

Low Carbon Technology Transfer for SMEs in Developing Countries

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ISAP Parallel Session, Financing Low Carbon Technology Transfer of SMEs: Match-making Strategy

Yokohama, Japan

24-25 July 2014

SMEs: Dominating the World Stage

- Contribute substantially to income, output, employment and economic growth
- Constitute 95% of world's total enterprises, 60% of total private sector employment
- Over 99% of total enterprises in Japan are SMEs
- In EU-27, 99% of all enterprises are SMEs, contributing 58% to value added
- Account for over 90% of enterprise in many developing countries viz. Bangladesh, Nepal, South Africa, Ghana etc. constituting 40-70% to their country's GDP
- Sector badly affected by global financial slowdown



MSME Sector: Indian Context

- 29 million units employing 100 million people
- Accounts for 45% of manufacturing output and 40% of India's total exports
- Manufacturing over 6000 products
- Many energy intensive sectors such as foundry and forgings, glass and ceramics, brick, textiles, dairy and food processing and so on
- Clustering of industry: over 200 energy intensive manufacturing clusters exist
- Deploy obsolete technologies and unskilled manpower
- Scope to save energy by adoption of Energy Efficient Technologies (EETs), Renewable Energy Technologies (RETs) and Best Operating Practices (BOPs)
- Nodal agencies: Ministry of MSME, BEE, MNRE





SME Energy Efficiency Imperative

- Geographically dispersed /technologically backward sector
- Energy accounts for up to 40% of production costs in many cases
- Inefficient processes and unskilled manpower
- Lack of customized EE/RE technologies/ knowledge of BOPs and financing options
- Lack of investment in RDD&D
- Non-availability of reliable power supply and high cost of energy
- Few reliable channels of communication between SMEs and technology providers
- High upfront costs of many LCTs





Accelerating Adoption of LCTs in SMEs in Developing Countries – Key Success Factors

- Research, Development, Demonstration and Dissemination of clean LCTs/Technology Customization
 - Role of international technology transfer/cooperation mechanisms, including private sector involvement
- Promote adoption of LCTs through enabling policies
- Technical back up at local level for adopting BOPs
- Skill development
- Improving access to finance
- Strengthening local institutions for SME development
- Utilizing a comprehensive mix of instruments and solutions

Indo – Swiss Technology Cooperation for Promoting LCTs in SMEs: Case study #1





Conventional coal fired pot furnace

Recuperative natural gas fired pot furnace

GLASS SECTOR

Case study #2





Conventional Cupola

Divided Blast Cupola (DBC)

FOUNDRY SECTOR

India-Japan Joint Project for Promoting Low Carbon Technology Transfer

Application

- Preheating of boiler feed water & precooling of process chilled water
- Dairy, food processing, pharmaceutical, commercial buildings
- Pilot plants installed in Chandigarh (Punjab) and Anand (Gujarat)
- Benefits
 - Reduction in fuel consumption in boiler and electricity in chiller
 - Primary energy savings 30%-40%





Case Study #1 : Demonstration of Electric Heat Pump (EHP)

India-Japan (JST/JICA) Joint Project ...

Application

- Room air conditioning
- Space cooling applications in industry and commercial buildings
- Two pilots installed in SMEs in Rajkot (Gujarat), India

Benefits

- Switch from electricity to clean fuel (NG)
- Primary energy savings around 50%



Case Study #2: Demonstration of Gas Heat Pump (GHP)



Essential knowledge flows





Concluding statements ...

- Most important factor for success of TT in context of developing countries :
 - The Process of Technology Transfer and Knowledge Flows (Swiss Example)
- Lessons from experience in India:
 - High potential for adoption of LCTs in Indian SMEs
 - Existence of many LCTs in developed countries like Japan (JICA/JST Example)
- Suggestions to facilitate TT in developing countries
 - Identify important sub-sectors and focus on collaborative RDD&D
 - Flexibility to adopt to local conditions
 - TA to essentially accompany any FA projects
 - Long term projects

Thank You

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