ECOWAS Initiative for Industrial Energy Efficiency

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Presentation Overview

✓ Introduction and linkage to the ECOWAS EE Policy
✓ Energy Management Systems & ISO 50001
✓ The Burkina Faso Experience
✓ Replication and up-scaling within ECOWAS
✓ Future prospects
ECOWAS EE Policy

✓ Identifies potential sectors: Agro-food processing, textiles, leather, metal, ceramics, etc..

✓ Sets the need for public actions to establish incentive mechanisms, raise awareness, provide training and set-up financial schemes

✓ Highlights the role of women, fostering social development and the complementarity with renewable energy
The UNIDO approach to Industrial Energy Efficiency

Energy Management Systems and System Optimization
How to do it... Ad hoc approach

Costs high = Audit

Waste cutting, some investment

Costs high again: Where's that last audit?

Here we go again!

Under control.

Source: SEAI
Energy Management Systems & Standards

✓ **Energy Management Systems (EnMS)** provide structured and systematic approach to integrate Energy Efficiency into industry corporate culture and daily management practices. EnMS provides:
  - A framework for understanding significant energy uses
  - Action plans for continually improve energy performance
  - Structure and organizational framework to sustain energy performance improvements over time and change of personnel

✓ **EnMS Standards** provide demonstrated policy-driven and market-based tools to disseminate energy management best-practices and support their implementation
Structured Approach

Senior management commit to programme

Initial savings sustained

Housekeeping first – then investment

Becomes company culture

Investment

Source: SEAI

<table>
<thead>
<tr>
<th>Years</th>
<th>Cost Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-25%</td>
</tr>
<tr>
<td>1</td>
<td>-20%</td>
</tr>
<tr>
<td>2</td>
<td>-15%</td>
</tr>
<tr>
<td>3</td>
<td>-10%</td>
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<td>-5%</td>
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<td>5</td>
<td>0</td>
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<td>6</td>
<td>+5%</td>
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<tr>
<td>7</td>
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<tr>
<td>8</td>
<td>+15%</td>
</tr>
<tr>
<td>9</td>
<td>+20%</td>
</tr>
<tr>
<td>10</td>
<td>+25%</td>
</tr>
</tbody>
</table>

Source: SEAI
Component v system approach

✓ Component approach involves segregating components and analyzing in isolation
  • Can result from education by particular technology sales engineer, e.g. variable speed drive, steam trap, etc.

✓ System approach involves looking at how the whole group functions together and how changing one can help or impact another
  • Requires more knowledge of the system and its interactions

✓ The energy savings opportunities from systems are far greater than from individual components
  • 2-5% efficiency gains for individual components against 15-30% average efficiency gains through system optimization
UNIDO EnMS & SO Capacity Building programme

Creating market opportunities for energy efficiency

Energy Management and System Optimization Expert Training programs

- Information, Awareness and Promotion
- EnM/EE training of enterprise personnel
- Provision of EE technical services to industry
- Implementation of EE projects in industry

Development of a Market for EnM/EE services to industry

Project duration

Post project

time
UNIDO IEE Projects Portfolio

More than 20 countries:
Brazil
Ecuador
Egypt
India
Indonesia
Iran
Malaysia
Moldova
Philippines
Russia
Thailand
Turkey
Viet Nam
Ukraine

Total GEF Funds
70 million USD
Over the period 2010-2014

Total co-financing for GEF
516 million USD

GEF funded projects
Other Energy Efficiency projects
Projects under development with EE component
Projects under development
Promoting energy efficient cook stoves for beer brewers (dolotiere) in Burkina Faso
# Key facts about beer cook stoves

<table>
<thead>
<tr>
<th>Design</th>
<th>4 pots per cook stove</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>1050L of Dolo (beer)</td>
</tr>
<tr>
<td>Process duration</td>
<td>48 to 72 hours</td>
</tr>
</tbody>
</table>
| Wood costs   | • CFA 250,000 to 500,000/month  
                • 3 to 4 tons /stove/month |
| Pots         | • Ceramic (CFA 25000)  
                • Aluminum (CFA 2000) |
| Energy Efficiency | 45 to 50% and 60 to 65% |
| Payback period | Starting 6 weeks     |
Sector Characteristics

✓ Traditional industry
✓ 100% Female brewers (dolotiers)
✓ Mass concentrations of at least 3000 brewers in Ouagadougou alone
✓ 20% of the country’s firewood consumption
Challenges to the introduction of cook stoves

- Availability and pre-financing of sufficient low cost (scrap) input materials at
- Cost of training, quality assurance and uniform performance of stoves
- How to ensure large-scale and rapid dissemination in rural areas – incentives and consumer finance models
- Lack of awareness on reduced fuel collection/cost, time savings in cooking
1 – Technology introduction

- Training 100 cook stove artisans on improved designs and construction
- Training of the beer brewers on cook stove maintenance & operations
- Enforcing quality and standards to ensure performance
2 - Facilitating Financing & micro-credit

Groups of enterprises

Financing

Project support

Dolotiere 2

Dolotiere 1

Dolotiere 3

Credit line provider

Microfinancing Institution

Technical assistance
3 – Stimulating the market demand for improved cook stoves

✓ Developing micro-enterprise cluster to foster collective efficiency
✓ Establish vertical linkages between the cluster and the distribution & supply chains for improved cook stoves
4 - Replication through carbon financing

- Training 20 master project developers on GS project identification and development
- Establish a monitoring methodology
- Train 50 project operators on registration and monitoring requirements
- Establish a platform for interaction between project developers, project operators, DOE, CME, DNA and other relevant stakeholders
Scaling up in the ECOWAS region

Traditional Food Processing Technologies

- Beer brewing in Burkina Faso, Togo, Mali, etc..
- Smoking fish in Ghana, Gambia, Nigeria and Sierra Leone
- Producing Garri from fermented cassava pulp in Benin, Cote d’Ivoire & Nigeria
- Producing dawadawa condiment through processing and fermenting African locust beans in Nigeria and other West African countries
- Commercial cooking, bakeries, etc.
Future Outlook

In collaboration with ECREEE

✓ Perform an assessment of IEE potential and opportunities in ECOWAS

✓ Develop a regional strategy for Industrial Energy Efficiency with national action plans
Thank you for your attention!

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