Understanding the SME sector in Asia, with a focus on India and challenges in terms of improving energy efficiency

6th EMAK Workshop

Promoting Energy Efficiency in SMEs and Waste Heat Recovery Measures in India

Prosanto Pal TERI

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Outline

- Importance of SMEs
- Energy-intensive SMEs
- Challenges in up-scaling energy efficiency

SMEs are of strategic importance to all countries

- Backbone of a country's economy
- Provides most of the employment
- > Use locally available resources and skills
- > Caters to local markets
- Encourages technological innovation and entrepreneurship



Contribution of SMEs to Asian economy

- Account for 98% of enterprises and 70% of employment in Japan[#]
- Provide 60-70% of employment in Asian Tiger nations[#]
- 96 % of industrial establishments and 83 % of employment generation in industrial sector in Nepal[®]



William Masikiwa Goriwondo, (lecturer NUST) Small to Medium Enterprises (SMEs)'s critical role in the economy @Overview of Nepalese Small and Medium Enterprises, Chapter 3

Contribution of SME to Indian economy

- Number of SMEs: 44 million
- Highly labour intensive:
 100 million people
- Contributes to 8% of GDP,
 42% of exports and 45% of
 manufacturing output



Source: Annual Report 2012-13, Ministry of MSME, Government of India

Characteristics of Indian SMEs

- High percentage of units are in the micro and smallsized category
- Geographical clustered
- Large scope (20–40%) to save energy[#]



[#] Chapter 3: Technology transfer of Energy Efficeint Technologies among SMEs in India, Prosanto Pal and Girish Sethi in the book 'Low Carbon Technology Transfer: From Rhethoric to Reality', David Ockwell and Alexandra Mallet (eds.) 2012 Published by Routledge

Example of Indian foundry industry

- Third largest in the world after China and USA
- Employs 700,000 people
- > Out of 4,500 foundries, just 250 are in the organized sector
- Large percentage of micro and small units using inefficient technologies
- > 20 well known geographical clusters



Energy-intensive SMEs

- > About 200 'energy-intensive' SME clusters
 - Energy cost account for a major share of the operating costs
 - 15 product categories including casting, forging, glass, ceramics, food processing, textiles and so on
- Many products made for local markets e.g. jaggery, glass bangles, local food items



Technology characteristics of energy-intensive SMEs

- Conventional technologies which have remained unchanged for decades
 - High energy consumption
 - Moderate to high pollution
- Little R&D efforts
 - Underdeveloped support institutions and local service providers
 - Limited capacity to innovate
 - Low level of awareness; limited channels of communication





Need for research, development, demonstration and dissemination (RDD&D) on cleaner technologies

- Scope to match-make state-of-theart knowledge to customise technology for local needs
- Involve international and local institutions in R&D and demonstration
- Long-term 'hands-on' support for assimilation and dissemination



Demonstration plant set up by TERI-SDC at a foundry in Howrah



Energy performance



Coal saving t/yr. $CO_2 t/yr$.

Environment performance

Environmental performance



- 1. DBC-1: Cupola without pollution control
- 2. DBC-2 Existing pollution control system
- 3. Demonstration unit

Challenges in improving energy efficiency of SMEs

- Development and demonstration
 of new cleaner technologies
- Development of local delivery systems
- 'Hand-holding' during dissemination
- Enabling regulatory and financing environment



Thank you for your attention