Annex 2

Summary of Open Seminar
- Radiation /Nuclear Applications and Radioactive Waste Management -

3rd August 2017, Kasetsart University

1) Lecture 1: Outlines of FNCA and HRD Program Implemented by Japanese Government (Dr Yuichi Michikawa, Ministry of Education, Culture, Sports, Science and Technology (MEXT))

For effective nuclear cooperation and support for Asian countries, we are conducting three programs; I) Nuclear Researcher Exchange Program, II) Nuclear Instructor Training Program and III) Forum for Nuclear Cooperation in Asia (FNCA). Followings are brief explanation of individual programs:

I) Nuclear Researcher Exchange Program invites nuclear researchers of Asian countries to Japan to participate in laboratory research for up to 6 months.

II) Nuclear Instructor Training Program invites nuclear instructors of Asian countries to Japan to attend training courses to build capacity for up to 8 weeks. This is accompanied by follow-up training courses in the trainee's country.

III) FNCA is a framework of Asian international cooperation headed by annual ministerial level meeting. Currently, 8 coordinated projects on various nuclear/radiation fields such as industry, environment, healthcare, safety and security, are in progress by experts of member countries.

These programs have been moderately integrated to make synergy effects. Detail of these programs will be introduced respectively to promote further participation.

2) Lecture 2: Safety Case for Public Concerned in Radioactive Waste Management (Dr Hideki Kawamura (mcm japan))

In waste management, one of the most important issues is how to build sustainable public acceptance, because it is critical to selecting disposal sites and moving forward to begin operations. Before 2000, many researchers and engineers were focusing on developing technologies which could provide the "best" option in terms of safety and feasibility. However, from a sociological viewpoint, such options were not always acceptable by the public. Public and experts concerns are different: the public are seeking "peace of mind" in addition to the "safety" offered by the experts.

A "Safety Case" can be developed to the bridge the rift between experts and public. This Safety Case includes multiple lines of evidence, logical arguments and communication approaches, including with open and well-argued consideration of uncertainties. It will be modified and revised

step-by-step during the various implementation phases using ALARA (As Low As Reasonably Achievable) and BAT (Best Available Technique approaches and with public involvement in decision making. This would be part of a continuous, long-term effort of confidence building and promotion of knowledge transfer for future generation. Resulting waste management concepts will thus include not only expert issues, but also features and functions to facilitate acceptance by the public.

3) **Lecture 3: An Overview of Safe Management of Radioactive Waste in Malaysia (Dr Mohd Abd Wahab Yusof, Nuclear Malaysia)**

In Malaysia radioactive materials are used extensively in medicine, agriculture, research, manufacturing, non-destructive testing, minerals exploration and others. All the above practices and activities are the sources of radioactive wastes in Malaysia. There is no spent fuel from research reactor. All radioactive wastes need to be managed safely in accordance to the regulations prescribed by the Atomic Energy Licensing Act 1984 (Act 304) to protect the present and future generations of the general public and the environment. Malaysian Nuclear Agency (Nuklear Malaysia) provides basic facilities for safely manage radioactive waste. The latest facility which just introduced at Nuklear Malaysia is plasma thermal pilot plant which can be used to treat and condition radioactive waste. Nuklear Malaysia is actively doing characterization and conditioning of disused sealed radioactive sources (DSRS). Nuklear Malaysia is also embarking a new project, a mobile hot cell project. With regard to radioactive waste repository, Malaysia is already has a NORM disposal facility which is managed by the State Government of Perak. Malaysia is also embarking on borehole disposal concept for long term safe management of DSRS.

4) **Lecture 4: Detection Methods for Irradiated foods (Dr Wanwisa Sudprasert (Kasetsart University))**

Irradiation of foods and supplements is used in more than 60 countries to prolong stability and extend shelf lives. Irradiated foods must follow strict labeling guidelines, which vary country by country. The effective detection methods for irradiated foods are needed for the enforcement of laws and regulations to ensure that food is labeled correctly and to allow informed consumer choice. The ideal detection methods should be simple, accurate, rapid and inexpensive. It should measure a specific radiation effect, which is proportional to the dose and should not be affected by processing parameters and storage conditions. Unfortunately, no single method can be applied to all foods due to their chemical composition and physical attributes. Therefore, the development of analytical methods for correct identification of irradiated samples from non-irradiated samples has become important.

This talk presents previous works at Kasetsart University on the development of reliable detection methods for irradiated foods that focusing on physical, chemical and biochemical methods. Results

taken from these works would be greatly useful to facilitate the international trading of irradiated foods.