

PROGRESS REPORT

(APRIL – DECEMBER 2002)

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

INTERNATIONAL ATOMIC ENERGY AGENCY

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

November 2002

I. INTRODUCTION

This report describes the activities implemented from April until October 2002 and those further planned for 2002. Activities implemented from November 2001 to March 2002 were presented earlier in the PROGRESS REPORT, EBP-ASIA-91, which was distributed to all participating countries at the end of April 2002.

II. ACTIVITIES IMPLEMENTED AND PLANNED FROM APRIL TO DECEMBER 2002

II.1. PROGRAMME MANAGEMENT

II.1.1. Database

The internet-version of the EBP database was released to registered representatives in the participating countries. It presents information on each activity, including basic information on dates, venue, status, technical officers, national counterparts. In addition, the objective, results achieved, summary and full reports, the Country Nuclear Safety Profiles (CNSPs) and the Nuclear Safety Action Plans (NSAPs), are also displayed. Interrogation capabilities are available using various criteria: searching by country, by type of activities, by year. For training activities, the database contains the actual material presented by the lecturers. Information about other relevant IAEA Technical Co-operation projects, and bilateral agreements and projects related to the countries participating in the EBP can also be retrieved. The database is being updated continuously.

II.1.2. Preparatory Activities for ANSN Pilot Project

(i) Technical Visit to Discuss the Establishment of a Nuclear Safety Network

Date: 28 - 29 May 2002

Place: Argonne, USA

Objective and results:

The objective of the technical visit to the Argonne National Laboratory (ANL) was to discuss ways to implement the Asian Nuclear Safety Network (ANSN) concept

considering the US experience with the operation of a network of International Nuclear Safety Centres (INSCs) which have been established in the Armenia, Kazakhstan, Lithuania, Russia, Ukraine and USA. The objectives of the centres are to promote the open exchange of nuclear safety information, co-operate in the development of technologies associated with nuclear power engineering and be international repositories for important information on safety and technical improvements in nuclear power engineering.

Two IAEA staff visited ANL accompanied one external expert from Japan. The exchange of information and the discussions were very effective and participants from ANL expressed strong interest and intention to support the ANSN including the pilot project. It was agreed that the EBP database and the INSC information network provide a logical starting point for developing the ANSN.

(ii) Consultation Meeting on the ANSN

Date: 6 - 8 August 2002

Place: Tokyo, Japan

Objective and results:

The objective of the meeting was to discuss further development of the concept and detailed technical matters related to the ANSN implementation, including the preparation of a planned pilot project to be conducted in 2003.

Some 30 participants from China, France, Germany, Japan, Korea, Russia and the USA attended the meeting. The ANSN concept was welcomed by all participants. It was agreed that its implementation would provide a valuable tool to consolidate the results achieved in the frame of the EBP and to strengthen the management and exchange of safety information among the participating countries. The IAEA will play a coordinating and facilitating role in the ANSN implementation. It is generally agreed that the consultation meeting was an important step forward towards the establishment of the ANSN, building on the accomplishments of the EBP and the specific needs of Member States.

II.1.3. Education and Training

Complementary to its training courses and workshops, the Nuclear Installation Safety Division concentrated its efforts on the development of background material to assist regional training centres on the implementation of their national training programmes in line with the Agency Safety Standards.

As part of this effort distance learning tools on basic safety concepts, reactor physics and thermal-hydraulics were prepared and are available at the Agency web site. The first version of the modules were presented at the Regional Training Course on Train the Trainers in Nuclear Safety, ANL, USA in June 2002. The attendants were provided with CD-ROMs of the modules and after an introductory session had the opportunity to experience them. Discussions were held on its usefulness and points

for improvement. It was a common understanding that the modules prepared are very useful to support national trainers (although some improvements are still needed in some of the modules) and that other modules on specific topics of interest should be prepared. More recently a module on regulatory control of Nuclear Power Plants started to be prepared and a first version is foreseen to be available at the beginning of 2003.

Actions were taken to prepare standardized training material based on the experience available at NSNI in conducting training activities on safety related topics. This activity consisted to prepare a manual with the main guidelines for the course preparation, a set of commented lectures and a compilation of reference material for selected topics where training activities have been conducted in the past. This material is available in CD-ROMs and there are provisions to include them at the Agency web site in 2003. Topics where standardized training material is available are presented in a leaflet prepared to promote their use. Most of this material, in their preliminary version, was presented and distributed to the attendants of the Regional Training Course on Train the Trainers in Nuclear Safety, ANL, USA in June 2002.

II.2. REGIONAL ACTIVITIES

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

Date: 22 April - 3 May 2002

Place: Daejeon, Korea

Objective and results:

The objective of this workshop was to prepare technical staff of regulatory bodies, technical support centres and operators of research reactors (RRs) and nuclear power plants (NPPs) to conduct safety assessments, particularly accident analysis using computer codes. The workshop followed two previous 2001 workshops hosted by the Korean Institute of Nuclear Safety (KINS). The scope of the workshop was the using of RELAP5 code to model LOCAs and Transients in PWR NPPs.

KINS hosted the workshop. Fifteen participants from the six countries of the region attended the workshop. During the workshop, two external experts from USA and Italy, six Korean instructors and subscribers delivered 26 lectures and on the job training for the practice of accident analyses with research reactor specific accident scenarios for their own facility in accordance with the programme objectives. The preparations for the equipment, technical and administrative coordination by KINS contributed to the expected target goal of the workshop. The noticeable improvement of participant's technical capability on thermal hydraulic analysis using RELAP and skills for running the RELAP5 code were identified through group exercise and debriefing session. It was agreed that the final workshop would be held during 21 October to 2 November 2002 at KINS, Daejeon, Korea tentatively.

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

Date: 29 April - 3 May 2002

Place: Daejon, Korea

Objective and results:

The objective of the workshop was to provide the participants with the basis to develop plans and procedures to respond in case of emergencies at research reactors, and to acquaint them with assistance available from the IAEA.

The Korea Atomic Energy Research Institute (KAERI) hosted the workshop. 22 participants from 6 countries and 8 observers from Korea attended the workshop. The lectures were made by 8 experts from Belarus, Canada, Japan, Korea, Slovenia and the IAEA. Some weak points were identified in the group simulating the operating team:

- Inadequate skills to manage an emergency situation
- Inadequate knowledge of first aid
- Limited knowledge on main actions to be taken in a contamination incident
- Inadequate attention to the reactor status and actions to recover the facility

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

Date: 3 - 28 June 2002

Place: Argonne National Laboratory (ANL), USA

Objective and results:

The objective of this course was 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.

The course was attended by 22 participants from 6 countries. Experts of ANL and staff from IAEA made lectures during the course. The training course was very successful. The participants appreciated very much the IAEA and ANL for continued support. The participants' feedback indicated their appreciation of the training materials. The training course was an excellent opportunity to use in large extent training materials (multimedia CDs) developed by NSNI/IAEA. It was also an excellent opportunity to disseminate the IAEA Safety Standards.

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

Date: 21 October - 2 November 2002.

Place: Daejon, Korea

Objective:

The objective of the workshop was 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 was the last one in the series of the Workshops on Safety Analysis methodology and Computer Code Utilization. The scope of the workshop is utilization of computer codes to model containment conditions following LOCAs in PWR NPPs.

KINS will host the workshop.

II.3. NATIONAL ACTIVITIES

II.3.1. China

(i) National Workshop on External Events PSA (Daya Bay NPP)

Date: 13-17 May 2002

Place: Daya Bay, China

Objective and results:

The objective of this workshop was to provide training on Probabilistic Safety Assessments (PSA) of External Events, in particular internal fires and floods, earthquakes and tsunamis, and to carry out practical exercises and group discussions on the same topics.

PSA professionals from Daya Bay and Ling Ao NPPs attended the workshop. There were also participants from Qinshan NPP and Universities. Besides them, other Daya Bay and Ling Ao NPP staff members, involved in fire protection and structural analysis attended part of the workshop. In this respect, it should be noted that fire protection engineers provided a strong support in the practical training exercises and explanation of fire protection features to the participants. The training course has provided a good starting point for the PSA experts to begin planning the execution of fire, floods, earthquakes and tsunami analysis. Full training in some of the events would require more than a week and that is why additional training or support of external experts and the acquisition of relevant data and analysis tools (software) would be advisable.

(ii) Pre-OSART Preparatory Meeting and Training Seminar to Tianwan NPP

Date: 19 - 23 August 2002

Place: Tianwan NPP, China

Objective:

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

As a result of the preparatory meetings, the following agreements were made:

- The Pre-OSART mission will be conducted from 13 to 30 October 2003.
- The scope of the mission will be the standard eight review areas.
- Section 9 of the OSART Guidelines for Commissioning will be integrated in each review area.
- A specific safety culture review will be also conducted for each area.
- On site and off site Emergency Planning and Preparedness would be reviewed.

The mission also conducted the Training Seminar on commissioning and start-up activities for national experts involved in the OSART programmes during the last two days.

(iii) Seminar on Severe Accidents

Date: 26-30 August 2002

Place: Beijing, China

Objective and results:

The objective of this seminar was to assist China National Nuclear Safety Administration (NNSA) in its further work in the area of severe accident analysis and accident management programmes.

Thirty-eight participants from sixteen organizations attended the seminar. The seminar covered:

- Introduction to and background of severe accident management, relevant IAEA guidance documents
- Severe accident phenomenology for different reactor designs
- Principles and approaches to severe accident management
- The role of accident analysis in AMP development and implementation
- Practical tabletop exercise to illustrate the use of current severe accident management guidelines

The seminar as a whole, and the related practical exercise in particular, were highly ranked by all the participants. The high interest of the participants in the subject of the seminar was also demonstrated by their active involvement in the discussions. The participants strongly supported the organization of similar seminars/workshops in the near future in the area such as severe accident analysis, accident analysis required for PSA Level 2 studies, deterministic analysis and PSA studies for shutdown operational regimes. They also proposed that a 'textbook' with practical examples of severe accident management guidelines be developed.

(iv) Tianwan NPP Reactor Core Design and Refuelling Strategy

Date: 16-20 September 2002

Place: Beijing, China

Objective and results:

The objective of this mission was to discuss selected safety items for TNPP, to review the revised chapter 4 of the PSAR, and to follow the recommendations made during the previous IAEA experts mission held in 1999.

The mission consisted of three external experts from France, Japan, the USA and one staff of the IAEA. The mission consisted of two meetings: a plenary meeting, in which a Chinese, Russian and the IAEA team participated, and subsequent the IAEA internal meeting. The discussion was focused on Advanced Fuel Assembly, which uses of U-Gd fuel and is planned to be loaded into the second cycle reactor core. Issues about the neutron source in start-up reactor core was also discussed. Through the discussion, further assistance from the IAEA in reactor core design and refuelling strategy area was requested.

(v) Workshop on Inspectors Training

Date: 23-27 September 2002

Place: Beijing, China

Objective and results:

The objective of this workshop was to provide a forum for the exchange of information on current practices and experience in the area of regulatory inspections for nuclear facilities. The scope covered the legal and governmental infrastructure, regulatory practices, regulatory inspection, regulatory enforcement (management, methods, performance, reports/records) and regulatory assessment (regulatory assessment and control of licensees' modifications to plant, processes and procedures).

The mission consisted of two external experts and one staff of the IAEA. Forty-eight participants from the National Nuclear Safety Administration of China (NNSA), the Nuclear Safety Centre (NSC) of the NNSA, The Beijing Institute of Nuclear

Engineering (BINE), the Suzhou Nuclear Safety Centre, the Centre of Component Reliability, and the Qinshan Nuclear Power Plant. The participants agreed on the following conclusions and observations:

- The interactive structure of the Workshop with morning lectures and afternoon discussions in working groups on specific topics related to the morning lectures was very useful;
- Further workshops on specialized topics related to inspections would also be beneficial;
- The use of significance criteria could reduce the need to approve all plant modifications and help to focus on those which are relevant;
- The use of violation categories would be useful for communication of the safety significance of findings;
- Guidance and training for site inspectors would improve enforcement management.

(vi) Tianwan NPP General Commissioning Programme

Date: 7 - 11 October 2002

Place: Prague, Czech Republic

Objective and results:

The objective of this activity was to provide information on commissioning programme of Tianwan NPP (TNPP) 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.

The five experts of the IAEA agreed that there are no weaknesses in the TNPP commissioning programme. The support from the Russian party and the German party appears to be strong, focus and knowledgeable. Nevertheless the team stressed of Chinese customer to be attentive on the distribution of responsibility during the different stages of the commissioning programme.

The team was separated into two groups. The general commissioning group reviewed the Quality Assurance programme, the PSAR Chapter 14, the commissioning programme for systems and components, few procedures and the general documentation. The Chinese delegation was totally satisfied by the deep experience and the technical qualification of the experts involved in this workshop. Recommendations were made by the team to emphasize the following topics: the responsibility, the training programme, the emergency arrangement, the review and approval and the quality of the documentation. It was also emphasized the necessity of full engagements of the Chinese personnel from the beginning of commissioning works.

The I&C group reviewed the documentation sent by Siemens (Framatome ANP) in details. The group issued also a few recommendations mainly regarding the relation between the Russian main designer and the Siemens I&C designer.

Good professional co-operation between Temelin personnel and Chinese delegation was observed. Sixteen groups, consisting of a total of fifty two participants attended the workshop.

(vii) Workshop on Education and Training

Date: 14-18 October 2002

Place: Beijing, China

Objective:

The objective of the workshop was to exchange information and experiences on education and training in nuclear safety for nuclear installations between Chinese and international experts.

(viii) Workshop on Emergency Operation Procedures (EOP)

Date: 21-25 October 2002

Place: Qinshan II, China

Objective:

The objective of this workshop was 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.

(ix) Tianwan NPP Level 1 PSA (follow-up)

Date: 21-25 October 2002

Place: St. Petersburg, Russia

Objective and results:

The objective of this mission was 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.

The mission consisted of three external experts and one staff of the IAEA. Seventeen Russian experts and one Chinese expert from the Jiangsu Nuclear Power Corporation. The review meeting found that much progress had been made in comparison to the status two years ago and that all issues had been addressed. The mission concluded that:

- With the reservations detailed in the mission report the PSA is now in a status, where it can provide important information for finalizing the design and, in particular for developing operating/emergency operating procedures and simulator training programmes.
- No further follow-up review of the Level 1 PSA seems to be necessary;
- The level 2 PSA is not yet finalised. Therefore the IPSART review originally planned for end of November 2002 needs to be rescheduled for next year.
- Review for the Low Power/Shutdown PSA, which was not within the requested scope, was requested as a separate mission or in combination with the Level 2 IPSART mission.

(x) Tianwan NPP Fire Risk Analysis (Fire Hazard Analysis)

Date: 28 October - 1 November 2002

Place: St. Petersburg, Russia

Objective:

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

(xi) 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.

(xii) 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.

II.3.2. Indonesia

(i) Workshop on Operation and Maintenance of Research Reactors

Date: 3-14 June 2002

Place: Serpong, Indonesia

Objective and results:

The objective of this workshop was to develop technologically skilled manpower to deal with reactor safety requirements. There are also needs in the organization to enhance its manpower in order to support and improve the BATAN's engineer knowledge on nuclear safety in knowing the importance of the evaluation of the safety related site characteristics.

The two week long workshop consisted of lectures by national experts during the first week and by IAEA in the second week. The IAEA lecturers were one external and one staff. Fourteen participants from three reactor facilities and regulatory body attended the workshop. At the beginning and the end of the workshop the participants passed a written examination, which showed about 30% increase in their knowledge on the given subject. The Education and Training Centre intends to continue the training activities in the future and requests the IAEA for assistance in fulfilling this task.

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

Date: 10-14 June 2002

Place: Jakarta, Indonesia

Objective and results:

The objective of the mission was to carry out a review of the 2002 revised version of the Safety Analysis Report (SAR) for the G.A. Siwabessy Research Reactor (RSG-GAS) in accordance with the IAEA's Safety Guide SS-35-G1. It was also to follow-up on the implementation of the IAEA recommendations provided in the previously undertaken mission in December 1999.

Two external experts from Australia and France, and one IAEA staff participated in the mission. The main review was performed by three working groups based on the expertise of the individual experts and technical counterparts. The mission drew up a list of over thirty issues to be improved in terms of compliance with the IAEA Safety Guide SS-35-G1.

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

Date: 1-5 July 2002

Place: Jakarta, Indonesia

Objective and results:

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

There were approximately 25 full-time participants, and were numerous staff members attended selected sessions of interest to them. One external expert from the USA and one IAEA staff conducted the training. The training presentations were structured around two themes, Fundamentals and Practical. The topics addressed in each theme were as follows:

- Fundamentals – IAEA safety standards, the regulatory environment, professionalism and ethics, the inspection environment, quality principles, allegations and enforcement
- Practical – the inspection process, inspection planning, performing the inspection and inspection reports

During the course, case studies and group projects were used effectively to engage the participants.

(iv) Advisory Review Mission on Education and Training (Technical Visit)

Date: 15-19 July 2002

Place: Jakarta, Indonesia

Objective and results:

The objective of the mission was to assist Indonesia to develop and to maintain a sustainable and adequate education and training programme in nuclear safety consistent with IAEA safety standards and good international practices with due recognition to national conditions.

The mission consisted of two external experts from Germany and Pakistan and one IAEA staff. The mission visited three Centres of the National Nuclear Energy Agency (BATAN), which are the Education & Training Centre, the Centre for Development of Nuclear Safety Technology and the Centre for Development of Research Reactor Technology, and the Nuclear Energy Control Board (BAPETEN) in Jakarta. Discussions were held with the senior management and staff. In conducting their review, the mission considered the current situation regarding nuclear safety in Indonesia with three operating research reactors and the option to construct a nuclear power plant.

The mission concluded that additional basic and advanced education and training in nuclear safety is needed for all. It is apparent that desirable depth and breadth of knowledge in the area of nuclear safety needs improvement. As a

prerequisite, it is necessary to perform a systematic self assessment of competency needs for all centres of BATAN with responsibilities in nuclear safety. The same is true for the regulatory body BAPETEN. The implementation of an improved, sustainable training programme in nuclear safety education and training requires well designed training material for use by lecturers and students. Taking into account the limited financial and technical resources currently available for nuclear education and training in Indonesia, a more prudent approach could be to make more extensive use of course material already developed by the IAEA, which is freely available and subject to continual updating. Such an approach could improve the effectiveness and sustainability of the Indonesian education system and ensure conformance with international practices in the area of education, training and re-qualification of nuclear safety staff.

The review team made several recommendations to deal with the as-found situation in Indonesia.

II.3.3. Malaysia

(i) Advisory Review Mission on Education and Training (Technical Visit)

Date: 13-17 May 2002

Place: Kuala Lumpur, Malaysia

Objective and results:

The objective of the mission was to assist Malaysia to develop and to maintain a sustainable and adequate education and training programme in nuclear safety consistent with the IAEA Safety Standards and good international practices with due recognition to national conditions. This was the first advisory review mission on nuclear safety education and training.

The mission, which consisted of one external expert from Canada and two IAEA staff, mainly discussed with officials of the Atomic Energy Licensing Board (AELB). The mission also visited the Malaysian Institute for Nuclear Technology Research (MINT) and the University Kebangsaan Malaysia. During the technical visit, it was concluded that Malaysia did not have all the competencies necessary to ensure all facets of nuclear safety throughout the life of the MINT research reactor. There are some specific areas where outside knowledge will be necessary to assist both the AELB and MINT meet their responsibilities. The mission made several recommendations to deal with this situation and has identified good practices.

II.3.4. Philippines

There have been no national activities from April 2002 to October 2002.

II.3.5. Thailand

(i) Advisory Review Mission on Education and Training

Date: 8-12 July 2002

Place: Bangkok, Thailand

Objective and results:

The objective of the mission was to assist Thailand in developing and maintaining a sustainable and adequate education and training programme in nuclear safety consistent with the IAEA Safety Standards and good international practices, with due consideration given to national conditions.

The mission consisted of two external experts from Germany and the USA and one IAEA staff. The mission had discussions with the senior management and staff of the Office of Atomic Energy for Peace. Representatives of the Chulalongkorn University, Bangkok also joined the discussions. During the technical visit, it was concluded that additional basic and advanced education and training is needed for both the staff of the Nuclear Facility Regulatory Centre as well as for the Reactor Operation Division. It is apparent that the desirable depth and breadth of knowledge in the area of nuclear safety is lacking in the educational infrastructure.

(ii) Expert Mission to Review Draft Atomic Law (jointly with OLA through TC)

Date: 29 July - 2 August 2002

Place: Bangkok, Thailand

Objective and results;

The purpose of the mission was to continue to provide assistance to authorities of OAEP on developing a new legislative framework governing the peaceful uses of nuclear energy. This mission was a follow-up to a mission conducted from 18 to 22 March 2002, in which an IAEA legal expert visited Bangkok to provide legal advice on development of a comprehensive nuclear energy law. The specific objective of the mission was to review progress in the development of Thailand's legislation along the lines recommended by the February 2001 Report by an IAEA International Regulatory Review Team (IRRT) mission and by the IAEA legal expert during the mission in March 2002.

The mission, which consisted of one external expert from the USA and one IAEA staff, visited OAEP and had detailed section-by-section discussion of a newly developed text of a unified law. The mission emphasized the fundamental importance of creating a legal infrastructure that recognized the need for regulatory independence. It was agreed by both sides that the current text establishes an

organizational structure for nuclear regulation that meets international standards of independence and separation of regulatory functions.

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

Date: Beginning of December 2002

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.

II.3.6. Viet Nam

(i) Advisory Review Mission on Education and Training (Technical Visit)

Date: 1-5 July 2002

Place: Hanoi, Vietnam

Objective and results:

The objective of the mission was to assist Vietnam to develop and to maintain a sustainable and adequate education and training programme in nuclear safety consistent with the IAEA Safety Standards and good international practices with due recognition to national conditions. The mission was the second advisory review mission on nuclear safety education and training.

The mission, which consisted of two external experts from India and the USA, and two IAEA staff, visited the Viet Nam Atomic Energy Commission (VAEC) and the Viet Nam Radiation Protection and Nuclear Safety Authority (VRPA). During the technical visit, the mission carried out discussions and interviews with counterpart personnel; reviews of written material; direct training centre and facility observations and evaluations. The mission also had the additional task of identifying the competencies and skills required by both VAEC and VRPA. The mission concluded that Viet Nam, and especially the VRPA, currently has some, but not all, of the competencies necessary to ensure and provide independent oversight all facets of nuclear safety.

(ii) Pre-INSARR

Date: 26 – 30 August 2002

Place: Dalat, Vietnam

Objective and results:

The objective of the mission was to evaluate the feasibility of an INSARR mission including defining the schedule and the scope of the work for the main INSARR mission and for technical support for ageing issues on horizontal beam tubes.

The mission, which consisted of two IAEA staff, provided four presentations on INSARR methodology, safety Review Guidance, INSARR mission results and IAEA programmes on research reactor safety at the . The mission had technical discussion on inspection of horizontal beam tubes in terms of in side corrosion and leaking possibility. The mission concluded that a special expert mission on for the problem is not urgently required, as was requested by DNRI. It was agreed that the main INSARR mission would be held in April 2003. The following recommendations were given to DNRI with regards to core management and ageing issues in horizontal beam tubes:

- Proper document control and safety analysis on core configuration would be required urgently and should be reflected in the safety analysis report.
- The issues of corrosion of the horizontal beam tubes should be solved by DNRI themselves through easy fixing and cost saving approaches instead of requesting a special expert service with an endoscope.

III. CONTRIBUTIONS 2002

Country	Contributions
France	1 cost-free expert
Germany	1 cost-free expert
Japan	1,381,000 US\$ (*)
Korea	in kind (**)
USA	130,000 US\$
	1 cost-free expert

* includes 2 cost-free experts from Japan

** hosting training events in Korea

30-Oct-2002

Work Programme for 2002 IAEA management

Activity	Place	Responsible	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Management - Co-ordination														
Indicators of programme achievements	Vienna	Lederman			31									
Progress report	Vienna	Omura			31									
Consultation Meeting on the Asian Nuclear Safety Network (ANSN)	Tokyo	Lederman/Kimoto								06--08				
Progress Report	Vienna	Sanada										30		
Strategy paper	Vienna	Lederman										30		
Technical Meeting (former AGM)	Vienna	Lederman/Sanada											18--20	
Preparatory Meeting of ANSN	Vienna	Lederman												21
Management - Country profile/action plan														
Update CNSP / NSAP	Vienna	Kimoto/Philip											30	
Technical visits														
Technical Visit to discuss the establishment of a Nuclear Safety	ANL	Lederman/Omura							28--29					
Management - Database														
Database	Vienna	Kimoto												

* Pending on completion of national work

30-Oct-2002

Work Programme for 2002 Regional

Activity	Place	Responsible	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Training														
Preparation of Train the Trainers Course (CM)	Vienna	Lederman		04--07										
CS to prepare standard syllabus and content of a PSA level 1 training	Vienna	Ranguelova		25--26										
Workshop on safety analysis methodology and computer code utilization	KINS	Kim/Lederman					22- -03							
Regional training workshop on accident management and emergency	KAERI	Boado Ma/Kimoto					29- -03							
Regional training course on Train the Trainers in nuclear safety	ANL	Lederman						03--28						
Workshop on safety analysis methodology and computer code utilization	KINS	Kim/Lederman										21--02		
Complete text book for the BPTC	IAEA	Lederman											xx--xx	
Distance learning modules on nuclear safety courses (4)	IAEA	Kimoto/Lederman											xx--xx	

* Pending on completion of national work

30-Oct-2002

Work Programme for 2002 China

Activity	Place	Responsible	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Expert missions														
Development of safety standards (transport safety)	Beijing	Lederman												
TNPP reactor core design and refuelling strategy	Beijing	Tezuka									16--20			
TNPP general commissioning programme	Czech Rep.	Kotyza/Dubois										07--11		
TNPP level 1 PSA (follow-up)	St. Petersburg	Niehaus										21--25		
TNPP fire risk analysis (fire hazard analysis)	St. Petersburg	Tezuka										28-	-01	
TNPP PSA level 2	TNPP	Niehaus											25--29	
Safety Services														
Preparatory meeting for pre-OSART / OSART training	TNPP	Hansson/Lange									19--23			
OSART follow up	Ling Ao	Hansson											18--22	
Technical visits														
Technical visit to China	Beijing	Lederman/Omura										18--22		
Training														
National workshop on external events PSA (DBNPP)	Daya Bay	Yllera							13--17					
Seminar on severe accidents	Beijing	Misak									26--30			
Workshop on inspectors training	Beijing	Philip									23--27			
Workshop on education and training	Beijing	Eichenholz										14--18		
Workshop on Emergency Operation Procedures (EOP)	Qinshan II	Misak										21--25		

* Pending on completion of national work

30-Oct-2002

Work Programme for 2002 Indonesia

Activity	Place	Responsible	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Expert missions														
Follow up mission on seismic analysis and SAR of TRIGA (2MW RR)	Bandung	Voth/Contri			11--15									
Upgrading of the RSG-GAS SAR (30 MW RR)	Serpong	Kim						10--14						
Technical visits														
Advisory review mission on education and training (technical visit)	Indonesia	Giersch/Kimoto							15--19					
Training														
Workshop on reactor operation and maintenance	Indonesia	External/Hargitai						03--14						
Workshop on regulatory aspects and inspectors' training qualification	Jakarta	Voth						01--05						

* Pending on completion of national work

30-Oct-2002

Work Programme for 2002 Malaysia

Activity	Place	Responsible	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Technical visits														
Advisory review mission on education and training (technical visit)	Malaysia	Philip/Kimoto												13--17

* Pending on completion of national work

30-Oct-2002

Work Programme for 2002 Philippines

Activity	Place	Responsible	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Expert missions														
* Establishing of the PRR-1 strategic plan	Philippines	Boado Magan												
* Review siting study of research reactor (PRR-1)	Philippines	Boado Magan												

* Pending on completion of national work

30-Oct-2002

Work Programme for 2002 Thailand

Activity	Place	Responsible	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Expert missions														
Expert mission to review draft Atomic Law (jointly with OLA through TC	Thailand	Philip								29-	-02			
* Updating SAR of Thai research reactor, TRR-1/M1	Thailand	Hargitai												xx--xx
Technical visits														
Advisory review mission on education and training (technical visit)	Thailand	Giersch/Kimoto								08--	12			

* Pending on completion of national work

30-Oct-2002

Work Programme for 2002 Viet Nam

Activity	Place	Responsible	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Expert missions														
Experts mission on preparing a draft "Atomic Law" and relevant	Viet Nam	Philip/Vez Carm			11--15									
Safety Services														
* Pre-INSARR	Viet Nam	Kim/Hargitai								26--30				
Technical visits														
Advisory review mission on education and training (technical visit)	Viet Nam	Philip/Kimoto							01--05					

* Pending on completion of national work