

PROGRESS REPORT
(November 2001 - March 2002)

**EXTRABUDGETARY PROGRAMME ON THE
SAFETY OF NUCLEAR INSTALLATIONS
IN SOUTH EAST ASIA,
PACIFIC AND FAR EAST COUNTRIES**

International Atomic Energy Agency

**Extrabudgetary Programme (EBP) on the Safety of Nuclear Installations
in the South East Asia, Pacific and Far East Countries**

PROGRESS REPORT

April 2002

I. INTRODUCTION

Activities implemented from April to October 2001 were presented earlier in the PROGRESS REPORT, EBP-ASIA-77, which was provided at the Advisory Group Meeting (AGM) held from 26 to 28 November 2001. This report describes the activities implemented from November 2001 until March 2002 and further activities planned for 2002.

II. ACTIVITIES IMPLEMENTED FROM NOVEMBER 2001 TO MARCH 2002

II.1. PROGRAMME MANAGEMENT

II.1.1. Advisory Group Meeting

An Advisory Group Meeting (AGM) was held from 26 to 28 November 2001 to review progress and future activities of the EBP. It was attended by 23 participants from 12 countries involved in the Programme. The AGM expressed satisfaction with the results achieved and agreed on the work plan to be implemented in 2002. Results are contained in the reports EBP-ASIA-83.

II.2. REGIONAL ACTIVITIES

II.2.1. Workshop on Safety Analysis Methodology and Computer Code Utilization (2)

Date: 29 October - 9 November 2001

Place: Daejeon, Korea

Objective and results:

The objective of this workshop was to provide in-depth training on the use of computer codes for accident analysis. This was the second of a series of four workshops to prepare professionals to review Safety Analysis Reports of NPPs and RRs using state of the art accident analysis methodology and computer codes. KINS is hosting the series of workshops.

Fifteen participants attended the workshop. Two other participants from China were unable to attend the workshop due to conflicts with their other duties. The workshop concentrated on the practical use of the RELAP computer code for safety analysis. The individual sessions of the workshop included a theoretical part, followed by practical exercises on the computer. A review test was applied the end of each session to verify the

participants' understanding. At the end of the workshop, the participants were able to install the code, to develop a simple model of a research reactor, and to perform analysis and interpret results for simple cases.

II.2.2. Regional Workshop on the IAEA Nuclear Safety Standards (Safety Requirements)

Date: 11-14 December 2001

Place: Tokyo, Japan

Objective and results:

The objective of the workshop was to present an overview of the IAEA Safety Standards for nuclear power plants, focusing on the technical basis underlying the revision of the Standards and current trends in the field of nuclear safety.

The workshop was hosted by the Nuclear Power Engineering Corporation (NUPEC) in co-operation with Ministry of Economy, Trade and Industry (METI), Japan, and attended by 24 experts from six countries. The agenda included:

- Overview of the IAEA Safety Standards Programme and Current Status of the Revision;
- Safety Requirements and Safety Guides for Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety;
- Safety Requirements and Safety Guides for Site Evaluation of Nuclear Power Plants;
- Safety Requirements and Safety Guides for Design of Nuclear Power Plants;
- Safety Requirements and Safety Guides for Operation of Nuclear Power Plants;
- Exercise

A panel discussion entitled "How the IAEA Safety Standards Programme Meet the Challenges of the 21st Century" was conducted, and the following topics were raised and discussed: quality assurance; development of laws; research reactors safety (ageing); competency maintenance; communication with public/media; nuclear safety culture; standardization.

All lectures were taped, and the tapes and viewgraphs presented at the workshop are being edited to prepare videos for future distribution by the IAEA as education and training material in nuclear safety. The videos will be ready in May 2002 for distribution to Member States.

II.2.3. Preparation for the Train the Trainers Course in Nuclear Safety

Date: 4-7 February 2002

Place: Vienna

Objective and results:

A consultants meeting was held in Vienna to prepare the scope and detailed syllabus of a Train the Trainers Course on Nuclear Safety.

A survey of the IAEA resources available and in preparation, which should be used in the course, was also conducted and the relevant material to be used in the course was selected.

II.2.4. Preparation of a Standard Syllabus and Content for a Standard PSA Level 1 Training Course

Date: 25-26 February 2002

Place: Vienna

Objective and results:

The objective of the meeting was to develop the contents of a standard training course on PSA Level 1 Methods and Applications to be used in national training courses.

The content of the training course mentioned above was developed and agreed upon. The lecture material from previous PSA courses offered by the IAEA was reviewed and parts relevant for use in the preparation of the training course selected. Although lecturing material exist on almost all of the subjects, additional work is needed to make all presentations comprehensive and consistent. Significant efforts will be needed to prepare and add lectures notes, for the lecturers who will be using the material in national training courses. The amount of work needed to prepare standard set of lectures on PSA level 1 and PSA applications was evaluated. The work was commissioned for completion in May 2002 and will be further distributed to Member States.

II.3. NATIONAL ACTIVITIES

II.3.1 China

(i) Review Mission on Control Room Design of Tianwan NPP (TNPP)

Date: 5-9 November 2001

Place: Erlangen, Germany

Objective and results:

The objective of this mission was to review the basic design of the main control room (MCR) and standby control room (SCR) of TNPP. The mock-up (dummy) panels will be used for demonstration of operator's actions as a part of functional analysis of the MCR and human-machine interface (HMI).

The participants were representatives of China (JNPC, BINE, DEPI), Russia (Gidropress, SPbAEP, DGET, SNIIP, RNC KI, VNIEM, NIII) and Germany (Siemens PG). German and Russian vendors have presented the current safety standards relevant to the MCR and the SCR design and their application in TNPP design. All the questions raised in the workshop have been adequately addressed. Few discrepancies were found during the presentation and the review of the documents. These issues are relevant to activities as quality assurance, human factor management, function and task analysis verification and validation of MCR and SCR design and operation mode of the screen displays and safety backup panels. MCR/SCR design based on the digital technology and screen control system will be the 1st application of these technologies both at Russian and Chinese plants. Therefore, the special training on HMI (Human Machine Interface) both for Russian and Chinese start-up and operation personnel was strongly recommended. Finally, the IAEA workshop did not identify any new safety issue in the current state of I&C basic design.

(ii) Workshop on Requirements for Level 2 PSA

Date: 19-22 November 2001

Place: Beijing, China

Objective and results:

The objective of this workshop was to provide to the Chinese experts comprehensive information on state-of-the-art methods, techniques and software used for performance of probabilistic safety analysis (PSA) level 2. The workshop was also intended to provide guidance to the regulatory authority staff on how to review a PSA level 2 and on the technical issues that need to be addressed.

The workshop was attended by 30 participants coming from some 15 different organizations and NPPs. The main modules of the workshop covered the areas of Level 1 - Level 2 Interface (Extension Trees, Bridge Trees, Definition/Binning of Plant Damage States), Phenomena (severe accident phenomena with emphasis on containment failure mechanisms, source term phenomena), Quantification (containment / confinement performance, development and quantification of containment Event Trees, Accident Progression, Source Term Analysis), and Accident Management Measures (identification and modeling, quantification). All lecture notes had been provided in advance by the 3 experts from the US and the UK, and copies of all materials were distributed to all participants. The workshop included several worked examples and studying in working groups. A CD-ROM containing all lectures was edited and distributed to participants and is also being used in other IAEA training activities.

(iii) PSR Implementation of QNPP (Follow-up)

Date: 26-30 November 2001

Place: Qinshan, China

Objective and results:

Qinshan NPP is the first plant performing a periodic safety review (PSR) in China. The objectives of this workshop were to provide more detailed information on implementation of PSR, including PSA, and to review actions taken since the previous workshop on PSR conducted in May 2000.

The selected topics were:

- Actual condition of the plant, the content and a form of the review;
- Ageing management;
- The process of equipment qualification and re-qualification;
- Safety analysis; relevant methods for the analysis of fire, internal flood and earthquake;
- Emergency planning, nuclear accident mitigation;
- Safety performance, the choice of targets and the relevant review methods;
- Procedures: the scope and depth of the review.

All required areas (Safety Factors) were presented and discussed in details. The project is well managed and all the aspects of the PSR are covered by the plant personnel or by vendors. The IAEA Safety Guide is followed. The completion of the PSR is expected in March 2003.

(iv) Workshop on Research Reactor Ageing Safety

Date: 10-14 December 2001

Place: Beijing, China

Objective and results:

Several old research reactors were constructed during 1950s and 1960s in China, and the National Nuclear Safety Administration (NNSA) needs to implement ageing safety assessment for these research reactors. The objective of this workshop was to provide information about regulatory requirements for the safety of research reactor ageing based on the IAEA technical documents and experiences feedback in the world.

The Workshop consisted of presentations and technical discussions by the IAEA Team Members, Chinese experts and the participants. The workshop programme covered the following topics:

- IAEA safety requirements for research reactor safety;
- INSARR methodology and its results;
- Ageing mechanism in research reactor;
- Ageing management overview;
- Ageing management experience;
- Current status of research reactors and its ageing management in China.

(v) Technical Visit to China

Date: 18-22 March 2002

Place: Beijing, China

Objective and results:

The objective of the visit was to prepare the Advisory Review Mission on Education and Training to be implemented this year and to discuss other issues including update of CNSP/NSAP and future activities under the EBP.

The Chinese organizations requested to postpone the mission to 2003. Instead, a workshop will be conducted in October 2002 to discuss education and training in nuclear safety focusing in the areas of University Education, Regulatory Body Training, NPP Training and Research Reactor Training.

The workshop will be attended by all relevant Chinese organizations involved in Education and Training and a team of international experts and IAEA staff. Conclusion of the workshop will identify topics to be addressed in the Education and Training mission in 2003.

II.3.2. Indonesia

(i) Follow-up mission and assistance on seismic analysis and SAR of TRIGA (≤ 2 MW RR)

Date: 11-15 March 2002

Place: Bandung and Yogyakarta, Indonesia

Objective and results:

The objective of this mission were to perform an INSARR follow-up to the Bandung reactor which involved review of the SAR and seismic questions and to visit the Kartini reactor to determine the nature of their need for technical assistance.

The mission reviewed also seismic information about the site in general and specifically seismic considerations for the additional shielding recently added. Much of this review involved recent revisions to the Safety Analysis Report.

II.3.3. Viet Nam

(i) Follow-up mission on upgrading SAR of Dalat RR

Date: 3-7 December 2001

Place: Hanoi, Viet Nam

Objective and results:

The objective of this mission was to follow up the implementation of the recommendations and suggestions on the SAR upgrading given on the last IAEA mission conducted to the Dalat Research Reactor (DRR) in August 2000.

The IAEA review mission was carried out by a team comprising one IAEA staff member and three international experts from Korea Rep., Syrian Arab Republic and Poland. VAEC sent the revised SAR (version of 2000) to the IAEA in advance, and each expert prepared comments and questionnaires before the mission. During the mission, each expert led specific technical discussions with a group of 14 Vietnamese technical counterparts, mainly from DNRI, VAEC Headquarters and INST/VAEC and one observer from the regulatory body (VPRA). The review mission was organized in several sessions to cover all major chapters of the Safety Analysis Report with four working groups.

The mission provided comments and recommendations on: clear and detailed description of the SAR; a necessary review to be done by the regulatory body; necessity for standardized format of the SAR; improvement of seismology and geology, radiological consequence analysis methodology, and quality assurance programme.

(ii) Expert Mission on Preparing A Draft "Atomic Law" and Relevant Documents

Date: 11-15 March 2002

Place: Hanoi, Viet Nam

Objective and results:

The objective of this mission was to assist the Member State to prepare a draft Atomic Law and relevant documents. The mission was conducted jointly by the IAEA Office of Legal Affairs within the framework of the TC Project RAS/9/023 "Legislation for Safe and Peaceful Nuclear Applications" and the EBP.

The programme consisted of presentations, a one-day seminar and discussions in working groups. The participants were primarily from the Ministry of Science, Technology and the Environment (MOSTE), VAEC and the Viet Nam Radiation Protection and Nuclear Safety Authority (VRPA). The seminar was organized to provide an opportunity for participation from the Prime Minister's Office, the National Assembly Office, and the Ministry of Industry.

Based on the assessment of Viet Nam's current legislative framework for nuclear energy regulations and their interest, the mission recommended that Viet Nam consider a dual track approach for its nuclear legislation, with regulatory provisions to be contained in a Nuclear Safety and Radiation Protection Law and promotional/developmental provisions set forth in a Nuclear Research and Development Law.

The process of drafting a new nuclear law should be commenced as soon as possible, given the likely delay in obtaining National Assembly consideration. This would require the appointment of a drafting committee or working group by MOSTE as soon as possible.

III. WORK PROGRAMME FOR 2002 (APRIL - DECEMBER 2002)

III.1. PROGRAMME MANAGEMENT

III.1.1. Programme Performance Indicators

During the last AGM in November 2001, the Advisory Group requested the Secretariat to further develop the concept of programme performance indicators and to prepare a working document based on the discussions held during the AGM.

The evaluation on the EBP was addressed last year and the results were distributed to the EBP countries at the AGM (EBP-ASIA-76). The countries, which received the EBP assistance, highly appreciated the results and performance of the EBP.

The Annex tries to identify a set of programme performance indicators (PPI) to evaluate the impact of the EBP assistance in the safety status of each country.

III.1.2. Update CNSP / NSAP

Country Nuclear Safety Profile (CNSP) and Nuclear Safety Action Plan (NSAP) are the basis of the EBP work plan and are periodically updated in line with the progress of the national nuclear developments, enhancements in nuclear safety, and results of the IAEA safety activities. Before the next AGM, both CNSPs and NSAPs will be further updated, as needed, by mutual consultation between the countries and the Secretariat.

The latest version of CNSP and NSAP is made available in the Database for the EBP Members.

III.1.3. Advisory Group Meeting

The next Advisory Group Meeting (AGM) will take place on 18-20 November 2002 in Vienna. At the AGM, Advisory Group should discuss the EBP strategy beyond 2003 based on a paper to be prepared by the Secretariat.

III.2. REGIONAL ACTIVITIES

III.2.1. Workshop on Safety Analysis Methodology and Computer Code Utilization (3)

Date: 22 April – 3 May 2002

Place: Daejon, Korea

Objective:

The objective of this workshop is to prepare technical staff of regulatory bodies, technical support centres and operators of research reactors and nuclear power plants (NPPs) to conduct safety assessments, particularly accident analysis using computer codes. The workshop will follow two previous 2001 workshops hosted by KINS. The workshop will provide training on the use of RELAP5 code to model LOCAs and Transients in PWRs.

III.2.2. Regional Training Workshop on Accident Management and Emergency Preparedness for Research Reactor

Date: 29 April - 3 May 2002

Place: Daejon, Korea

Objective:

This workshop is aimed at enhancing the technical capabilities of countries operating research reactors to establish on-site and off-site accident management and emergency planning. It is expected that the participants will gain practical knowledge and experience to develop and implement an action plan responding to emergencies at their research reactors consistent with IAEA guidances.

III.2.3. Regional Training Course on Train the Trainers in Nuclear Safety

Date: 3-28 June 2002

Place: Argonne National Laboratory (ANL), USA

Objective:

The primary objective of this course is to prepare the course participants to design, organize, and conduct national training courses in nuclear safety topics in their home countries. The course is intended to contribute to implementation of the recommendation of the IAEA's Advisory Group on Education and Training in Nuclear Safety, "the IAEA assists countries to organize and run national training courses using the syllabus and relevant material prepared by the IAEA", and thereby enhance wide dissemination of nuclear safety knowledge in Member States and contribute to sustainability of national education and training at the national level.

A collection of CD-ROMs and videos will be made available for further use by participating countries in the organization of national courses and self-study.

III.2.4. Workshop on Safety Analysis Methodology and Computer Code Utilization (4)

Date: Fall 2002

Place: Daejon, Korea

Objective:

The objective of the workshop is to prepare technical staff of regulatory bodies, technical support centres and operators of research reactors and nuclear power plants (NPPs) to conduct safety assessments, particularly accident analysis using computer codes. The workshop will be the last one in the series of the Workshops on Safety Analysis methodology and Computer Code Utilization. The scope of the workshop will be utilization of computer codes to model containment conditions following LOCAs in PWRs.

III.2.5. Regional Workshop on Education and Training for Nuclear Safety

Date: 2002 or early 2003

Place: Tokyo, Japan

Objective:

The objective of this workshop is to exchange information on results of IAEA evaluation of nuclear safety education and training and specific needs of the countries in the region, and to explore means to enhance regional co-operation. Results of the Advisory Review Mission on Education and Training to be implemented in 2002 will be used as a reference for discussions during the workshop.

III.2.6. Distance Learning Modules on Nuclear Safety Courses

The IAEA has completed in 2001 the development of basic training modules in reactor physics and thermal hydraulics. New modules for self-study in preparation include the lectures taped during the Basic Professional Training Course (BPTC) at Argonne, USA and the Regional Workshop on the IAEA Nuclear Safety Standards, at Tokyo, Japan, held in 2001, the Training Course on Regulatory Control of Nuclear Installations and courses on Research Reactor Safety and PSA Methods and Applications.

III.2.7. Complete Textbook for the Basic Professional Training Course (BPTC)

The BPTC in nuclear safety was first offered in 1999 at Saclay, France. Since then, it was offered in Brazil, Romania and the USA (Argonne), and again in Saclay in 2001. A basic text prepared for the first course is being revised and complemented using the material presented during the various occasions that the course was offered. It needs to be further improved with regard to the format of presentation to facilitate its use in national courses and for self-study.

III.3. NATIONAL ACTIVITIES

III.3.1 China

(i) National Workshop on External Events PSA (DBNPP)

Date: 13-17 May 2002

Place: Daya Bay, China

Objective:

The objective of this workshop is to assist the PSA team of Daya Bay NPP to apply state of the art methodology for analysis of internal fires, floods and external events in PSA.

(ii) Preparatory Meeting for Pre-OSART and OSART Training for TNPP

Date: 19-23 August 2002

Place: Tianwan NPP, China

Objective:

The objective of this training is to provide information on Pre-OSART and OSART mission and to discuss their implementation, in order to improve understanding and train national experts involved in the OSART programmes.

(iii) Seminar on Severe Accidents

Date: 26-30 August 2002

Place: Beijing, China

Objective:

The objective of this seminar is to provide NNSA experts with information on the safety assessment of severe accidents for operating nuclear power plants, in order to improve the capability of the regulatory body to review prevention and mitigation of severe accidents.

(iv) TNPP General Commissioning Programme

Date: 2-6 September 2002

Place: Czech Republic

Objective:

The objective of this activity is to provide information on commissioning of NPPs based on the experience of Temelin NPP. Focus of the activity will be also on verification and validation (V&V) of digital I&C system during the commissioning.

(v) TNPP Reactor Core Design and Refuelling Strategy

Date: 16-20 September 2002

Place: Beijing, China

Objective:

The objective of this mission is to review TNPP reactor core neutronics calculations and refuelling strategy to be prepared by Russia and Chinese specialists respectively.

(vi) Workshop on Inspectors Training

Date: 22-27 September 2002

Place: Beijing, China

Objective:

The objective of this workshop is to provide advice on best practices for inspectors training.

(vii) Workshop on Education and Training

Date: 14-18 October 2002

Place: Beijing, China

Objective:

The objective of the workshop is to exchange information and experiences on education and training in nuclear safety for nuclear installations between Chinese and international experts. Conclusions and recommendations of the workshop will be used for focusing the topics to be addressed during an IAEA advisory mission planned for 2003.

(viii) IPSART Review of the Daya Bay NPP Level 1 PSA

Date: 14-24 October 2002

Place: Daya Bay NPP, China

Objective:

The objective of this mission is to carry out an IPSART follow up review of the level 1 PSA in Daya Bay NPP.

(ix) Workshop on Emergency Operation Procedures (EOP)

Date: 21-25 October 2002

Place: Qinshan II, China

Objective:

The objective of this workshop is to provide information for the development of modern emergency operation procedures (EOPs) and to discuss ways for improvements of existing EOPs, concentrating on the applicability of information available to the two-loop PWR NPP.

(x) TNPP Level 1 PSA (follow-up)

Date: 21-25 October 2002

Place: St. Petersburg, Russia

Objective:

The objective of this mission is to review the revised level 1 internal event PSA report, in order to follow-up the previous review missions on PSA level 1 of TNPP implemented in 1999 and 2000.

(xi) TNPP Fire Risk Analysis (Fire Hazard Analysis)

Date: 28 October – 1 November 2002

Place: St. Petersburg, Russia

Objective:

The objective of this mission is to review the report on internal fire risk analysis for TNPP compartments being prepared by Russian organizations.

(xii) Self-assessment of Operational Safety Management and Surveillance

Date: 11-15 November 2002

Place: Qinshan II, China

Objective:

The objective of this mission is to provide advices on effective self-assessment of operational safety management and independent nuclear safety surveillance, in order to improve safety culture, the operational safety and the safety performance of the plant.

(viii) OSART Follow-up for Ling Ao NPP

Date: 18-22 November 2002

Place: Ling Ao NPP, China

Objective:

The objective of this mission is to follow-up the Pre-OSART mission to Ling Ao implemented in 2000.

(xiv) TNPP PSA Level 2

Date: 25-29 November 2002

Place: Tianwan NPP, China

Objective:

The objective of this mission is to review the PSA level 2 methodology, the dominant containment failure sequences, their frequencies, and the radioactive source term related to releases to the environment. The review will include the impact of not including a filtered containment ventilation system into the design.

(xv) Surveillance Programme Results Application to Reactor Vessel Integrity Assessment for Qinshan I

Date: Postponed to 2003 (1st quarter), upon request of China

Place: Tianwan NPP, China

Objective:

The objective of this mission is to advise on evaluation of guidelines for their application to reactor vessel integrity assessment; operation experience for irradiation embrittling surveillance; and RPV life management.

(xvi) Preparation for Pre-OSART and OSART Training for Qinshan III

Date: Postponed to 2003, upon request of China

Place: Qinshan III, China

Objective:

The objectives of the training are to provide information on Pre-OSART and OSART mission and to discuss their implementation, in order to improve understanding and train national experts involved in the OSART programme

(xvii) TNPP Emergency Procedures Review

Date: Postponed to 2003, upon request of China

Place: To be discussed

Objective:

The objective of this mission is to review emergency operation procedures (EOPs) in the design basis domain as well as in the preventive part (i.e. before the core degradation) of the beyond design basis domain.

III.3.2. Indonesia

(i) Workshop on Reactor Operation and Maintenance

Date: 3-14 June 2002

Place: Indonesia

Objective:

The objective of this workshop is to enhance manpower skills to deal with reactor safety requirements and to improve BATAN's engineering knowledge on the evaluation of the safety related site characteristics. The workshop will be organized by BATAN and the IAEA will provide some lectures as requested by the workshop organizer.

(ii) Upgrading of the RSG-GAS SAR (30 MW RR)

Date: 10-14 June 2002

Place: Serpong, Indonesia

Objective:

The objective of this mission is to review the SAR of RSG-GAS (MPR-30) to verify its compliance with the Safety Guide/Safety Series No.35-G1 and recommendations from the previous INSARR mission.

(iii) Workshop on Regulatory Aspects and Inspectors' Training Qualification and Certification Programme

Date: 1-5 July 2002

Place: Jakarta Indonesia

Objective:

The objective of this workshop is to provide technical and institutional information on regulatory aspects for licensing and inspection of research reactors and to advise on establishing an inspector qualification and certification programme in the regulatory body.

(iv) Advisory Review Mission on Education and Training

Date: 15-19 July 2002

Place: Jakarta, Indonesia

Objective:

The objective of this mission is to carry out a broad evaluation of national training needs and to assist in the development and implementation of the required training considering the education and training in safety at all levels, including the national system of universities and technical institutes, the system of professional training, and the provisions for job-specific training.

(v) Experts Mission on Nuclear Safety and Risk Assessment Programme

Date: 19-23 August 2002

Place: Jakarta, Indonesia

Objective:

The objective of this mission is to set up a nuclear safety and risk assessment programme, including probabilistic and deterministic methods.

(vi) Review Mission on Nuclear Legislation and Regulatory Control

Date: To be determined

Place: Jakarta, Indonesia

Objective:

The objective of this mission is to support the regulatory body in reviewing and improving the nuclear legislation (regulations) focusing on licensing and regulatory control of the existing research reactors and future power reactors.

III.3.3. Malaysia

(i) Advisory Review Mission on Education and Training

Date: 12-17 May 2002

Place: Kuala Lumpur, Malaysia

Objective:

The objective of this mission is to provide advice to carry out a broad evaluation of national training needs and to assist in the development and implementation of the required training considering the education and training in safety at all levels, including the national system of universities and technical institutes, the system of professional training, and the provisions for job-specific training.

(ii) Follow-up of Experts Mission to Review Organization of the AELB

Date: 2-6 September 2002

Place: Malaysia

Objective:

The objective of this mission is to assess and evaluate progress in the implementation of the recommendations and suggestions of the previous experts mission.

(iii) SAR Review Follow-up

Date: To be determined

Place: Malaysia

Objective:

The development of regulatory requirements for licensing Research Reactor is necessary for the eventual licensing of the Triga Mark II Research Reactor at the Malaysian Institute for Nuclear Technology Research (MINT). The objective of this mission is to discuss the findings of the review of the new SAR, which will be sent in advance to the IAEA, and evaluate the implementation of the recommendations and suggestions of previous expert missions.

III.3.4. Philippines

(i) Review Siting Study of Research Reactor (PRR-1)

Date: To be defined only after completion of national work

Place: Philippines

Objective:

The objective of this mission is to advise on the acceptability of the present site and location of the PRR-1 and conduct a seminar on siting of research reactor.

(ii) Establishing of the PRR-1 Strategic Plan

Date: To be defined only after completion of national work

Place: Philippines

Objective:

The objective of this mission is to advise in the establishment of the Strategic Plans for Utilization for the Philippine Research Reactor (PRR-1) and conduct a seminar on Strategic Planning of Research Reactors

III.3.5. Thailand

(i) Advisory Review Mission on Education and Training

Date: 8-12 July 2002

Place: Thailand

Objective:

The objective of this mission is to provide advice to carry out a broad evaluation of national training needs and to assist in the development and implementation of the required training considering the education and training in safety at all levels, including the national system of universities and technical institutes, the system of professional training, and the provisions for job-specific training.

(ii) Assess Implementation of the Pre-IRRRT Recommendations

Date: 25-29 November 2002 (to be confirmed)

Place: Thailand

Objective:

The objective of this mission is to assess and evaluate the progress of implementation of the recommendations and suggestions of the Pre-IRRRT mission conducted in February 2001.

(iii) Assessment and Inspection of Ageing Research Reactor Components

Date: To be determined (waiting for reply from Thailand)

Place: Thailand

Objective:

The objective of this mission is to discuss the findings of the review to be made on the Technical Report on Management of Ageing to be sent to the IAEA, and to assist the OAEP staff to set up plan for assessment and inspection of ageing components.

(iv) Emergency Planning Preparedness for Thai Research Reactors

Date: To be determined (waiting for reply from Thailand)

Place: Thailand

Objective:

The objectives of this mission are to discuss the findings of the review to be done in the Emergency Plan to be sent to the IAEA in advance of the mission, and to assist in the evaluation of an exercise.

(v) Updating SAR of Thai Research Reactor, TRR-1/M1

Date: To be determined (waiting for reply from Thailand)

Place: Thailand

Objective:

Thai Research Reactor, TRR-1/M1, has been modified since 1977 including the pool liner renovation, upgrading of heat exchanger and mixture of core (8.5%w and 20%w LEU fuels). Therefore, SAR of TRR-1/M1 needs to be updated. The IAEA will perform a preliminary evaluation of the SAR which will be sent in advance to the IAEA. Findings and recommendations will be discussed during the mission.

(vi) Establishing of Ministerial Regulation on Safety of RR Operation

Date: To be determined (waiting for information from Thailand)

Place: Thailand

Objective:

The objective of this mission is to advise and assist the NFRC staff to draft a ministerial regulation for safe operation of research reactors. There is no specific regulation in the regulatory system to control the safe operation of the research reactors and the operation of the research reactor is currently controlled by internal orders and administration procedures within the OAEP.

III.3.6. Viet Nam

(i) Advisory Review Mission on Education and Training

Date: 1-5 July 2002

Place: Viet Nam

Objective:

The objective of this mission is to provide advice to carry out a broad evaluation of national training needs and to assist in the development and implementation of the required training considering the education and training in safety at all levels, including the national system of universities and technical institutes, the system of professional training, and the provisions for job-specific training.

(ii) Pre-INSARR

Date: 22-26 July 2002

Place: Viet Nam

Objective:

The objective of this mission is to discuss and agree the terms of reference of an INSARR mission. In addition, assistance will be provided, according to the technical information to be sent in advance to the IAEA, to manage the ageing of the Dalat Research Reactor, to modify the existing reactor control system and to provide information on requirements for reactor inspection.

(iii) Finalization of Dalat Research Reactor SAR

Date: September 2002 (exact date to be determined)

Place: Viet Nam

Objective:

The objective of this mission is to review the final version of the SAR be submitted to MOSTE.

IV. CONTRIBUTIONS 2002

Country	Contributions
France	1 cost-free expert
Germany	1 cost-free expert
Japan	1,381,000 US\$ (*)
Korea	in kind (**)
USA	210,000 US\$ (***) 1 cost-free expert

* includes 2 cost-free experts from Japan

** hosting training events in Korea

*** expected

Programme Performance Indicators

This paper attempts to identify a set of programme performance indicators (PPI), which could give a qualitative and/or quantitative indication of the extent to which the programme objectives have been realized.

PPIs as proposed here are not a measure of programme deliverables, but rather a search for evidences of improvements in the safety of nuclear installations in the countries participating in the Extrabudgetary Programme (EBP).

The intention is to develop a strategic and integrated system for diagnostic and remedial actions to improve nuclear safety in Member States.

The underlying concept of the integrated safety evaluation is that all technical and institutional aspects related to nuclear, radiation and waste safety need to be evaluated, with respect to both the specifics of each facility and the national safety infrastructure.

In practice, the integrated safety evaluation will follow a two-track approach. The first track will deal with the evaluation of the legal and governmental infrastructure, with emphasis on the effectiveness of the regulatory body in performing its functions. The second track will deal with the safety of nuclear installations, radiation sources, radioactive waste management facilities and the transport of radioactive material. Common to the two tracks is the need for a sustainable education and training programme and adequate safety culture.

The evaluation needs to be tailored to the national conditions, particularly the presence or otherwise of a nuclear power programme, research reactors and other nuclear fuel cycle installations and the stage of development of the radiation and waste safety infrastructure.

The results of an integrated safety evaluation will be prepared jointly by the IAEA and the country in question and consolidated in a knowledge base, indicating which results are specific to the country in question and which are of more general relevance. The knowledge base will serve as a technical basis for prioritizing national safety actions and for adopting an action plan for IAEA safety assistance.

The service will provide a comprehensive approach to reviewing and assisting Member States' application of IAEA safety standards.

To structure the approach, the following areas are selected for analysis consistent with the IAEA safety standards and the scope of the EBP assistance:

Strengthening technical capabilities of the regulatory bodies to perform its functions:

- 1.1. Authorization;
- 1.2. Review and Assessment;
- 1.3. Inspection and Enforcement;
- 1.4. Development of Regulatory Guides.

Safety enhancement of nuclear power plants (NPPs) based on:

- 2.1. Design reviews;
- 2.2. Safety Assessment (deterministic and probabilistic);
- 2.3. Operational reviews.

Safety enhancement of research reactors (RRs) based on:

- 3.1. Reconstruction of the safety case and the revision or development of a new safety analysis report (SAR);
- 3.2. Operational reviews.

For each area describe:

- Assistance provided under EBP (missions and training events);
- Number of people in relevant organizations trained;
- Number of people currently involved in the relevant organizations;
- National achievements of the regulatory body and of the operating organization (identified in terms of milestones);
- Plans for future work necessary to fulfil the intent of IAEA safety standards.

A specific evaluation of education and training (ET) to maintain “competence in the area of nuclear safety will be carried out in the frame of the E&T reviews missions to be conducted in 2002. The competency framework model described in TECDOC-1254 will be used in the evaluation.