

Ex-post evaluation 2007

Energy Efficiency Promotion Project (ENEP), Thailand

Brief Report

gtz

Compiled by: Dr. Wolfgang Meyer
Dr. Pattana Rakkwamsuk
Dr. Kuskana Kubaha
On behalf of: CEval – Center for Evaluation,
Saarbruecken

This report was compiled by independent external experts. It is solely a reflection of their findings, opinions and assessments.

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Evaluation Unit

Dag-Hammarskjöld-Weg 1-5
D-65760 Eschborn
Internet: <http://www.gtz.de>

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Tabular Overview

The Evaluation Mission

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| Evaluation period (<i>month/year</i>) | 08/2007 - 04/2009 |
| Evaluating institute / consulting firm | CEval – Center for Evaluation, Saarland University, Saarbruecken |
| Evaluation team | Dr. Wolfgang Meyer, Dr. Pattana Rakkwamsuk, Dr. Kuskana Kubaha |

The Project/Programme

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| Title of the project/programme according to the order | Energy Efficiency Promotion Project |
| Project/programme number | New: 99.2001.8 / Old: 92.2256.3 |
| Overall term broken down by phases | 3 Phases (I: 10/93-03/96, II: 04/96-03/99; III: 04/99-03/02) |
| Total costs | Overall: 42 Mio. DM (= €21.5 Mio.); German Contribution: 12.520 TDM (= T€6.401); Third Phase: Total Costs: 8.1 Mio. DM (= €4.1 Mio); German Contribution: 3.5 Mio DM (= €1.8 Mio) |
| Overall objective of the project/programme as per the offer, for ongoing projects/programmes also the objective for the current phase | The activities to improve energy efficiency are carried out in factories and buildings as stipulated in the ECP-Act, which contributes to the decrease of energy intensities in industrial, commercial, and private sectors and the reduction of CO ₂ emission. |
| Lead executing agency | Ministry of Interior, delegated to DEDP (since 2002: DEDE) |
| Implementing organisations | BERC, TD (two of the departments of DEDP) |
| Other participating development organisations | None |
| Target groups as per the offer | Executives and staff members of at least 1,000 buildings and 2,500 to 3,500 factories (energy managers, energy consultants) |

Summary

Thailand was a net energy importing country since it began a new phase of coordinated economic development in 1964. In turning from an agro-based economy to an industrial-based one, there has been a rapid and constant increase of energy consumption in Thailand, the only exception being during an energy crisis between mid-1997 and 1999. The interest in energy conservation for commercial buildings arose after an oil price hike and an oil shortage. Thailand's policy measure on energy efficiency in buildings is constituted by the Ministerial Regulation issued under the Energy Conservation Promotion Act, passed on April 2, 1992 (B.E. 2535). The ECP-Act classifies all large factories and buildings in terms of energy usage as "Designated Facilities". There are approximately 1,600 buildings and 2,500 factories covered by the Compulsory Energy Audit Program nationwide. The Department of Energy Development and Promotion (DEDP), now renamed Department of Alternative Energy Development and Efficiency (DEDE), is clearly stated in the Act as the executing agency.

Today, approximately 70% of Designated Facilities have completed the Preliminary Audits; about 36% completed the Detailed Audits; and about 35% submitted Targets and Plans. DEDE officially announced the shut-down of grants and subsidies for all Designated Buildings and Factories in April 2005. The new Energy Conservation Promotion Act has been enacted on April 2, 2007 to replace the previous one. Instead of emphasizing investment on changing systems and equipment, new advances in conducting energy conservation and enhancing energy efficiency will be approached by "systematic energy management" that not only considers the use of energy efficient systems but highlights the importance of awareness and behavioural changes. Many ministerial regulations following the new act will be issued and expected to be effective by June 2008.

The Energy Efficiency Promotion Project (ENEP) existed from 1993 until 2002 and can be seen as one in a series of programmes and projects in the field of energy cooperation between Thailand and Germany. In general, there was a shift from technical assistance for energy conservation towards renewable energy (especially biomass) in the Thai-German alliance. However, the main concept – management consultancies within the main energy administration of Thailand – has not been changed. The starting point of ENEP was the Thai Energy Conservation and Promotion Act (Thai ECP-Act). From the beginning, it was quite clear that neither the Bureau of Energy Regulation and Conservation (BERC) nor the Training Division (TD) would be able to offer appropriate services in the necessary variety. Germany was asked to give some assistance in professionalising these services, offered by these two DEDP divisions, and in developing strategies on the outsourcing of training courses to private consultancies. The German Ministry commissioned GTZ in developing a consultancy project together with DEDE on this issue. Finally, ENEP was implemented by both organisations. The project purpose was formulated as follows: "activities to improve en-

ergy efficiency are carried out in factories and buildings as stipulated in the ECP-Act, which contributes to the decrease of energy intensities in industrial, commercial, and private sectors and the reduction of CO₂ emission”.

During the final phase (from April 1999 to March 2002), the following four project outcomes should have been achieved:

- 1) Training programmes which meet the needs and requirements of the ECP-Act are worked out and implemented in cooperation with the private sector.
- 2.) A demand oriented concept for marketing and information services is developed in cooperation with the suppliers of energy-efficient technologies.
- 3.) In order to implement the energy saving programme, the management competence of the staff of the Department of Energy Development and Promotion (DEDP) is increased.
- 4.) A monitoring and evaluation system for impact monitoring of decisions within the framework of the energy-saving law and the improvement of regulations is set up and operational.

The result chain can be described as follows: The project outputs and use of outputs can be seen in acceptance and usage of consultations, demonstration projects, best practice reports, training contents, awareness material, regular requests from DEDP and non-state organisation for support etc. The direct outcomes of ENEP are primarily the empowerment of DEDP for offering professional services and managing information flows to and from the private sector. The quality of DEDP's work is an important contribution for a successful implementation of ECP-Act and for reaching the ambiguous target of this act, namely to significantly reduce the energy consumption of big buildings and companies. The reduction of CO₂ emission and a moderate development of energy costs in Thailand are the highly aggregated impacts of the project.

ENEP does not follow a multi-level approach but more or less concentrated its activities on the Meso-level and the empowerment of DEDP. It used a process-based approach emphasising both help for self-help aspects within DEDP and the interaction between the state and private sectors. Concerning the value-based approach, ENEP focused on the ecological market economy, especially in strengthening the consultancy market by offering training courses and establishing a more service oriented way of thinking and acting within DEDP. It did not aim for renewable energy and no experience with operator models was gained. A poverty or gender analysis is not available as a baseline study and progress towards these objectives was not monitored and evaluated. Due to the poverty (EPA) and gender (FU) rating, this was not necessary.

In general, energy consumption in big buildings and industrial companies has been recognised as a serious problem in Thailand by those politically responsible. However, its importance is still underestimated to a certain extent by the target groups. In the realms of politics,

business and civil society, the topics of energy consumption are being discussed and the key role of big buildings and industry was never in doubt. ENEP was started at the right time to accompany the ECP-Act and DEDE as the central state organisation in energy and was surely the right partner. The growing international debate on climate change and greenhouse gas emissions even highlighted the importance of such projects like ENEP. It had been (and still is) one of the major goals of German development cooperation policy in this sector to support energy conservation especially in the fast growing industry sector. Therefore, the relevance of the project has been assessed as “very good” (1).

The final evaluation of 2002 judged “that ENEP has initiated many constructive and new ideas, which contributed to the development of the Energy Conservation Programme (ENCON) of DEDP, particularly the ECP-Act Programme, the ENCON Training Programme, the Bureau of Energy Regulation and Conservation (BERC) IT system (Management Information System (MIS)/database networking systems), the Thailand Energy and Environment Network (TEE-NET), etc.”. According to the objectives and the inputs by the project, the direct results were rated to be good and long-lasting. However, some of the direct results aimed at (especially demonstration projects and the durable implementation of impact evaluation) were not achieved. The concept had not been adapted to the new framework conditions (especially the economic crises in Thailand), although the focus was set more on feedback reports, training materials and empowerment. Measured by the project’s own impact indicators, the results had not been good at the end of the project. However, with a distance of additional five years, one has to state that most of the target values have been achieved nowadays due to some delays in the implementation process. Compared to the overall input of the project, this negative aspect is limited and the effectiveness of ENEP is evaluated as being “good” (2).

The intended over-arching results of the ECP-Act (and therefore also of ENEP) were not achieved. This is clearly beyond the responsibilities of ENEP and its activities. ENEP tried its best to restructure DEDP, to empower DEDP staff and Accredited Consultants (AC) as well as Registered Consultants (RC), to demonstrate the effectiveness of new technologies, produce useful technical and non-technical guides and materials, implement information systems and support the communication between private and state actors. The achieved effects –sometimes so difficult to trace – were good in general, but they did not satisfy impacts on the whole. So the project’s impacts had to be judged as “unsatisfactory” (4).

From a micro-economic point of view, ENEP was cost-effective. From a macro-economic point of view, the success of ECP-Act is limited and the expected results have not been achieved. While some investments were made for consultations, advice, promotion and training, not only by the project but also by DEDE and private consulting in Thailand, the overall impact (especially in terms of saved energy) – as mentioned above – is not satisfying. Within

this framework, ENEP is only a small part, which worked quite well and contributed fairly to the overall impacts of the ECP-act. However, in taking these results into account, ENEP is rated as “satisfactory” (3) on behalf of its efficiency.

ENEP implemented a broad variety of measures such as training concepts and materials, feedback reports, guidelines, internet and customer service concepts etc. during its lifetime and most of them can be found even five years after the official project end. Both short-term and long-term measures produced several effects such as organizational changes within DEDE, implementation of training courses and internet platforms, integration of guidelines and feedback reports in the regular services of DEDE etc., even if some of the effects are quite small. Due to the strong cooperation partner who was able to continue the work by himself and even develop the project results in regard to the changing challenges, ENEP proved to be “good” (2) in sustainability.

Usually the five criteria (relevance, effectiveness, impact, efficiency and sustainability) used for evaluation here are equally weighted for the overall rating. While this evaluation is an ex-post evaluation, the evaluation team decided to change the weighting slightly. Impact and sustainability have a greater emphasis than effectiveness and efficiency. For the overall rating, this change in weighting is not important because the poor result in impact leads to a downgrading of the overall result to “unsatisfactory” (4). The results in the other four criteria and their weightings have not been taken into account according to the general rules of this evaluation. While ENEP worked quite well in many of its parts, the general impact of the ECP-Act – which had been supported by the project – is not very good. Several hindering factors must be highlighted. First, the benefits are hardly visible for target groups and therefore they are not participating in the way it was planned in the beginning. Expressing it metaphorically, not only the “carrots” seem to be invisible but also the “sticks”. Second, participation was not enforced and even if this was the case, no punishment was executed. Third, the progress within DEDP, especially in speeding up the approval processes and in simplifying the application processes, is not recognised by the target groups. For achieving this, additional activities on the micro-level were missing which could have been able to attract more interest by the target group.

In general, ENEP worked “behind the Buddha” and most results are not commonly attributed to the Thai-German-cooperation. Regarding the training courses, a large number of high quality manuals, checklists, demonstration materials, guidelines etc. were created by ENEP and are still in use. During the last five years, TD modified, improved and diffused several of these course materials in other sectors and branches. Another example for ENEP’s sustainable contribution, which is, however, not recognized as such, is the information network TEE-NET. No footnote or reception on ENEP, GTZ or DEDE’s contribution can be found on the official websites. However, there was a strong input from ENEP to build up TEE-NET and

TEE-NET developed quite well during the last five years. It contains an enormous amount of data, both in Thai and English, and because of its easy access, the number of users is steadily rising (particularly non-scientific users are increasingly using the network). Another important input of ENEP was made for capacity building in DEDP management. While former ENEP staff is still employed at DEDE (and some of them in positions of responsibility), to a certain extent the ENEP spirit is alive in the minds of people. The feedback reports, which are used for ranking and benchmarking in a few branches, are probably the most important innovations of ENEP.

Due to a number of reasons, the limited success of ENEP and its concentration on the meso-level of intervention demonstrates the advantages of multi-level approaches and programme designs in contrast to single projects on the meso-level of intervention. In general, the framework conditions for ENEP were quite good (aside from the economic crisis), but interventions on the micro- as well as on the macro-level are missing. Multi-level programmes are recommended to support the implementation of energy acts. In general, a more systemic approach in trainings and organisational and market development is missing for ENEP, which was too limited in its effects to obtain wide-reaching impacts. Finally, a project like ENEP should be better recognised, especially in the long-run. The profile of the German contribution should be better visible because this reputation would make follow-up activities easier.