Chapter 3

International cooperation on Nuclear Safety, Emergency Preparedness, and Response in East and Southeast Asia

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CHAPTER 3
International cooperation on nuclear safety, emergency preparedness, and response in East and Southeast Asia

1. Forum for Nuclear Cooperation in Asia (FNCA)[1]

1.1. FNCA

FNCA is a Japan-led cooperation framework for the peaceful use of nuclear technology in Asia.

The 1st International Conference for Nuclear Cooperation in Asia (ICNCA) was held in Tokyo, hosted by the Atomic Energy Commission of Japan. Since then, it has been held once a year in Tokyo.

At the 10th ICNCA that was held in March 1999, it was agreed that they move to a new framework—the Forum for Nuclear Cooperation in Asia (FNCA) (including Coordinator and Project Leader System) with a view to shifting to more effective and organized cooperation activities. Under this framework, exchanges of views and information are made on the following fields:

(1) Radiation Utilisation Development (Industrial Utilisation/Environmental Utilisation, and Healthcare Utilisation)
(2) Research Reactor Utilisation Development
(3) Nuclear Safety Strengthening
(4) Nuclear Infrastructure Strengthening

The cooperation consists of FNCA meetings and project activities.

[1]http://www.fnca.mext.go.jp/english/index.html

1.2. Participating countries

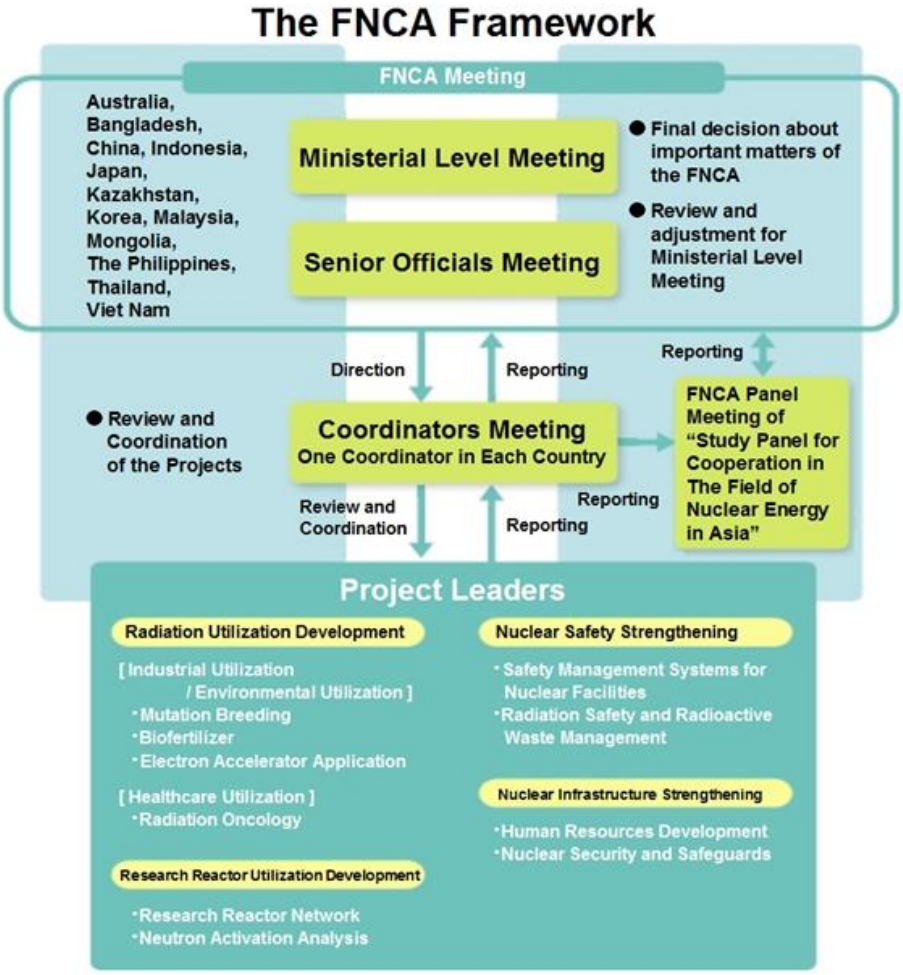
Australia, Bangladesh, China, Indonesia, Japan, Kazakhstan, Republic of Korea, Malaysia, Mongolia, the Philippines, Thailand, and Viet Nam

1.3 Framework

The basic framework of cooperation consists of the following three elements:

- Forum meeting: Discussion on cooperation measures and nuclear-energy policies. Forum meeting consists of a ministerial-level meeting and a senior official-level meeting.
- Coordinators meeting: Discussion on the introduction, revision, abolition, adjustment, and evaluation of cooperation projects by an appointed coordinator from each country.
- Cooperation activities for each project.

Figure3.1.The basic Framework of FNCA



1.4 FNCA activities for regional cooperation

1.4.1. Panel on Nuclear Energy Field

The objectives of the panel meeting on the "Role of Nuclear Energy for Sustainable Development in Asia" are as follows:

1. Exchange views on medium- and long-term energy demand and supply in Southeast Asian and East Asian countries based on their social and economic development.
2. To collect and analyze information on energy usage and associated problems in the FNCA member countries, such as
   - expanding demand for fossil fuels in the member countries and limited fuel reserve in the region,
   - environmental impacts of the usage of fossil fuel energy , and
   - advantages and disadvantages of non-fossil fuel energy.
3. To discuss and recognize the roles of nuclear energy for sustainable development and to define issues to be taken into account for the use of nuclear power, for example:
   - safety assurance and regulation,
   - enhancement of public acceptance,
   - economic feasibility,
   - human resources development and technological infrastructure, and
   - non-proliferation of nuclear weapon.
4. To discuss possible ways of international cooperation for the abovementioned issues among FNCA member countries.

【1st Phase Panel 】"Role of Nuclear Energy for Sustainable Development in Asia", 2004–2006

The panel was established in FY 2004 as one of the new FNCA activities to discuss the regional energy and environmental issues. The 1st phase panel reviewed and evaluated the role of nuclear energy in terms of stable energy supply, environmental impact, and economic competitiveness, while formulating the long-term energy supply-and-demand outlooks. After three years, the outcome of the review and evaluation was reported to the 7th Ministerial Level Meeting held in Malaysia on November 27, 2006.

【The 2nd Phase Panel 】"Study Panel for Cooperation in the Field of Nuclear Energy in Asia"2007–2008

The second phase panel featured the main topics on HRD for the introduction of nuclear power and the development of the infrastructures for ensuring nuclear safety.

The panel has brought the following big achievements as a consequence of the 1st Phase and the 2nd Phase panels:

(i) The signing of the "FNCA joint communique on the Peaceful Use of Nuclear Energy for Sustainable Development" in the 8th FNCA.

(ii) The implementation of the FNCA HRD information database program.

【The 3rd Phase Panel 】"Study Panel on the Approaches toward Infrastructure Development for Nuclear Power"2009–2013

The 3rd phase panel was aimed at sharing of knowledge and actual experiences in the infrastructure development for nuclear power among senior officials and experts in charge to use such knowledge for the promotion of nuclear power in each FNCA member country. At the first meeting in 2009, the panel discussed and learned of the status of infrastructure development for nuclear power in each member country. At the second meeting in the Republic of Korea in 2010, the panel discussed project management, local procurement and local vendors, fuel cycle and waste, and the role of nuclear research institutes. At the third meeting in 2011 held in Indonesia, the panel shared information on the Fukushima Daiichi nuclear accident caused by the earthquake and tsunami that hit Japan on March 11, 2011. The knowledge and lessons that Japan obtained from the accident were also discussed. The panel engaged in information exchange and discussions on the assurance of nuclear safety in the Asian region, and the safety plans of Japan, China, and the Republic of Korea against earthquake and tsunami. The 4th meeting in 2012 was held in Thailand, where the panel was updated on the lessons of the Fukushima Daiichi nuclear accident, the future of Japanese NE policy, emergency preparedness and response, site characterization, risk communication, nuclear liability, and HRD. The 5th meeting in 2013 was held in Japan, and the panel discussed broad topics on the current situation and the prospects of TEPCO's Fukushima Daiichi Nuclear Power Station, the efforts for safety improvement after the accident at TEPCO's Fukushima Daiichi Nuclear Power Station, small and medium-sized reactor development,

regional cooperation for emergency preparedness and response, nuclear security, and stakeholder involvement.

1.4.2. Summary of the latest FNCA Panel meeting

The 5th meeting of the "Study Panel on the Approaches toward Infrastructure Development for Nuclear Power" was held on August 22 and 23, 2013, in Tokyo, Japan, hosted by the Cabinet Office and the Japan Atomic Energy Commission (JAEC).

The panel discussed small and medium-sized reactor (SMR) development, regional cooperation for EPR, nuclear security, and stakeholder involvement. The panel also shared information on the current status and the future of the Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Station and the efforts for safety improvement in Japan after the accident at the TEPCO's Fukushima Daiichi Nuclear Power Station.

Member countries shared information and experiences on nuclear power in each session through presentations delivered by Japanese experts and IAEA, and through the discussions among the participants.

The site visit to Fukushima Daiichi Nuclear Power Station was held on the day before the meeting, in order for the relevant participants in member countries could understand the approaches on the decommissioning that the Japanese government and Tokyo Electric Power Company are currently carrying out.

Dr. Omoto, chairperson of the study panel, proposed that the draft summary of the panel and the provisional summary be adopted after modification, along with the comments from the participants.

Figure3.2.The member of FNCA 5th Panel meeting

Summary of the Emergency Preparedness and Response (EPR) session

Prof. Omoto, chairperson of the study panel, in his lead speech, discussed the lessons learned and the changes made in Japan in light of the Fukushima accident, including law, institution, and zoning. He indicated potential areas of regional cooperation (notification, harmonisation such as on zoning, sharing resources, regional drill, and synergy with already existing regional disaster management system). Japan's Ministry of Foreign Affairs explained its initiative to enhance IAEA-RANET activities including capacity building. The Republic of Korea explained KAERI's environmental radioactivity studies, including plume dispersion modelling activity.

Viet Nam listed the items for which the country expects support in EPR. Both Indonesia and the Philippines discussed experiences of national actions taken during the Fukushima accident and proposed potential areas of regional cooperation, as follows:

1. Establishing a network of radiation monitoring and database.
2. Regional training and drills.
3. Harmonisation of standards and methodologies for EPR.
4. Technical assistance (experts and equipment).
5. Sharing contact points.

The Philippines listed some EPR-related activities in the region, such as the IAEA/ANSN project, the US-led Global Threat Reduction Initiative project, the proposed EU cooperative work, and the ASEANTOM.

The IAEA explained the ANSN activities, which currently focus on capacity building under various topical groups, including EPR.

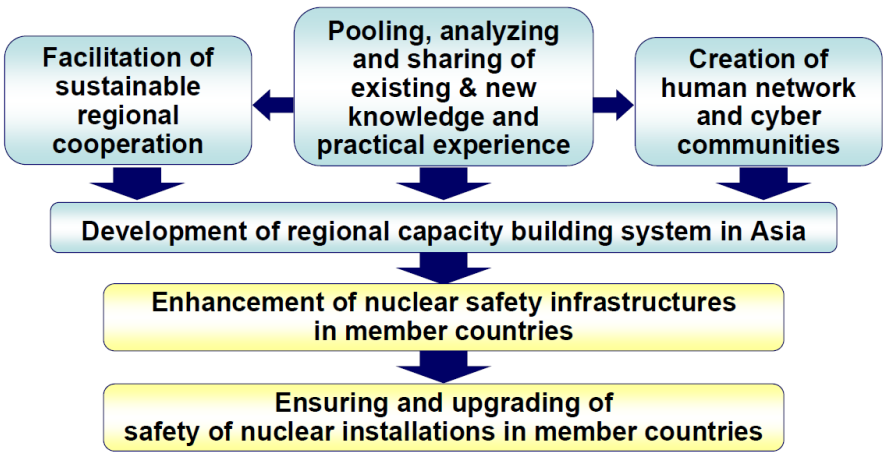
During the panel discussion, it was agreed that FNCA and ANSN put into writing the potential areas of regional cooperation for EPR and possible framework/vehicles to materialise the proposed actions.

2.Asian Nuclear Safety Network (ANSN)[2]

2.1. ANSN

The Asian Nuclear Safety Network (ANSN) was launched in 2002 to pool, analyse, and share nuclear safety information, both currently existing and new, as well as practical experiences among the countries. ANSN is expected to be a platform for facilitating sustainable regional cooperation and for creating human networks and cyber communities among the specialists of those countries. The development of a regional capacity-building system composed of a knowledge network, regional cooperation, and human networks will serve to enhance the nuclear safety infrastructures in participating countries, and will serve eventually to ensure and raise the safety levels of nuclear installations in the region. The ANSN has recently expanded to become a forum for a broader safety strategy among countries in the region.

Figure 3.3 Objective of ANSN



[2]http://ansn.iaea.org/default.aspx

2.2. Participating countries and supporting countries

Participating countries: **Bangladesh, China, Indonesia, Japan, Kazakhstan, Republic of Korea, Malaysia, Philippines, Singapore, Thailand, Viet Nam**
Supporting countries: **Australia, France, Germany, United States**
Other countries connected to ANSN: Pakistan

2.3 ANSN Structure[3]

In November 2011, the ANSN agreed to establish its plenary to ensure high-level commitment from ANSN member states.

Under the Steering Committee composed of representatives from Asian and supporting countries and the IAEA, topical groups are working in specific thematic areas as forums to promote the ANSN at the forefront by holding meetings of specialists, selecting documents to be shared, finding workable solutions to emerging issues, and exchanging their experiences in respective areas. The ANSN currently has 10 topical groups. The topical groups are at the forefront of ANSN activities for capacity building and nuclear safety infrastructure development.

[3]http://ansn.iaea.org/Common/WhatIsANSN/documents/OverViewofANSN.pdf

Figure3.4: ANSN Structure

2.4 ANSN activities for regional cooperation

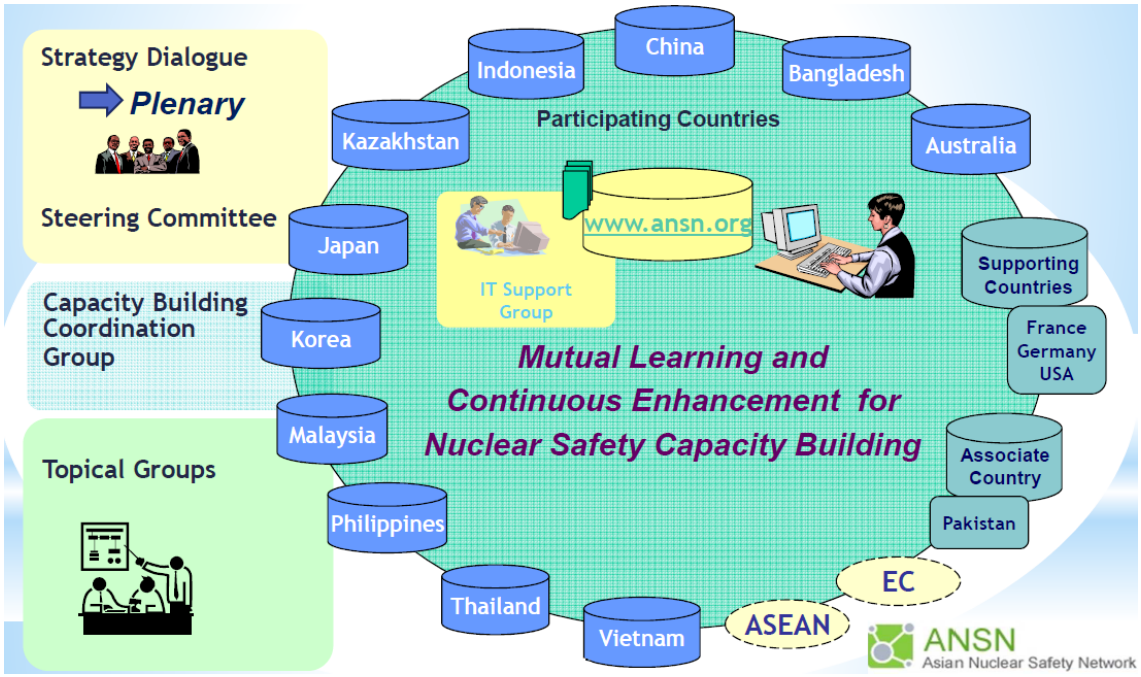
2.4.1 Information Technology Network

The ANSN has established a centralized autonomous network system with the support of national centres that include ANSN member countries and supporting countries, as follows: Austria, Bangladesh, France, China, Germany, Kazakhstan, Japan, Republic of Korea, Indonesia, Malaysia, the Philippines, Thailand, US, and Viet Nam, with two countries as observers and Pakistan as an associate member. The main ANSN website is hosted and maintained by IAEA, while the national centres are responsible for their content and local management to maintain the high quality of national website. Almost 7,500 documents, including all materials and information on more than 350 ANSN activities, as well as other important documents and videos, are pooled in the ANSN database for knowledge sharing.

This IT network also serves as a management tool and a communication tool of ANSN activities. Safety evaluation and proposals for activities are

conducted through this IT network. Discussion boards among experts are available.

Figure3.5 ANSN IT Network



2.4.2 Summary of the latest ANSN Workshop on Emergency Preparedness and Response

【Regional Workshop on Observing a Nuclear Emergency Response Exercise of the Local Government, Hokkaido, Japan, 07 – 10 October 2013】

This workshop is part of a capacity-building initiative in Asian countries organized by the Asian Nuclear Safety Network and the IAEA. The objective of the workshop was to observe a nuclear emergency exercise, and to share observations, experiences, and knowledge so that they can be used to improve emergency preparedness and response plans in other member states.

The first day was spent on presentations by the hosts from the Japan Atomic Energy Agency (JAEA) and the Japan Nuclear Energy Safety Organization (JNESO). Dr. Hiroshi Okuno described their experience during the Fukushima Daiichi Nuclear Power Plant accident. Dr. Yamamoto described what would happen during the exercise on the following day.

The second day was spent travelling to the alternative off-site centre in Kutchan. The participants witnessed the coordination meeting and video conference call among the response agencies. The participants then travelled to Otaru City to witness the evacuation drill.

The exercise was well organized and demonstrated the response to a severe accident with a release triggering an evacuation. It would have been beneficial for the observers to be briefed by the hosts on the exercise objectives for each response team. At the off-site centre, the exercise appeared to validate all the objectives related to decision making (notification and activation, urgent protective actions, emergency worker protection, medical and other emergency services, and public information). At the reception centre for the evacuees, it was not clear what the scope and the objectives were. A small number of evacuees (less than 50) were transported by bus and helicopter to the reception centre. They were registered and monitored for contamination. They were then directed to a medical team if they had health problems. It was not clear what would happen if they were contaminated: the decontamination facility was outside the building where the monitoring took place and none of the evacuees were decontaminated. It was also not clear where the evacuees were to be housed. The participants discussed this with the hosts, and they agreed that there might be a problem.

On the third day, each member state presented the lessons learned during their exercise program. The discussions were animated and took the better part of the day.

On the fourth day, the participants discussed what they thought of the exercise that they observed on the second day.

Figure 3.6. The members of ANSN Regional Workshop on "Observing a Nuclear Emergency Response Exercise of the Local Government"