



**Asia-Pacific
Economic Cooperation**

**APEC Project MLA Readiness in ISO 50001
Training Workshop (APEC CTI 25/13A)**

August 12th – 15th, 2014 Beijing, China
September 16th-19th, 2014 Jakarta, Indonesia
March 16th – 19th, 2015, Ho Chi Minh City, Viet Nam
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1. OVERVIEW OF THE PROJECT

This project, entitled “Multilateral Recognition Arrangement (MLA) Readiness Project in ISO50001”, had aims to build the capacity to enable APEC Economies to promote the concept of energy efficiency for the reduction of the energy use. This project engaged to train the organizations, the certification bodies and accreditation bodies in terms of energy management system to reduce significant use of energy, improvement of both energy intensity and energy performance continuously.

1.1 Relevance

Promoting Sustainable Growth has been identified by APEC Leader’s Growth Strategy. This project promotes energy efficiency using Energy Management System (EnMS); ISO 50001. Energy efficiency and reducing energy costs are the greatest challenges to sustainable development. ISO 50001 contributes on an ongoing basis to reduce the significant use of energy, improvement of energy intensity, and energy performance continuously in APEC region.

Developing economies in APEC region have strong interests in skill and knowledge to apply ISO 50001 in order to use less energy at the business, school and any other levels. In order for these levels to gain skills and knowledge, the staffs and internal auditors from industries were expected to be trained. Once the knowledge of ISO 50001 has been acquired by the industries levels, then the certification bodies, the accreditation bodies and peer evaluators are expected to be trained in a timely manner, in order to complete the credible and technical framework of ISO 50001 certification scheme. Also, in order to achieve successful certification scheme, the capacity building or promotional activities for wide varieties of stakeholders who are the interested in the energy is needed among the APEC developing economies to support improving the efficient use of energy for the sustainable growth. By knowing these needs and target, the participants will be able to engage in and contribute to the efficient use of energy. The four hosting APEC developing economies have designed, selected the trainers and trainees and implemented the workshop supported by the project overseer.

Also as the less energy use and improving energy efficiency become big issues in the region, engaging the certification bodies and the accreditation bodies from the beginning of organizing the workshops supported by the Pacific Accreditation Cooperation (PAC) is very important to achieve the successful certification scheme. PAC has planned to develop Multilateral Recognition Arrangement (MLA), related with ISO 50001 as well.

The purpose of the PAC MLA for ISO 50001, is to ensure mutual recognition of accredited ISO 50001 certification among signatories of the MLA, and subsequently the accredited ISO 50001 certifications are accepted in APEC region. By ensuring technical consistency across APEC Economies and greater confidence of ISO 50001 certification schemes among APEC region, this project contributes to the further promotion of energy efficiency.

NOTE: ISO 50001:2011 – Energy Management System (EnMS): is based on the management system model of continual improvement and also used for other well-known standards such as ISO 9001 or ISO 14001. Implementation of this standard makes organizations easier to integrate energy management into their overall business efforts to improve quality and environmental management.

1.2 Objectives

The ISO 50001 certificate allows manufacturers and service providers to distinguish themselves as reputable suppliers, and to create a competitive advantage for the procuring goods and services with greater confidence in terms of energy efficiency. The certification bodies’ auditors and accreditation bodies’ assessors ensure that ISO 50001 standard, and conformity assessment methods are the same, allowing one accredited ISO 50001 certificate to be recognised around the world. The MLA enhances the acceptance of goods and services certified based on ISO 50001 across national borders.

The project proposed four training workshops in the area of EnMS to establish the framework and to build the capacity within APEC Economies. The targeted participants are starting from internal auditors in the organizations, who are the bottom of the certification scheme, next are the auditors in certification bodies, and then the assessors in accreditation bodies, finally the peer evaluators. The skills and knowledge of internal auditor who evaluates its own EnMS and improvement of the energy performance are keys to train and improve the level of the organizations as first step. Second step is that the certification body needs to be able to audit, which shares the best practice and experiences to have appropriate competencies as the standard required. Regarding the third step of the workshop is to improve the skills of accreditation bodies' assessors to ensure one accredited ISO 50001 certificates will be recognised around the world. The last step is to train the peer evaluators as competent, for the future arrangement of PAC MLA in the area of EnMS.

In general, participants are selected from APEC region. However, in order to increase the number of ISO 50001 users, the first workshop for the internal auditors are targeted to wider range of economies and stakeholders.

- Workshop for internal auditors is to apply and implement the energy management system aligned with ISO 50001. This will enable participants to understand the relevant standards and implement harmonized best practices for EnMS based on ISO 50001 in the Asia-Pacific region.
- Workshop for certification body management staffs or auditors within APEC Economies. This will enable participants to certify the organizations based on ISO 50001 consistently and implement harmonized best practices for EnMS in the Asia-Pacific region.
- Workshop for accreditation body assessors within APEC Economies. This will enable participants to accredit the certification bodies which certify ISO 50001 consistently and enhance the capability of accreditation bodies to support APEC and PAC efforts in the area.
- Workshop for peer evaluators will be held for PAC-member accreditation bodies within APEC Economies. This will enable APEC Economies to achieve the objectives of the proposed PAC MLA for EnMS to improve energy efficiencies with technical equivalence through the peer evaluators.

2. WORKSHOP DATES AND VENUES

Workshop 1

Title: 4-day training workshop for organization and internal auditors

Date: April 6th - 9th, 2015

Venue: Pathumwan Princess Hotel

Workshop 2

Title: 4-day training workshop for certification body staff or auditors

Date: August 12th - 15th, 2014

Venue: Capital Hotel

Workshop 3

Title: 4 days training workshop for accreditation body and its on-site assessment

Date: September 16th - 19th, 2014

Venue: Hotel Mercure Serpong Alam Sutera

Workshop 4

Title: 4 days workshop training for PAC peer evaluator to extend ISO 50001

Date: March 16th - 19th, 2015

Venue: Novotel Saigon Central

Note: At the planning stage, the workshops were programmed to start from workshop 1 to workshop 4 in its order. However, due to unexpected events happened in Thailand, the project overseer, organizers and the APEC Secretariat decided to postpone the workshop 1 until the situation became stable.

3. PARTICIPANTS

The four training workshop was open to all APEC Economies. APEC funds cover the maximum of two participants for workshop 1 to 3, and one participant for workshop 4 from each APEC “travel-eligible” economy. The following member Economies are considered “travel-eligible”: Chile, China, Indonesia, Malaysia, Mexico, Papua New Guinea, the Philippines, Peru, Russia, Thailand and Viet Nam.

Targeted participants for each workshop:

Workshop 1: the personnel of organizations that have an interest in energy efficiency and internal audit in relation to ISO 50001

Workshop 2: Certification bodies from APEC Economies

Workshop 3: Accreditation bodies from APEC Economies

Workshop 4: PAC members who have been nominated by APEC Economies or plan to be nominated as peer evaluators.

4. KEY OUTPUT

The workshop 2 to workshop 4 had been announced for the application in mid-June 2014 and workshop 1 had been announced early February 2015. The series of the workshops were effectively promoted as well.

Workshop 1 for organizations, especially internal auditors in Bangkok, Thailand from April 6th to 9th, 2015, was successfully participated by the APEC funded four economies.

- The main speakers for this workshop were Dr. Teruo Okazaki, from Nippon Steel & Sumikin Research Institute of Japan and Dr. Somchai Dechapanichkul from UEE Technology (Thailand) Ltd. The guest speaker was Mr. Hin Navawongse from Iron and Steel Institute of Thailand.
- About group case studies and their discussions, all participants understood more clearly ISO 50001, how to implement the energy management system as well as the good practice for energy efficiency techniques and how to conduct internal audit for energy management system in their organizations. The participants had a chance to share and exchange their experiences on the implementation of the energy management system among APEC Economies. The participants noticed that energy management system gives co-benefit to the carbon reduction.

Workshop 2 for certification bodies in Beijing, China from August 12th to 15th, 2014, was successfully participated by all APEC funded eleven economies and also from APEC and non-APEC Economies.

- This workshop 2 received great supports from General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) and Certification and Accreditation Administration of the People's Republic of China (CNCA).
- The training courses are delivered by Ms. Deann Desai, the convener of ISO/TC 242 (Energy Management) / WG 1 (Energy Management) and Dr. WANG Geng, the Vice Chair of ISO/TC 242.
- Through lectures, group case studies and its discussions, the participants have formed a better understanding on energy management systems related standards and techniques, as well as on the current situations of other countries' energy management system implementation.

Workshop 3 for accreditation bodies also successfully conducted in Jakarta, Indonesia from September 16th to 19th, 2014.

- The speaker for this workshop was Ms. Chikako Makino from Japan Accreditation Board (JAB).

- In this workshop, all participants gained understanding on ISO 50001 and ISO 50003 through effective workshop methods such as presentation, sharing practice experience within participants, group exercises and case study discussions.
- The witness exercise, technical visit to PT Indah Kiat Pulp and Paper, Tangerang Mill, Indonesia went well with a great support from the company.
- The harmonization of accredited certification and its practices is to be achieved through rigorous discussions, agreement on the interpretation of standards and completion of case studies during the training course, and develop a new PAC document to apply for ISO 50003, in order to assess together for future MLA to extend the scope to ISO 50001.

Workshop 4 for accreditation bodies also successfully conducted in Ho Chi Minh City, Viet Nam from March 16th to 19th, 2015.

- The speakers for this workshop were Mr. Fei Yang from China National Accreditation Board (CNAS) and Mr. Darren Chang from Taiwan Accreditation Foundation (TAF).
- During the 4-day workshop, the speakers introduced ISO 50001, ISO 50003, the draft of ISO/IEC 17021-1, and draft of PAC documents for ISO 50003 and ISO/IEC 17011. The group exercises about EnMS audit of certification bodies, assessment of accreditation bodies and peer evaluation of peer evaluation teams were also offered.
- Through the activities of the workshop, the participants gained knowledge and understanding on EnMS standards and related documents, the skill and experience of assessment and peer evaluation.

4.1 Participants from APEC Economies and non APEC Economies

Workshop 1 for organization in Bangkok, Thailand

- The participants were from mainly organizations, from mainly organizations, from 5 APEC Economies (Indonesia, Malaysia, Mexico, Thailand and Viet Nam)

Workshop 2 for certification bodies in Beijing, China

- The participants were mainly from certification bodies, in 16 APEC Economies (Chile, China, Hong Kong, China, Indonesia, Japan, Korea, Malaysia, Mexico, Papua New Guinea, Peru, the Philippines, Russia, Chinese Taipei, Thailand, United States and Viet Nam), also non APEC Economies were participated voluntarily such as India.

Workshop 3 for accreditation body in Jakarta, Indonesia

- The participants were from accreditation bodies' assessors, from 11 APEC Economies (Indonesia, Japan, Malaysia, Mexico, Papua New Guinea, Peru, the Philippines, Singapore, Chinese Taipei, Thailand, and Viet Nam), also non APEC economies were participated voluntarily such as Bangladesh, India, Nepal and Sri Lanka.

Workshop 4 for PAC peer evaluators in Ho Chi Minh City, Viet Nam

- The participants were from mainly accreditation bodies, from 9 APEC Economies (China, Indonesia, Malaysia, Peru, the Philippines, Singapore, Chinese Taipei, Thailand, and Viet Nam), also non APEC Economies were participated voluntarily including India.

4.2 Evaluation

The four workshops had been evaluated through the survey (PAC-MFORM-006). The evaluation result shows that the expected objectives of participants were achieved. The project should be continued with the advanced training to see how this standard implemented effectively to support global issues.

The project of Bangkok WS (workshop 1) was evaluated by the 22 participants as satisfied level and positive feedback:

- Achieved the objectives of workshop (94.73 % of participants);
- Satisfied for the workshop event notification (100% of participants);

- Provided good training material and facilitation of discussion (89.47% of participants);
- Provided good course contents and sequence (94.73 % of participants);
- Achieved satisfaction towards the workshop's logistic such as workshop room, location, audio visual facilitation equipment and workshop's duration (average for satisfaction 100 % of participants)

The project of Beijing WS (workshop 2) was evaluated by the 26 participants as satisfied level and positive feedback:

- Achieved the objectives of workshop (92.3 % of participants);
- Satisfied for the workshop event notification (88.46 % of participants);
- Provided good training material and facilitation of discussion (100% of participants);
- Provided good course contents and sequence (100 % of participants);
- Achieved satisfaction towards the workshop's logistic such as workshop room, location, audio visual facilitation equipment and workshop's duration (average for satisfaction 88.46 % of participants)

The project of Jakarta WS (workshop 3) was evaluated by the 38 participants as satisfied level and positive feedback:

- Achieved the objectives of workshop (84.2 % of participants);
- Satisfied for the workshop event notification (81.6 % of participants);
- Provided good training material and facilitation of discussion (94.7%of participants);
- Provided good course contents and sequence (100 % of participants);
- Achieved satisfaction towards the workshop's logistic such as workshop room, location, audio visual facilitation equipment and workshop's duration (average for satisfaction 90.8 % of participants)

The project of Ho Chi Minh City WS (workshop 4) was evaluated by the 16 participants as satisfied level and positive feedback:

- Achieved the objectives of workshop (75 % of participants);
- Satisfied for the workshop event notification (75 % of participants);
- Provided good training material and facilitation of discussion (100% of participants);
- Provided good course contents and sequence (100 % of participants);
- Achieved satisfaction towards the workshop's logistic such as workshop room, location, audio visual facilitation equipment and workshop's duration (average for satisfaction 83.75% of participants)

4.3 Overall impact and lessons learned

The benefits which this project brought to organizations, certification bodies and accreditation bodies to promote energy efficiency among APEC Economies are:

- Increased capacity of organizations, certification bodies and accreditation bodies to understand how the implementation of ISO 50001 reduces energy use and its related costs in each economy.
- The harmonization of accredited certification and its practices were achieved through rigorous discussion, agreement on the interpretation of standards and completion of case studies during the training course.
- PAC started developing the necessary its documents in order to harmonise accreditation bodies understanding, to extend PAC MLA to EnMS, and to train potential peer evaluators as competent. The results from these activities will be able to sign an arrangement as PAC MLA in the area of EnMS in the future.
- This project increased the confidence of ISO 50001 certification, and improved the energy efficiency effectively in APEC Economies.

In addition to this, in order to evaluate the value of this project, PAC monitored accreditation bodies offering ISO 50001 accreditation program among APEC Economies as of July 2015.

Established and development of ISO 50001 accreditation program

Year	Name of the accreditation body(economy)
2011	JAB(Japan)
2012	CNAS (China), HKAS (Hong Kong, China), TAF,(Chinese Taipei), NAC (Thailand), NABCB (India), SAC (Singapore)
2013	KAB (Korea), Standard Malaysia (Malaysia), ema (Mexico)
2014	KAN (Indonesia)
2015 (plan)	Indecopi (Peru), PAO(the Philippines), BoA (Viet Nam)

Through these four workshops, we have trained the trainers who will be able to train each local economy. Although we learned the different regulations in related with energy efficiencies are in place in APEC Economies, as next step, the local capacity building is relevant to meet the demand from the regulators and sectoral energy issue. One of example is that workshop 1 focused on steel industry, it had an impact to the other industries as well. Thus sectorial capacity buildings in related energy efficiencies are expected in APEC Economies in the future.

In respect of gender, the participants were in a good balance between male and female on all for workshops, e.g. workshop 1 (male 19 and female2), workshop 2 (male 31 and female 13), workshop 3 (male 24 and female 12) and workshop 4 (male 20 and female 6).

For the future perspective, as the current situation indicates, since the number of female experts working in energy management sector is still limited, the more these type of workshops needs to be arranged and implemented, in particular to train the potential female energy managers for energy audits like workshop 1, the more the female experts will have opportunity to raise expertise in terms of energy efficiency. When the number of female energy managers will increase, the balance will be improved by increasing female EnMS auditors and female accreditation assessors.

4.4 Conclusions and information on next steps

This project developed the basis on “train the trainer” program/scheme, the four workshops facilitated the participants will be able to plan the future training program for local industries, certification bodies, and accreditation bodies with appropriate training materials. And PAC considers the future follow up training.

Furthermore, based on the result of survey and monitors during the workshops, this project will result in an increase number of competent ISO 50001 certification bodies and accreditation bodies from APEC Economies (particularly from developing economies) within the immediate next 2 or 3 years. This will be measured by the number of newly registered PAC members from APEC Economies that join the PAC MLA to extend ISO 50001 and the number of its certified accreditations granted as a part of the MLA, which will be monitored on an annual basis by means of a PAC survey to APEC SCSC and report to the APEC SCSC secretariat via project overseer for 3 years.

Appendix

Training materials and its related information are available from the APEC Meeting Document Database as follows:

- [Workshop in Beijing, 12-15 Aug 2014](#)
- [Workshop in Jakarta, 16-19 Sep 2014](#)
- [Workshop in Ho Chi Minh City, 16-19 Mar 2015](#)
- [Workshop in Bangkok, 6-9 Apr 2015](#)