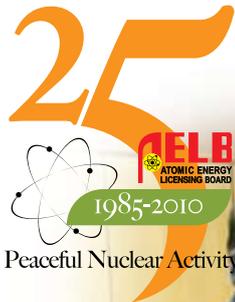




Ministry of Science, Technology
and Innovation Malaysia

NUCLEAR REGULATORY

Newsletter



Marking AELB's 25th Anniversary (1985 – 2010)

Peaceful Nuclear Activity



As AELB celebrates its 25th Anniversary, it can boast of its own Headquarters – a sprawling and modern complex of buildings in Dengkil, Selangor – housing its own National Radiological Emergency Response Centre, which also operates the National Radiological Environmental Monitoring System.

From a small fledgling organisation which was operated out of rented premises on levels 2, 12 and 13 of Plaza Pekeliling in Kuala Lumpur, AELB has now come into its own. As it celebrates its 25th Anniversary, AELB can boast of its own Headquarters – a sprawling and modern complex of buildings in Dengkil, Selangor – housing its own National Radiological Emergency Response Centre, which also operates the National Radiological Environmental Monitoring System. In addition, AELB has branches in Penang, Johor Bahru, Terengganu and Sarawak.

Complete with the necessary systems and infrastructural support, and manned by 165 technical and support staff, these offices are well-equipped to meet customers' needs especially with respect to licensing and enforcement. Furthermore, they enable AELB to effectively regulate and monitor atomic energy activities through comprehensive enforcement of relevant laws and regulations. To date, there are more than 1,000 licensees of AELB.

Amendment of the 25 year old Atomic Energy Licensing Act, 1984 (Act 304) and some of the subsidiary legislation was undertaken to strengthen its effectiveness and to facilitate the acquisition of relevant technology should the Malaysian Government decide to use nuclear energy as an alternative source of energy in future.

Another big step forward in the fight against illegal trafficking of radioactive materials is the setting up of the National Detection System for illicit trafficking of radioactive and nuclear sources. This detection system complements border controls to protect the country's security with respect to radioactive and nuclear material.



Marking AELB's 25th Anniversary(1985 – 2010)

In addition to using the AELB website to disseminate information to its staff, customers, other government bodies and the general public, AELB has also published its own newsletter – the Nuclear Regulatory – since 2007. Both have become an important channel for explaining various policies, documents, legalities and other aspects of radiation and nuclear technology, and has played a big part in getting the target audience to gain a better understanding of the initiatives of AELB.

On the international scene, AELB has built up a solid reputation for being both active and proactive in its efforts to ensure the safe, secure and peaceful use of nuclear materials and technology. Since 1985, AELB has sent representatives to IAEA conferences and international meetings, and played an active role in regional meetings and initiatives. Malaysia is one of the early signatories of the Nuclear Non-Proliferation Treaty (NPT), and AELB has strongly and resolutely upheld those values and commitments till today. In keeping with that philosophy, AELB has participated as a member of Asian Nuclear Safety Network (ANSN) – a network dedicated to serve as a platform for knowledge sharing pertaining to nuclear safety.

Today, officers of AELB participate in inter-agency meetings on matters related to nuclear safety, security and safeguard. AELB has been hosting various IAEA activities, such as regional training courses, workshops and meetings as well as hosting

IAEA trainees from countries all over South-east Asia, Asia and the Pacific in collaboration with IAEA.

All these sustained efforts at both the domestic and international levels have served to indicate AELB's competency and Malaysia's commitment to the principles of nuclear safety, security and safeguard, and as a country that is also prepared to deal competently and effectively with the Nuclear Renaissance. We are ready to stand shoulder-to-shoulder with other agencies and nations with a similarly peaceful initiative, to play our part in upholding the 3S's – Safety, Security and Safeguard – not only in our country and our region, but also internationally.

Moving forward, AELB plays a vital role in escalating Malaysia's progress towards a developed nation. AELB will continue to supervise and facilitate Malaysia's adoption of nuclear power for energy generation aligned with national and international requirements.

Together with this push forward, AELB recognises the need to strengthen the nuclear regulatory infrastructure and to convey information to the public with greater transparency in order to avert misunderstanding and dispel any fear related to nuclear technology. AELB looks ahead to becoming on par with other agencies while functioning as an effective, competent and independent Nuclear Regulatory Body that is part of the driving force that will lead the nation to achieve its economic and environmental goals.

Moving forward, AELB plays a vital role in escalating Malaysia's progress towards a developed nation. AELB will continue to supervise and facilitate Malaysia's adoption of nuclear power for energy generation aligned with national and international requirements.



A family of dedicated AELB staff.

Sharing Thoughts on Regulatory Aspects of Nuclear Power Plants

As part of its NPP development programme, Malaysia needs to thoroughly review and evaluate national preparedness and readiness in the areas of regulatory infrastructure for the supervision of commercial nuclear power plants.

To develop Malaysia's own Nuclear Power Plant (NPP), the country must first strengthen the national nuclear regulatory infrastructure and enhance its skills and knowledge in the area of nuclear power. The need for this is spelt by the International Atomic Energy Agency (IAEA) in standards and guidelines related to the development of NPPs for peaceful purposes. The same emphasis was made by foreign experts who visited the country, particularly to the Atomic Energy Licensing Board (AELB) with the aim of fostering co-operation in this field. Some of the experts came from the United States of America, Canada, Korea, Japan, France and others.

Present during the talks with the foreign experts from the above-mentioned countries were members of the National Working Committee on NPP Regulatory Development (Jawatankuasa Penyelarasan Perundangan Nuklear) comprising of several agencies, such as the Energy Commission, Department of Environment, Ministry of Foreign Affairs, Internal Security Council and others.

During the talks, the visitors and participants learnt that Malaysia has already established a generic nuclear installation regulatory framework through the Atomic Energy Licensing Act 1984 (Act 304), which provides the legal basis for the formation of the Atomic Energy Licensing Board (AELB) as a regulatory body with the authority to supervise and regulate users of nuclear energy as well as to issue subsidiary legislation implementing the Act. Malaysia is also party to a number of key international agreements for nuclear safety, security and safeguards. At the national level, Malaysia has a host of federal and local authority regulations, such as environmental laws and town planning laws that in some way impact the use of nuclear power.

As part of its NPP development programme, Malaysia is in the middle of thoroughly reviewing and evaluating national preparedness and readiness in the areas of regulatory infrastructure for the supervision of commercial nuclear power plants. Other areas that need to be addressed for Malaysia's entry into safe nuclear power use are key international safety, security and safeguard agreements on nuclear power, and bilateral agreements with supplier nations. Another equally important aspect that is being emphasised is the development of the competency of regulatory bodies in safety and security assessment including safeguards whereby this responsibility is implemented so as to ensure that the safety of the public, the workers and the environment is always assured. This is an important factor in efforts to carry out nuclear power programme in which the rights and interests of the three entities will not be sidelined.



Visit by various agencies from the United States of America, Canada, Japan, Korea and others to AELB in 2010.

Working Visit to France

In another development, towards successful preparation of nuclear regulatory infrastructure for a nuclear power plant, one of AELB's initiatives is to acquire knowledge from the experience of developed countries that already have NPPs. In this effort AELB's representatives visited France (from March 7–14, 2010). AELB's participation was part of the Malaysian delegation to France led by the Secretary General of the Ministry



Malaysia Delegation during the site visit to the EDF Nuclear Power Plant, (Tricastin), France.

of Energy, Green Technology and Water (KeTTHA), Dato' Dr. Halim Man. Dato' Dr. Halim led the delegation for a one-week visit to France during which the delegates' discussions were focused on how to finance a nuclear programme, training issues, framework for development of nuclear energy, the medium- and long-term outlook for nuclear power as well as the process flow for implementing a successful nuclear power programme.

As part of the visit, the one-week programme allowed the Malaysian delegation to take part in the "International Conference on Access to Civil Nuclear Energy" organised by the Organisation for Economic Co-operation and Development (OECD) as well as make a working visit to EdF Nuclear Power Plant (Tricastin), COGEMA EURODIF Nuclear Fuel Enrichment Plant (AREVA), COGEMA Nuclear Fuel Reprocessing Plant La Hague, Cotentin Peninsula and ANDRA Low Level Waste Management Facility Manche.

Discussions on the framework for Malaysia-France co-operation were also held with France Atomic Energy Commission (CEA), Institute of Radiation Protection and Nuclear Safety (IRSN), France Nuclear International Agency (AFNI) and *Société française d'exportation des ressources éducatives* (SFERE).

Brain Gain Malaysia Programme On Capacity Building for NPP



Honorable Excellency Prof. Dr. KunMo Chung (second from left) in dialogue with relevant national authorities involved in the regulatory aspects of Nuclear Power Plant.

Honorable Excellency Prof. Dr. KunMo Chung from Kepco International Nuclear Graduate School (K-INGS), Korea, visited Malaysia on May 29 to June 5, 2010 and November 1 to 4, 2010 under the Brain Gain Malaysia (BGM) programme which involved a project on Capacity Building for Nuclear Power Development Programme in Malaysia including Regulatory Aspects.

This BGM programme is part of the Government's initiative to develop the country's capacity in nuclear power development programme in line with international standards and practices.

The programme was fully maximized with a talk, meeting and forum in various area including the role of Higher Education and Research in Nuclear power, public awareness, regulatory aspects and human resource development.

IRSN visit to AELB

On December 21, 2010, Prof. Dr. Vincent Koundy from the French Institute for Radiological Protection and Nuclear Safety (IRSN) visited AELB as a follow-up to the scientific visit by the Malaysian Delegation to France in early 2010. IRSN is the sole independent Technical Support Organisation (TSO) for French authorities in the area of nuclear safety. To date, IRSN is manned by 1,800 personnel. There are 58 NPP's in operation and each NPP is supervised by almost 40 personnel from various fields of expertise. During his visit, Dr. Koundy shared IRSN experience, roles and responsibilities with regard to French practices in controlling and supervising atomic and nuclear energy and its related activities. The French practice may be used as a model to further strengthen Malaysia's current practices and strategies, in particular for the establishment of Regulatory Technical Support Organisation and related expert committees in preparation for the country's impending nuclear power programme.

The French practice may be used as a model to further strengthen Malaysia's current practices and strategies.



Dr. Vincent Koundy in the meeting with AELB officers.

AELB's Co-operation with United States' Agencies

AELB's recent co-operation with two leading American nuclear energy agencies – the National Nuclear Security Administration (NNSA) of the United States and the United States Nuclear Regulatory Commission (USNRC) – has further strengthened bilateral nuclear energy co-operation between Malaysia and the United States.

Two representatives from the USNRC, Vice President of Advanced Systems Technology and Management (AdSTM), Mr. Sergey Katsenelenbogen and NRC Programme Manager, Mr. Jack Ramsey, visited AELB on September 9, 2010 as part of an agreement to assist Malaysia's emerging nuclear regulatory programme.

The USNRC International Regulatory Development Partnership (IRDP), in their efforts to establish and maintain an effective nuclear safety and security regulatory authority, provides assistance to countries considering or expanding nuclear power programmes.

Director General of AELB, YM Raja Dato' Abdul Aziz Raja Adnan, Directors and officers from each division within AELB and representatives from Tenaga Nasional Berhad (TNB) also attended the meeting.



DG of AELB (second from left) presenting a memento to NNSA representative.

The meeting addressed the need for AELB to properly plan and develop its human resource capability by taking into consideration other fields apart from related scientific fields, such as engineering and legal.

In another development, the first meeting between AELB and the NNSA of the United States under their bilateral co-operation was held on March 26, 2010.

The bilateral co-operation was formalised through the signing of the Letter of Intent (LOI) on March 25, 2009 at the AELB Headquarters. The Assistant Deputy Administrator of the Office of Non-proliferation and International Security, Mr. Mark Whitney and the Director General of AELB, Raja Dato' Abdul Aziz bin Raja Adnan signed the LOI on behalf of their respective organisations.

AELB and NNSA have identified several key areas in which they will work closely together, such as Legislation and Regulation for Nuclear Energy, Implementation of the State System of Accounting and Control (SSAC), Implementation of the Additional Protocol, Radiation Protection, Radioactive Waste Management and Environmental Radiological Surveillance. AELB as the nuclear regulatory authority in Malaysia will ensure that atomic activity in Malaysia is safe, secured and safeguarded.



Officers from AELB, USNRC and TNB at the meeting.



AELB and NNSA officers during the meeting.

Nuclear Science Research Collaboration between AELB and UKM



DG of AELB (left) and UKM registrar at the signing ceremony.

The exchange of information and co-operation in academic research in nuclear science received a boost with the signing of a Memorandum of Understanding (MoU) between AELB and Universiti Kebangsaan Malaysia (UKM). Signed on March 5, 2010 at UKM Chancellery Meeting Room, the MoU will provide a platform to develop sustainable, competent human resources in the field of nuclear science. This is in line with the recent announcement by the Government pertaining to the consideration of utilising nuclear energy and technology to generate energy.

Being accredited as one of five research universities in Malaysia, UKM has long been identified as a reliable source of erudite scholars. It is also the only university in Malaysia that offers a Nuclear Science Programme. The research collaboration with the university in this field of study is essential in efforts to achieve the mission and vision of AELB as well as provide the assurance to the people of Malaysia that the utilisation of atomic energy in Malaysia will be safe, secured and safeguarded.

The Director General of AELB, Raja Dato' Abdul Aziz bin Raja Adnan signed the MoU on behalf of AELB, while UKM was represented by its Vice Chancellor, Y. Bhg. Prof. Tan Sri Dato' Dr. Sharifah Hapsah bt. Syed Hasan Shahabudin. The signing of the MoU was witnessed by the Chairman of AELB, Prof. Emeritus Dato' Dr. Noramly bin Muslim and UKM Registrar, Mr. Abdul Aziz Othman.

Comprehensive Regional Training Course on International Nuclear Law

For the first time ever, AELB hosted the Comprehensive Regional Training Course on International Nuclear Law under the auspices of the International Atomic Energy Agency (IAEA). Held at the AELB Headquarters from March 8 to 19, 2010, the course was organised in collaboration with IAEA and the Ministry of Science, Technology and Innovation (MOSTI). Seventy participants comprising the IAEA Asia Region State Members and various other agencies in Malaysia attended the course.



Participants from the various countries during the course.

Among the participants were 35 international participants from Afghanistan, Bahrain, China, Cambodia, The Philippines, Iran, Iraq, Jordan, Kuwait, Lebanon, Mongolia, Myanmar, Nepal, Oman, Palestine, Pakistan, Qatar, Saudi Arabia, Singapore, Sri Lanka, Syria, Thailand, United Arab Emirates, Vietnam and Yemen. Local participants came from the Attorney General's Chamber, MOSTI, Ministry of Energy, Green

Technology and Water (KeTTHA), Malaysian Nuclear Agency, Energy Commission, Universiti Kebangsaan Malaysia, Tenaga Nasional and AELB. The course, officiated by AELB Chairman, Prof. Emeritus Dato' Dr. Noramly bin Muslim, also saw the participation of international experts in various fields of nuclear law, such as Ms. Laura Rockwood from IAEA, Prof. Alec Bher, Prof Dr. Quentin Michel, Dr. Walter Gehr, Mr. Gerardus J. Dicke and Mr. Sebastian Reitsma. They were led by the founding father of the Nuclear Law School of the University of Montpellier, Dr. Patrick Reyners and assisted by Dr. Odette Jankowitsch.

The course was held with the following objectives: to provide a forum focusing on issues of concern to nuclear law and regulations; to share knowledge on legal issues related to the peaceful utilisation of nuclear energy under the special aspects of the protection of man and his environment; and to help promote the exchange of information on legislation governing the peaceful use of nuclear energy.

Essential topics on international nuclear law were comprehensively covered during the course, including the origins and uniqueness of nuclear law, nuclear safety and prevention and management of nuclear accident, protection against ionising radiation, transport of nuclear materials and fuel, preventing the proliferation of nuclear weapons, physical protection of nuclear materials and installation and management of spent fuel and radioactive waste.

Participants took an active part during the course and benefited the most from the case study session where the lecturers and participants engaged in healthy discussions on various issues ranging from Liability and Compensation for Nuclear Damage to International Trade in Nuclear Material and Equipment.

Workshop on Emergency Preparedness and Response for Radiological Assessors and First Responders (AELB/ANSTO)

Three experts in Radiological Emergency, Preparedness and Response from the Australian Nuclear Research and Development Organisation (ANSTRO), Australia were invited by the Atomic Energy Licensing Board (AELB) to conduct the Workshop on Emergency Preparedness and Response for Radiological Assessors and First Responders. Twenty-four officers from AELB, Malaysia Nuclear Agency, Malaysian Royal Police Department, Fire Brigade Department and Malaysian Royal Army attended the workshop, which was held from February 8 to 12, 2010.

The goal of the workshop was to provide knowledge and skills on the fundamentals of radiation and nuclear

emergency response to the First Responders and Radiological Assessors, and to provide guidance on preparing and presenting radiological emergency response training and practical exercises.

Practical sessions held during the workshop covered the areas of source search, transportation accident involving sealed and unsealed sources and field deployment exercise.



Participants at the workshop.

The ASIAN Nuclear Safety Network (ANSN) Topical Group Meeting on Safety Analysis (SATG) was held from August 16 to 20, 2010 at AELB in Dengkil, Selangor.

Representatives of ANSN participating countries, including the Philippines, Indonesia, Japan, Malaysia, China, Korea, Thailand and Vietnam attended the meeting, which was jointly organised by AELB, Nuclear Malaysia and IAEA. The meeting focused on the topic “Web-based Safety Analysis Competency Building”. The establishment of adequate nuclear safety capacity building and infrastructure is important in view of the dynamic change taking place in the global nuclear community particularly in Asia where there is ambitious introduction of new Nuclear Power Plants (NPPs), rapid expansion of existing nuclear power programmes and the wider use of radioactive sources. These require continued and improved international co-operation and co-ordination in nuclear and radiation safety and regimes.

The workshop held during the meeting focused on the accessibility of web-based activities of SATG including Visual System Analyser (ViSA) exercise and online



Participants of the IAEA/ANSN Topical Group Meeting on Safety Analysis.

Malaysia hosted ANSN Topical Group Meeting on Safety Analysis

communication through Web-based Seminar (Webinar), which is a useful platform for exchanging ideas and information transmitted over the web. Webinar’s key feature is its interactive elements – the ability to give, receive and discuss information. The workshop successfully enhanced the participants’ knowledge on safety analysis, design and licensing activities of NPPs, which were crucial to those countries already

having a nuclear power programme and also to countries which plan to embark on such a programme. The workshop also helped enhance the competence of computer codes utilisation besides serving as a forum for the exchange of experiences and for work collaborations, with the support of cross-cutting activities, such as Virtual Technical Support Organisation (Virtual TSO), education and training.

Meeting with Humid Tropic Centre of the Department of Irrigation and Drainage

Four AELB officers visited the Humid Tropic Centre (HTC), Department of Irrigation and Drainage (DID) in Kuala Lumpur on March 16, 2010 for a meeting on the development of National Guideline for Site Selection and Evaluation of Nuclear Power Plant. The meeting was held to discuss and learn more about the National Criteria for Probable Maximum Precipitation (PMP) for Design Basis Flood, Hydrology & Coastal Management.

Chaired by the Director of HTC, Dr. Mohamed Roseli, the meeting brought together several staff from various divisions within DID and the AELB’s representatives. The meeting discussed the concept of PMP at the national level and the functions of DID as well as the National Hydraulic Research Institute of Malaysia (NAHRIM) in the development of the National Guideline for Site Selection and Evaluation of Nuclear Power Plant.



Nuclear Awareness Briefing for PUSPANITA Members



Nuclear awareness briefing at Emergency Response Centre, AELB.

A nuclear awareness briefing for PUSPANITA members of the Ministry of Science, Technology and Innovation (MOSTI) branch was held during PUSPANITA’s 27th annual general meeting at the AELB auditorium on August 6, 2010.

The briefing was held to increase awareness amongst PUSPANITA members on the preparation of regulatory infrastructure for nuclear power programme and to address any concerns the members might have on safety issues regarding nuclear power.

National Action to Secure Nuclear Materials At Borders

In the pursuit to address transnational threats effectively, AELB has taken a comprehensive approach to secure the country's borders. The effort, includes co-operation with international partners, state and local governments and the private sector. Besides investing local resources in the installation of Radiation Portal Monitors (RPM), Malaysia has also signed a Memorandum of Understanding (MoU) with the Government of the United States of America through the Royal Malaysian Customs (RMC) for the installation of RPM at the national border with the technical support provided by AELB and where appropriate, the Nuclear Agency Malaysia. Integrated under the 9th Malaysia Plan, the RPM project involves the establishment of a National Border Monitoring Centre under the auspices of the National Radiological Monitoring Centre in AELB. It is an online monitoring system that enables real data monitoring from AELB of every screened containers at major ports where the RPMs are installed.

The MoU also allows information exchange and creates human resource development and training opportunities integrated under AELB's Nuclear Security Support Centre (NSSC). Local and regional training programmes will be carried out with the co-operation of the USA Megaports Initiatives in line with Malaysia's vision to create a regional nuclear terrorism-proof co-operation network.

Malaysia also co-operates bilaterally with other international nuclear regulators, including signing of MoUs and implemented by national regulatory authorities in pursuant of the provisions of the Atomic Energy Licensing Act (Act 304). These MOUs seek to facilitate information exchange and technical co-operation between Malaysia and foreign counterparts as well as ensure sufficient control over nuclear security and further promote the peaceful application of nuclear technology across the national borders.



Screening activity at the national border to ensure sufficient control over nuclear security.

Establishment of Baseline Radiation Dose on Radiation Workers in Mineral Industry Factories in Malaysia

Atomic Energy Licensing Board (AELB) in cooperation with Malaysia Nuclear Agency have conducted a study to assess radiation doses on radiation workers in Malaysia. The study was made on 32 radiation workers from the various mineral factories in the country.

In addition, the blood of 30 donors was taken as comparative background data. Comparison was made between the results obtained from the mineral factory workers and the disentrisk background reading of the donors. This study showed that the disentrisk frequency of the mineral factory workers in Malaysia is comparable with the background disentrisk frequency, which is 2 per 1,000 sel.

The study also shows that there is no significant radiation dose exposure on these workers. The results from the study will be used to establish the baseline radiation dose.

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