local energy solutions, particularly those that avoid deforestation or pollution and transition away from fossil fuels, can help preserve habitats, support biodiversity and help improve air quality, benefiting both human health and ecosystems.

Another example is reducing the amount of water loss and leaks in the system cuts the amount of energy wasted on lost water and saves carbon emissions. Water losses through leaks in piped networks are very common and represent up to [26%](#) of the water pumped or treated in low-income countries – a staggering 72 billion cubic meters a year. In this scenario, not only is the water lost, but it also wastes the energy – and its associated greenhouse gas emissions – that was used to pump or treat the water in question. If water losses were reduced to the optimal scenario of 10% in low-income countries, [51.8 million tCO₂e](#) could be cut every year, which is the equivalent of [Bulgaria's](#) annual estimate greenhouse gas emissions in 2022.

Given the scale of the problem – and the potential climate mitigation gains – several climate and development finance institutions, such as the [Green Climate Fund](#) (GCF), are funding local programmes that reduce water leakages in piped networks to cut energy waste and associated greenhouse gas emissions.

4.4. The application of locally led adaptation principles for community-led energy is crucial to ensure that sustainable energy solutions do not come at the expense of local communities' access to clean drinking water and sanitation

The [Global Commission on Adaptation \(GCA\)](#) has developed [eight “community first” principles](#) to strengthen locally led decision making for climate change adaptation – which the UK Government has adhered to.

The eight principles are to:

1. Devolve decision making to the lowest appropriate level
2. Address structural inequalities faced by women, children, people with disabilities, people who are displaced, Indigenous People and marginalised ethnic groups
3. Provide patient and predictable funding that can be accessed more easily
4. Invest in local capabilities to leave an institutional legacy
5. Build a robust understanding of climate risk and uncertainty
6. Provide flexible programming and learning
7. Ensure transparency and accountability
8. Champion collaborative action and investment

These principles are particularly relevant in the context of locally led energy and WASH. As water-efficient clean energy solutions are being introduced, such as waterless cleaning for solar panels, second-generation biofuels or water-efficient cooling towers for nuclear and geothermal plants, the Global Commission on the Economics of Water (GCEW) makes the case in its [recent report](#) that the growth of renewable energy “does not exacerbate global water stresses or constrain the benefits they provide[...] while ensuring that local access to water resources is not restricted or degraded”

For example, policymakers should ensure desalination plants do not damage marine ecosystems, that hydropower plants are managed to minimise disruptions to local communities, or that environmental safeguards are in place to prevent mine acid drainage. Groups like [End Water Poverty](#), have been campaigning around the world to stop mining companies from contaminating community water sources, and many civil society groups are calling for more inclusive participation in consultation processes, as well as respect for Free, Prior and Informed [Consent](#) of Indigenous Peoples by development finance institutions, including their right to say no to projects.

4.5. Women-led and run locally led projects yield greater economic and social development benefits to women and the wider community

Gita Roy was 17 when she was married in 2001 and moved to her husband’s village, Tengrakhali in Satkhira, [Bangladesh](#). Gita’s home in Khulna Division has problems accessing freshwater and clean drinking water. Rising sea levels driven by climate change and local mismanagement have increased salinity, contaminated groundwater aquifers and leaving communities struggling to find safe water sources. To address these challenges, WaterAid, alongside local community leaders, initiated a project grounded in Local Leadership for Adaptation (LLA) principles, empowering communities to take ownership of their water security.

Gita Roy, a respected local woman, took the lead in establishing a community-run reverse osmosis (RO) plant in her village. With support from WaterAid, she underwent training to manage the daily operations and maintenance of the plant. Reflecting LLA’s focus on locally led solutions, Gita mobilized ten other women in her community to form the Golap Dol (Rose Group), a committee responsible for managing the plant. Together, they developed business plans to sustainably sell water at affordable prices to surrounding communities, ensuring accessibility and economic empowerment. The Moricchap Drinking

Water Plant was officially inaugurated in February 2020, marking a significant step towards localized water resilience. By March 2022, the plant was serving nine surrounding villages with safe drinking water.

Adhering to LLA principles of community-led decision-making and sustainability, the women-led committee successfully managed the plant's operations, recording profits over £260 between April and September 2021. The project not only brought safe drinking water to the community but also transformed the lives of the women involved. Managing the plant earned them respect and recognition in their community. Gita herself was elected as a representative in the Union Parishad elections in 2022, a testament to her leadership and the community's trust in locally driven adaptation measures. The women of Golap Dol reported being more involved in household decision-making, reflecting a shift towards gender-inclusive leadership in climate adaptation.

The committee also established a community savings account with their surplus income and this fund enables members to reinvest in local livelihood opportunities—one member recently purchased a sewing machine to provide tailoring services, further enhancing economic resilience. By reclaiming time previously spent fetching water, the women now engage in productive, social, and restorative activities, strengthening their adaptive capacity and improving their quality of life. Through local leadership, community-driven solutions, and a commitment to sustainable, inclusive adaptation, Gita and the women of Golap Dol exemplify how grassroots initiatives can transform vulnerability into resilience. Their story underscores the power of local actors in driving meaningful climate adaptation and setting a blueprint for others facing similar challenges.

4.6. Community-led water and energy programmes face common challenges

WaterAid PNG's 2024 scoping found that theft, vandalism, and weak payment and Operations and Maintenance (O&M) systems were common challenges faced by community-led water and energy projects. For example, the comparatively high cost of installing and running a solar-powered system can result in high tariffs, resulting in more marginalised communities not being able to afford access.

This can be mitigated by integrating O&M payment models, and by delivering water, sanitation and energy services as a package. Long-term success depends on sustained investment in local systems and skills with reliable revenue streams for upkeep, such as community funds, and climate-resilient energy choices like solar power.