Pilot ABM Project:
Promoting the Use of Solar Powered Irrigation Technology in Ethiopia

Stephan Hoch
Managing Director

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Agenda

- Country context
- Project type
- The country context
- Adaptation & sustainable development benefits
- The nature and price of 1 ABU
- Other suitable project types for Ethiopia
Ethiopia

- Population highly vulnerable to the impacts of CC
- Over 80% of the population depends on agriculture
- Current droughts leave over 10 million people insecure
- Rainfall variability to increase from 25 to 30% until 2050
- Increased frequency of extreme weather events

- Agricultural sector accounts for over 40% of the total GDP!

Source: WB "Economics of Adaptation"

Availability of water, especially during dry season and extreme drought, makes the difference between having sufficient food and starvation!
Ethiopian Position

- **Second Growth and Transformation Plan (GTPII)**
  - Country’s strategic roadmap to achieve low carbon and climate-resilient development. One of the main objectives is to expand irrigation and reducing dependence on rain fed agriculture by promoting renewable powered pumps

- **Climate Resilient Green Economy (CRGE) Strategy**
  - Strategic Priority 3.1 – Accelerate irrigation plans
  - Strategic Priority 3.2 – Support resilience of rainfed agriculture of the Climate Resilience Strategy

- **Nationally Determined Contribution (NDC)**
  - Water and agriculture identified as key sectors
Project Description

- **Baseline**
  - Only 5% of agricultural land irrigable
  - Barriers to irrigation technology: lack of awareness and high up-front financing

- **Project Scenario**
  - Introduction of 500 Solar powered irrigation pumps
  - Increasing irrigation enhances crop resilience and food security
  - Increased yields generate additional income

Source: IDE
Expected Adaptation and SD Benefits

Water available for irrigation [m³]

- Enhanced water access
- Enhanced resilience
- Improved Yield
- More time
- Food security
- Additional income generating opportunities
- Increased agricultural economic output
- Emission reductions
- Reduced manual work (esp. for women)
- Health and poverty alleviation
- Increased water efficiency
- Creation of local expertise regarding solar technology
- Creation of jobs in the solar pumping value chain
- Relevant SDGs:
  - No Poverty
  - Zero Hunger
  - Clean Water and Sanitation
  - Affordable and Clean Energy
  - Decent Work and Economic Growth
  - Reduced Inequalities
  - Climate Action

Benefits for the region/country
Other benefits for farmers
Core Adaptation Benefit

Creation of jobs in the solar pumping value chain
Increase awareness on existing clean options for water pumping
What is one ABU?

- Methodology ABM “RE powered water pumping systems” applicable
- Baseline is rain-fed irrigation
- One ABU is 100 m³ of water supplied
- Project delivers ‘additional’ adaptation benefits and development impacts

Source: Futurepump
The price of one ABU

- **ABU cover incremental cost difference between diesel and solar**

- **For 500 pumps → 90,000 ABUs are generated per year**

- **Show an ABU price range of 3$/ABU to 5$/ABU**

- **Potential financing structure**
  - Contribution of farmers
  - 50% of incremental costs provided upfront in the first year (ABUs retired directly)
  - Remaining ABUs generate revenue over the next 6 years
Other suitable project types for Ethiopia

**Grid Extension**
- Connect non-electrified households to the grid

**Clean Cooking**
- Introduction of new efficient technology to displace the use of non-renewable biomass

**Watershed Management**
- Improve a region’s productive potential through watershed management techniques

**Selected Adaptation Benefits:**
- Poverty reduction & improved livelihoods
- Improved indoor air quality
- Improvement of health and health care conditions
- Improved energy security
- Reduction of indoor air pollution
- Reduction of pressure on forest resources
- Less dependence on climatic conditions that determine availability of biofuels
- Flood mitigation, erosion control, flow regulation
- Increased crop yields and diversification
- Improved water quality
Thank You!

Stephan Hoch

hoch@perspectives.cc