Carbon Financing For Energy Efficiency in Indian SME Cluster

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Fast-tracking Energy Conservation in Micro Small , Medium Enterprises

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ALLIANCE TO SAVE ENERGY
Creating an Energy-Efficient World

reeep
renewable energy & energy efficiency partnership

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What is the Alliance to Save Energy?

- Established in 1977; Non-Profit
- Mission: "To promote energy efficiency worldwide to achieve a healthier economy, cleaner environment & greater energy security"
- A leader in energy efficiency in all relevant sectors:
  - buildings
  - industry
  - water
  - utilities
  - appliances
  - transportation
  - research
  - policy
  - education
  - federal government (e.g., FEMP)
- Experience in over 30 countries

Forging Alliances: Business, Government & Public

lliance Associates represent 150+ organizations

- Operate in all 50 states in the US and a number of countries
- All economic sectors, with aggregate revenues of $1.5 trillion
- Public agencies and utilities serving half of the US population

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The Alliance - REEEP Supported Project

Increasing Energy Efficiency in Indian SME's through Developing Innovative Financing and Carbon Trading Mechanism

Drivers For Energy Efficiency in Rice Mill

- Rice Mills are under pressure to become competitive;
- EE provides excellent opportunities for cost reduction and improving competitive edge;
- New generation of entrepreneurs appreciate the consequences of delays in tapping business like opportunities for EE measures;

Drivers For Energy Efficiency in Rice mills

- For MACRO PLAYERS motivation for EE include strategic solutions to advance energy security, reduce fiscal deficit and sustainable development;

- MICRO PLAYERS (Energy End-Users, Equipment and Service Providers, Banks, Utilities) are driven by market conditions and business benefits rather than societal benefits;

- Energy efficiency is a useful program for cleaner production centers and waste minimization circles in industrial clusters;

Energy Scenario – Rice Mills

- ✓ **Energy cost:** 6 to 8% of the total processing cost of paddy.
- ✓ **Connected Load:** Varies from 120 to 350 KVA
- ✓ **Steam demand:** About 1 – 1.5 TPD for hot gases dryers and 1.5 to 2.0 TPH for steam dryers depending on the production capacity of the plant.

Energy Scenario – cont…

- ✓ **Electricity Consumption:** The average electricity consumption for a single plant is ranges from 1.50 to 3.00 lakh units(Kwh) per annum;

- ✓ **Fuel Consumption:** (Wood, Husk and other biomass materials) varies from 400 to 800 tons per annum;

- ✓ **Energy Bill:** The annual energy bill is varies from Rs.20 to 40 lakhs per unit depending on the size of the plant;

The Alliance & REEEP Project – Overview

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- Explore the feasibility of bundling rice mill units in India to improve their energy efficiency using carbon credits to implement energy efficiency improvements

- Project Partners:
  - Rice Mill Association, Karikudi, Tamilnadu
    - ✓80 + mills
  - MSME, Tamilnadu
  - IREDA/Local Banks
  - Resource Partner – Ambika Rice Mill and Mill Association

Role of Project Partners

- Rice Mill Association
  - Act as a focal centre
  - Facilitate discussions with cluster member for buy-in
  - Selection of few units for pilot energy assessment study
  - In the long run, replicate the program in other Cluster

- IREDA/Local Banks - Financial Partner:
  - Provide finance to Rice Mill Association for purchasing EE equipment

Proposed Outcome

- Develop best practices guide on energy efficiency and carbon financing for rice mill cluster
- Assess the feasibility of carbon credits for financing EE improvements
- Capacity building of Rice Mill units staff on EE best practices.
- Disseminate the model to nearby and similar SME clusters through a workshop
- Disseminate results through SDA to other SMEs.

The Model…..

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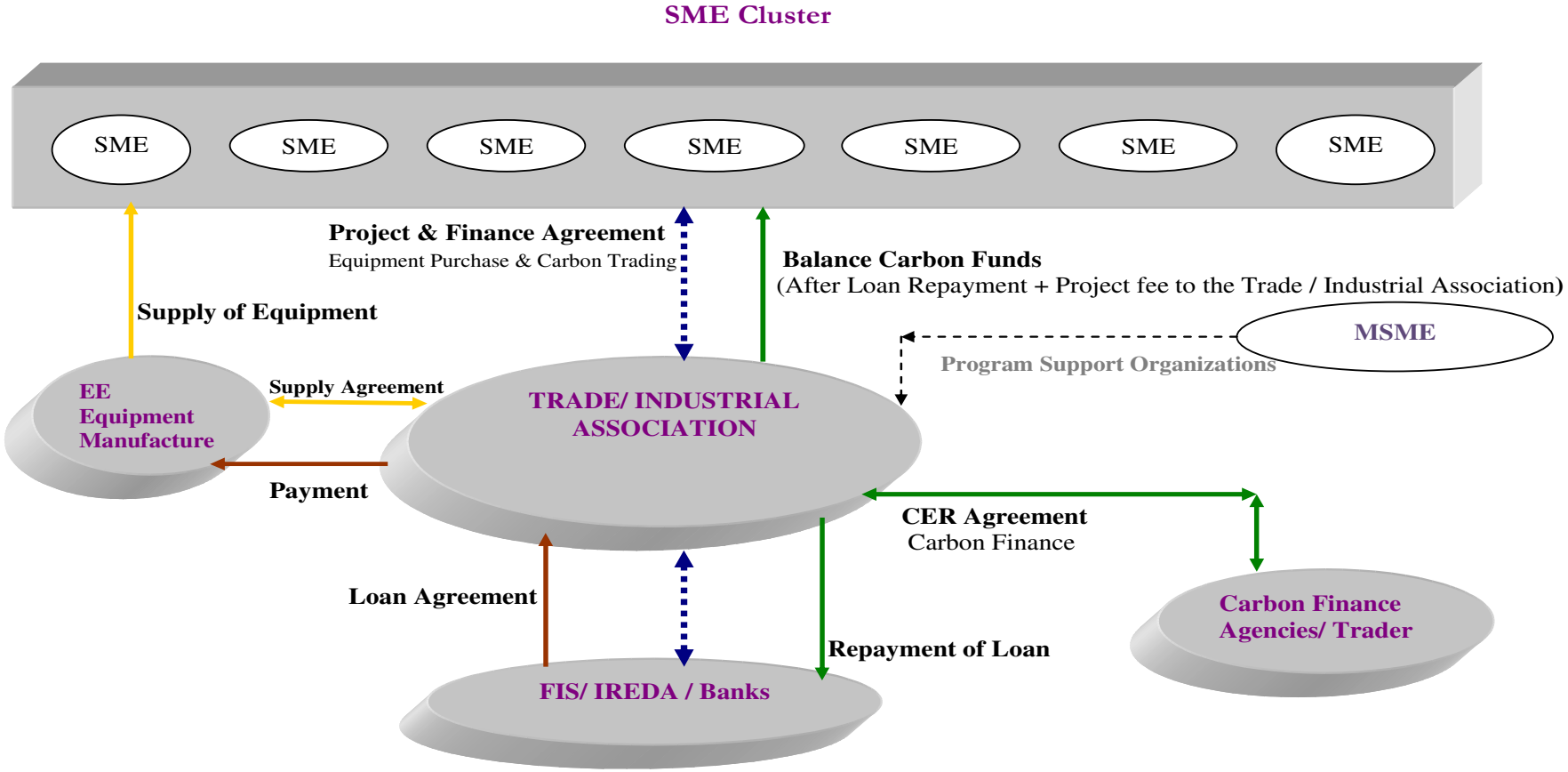

CER – Carbon Emission Reductions
SMEs: Energy Intensive Industry of similar kind of activity

The Model …

- Mill Association will act as a CORE LINK.
- EE equipment suppliers/vendors will be a key partner;
- Pilot investment grade energy audit
- Technical Assistance and advisory by ASE (appointed local engineer for the program)
- Bundling of interested units based on energy efficiency technologies options available;

The Model …

- Association will negotiate with manufacturers for best possible deal – bulk procurement at discounted price;
- Equipment supplier/vendor will supply, install and commission equipment;
- Association talks with Banks/IREDA for best possible deal;
- Association will design the CDM program for carbon credits on behalf of units;
- Carbon revenue will supplement the repayment of loan.

Type of Energy Source in Use

- Electricity - Kwh
- Fuel – Diesel
- Rice Husk

Major Energy Consuming Equipments

- Boiler
- Hot air generator
- Air compressors
- Blowers
- Motors

Preliminary findings

- Local make boilers having efficiency of 25 to 35%

Suggested energy efficiency measures:

- Application of energy efficient motor
- Application of VFDs
- Application of moisture controller
- Application of voltage stabilizer – Milling section
- Application of back pressure turbine

Challenges…

- Resistance to undertake Energy audit by mill owners despite funded audit because of mindset/attitude of owners;
- EE is considered as a technical or engineering issue and not a business proposition by most mill owner
- Lack of skilled technical staff in mills, poor quality of energy accounting -Lack of quality actionable data;
- Heavy reliance on local equipment suppliers and service providers;
- Lack of understanding about Measurement &Verification

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Challenges - Cluster approach

- Convincing association to play key role and take responsibility of behalf of units.
- Manufacturers are reluctant to deal with many small units,
- Banks are not willing to lend large amount of small loans.
- No established methodology with the Bank/FI for EE project appraisal
    - technology viability
    - able to generate energy savings as projected
    - lack of confidence in cash-flow based financing

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Challenges for the CDM-Programme

- CDM revenues form only small part of programme revenues
- CDM revenues for each unit is very small - several clusters need to be included into the programme to make it viable
- CDM revenues alone are relatively low incentive for units
- Concern over long CDM project development time expertise require throughout the project cycle
- Lack of commitment from association and mill owners to be part of 7/10 year project requirement

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Change in approach

- Equipment audit in 25 + mills
- EE demonstration project at one of the mills
  - Application of VFD
  - One week monitoring period
  - Pre and post data measurement
  - Agreed M&V approach and Plan
- Discussion with ESCOs – performance based implementation
  - ✓ ESCO are also reluctant to deal with many units with limited potential

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The biggest advantage …

- ✓ Mill owners are interested in implementation of successful technologies of the cluster or successful technologies in neighbor industries

For More Information..

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