

COUNTRY REPORT
CTI the Sixth Workshop for Asia (at ICETT)

PHILIPPINES

1. Name of Participant

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2. Organization

Industrial Technology Development Institute
Department of Science and Technology

3. Department and duties

The Industrial Technology Development Institute or ITDI, established in 1901, is one of the research and development (R & D) institutes of the Department of Science and Technology (DOST). It is comprised of seven (7) R & D divisions, namely, the Chemicals and Minerals Division, the Electronics and Process Control Division, the Environmental Division, the Fuels and Energy Division, the Food Processing Division, the Materials Science Division and the Microbiological and Genetics Division.

The development of clean energy technologies and the promotion of energy efficient and environmentally sound technologies are being undertaken at the Fuels and Energy Division (FED) of ITDI. FED conducts the following activities:

1. Undertake R & D studies on clean energy technologies; energy efficiency for industrial processes; and technology exchange and acquisition (adaptive R&D on new energy technologies);
2. Provide technical services to industry, i.e. testing of raw materials and products; design and fabrication of equipment; energy management appraisal of industrial plants; energy audit; and techno-economic assessment of energy processes; and
3. Conduct techno-transfer of developed energy technologies and dissemination of energy related information to industry and other prospective end users.

FED focuses on two (2) major programs, namely, the Clean Energy Technologies Program and the Energy Efficiency for Industrial Processes Program. FED has recognized the need to develop low-cost, more efficient and environment-friendly energy conversion systems in response to the provision of stable, sufficient and efficient energy supply for the country. The Clean Energy Technologies Program of FED involves the development of technologies on the utilization of indigenous energy sources such as agricultural wastes through efficient and environment-friendly energy conversion systems, development of technical expertise on clean energy systems; and strengthening of collaboration between the government and the private sector. The program aims to cut down on greenhouse gas emissions, to increase percentage share of agricultural

wastes in the energy mix, to increase conversion efficiencies, and to increase fuel savings.

4. Impressions of the current situation

The Fuels and Energy Division is actively involved in the implementation of energy efficient technologies in industries. Two projects are being financed by foreign funding agencies and they are described as follows:

- ***Small and Medium Industries in Asia: Energy, Environment and Climate Change***. . This project is simultaneously being implemented in China, India, Sri-Lanka and Vietnam, being coordinated by the Asian Institute of Technology (AIT), Bangkok, Thailand and financially supported by the Swedish International Development Cooperation Agency (Sida). The main objective of the project is to identify policies which will promote the sustainability of energy efficient and environmentally sound technologies (E³STs) in selected small and medium industries such as the desiccated coconut, ceramics and metalcasting industries.

- ***Greenhouse Gas Emission Reduction from Industry in Asia and the Pacific (GERIAP)***. This project, financially assisted by the United Nations Environment Programme (UNEP) and the Swedish International Development Cooperation Agency (Sida), is designed to develop and

practically demonstrate a mechanism for encouraging company level actions to increase the efficiency of energy use in their production processes, thereby reducing associated emissions, especially greenhouse gases. The mechanism is based on the Cleaner Production approach to environmental management, where the combined environmental and economic benefits, that can be achieved simultaneously, encourages companies to take action on their own. The project includes components on capacity building, practical demonstration efforts, and review and evaluation of national policies, which can be used to encourage the adoption of energy efficient production methods in industry. The targeted sectors are: iron & steel, pulp & paper, cement & lime, and chemicals. Participating countries are: Bangladesh, China, India, Indonesia, Mongolia, Philippines, Sri Lanka, Thailand and Vietnam.

- ***MERALCO Energy Audit.*** Energy audits in selected commercial and industrial establishments covered under the franchise area of the Manila Electric Company (MERALCO) are being undertaken in order to promote the implementation of efficient use of electricity.

Aside from these foreign-assisted projects, FED conducts regular projects being financed by the Philippine Government. Among these include the development of a knowledge-based system on energy audit for the small and medium scale industries and boiler efficiency improvements in the

Philippine food sector. FED also serves as the technical arm of the Energy Management Association of the Philippines (ENMAP) in the conduct of in-house trainings and energy audit in industry-members of the association.

The participant had also the chance to carry out a project financed by the United Nations Industrial Development Organization (UNIDO) entitled: ***Developing National Capacity to Implement Industrial Clean Development Mechanism (CDM) Projects in the ASEAN.*** The project involves the preparation of a report on the CDM activities in the Philippines taking into consideration potential industries for CDM such as the cement and the iron and steel industry.

5. Problems, challenges and factors preventing the widespread use of technologies

There are several general barriers or constraints to the adoption of energy efficiency, cleaner production and CDM to industry and these include the following:

☛ *Lack of information and awareness on climate change and on CDM.*

Most of the industry people are fully aware of the benefits that can be derived from the adoption of energy efficient technologies in terms of the energy cost savings. The industry practices energy conservation because energy prices, raw materials costs or labor costs are increasing.

Energy efficiency becomes of secondary importance when these costs are low. Seldom do we see industries adopt energy efficient technologies because they want to reduce their GHG emissions or because they want to help in the stabilization of GHG in the atmosphere. They are not aware of the business opportunities that CDM can bring.

- ☛ ***Lack of awareness among consumers on efficient devices, cost-effective opportunities and savings.*** At present, there is inadequate promotion of energy efficient technologies at the national and plant level. In the '80s during the first energy crisis, the Department of Energy which was still the Ministry of Energy, was heavily involved in the promotion of energy conservation in the different sectors of industry. There was an Energy Conservation Law which requires large industries with energy consumption equivalent to one million barrels of fuel oil equivalent to submit a quarterly report on fuel and electricity consumption. Because of this, the industry was well abreast with the state-of-the-art energy efficiency technologies during that time. Now that the industries are not required to submit energy consumption reports, industries gave less importance to energy conservation.
- ☛ ***Lack of industry support services.*** The concept of ESCOs in the Philippines is not very well understood by the industry. There are several types of ESCOs but the most common are those who are suppliers of energy equipment or systems. There are only a few local consulting

companies who provide total satisfaction. ESCOs themselves are encountering various barriers to penetrate the industry, the greatest among which is the financial barriers. In some industries, ESCOs does not work effectively because they have sufficient technical people to do the engineering aspects. There is also a lack of diagnostic and measuring technologies for energy audits.

- ☛ **Affordability of technologies.** Much as the industry would want to adopt certain energy efficient technologies to reduce their energy consumption, they can not afford to bring in the technology to the country because of the high cost and the high risk involved. In certain cases when the industry can afford to adopt the technology, there is insufficient technical support given by the technology supplier rendering the adoption not sustainable.
- ☛ **Legal barriers.** One of the key factors in the successful implementation of CDM is the formulation of an acceptable legal framework for CDM in the national level. Otherwise, several legal barriers may occur such as uncertain ownership of the technology, lack of intellectual property-rights protection, uncertain issuance of CERUs and unclear arbitration procedures. Legal barriers can be reduced if the selection of a national authority for CDM is participated by the CDM stakeholders.

- ***Weak economic and regulatory incentives.*** At present, the country is suffering from an economic recession due to fluctuations in currency exchange rates. There is political and economic instability brought about by the recession. Some industries are in the brink of closure because they can not afford the increasing energy and raw materials prices. Because of this, industries would not think of investing in the acquisition of new energy efficient technologies. All they can think of at the moment is survival.

Even in normal economic situations, the country has a weak structure in the provision of regulatory incentives. Because of this, industries decide to purchase less efficient or polluting technology instead of procuring energy efficient technologies. No incentives are given to the procurement of technologies which would reduce energy consumption and thereby reducing GHG emissions.

- ☛ **Financial barriers.** This barrier has always occupied a top ranking position in the list of barriers that a country or a project must overcome. In certain industries, several energy conservation projects have been shelved because of lack of financial investment due to high initial cost of equipment and risk awareness. Other projects were shelved because of the lack of facilities for investment loans. And still other energy conservation projects were not pushed through because of the stringent requirements that financing institutions ask from the industry.
- ☛ **Weak institutional infrastructure to remove these barriers.** The institutional infrastructure for CDM is already well in place. However, some institutions have to be strengthened in order to carry out effectively its participation to the various opportunities that CDM can offer. For example, IACCC is the committee in charge for climate change in the Philippines. This committee is treated as an ad-hoc committee placed under the auspices of DENR and it has to be strengthened before CDM comes into place.