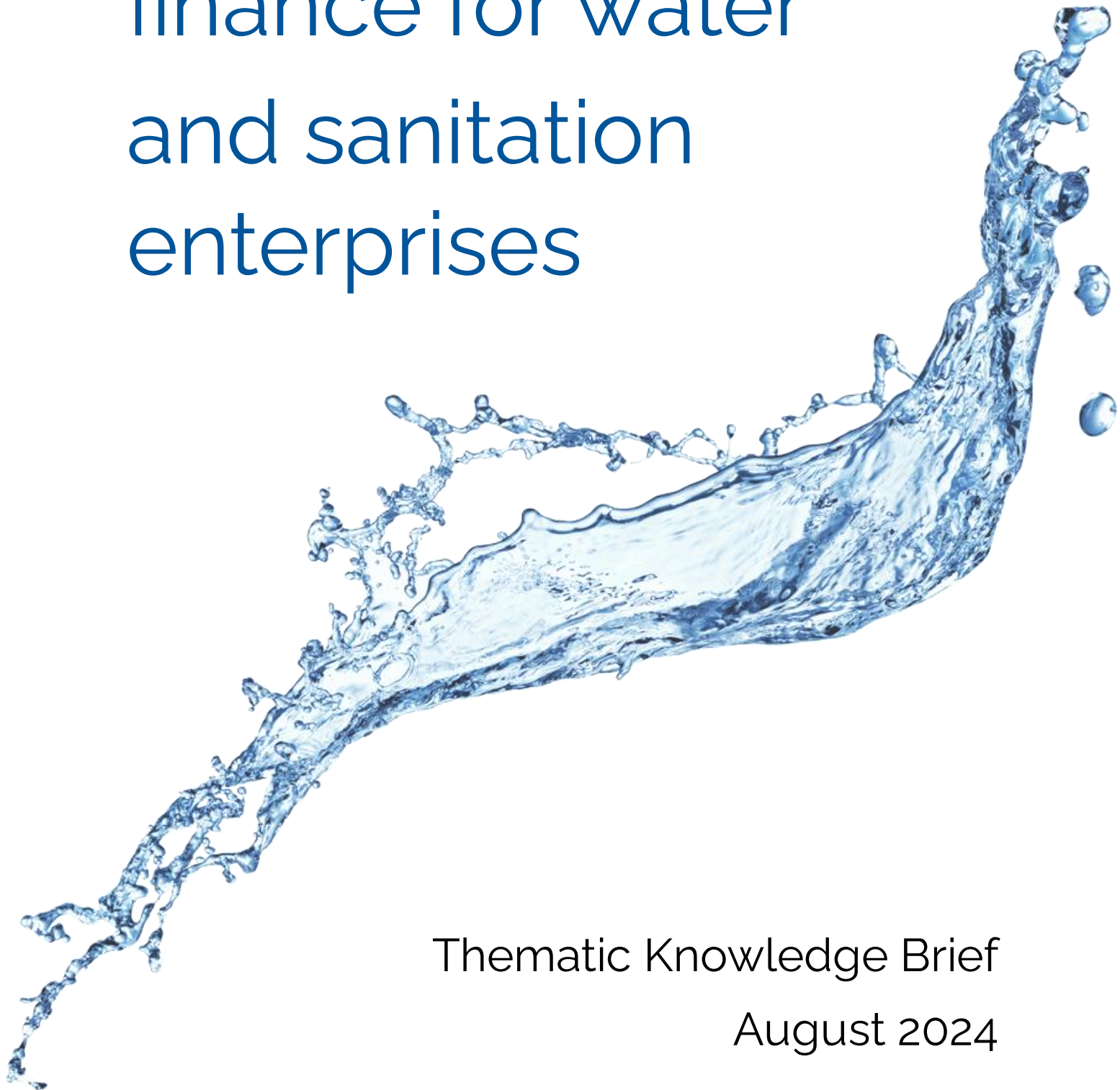


Unlocking carbon finance for water and sanitation enterprises



Thematic Knowledge Brief

August 2024

Insights from Aqua for All

A new report estimates a total global potential for carbon credits generated from water-related projects to be more than 1.6 billion tonnes of CO₂ equivalent per year¹. Also specifically within the water and sanitation sector, carbon credits are increasingly being used, providing additional revenues for water and sanitation-focused small and medium enterprises (SMEs) that help mitigate climate change.² Carbon finance can enhance the sustainability of these enterprises, but many lack the knowledge and capacity to integrate this potential revenue stream into their business models. Raising awareness of the opportunities and challenges is crucial for social enterprises in the global South to benefit from carbon credits. This document rebuilds on Aqua for All's experiences in the carbon space and explores ways to mobilise carbon finance for water and sanitation enterprises.

Carbon credits in a nutshell

A carbon credit represents the verification of the sequestration, avoidance, or reduction of greenhouse gas (GHG) emissions, where the equivalent of one metric ton of sequestered, avoided or reduced GHG emissions is equivalent to one carbon credit. Depending on the industry, carbon offset can be mandatory or voluntary. The mandatory (compliance) carbon markets are created and regulated by mandatory international, regional or national carbon reduction regimes. The voluntary carbon market is where private individuals, corporations and other actors issue, buy and sell carbon credits outside of regulated or mandatory carbon pricing mechanisms.³

Emission reductions are calculated by comparing the emissions caused by a specific initiative (project emissions) against emissions caused in a plausible baseline scenario (baseline emissions) without the initiative. The price of carbon credits depends on several factors, including the type of the project, the verification standard, and the reliability of carbon credit generation.

¹ <https://www.goldstandard.org/publications/decarbonising-water-applying-the-vc-m-towards-global-water-security>

² Small and medium enterprises working in the business of water purification, waste management and allied sectors.

³ <https://www.climateimpact.com/services-projects/carbon-credits-explained-what-they-are-and-how-they-work/>

The potential of carbon projects in the water and sanitation sector

Carbon credits can be claimed for a wide range of water and sanitation initiatives, such as community water treatment, household water treatment (e.g. water filters, see the case of Aqua Clara Kenya in the text box on p. 5), rehabilitated boreholes, water pumps with chlorine dispensers and sanitation waste reuse projects like household biogas plants and composting units.

To receive carbon credits, a business must register as a carbon project. Before beginning the accreditation process, it is crucial to first determine the project's eligibility.

Like any investment analysis, choosing to certify for carbon credits must be based on the potential credit generation and the selling price versus the total monitoring and certification costs, which can be substantial. Additionally, it is important to ensure that there is a methodology under one of the carbon offset standards applicable to a project. A methodology outlines the rules and procedures for calculating, monitoring and verifying the reduction or removal of greenhouse gas emissions associated with a project.

For any carbon project, it is essential to demonstrate that carbon funding is fundamental to both the financial viability of a business or project and its positive impact additionality. This is known as the precondition of additionality: *A credit is considered additional if the emissions reduction that underpins the credit would not have occurred in the absence of the activity that generates the credit (the business-as-usual scenario).*⁴

Registration process

Once the project's eligibility is determined, the potential added value confirmed, and a methodology selected, the next step is to draft a project description demonstrating how the project meets the requirements of the methodology's requirements. A third-party auditor will then validate the project by reviewing its additionality, baseline emissions and overall design. After validation, the project is ready to be submitted for registration with the relevant carbon offset standard⁵. The biggest standards are '[Gold Standard](#)' and '[Verra](#)'.

After registration, the project is implemented, and the emission reductions must be monitored. The standard typically requires periodic verification audits, usually yearly, to ensure the correct number of carbon credits are issued.

Once the carbon credits are issued, they need to be sold on the market. This can be done either through an intermediary or directly with buyers. Often, if a carbon project development consultant (a 'project developer') is involved it will also handle the sales of the carbon credits, depending on the agreements made.

⁴ Partnership for Market Readiness (PMR), Pedro Martins Barata (2016). *Carbon Credits and Additionality: Past Present, and Future*.

⁵ https://climateneutralgroup.co.za/wp-content/uploads/2021/03/CNG-Factsheet_Carbon-Project-Development.pdf

Benefits and challenges for water and sanitation enterprises

Carbon credits offer water and sanitation enterprises the opportunity to monetise the reduction of greenhouse gas emissions within their operations. However, clarity on prices in the voluntary carbon market is limited, with prices varying widely. In 2023, the average price of a carbon credit was \$6.97⁶, though Nazava Water Filters, a water filter company operating in Kenya, Ethiopia and Indonesia, reports receiving an average of US\$12 per carbon credit⁷ and Aqua Clara Kenya indicates a price range between US\$7-10 (see also in the text box below). The exact price depends on market supply and demand, project type, location, and the quality assurance of the credit.

Carbon credits can provide an additional revenue stream, helping businesses to scale and increase profitability. Beyond revenue, carbon credits can enhance the competitive advantage of enterprises, improve access to green financing and other investments, and strengthen the enterprise's impact monitoring and management. This leads to better business intelligence and improved customer support such as training, technical assistance, and maintenance.

Issuing carbon credits can also be challenging for water and sanitation enterprises. The certification process is complex and time-consuming, requiring significant capacity and resources. Additionally, changes in procedures, requirements and protocols of carbon standards over time can increase the need for capacity or capital during the monitoring phase. For enterprises that do not already systematically map and measure their results and impact, obtaining carbon certification⁸ requires a considerable investment, both from the team and in external costs, which can amount to tens of thousands of euros. For most SMEs, these costs are likely to exceed the potential revenue from carbon credits. Furthermore, the price of carbon credits can fluctuate and might be lower than expected, making it difficult to sell the credits.

The role of project developers in the certification process

Due to the complexity of the certification process, water and sanitation enterprises often collaborate with experienced carbon project developers to navigate registration and secure the necessary documentation. While this reduces the capacity burden on the enterprise, it does come with increased costs. We know from experience that choosing a capable carbon project developer is crucial: one that can guide the enterprise through the entire certification process and offer a fair pricing or revenue-sharing structure for their services.

⁶ Forest Trends' Ecosystem Marketplace. 2023. State of the Voluntary Carbon Markets 2023. Washington DC: Forest Trends Association.

⁷ Intelicap, Busara Center for Behavioral Economics, Kore Global. (2024). Transforming the care economy through impact investing: Nazava case study. Kore Global, International Development Research Centre, and Soros Economic Development Fund.

⁸ I.e. registration, ongoing monitoring and yearly verification.

Carbon credits translated to a WASH business: The case of Aqua Clara Kenya (ACK)

Business profile

Established in 2009, Aqua Clara Kenya (ACK) is B Corp certified social enterprise delivering effective WASH solutions across East Africa. It focuses on providing low-income households with an affordable option to purify drinking water and thereby mitigate exposure to water-borne diseases. ACK's model is largely centred on the sale of water filters (household and institutional), from which they also generate carbon credits.

Timeline of the carbon credits project

- ✓ 2012: Start of carbon credits project
- ✓ 2014: Climate impact partners committed to buying Aqua Clara's first Gold Standard Verified Emissions Reductions (VERs)
- ✓ 2015: First sales of carbon credits
- ✓ 2021: Registration of new carbon credits project after the first project expired

Pre-certification requirements

- ✓ Large volume of filters already distributed
- ✓ Database with basic customer info (location, phone number, household population)
- ✓ Local networks of agents (product distribution data collection)
- ✓ Baseline for additionality: majority of customers should previously have been boiling water using biomass

Price range

The range at which ACK sells its carbon credits is US\$7 – 10 per credit

Revenues from carbon credits

More than 50% of total revenues

Carbon credits track record

- ✓ Since 2014, the carbon project has delivered water filters to more than 9,600 households, reducing 228,706 tonnes of CO₂.
- ✓ The carbon revenue has enabled ACK to reach more customers in rural areas and create employment opportunities for more than 60 people.

The opportunity of carbon credits according to ACK

- ✓ Climate change continues to be a key focus area for national governments and the UN
- ✓ Expected growth in demand for carbon credits
- ✓ Technology advancement makes it easier to reach and track customers
- ✓ Exploration of link between water filters and CSR arms of major companies

Three pieces of advice for other entrepreneurs (*what ACK would want to know now in hindsight*)

- 1) Get details on how carbon credits are calculated to benefit the most from them
- 2) Consider the type of agreement you have with the carbon credit project developer/buyers, including the implications
- 3) Identify the different costs; for set-up, actual running of projects (including monitoring, keeping database up to date) and possible additional and/or external expertise needed

Aqua for All's support

Aqua for All has supported enterprises in obtaining carbon credits certification in various ways. In the past, Aqua for All partnered with a carbon project developer to generate carbon credit revenues from drinking water projects and was successful in certifying several initiatives. However, we also faced challenges in the carbon credits arena, where projects did not receive credits or generate revenue due to adverse market conditions and other factors beyond the enterprise's control.

Aqua for All closely monitors developments in the carbon market with great interest. Generally, carbon credits tend to be more profitable for larger scale enterprises, whereas we mainly work with small enterprises that are still in a growth phase. Consequently, the transaction costs associated with carbon finance often outweigh the potential revenue from the credits generated.

Nevertheless, Aqua for All is engaged in three specific initiatives within the carbon sphere.

1. [Utility-led water filter distribution project in Ethiopia:](#)
Aqua for All adopts a hands-on approach by supporting the project owner through the registration process. This involves liaising with carbon project developers and funding the costs associated with the registration.
2. [Container Based Sanitation Alliance \(CBSA\) project:](#)
Aqua for All collaborates with the Container Based Sanitation Alliance (CBSA) to develop a new methodology tailored for container based sanitation initiatives.
3. [Covering upfront costs across various initiatives:](#)
Aqua for All also funds (part of) the upfront costs associated with registering as a carbon project across various initiatives.
4. [Collaboration with financial institutions:](#)
Additionally, we collaborate with financial institutions in East Africa to offer insights into carbon markets, including opportunities and risks. We explore how these institutions can support market development and finance commercially viable carbon projects. This approach underscores our commitment to leveraging financial expertise to drive sustainable impact in the water and sanitation sector.

Reflections and future directions

Our evaluation of water and sanitation initiatives in Africa and Asia, enabled by access to carbon financing, highlights the significant role carbon credits play in supporting water and sanitation enterprises. Presently, the complexity of the certification process and its associated costs typically restrict carbon credit viability to larger enterprises with substantial scale and management capabilities. However, by facilitating access to carbon finance for water and sanitation enterprises, we can enhance their financial sustainability and ensure continued access to safe water and sanitation services.

Moving forward, we propose the following recommendations for both water and sanitation enterprises, and sector financiers:

1. For water and sanitation enterprises:
 - **Enhance capacity:** Invest in building capacity to navigate the certification process for carbon credits.
 - **Explore collaboration:** Consider partnerships with experienced enterprises and stakeholders to get a better understanding of the process and its capacity requirements.
 - **Monitor market dynamics:** Stay informed about carbon market trends and adapt strategies accordingly. Conducting a pre-feasibility study is key to understanding the possibility of carbon credits for water and sanitation enterprises. This will include an assessment of the project's eligibility against the chosen methodology, its additionality and the environmental impact created, as well as other aspects which will give the entrepreneur insights on the feasibility of setting up a carbon project.
2. For sector financiers:
 - **Provide support:** Offer training and (financial) resources to water and sanitation enterprises by (pre-)financing the initial costs of carbon credit certification to reduce the upfront financial burden of enterprises.
 - **Facilitate partnerships:** Foster collaborations between financial institutions and carbon project developers to support enterprise needs.
 - **Incentivise innovation:** Encourage innovative approaches and methodologies tailored to the specific challenges of the water and sanitation sector.

By fostering collaboration and knowledge exchange between enterprises and financiers, we can optimise the impact of carbon finance in the water and sanitation sector, ensuring sustainable development and improved community well-being.

Other resources

- Recording of learning event '[Mobilising investments for water and sanitation enterprise through carbon credits](#)' – by Aqua for All and Rural Water Supply Network (RSWN)
- Briefing note '[Mobilising investment for water and sanitation enterprises through carbon credits](#)' – by Aqua for All and Fair Climate Fund
- [Info sheet carbon credits](#), including carbon project developers – by Aqua for All
- Recording of webinar '[Carbon credits – introduction for financial institutions in Kenya and Uganda](#)' – by Aqua for All
- Report '[Decarbonising Water: Applying the Voluntary Carbon Market towards Global Water Security](#)' – by the University of Colorado Boulder and Castalia, supported by Gold Standard, WaterAid, HSBC, VCMI, Resilient Water Accelerator and other partners
- Learning paper '[Carbon credits for Water, Sanitation and Hygiene \(WASH\) Interventions](#)' – by Millennium Water Alliance



About Aqua for All

Aqua for All is an international foundation transforming the water and sanitation sector into a sustainable and inclusive economy. We believe that innovation, scalable solutions, and public and private capital are needed to bridge the service and financial gap to achieve SDG 6 – Water and sanitation for all.

We leverage our funds through strategic granting and partnerships to accelerate the provision of access to water and sanitation to low-income households.

We support local water and sanitation service providers to scale their market-based solutions and to attract private capital. By catalysing private capital for market development and increasing access to finance, we accelerate access to affordable, climate-resilient water and sanitation services globally, especially in Africa and Asia.

More info: <https://aquaforall.org/>