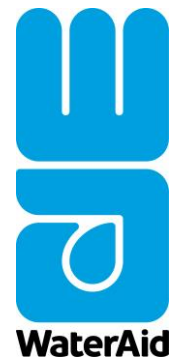
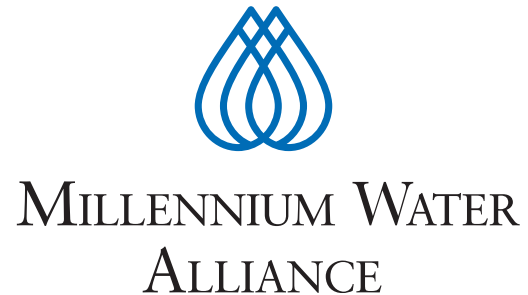




LIQUID ASSETS: CARBON CREDITS IN WATER CONSERVATION, ACCESS, AND SECURITY

March 20, 2024
Washington, DC, USA





CARBON FINANCING FOR SAFE WATER: ETHIOPIA FEASIBILITY STUDY AND LEARNING PAPER

March 20, 2024
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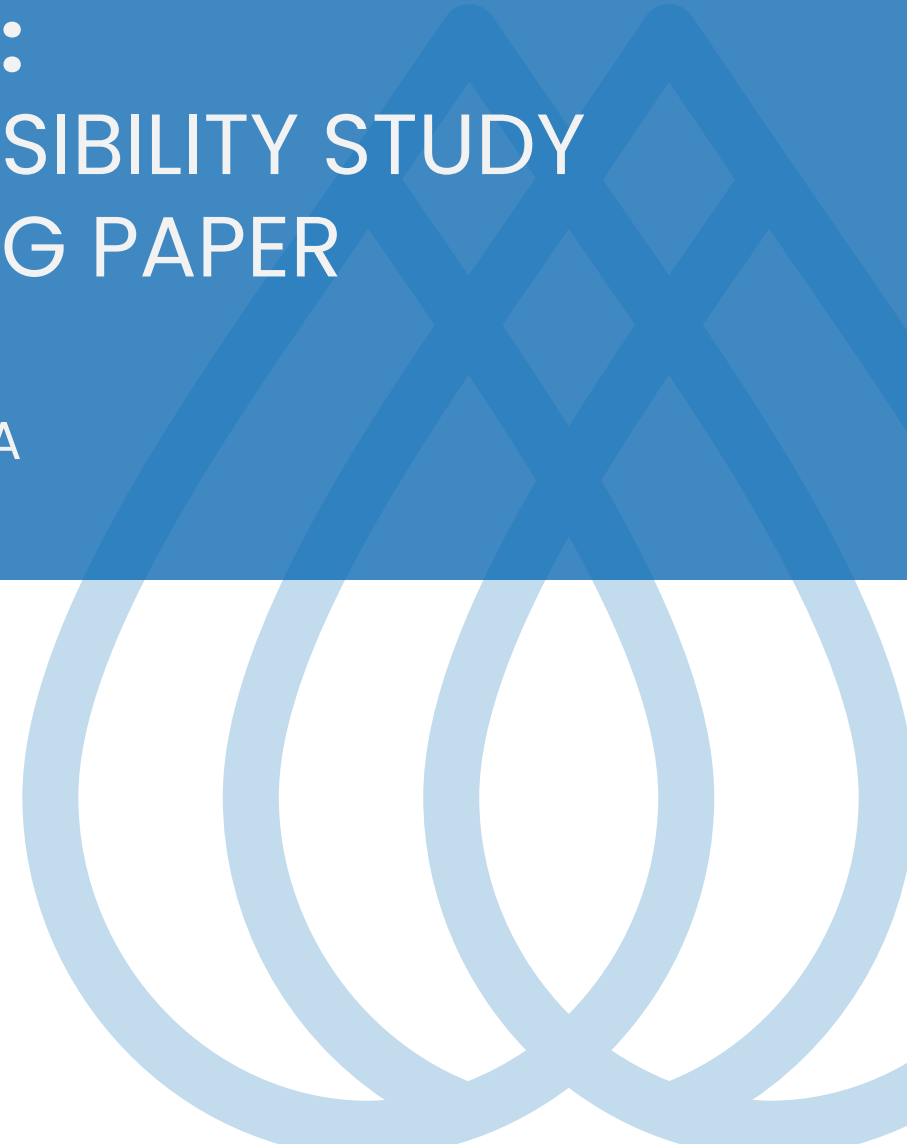
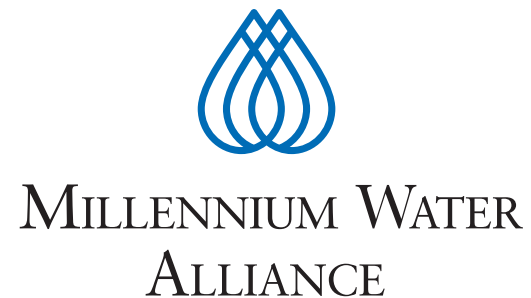


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Setting the Stage



Overview

- **Introduction to the Journey:** Exploring the integration of carbon credits into WASH programs
- **Project Focus:** Journey of 10 project sites in Amhara Ethiopia (Feasibility Study), aiming for sustainable development through carbon credits.
- **Objective:** Understanding the carbon credit process from initial consideration to sale.

Overview

Key Takeaways:

- Potential of carbon credits to fund and sustain WASH initiatives.
- Navigating regulatory, community, and financial challenges.
- Lessons learned and opportunities in carbon financing for WASH.

Overview

- **Climate Finance Overview:** Encompasses mechanisms aimed at adaptation and mitigation to address climate change.
- **Focus on Mitigation:** This presentation concentrates on carbon credit generation as a form of climate finance.
- **Carbon Credits Explained:** Represent reductions, removals, or avoidance of GHG emissions that wouldn't occur without carbon finance.
- **Carbon Credit Quantification:** One carbon credit equals 1 metric ton of CO₂e emissions reduced, removed, or avoided

WASH and Carbon Credits

- **Potential for Impact:** Significant emission reductions possible by transitioning from traditional to more sustainable WASH practices.
- **Key Mechanisms:**
 - **Safe Water Projects:** Focus on reducing emissions through improved water supply and treatment, avoiding the need for boiling water using biomass.
 - **Sanitation and Hygiene:** Potential in biogas from waste treatment as an alternative energy source, reducing GHG emissions.

WASH and Carbon Credits

- **Market Participation:** Most WASH projects currently engage in voluntary carbon markets, utilizing standards like the Gold Standard and VCS/Verra.
- **Challenges and Opportunities:**
 - **Technical Complexity:** Establishing baseline emissions and project impact can be challenging.
 - **Stakeholder Engagement:** Essential for project success and sustainability.
- **Future Trends:** Increased interest in integrating WASH projects with carbon credit financing, driven by global sustainability goals.

Solarization and Carbon Credits

- **Intervention:**
 - Shift from diesel to solar-powered pumps in multi-village water schemes, schools, and healthcare facilities
- **Emission Reduction:**
 - ~800L of diesel saved
 - @ 373L = 1 tCO₂ = 2.14tCO₂/day(800L)

Solarization and Carbon Credits

Challenges Faced:

- **Scale:** To achieve financial viability at current CO2 prices, a replacement of approximately 50,000L of diesel/day is needed = **86 football fields of solar panels**
- **Cost Analysis:** The cost of diesel is high, with 373 liters costing at least \$500, while carbon credits sell for \$2 to \$20 USD/tonne

Solarization and Carbon Credits

Recommendation:

- Theoretically it is feasible to get carbon credits from solarizing diesel-powered pumps, however...
- At the current scale and with the current carbon prices, It is advisable to investigate other ways to incentivize the shift to renewables for powering water pumping.



The Path to Carbon Credits



Identifying the Opportunity

- **WASH Challenges and Climate Action:** Linking essential WASH initiatives to climate mitigation.
- **Carbon Credit Revenue Potential:** The viability of carbon credits as a novel funding mechanism for WASH projects and/or their continued operations and maintenance.
- **Feasibility Study Insights:** Key findings from the feasibility study conducted in Amhara, Ethiopia.
- **Hypothetical Path Forward:** Exploring the 'what if' scenario of the feasibility study project pursuing carbon credits.

The Amhara Winrock “Project”

- **Location: Amhara Region, Ethiopia** – targeting rural communities with critical WASH needs.
- **Beneficiaries: 50,000–100,000 households**, improving access to safe water.
- **Carbon Project Goals:**
 - Reduced Emissions
 - Solarization of 10 water systems (no carbon credits)
 - Reducing solid fuel use from boiling water
 - Improved Water Quantity (Uptime)
 - Improved Water Quality (Chlorination)
 - Sustained Operations and Maintenance for 10+ years

The Amhara Winrock “Project”

Innovative Features:

- Community Financed Solarization
 - Monthly payment < Current fuel costs
 - Max 10% fossil fuel for Carbon Credit Projects
- On-site chlorine production and inline chlorination for water treatment (Clara System).
- Remote monitoring of system performance to ensure reliability.

The Decision-making Framework (Go-No Go) for WASH and Carbon Credits

- **A structured approach** to evaluating the feasibility and potential of carbon credit projects in the WASH sector.
- **Clarify Key Concepts:** Additionality, suppressed demand, baseline emissions, and project eligibility.
- **Evaluate Project Viability:** Assess environmental impact, social benefits, and financial sustainability.
- **Guide Strategic Decisions:** Support the decision-making process for project initiation or development.
- **Utilizing the framework to evaluate the Amhara sites** for carbon credit potential.

Roles and Responsibilities

- **Project Proponent (Owner):** Entity that develops and manages the carbon credit project.
- **Local Communities:** Essential stakeholders in project design and beneficiaries of carbon finance.
- **Project Developer:** Specialized firm that facilitates the carbon credit generation process.
- **Verification Bodies:** Independent auditors that verify emission reductions and ensure compliance with standards.
- **Donors and/or Investors:** Supply financial resources necessary for project development, implementation, and scaling.
- **Buyers of Carbon Credits:** Entities looking to offset their carbon footprint through investment in carbon projects.



Building the Foundation



Evaluating Carbon Opportunities

- **Environmental Impact:** Assessing the project's potential to reduce GHG emissions.
- **Social Benefits:** Evaluating the positive effects on local communities, including improved health and economic opportunities.
- **Financial Viability:** Determining the project's cost-effectiveness and potential for generating sustainable revenue from carbon credits.
- **Regulatory Compliance:** Ensuring the project meets all local and international carbon trading regulations and standards.
- **Application to Amhara Project:** A detailed look at how these factors influenced the decision to consider the sites for a carbon credit initiative

Key Requirements for Projects

- **Additionality:** Must demonstrate emissions reductions are additional to any that would occur in the absence of the project.
- **Measurability:** Ability to accurately measure GHG reductions using recognized methodologies.
- **Permanence:** Ensuring emission reductions are long-lasting and not reversed.
- **Independent verification** of emission reductions by a recognized third party.
- **Leakage:** Addressing any unintended increase in GHG emissions outside the project boundary.

Additionality

- **Carbon projects must demonstrate** that they would not have taken place without the additional revenue from carbon credits to be considered "additional"
- **Least Developed Countries (LDCs) and Landlocked Developing Countries (LLDCs) Consideration:** Projects in these countries are assumed additional without needing to prove financial additionality.
- **Ethiopia's Status:** Considered additional due to underfunding of community-based projects.

Decision Framework (Go-No Go)

1. Does the project meet the key requirements for a carbon project?

2. Can suppressed demand be justified and defended?

3. Do the pros outweigh the cons?

4. Is there a carbon project developer that meets our expectations?

Move Forward with the Carbon Credit Project for Safe Water

Step 1: Evaluating Carbon Credit Project Viability

- **Must target a minimum of 30,000 to 50,000 households** to ensure financial viability through carbon credit generation.
- **Past Water and Fuel Usage:** Demonstrates that target users relied on unsafe water and solid fuels on inefficient stoves before the project.
- **Can demonstrate non-detectable E. coli levels** in drinking water, with a threshold of not exceeding 10% of samples.
- **Focuses on decentralized systems serving no more than 50,000 households** to simplify additionality

Step 1: Evaluating Carbon Credit Project Viability

- **All systems must have unique IDs** for accurate tracking and monitoring, essential for both small and large-scale interventions.
- **Technology Performance:** Household water treatment (HWT) technologies must meet a 2-star or 3-star performance level according to WHO standards.
- **YES? Move forward**

2. Can suppressed demand be justified and defended?

- **Defending Suppressed Demand:** Assessing the ability to justify and defend the application of suppressed demand in the context of WASH projects.
- **Reputational and Financial Risks:** Importance of a robust justification to mitigate potential reputational risks and ensure the project's financial viability.

Low Risk: Boiling as a prevalent treatment method; assumption of widespread adoption with resources.

Medium Risk: Boiling common among wealthier households; projected increase in boiling with economic development.

High Risk: Low prevalence of boiling; equity argument for recognizing suppressed energy use due to poverty and climate change.

Weighing Pros and Cons

Benefits:

- **Environmental Impact:** Significant reduction in GHG emissions through alternative water treatment methods.
- **Social Benefits:** Improved access to safe drinking water, enhancing public health and reducing disease prevalence.
- **Economic Incentives:** Potential revenue generation from carbon credits to sustain and expand WASH projects.
- **Results-based Financing:** Carbon project pay on performance and opportunity to develop systems for this approach

Weighing Pros and Cons

Challenges:

- **Complex Certification Process:** Navigating through rigorous and time-consuming certification procedures.
- **Financial Viability Concerns:** Ensuring the project generates sufficient carbon credits to be financially sustainable.
- **Reputational Risks:** Managing public perception and justifying the application of suppressed demand.
- **Regulatory Uncertainties:** Adapting to changing regulations and standards in carbon markets.

Step 3: Do the pros outweigh the cons?

Decision Analysis: Evaluating if the benefits of pursuing carbon credits surpass the associated challenges.

Pros:

- **Revenue Potential** for significant additional funding, enhancing financial sustainability.
- **Quality Monitoring Data Over Time:** Required rigorous data collection strengthens project implementation and monitoring.
- **Safeguards and Feedback:** Enhanced project integrity and community engagement through required safeguards and grievance mechanisms.

Step 3: Do the pros outweigh the cons?

Cons:

- **Revenue Uncertainty:** Variability in timing and amount of revenue, with potential delays and fluctuations.
- **Resource Intensiveness:** Substantial effort and financial investment required for project registration, ongoing monitoring, and verification processes.
- **Reputational Risks:** Increased public scrutiny and the need to robustly justify the project's carbon credit claims.

Selecting a Carbon Project Developer

- **Experience and Reputation:** Track record in successfully certifying similar projects.
- **Alignment with Project Goals:** Developer's commitment to sustainability and community impact.
- **Technical Expertise:** Ability to navigate complex carbon standards and methodology.
- **Supportive Collaboration:** Willingness to work closely with project teams, offering guidance and transparent communication.
- **Cost and Financial Terms:** Understanding of cost implications and sharing of revenue from carbon credits.

Step 4: Is there a carbon project developer that meets our expectations?

- **Credit Ownership:** Deciding where the credits will be registered and ownership details.
- **Sales Process:** Understanding the developer's role in selling credits and the terms.
- **Exclusivity Terms:** Conditions under which exclusive rights to sell the credits are granted.

Step 4: Is there a carbon project developer that meets our expectations?

- **Roles and Responsibilities:** Clarity on who handles data collection, fees, and responses to audits.
- **Revenue Sharing:** Agreement on the division of revenue from carbon credit sales.
- **ERPA (Revenue Sharing Agreement) Termination:** Conditions under which the agreement can be terminated.

Decision Framework (Go-No Go)

1. Does the project meet the key requirements for a carbon project?



2. Can suppressed demand be justified and defended?



3. Do the pros outweigh the cons?



4. Is there a carbon project developer that meets our expectations?



Let us move forward with the Carbon Credit for Safe Water Project

Costs of Implementation

Infrastructure:

- Increase in access to water sources
- Enhancement of uptime for existing systems

Water Treatment:

- Implementation of community-based treatment facilities
- Distribution of household water treatment units

Registration & Certification:

- Initial project registration fees
- Validation costs with standard bodies

Audits:

- Third-party verification audits
- Compliance checks and reporting

Monitoring & Evaluation:

- Functionality monitoring of water systems
- Household-level monitoring for user engagement

Water Quality Assurance:

- Regular water testing for safety compliance
- Investment in water quality monitoring equipment

Community Engagement:

- Hygiene promotion campaigns
- Educational materials and community workshops

Human Resources:

- Project management team
- Technical staff for system maintenance and data collection

Bridging the Funding Gap

- **Reaching the Poorest Communities:** Additional external funding may be required to ensure the poorest communities, who may not generate sufficient carbon credits, receive the necessary support.
- **Ongoing Operation & Maintenance:** Revenue from carbon credits is often targeted for the sustained operation and maintenance of WASH projects.
- **Covering Initial Costs:**
 - Projects must anticipate initial expenses before the influx of carbon credit revenue.
 - **Seed funding** may be required to bridge the time gap until the first sale of credits.

Funding and Scale

- **Layering Carbon Credits:** Encourage existing grant-funded projects to integrate carbon credits, enhancing sustainability and impact.
- **Collaborative Approach:** Seek partnerships with ongoing carbon projects to include your project, maximizing resource utilization and impact.
- **Expanding Opportunities:** Identify projects with carbon credit potential; propose adding them to your initiative to increase financial viability and environmental benefits.
- **Innovative Financing:** Donor funding (grants), Developer funding (investment), Loans, combination

Moving Forward with the Amhara Project

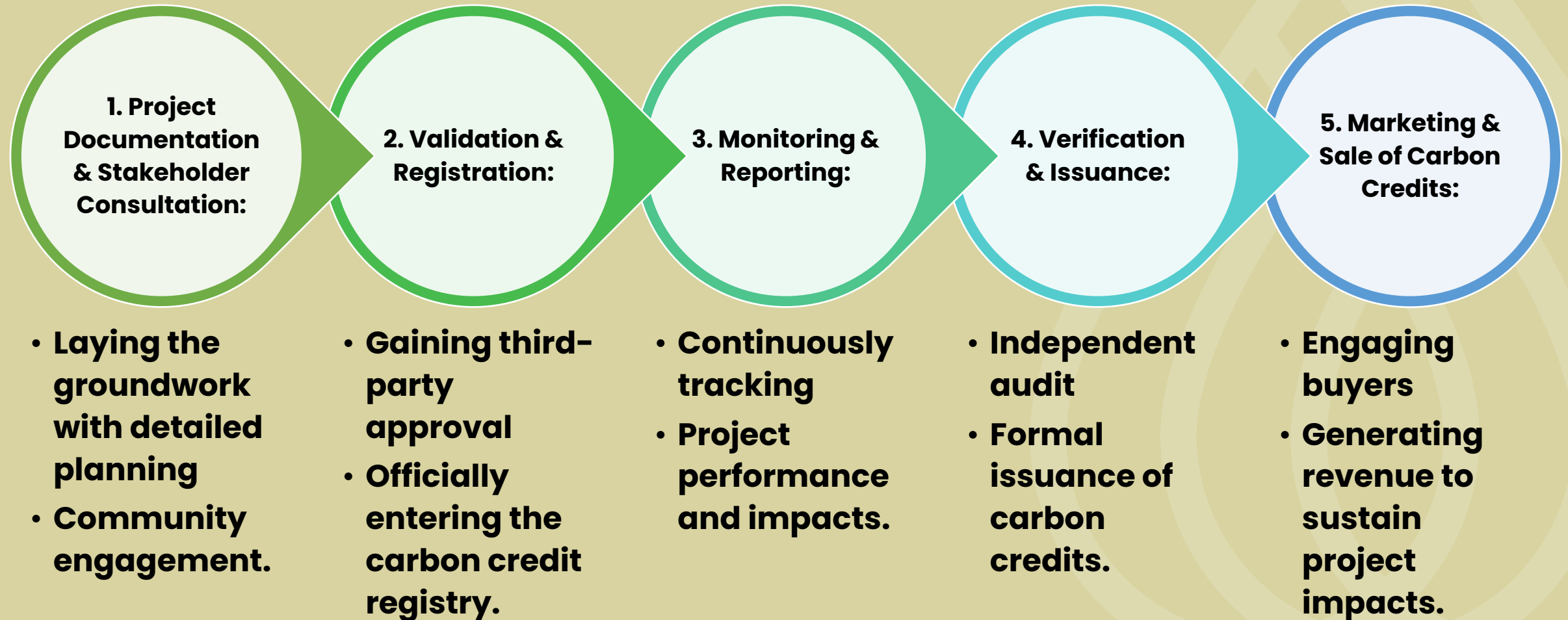
- **Project Initiation:** Launch based on comprehensive feasibility study outcomes, aiming to integrate carbon financing into WASH projects in Amhara, Ethiopia.
- **Project Components:**
 - Community-financed solarization of diesel water pumps
 - Grant-supported chlorination and remote monitoring systems.
 - No-interest loan for startup validation, registration, and operational oversight.
- **Goals and Impact:** To provide sustainable access to safe water (revenue for operations and maintenance only) and reduce reliance on non-renewable energy sources

IV

The Certification Journey



Certification Steps under Gold Standard (~2-3 years)



1. Project Documentation & Stakeholder Consultation

Project Documentation:

- Development of comprehensive **project design documents (PDD)**, detailing objectives, expected impact, and methodologies.
- Collection and analysis of baseline data to establish project necessity and potential outcomes.

1. Project Documentation & Stakeholder Consultation

Stakeholder Consultation:

- Engagement with local communities, government bodies, and potential partners.
- Collection of feedback to ensure project alignment with community needs and expectations.

Duration: 6 – 12 Months

Cost:

- \$30–50K USD (external costs only)
- Staff time, consultancy fees

2. Validation & Registration

Third Party Validation:

- by an accredited body to assess project against carbon standard requirements.
- Identification and resolution of potential issues to ensure compliance.

Registration:

- Official submission of validated project to a carbon standard registry (Gold Standard). Valid for 5 years.
- Project becomes eligible for generating and issuing carbon credits.

Duration: 6–12 Months

Cost: \$20–30K USD (External Costs only)

3. Monitoring & Reporting

Monitoring:

- Continuous monitoring of project implementation to gather data on performance and impact.
- Utilization of innovative technologies for accurate data collection
i.e. remote monitoring

Reporting:

- Compilation of monitoring data into comprehensive reports.
- Submission of reports to carbon standard bodies for review.

Duration: Every 1–2 years

Cost: ~\$10K USD (External Costs only)

Project Data Collection

- Baseline and Ongoing Household Water Quality Data
- Household Usage and Access Data
- System Functionality and Reliability Metrics
- Environmental Impact Assessments
- Community Feedback and Satisfaction Levels
- Health Impact Data Related to WASH Services

Hygiene Promotion and Data

- Education Campaigns on Water Safety and Sanitation
- Behavioral Change Strategies for Sustainable WASH Practices
- Engagement Activities with Schools and Community Centers
- Monitoring of Hygiene Practice Adoption Rates
- Feedback Mechanisms to Tailor Ongoing Hygiene Initiatives

4. Verification & Issuance

Verification:

- **Independent audit by a third-party** verifier to confirm reported results.
- Assessment of project's adherence to carbon standard requirements and its actual impact.

Issuance:

- Upon successful verification, carbon credits are formally issued.
- Credits are registered and become available for sale.

Duration: 6-12 Months

Cost: \$15-30K USD

5. Marketing & Sale of Carbon Credits

Marketing:

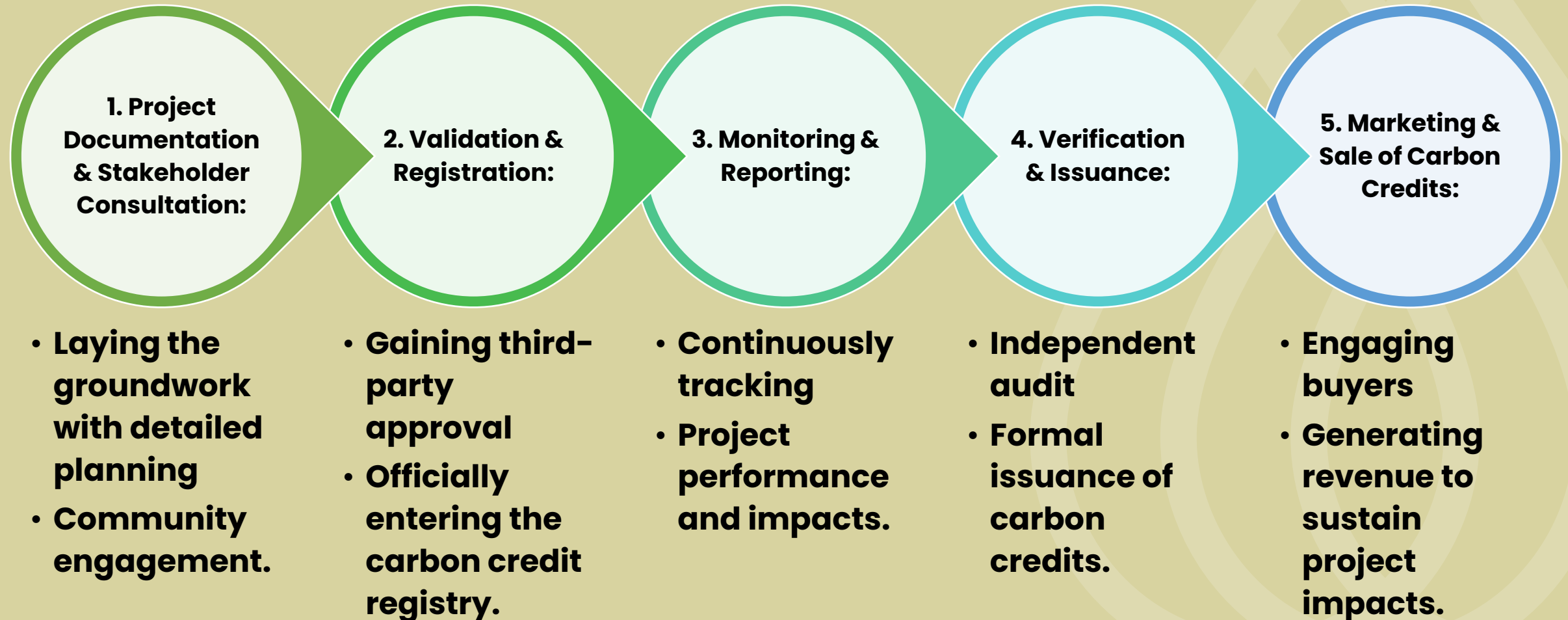
- Strategic marketing of carbon credits to potential buyers, highlighting project impact and sustainability benefits.
- Utilization of platforms and networks to reach a wider audience.

Sale:

- Negotiation and sale of carbon credits to interested parties.
- Revenue generated supports project sustainability and further environmental initiatives.

Sales Margin: 10 – 50%, depending on investment and risk

Certification Steps under Gold Standard





REFLECTIONS



Reforestation for Water

- **Carbon Sequestration:** Trees capture and store carbon dioxide, offering a natural solution to climate change.
- **Enhanced Water Cycle:** Reforestation improves groundwater recharge, reduces evaporation rates, and stabilizes water flows.
- **Biodiversity Benefits:** Supporting diverse ecosystems contributes to the resilience of water sources.
- **Opportunities for Carbon Credits:** Reforestation projects can generate carbon credits, providing financial incentives for restoration and conservation efforts.

Risks

- **Market Volatility:** Carbon credit prices can fluctuate, impacting project viability.
- **Regulatory Changes:** Adjustments in carbon market regulations may affect project eligibility and credit valuation.
- **Data Quality and Verification:** Ensuring high-quality data for verification is crucial; inaccuracies can lead to disqualification.
- **Reputational Risk:** Public skepticism about carbon credits can affect project perception.

Recommendations (Objective)

- **Diversify Funding:** Explore grants and partnerships for WASH and Climate Change (Adaption).
- **Robust Data Management:** Invest in systems to ensure accurate, verifiable data collection and management.
- **Stay Informed:** Keep up with regulatory changes and market trends in the carbon credit landscape.
- **Transparent Communication:** Engage with stakeholders openly about the project's aims, methods, and outcomes.
- **Strategic Planning:** Consider a range of scenarios in planning to mitigate risks associated with market and regulatory changes.

Recommendations (Subjective)

Feasibility

- Assess Early
- Assess Often
- Developer Partner

Collaboration

- Specialization
- Increase Scale

Scale

- Reduce Risk
- Cover fixed costs



Next Steps



Actionable Steps

- **For Practitioners:** Explore carbon credit opportunities within your WASH projects. Assess feasibility, suppressed demand, and additionality.
- **For Developers:** Connect with carbon project developers to understand project viability and market opportunities.
- **For Investors and Donors:** Consider supporting WASH projects with carbon credit potential to amplify impact.
- **Collaboration Call:** Encourage stakeholders to collaborate, share insights, and join forces to expand the impact of carbon credits in WASH.

Resources

- **Visit the Millennium Water Alliance website** for detailed reports, tools, and case studies.
- **Engage with the learning paper and feasibility study** for in-depth understanding.

VII

Q&A



- **Engage with Us:** We welcome your questions and insights on today's presentation.
- **Valuable Feedback:** Your input is crucial for enriching the final study.
- **Presentation Reflections:** Thoughts on how the information was presented

Liquid Assets - Carbon Credits in Water Presentation: Feedback Survey

