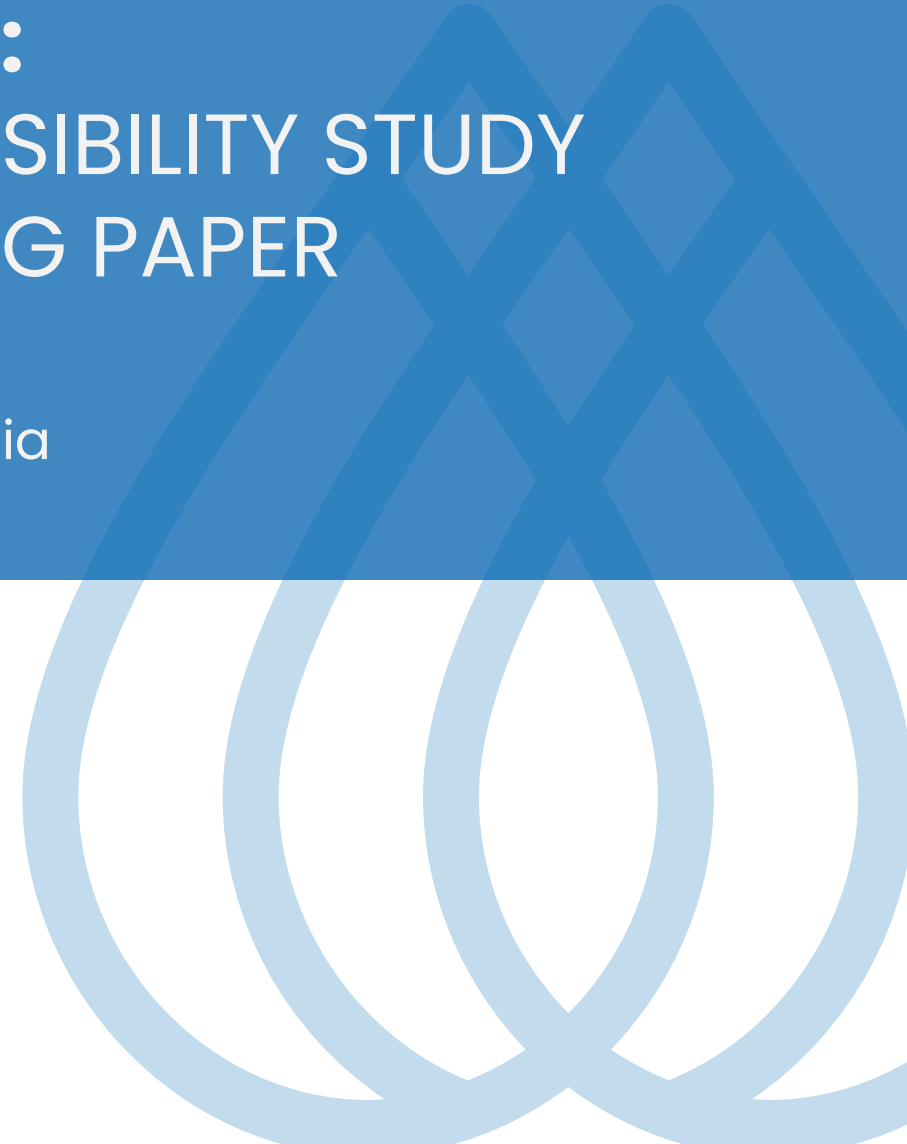
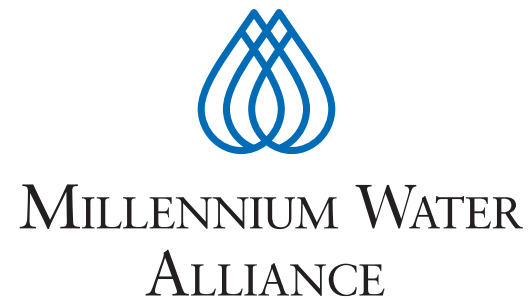




# CARBON FINANCING FOR SAFE WATER: ETHIOPIA FEASIBILITY STUDY AND LEARNING PAPER

April 04, 2026  
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# Setting the Stage



## Overview

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

## Overview

- **Climate Finance:** Aimed at adaptation and mitigation to address climate change.
- **Carbon Credits (CC):** Reductions, removals, or avoidance of greenhouse gas (GHG) emissions that would not occur without carbon finance.
- **CC Quantification:** 1 CC = 1 ton of CO<sub>2</sub>e emissions reduced, removed, or avoided (mitigation)

## Carbon credit claims

- **Net-Zero Emission Goals:** Organizations aim to achieve net-zero emissions, utilizing CC to offset unavoidable emissions.
- **Market Shift:** Observing a shift from "offsetting emissions" to "paying for verified climate contributions" in the carbon credit market.
- **Carbon Footprint Reduction:** Companies should prioritize reducing their own carbon emissions according to science-based targets before investing in CC for remaining emissions.

## 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 and treatment, avoiding the need for boiling, reducing emissions through improved water supply water using biomass.
  - **Sanitation and Hygiene:** Potential in biogas from waste treatment as an alternative energy source, reducing GHG emissions.

## Solarization and Carbon Credits

- **Intervention:** Shift from diesel to solar-powered water pumps
- **Emission Reduction:**
  - ~800L of diesel saved / day / pump
  - @ 373L =
  - 1 tCO<sub>2</sub> = 2.14tCO<sub>2</sub>/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 feasible to get carbon credits from solarizing diesel-powered pumps, however....
- At current scale and/w the current CC 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:** Links WASH initiatives to climate mitigation.
- **CC Revenue Potential:** Viability of CC as a new funding mechanism for WASH projects and/or their continued O&M.
- **Feasibility Study Insights:** Key findings from the feasibility study in Amhara, ETH.

## The Amhara Winrock “Project”

- **Location:** Amhara, ETH rural communities/w WASH
- **50,000–100,000 HH:** improving safe water access
- **Carbon Project Goals:**
  - Reduced Emissions
    - Solarizing 10 water systems (no carbon credits)
    - Reducing solid fuel use from boiling water
  - Improved Water Quantity (Uptime)
  - Improved Water Quality (Chlorination)
  - Sustained O&M - 10+ years

## The Amhara Winrock “Project”

### Innovative Features:

- Community Financed Solarization
  - Monthly payment < Current fuel costs
  - Max 10% fossil fuel for CC 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 CC WASH projects
- **Clarify Key Concepts:** Additionality, suppressed demand, baseline emissions, and project eligibility.
- **Evaluate Project Viability:** Environmental impact, social benefits, and financial sustainability.

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

- **Guide Strategic Decisions:**  
Support decision-making process for project initiation or development.
- **Utilizing the framework to evaluate the Amhara sites**  
for CC potential.



## Roles and Responsibilities

- **Project Proponent (Owner):**  
Develops and manages projects.
- **Local Communities:** Stakeholders in project design
- **Project Developer:** Firm facilitating CC generation process.
- **Verification Bodies:** Independent auditors that verify emission reductions and ensure compliance/w standards.

## Roles and Responsibilities

- **Donors and/or Investors:** Supply \$ necessary for project development, implementation, and scaling.
- **Buyers of CC:** Entities looking to offset their carbon footprint through investment in CC projects.



# Building the Foundation



## Evaluating Carbon Opportunities

- **Environmental Impact:** Assessing the project's potential to reduce GHG emissions.
- **Social Benefits:** Evaluating positive effects on local communities - improved health and economic opportunities.
- **Financial Viability:** Determining the project's cost-effectiveness and potential for generating sustainable revenue from CC.

## Evaluating Carbon Opportunities

- **Regulatory Compliance:** Ensuring the project meets all local and international carbon trading regulations and standards.
- **Application to Amhara Project:** Learning paper offers a detailed look at how these factors influenced the decision to consider the sites for a CC 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.

## Key Requirements for Projects

- **Independent verification** of emission reductions by a recognized 3rd party.
- **Leakage:** Addressing any unintended increase in GHG emissions outside the project boundary.

## Additionality

- **CC projects must demonstrate** that they would not have taken place without the additional revenue from CC to be considered "additional"
- **Least Developed Countries (LDCs) and Landlocked Developing Countries (LLDCs)** projects 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 CC project?



2. Can suppressed demand be justified and defended?



3. Do the pros outweigh the cons?



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



Move Forward with the CC Project for Safe Water

## Step 1: Evaluating Carbon Credit Project Viability

- **Must target a minimum of 30,000 to 50,000 HHs** to ensure financial viability through CC generation.
- **Past Water and Fuel Usage:** Demonstrate 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, not exceeding 10% of samples.
- **Focuses on decentralized systems i.e. less than 50,000 HH** to simplify additionality

## Step 1: Evaluating Carbon Credit Project Viability

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

## Suppressed Demand

- **Understanding Suppressed Demand:** A concept allowing projects to generate carbon credits by accounting for the theoretical future use of non-renewable biomass for water boiling, even in areas where boiling is not the primary treatment method.
- **Importance in Carbon Credits:** Allows projection of GHG emissions reductions that support climate action.
- **Ethiopian Context:**
  - Less than 5% of households boil water.
  - Emission reductions (credits) can be claimed (in theory) for the 80% of households who lack safe water access (consuming untreated water).

## Suppressed Demand

- **Fractional Method:** A nuanced approach to calculating suppressed demand based on baseline surveys.
- **Calculation Example:**

Baseline survey: 80% lack safe water (no treatment); 20% treat water, 5% by boiling.

Ratio [5% (boiling) / 20% of households (treating water)] × 80% (fraction not treating) = **25% (Suppressed Demand)**

25% (Suppressed Demand) + 5% (Boiling) = **30% Eligible**

## 2. Can suppressed demand be justified and defended?

- **Defending Suppressed Demand:** Assess 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.
- **Potential revenue generation** from CC to sustain O&M and expand WASH projects.
- **Results-based Financing:** CC project pay on performance and opportunity to develop systems for this approach

## Weighing Pros and Cons

### Challenges:

- **Complex Certification Process:** Rigorous and time-consuming certification procedures.
- **Financial Viability Concerns:** Ensuring the project generates sufficient CC 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 CC 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?

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



2. Can suppressed demand be justified and defended?



3. Do the pros outweigh the cons?



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



Move Forward with the CC Project  
for Safe Water

## 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 poorest communities, who may not generate sufficient CC, receive the necessary support.
- **Ongoing O&M:** Revenue from CC targeted for sustained WASH project O&M.
- **Covering Initial Costs:**
  - Must anticipate initial expenses before CC revenue.
  - **Seed funding** may be required to bridge the time gap until the first sale of CC.



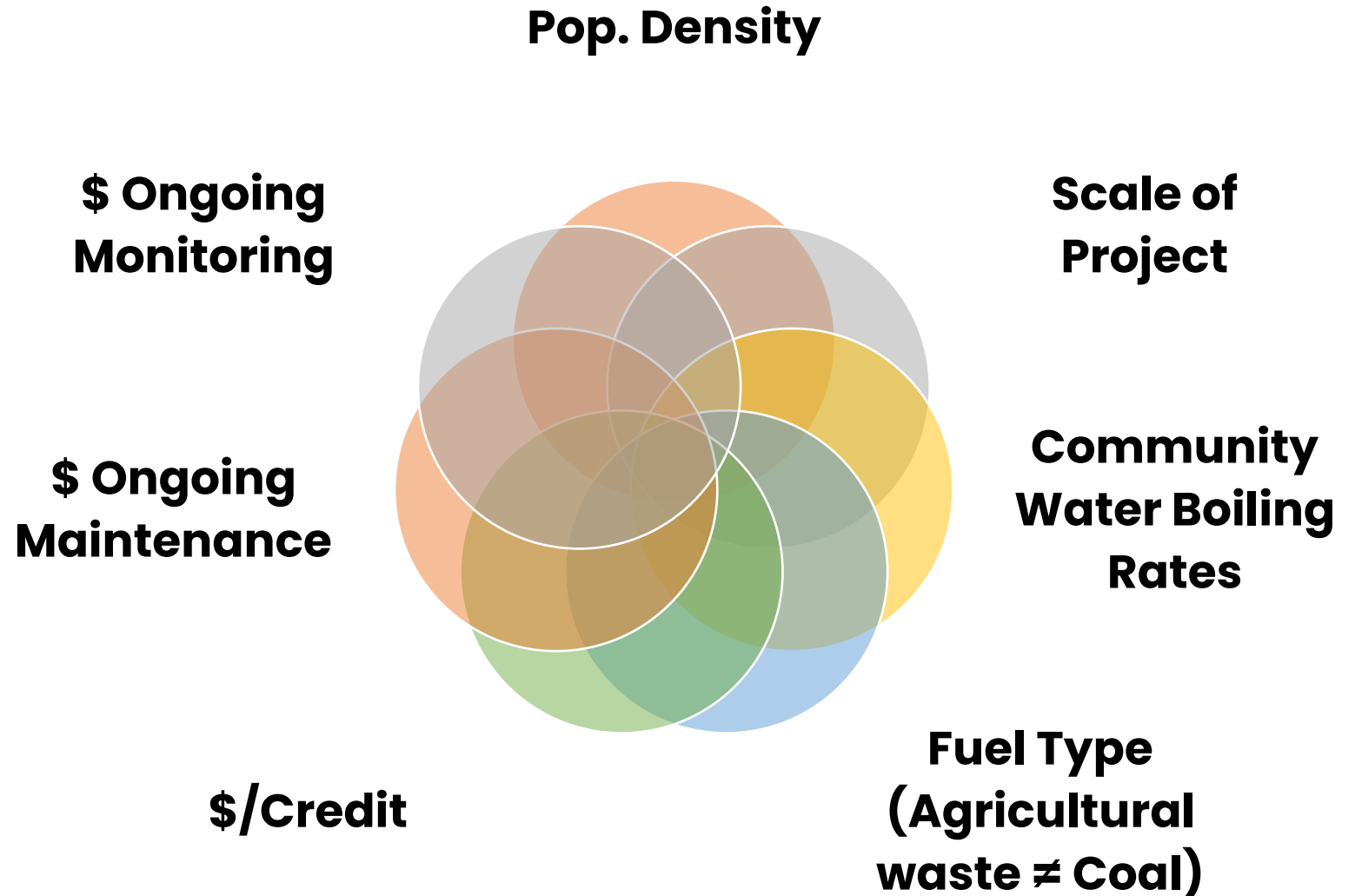
## Funding and Scale

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

# Building the Foundation

MILLENNIUM WATER ALLIANCE

**Many factors**  
must come  
together for  
Carbon  
Credits for  
Safe Water to  
be feasible



IV

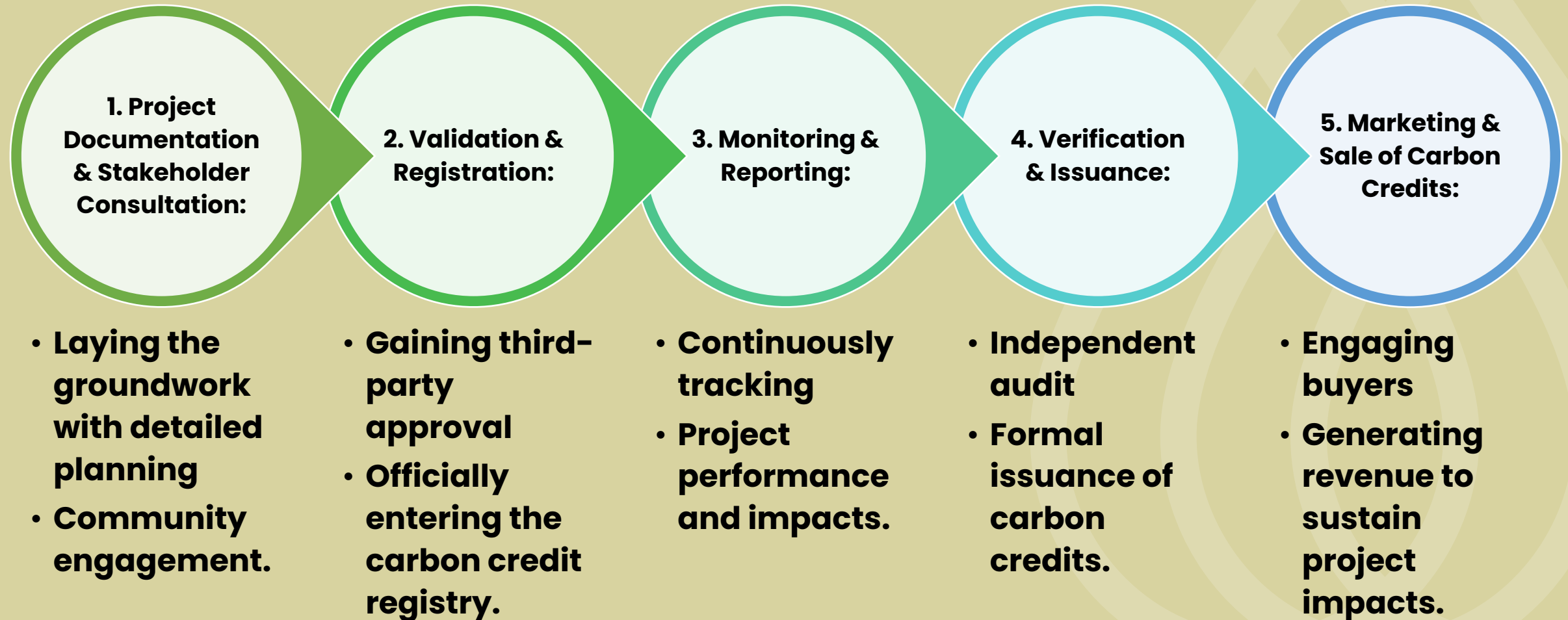
# The Certification Journey



## Step-by-Step

- 1. Project Documentation & Stakeholder Consultation:** Laying the groundwork with detailed planning and community engagement.
- 2. Validation & Registration:** Gaining third-party approval and officially entering the carbon credit registry.
- 3. Monitoring & Reporting:** Continuously tracking project performance and impacts.
- 4. Verification & Issuance:** Independent audit and formal issuance of carbon credits.
- 5. Marketing & Sale of Carbon Credits:** Engaging buyers and generating revenue to sustain project impacts.

# 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:**

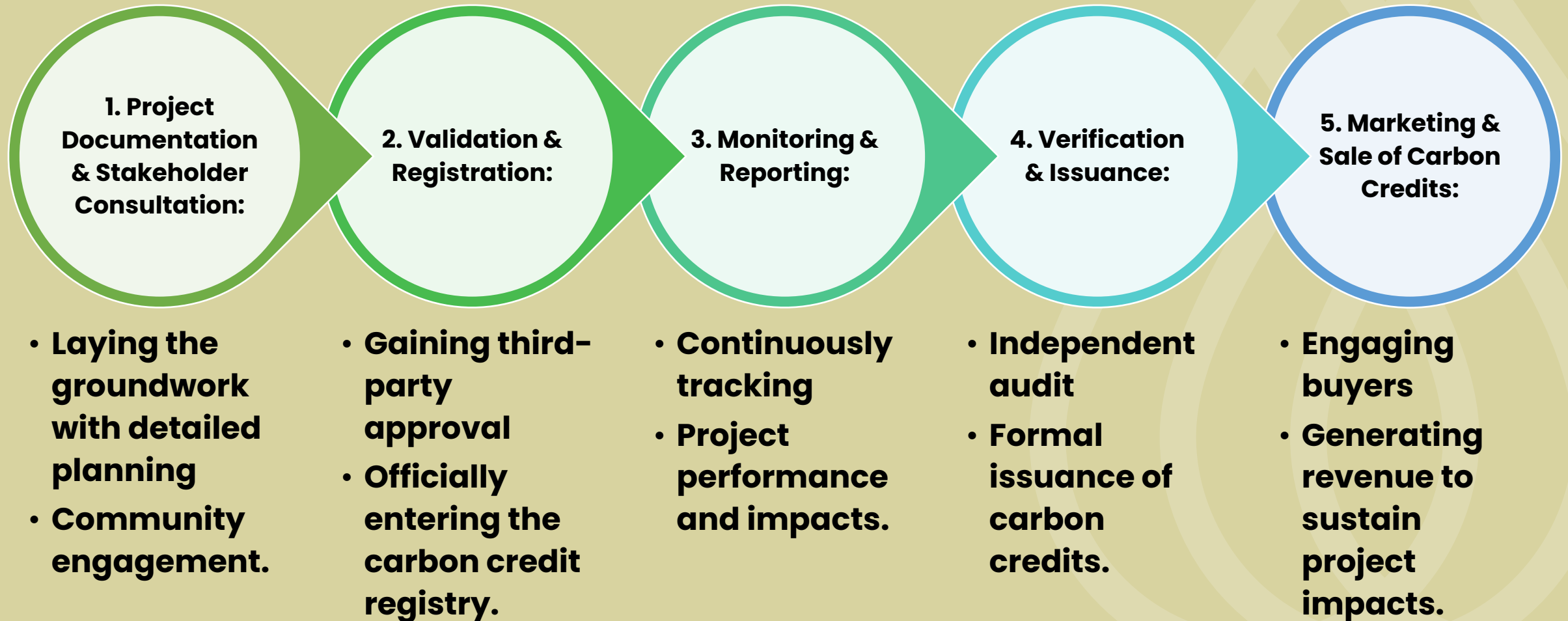
- Strategic marketing of carbon credits to potential buyers, highlighting project impact and sustainability benefits.
- Utilization of platforms and networks to reach a wider audience.

### **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, Wetland Management, and Sustainable Agriculture for Water

- **Carbon Sequestration:** Trees capture and store CO<sub>2</sub>, 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 CC:** Reforestation projects can generate CC, providing financial incentives for restoration and conservation efforts.



## Carbon Credits

- Mitigation not Adaptation
- = **1 ton of Carbon** removed or prevented

## Water

- **Reducing Boiling** by providing safe water
- Sanitation: **Biogas** + Future potential
- Reforestation, Wetland Management, and Sustainable Agriculture

## Suppressed Demand

- Credits for people who **would boil water if they could** afford it
- Ex. claiming credits for 80% who do not treat water

## 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 CC 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 Partnerships

### Collaboration

- Specialization
- Increase Scale

### Scale

- Reduce Risk
- Cover fixed costs



# Next Steps



## Actionable Steps

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

## Resources

- **Visit the MWA website** for detailed reports, tools, and case studies.
- **Engage/w 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

