SOME PROJECTS ON ENERGY SAVING AND EFFICIENCY IN VIETNAM

LESSON LEARNED AND ISSUES

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Content

Overview

The economy of low-carbon and green growth become the mainstream of sustainable development; reducing GHGs emission and increasing absorpivity of GHGs become mandatory criteria in socio-economic development

Applying measures implementation of saving and efficiency energy use to serve socio-economic development is one of the top priorities In the government policy on SEEU

Relevant documents

- Environmental Protection Law
- The National Target Programme to Respond to Climate Change
- National strategy on climate change
- The national target program on saving and efficient energy use
- Law on energy saving and efficiency

PART 1

"VIETNAM: PROMOTING ENERGY CONSERVATION IN SMALL AND MEDIUM SCALE ENTERPRISES (PECSME)" PROJECT

1.1. General information of project

- **Implementation location**: Vietnam
- **International donors**: Global Environmet Fund (GEF)
- **Project organization**: UNDP Vietnam
- **Partner agency**: Ministry of Science and Technology
- **Entire duration**: 68 months
- **Project document date of signing** : 21 October, 2005
- **Implementation start**: 15 November, 2005
- **Project completion**: 30 June, 2011
- **Financial Planning**
  - Total budget: USD 39.989 million
  - GEF fund: USD 5.469 million
  - The project co-financing amount: USD 34.52 million

Objective and Scope

- The project is a overall and consistant program of many activities which was designed to exclude the barriers for widespread implementation of energy management activities and to apply the measures/energy efficiency technologies in the Small and Medium scale Enterprises (EMEs) in Vietnam

- The SMEs belong to five main sectors which was selected to participated in the project implementation framework are: brick production, ceramics, textiles, pulp and paper, and food processing. The project intend to use the result of the 10 demonstration point in 05 industries were selected and then applied in 500 SMEs in the project implementation period

The main goal of project

Reduce the annual growth rate of GHG emission from SMEs through:

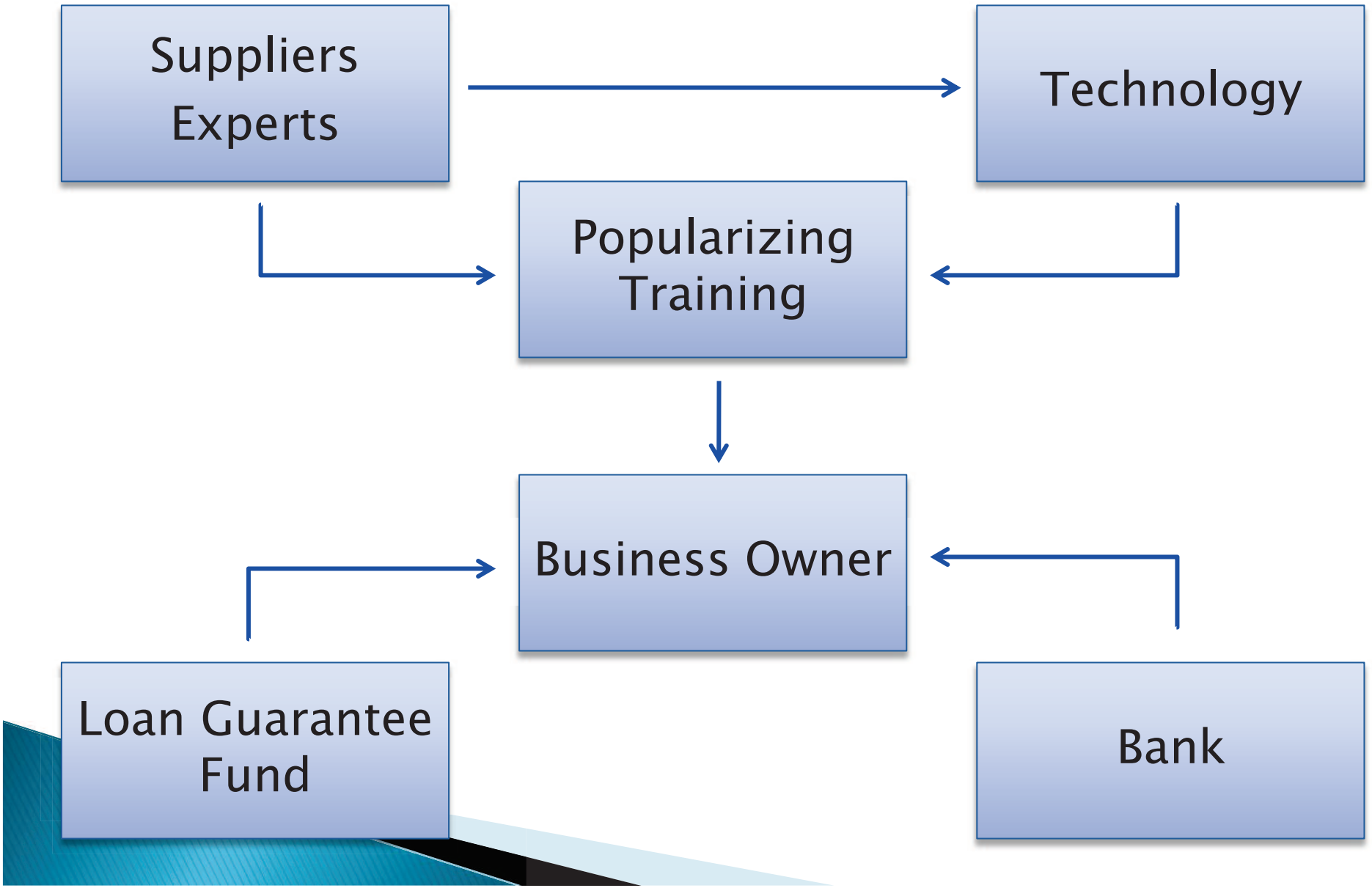
- Applying the measures/technologies of saving and efficient energy use (SEEU)
- Promoting the widespread implementation of energy management activities

1.2. The programme activities

The 06 synchronous programs includes:

1. Supporting development of policies and institutions
2. Raising awareness and communication;
3. Building technical capacity
4. Supporting organizations that provide energy saving services
5. Performing the application of measures/ technologies of saving and efficiency energy using
6. Financial support

Map of Technology Transfer



1.3. Summary results of energy saving project under the report of PECSME project

Sector	Energy-saving measures taken	Energy cost reduction rate	Number of projects implemented	Payback period
1. Brick	Replace brick burning kilns fired by wood or coal with continuous vertical furnaces	30-60%	210	3 - 4
2. Ceramics	Replace the ceramic burning and drying kilns fired by coal with energy-saving LPGs fired by heatfrom the exhaust fumes	17%	133	3 - 4
3. Textiles/ Garments	Managing energy, using energy-saving light bulbs, installing powerbosses, reclaiming condensation, treating sediment, insulation, replacing VS with built-in inverter engines	4%	107	0.5 - 3
4.Food processing		6%	47	
5. Paper and pulp		12%	46	
	Total		**543**	

Source: Dr. Pham Thi Nga, Consultance of Project

1.3. Summary results …(continue)

12 policies/programs on SEEU were issued by local, provincial, urban government

1. 531 replication projects have been implemented, in which 121 projects were implemented by the impact of the training activities and raising awareness

2. Reducing 232 kTOE from 2006 to June, 2011(including both direct an indirect):
   - ➢167.8 kTOE from the brick kiln projects
   - ➢37.2 kTOE from ceramic kiln by gas projects
   - ➢26.9 kTOE from projects in food processing, textiles and pulp & paper
   - ➢ About USD160 million saved

1.3. Summary results …(continue)

3. 944 thousand tons of CO_2 reduction, period 2006-June, 2011
   - Direct reduction is 747 thousand tons of CO_2
   - Indirect reduction is 197 thousand tons of CO_2
4. Average energy cost per unit of product decreased by 24.3%

Source: Project completion report, Project Management Unit

Note:

Direct reduction from the demonstration and multiplying projects which was supported on the energy audit, loan guarantee from PECSME project.

Indirect reduction from projects influenced by self-implementation of EMEs based on the basic impact of communication activities and training by PECSME project.

1.4. The impact of the project

1. The SMEs enhance their competitiveness through:

- To reduce energy cost per unit of product
- To improve quality product and reduce hard work for workmen

2. To promote the development of saving and efficient energy use market through:

- Technical assistance and to raise the capacity for service organizations of SEEU
- Organization for technology transfer of SEEU

1.5. Keys, lesson learned and Issues

KEYS

1. Policies framework, and regulations
2. Awareness and determination of leaders

LESSONS 1

The lessons of project design

- The project has been designed and prepared very well and carefully
- Determining the main partners join in the implementation project
- Co-financing budget in the construction phase of project

LESSON 2

The lessons of policies development and institutions

- If there is no policy support and assistance of local government, it will be difficult to implement multiplying activities
- Therefore, the government should have regulations specifically to require the province/city issues policies and programs to support activities and investment project of SEEU

LESSON 3

The lessons of communication and information dissemination

Most of the communication activities are performed by co-financing institutions through cooperation agreement model. It contributed to mobilize budget for the project and maintain the sustainability of communication activities in the coming years

LESSON 4

The lessons of capacity building for SEEU' area and overall capacity

- Need synchronous approach
- The PECSME project has focused training two main group are:
  - SMEs (end-user of energy)
  - Service organizations of SEEU (expert in SEEU sector)
- The training program:
  - Should be designed very practical and satisfy the needs of businesses
  - Combining both technical knowledge and pratice on-side

LESSON 5

The lessons in management and operation of loan guarantee fund

- Selecting the correct partners:
  - There is a nationwide branch network
  - Professionally proficient
  - The capital of the fund is managed effectively
- Operating and using capital
  - Always have flexible and logical policies to reduce the procedure process
  - Creating conditions for business receive the guarantee in the shortest time
- The importance of service organizations/technology transfer
  - These organizations have a role as a bridge between the loan guarantee fund and SMEs
  - The loan guarantee fund could easily reach more customers

LESSON 6

The lesson of demonstration and multiplying projects of SEEU

- Energy efficiency technologies which was selected are relevant and practical
- Technologies transfer with method is a key factors to decide the succesful multiplying projects of SEEU
- Many business owners said that their business already exist and overcome the economic crisis period 2009-2010 is due to applying the measure/ technology of SEEU with the support of project

ISSUE 1

The policy framework and institutional

- ❖ Completing the regulation of coordinating agency
- ❖ Completion of the legal framwork for service area of SEEU
- ❖ Should have policies of SEEU for industries/new building
- ❖ Continuous to intergrate the policies which promotes SEEU into SMEs development plan

ISSUE 2

The operation mechanism of the loan guarantee fund

- ❖ Completing rules, processes, clear and coherent procedure in guarantees and loan control in the direction of facilitating for EMEs
- ❖ Selecting staffs who has technical capacity and having properly incentive mechanism for staff

ISSUE 3

The capacity and technique

- ❖ Focusing on building a network of advisors and technology transfer, technical appraisement of SEEU project
- ❖ Raising the capacity for advisor and technology transfer
- ❖ Propagating and disseminating information for businesses and organizations

Source: Project completion report, Project Management Unit

PART 2

THE NATIONAL TARGET PROGRAM ON SAVING AND EFFICIENCY ENERGY USING

2.1. Some summary for the period 2006-2010

- Overall period of program: 2006-2015
- Up to 31 December, 2010, we had over 150 missions and projects of the program were deployed
- Total cost granted in 2007, 2008, 2009 and 2010: 169.1 billion VND (approximately USD 8 million)
- Law on energy saving and efficiency was enforced

2.2. Some activities of energy saving in corporation and head of company

Vietnam Cement Industry Corporation (Vicem)

1. Using the remains heat source of cement industry to generate electricity

Example: the project " Using up the remains heat of rotary furnace to generate electricity" in Ha Tien 2 cement factory.

- ❖ The project was financed by the NEDO organization of Japan.
- ❖ The Kawasaki firm design and supply the boiler equipments, turbines, generators and electrical equipments, water treatment equipment
- ❖ The project has economic efficiency and high technology. It ensures a stable energy source for production, energy saving and improves ecological environment.

1. Using the remains heat source of cement industry to generate electricity (continue)

Policy to develop

The development plan of Vietnam's cement industry for period 2011 – 2020 and the orientations to 2030 (2011) regulates:

- The cement projects which have new investment (signed the contract of equipment supply since the decision taking effect) with the furnace capacity of 2,500 tons of clinker per day or more must to immediately invest the equipment system to utilize exhaust heat to generate electricity, excluding the cement production line using waste and industrial rubbish as fuel

1. Using the remains heat source of cement industry to generate electricity (continue)

Policy to develop

- For the cement plants which are in operation, the cement projects have ongoings investment, but the contract of equipment supply have already signed before the effective date of this decision that must be completed to invest this category before 2015
- For the cement plants with a capacity less than 2,500 tons of clinker per day are encouraged to research and invest the equipment system to utilize exhaust heat for power generation

2. Using inverter for engines

❖ The inverter engine systems have been deployed in all member companies of Vicem

❖ A specific example in Tam Diep Cement Company

Status:

- Using the engine of cooling fan with high power: 75-200kW
- Using the valve to adjust the air flow

Solution:

- Using the inverter to adjust the air flow by adjustment of fan speed
- Electricity saving for 6 engine: 0.902 kWh/t clinker
- Economic saving for 6 engine: 1.047.893.000 VND/year (about USD 50 thousands)

Vietnam Coal and Minerals industry corporation (Vinacomin)

❖ Using inverter is one of solutions contributes to reduce significant energy consumption

❖ Almost coal production units invest to install the inverter for electric engine

❖ Direct impact: Energy saving at the maximum level during start-up and operation

❖ Indirect impact of using inverter:

- Significant cost savings annually for the maintenance, replacement of valves which regulates the input flow
- Improving the generation mode of fan engine to increase the life of engine

Vietnam Steel Corporation

❖ Specific example in the Southern Steel Company

The energy saving solutions: Using of exhaust to dry the scrap steel, fuel conversion from FO to CNG…

The socio-economic efficiency of solutions:

- Electrical energy consumption for steel ingots decreases 31kWh/T
- Electrical energy consumption for rolled steel decreases 10kWh/T

2.3. Lesson learned and Issues

Lesson learned

The program has received the participation and contribution of various ministries, institutions, socio-political organizations, local government and consulting units in the whole country

The issue of energy saving in general and saving in particular should be full aware at all levels of management and regular and countinuous

Issues

- Some area needs financial assistance:
  - Using the remains heat source of steel industry to generate electricity
  - Deploying and applying new – energy efficiency technologies in sectors of transportation and construction
- Support to be needed in:
  - Training for energy efficiency and conservation in utility equipments
  - Rising awareness for both producer and customer
  - Technology transfer for producing energy efficiency products and equipments

THANKS FOR YOUR ATTENTION