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Recent Activities on Global Nuclear Safety Regime

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1. Introduction

Recently, rapid progress on the globalization of the nuclear safety issues is being made in IAEA (International Atomic Energy Agency) and its member states. With the globalization, the need for international cooperation among international bodies and member states continues to grow for resolving these universal nuclear safety issues. Furthermore, the importance of strengthening the global nuclear safety regime is emphasized through various means, such as efforts in application of IAEA safety standards to all nuclear installations in the world and in strengthening the code of conduct and the convention on nuclear safety. In this regards, it is important for us to keep up with the activities related with the global nuclear safety regime as an IAEA member state and a leading country in nuclear safety regulation.

2. Recent Important International Activities

The steep increase in energy demand as a result of the rapid economic growth in BRICs countries causes high oil price. In addition, the Kyoto Protocol to reduce the green house gas emissions makes less usage of the coal and petroleum based energy in the world. With these reasons, the importance of nuclear energy is now highlighted again as a next generation energy source for sustaining the global economic growth. In this regards, many countries are now planning the new construction of nuclear power plants and current worldwide nuclear activities are briefly listed as follows.

- International safety review for new nuclear facilities, such as Multinational Safety Review of IAEA and MDAP (Multinational Design Approval Program) of U.S. NRC
- U.S. DOE announced GNEP (Global Nuclear Energy Partnership) for expansion of green house gas emission-free nuclear energy. [1]
- U.S. NRC gave 15-year-effective final design certificate to AP 1000 of Westinghouse. [2]
- France National Assembly approved the Act to support the construction of EPR (European Pressurized Water Reactor). [3]
- Framatome ANP in France announced that they will submit the design certificate of EPR to U.S. NRC by 2007.
- U.K. planned to examine new energy policy by mid of 2006. [4]
- China plans to increase 32,000 MW with new construction of about 30 new nuclear power plants by 2020.
- Swedish Center Party insisted the withdrawal of their policy on abolition of nuclear energy. [5]
- The Vietnam Prime Minister approved the nuclear power plant construction and fixed the plan to select main contractor by 2010, to start construction by 2015 and to begin operation by 2020.
- Finland has fixed the plan of new construction of EPR.
- Bulgaria and Rumania re-promoted the nuclear power plants which their construction were stopped.
- Turkey, Egypt, Bulgaria, Indonesia are now preparing new nuclear power plant construction.
- Nuclear developed countries have plans to renew the operating licenses, refurbishment and upgrade the operating nuclear power plants.

3. Recent International Cooperation of Korea

It has been recognized that international cooperation through bilateral, multilateral and international bodies is one of major pillars for strengthening the Global Nuclear Safety Regime. In this section, recent international cooperation activities for Korea are introduced.

3.1. INRA

The INRA (International Nuclear Regulators Association) was established at 1997 to influence and enhance nuclear safety and radiological protection from the regulatory perspective. The members are the most senior officials of well-established independent national nuclear regulatory organizations. Currently, it has 9 members and 8 member countries; U.S., France, Sweden, U.K., Canada, Germany, Spain and Japan. As of March 2006, the Director General of the Atomic Energy Bureau in MOST of Korea became the 10^{th} member of the INRA. [6]

The membership of INRA can be evaluated that Korea is now recognized internationally to have high level in the area of nuclear safety regulation. In addition, it is expected that the membership of INRA will have positive impact on export of nuclear related technology to world.

3.2. INSAG

The International Nuclear Safety Group (INSAG) is a group of high professional experts in the field of nuclear safety. INSAG is convened under the auspices of the IAEA with the objective to provide authoritative advice and guidance on nuclear safety approaches, policies and principles to the IAEA, the nuclear community and the public. [7]

The 6th INSAG meeting was held in Seoul during April 19 to 21, 2006 on Global Nuclear Safety Regime. This Seoul meeting was the first time that held outside IAEA headquarters in Vienna. In this meeting, it was recommended to strengthen the Global Nuclear Safety Regime as follows.

- Share of Knowledge : assuring the free flow of information and experience on nuclear safety
- Infrastructure of Global Nuclear Safety Regime : establishing the national level of nuclear infrastructures for emerging countries
- Binding mechanisms for Global Nuclear Safety Regime : reforming the CNS (Convention on Nuclear Safety) as more enforcing and binding agreement in keeping the global safety regimes

3.3. MDAP

The MDAP (Multinational Design Approval Program) was proposed by Mr. Nils J. Diaz, the chairman of U.S. NRC at June 2005. This program has three phases; Phase 1 - Transition and Formation Phase, Phase 2 – Consolidation and Initial Implementation Phase and Phase 3 – Implementation and Expansion Phase. During the Phase 1, the EPR design will be reviewed by multinational collaboration, U.S., France and Finland. In Phase 2, substantial degree of standardization and multinational acceptance of safety-approved designs will be achieved. In Phase 3, the Gen III+ and IV reactor designs will be reviewed by multi-nations with the standards and procedures established during Phase 2.

Korea was invited as one of core group members for Phase 2 work. Considering the export of Korea-designed nuclear power plants in the future, it is highly recommended that Korea should participate in the MDAP from the early stage since design certificate by the MDAP can be a pre-requite condition for exporting of any nuclear power plants.

3.4. TRF

The formation of TRF (Top Regulators Forum) for 3 countries in north-eastern part of Asia; China, Korea and Japan, was proposed by Japan at July 2005. To the proposal, Korea delivered the opinion that Korea agrees to strengthen the regional nuclear cooperation but more intensive and extensive utilization of bilateral cooperation such as, Korea – China and Korea – Japan would be more practical approach at this moment.

4. Conclusion

Aforementioned several reasons such as, high oil price and Kyoto Protocol, make us to re-consider the importance of nuclear as a next generation energy which enables to continue the economic growth with emission-free, clean, safe and abundant energy source. However, the nuclear energy, no matter how useful and beneficial it is, would not be possible without a solid foundation of safety. In this regard, the importance of firm global nuclear safety regime is highlighted currently to ensure the nuclear safety throughout the world. In this circumstance around us, it is required for us to improve the nuclear safety related domestic system, to establish the comprehensive strategy for globalization of our nuclear safety related technologies and to develop the strategy for coping with the current international situations.

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