Report/Fiscal Year of 2009

Project on Measures for Rationalization of International Energy Use

Project on Human Resources Development for Energy Conservation

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

(Promotion of Energy Efficiency and Conservation for Energy Management under SOME-METI Program for 2009-2010)

ACTIVITY REPORT

March 2010

The Energy Conservation Center, Japan

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Summary

In spite of being affected by the progress of the sudden depression originating from the U.S. financial crisis, the various ASEAN countries continue to show economic growth. Following from this, their energy consumption rates are also increasing, and in the future this consumption is expected to grow even further. It is believed that more effective use of energy in these countries would contribute to global warming prevention and environmental preservation activities.

This project is one pillar of the ASEAN energy cooperation that is authorized at the energy minister level on the ASEAN side as PROMEEC (Promotion of Energy Efficiency and Conservation), which currently comprises the three projects of "Major Industries", "Buildings", and "Energy Management System".

The Major Industries and Buildings energy conservation promotion projects are entering their tenth years, while the Energy Management System project is beginning its sixth year. The activities of the related persons in the various ASEAN countries, including our counterpart organization, the ASEAN Centre for Energy (ACE), have also become increasingly active, and the projects have become firmly established. On the other hand, the price of crude oil, which had been continually rising, fell after reaching US$147 a barrel, and is now fluctuating at a price of around US$70 a barrel. However, since the amounts of recoverable reserves are limited, the awareness that crude oil prices will continue to rise over the long term is becoming established. In practice, the rise in energy prices threatens companies' competitiveness, and a further enhancement of energy conservation promotion is being sought. In view of this change, while it is a fact that the PROMEEC Project has been building an energy conservation promotion infrastructure and contributing to improved awareness through implementing its activities, it has become necessary to implement activities at an even higher level to build an infrastructure that is capable of certainly promoting energy conservation.

Against the background described above, this project with the various ASEAN countries in the current fiscal year has been positioned as the sixth fiscal year of full-scale activities in the second stage, working even harder towards the implementation and popularization of the results that have been achieved up till now through self-help efforts. That is, in a continuation from the previous fiscal year, by building on the actual results and outcomes of implementing energy audits in various types of factories and buildings in the ASEAN countries carried out in the past, we are aiming to establish the infrastructure and educate the human resources required to implement and popularize actual improvements centered on improvement measures that are discussed and proposed in each country.

In addition to the Major Industries and Buildings Project activities, this project was started in 2004 based on an agreement obtained through discussions held with representatives of each of the ASEAN countries in order to more effectively achieve the above targets in an aim to

improve and enhance the Energy Management System which will become the core for promoting energy conservation in each ASEAN country. With the objective of rationalizing this project, first the basic functions of the "ASEAN Energy Management System", which can be commonly used in the 10 ASEAN countries, were to be constructed taking around 5-6 years, and this year is positioned as the year in which this objective would be realized.

Accordingly, in this fiscal year, based on the basic plan of the "ASEAN Energy Management System", the building and operation of the functions that should be included have been started as follows while maintaining links with the Major Industries and Buildings projects, and the results described below have been achieved.

1) Implementation of an Award System that has the purpose of making information commonly known relating to the Best Practices of Energy Management for Industries and Buildings, and announcing of awarded case studies
   - The third Energy Awards were completed in July 2009. 17 case studies were received as applications from eight countries, and nine case studies received awards.
2) Development of energy management tools (Technical Directory, In-house Database, Handbook, etc.) and building and operation of a dissemination system
   - The Energy Management Handbook was completed. (Reflecting the experiences of introducing and using it in five pioneer companies.)
3) Building and operation of an existing implementing organization usage system that can provide energy audits and training
   - Start of implementing organization registration and trial operation of the "Cyber Search System", a searching system between implementing organizations and ASEAN customers.
4) Enlargement of ASEAN Network of Cooperators
   - Through providing advice to participants in Seminar-Workshops and visits to companies, increase the number of members in the Network of Cooperators.

Specifically, the following activities were implemented, and the activities were smoothly completed, achieving the targets described above.

- Intensive Seminar-Workshops were held in five ASEAN countries (A Focused Group Meeting was held only in Thailand, using a different format), and in addition, visits were made to a number of companies and organizations. The basic plans of this project and the latest "ASEAN Energy Management System" were explained to related persons, and in addition to gathering opinions, requests were made for people to participate in this project and to utilize the programs and tools. In addition, as described below training was implemented in four countries in order to allow use of the Energy Management Handbook.
- Operation of "ASEAN Award System of Best Practices in Energy Management for Industries and Buildings"

The award system that was planned for the popularization of the best practices in energy management in Industries and Buildings sectors in the various ASEAN countries which have been collected starting in fiscal year 2006 was smoothly operated, and the third Energy Awards were held.

The judging committee (Board of Judges (BOJ)) meeting was held on June 8-9, 2009, and from among the 17 case studies from eight countries that were collected through applications for the third Energy Awards case studies, a total of nine cases were selected, including Best Practice Awards made to two applications, one in each of Industries and Buildings sectors, and outstanding case awards made to seven other cases. These awards were presented at a ceremony during the AMEM Meeting (ASEAN Ministers Meeting on Energy) held in July 2009. Following this, in a plan to realize the wide dissemination of these award-winning case studies, details were included on the ASEAN Centre for Energy Website.

Following this, the call for applications for the fourth Energy Awards was made. When implementing this call for applications, analysis was carried out of the results of implementing the third call, and the following points were discussed and confirmed at a workshop held during the Research Forum in Japan in December 2009 in an aim to improve the collection of case studies that will result in an even higher dissemination effect.

(1) It was decided to set a category of "Special Submission" as an award for a single improvement activity or single project in order to use this as a way of making the application process easier to understand for applicants. Note that the call for applications allows submission of up to two cases, one in each of Industries and Building sectors in each country.

In addition, these evaluation standards were discussed, and a review of the key points for making applications was carried out.

(2) Aiming to have implementation from fiscal year 2010, it was decided in fiscal year 2008 to offer awards in the two fields of large scale factories and small scale factories as a policy to increase the award opportunities. Following this, the current classification standards were investigated in fiscal year 2009, and this was further discussed and a definite plan was formed at the Research Forum in 2009.

♦ Construction and partway development of a popularization system for the various types of energy management tools (Technical Directory, In-house Database, Handbook, etc.)

The Energy Management Handbook was finally completed in January 2009. In addition, the Technical Directory and the In-house Database, which were developed following the Major Industries and Buildings Projects, were set as energy management basic tools together with the Energy Management Handbook, and these were disseminated during the Intensive Seminar-Workshops and Training in each country. Further, the design of the information systems were carried out jointly with the concerned persons in the ASEAN countries.

Regarding the Energy Management Handbook, introduction and use in factories and buildings was carried out with the cooperation of five companies in Indonesia, Lao PDR and Vietnam from October to December 2007 to carry out verification of the completion of the contents and the usage results, and the handbook was finalized while reflecting these results. A version has already been translated to Laotian in Lao PDR and the budget for binding was considered. Through the cooperation of JICA, the translated handbook was bound and distributed to related persons in the autumn of 2009. In Vietnam, also, a factory where the handbook is being introduced and used has started translating it to Vietnamese.

- Construction of the "Cyber Search System"
  Aiming to achieve the wide utilization of existing implementing organizations in the various ASEAN countries, the registration of the implementing organizations in the completed Customer - Implementing Organization Registration Search System "Cyber Search System" has been carried out through the Focal Points in each country and is almost complete, although the customer registration has not yet begun. Accordingly, we will strive to carry out PR activities to potential customers through implementing further activities by the Focal Points in each country to move towards the start of trial use.
- Investigation of "ASEAN Energy Management System (Step-2)" Basic Plan
  Based on the activity outcomes and actual results described above, the construction of the basic functions of the "ASEAN Energy Management System" has almost been completed, and the Step-1 System has begun operations. While evaluating the actual results of using this system, we are aiming to develop it into the Step-2 System and have begun improving and adding functions to make the system even more effective and easier to use. Based on this, the latest plan was determined through discussions with representatives of the 10 ASEAN countries at the Summary and Post Workshops.

Note that in the project in the current fiscal year, the activities carried out on location started from the Board of Judges (BOJ) meeting which selected the third Energy Awards case studies in June 2009. However, the Inception Workshop (Three Joint Projects) held in July 2009 in order to finalize the project plan and confirm the implementation preparations essentially marked the start of activities. Afterwards, the activities were implemented in five countries, and the activity results and outcomes were shared jointly among the representatives from each country at the Summary and Post Workshops (Three Joint Projects) that were held at the beginning of March 2010. In addition, the policies of future activities to be tackled in the next fiscal year and beyond were discussed at the end of these workshops.

The specific activity contents in the current fiscal year in this project are as described below.

<u>Board of Judges Meeting: June 8 to June 9, 2009 (Overseas business trip: June 7 to June 13)</u>

The seven members of the Evaluation Committee gathered in Yangon, Myanmar to evaluate the

17 case studies that were collected by applications from eight countries, and select the awarded case studies in Industry Sector and Building Sector.

Inception Workshop: July 15 to July 16, 2009 (Overseas business trip: July 13 to July 17)

Participation in the "Inception Workshop on Promotion of Energy Efficiency and Conservation (PROMEEC) (Major Industries, Buildings and Energy Management), SOME – METI Work Program 2009–2010" (Held at a venue in Kuala Lumpur, Malaysia, jointly with the Major Industries and Buildings). Note that the overseas business trip period included advance meetings with the ASEAN Center for Energy in Kuala Lumpur.

17 persons gathered, including persons related to the various ASEAN countries, the ASEAN Centre for Energy (ACE), and representatives of the Energy Conservation Center, Japan (ECCJ), and discussed the following subjects.

Opening Greetings (Related representatives from the organizing country)

Session 1: Buildings Project Implementation Plan

Session 2: Major Industries Project Implementation Plan and Joint Activities Plan

(Joint Activities: Development of Building and Major Industries In-house Database and Technical Directory)

Session 3: Energy Management Project Implementation Plan

The Energy Management Project in the current fiscal year was planned as shown below. In the plan, requests were received from five countries, and the implementation also consisted of activities in these five countries. The subject countries, listed in the order they were visited, were the Philippines, Lao PDR, Thailand, Malaysia, and Brunei Darussalam. Although the activity contents basically consisted of the following three activities, Activity-1 in Thailand was a Focused Group Meeting, and Activity-2 was not carried out.

(1) Activity–1: Intensive Seminar-Workshop (First day)

(2) Activity–2: Training Activity utilizing Energy Management Handbook (Second day)

(3) Activity–3: Visits to factories and counseling including Energy Management Handbook introduction, use, follow-up, and/or new introduction (Days 3-4)

Final confirmation of three project implementation plan

First Local Project: September 9 to September 16, 2009 (Overseas business trip: September 8 to September 17)

The following activities were implemented in the Philippines and Lao PDR.

1. Implementation of Intensive Seminar-Workshop

   The project activities, the "ASEAN Energy Management System" basic plan, together with the included functions and tools, were introduced to the related persons, and case study training was carried out using a case study from Thailand that received the current fiscal year ASEAN Award of Best Practice in Energy Management for Industries and Buildings and other awarded case studies. In addition, requests were made that the workshop

participants should participate in this project and utilize the programs and tools.

2. Training on Energy Management Handbook Activities

Concerning the full utilization of the Energy Management (EM) Handbook, although training was implemented relating to the utilization methods, in addition to giving lectures on the contents of the Energy Management Handbook, group activities were carried out using a case study announced by one building and one food product factory that were visited this time.

3. Visits to Related Companies and Organizations

Visit to Factories willing to Introduce the EM Handbook

Visits were made to three companies (a shopping mall and two food product factories) wishing to newly introduce the energy management tools including the EM Management Handbook, and advice was given and exchanges of opinions made regarding energy conservation promotion activities for each of the companies based on on-site inspections of the buildings and factories. Particularly surprising was the beer factory in Lao PDR, in which there was a person who had participated in this training the previous year and who also participated this year. On his return from the training, this person had introduced the training contents within the company as well as promoting the implementation of energy conservation, so that PDCA Cycle and 5S promotion posters and energy use data were displayed in many places throughout the factory office to promote interest among the employees.

EM Handbook Introduction and Use Follow-up

With regard to this, there were no subjects this time.

Second Local Project: November 4 to November 18, 2009 (Overseas business trip: November 3 to November 19)

The following activities were implemented in the three countries of Thailand, Malaysia and Brunei Darussalam.

1. Implementation of Intensive Seminar-Workshop

The project activities, the "ASEAN Energy Management System" basic plan, together with the included functions and tools, were introduced to the related persons, and case study training was carried out in Malaysia using a building case study from Thailand that received the current fiscal year ASEAN Award of Best Practice in Energy Management for Industries and Buildings and in Brunei using an industry Best Practice Awarded case study from Thailand. In addition, requests were made that the workshop participants should participate in this project and utilize the programs and tools. From the previous time in 2007 there had been a request from Thailand side to hold a common venue for energy conservation experiences between Thailand and Japan known as a Focused Group Meeting rather than the Intensive Seminar-Workshop, and this year the same format was also adopted.

2. Training on Energy Management Handbook Activities

Lecturing on the contents of the Energy Management (EM) Handbook, and training concerning utilization methods was implemented. In the case study training, because the preparation of case study introductions had not been done by the participating companies in Malaysia, two cases were selected from the current fiscal year's ASEAN Best Practice Award case studies. However, in Brunei Darussalam, in addition to an ASEAN outstanding case study, an energy conservation activity case study was introduced, which was carried out by a university that was an implementing organization, and group activities were implemented. An Energy Management Guide had also been developed in Brunei Darussalam based on the Energy Management (EM) Handbook, and special mention is required regarding the fact that as well as introducing the contents of this guide, the training was also carried out by a professor of Universiti of Brunei Darussalam.

3. Visits to Related Companies and Organizations

Follow-up of EM Handbook Introduction and Use

Visits in this relation were also not carried out in these three countries.

Visits to Factories and Organizations wishing to Introduce the EM Handbook

Visits were made to two companies in Thailand, two companies in Malaysia, and three companies and organizations in Brunei Darussalam wishing to newly introduce the energy management tools including the EM Management Handbook. In Thailand a food product factory and a shopping mall were visited, in Malaysia a hospital and a building management company were visited, and in Brunei Darussalam the Ministry of Defense, an university, and a bank were visited, and advice was given and exchanges of opinions made regarding energy conservation promotion activities for each of the organizations and companies based on on-site inspections of the locations.

Research Forum in Japan: December 8 to December 10, 2009

11 related persons from each of the ASEAN countries including the evaluation committee of the ASEAN Award System of Best Practice in Energy Management for Industries and Buildings gathered together and carried out the following research and discussions.

(1) Opinions and ideas were exchanged contributing to improvement in the development of the "ASEAN Energy Management System" Step-2.

(2) ASEAN Award System of Best Practice in Energy Management for Industries and Buildings operations plan and evaluation guideline improvement and review

As a result of the above, consensus was obtained for the basic proposal of the functions relating to the "ASEAN Energy Management System" Step-2 System, and at the same time it was possible to receive valuable opinions for making further improvements. In addition, a basic proposal was compiled centered on the review of the awards categories to improve the operation method of the ASEAN Award System of Best Practice in Energy Management for

Industries and Buildings, and confirmation was made of the policy to make changes from the submission of applications in fiscal year 2010 planned for the future ASEAN Board of Judges (BOJ) meetings.

Summary & Post Workshop: March 3 to March 4, 2010 (Overseas business trip: March 1 to March 5)

Participation in the "Summary and Post Workshop on Promotion of Energy Efficiency and Conservation (PROMEEC) (Major Industries, Buildings, and Energy Management), SOME – METI Work Program 2009-2010" (Held in the location of Cebu Island in the Philippines, jointly covering Major Industries and Buildings.)

21 persons gathered, including persons relating to the various ASEAN countries, the ASEAN Centre for Energy (ACE), and representatives of the Energy Conservation Center, Japan (ECCJ), and carried out the following summary and discussions.

Opening greetings (Various representatives from the organizing country)

Situation and key points of the ASEAN Plan of Action for Energy Cooperation (APAEC) 2010–2015 (Draft)

Confirmation of basic activities policies for Phase-3

Summary Workshop

Session 1: Major Industries Project Activity Results and Outcomes

Session 2: Buildings Project Activity Results and Outcomes

Session 3: Energy Management Project Activity Results and Outcomes

- Evaluation Report of Current Fiscal Year Activity Results and Outcomes (Summaries by the various countries and ECCJ)
- Policies for activities in the next fiscal year and beyond

Post Workshop

- Overall evaluation of results and basic directions for future activities in Phase-3
- 2010-2011 Basic Implementation Plan for the three projects

Based on the evaluation of actual results up to the current fiscal year, clarification of the conditions that should be realized in Phase-3 was carried out, together with agreement on the Basic Implementation Plan that placed great importance on "human resource development" continuing into the next fiscal year. Based on this result, it was decided to request the preparation of future activity proposals including those of each country wishing to take part in the activities in the next fiscal year.

While continuing to realize support for certainly building the infrastructure in each of the ASEAN countries to realize continued energy conservation activities also in the current fiscal year, activities were also developed for the higher level Phase-3 seeking the enlargement of the

actual implementation and popularization due to an increased level of self-help efforts by each country, which is an important target of Phase-2 of the PROMEEC project.

As a result, the Step-1 System has been almost completed, providing the basic functions for "ASEAN Energy Management" that allows the ideal target of shared use among the various ASEAN countries, and an infrastructure allowing smooth operation has been established. The dissemination activities of the key energy management tools were also actively carried out, and it was also possible to smoothly operate the ASEAN Award System of Best Practice in Energy Management for Industries and Buildings. In addition, many fruitful results were obtained, including the fact that it was possible to expand the network of cooperation to many related persons, companies, and organizations.

Finally, when implementing this project, it was possible to obtain the full cooperation of the persons in charge at related organizations in all the countries, including the ASEAN Centre for Energy (ACE). We wish to take the opportunity here to warmly thank all the people concerned.

I. Objectives and Background of the Project

This project aims to plan to build a stable and appropriate energy demand structure corresponding to the internal and external economic and social environments in countries and regions that contribute to the stable supply of energy to Japan by investigating and providing advice on effective energy usage policies through carrying out energy measures, understanding and analyzing energy consumption trends, and interchanges of human resources.

This project has been carried out since 2000, and is known on the ASEAN side as the PROMEEC Project. PROMEEC is the abbreviation of "Promotion of Energy Efficiency and Conservation", and is a cooperation project between the Japanese Ministry of Economy, Trade and Industry that is authorized by the Senior Officials Meeting on Energy in the 10 ASEAN countries. It comprises the three projects of the Major Industries Energy Conservation Promotion Project (PROMEEC (Major Industries)), the Building Energy Conservation Promotion Project (PROMEEC (Buildings)), and the ASEAN Energy Management System Improvement Project (This project: PROMEEC (Energy Management)).

This project was started from 2004, and has constructed the ASEAN Energy Management System that will be essential for promoting energy conservation in industry sector and building sector of the ASEAN countries, and it contributes to the support for forming a mechanism to enable the realization of improvements from a technical and practical viewpoint. That is, it supports activities on the ASEAN side in energy conservation promotion by strengthening energy management particularly in the fields of industries and buildings in the various ASEAN countries, and as a result it promotes energy conservation measures in the various Southeast Asian countries to contribute and aid the promotion of energy conservation together with environmental preservation.

This project constructs the Energy Management System essential for energy conservation promotion in industry sector and building sector, and offers cooperation for supporting improvements from the technical and operation viewpoints.

The ultimate objectives of this project are the building of the ASEAN Energy Management System that can be commonly used by the various ASEAN countries, and by utilizing this system, contribution to the establishment of a sustainable system for energy conservation promotion in the industry and building sectors could be expected.

In order to realize and achieve these targets, activities are implemented that place great importance on the following points.

1. The "ASEAN Energy Management System" should be provided with the following functions, and should be easy and practical for users to use. That is, the following functions should be the basis of the system.
    - ? Supply of useful information
    - ? Provision of services such as energy audits and training

? Rules and systems for appropriately and smoothly operating the above

In addition, specific and effective sub-systems, programs, and tools should be prepared among each of the functions described above.

2. Effective links should be provided with energy conservation promotion projects in industry sector and building sector. (Sharing of information and utilization for result popularization)
3. Creation and broadening of the "ASEAN Network of Cooperators" centered on the various ASEAN countries in order to widely popularize the "ASEAN Energy Management System" while continuously improving and operating the system.

It is believed that a long-term viewpoint will be required for tackling the items described above. First the Step-1 System which fully provides the basic functions and their required minimum programs, tools, and sub-systems was tackled over a 5-6 year period, and the stage in the current fiscal year is that it has been almost completed and operation has been started. Based on an evaluation of the operation and popularization, the Step-1 System will be improved, and it is planned to build and start operation of the Step-2 System that adds the functions and programs that are thought to be additionally required.

The Step-1 System that has been mostly completed in the current fiscal year has been constructed and operated as described below. In addition, activities were also implemented for the popularization and application of this system.

(First Stage): Completed

Developed the plan for the ASEAN Energy Management System based on the Energy Management System investigation in the various ASEAN countries and the transfer of technology and experience to the ASEAN countries from Japan.

Appropriate review of parts of the plan will be carried out as required.

(Second Stage): The Step-1 System has been completed. Investigation of the Step-2 System was started.

Development of the methods of constructing and operating the ASEAN Energy Management System

(Third Stage): The Step-1 System has been completed.

Operation and improvement of the ASEAN Energy Management System by the various ASEAN countries

Programs required for the basic functions have been completed, and basic tools for energy management such as the Energy Management Handbook have also been completed. In addition, the sub-systems including the information system required for the popularization of the Energy Management Best Practices that have been collected through the Awards System, and the reciprocal search system (Cyber Search System) between the energy management implementing organizations and the customers have reached the actual operation stage.

At the same time, in order that the same system described above will be able to be popularized in the ASEAN region and can be used by the related persons, plans were developed to carry out

activities in five countries, and activities were implemented in the countries. In addition, the ASEAN Award System of Best Practices in Energy Management for Industries and Buildings case studies has already successfully completed its third Energy Awards, where a large improvement was apparent. In addition, improvement policies from an operation point of view were also specified, and the Board of Judges for the ASEAN region held discussions in a plan to determine the implementation rules to match the evaluation policies.

Note that although time was required to carry out the initial registration of implementing organizations in the Cyber Search System, the registration of the implementing organizations has been basically completed in the current fiscal year. However, the registration of customers has not yet been completed, and the actual trial operations will be carried over to the next fiscal year.

The implementation of this project was carried out by the Energy Conservation Center, Japan (ECCJ), and activities have been implemented centered on the following four experts in charge.

Technical Cooperation Department of International Cooperation Division:

General Manager Mr. Yutaka Ogura Project Manager: Industries (Steel)

Technical Expert Mr. Fumio Ogawa Leader: Industries (Petroleum Refining)

Technical Expert Mr. Hitoshi Kaji Sub-leader: Industries (Petrochemical Plants)

Technical Expert Mr. Takashi Sato Research Forum: Industries (Petrochemical Plants)

II. Plan of "ASEAN Energy Management System" and Implementation Plan for FY2009-20120 Aiming to Build the System

II-1. "ASEAN Energy Management System" Construction Plan and Summary of Current Situation

The system plan of the established "ASEAN Energy Management System" is shown in Fig. II-1-1.

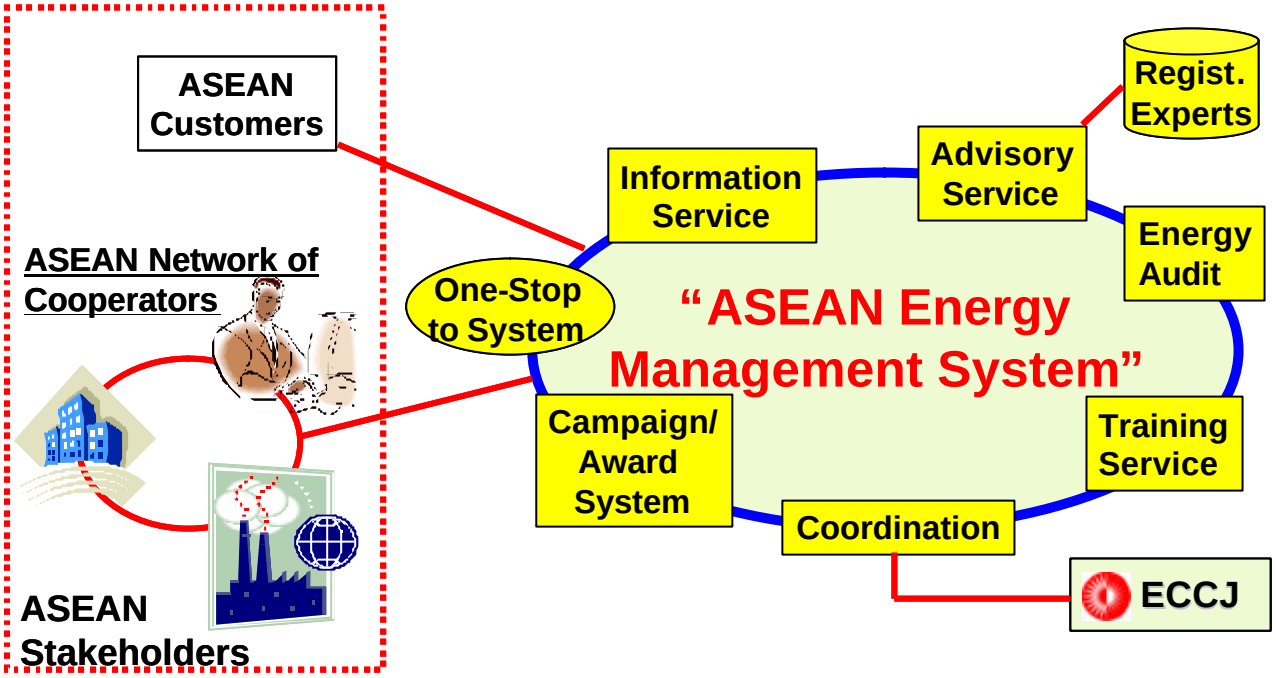


Fig. II-1-1: Plan of ASEAN Energy Management System

In the system described above, first the most important functions were developed and built as the first stage, and operations were actually started as the Step-1 System using the functions that were capable of being used. Then, while assessing the results of these operations, the addition of further effective functions was investigated, and from fiscal year 2009 progress was made in the Step-2 System as the second stage in which the priority items were developed and prepared. Note that even in the development stage of the Step-2 System, it was determined to establish a system and program that would continually improve the Step-1 System.

In consideration of this point, the basic schedule of the ASEAN Energy Management System was renewed. Fig. II-1-2 shows the latest schedule for constructing the "ASEAN Energy Management System". As shown in this figure, the Step-1 System was mostly completed in fiscal year 2009.

The activities in which priorities were placed in fiscal year 2009 are shown below.

(1) The third Energy Awards of the "ASEAN Award System of Best Practice in Energy Management for Industries and Buildings" were smoothly completed, and the points that should be improved from an operation point of view were narrowed down. In particular, from the point of view of encouraging submissions it is aimed to make improvements that will enable the collection of a wider range of even better case studies.

(2) The standard energy management tools should be prepared and popularized. That is, the ASEAN Energy Management Handbook should be finalized, systematic application guidelines should be established as an effective tool together with the In-house Database and Technical Directory, and activities should be developed to promote their utilization and popularization.

In addition, investigations should be continuously carried out to develop an even more effective Handbook to supplement the tools described above.

(3) In order that the existing implementing organizations can be widely utilized by ASEAN-related persons, trial use of an implementing organization and customer searching system (Cyber Search System) will be started so that customers are able to search for appropriate implementing organizations.

(4) Working towards the construction of the Step-2 System which is to begin from fiscal year 2009, functions that should be additionally added, together with the programs and tools required by these functions, will be investigated based on an evaluation of the operations of the Step-1 System. Already, the building of a useful information supply system including a directory of suppliers of energy conservation technology, machinery and equipment including ESCO has been included in the plan, with the aim of developing tools such as the Technical Handbook and providing information to businesses and mediating between business developments.

(5) Based on the results of implementing the activities described above, it is planned to investigate the improvement of the "ASEAN Energy Management System" plan, and review it if necessary.

(6) In order that the "ASEAN Energy Management System" can be utilized by as many related people as possible while increasing the number of cooperators for operating the system, activities will be continued to expand the ASEAN network of cooperators.

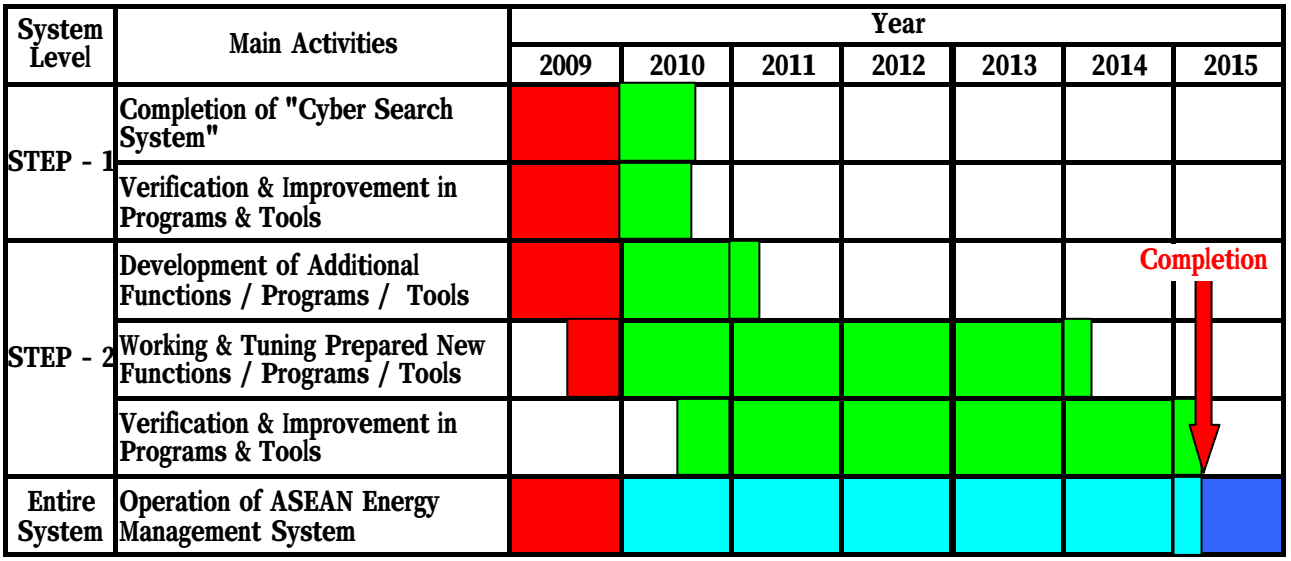


Fig. II-1-2: Schedule for Constructing the "ASEAN Energy Management System"

II-2. Implementation Plan for 2009-2010

Following the basic plan for constructing and operating the "ASEAN Energy Management System" described in the previous section, the activities were planned. The implementation plan was finalized at the Inception Workshop that was held in July 2009, and agreement was reached with the government-related persons from the ASEAN countries.

In the current fiscal year also, submissions of proposals have been received from each country following the fiscal year 2009 basic implementation plan that was finalized at the fiscal year 2008 Post Workshop held in the end of February 2009. Based on each of these proposals, ECCJ created an implementation plan proposal, which was discussed at the Inception Workshop. Regarding this project, proposals were submitted from 5 countries, excluding Indonesia, Singapore, Myanmar, Cambodia, and Vietnam, and it was planned to carry out activities in the countries submitting the proposals.

The priority activities in the current fiscal year are as described below.

1. ASEAN Energy Management System: Completion of building Step-1 System, and continuous operation

? Construction of Information Supply Functions and Start of Operations

(1) Continuation of gathering and popularizing the Best Practices in Energy Management Implementation case studies: Holding of Third Energy Awards

a. Smooth operation and improvement of the ASEAN Award System of Best Practice in Energy Management for Industries and Buildings
b. Improvement of system for sharing the awarded case study information
c. Improvement of operation methods for collecting a wider range of better case studies

(2) Development of energy management tools and systematic usage guidelines

a. Finalization of the ASEAN Energy Management Handbook (Reflecting the results of its introduction and usage in factories and buildings)
b. Establishment of policies for effectively utilizing the Handbook described above and the Technical Directory and In-house Database created from the major industries and buildings projects.
c. Development and investigation of the Technical Handbook, etc. to supplement the above.

? Development of Energy Audits and Training Service Provision Functions

(1) In order to promote the utilization by existing implementing organizations (including ESCO), start trial operation of an implementing organization and customer searching system (Cyber Search System).

? Expansion of the ASEAN Network of Cooperators

(1) Through holding Workshops and visiting various groups and companies, request activity introductions and cooperation and participation in activities.

2. ASEAN Energy Management System: Building and Start of Operations of Step-2 System
3. Based on the results of the above, review the "ASEAN Energy Management System" plan

In order to realize the targets described above, the following types of activities will be implemented.

1. Implementation of Intensive Seminar-Workshops in the ASEAN countries

The purposes of holding the Intensive Seminar-Workshops are to introduce the PROMEEC Projects including the Energy Management Project, to introduce and discuss the functions and programs that should be provided in the "ASEAN Energy Management System", and to carry out dissemination of the constructed ASEAN Energy Management System and its programs and tools through understanding the functions and programs by carrying out case study research. In addition, the requirements relating to the participation in these project activities and programs and in program utilization, the making of requests for cooperation in this project based on the above, and the understanding of the requirements from participants will also be very important items.

2. Usage Training for the ASEAN Energy Management Handbook

The ASEAN Energy Management Handbook will be finalized. To achieve this, the results and experiences of introducing and using the Handbook by pioneer factories and buildings will be reflected. In parallel, persons relating to companies and related organizations wishing to introduce the Handbook, including persons relating to pioneer businesses, will be gathered together, and training will be implemented in how to specifically utilize the Energy Management Handbook together with the In-house Database and the Technical Directory.

3. Visits to Companies and Related Organizations

After implementing the Intensive Seminar-Workshops and the ASEAN Energy Management Handbook usage training, companies will be visited for the following purposes (Approximately two locations in each country)

(1) Follow-up for ASEAN Energy Management Handbook introduction and usage activities in pioneering companies

(2) Provision of advice and opinion exchanges regarding energy conservation activities in factories and buildings wishing to newly introduce the Energy Management Handbook. This includes energy conservation promotion, understanding of the condition of the energy management system, and the giving of advice regarding problem points.

(3) Making requests for utilization of the ASEAN Energy Management System, participation in the activities, and project cooperation

4. Activities for Operating the ASEAN Award System of Best Practices in Energy Management for Industries and Buildings

The following activities will be implemented to make improvements to the awarded case study selection and evaluation standards of the third ceremony of the ASEAN Award System of Best Practices in Energy Management for Industries and Buildings.

(1) Holding the Meeting of the Board of Judges

Evaluation of the submitted case studies and selection of awarded case studies by the Board of Judges (BOJ).

(2) Request for Submissions of Cases for Fourth Energy Awards

Based on an analysis of the third Energy Awards case studies, activities will be continued with the purpose of further expanding the participating companies, such as by improving the evaluation standards.

5. Holding of Research Forum in Japan

Inviting ASEAN-related research personnel, the Fifth Research Forum will be held in Japan for the following purposes.

(1) Research toward improvement policy for PROMEEC Phase-3 of the ASEAN Energy Management System

(2) Research toward operations method improvement in the ASEAN Award System of Best Practices in Energy Management for Industries and Buildings including the evaluation standards

6. Various Investigations and Tool Creation

The preparation of the above activities on the Japan and ASEAN sides, the investigation of the plans through analyzing the implementation results, and the creation of various tools including the Energy Management Handbook will be continuously carried out.

The above activity plan and implementation schedule are shown in Table II-2-1.

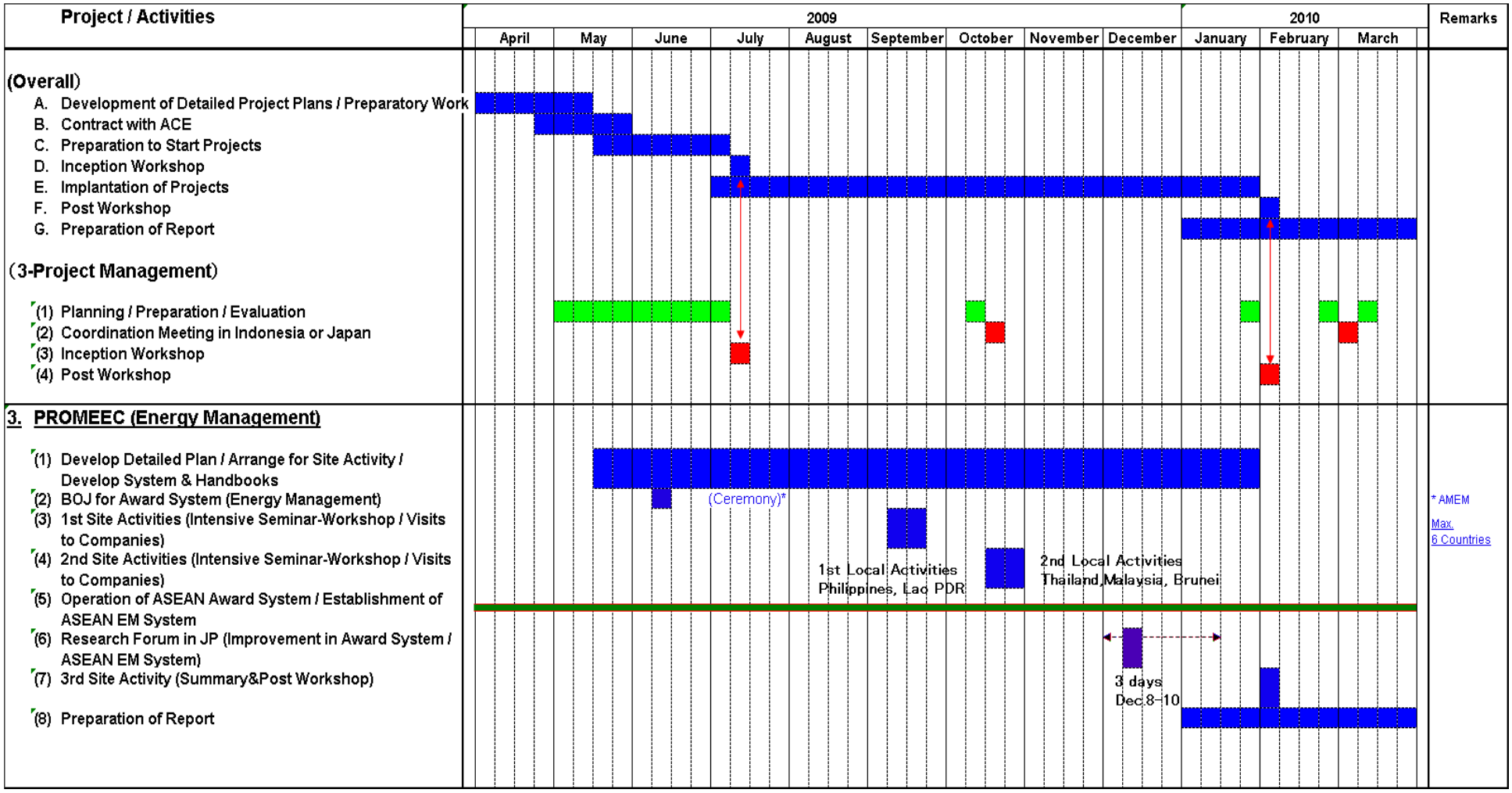


Table II-2-1: Fiscal Year 2009 Implementation Plan

III. Activities in Each Country (Intensive Seminar-Workshops and Visits to Companies)

III-1. Overview

Five countries, the Philippines, Lao PDR, Thailand, Malaysia, and Brunei Darussalam were visited, and activities were implemented. In Thailand, a one-day Focused Group Meeting was held in place of the Intensive Seminar-Workshop, and visits to companies were made on the next and the following days. Further, in the remaining four countries, following the holding of the Intensive Seminar-Workshop, training was carried out to allow use of the Energy Management Handbook. Afterwards, visits were made to factories and buildings wishing to introduce the Energy Management Handbook to their energy conservation activities, and advice and exchanges of opinions were carried out regarding the activities.

The activities in the countries were implemented in September 2009 for the Philippines and Lao PDR, and in November 2009 for Thailand, Malaysia, and Brunei Darussalam.

In this current fiscal year, there were also many participants in the Intensive Seminar–Workshops and the Focused Group Meeting from a wide range of organizations, including government-related groups, implementing organizations, industry groups, companies, and universities. The total number of participants was more than 192 persons, and in addition a maximum of three companies or related organizations were visited in each country, making a total of 10 locations for the five countries mentioned above.

The Energy Management Handbook usage training also attracted the attention of many related persons, and 141 persons participated in the four countries where this one-day training was implemented. Very lively questions were exchanged, and the participants enthusiastically tackled the group work.

The programs of the Intensive Seminar–Workshops are shown in Attached Materials III-2-1. In general, they were made up of the following sessions.

Session 1: Outline and Achievements of the PROMEEC Projects

Session 2: Functions and Program of the "ASEAN Energy Management System"

(1) Outline of the Latest "ASEAN Energy Management System" Plan

(2) Specific Functions and Programs

- ASEAN Award System of Best Practices in Energy Management for Industries and Buildings
- Cyber Search System to Utilize Existing Implementing Organizations
- Development of Tools for Energy Management

Session 3: Training: Experience of Group Activities for Improvement in Energy Management

After all the sessions described above had been completed, various energy conservation promotions were carried out for persons wishing to participate and advice was given in response to questions asked relating to energy management.

In addition, the training programs for the Energy Management Handbook utilization held in the Philippines, Lao PDR, Malaysia, and Brunei Darussalam are shown in Attached Materials III-2-2. These were made up of two sessions.

Session 1: Seminar

(1) Energy Management Handbook Development and Plan for Introduction and Usage
(2) Energy Management Handbook Detailed Contents Explanation
(3) Related Tools (In-house Database, Technical Directory)
(4) Key Indicators for Improving Use of Energy Management Handbook

Session 2: Workshop: Case Study Research based on Small Group Activities

(1) Pioneer Company Improvement Case Study Presentation
(2) Group Work

- Discussion: Guidelines and Plan for Improvement using Energy Management Handbook
- Presentation of Discussion Results, Discussions and Exchanges of Opinions

On the other hand, in Thailand training on the "Energy Management Handbook" was not carried out, and a Focused Group Meeting was held instead of the Intensive Seminar-Workshop. The company visits were carried out soon after the following day.

In the four countries of the Philippines, Lao PDR, Malaysia, and Brunei Darussalam, after carrying out the Intensive Seminar–Workshop and the Energy Management Handbook Usage Training, company visits and hearings were held regarding the Energy Management Handbook usage activity situation in pioneer companies. The above were realized through the efforts of the Focal Points consisting of related persons from each county and also from the ASEAN Centre for Energy, and it was possible to carry out the activities smoothly according to plan. As a result, it was possible to achieve the following results.

(1) Also in the current fiscal year, many participants from each country and almost all the companies and various related organizations showed interest in the project and the "ASEAN Energy Management System" program. Evaluation was received that these are effective energy conservation activities, and confirmation was received that the participants actually wished to participate.
(2) Energy management best practice case studies in the "ASEAN Energy Management System" were widely collected from each country, and the Awards System that has already been held three times since its start as a program to achieve dissemination in the ASEAN region is attracting even greater attention and expectations. Foundation construction for the Awards System was promoted, including making improvements in the operation, in order that even more companies will be encouraged to continue submitting entries in the future.
(3) The Energy Management Handbook includes specific activity guidelines that enable it to promote energy conservation. By carrying out group activities using these guidelines in specific case studies, it was possible for the participants to experience their usefulness. As a result, one of the countries is investigating a policy to utilize this handbook at the national level as its energy management guidelines.
Further, in order to finalize the Energy Management Handbook, its introduction and use was started in five pioneer companies in Indonesia, Lao PDR, and Vietnam, and the results of the introductions in each of the countries were reflected, enabling the creation of a general-purpose ASEAN draft version. In addition, the translation to the language used in each country is being carried out, and the Laotian version has reached the binding stage.
(4) In the current fiscal year also, the "ASEAN Network of Cooperators" for this project including the companies that were visited could be enlarged. Since the project was started in 2004, 108 companies (factories, buildings, ESCO, etc.) and implementing organizations, government institutions, universities and research institutes have been visited and investigated, and advice has been given concerning their activities.

In addition, in all five countries, companies and factories other than the pioneer companies were also visited, and we confirmed their understanding of the usefulness of the tools for energy management including the Energy Management Handbook together with the fact that the PROMEEC activities are implemented every year, realizing large results. At the same time, we also called for their participation by making submissions to the ASEAN Award System of Best Practices in Energy Management for Industries and Buildings.
Detailed explanations of the actual activities in each country are given below.

III-2. Activities and Implementation Results in Each Country

III-2-1. Philippines

1. Intensive Seminar-Workshop Implementation

The Intensive Seminar-Workshop held on September 9th had 38 participants centered on the Energy Efficiency & Conservation Division, Energy Utilization Management Bureau of Department of Energy (DOE), together with persons from the DOE regional offices, implementing organizations, universities, and persons related to companies. The seminar was opened by statements given both by Ms. Maureen Balamiento of the ASEAN Centre for Energy (ACE) and by Mr. Yutaka Ogura of the Energy Conservation Center, Japan, followed lastly by welcoming remarks from DOE Undersecretary Ms. Loreta G. Ayson, after which commemmorative photographs were taken with all participants. The program is shown in Attached Materials III-2-1. The Seminar-Workshop this time gave priority to the points described below. Note that the venue was a long and narrow meeting room on the third floor of the hotel where this organization's employees were staying (City Garden Hotel Makati), which was used by arranging tables in a lengthwise U-shape.

(1) Lecture:
Outline of PROMEEC Project and the PROMEEC (Energy Management) Project Implementation Plan

(2) Lecture:
Latest "ASEAN Energy Management System" Plan, Functions, and Major Programs and Activities

(3) Workshop: Group Activities
Following the guidelines of the Energy Management Handbook, discussions were carried out using case studies. These case studies utilized the Thailand case study of Thai Cold Rolled Steel Sheet Public Co., Ltd. which was submitted to the fiscal year 2008 ASEAN Award System in Energy Management where it was awarded the Outstanding Prize in the Industry sector, and the Brunei Orchid Garden Hotel case study that was awarded a prize in the same Building sector in fiscal year 2007.

Although more than 26 persons participated in the group activities, activities were carried out in three groups in the slightly narrow lengthwise location. The groups were formed by repeatedly assigning 1, 2, and 3 in order to the participants from the front end of the seating, who took the group number as the number that was assigned to them. This device was used to ensure that people sitting together from the same institution would as far as possible be assigned to different groups. Although it was left up to each group to select which of the two case studies they would use, the result was that all three groups chose the same Orchid Hotel case. While there were industry-related persons in the participants, we presumed that the hotel was selected by all groups because overall the building-related topics were common to everyone, making them easier to investigate. Although everyone chose the same topic, tackling a common case study in each of the groups meant that mutual comparison and evaluation was possible regarding the results of the investigations, which attracted the attention of the participants. Even though the same case studies were investigated, the ways they were tackled in each group became slightly different due to the experience, abilities, initiative, and positivity of the members making up the group. Although the time allowed for the investigation was slightly short at one hour, lively discussions took place, and in its own way each group wrote their investigation results on the whiteboard, and the results were presented in the order of the groups. Concerning the presentations, while some groups gave precise explanations down to introducing the members making up the group and their roles, other groups spent little time explaining this and immediately described the good points and the points that should be improved. Generally, each group indicated the pertinent points, and due to the common topic they also expressed strong interest in the presentations by the other groups.

(4) Main participants: The breakdown of the main participants including the Seminar-Workshop

and the training in following day is as shown below. The majority of the participants gave information beforehand so that it was understood who they were, and persons who were planning to participate were listed by their names together with the names of the organizations that they belonged to.

DOE: 12 persons (including three persons from the Visayas and Mindanao local offices), Mariano Marcos State University: 5 persons (Energy Management members), Star Mall Alabang: 3 persons, SM Shopping Center: 2 persons, Ayala Property Management: 2 persons, TIPCO: 2 persons, Pagasa Steel Works: 2 persons, AGC Flat Glass: 1 person, Market-Market: 1 person, other

2. Training regarding the Usage Method of the Energy Management Handbook

Although the number of participants was a little low at 27 persons, the number of participants in the afternoon Workshop after the end of the morning lecture was 19 persons (excluding DOE, ACE, and ECCJ personnel), who were almost the same participants as on the previous day. Accordingly, the group work on this day used a smaller number of two groups.

As this was a course for understanding the details of the Energy Management Handbook, In-house Database, and Technical Directory and their utilization methods, it was implemented for companies and implementing organizations that have particular interest and are considering the introduction of these tools.

The training that was a course which had the following content, including a lecture concerning how best to use the "Energy Management Handbook" together with the In-house Database and the Technical Directory and details of each of their usage methods. The program (common to all countries) is shown in the Attached Materials III-2-2.

Note that in the case of the Philippines, although it opened as an Intensive Seminar-Workshop which had been held successively in the past, the Training Session on the second day was being held for the first time. In particular, for the "Energy Management Handbook" part, a detailed explanation was given page-by-page. In addition, on a small group basis, explanations were given not only of TQM and TPM, but also concerning Six Sigma, and it was apparent that the participants showed great interest in this. Concerning Six Sigma, approximately half of the participants appeared to know of it.

(1) Lecture: Detailed Contents of the Energy Management Handbook and Lecture on the Main Guidelines
(2) Workshop (Group activities)
  1) Introduction to the energy conservation activities carried out by the following two companies
  2) Based on the introduction details described above, group work was experienced relating to creating advice concerning the evaluation of the energy conservation activities and improvement plans possible for the future
(3) Explanation of Energy Management Handbook introduction and usage activities

The introduction to the case studies tackling energy conservation activities that was investigated in the Workshop used the two companies comprising the SM Shopping Center Management Corporation which was to be visited two days afterwards on the 11th, and the Greenhills Shopping Center in the Philippines, which won an award in the fiscal year 2008 PROMEEC ASEAN Award Energy Management Buildings Sector. From the SM Shopping Center Management Corporation, Mr. Charles L. Singson attended the Seminar-Workshop, while Mr. Raffy M. Maglalang (Mall Manager, SM Supercenter Pasig) attended on the day, and a detailed explanation was also given using the proposal materials that were submitted for the fiscal year 2007 PROMEEC ASEAN Award Competition. In addition, Mr. Lawrence R. Todd (a U.S. citizen) from the company Tropical Focus Phils, Inc. which carries out the technical servicing and consulting regarding the installation and management of air-conditioning-related equipment for SM Shopping Center Management Corporation gave a presentation of supplementary information. Regarding this company, we could receive appropriate related information before the company visit on the 11th.

In addition, regarding the Greenhills Shopping Center, although it was initially planned that related

persons would attend to give an explanation of the outline, there was a sudden change in circumstances that meant they could not attend. Accordingly, the materials submitted when Greenhills received the 1st Runner-up Award in the fiscal year 2008 ASEAN Award were distributed to participants beforehand, and based on this the groups carried out discussions and investigations. Note that Greenhills employees arrived later at the venue when the presentations were being given, and could hear the presentation results.

Almost all the participants had taken part in the Seminar-Workshop on the 9th , and had become used to the group activities. Highly active discussions surpassing those held on the 9th were exchanged in each group. In addition, in the question sessions, questions were received including what is the driving force behind the use of TPM, TQM, and Six Sigma in Japan, and whether the loyalty of employees to their companies is still strong in Japan. By carrying out this training, we believe that it was possible to give the participants experience of the energy management guidelines including the "Energy Management Handbook (EMH)" and in methods of using the In-house Database and Technical Directory in their practical business.

3. Company Visits

Based on the Intensive Seminar-Workshop this time and the training relating to the usage methods of the "Energy Management Handbook", SM (Supermalls) Shopping Center Management Corporation was selected as the company which wished to introduce and use the tools including the "Energy Management Handbook" in their factory or building energy management activities and energy conservation promotion. Accordingly, a visit was made to the company's San Lazaro Shopping Mall on the 11th. On the day, in addition to the San Lazaro's Assistant Mall Manager, Mr. Charles Singson and Mr. Lawrence Todd, who had introduced the company at the previous day's workshop, also offered their support. This organization gave an explanation of the purpose of the company visit and requested the utilization of EMH, and based on this we also requested that they investigate submitting an application for the PROMEEC ASEAN Award. In addition, they also let us view the PC software in the Management Room run by Tropical Focus Phils, Inc. in the San Lazaro Mall, and showed the overall mall temperature management condition. Further, they also gave responses regarding the SM Group's recently completed Naga Shopping Center relating to EMH usage and Award application submission. For details, refer to the company visit record in Attached Materials III-2-3.

4. Other

(1) Wrap-up Meeting

Concerning the follow-up to the activities this time, a meeting was held at the hotel in the afternoon of the 11th with ACE and the Philippines DOE (Mr. Marlon Domingo) regarding the visited company's activity follow-up such as progress of improvement activities, improvement points for the Handbook, promotion of participation in the Awards System, etc. In particular, because the SM Corporation expressed an intention to submit their Naga Mall for the Awards System, we requested that appropriate follow-up should be made.

(2) Certificate of Completion

34 Certificates of Completion prepared by DOE were signed by ECCJ as the representative and presented to the participants on the second day.

(3) Energy Conservation Law Investigation Condition

In the question session held following the Seminar-Workshop, there was a question from a person from the Marcos University regarding when the related Energy Conservation Law would be implemented in the Philippines, which was answered by Mr. Anunciascion, Focal Point (FP) of DOE. According to his explanation, this was developed once in 1980 including designated energy management company regulations and an Energy Manager system, but afterwards it elapsed and was extended between 1986 and 1990 before expiring in 1990 and remaining in that state until the present. Recently a new review draft has been proposed, but has not yet received approval from the Congress. It was planned that a draft resembling the Japanese Law should be

created with JICA support from 2010.

(4) After the Seminar-Workshop, ECCJ pamphlets and JASE-World English version CDs were provided through DOE to participants who wished to have them.

(5) Although the number of responses to the respondents' questionnaire was slightly low at 13 persons, all of the 8 persons who evaluated the EMH/Training said that it was "Very Useful". (Five respondents did not complete the section.)

Actual AGENDA
Intensive Seminar – Workshop
Promotion Of Energy Efficiency And Conservation (PROMEEC) – Energy Management Under The SOME-METI Work Programme 2009-2010

(Venue) City Garden Hotel, Manila, Philippines (Date) September 9th, 2009

08:30 – 09:25	Registration
09:25 – 09:33	Opening Statement by ASEAN Centre for Energy (Ms. Maureen Balamiento)
09:33 – 09:41	Opening Statement by The Energy Conservation Center, Japan (Mr. Yutaka Ogura)
09:41 – 09:55	Welcome Remarks by Department Of Energy (Ms. Loreta G. Ayson, Undersecretary)
09.55 – 10:25	*COFFEE BREAK & GROUP PHOTO SESSION*
10:25 – 11:10	Session 1: PROMEEC Projects / PROMEEC EM Project: Outline & Achievements
10:25 – 10:48	Presentation by ACE & ECCJ 1) Outline and Achievements of PROMEEC Project (Ms. Maureen) 2) Outline and Plan of PROMEEC (Energy Management) Project (Mr. Ogura)
10:48 – 11:00	Presentation by DOE Energy Management Initiatives in Philippines (Mr. Marlon Domingo)
11:00 – 14:49	Session 2 : "ASEAN Energy Management System": Functions & Program
11:00 – 11:28	Presentation by ECCJ Outline of Updated "ASEAN Energy Management System" (Mr. Ogura)
11:28 – 11:54	Presentation by ECCJ and ACE Specific Functions and Program 1) ASEAN Award System of Best Practices in E.M. for Industry and Building - Outline, Results of ASEAN Awards for 2008-2009 and Plan for 2009-2010 (Ms. Maureen) 2) Information System - Information System to Disseminate Awarded Cases (Mr. Ogura) - Cyber Search System to Utilize The Existing Implementing Organizations (Ms. Maureen)
11:54 – 13:25	*LUNCH*
13:25 – 14:34	Presentation by ECCJ and ACE (Continued) 3) Energy Management Tools - "Energy Management Handbook"(Mr. Ogawa) - In-house Database for Industries and Buildings (Ms. Maureen) - Technical Directory for Industries and Buildings (Ms. Maureen)
14:34 – 14:49	Q&A
14:49 – 17:06	Session 3: Case Study (Experience of Group Activities for Improvement in Energy Management) Thai Cold Rolled Steel Sheet Public Co. Ltd./ Orchid Hotel
14:49 – 15:10	Explanation by ECCJ (Mr. Ogawa and Mr. Kaji) Basic Procedure of Group Work Guided by "Energy Management Handbook"
15:10 – 16:20	Preparation for Group Work (3 Groups) Group Work by Participants
16:20 – 16:30	*COFFEE BREAK*
16:30 – 17:06	1) Presentation by Participants 2) Comments by ECCJ
	End of Intensive Seminar-Workshop

Attached Materials III-2-2: Training Program for Utilization of Energy Management Handbook

Actual AGENDA

Training: Utilization of "Energy Management Handbook and Tools for ASEAN"

Promotion Of Energy Efficiency And Conservation (PROMEEC) – Energy Management Under The SOME-METI Work Programme 2009-2010

(Venue) City Garden Hotel, Manila, Philippines (Date) September 9th, 2009

08:30 – 09:30	Registration
09:30 – 12:30	Session 1: Seminar by ECCJ
09:30 – 09:35	Explanation by ECCJ: Purpose of Training Course (Mr. Ogura)
09:35 – 10:54	Explanation by ECCJ: Details of Energy Management Handbook for ASEAN (Mr. Ogawa)
10.50 - 11:04	*COFFEE BREAK*
11:04 – 11:20	Explanation by ECCJ: Details of Energy Management Handbook for ASEAN (Mr. Ogawa)(Continued)
11:20 – 11:30	Explanation by ACE How to Utilize In-house Database and Technical Directory in Energy Management
11:30 – 11:54	Explanation by ECCJ: Important Guideline for Improvement Using EM Handbook (Mr. Ogura)
11:54 – 12:14	Q&A
12:14 – 13:43	*LUNCH*
13:43 – 17:00	Session 2: Workshop (Training for Small Group Activities)
13:43 – 13:55	Guidance for Group Work by ECCJ (Mr. Ogawa and Mr. Kaji)
13:55 – 14:42	Case Study (1): Presentation by Participants (Pioneer Company; SM Shopping Center Management Corporation), Issues on EE&C
	Case Study (2): Presented by paper (Pioneer Company; Greenhills Shopping Center)
14:42 – 16:15	Group Work Based on Cases Studies (1) & (2) - Preparation for Group Work - Discussion by Groups: Guideline and Basic Plan to Improve Using "Energy Management Handbook"
16:15 – 16:35	Presentation by Participants: Results of Group Work for Cases Studies (1) & (2)
16:35 – 17:00	Comments by ECCJ Experts
17:00	COMPLETION OF TRAINING

Attached Materials III-2-3: Company Visit Record (Philippines)

1. Philippines

PROMEEC (Energy Management) Related Institution Visit: Philippines (No.1)
Meeting with the SM Shopping Center Management Corporation

No.	Item	Details
1	Date and Time	September 11 (Friday) 10:00-12:30
2	Meeting Place:	SM (Supermalls), San Lazaro Felix Huertas, Corner A.H. Lacson St. Sta. Cruz, Manila
3	Meeting Partners:	- Mr. Charles L. Singson (Operations Mgr., Eng. & Dev. Division, SM) - Mr. Paulino Y. Tang SIY, Jr. (Assistant Mall Mgr., SM San Lazaro) - Mr. Lawrence R. Todd (Director-Admin., Tropical Focus Phils, Inc.) Other five persons (from SM and Tropical Focus Co.)
4	Accompanying Persons (DOE)	- Mr. Marlon R.U. Domingo (Senior SRS, DOE) - Mr. Roland R. Meneses (VFO*1, DOE) (*1: Visayas and Cebu Island) - Mr. Crisostomo C. Laplap (VFO*1, DOE) - Mr. Camelo Camuga (MFO*2, DOE) (*2: Mindanao Island)
5	Visitors (ACE, ECCJ)	- Ms. Maureen Balamiento (IT Specialist, ACE) - Mr. Yutaka Ogura (ECCJ, Technical Cooperation Department, General Manager) - Mr. Fumio Ogawa (ECCJ, Technical Cooperation Department, Technical Expert) - Mr. Hitoshi Kaji (ECCJ, Technical Cooperation Department, Technical Expert)

6. Company Outline and Past Developments

SM (Supermalls) Shopping Center Management Corporation is one of the leading corporate groups in the Philippines, and the owner family was taken up in the cover story of the February 22, 2004 issue of TIME Magazine titled "The Families that own Asia". The core of the Group is SM (Supermalls), and the company currently has malls (shopping centers) in 35 locations in the Philippines and is already advancing overseas into China. In this PROMEEC EM Project, we visited the Mall of Asia (MOA), SM's largest mall, in October last year. Mr. Maglalang and Mr. Singson attended last year's Seminar-Workshop, and SM has a background of being visited as a company that is interested in tools such as the EM Handbook. The Assistant Vice President at that time, Ms. Silerio, was very enthusiastic about energy conservation activities, and at the time the company had received a request from the DOE to assign a person to lecture at a seminar that was to be held in the near future. In addition, SM submitted an application concerning the above-mentioned MOA in the Buildings sector of the fiscal 2007 ASEAN Award Competition, however, the result was that it did not receive an award, and it was also investigating whether to submit applications again in the future. For more details, refer to the last fiscal year's company visit record.

The visit destination for the current fiscal year was the different San Lazaro Mall, which is one of the company's medium-sized malls. The visit also saw the participation by Mr. Todd of Tropical Focus Phils, Inc. who had explained about the air-conditioning facilities and their management on the 10th, so that we chose a good example for explaining the management situation.

In addition, in the company visit in the current fiscal year, a total of three persons participated in both the Seminar-Workshop and the Training from the DOE regional offices (field offices in Visaya and Mindanao on Cebu Island), from which it could be understood that the DOE was adopting an appropriate arrangement for the purpose of "human resource development".

7. Outline of San Lazaro Mall

This mall is located in the north part of central Manila, at a distance approximately 30 minutes by car. It opened in July 2005. It has approximately 180,000m^2 of buildings on around 4

hectares of land, and includes department stores, supermarkets, various stores, cinemas, and car parking. There are many stores aiming at children, and there are around 300 tenant stores. The energy used is electricity, with a proportion of 45% for each tenant (administered using meters in each store) and 55% for the common parts (SM Corporation). The number of SM Corporation employees totals approximately 40 persons, including those involved in operations, engineering, and other. In addition, the number of employees working under contract from other companies, such as in security, is around 150 persons.

8. Contents of Discussions

(1) Explanations from this Organization

The meeting was held attended by a large number of people from the other party. In addition to Mr. Singson who attended all the PROMEEC activities last year and this year, there was Mr. Tang who is in charge of operations at the mall in question, and also Mr. Todd of Tropical Focus who had given the explanation about the air-conditioning facilities and management at the Seminar-Workshop on the previous day, and one other person. Four other people also attended from the SM Corporation side.

Because the meeting this time was the first meeting with persons other than Mr. Singson, first the ECCJ General Manager Mr. Yutaka Ogura explained the purpose of the visit this time (relation with last year's visit), an outline of the PROMEEC activities, an overview of ECCJ, the contents of this time's Seminar-Workshop and Training, the usefulness of the energy management tools, and then gave copies of the ECCJ pamphlet and JASE-Word CD. Then the following explanations were received from the other party.

(2) Energy Management Policy

As also stated by Ms. Silerio last year, there is a clear policy among the top management to seek energy conservation, and this is permeating through the company. As a result, the actual results described below are being achieved. Further, the company has a policy not only for energy conservation, but an overall policy for the environment, and is proceeding to implement it.

(3) Energy Management Organization

There are a number of committees inside the company, and one of these, the Environmental Committee, also handles energy conservation. This committee is made up of a total of 15 persons. The previously mentioned Ms. Silerio is the Chairperson, and Mr. Maglalang is also one of the members. The committee holds a meeting once a month, and the Energy Efficiency Team below this holds a meeting every Thursday. The company divides its 35 malls into 10 districts for administration purposes, and the Energy Efficiency Team also includes representatives from these 10 districts.

(4) Energy Conservation Activity Results

1) Overall Energy Conservation Activities

SM Corporation is enthusiastic about energy conservation activities, and the actual results of the monthly electricity usage amount at the mall concerned were submitted as graphs showing a reduction over the past three years. The Energy Efficiency Index is 230kwh/m^2/year, which although is not as good as other malls (for example, the South Mall is 210), much better than the figure for the Mall of Asia (which is 300 or more). Although there are some problems with the way of considering the area, we did not hear the details.

Currently out of the current malls in all 35 locations, 15 locations (one more location is currently being prepared) are linked by lines to the Tropical Focus Management Center, to which the air-conditioning management is being commissioned. Further, an additional three locations have entered into an agreement with ESCO and are proceeding with energy conservation. At the time of the visit last year, Ms. Silerio

expressed her intention to utilize ESCO in the near future, and we gave her a variety of advice. However, this time was the first time for us to know that they have actually moved to implement this. In addition, concerning lighting, the company is implementing a switch to energy conservation type equipment. Further, the company is holding seminars whenever required to educate staff including tenants. They are also holding many seminars relating to the environment, such as garbage-related problems.

2) Air-conditioning Facility Management

Consideration was made of the actual results of the power consumption amounts for all 35 mall locations, and locations where the amounts were large (efficiency was poor) were prioritized. Other elements such as the simplification of the wiring were also taken into account, and the 15 locations described above were selected as subjects. Regarding San Lazaro, the actual usage amount until June 2008 was taken as the base, and a target was established to realize a 13% reduction over a period of a little more than one year. Including sensor installation, wiring, and modification of the piping of four chiller units, a total of 16 million pesos were spent on equipment investment, but since the reduction amount was 2 million pesos per month, the investment could be recovered in approximately nine months. It appears that the initial trigger was provided by a talk between the owner of the SM Corporation and the father of Mr. Lawrence who is the executive of Tropical Focus.

3) Small Group Activities

In response to a question from this organization, SM Corporation answered "We are carrying out SGA. There are many proposals relating to lighting. We are holding mutual meetings regarding improvements once per month between operations and engineering", but we thought that they could not be carrying out SGA in its truest sense. In this meaning, we believe there is room to carry out SGA by using the EM Handbook.

(5) Future Plans

In addition to the previously mentioned 16+3 locations, the company has established a plan to continue investing in facilities for energy conservation in order of location from next year. In addition, they said they were thinking of using the SM Mall Naga (a new mall opened in 2008) as a pilot mall for EM Handbook utilization or as a candidate for submitting an application to the next ASEAN Award Competition, and we recommended that they should proceed with this. Note that this mall is located in the southern part of Luzon Island, approximately 500km away from Manila.

(6) Comments regarding the Energy Management Handbook

Through his participation in the Intensive Workshop-Seminars and Training between last year and this year, Mr. Singson is already fully familiar with the EM Handbook contents. According to Mr. Singson, "The contents are very good, and we'd like to utilize them in our company's energy conservation activities in the future."

8. Impressions of Site

When we viewed the Administration Room of the BAS (Building Automation System), on the display screens the temperatures of each of the locations divided according to the zoning were shown using colors, including green (23-24℃), blue (temperatures below 23℃), and yellow (temperatures above 24℃). An explanation was given of methods such as changing the flow amount of the chilled water in order to maintain the target temperature value. In addition, we also inspected the chillers (four units) and the Electric Room. Overall, the design and management (including the housekeeping) was favorable.

III-2-2. Lao PDR

1. Intensive Seminar-Workshop Implementation

The Intensive Seminar-Workshop held on September 14 had 42 participants centered on the Electric Power Management Department, Department of Electricity (DOE) of the Ministry of Energy and Mines (MEM) and including persons related to the Ministry of Industry and Commerce, Ministry of Transportation, electric power companies, universities and companies. The Seminar-Workshop started with welcome remarks by Mr. Hatsady Sisoulath, Deputy Director of DOE/MEM, followed by opening statements by Mr. Yutaka Ogura of the Energy Conservation Center, Japan and by Mr. Ivan Ismed of the ASEAN Centre for Energy (ACE), before a commemorative photograph was taken with all the participants. The program is shown in Attached Materials III-2-4. Note that although the program was common to each country, the opening and closing times were brought forward by 30 minutes to match the customs in Lao PDR.

The Seminar-Workshop this time placed priority on the following points. Note that the venue was a fairly large meeting room on the second floor of the hotel, Lao Plaza Hotel where this organization's personnel were staying, and the room's tables were arranged in a classroom style for use. Due to the square-shaped room and the classroom style, it was more spacious than the venue in the Philippines and easier to use. In addition, as it appeared that many of the participants found it difficult to understand English, the English explanations by this organization were successively interpreted to Laotian. Although this meant that much more time was required and the explanations became a little hurried, adjustments were implemented so that it was possible to complete the explanations within the allotted time.

(1) Lecture:
Outline of PROMEEC Project and PROMEEC Energy Management Project Implementation Plan

(2) Lecture:
Latest "ASEAN Energy Management System" Plan, Functions, and Major Programs and Activities

(3) Workshop: Group Activities
Following the guidelines of the Energy Management Handbook, discussions were carried out using case studies. Among these case studies were the cases of PT Semen Tonasa (Industries sector, cement) of Indonesia, which was submitted as a fiscal year 2008 ASEAN Energy Management Best Practice case study where it received the First Runner-up, and Sofitel Angkor of Cambodia (Buildings sector, hotel) which was awarded the Second Runner-up.

More than 30 persons participated in the group activities, and activities were carried out in four groups, using a format where the topics were specified, and two groups carried out discussions in the Industries sector, while the remaining two groups carried out discussions in the Buildings sector. As each of the two groups selected the same topics, mutual comparison and evaluation could be carried out. Even though the same case studies were investigated, the ways they were tackled in each group became slightly different due to the experience, abilities, initiative, and positivity of the members making up the group. Around seven people who took part in last year's Seminar-Workshop also participated this year, and in some groups these experienced participants took the lead in the discussions so that the group activities could be completed before the planned time. However, as it appeared that for most of participants this was their first experience of these types of activities, some groups were proceeding with confusion. In order that the activities would finish within the time, the time planned for the presentations was shown on the screen and an announcement was made 10 minutes before the end, so that it was

somehow possible to obtain the results within the time. This was a good experience for the participants.

(4) For the participants in the Seminar-Workshop, the English language version and Laotian language version of the EM Handbook, Guidelines on Energy Audits for Factories, Guidelines on Energy Audits for Buildings, Guidelines on Energy Tips for Factories, Guidelines on Energy Tips for Buildings, and the Guidelines on Energy Tips for Households pamphlets were distributed, and the ECCJ-related persons also received each one copy. The issuing of both the English version and Laotian version of the EM Handbook was the first issue in an ASEAN country, and we could sense the enthusiasm in Lao PDR to tackle this project. However, there was no budget available for printing the English and Laotian versions, and a request for cooperation was made by the DOE to a number of companies and institutions. Finally the printing and binding was completed through support from JICA.

(5) Main participants: The breakdown of the main participants including the Seminar-Workshop and the following day's training is as shown below. Unlike the Philippines, the persons who were planning to participate were not listed up beforehand, so that the completion of the forms was carried out on the day, and in many cases the handwritten entries were difficult to read.

DOE: 6 persons, EDL (Electric power company): 4 persons, MOIC (Ministry of Industry and Commerce): 1 person, Ministry of Labor: 1 person, MPWT/DOT & DOI: 2 persons, hospital-related: 3 persons, National University of Laos: 2 persons, Lao Asia Pacific (Tiger Beer): 1 person, Lao IndoChina Group (Cassava): 2 persons, Lao Cement*: 1 person, Sunlabob**: 3 persons, Wattay Airport*: 1 person, Lao Tobacco: 1 person, Lao ITECC*: 1 person, Novotel Hotel: 1 person, Lao Women's Union: 1 person, other (*: Company visited in 2008, **: 2 foreigners from solar-related company)

2. Training regarding the Usage Method of the Energy Management Handbook

The number of participants was 27 persons (Excluding DOE, ACE, ECCJ personnel). Note that all except two of the persons who attended the lecture in the morning attended the Workshop, so that the number of participants was 25 persons. Accordingly, for the group work on this day, the number of groups was reduced to three groups.

This was a course for understanding the details of the Energy Management Handbook, In-house Database, and Technical Directory and their utilization methods, and it was implemented for companies and implementing organizations that have particular interest and are considering the introduction of these tools.

The course of the implemented training had the following contents that included a lecture concerning how best to use the "Energy Management Handbook" together with the In-house Database and the Technical Directory and details of their usage methods. The program (common to all countries) is shown in the Attached Materials III-2-5.

In particular, for the "Energy Management Handbook" part, a detailed explanation was given page-by-page. Although this organization's English explanations were interpreted to Laotian as with the Intensive Seminar-Workshop on the first day, the explanation took less time than in the case of the Philippines. In addition, on a small group basis, explanations were given not only of TQM and TPM, but also concerning Six Sigma. However, it was apparent that the knowledge of participants relating to the small group activities was not great, and in this meaning, the exercise was a good opportunity for participants.

(1) Lecture: Detailed Contents of the Energy Management Handbook and Lecture relating to the Main Guidelines

(2) Workshop (group activities)

1) Introduction to the energy conservation activities carried out by the following two

companies

2) Based on the introduction details described above, experience of group work relating to creating advice concerning the evaluation of the energy conservation activities and improvement plans possible for the future

(3) Introduction to Energy Management Handbook introduction and usage activities (2 companies)

For the tackling of the energy conservation activities investigated in the workshop and introduction to the case studies, it was originally planned to use the two factories, Lao-Indo China Group Co. Ltd. (Cassava Processing Factory) and the Lao Asia Pacific Brewery (Tiger Beer), that were visited on the 16th. However, since there was no explanation on paper because spoken introductions had been given, in view of the explanation by Mr. Bouathep of the DOE that unless a certain amount of written information was given it would be difficult for the participants to understand the case study contents, efforts were made to prepare these. No progress was made until just before the activities were supposed to start, when suddenly a summary sheet form was created on the whiteboard for the companies to write in the details. The contents were as follows.

1) Top Policy
2) Energy Consumption (Index, Target)
3) Human Resources (Organization, SGA, Motivation/Training)
4) Activities (No/Low Cost, Investment Project, Future Plan)
5) Others

However, even at the stage where the two companies were to fill in information, the participants from the Cassava Processing Factory said that they could not fill in the details themselves and declined to participate, which put us in a tight spot. Mr. Bouathep requested a participant from Lao Tobacco Limited (a request to have a company visit was received from this company before we went on the overseas trip), and this person kindly cooperated by completing the form. Following this, due to restrictions on time, the activity conditions of the two companies were explained only in the local language and a summary was translated for us. The persons giving both explanations did not participate in the group activities, and by answering the questions from each group it was planned to give depth to the group activities. Further, regarding the Lao Asia Pacific Brewery, it was possible to obtain better knowledge through a summary sheet and explanation before the company visit on the 11th.

Many of the participants had also participated in the Seminar and Workshop on the 14th, and as they were also used to the group activities, each group carried out exchanges through much more lively investigations than on the 14th.

However, perhaps due to national characteristics, there were almost no questions asked, and those questions that were asked concerned matters other than energy management, so we had some concern about the activities. However, because we could confirm that the preparation work for practically realizing the factory visit on the 16th progressed more rapidly than expected, we believe that through carrying out this training it was possible for participants to gain experience of studying the methods of utilizing the basic energy management guidelines and business practices including the Energy Management Handbook and the In-house Database and Technical Directory.

3. Company Visits

Based on the Intensive Seminar-Workshop this time and the training relating to the usage methods of the "Energy Management Handbook", finally the following two industrial companies were visited from among the companies which wished to introduce and use tools including the "Energy Management Handbook" in their factory or building energy

management activities and energy conservation promotions.
(1) Lao-Indo China Group Co., Ltd. (Cassava Processing Factory): This company manufactures tapioca powder from a potato-like crop known as cassava. The company wished to investigate the introduction of energy management.
(2) Lao Asia Pacific Breweries Limited (Tiger Beer): This is still a new company under the Heineken umbrella that began operations in 2008. Apparently activities including TPM, PDCA, and 5S are being actively implemented, and in the corridors and meeting rooms, various types of notices were shown in color. The executive charged with TPM was also present, together with a utility engineer known as Mr. Kham Keo who had participated in PROMEEC EM two times, last year and this year. In the future, even more positive developments can be expected, and we strongly advised them to submit an application to the ASEAN Award Competition.
For the details of either case, refer to the company visit records in the Attached Materials III-2-6.

4. Other

(1) Wrap-up Meeting
Concerning the follow-up for the activities held this time, on the afternoon of the 16th a meeting was held while travelling by car with ACE and the Laos FP, Mr. Bouathep, regarding the visited companies' activity follow-up such as encouragement to participate in improvement activities, support for the participation, improvement points of the Handbook, Awards System participation promotion, etc. In particular, because the Lao Asia Pacific Brewery is currently making preparations to meet the full-scale operation of TPM activities, they should be encouraged to start energy conservation activities together with the TPM activities in order to submit applications to the Awards System. Since the Lao Tobacco Company also expressed the wish to submit applications to the Awards System, discussions were held regarding making an appropriate follow-up.
(2) We heard from Mr. Bouathep that he was planning to investigate 12 cases as energy conservation promotion key point items, and submit them to his superiors. These included the development of an Energy Conservation Law, establishment of an energy conservation center, creation of a labeling system, and energy conservation education. Because he also expressed a wish to request assistance from Japan, after translating a memorandum in Laotian to English, we asked him to send it by E-mail so that we could report the contents to METI in Japan. In addition, there was talk of receiving support from the ADB, and apparently there was a meeting on the morning of the 15th.
(3) On the morning of the 16th, when visiting the DOE Office before the company visit, we were introduced to Mr. Nobuo Hashimoto, who had been dispatched by JICA. He had come to Lao PDR in August of this year and was supposed to stay for two years as a Power Policy Adviser in the DOE. He had been dispatched from J-POWER, and he knew Mr. Yoshida and others from J-POWER very well who had carried out the energy conservation Master Plan surveys in Vietnam and Indonesia.
(4) Result of the participants' questionnaire: Although responses were received from 27 persons after the Seminar first day, their evaluation of the EMH/Training was that 11 persons said Excellent or Very Useful, 15 said Good or Useful, and one person said Fair.

AGENDA
Intensive Seminar – Workshop
Promotion Of Energy Efficiency And Conservation (PROMEEC) – Energy Management Under The SOME-METI Work Programme 2009-2010

(Venue) Lao Plaza Hotel, Vientiane, Lao PDR (Date) September 14th, 2009

08:00 – 08:40	**Registration**
08:40 – 08:45	Welcome Remarks by Ministry of Energy and Mines of Lao PDR (Mr. Hatsady Sisoulath, Deputy Director of DOE)
08:45 – 08:55	Opening Statement by The Energy Conservation Center, Japan (Mr. Yutaka Ogura)
08:55 – 09:00	Opening Statement by ASEAN Centre for Energy (Mr. Ivan Ismed)
09.00 – 09:23	*COFFEE BREAK & GROUP PHOTO SESSION*
09:23 – 10:28	Session 1: PROMEEC Projects / PROMEEC EM Project : Outline & Achievements
09:23 – 10:07	Presentation by ACE & ECCJ 1) Outline and Achievements of PROMEEC Project (ACE) 2) Outline and Plan of PROMEEC (Energy Management) Project (Mr. Ogura)
10:07 – 10:28	Presentation by Ministry of Energy and Mines of Lao PDR (Host Country) Realized Activities / Outstanding Improvement through PROMEEC Projects
10:28 – 14:15	Session 2: "ASEAN Energy Management System": Functions & Program
10:28 – 11:25	Presentation by ECCJ Outline of Updated "ASEAN Energy Management System" (Mr. Ogura)
11:25 – 12:00	Presentation by ECCJ and ACE Specific Functions and Program 1) ASEAN Award System of Best Practices in E.M. for Industry and Building - Outline, Results of ASEAN Awards for 2008-2009 and Plan for 2009-2010 (ACE) 2) Information System - Information System to Disseminate Awarded Cases (Mr. Ogura) - Cyber Search System to Utilize The Existing Implementing Organizations (ACE)
12:00 – 13:05	*LUNCH*
13:05 – 14:15	Presentation by ECCJ and ACE (Continued) 3) Energy Management Tools - "Energy Management Handbook" (Mr.Ogawa) - In-house Database for Industries and Buildings (ACE) - Technical Directory for Industries and Buildings (ACE)
14:15 – 16:41	Session 3: Case Study (Experience of Group Activities for Improvement in Energy Management) PT Semen Tonasa, Indonesia and Sofitel Angkor, Cambodia
14:15 – 14:30	Explanation by ECCJ (Mr. Ogawa and Mr. Kaji) Basic Procedure of Group Work Guided by "Energy Management Handbook"
14:30 – 14:40	*COFFEE BREAK*
14:40 – 15:50	Preparation for Group Work (4 Groups) Group Work by Participants
15:50 – 16:41	1) Presentation by Participants (4 Groups)

	2) Comments by ECCJ
	End of Intensive Seminar-Workshop
	COMPLETION of Activities

Attached Materials III-2-5: Training Program for relating to Methods of Utilizing Energy Management Handbook

AGENDA

Training: Utilization of "Energy Management Handbook and Tools for ASEAN"

Promotion Of Energy Efficiency And Conservation (PROMEEC) – Energy Management Under The SOME-METI Work Programme 2009-2010

(Venue) Lao Plaza Hotel, Vientiane, Lao PDR (Date) September 15th, 2009

08:00 – 08:40	**Registration**
08:40 – 12:00	Session 1 : Seminar by ECCJ
08:40 – 08:54	Explanation by ECCJ: Purpose of Training Course (Mr. Ogura)
08:54 – 09:52	Explanation by ECCJ: Details of Energy Management Handbook for ASEAN (Mr. Ogawa and Mr. Kaji)
09.52 - 10:18	*COFFEE BREAK*
10:18 – 10:38	Explanation by ACE: How to Utilize In-house Database and Technical Directory in Energy Management
10:38 – 10:45	Supplemental explanation on EMH (Mr. Ogawa)
10:45 – 11:30	Explanation by ECCJ: Important Guideline for Improvement Using EM Handbook (Mr. Ogura)
11:30 – 12:00	Q&A
12:00 – 13:10	*LUNCH*
13:10 – 16:00	Session 2 : Workshop (Training for Small Group Activities)
13:10 – 13:25	Write down outline on EE&C activity of two pioneer companies
13:25 – 13:45	Case Study (1): Short Presentation by Participants (Pioneer Company – 1: Lao Asia Pacific Brewery; Tiger Brewery) Issues on EE&C
13:45 – 14:00	Case Study (2): Short Presentation by Participants (Pioneer Company – 2: Lao Tobacco Ltd) Issues on EE&C
14:00 – 14:10	Guidance for Group Work by ECCJ (Mr. Ogawa and Mr. Kaji)
14:10 – 15:10	Group Work Based on Cases Studies (1) & (2) - Preparation for Group Work - Discussion by Groups: Guideline and Basic Plan to Improve Using "Energy Management Handbook"
15:10 – 15:30	Coffee break
15:30 – 16:00	Presentation by Participants: Results of Group Work for Cases Studies (1) & (2)
16:00 – 16:20	Comments by ECCJ Experts
16:20 – 16:30	Plan of EM Training in Lao PDR by FP
16:30	COMPLETION OF TRAINING

Attached Materials III-2-6: Company Visit Record (Laos)

PROMEEC (Energy Management) Related Institution Visit: Laos (No.1)
Meeting with Lao-IndoChina Group Co., Ltd. (Cassava Processing Factory)

No.	Item	Details
1	Date and Time:	September 16 (Wednesday) 10:00-11:30:
2	Meeting place:	Lao-Indo China Group Co., Ltd Asian Road, Sibounheuang Village, Chanthabouly District, Vientiane
3	Meeting Partners:	- Mr. Sebgmaly Sengvatthana (Chairman) - Mr. Chantharorr Vongvixay (Factory Manager) Three other persons Mr. Kham Quan Houngdouangchanh, Deputy Director General of the Ministry of Industry & Commerce of Laos, who also participated in the Seminar, attended as an advisor for the visited company.
4	Accompanying Persons (DOE)	- Mr. Bouathep Malaykham (Director of Division) - Mr. Viengsay Chantha (Electrical Engineer) Three other persons
5	Visitors (ACE, ECCJ)	- Mr. Ivan Ismed (Project Officer, ACE) - Mr.Yutaka Ogura (ECCJ, Technical Cooperation Department, General Manager) - Mr. Fumio Ogawa (ECCJ, Technical Cooperation Department, Technical Expert) - Mr. Hitoshi Kaji (ECCJ, Technical Cooperation Department, Technical Expert)

6. Company Outline and Past Developments

The Lao-Indo China Group is a company that manufactures starch for food use from a daily amount of 100 tons of cassava. Because year-round an approximately one-month fixed repair period is required, the amount of cassava processed each year is around 30,000 tons, and 24-hour continuous operations are carried out. The cost of the electric power used in the factory is 120 million kip (¥1 ~ 100 kip) each month. In addition, there are also buildings (Administration Division) in which 50 air-conditioning units are operating, costing around 40-50 million kip per month. Further, in the factory there is a coal-burning boiler for manufacturing the steam used for drying, and 100kg of coal is used to process 1 ton of cassava.

Because a large amount of energy is used as described above, the company is greatly interested in reducing the amount of energy used, but is unsure of the methods for energy reduction. For this reason, the company participated in the seminar to study specific methods for energy reduction and tackling the reductions. The seminar was attended by the president and a female employee, but the training was only attended by the female employee.

Because there is vigorous demand for the product, currently the factory that is being expanded is shut down.

7. Overview of the Cassava Factory

At the time of the visit, the factory was shut down. The coal-burning boiler which uses the largest amount of energy was a fixed bed molding type smoke tube boiler that was being used efficiently. The coal used as the fuel was nonstandard pulverized coal, and low combustion efficiency was expected. The equipment inside the factory was comparatively simple, consisting of the tank for storing the cassava, the pulverizer, washer, and the dryer.

On the far side of the settling pond a fermentation plant was being constructed to extract methane from the waste fluids that could be used as a fuel, and they explained that the boiler would also be replaced by a gas-burning boiler.

Further, the building lighting mainly used fluorescent lighting, and for the air-conditioners

many wall-mounted type Electric Heat Pumps were also installed.

8. Details of Cooperations

(1) Explanation from this Organization

Because it was apparent that data collection using energy intensity was not being carried out, first we recommended that they determine this for each type of energy (electric power and coal). In addition, concerning the factory electric power, we recommended that they determine how much electric power was being used by each piece of equipment. It was thought that this data was being understood by the operators using their senses, and we explained that by implementing SGA activities this sense will be linked to energy reduction.

In addition, we emphasized that while energy audits are very important, the implementation and establishment of energy conservation activities is the most important point for energy management.

Further, we provided them with the ECCJ pamphlet and the JASE-World technical collection CD and promoted their use.

(2) Response of Visited Company

A response was received from the president saying that they would investigate energy conservation promotion through carrying out SGA activities.

9. Impressions of Site

Due to restrictions on time, the visit was only for a short period. However, from the company explanation given by the president and others, and their appeal for the necessity of energy reduction, they expressed their interest in energy management.

It was believed that the support of the Focal Point (FP) would be necessary for the introduction and implementation of energy management, and a request was made for support to the FP.

PROMEEC (Energy Management) Related Institution Visit: Laos (No.2)
Meeting with Lao Asia Pacific Breweries Limited (Tiger Beer)

No.	Item	Details
1	Date and Time	September 16 (Wednesday) 13:00-14:30:
2	Meeting Place:	Lao Asia Pacific Breweries Limited Veunkham Road, Ban Nongno, Xaythany District, Vientiane
3	Meeting Partners:	- Mr. Jacques Koong (Engineering Manager) - Mr. Kham Keo (Utility Engineer) - Mr. Bouasaveng Manikhong (TPM/TRG Executive) Mr. Kham Keo participated in the Seminar twice in succession, last year and this year, and notified the related persons of the results of the Seminar by E-mail before the visit took place.
4	Accompanying persons (DOE)	- Mr. Bouathep Malaykham (Director of Division) - Mr. Viengsay Chantha (Electrical Engineer) Three other persons
5	Visitors (ACE, ECCJ)	- Mr. Ivan Ismed (Project Officer, ACE) - Mr. Yutaka Ogura (ECCJ, Technical Cooperation Department, General Manager) - Mr. Fumio Ogawa (ECCJ, Technical Cooperation Department, Technical Expert) - Mr. Hitoshi Kaji (ECCJ, Technical Cooperation Department, Technical Expert)

6. Company Outline and Past Developments

Lao Asia Pacific Breweries Limited is a new beer company that was established in 2007 and began production from 2008. It has an annual beer production of 1.8 million liters. Its parent organization is Tiger Beer, the Singapore-headquartered company which is developing in Asia through activities as part of the Heineken Group. The Laotian government also has a 25% investment participation in Lao Asia Pacific Breweries Limited.

Energy conservation is the collective intension of the Heineken Group, and it is possible to compare the energy data from the factory against the other Heineken Group factories to determine the position of their factory within the group.

Because the production has just been started at this factory, they are first currently preparing for the full-scale implementation of TPM activities and 5S activities.

Regarding the energy conservation activities, they should start by tackling "No Cost, Low Cost" by gaining an understanding of the usage amounts targeting electronic facilities including the freezing facilities that use ammonia, the compressed air equipment, lighting equipment, and air-conditioning equipment. For example, in the compressed air equipment, investigating the pressure levels required by the demand destination allowed the discharge pressure to be reduced. In the future, there is a plan to expand the subjects to include fuel (installation of an oil-fired smoke tube boiler for generating steam) and water. In particular, regarding the water, five flow meters have been newly installed to determine the amount used for each application. On the day, an explanation was given using the electric power usage amount change graph and its successive line graph for each equipment and process between January and August 2009.

In the factory, beer is not produced on Fridays, which is set as a study day in an effort to acquire technology. In addition, because all employees share the knowledge they acquire at the external lecture courses, a reporting system using E-mail is being constructed.

There is a Training Section for carrying out activities to spread the results of the studies and lecture courses.

7. Outline of Brewery Factory

Because the operations have only been carried out for a short period, the equipment and machinery is new. When we visited the factory, they were carrying out preparation work for the next process, and the bottling process was shut down.

We particularly noted the following as the points that surprised us.

- The results of the TPM activities and 5S are displayed on notice boards in each location. The methods used follow those of QC tools, so that even though we could not understand Laotian, it was possible to understand the progress.
- In addition, also concerning the energy conservation, as previously explained the PDCA cycle is being employed for the compressed air equipment. Also, detailed measures are being taken for the air conditioning, including affixing slogans in the vicinity of the operation panels in many places, such as messages reminding the operators to keep the setting temperature at 25℃.
- Mr. Kham, who participated in the Seminar, felt that "By participating two times in the Seminar and Workshop I could deepen my understanding, and using these methods I can proceed with energy conservation." The day after the lecture course, he reported his opinions to his superiors, so that the related persons could know of the proposal.

8. Details of Cooperations

(1) Explanation from this Organization

Through carrying out the visit, an understanding of TPM activities could be instilled, and we explained that the factory is at the stage where energy conservation activities can be promoted in parallel at the same time. Further, we recommended that they should start implementing specific activities at the earliest possible opportunity, and that they will be able to submit applications for the Awards System. In addition, the ECCJ pamphlet and JASE-World technical collection English CD were provided.

(2) Response of Visited Company

Concerning the improvement of the heat efficiency through adding equipment such as economizers and air preheaters given as proposals from a technical point of view, and the new installation of an accumulator as a load equalization measure, we received the response that they knew the equipment know-how and merits but wish to "Tackle activities from the viewpoint of No Cost, Low Cost, and would like to investigate the introduction in the future."

9. Impressions of Site

SGA activities had become established. A request was made to the Focal Point to encourage them to participate in the Awards System.

III-2-3. Thailand

1. Implementation of Focused-Group Meeting

At the Focused-Group Meeting on November 4, there were 23 persons (information was sent to 30 persons) including persons related to Bureau of Energy Regulation and Conservation of Department of Alternative Energy Development and Efficiency (DEDE) in the Ministry of Energy (MOE), universities, companies and consultants. The Meeting started with welcome remarks by Mr. Ivan Ismed of the ASEAN Centre for Energy (ACE) and Mr. Yutaka Ogura of the Energy Conservation Center, Japan. Lastly, Mr. Danai Egkamol, Executive Director of the Bureau of Energy Regulation and Conservation of DEDE gave welcome remarks to open the Meeting, and commemorative photographs were taken with all the participants. The program is shown in Attached Materials 1.

The Focused-Group Meeting that was held this time was completely different from the Intensive Seminar-Workshops that were normally held in the other countries. This followed a request by Thailand that it should be similar to the special Thailand version implementation contents in fiscal year 2007, placing particular importance on the current situation of Thailand and ASEAN energy management, and experiences of the directions, information interchange, and investigations for the future.

Note that the venue used was a Meeting Room on the 2nd floor of the hotel, Twin Tower Hotel, where this organization's members were staying. On the evening before the meeting, very soon after the arrival of the Japanese delegation at the hotel, we were visited by Mr. Sarat of DEDE who explained the final version of the agenda for the next day and showed us around the venue. He also showed us the preparation situation including the distribution materials, which were very satisfactory.

For the Program of the Focused-Group Meeting, refer to the Attached Materials III-2-7, and an outline is given below.

(1) Session 1: "Updating ASEAN EM Activities under PROMEEC"
   1) Lecture: Implementation plan for the PROMEEC (Energy Management; EM) Project in 2009-2010 (Mr. Ogura); Explanation of the developments up to the present, the future directions and plans, and current fiscal year activity plans and implementation condition.
   2) Lecture: Introduction to Contents of Third ASEAN Award Competition on EM (2008-2009) (Mr. Ivan, Mr. Ogura) Mr. Ivan gave an introduction to the results of the case submissions and the selection results, while Mr. Ogura reported on the results of analyzing the contents of submissions from the viewpoint of EM.
   3) Lecture: Introduction to Latest Situation of the In-house Database and Technical Directory (Mr. Ivan)
   4) Lecture: Introduction to the Cyber Search System (Mr. Ivan, Mr. Ogura)

(2) Session 2: "Experience Sharing on EM Implementation System"
   1) Lecture: Present Situation and Future Plan for Energy Management in Thailand (Mr. Sarat); Details of the EM Standard (EMS) in Thailand were introduced, covering the importance of EM, the structure of the EC Promotion Act, the installation and investigation of EM Auditors, and the eight steps in the EM Procedure. As the next step, it is planned to support the introduction and establishment of EM in designated energy management companies (6,000 companies), the development of the EM Auditor system, and the integration of ISO 50001 in EM.
      Note that the eight steps are similar to the Key Step Approach, and consist of Step 1: Set up EM working group, Step 2: Assessment on EM Situation, Step 3: Formulation

of EC Policy, Step 4: Evaluation of Energy Saving Potential, Step 5: Identify Target and Plan, Step 6: EC Implementation, Step 7: Monitoring and Evaluation, and Step 8: EM Review and Improvement, and also correspond to the PDCA Cycle.

In addition, in the Q&A session after the lecture, Mr. Sarat asked "Is there an EM Auditor System in Japan?" When we replied that "This is not stipulated under the Energy Conservation Law as a system", he confirmed "So how do you evaluate the report contents?" to which we replied, "We confirm from the regular reports and medium to long-term plans that there has been an improvement of 1% or more". "If the improvement hasn't been reached, is there some penalty?" ? "Investigation and inspections are carried out and improvements are specified. If there still isn't any improvement, notification and penalties are implemented." ? "In Thailand there are 5-6,000 companies designated as specified businesses, and it is very hard for the 50 staff members of DEDE to check them all" ? "In Japan there are more than 14,000 designated factories and business operators. METI's regional offices are in charge of the checking, but in the largest-scale Kanto region including Tokyo more than 6,000 designated factories, 40% of the whole country, are checked. However, this is carried out by seven persons, so depending on the method used, DEDE will also be able to carry this out," Mr. Ogura commented.

In addition, when Mr. Ogawa asked about Mr. Sarat's report "Did you refer to the Japanese standards for your EM Standard?" ? He answered "We referred to each country's standards. The standards are close to the Japanese standards. We used the PDCA Concept." Further, we asked for confirmation relating to the Step 1, Step 4, and Step 5 described contents. Additionally, when Mr. Ogura asked "Is today the first time you have introduced the EM Standards, or have you done this many times so that everyone knows them?", he answered that he had introduced them many times.

Further, when Mr. Sarat asked "What is the energy conservation target figure in Japan?", we replied "An improvement of 1% or more is sought in energy conservation." When asked "Rather than each company, how about the overall target for Japan?", we answered "The Japanese prime minister has stated there should be a reduction of 25% in CO_2 emissions for the whole country compared to the 1990 figures by 2020, so that the energy conservation reduction amount must correspond to this figure."

2) Lecture: Present Situation and Future Plan for Energy Management in ASEAN (Mr. Ivan, Mr. Ogura); Also in this lecture, translations of case studies and the usage situation of the EM Handbook in the local language were also introduced as the ASEAN PROMEEC/EM activities.
3) Lecture: Present Situation and Future Plan for Energy Management in Japan (Mr. Ogura); Detailed introductions were given to key energy projections, Japanese energy conservation methods (including revisions), energy management activities, and ECCJ activities.

(3) Session 3: "Finding the Way Forward" (Discussion of Future Directions)

1) Lecture: Investigation Situation of International Energy Management Standards (Mr. Wirat, TISI; Thailand Industrial Standards Institute); Introduction to the investigation condition of ISO 50001 and the contents outline. Specification was given of the similarity of the ways of thinking between the ISO 50001 main text and the ASEAN EM Handbook through extracts from the included Key Step Approach and EM Structure Trees. In addition, Mr. Ogura used the ISO 50001 related materials that were used at the GPP carried out in Indonesia this year by Mr. Yoshida, showing the correspondence with this configuration analysis and the PDCA Cycle. Further, a

comparison was given with the structure of the Japanese Energy Conservation Law, and an introduction was also given to the specific points included in the Japanese Energy Conservation Law that are not included in ISO 50001.

2) Discussion: Future of the Energy Management Systems in ASEAN and in Thailand
Although Ms. Amaraporn acted as the Chair and discussions were proceeded with, the debate was not so lively. Mr. Ogawa reviewed the conclusions of the Focused-Group Meeting during the visit to Thailand of PROMEEC/EM in fiscal 2007, and showed proposals that had been arranged to be started. Because there were only three people present this time who had participated in the previous Focused-Group Meeting, this Review was effective from the point of view of utilizing common origins. Accordingly, these conclusions were 90% the same when comparing the Thailand EM Program with the ASEAN one, and it was possible to mutually study the points of difference. While the two Programs maintain the same directions, Mr. Sarat emphasized that the EMS is compulsory while the ASEAN EMH is voluntary. Although the ISO 50001 describes about EM, it is a general description without specifics. Since the Thailand Energy Conservation Law and EM standards have structures that include this information, Mr. Ogura commented that it would be adequate to carry out responses with confidence.

(4) Main Participants: MOE/DEDE; Mr. Danai Egkamol; Director, Bureau of Energy Regulation and Conservation, Mr. Prasert Sinsukprasert; Director of Energy Regulation Division, Ms. Amaraporn Achavangkool; Senior Scientist, Technical and Efficiency Promotion Division, Mr. Sarat Prakobchart; Engineer, Technical and Efficiency Promotion Division, and 14 other persons, Mr. Phongjaroon Srisovanna; Executive Director, ECCT, Kasetsart University 2 persons, Consultant of Energy and Efficiency Improvement Team of CP Group Co. and 2 other persons, Mr. Wirat; Director, Standardization Infrastructure Development, Thailand Industrial Standard Institute, Chamber of Commerce 1 person, University and Consultants and 13 other persons

2. Company Visits

(1) November 5 (Wednesday): CPRAM (CP Retailing and Marketing) company visit
(2) November 6 (Thursday): CP Tower/CP Group visit
For more details, refer to the company visit record in Attached Materials III-2-8.

3. Wrap-up Meeting

On November 6 (Thursday), after the visit to CP Tower, a Wrap-up Meeting was held with Mr. Sarat of DEDE in the Twin Tower Hotel, and the following confirmations and requests were made.

(1) First, we deeply thanked Mr. Sarat for carrying out the meticulous preparations and support for the Focused-Group Meeting and the visits to the two companies this time.
(2) We could recover completed versions of the questionnaire for participants in the Focused-Group Meeting from only 13 persons.
(3) Further, we requested Mr. Sarat to translate the names of participants and the names of the companies that they belong to from the participants' registration list into English, and to E-mail this to us.
(4) A request was received for a memo giving a summary of the discussions held in Session 3 of the Focused-Group Meeting, and this was sent afterwards by E-mail. (Completed sending by Mr. Ogawa on November 10.)
(5) In the relation with the ISO 50001, supplementary information was given that "These contents, including the development of PDCA in the EM, are already included in Thailand's ECP (Energy Conservation Promotion) Act, in the EM Standard, in the

Japanese Energy Conservation Law, and in the ASEAN EMH. Moreover, while some are shown more specifically, it is believed that there will be no large influence. When Thailand companies carry out exporting to Europe, America, and other areas, although this ISO may become required, because Thailand companies are fully aware and are practiced in these EM contents, it should be possible for them to acquire this certification without problem. Although it will be adequate to watch and respond to these trends in ISO from this point of view, it is adequate to place faith in the actual results of Thailand's EM and to proceed", and this was agreed.

(6) In the energy conservation training carried out by DEDE, we proposed that they should carry out more PR activities of the actual results obtained not only in Thailand but also in neighboring ASEAN countries using the ASEAN PROMEEC. Although it appeared that activities carried out through requests between governments are implemented at no cost, there will be some that require costs including investments for improvement. As it will be difficult to only carry activities that have no cost, we commented that changing to have a certain amount of cost would be a favorable improvement.

(7) Based on the ECP Act, Ministerial Regulations and Ministerial Announcements have been made, and Seminars have been held 15-20 times to increase awareness and disseminate these contents. These are called EM Guidance, and the actual enforcement is planned for March 2011. These are all currently being translated to English which will be completed in several weeks, and we asked if it would be possible to send us copies by E-mail.

(8) Concerning the comment from Mr. Sarat at the Focused-Group Meeting that there were 5,000-6,000 Designated Factories & Buildings, and the processing of data from these companies was difficult, when we asked what the report recovery rate for these companies was, he replied 62-70%. In the case where the report is not submitted there is a penalty, but because the ECP Act is a law for "Promotion", actually penalties are not being applied.

(9) Regarding the ASEAN EM Awards, part of the contents of the two companies visited this time has already received an award in the Buildings sector. However, we recommended both companies to submit applications, and we asked that they should submit their applications following discussions. Note that Mr. Sal, Vice President of CP Tower, the company that was visited on the 6th, is to participate in the PROMEEC Building Seminar in the Lao PDR, where he will report a Best Practice case study.

(10) Concerning the PROMEEC EM in the future, there was a comment that Thailand would be prepared to consider participating in the Training as an advanced nation as a lecturer for neighboring ASEAN countries.

4. Other

(1) After the Focused-Group Meeting, the ECCJ pamphlet and JASE-World English version CD was provided to DEDE and to participants wishing to have them.

(2) Responses to the participants' questionnaire: The response rate was not high, with responses received from 13 persons out of the 23 participants. The response details given were also insufficient.

Attached Materials III-2-7: Focused Group Meeting Program



FOCUSED- GROUP MEETING
On
"Experience Sharing and The Way Forward on Energy Management System
between Thailand and ASEAN "
Under
PROMOTION OF ENERGY EFFICIENCY AND CONSERVATION (PROMEEC) PROJECT
In ENERGY MANAGEMENT 2009-2010
Twin Tower Hotel, Bangkok, Thailand,
4 November 2009

08:30 – 09:18	Registration
09:18 – 09:25	Opening Statement by Mr. Ivan Ismed Industrial Project Officer, ASEAN Centre for Energy (ACE)
09:25 – 09:32	Opening Statement by Mr. Yutaka Ogura General Manager, Energy Conservation Center, Japan (ECCJ)
09:32 – 09:39	Welcome Remarks by Mr. Danai Egkamol Executive Director, Bureau of Energy Regulation and Conservation, Department of Alternative Energy Development and Efficiency (DEDE)
09.39 - 09:42	***Group Photo***
09:42 – 12:00	**Session 1: Updating ASEAN EM Activities under PROMEEC**
09:42 – 10:02	Overall Achievements and Activities of PROMEEC Energy Management Presented by Mr. Ogura, ECCJ
10:02 – 10:45	Updating on ASEAN Award System of Best Practices in Energy Management Presented by Mr. Ivan, ACE and Mr. Ogura, ECCJ
10.45 - 11:05	***COFFEE BREAK***
11:05 – 11:25	Updating on In-house Database and Technical Directory Presented by Mr. Ivan, ACE
11:25 – 12:00	Updating on Cyber Search System Presented by Mr. Ivan, ACE and Mr. Ogura, ECCJ
12:00-13:00	***Lunch***
13:00 – 15:26	**Session 2: Experience sharing on EM Implementation System**
13:11 – 14:03	Present Situation and Future Plan on Energy Management in Thailand Presented by Mr. Sarat Prakobchart, DEDE
14:03 – 14:40	Present Situation and Future Plan on Energy Management in ASEAN Presented by Mr. Ivan, ACE and Mr. Ogura, ECCJ
14:40 – 14:50	***COFFEE BREAK***
14:55 – 15:26	Experience on Energy Management in Japan Presented by Mr. Ogura, ECCJ
15:45 – 16:35	**Session 3: Finding the Way Forward**
15:27 – 15:45	Updating on the preparation of International Energy Management Standard Presented by Mr. Wirat, Director, Thailand Industrial Standards Institute (TISI)
15:45 – 16:35	Discussion for Future Scheme of ASEAN and Thailand's Energy Management System - Implementation Scheme / Supporting Mechanisms - The way to go for EM International Standard (ISO)
16:35 – 16:40	Wrap up for Conclusion
End of Meeting	

Attached Materials III-2-8: Company Visit Record (Thailand)

1. Thailand

PROMEEC (Energy Management) Related Institution Visit: Thailand (No.1)
CP RETAILING AND MARKETING CO., LTD. (CPRAM) Visit Interchange

No.	Item	Details
1	Date and Time	November 5 (Thursday) 9:30-12:00
2	Meeting Place:	CPRAM Co. 177 Moo 4, Pathum Thani-Lat Lum Kaeo Rd, Rahaeng, Lat Lum Kaeo
3	Meeting Partners:	- Mr. Charoen Kaowsuksai (Vice President, CPRAM) - Mr. Chumpon Leelasupaphong (Deputy Engineering Manager, CPRAM) And around 15 other persons (including participants from group companies)
4	Accompanying Persons	- Mr. Sarat Prakobchart (Engineer, Technical and Efficiency Promotion Division, Bureau of Energy and Conservation, DEDE) and 4 other persons
5	Visitors (ACE, ECCJ)	- Mr. Ivan Ismed (Project Officer, ACE) - Mr. Yutaka Ogura (ECCJ, Technical Cooperation Department, General Manager) - Mr. Fumio Ogawa (ECCJ, Technical Cooperation Department, Technical Expert) - Mr. Hitoshi Kaji (ECCJ, Technical Cooperation Department, Technical Expert)

6. Outline of Company and Past Developments

CPRAM Co., Ltd. is one of the core companies of the CP Group that is the second-largest in Thailand, and carries out manufacture and sales of frozen foods including steamed dumplings, spring rolls, and box lunches. Its most recent sales figures were 2,383.98 million baht (approximately ¥7 billion), and around 30-50% of its products are exported to Europe, North America, Asia, and Australia.

The company is implementing TPM and TQM, and has acquired ISO9001 and TIS18001. It has also received many awards, including the Thailand Quality Class (Silver Prize), Thailand Energy Award, and Business Ethic Award.

The owner of the CP Group has a strong interest in energy conservation, and the Group is currently promoting energy conservation activities. In this regard, the company implements exchanges with DEDE, so that the visit this time could be realized.

In CPRAM, the company prepared a large venue (large lecture hall) together with a program of activities. In addition, in order to plan the sharing of information with its group companies, the persons in charge of energy conservation in the group companies made us feel very welcome.

7. Outline of CPRAM Co., Ltd.

CPRAM Co., Ltd. was established in December 1988. It is capitalized at 600 million baht (approximately ¥1.8 billion), and has 3,721 employees. It uses two shift system with 16-hour operation. Its daily production rate is 70.88 tons, and its factory floor area is 68,192m^2.

As the actual values in 2009, 1) the energy usage amount and production amount was 140,000GJ and 16,000 tons, 2) the energy usage amount and cost for each 1 kg produced was 9.32MJ/kg and 6.34 bahts/kg, and 3) the energy usage percentages were 2.86/61.03/36.12% for LPG/electricity/fuel oil.

The electricity usage destination ratio was 63.04% for the freezing equipment, 32.75% for the machinery and facilities (including compressors), and 18.90% for others, and the amount consumed for each 1 ton of production was 1,579kWh (5,060 bahts)

SHE (Safety, Health and Environment) activities and KAIZEN activities are being implemented, and energy conservation activities have been tackled since 2005. Considering the results divided into the three topics of maintenance and safety, machinery and equipment

renewal, and process revision, the following was found.

(1) As for the maintenance and safety activities, the fryer was reduced from 4,158kWh/D to 3,950kWh/D, and the freezing equipment was reduced (through reviewing the number of operating units) from 5,637kWh/D to 3,200kWh/D.
(2) As for the machinery and equipment renewal activities, starting with the annual reduction of 3,449,154 baht due to the additional installation of an economizer in the boiler, the use of low cost ballast, joint use of compression facilities, installation of control valves, and the operation of air-conditioning facilities using a timer were implemented to achieve results.
(3) The process revision was implemented for the spring roll manufacturing equipment and water re-using equipment. In particular, the re-use of more than 90% of the water was enabled in the water re-using equipment.

As for the plans for the future, in 2010 it is planned to replace the existing fueloil-burning boiler with a gas-burning boiler, and there is a plan to introduce co-generation equipment in 2011-2012.

8. Details of Cooperations

(1) Explanation from this Organization

Because CPRAM Co., Ltd. is implementing activities following a local energy conservation plan in Thailand, first Mr. Sarat gave a briefing in the Thailand language about the purpose of the visit, and afterwards Mr. Ogura introduced an outline of the PROMEEC activities. Finally, we provided the ECCJ pamphlet and the JASE-World CD. DEDE provided very large documentation that described energy management and specific technical items that had been created specially for food factories.

(2) Impressions and Proposals following Factory Tour

Because the factory had been moved since the company's founding, the current factory has been used for the past 13 years. Maintenance and safety and orderliness were excellent, and the equipment condition was good. Further, labels are attached to switches reminding people to switch them off after use, and the reduction of the lighting is carried out from a location where the brightness can be confirmed.

On the notice boards, the operation and production conditions are displayed in graph form so that the energy conservation achievement can be understood in a short period of time. Further, even though the Engineering Department has only a limited number of employees (10 employees or less), a person responsible for energy conservation has been assigned, showing the company's intention to tackle energy conservation.

Including the actual activities and results, we judged that the conditions for submitting an application to the ASEAN Awards System were satisfied, and as well as strongly suggesting that they submit an application, we asked the FP to give them support for the application submission.

9. Impressions of Site

(1) Boiler Equipment

Two 5t/h fuel oil-burning smoke tube boiler units have been installed and depending on the load, one unit is stopped (during the tour, one unit was stopped). The waste gas temperature at the economizer outlet was 190℃, and the oxygen concentration in the waste gas, which is measured once per month, was at the level of 4-5%. The heat efficiency exhibits a value of around 88%, which is a favorable operating condition for a fuel oil-burning boiler. However, the steam piping valves and expansions are not thermally insulated, and improvements were proposed.

In addition, although the steam pressure was supplied at 7 BarG, it is believed that this is

slightly high for the heating applications, and we proposed that they confirm the required pressure level at the demand side.

(2) Freezer Facilities

Nine freezers from 100HP to 600HP (2,650HP in total ~ 2,000kW) are operated using ON-OFF control (The coolant is ammonia). The vaporization temperature is -30℃ and the condensation temperature is 45℃, so that it is believed that the COP is around 3.2. Although COP reduction will be unavoidable by the portion that the outside air is high, because cooling water is being used it is believed that the condensation temperature can be slightly lowered. We explained that energy conservation can be expected by planning to further optimize the number of units that are operating.

(3) Manufacturing Factories

These consist of five factories in total, which are manufacturing steamed dumplings and spring rolls. In order to prevent the inside of the factories from the ingress of various types of bacteria, we could not enter the factories. However, consideration of energy conservation is being carried out by means such as changing the setting temperature of the air-conditioners in each manufacturing process and by installing cooling insulation covers on the air-conditioner ducts.

(4) Cool Storage Warehouse, Waste Water Processing Equipment

Although we also had to use the same method for the cool storage warehouse as for the manufacturing plants of carrying out inspection from the outside, measures are implemented such as arranging double doors on the inlet ports to prevent the ingress of outside air.

In the waste water processing equipment, membrane type secondary waste water processing equipment is additionally installed after the general gravity settlement processing equipment. In the gravity settlement processing equipment, although compressed air is supplied for aeration we explained that energy conservation can be expected through using high efficiency aeration nozzles.

PROMEEC (Energy Management) Related Institution Visit: Thailand (No.2)
C.P. Land Co., C.P. Tower 1 Visit Interchange

No.	Items	Details
1	Date and Time	November 6 (Friday) 9:30-12:00
2	Meeting Place:	C.P, Tower 1, 313 Silom Road, Bangrak, Bangkok 10500 Thailand
3	Meeting Partners:	Mr. Sal Mulasastra, Vice President, C.P. Land Co., Ltd. Ms. Sudathip Kongkam, Manager, R&D Section Mr. Chakraphant Piyaprucksapan, Manager, Property Management Section Mr. Yuttana, Manager, Maintenance Section Mr. Wichai, Manager, Customer Services Section Mr. Sathit, Assistant Manager, Building Services Section (Ms. Uraiwan Poolsin, Consultant, E&E Improvement Team, Corporate Development & Productivity Office, C.P. Group Co., Ltd.) and several other persons
4	Accompanying Persons	- Mr. Sarat Sarat Prakobchat, DEDE, MOE And three other young staff members of DEDE
5	Visitors (ACE, ECCJ)	- Mr. Ivan Ismed (Project Officer, ACE) - Mr. Yutaka Ogura (ECCJ, Technical Cooperation Department, General Manager) - Mr. Fumio Ogawa (ECCJ, Technical Cooperation Department, Technical Expert) - Mr. Hitoshi Kaji (ECCJ, Technical Cooperation Department, Technical Expert)

6. Company Outline and Past Developments (Refer to company pamphlet materials)
The C.P. (Charoen Pokphand) Group started out from the food industry, and has now developed into various industries as one of largest corporate groups in Thailand (or even one of Asia's). The previous day, a visit was made to the same Group's frozen food manufacturer, and on this day one of the Group's real estate management companies was visited. The C.P. Tower 1, which the company is managing, is an old building (constructed 19 years ago) standing on a main street in Bangkok. The room that awaited us was a wide-open space (which can be viewed from outside) that is normally used for retailing, but which had welcoming messages decorating the walls, and thorough preparations had been made using time schedules and materials. Outlines of the company and building are as described in the separate pamphlets. In addition, Mr. Chakraphant and Ms. Uraiwan of the company had participated in the Focused-Group Meeting a few days before. Further, the company had previously been visited by the PROMEEC Buildings team and received the 2008 ASEAN Buildings sector award, so the visit this time occurred after this. Additionally, Mr. Sal had been invited to attend the PROMEEC Buildings Project Seminar in Lao PDR next month as a guest speaker.

7. Outline of Energy Conservation Activities
Although during the previous day visit the 72-year-old leader of the C.P. Group, Mr. Thanin, specially gave an explanation showing the Group's enthusiasm for energy conservation, on this day also the top management gave an introduction to their clear energy conservation policy. Based on this guidance, Working Groups and Strategic Teams have been formed, and energy conservation is carried out according to a methodology that resembles the PDCA Cycle. The company is proceeding with energy conservation in the common parts of the buildings, and the energy used is only electric power. The tenants also mainly use electric power, but the electric power consumption amount ratio between the company and the tenants is 40% against 60%. The largest power consumption in the company is for air

conditioning, followed by lighting, and then the elevators. Compared to the electricity consumption amount in 2003, the company established a target of a 20% reduction over the five-year period from 2005, and has steadily implemented energy conservation following this plan. Out of the various types of measures, implementation is started first from items that require investment amounts that are zero or very small, and then the company is proceeding to implement the items requiring investment. These items are being matched with improvements of BAS (Building Automation System) in the building. As a result of this, a large reduction effect was realized, and they are now beginning to conduct education of the tenants.

8. Details of Cooperations

Explanations of PROMEEC activities were given by Mr. Sarat and Mr. Ogura, and the other side gave an explanation of their energy conservation activities.

Although the energy conservation activities of the company were outstanding (they had already won the Thailand Energy Award), there will be a problem in the future regarding how much it will be possible to reduce the portion of energy consumed by the tenants. Although we also gave suggestions including advice relating to this problem, because a large number of the tenants in this case are companies in the same C.P. Group, it should be slightly easier to thoroughly implement the energy conservation policies.

9. Impressions of Site

The following locations were visited for site tour.

- Roof air-conditioning cooling tower, water pumps, and their electric panels, etc.
- Toilets on the 18th floor (lighting switches off 3 minutes after the last person leaves, utilization on a trial basis of equipment from various countries)
- S.H.E. (Safety, Health, and Environment) office on the 18th floor (Lighting equipment for each person's use, etc.)
- Package type Air Conditioner (PAC) on th18th floor. As the method of use, since the PAC is stored in an exclusive room and the circulating air (part of the air uses outside air?) is cooled, this is close to an Air Handling Unit.
- Car park space on the 8th floor ("T-5" continuous lighting is used)
- BAS Control Room on the 3rd floor
- Marketing Division office on the 3rd floor

Despite the old building that had restrictions from a layout point of view, various devices were being planned to improve the facilities.

10. Advice from this Organization

The following comments were made by this organization.

- We were impressed by the various devices used in the offices and toilets.
- It may also be effective to apply film to windows that are subject to large amounts of sunshine.
- In the BAS screen, it would be good to create a screen that would allow understanding at a glance of the overall situation of each zone room temperatures.
- The thickness of the PAC filter on the 18th floor is greater that the examples in Japan. If this is made thinner, $\triangle$P will be reduced, and the power consumption should be reduced.
- Why don't you add starting and stopping equipment to the escalators according to human detectors?
- When replacing 40W fluorescent lights with energy conserving types, it was possible to reduce them to 36W through control with a stabilizer. However, if the stabilizer is replaced at the same time, reduction to 32W should be possible, reducing the electric

consumption amount by a further 10%.

- The temperature difference of around 2 degrees in the air-conditioning chilling water between the chilling equipment inlet and outlet ports is too low (normally this should be around 5-6 degrees).
  There is also a possibility that the water pumps can be stopped.
- Although CO_2 measurement and adjustment is not being carried out, a proposal was made that if this is implemented, it will be possible to reduce the air introduction flow amount, which may allow energy conservation. An introduction was given by Mr. Sarat of DEDE to a total heat exchanger to carry out heat exchanging between the outside air and inside air. Because the explanation stated that the outside air will be introduced by opening the window, it is believed this will be a cheaper measure than CO_2 measurement and regulation.

11. Introduction fo New Technology by DEDE, etc.
    Mr. Sarat showed a DVD that introduced the technology of "Dehumidification using a Heat Pump". Then Mr. Ogura gave an explanation encouraging the company to participate in the ASEAN Awards, gave the JASE-W technical materials CD, showed an example from the Buildings-related pages, and gave a detailed explanation of the usage method.

III-2-4. Malaysia

Regarding the implementation in Malaysia, two weeks before we were to leave for the on-site business trip, a sudden request was received to change the schedule from November to December, so that there were major problems for the prior coordination. However, immediately before our departure we finally managed to gain agreement to implement the program as planned, though we left Japan with some concern about the state of the preparations. November was also Energy Month in Malaysia, in which many events were planned, but the Focal Point for the support, Ms. Norhasliza Mohd Mokhtar of PTM (the Malaysian Energy Conservation Center) was taking maternity leave and it seemed that adequate communications had not been implemented inside PTM concerning how far the preparations had proceeded. However, Ms. Norhasliza eventually returned to the company and carried out the coordination so that the implementation could be carried out as planned. Although the implementation plan had been determined by the consensus of the related persons at the Inception Workshop in July, as long as a certain period of time was available, the interchanging within the range of the visits to the three countries was supposed to be possible through coordinating the mutual arrangements between the countries. However, because the request this time was received immediately beforehand, and since there was no clear reason given, we strongly and repeatedly requested that the schedule should be implemented as planned. In the event, due to the efforts of PTM, each of the events could be completed without problems.

1. Intensive Seminar-Workshop Implementation (ISW)

On November 9 (Monday), the Intensive Seminar-Workshop was implemented at PTM, which lies around 30 minutes by car southwest of Kuala Lumpur city center. The government-related ministries and agencies are moving to Putrajaya, which lies approximately 1 hour by car south of the city center, but PTM has been established approximately halfway between the city center and Putrajaya. PTM moved here in 2007, and its roughly 50 employees are conducting their research in a very spacious environment.

The ISW on the first day was attended by 30 persons in addition to related persons, making a total of 44 persons when including the 10 persons from PTM and persons from ACE and ECCJ, which is an appropriate size.

Although the Intensive Seminar-Workshop was presided over by the FP Ms. Norhasliza, initially the PTM Programme Manager Mr. Hishamudin Ibrahim gave welcoming remarks on behalf of the Acting Chief Executive Officer Mr. Ahmad Zairin Ismal. In his speech he introduced the fact that from January next year, PTM would change its name to the Green Technology Center Malaysia (abbreviation: PTHM), and the related ministry above PTM would also change its name slightly to the MEGTW (Ministry of Energy, Green Technology and Water), in a system where the government is leading in "Green Technology". After this, opening statements were given by Mr. Ogura of the ECCJ and Ms. Maureen of the ASEAN Centre for Energy (ACE).

Although the commemorative photographs were also taken inside the PTM building, there were no banners or chairs so that people squatted down, making some harmony with the participants.

The program contents of the Intensive Seminar-Workshop should be referred to in the Attached Materials III-2-9, and an outline is shown below. In addition, the lectures and related documentation will be circulated as a separate document.

(1) Session 1: PROMEEC Projects/PROMEEC EM Project: Outline & Achievements
    1) Lecture: Outline of PROMEEC Project; Ms. Maureen, ACE
    2) Lecture: Implementation Plan of the PROMEEC (Energy Management) Project; Mr.

Ogura In particular, because this was the first time to hold Training in the use of the Energy Management Handbook in Malaysia, we requested that participants should not only take part in the activities of current day, but also in the following day activities. Further, relating to this report, an introduction was given by Ms. Norhasliza that applications for the ASEAN Awards of current fiscal year should be submitted by April 30, 2010.

3) Afterwards, although it had been originally planned that the host country, Malaysia, should first report on the energy conservation conditions and the implementation activities and improvements achieved through PROMEEC, there was no time for the preparation and this was omitted.

(2) Session 2: "ASEAN Energy Management System"; Functions & Program

1) Lecture: Outline of the Latest "ASEAN Energy Management System"; Mr. Ogura
2) Lecture: Results of Previous Fiscal Year and Plans for the Current Fiscal Year relating to "ASEAN Award System of Best Practices in Energy Management for Industry & Building"; Ms. Maureen
3) Lecture: "Information System to Disseminate Awarded Cases" (Introduction to Analysis and Popularization Points relating to the Application Item Contents in Previous Fiscal Year); Mr. Ogura
4) Lecture: "Cyber Search System to Utilize the Existing Implementing Organizations"; Ms. Maureen
5) Q & A:
   A) Requests relating to how to apply for energy analyses, methods of participating in EM projects, difficulties in understanding how to make submissions to the awards, and requests to provide more support to companies were mainly made to PTM, but Ms. Norhasliza replied that due to the limited budget not very much could be done. We commented that if the concerned companies asked PTM concerning the participation in EM Projects and the applications for Awards it should not require expenses. This appeared to indicate that this type of information had not been adequately provided until now, and we thought that the ISW this time might help to provide a good opportunity.
   B) Further, regarding the ASEAN Award, Ms. Norhasliza introduced two bound pamphlets titled "Malaysian Winners from ASEAN Energy Awards 2000-2008 (Energy Efficiency Best Practices in Buildings and Energy Management (described in detail below))" and "Malaysian Winners from ASEAN Energy Awards 2000-2008" (Renewable Energy Project Competition)", and gave copies to those persons expressing interest.
   C) The question "Where is the 'ASEAN Trainer Training Team?'" was asked. We replied that "We have a plan to build this in the future, but it is not ready yet".
   D) A participant from Sapura Co. requested that "We previously had an analysis carried out in the PROMEEC Building Project around 2005. Could you let us know the results?" In response, we replied that the report had been translated to English and should be able to be confirmed on the ECCJ and ACE websites.
6) Lecture: Outline Introduction to the "Energy Management Handbook"; Mr. Ogawa
7) Lecture: Introduction to the Functions and Methods of Using the "In-house Database for Industries & Buildings"; Ms. Maureen
8) Lecture: Introduction to the Functions and Methods of Using the "Technical Directory for Industries & Buildings"; Ms. Maureen

(3) Session 3: Case Study

1) Lecture: "Basic Procedure of Group Work Guided by Energy Management Handbook"; Mr. Ogawa

2) Group Work: The 29 general participants were divided into three groups, which commonly selected the Grand Mercure (Thailand) (Winner of the EM Building in fiscal 2008) as the hotel case study that was to be investigated and discussed. As the output, the participants were asked to give the good points and recommendations. For the groupings, Ms. Norhasliza used the participant list beforehand to establish groups while giving consideration that participants from the same companies should not be assigned to the same groups, and the groups were announced before the work started. The work that was divided into three locations was carried out using different styles in each group, from the reading out of the information to the discussions, and heated discussions were exchanged. Group 1 used the glass board at the front wall of the meeting room, Group 2 put the whiteboard in the center of the meeting room, while Group 3 used the glass board at the back of the meeting room, which they used for writing their investigations and results. Among the groups, some carried out analyses while already being aware of the Key Step Approach procedures. The group work was allocated 1.5 hours, but everyone managed to finish a little before this.

3) Group Work Results Report: Although 10-minute reporting was planned for each group, the actual results varied between 8-11 minutes. Each group gave many good points and recommendations, and there were many slight differences in the processes. Because the subject was a case study that had been specially recommended as a Winner, while it was easy to determine the good points, many recommendations were also given. As already mentioned, groups also carried out verification following the Key Step Approach, and their advanced level of discussions was apparent. It is believed that this is because consultants who are related to ESCO were present. While it is thought that for most participants this was the first experience of carrying out investigations in group work, in particular all three groups were dealing with a common topic so that their mutual presentations meant that they listened carefully to the other presentations. Further, a group also quickly developed the investigations and summary of results in a short time period as a PowerPoint document for reporting.

4) Review by ECCJ: As well as giving good evaluation of the presentations using PPT documents that we had not seen in the group work in other countries, we also praised the enthusiastic participation of all members in each group when tackling the activities. Further, although determining the excellence of the report contents was not a target, including the fact that there were many high level opinions expressed, many ideas were expressed in the Group Work and Small Group Activities that could not have been obtained through the know-how and experience only of individuals. This was important for participants to experience, and we requested that participants should develop these kinds of activities in the future even after they have returned to their companies and organizations.

(4) Other

1) "Malaysian Winners from ASEAN Energy Awards 2000-2008" (Energy Efficiency Best Practices in Buildings and Energy Management): The following items are incorporated, and the application details are introduced using many photographs and figures.

A) Energy Efficiency in Buildings
   a) New and Existing Category: Securities Commission, and five other items
   b) Retrofitted Category: Malaysian Electronics Manufacturer Sdn Bhd, and one other item
   c) Tropical Category: Streetmall, Cyberjaya
   d) Special Submission: Sutera Habour Resort & Spa, and two other items

B) Energy Management in Buildings and Industries

a) Buildings: KL Sentral-Semasa Services Sdn Bhd, and one other item

2) Note that the PTM publication contents described at the back of the booklets described above are shown as follows

A) National Energy Balance Malaysia (1980-1999 and Quarter 3 & 4, 1999)
B) National Energy Balance Malaysia (1980-1999)
C) National Energy Balance Malaysia (1999 and Quarter 1 & 2, 2000)
D) National Energy Balance Malaysia (2003)
E) National Energy Balance Malaysia (2004)
F) National Energy Balance Malaysia (2005)
G) National Energy Balance Malaysia (2006)
H) National Energy Balance Malaysia (2007)
I) Energy Efficiency – A Private Sector Initiative
J) Energy Efficiency – A Public Sector Initiative
K) Feasibility Study on Grid Connected Power Generation Using Biomass Cogeneration Technology
L) Industrial Energy Audit Guidelines: A Handbook for Energy Auditors
M) Koleksi Poster RE & EE 2000
N) Malaysia CDM Information Handbook
O) Malaysian ESCO Directory
P) Preliminary Study on the Green Energy Revolving Fund
Q) Part Ⅰ: Guidelines for Conducting Energy Audits in Commercial Buildings
R) Preliminary Study on the Establishment of the Green Energy Revolving Fund
S) Renewable Energy- A Private Sector Initiative
T) Renewable Energy- A Public Sector Initiative
U) Renewable Energy: Resources and Application in Malaysia
V) Sistem Photovoltaik Suria "Solar Home Kits"

(5) Main participants:

PTM: 10 persons, hospitals: 4 persons from 3 companies, manufacturers: KYB Co., etc.: 2 persons from 2 companies, Energy conservation machinery services: 4 persons from 2 companies, Office buildings: KLCC, Tokio Marine & Nichido Fire Insurance, Consultants: 5, etc.

2. Training relating to the Usage Methods of the Energy Management Handbook

The Training Program on the second day is shown in the Attached Materials III-2-10. The number of participants on this day was almost the same as in the previous day, with one new person taking part.

(1) Session 1: Seminar by ECCJ

1) Lecture: Purpose of the Training Course; Mr. Ogura
2) Lecture: Detailed Explanation of the "Energy Management Handbook for ASEAN"; Mr. Ogawa

A joint explanation was given of the "ASEAN Energy Management Handbook" that had been filed with the distributed materials and the "EM Handbook for ASEAN: Main Contents & Guidelines" from the slide projection materials of previous day. Because this was the first time to hold a Training Course relating to these contents in Malaysia, and since the participants did not include any participants from the previous Intensive Seminar-Workshop held in 2006, the participants showed great interest. In the previous Seminar-Workshop there was a question regarding whether "Six Sigma is also referenced in the small group activities", and this time we also prepared information on Six Sigma, but there was no clear influence from this point.

3) The lecture: "How to Utilize In-house Database & Technical Directory in EM" by Ms.

Maureen was omitted due to restrictions of time and the fact that it had some overlap with the lectures introduced on the previous day.

4) Lecture: Important Guidelines for Improvements using the EM Handbook; Mr. Ogura

5) Q & A: We'd like to proceed with benchmarking, but it's difficult. What should we do?

? In the case of Buildings, the figures are comparatively widely publicized so that they are easy to obtain. The case of Industries is very difficult. In Japan, there are situations where the figures are consolidated in each sector (for example the steel confederations). Further, since there is a description of benchmarking in the EM Handbook, we'd like you to refer to this. In the ASEAN EM System, before implementing benchmarking, it is recommended that you establish an In-house Database. In addition to this, figures should be obtained from some information sources, and then the Benchmarking should be carried out. The figures included in the Best Practices in the ASEAN Awards should also be helpful as a reference. Then an explanation was given by PTM regarding the Building Energy Benchmarking Program that they are currently implementing. In this program, the data from the buildings of companies that have entered into an agreement with PTM is input, and in return all participants (currently around 60 companies) can be told what their position is compared to the others, for example in the Building Energy Index. Access to the information is achieved by inputting an allocated password.

(2) Workshop (Group Activities)

1) Energy conservation activities were carried out according to the materials of the two companies described below:

As shown below, the two subject companies won the ASEAN Energy Award in 2008. In order that the materials regarding the two companies (documents) would be read on the previous evening and assimilated, an explanation was given on the previous day, so that each group was able to smoothly start the discussions.

Factory: PT. Eastern Pearl Flour Mills (Indonesia), 1st Runner-up in Industry Field

Building: HSBC Brunei (Brunei), 2nd Runner-up in Building Field

2) Based on the above introduction contents, experience in group work was carried out relating to the evaluation of the energy conservation activities and the provision of advice regarding improvement plans possible in the future.

We gave an explanation that the activities of today would realize a higher level of results than those of previous day for the following reasons:

- This is second consecutive day of experiences for participants following the activities of previous day
- The materials were completed during the previous night
- There is more time than on the previous day

That is, in the current day participants were to imagine that they had become energy conservation consultants. They should evaluate the good and bad points of the customer's energy conservation activities and were to propose an Improvement Action Plan including the Time Schedules.

The division into groups was carried out in the same way as on the previous day (each group had about 10 members). However, it was acceptable for the roles of the people inside the groups to be changed (the presenters were also changed). For the topics, Group No.1 and No.3 chose the factory (Eastern Pearl), while Group No.2 chose the building (HSBC). Among the participants, two persons were from factories, while the others were mainly from buildings and consultancies. In view of this, it was surprising that so many people selected the factory case study.

3) Group activity implementation and results presentation:

For each group, considering the limited time (approximately 1.5 hours), the lively

discussion and summarizing of the results were effectively implemented. In addition, the presentations were given by persons familiar with presentation methods.

(3) Comments from participants, and response by PTM:
Many positive comments relating to energy conservation were received from the participants, and there were situations where some of the comments seemed to be exerting pressure on PTM. The comment of "The cost of electricity is too high. Can't you introduce principles of competition?" was heard from some participants. (Questions were also asked regarding the cost of electricity in Japan.)
The following explanations were given by Ms. Norhasliza of PTM.
- Energy Management Training Course
- EE&C Sustainable Award (Currently being planned?)
- National Energy Competition (The application period is April of next year)

In addition, she also said "If you have good ideas relating to energy conservation, please let me or Mr. Hishamudin know. We wish to continue with energy conservation in the future based on the opinions of everyone at this time."

(4) Review by ECCJ: Although the number of people was slightly reduced in the afternoon, we wish to thank participants for their enthusiasm right to the end in the group work that was carried out twice, in the current day and on the previous day. In addition, looking at the investigation contents of each group, we wish to praise the fact that participants have already adopted these EM methods to a large extent, such as by carrying out verification using the 11 steps of the Key Step Approach. Together with the actual sensing of the results from carrying out the activities using SGA, we hope very much that you will also develop the contents achieved this time in each of your companies and organizations.

(5) Presentation of Certificates of Completion
Lastly, certificates of completion that were signed by ACE, PTM, and ECCJ were awarded by Mr. Ogura at the request of PTM to all the participants in the Seminar and Training on the two days.

(6) Other: Inspection of the PTM Office Building
Utilizing the lunch break period, the PTM Principal Energy Engineer Mr. Steve A. Lojuntin showed the participants and related persons round the PTM building (which was also used as the venue).
This was originally known as the ZEO (Zero Energy Office), but is now called the GEO (Green Energy Office). The figure for the BEI (Building Energy Index, kWh/m^2/year) that is normally around 300 was found to be 136 in the EE in Building, Guideline (1989), and 100 and 85 in the public office LEO Building and the EC Building respectively. In contrast, in this building (when PTM moved here in 2007) the amount of electricity generated from solar power, and the electric power consumption amount were balanced by design. However, although the electric power consumption amount was designed to be 45, this was actually 90 initially, though it has been currently reduced to 65 as a result of efforts made in reduction. Other than the solar power generation, there is also wind-powered generation, and electricity importing and exporting are both carried out according to the time of day and weather. The implementation of double glazing allows passage of light but not heat. The building's thermal insulation was also strengthened. For other details, refer to the separate materials. Note that because the building is being showcased, 3,000 persons are visiting annually, including schoolchildren.

3. Company Visits

(1) November 11 (Wednesday): Visit to Prince Court Medical Center

(2) November 12 (Thursday): Visit to Sapura Co.
For more details, refer to the company visit records in the Attached Materials II-2-11.

4. Other

(1) Wrap-up Meeting：

On the afternoon of November 12 (Thursday), a summary of the local activities carried out this time was held at PTM.

1) First, there was the overlapping of these activities with the holding of Energy Month in November, and the apprehension about holding these activities at this time. We gave sincere thanks for the great efforts of the persons related with PTM that made it possible to realize the Intensive Seminar-Workshop, Training and the company visit interchanges without problem.
2) We also thanked them again for their efforts in arranging participation by 30 persons from 23 companies even though there was inadequate preparation time after it had been decided to implement the activities.
3) Further, although this was the first time to hold ASEAN EM Training in Malaysia, we were happy that the participants showed good understanding. As well as continuing to hold these activities in the future, we requested that PTM should also carry out the Training using EM Handbook.
4) Regarding the promotion of the ASEAN Award applications, because many people did not know that this type of system existed, we requested that PTM should carry out promotion of the awards, and that they should pay particular attention to the follow-up of the companies and persons participating this time. In particular, although the Prince Court Medical Center that was visited this time is an ultra high-class specification hospital, they are at the same time enthusiastically tackling energy conservation, and we requested that PTM should offer cooperation and guidance towards making the application.
5) Looking at the responses to the questions for participants, because many more comments were written by participants than for any of the other countries so far, we requested that PTM should also read the comments and use them for reference.
6) We once again gave the JASE-World CDs, and requested that PTM should contribute to activities in the next fiscal year by anticipating a large budget. (See related note in (2) below)
7) In addition, Ms. Norhasliza expressed her thanks to ECCJ/ACE for their cooperation regarding these activities. She also commented that "We are planning to hold a National Competition Award, but rather than a one-time event I would like to make it a sustainable event. I'd like to study how I can do this. In this activity, I'd like to also refer to the ASEAN Award Concept. As the ASEAN EM Handbook has good contents, I'd like to publish it and popularize it. I'm sorry that there were so few participants from factories. The Seminar may be better as an event with 30-40 participants rather than one with 100 participants. Do you think that the size of the event this time was suitable?", to which we commented that "We also think that a 30-40 person size is appropriate for events including SGA Training in EM."
8) Further, we also proposed that "Why don't you investigate the introduction and establishment of an energy conservation education and training facility like the one in Thailand?" We also said that "Depending on the situation, there may be a method of requesting support from the Japanese government or from JICA. Why don't you discuss this with the Ministry of Energy, Green Technology and Water?"

(2) When talking with Mr. Hishamudin of PTM during the interval, he said that as Green Technology Funding next year, the scope of 1.5 billion RM (approximating to more than 450 million US$) would be provided as 50 million RM (approximating to more than 15 million US$) for each case in the manufacturing industry, and 10 million RM (approximating to more than 3 million US$) for each case in the retrofit business. He

expressed concern regarding the ways that these budgets should be used.

(3) In addition, before the Wrap-up Meeting we could meet with the Acting Chief Executive Officer Mr. Ahmad Zairin Ismail, who was very busy and often out of the office, and we conveyed our thanks for his great efforts regarding related persons for these activities and for the cooperation of PTM.

(4) Results of questionnaire for participants: Out of the 30 general participants, responses were received from 16 persons. The evaluations of the Training using the EM Handbook were mostly Excellent or Good and Very Useful or Useful. In addition, many comments were written, making us believe that Malaysian people have a strong interest in energy conservation.

Attached Materials III-2-9: Intensive Seminar-Workshop Program

Host Country

Final AGENDA
Intensive Seminar – Workshop
Promotion Of Energy Efficiency And Conservation (PROMEEC) – Energy Management Under The SOME-METI Work Programme 2009-2010

Venue: PTM, Date: November 9, 2009

08:30 – 09:10	Registration
09:10 – 09:22	Welcome Remarks by PTM (Pusat Tenaga Malaysia) Mr. Hishamudin Ibrahim
09:22 – 09:31	Opening Statement by The Energy Conservation Center, Japan (ECCJ) Mr. Yutaka Ogura
09:31 – 09:36	Opening Statement by ASEAN Centre for Energy (ACE) Ms. Maureen Balamiento
09.36 – 10:11	*COFFEE BREAK & GROUP PHOTO SESSION*
10:11 – 10:38	Session 1: PROMEEC Projects / PROMEEC EM Project : Outline & Achievements
10:11 – 10:38	Presentation by ACE & ECCJ 1) Outline and Achievements of PROMEEC Project (ACE) 2) Outline and Plan of PROMEEC (Energy Management) Project (Mr. Ogura)
10:42 – 14:30	Session 2: "ASEAN Energy Management System" : Functions & Program
10:42 – 11:15	Presentation by ECCJ Outline of Updated "ASEAN Energy Management System" (Mr. Ogura)
11:15 – 11:31	Q&A
11:31 – 12:06	Presentation by ECCJ and ACE Specific Functions and Program 1) ASEAN Award System of Best Practices in E.M. for Industry and Building - Outline, Results of ASEAN Awards for 2008-2009 and Plan for 2009-2010 (ACE) 2) Information System - Information System to Disseminate Awarded Cases (Mr. Ogura) - Cyber Search System to Utilize The Existing Implementing Organizations (ACE)
12:10 – 12: 30	Presentation by ECCJ and ACE (Continued) 3) Energy Management Tools - "Energy Management Handbook"(Mr. Ogawa)
12:30 – 14:00	*LUNCH*
14:00 – 14:36	Presentation by ECCJ and ACE (Continued) 3) Energy Management Tools - In-house Database for Industries and Buildings (ACE) - Technical Directory for Industries and Buildings (ACE)
14:37 – 17:30	Session 3: Case Study (Experience of Group Activities for Improvement in Energy Management) Grand Mercure, Thailand
14:37 – 15:00	Explanation by ECCJ (Mr. Ogawa and Mr. Kaji) Basic Procedure of Group Work Guided by "Energy Management Handbook"
15:00 – 16:15	Preparation for Group Work (3-4 Groups) Group Work by Participants
16:15 – 16:50	*COFFEE BREAK*
16:50 – 17:30	3) Comments from Participants 4) Comments by ECCJ
17:30 – 17:35	End of Intensive Seminar-Workshop
	COMPLETION of Activities

Attached Materials III-2-10: Training Program for relating to Methods of Utilizing Energy Management Handbook


Host Country


Final AGENDA

Training: Utilization of "Energy Management Handbook and Tools for ASEAN"
Promotion Of Energy Efficiency And Conservation (PROMEEC) – Energy Management Under The SOME-METI Work Programme 2009-2010

08:30 – 09:00	Registration
09:00 – 12:30	Session 1: Seminar by ECCJ
09:15 – 09:25	Explanation by ECCJ: Purpose of Training Course (Mr. Ogura)
09:25 – 10:45	Explanation by ECCJ: Details of Energy Management Handbook for ASEAN (Mr. Ogawa and Mr. Kaji)
10.45 - 11:05	*COFFEE BREAK*
11:00 – 11:20	Q&A
11:15 – 11:40	Explanation by ECCJ: Important Guideline for Improvement Using EM Handbook (Mr. Ogura)
11:40 – 12:00	Q&A
12:00 – 17:30	Session 2: Workshop (Training for Small Group Activities)
12:00 – 12:15	Guidance for Group Work by ECCJ (Mr. Ogawa and Mr. Kaji)
12:15 – 13:30	PTM Tour
13:30 – 14:00	*LUNCH*
14:05 – 15:40	Group Work Based on Cases Studies (1) & (2) PT Eastern Pearl Flour, Indonesia/ HSBC, Brunei - Preparation for Group Work - Discussion by Groups: Guideline and Basic Plan to Improve Using "Energy Management Handbook"
15.40 - 16:10	*COFFEE BREAK*
16:10 – 17:10	Presentation by Participants: Results of Group Work for Cases Studies (1) & (2)
17:10 – 17:22	Discussion on Proposed Program / Plan of EM Training in Malaysia moderated by FP
17:22 – 17:30	Comments by ECCJ Experts
	COMPLETION OF TRAINING AWARDING OF CERTIFICATES TO ATTENDEES

Attached Materials III-2-11: Company Visit Record (Malaysia)

PROMEEC (Energy Management) Related Institution Visit: Malaysia (No.1)
Building (Prince Court Medical Center) Visit Interchange

No.	Item	Details
1	Date and Time	November 11 (Wednesday) 10:00-14:00
2	Meeting Place:	Prince Court Medical Center (PCMC) In the surroundings of KLCC (Kuala Lumpur City Center), KL, Malaysia
3	Meeting Partners:	Ir. Al-Khairi Mohd Daud, Head of Engineering, PCMC SDN BHD Ir. Mohd Kastry Zahid, Project Engineer, Faber Medi-Serve Sdn Bhd
4	Accompanying persons	Ms. Norhasliza Mohd Mokhtar, Research Officer, PTM Mr. Khairul Anuar Mukhtar, Energy Engineer, PTM Mr. Mhhd Muhtazam Noor Din, Technical Assistant, PTM Mr. Zul Azri Hamido, Energy Audit Engineer, PTM Two other persons
5	Visitors (ACE and ECCJ)	- Ms. Maureen Balamiento (IT Specialist, ACE) - Mr. Yutaka Ogura (ECCJ, Technical Cooperation Department, General Manager) - Mr. Fumio Ogawa (ECCJ, Technical Cooperation Department, Technical Expert) - Mr. Hitoshi Kaji (ECCJ, Technical Cooperation Department, Technical Expert)

6. Outline of Company

The PCMC was established in 2006, and in 2007 it began operations as a state-of-the-art hospital. Equity investment is provided by Petronas, and guidance is received from the following two companies under a five-year agreement. First the details of medical treatment are determined by the Vienna Medical University and its attached hospital (founded in 1365; a leading European university and hospital), and the hospital management is carried out by VAMED (the well-known VAMED Malaysia has already 21 years of actual results in the industry for overall hospital management) (Apparently the reason for choosing the Vienna University is simply because someone had personal connections with it at the time.)
First we viewed a video and received an explanation in the Auditorium. The key points were as follows.

- The building has three floors below ground (car parking) and seven floors above ground, with a total area of 100,800m^2. Out of this, the air-conditioned area is 63,000m^2.
- The same company's Vision, Mission, and Values are as follows
  - Vision: Leading Healthcare provider in Asia
  - Mission: Family-centered Healthcare Services
  - Values: Professionalism, Compassion, Integrity, Teamwork
- Placing emphasis as a Center of Excellence on five fields including Heart/Lung, Plastic Surgery, and Urology
- Adopting a system that allows 24-hour emergency admissions
- Although the final number of beds for admission is 300, only 185 beds are currently occupied. (The Occupancy Rate is approximately 60%.)

7. Outline of Energy Usage Conditions and Energy Conservation Activities

(1) Energy Usage Conditions

- The building is provided with Total Comprehensive BASA, and a SMV System is also installed. In addition, consideration was also given to energy conservation in the design, so that double glazing, double doors, and motor VSD is being used.
- As the energy, electricity, natural gas (boiler fuel), and diesel oil (for emergency power generation) are used, and the ratios are 92%, 4%, and 4%.
- According to the data accumulated from the Daily Log Sheet between January and

September this year, the electricity usage amount was 1.5-1.9 kWh per month.

- The momentary Peak Load was approximately three times the Average Load.
- The usage destination of this electricity is as follows.

Central Air Conditioning	77%
Lighting	7%
Elevators & others	7%
Kitchen	6%
Separate Air Conditioning	3%

(2) Energy Conservation Activities

- In addition to the previously described considerations in the design, the company is also carrying out energy conservation activities. For this purpose an Energy Committee has been established. (Other than the Quality Improvement Program, an Energy Saving Program is being implemented.)
- Concerning the energy conservation activities, attention is placed on operations and human behavior. In connection with this, cooperation is obtained from PTM. (They are also participating in the Building Benchmarking Program.) Further, training is also being implemented in the company.
- As the methods of implementation, first "No cost items" are tackled (slide of Table 1), then the facilities efficiency is checked (slide of Table 2), and additionally the management promotion and handbook usage (slide of Table 3) is also implemented.
- For Benchmarking purposes, the BEI is being calculated. Comparing this with other figures, the following is found.

Malaysian Standard	300 kWh/m^2/year
Energy Efficient Building	135
Hospital	250
PCMC	302

- As explained previously, investigations were carried out because the PCMC figures were poor. One possibility for consideration was that the company's operations have not yet achieved a stable condition (the number of patients is increasing), the area used in the calculation of the Energy Index is not yet being fully used, and further that the most appropriate usage points have not yet been discovered.
- New wards are opening approximately every two weeks. Despite this, efforts are being made to maintain the 800,000RM electricity cost . (A stable situation is due to be reached by the end of next year.)

8. Impressions of Site

This building was constructed for the purpose of realizing the highest level hospital for treating the King and other VIPs. Our impression of the hospital was that it looked like a 5-star hotel built to the latest design. The lobby extending from the first floor reception is also luxurious with its wide space and large decorations. Further, in the upper part of the lobby there is a large space extending up through the floors to the top floor (this cut-out space can be seen from the elevators).

The Control Room for the entire building is located on the first basement floor, and management using BAS is being carried out. Further, on the notice boards there were KPI Team notices which indicated that small group activities were being carried out.

In addition, according to the layout, the section that becomes the CEP where the energy-related motive power machines are concentrated is arranged in a sectioned-off area.

In the vicinity of the Electric Room, two emergency generators (each 1,000kVA) are installed. One of these has been calculated to cover the minimum electric power required by the hospital for maintaining operations. (It starts up in approximately 15 seconds when a

power cut occurs.)
In the Chiller Room, VSD is installed and used.
On Level 7 (the top floor) there is an AHU Room, where there is a water pump.
Further, taking a ward as an example, we were able to view the Level 6 Maternity Ward. In addition to individual rooms, there are also family rooms (mothers staying in the hospital with their children). All of the rooms had luxurious space and facilities.

9. Details of Discussions (Explanation from our side and response of visited company)
Because Ir. Al-Khairi Mohd Daud and Ir. Mohd Kastry Zahid attended the Seminar and Training Course two days before and on the previous day, the other side could understand well that the EM Handbook is part of the ASEAN EM System and the PROMEEC Project.

(1) Comments and advice from our side

- We would like to thank you for making the adequate preparations in spite of the short period this time. While not much time has passed since the start of the operations as a hospital, we could understand the great efforts that have been made and results obtained.
- While the luxurious facilities including the large cut-out space has many problems from an energy conservation point of view, we understand that preference was to be given to the appearance. While the limitations as a hospital, namely the "prioritization of safety, sanitation and treatment" may become limitations in the future, we believe this stage has not yet been reached.

  Although the hospital is now in the process of growing, where the operations are not stable, it will be advisable to accumulate data related to the operations at the current time. We believe this will be useful in the analysis of the fixed parts and variable parts of the future energy consumption amounts.
- Advice was given as follows
  - We believe there is room for switching off some lighting in the common areas.
  - For the air-conditioning setting temperature in the Electric Room, 40℃ is acceptable if there is only machinery. We would like you to investigate this.
  - When people are not present, we would like to see devices for switching off the lighting and air-conditioning.
  - It is advisable to change the emergency lamps in the car park to LED types.
  - If a heat exchanger is provided for the fresh air and recirculation air introduced in the AHU, it will possible to avoid releasing the specially chilled air to the outside.

(2) Other

PTM mentioned several points, including the fact that energy conservation would be possible if the air-conditioning setting temperature is raised.

Finally, Mr. Ogura gave copies of the ECCJ pamphlet and the Japanese latest energy conservation technology CD, and recommended their participation in the ASEAN Awards in the future if the hospital's operations can be stabilized and energy conservation actual results can be confirmed.

PROMEEC (Energy Management) Related Institution Visit: Malaysia (No.2)
SAPURA RESOURCES Bhd. (Sapura) Visit Interchange

No.	Item	Details
1	Date and Time	November 12 (Thursday) 10:00-12:30
2	Meeting Place:	Sapura Co., Ltd. 43300, Seri Kembangan, Selangor Darul Ehsan
3	Meeting Partners:	- Mr. Razif Abdul Aziz (General Manager, Property) - Mr. Johari Kan Abdullah (Manager, Engineering & Special Projects)
4	Accompanying Persons	- Ms. Norhasliza Mohd Mokhtar (Research Officer, Ptm) - Mr. Khairul Anuar Mukhtar (Energy Engineer, Ptm) - Mr. Muhd Muhtazam Noor Din (Technical Assistant, Ptm) Others, making a total of five persons
5	Visitors (ACE, ECCJ)	- Ms. Maureen Balamiento (IT Specialist, ACE) - Mr. Yutaka Ogura (ECCJ, Technical Cooperation Department, General Manager) - Mr. Fumio Ogawa (ECCJ, Technical Cooperation Department, Technical Expert) - Mr. Hitoshi Kaji (ECCJ, Technical Cooperation Department, Technical Expert)

6. Company Outline and Past Developments

Sapura maintains the building that was visited this time together with other buildings in Kuala Lumpur city center, and is carrying out the renting of space as office buildings. In addition to its office space renting business, the Sapura Group is also developing various businesses including insurance, transportation, and car dealing.

The building visited this time had PTM (the Malaysian Energy Conservation Center) as a tenant until 2007, and the building additionally was subject to a PROMEEC building energy audit in 2005. Further, at the start of this year, PTM carried out an energy audit and is creating a detailed report.

In this way, the visit this time was realized through the close relationship with PTM.

7. Outline of Sapura Co. Building

The building was completed in 1998. It is a 10-story office building with a total floor area of approximately 48,000m^2 including the car park, and an air-conditioned floor area of approximately 22,000m^2. The number of people entering the building each day is 1,000-1,200 people on a working day and around 30 people on holidays.

There are eight main tenants, and out of the eight, six are Group companies. Further, the occupancy rate is approximately 100%.

As the energy, approximately 6,000MWh of electricity is used each year (in fiscal 2007, including the tenants' portion), and gas and fuel oil are not being used. Further, because the sewage is centrally processed there are no sewage processing facilities in the building. A BAS (Building Automation System) has been introduced and is being operated for energy management.

The electricity usage destinations are 46.1% for the common area air-conditioning and 37.8% by tenants. Other destinations are 6.6% for socket equipment 5.4% for lighting in common areas, 1.7 for elevator equipment, and 2.4% for ventilation equipment.

Malaysia uses a system in which buildings are evaluated as one of four levels according to figures known as the BEI (Building Energy Index) which consist of the air-conditioning floor area as the denominator divided by the annual total electricity usage amount. The Sapura Co. building has been evaluated in the B Category (Second level from the top; 156 －172kWh/m^2/yr). Mr. Johari is aiming to raise this level to the A Category, and is receiving energy audits and advice from PTM. However, the percentage of the electricity

charge taken up by the rental fee is only 1-2%, and it is apparently difficult to receive the understanding and cooperation of the management and tenants regarding energy conservation. Accordingly, by mainly tackling the energy conservation activities on a No/Low Cost basis, Mr. Johari participated in the SW/TR this time to acquire proficiency in energy management methods.

As the energy conservation measures that are currently being implemented, there are 1) lighting of every second lamppost, 2) shortening of the lighting time for the car parking facilities, 3) reduction of the main lobby lighting, 4) switching off the corridor lighting according to the time of day, and 5) shortening of the chiller equipment operating time. Although the switching on and off of the lighting equipment is carried out manually, they plan to switch on and off the lighting automatically using sensors.

8. Details of Cooperations

(1) Explanation by this Organization

Based on the enthusiastic tackling of energy conservation by the persons responsible for energy management, we proposed that they submit an application to the ASEAN Award System, and we also requested that support be provided by the FP.

(2) Response of Visited Company

Assisted by the fact that PTM itself was once a resident of this building, PTM is also cooperating with the energy conservation. Mr. Johari, the person responsible for energy, is also very enthusiastically implementing activities following this intention. For example, because this building stretches in the east-west direction it receives a strong influence from sunlight according to the time of day. By carrying out detailed manual adjustment from the metering room and by also gaining the understanding of tenants regarding the corridor lighting in common-use areas, they are continually making efforts to gradually reduce the lighting.

9. Impressions of Site

The building has a luxurious design, and includes a large meeting room (theater) which is only used around six times each year, and an owner's floor where there appears to be very few people. The making of further efforts to promote understanding and adoption of energy conservation awareness by the management and among the tenants will be desirable. As the first step towards this, we explained that activities such as affixing labels to the lighting switch parts will be effective.

In addition, specific energy conservation proposals were given as follows:

(1) Movable partition type walls should be prepared in the meeting room, so that air-conditioning equipment needs only to be operated in the space that matches the scope of the meeting
(2) Introduction of human detector sensors in the toilet lighting
(3) Because there are times when the door of the entrance remains open, an air curtain should be installed in the entrance
(4) Light-resistant film should be applied to window glass
(5) Halogen lamps in the lobby should be replaced by CFL lamps

III-2-5. **Brunei Darussalam**

1. Intensive Seminar-Workshop Implementation

On November 16 (Monday) from 08:30 to 17:30 hrs the Intensive Seminar-Workshop was held in a 5th floor meeting room of the Kiulap Plaza Hotel, the hotel where this organization was staying, attended by 45 persons. The program is shown in Attached Materials III-2-12. During the welcome remarks, Mr. Alidi Mahmud, Head of the Energy Division of the Prime Minister's Office was present, together with Mr. Hiroshi Okochi, First Secretary of the Japanese Embassy in Brunei Darussalam. First, the Seminar-Workshop was opened with the welcome remarks given by FP Mr. Ahmad Mohamad, Head of the Sustainable Energy Unit in the Energy Division of the Prime Minister's Office, who explained that the Energy Management Guide, Basic Guide of Energy Audit for Building, and Energy Labeling for Air Conditioners had been completed and would be published. This was followed by opening statements by Mr. Ogura of ECCJ and Mr. Zamora of ACE. In Mr. Ogura's statement he particularly stated that although Brunei Darussalam was a fortunate country with rich reserves of fossil energy and low energy prices which makes energy conservation difficult, following the depletion of the earth resources the promotion of the efficient use of energy and development of renewable energy is a requirement. He also emphasized that he was expecting that training would be carried out on the Brunei side following the creation of the Brunei version Energy Management Guide. Afterwards, Mr. Alidi and Mr. Okochi talked with each other during the time until taking the overall gathering photographs and the coffee break. In addition, Mr. Okochi indicated that the recently appointed Ambassador Noriki Hirose had time in his schedule and wished to meet with us, so the times were adjusted to use the lunchtime on the 16th to make a visit to the Japanese Embassy from 12:30 to 13:00 hrs., where we could hold talks with the Ambassador Extraordinary and Plenipotentiary in Brunei Darussalam, Mr. Noriki Hirose.

(1) Session 1: PROMEEC Projects/PROMEEC EM Project: Outline & Achievements
   1) Lecture: Outline of PROMEEC Project; Mr. Zamora, ACE
   2) Lecture: Implementation Plan of the PROMEEC (Energy Management) Project; Mr. Ogura In particular, because the Energy Management Guide had just been completed in Brunei based on the ASEAN Energy Management Handbook, and this was the first time that training would be implemented by persons from Brunei using the Guide, a call was made for people to participate not only in the current day's activities but also in those on the following day.
   3) Lecture: Under the title of "EE&C Activities in Brunei Darussalam (known below as BD)", Mr. Ahmad gave an introduction and explanation of the following items in PowerPoint format.
      A) **BD Key Energy Statistics**: Comparison of Electricity Consumption per capita (2005) in EAS Countries. Compared with other ASEAN countries, BD was in the high position of third following Singapore and Japan. Its number of cars per capita was third behind the U.S. and Canada, ahead of Japan which was in fourth place. 53% of its energy consumption was transportation, while housing and commerce was 32%, and industry was low at 13%.
      B) Energy Conservation Opportunities
      C) Commitments under ASEAN + 6
      D) Commitments under APEC
      E) EE&C Committee: established in mid 2007
      F) EE&C Policy Framework
      G) EE&C Collaboration Framework

H) ASEAN PROMEEC: Business Developments of EM in BD

I) **Energy Management Curriculum Development Workshop**: June, 2009, which was visited by Department Manager Mr. Yoshida and Technical Expert Mr. Ogawa

J) National Energy Audit Workshop

K) International EE&C Awards: Situation tackling the **ASEAN EM Awards**

L) Briefing on EE&C in Buildings to all Ministries and Government Dept.

M) PROMEEC in Higher Institution and School

N) Collaboration with MOE (Ministry of Education)

O) Energy Clubs in Schools

P) Energy Club Seminar-Workshop

Q) **Future National EE&C Activities**: **Basic Energy Management Course**; **Collaboration with UBD, ITB, and international institutions such as ECCJ and ACE**, **Publication**; **Energy Management Guide**, **A Basic Guide to Building Energy Audit**, **Energy Labeling for Air Conditioners**

(2) Session 2: "ASEAN Energy Management System"; Functions & Program

1) Lecture: Latest Outline of "ASEAN Energy Management System"; Mr. Ogura

2) Lecture: Results of Previous Fiscal Year and Future Plans relating to "ASEAN Award System of Best Practices in Energy Management for Industry & Building"; Mr. Junianto

3) Lecture: "Information System to Disseminate Awarded Cases" (Analysis of Contents of Submitted Cases and Introduction to Dissemination Points); Mr. Ogura

4) Lecture: "Cyber Search System to Utilize the Existing Implementing Organizations"; Mr. Junianto

5) (During the interval) Courtesy visit to Japanese Embassy Envoy Extraordinary and Minister Plenipotentiary Hirose, attended by Mr. Okochi and Mr. Ahmad

A) Introduction to PROMEEC EM Project by this organization

B) The Ambassador talked about the situation regarding automobiles in Brunei and about hybrid cars. In Brunei gasoline is cheap and the number of cars is increasing, making an overconsumption situation. A change to hybrid cars would reduce the gasoline consumption amount and allow the amount of petroleum exports to be increased. Although Brunei's citizens like fast cars, he believes that it may be possible to switch from large cars to hybrid or electric small sized cars. He recommended that HSBC (Hong Kong Shanghai Bank) should use 10 Prius vehicles, since Toyota are to introduce plug-in cars from December. He wondered whether it would be possible to have cars that combine a PV panel with a plug-in or hybrid car, or combine LNG and fuel cells, etc.

C) The Brunei government does not readily provide subsidies. Without investment, energy conservation becomes simply a slogan. He will ask the Royal Family to take the initiative.

D) The introduction of the latest technologies will be necessary to improve low efficiency, and Brunei should study the technologies from Japan.

E) Because the number of people in Brunei is small, many experiments can be tried.

F) Ambassador Hirose was formerly in the Economic Planning Agency. Relating to the above, he also encouraged Mr. Ahmad to assist.

6) Lecture: Outline Introduction to "Energy Management Handbook"; Mr. Ogawa

7) Lecture: Introduction to "In-house Database for Industries & Buildings" Functions and Usage Methods; Mr. Junianto

8) Lecture: Introduction to "Technical Directory for Industries & Buildings" Functions

and Usage Methods; Mr. Junianto

(3) Session 3: Case Study

1) Lecture: "Basic Procedure of Group Work Guided by Energy Management Handbook"; Mr. Ogawa None of the participants knew of Six Sigma. Because the question "Why did people in Japan decide to carry out energy conservation?" was asked by a participant, we answered that "When the two "Oil Shocks" occurred in 1973 and 1979, they had a large influence in Japan, which has very few fossil resources. This became linked to cost reduction activities by companies from the viewpoint of securing international competitiveness, and in each workplace (SGA) self-help efforts were tackled to improve energy conservation. Meanwhile, in 1979 the Energy Conservation Law was established, in which the Energy Manager System together with the obligation to submit regular reports and medium to long-term plans was thoroughly implemented."

2) Group Work: The 30 general participants were divided into four groups which were asked to choose a case study from between the Industry case of Thai Cold Rolled Sheet Public (Thailand, Winner of the Fiscal 2008 EM Industry) and the Buildings case of HSBC (Brunei Darussalam, 2nd Runner-up in the Fiscal 2008 EM Building) and each of the two groups were required to carry out investigations and discussions. As the output, the groups were asked to give the Good Points and Recommendations. For the groupings, in advance Mr. Hakeem used the participant list to establish groups while giving consideration that participants from the same companies should not be assigned to the same groups, and the groups were announced beforehand. The work that was divided into four locations was carried out using different styles, from reading out the information to the discussions, and perhaps because of the presence of senior persons from each ministry or due to a national trait, careful reading and discussions were exchanged in a relatively quiet atmosphere. The three women who took part in two of the groups, appeared to take the leadership in many cases. In almost all the groups, analyses were carried out while remaining aware of the Key Step Approach procedures. 1.5 hours were allocated, but some groups still found the time to be insufficient.

3) Group Work Results Report: Although 10-minute reporting was planned for each group, many of the actual results were slightly short, varying between 4-9 minutes. Although each group carried out analysis following the steps of the Key Step Approach, most of the groups could not link this with defining many good points and recommendations. Because the subjects were case studies that had been specially recommended as a Winner and as a 2nd Runner-up, we had wondered how easy it would be to give recommendations. It is thought that for most participants this was their first experience of carrying out investigations in group work, and because each two groups were dealing with common topics they took great interest in the other presentations on the same topics.

4) Review by ECCJ: Praise was given regarding the enthusiastic participation by all members, despite the somewhat quiet appearance of the groups. Further, although determining the excellence of the report contents was not an objective, we had thought that it would not have been easy to give recommendations for these good case studies, but we were impressed by how many recommendations were given. By using the Key Step Approach, understanding could be advanced, and many ideas were expressed in the Group Work and Small Group Activities that could not have been obtained through the know-how and experience only of individuals. This was important for participants to experience, and we requested that participants should develop these kinds of activities in the future even after they return to their companies and organizations. Note that we also requested that the materials analyzing the two case studies using the 11

steps of the Key Step Approach on this day should be provided to allow confirmation.

(4) Main participants: Prime Minister's Office; 7 persons, Ministry of Defense; 5 persons, Ministry of Education; 1 person, Ministry of Development; 1 person, Ministry of Finance; 2 persons, Ministry of Culture, Youth and Sport; 2 persons, Ministry of Foreign Affairs and Trade; 1 person, Ministry of Communications; 1 person, Ministry of Health; 1 person, Ministry of Religious Affairs; 1 person, Universiti BD (UBD); 2 persons, Institut Teknologi Brunei (ITB); 1 person, Maktab Teknik Saiful Rual (MTSSR, Single subject university), Bank Islam BD (BIBD); 2 persons, Public Work Dept; 2 persons, Brunei Shell Petroleum; 1 person, Audit Dept; 2 persons, Empire Hotel; 1 person, other

2. Training relating to Brunei Version Energy Management Guide Usage Methods

The Training in Brunei Darussalam this time was a revolutionary style, consisting of giving lectures on the contents of the Energy Management Guide that was originally created in Brunei Darussalam (as a departure point for the Energy Management Handbook), followed by training based on this. The successful completion of this style of training would be highly evaluated, and would have great significance in highlighting the aims of the PROMEEC (EM). The program is shown in Attached Materials III-2-13.

(1) Lecture Preparations

In the beginning, a supplementary explanation was given concerning the "Comparison Chart between the ASEAN EM Handbook Key Step Approach and the ASEAN Awards System Best Practice Case Study Contents" that Mr. Ogawa had distributed lastly on the previous day. It appeared that the participants had understood this to be a bridge between the contents of the experiences of previous day and studies and the Training contents of today.

Following this, Mr. Ogura gave an explanation using slide materials of the current day's Training contents. He particularly stressed the significance of using the Energy Management Guide that was produced in Brunei Darussalam. The participants fully understood these points and looked forward to the lectures and the subsequent group activities.

(2) Lecture: Energy Management Guide

Dr. Chee Ming Lim, Dean of the Faculty of Science at UBD (Universiti Brunei Darussalam) gave an explanation of the Energy Management Guide (Final Draft) contents using slide materials. This consisted of the reorganization of the 11 steps of the ASEAN EM Handbook Key Step Approach into 8 steps and selecting other described parts to make a compact edition. This made the aims of energy conservation cost effective and stipulated the Key Step Approach-centered concept as a "Systematic improvement by basic steps of Energy Conservation activities applied under a sound management system." After this clear explanation, the dean called on the participants in the venue to "Let us share experiences", and encouraged the BIBD (Bank Islam Brunei Darussalam), Standard Chartered Bank, UBD and other participants to each comment on their experiences in various energy conservation promotions. In connection with this, Mr. Ogura gave the comment that "Depending on the situation, raising the air-conditioning temperature by one degree may achieve a 7-13% saving in the energy consumption amount." There were also other lively questions and answers and comments, but the main points can be summarized as follows.

Q: Who will become the Energy Managers? And how will they secure the required abilities?

A: Because these roles are clearly stipulated in the Key Step Approach, appropriate persons should be selected in this organization.

(There was a comment from Mr. Ahmad, head of the Prime Minister's Office that "We are currently investigating about a Training Course for educating Energy Managers.")

Q: Is this the first time this explanation has been given in a public place? Further, what do you think about publishing this information?

A: This is the first time. Concerning the publication, there are also copyright problems, but I am personally considering an open source format.

Conversely, when Mr. Lim Cheng Guan of the Prime Minister's Office (PMO) asked us "What do you think about reducing the 11 steps to 8 steps?" we responded that "The step divisions are not always precise. If the number of steps is reduced, it will be necessary to adequately specify each of these steps. The larger the number of steps, the more self-explanatory the contents will become, but the system will be more complex. The essential point is which system the user finds easier to understand and use."

(3) Lecture: Energy Audit Guide for Building

An explanation using slide materials titled "A Basic Guide to Building Audit Guide: Overview" was given by Professor Hj Ady Syamin bin Hj Md Taib of the Faculty of Engineering (Civil Engineering Program) of the ITB (Institut Teknologi Brunei). The contents included the fact that the Energy Audit is classified into Walkthrough Audits and Detailed Audits, the fact that this corresponded to Step 2 "Understanding the issue" in the Energy Management Guide, and the fact that it is implemented in each stage from Stage 1-4. The other side expressed the intention to ask ECCJ to review these contents, and somehow we were able view the contents (as electronic data). Relating to this, there were also many questions. In particular, there were comments in the case of buildings regarding whether experienced Facility Managers would be appropriate as the persons qualified to be Auditors.

(4) Lecture: Key Guidelines for Energy Conservation using the EM Handbook

An explanation was given by Mr. Ogura using slide materials. (Note that the explanation by ACE about IHDB and TD that was supposed to take place before this was omitted due to time restrictions.)

Regarding this explanation too, there was a lively exchange of questions and answers.

(5) Introduction to Institutions Planning to Introduce the EM Guide and ASEAN Awards System Outstanding Case Studies (Total 2 case studies)

As the subjects for the group activities, it was originally planned to select two companies from the companies planning to introduce the EM Guide. The candidates were the three companies and organizations (Ministry of Defense, UBD, and IBD) that were to be visited the following day, and it had been planned to select two of the companies and have them present their energy conservation activities on this day. However, when it became clear that only UBD was prepared to give a presentation on this day, it was necessary to select the remaining company case study as the Grand Mercure Hotel (Thailand) that had been an outstanding case study in the ASEAN Awards System. Although UBD gave their presentation using slide materials, the Grand Mercure Hotel explanation was given by distributing paper copies and reading them.

(6) Workshop (Group Activities)

Although the original objectives and issues of the group activities were to experience group work to "Evaluate the energy conservation activities and propose improvement plans for the future (as a consultant) based on the above explanations," due to a request from the Brunei side (UBD and PMO), "Evaluate and comment on the Energy Management Guide" was added. The explanations and division into groups were also carried out on the Brunei side (by Dr. Lim). This was also revolutionary.

The number of participants on this day was 38, so the same four groups as on the previous day were used, and the topics were set as follows.

Group No.1, No.3: Grand Mercure Hotel
No.2, No.4: UBD

Although the schedule on this day of reading the materials for approximately 30 minutes and carrying out group discussions for an hour and a half was slightly longer than usual, the number of issues had also increased with the Brunei side's request for comments regarding the Energy Management Guide, and the format required the participants to make efforts.

During the group discussions, Dr. Lim adopted the appropriate development of circulating between the groups as required to offer suitable guidance.

The group activity result presentations were of a higher level than the contents on the previous day. All of the presenters appeared to be used to giving presentations (and proficient in presenting in English). Depending on the group, the various methods used were different, so that one group created and used PowerPoint slide materials. Another group gave a detailed comparison of the methodology for each of the steps in the ASEAN EM Handbook and the Brunei Energy Management Guide. Further, another group provided contents that gave a strong feeling of responsibility as a consultant (by presenting results considering the value).

Regarding the presentation contents, this organization gave comments. As we explained at the start, the training in Brunei Darussalam this time is above all about the point that "Using the Energy Management Guide which has been developed in your own country and with guidance in the group activity training by leaders from your own country, favorable results (presentation contents) have been achieved," and it has been an outstanding event which has not been seen in the other ASEAN countries. Our comment consisted of this type of message, praising the participants' activities.

Further, Dr. Lim said that "Although we are planning to publish the Brunei EM Guide soon, we still welcome your comments (as far as time allows). Please send me your comments by E-mail."

(7) Awarding of Certificates of Completion

Following this, Mr. Ahmad, head of the Brunei PMO, Mr. Ogura, and Mr. Zamora of ACE took to the platform and awarded certificates of completion to the participants for the two days training.

(8) Greetings, and Closing Words

Finally, Mr. Ahmad, head of the Brunei PMO, gave closing remarks in which he thanked ECCJ and ACE for their cooperation and expressed his intention to continue to promote energy conservation activities in Brunei in the future. Mr. Zamora then gave closing remarks to bring the two days of substantial training to an end.

3. Company and Organization Visits

(1) November 18 (Wednesday) 8:10 – 10:15: Ministry of Defense
(2) (Same as above) 10:40 – 14:00: Universiti Brunei Darussalam (UBD)
(3) (Same as above) 14:35 – 16:00: Bank Islam Brunei Darussalam

For more details, refer to Attached Materials III-2-13.

4. Wrap-up Meeting

On November 18 (Wednesday), 17:00-18:00, a Wrap-up Meeting was held with Mr. Ahmad, Mr. Hakeem and Ms. Liyana of the Energy Division, Prime Minister's Office and this organization at the Kiulap Plaza Hotel concerning the project held in Brunei Darussalam this time.

(1) First, we expressed our thanks for the meticulous preparations including the prior meetings, which allowed the Intensive Seminar-Workshop, Training, and the visits to the three companies and organizations to be successfully completed according to plan.
(2) Above everything, we offered our warmest thanks and respects regarding the fact that the Training Course on the second day using the Energy Management Guide that was created in Brunei Darussalam, which was explained by Dr. Lim who is from Universiti Brunei Darussalam and who also carried out the training could be successfully completed. This was the first case of its type in any ASEAN country, which was not only revolutionary, but also deserves high evaluation as anticipating the Phase 3 stage that we are aiming for.
(3) Concerning the Basic Guide for Building Energy Audit, we promised to offer comments if the Brunei side sends us the draft version when it has been completed. They said they would certainly send it.
(4) Although we realized that the investigations would probably be difficult for submitting applications to the ASEAN Awards by the three companies and organizations visited on the 18th, we requested that assistance be given if at all possible particularly in the case of UBD, which is the university of Dr. Lim who investigated the Energy Management Guide (EMG), to realize the submission as a model case.
(5) Including the other case studies, because the number of submissions from Brunei Darussalam has been few up till now, especially for EM cases in the buildings sector, we requested that they encourage more submissions.
(6) Working towards the popularization of the EMG, we requested that they promote the preparation of Training Courses and Seminars. They said they are intending to publish the EMG in the near future, and following this they have plans to hold seminars to popularize it.
(7) However, because the Energy Manager system, which is mentioned in the EMG, still has not been clearly defined and the required qualifications are not clear, we advised that they should proceed with investigations into energy conservation, in which these points should be stipulated.
(8) Although an energy conservation Master Plan and 10-year Plan including energy analyses and labeling should be defined, because Brunei is a rich country it may not be possible to have the investigations carried out by JICA, and it may be necessary to provide the investment independently and request cooperation from Japan or another country. We believe Brunei Darussalam should carry out these types of investigations.
(9) Regarding Japanese energy conservation technology and facilities, because the latest information is contained in the JASE-World CD, we provided this for reference.

5. Other

(1) Results of the Questionnaire for Participants: Responses were obtained from 22 persons. Although 15 persons described the Intensive Seminar-Workshop and Training as good, the remaining responses were blank so that their impressions are not known. Some responses said that they wished to have the ASEAN EMHB (Energy Management Handbook).
(2) There was an article in the local newspapers on November 17 concerning the Intensive Seminar-Workshop held on the 16th. (Refer to separate sheet.)
(3) On November 19 an E-mail was received that an official telegram had been received by the Ministry of Economy, Trade and Industry via the Ministry of Foreign Affairs concerning the local project held this time
(4) A copy of the "Energy matters" pamphlet issued by the Prime Minister's Office in May 2009 was received that was distributed on the first day. In the preface, the Energy Minister concludes by stating that "Energy conservation is a Global Issue", and emphasized "Energy Day 2009".

Attached Materials III-2-11: Intensive Seminar-Workshop Program

AGENDA
Intensive Seminar – Workshop
Promotion Of Energy Efficiency And Conservation (PROMEEC) – Energy Management Under The SOME-METI Work Programme 2009-2010

08:30 – 09:10	Registration
09:10 – 09:20	Welcome Remarks by Energy Division, Prime Minister's Office
09:20 – 09:30	Opening Statement by The Energy Conservation Center, Japan (ECCJ) Mr. Yutaka Ogura
09:30 – 09:40	Opening Statement by ASEAN Centre for Energy (ACE)
09.40 – 10:10	*COFFEE BREAK & GROUP PHOTO SESSION*
10:10 – 11:25	Session 1: PROMEEC Projects / PROMEEC EM Project : Outline & Achievements
10:10 – 10:58	Presentation by ACE & ECCJ 1) Outline and Achievements of PROMEEC Project (Mr. Zamora, ACE) 2) Outline and Plan of PROMEEC (Energy Management) Project (Mr. Ogura)
10:58 – 11:12	Presentation by Energy Division, Prime Minister's Office (Mr. Ahmad) Realized Activities / Outstanding Improvement through PROMEEC Projects
11:12 ─ 11:25	Q & A
11:25 – 15:10	Session 2: "ASEAN Energy Management System" : Functions & Program
11:25 – 11:46	Presentation by ECCJ Outline of Updated "ASEAN Energy Management System" (Mr. Ogura)
11:46 – 12:30	Presentation by ECCJ and ACE Specific Functions and Program 1) ASEAN Award System of Best Practices in E.M. for Industry and Building - Outline, Results of ASEAN Awards for 2008-2009 and Plan for 2009-2010 (ACE) 2) Information System - Information System to Disseminate Awarded Cases (Mr. Ogura) - Cyber Search System to Utilize The Existing Implementing Organizations (ACE)
12:30 – 13:30	*LUNCH*
13:37 – 14:45	Presentation by ECCJ and ACE (Continued) 3) Energy Management Tools - "Energy Management Handbook"(Mr. Ogawa) - In-house Database for Industries and Buildings (ACE) - Technical Directory for Industries and Buildings (ACE)
14:45 – 15:10	Q&A
15:10 – 17:40	Session 3: Case Study (Experience of Group Activities for Improvement in Energy Management) Thai Cold Rolled Sheet Public Co., Thailand/ HSBC Bank, Brunei Darussalam
15:10 – 15:20	Explanation by ECCJ (Mr. Ogawa and Mr. Kaji) Basic Procedure of Group Work Guided by "Energy Management Handbook"
15:20 – 16:50	Preparation for Group Work (3-4 Groups) Group Work by Participants
16:50 – 17:12	*COFFEE BREAK*
17:12 – 17:40	1) Presentation by Participants 2) Comments by ECCJ
	End of Intensive Seminar-Workshop
	COMPLETION of Activities

Attached Materials III-2-12: Training Program for relating to Methods of Utilizing Energy Management Handbook

AGENDA

Training: Utilization of "Energy Management Handbook and Tools for ASEAN"

Promotion Of Energy Efficiency And Conservation (PROMEEC) – Energy Management Under The SOME-METI Work Programme 2009-2010

08:30 – 09:00	Registration
09:05 – 12:30	Session 1 : Seminar by ECCJ
09:05 – 09:19	Additional Explanation of Key Step Approach on the example case of HSBC (Mr. Ogawa)
09:20 – 09:25	Explanation by ECCJ: Purpose of Training Course (Mr. Ogura)
09:25 –09:50	Explanation by Host country (Dr. Lim Chee Ming, UBD) Details of Final Energy Management Guide for Brunei Darussalam
09:50 – 10:18	Q & A
10:18 – 10:35	Explanation by Host Country (Dr. Haji Ady Syamin, ITB) A Basic Guide of Building Energy Audit
10:35 – 10:54	Q &A
10.54 - 11:24	*COFFEE BREAK*
11:24 – 12:06	Explanation by ECCJ: Important Guideline for Improvement Using EM Handbook (Mr. Ogura)
12:06 – 12:10	Q&A
12:10 – 13:25	*LUNCH*
13:25 – 17:00	Session 2 : Workshop (Training for Small Group Activities)
13:25 – 13:30	Guidance for Group Work by Host country (Dr. Lim Chee Ming, UBD)
13:40 – 13:54	Case Study (1) : Short Presentation by Participants (UBD) Issues on EE&C
13:54 – 13:57	Case Study (2) : Short Presentation by Participants (Grand Mercure) Issues on EE&C
13:57 – 15:40	Group Work Based on Cases Studies (1)&(2) - Preparation for Group Work - Discussion by Groups: Guideline and Basic Plan to Improve Using "Energy Management Guide"
15:40 – 16:05	Coffee Break
16:05 – 16:45	Presentation by Participants: Results of Group Work for Cases Studies (1)&(2)
16:45 – 17:00	Comments by ECCJ Experts & Dr. Lim Chee Ming
17:00 – 17:15	AWARDING OF CERTIFICATES TO ATTENDEES
17:15 – 17:20	COMPLETION OF TRAINING/Closing Remarks by Mr. Ahmad

PROMEEC (Energy Management) Related Institution Visit: Brunei Darussalam(No.1)
Ministry of Defense Visit Interchange

No.	Item	Details
1	Date and Time	November 18 (Wednesday) 8:00 ~ 10:30
2	Meeting Place:	Ministry of Defense Main Building Bolkiah Garrison BB3510
3	Meeting Partners:	- Mr. Masmadi Mohsim (Ast. Director of Finance & Acquisition) - Mr. Safiry Hj Junrat (Ast. Acquisition Officer) - Mr. Hj Saifol Bahrin Hj Abl Karim (Finance Officer) - Mr. Kyaw Moe Aung (Facility Manager) Others; total 9 persons
4	Accompanying Persons	- Mr. Ahmad Hj Mohammad (Head of EE&C, EDPMO) - Mr. Abdul Hakeem Hj Basir (Special Duties Officer, EDPMO) - Ms. Liyana Ramlee (EDPMO)
5	Visitors (ACE, ACCJ)	- Mr. Christopher G Zamora (Program Manager for EE&C, ACE) - Mr. Junianto M (Manager of IT, ACE) - Mr. Yutaka Ogura (ECCJ, Technical Cooperation Department, General Manager) - Mr. Fumio Ogawa (ECCJ, Technical Cooperation Department, Technical Expert) - Mr. Hitoshi Kaji (ECCJ, Technical Cooperation Department, Technical Expert)

6. Organization Outline and Past Developments

The Sultan of Brunei is enthusiastic about energy conservation, and in recent year-opening speeches, he has apparently "sometimes talked about energy conservation before explaining about oil and gas resources" (according to information from the Japanese Embassy in Brunei Darussalam), and therefore has instructed the government and municipal offices to implement EE&C activities.

Against the above background, in addition to having three participants in the training this time from the Ministry of Defense, a visit to the Ministry was also realized.

However, because the visit destination is to start tackling energy conservation from now, and is still standing at the start line, the basic information including the Ministry's power usage amounts, main usage destinations, equipment specifications, and the building floor area had not been collected.

In addition, although the presentation materials that had been compiled by one of the participants in the training this time had been well put together, because these materials were being seen for the first time by the related persons, it appeared that a consensus had not been reached.

Accordingly, the general type of visit method (Inspection of facilities and equipment, and stating of opinions) was changed to a method that mainly consisted of responding to consultations concerning the promotion of EE&C activities, and inspection was made of a major facility (chiller equipment) as an example of an energy conservation audit.

7. Outline of the Ministry of Defense of Brunei Darussalam

The Ministry of Defense of Brunei Darussalam is headquartered in Bolkiah, and has branches in four other locations. In 2008, the electricity usage amount was approximately 5.5GWh throughout the entire Ministry of Defense. However, this figure is the total value of the normal electricity meters and does not include the prepaid meter electricity amount (Note: In Brunei Darussalam, there is a system such as in Japan where the electric power company sends an invoice for electric power that has been used, and a [Prepaid] system in which the electric power charge is paid in advance. Although the Prepaid system offers comparatively cheap unit costs, if the amount paid becomes used up there will be a danger that the power will not be supplied.) In the Ministry of Defense, in addition to the 405 normal electric power meters there are 2,689 prepaid meters.

The Ministry of Defense is to tackle energy conservation going forward, and there have not yet been any public declarations by the top management. However, they are expressing a strong interest, and one intention expressed was a wish to implement energy conservation of 10% by the end of the

fiscal year.

Up till now, the Ministry has proceeded with the introduction of the prepaid system, the change from free electricity to part subsidization, energy conservation education, and facility renewal. In the future it plans to establish an EE&C Committee, measure and record the used electric power amount to understand the current data, carry out energy conservation education, introduce energy conservation equipment, and introduce energy conservation technology. In addition, it wishes to introduce solar power generation as an alternative energy, and will strive to understand the benchmarks for each building.

However, the current situation is that there is no post responsible for measuring and managing the energy including the electric power usage amount.

The main Ministry building visited this time is a new building built in 2007, and the Facilities Manager responsible for the facilities management is from an outside company.

8. Details of Cooperations

(1) Explanation from this Organization

We expressed thanks for being able to visit at this opportunity where energy conservation is about to be tackled.

In this training project, Brunei Darussalam is continuing to implement advanced activities, such as becoming the first ASEAN country to carry out training using their original EM Guide. In addition, although it is still a draft version, Brunei Darussalam is also producing a guide for building energy audits. Accordingly, we proposed that the Ministry should utilize these tools and should proceed with the cooperation of the FP.

(2) Response of Visited Organization

The enthusiasm of the Ministry was felt due to the participation in the training by three of their employees, the preparation of the presentation materials for the visit, and the nine people who were waiting on us. Further, they were implementing actual measures, such as allowing sunlight in to the meeting room and switching off the lighting.

The following is the Ministry information from the Facility Manager who is knowledgeable about facilities of the Ministry.

1) The Ministry consists of a central building and surrounding buildings.
2) The energy used is electric power, and most of the power is consumed by the air-conditioning.
3) The central building has four chiller units, out of which two units normally operate 24 hours. One unit is a spare, and management is carried out using BAS.
4) The surrounding buildings have their own air-conditioning facilities, and a Variable Refrigeration Volume System is employed that can control this area (the room).
5) The room temperature in the central building is set to 23℃, and it is possible to stop the air-conditioning in each area.
6) As the lighting equipment, T5 fluorescent lights and bulb-type fluorescent lights are being introduced.

9. Impressions of Site

From our impressions on inspecting the central building, we proposed the following.

1) Because the raising of the room temperature settings by only one degree will have a large energy conservation effect, the setting temperatures should be reviewed. Regarding this proposal, the Facility Manager expressed the opinion that there would be a minus effect since the paint and wallpaper would come off if the air-conditioning was stopped and the temperature and humidity rises.)
2) The windows should have film or coatings applied.

PROMEEC (Energy Management) Related Institution Visit: Brunei Darussalam(No.2)
University of Brunei Visit Interchange

No.	Item	Details
1	Date and Time	November 18 (Wednesday) 10:40-14:00
2	Meeting Place:	University of Brunei Darussalam (UBD),Chancellor Hall Tungku Link, Brunei Darussalam
3	Meeting Partners:	Dr. Chee Ming Lim, Dean, Faculty of Science Mr. Haji Mohd Yakub Hj Ahmad, Head of Estate Ms. Mandena Abd Hamid, Assistant Registrar, Estate Mr. Yusof Bin Mohamad, Estate Other 7 persons
4	Accompanying Persons (PMO)	Mr. Ahmad Mohamad, Head of EE&C, PMO Mr. Abdul Hakeem Haji Basir, Special Duties Officer, PMO Ms. Liyana Ramlee, PMO
5	Visitors (ACE, ECCJ)	Mr. Christopher Zamora, Project Manager, ACE Mr. Junianto M, Manager of IT, ACE Mr. Yutaka Ogura (ECCJ, Technical Cooperation Department, General Manager) Mr. Fumio Ogawa (ECCJ, Technical Cooperation Department, Technical Expert) Mr. Hitoshi Kaji (ECCJ, Technical Cooperation Department, Technical Expert)

6. Outline of Organization and Past Developments

The University of Brunei Darussalam (UBD) is located around 30 minutes by car from the hotel, and has a huge area of approximately 300 hectares (only about 25% of which is being used). It is first university of Brunei Darussalam. The teaching staff and students together total approximately 3,100 persons, and there are seven faculties and affiliated research institutes (for more details see the separate PowerPoint slide materials "Welcome to UBD"). At one time there were 1,000 students per school year, but this is becoming slightly lower. Going forward, graduate school courses will be newly established, and in the future they would like to have the same number of students enrolled as in the faculties. Accordingly, they are currently constructing buildings, and one of these is the Energy Research Center building that will be completed in 2012. This is where energy-related R&D is to be carried out, and it has an energy conservation design, which is planned to qualify as a Class 1 Green Building (This is a UK standard in which buildings are certified as Class 1 or Class 2 according to whether they satisfy various conditions such as utilizing natural sunlight.)

On the other hand, the same university began its activities in 1985, and among the facilities there are some old facilities, and many have designs that do not consider energy conservation. Accordingly, the energy (electricity) consumption amount is large. In addition, this energy data does not employ a system that allows it to be fully understood.

Under these conditions, the Dean of the Department of Science, Dr. Lim cooperated with the PMO, explaining the importance of energy conservation, and intends to promote energy conservation going forward. (In addition, the dean believes that energy conservation education is very important and is developing a curriculum for this.) The visit to the university took place this time as part of these series of activities. (Although normally the purpose of the visit is to introduce the EM Handbook, in the case of this university, because they have already finished creating their original Energy Management Guide, the visit took on the character of education for the people in charge of the facilities inside the university together with a Walkthrough Energy Audit.)

7. Energy Use Facilities and Energy Conservation Activities Overview

As described in the separate "UBD Space Statistics", buildings that have various purposes such as teaching, dormitories, and administration are scattered throughout the university, and each has a large floor area.

The type of energy used is only electricity, and the largest usage destination is the air conditioning.

(Others include lighting, elevators, ventilation fans, office equipment, and the showers in the dormitories.)

In the air conditioning, the main part consists of a system that uses a group of chillers to power a number of adjacent buildings. (Afterwards, we inspected two of these locations.)

The electricity usage amounts are determined for each building, and the overall total is approximately 24 million kWh/year. The figures do not change greatly for each month.

{Here for reference an approximate comparison is given between UBD and a Japanese university concerning the energy usage amounts according to the building area and according to the number of persons (students + faculty staff.)

	UBD	Japanese University
Usage amount per floor area, MJ/m^2/year	1,650	1,400
Usage amount per number of persons, kl-FOE./person/year	2.0	0.7

These differences in figures are probably because Brunei Darussalam is located in the tropics and normally requires air conditioning, and also because the building areas are large.}

Further, the changes in data of electricity usage amount by time of day indicated that the figures for each building had absolutely no uniform changes, which seemed questionable and made us wonder what kind of usage methods were taking place. When we asked for confirmation, they said that the meters were broken, or that there may be a problem in the methods of reading the data. This is highly unlikely, and this way of using energy is quite strange, so we advised them to carry out investigations to determine the correct data.

Further, in the dormitories there are three buildings each for men and women (each 10-story buildings) that have electric boilers installed for supplying hot water. (We did think that these could be replaced with a Heat Pump system, but when we inspected them later we found that the electric boilers were still new.)

For security reasons, in many parts the lighting is always on, even at night, and not many T-5 lamps were being used.

Although energy conservation activities had not previously been systematically applied very much, the university explained that from now it would undertake the role of a model case in Brunei Darussalam through earnest promotion. According to the Energy Management Guide, the policies and organization have already been determined, so that going forward they said they would first strive to correctly understand the current situation through collecting data, and then proceed by analyzing this data and developing improvement measures. This organization advised them to look back at past data to try to identify trends, to use a method of starting off on a relatively limited scale by selecting a building on the campus as a model for planning and implementing energy conservation, and that there are good references to be found in the outstanding case studies in the ASEAN Energy Conservation Awards System case studies.

8. Impressions of Site and Comments

(1) Chiller Yards

In the Chiller Yards located around 15 minutes walk away from the meeting room, air conditioning for several buildings is being carried out using a system made up of 5 chiller units and 5 cooling towers. At the time when we inspected them, three of the chillers were operating. The inlet temperatures were 49°F and outlet temperatures were 45°F, so that the temperature difference was small. In addition, the cooling towers were established in 1994 and were showing many signs of aging, so that it was apparent that there were problems in their performance. Looking at the panel in the Electric Room, the power factor was around 90%.

(2) Chancellor Hall

This hall has a large hall on the first floor and in the basement, and it is additionally provided with meeting rooms as a multi-purpose building. (The total area is 6,454m^2)

The huge hall has its lights and air-conditioning switched on even when no one is using it, and it appeared that the temperature setting in the room we used could not be freely changed individually. Although this clearly goes against energy conservation, a considerable amount of money would be required to improve this facility.

There were three chillers attached to this building, and out of these, one unit is always operating, while two units operate occasionally. The water pumps were previously provided one for each unit, but in recent years they have been improved to use a common header. Above the chillers, coolers are installed for air-cooling. The chiller inlet-outlet temperature difference was around 4℃.

We inspected the room known as the BAS Room which manages this equipment. It was explained that in the future this would carry out management and would be connected to the neighboring buildings

(3) Electric Boilers

We inspected the electric boilers installed on the first floor of one of the women's dormitories. Their capacities were 6kW, and in addition to this 7-story building, a total of 60 units are installed in buildings including the men's dormitories.

(4) Comments from the inspection: After we returned to the meeting room in Chancellor Hall, we gave the following advice.

1) The temperature difference of the chiller inlets and outlets in the Chiller Yards is small. The water flow rate should be able to be narrowed.
2) The current system of the air-conditioning in Chancellor Hall is wasteful, since cold air is exhausted to the outside. When the number of persons in the building are few, there will be little problem from the accumulation of CO_2, so maybe you could switch to use an exhaust fan. In this situation, it would be appropriate to provide a heater in the exhaust air.
3) Because the electric boilers in the dormitories are new, it is still too soon to replace them. Since the hot water piping is not insulated the efficiency will be improved by insulating them.

9. Other

In response to the questions from this organization, the university side gave an explanation of their future plans (including BAS). Mr. Ogura suggested that they should collect the actual results of their energy conservation activities for submitting an application to the ASEAN Energy Conservation Awards System in the future, and it would be important for them to properly record the current situation (Baseline) data for this purpose.

Further, although this is a different item, they stated that there was a national policy to revise the existing Building Codes so that energy conservation facilities should be installed as a condition in new buildings.

PROMEEC (Energy Management) Related Institution Visit: Brunei Darussalam(No.3)
BANK ISLAM BRUNEI DARUSSALAM (BIBD) Visit Interchange

No.	Item	Details
1	Date and Time	November 18 (Wednesday) 14:00-16:30
2	Meeting Place:	BIBD Co. Lot159 Jalan Pemancha, Bandar Seri Begawan
3	Meeting Partners:	- Mr. Hj Moshidi Bin Abd Rashid (Manager, Administration Div.) - Ms. Zurainah Bte Hj Alidin (Head of Technology Dept.) - Ms. Mardziah Bte Hj Mokhtar (Manager, Technology Dept.) Others; total 12 persons
4	Accompanying Persons	- Mr. Ahmad Hj Mohammad (Head of EE&C, EDPMO) - Mr. Abdul Hakeem Hj Basir (Special Duties Officer, EDPMO) - Ms. Liyana Ramlee (EDPMO)
5	Visitors (ACE, ECCJ)	- Mr. Christopher G Zamora (Program Manager for EE&C, ACE) - Mr. Junianto M (Manager of IT, ACE) - Mr. Yutaka Ogura (ECCJ, Technical Cooperation Department, General Manager) - Mr. Fumio Ogawa (ECCJ, Technical Cooperation Department, Technical Expert) - Mr. Hitoshi Kaji (ECCJ, Technical Cooperation Department, Technical Expert)

6. Outline of Company and Past Developments

BIBD was the first regional bank to be established in Brunei Darussalam, and it engages in EE&C activities as part of its Corporate Social Responsibility (CSR). As part of this, Ms. Mardziah of BIBD participated in the training, providing the connection for the company visit.

7. Outline of BIBD

BIBD was the first regional bank to be established in Brunei Darussalam, and it has 14 branches. The head office has been at the same site since 1993, and is an 11-story building with a floor area of 10,884m^2. The total number of employees is 600 persons. It is tackling energy conservation activities as part of Corporate Social Responsibility (CSR). As actual activities, below the support of the CSR Team, the Property Department and Technology Department have established EE&C Management Teams. Further, as part of their CSR activities, they supported the Energy Fair held by the Energy Ministry in May this year and The Badas 50,000 Trees Project.

Monthly electric power usage amount of head office building is 140MWh (as a cost, this is 7,000 B$ or approximately ¥530,000), and fuel gas is not being used.

The energy conservation activities implemented up till now have included renewing 70% of the lighting with bulb-type fluorescent lights, delaying the operation startup of the air conditioners by 30 minutes from 06:00 hrs, raising the room setting temperature by 1℃, and conducting trials of central processing for printing in several departments. Further, the issues are the aging of the air-conditioners, unnecessary lighting during the daytime, and the fact that there are no meters for measuring the electricity usage amounts.

In the future, they intend to expand their energy conservation measures to all their branches in a short period, expand the central processing for printing, renew more lights with bulb-type fluorescent lights, and in the long term to introduce water-cooled chillers and introduce T5 lighting. Through the above activities, they plan to achieve energy conservation of 10-15%.

8. Details of Cooperations

(1) Explanations from this Organization

The intention of top management to tackle the implementation of EE&C is clear, and based on the energy conservation activities that they are actually carrying out, we proposed that they cooperate with HSBC (located close by) who have submitted an application for the ASEAN Award System to promote further EE&C activities, and we also requested support from the FP.

In addition, regarding the report of Ms. Mardziah that "It was me who set the room setting

temperature to 22℃, and I changed it today", we added our support by saying "We approve of your eagerness, and we hope very much that you will be able to continue (as long as no-one expresses dissatisfaction)."

(2) Response of the Visited Company

As well as preparing a magnificent presentation, we were welcomed by 12 persons. Further, the company also considered the inspection route and made preparations. We believe this shows the intention of the top management to implement EE&C.

9. Impressions of Site

Following the route planned by BIBD, we inspected the basement Electric Room, the emergency generators, the air-conditioning external units on the roof (52 building multi-units manufactured by Daikin), and the Data Center and offices on the 7th floor. As the result of the inspection, we proposed the following.

1) The Electric Room is being managed appropriately, and the facilities equipment also has a power factor of 0.94, showing that it is being appropriately managed. However, it is thought that the lighting in the adjacent car park is too bright, and we proposed that the lights should be reduced.
2) The external air-conditioning unit coolant is using R22, which will not be manufactured after 2020. Because the company is aware of the air-conditioner aging, we recommended that investigations should be carried out at the earliest opportunity. Note that because almost 20 years have passed since the equipment installation, energy conservation can be expected from their replacement (due to improvements in air-conditioner efficiency).
3) The room temperatures in the Data Center and Uninterruptible Power Supply Room were 21℃ and 17℃. Both of these temperatures are too low compared to the required temperature.
4) The Elevator Hall setting temperature was 16℃, which was so low that we felt cold.
5) The emergency lighting uses the previous types of fluorescent lights. There are now LED-type emergency lights.
6) Although the offices were carrying out switching the lights off (only for the day we visited?), we proposed that this should be continued as long as people express no dissatisfaction.
7) Understanding of the current situation is vital for promoting energy conservation. From this point of view, we proposed that the power consumption should be measured for each facility and piece of equipment. (Currently, they only have an understanding from one piece of data for the whole building that is based on the electricity costs taken from the invoices.)
8) We proposed implementing energy conservation following the EM Guide, and in addition to requesting support from the FP, we expressed hope that they would expand their activities to all their branches.

III-2-6. **The Fifth Research Forum in Japan**

(Overview)

The fifth Research Forum was held on 8-10, December 2009 in Tokyo and other locations with the participation of 11 researchers, including the Board of Judges (BOJ) of the ASEAN Award System of Best Practice in Energy Management for Industries and Buildings of 10 member nations of ASEAN. This project is called the PROMEEC (Promotion of Energy Efficiency and Conservation) project in ASEAN. This Research Forum is a part of this Energy Management project. With goals and programs described below, this Research Forum successfully ended with the following achievements:

A. Suggestions and ideas for the improvement of the Step-2 of the ASEAN Energy Management System before launching the PROMEEC Phase-3

Step-1 System of the ASEAN Energy Management System has been established, operated and completed by the end of fiscal year 2009 as planned. In this Research Forum, opinions were exchanged what functions and programs should be improved or added, such as the One-Stop to System and Advisory Services, in the course of establishment and operation of the Step-2 System based on the experiences gained through the development and operation of the Step-1 System. As a result, although the functions in the Step-1 System and a plan for the Step-2 System currently under consideration were regarded as sufficient, there were suggestions and opinions to further improve the system. (Those which were regarded as necessary have been reflected in the plan for Step-2 System).

B. Improvement and review of the operation policy and evaluation guidelines for the ASEAN Award System of Best Practice in Energy Management

Based on the opinions of BOJs, analysis of case studies and award-winning applications in Japan, as well as the reports on the promotion of the award system and its implementation by each country during the third round of the award in June 2009 as suggested in the fourth Research Forum, we discussed how to operate this award system or evaluation guidelines in a more effective way. In response to a comment that the level of applications in the third round was lower than before, addition of the following new categories were discussed and determined for collecting and disseminating better practices of energy management.

(1) Improvement for expanding opportunities for small & medium enterprises (revising current system)

Classify the applications into two (large or small & medium companies) depending on the energy consumption. Different standards apply for the industries section (classified as large-sized company when consuming 10 Million MJ/Y or more) and buildings section (classified as large-sized company when consuming 2,000 MWh/Y or more). Others are classified as small & medium-sized company. Actual operation will begin in fiscal year 2010. In accordance with this, Rules and Guideline for the application were reviewed.

(2) Add a new category for single improvement named as “Special Submission”

This had been suggested by ECCJ. Evaluation method is simplified by just giving two options of Yes or No. Application guideline for industries and buildings were discussed and adopted.

(3) Based on the discussion to review evaluation standards for industries and buildings, each and every sentence of the standards were reconsidered and the result was summarized by ACE. It will be checked and applied starting in fiscal year 2010.

Details are as follows:

(Purpose of the Research Forum)

(1) Researches on the functions to be added to the Step-2 System of the ASEAN Energy Management System before launching the PROMEEC Phase-3
(2) Analysis and researches for the improvement of the operation and evaluation standards to collect and disseminate best practices of the ASEAN Award System of Best Practices in Energy Management in a more effective way
(3) Input of experiences in Japan in that regard (energy management system, objectives of the award system and advantages for the applicants)

(Participants)
11 persons from BOJ (Board of Judges)/Focal Point/ASEAN Centre for Energy (ACE); 8 persons from Japan and an interpreter (List of participants is given in the Attached Material III-2-14.)

(Implemented Programs)
See Attached Material III-2-15.

(Contents and Results)
1. Positioning and Objectives of this Research Forum
This Research Forum is a part of PROMEEC (Energy Management) project launched in 2004. With a goal to complete and operate the Step-1 System (consisting of basic functions and programs) of the ASEAN Energy Management System by fiscal year 2008, programs, information system and energy management tools have been prepared and have been operated as planned. As one of the most important programs, operation of the ASEAN Award System of Best Practice in Energy Management (hereinafter "EM Award System") began in fiscal year 2006 and the third round of the award ended in July 2009. This Research Forum is to do researches and discuss improvement of current systems and develop guidelines for the future by experts from Japan and ASEAN, to make this program more effective.
With objectives stated below, the fifth Research Forum was organized, including lectures, factory tours and workshops.
(1) Improvement of the ASEAN Energy Management System
Based on the implementation results of the Step-1 of the ASEAN Energy Management System, conduct researches and consideration on the functions for the establishment of the Step-2 System and related programs, subsystems and tools
(2) Improvement of the operation policy and evaluation guidelines of the "EM Award System"
Improve operation of the EM Award System and revise evaluation guidelines to collect and diffuse best practices of energy management in ASEAN in a more effective way

2. Overview of the Research Forum
Outline and organization of the program are as follows:
(1) Introduction and keynote speech
(2) Lectures
- Recent trend of the best practices of energy conservation in Japan
- Energy management system under the revised Energy Conservation Law of Japan
(3) Analysis of current situation
Introducing review results and analysis of the applications in the third round of the EM Award System:
Introducing contents of award-winning applications in fiscal year 2008 related to the revised Energy Conservation Law of Japan
(4) Factory tour: Significance and advantages of participation by Japanese companies and information sharing

Visits to and exchange with Kashima plant of DIC Corporation and Kashima Steel Works of Sumitomo Metal Industries, Ltd.

(5) Opinion exchange: Opinion exchange between persons from ASEAN and Japanese experts by sharing the understanding gained through lectures and factory tours

(6) Workshop
- Improving functions for the establishment of the Step-2 System of the ASEAN Energy Management System
- Discussion to improve operation of the EM Award System and evaluation guidelines

The purpose of factory tours to Kashima plant of DIC Corporation and Kashima Steel Works of Sumitomo Metal Industries, Ltd. arranged by Japanese side this year are as follows: to clarify the environmental and energy conservation policies and related activities developed by these companies and explain about the significance of joining in this award system and advantages of information sharing. DIC Kashima plant was awarded in the fiscal 2004 Awarding of Excellent Energy Conservation Factory & Building and in the fiscal 2006 Awarding of Successful Case of Energy Conservation in Factory & Building, while Kashima Steel Works of Sumitomo Metal Industries, Ltd. was awarded in the fiscal 2004 and 2007 Awarding of Successful Case of Energy Conservation in Factory & Building. At DIC Kashima plant, there were many questions about its efforts for 100% electricity supply through ESCO project using renewable energy combining biomass power and wind power, subsidized by NEDO and METI, from visitors highly interested in energy conservation and the use of renewable energy, intending to introduce the technology in their home countries. Also there were requests for coping the presentation software used in these factory tours as a reference for their own presentations to reduce electricity consumption. At Kashima Steel Works of Sumitomo Metal Industries, visitors were interested in its modernized factory management, unified energy control at the energy center, and low-heat Kalina Cycle power generation. The participants also learned about the company's efforts of energy conservation for the protection of global environment, which are known to the public and boosts the morale of the employees. These factory tours were effective for achieving the purpose of this Research Forum. At the start of the workshop on the next day on December 10, participants were requested to give feedback on the factory tours. All participants gave favorable comments.

3. Result of the Research Forum

Through lectures, analysis and active discussions at the workshop, we have gained the following two outputs:

(1) Policy to improve functions of Step-2 System of the ASEAN Energy Management System before launching the PROMEEC Phase-3

(2) Policies to improve operation of the EM Award System and evaluation guidelines

3-1. Policy to improve functions of Step-2 System of the ASEAN Energy Management System before launching the PROMEEC Phase-3

Mr. Yoshida, General Manager of Cooperation Planning and Management Department, confirmed the following points for the improvement of the functions of Step-2

(1) Step-2 is to be finalized in 2015

(2) Registration to Technical Directory (TD) totaled 160 in the industries section and 80 in the buildings section (ACE). There was a request to merge ACE/TD and ECCJ/TD. However some technologies cannot be shared between Japan and ASEAN. Availability in ASEAN is important. Purpose of establishing the JASE-World, contents of the technologies and business cooperation WG were introduced. English version of the CD describing the technologies was distributed later. In response to the question from members that they need prices and payback in addition to the

information of equipments themselves, we answered that part of information is given in the material and ACE/TD presents the payback.

(3) Advancing improvement of the Cyber Search System

(4) e-Directory of Technology & Equipment Suppliers: There were requests for a method to develop a matrix for technologies and equipment by industry classification; improvement based on laws and guidelines on energy conservation of Japan; and improving convenience of access from ASEAN

(5) Addition of the One-Stop to System function has been confirmed. This will facilitate provision of information on request. We requested ACE to set up the system, distribute the Draft Display to BOJ and FPs in advance for comment, and report the result at the Post Workshop scheduled in early March of 2010.

(6) As for another additional function "Advisory Service", Mr. Yoshida presented the Open Mailing System by registered experts on a voluntary basis. In response to this there were comments such as how to select registered experts; whether it is acceptable to ask registered experts to register their e-mail address to connect Open Mail directly to experts for direct reply from them; who will be responsible for or assure the contents of the answer; will registered experts be responsible for the answer; whether capable organizations such as ECCJ will have to serve as a mediator to give reliable answer; registered experts may not handle all the requests if there are many and some will not be able to some inquiries as they answer on a voluntary basis; will ESCOs be allowed to register; ESCOs aim for making profits, and volunteer consultants cannot handle all the inquiries. There was a concern over the burden of ECCJ experts, expected to play a major role. So, it was decided to start accepting registration of ASEAN experts.

(7) Also there was a discussion over further development of the training program and it was confirmed that trainees that have received training so far will be a trainer and promote training in each country before launching the Phase-3. Responding to a question who will be responsible for the training cost, the following was given as recommendation: each country should bear the cost of training held in each country, but for the time being the EM training of PROMEEC will be used.

3-2. Policies to improve operation of the EM Award System and evaluation guidelines

This session was chaired by Ms. Amaraporn from Thailand, chairperson of the BOJ (EM). Participants from Japan attended as observer.

Discussion items are as follows:

(1) Additional categories for the PROMEEC EM Award System

(2) Establishing "Rules & Guidelines" for the PROMEEC EM Award System

Based on the discussion materials that have been sent to the interested parties beforehand from Ms. Amaraporn, there were opinion exchanges before this session. As for (2), Mr. Yoshida presented a proposal for a significant revision and the discussion was held according to the proposal.

(1) Additional categories for the PROMEEC EM Award System

(1)-1 New category to promote applications from small & medium enterprises

1) In the previous Research Forum, there was a proposal to classify applications (large/small & medium companies) depending on the energy consumption in order to facilitate applications and expand opportunities for developing nations in ASEAN. Details will be determined at the BOJ for the third round of the award in 2009.

2) At the BOJ for the third round of the award in June 2009, there was a proposal to divide the applications depending on annual energy consumption: 2,000 MWh/Y or more/less for electricity, 20 Million MJ/Y or more/less for fuel.

3) At the Inception Workshop in July 2009, there was a comment from Thailand or other countries tha as this standard figure is low, it should be raised. It was determined to solicit opinions of other countries.

4) This year, Chairperson Ms. Amaraporn proposed to raise the standard to 6,000 MWh/Y or 21.6 Million MJ/Y.
5) Developing countries in ASEAN, including Myanmar, Lao PDR and Cambodia, use less energy than relatively developed countries in ASEAN, such as Thailand, Malaysia and Singapore. In addition, factories and buildings differ in terms of characteristics of energy consumption and its volume. Although there were various opinions on the classification of categories, it was concluded to set the standard at 2,000 MWh/Y or more/less for electricity used in buildings and 10 Million MJ/Y or more/less of fuel for industries.

(1)-2 Award on single practice of energy conservation (new category)

1) At the previous Research Forum it was determined that a new category will be added to give award to individual practices of energy conservation, considering the past achievements of Awarding of Successful Case of Energy Conservation in Factory & Building in Japan (ECCJ's proposal was adopted). It will be named as "Special Submission". BOJs give evaluation from two options of Yes or No whether it is worth being awarded. Concrete proposal will be summarized by ACE, which will be sent to BOJs and Focal Points for review.
2) In addition to the comments of ECCJ, Chairperson Ms. Amaraporn and Mr. Yoshida sent Score Sheet Special Submission (Buildings) and Score Sheet Special Submission (Industries) by e-mail with comments in red in advance.
3) Contents of these two sheets with comments in red have been accepted except for minor corrections of wording. Evaluation will be given by Yes or No of BOJs not by giving a numeric score.

(1)-3 Start of implementation

Application of new classification and a new category Special Submission will begin and be released from the fourth round of award in fiscal 2010.

(2) Establishing "Rules & Guidelines" for the PROMEEC EM Award System

(2)-1 In the previous Research Forum it was confirmed that the current evaluation guideline has no problems, and ACE was to distribute the application form to BOJs and Focal Points, including the confirmation.

(2)-2 Chairperson Ms. Amaraporn has sent "The Guideline Manual of ASEAN Best Practice Competition for EM in Building and Industries ASEAN Energy Awards 2010" in advance and Mr. Habitan gave comments on it. Ms. Amaraporn presented new manual revised based on the comments of Mr. Habitan. Then, Mr. Yoshida submitted a new version with comments in red, on which the discussion was based.

(2)-3 Discussion was held for four hours, page by page. It was decided that final version will be compiled by ACE and will be distributed by the end of 2009.

Based on the above, application materials and guidelines will be finalized early January 2010 before official announcement of application of the fourth round of ASEAN EM Award.

As described above, the fifth Research Forum has ended successfully with lots of significant achievement. We expect that the PROMEEC project and the ASEAN Award System of Best Practices in Energy Management for Industries and Buildings will further develop in the future.

Attached Materials III-2-14: Participants of the Research Forum

List of Invited researchers from ASEAN (10 people)

1. Participants from ASEAN

No.	Name	Country	Affiliation and title
1	Mr. Ahmad bin Haji Mohamad (**)	Brunei Darussalam	Head of Sustainable Energy Unit Prime Minister's Office (Energy Division)
2	Mr. Lieng Vuthy (*)(**)	Cambodia	Deputy Director, Department of Energy Technique Ministry of Industry, Mines and Energy
3	Mr. Budi Harjanto Listijono (*)	Indonesia	President Director University of Catholic Atma Jaya Jakarta
4	Mr. Bouathep Malaykham (**)	Lao PDR	Director, Electric Power Management Division Ministry of Energy and Mines
5	Mr. (Dr.) Zainuddin Bin Abd Manan (*)	Malaysia	Professor (Chemical and Natural Resources Engineering) Universiti Teknologi Malaysia
6	Mr. U Win Khaing (*)	Myanmar	Vice President Myanmar Engineering Society
7	Mr. Artemio Ponesto Habitan (*)	Philippines	Supervising Science Research Specialist Department of Energy
8	Ms. Tan Li Yen (*)	Singapore	Executive Engineer National Environment Agency
9	Ms. Amaraporn Achavangkool (*)	Thailand	Senior Scientist, Chief of Technical and Efficiency Promotion Division Department of Alternative Energy Development and Efficiency (DEDE)
10	Mr. Dang Hai Dung (*)	Vietnam	Official, Science and Technology Department Ministry of Industry and Trade
11	Mr. Ivan Ismed	Indonesia	Manager ASEAN Centre for Energy

(*) Member of the Board of Judges for the ASEAN Award System of Best Practices in Energy Management for Industries and Buildings
(**) ASEAN EE&C-SSN Focal Point

2. Agency for Natural Resources and Energy, METI (one person)
Mr. Tomoyuki Yasukawa
International Affairs Section, Policy Planning Division, Energy Conservation and Renewable Energy Department, Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry

3. Instructors, advisors and coordinaros from Japan (ECCJ) (eight persons)
Mr. Kazuhiko Yoshida, General Manager, Cooperation Planning and Management Department (PROMEEC project manager/advisor for the ASEAN EM Award System)
Mr. Yoshitaka Ushio, Genaral Manager, Technical Cooperation Department (Manager of PROMEEC Building/observer for the ASEAN EM Award System)
Mr. Yutaka Ogura, General Manager, Technical Cooperation Department (PROMEEC EM project manager/ advisor for the ASEAN EM Award System)
Mr. Hisakazu Tsujimoto, General Manager, Technology Planning and Management Department (in charge of operating the Awarding of Successful Case of Energy Conservation in Factory & Building of Japan; dissemination of best practices and technologies)
Mr. Takashi Sato, Tehnical Expert, Technical Cooperation Department (in charge of PROMEEC EM project/advisor for the ASEAN EM Award System)
Mr. Fumio Ogawa, Tehnical Expert, Technical Cooperation Department (in charge of PROMEEC EM project/advisor for the ASEAN EM Award System)

Mr. Hitoshi Kaji, Tehnical Expert, Technical Cooperation Department (in charge of PROMEEC EM project/advisor for the ASEAN EM Award System)
Ms. Katsuko Tamura, Cooperation Planning and Management Department

Attached Material III-2-15: Program of the Research Forum

Schedule		Contents
Dec. 7	(Mon)	Departure and arrival in Japan
Dec. 8 Tekko Kaikan #804	(Tue)	9:30-12:30 **Opening statement** (Mr. Yasukawa, METI) **Description of the schedule** (Mr. Ogura, ECCJ) **Keynote speech** (Mr. Yoshida, ECCJ, PROMEEC project manager and advisor for ASEAN EM Award System) 10:30-12:30 **Lecture** (by Mr. Tsujimoto, ECCJ (General Manager, Technology Planning and Management Department) and Mr. Ogura **(1) Recent trend of award system of best practices of energy conservation in Japan** (Mr. Tsujimoto) **(2) Energy management system under the revised Energy Conservation Law of Japan** (Mr. Ogura)
		14:00-17:00 **Applications and award-winning cases of the third ASEAN Award System of Best Practices in Energy Management; analysis, research and comparison of best practices of energy conservation in Japan for fiscal year 2008** **- Comment by the BOJ on the third award** (representative of ASEAN BOJ and ACE) **- Explanation on the analysis of applications** (Mr. Sato, Technical Expert and advisor for ASEAN EM Award System and Mr. Ogura) **- Introduction of the analysis by ASEAN EM HB and Key Step Approach** (Mr. Ogawa, Technical Expert and advisor for ASEAN EM Award System) **- Discussion and opinion exchange:** (chaired by Mr. Ogura)
Dec.9 in Kashima	(Wed)	8:00-10:00 (move) 10:00-12:00 **Factory tour (to DIC Kashima Plant)** **(Theme) Significance of participation in the Awarding of Excellent Energy Conservation Factory & Building and advantage of information sharing** ECCJ: Mr. Ogura, Mr. Sato and Mr. Kaji(Technical Experts), Ms. Tamura
		13:30-15:30 **Factory tour (to Kashima Steel Works, Sumitomo Metal Industries, Ltd.)** **(Theme) Significance of participation in the Awarding of Excellent Energy Conservation Factory & Building and advantage of information sharing** 15:35-18:10 (move), ECCJ: Mr. Ogura, Mr. Sato and Mr. Kaji (Technical Experts), Ms. Tamura
Dec. 10 Location： Tekko Kaikan #804	(Thu)	9:30-12:30 **Workshop (Session 1)** **Roles and functions expected for the ASEAN Energy Management System in PROMEEC Phase-3** Chairperson: Mr. Yoshida; Advisors: Mr. Ogura, Mr. Sato, Mr. Ogawa, Mr. Kaji
		14:00-17:50 **Workshop (Session 2)** **Improvement of classification and evaluation standard for the ASEAN Award System of Best Practices in Energy Management** Chairperson: Ms. Amaraporn; Advisors: Mr. Yoshida, Mr. Ogura, Mr. Sato, Mr. Ogawa and Mr. Kaji; Observer: Mr. Ushio
		17:50-18:00 **Summary of the workshop (**Chairperson: Mr. Ogura)
Dec. 11	(Fri)	Departing Japan to return home

* Address of the Tekko Kaikan: 3-2-10 Nihonbashi Kayabacho, Chuo-ku, Tokyo (nearest station: Kayabacho Station, Hibiya Line)

III-3. Activity Report and Achievements in Each Country

III-3-1. Summary Reports of Intensive Seminar-Workshop and Company Visits

Activities described above have resulted in the following achievements for the establishment of the ASEAN Energy Management System:

(1) As shown in the Table III-3-1-1, number of participants reached 192, who understood and were interested in the activities of this project and the functions and programs of the ASEAN Energy Management System. The participants also understood the usability of energy management tools prepared in the system through experiencing group works.

(2) As shown in the Table III-3-1-2, 141 people received training to use the Energy Management Handbook, including persons from pioneer companies in four countries who are in charge of the introduction of the Energy Management Handbook. The participants understood the contents of the handbooks, activity guidelines and how to use related tools such as In-house Database, through workshops to experience group works to make researches on energy management activities of the pioneer companies.

(3) In addition, we visited 10 factories/buildings/related organizations in five countries to introduce this project, significance and functions, programs and tools of the ASEAN Energy Management System. At the same time, we exchanged opinions and provided advice regarding the challenges of energy conservation for factories and buildings, asking for continued support at the same time. In most of the occasions we met participants of the Intensive Seminar-Workshop or trainings.

(4) For the companies to introduce and use the Energy Management Handbook, follow-up of the activities was implemented and future action plan was discussed.

(5) Through these activities, number of companies interested in participating in this project and willing to cooperate in the future increased.

(6) As a result, cooperation network among companies, organizations and relevant people in ASEAN has been expanded. As shown in the Table III-3-3, it should be noted that we have successfully gained many cooperators by visiting 108 government institutions or implementing organizations for the six years since the start of this project in 2004.

(7) After the fifth Research Forum in Japan, researchers in ASEAN provided valuable comments on the points to improve the ASEAN Energy Management System, which will be utilized for our future reference. Also, evaluation guidelines were reviewed based on the analysis of the result of the third ASEAN Award System of Best Practices in Energy Management for Industry and Building, which involved a revision of application guidelines.

Country	No. of participants
Philippines	38
Laos	42
Thailand	23
Malaysia	44
Brunei	45
Total	192

Table III-3-1-1: No. of Participants in the Intensive Seminar-Workshop

Country	No. of participants
Philippines	27
Laos	27
Thailand	-
Malaysia	45
Brunei	42
Total	141

Table III-3-1-2: No. of Participants in the Training to Use the Energy Management Handbook

	Brunei Darussalam	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam	Total
Government organization	2	1	2	1	2	1	3	1	2	3	18
Power company or state-owned company	0	3	2	1	0	0	1	0	0	1	8
Implementing organization	0	0	3	0	2	0	2	0	2	5	14
Industry organization, university or other education and research institution	1	2	0	0	0	0	1	1	0	1	6
NGO/NPO	0	0	1	0	0	0	0	0	0	0	1
Private company (factory or building) and ESCO	10	5	10	10	4	0	7	0	8	7	61
Total	13	11	18	12	8	1	14	2	12	17	
										Grand total	108

Table III-3-1-3: Classification of the Companies and Organizations and Cumulative Total of Visits

III-3-2. Activities to Establish and Disseminate the Energy Management Handbook

This year, we continued activities conducted in the previous year and provided training based mainly on the finalized ASEAN Energy Management Handbook. Alteration and translation of this handbook, in consideration of the situation and needs in each country, are as follows: in Lao PDR, the Lao version was created and distributed at seminars and visits to companies; in Brunei Darussalam, original version of the country was prepared and training and introduction were given. The training was provided by a professor at Universiti Brunei Darussalam, which helped forming a foundation for the next step. Through this training many participants were able to understand the contents of the handbook. This is one of the achievements of the activities.

1. Training on the Energy Management Handbook
   As described in III-2 above, training on the Energy Management Handbook was provided in four countries this year including Philippines, Lao PDR, Malaysia and Brunei Darussalam. In countries that no companies that have already introduced and used the Handbook, focus of the training was placed on understanding the contents first and then the application to each factory and building will be considered. Small-group activities of group works are also included.
   The one-day training was on how to use the Energy Management Handbook together with the In-house Database and Technical Directory, including detailed lectures, based on the basic program as shown below:
   1) Lecture on detailed contents and important guidelines of the Energy Management Handbook
   2) Workshop (Group activities)
      a) Introduction of energy conservation initiatives by a factory planning to introduce the Handbook
      b) Based on a) above, implement group works to develop ideas for improvement and establishing implementation guidelines

2. Lao PDR
   Translation of the Energy Management Handbook in Lao language has shown progress from the previous year with the cooperation of pioneer companies. On completion of the English version, it was bound up and distributed at seminars and visits to companies. At the same time, English and Lao versions of the Energy Conservation Audit Guide and Tips of Energy Conservation for industries and buildings were completed and distributed. It was introduced that Lao PDR has prepared a handbook effective as an energy management tool.

3. Malaysia
   This was the first training in Malaysia. With participation of many people having knowledge on energy conservation, we provided a lecture on the contents of the handbook and experiences of group activities. Practice to understand the Key Step Approach was considered effective.

4. Brunei Darussalam
   In Brunei Darussalam, there was an instruction by ECCJ experts for the dissemination of the Energy Management Handbook in June 2009. Based on the achievements of this, the country created its own Energy Management Guide based on the ASEAN Energy Management Handbook. A professor at Universiti Brunei Darussalam, one of the participants, introduced and gave a lecture on the guideline, providing training as well. It should be mentioned that the country included in the Phase-3 of the ASEAN PROMEEC project provided training on its own. Although there is much room for improvement, it is true that this case has set an example for other countries.

III-4. Summary of the Workshop at the Fifth Research Forum in Japan

1. Policy to improve functions of the Step-2 System of the ASEAN Energy Management System

In this project, programs, information systems and energy management tools have been prepared and operated as planned with a goal to complete and operate the Step-1 System of the ASEAN Energy Management System by fiscal 2009. In order to make the above more effective, experts from Japan and ASEAN meet for research and consideration for improvement of the current status and forming future guidelines on a higher level. At the Research Forum, suggestions and ideas for the improvement before launching the PROMEEC Phase-3 of the Step 2 of the ASEAN Energy Management System were discussed.

Current plan, contents of the established functions, program and tools, and progress of operation and establishment of each were confirmed at the Research Forum. Based on the confirmation, opinion exchange and discussion focusing on the following points were made to improve functions of the Step-2.

(1) Step-2 is to be finalized in 2015;
(2) Availability of the Technical Directory (TD) in ASEAN is important. Purpose of establishing the JASE-World, contents of the technologies and business corporation WG were introduced. English version of the CD describing the technologies was distributed later.
(3) Confirming current status of the Cyber Search System, encouraging registration of implementing organizations and advancing improvement
(4) e-Directory of Technology & Equipment Suppliers: there were requests for a method to develop a matrix for technologies and equipment by industry classification
(5) Addition of the One-Stop to System function has been confirmed. This will facilitate provision of information on request. We requested ACE to set up the system and discuss at the Post Workshop, but it is still under consideration.
(6) As for another additional function "Advisory Service", there was a proposal of and discussion on the voluntary-basis Open Mailing System by registered experts. It was decided to start accepting registration of ASEAN experts.
(7) Also there was a discussion over further developing of the training program. It was confirmed that trainees that have received training so far will be a trainer and promote training in each country before launching Phase-3. For the time being the EM training of PROMEEC will be utilized.

2. Policy for the improvement and review of the operation and evaluation guidelines for the Award System of Best Practice in Energy Management

Improvement of operation and evaluation guidelines of the ASEAN Award System of Best Practice in Energy Management was discussed in the fourth Research Forum in the previous year. Additional categories were discussed and determined for collecting and disseminating better practices on energy management.

(1) Improvement for expanding opportunities for small & medium enterprises：Classify the applications into two (large or small & medium companies) depending on the energy consumption. Different standards apply for the industries section (classified as large-sized company when consuming 10 Million MJ/Y or more) and buildings section (classified as large-sized company when consuming 2,000 MWh/Y or more), and others classified as small & medium company. Actual operation will begin in fiscal 2010. In accordance with this, Rules and Guideline for the application were reviewed.
(2) Add a new category for single improvement named as "Special Submission"： This had

been suggested by ECCJ. Application guideline for industries and buildings were discussed and adopted.

(3) Based on the discussion to review evaluation standards for industries and buildings, each and every sentence of the standards were reconsidered and the result was summarized by ACE. It will be checked and will be applied starting in fiscal 2010.

The fifth Research Forum ended successfully with lots of significant achievement. We expect further development of the PROMEEC project and the ASEAN Award System of Best Practices in Energy Management for Industries and Buildings in the future.

IV. Develop and Operate Functions to be equipped with ASEAN Energy Management System

IV-1. Overview

We have a goal to establish and operate basic functions of the ASEAN Energy Management System by fiscal year 2009, meaning finalizing Step-1 System. Step-1 System consists of basic functions to offer information including:

(1) Best practices of energy management (industries and buildings)
(2) Completed energy management tools
(3) Information for the Cyber Search System

In addition, following programs and tools have been established and operated to gather and offer information described above. Progress of establishment of these programs/tools is shown in Table IV-1-1.

(1) Collect and disseminate the best practices in energy management for industries and buildings
    1) Plan, establish and operate the ASEAN Award of Best Practices in Energy Management for Industries and Buildings
    2) Develop a website to introduce award-winning practices (within the website of the ASEAN Centre for Energy)
(2) Energy management tools
    1) "ASEAN Energy Management Handbook" (finalized in fiscal year 2008)
    2) In-house Database and Technical Directory (being improved and established for industries and buildings)
    3) Methods to utilize these tools
(3) Information for the Cyber Search System
    1) Cyber Search System (under construction and being prepared for test operation)
       Currently promoting registration of implementing organizations through Focal Point of each country

These have been finalized and is now being operated except for the Cyber Search System, which is being prepared for test operation for verification and finalization of the system, about one year behind the initial schedule. This delay is attributed to the fact that check points before requesting registration to the implementing organizations for Focal Points have been pointed out, which is taking longer time than initially expected.

Also, functions to be added to the Step-2 System and programs and tools to improve Step-1 System are being considered.

Specifically, it was confirmed that service provision function to support energy conservation in Step-2 System and the installation of "One Stop System" for users' convenience in the ASEAN Energy Management System should be prioritized.

A plan is under consideration to make a system to encourage specialists in ASEAN and Japan to provide advices and answer and give support to the inquiries to the users on a voluntary basis.

In addition, a plan is currently under study to prepare technical handbooks to improve related tools (Thermal Energy Efficiency Improvement Handbook and the Electrical Energy Efficiency Improvement Handbook) as well as to develop an information provision system on energy conservation technologies and energy saving equipment, named e-Directory, in which equipment manufacturers voluntarily register on the Internet.

PROMEEC (Energy Management)

ASEAN Energy Management System: Functions and Programs /Tools

Functions / Main Programs and Tools	1. Sharing Information	2. Service Provision	3. Rule / Scheme and Conditions for 1&2
1. ACTIVITY PROGRAMS			
1-1. Award System of EM Best Practices (Collection and Dissemination of Best Practices)	Done / Under Working (Improving)		National Competition (Depends on Countries)
1-2. Registration of ASEAN-Japan Experts (Advisory Services)		Under Study	Under Study (Voluntary Self-Registration)
1-3. Expansion of Network ASEAN Cooperators' Network (Cooperation to Activities and Information Sources)	On-going		Voluntary Based on Individual Conditions
2. SUB-SYSTEMS and TOOLS			
2-1. Information System to Disseminate (ACE / ECCJ Web.)			
(1) Best Practices in Energy Management	Done / Improvement	Website with Accesses Seminar-Workshop Training	Basically No Rules and Conditions to Utilize
(2) ASEAN Energy Management Handbook	Under Study		
(3) In-house Database (Standardized Data Files)	Developing (Partially Done		
(4) Technical Directory	Developing (Partially Done)		
2-2. Handbooks			
(1) ASEAN Energy Management Handbook	Drafted / Finalizing Stage	One-day Training *	* Training : Actual Use
(2) Thermal Energy Efficiency Improvement handbook	Under Development		
(3) Electrical Energy Efficiency Improvement Handbook	Under Development		
2-3. Cyber Search System to Utilize Existing Implementing O (Bridging Implementing Organizations and Customer	Ready for Trial (Registration in System)	ridging Imp. Org.&Custom Service Providers - Clients	Security / National Rule (Depends on Organization)
2-3. Directories			
(1) e-Directory of ESCOs	Preparing to Develop	Website with Accesses (Bridging with Customers)	Under Study (Volunary Self-Registration)
(2) e-Directory of Suppliers (Equipment & Tech.)	Under Study		

Table IV-1-1 Functions, Plans and Tools of the Energy Management System

IV-2. Operation of the Award System of Best Practices in Energy Management for Industries and Buildings

Operation of the ASEAN Award System of Best Practices in Energy Management for Industries and Buildings began in the latter half of fiscal 2006, which successfully ended its third round in July 2009. Based on the results and analysis of the award-winning practices, evaluation standards and application guidelines were revised in December 2009. Then, 4th round of the award began, starting accepting applications.

IV-2-1. Results of the Third Round of the Award

1. The 3rd Meeting of the Board of Judges (BOJ-EM) for the ASEAN Best Practices Competition for Energy Management

On June 8 and 9, 2009, seven BOJs of the award system of the ASEAN best practices of energy management (BOJ-EM) from ASEAN countries except for Singapore, Philippines and Vietnam, an ECCJ observer and two persons from the ACE secretariat, a total of 10, met in Myanmar for review of the applications in the buildings and industries sections. The application had been sent from the Focal Point of each nation to the ACE secretariat by early May 2009.

This was the third round of the award chosen from nine applications in the buildings section and eight applications in the industries section from seven countries including Brunei Darussalam, Cambodia, Indonesia, Philippines, Myanmar, Thailand and Vietnam. Actually there were nine applications in the industries section but one of them was disqualified as it failed to meet the requirements. (15 applications, eight in the industries section and seven in the buildings section in the previous year) After the two-day review, applications from a hotel and a steel company, both from Thailand, were chosen as the best practice. Applications from the Philippines, Cambodia, Brunei Darussalam and Indonesia were chosen in the buildings section; two (food and cement) from Indonesia and one (ceramic company of Thailand) were selected as runner-up. There was a tight competition in both sections. It should be noted that applications from Brunei Darussalam and Cambodia were chosen as runner-up, which are both involved in the PROMEEC activities. These will be given award at the AMEM-METI scheduled late July. (AMEM: ASEAN Minister of Energy Meeting)

Due to a lack of funding of ACE, each country was responsible for travel expense to attend the committee. Members from the Philippines and Vietnam were unable to attend the committee.

(1) List of applications

There were nine applications in the buildings section and eight in the industries section from seven countries including Brunei Darussalam, Cambodia, Indonesia, Philippines, Myanmar, Thailand and Vietnam. Actually there were nine applications in the industries section but one of them was disqualified as it failed to meet the requirements. (15 applications from seven countries in the previous year)

Buildings (9 applications)	
Brunei Darussalam	HSBC Bank
	Oil and Gas Discovery Centre (OGDC)
Cambodia	Sofitel Angkor Phokeethra Golf & Spa Resort
Indonesia	Mangga Dua Square

Myanmar	Kanyut Kwin Basic Education High School by Solar and Wind Energy
Philippines	Greenhills Shopping Center
Thailand	Grand Mercure Fortune Bangkok Hotel
Vietnam	Majestic Hotel
	Keppel Land Watco 1 Ltd., - Saigon Centre Phase 01
Industries (8 applications)	
Indonesia	Energy Conservation in PT Eastern Pearl Flour Mills (food)
	Power Management for Energy Conservation of PT Semen Tonasa (cement)
Myanmar	Installation of 8 Ton Husk Boiler for Energy Saving of Yathar Cho Industry Ltd (food)
	Myanmar Carbonix Industry (chemical)
Philippines	Dynamic Energy Management Towards Productivity and Mitigation of Climate Change by Mead Johnson Nutrition Inc. (chemical and medical)
	Energy Efficiency Through Operational Excellence of AGC Flat Glass (glass plate)
Thailand	Energy Conservation of Thai Cold Rolled Steel Sheet Public Company Limited (steel)
	Energy Management System of Thai Ceramic Company Limited (ceramic)

(2) Review result

As a result of the two-day review, the following two cases, one in the industries section and one in the buildings section were chosen as the winner; while seven, three from the industries section and four in the buildings section, were selected as the runner-up, as shown in a list below:

Buildings		
Winner	Grand Mercure Fortune Bangkok Hotel **Thailand**	Score 79/ 100
1st Runner-Up	Greenhills Shopping Center ,Philippines, **Philippines**	Score 77 /100
2nd Runner-Up	Sofitel Angkor Phokeethra Golf & Spa Resort, **Cambodia**	Score 75/ 100
	HSBC Bank, **Brunei**	Score 75/ 100
	Mangga Dua Square, **Indonesia**	Score 75/ 100
Industries		
Winner	Energy Conservation of Thai Cold Rolled Steel Sheet Public Company Limited **Thailand** (steel)	Score 89/ 100
1st Runner-Up	Energy Conservation in PT Eastern Pearl Flour Mills, **Indonesia** (food)	Score 85/ 100
	Power Management for Energy Conservation of PT Semen Tonasa, **Indonesia** (cement)	Score 84/ 100
2nd Runner-Up	Energy Management System of Thai Ceramic Company Limited, **Thailand** (ceramic)	Score 82/ 100

(*) Each evaluator gives a score out of 100, and the average of scores of all evaluators will be given. Evaluators are not allowed to give a score to the company from his/her home country.

The three 2nd Runner-ups are for the buildings involved in the PROMEEC project (promotion of energy efficiency and conservation in ASEAN countries implemented by the ECCJ), including energy conservation analysis activities.

Detailed documents of the above 17 applications are stored at the Technical Cooperation Department, International Cooperation Division, ECCJ.

(3) Discussion after the evaluation

1) Contents of the applications

Chairman commented that the explanation method and contents are inferior to those

in the previous year and the application guidelines should be made more understandable. Although applications from Thailand, Philippines and Indonesia were not considered inferior, the guidelines need review to bridge the gap among applications from different countries in ASEAN.

2) Establish a new section for small & medium enterprises

Large-sized enterprises consume a significant amount of energy and have sophisticated energy management technologies and management method. This means that small & medium sized enterprises are unlikely to be awarded under the present scheme. This problem, which has been discussed from the last year, was considered again this year. Detailed discussion will be taken place in the Research Forum scheduled in the coming December in Tokyo. Definition of the small & medium enterprises was agreed among the evaluators as follows:

Those using electricity only: annual consumption is 2,000 MWh or less

Those using fuel only: annual consumption is 20,000 GJ or less

Those using both electricity and fuel: total of electricity and heat consumption accounts for 100% or lower of the upper limit of consumption

3) Establish a new section for special submission

Further discussion was made on the establishment of new sections to award proposals on the techniques and technologies on the energy management. One of the applications of this year was considered to be included in this section and regarded as not meeting requirements. It was, however, confirmed that such applications should be accepted as well. Details will be discussed in the Research Forum in December as well.

4) Award system of each country

It was confirmed that implementation of this system in each ASEAN country would further improve this award system.

2. Analysis of the winners and runner-ups

Proposals for improvement included in 17 applications in either buildings or industries section of the third ASEAN Best Practices Competition for Energy Management were analyzed from the following standpoints of view:

(1) Project activity
(2) Major improvement proposals
(3) Amount of energy conservation and its economical aspect
(4) Amount of investment
(5) Possibility of dissemination

One application includes multiple proposals for energy conservation, resulting in a synergic and organic effect on energy conservation. Analyzing these will help finding an effective dissemination method, while improving the application and evaluation guidelines. The result was introduced at the Intensive Seminar-Workshop held in five countries as a topic of discussion for the participants. Also it was shared with the BOJs-EM when the review was considered on the evaluation guidelines at a Research Forum in December 2009 held in Japan.

Details of the analysis are shown in Tables IV-2-1, IV-2-2 and IV-2-3 below:

This year, some companies applied to let us know the actual improvement results after the visits by project personnel for opinion exchange and provision of support or those cooperated in our energy analysis activities. We expect such applications will continue to increase in the future.

Table IV-2-1: Analysis of Applications (1) (Industries-1)

Country	Name of Company	Sub-Industry	Name of Project / Activity	Key Improvements	Annual Effect		Investment	Possibility to Disseminate
					Saved Energy	Economy		
Thailand	Thai Cold Rolled Steel Sheet Public Co.Ltd.; Number of employees: 846: Annual Electric in 2008: 91.1GWh; Fuel:794,000GJ (Winner)	Steel	(Name of Project) Energy Conservation in Thai Cold Rolled Steel Sheet Co. (Outline) The Company's Vision is to be the "*Leader of Cold Rolling manufacturing" in South East Asia. The activities will* emphasize to create participation awareness in the organization for sustainable energy use and minimize the loss. The Company also promotes the knowledge creation campaign, development of work skill and work improvement initiatives. The result of energy saving measures during 2006-2008 demonstrated by 2,003 MJ/Ton-charge to 1,843 MJ/Ton charge in 2008. The reduction of energy consumption benchmark is set to be 12% within 2009 based on 2006 comparable. Announcement of the Total Energy Saving Policy by President (a) Establishment of Energy Management Committee and Energy Conservation Team (b) E-Save Small group (c) T1 Activity (QCC) (d) Award system.	**No Investment Measures** (1) Reduction compressed air leakage (2) Reduction of Steam Supply Pressure (3) Reduction blow down of the boiler **Investment measures** (4) Heat recovery from waste water at 1ECL(Electrolytic cleaning) process (5) Utilization of Flash steam at CPCM Fume Exhaust (Entrapping vaporized oil from Cold Reduced Process)	(1) 970 MWh (2) 28,400L/y-heavy oil(3,901GJ/y) (3) 2,000L-Heavy fuel/(83GJ/y) (4) 311Kl-heavy fuel/y(12,648GJ/y) (5) 152Kl-heavy fuel/y(6,186GJ/y) (6) 1,800,000MJ/y	(1)n.a. (2) 0.4MBaht/y Saving (3 27K Baht saving (4) Payout 021 year (5) Payout 0.63 year	(1) 0 (2) 0 (3) 0 (4)1MM Baht (5) 1.4MM Baht	***(1) Applicable for same kind industries*** ***(2) As Non-investment measures are very simple, common and useful, there are might be many applications for every factories.***
Indonesia	PT.Eastern Pearl Flour Mills(EPFM) Number of employees: 500: Annual Electric in 2008: 50.2 GW/h; (1st Runner-up)	Flour Mills	(Name of Project) Energy Efficiency and Conservation Program (Outline) The EPFM's strong Culture is 3S("Save energy, save earth and save cost). This sprit is to motivate and order employee to discipline use energy, for save earth to keep world life and the end our live become good and prosperous. They saved energy 3.6% or 2M kWh or equal 7,300 GJ/y or 1,480Mkg CO_2 emission every year.	**Non-Investment** (1) Utilizing, combining and preventive maintenance for air compressor supply (Easy control equipments and reduce maintenance cost), Turn off unnecessary lights and power supply) **Investment** (2)Optimizing Flow Process. Grinding Mix in A mill and C mill (3)Optimizing Wheat discharge on Tower Neuero (4) Replace pneumatic transportation with bucket type conveying	(1)1213GJ/y(148MMRp) (2) 6740GJ/y(821MMRp) (3) 518GJ/y(63MMRp)	(1) n.a. (2) Payback 2.6year (3) Payback 0.8year	(1) 0 (2) 2100Mill. Rp/2007 (3) 1200 MM Rp/2008	***Applicable for other Flour Mills.***

Table IV-2-1: Analysis of Applications (1) (Industries-2)

Country	Name of Company	Sub-Industry	Name of Project / Activity	Key Improvements	Annual Effect		Investment	Possibility to Disseminate
					Saved Energy	Economy		
Indonesia	PT. Semen Tonasa Number of employees: 1449: Annual Electric in 2008: 360 GW/h; (1st Runner-up)	Cement	(Name of Project) Power Management for Energy Conservation in PT. Semen Tonasa (Outline) The company has results, reduction of energy intensity (kWh/ton cement) of 14.3% in 2007,which is equivalent US$2.8Million. They also increase the productivity 7.2% in 2007 and 8.1% in 2008. To increase energy efficiency and production, the Company implements Energy Management System. At the first, they established Efficiency and Innovation Committee. Successful project is called Power Management System. For successful implementation and operation of energy management program is Commitment to the program by top level management. In addition, they established Energy Management organization, conducted **capacity building TPM activities, Quality Maintenance Action**, Work safety & Health.	**Investment** Due to the electricity supply shortage in Peak load time of PT. PLN, the company generates electricity from coal by BTG. In order to increase power efficiency, the Company applies Power Management System Project by synchronizing both electricity supply from PT. PLN and BTG.	(1)450,000MWh/y to 350,000MWh/y	(1) Using BTG Power, 3 Billion Rp profits (Price difference is 75 Rp/kWh) . Payback;1.5year	3.2 Billion Rp,	***Utilizing the methodology in industries where a big price gap exists between National Grid and Self generation.***
Thailand	Thai Ceramic Co.,Ltd (TCC) A subsidiary of Siam Cement Group (SCG) Number of employees: 1748: Annual Electric in 2008: 118 GW/h; (2nd Runner-up)	Ceramic	(Name of Project) Energy Management System in the company (Outline) TCC has continually implemented energy conservation activities by using 3Rs Principle(Reduce, Reuse/Recycle and Replenishment). TCC emphasizes on the importance of employee's Involvement in Energy Conservation in different aspects. TCC uses TQM as its management style.- Top Down by Policy Management - Bottom up through small group activities - Implemented through cross functional committee, such as energy conservation committee. In conclusion, TCC's energy conservation activities have reducing energy consumption from 6.89GJ/Ton in 2106 to &.26 GJ/Ton in 2008(Reduced Energy 9%)	**Non Investment** (1)Reduce Cycle Time in Ceramic Roller Kiln (Floor Tile) (2) Reduce Heat Losses at Kiln by Optimum Tuning Technique (Wall Tile) **Investment** (3)Adoption of VSD(Kiln Combustion Air Fun, Air Compressor, Spray Drier Main Fan) (4) Increase Kiln Combustion Air Temp. by Waste Heat Recovery (5)Change High Efficiency Burner at Ceramic Roller Kiln (6) Reduce NG Consumption at Spray Dryer by Biomass Gasifier	(1) 11860GJ/y (2) 40,550GJ/y (3) 840MWh/y (4) 35,000GJ/y (5) 6,240GJ/y (6) 36,170GJ/y	(1) 2.92MBaht (2) 9.98Mbaht (3) 6.77MBaht: 0.53year Pay back (4) 0.38year Payback (5) 1.23 year Payback (6) 1.04 year Payback	(1) 0 (2) 0 (3) 3.61MBaht (4)3.3MBaht (5) 1.60MBaht (6) 7.0 MBaht	***Applicable for other Ceramic Industries. They have conducted not only TQM but also TPM.***

Table IV-2-1: Analysis of Applications (1) (Industries-3)

Country	Name of Company	Sub-Industry	Name of Project / Activity	Key Improvements	Annual Effect		Investment	Possibility to Disseminate
					Saved Energy	Economy		
Philippines	AGC Flat Glass Philippines Inc. Number of employees: 970 : Annual Electric in 2008 : 48 GW/h;	Glass	(Name of Project) Energy Efficiency Through Operational Excellence (Outline) The Company have implemented Energy management program in sustainable manner. To support these directions, energy management activities geared towards the following:-Reduction of energy loss such as oil and air leaks: Best maintenance: Adoption of the PDCA for continuous improvements etc.	(1)Reduction in Pull (2) Project on Use of an Easy to Melt Batch Materials (3) Energy Management Activities on Lighting, Air Conditioning Units and Personal Computers (4) Reduction of Compressed Air Usage	(1) 9.5% Fuel saving (2) Fuel reduction from 28.6 Kl to 26.8 Kl/d	(1) Specific Energy 17.3% reduction (2) 0.3MMUS$/y (3) 7,020 kWh/y (4) 16.4% (M^3/T)		***Better to divide into Non-investment and Investment measures.***
Myanmar	Yathar Cho Industry Number of employees:500 : Annual Electric in 2008:n.a.	Food (Instant Noodle)	(Name of Project) Installation of 8 ton Husk Boiler for Energy Saving (Outline) The company previously used one 3 ton and one 4 ton diesel fired boilers. The boilers used 22,000 gallon diesel. Paddy husk boiler was installed to replace diesel oil boiler. New husk boiler uses 220Kg of husk per ton of steam.	Replacement Diesel oil to Paddy husk in boilers as fuel.	EEI reduces; Electricity:0.2785kWh/ one box of output to 0.2638 kWh/one box of output; Diesel oil: 0.0119gal/ one box to 0.0082 gal/one box.	Electricity : 0.05% Improvement Diesel oil; 31 % improvement		***Utilization of Renewable Energy***
Myanmar	Myanmar Carbonix Number of employees: : Annual Electric in 2008: n.a.	CO2 Production	(Name of Project) Production of purified liquid CO_2 & Dry Ice from waste Flue Gas of Refinery (Outline) From environmental point of view, to produce purified liquid CO_2 & Dry Ice, the company previously used diesel oil which was first burnt and purification process. The company has changed the manufacturing process from Diesel oil burning to using waste fuel gas from refinery. Therefore 5,099kl /year diesel was saved.	(1) To produce Purified Liquid CO_2 & Dry Ice, usage of waste flue gas instead of diesel burning	5,099kl /year diesel was saved.	186,000GJ/y saved 2 years payback	3.7 MMUS$	***Theme for reduction of fossil fuel***
Philippines	Mead Johnson Nutrition (Philippines), Inc. (MJN) Number of employees: 479 : Annual Electric in 2008:n.a.	Dairy Production	(Name of Project) Dynamic Energy Management Towards productivity and Mitigation of Climate Change (Outline) MJN has promoted "Enterprise-wide Energy Conservation Awareness, Best Practices, and Energy Efficiency Technologies". They reduced 47% per unit output in total Energy consumption (Impact) using skills and tools available to any company around the world (Replicability). They engaged ESCO to conduct Energy Study and uses "Regression Analysis" which shows correlation between power consumption and production output. They started Management Commitment and established "ENSAVE Team. The ENSAVE team has worked in a suitable manner, different energy concepts, techniques and methodologies like " Energy Hunting & Auditing"(Small Group Activities).	(1) Installation 18 W frequency Lump (2) Installation 36W Frequency Lump. (3) Improvement around Vacuum Pump Water Recycling (4) Sensible Heat Recovery System . (5) Plant Chiller Upgrade & Optimization	(1) 230MWh/y (2) 542MWh/y (3) 143MWh/y (4) 208MWh/y (5) 300MWh/y	(1) Pay back: 0.7 year (2) Pay back: 0.5 year (3) Pay back: 0.5 year (4) Pay back: 1.1 year (5) Pay back 2.9 years	(1) USD 24,000 (2) USD 37,000 (3) USD 60,000 (4) USD 35,000 (5) USD 79,000	***Probably there are many Non-investment measures in addition to investment measures.***

Table IV-2-1: Analysis of Applications (2) (Buildings-1)

Country	Name of Company	Category	Name of Project / Activity	Key Improvements	Annual Effect		Investment	Possibility to Disseminate	Status
					Saved Energy	Economy			
Thailand	Grand Mercure Fortune Bangkok Hotel Number of employees: 400 : Annual Electric in 2008 : 6.5 GW/h; (Winner)	Hotel	(Name of Project) Comprehensive Energy Management for Building (Outline) CP Group to which the Hotel is belonged, established a target for every organization to reduce the energy cost as much as 20%. An Energy Conservation Working Group has been set up with focus on the participation of all departments in the organization in proposing the new energy saving innovation and measures.	**A. No-Investment Project** (1) Boiler pressure reducing from 110psig to 90psig (2) Shortening of Boiler working hours (3) Reducing Boiler blow down (4) Combination of electrical transformer load **B. Investment projects:** (1) Change of incandescent bulb to fluorescent tubes (2) Boiler wall insulation (3) Change Philineer bulbs to fluorescents ballast bulbs (4) Changing to high efficient ice maker (5) Use of VSD in Exhaust Fan	A. No-Investment Project (1) 40GJ/y (37,.600Baht/y) (2) 1319GJ(555,000Baht/Y) (3) 167GJ/y(70.840baht /y) (4) 8.3 MWh/y B. Investment (1) 9.3MWh/y (2) 241GJ/y (101,000 Baht/y) (3) 67MWh (4) 21MWh/y (5) 42.6MWh/y	B. Investment (1) Payback 0.2 year (2) Payback 0.51 year (3) Payback 0.47 year (4) Payback 3.1 year (5) payout 0.63 year	(1) 5590 Baht (2) 51,600 Baht (3) 95,200 Baht (4) 193,000 Baht (5) 81,000 Baht	***(1) As the Hotel carried out their EM Project based on EM procedures or steps, the methodology would be applied for other hospitals and buildings.*** ***(2) Various projects used in the Hotel were very common and will be utilized in other hotels.***	
Philippines	Greenhills shopping center, Philippines Number of employees: 52 : Annual Electric in 2008 : n.a.; (1st Runner-up)	Shopping Center	(Name of Project) Greenhills Shopping Center Energy Management Best Practice (Outline) Reduction of utilities consumption especially in Shopping Center is complicated since it involves tenant's participation and cooperation. For almost 3 years the Shopping Center had reduced its common area power consumption by an average of 7.8% per year with a consumption of 21.15kWh per sq.m.by in 2008.	**Investment** (1) Roof deck Insulation (2)Chiller Right Sizing in Lifestyle Center (3) Installation of Condenser Cleaning Device for Chiller (4) Shopping Center Re-lighting Activities (5) Installation VSD	B. Investment (1) 130MWh/y (2)353MWh/y (3)435MWh/y (4)353MWh/y (5)172 MWh/y	(1)Payback 3.0 years (2)2.8 year (3)2.8 year (4)2.8Year (5) 2.6 Year	(1)21,500US$ (2)583,000US$ (3)71,000US$ (4)165,000US$ (5) 72,000US$	***(1) As the shopping complex includes various tenants, many type of stores, it is important to obtain their cooperation in Energy Conservation. And they experienced much staff participation and their upgrading knowledge. These would be applicable for other buildings.*** ***(2) They obtained sustainable activities and implementing organization.***	***No-investment measures are also important.***

Table IV-2-1: Analysis of Applications (2) (Buildings-2)

Country	Name of Company	Category	Name of Project / Activity	Key Improvements	Annual Effect		Investment	Possibility to Disseminate	Status
					Saved Energy	Economy			
Cambodia	Sofitel Angkor Phokeethra Golf & Spa Resort Number of employees: 320 : Annual Electric in 2008 : 3.1GW/h; (2nd Runner-u)p	Hotel	(Name of Project) (Outline) The hotel and the golf course were designed and developed by Owning company with the commitment to be energy efficient and environment friendly, all of that without compromising with the luxury comfort of their guests. They have conducted saving energy and water and garbage recycle. Every workplaces have made efforts in terms of switch off lighting, PC , tap water and Air conditioner, and trial uses for recycle and reuse.	**Non-investment** (1) Switch off lighting, PC etc **Investment** (2)Installation of TRANE 175 ton Chiller (3) Installation Heat pump 22kwto produce hot water		(2) Payout 13.1 Months (3) 4.97Months	(2)US$95,000 (3)US$1,000	***Activities for Energy conservation and Environmental preservation have been implemented for years. And many workplaces have actively participated with these activities. The hotel can refer many best practices in other hotels.***	
Brunei	HSBC Bank Number of employees:700 : Annual Electric in 2008 : 4.3 GW/h; (2nd Runner -up)	Bank	(Name of Project) Green Building Strategy (Outline) The Bank conducted an internal study to seek a methodical approach for bank's energy management practices. The study was concluded 2009 on the concept of "HSBC Brunei Green Building.	**A. Non-investment**: (1)Reduce number of light in use (2)Switch off reminder(. PC & lighting) (3) Centralize Printing and Photocopier (4) Split Unit Air Condition temperature Setting **B. Investment** (5) New Water Chilled Air Condition System	(1) 100MWh/y (2) 16MWh/y (3) 21.3 hours Stand by Mode (5) 1GWh/y	(3) 13.5% reduction by 2℃increase (5) Payout 8years	(5) B$ 500,00	***The concept and efforts of the Bank are very evaluated, and can be applied and disseminated into other banks in all ASEAN Countries.***	
Brunei	Oil and Gas Discovery Center (OGDC) Number of employees:36 : Annual Electric in 2008 : n.a.	Exhibition Center	(Name of Project) Efficient Energy Management in OGDC (Outline). Most of the initiatives and programmes are still in early stages and staff will need some time to be accustomed to it. Short time object is to reduce energy usage by 10% at the end of 2009. While long term object is to ensure energy reduction by 10% each year for next five years. Main object of the OGDC is to make the building an efficient building in five years	**Investment** (1) Replacing standard bulbs to energy saver bulbs (2) Installation of six individual meters to monitor electrical usage			(2)BND$10,000	***Step by step improvement is expected because EC activities of the building just started. Probably there are many non-investment energy conservation efforts.***	

Table IV-2-1: Analysis of Applications (2) (Buildings-3)

Country	Name of Company	Category	Name of Project / Activity	Key Improvements	Annual Effect		Investment	Possibility to Disseminate	Status
					Saved Energy	Economy			
Indonesia	Mangga Dua Square Number of employees: 218 : Annual Electric in 2008 : 4.8 GW/h; (2nd Runner-up)	Multi Shopping Complex	(Name of Project) Energy Saving /Conservation Management for Building (Outline) .The Company from Top management, Employee, Customer, Tenants are supporting to utilize energy consumption (Gas,Water,Electricity) etc. in order to make more efficient to use and to keep their environment clean. The committee of energy conservation which was established last year, from several activities has achieved some data base on internal audit.	(1) Installation of Auto sensor and inverter to Elevator (2) Installation of Absorption Chiller	(1) 2373kWh/y (2) 12779 Million Rp	(1) 4 years Payback (2) 2years Payout	(1) 531,000 RM (2) 6000 RM (3)70,000 RM (4) 5000 RM	***(1) EC activities needs not only the participation of the building administrators, but also the commitment of management , tenants and staff. This idea would be disseminated to other shopping malls.***	
Viet Nam	Keppel Land Watco 1 Ltd., Saigon Center Phase 01 Number of employees: n.a. : Annual Electric in 2008 : 10.7 GW/h;	Trading Building	(Name of Project) Energy Management for Trading Building (Outline) From the building construction stage, the company applied energy management software to control closely energy consumption everyday. Beside, the company was arranged works for employee to monitor energy consumption activity. From year 2005 to 2008, this implement energy conservation solution for lighting system, air conditioner and water chiller system to save 1.8% rate of energy cost/benefit. Also the company established energy management department and use BAS for water chiller system and motor and timer for lighting system. The roll of energy management department is to implement energy conservation activities, to involve related departments from manager to employee , focusing Technology Department and Finance Department.	(Non-Investment) (1) Reducing lighting hours and improvement system replacing type of light, Turn off at places (2) Reducing operation time and control inc. VSD in chiller system (Room Temperature set change)	(1) 984MWh/y (2) 742MWh/y	(1) 1.7 Billion VND (2) 1.2 Billion VND		***Non-Investment measures can be applied into other buildings.***	

Table IV-2-1: Analysis of Applications (2) (Buildings-4)

Country	Name of Company	Category	Name of Project / Activity	Key Improvements	Annual Effect		Investment	Possibility to Disseminate	Status
					Saved Energy	Economy			
Viet Nam	Majestic Hotel Number of employees: n.a : Annual Electric in 2008 : n.a. ;	Hotel	(Name of Project) Energy Management for Hotel (Outline) Energy Conservation and Environmental safety is one of Hotel objectives and they pursued the strategy of reduced cost and built green hotel. The Hotel established Energy Management Board to implement energy conservation activity. Hotel Vice -director holds Leader of energy management board and related departments from manager to employees to implement energy management.	(1) Replace to high efficiency lump (2) Replace low efficiency air conditioner to higher one (3) Replacing electric water heater to solar water heater (4) Install insulated windows (Economically questionable) (5)Install VSD for water pump	(1)253MWh/y (2)120MWh/y (3)466MWh/y (4)46MWh/y (5)10MWh/y	(1) 0.36 billion VND(1Nonth Payout) (2) 0.17billion VND(90 Months Payout) (3) 0.662Billion VND (13 Month Payout) (4) 0.07billion VND (153 Months Payout) (5) 0.014 Billion VND(17 Months Payout)	(1)0.29 Billion VND (2)1.3 Billion VND (3)0.7 Billion VND (4)0.8 Billion VND (5) 0.02Billion VND	***Applicable for other hotels.***	
Myanmar	Kanyut Kwin Basic Education High School Number of employees: 27 Teachers and 1060 students : Annual Electric in 2008 : n.a. ; Renewable Energy Category	School	(Name of Project) Upgrading Project of Kanyut Kwin Basic Education High School by Solar and Wind Energy (Outline) The main objectives of the upgrading project are to promote the teaching system from conventional system to e-education system, to encourage the students to do well in their lessons to get practices in utilization of Renewable Energy such as solar and wind, to deliver the basic concept and knowledge.	(1) Using Solar and Wind power instead of national grid electricity	201,000KJ/day			***Renewable energy category (Green school concept)***	

Table IV-2-2 APPLICABLE ENERGY CONSERVATION TECHNOLOGIES (From Entry Form for ASEAN Awarding System 2008-2009)

Investment Category	Typical Measures	Field to be applicable		Remarks (Applied by)
		Industry	Building	
A. Non-Investment	1) Improvement Operation Conditions			
(Housekeeping)	a) Steam Leak & Water Leak Prevention	○	○	TCRSS
	b) Reduction of blow down	○	○	TCRSS, Grand Mercure
	2) Lowering of Utility Conditions (Possible Research)			
	a) Lowering Steam Supply Pressure	○	○	TCRSS, Grand Mercure
	b) Lowering Air Pressure	○		(Reduction of air usage-AGC)
	3) Shortening of operation time in Air conditioner	○	○	Grand Mercure
	4) Turning off & Reduction for Lighting, using sunlight	○	○	Many Applicants
	(Improving Lighting System)			(Sofitel, HSBC, Keppel Land, etc)
	(Turn off Unnecessary Lighting)	○	○	(P.T.Eastern Pearl Flour etc)
	5) Demand Side Management (Load Management)	○	○	
	& Power Factor Correction with Capacitator			
	6) Setting standard of Room temp.& proper control of fresh air and Preparation Manual	○	○	Many Buildings
B. Low Investment	1) Improvement of Lighting system			
(<0.05 Million $)	a) Changing high efficiency lights, Film & Blind shading	○	○	Many Building (OGDC, Majestic H.)
	b) Install Electric Ballast	○	○	Many industries and buildings
	c) Install LCD	○	○	Majestic
	2) Reduce Heat loss (Insulation)			
	a) Change insulator of Boiler	○	○	Grand Mercure
	b) Reduce of Heat Loss at Kiln	○		Thai Ceramic
	3) Installation Sub-meter system	○	○	OGDC
	4) Heat Recovery from waste water	○	○	TCRSS
	5) Auto Senor in elevator		○	Mangga
	6) Replace electric water heater to Solar energy heater		○	Majestic
C. Medium Investment	1) Installation Variable Speed Drivers	○	○	Many industries and buildings
		○	○	(Grand Mercure, Thai Ceramic (TCC),
	a) VSD in AFU Fan			Greenhill, Majestic,
	b) VSD in Chilled Water Pump& Cooling Water Pump	○	○	Keppel Land)
	c) VSD in Ventilation in Basement	○	○	
	2) High Eff. Burner	○		Thai Ceramic(TCC)
	3) Roof Insulation	○	○	Greenhill
(0.05~1.5 Million $)				
	4) Installation High Efficiency Motor	○	○	PT Eastern Pearl Flour
	5) Install Capacitator	○	○	
	6) Rice Husk Feeding into Boiler	○		Yathar Cho
	7) Less Energy Material Transportation	○		PT Eastern Pearl Flour
	8) Solar & Wind Energy Usage	○	○	Kanyut School
D. High Investment	1) Changing of Fuel for Boiler/Furnace	○		
(>1.5Million $)	a) Change Heavy Fuel Oil to LPG Boiler	○		
	2) Furnace on Line Cleaning	○		
	3) Cooling Tower Cleaning System	○	○	Greenhill
	4) Self Generation	○	○	Tonasa Cement
	5) Plant Chiller upgrading	○		Mead Johnson
	6) Insulated windows	○	○	Majestic H.
	7) Adsorption Chiller	○	○	Mangga

Table IV-2-3 ENERGY MANAGEMENT ACTIVITIES
(From Entry Form for ASEAN Awarding System 2008-2009)

Activities Category	Typical Activities	Field to be applicable		Remarks(Applied by)
		Industry	Building	
A. Company Policy				
	1)3R's Principles(Reduce, Reuse/Recycle and Replenishment)	○	○	TCC, Sofitel (gabage recycle), Grand Mercure
	2) Company policy on efficient, economic and environmentally	○	○	TCC
	responsible, Application latest and best technologies			
	3) Reduction of Energy consumption	○	○	Majestic, Greenhill
	4) Environmental Protection	○	○	Yathar Cho, Myanmar Carbonix, Kanyut School
	5) Energy and Material Reduction	○		
	6) To be ASEAN Leader	○	○	TCRSS
	7) Eliminate dependency of fossil fuel	○	○	Myanmar Carbonix & Yathar Cho
	8) Cost Leadership, Cost competitiveness	○	○	PT Eastern Pearl Flour,TCRSS
	9) Safety & Environment	○	○	PT. Tonasa
	10) Energy and Cost reduction	○	○	
	11) People Development	○	○	
	12) Be innovative, creative, good team player	○	○	TCC
	13) Quality, Occupational Health and Environmental	○	○	
	14) 3S (Save energy, save earth and save cost)	○	○	PT.Eastern
	15) Green Banking , Green Hotel		○	Brunei HSBC, Majestic
	16) Search for latest and best technology	○	○	Greenhill
B. Organization	1) Energy Conservation Committee/Energy Efficiency Team	○	○	TCRSS, TCC, Mead Johson, Grand Mercure
				and many enterprises
	2) Small Group Activity/All Participation	○	○	TCRSS (E-Save SGA), TCC, Mead Johson, AGC
	3) Company's Awarding System	○	○	TCRSS, TCC, Mead Johson
	4) Energy Information center	○	○	
	5) Human development Program	○	○	Many Applicants
	6) Awareness campaign, Long term learning system			
	7) Information Sharing	○	○	TCRSS
C.Standard/Manual	1) PDCA cycle and keeping standardization	○	○	AGC
	2) TQM, Preventive Maintenance(PM), Kaizen	○	○	TCC
	3) Set standard of Room Temp.	○	○	OGDC, AGC
	4) QCC Activity	○	○	TCRSS
	5) Sustainable Development Guidelines	○	○	TCC
D. Training	1) Educational Training (Internal& External training)	○	○	Sofitel, PT Eastern Pearl Flour, PT. Tonasa
				OGDC (for Children and Students)
				Majestic & Many Companies
	(EC Education for Emplyees)	○	○	Grand Mercure,TCRSS, HSBC
	2) Chief Engineers Meeting	○	○	Keppel Land
	3) Campaign, Brochure ,Sticker	○	○	TCRSS, TCC, Grand Mercure
D. Others	1) Suggestion Box	○	○	
	2) Energy Information Board/ Center	○	○	TCC, Grand Mercure, PT. Eastern
	3) Energy Exhibition	○	○	TCC
	4) Visiting Other Organizations(Study Visit)	○	○	TCRSS, Grand Mercure
	5) Hiring External Consultants	○	○	
	6) Cooperation with ESCO	○	○	Greenhill(130,000US$)

IV-2-2. Analysis of Information Provision Method to Disseminate Best Practices of Energy Management

Award-winning practices are introduced on the website of the ASEAN Centre for Energy.

In addition, the best practices were used as case study at Seminar-Workshops and training on the Energy Management Handbooks in each country. This deepens understanding toward energy management, including analysis of the contents. Although the number of target people is small, this method is highly effective. Particularly, case study combining the award-winning practices and others left out in the final selection will be effective.

However, an application contains multiple improvement items, making it difficult to sort out certain single improvement item. In addition, applicants cannot describe each one of the improvement methods fully as the number pages of the application document is limited.

ECCJ has pointed out this problem at the Research Forum in fiscal 2007. ECCJ also raised a proposal to create a new category to collect and award single improvement practice or project.

This issue was discussed together with the establishment of a new category for small & medium enterprises depending on business scale, which was suggested by BOJ. Contents of this discussion are presented in IV-2-6 below. ECCJ's proposal was agreed by the researchers, including BOJs from ASEAN, and will be reviewed according to the guidelines described above.

IV-2-3. Points to be Improved and the Latest Plan

Based on the opinions of the members of the evaluation committee at the 3rd award that successfully ended in August, analysis of the award-winning best practices in Japan and the reports on the promotion and implementation of award in each country, discussion was made on the improvement aiming for operating this award system more effectively, including the revision of the evaluation guidelines. As a result, quality of the applications in the 3rd award was improved. However, the followings were decided for the purpose of promoting collection and dissemination of good practices.

(1) Expand opportunities for small & medium sized enterprises
According to the energy consumption standard, classify the companies into two: those consuming a lot of energy and those consuming less energy. Operation will begin in fiscal 2010. Standard for energy consumption will be determined in the fiscal 2009 workshop after opinion exchange among members via e-mail or other methods.

(2) Establish a new category to award a single improvement case

Based on the proposal of the ECCJ, a new category will be established to award a single improvement case. Evaluation process by the members will be simplified by giving only two options, accept or not. Evaluation guidelines have been improved according to the discussion of a workshop held in Japan in December 2009. Application guidelines were reviewed as well. After review, the application guidelines were distributed to BOJs and Focal Points and at the same time put on the website of ASEAN Centre for Energy.

As in the previous year, the fourth awarding is scheduled as follows:

(1) Application deadline
(Local) 4th week of April 2010 (actual deadline date may vary by country)
(ASEAN) May 12, 2010 (to be submitted to ACE)
(2) Select ASEAN winners Early June 2010 (held by BOJ-EM)
(3) Official announcement and the award ceremony
July 2010
(AMEM - ASEAN Minister of Energy Meeting)
(4) Announcement of the winners Around September 2010

IV-3. Establish a System to Utilize Existing Implementing Organizations
IV-3-1. Progress and Challenges of the System Establishment

Based on the basic specifications of the system prepared in fiscal 2006, ASEAN Centre for Energy designed the system, including display screens on the website in fiscal 2007. This year, the design was further improved.

As written in the past activity reports of ECCJ, this system aims at providing access for the clients in ASEAN that need services such as energy analysis or training to directly contact the providers of such services. Specifically, this system has the following functions:

(1) Information database for the clients

Stores registered information, including the content, scope, basic specifications and conditions of the service the client needs, combined with the client's corporate outline

(2) Information database for the existing implementing organizations

Stores registered information, including the content, scope, basic specifications and conditions of the service that an existing implementing organization provides, together with the outline of the implementing organization

(3) Cyber Search System

Searches and presents matching results between clients and the implementing organizations by comparing information of the clients and the implementing organizations. It is checked whether the conditions of the two match or almost match or not. Also provide access to the detailed information of the counterpart.

Clients and implementing organizations, after gaining necessary information using this system, directly contact each other to negotiate on detailed conditions before entering into a contract. Provision of information and services for the individual negotiations is not handled by this system.

Off-line registration and search system and display screens have been prepared, now ready for test operation. Some Focal Points of EE&C-SSN (Energy Efficiency & Conservation Sub-sector Network) expressed concerns over the quality of implementing organizations intending to register to use the official website of ASEAN Centre for Energy and the services they provide and there was a discussion on setting standards for the implementing organizations before registration. Based on the conclusion to start registration process with 21 implementing organizations to which ECCJ visited for a survey in 2005, Focal Point in each country is currently advancing registration process after re-confirmation with local implementing organizations.

On the other hand we have been developing education for the implementing organizations that should be registered, taking opportunities of activities held locally. (ex: discussion with ECC-HCMC/ENERTEAM in Vietnam when ECCJ visited).

Initial registration process is taking longer hours than expected, causing a delay in

the initial plan.

Refer to Table IV-3-1 for details.

IV-3-2. Latest Plan

Although it took time to discuss and consider the problems stated above and the registration process is time-consuming, test operation began in fiscal year 2009, with a plan to further identify and correct problems in operation. It will be operated on-line starting in 2010. Also, we will continue developing activities to ask for registration of the organizations and corporations, explaining this system.

PROMEEC (Energy Management)

Basic Schedule : Trial Operation of Cyber Search System to Utilize The Existing Organizations

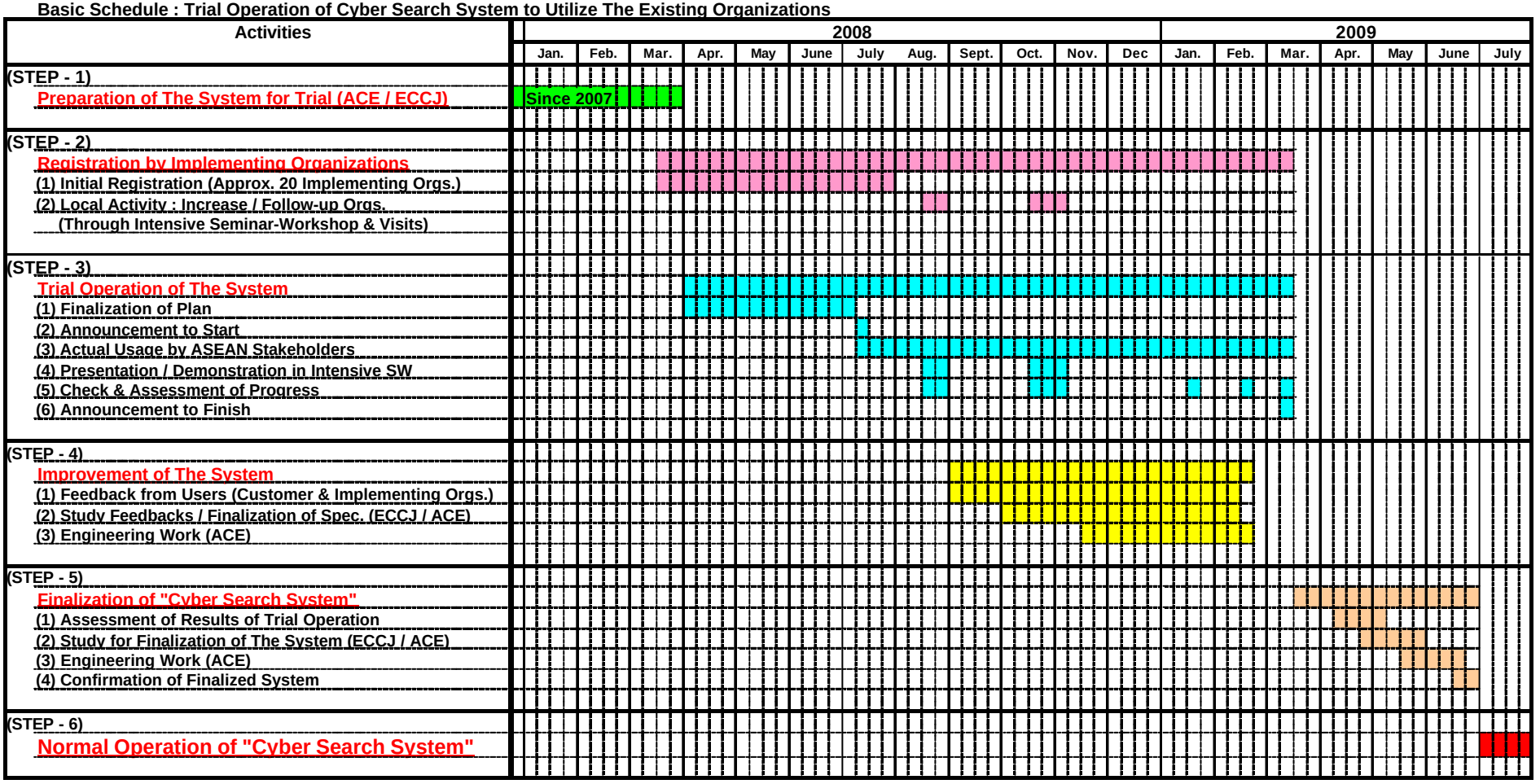


Table IV-3-1 Plan to Promote a System to Utilize the Existing Organizations

IV-4. Developing Energy Management Tools

Step-1 System for energy management was almost completed during fiscal 2008 and preparations for Step-2 began in fiscal 2009. Using various tools, including Energy Management Handbook, In-house Database, Technical Directory for industries and buildings and other technical handbooks in a comprehensive way, will result in the most effective energy management. Entire plan and challenges are shown in Table IV-1-1 above. Description of each item will follow:

IV-4-1. Dissemination of the Energy Management Handbook

Present ASEAN Energy Management Handbook was prepared based on the Total Energy Management (TEM) Handbook of Thailand. Revisions were made so that it will be disseminated throughout the ASEAN region without undermining its merits such as simple and to-the-point descriptions as well as its usability. Although this handbook may not be suitable for the corporate culture in some ASEAN countries except for Thailand because the essential part of energy conservation guidelines consists of small-group activities conducted in Japan and basic principles of TQM (Total Quality Management)/TPM (Total Productivity Maintenance), actions to disseminate energy management handbook have deepened understanding toward energy conservation activities in Japan. As reported in Chapter III, it should be noted that there are many people who highly evaluate the usability of this handbook.

This ASEAN Energy Management Handbook was introduced in five companies in three countries, Lao PDR, Vietnam and Cambodia, during the previous fiscal year. The purpose of it is to verify and evaluate the adaptability of this handbook to the corporate culture in each ASEAN nation, finalize it by revising the contents as necessary so that it can be widely used in the ASEAN region, while checking the effectiveness of this handbook.

Based on these efforts, the final version of the ASEAN Energy Management Handbook (English) was prepared and posted on the ECCJ website. ECCJ proposed it should be translated in various languages used in ASEAN region. Challenges involved in this are as follows:

(1) Translation of the handbook into various languages used in ASEAN
As pointed out in the previous year, translation of this handbook is absolutely necessary so that each and every employee can thoroughly understand the contents and make small-group activities effective. Translation must be done by those who fully understand the contents of the handbook, which is costly and needs schedule arrangements. In Lao PDR, this year, two companies have agreed to bear the translation cost. Actually this handbook was translated into Lao language and distributed, based on the benefit principle. However, in consideration of the fact that some countries or companies may reject carrying the cost, ASEAN and national governments in the region should support for the translation. (In Vietnam, translation work has started. ECCJ and the persons in charge of translation discussed and concluded that the Vietnamese government should be responsible for carrying the cost)

(2) Giving consideration to the customs and cultures of each country
In Lao PDR, a certain company wished to introduce the handbook while in Brunei Darussalam there was a need for training on the handbook and ECCJ implemented training in fiscal 2009. After the training, Brunei version of this handbook was prepared. On the other hand, in Cambodia, companies that introduced and used the handbook were not identified. To translate and

disseminate this handbook, social customs, business environment, and views of a wide range of people from the management to the workforce should be considered. The most effective way is to translate the ASEAN Energy Management Handbook in their own languages first, and companies that wish to use it will customize the handbook by themselves.

(3) Improvement, maintenance and revision of the contents

At present, there is a plan to introduce best practices of energy management in ASEAN region (especially those awarded in the ASEAN Award System) in this handbook. Because the volume of the handbook is limited, necessary information will be included in the Appendix or just showing URLs to the best practices introduced on the website of the ASEAN Centre for Energy. For the future, a system to continuously revise the handbook will be necessary.

IV-4-2 Dissemination of In-house Database and Technical Directory (Industries and Buildings)

1. Dissemination of In-house Database (industries and buildings)

Organization of the In-house Database and basic concept of the system for the dissemination of it will not be presented in this document as these were explained in the fiscal year 2006 activities report.

Database for buildings has been completed and now under improvement process through application in building projects. Database for the industries will be prepared by the type of business and those for the cement, food and textile industries have been completed. Through activities related to the projects of major industries, In-house Database for the steel and ceramic engineering industries were added afterwards.

At the Intensive Seminar-Workshop held in five countries this fiscal year and the training to utilize the Energy Management Handbook held in four countries, In-house Database were introduced and a guideline for the effective use of the database in daily energy management activities was presented to help participants deepen their understanding toward the database. At the same time, preparations were made to download database from the website of the ASEAN Centre for Energy for use by the companies.

Effectiveness of In-house Database has been explained at the Intensive Seminar-Workshop and trainings in each country to raise awareness of the participants.

While improving the system to facilitate download of In-house Database and at the same time making the database more user-friendly and effective, further improvement will be necessary to show method of use and guidelines when the user accesses the database on the website. Expanding the use of In-house Database and feedback of usage status will be important. In this regard, ACE is expected to make efficient arrangements.

2. Dissemination of Technical Directory (industries and buildings)

The aim of creating Technical Directory is to collect and release information on technologies and their applications actually used in the ASEAN region and producing beneficial effects and to establish and operate a dissemination system. Effective technologies and applications are collected and selected in major industries or building projects. Technologies that are effective for improvement achieved in the project activities and their applications are being put together on a continuous basis.

Technical Directory is disseminated in this project as well, using website or at the Intensive Seminar-Workshop in each country, by introducing the contents, giving directions on the guidelines for use, and explaining how to obtain the directory.
Collection of technologies and applications is done through the Internet search, examination of related documents and technical reports by ACE, with the cooperation of ECCJ and Focal Points. Collected information is put together by ACE under the guidance of ECCJ experts.
This year, applications were added both in the industries and buildings sections. At present 149 cases are introduced in the industries section while 66 cases in the buildings section. URL of these are as follows:
(Industries)
http://www.aseanenergy.org/projects/promeec/td.php?link=td&page=industry
(Buildings)
http://www.aseanenergy.org/projects/promeec/td.php?link=td&page=building
While increasing and improving the cases posted on the website, following improvements will be necessary to make it more user-friendly.
(1) Create a summary table to present the contents and effects (Part-1)
(2) Continue collecting and putting together successful applications of the technologies (Part- 3)
(3) Investigate the technologies to check for appropriateness and effectiveness on the assumption that they will be applied and disseminated in the ASEAN region (Ask for check of experts in ASEAN to enhance reliability)

IV-4-3 Preparing Technical Handbooks

Energy management handbooks present action guidelines for practicing and administration of the energy management. Handbooks providing comprehensible improvement guidelines on technologies will be of help to offer energy management guidelines to promote integrated energy conservation activities.
At present there has been a project between Japan and Thailand and the Thermal Energy Efficiency Improvement Handbook has been finalized. Also, the Electrical Energy Efficiency Improvement Handbook was completed at the end of last fiscal year. Completion of these handbooks was discussed in the Intensive Seminar-Workshop of this year. Participants pointed out the necessity of such handbooks. The handbooks should be applied to the entire ASEAN region in the future.

IV-5. Considering Establishment of Other Information Systems

As previously pointed out, providing information on ESCO and companies offering energy conservation technologies and equipment will be effective for companies and persons in charge in the ASEAN region to promote energy conservation, in addition to the use of tools and information described earlier. In this project the followings should be prepared:
(1) Directory of ESCO
(2) Directory of companies offering energy conservation technologies and equipment
Requests from persons interested received during seminars, workshops and visits to the companies and government organizations were considered.
As for (2) above, information of Japanese companies posted on ECCJ website is currently available in English, but it is not friendly to the ASEAN users due to

difference in languages and other factors. Selection of keywords may improve the convenience for the users. This year, (2) was introduced at various occasions together with the website introducing the collection of JASE-World summarizing major energy conservation technologies in Japan.
ECCJ and ACE are in talks to develop systematic arrangement of the index of each category.
Based on the consultation results, system design specification for ASEAN will be finalized. It will be possible to register additionally companies offering energy conservation technologies and equipment in the directory using this system.
In the 5th Research Forum, a sample list was distributed to solicit opinions of the participants.
The directory will be created and posted on the website based on the information owned by the interested parties in ASEAN, including ACE, Focal Points and ECCJ. After that, it will be managed as the e-Directory, allowing for voluntary registration, deletion or alteration of the registration contents. Cooperation of Focal Points is necessary to introduce and request for utilization of this information system on ESCO and companies offering energy conservation technologies and equipment in ASEAN.

V. Consultation Result at the Summary Workshop

On March 3 and 4, 2010, the Summary and Post Workshop was held in Cebu, Philippines, to share information and discuss among Focal Points of 10 countries in ASEAN. It was done by confirming and evaluating results of three projects and consultation on the future plan. At the Summary Workshop, participants discussed the evaluation and achievements of energy management projects and the basic plan for fiscal year 2010 and onward. Program of the Summary and Post Workshop is shown in the Attached Materials V-1.

V-1. Summary of the Results of the Projects and Achievements for Fiscal Year 2009

As in the previous year, there were various activities of energy management. Preparation of the tools and systems made a steady progress. Award-giving for the best practices of energy management was implemented without problems. As a result, Step-1 System of the ASEAN Energy Management System was almost completed as in the initial plan and has started operations.
Activities to establish Step-2 System began smoothly in fiscal year 2009. Part of Step-2 System has already started operations.
Followings are the results and achievements of the projects of this fiscal year:

1. While disseminating the programs and tools of the ASEAN Energy Management System (AEMS) through Intensive Seminar-Workshop (ISW), Training to use the Energy Management Handbook and Visits to factories and buildings in five countries in ASEAN was implemented while expanding the network of cooperating companies and organizations. In Brunei Darussalam, local instructors offered training using the handbooks with the support of Japanese experts. In Lao PDR, to disseminate energy management activities, EM Handbook translated into Lao language was distributed to the ISW participants and presented to the companies that were visited in Lao PDR. At a workshop in Japan suggestions were presented for further improvement of AEMS.

2. Step-1 System of ASEAN Energy Management System with basic functions and relevant programs and tools has almost been completed

1) Award system for the collection and dissemination of the best practices of energy management was smoothly implemented. At a workshop in Japan, following guidelines for further improvement were developed.

- Classify the factories and buildings into two categories (large or small & medium) depending on the energy consumption
- Add a new category (Special Submission) on single improvement or project
- Revise the guideline manual of the award system

2) Preparing for the operation of the Cyber Search System of existing implementing organizations and clients. Registration of implementing organizations has been completed and currently waiting for the registration of the clients. There was a suggestion to change the name of Cyber Search System to "**Online Energy Information System**", and it was adopted.

3) Consider and prepare for the establishment of functions and programs of the STEP-2 System

3. Expand a network of cooperators through local activities. Intensive Seminar-Workshop had about 940 participants since fiscal year 2006 while approx. 380 people attended training since fiscal year 2007. A team of experts visited a total of about 110 companies and organizations since fiscal year 2004, to expand the network through instruction, including the dissemination of achievements in energy management.

4. Key points for improvement

- Accept applications in the award system from all 10 countries
- Speed up preparations for test operation of the Cyber Search System (renamed to Online Energy Information System)

AGENDA
SUMMARY AND POST WORKSHOP
PROMOTION OF ENERGY EFFICIENCY AND CONSERVATION (PROMEEC)
(MAJOR INDUSTRY, BUILDING AND ENERGY MANAGEMENT)
SOME-METI WORK PROGRAMME 2009-2010
3-4 March 2010, Park Lane Hotel, Cebu City, Philippines

Day 1: 3 March, 2010

08:00	-	08:30	REGISTRATION
08:30	-	09:15	Opening Session
08:30	-	08:35	- Statement from the Host Country
08:35	-	08:40	- Opening Statement from EE&C-SSN Coordinator
08:40	-	08:45	- Opening Statement from ACE
08:45	-	08:50	- Opening Speech by ECCJ
08:50	-	09:15	Election of Co-Chairs & Rapporteur, Adoption of the Agenda & Photo Session
			SUMMARY WORKSHOP
09:15	-	09:25	Activities on EE&C Recently Developed under APAEC 2010-2015 (ACE)
09:25	-	09:40	Basic Direction and Key Points for Evaluation toward Phase – 3 (ECCJ)
SESSION 1			PROMEEC – MAJOR INDUSTRY
09:40	-	10:25	1. Evaluation of Local Activities by Focal Points - Expectation and Actual Results and Achievements - Points to be Improved and Achievements to be Shared with Other Countries
09:40	-	09:55	Presentation by Brunei Darussalam
09:55	-	10:10	Presentation by Myanmar
10:10	-	10:25	Presentation by Philippines
10:25	-	10:40	Coffee Break
10:40	-	11:00	2. Status and Evaluation of Progress in Preparation of Technical Directory and Development of In-house Database by ACE
11:00	-	11:30	3. Summary and Evaluation of Activities (ECCJ) - Results : Main Activities in Brunei / Myanmar / Philippines - Evaluation of Achievements and Results of Local OJT Activities - Evaluation of Progress in Improving Technical Directory and Developing In-house Database including Dissemination - Overall Evaluation and Required Improvements toward Phase-3
11:30	-	11:50	4. Proposed Plan for 2010– 2011: Explanation & Discussion (ECCJ)
11:50	-	12:30	Q & A and Overall Discussion
12:30	-	14:00	Lunch
SESSION 2			PROMEEC – BUILDING
14:00	-	15:00	1. Evaluation of Local Activities by Focal Points - Expectation and Actual Results and Achievements - Points to be Improved and Achievements to be Shared with Other Countries
14:00	-	14:15	Presentation by Cambodia
14:15	-	14:30	Presentation by Indonesia
14:30	-	14:45	Presentation by Lao PDR
14:45	-	15:00	Presentation by Vietnam
15:00	-	15:15	2. Status and Evaluation of Progress in Preparation of Technical Directory and Dissemination of In-house Database by ACE
15:15	-	15:45	3. Summary and Evaluation of Activities (ECCJ)

			- Results : Main Activities in Cambodia / Indonesia / Lao PDR / Vietnam **- Evaluation of Achievements / Results of Local OJT Activities** **- Evaluation of Progress in Improving Technical Directory and In-house Database including Dissemination** **- Overall Evaluation and Required Improvements toward Phase-3**
15:45	**-**	**16:00**	**Coffee Break**
16:00	**-**	**16:20**	4. Proposed Plan for 2010– 2011: Explanation & Discussion (ECCJ)
16:20	**-**	**16:45**	Q & A and Overall Discussion
			END of Session for Day 1
18:30			**Reception Dinner**

Day 2 : 4 March 2010

SESSION 3			**PROMEEC – Energy Management**
09:00	**-**	**10:15**	**1. Evaluation of Local Activities by Focal Points** **- Expectation and Actual Results and Achievements** **- Points to be Improved and Achievements to be Shared with Other Countries**
09:00	**-**	**09:15**	**Presentation by Brunei Darussalam**
09:15	**-**	**09:30**	**Presentation by Lao PDR**
09:30	**-**	**09:45**	**Presentation by Malaysia**
09:45	**-**	**10:00**	**Presentation by Philippines**
10:00	**-**	**10:15**	**Presentation by Thailand**
10:15	**-**	**10:30**	**2. Status and Evaluation of Progress in Award System for E.M. / Preparation of ASEAN E.M. System (Step-2) / Cyber Search System for Implementing Organizations – Customer by ACE**
10:30	**-**	**10:45**	**Coffee Break**
10:45	**-**	**11:15**	**3. Summary and Evaluation of Activities (ECCJ)** **- Results : Main Activities in 5 Countries and "Research Forum in Japan"** **- Evaluation of Achievements and Results of Local Activities** **- Evaluation of Progress in Preparation of Programs and Systems to Establish "ASEAN Energy Management System"** **- Overall Evaluation and Required Improvements toward Phase -3**
11:15	**-**	**11:45**	4. Proposed Plan for 2010 – 2011: Explanation & Discussion (ECCJ)
11:45	**-**	**12:15**	Q&A and Overall Discussion
12:15	**-**	**13:30**	**Lunch**
			POST-WORKSHOP
13:30	**-**	**14:30**	**Summary : Overall Evaluation of Achievements and Basic Direction of Future Activities Toward Phase – 3 (ECCJ)**
14:30	**-**	**15:00**	**Confirmation of Future Plan including Basic Plan for 2010-2011 (ECCJ)**
15:00	**-**	**15:15**	**Coffee Break**
15:15	**-**	**15:45**	**PROMEEC-Major Industries**
15:45	**-**	**16:15**	**PROMEEC-Buildings**
16:15	**-**	**16:45**	**PROMEEC-Energy Management**
16:45	**-**	**17:00**	**Closing Statements by** **1. Chairperson of EE&C-SSN** **2. ECCJ** **3. ACE** **4. Representative of Host Country**
			End of Meeting

V-2. Latest Plan of the ASEAN Energy Management System based on the Results of Implementation

Step-1 System has almost been completed according to the plan and operation began. Additional functions to be included in the Step-2 System and programs and tools for the Step-1/Step-2 Systems have been specified.

After that, development plan for the Step-2 System was newly created, including continuous improvement of Step-1 System.

To make ASEAN Energy Management System stable and sustainable, systematic infrastructure for the maintenance and expansion of the system will be necessary.

This plan is described in Fig. V-2-1 below:

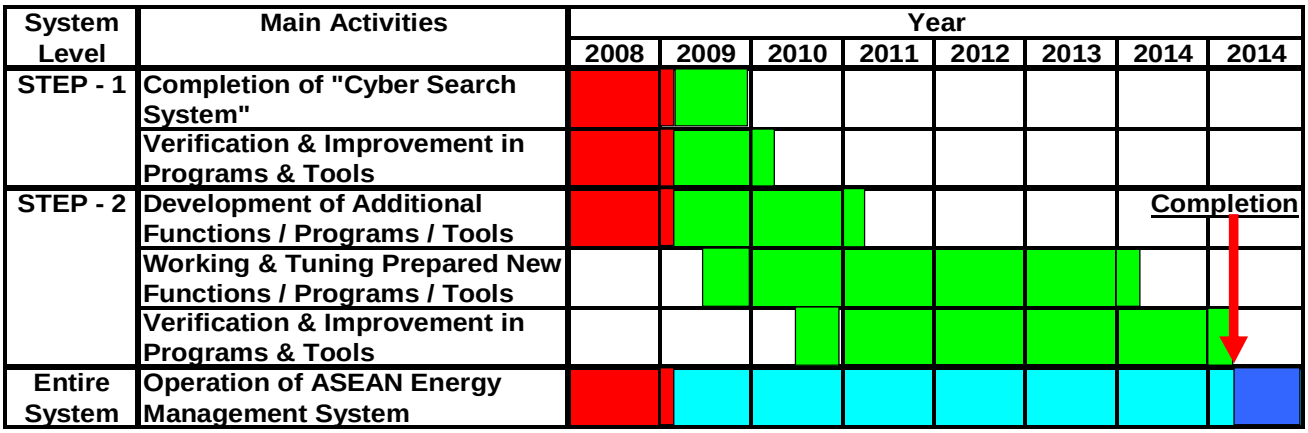


Fig. V-2-1: ASEAN Energy Management System Establishment Program

At the same time, network of relevant organizations, corporations and people in ASEAN, who are the users and cooperators of this system, should be established and operated.

In the Phase-3 of the PROMEEC project, ASEAN Energy Management System should function well and be used as an effective tool to build a foundation to implement and disseminate this system, based on the voluntary efforts of the ASEAN.

The following actions will be implemented based on the above concept. Items 1 and 2 are for the improvement of Step-1 System, while item 3 is for the establishment and preparation of Step-2 System.

1. Improving Functions and Programs Currently in Operation

(1) A system to collect and disseminate best practices in energy management

By improving operation of the ASEAN Award System of Best Practices in Energy Management for Industries and Building, whose policies having been fixed at a workshop in Japan, it will be possible to collect better practices of energy management. At the same time, an environment that allows all 10 countries to actively apply for the award has been developed. The following points were discussed in a workshop held in fiscal year 2009 to determine the implementation policy:

1) Review categories of awards
   - Classify the factories and buildings into two depending on the energy consumption volume (large-scale or small-scale)
   - Add a classification for single improvement measure to the existing classification for factories and buildings
2) Review evaluation policies and application guidelines

2. Complete and Start Operation of Functions and Programs under Establishment

(1) Establish and disseminate basic tools of energy management

Continue one-day training on how to use basic tools of energy management including the finalized Energy Management Handbook, In-house Database and Technical Directory.

(2) Speed up trial operation and verification of "Online Energy Information System" (former "Cyber Search System") for clients and implementing organizations for the purpose of utilizing existing implementing organizations for energy analysis and training; completion of preparation for on-line operation

3. Newly Established and Constructed Functions and Programs

(1) Develop and introduce new tools

Complementary handbooks on technical aspects will be prepared for the basic tools of energy management listed above.

Specifically, Thermal Energy Efficiency Improvement (TEEI) Handbook and Electrical Energy Efficiency Improvement (EEEI) Handbook, prepared with the cooperation based on the Green Partnership Program (GPP) policy dialogue between Thailand and Japan will be translated in English for use in ASEAN nations.

(2) Prepare information provision system on energy conservation business

To provide access to the companies offering energy conservation technologies and equipment, develop a directory to introduce ESCOs (Energy Service Companies) and enterprises that provide energy conservation technologies and equipment and contact persons. Establishment of an information system to use it as an e-Directory on the website of ASEAN Centre for Energy (ACE) will be discussed. Energy conservation technologies in Japan, summarized as JASE-World, were introduced together with its website.

It is planned that operation will start by posting a part of information owned by ECCJ, ACE or Focal Points. However, the basic principle is voluntary registration and maintenance of registered information by the companies themselves.

(3) Improvement of the ASEAN Energy Management System to enhance usability

(3)-1 "One Stop Service" function

To improve accessibility to the necessary information for the users.

(3)-2 Advice function

If unable to make a judgment by using the One Stop Service or further advice by the experts is necessary, a function will be added to give advice to the users by experts who voluntarily registered in the system. Consultation with relevant people will be necessary to consider the scope of advice given by the registered experts on a voluntary basis.

V-3. Policies for Future Actions and Basic Plan for 2010-2011

Marking the 11th year of the PROMEEC Project, necessary actions for Phase-3 have been confirmed for 2010 - 2011.

Phase-3 is a step ahead of Step-2, to develop voluntary activities based on the past achievements. We shared the following three points as basic principles, confirmed based on the level reached in Phase-2 in the evaluation.

1) Human resources development
2) Establish a system necessary for human resources development and prepare programs and tools for related activities
3) Policies of ASEAN and its member nations to support 2) above

Furthermore, complementary cooperation among ASEAN nations will be necessary.

Based on these principles, actions for the next fiscal year and onward have been determined. These were explained and discussed at the Post Workshop, where consensus was forged.

1. Improve ASEAN Energy Management System (STEP-1 System)
   1) Test operation, finalization and on-line operation of the Online Energy Information System (Cyber Search System)
   2) Improve categories of the award system (by BOJ)
   3) Improve and disseminate tools
2. Develop the ASEAN Energy Management System (STEP-2 System)
   1) Plan and develop System One-Stop/Advisory System

2) Prepare new technical handbooks such as Thermal Energy Efficiency Improvement (TEEI) Handbook
3) Develop a system to offer information on energy conservation technologies, equipment suppliers and ESCOs (e-Directory)

Based on the plans above, ASEAN and Japan will develop the activities on the following:

3. Develop activities for dissemination and establishment of necessary systems in up to six countries with the help of suggestions from each country
   1) Intensive Seminar-Workshop
      Introduction of the ASEAN Energy Management System, relevant programs and tools
   2) Training
      Training to utilize energy management tools, mainly the Energy Management Handbooks (including a workshop to develop energy management basic course programs in each country)
   3) Visits to factories and buildings to give advice
   4) Expand a network of the cooperators through activities described above
4. Workshop in Japan
   1) Policy to establish the ASEAN Energy Management System (STEP-2 System)
   2) Preparation to start new operation system (including improvements through analysis and evaluation of the fourth round)

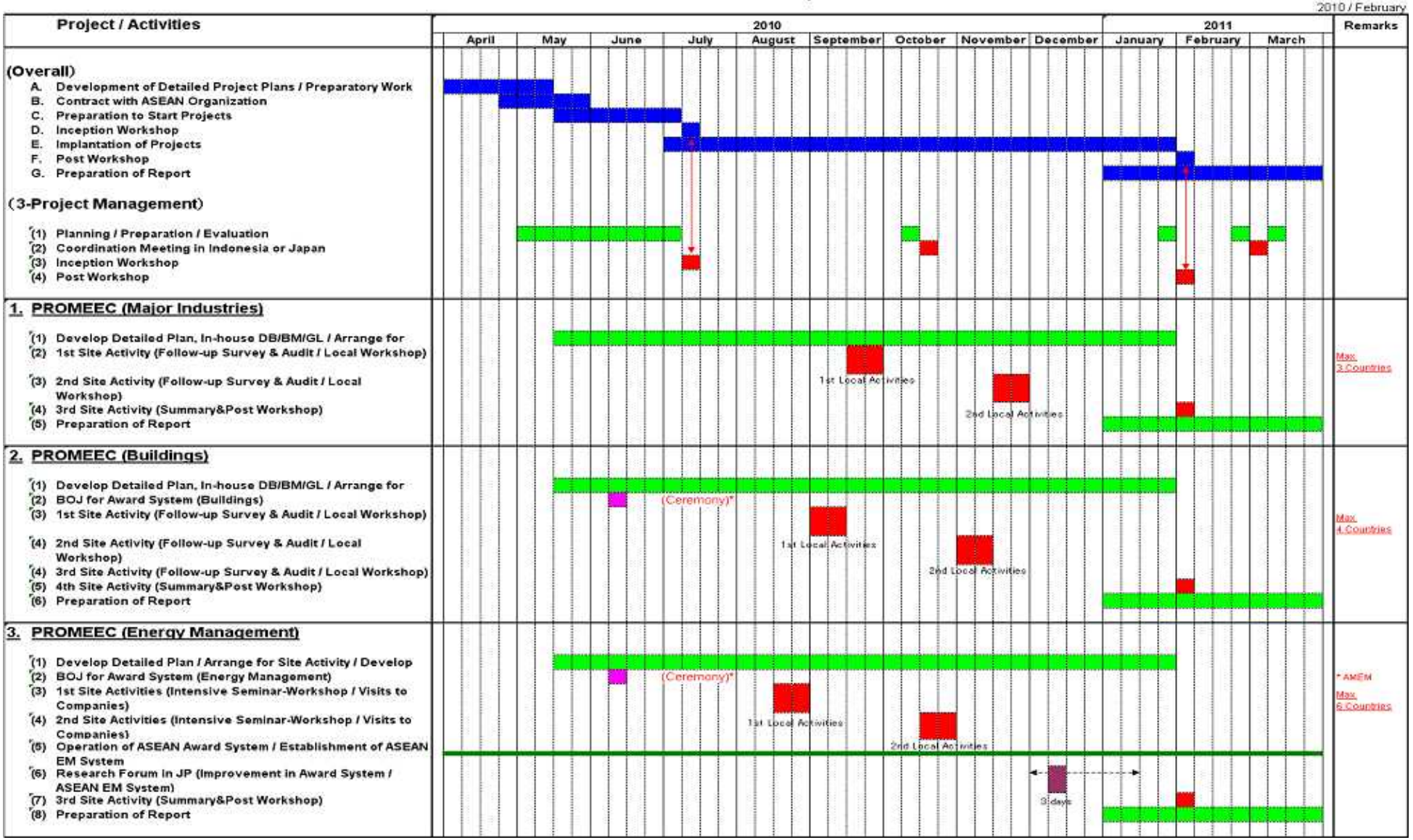
Project plan suggested by ECCJ and agreed is shown in Table V-3-1.

Table V-3-1: PROMEEC (Energy Management) Project Plan for 2010-2011

DRAFT

PROMEEC (Major Industries / Buildings / Energy Management) for 2010-2011 : Basic Implementation Plan
- Implementation Schedule -

2010 / February



VI. Reference Materials

VI-1. Presentation Materials Used in Intensive Seminar-Workshop (Common for Four Countries) not attached

VI-2. Presentation Materials Used in Training Course Utilizing Energy Management Handbook (Common for Four Countries) **not attached**

VI-3. Presentation Materials Used in Summary and Post Workshop

not attached