

Development of Technology for Nuclear Nonproliferation to Support Peaceful Use of Nuclear Energy

Policy research and study

With the goal of promoting confidence building and transparency in nuclear nonproliferation field, we planned concrete activities to help Vietnam and Thailand in their introduction of atomic power generation, as nuclear nonproliferation policy studies based on our technical knowledge. Also, we have started to analyze past U.S. nuclear nonproliferation policy, including the process of enactment of the nuclear nonproliferation law, in regard to its influence on Japanese nuclear fuel cycle policy.

Development of technology for nuclear nonproliferation

We studied concepts of advanced safeguards systems to provide effective and efficient safeguards/nuclear material accountancy in the future FBR cycle system.

We are promoting cooperation with the Korea Institute of Nuclear Nonproliferation and Control in remote monitoring technology development as a mean of building confidence and achieving transparency in peaceful use of nuclear energy in nuclear nonproliferation.

Also, we studied methods for evaluating the nuclear proliferation resistance of future nuclear fuel cycle systems.

Support of denuclearization

We have been developing technology to convert surplus weapons plutonium into MOX vipac fuel for fast breeder reactors. This technology was demonstrated in the Russian fast breeder reactor BN600. The U.S. and the Russian Federation stated that application of this method has been approved in a joint statement issued November, 2007.

Consequently, the U.S. requested us to transfer to them the results of this Japan-Russia cooperative study, and also the Russia Federation requested us to provide Japanese FBR fuel cladding (PNC-316). JAEA is still discussing these issues with the U.S. and Russia, respectively, in particular the conditions of provision by Japan.

For the establishment of a global verification regime in the framework of the CTBT (Comprehensive Nuclear Test Ban Treaty), we continued operation of Takasaki and Okinawa radionuclide monitoring stations, and have made detailed analyses of filter samples, delivered from monitoring stations around the world, at our Tokai laboratory.

We have been operating the National Data Center (Tokai) provisionally since April, 2009 based on the results of data analysis software development, and currently receive, analyze and evaluate data on a daily basis from monitoring stations around the world (80 stations as of March of 2009).

Nuclear material management

We have been making technical contributions to IAEA safeguards implementation by conducting several technical development projects in cooperation with the U.S. Department of Energy. We have also cooperated in domestic and international personnel training.

In the field of physical protection, we are continuing operation and environmental durability tests of intruder automatic detection systems.

In the field of nuclear material transportation, we made preparations for safety tests of a prototype container for MOX powder transportation.

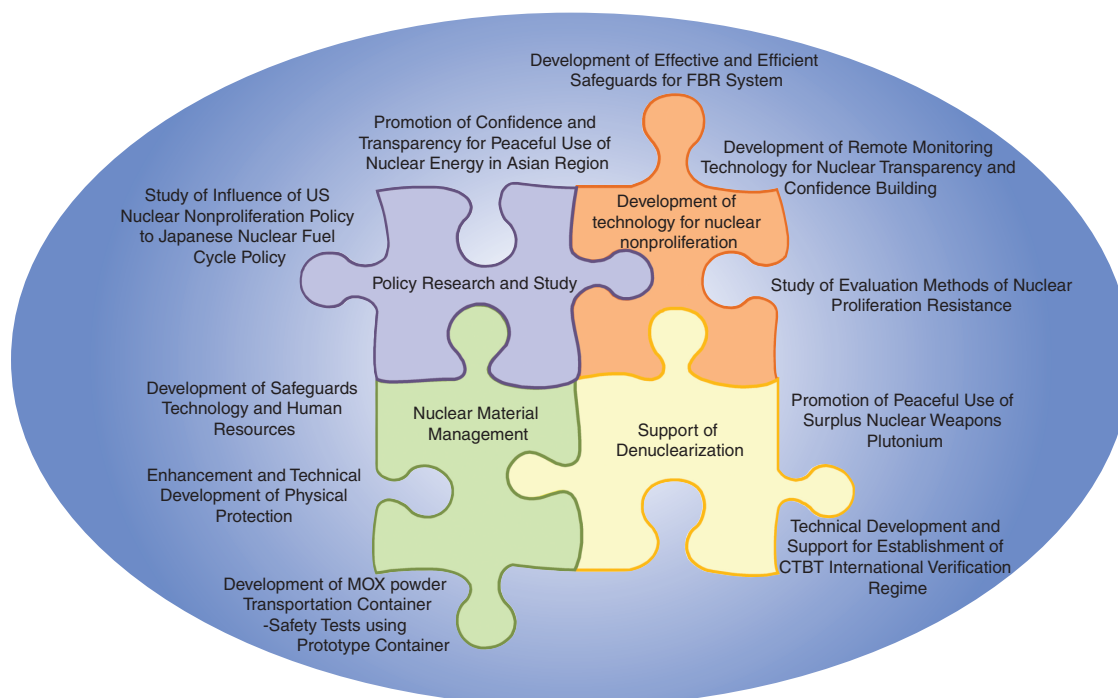


Fig.13-1 JAEA Activities in Scientific and Technical Development for Nuclear Nonproliferation

We have two primary missions regarding nuclear nonproliferation: to support the government in developing nonproliferation policies through research and study, and to support government and international organizations by developing nuclear nonproliferation technology. Other important missions of JAEA are to support denuclearization in Russia, nuclear material control in JAEA facility, and human resource development.