The Implementation of Nuclear Security Program and the Improvement of Physical Protection in Indonesia: Progress and Challenges

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Non Proliferation of Nuclear Weapon Treaty (NPT), and the comprehensive safeguards agreements regime on IAEA model INFCIRC/153 Corr., nuclear safeguards systems have been operated for over three decades. Indonesia ratified the NPT agreement by Act No. 8 Year 1979. The government of the Republic of Indonesia is committed to general contribution in achieving a condition of safe, secure and peace the world in relation of nuclear energy utilization and to continue its strong support for the principles of the treaty. At that time Indonesian nuclear program was not as big as present programs. By time changes, the utilization of nuclear energy for peaceful purposes was significantly increasing based on the world's nuclear research and technology development. Nowadays, Indonesia has three research reactors and other nuclear installations for research activities. The first nuclear power plant is planned will operating on year 2016.

National Nuclear Energy Agency (BATAN) as promoting body in Indonesia has several reactor research centers. They are located at different province such as Bandung nuclear research center, Yogyakarta nuclear research center and Serpong nuclear research center. As the research and development institution belongs to government BATAN has also develop research by using radioactive substances for peaceful purpose. At three reactor research center are used nuclear materials with different nuclear category. The biggest research reactor in Indonesia is located in national center for science and technology development or called PUSPIPTEK, Serpong district, Province of Banten. In Serpong nuclear research center comprise several nuclear installation such as research reactor G.A. Siwabessy (30 Mw thermal), fuel element production installation, experimental fuel element installation, radio metallurgy installation, radioisotopes installation, radioactive waste installation. The Serpong whole area is wide approximately 24 ha and including supporting facilities. The nuclear material and its installation is potential target in the facilities so that they needed physical protection measures in prevention and protection of nuclear material and radioactive source against theft and sabotage. The implementation of physical protection of nuclear material and radioactive sources in Indonesia complied with the international instruments such as the Convention of the Physical Protection on Nuclear Material and Facilities, amended on July 2005, and INFCIRC/225/Rev. 4, (corrected), the physical protection of nuclear material and nuclear facilites, June 1999.

The application of nuclear energy for power program generation involve in the management of nuclear materials and other radioactive substance. According to international regulation and convention, an effective physical protection system is needed to protect nuclear materials and its facilities against theft and sabotage for both non-proliferation and radiation safety purpose.

Further to implementation of the IAEA nuclear security program in the region, Indonesia received two nuclear security services, IPPAS and INSServ mission. Based on the expert mission recommendation, therefore Indonesia improved their physical protection system on nuclear material and facilities against theft and sabotage.

One thing that should be considered by the Government of Indonesia is human resource development programmes. So far, some effort has developed to enhance the knowledge of the employee who deals with nuclear material and radioactive substances. It still needed to increase the awareness in particular to personal and other related agencies as well.

The Department of Energy's National Nuclear Security Administration discussed security assistance with Indonesia's National Nuclear Energy Agency, BATAN. These upgrades not only reduced the threat of theft at the three research reactors, but also provided local physical protection expertise to use during the concept, design, and operation of Indonesia's future power reactors.

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