Report / Fiscal Year of 2004

Project on Measures for Rationalization of International Energy Use

Project on Infrastructure Improvement for Rationalization of International Energy Use

"Project on Improvement in Infrastructure for Energy Management in ASEAN Countries"

March 2005

Ministry of Economy, Trade and Industry

The Energy Conservation Center, Japan

Preface

Recently we have been required to overcome the completely conflicting condition where efforts to prevent the global warming has become a common challenging issue for people in the world while sustainable economic development is desired.
In order to overcome such a severe condition, technological innovation is required, including both R&D of technologies to efficiently use energy with a minimum impact on the environment and development of clean energy with no load on the environment.
So as to contribute to the harmonized development of economy protecting environment in developing countries, it is necessary to render support for the concerned countries that is acceptable and appropriate for these countries based on the understanding of the actual condition of energy use and environmental measures as well as the results of in-depth surveys on the progress in development of infrastructure, life styles, etc in these countries.

Under the circumstances mentioned above, in these four years, we have implemented activities for focusing the transfer of technology for energy through conducting energy audit for energy conservation in the major industries (ten sub-industries) and building sectors of the ten member countries of ASEAN. Based on the actual results of the implementation of these projects, it has been found that the improvement in energy management is an important key factor common to the both sectors. In this fiscal year, the projects for the major industry sector and the building sector have moved forward to a new stage to aim at actually implementing recommended improvements including the energy audit and at reinforcing the infrastructure for dissemination. We have set up, on this occasion, "Project on Improvement in Infrastructure for Energy Management" to build the infrastructure for promoting energy conservation more effectively in conjunction with the projects for these sectors.

This project has an ultimate goal of building the "ASEAN Energy Management System" which can be shared among the ASEAN member countries. Activities should be developed in the medium to long run in order to achieve this goal. During this fiscal year, as the first year of the project, we implemented surveys on the actual situations of energy management infrastructure in the ten ASEAN member countries and carried out the activities to develop the basic concept of "ASEAN Energy Management System" and a preliminary guideline for the activities.
The project could be started without any problem toward newly building the infrastructure for activities to promote energy conservation, which resulted in achieving the goal targeted this year, directing future activities.

We hope that this project will contribute to energy conservation and environmental preservation in the industry and building sectors in the ASEAN countries and the countries concerned will build firm infrastructure for sustainable economic development harmonizing with the environmental preservation. In addition, we expect that this project could work to bridge technology exchange and friendship between Japan and the countries concerned.

March 2005
The Energy Conservation Center,
Japan

Contents

XIV. Materials for Reference

1. Questionnaire for Survey

2. Materials Used in Local Workshops
   - Results of Survey for Each Country (Preliminary)
   - Principle of Energy Management
3. Materials Used in Summary Workshop

Summary

The economy in ASEAN countries has been rapidly growing. As a result, it is expected that energy consumption will rapidly increase. Accordingly, it will be more required to efficiently use energy and to consider about countermeasures against the prevention of the global warming.

This year is the 5th year of the projects for Promotion of Energy Efficiency and Conservation (hereinafter referred to as "PROMEEC") for major industries and buildings.
Activities of the persons concerned from ASEAN countries, including the ASEAN Center for Energy (ACE) which is our counterpart, are increasingly being expanded and established. Moreover, the awareness arising to reduce energy consumption among the countries concerned is spread among them because of the recent increase in energy prices linked with the recent run-up in crude oil prices and the effectuation of the Kyoto Protocol on Feb 16, 2005.

This fiscal year has been placed as the first year for the PROMEEC projects to move forward the 2nd phase that aims at the enhanced actual implementation and dissemination of the improvements previously recommended with further self-help efforts by integrating achievements of the project activities for the past four years. In other words, in the 2nd phase, it is targeted to establish the infrastructure for the implementation and dissemination of the actual improvements including the recommendations proposed / discussed in the past.
For the purpose of effectively achieving the target mentioned above, in addition to the activities developed under the PROMEEC projects for major industries and buildings, this project was setup to develop and enhance the infrastructure for energy management in the ASEAN countries as a basis for promoting energy conservation, based on the agreement made by the representatives from the ASEAN countries.

An ideal goal of this project is to build the "ASEAN Energy Management System" possible to share by the ten ASEAN countries in four to five years.
In this fiscal year, thus, the project activities have been commenced with conducting surveys on the actual situations of the infrastructures in the ten countries and developing the basic concepts of "ASEAN Energy Management System".
Specifically, the following activities were implemented in all the ten ASEAN countries.

- ♦ Survey on the actual situation of energy management infrastructure
  Surveys focused on the three categories;
  - Policy and legal framework for energy conservation
  - Presence of implementation organizations and their roles and activities
  - Activities by the private sectors for promoting energy conservation
- ♦ Implementation of Workshops
  The seminar-workshops were held to give a further understanding of energy management and to discuss the preliminary results of the above survey conducted in each ASEAN

country.

- Development of basic concepts of “ASEAN Energy Management System”
  On the basis of results of the surveys and discussions mentioned above, a draft of the basic concepts of the “ASEAN Energy Management System” was proposed and discussed with the delegates from the ten ASEAN member countries at the Summary Workshop/Post Workshop.

It is of great significance that these activities led to better understanding of the importance as well as the principle and practice of energy management by the persons concerned, and that this project provided the persons concerned not only from the government but also from the private sector with an opportunity possible to share the recognition of the reality of energy management infrastructure through discussions in each country. These enabled us to depict an overview of the “ASEAN Energy Management System” to develop its concept.

Site activities in the project during this fiscal year started with the Inception Workshop held in late August 2004 (common to both projects for major industries and building), and ended with the Summary/Post Workshops (common to both projects for major industries and building) held in early February 2005. In the Inception Workshop, for smooth start of the project, the implementation plan was explained and finalized and the required preparation for fieldwork in each country was confirmed. Subsequently, the surveys and local workshops in the ten countries were smoothly conducted by December 2004. Finally, in the Summary Workshop/ Post Workshop, the actual results and achievements of the project activities in the ten countries were presented and shared by the delegates from the ASEAN countries (focal points). After sharing the actual results, the proposed future direction of the project including the basic implementation plan for 2005-2006 was discussed.

Specific activities of the project during this fiscal year were as follows.

25 August to 26 August 2004 (Business Trip: from 24 to 27 August)
Participation in “the Inception Workshop of on Promotion of Energy Efficiency and Conservation (PROMEEC) (Major Industries, Building and Energy Management), SOME-METI Work Program 2004 to 2005” (held in Denpasar, Indonesia, common to the projects for major industries and buildings).
The following events were taken place, though the focal points from Lao PDR and Brunei were absent, with around 20 participants including the persons concerned from other ASEAN countries and ASEAN Center for Energy (ACE) as well as delegates from the Energy Conservation Center, Japan (ECCJ).
Opening Remarks (Each representative from the organizations concerned including the host country)
Session 1: Explanation and discussion on the guidelines of the activities toward the Phase-2 (including evaluation of Phase-1) (by ECCJ)
Session 2: Presentation of "Japan's International Cooperation for Energy Management" (by

ECCJ)

Session 3: Learnings from Phase-1 and expectations for Phase-2 (by Delegates from ASEAN countries)

Session 4: Programs for Energy Management (by Delegates from ASEAN countries)

Session 5: Finalization of the implementation plan for 2004 – 2005 through explanation and discussion (by ECCJ)

October 5 to October 15, 2004: Site Activity (1st)

Countries ; Myanmar, Cambodia, Laos and Vietnam

1. Survey on the actual situation of energy management infrastructure

The team visited the governmental organization(s) in charge of energy conservation, implementation organizations and private sectors in each country to interview the concerned persons, and collect information in accordance with the questionnaire forms, which had been prepared and distributed in advance.

2. Workshops in each country

With ten to thirty participants in each county, the following presentations and enthusiastic discussion were made. It is also of great significance that these workshops provided an opportunity of exchanging opinions between government officials and people from private sectors through discussion.

(1) "Principle of energy management" and "Energy management system in Japan" (by ECCJ)

(2) "Policies and measures related to energy management for each country" (by each country)

(3) "Report (preliminary) and discussion on results of surveys on current situations of development of energy management infrastructure (by ECCJ)

November 28 to December 14, 2004: Site Activity (2nd)

Countries; Indonesia, Singapore, Brunei, Malaysia, the Philippines and Thailand

1. Survey on the actual situation of infrastructure for energy management

The team visited the governmental organization(s) in charge of energy conservation, implementation organizations and private sectors in each country to interview the concerned persons, and collect information in accordance with the questionnaire forms, which had been prepared and distributed in advance.

2. Workshops in each country

With ten to thirty participants in each county, the following presentations and enthusiastic discussion were made. It is also of great significance that these workshops provided an opportunity of exchanging opinions between government officials and people from private sectors through discussion.

(1) "Principle of energy management" and "Energy management system in Japan" (by ECCJ)

(2) "Policies and measures related to energy management for each country" (by each country)

(3) “Report (preliminary) and discussion on results of surveys on current situations of development of energy management infrastructure (by ECCJ)

February 7 to February9, 2005; Summary Workshop/Post Workshop
(Business Trip: from February 6 to February 10)
Participation in “the Summary Workshop and Post Workshop on Promotion of Energy Efficiency and Conservation (PROMEEC) (Major Industries, Building and Energy Management), SOME-METI Work Program 2004 to 2005” (held in Singapore, common to the projects for major industries and buildings).
The following summary and discussion were made, though the focal points from Brunei and Vietnam were absent, with around 21 participants including the persons concerned from other ASEAN countries and ASEAN Center for Energy (ACE) as well as delegates from the Energy Conservation Center, Japan (ECCJ).
Presentation and discussion on the results of surveys conducted in the ten countries were held and the proposed basic concept of “ASEAN Management System” was explained and discussed. In the presentation of the survey results, it was tried to compare the actual results among the countries in the presence of all the delegates from each country. However, it was in fact difficult to reach an agreement. It will be necessary to improve the comparison including improvement in expression when the comparison is required to use in discussion. In addition, with regard to basic concept of “ASEAN Management System”, it was possible for the participants to basically understand it by clarifying the overview of the factors for energy management, specific activities and steps for realization of these factors.
Finally, the proposed direction and plan after 2005 was explained, discussed and agreed. The basic policy is to start with feasible and/or prioritized activities from the next fiscal year based on the basic concept. However, this project has just started last year and is in process of establishing the more specific plan. Therefore, levels of understanding of participants significantly vary and more effort will be required to equalize the level of understanding among the countries through implementing further activities.
Opening Remarks (Each representative from the organizations concerned including the host country)
<u>Summary Workshop</u>
Session 1: Major Industries
Session 2: Building
Session 3: Energy Management

- Report on results of surveys conducted in the ten countries by ECCJ
- Explanation and discussion on the proposed basic concept of the “ASEAN Energy Management System” by ECCJ
- Ideas or requests for the “ASEAN Energy Management System” by each ASEAN country
- Basic direction of activities after 2005

Post Workshop

Session 1: Summarization of the results of discussion made in the Summary Workshop for the project

Session 2: Basic implementation plan after FY 2005

Aiming at providing support to establish the infrastructure for energy management in each country, a raised level of activities were challenged based on further self – efforts. In this context, this project is expected to be very important for building the infrastructure for energy management.

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In this fiscal year, thanks to the intensified cooperation for implementing activities in all the countries, it can be evaluated that we were able to obtain a great achievement for taking a step toward future expanded development.

On the other hand, the Japan side understands that ASEAN has also started the other project related to energy management under cooperation from EU, such as ASEAN Energy Manager Accreditation System (AEMAS). In the future, it will be required to develop specific activities of this PROMEEC project for energy management, taking the activities of the AEMAS project into consideration. ACE should play an important role to coordinate these two projects.

Finally, it is again emphasized that we have received full cooperation from the persons in charge of the related organizations in the ASEAN countries including ACE in implementing this project. Here we would like to express our sincere gratitude to all the people concerned.

I. Objectives and Background of the Project

For the purpose of promoting energy conservation in ASEAN countries, especially in major industries and building sectors, this project aims at assisting the ASEAN countries in developing / improving energy management infrastructure. Thus, it is expected that the project will contribute to the promotion of energy conservation and environmental conservation in Southeast Asian countries by promoting the realization of energy conservative measures in each of the countries concerned.

This project was newly set up in 2004 by mainly ASEAN Center for Energy with the aim of reducing energy consumption for the industry and building sectors continuously increasing in the ASEAN region. ASEAN calls this project as “PROMEEC for Energy Management”. PROMEEC, which is the abbreviation of "Promotion of Energy Efficiency and Conservation", is a cooperation project accredited by ASEAN Ministers of Energy Meeting (AMEM) for the ASEAN 10 countries under the support by the Ministry of Economy, Trade and Industry of Japan (METI). Japan cooperates to support the improvement of energy management in terms of technology and practice through this activity in order to promote energy conservation for the industry and building sectors in ASEAN countries.

The objectives of this project are as follows:

1. To strengthen cooperative relationship between ASEAN countries and Japan in terms of energy field.
2. To build and operate the energy management infrastructure which can be shared among ASEAN countries (hereinafter referred to as “ASEAN Energy Management System”) to serve as a sustainable infrastructure for the promotion of energy conservation in the industry and building sectors.
3. To accelerate building / improving the infrastructure in ASEAN countries through the transfer of Japan's technologies and experience related to energy management including the introduction of excellent cases of energy management to the ASEAN countries.
4. To discover excellent cases of energy management realized in factories and buildings in ASEAN countries and to disseminate the information of these excellent cases among the ASEAN countries.

Based on the experience and achievement of the projects for the major industries and buildings which have been implemented since 2000, this project was set up as a new project of PROMEEC in fiscal 2004 to promote the improvement of energy management which is common technique and practice to the projects for major industries and buildings and is the most effective means for energy conservation. This project was newly set up to serve as a more effective activity specialized in the improvement of energy management and associated with the projects for main industries and buildings, on the occasion that the projects for the two sectors moved forward to the advanced phase for developing the infrastructure for implementation and dissemination in the fiscal year of 2004. This is the first fiscal year to implement this project.

It will be necessary to implement this project according to the following steps, since the project should be proceeded based on the long run activities for about 5 years.

First Phase: Development of specific plans for the ASEAN Energy Management System based on surveys on the energy management infrastructure in the ASEAN countries and the transfer of technology and experience from Japan to the ASEAN countries

Second Phase: Building the ASEAN Energy Management System and development of procedure / rule to operate the system

Third Phase: Actual working including improvement of the ASEAN Energy Management System by ASEAN countries

Activities for this fiscal year in the 1st Phase were implemented for the purpose of obtaining the following.

- Accurate recognition of the actual situation and conditions of the infrastructure for energy management through the surveys in the respective ASEAN countries
- Deepened understanding of energy management by the concerned persons through local seminar – workshops
- Identification of components required for the “ASEAN Energy Management System”by discussing the results of the surveys

Finally, gathering the focal points from each country, the summary workshop was held to discuss the proposed basic concept of ASEAN Energy Management System and basic plan of the future activities while sharing the results of surveys and discussions in the respective countries.

II. Myanmar

1. Summary of Activities

1.1 Mission members

The following two experts from The Energy Conservation Center, Japan (hereinafter referred to as “ECCJ) conducted a survey and participated in the local seminar – workshop. In addition to the experts, one staff was dispatched from the ASEAN Center for Energy (hereinafter referred to as “ACE”) to jointly carry out survey.

Kazuhiko YOSHIDA (Mr.)	General Manager International Engineering Department, ECCJ
Takashi SATO (Mr.)	Technical Expert International Engineering Department, ECCJ
Christopher G. ZAMORA (Mr.)	Program Manager, ACE

1. 2 Survey schedule and main interviewees

Survey Schedule

Date	Place for a meeting or a visit	Interviewees
October 5	Arrived at Yangon	
October 6	Ministry of Energy	Mr. Soe Myint and others
	KBZ Bank	Mr. NYO Myint and others
October 7	Seminar – Workshop	Mr. Aye Kyaw and others
	Left Yangon	

Names and Positions of Main Interviewees

Mr. Soe Myint	Director General, Energy Planning Department, Ministry of Energy
Mr. Thein Lwin	Deputy Director General, Energy Planning Department, Ministry of Energy
Mr. Aye Kyaw	Director, Energy Planning Department, Ministry of Energy
Mr. Aung Kyi	Director, Myanmar Industrial Construction Services
Mr. Khin KhinAye	Assistant Director, Energy Planning Department, Ministry of Energy
Mr. Kyaw Tin	Director, Power Generation, Distribution Planning and New Project Planning
Mr. San Aung	Director, Myanmar Petroleum Products Enterprise
Mr. Myo Myint	Deputy Director, Material Planning Myanmar Oil Gas Enterprise
Mr. Nyo Myint	Consultant, KBZ Group Co., Ltd.

1.3 Activities

The experts made efforts to collect information as much as possible and held a Mini-Workshop in one and a half days of short-term work. Good preparation and arrangements were made by the Myanmar side led by Mr. Aung Kyi (Director, Myanmar Industrial Construction Services), a focal point of EE&C-SSN (Energy Efficiency and Conservation – Sub-sector Network).

The survey was conducted by interviewing with them according to the questionnaire that had been sent in advance. The director level officials from each department including Mr. Soe

Myint, Director General of Ministry of Energy and a member of SOME (Senior Officials Meeting on Energy), Mr. Thein Lwin, Deputy Director General gathered together and cooperated our survey. Most of their answers to the questionnaire were "No". However, they provided us not only the answers to the questionnaire but also detailed explanation and confirmation in response to our questions, and it was possible to frankly exchange opinions.

After the above-mentioned survey, we visited KBZ Bank in Yangon, which is reputed for the energy efficient building with maximized utilization of natural light in Myanmar and was awarded for the best practice building from ACE.

On the second day, the half-day workshop was held at the main conference room of the Ministry of Energy inviting more than twenty participants from the Ministry of Industry, the Ministry of Electric Power, oil/gas companies in addition to those from the Ministry of Energy, all of whom were in position of “Deputy Director” or a higher position. We had active discussion including question-and-answer on the lecture and the preliminary results of survey.

2. Results of Survey

2.1 Current Situations of Infrastructure for Policy and Law

The macroscopic status of developing the framework of policy including legislation of law for energy conservation is in process of study and preparation.

The government officials including staff members of the Ministry of Energy, of course, understand that energy conservation is very important from the viewpoint of limited resources and energy security. They have started activities to make a public announcement on the actual use of electricity and fuel including costs via mass media.

However, the framework and infrastructure for policies and legislations have not sufficiently developed yet though high-level officials of the Ministries concerned have policy ideas but not specified plans. Although the country has established the five-year development plan, it includes a target only for GDP without any specific energy plan. At present, the National Committee of Environmental Affair is organized in the government, where a draft Environmental Assessment Law is now being prepared; the inclusion of energy matter into the Law is under consideration. However, there are such problems as less available reference information from other countries and a lack of own database. Moreover, the government subsidizes costs for electricity and fuel, resulting in the costs as inexpensive as 2.5 cents per kWh for electricity and 18 cents per liter for petrol, and therefore low incentive for energy conservation among companies. Furthermore, the subsidy accounts for a large proportion of the national budget. Although government officials understand that the subsidy program adversely affects not only companies' investment but also public awareness on energy conservation, they have no other choice but to maintain this fee level, considering the current typical income level of the nation (US$20 to US$40 per month).

Despite the existence of the Ministry of Energy, several Ministries play different roles in energy-related matters in the government. However, conflictions between the Ministries will occur due to the absence of coordinating function in the government, which can be a barrier against smooth implementation of activities for energy conservation projects.

On the other hand, they start preparation for cooperation on the CDM Project with other

countries in the future. However, Myanmar has a complicated foreign currency exchange system for the import and export of petroleum products, which represents an obstacle to financial infrastructure to invite foreign companies for enhancing business.

2.2 Establishment and Operation of Implementation Organizations to Implement Energy Audit /Training

Currently, there exists no organization for implementation.

A plan to construct the energy conservation center has been warmed for ten years, but there has been no progress at all probably because of a lack of the policy and legislative framework to establish the center. They are now making an effort to enhance capacities of government officials. Specifically, they depend on the participation in the PROMEEC (Promotion of Energy Efficiency and Conservation) projects, which are implemented by ASEAN with cooperation of Japan, and on the cooperation programs with international organizations such as UNDP. In terms of continuity and consistency, the latter programs are not sufficient judging from the fact that a program included only the training for one week in 1999.

The Ministry of Energy carries out energy audits on request. The recommendation / suggestion focused on improvement with little cost. However, it was reported that their main measuring instruments are measuring instruments for checking combustion and infrared thermometers at best and insufficient to meet requested energy audits. In addition, according to the report, there are difficulties in procuring parts and service for maintenance of sensors from specialized manufacturers hence problems with calibration of sensors. Moreover, a shortage of skilled experts and experienced persons as well as an absence of a department or study subject related to energy at universities in Myanmar lead to the difficulty in obtaining staff. These represent major obstacles. As for renewable energy, a non-governmental organization locally implemented a hybrid type of wind power generator (60 kW) combined with diesel power generator under the technical and financial support from NEDO.

2.3 Activities to Promote Energy Conservation in Private Sector

Only a few companies are eager to make an effort for energy conservation at this moment.

Although there are organizations which should facilitate communication between the government and private companies, such as an industrial societies and associations, they do not fully function for energy conservation. For example, under the Chamber of Commerce there is the industrial association which consists of forty-nine industrial sub-sectors but does not work to coordinate these.

On the other hand, there is one building of which persons including the owner are very eager to pomote energy conservation and applied to the award system for an the ASEAN best practice in energy efficiency in the past. We would like to expect such a building owner to continue their activity in the future.

Concerning the business environment, companies' motivation to their activities for energy conservation is persistently low due to inexpensive energy costs with the subsidy system for energy prices. Moreover, the delay in development of legislations and policies to promote energy conservation causes ambiguous guidelines for activities of energy conservation

promotion among companies. As a result, the persons concerned, including CEOs and top management of companies, have low awareness on energy conservation and their activities become sluggish.

Based on the survey results mentioned above, the current situation in Myanmar is summarized as shown in Figure-II-1 from the viewpoint of the programmed approach.

3. Suggested and Discussed Improvement Based on Results of Survey

For Myanmar, the formulation of policies related to energy conservation should be assigned the highest priority. In order to pursue this goal, it is important to implement the followings at this time.

(1) The government should determine which Ministry is in charge of energy conservation.

(2) A taskforce should be organized to analyze the current situations and draft the policy and strategies for implementation.

A taskforce, consisting of the persons in charge from the relevant Ministries, should be set up to transfer policies that government officials have in their mind into concrete documents, based on which formulation of policies should be immediately commenced after discussions among the persons concerned.

(3) Capacity building for the persons concerned, including leaders of the government, should be continuously implemented.

It is also recommended for Myanmar to continue the development of human resources for EE&C, activities to increase the number of model factories and buildings for energy conservation, and public education about energy conservation.

4. Results of Workshop

4.1 Summary

We had about thirty participants mainly consisted of the persons concerned from the Ministry of Energy and the Ministry of Industry. At first, Mr. Sato, a technical expert from ECCJ, presented the energy management principles. Next, Mr. Yoshida, a leader of ECCJ, presented the energy management situation in Japan and the preliminary results of survey. And discussion was open for all the participants.

Among opinions from participants, the following are noted.

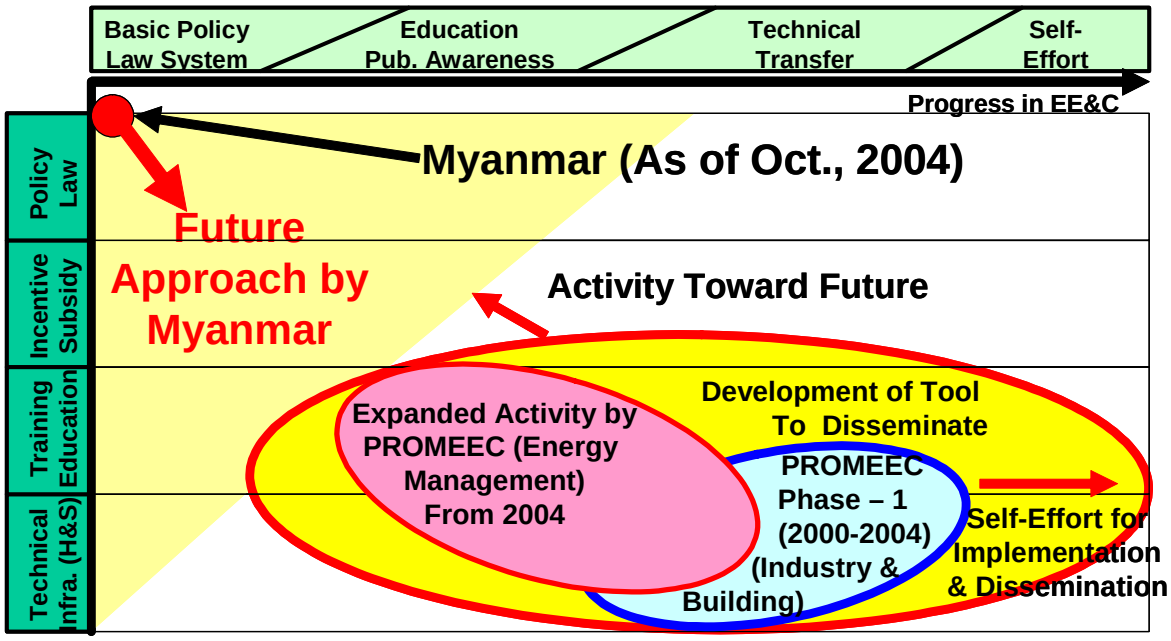
(1) The concept of life cycle cost should be included into energy management.

(2) It is problematic to simply bring Japanese emission control standard into developing countries.

4.2 Results of Discussion

The initial start of this project was smooth with active questions and discussions. One high level official gave a compliment to us, saying that frank discussions at our seminar workshop made the persons concerned take off their coat.

Figure-II-1: Present Status of Progress in Energy Conservation Promotion in Myanmar
(This is a diagram based on the viewpoint of programmed approach. The current status is indicated in red. The relation with the scope of the PROMEEC project is also shown.)



III. Cambodia

1. Summary of Activities

1.1 Mission members

The following two experts from The Energy Conservation Center, Japan (hereinafter referred to as “ECCJ) conducted a survey and participated in the local seminar – workshop. In addition to the experts, one staff was dispatched from the ASEAN Center for Energy (hereinafter referred to as “ACE”) to jointly carry out survey.

Kazuhiko YOSHIDA (Mr.)	General Manager International Engineering Department, ECCJ
Takashi SATO (Mr.)	Technical Expert International Engineering Department, ECCJ
Christopher G. ZAMORA (Mr.)	Program Manager, ACE

1. 2 Survey schedule and main interviewees

Survey Schedule

Date	Place for a meeting or a visit	Interviewees
7 October	Arrived at Phnom Penh	
8 October	Electricite Du Cambodge	Mr. Chan Sodavath
	Ministry of Industry, Mines and Energy (MIME)	Mr. Sat Samy and others
	Seminar-Workshop	
9 October	Left Phnom Penh	

Names and Positions of Main Interviewees

Dr. Sat Samy	Under Secretary of State, Ministry of Industry, Mines and Energy
Mr. Lieng Vuthy	Deputy Chief of Energy, Efficiency and Standard Office Department of Energy Technique, Ministry of Industry, Mines and Energy
Mr.Chan Socheat	Manager of Electric Standard & Energy Efficiency, Ministry of Industry, Mines and Energy (MIME)
Mr. Chan Sodavath	M. Engineering Director, Corporate Planning and Projects, Electricite Du Cambodge (EDC)
Mr. Hing Kunthap	Consultant, Energy and Environment, Ministry of Industry, Mines and Energy

Others

1. 3 Activities

The experts made efforts to collect information as much as possible and held a Mini-Workshop in one and a half days of short-term work.

Although our task was conducting a survey and a workshop only on 8 October due to the restricted schedule, we completed the task as scheduled with cooperation of Cambodian government officials, including Mr. Vuthy of the focal point. Due to this tight schedule, unfortunately it was not possible for us to present detailed results of the survey since we had little time for explanation.

The survey was conducted by interviewing the appropriate personnel in EDC and MIME in accordance with the questionnaire that had been sent in advance. A half-day workshop was held at the main conference room of MIME with thirty participants from EDC in addition to those from MIME. We had an active question-and-answer session and discussion on our lecture and survey.

2. Results of Survey

2.1 Current Situations of Infrastructure for Policy and Law

Development of framework and infrastructure for policies and regulative programs for energy conservation is still in process of starting preparation.

On the other hand, in comparison, the formulation of policies related to renewable energy is more advanced to some extent with the cooperation of NEDO and JICA etc. With regard to energy conservation, they say that the government is proceeding with the process to request support for policy formulation from foreign organizations including Japanese ones such as ECCJ. Moreover, projects to construct electric power grids and power generating plants are underway as remedies for non-electrified areas, and the plan for up to about 2015 has already being developed. This is the plan of development especially related to the ongoing power trade agreement with Thailand, Vietnam and others. The plan consists of not only the plan to enhance power supply through the power grids of which coverage is currently 15% but also the plan of power sales to the neighbor countries such as Thailand and Vietnam by developing hydropower generation of the Mekong River water system in the Northeast region. In particular, the government has a plan for improving rural electrification, including the development of natural renewable energy, in collaboration with the World Bank and others. In promoting electrification, the government employs the private power policy which encourages the private sector to take part in the government's projects to develop power plants.

In addition, electricity and fuel prices are very high due to the absence of subsidy from the government. This is a right market system for energy pricing. Cost for electricity, varying among customer sectors, is 11 to 18 cents per kWh on average, and petrol costs as expensive as 75 cents per liter. These put an enormous load on the national citizens and companies. Combined with the shortage of power supply capacity mentioned above, this situation contributes to the market environment in favor of energy conservation promotion.

In Cambodia, there is generally a lack of awareness on energy conservation and the government does not have any well-defined policies for energy conservation. Therefore, these causes various problems including the following ;

(1) There is no energy standard for buildings in spite of existence of the building codes.

(2) There is little government budget for energy conservation

(3) The energy conservation program of their own cannot be implemented.

From the viewpoints mentioned above, thus, it is strongly recognized that the energy conservation is the prioritized issue, and they also have big expectations for the PROMEEC project continued since 2000.

2.2 Establishment and Operation of Implementation Organizations to Implement Energy Audit /Training

Currently, there exists no organization for implementation.

Energy infrastructure has not been sufficiently developed yet in this country affected by the war just ended. Due to the impact of the past war, there is still a shortage of engineers and technicians hence it is currently difficult to study and prepare their policies for energy conservation or establish an organization to implement energy audit.

EDC has a training center for employeses as its internal training facility. However, its objective is limited mainly to practice related to power business, such as wiring and metering, and the program does not include any specifics of energy conservation technology. In the past, ACE and the other organizations from EU, Japan and the United Nations such as UN ESCAP provided training based on the job training and measuring instruments for industry and building sectors. However, because of the small number of measuring instruments, MIME cannot implement sufficient energy audit.

2.3 Activities to Promote Energy Conservation in Private Sector

The hotel industry is eager to promote energy conservation because of expensive electricity and diesel, while many industries do not use a huge amount of energy.

However, groups or associations to provide information about energy conservation to companies and the general public have not yet developed except the textile industry.

Based on the survey results mentioned above, the current situation in Cambodia is summarized as shown in Figure-III-1 the viewpoint of the programmed approach.

3. Suggested and Discussed Immediate Objectives Based on Results of Survey

For Cambodia, the survey results are summarized as follows.

First of all, the highest priority should be given to the formulation of policies for energy conservation. In order to achieve this goal, it is important to implement the followings at this time.

Namely, they should hurry in formulating policies. Next, they should develop a master plan, and legislative development should be urgently carried out, including study on technical / financial support for energy conservation promotion. Furthermore, it is important to associate successfully the power supply development currently being realized with the demand side management (DSM) to be further developed. In other words, they should proceed with this, effectuating the relationship with the PROMEEC project and the Action Plan of MIME that is included in a program conducted under the cooperation of UNDP/the World Bank.

In addition, regarding the technical infrastructure, it is required to develop facilities for capacity

building of the persons in charge of energy audit and the training for EE&C conducted by the team of MIME.

4. Results of Workshop

4.1 Summary

A seminar-workshop was held at the main conference room of MIME on 8 October, with nearly thirty participants mainly from MIME. The presentations by ECCJ consisted of the following two topics. We left out the preliminary survey results from our presentations since we did not have time to summarize them and our time was also limited.

1) Principle of Energy Management (Mr. Sato, Technical Expert, ECCJ)

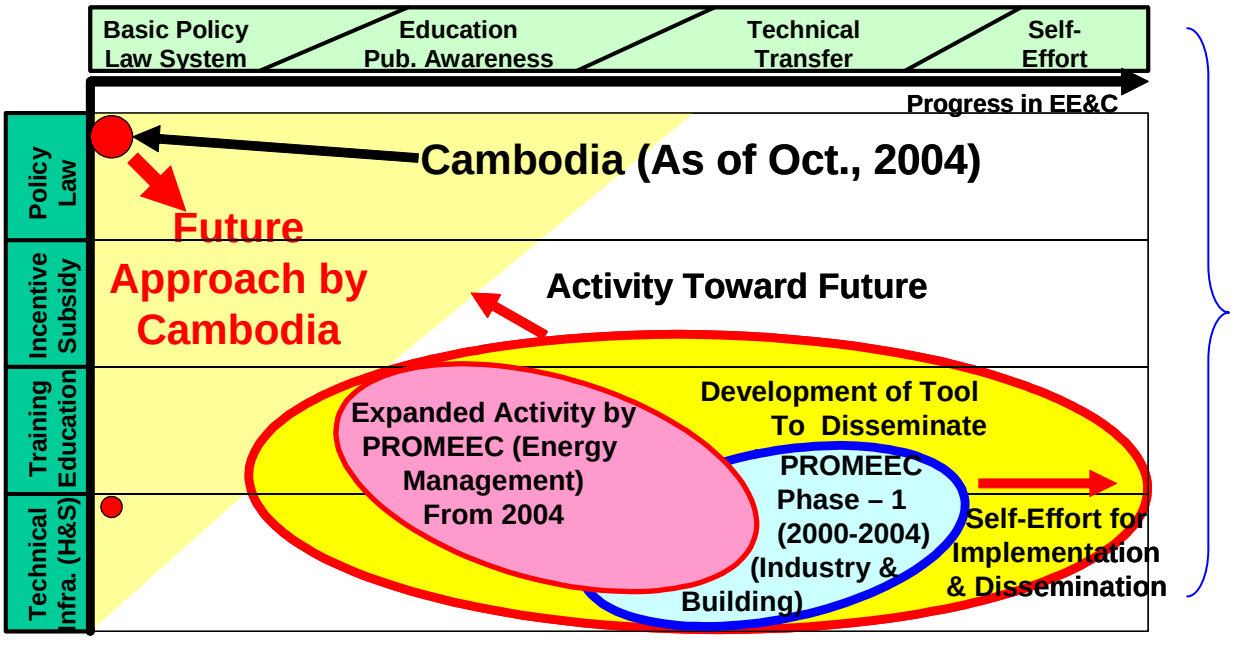
2) Energy Management System in Japan (Mr. Yoshida, General Manager, ECCJ)

Participants in Cambodia were quiet and gave us modest questions and comments. However, they were very eager to listen to our presentations taking notes seriously, without making any noise. We received comments from participants that our presentations provided them with much information and were very useful for them.

4.2 Results of Discussion

As mentioned above, we were not able to conduct discussions on results of the survey. However, they are eager to learn as much as possible from the Japan's presentation.

Figure-III-1: Present Status of Progress in Energy Conservation Promotion in Cambodia
(This is a diagram based on the viewpoint of programmed approach. The current status is indicated in red. The relation with the scope of the PROMEEC project is also shown.)



IV. Lao PDR

1. Summary of Activities

1.1 Mission members

The following two experts from The Energy Conservation Center, Japan (hereinafter referred to as “ECCJ) conducted a survey and participated in the local seminar – workshop. In addition to the experts, one staff was dispatched from the ASEAN Center for Energy (hereinafter referred to as “ACE”) to jointly carry out survey.

Kazuhiko YOSHIDA (Mr.)	General Manager International Engineering Department, ECCJ
Takashi SATO (Mr.)	Technical Expert International Engineering Department, ECCJ
Christopher G. ZAMORA (Mr.)	Program Manager, ACE

1.2 Survey schedule and main interviewees

Survey Schedule

Date	Place for a meeting or a visit	Interviewees
October 9	Arrived at Vientiane	
October 11	Electricite Du Laos (EDL)	Mr. Maypheth Phonphila and others
	Ministry of Industry and Handicrafts (MIH)	Mr. Houmphone Bulyaphol and others
	Seminar - Workshop	
October 12	Confirmation of the responses to the questionnaire to the persons from MIH	Mr. Khamso Kouphokha
	Left Vientiane	

Names and Positions of Main Interviewees

Mr. Houmphone Bulyaphol	Director General, Department of Electricity (EMD), Ministry of Industry and Handicrafts, Lao PDR
Mr. Khamso Kouphokham	Deputy Chief of EMD, Ministry of Industry and Handicrafts, Lao PDR
Mr. Maypheth Phonphila	Head of Loss Reduction Unit Technical Service Department, Electricite Du Laos (EDL)

Others

1.3 Activities

As well as the surveys in other countries, the survey was implemented by interviewing the persons concerned in accordance with the questionnaire that had been sent in advance.

Mainly, Mr. Khamso of the focal point and persons from the Ministry of Industry and

Handicraft (MIH) including Mr. Houmphone, Director General, Department of Electricity, MIH, were the interviewees.

Due to the availabilities of the persons concerned, the workshop was held on October 11th after collecting the replies to the questionnaire prepared by Mr. Khamso, before interviewing them on October 12th. Namely, in the morning of October 11th, Mr. Khamso gave us the fulfilled questionnaire and then we checked the responses. At the interview on October 12th, we met Mr. Maypheth, Head of Technical Service Department, Eletricite du Laos (EDL), MIH, to ask about mainly the current power-related projects and electricity pricing system in Lao PDR.

2. Results of Survey

2.1 Current Situations of Infrastructure for Policy and Law

Development of framework and infrastructure for policies and regulative programs for energy conservation is still in process of starting preparation.

Lao PDR has not developed well-defined policies and laws for energy conservation. In the past, request for preparation of a master plan was submitted to the Ministry of Finance, but it was not realized. While MIH is in charge of developing policy including legislation, those are in the stage of warming ideas. However, MIH is only responsible for energy conservation of electricity, whereas the Ministry of Commerce is in charge of petrol, gas, and other energies. There is no special cooperation or partnership between the two ministries for the time being.

Considering the fact that 99% of electric power depends on hydropower generation, energy price is relatively high in Lao PDR. That is, the price of electric power ranges from 3 to 4 cents per kWh, the average prices of petrol and diesel oil are respectively 60 cents per liter (petrol) and 43 cents per liter (diesel oil). However, these costs are less expensive, in comparison with those in Cambodia which has a similar economic environment. Among these energies, the government provides a subsidy of about 3 cents per kWh for electric power for residential use. Moreover, the price of electric power shall be approved by the government, MIH are implementing the policy to increase electricity price by 2 to 3% every month under the system. However, the increase in the price has been suspended for these several months since consumers complain about the policy. The price by April 2005 has already been fixed.

Japan has been assisting the country through JICA and NEDO by providng technical support to develop the Industrial Standard, making a comprehensive program of small hydropower generation, and planning hybrid power (solar and hydro) generation. The World Bank also cooperates with the country, for example, through the Energy Loss Reduction Program and the DSM project. There is a study on establishing a labeling system common to Thailand and Lao PDR, but any concrete plans have not been established.

Much remains to be done in terms of policy making. An impressive comment from a person concerned was that the absence of policy represented the major obstacle to energy conservation.

2.2 Establishment and Operation of Implementation Organizations to Implement Energy Audit /Training

Currently, there exists no organization for implementation.

In the past, DANIDA from Denmark conducted training for energy audit, lighting,

instrumentation, etc. targeting to officials of MIH. Korea has also invited trainees to provide training in the country. The trainees performed energy audit by themselves after the training, but they could not understand the methods of analysis and calculation due to their lack of experience. In addition, MIH held a local seminar-workshop with a small budget of US$900. EDL has a training center, where the company provides their employees with education only about wiring and metering. Meanwhile, that does not include any consistent, systematic lectures on energy conservation.

2.3 Activities to Promote Energy Conservation in Private Sector

In general, activities are slow.

However, we obtained a report that Beer Lao, a representative company in this country, was considering a CDM proposal in collaboration with Japan. The company also carries out brisk activities including their study on purchasing energy efficient air compressors.

On the other hand, according to a participant in the workshop from a Pepsi factory, the company is promoting energy conservation and the problem for them is that the information about technology for energy conservation is limited in Lao PDR. Although large companies including some hotels are carrying out energy conservation activities, it appears to be difficult to require the private sector to make an effort to conserve energy voluntarily without the policy well-directed by the government.

In addition, Lao PDR has not yet had any association or group in the industry or building sectors. We felt that the establishment of an organization to provide the private sector with information about energy conservation including the government's policy throughout the whole country would be an issue considered in the distant future.

Based on the survey results mentioned above, the current situation in Lao PDR is summarized as shown in Figure-IV-1 from the viewpoint of the programmed approach.

3. Suggested and Discussed Immediate Objectives Based on Results of Survey

For Lao PDR as well, the formulation of policies for energy conservation should be highly prioritized. In order to achieve this goal, it is important to implement the followings at this time.

Any specific activities to address abovementioned matters were not unfortunately found. Therefore, some concrete suggestions were made, emphasizing that this country should, first of all, organize a team to develop, integrate the policy ideas that bureaucrats have in their mind, and draft policies including the strategies and guidelines to realize the policy. After then, it would be better to discusss based on the drafts.

4. Results of Workshop

4.1 Summary

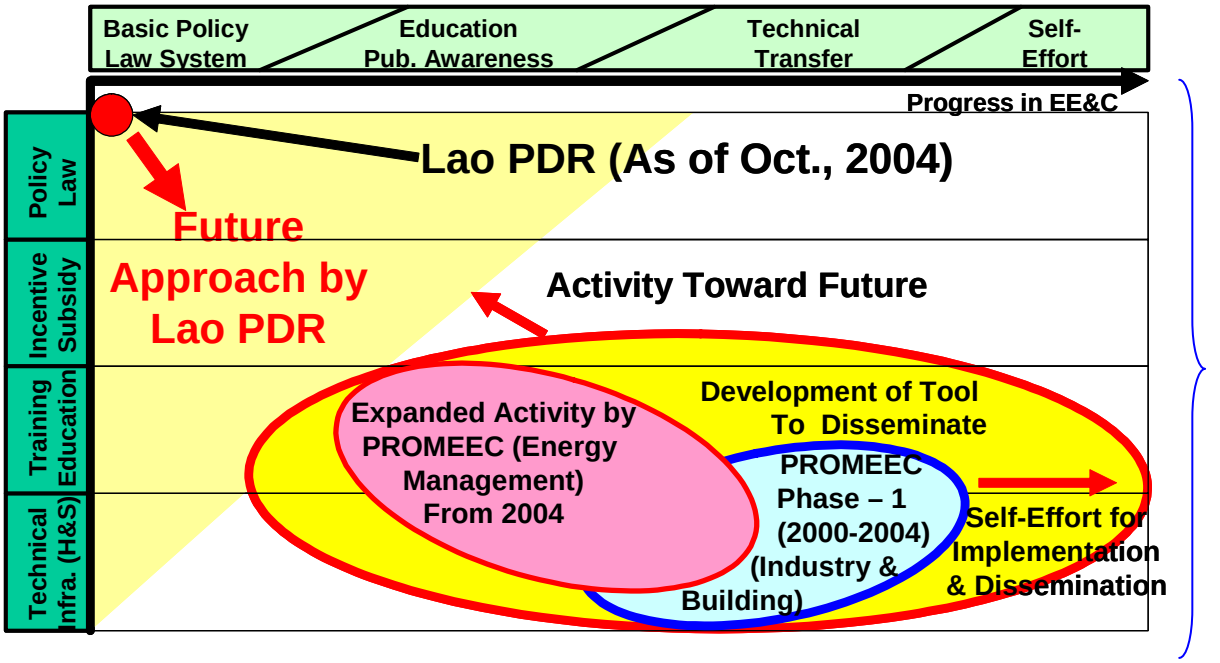
The seminar- workshop was held on October 11th at a MIH's building with about twenty participants from the private sector including buildings such as factories (e.g. Pepsi) and Lao

Plaza Hotel energy audited in 2003. Mr. Houmphone, Director General, Department of electricity took part in the workshop.
The presentations by ECCJ were as follows:
1) Principle of Energy Management (Mr. Sato, Technical Expert)
2) Energy Management System in Japan and Summary of Survey Results (Mr. Yoshida, General Manager)
Participants understood these presentation well and the question-and-answer and discussion were very active.

4.2 Results of Discussion

The Lao government successfully arranged the workshop. Besides, the workshop provided an opportunity of exchanging opinions between government officials and participants from the private sector. This was a good and fruitful result for this country to just develop policies for energy conservation from now on.
In the seminar-workshop, there were many questions about Japanese Industrial Standards and roles of the government in promoting energy conservation. There were also a request for provision of measuring instruments from Japan.
In the session to exchange opinions among the participants, a person in charge of energy from one factory told that their company addressed energy conservation and it is important to collect technical information for this activity. This comment triggered a heated discussion. Finally, all the participants requested that this kind of workshop and training course should be further implemented in the future by Japanese organization, especially ECCJ, under the financial support by the Japanese government.

Figure-IV-1: Present Status of Progress in Energy Conservation Promotion in Lao PDR
(This is a diagram based on the viewpoint of programmed approach. The current status is indicated in red. The relation with the scope of the PROMEEC project is also shown.)



V. Vietnam

1. Summary of Activities

1.1 Mission members

The following two experts from The Energy Conservation Center, Japan (hereinafter referred to as "ECCJ) conducted a survey and participated in the local seminar – workshop. In addition to the experts, one staff was dispatched from the ASEAN Center for Energy (hereinafter referred to as "ACE") to jointly carry out survey.

Kazuhiko YOSHIDA (Mr.)	General Manager International Engineering Department, ECCJ
Takashi SATO (Mr.)	Technical Expert International Engineering Department, ECCJ
Christopher G. ZAMORA (Mr.)	Program Manager, ACE

1.2 Survey schedule and main interviewees

Survey Schedule

Date	Place for a meeting or a visit	Interviewees
October 12	Arrived at Hanoi	
October 13	Electricity of Viet Nam	Mr. Le Van Chuyen and others
	Ministry of Industry	Mr. Vu Van Thai and others
October 14	Seminar - Workshop	
October 15	Left Hanoi	

Names and Positions of Main Interviewees

Mr. Vu Van Thai	Deputy Director General, Department of International Cooperation, Ministry of Industry (MOI)
Mr.Ngo Huy Toan	Energy expert, Department of International Cooperation, Ministry of Industry
Mr. Nguyen Dinh Hie	Deputy Director, Department of Science and Technology, Ministry of Industry
Mr. Nguyen Ba Vinh	Senior Energy Expert, Department for Science and Technology in Industry
Mr. Le Van Chuyen	Vice Director, Business & Rural Electrification Department, Electricity of Viet Nam (EVN)

Mr. Phan Minh Tuan Director, International Cooperation Dept. Electricity of Viet Nam
Others

1.3 Activities

The survey team visited Electricity of Vietnam (EVN, a state-owned company under the management of Ministry of Industry), Ministry of Industry (MOI) and Ministry of Science and

Technology (MOST) to have interviews with the persons concerned on October 13th, and the seminar-workshop was held on October 14th. Unfortunately, the reply to the questionnaire was prepared in Vietnam due to their busy timing to hold ASEM etc. The survey was implemented by interviewing the concerned persons. Nevertheless, high level officials including Mr. Vu Van Thai (a SOE leader), Deputy Director General, Department of International Cooperation of MOI and Mr. Phan Minh Tuan, Director, International Cooperation Department of EVN attended the interview meetings with the survey team to cooperate with the survey. Mr. Phong from MOI, who is a focal point, arranged the required visits to the related organizations and joined the survey as a member of the survey team.

An English/Vietnamese interpreter was hired for presentations and discussions in the workshop. Participants in Vietnam were satisfied with the results of the workshop in which very active question - and answer and discussion were made.

2. Results of Survey

2.1 Current Situations of Infrastructure for Policy and Law

The Energy Conservation Decree (hereinafter referred to as "EC Decree") became effective on September 13 2003 and further development of ministerial regulations is now in process to actually enforce the EC Decree.

In July 2004, MOI issued an initial circular (guideline) mainly on the designated factories for energy management and energy managers. Currently, MOI is preparing the additional circular regarding the matters which require coordination with other ministries, such as the support program, organizations for implementation, and labeling. At the same time, MOI officials implement seminars to explain about how to enforce the law, including lectures on the EC Decree and the details of the circulars, across the country.

Under this circumstance, MOI has a problem of the shortage of human resources for formulating circulars and implementing seminars for the time being. The Ministry hopes that foreign countries including Japan offer support to solve this kind of problem. According to them, compared with other countries, there are only five staffs in Vietnam to cover thirty industrial sectors. Furthermore, they have an intention to develop a system for enforcing law and an implementation organization such as ECCJ, studying the cases of Japan or Thailand in the near future. Therefore, MOI would like to request Japan to provide supports for the abovementioned activities.

On the other hand, Ministry of Science and Technology (MOST) concluded activities in line with a series of programs according to the master plan which had been prepared with cooperation of European countries including the Netherlands since 1995 when the Ministry was Ministry of Science, Technology and Environment (MOSTE), with effectuation of the EC Decree in last year. Under the EC Decree, MOST currently plays a role of giving technical support in collaboration with MOI. More specifically, its major responsibility related to the EC Decree is the standardization including standard / criteria of energy management and labeling. In addition, the MOST is proceeding with energy conservation promotion in small and medium enterprises of which number is approximately 120,000, as a part of the Vietnam

Energy Conservation Program (VECP) in collaboration with MOI. For that purpose, it is required for Vietnam to develop a new master plan focused on enhanced international collaboration and competitiveness with a future vision.

Many Ministries are involved in the enforcement of the EC Decree and the coordination among the Ministries has not successfully worked. Moreover, small and medium enterprises have come under the control of the local autonomy (prefecture level), and it is in process of realizing the plan to set up Energy Conservation Centers (ECCs) to implement training and energy audit at ten places in the country. EVN also continues activities directed toward its privatization, including activities to promote the introduction of IPP. Electricity prices currently ranges from 2.6 cents/kWh to 16.6 cents/kWh according to demand.

Regarding the prices of energy, the electric power price ranges 8 to 11 cents/kWh for residential use and 6 to 8 cents/kWh for industrial use respectively and the overall average price is as relatively low as about 3 cent/kWh probably because approximately 50% of electricity is shared by hydropower. A limited amount of electricity is eventually exported (the price is 6 cents/kWh) although the demand for electricity is increased about by 15% per year. The country has a power trade agreement with the neighboring countries such as China, Lao PDR and Cambodia to interchange power each other. A three tariff system for electricity price is employed with a higher price at peak period by about 30 percent. In particular for the electricity supplied to rural areas, the government subsidizes 700 dong per kWh. In principle, the government determines electricity prices. Ministry of Finance has planned to increase electricity prices so far, but the plan was rejected by Prime Minister.

As well as the other ASEAN countries, there is an absolute lack of funds for energy conservation activities. They told that they would like to study the funding based on the Thai system as a model case.

In general, the public are less aware of the importance of energy conservation, and this situation is similar to those of top management of companies and small and medium enterprises. Subsidy from the government for energy prices results in low energy prices, which is a difficult barrier for energy conservation promotion. Moreover, it is difficult for companies to purchase energy efficient equipment and facilities since the government currently does not subsidize to purchase energy efficient equipment.

2.2 Establishment and Operation of Implementation Organizations to Implement Energy Audit /Training

There exist Energy Conservation Center in Ho Chi Minh City and others (five centers have been established in the past, but they do not function properly except for some), Hanoi University of Technology (HUT), an education and training school of EVN and so on.

However, these implementation organizations have problems with their roles and budget, since the current EC Decree does not define the roles of organizations for energy conservation. Moreover, the existing centers have a problem with a lack of human resources and their capacities.

EVN owns Electricity College for education for mainly their employees, which provide curricula including curriculum on energy conservation. (The College will be upgraded to

University in 2006.) Furthermore, the Electricity Testing Centers conduct energy audit for electrical facilities / equipment. The centers exist mainly in major cities such as Hanoi City and Ho Chi Minh City, and have about one hundred staffs in total). MOI intends to place these organizations including HUT and ESCOs as effective implementation organization(s).

2.3 Activities to Promote Energy Conservation in Private Sector

Overall, the activities are not so active.

This is mainly because a market environment to enhance energy conservation has not been established due to low energy prices. As a result, awareness on energy conservation among companies is generally weak.

Moreover, the government has not yet established the financial support system such as a low-interest loan for energy conservation promotion, which is another big barrier to promote energy conservation. And, the government has not yet established any standards and guidelines for energy conservation.

Thus, in fact, top management of a company is less aware of the importance of energy conservation. In particular, the awareness is weaker in small and medium enterprises. On the other hand, it is also difficult to obtain information useful to study the technologies and activities for energy conservation.

Based on the survey results mentioned above, the current situation in Vietnam is summarized as shown in Figure-V-1 from the viewpoint of the programmed approach.

3. Suggested and Discussed Immediate Objectives Based on Results of Survey

For Vietnam, it is important to immediately develop specific regulations including guideline for enforcing the EC Decree, based on which to develop the implementation organization(s).

First of all, with regard to the development of specific regulations, it is required to organize a taskforce consisting of members from the concerned Ministries and governmental/private organizations or companies and to prioritize the following activities.

(1)To develop the following more specifically in accordance with the EC Decree

● Development of additional guidelines

1) Guideline with clarified specific job to accredit energy managers including education

2) Development of legal framework for the organization to actually implement those mentioned

3) Technical guideline for developing judgment criteria of energy management and of labeling.

● Study on specific programs for financial support

(2) To establish organizations, members and procedures for coordination between Ministries.

(3) To establish an implementation organization to implement training and energy audit including

programs for capacity building).

(4) To develop medium / long term plans and strategies for transition to market based energy pricing

(It targets to develop a market environment to encourage efforts by companies in the country.)

(5) To establish policies to enhance investment and technology transfer from foreign countries.

(It targets to promote the introduction of energy efficient technologies and facilities)

4. Results of Workshop

4.1 Summary

It was expected that about thirty five would participate in the workshop but many of the officials from MOI were not able to participate due to their schedule. Eventually, there were about twenty participants including Mr. Nguyen Dinh Hiep, Depty Director, Department of Science and Technology of MOI. The following topics were presented.

- Current Status and Activities on Energy Conservation and Efficiency in Vietnam (Mr. Phong, Science and Technology Dept., MOI)
- Energy Management Principle (Mr. Sato, Technical Expert, ECCJ)
- Energy Management System in Japan (Mr. Yoshida, General Manager, ECCJ)
- Summary of Survey Results (Mr. Yoshida, General Manager, ECCJ)

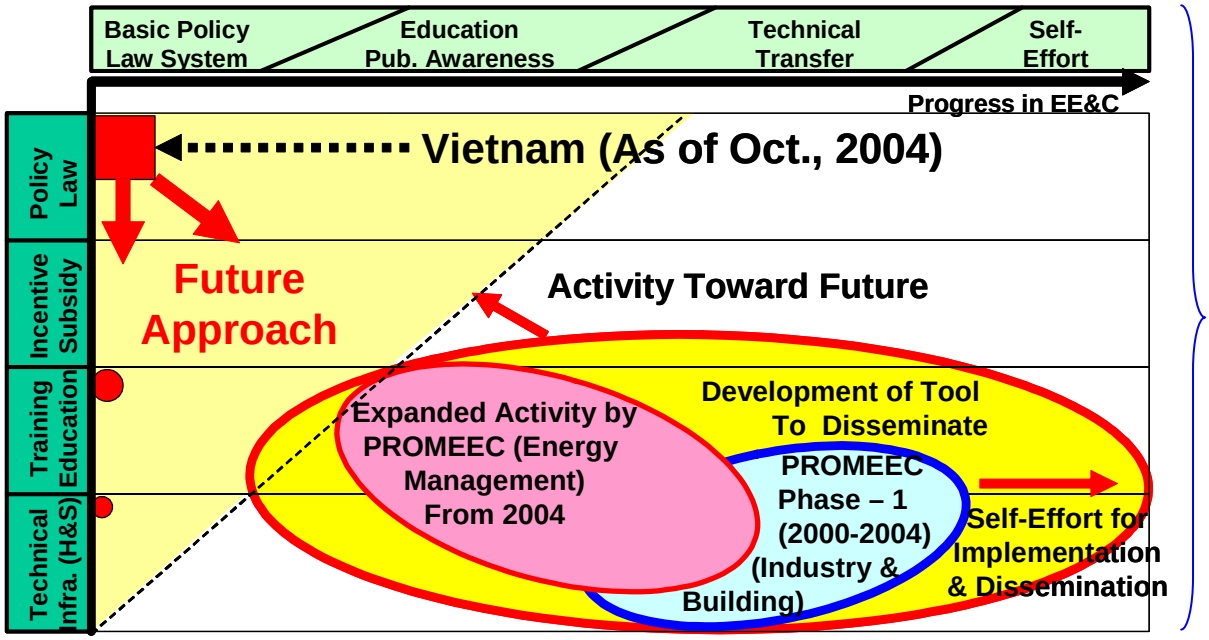
High-level officials such as Mr. Vu Van Thai from MOI and Mr. Phan Minh Tuan from EVN hoped to participate in this workshop, but they could not join because of a sudden change in their schedule on that day.

4.2 Results of Discussion

We had a lively question-and-answer session and discussion, which resulted in a profound and good workshop.

Finally, the workshop was closed with the comment from Vietnamese participants to us that they were surprised and appreciated that we had adequately summarized the results of the current situation survey conducted for only one day, from which we produced the proposals mentioned above.

Figure-V-1: Present Status of Progress in Energy Conservation Promotion in Vietnam
(This is a diagram based on the viewpoint of programmed approach. The current status is indicated in red. The relation with the scope of the PROMEEC project is also shown.)



VI. Indonesia

1. Summary of Activities

1.1 Mission members

The following two experts from The Energy Conservation Center, Japan (hereinafter referred to as “ECCJ) conducted a survey and participated in the local seminar – workshop. In addition to the experts, one staff was dispatched from the ASEAN Center for Energy (hereinafter referred to as “ACE”) to jointly carry out survey.

Kazuhiko YOSHIDA (Mr.)	General Manager International Engineering Department, ECCJ
Takashi SATO (Mr.)	Technical Expert International Engineering Department, ECCJ
Christopher G. ZAMORA (Mr.)	Program Manager, ACE

1.2 Survey schedule and main interviewees

Survey Schedule

Date	Place for a meeting or a visit	Interviewees
November 28	Arrived at Jakarta	
November 29	KONEBA, PLN, Plangi	Mr. Paulus Pulungan and others
November 30	ACE, Ministry of Energy	Ms Maryam Ayuni and others
December 1	Seminar - Workshop	
	Left Jakarta	

Names and Positions of Main Interviewees

Ms Maryam Ayuni	Ministry of Energy and Mineral Resources (MEMR)
Mr. Gannet Pontjowinoto	President, PT. KONEBA (persero)
Mr. Paulus Pulungan	PT. KONEBA (persero)
Ms.Julia Indrayani Puar	PT. KONEBA (persero)
Mr. Ignatius Suwardjaka	PT. KONEBA (persero)
Mr. Nasrullah Salim,Energy	Researcher, Pelangi
Mr.Ananta b. Gondomono	Research & Program Director, Pelangi
Mr. Syaiful B Ibrahim	Power Economist, PLN (peresero)

Others

(Note) 1) KONEBA is a state-owned implementation organization for energy conservation, which carries out training, energy audit and so on.
2) PLN is a state-owned electric power company.
3) Pelangi is a private think tank for energy and environment focusing on projects related to the Kyoto Protocol.

1.3 Activities

The survey was carried out by eventually interviewing them in accordance with the questionnaire that had been sent in advance. The survey team visited the organizations mentioned above to have an interview with the persons concerned by confirming or obtaining the responses to the questionnaire. The survey results were summarized as follows.

On the final day, the seminar-workshop was held for the purpose of both enhancing the participants' understanding of energy management including the practice and activities realized in Japan, and explaining / discussing the preliminary results of survey. Although this was a small workshop attended by twenty five concerned persons, all the participants made very active discussion and the workshop was successful.

2. Results of Survey

2.1 Current Situations of Infrastructure for Policy and Law

The "Energy Law" is in process of legislation in the parliament. The development of ministerial regulation was already started, though there has not been any specific expectation on a date and so on to enforce the law.

On the other hand, energy prices are cheap since the government subsidizes prices of electricity and so forth. It is a very big and tough issue for the government to eliminate the subsidies for energy price. While the government is making effort to reduce those subsidies in energy pricing, the actual progress is not good because there has been a strong resistance by the citizens against it.

The draft of "Energy Law" was prepared and started discussion for in 1999. Spending five years, the bill for discussion has been recently submitted to the parliament. However, it is not clear when the Law would pass the parliament to be enforced actually, partly because of the new inauguration of President Yudhoyono through the presidential election in September 2004.

However, it is worth remarking the following progress.

(1) "Green Energy Policy" was established and the law is in process of legislation.
(2) The country established national standards for energy conservation
(3) The energy conservation regulations for especially governmental buildings were enacted in a form of the Ministerial or Presidential Decrees.
(4) Specific study and discussion are in process toward enacting the "Energy Law" by the "Energy Resources Committee" including some working groups organized under BAKOREN (National Energy Coordinating Board) which is the inter-ministry organization for coordination.

The "Energy Law" consists of the three major articles ; category of supply side, category of demand side and penalty. The law is a general stipulations of a considerably wide area covering all of the energy conservation and new energy. Thus, it is required to define more specific regulations for energy conservation at ministerial ordinance level in the future.

Moreover, although the subsidies for energy prices are being decreased slightly and the recent

typical prices of electricity and petrol were increased up to 6.2 yen per kWh up and 31yen per liter respectively, the increase in energy prices has been suspended again since the recent change in the regime. Government officials and some enlightened persons from the private sector recognize that this situation can be not only the biggest obstacle to promote energy conservation but also a large burden of as much as US$1 billions for its national budget, as well as the hotbed of fraudulent transaction by exploiting a large difference in prices between the neighbor countries where fuels are more expensive. Nevertheless, that situation has not been improved. However, projects including diversification of energy resources are underway. In October 2004, the committee to study on introduction of incentive was organized and started to conduct activities for the introduction of energy conservation and new energy. An organization called as "National Investment Productivity" (PT PNM), which is under the control of the Central Bank, provides the small and medium enterprises with low interest rate loans.

Among other efforts of MEMR, it can be cited that MEMR develops the guidelines for energy management and implements the labeling of electrical appliances through the Product Certificate Institution. Moreover, MEMR implements the DSM (Demand Side Management) program in the energy consumed industries such as steel, cement and textile industries, which is a main activity of energy conservation, combined with DSM and SSM (Supply Side Management) programs implemented by PLN. According to PLN, their DSM program has been successful to date.

2.2 Establishment and Operation of Implementation Organizations to Implement Energy Audit /Training

KONEBA and registered companies (nine at present) implement energy audit and training.

KONEBA, established in 1987 as a state-owned energy conservation company, owns facilities for energy audit and conducts training for energy conservation. However, KONEBA faced difficulties in recruiting / maintaining experts who conduct evaluation or training (less than twenty experts at present) because their business environment has become less stable in addition to the changes in management environment. Under the above condition, other nine registered private companies carry out training independently or in collaboration with KONEBA. Additionally, KONEBA provides consultancy services including many kinds of energy audit and various studies related to governmental policies. Thus, KONEBA is the only existing main implementation organization. Reinforcement of the organization, including the official assignment of specific roles, should be considered in the legislation of Energy Law.

2.3 Activities to Promote Energy Conservation in Private Sector

Due to the current market environment in which energy prices are low as mentioned above, it can be said that the awareness about energy conservation is not high as a whole.

However, some companies are eager to address energy conservation. For example, PNL is conducting very lively activities for energy conservation (under the excellent management environment). Under the DSM, the company succeeded in preparing funds to introduce CFLs at home and instead charging less for the electricity consumed by the households where CFLs were introduced. 35,000,000 CFLs have been introduced to the houses so far and it is estimated

that the number of the CFLs introduced would reach 50,000,000 in total next year.
In terms of energy issue, moreover, it is worth remarking that environmental NGOs such as Pelangi carry out activities aimed at activating the activities in business related to CDM in conjunction with related organizations in Indonesia and abroad. Indonesia also ratified the Kyoto Protocol in early 2004 and Pelangi serves as one of the governmental think tanks to study on specific activities for CDM. Based on the understanding of the situation in Indonesia, planning to introduce funds and technology from foreign countries by utilizing CDM in the future would be one of the policies to breakthrough the current situation of energy market with a distorted energy pricing system.

Based on the survey results mentioned above, the current situation in Indonesia is summarized as shown in Figure-VI-1 from the viewpoint of the programmed approach.

3. Suggested and Discussed Improvement Based on Results of Survey

The following will be immediate objectives, based on the survey results as described above.

(1) Development of more specific and simplified regulations for energy conservation under the Energy Law which is currently under discussion in the parliament.
Opinions from the private sector should be also reflected in energy conservation policies and legislation.

(2) Enhanced efforts to create an economic environment where energy prices can be set based on market principles.
It is expected that appropriate competitions and energy conservation activities become more avtive.

(3) Consideration of possibility to appropriately utilize CDM as one of the ideas to restructure the energy market.

(4) Reinforcement of capabilities of energy conservation implementation organizations
The roles of the implementation organizations should be clearly defined by the Energy Law.
Reorganization of implementation organizations by making full use of their existing specialty
Improvement of capacities of trainers and energy auditors

4. Results of Workshop

4.1 Summary

The participants made a very active discussion including question-and-answer. They are from Ministry of Energy and Mineral Resources, Ministry of Industry, KONEBA, research institutions such as university, and the private sector, although the number of them was as small as twenty five.
The following were presented by ECCJ.
(1) Principle of Energy Management (Mr. Sato, Technical Expert)

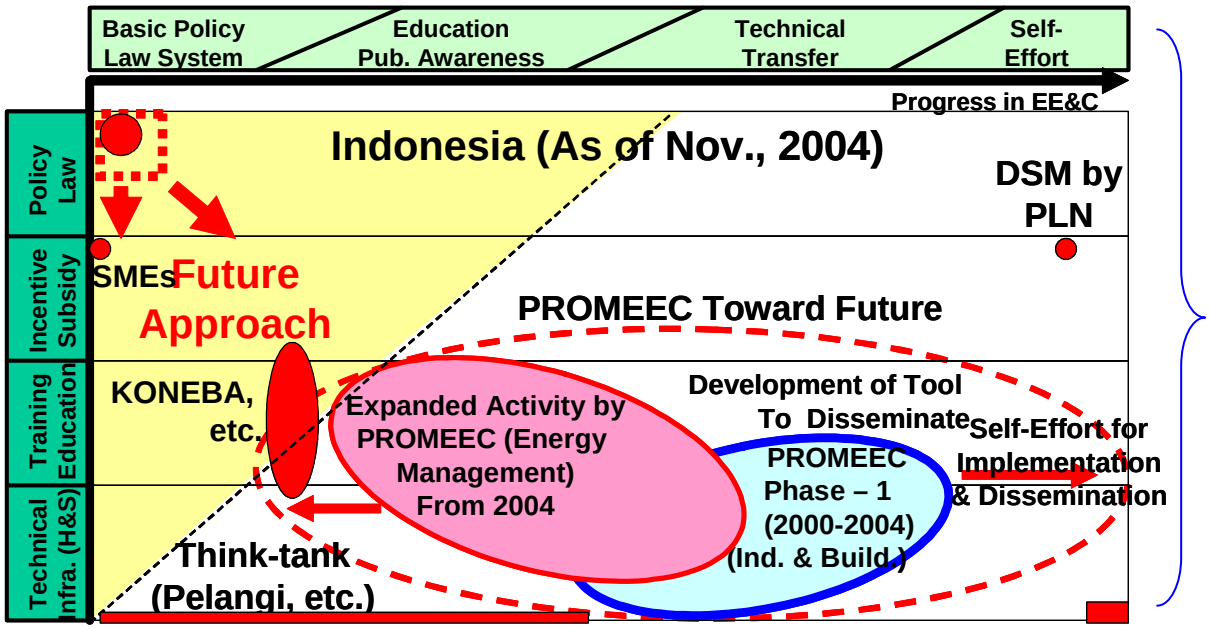
(2) Energy Management System in Japan and Summary of Survey Results (Preliminary)
(Mr. Yoshida, General Manager)

4.2 Results of Discussion

The discussions on the Japan's presentations were very active.

Some participants asked us the possibility for them to take training courses in Japan on energy management. In response to their questions, it was reported that ECCJ planned the training course focusing on policy related matters in February 2005 and that MEMR would work to collect applicants and select candidates.（It was actually carried out in January 2005)

Figure-VI-1: Present Status of Progress in Energy Conservation Promotion in Indonesia
(This is a diagram based on the viewpoint of programmed approach. The current status is indicated in red. The relation with the scope of the PROMEEC project is also shown.)



VII. Singapore

1. Summary of Activities

1.1 Mission members

The following two experts from The Energy Conservation Center, Japan (hereinafter referred to as “ECCJ) conducted a survey and participated in the local seminar – workshop. In addition to the experts, one staff was dispatched from the ASEAN Center for Energy (hereinafter referred to as “ACE”) to jointly carry out survey.

Kazuhiko YOSHIDA (Mr.)	General Manager International Engineering Department, ECCJ
Takashi SATO (Mr.)	Technical Expert International Engineering Department, ECCJ
Christopher G. ZAMORA (Mr.)	Program Manager, ACE

1.2 Survey schedule and main interviewees

Survey Schedule

Date	Place for a meeting or a visit	Interviewees
December 1	Arrived at Singapore	
December 2	National Environment Agency	Mr. A. Ram Bhaskar and others
	Industry Committee for Energy Efficiency (ICEE)	Mr. Vincent Low Loke Kiong and others
December 3	Seminar - Workshop	
	Left Singapore	

Names and Positions of Main Interviewees

Mr. A. Ram Bhaskar	Chief Engineer (Energy Conservation) Resource Conversion Department, National Environment Agency, Singapore
Mr. Pang Hian Kiat Eddie	Engineer, Resource Conversion Department, National Environment Agency, Singapore
Mr. Vincent Low Loke Kiong	Chairman Industry Committee for Energy Efficiency, Singapore Association for Environmental Occupational Health & Safety Company (SAFECO)
Ms. Kavita Gandhi	Manager, Singapore Association for Environmental Occupational Health & Safety Company (SAFECO)
Mr. Zulkarnain B H Umar	Engineer, Consumer Education, Energy Market Authority

Others

1.3 Activities

The survey was carried out by interviewing the persons in accordance with the questionnaire that had been sent in advance. The survey team visited the organizations mentioned above to

have an interview with the persons concerned by confirming or obtaining the responses to the questionnaire. The survey results were summarized as follows.

On the final day, the seminar-workshop was held for the purpose of both enhancing the participants' understanding of energy management including the practice and activities realized in Japan, and explaining / discussing the preliminary results of survey. That was the small workshop (meeting) with twelve participants. Nevertheless, all the participants made lively and fruitful discussions including opinion exchange between government officials and people from the private sector in this workshop as well.

2. Results of Survey

2.1 Current Situations of Infrastructure for Policy and Law

There are regulations to promote energy conservation for buildings. However, they have established policies for energy conservation promotion emphasizing environmental protection based on the market principles. Thus, Singapore is one of model countries with well-developed policy infrastructure among Southeast Asian countries.

Basically, policies and voluntary efforts by the private sector are prioritized rather than regulations in this country, and infrastructure development is more widespread compared with other ASEAN countries. Like Japan, Singapore highly depends on foreign countries in terms of energy. The country has a more serious problem than Japan with energy supply since no other energy source than utilization of sunlight cannot be expected even in case of new and renewable. Accordingly, energy conservation is a matter of highest priority in energy policies which center on energy conservation and environmental protection, because the country has no choice other than energy conservation for improving its energy condition. Energy prices are based on market principles and a healthy environment for energy conservation has been established. In this connection, electricity and petrol cost 8 to 10 yen per kWh and 72 yen per liter, respectively. The prices are still lower than those of Japan, but are higher compared with other Southeast Asian countries.

Policies have already been established in 2002 under the designation of the "Singapore Green Plan". An energy conservation program is being implemented in accordance with the three-year-plan that is further detailed based on the policy. The country carries out the program based on the "three P (Public/Private/People) partnership" which respects the initiative of private companies. At the same time, the country regulates building and transportation sectors which consume a huge amount of energy. For buildings, the regulations on design were enforced in 1979. Currently, for further improvement in evaluation criteria with an increased flexibility in application, the regulations independently introduce the ETTV (Envelop Thermal Transmittance Value) as one of the indices related to insulation instead of OTTV.

The country implements policies by organizing the National Energy Efficiency Committee (NEEC) and five sub-committees under it. People from universities and the private sector are included as members of the Committee. The Committee carries out characteristic activities as follows.

(1) In the industry sector, petroleum refinery/chemistry companies voluntarily and jointly

organize an energy audit team. Energy conservation audit and the improvement based on results of the energy audit are being implemented at an interval of about five years.

(2) Implementation of labeling of home appliance and automobile fuels by voluntary efforts of manufacturers

(3) Consideration of accreditation of ESCO (aiming at implementation in April 2005)

(4) Consideration of training and a accrediting system for energy managers (aiming at implementation in 2005 to 2006)

An incentive/disincentive system has been established in order to promote further energy conservation. As incentive measures, the following are established.

(1) System to exempt customs duties levied on imported appliances except for cars

(2) Low interest financing program called as the "Environmental Sustainability Fund"
This was introduced in 2001 to introduce facilities and technology for energy conservation and new energy

(3) "Accelerated depreciation" system
This was introduced in 1997 and is applied to the introduction of specified energy efficient appliances.

On the other hand, as disincentive measures, the following are established.

(1) System in which the annual total number of cars newly registered is restricted and each owner shall purchase a certificate valid for ten years

(2) Electronic Road System in which a toll is automatically charged when a car travels the roads

Compared with other countries, based on the fact mentioned above, it cannot be denied that Singapore is one of the well developed countries in terms of the infrastructure and operation for policies, environment and support programs for energy conservation.

However, also in Singapore, the persons concerned in the private sector as well as government officials show the recognition that awareness on energy conservation is not sufficient among company workers including top management and the public people.

2.2 Establishment and Operation of Implementation Organizations to Implement Energy Audit /Training

Though there is no implementation organization specialized for energy conservation in particular, training programs by utilizing the existing universities, ICEE and NGOs are carried out. Energy audit is conducted by teams of petroleum refinery companies or ESCO.

In particular, NGEE ANN Polytech prepares a diploma course in energy efficiency and conservation and a curriculum to implement a specialist training for company workers who have graduated from university. In addition, the National University of Singapore (NUS) is considering a program of training and a accrediting system for energy managers under the NEEC.

According to the persons concerned, there are still some points to be improved. Based on this background, they have a wish for training in Japan and the universities described their request informally early this year.

2.3 Suggested and Discussed Improvement Based on Results of Survey

In general, large companies and some buildings are highly aware of energy conservation.
Among petroleum refinery/chemistry companies, major companies have already organized energy audit teams voluntarily and carried out energy audit in each factory. In addition, a subsidiary company of Singapore Power established the "Energy Efficiency Center" where there are a variety of exhibitions aimed at educating and enlightening general consumers and children on energy conservation. We did not visit private companies except for ICEE this time. We cannot, therefore, confirm more information about the activities by private sector than that from ICCE. In fact, there are some large companies which are very serious about energy conservation from the viewpoint of business, but overall awareness of energy conservation has not been sufficient yet. Under this circumstance, ICEE, which has 75 member companies, realized inter-industry and inter-company activities by conducting walk-through energy audit with funds from the member companies and cooperating with the diploma course for energy conservation by universities as mentioned above through dispatch lecturers and arrangement of factory visit. They feel an importance of preparing guidelines for energy conservation especially in the industrial sector, and of information from foreign countries including Japan.

Based on the survey results mentioned above, the current situation in Singapore is summarized as shown in Figure-VII-1 from the viewpoint of the programmed approach.

3. Suggested and Discussed Immediate Objectives Based on Results of Survey

The following will be immediate objectives, based on the survey results as described above.

(1) Consolidation or reorganization of implementation organization for energy conservation
The consistent activities for energy conservation should be facilitated to enhance awareness of energy conservation among all the industries and a company as a whole.
Moreover, the implementation organization is expected to bridge between the government and the private sector.
(2) Development of guidelines for energy conservation for the industry sector
(3) Enhancement of capacity of the persons in charge of energy management
(4) Utilization of international cooperation in order to promote the above-mentioned activities

4. Results of Workshop

4.1 Summary

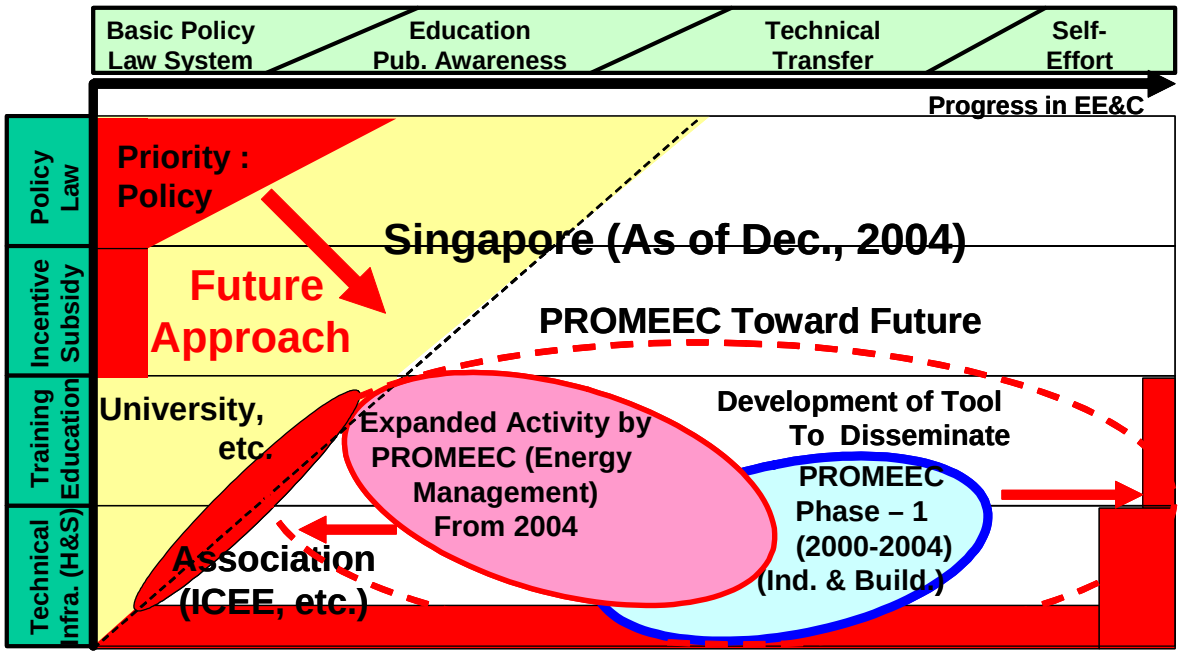
Twelve people took part in the workshop from the government, universities, and private companies such as ESCO. Participants who play different roles in energy management gathered together and made very active and fruitful discussion including question and answer. The workshop was very effective for the participants to reflect the results on their business.
Our presentation was about the following three.
The following were presented by ECCJ.
(1) Principle of Energy Management (Mr. Sato, Technical Expert)

(2) Energy Management System in Japan and Summary of Survey Results (Preliminary)
(Mr. Yoshida, General Manager)

4.2 Results of Discussion

The discussions on the Japan's presentations were very active.
In particular, there was a heated discussion on the above-mentioned measures for improvement.
Moreover, there were active question and answers on the energy management system in Japan.
On this occasion, there were again request and enquiry as to the training in Japan on energy management.
(Currently, the requirement is in process in the Singaporean government including their decision of submission of the official request to Japan.).

Figure-VII-1: Present Status of Progress in Energy Conservation Promotion in Singapore
(This is a diagram based on the viewpoint of programmed approach. The current status is indicated in red. The relation with the scope of the PROMEEC project is also shown.)



VIII. Brunei Darussalam

1. Summary of Activities

1.1 Dispatched member

The following two experts from The Energy Conservation Center, Japan (hereinafter referred to as "ECCJ) conducted a survey and participated in the local seminar – workshop. In addition to the experts, one staff was dispatched from the ASEAN Center for Energy (hereinafter referred to as "ACE") to jointly carry out survey.

Kazuhiko YOSHIDA (Mr.)	General Manager International Engineering Department, ECCJ
Takashi SATO (Mr.)	Technical Expert International Engineering Department, ECCJ
Christopher G. ZAMORA (Mr.)	Program Manager, ACE

1.2 Survey schedule and major interviewees

Survey Schedule

Date	Meeting or persons to visit	Major interviewees in visiting places
December 4	Arrived at Bandar Seri Begawan	
	Ministry of Development	Mr. Amir Sharifuddin Hj Ali, others
December 6	Seminar - Workshop	
	Left Bandar Seri Begawan	

Names and Positions of Main Interviewees

Mr. Haji Ismail Puteh	Head of Corporate Planning and Services, Department of Electrical Services, Ministry of Development (DES)
Mr. Dennis Tet Yin Wong	Head of Building Services Section, Department of Electrical Services, Ministry of Development
Mr. Amir Sharifuddin Hj Ali	Department of Electrical Services, Ministry of Development
Mr. Lim Cheng Guan	Superintendent Engineer, Department of Electrical Services, Ministry of Development

Others

1.3 Activities

The survey was conducted by interviewing the persons in accordance with the questionnaires sent in advance. The survey team visited the organizations mentioned above to have an interview with the persons concerned by confirming or obtaining the responses to the questionnaire. The survey results were summarized as follows.

On the final day, the seminar-workshop was held for the purpose of both enhancing the participants' understanding of energy management including the practice and activities realized in Japan, and explaining / discussing the preliminary results of survey.

The interviewees were limited to persons from the Department of Electric Services (DES), and no one in charge of developing policies from both Prime-minister's Office and DES could attend the meeting. Meanwhile, 31 persons participated in the workshop and active discussions were made.

2. Results of Survey

2.1 Current Situations of Infrastructure for Policy and Law

While Brunei has affluent resources of petroleum and natural gas and the policies on energy security on petroleum and gas and environmental protection have been established, those do not include any policy specialized in energy conservation. The Prime-minister's Office (PMO) developed the National Development Plan, for the purpose of realizing the policy, and the National Energy Committee was organized and operated by the Petroleum Unit under PMO. Each Ministry or Agency carries out the policies under it.

On the other hand, the Ministry of Development developed the 5 Year Plan for National Economic Development (the latest one is the 8th plan for 2001 to 2005) in line with development of electric power and gas. The plan includes the diversification of economy by introducing industries such as aluminum smelting utilizing domestic abundant energy resources. Thus, in addition to energy diversification for reducing the dependence on petroleum and natural gas resources, energy conservation has become an important issue among the energy policies.

As for the environmental policy, the National Committee on Environment has developed and operates the National Environment Strategy.

Under the policy, the improvements in efficiency of electric power generation and electric supply, and Demand Side management (DSM) in the electric sector have been implemented as activities for energy conservation. Moreover, the public campaign is implemented to enhance understanding on the importance of energy conservation and environmental protection and the activities to revise or add to the existing codes on heat insulation for building currently focused on hygiene codes.

However, the government does not collect taxes from citizens and provides citizens with various supports, which may result in weakening the public awareness on the importance of energy conservation. Currently, the energy prices are very cheap, namely the electric power costs 3 Yen/kWh, petrol and diesel oil cost 30 Yen per liter and 24 Yen per liter respectively in spite of the situation that refined oil is imported. It seems tough to establish the normal energy market where energy is priced only by the economic principle such as demand-supply balance. In addition, the cost of energy conservation equipment is expensive. Those factors badly affect the promotion of energy conservation in this country.

2.2 Establishment and Operation of Implementation Organizations to Implement Energy Audit /Training

Although there are no special implementation organizations, DES and Petroleum Unit have played a role of the actual implementation organizations.

Meanwhile, the Institute of Technology in Brunei (ITB) has been carrying out the university's

zero- energy project focused on passive design, or project of model house equipped with photovoltaic cells. (NEDO and JICA were said to be cooperators.)
Further, the university provides curriculums including the energy conservation course and considers preparing an energy audit program.
However, from a viewpoint of consistency of the implementation, it was difficult to identify the organization which coordinates the activities for energy conservation by these implementation organizations under the policy.

2.3 Activities to Promote Energy Conservation in Private Sector

Voluntary energy conservation promotion activities in private sector are limited.
As aforementioned, due to low energy prices and high cost of energy efficient appliances, energy conservation has not been promoted. Under the circumstance, the projects in connection with CDM to introduce the efficient power generators and power distribution are under way. However, most of the equipment is imported, which may be technical barriers for inspection and maintenance of the equipment.

Based on the survey results mentioned above, the current situation in Brunei is summarized as shown in Figure-VIII-1 from the viewpoint of the programmed approach.

3. Suggested and Discussed Improvement Based on Results of Survey

The following will be immediate objectives, based on the survey results as described above.

(1) Organization of a taskforce consisting of members from the concerned Ministries and Agencies to develop the specific action plan and a strategy.
(2) Strengthened education to enhance the awareness of the public people and employees of enterprises.
(3) Introduction of a taxation system aiming at financial sources for energy conservation to establish budget

4. Results of Workshop

4.1 Summary

31 persons from Ministry of Development, Prime Minister's Office, Ministry of Industry and Primary Resources, Ministry of Health and university participated in the workshop.
The following three were presented by ECCJ.
(1) Principle of Energy Management (Mr. Sato, Technical Expert)
(2) Energy Management System in Japan and Summary of Survey Results (Preliminary)
(Mr. Yoshida, General Manager)
The participants made very active questions and discussions on the survey results and the proposed measures for improvement. This was a valuable opportunity to exchange opinions and also obtain new information.

4.2 Results of discussions

As abovementioned, active questions and discussions were made on the presentations provided by ECCJ.

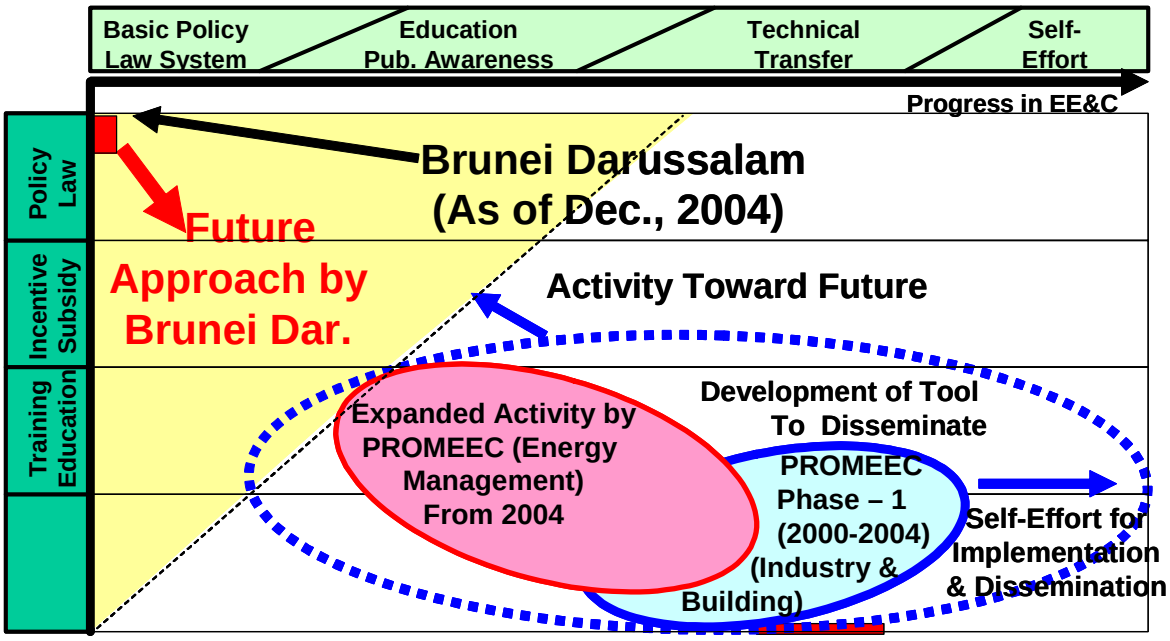
Through the discussions, it became clear that some government officers have earnestly been dealing with measures for environmental protection including energy conservation in the future with a serious sense of crisis.

The discussion in the workshop clarified the fact that various information was not shared even among concerned persons from the same government.

As a result, the workshop not only deepened the understanding of energy management for the related persons in Brunei, but also could give the participants a good opportunity to share the information.

Figure-VIII-1：Present Status of Progress in Energy Conservation Promotion in Brunei Darussalam

(This is a diagram based on the viewpoint of programmed approach. The current status is indicated in red. The relation with the scope of the PROMEEC project is also shown.)



IX. Malaysia

1. Summary of Activities

1.1 Dispatched member

The following two experts from The Energy Conservation Center, Japan (hereinafter referred to as "ECCJ) conducted a survey and participated in the local seminar – workshop. In addition to the experts, one staff was dispatched from the ASEAN Center for Energy (hereinafter referred to as "ACE") to jointly carry out survey.

Kazuhiko YOSHIDA (Mr.)	General Manager International Engineering Department, ECCJ
Takashi SATO (Mr.)	Technical Expert International Engineering Department, ECCJ
Christopher G. ZAMORA (Mr.)	Program Manager, ACE

1.2 Survey schedule and major interviewees

Survey Schedule

Date	Meeting or persons to visit	Major interviewees in visiting places
December 6	Arrive at Kuala Lumpur	
December 7	Ptm/ Ministry of Energy, Water and Communication (MEWC)	Dr. Anuar Abdul Rahman, others
	Energy Commission	Mr. Ir. Francis Xavier Jacob, others
December 8	Seminar - Workshop	
	Leave Kuala Lumpur	

Names and Positions of Main Interviewees

Dr. Anish Kumar Roy	Undesecretary, Ministry of Electricity, Water and Communication (hereinafter referred to as "MEWC")
Dr. Anuar Abdul Rahman	Chief Executive Officer/Director, Ptm (Malaysia Energy Centre)
Ms. Azah Ahmad Research	Officer, Energy Industry & Sustainable Development Division, Ptm (Malaysia Energy Centre)
Mr.Abdul karim Abdul Bari	Project Manager, Energy Industry & Sustainable Development Division, Ptm(Malaysia Energy Centre)
Mr.Asfazam Kasbani	Program Manager, Energy Industry & Sustainable Development Division, Ptm(Malaysia Energy Centre)
Mr. Ir. Francis Xavier Jacob	Deputy Director, Energy Efficiency & Innovation Department, Energy Commission
Ms. Nurhafize Binti Mohd Hasan	Assistant Director Energy Efficiency & Innovation Department, Energy Commission

Others

1.3 Activities

The survey was conducted by interviewing the persons in accordance with the questionnaires sent in advance. The survey team visited the organizations mentioned above to have an interview with the persons concerned by confirming or obtaining the responses to the questionnaire. The survey results were summarized as follows.

On the final day, the seminar-workshop was held for the purpose of both enhancing the participants' understanding of energy management including the practice and activities realized in Japan, and explaining / discussing the preliminary results of survey.

The persons from Ptm and Energy Commissions were interviewed. Confirming responses to the questionnaires, the interview was conducted smoothly and efficiently. Meanwhile, in addition to persons from the government side including NEWC and Ptm, about 30 persons from the implementation organizations or institutes, universities and the private sector participated in the seminar workshop, and active discussions were made.

2. Results of Survey

2.1 Current Situations of Infrastructure for Policy and Law

The policy to promote energy conservation is basically market-oriented (not directive) and respects the voluntary effort by the private sector, while the country intends to legislate the regulation on electric power.

Namely, Malaysia is in the process of legislation of the "Energy Efficiency Regulation on Electricity." The law aims to reduce energy (electricity) consumption in the designated factories or buildings where more than 6 million kWh per annum is consumed.

The policy, however, is based on measures stemmed from "Encouragement and Promotion" in their expression. What was established is the Energy Policy effectuated in 1979. Based on this policy, the latest 5-Year Plan for 2000-2005 under the 10-Year Plan for 2000-2010 was developed. The current activities are implemented in accordance with the energy plan on "Energy Supply" and "Energy Efficiency". The legislation of "Energy Efficiency Regulation on Electricity is also included in the plan.

Concretely, studying "Energy Master Plan," enforcement of the aforementioned "Energy Efficiency Regulation on Electricity" is being expedited. The draft has already been completed, and it is in the process of checking the law text. In line with this, the further concrete execution procedures and plans such as qualification / accreditation system for the energy manager have been being developed. In addition, various incentives have been stipulated and introduced. These are 5 categories of the system, namely "Investment Tax Allowance", "Pioneer Tax Allowance", "Accelerated Capital Allowance", "Sales Tax Exemption," and "Import Duty Exemption." But due to the complicated procedure for application and unfamiliarity with the public still now, it is said that these have not been well utilized yet.

Meanwhile, it is the fact that the government has subsidized energy prices while the country reserves and produces the energy resources. Currently, the price of electric power is 5.5 to 6.5 yen / kWh, and that of petrol is 40yen / liter. Furthermore, the price of natural gas supplied to

the power generating companies such as TNB is also subsidized to make the electric power price lower. Although the government also admits that this situation has become a barrier against promotion of energy conservation as well as the other countries and the reduction in these subsidies has been adopted in the policies, the actual realization will not be so easy. New future schemes for financial support are being studied, and the two important policies would be coordinated taking the balance of the both.

In the meantime, Malaysia's featured point is that the country is very active for the international cooperative project included the DSM project such as MIEEIP (Malaysian Industrial Energy Efficiency International Project) as a key axis for promoting energy conservation.

2.2 Establishment and Operation of Implementation Organizations to Implement Energy Audit /Training

As for the implementation organization, Ptm and CETREE (Center for Education and Training of Renewable Energy and Energy Efficiency) jointly function with Energy Commission (EC) who is an actual core institution. Applying ESCO partially, those organizations implement training and energy audit, various projects and publicity activities. However, in addition to a shortage of trainers and auditors (especially in industrial sectors), activities of these organizations are actually affected by the aforementioned situation of the distorted energy market which could be barriers against voluntary promotion of energy conservation by enterprises including improvement in their awareness. The training course for energy managers (electricity) has been conducted on a voluntary basis in view of the law enforcement in the future. The participants are from the factories and buildings which will be stipulated to be the designated factories and buildings consumed 6 million kWh per annum or more by the "Energy Efficiency Regulation (Electricity)".

2.3 Activities to Promote Energy Conservation in Private Sector

As aforementioned, while the subsidized energy prices and affluent energy resources would never be a good environment for promotion of energy conservation, it is true that a part of enterprises including large enterprises are eager to implement activities for energy conservation.

The government also organized a committee for a dialogue between the government and the private sector, where the government provides the private sector with information on policies and legislation or the place to discuss with the private sector.

Although the government is encouraging ESCO business as a concrete policy for promoting market oriented activities for energy conservation, shallow understanding of contracts for ESCO projects and a weak technical infrastructure caused by a lack of engineers available in the industrial sector result in the fact that ESCO business is still developing mainly in the field of building. In addition, ESCO as well as other industries faces the similar difficulty of the aforementioned condition of the present energy market which causes a big problem with promoting energy conservation projects. As a conclusion, the policy to enhance ESCO business includes a hard issue while there are ESCOs actively developing their business in the building sector.

It is a fact that some enterprises, in particular, large-scale enterprises and joint ventured

companies with foreign companies are enthusiastic to promote energy conservation and they have dispatched employees to the abovementioned training course.

Based on the survey results mentioned above, the current situation in Malaysia is summarized as shown in Fig. – IX – 1 from the viewpoint of the programmed approach.

3. Suggested and Discussed Immediate Objectives Based on Results of Survey

The following will be immediate objectives, based on the survey results as described above.

(1) Study to add thermal energy to the Energy Efficiency Law
Guidelines for the industrial sector should be included.

(2) Continued effort to gradually decrease the subsidies for energy price and study on strategies to shift to the system for energy pricing based on market principle.

(3) Improvement in quality of energy auditors, lecturers and trainers (especially for the industrial sector).

(4) Study to establish a single implementation organization including reorganization of the existing organizations and institutes for the purpose of implementing consistent activities

(5) Promotion of information exchange in the private sector

4. Results of Workshop

4.1 Summary

About 30 persons participated in the workshop. Participants consist of various members from Economy Planning Unit (EPU), Ptm, CETREE (Center for Education and Training for Renewable Energy and Energy Efficiency), universities and companies in the industrial and building sectors.

The following three were presented by ECCJ.

1) Principle of Energy Management (Mr. Sato, Technical Expert)

2) Energy Management System in Japan (Mr. Yoshida, General Manager)

3) Summary of Survey results (Preliminary) (Mr. Yoshida, General Manager)

In the opening of the workshop, Dr. Anish Kumar Roy, Under Secretary of NEWC gave an important keynote opening remarks, and finally, Dr. Anuar Abful Rahman, Ptm's CEO, closed the valuable workshop with his excellent speech. The workshop was fruitful through active question - answer and discussions.

4.2 Results of Discussion

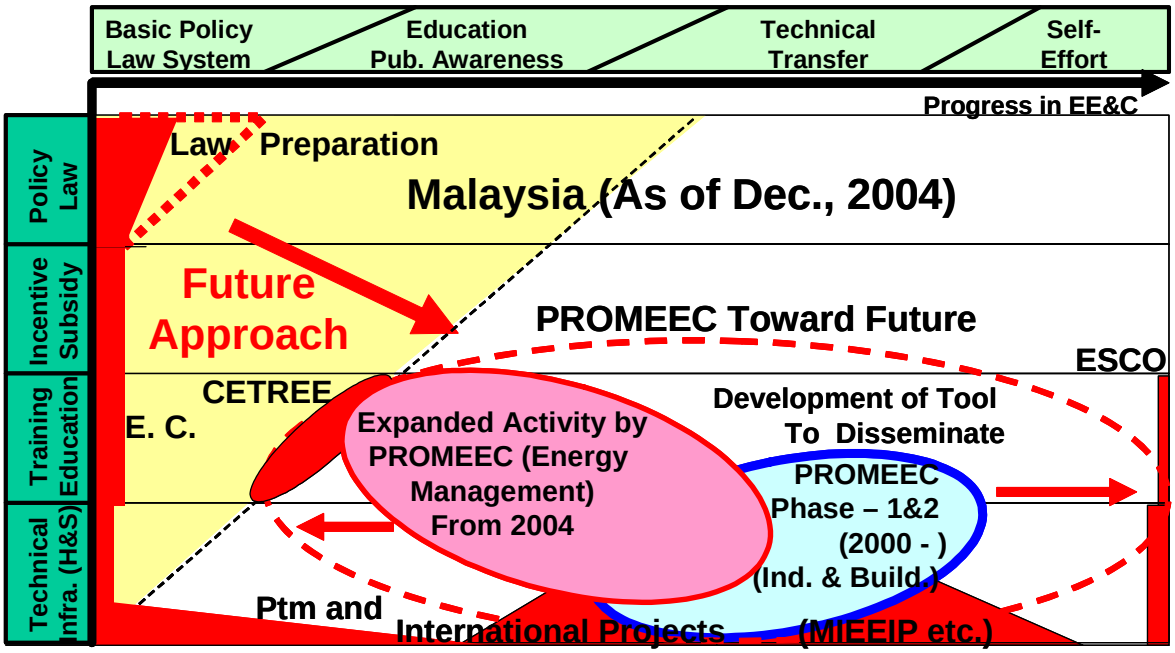
As aforementioned, active question-answers and discussions were made on the presentations provided by ECCJ and it took longer than scheduled to close the workshop.

Energy Commission also presented the policy for energy conservation including the details of the Energy Efficiency Regulation for electricity to be legislated. (According to the presenter, this regulation is in process of legal check and will be completely disclosed and published after checking.) The regulation includes the system to assign the energy manager related to the

designation of factories and buildings which consume energy of 6 million kWh or more.

It seems that the details of the policy and the regulation were not informed in the private sector. In the workshop, the persons from the government and the private sector made a serious discussion especially on the details of regulation and the financial supporting system. Moreover, questions concentrated on the actual status of Japan. Based on these, their arguments were really heated which the government policy shall base on “regulations” or “deregulations.”
Furthermore, on this background, the workshop was really successful in providing Malaysian persons with a good opportunity to discuss the policy including the active questions and answers on the PROMEEC Energy Management Project.

Figure-IX-1：Present Status of Progress in Energy Conservation Promotion in Malaysia
(This is a diagram based on the viewpoint of programmed approach. The current status is indicated in red. The relation with the scope of the PROMEEC project is also shown.)



X. Philippines

1. Summary of Activities

1.1 Dispatched member

The following two experts from The Energy Conservation Center, Japan (hereinafter referred to as “ECCJ) conducted a survey and participated in the local seminar – workshop. In addition to the experts, one staff was dispatched from the ASEAN Center for Energy (hereinafter referred to as “ACE”) to jointly carry out survey.

Kazuhiko YOSHIDA (Mr.)	General Manager International Engineering Department, ECCJ
Takashi SATO (Mr.)	Technical Expert International Engineering Department, ECCJ
Christopher G. ZAMORA (Mr.)	Program Manager, ACE

1.2 Survey schedule and major interviewees

Survey Schedule

Date	Meeting or persons to visit	Major interviewees in visiting places
December 8	Arrive at Manila	
December 9	Department of Energy(DOE) ENMAP、IIDI, ESCOs	Mr. Jesus C. Anunciasion and Others
December 10	Seminar - Workshop（DOE）	
December 11	Leave Manila	

Names and Positions of Main Interviewees

Mr. Jesus C. Anunciasion	Chief Science Research Specialist, Energy Efficiency & Conservation Division, Department of Energy (DOE)
Mr. Marlon Romulo U. Domingo	Sr. Science Research Specialist, Consultancy & Engineering Service Section, Department of Energy (DOE)
Mr. Rosalie Joan D.R. Sotelo	Sr. Science Research Specialist Technology Promotion and Assessment Section, Energy Efficiency & Conservation Division, Department of Energy (DOE)
Ms. Alice B. Herrera	Ph.D. President Energy Management Association of the Philippines (ENMAP)
Mr. Ron Allan B. GO-ACO	Engineering Director Special Project, Honeywell (ESCO)
Mr.Jose Joey O. DE Jesus	President OSP Advantage System (ESCO)

Others

1.3 Activities

The survey was conducted by interviewing the persons in accordance with the questionnaires sent in advance. The survey team visited the organizations mentioned above to have an interview with the persons concerned by confirming or obtaining the responses to the questionnaire. The survey results were summarized as follows.

On the final day, the seminar-workshop was held for the purpose of both enhancing the participants' understanding of energy management including the practice and activities realized in Japan, and explaining / discussing the preliminary results of survey. About 20 persons from building management companies and ESCO etc. in addition to the government participated in the seminar-workshop and made very active discussions.

The survey team interviewed the concerned persons from the Department of Energy (DOE), consultants and the private sector including ESCO. Confirming responses to the questionnaires, the interview was conducted smoothly and efficiently.

2. Results of Survey

2.1 Current Situations of Infrastructure for Policy and Law

Regardless of the fact that the "Energy Conservation Act" has been currently sent to the diet and it is waiting for discussions, the government policy for energy conservation is not regulatory but based on the market mechanism. It should be particularly noted that energy prices in the Philippine are determined by the market mechanism.

The 10-Year Philippine Energy Plan was developed by DOE and a yearly review has been carried out each year. In the plan, energy security and energy efficiency are the important objectives.

While the energy conservation promotion policy is based on the market mechanism, a draft of the Energy Conservation Act (hereinafter called as only "Energy Conservation Law") was prepared in 1995 and sent to the diet.

According to the obtained latest draft included in the bill of discussion submitted to the diet in 1998, the following are stipulated in the law with emphasizing the policy to enhance energy conservation promotion for the purpose of ensuring energy security.

(1) Role of DOE to be the ministry responsible for enacting the law
(2) Roles of the other ministries
(3) Roles of private organizations including NGOs
(4) System for financial support and definition of the 5 project categories* including criteria for application
    * : Building Energy Management System (BEMS), VAV, Driving Unit with Variable Speed Control Motor, High Efficiency Motor, Waste Heat Recovery System
(5) Penalty

Current surging crude oil prices has affected the Philippine economy, the top management of DOE has critical acknowledgment for the oil prices to be kept around the level of USD $50 or more still in the future and have a hope to expedite discussions in the diet and enactment of the Energy Conservation Act.

Needless to mention, the promotion of the business by ESCO has become a big issue of the policy. Currently, although there are activities to establish the accreditation and registration of ESCO and to establish an association of ESCO tentatively called as “ESCO-P”, basic matters have not finalized yet, such as the definition of ESCO have not yet been determined (including whether it should be defined or not). For others, in compliance with the policies, labeling for refrigerators and lighting appliances is implemented including measurement in accordance with the standards by LATL (Lighting & Appliances Testing Laboratory). In addition, while DSM focused on reviewing the tariff system has been promoted, the Power Development Plan (2005-2014) was recently completed to establish the future plan for development of electric power supply and power trade by installation of connection grid between islands.

Currently, the energy prices in the Philippines are based on the market mechanism. (As for household consumers of small quantity less than 100 kWh per year, although there still exists financial supporting system to exempt electricity charges by 50% to 20%, this is projected to repeal in the future.) Currently, in the Manila metropolitan region, the price of electricity is 13.4 to 16.4 Yen/kWh, and that of gasoline is about 60 Yen/liter though prices varies depending on the region. Thus, although the energy conservation seems to be situated as an important activity for enterprises in the Philippines, in reality, the actual progress has not been good except for large-scale enterprises and joint-ventured companies with overseas companies. When asking about the reasons to persons concerned, responses would return with one voice saying that there is no special assistance from the government. In addition, it was pointed out that the business policy of corporation, in general, to prioritize an increase in production.

As abovementioned, though the draft of the “Energy Conservation Act” includes the financial support consisting of the exemption of tax including import duty and the fund to introduce energy efficient equipment, it is necessary to develop more specific details and this work should be prioritized. The current featured assistances for enterprises are free energy audit service by DOE, seminar / training sponsored by DOE and small financial assistance for operation of training for energy managers by ENMAP. However, the amount of the supported fund is not large.

Moreover there is a committee for dialogue aiming to bridge between the government and the private sector.

2.2 Establishment and Operation of Implementation Organizations to Implement Energy Audit /Training

There are many implementation organizations / institutes.

In the government side, DOE owns teams for energy audit and training and ITDI (Industrial Technology Development Institute) under Department of Science and Technology (DOST) conducts energy audit. However, DOE does not own sufficient manpower and capacity to meet its demand. Besides, ENMAP, some PNOC (Philippine National Oil Company) and the NPC (National Power Company), etc. are also conducting training.

On the other hand, the curricula of these training courses are not necessarily consistent with the present governmental policy and the specific contents of the drafted law and the qualification of trainers and auditors is based mainly on experience, which will result in revising the current

curricula in the future. And engineers for the industrial sector are not sufficient though some ESCOs are very active in the business for buildings

2. 3 Activities to Promote Energy Conservation in Private Sector

Since the energy price is based on the market mechanism, it is high enough to provide a good environment for promoting energy conservation. Especially, large-sized enterprises develop very active activities for energy conservation sometimes together with ESCO.

Generally in the Philippine enterprises, while energy conservation is regarded as an important activity, the actual situation is different except for large-sized and / or joint-ventured enterprises. Especially the awareness on the importance of energy conservation by small and medium sized enterprises is weak. Basically, although the increase in production is a typical business policy of the enterprises, there are some enterprises that have been developing the 6-Sigma activity. Thus, the situations are various.

Meanwhile, some industrial associations have been established and they function to promote communication and coordination between enterprises and the government. For example, these are PHILFOODEX in the food industry and the Philippines Chamber of Commerce, etc.

In a viewpoint of financial support, as mentioned above, the present Energy Conservation Act (Draft) includes that and it is expected to enact the law as early as possible.

DOE also is implementing public enlightening activities, in the week when we visited, the "Energy Week" was set up and a variety of campaigns were carried out.

Based on the survey results mentioned above, the current situation in the Philippines is summarized as shown in Fig.-X-1 from the viewpoint of the programmed approach.

3. Suggested and Discussed Immediate Objectives Based on Results of Survey

The following will be immediate objectives, based on the survey results as described above.

(1) Preparation to develop more specific regulations and guidelines under the Energy Conservation Act

In particular, the establishment of the coordination organization between the departments and private sectors, methodology to accredit qualified engineers for energy managers and study to establish implementation organization(s), etc.

(2) Establishment of complete market-based energy pricing mechanism by eliminating subsidies electricity price for household (through improvement in public awareness).

(3) Capacity development of trainers and auditors especially for the industrial sector

(4) Study to setup training courses for top management of companies to improve awareness on energy efficiency and conservation, including implementation procedure

4. Results of Workshop

4.1 Summary

About 20 persons participated in the workshop. They are from DOE, building association and

building management companies. Since it was the final day of the Energy Week sponsored by DOE, the number of participants including key persons was small. Nevertheless, very active and earnest discussions were made. During the seminar, Dr. Balce, DOE's Under Secretary, and Ms. Borra, DOE's Director at Energy Management Bureau sometimes joined the workshop in spite of busy event.

The following three were presented by ECCJ.

1) Principle of Energy Management (Mr. Sato, Technical Expert)
2) Energy Management System in Japan (Mr. Yoshida, General Manager)
3) Summary of Survey results (Preliminary) (Mr. Yoshida, General Manager)

The workshop was very fruitful and effective by exchanging views between the government officers and participants from the private sector related.

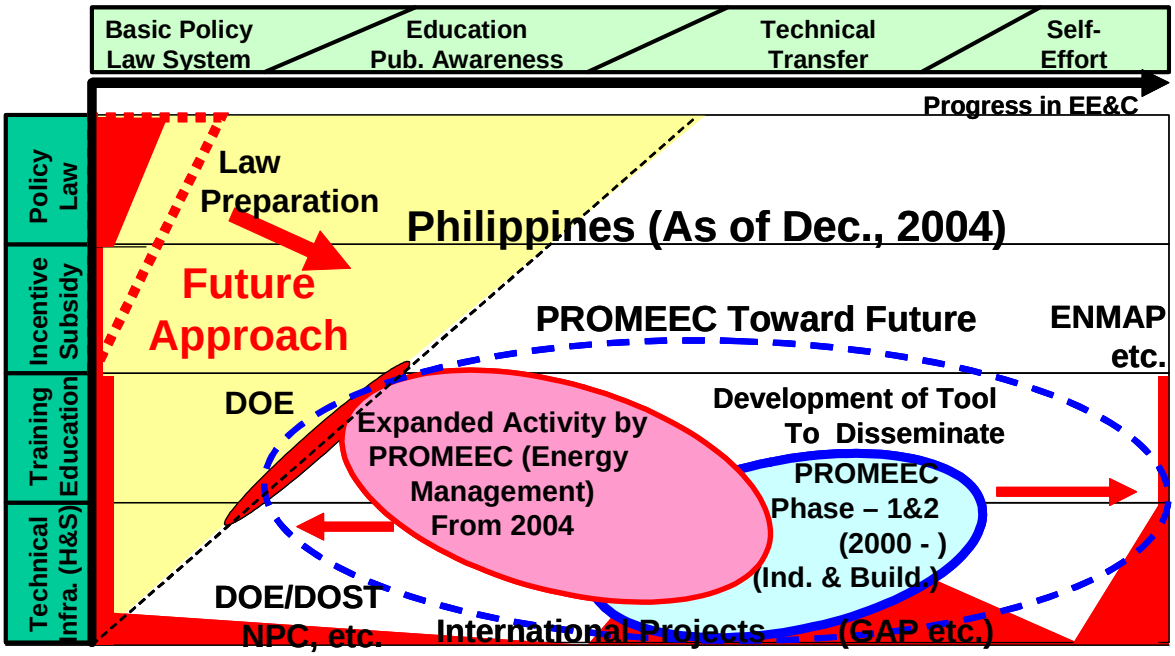
4. 2 Results of Discussion

As aforementioned, active question-answers and discussions were made on the presentations provided by ECCJ.

In the discussions, there were questions on the procedure to apply cooperation from Japan to develop more specific policy, regulations and guidelines for enacting "Energy Conservation Act" in the future. Therefore, ECCJ experts explained a procedure through an official diplomatic route.

One idea is that it would be more effective to establish a project considering the projects for energy conservation in the food and steel industries which are being implemented by JETRO etc.

Figure-X-1: Status of Progress in Energy Conservation Promotion in the Philippines
(This is a diagram based on the viewpoint of programmed approach. The current status is indicated in red. The relation with the scope of the PROMEEC project is also shown.)



XI. Thailand

1. Summary of Activities

1.1 Dispatched member

The following two experts from The Energy Conservation Center, Japan (hereinafter referred to as "ECCJ) conducted a survey and participated in the local seminar – workshop.

Kazuhiko YOSHIDA (Mr.)	General Manager International Engineering Department, ECCJ
Takashi SATO (Mr.)	Technical Expert International Engineering Department, ECCJ

1.2 Survey schedule and major interviewees

Survey Schedule

Date	Meeting or persons to visit	Major interviewees in visiting places
December 11	Arrive at Bangkok	
December 13	DEDE	Dr. Prasert, Mr.Pravit, Mr. Mana, and Others
	ECCT, ESCO	Mr. Phongjaroon Srisovanna Mr. Francis R. H. Chin, et al
December 14	Workshop	

Names and Positions of Main Interviewees

Mr. Mana Nitikul	Executive Director, Department of Alternative Energy Development and Efficiency (DEDE)
Mr. Pravit Teetakeaw	Executive Director, Department of Alternative Energy Development and Efficiency (DEDE)
Dr. Prasert Sinsukprasert	DEDE
Mr. Pinyo Tanthumart	DEDE
Mr. Danai Egkamol	Senior Engineer, DEDE
Mr. Phonjaroon Srisovanna	Executive Director, Energy Conservation Center of Thailand (ECCT)
Mr. Francis R. H. Chin Managing	Director, EEC Energetics (ESCO)

Mr. Arthit Vechakij Managing Director Excellent energy International Company (ESCO)

Others

1.3 Activities

The survey was conducted by interviewing the persons in accordance with the questionnaires sent in advance. The reply was prepared and received by the survey team beforehand. The survey team visited Department of Alternative Energy Development and Efficiency (hereinafter

referred to as “DEDE”) to have an interview with the persons concerned by confirming the responses to the questionnaire. The survey esults were summarized below. On the final day, the seminar-workshop was held for the purpose of both explaining, confirming and discussing the preliminary results of survey.

The interview was arranged and conducted in the following ways.

(1) Interview with only persons from DEDE
(2) Interview with persons from the private companies with officers from DEDE
(3) Discussion after presentations from Thai and Japanese sides

The workshop was a kind of meeting to report the preliminary results of the survey but not a seminar-workshop for the concerned persons from the other outside organizations including the private companies.

Although the number of attendees in the workshop was six and the participants are only from DEDE, the discussion was very fruitful.

2. Results of Survey

2.1 Current Situations of Infrastructure for Policy and Law

The infrastructure for energy management on a regulative basis is better established among the ASEAN countries. Namely, the “Energy Conservation Promotion Act” was effectuated in 1992 and various activities for energy conservation have been implemented in accordance with the law.

In that sense, Thailand is a contrastive model compared with Singapore.

The “Energy Conservation Promotion Act” has been being improved and the present amendment in process is the process to submit as follows.

(1) Submission of “Target & Plan” based on a single energy audit
    (Unification of the preliminary and detailed energy audits)
(2) Single report for monitoring and evaluation of the implemented project
    (Unification of the regular report on energy use and the report on evaluation of a project)

The above amendment is under process for approval as of early December 2004.

Related to the legal system of Person Responsible for Energy (hereinafter referred to as “PRE”), moreover, the project on Practical Energy Management Training Center (hereinafter referred to as “PEMTC”) has been implemented by JICA and DEDE for the purpose of improving the quality of PRE. In the project, the trained and qualified PRE is categorized to Senior (or higher level of) PRE and Normal (or Conventional) PRE. According to DEDE, they have a policy that they will stipulate these two kinds of PREs and expand roles of these PREs including implementation of energy audit in the future in the law.

In addition, DEDE is also developing a national standard for energy management for the purpose of enhancing energy conservation promotion in the industrial sector under one of the committees organized under Vice Prime minister cooperating with Ministry of Industry (hereinafter referred to as “MOI”). Those are key activities for the future improvement.

Thus, in terms of policy and regulative framework, Thailand has established a top level of system in ASEAN. However, the weak point is that energy pricing is not completely based on

the market mechanism. Specifically, the Thai government subsidizes the diesel oil price and the power generating company (EGAT) has not been privatized yet. Therefore, it is recognized especially by persons from the private sector that this subsidized (cheap) energy prices can be the actual barrier for promoting energy conservation. Typically, electric power price is 7 to 8 Yen per kWh and petrol price is about 54 Yen per liter as of December 2004.

Under these situations, it is the main policy to implement the following activities.

(1) Enhanced promotion of energy conservation by activating ESCO business
(2) Labeling of electrical appliances
(3) Introduction of award system for best practice in energy efficiency and conservation for buildings

Complying with the policy, especially, EGAT is implementing labeling for home appliances and DSM with the purpose of the peak cut.

On the other hand, a person said that in general the top management of companies hesitate to prioritize the activities for energy conservation while they have a strong awareness on the importance of energy conservation, which symbolizes the current Thai situations.

In other words, energy conservation will be much more promoted in Thailand if the people find out a better way.

As described above, the energy conservation is an important government policy in Thailand and people recognize that the improvement in energy management will be very effective. Based on their understanding, the concerned persons are trying to change their ways.

2.2 Establishment and Operation of Implementation Organizations to Implement Energy Audit /Training

Training Division of DEDE functions as an implementation organization to train PRE under the Energy Conservation Promotion Act. In addition, consultants including The Energy Conservation Center of Thailand (ECCT) work as training providers.

Moreover, the Registered Consultants (RC) are implementing energy audits including preparation of “Target and Plan” in accordance with Energy Conservation Promotion Act.

And, FTI (Federation of Thai Industries) and “One Stop Service” in DEDE contribute to improving the awareness of enterprises through training and provision of information including public campaigns.

However, there are some problems such as a lack of experts especially for the industrial sector and insufficient budget.

2. 3 Activities to Promote Energy Conservation in Private Sector

Large enterprises and some ESCOs are implementing very active activities and business for energy conservation. The general situation is that owners and top management of companies hesitate to invest for energy conservation in business though they understand the importance of energy conservation to some extent. Of course, it is true that some large companies and ESCOs invest for energy conservation. However, all the cases have not been successful. The ESCO business in Thailand is more active mainly in the buildings and in the initial stage of development. The key point for success would be to build a firm reliability between clients and

ESCOs in the actual situation that the contract for ESCO has not been well understood yet. The situation of ESCO is similar to Japanese. The persons interviewed are from a few successful ESCOs.
Although the promotion of ESCO business is an important Thai policy, it is a fact that there are some problems to solve such as maintaining experts for industry by training etc. An interviewee mentioned that ESCO would not be a company for the business in all areas but for the business based on some specialized technologies. A person from DEDE commented that this opportunity was very good to have known the actual situations of ESCO.
On the other hand, DEDE set up a committee for dialogue between the government and the private sector and is implementing the activity to promote energy conservation in the private sector with a slogan of "All Participation". However, as pointed out, limited available fund and weak awareness of top management especially in small and medium enterprises become the big barriers in Thailand.

Based on the survey results mentioned above, the current situation in the Philippines is summarized as shown in Figure XI – 1 from the viewpoint of the programmed approach.

3. Suggested and Discussed Immediate Objectives Based on Results of Survey

The following will be immediate objectives, based on the survey results as described above.

(1) Continuation of activity to improve the law to effectively promote energy conservation (Amendment toward deregulation)
(2) Elimination of subsidies for energy prices to ensure the energy pricing based on market mechanism (in view of privatization of EGAT)
(3) Continuation and enhancement of activities to improve understanding and awareness of top management of enterprises on the importance of energy conservation
(4) Improvement in capacity of trainer and energy auditors including PRE especially in the industrial field
(5) Revision of system to assign technical providers to establish a consistent and sustainable basis of the implementation organization(s)
(6) Development of activities to be a showcase for the other ASEAN countries

4. Results of Workshop

4.1 Summary

As aforementioned, the workshop was a kind of meeting for reporting the preliminary results of the survey. The participants were from only DEDE.
The following was presented by ECCJ.
1) Summary of Survey results (Preliminary) (Mr. Yoshida, General Manager)
It was possible to make a detailed discussion with concerned persons from DEDE. There is another view that it would be better if concerned persons from both governmental and private sectors could discuss together then.

4. 2 Results of Discussion

Active question-answers and discussions were made on the presentations provided by ECCJ.

Among the ten countries, Thailand was the final country to visit and would be in position to lead the other countries. Therefore, the summary of the results of surveys in the 10 countries was briefed in the workshop.

The following are the points of the summary.

(1) Concerning the established basis and infrastructure of energy management, Thailand would be a leading showcase in terms of the directive energy conservation basis and Singapore is another leading showcase in terms of the policy and implementation with their basic respect of the market mechanism.

(2) Study to develop the "ASEAN Energy Management System" will be based on consideration of the two contrastive showcases. This means that the system balanced between the two showcases will be suitable for the "ASEAN Energy Management System" in consideration of the actual variety in the ASEAN countries.

(3) Regarding the individual cooperation with Japan, Thailand and JICA have already jointly implemented the project on practical energy management training center and Singapore has a great interest in the energy manager system in Japan from viewpoint of technical establishment and long experience of Japan.

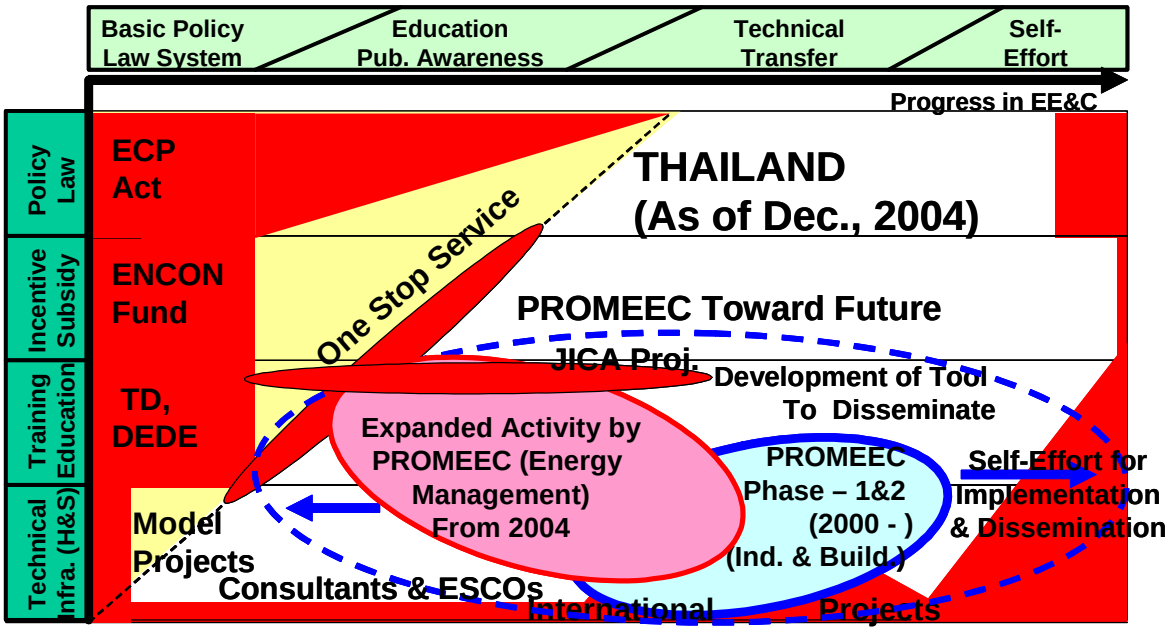
Moreover, specific cooperation projects are planned or implemented for Vietnam, Malaysia and Indonesia etc.

As for the cooperation projects with EU, "ASEAN Energy Manager Accreditation System (AEMAS)" is in the stage of feasibility study utilizing EU fund.

In order for the PROMEEC Energy Management Project to be effective, the project should be implemented with an appropriate coordination by ACE and / or ACE. Especially for the AEMAS project, ACE is expected to provide a good coordination to implement the PROMEEC Energy Management Project in the future. The feasibility study of the AEMAS project is conducted by Thailand utilizing consultants and will be completed in May 2005.

Depending on the results of the feasibility study, some coordination may be required.

Figure-XI-1 : Status of Progress in Energy Conservation Promotion in Thailand
(This is a diagram based on the viewpoint of programmed approach. The current status is indicated in red. The relation with the scope of the PROMEEC project is also shown.)



XII. Activities by ASEAN

1. Summary of Summary Workshop

The summary workshop was held in Singapore on February 8, 2005 gathering representative(s) (focal point(s)) from each ASEAN country in order to share outcomes of the activities conducted among the ten countries and to discuss the basic concept and future plan of the "ASEAN Energy Management System" described below. Following the summary workshop, the post workshop was held. The program of the summary workshop is shown in Table-XII-1.

Participants were as follows.

Participants from ASEAN

Mr. Abdul Rashid B Ibrahim, Deputy Executive Director, Energy Market Authority, Singapore
Dr. Weerawat Chantanakome, Executive Director, ACE
Dr. Prasert SinsukPrasert, BERC, DEDE, Thailand (Chairman)
Mr. Zulkarnain B H Umar, Engineer, Energy Market Authority, Singapore
Mr. Asfaazam Kasbani, PTM, Malaysia
Ms. Azah Ahmad, Research Officer, PTM, Malaysia
Mr. Marlon Romulo U. Domingo, Science Research Specialist, DOE, Philippine
Mr. Lien Vuthy, Head of Energy Efficiency and Standard Office, MINE, Cambodia
Mr. Khamso, Chief of Electricity Management Div., Ministry of Industry & Handicraft, Laos
Ms. Marayam Ayuni, Deputy Director, Ministry of Energy and Mineral Resources, Indonesia
Mr. Aung Kyi, Director, Myanmar Industrial Construction ServicesMr. Christopher Zamora, Manager, ACE
Dr. Lee Siew Eang, Professor, National University of Singapore, Singapore
Mr. Majid Haji Sapar, Research Fellow, National University of Singapore, Singapore

Participants from Energy Conservation Center, Japan (ECCJ)

Managing Director	Mr. Tsuzuru Nuibe
General Manager, International Engineering Dept.	Mr. Kazuhiko Yoshida
	Mr. Yoshitaka Ushio
Technical Expert, International Engineering Dept.	Mr. Hideyuki Tanaka, Mr. Fumio Ogawa,
	Mr. Akira Kobayashi and Mr. Takashi Sato

In the summary workshop, the results of the surveys and discussions made in the ten local workshops were explained. Then a representatives of each country explained ideas including a request for the ASEAN Energy Management System and finally the representative of ECCJ explained the proposed basic concept of the ASEAN Energy Management System. Based on the above explanation and report, all the participants discussed the future action.

As a result of the discussion, the proposed basic concepts of the ASEAN Energy Management System was understood by participants and the future plan was basically agreed.

08:00	-	08:30	**REGISTRATION**
SESSION 3			**PROMEEC – Energy Management**
08:30	-	09:15	**Summary of Local Workshops by Mr. Takashi Sato (ECCJ)** **Results of Surveys at 10 ASEAN Countries** **- Status of Infrastructure / Basis for Energy Management** **- Discussion Results: Barriers and Possible Measures**
09:15	-	09:30	**Q & A**
			Presentation & Discussion: Proposed Concept of "ASEAN Management System"
09:30	-	10:00	**Presentation by Mr. Kazuhiko Yoshida (ECCJ)**
10:00	-	10:15	**Q & A**
10:15	-	10:30	**Coffee Break**
			Presentation by ASEAN Countries **Requirements (and/or) Ideas of "ASEAN Energy Management System"**
10:30	-	10:45	**Presentation by Myanmar**
10:45	-	11:00	**Presentation by Cambodia**
11:00		11:15	**Presentation by Lao PDR**
11:15	-	11:30	**Presentation by Vietnam**
11:30	-	11:45	**Presentation by Indonesia**
11:45	-	12:00	**Presentation by Singapore**
12:00	-	13:00	**Lunch**
13:00	-	13:15	**Presentation by Brunei Darussalam**
13:15	-	13:30	**Presentation by Malaysia**
13:30	-	13:45	**Presentation by Philippines**
13:45	-	14:00	**Presentation by Thailand**
14:00	-	14:20	**Discussion & Summary: Concept of "ASEAN Energy Management System"**
14:20	-	14:40	**Presentation & Discussion: Proposed Future Plan**
14:40	-	15:00	**Presentation by Mr. Kazuhiko Yoshida (ECCJ)**
15:00	-	15:15	**Q & A / Discussion**
			END of SESSION 3

Table-XII-1: Program of Summary Workshop

2. Results of Discussion on Basic Concept of "ASEAN Energy Management System"

The representative of ECCJ submitted the following proposal of the basic concept of the "ASEAN Energy Management System". More specifically, energy management should cover an extremely broad area, therefore, it is required to identify the purposes / goals and required functions and to specify the scope and specifics of the activities of the project as follows.

Purposes and Goals

(1) To build a framework for policies and directive basis

(2) To establish implementation organizations which can be shared among the ASEAN countries

(To conduct energy audit, training, information provision and so on)

(3) To develop the environment to promote energy conservation in the private sector

Required Functions

(A) To share information

(B) To provide facilities and services (Energy audit, training, information provision and so on)

(C) To develop schemes and rules to work the functions (A) and (B) mentioned above

On the basis of these, the nine factors shown in Table-XII-2 will be required for the "ASEAN Energy Management System". The proposed basic concept of the "ASEAN Energy Management System" includes these factors.

In addition, in order for the "ASEAN Energy Management System" to be most effective, the system should work to cover and supplement the infrastructures, functions and services that each ASEAN country owns and operates to promote energy conservation. Furthermore, the "ASEAN Energy Management System" should function as an organization to promote and disseminate activities for energy conservation in all the ASEAN countries. On the other hand, the "ASEAN Energy Management System" should work so as to bring merits for ASEAN countries through easing the efficient and smooth implementation and sharing benefit of the international projects for energy conservation with foreign countries such as Japan and EU. The concept of such a system is shown in Figure-XII-1.

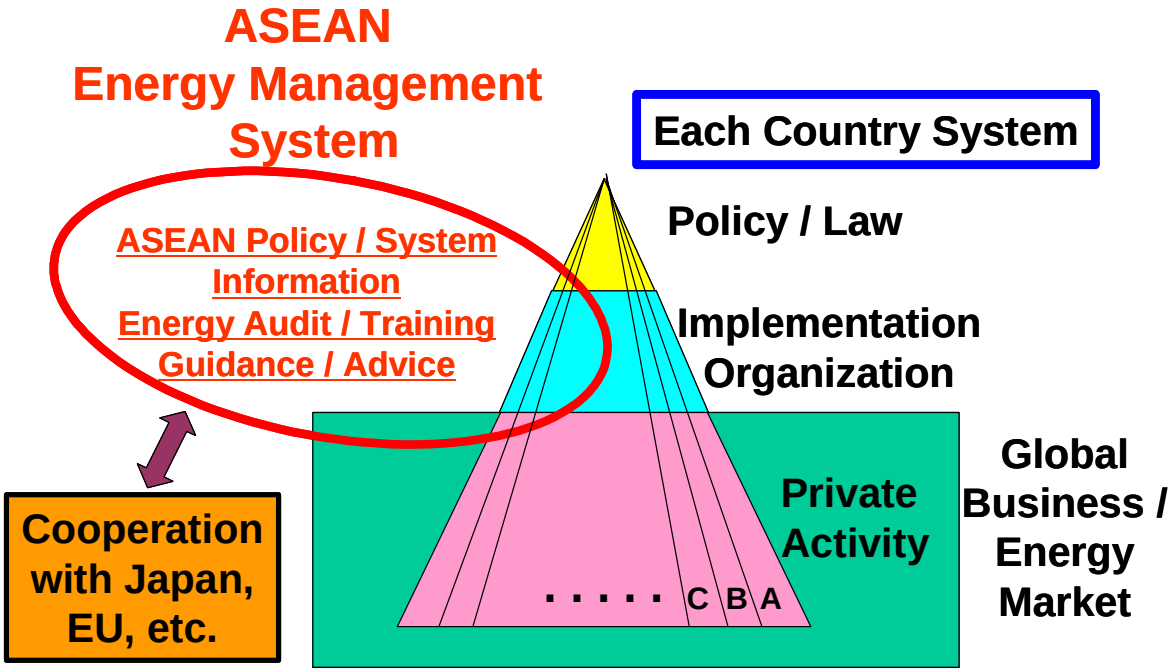
In the future, it will be necessary to analyze and identify which factors should be implemented and what should be required for ASEAN countries, in order to make the basic concept of the ASEAN Energy Management System more clear and to establish the more specific plan of the ASEAN Energy Management System.

Purposes and Goals	Required Functions		
	A. Sharing Information	B. Provision of Facilities and Services	C. Schemes and Rule to Work A & B
1. Building Policy / Directive Framework	Factor 1-A	Factor 1-B	Factor 1-C
2. Establishment of Implementation Organization Possible to Share Among ASEAN	Factor 2-A	Factor 2-B	Factor 2-C
3. Development of Environment for Energy Conservation Promotion in the Private Sector	Factor 3-A	Factor 3-B	Factor 3-C

Table-XII-2: Factors required for the ASEAN Energy Management System

Among the factors mentioned above, the "Building Policy / Directive Framework" is basically addressed by each country independently. However, it may be required to provide information and / or advice in order for countries which are in process of developing policy to study their policies and laws. The most important is considered to be preparation and establishment of an organization to be shared by ASEAN countries for providing services of energy audit and training.

Figure-XII-1: Proposed Concepts of the ASEAN Energy Management System



What kind of activities should be included in each factor is proposed as follows.

(Factor 1-A) : Sharing information to build policy / directive framework

1-A-1 Information on policies and laws in each country

(Factor 2-A) : Sharing information to establish implementation organizations possible to share by ASEAN countries

2-A-1 Establishment of implementation organizations in each country

(Factor 3-A) : Sharing information to develop the environment to promote energy conservation in the private sector

3-A-1 Technical directories for industries and buildings
(Preparing through the implementation of projects for major industries and buildings)

3-A-2 Database/Benchmark/Guideline for major industries and buildings
(Preparing through the implementation of projects for major industries and buildings)

3-A-3 Successful excellent cases of energy management

3-A-4 Procedure for energy management in enterprises

3-A-5 Information on suppliers of technology and equipment for energy conservation
(Including ESCO (Energy Service Company) and so on)

(Factor 1-B) : Provision of services to build policy / directive framework

1-B-1 Provision of advice from experienced countries

1-B-2 Policy cooperation within the ASEAN region

(Factor 2-B): Provision of facilities and services to establish implementation organizations

possible to share by ASEAN countries

2-B-1 Energy audit

2-B-2 Training

2-B-3 Public relations, enlightenment and education on energy conservation

(Factor 3-B): Provision of facilities and services to develop the environment to promote energy conservation in the private sector

3-B-1 Provision of technical information

3-B-2 Provision of data and information

3-B-3 Provision of information on activities to promote energy conservation by enterprises

3-B-4 Provision of guidelines for voluntary efforts by enterprises

3-B-5 Provision of information on the activities of other companies required for a company to implement activities including projects for energy conservation

(Factor 1-C): Building policy / directive framework ; Schemes and rules to work the factors 1-A and 1-B

Step-1 Building the system to share and disseminate information

Preparation and Dissemination of manual for guidance on voluntary activities by the private sector

Step-2 Study on the possibility of policy cooperation within the ASEAN region

(Factor 2-C): Establishing implementation organizations possible to share by ASEAN countries ; Schemes and rules to work the factors 2-A and 2-B

Step-1 Utilization of the existing implementation organizations

Provision of advice and training by organizing Japan-ASEAN expert team

Building the system to share and disseminate information

Step-2 Utilization through the reinforcement of the existing organizations and / or establishing and operating a new implementation organization for ASEAN

Training for trainers and lecturers by the Japan-ASEAN expert team

(*)

Currently, relating to the above activities, the feasibility study is separately conducted to establish the ASEAN Energy Manager Accreditation System (AEMAS) with the cooperation of EU. It should be assumed that AEMAS would effectively function in conjunction with this project as one program of the ASEAN Energy Management System if it is realized in the future.

ASEAN Center for Energy should coordinate the two projects in order to avoid any overlapping and conflict.

(Factor 3-C) : Developing the environment to promote energy conservation in the private sector ;

Schemes and rules to work the factors 3-A and 3-B

Step-1 Building the system to share and disseminate information

Preparation and Dissemination of manual for guidance on voluntary activities by the private sector

Step-2 Provision of advice and training by Japan-ASEAN expert team

3. Results of Discussion on Future Basic Plan of the ASEAN Energy Management System

The proposed basic concept of the ASEAN Energy Management System and factors to establish the system were are discussed. Based on the above discussion, the future direction and the proposed plan for 2005 – 2006 were also discussed and basically agreed by the focal points. The activities for 2005 – 2006 will be implemented in accordance with the plan.

The target of the next fiscal year is to study and establish the specific plan of "ASEAN Energy Management System"

ⅩⅣ : Materials for Reference

Reference – 1 : Questionnaire

Reference – 2 : Materials Used in Local Workshops

(Presented by ECCJ)

(1) Results of Survey for Each Country (Preliminary)

(2) Energy Management System in Japan

(3) Principle of Energy Management

Reference – 3 : Materials Used in Summary Workshop

(1) Proposed Basic Concept of "ASEAN Energy Management System" Presented by ECCJ

(2) Materials Presented by ASEAN Countries

(3) Proposed Basic Implementation Plan for 2005 – 2006 Presented by ECCJ

Reference – 1: Questionnaire

Reference – 2: Materials Used in Local Workshops (Presented by ECCJ)

(1) Results of Survey for Each Country (Preliminary)

(2) Energy Management System in Japan

(3) Principle of Energy Management

Reference – 3 : Materials Used in Summary Workshop

(1) Proposed Basic Concept of "ASEAN Energy Management System" Presented by ECCJ

(2) Materials Presented by ASEAN Countries

(3) Proposed Basic Implementation Plan for 2005 – 2006 Presented by ECCJ

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