

Objectives concerning the Administration of the
Operations to be Achieved of the Japan Atomic
Energy Agency (JAEA)

(Mid to Long-term Objectives)

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In accordance with the provisions in Article 35-4 of the Act on General Rules for Incorporated Administrative Agencies (Act No. 103 of 1999; hereinafter referred to as the “Act on General Rules”), National Research and Development Agency, the Japan Atomic Energy Agency (hereinafter referred to as, the “Agency”), sets its objectives concerning the administration of the operations to be achieved (hereinafter referred to as a “Mid to Long-term Objectives”).

I. Position and Role of JAEA under Policy System

In the “Basic Energy Plan” (Cabinet decision in April 2014; hereinafter referred to as the “Basic Energy Plan”), which is a basic plan, promoting measures on energy supply and demand on a long-term, comprehensive and planned basis, nuclear energy is recognized as an important baseload power source that contributes to the stability of the energy supply and demand system from the viewpoints of energy output volume against the fuel input amount, good stable supply and efficiency, operation costs and greenhouse gas emissions with ensuring safety as a major prerequisite and is one of the important sources of energy from the viewpoint of energy security for Japan with scarce fossil fuels, which must depend on imports from foreign countries for most of the fuel. At the same time, we should continue to make efforts to prevent the recurrence of accidents at TEPCO’s Fukushima Daiichi Nuclear Power Station (hereinafter referred to as the “accident at Fukushima Daiichi Nuclear Power Station”) and prevent any other nuclear energy accident.

Furthermore, nuclear power plays an important role not only in ensuring energy sources but also in contributing to the development of science and technology, academia and industry through the resolution of the issues on a global scale and the utilization of radiation etc. The national government plays an important role because a great deal of resources and time are required to solve the problems of R&D, safety regulations and radioactive waste. Especially, decommissioning of reactors and contaminated water treatment caused by a serious nuclear accident like the one at Fukushima Daiichi Nuclear Power Station are globally unprecedented and difficult tasks and the national government should make every effort to work on them.

The Agency specializes in issues to be addressed as a National Research and Development Agency, being the only comprehensive nuclear R&D institute in Japan and contributes to nuclear energy and science and technology policies based on the policies of Japan as follows:

In the Atomic Energy Basic Act (Act No. 186 of 1955), the fundamental nuclear

policy of Japan, the Agency shall carry out activities such as basic research and applied research on nuclear energy, development of fast breeder reactors and necessary nuclear fuel materials for the purpose of establishing a nuclear fuel cycle, the development of technology for reprocessing etc. of nuclear fuel materials, as well as the dissemination of the results of such research and development and is expected to support the technical infrastructure of nuclear power of Japan. In addition, processing of spent fuel that are generated with use of nuclear power and developing technology towards decommissioning of nuclear facilities are also significant operations to be implemented by the Agency, as the only comprehensive nuclear R&D institute in Japan and as a nuclear power operator. Moreover, the Agency needs to work on dealing with the accident at Fukushima Daiichi Nuclear Power Station, improving the safety of nuclear power, promoting the atomic energy basic and generic research and developing human resources, implementing fast breeder reactor R&D and radioactive waste disposal related to the nuclear fuel cycle, based on the energy policies of science and technology policies of Japan including nuclear energy such as the Energy Basic Plan and the “Fifth Science and Technology Basic Plan” (Cabinet decision in January 2016; hereinafter referred to as the “Fifth Science and Technology Basic Plan”). To carry out this R&D, it is important for JAEA to contribute to maximize the results of R&D of nuclear science and technology from all over Japan through active collaboration with universities and the industrial world as well as work on the maximization of its own R&D achievements. Moreover, the Agency needs to play a critical role in the technical assistance necessary to properly enforce nuclear safety regulations based on “Safety Research in the Nuclear Regulatory Commission (NRA)” formulated by NRA.

Further, the Agency shall share technology and knowledge learned as an advanced country utilizing nuclear power especially through the experience of coping with the accident at Fukushima Daiichi Nuclear Power Station with the world and contribute to the safety and nuclear security sector including the improvement of safety and enhancement of disaster prevention functions.

Moreover, based on the “Basic Direction of the Reform of Japan Atomic Energy Agency” (MEXT Headquarters for Reforming JAEA, August 2013, hereinafter referred to as the “basic direction of the reform”), which originated from a defect in maintenance and management of the “MONJU” fast-breeder reactor (hereinafter referred to as “MONJU”) and a radioactive materials leakage accident at the Japan Proton Accelerator Research Complex (J-PARC) and was drawn up to review the Agency’s organizational and operational systems thoroughly. The Agency puts the

utmost priority to safety, performs operations while gaining society's confidence as well as places priority to initiatives in the fields above. As part of this and from the viewpoints of affinity and the potential of comprehensive R&D in quantum science, the Agency decided to separate part of R&D on nuclear fusion and the applied research of quantum beams from its operations and integrate them into the National Institute of Radiological Sciences (NIRS) (The new Quantum Science Research and Development Agency starts operations in April 2016.). The Agency strives to coordinate and cooperate closely with the new agency to ensure that the separated R&D operation is not disrupted. In addition, actions with respect to new regulation standards are performed in a well-planned and proper manner to safely and stably operate owned facilities.

Based on the above, the Agency formulates its new mid to long-term objectives.

II. Period for Mid to Long-term Objectives

The period for the mid to long-term objectives shall be the seven years from April 1, 2015 to March 31, 2022.

III. Matters Concerning Administration of Operations, which put Utmost Priority on Safety

The Agency is a nuclear operator as well as a National Research and Development Agency and needs to perform administration of operations to use nuclear power on the premise that safety should be put before everything else. Therefore, taking the “basic direction of the reform” into consideration, the Agency performs operation which puts utmost priority on safety and over and above legal compliance, all officers and staff of the Agency take a close interest in safety, consider safety the highest priority, make the idea take root in the organization and consistently review what the organization should be to put the utmost priority on safety.

In addition, the Agency makes constant efforts to improve nuclear safety and nuclear security and thoroughly ensures the safety of owned facilities and businesses and proper management of nuclear materials.

As for these efforts, the Agency constantly strives to upgrade them by incorporating the latest knowledge obtained from R&D related to safety improvement of nuclear power. Also, as for manuals in each site designated for normal and accidental uses, the Agency continually reviews and maintains them by dealing with

new necessary matters promptly. In addition, the Agency regularly verifies whether ideas have taken root and review necessary matters.

Furthermore, the Agency publicizes the progress reports on these efforts, detailed cause analysis in case of accidents, handling status etc., more actively and swiftly in light of previous challenges.

1. Matters concerning ensuring safety

Ensuring safety is the top priority for the administration of operations and we recognize that our nuclear facilities potentially handle hazardous materials and provide basic matters pertaining to safety management including legal compliance, actively promoting voluntary safety activities including “MONJU” and Tokai Reprocessing Plant, which are transiting to the decommissioning stage and ensuring nuclear safety related to facilities and operations. In addition, we manage new regulation standards in a well-planned and proper manner.

In addition, we introduce instruments to promote prompt improvements at site level with a view to making each employee engaged in operations with thorough attention to safety and improving operational problems.

Such efforts will ensure the safety of nuclear power R&D conducted by the Agency as well as build public and social trust in the Agency.

2. Matters concerning nuclear security

In managing nuclear materials etc., we comply with international agreements and relevant domestic laws for proper management and enhance nuclear security. In addition, we properly perform operations related to the transportation of nuclear fuel materials.

IV. Matters Concerning to Maximization of the Achievements of R&D and the Improvement of Quality of Any Other Operations

The Agency clearly defines the role sharing for private business operators and universities etc. and focuses on the matters to be implemented as the only comprehensive nuclear R&D institute in Japan, that considers safety as the highest priority. And by promoting the following R&D, maximizing the results and improving the quality of any other operations, the Agency solves problems resulting from the utilization of nuclear power including improvement of the nuclear power safety and disposal problem of radioactive waste and promotes a higher level of

nuclear energy utilization, enhancing security of the energy sources in Japan, reducing loads on the environment, promotion of science and technology, academia and industry and creation of innovation.

As a National Research and Development Agency and a nuclear operator, the Agency always needs to be aware of the linkage to society and carry out R&D autonomously as an organization. The Agency, as a National Research and Development Agency, works on the utilization of nuclear power by giving the highest priority to gaining public understanding and trust and considering public opinion, not only returning R&D achievements to society.

In addition, as R&D on nuclear power requires long-term sustained efforts, the Agency internally develops human resources and hands down technology and knowledge.

To evaluate this item, the Agency basically evaluates an evaluation axis etc., specified separately depending on the individual objectives. At the time, the Agency comprehensively evaluates it by properly taking both qualitative and quantitative views into consideration.

1. R&D in response to the accident at Fukushima Daiichi Nuclear Power Station

The accident at Fukushima Daiichi Nuclear Power Station forced many people to evacuate and produced a multitude of globally unprecedented difficult challenges such as decommissioning of reactors, contaminated water, environmental pollution etc. Thus, R&D is highly important to solve these problems. Based on efforts to reconstruct and revitalize Fukushima shown in the Basic Energy Plan, the Agency carries out reactor decommissioning R&D for the Fukushima Daiichi Nuclear Power Station and effective R&D related to the recovery of the environment for the reconstruction and revitalization of Fukushima, while making the most of human resources and research facilities. In addition, while facilitating reinforcement of the basis of R&D required to perform the R&D mentioned above, the Agency gathers the knowledge of industry and academia at home and abroad and works on R&D and human resource development for decommissioning of the Fukushima Daiichi Nuclear Power Station.

Furthermore, the Agency promotes these efforts focusing on or canceling R&D based on R&D outcomes regarding decommissioning etc. in foreign countries, the progress of decommissioning and the appropriate division of roles with the government, Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF), Fukushima Daiichi Nuclear Power Station and other relevant

organizations, while taking into account government policies and social needs, bringing outcomes and details of each R&D and methods of utilizing them towards decommissioning of the Fukushima Daiichi Nuclear Power Station via specific processes and advancing partnerships with relevant organizations.

In addition, the Agency shall share technologies and knowledge gained through these efforts with other countries and contribute to improving safety at nuclear facilities in each country.

(1) R&D for decommissioning reactors

The Agency shall make the best use of its own human resources and R&D facilities and work on R&D necessary for decommissioning of the Fukushima Daiichi Nuclear Power Station based on necessities in sites from mid to long-term perspectives including policies such as the strategic plan formulated by NDF and “Mid to long-term Roadmap towards Abolition of Units 1-4 of the TEPCO’s Fukushima Daiichi Nuclear Power Station” (Nuclear Emergency Response Headquarters/Council for the Abolition of TEPCO’s Fukushima Daiichi Nuclear Power Station in June 2013; hereinafter as referred to the “Mid to long-term Roadmap towards the Abolition”).

Specifically, the Agency shall perform R&D focusing on what only the Agency can perform in the Mid to long-term Roadmap towards the Abolition and bringing them into shape and clarifying them and based on necessities in sites from mid to long-term perspectives, put its focus on training and securing human resources and performing full-scale basic and fundamental R&D for the smooth execution of decommissioning of the Fukushima Daiichi Nuclear Power Station. Also, the Agency shall support NDF etc. in formulating a decommissioning strategy and planning/promoting R&D by providing expert knowledge and technical information. Moreover, based on the knowledge gained through R&D concerning decommissioning of the Fukushima Daiichi Nuclear Power Station, the Agency shall strengthen research to explain events and contribute to improving the safety of light water reactors (LWRs) in the future.

The Agency shall provide technology fitting to the necessities in sites to conduct decommissioning of the Fukushima Daiichi Nuclear Power Station and shall contribute to early realization of safer and more efficient decommissioning and the improvement of nuclear power safety.

(2) R&D related to environmental recovery

The Agency shall perform R&D related to the recovery of the environment in light of the national policies and social needs such as “Basic Guidelines for Fukushima Reconstruction and Revitalization” (Cabinet decision in July 2012).

Specifically, using the Fukushima Environment Creation Center as a base of operations, the Agency shall develop infrastructure technology concerning building a comprehensive evaluation system for development of technology for environmental monitoring/mapping and environmental dynamics and volume reduction of eliminated soil etc. in collaboration with the relevant organizations so that the technology developed can be transferred to the private sector etc. by the midst of the objectives period.

To satisfy residents’ needs for safety and security through these efforts, the Agency shall provide technologies and information etc. that contribute to the return of residents, planning of local authorities involved in the return and revitalization of agriculture and forestry in the community.

(3) Building the basis of R&D

The Agency shall develop R&D centers necessary for R&D in (1) and (2) in cooperation with ministries concerned, relevant local governments, research institutions, nuclear operators etc.

Specifically, the Agency shall make progress to start the operation of some development and verification facilities for remote control equipment and devices shown in the Mid to long-term Roadmap towards the Abolition around summer 2015 and the operation of an analysis and research center for radioactive materials in 2017. In addition, the Collaborative Laboratories for Advanced Decommissioning Science (CLADS) was established in 2015 to gather knowledge at home and abroad and steadily develop the “Acceleration Plan of Reactor Decommissioning R&D for Fukushima Daiichi Nuclear Power Station, TEPCO” (MEXT in June 2014). The Agency shall perform R&D and human resources development to conduct decommissioning safely and surely including utilization of both facilities and shall form a network that enables exchange of human resources of universities, research centers, industries, etc. at home and abroad and construct bases for R&D and human resources development in an integrated manner.

These efforts shall accelerate R&D toward safe and reliable decommissioning etc.

2. Technical support and safety research for nuclear safety regulation and administration

The Agency shall be organized into several departments to perform operations related to technical support for nuclear safety regulation and administration and nuclear disaster prevention and improve the technical competence of departments, respecting opinions of the Regulation Support Council established in the Agency, which is composed of external experts, performing the following works while ensuring effectiveness, neutrality and transparency.

(1) Technical support and safety research for nuclear safety regulation and administration

Technical support to the nuclear safety regulation and administration contributes to the research, development and safe utilization of atomic energy in Japan.

To do this, based on “Safety Research in the Nuclear Regulation Authority (NRA),” formulated by the Nuclear Regulation Authority, the Agency shall undertake safety research on matters concerning ensuring nuclear safety (including matters related to regulations to implement safeguards based on international agreements and other peaceful use of nuclear energy) and support maintenance of NRA regulation standards in response to suggestions or requests on technical issues from the Nuclear Regulation Authority.

In addition, upon request from NRA, the Agency shall contribute to ensuring safety such as by identifying accident and failure causes of nuclear facilities etc.

(2) Technical support for nuclear disaster prevention

As a designated public institution based on the Basic Act on Disaster Control Measures (Act No. 223 of 1961) and the Act on the Peace and Independence of Japan and Maintenance of the Nation and the People’s Security in Armed Attack Situations etc. (Act No. 79 of 2003), the Agency shall provide human and technical support during nuclear emergencies upon request from relevant administrative organizations and local governments.

In addition, the Agency shall contribute to strengthening nuclear emergency responses of relevant administrative organizations and local governments.

3. R&D to improve nuclear safety and activities to contribute to nuclear non-proliferation and nuclear security

The accident at Fukushima Daiichi Nuclear Power Station made us confirm again

that the top priority should be given to safety without considering the circumstances in using nuclear power. In addition, it is necessary to consistently address world-class safety in using nuclear power as shown in the Basic Energy Plan. Japan is expected to contribute to nuclear safety, nuclear non-proliferation and nuclear security as a leading country utilizing nuclear power. Based on these, the Agency shall perform R&D to contribute to the improvement of nuclear power safety as shown below as well as conduct activities that contribute to global nuclear non-proliferation and nuclear security and support the peaceful use of nuclear power as a country without nuclear weapons.

(1) R&D to improve nuclear safety

Based on the Basic Energy Plan, utilizing its technical potential, facilities and equipment, the Agency shall perform research to improve the safety of nuclear power systems and support relevant administrative organizations and nuclear operators to improve safety for their operations, as well as mount to its own nuclear power system. Using outcomes gained from these efforts, technical support shall be provided when the Agency and the other nuclear operators build a safer nuclear power system.

(2) Activities that contribute to nuclear non-proliferation and nuclear security

Based on the Basic Energy Plan, the Nuclear Security Summit, requests from international institutions and domestic and foreign situations etc., the Agency shall promote the peaceful use of nuclear power and reinforce nuclear non-proliferation and nuclear security in cooperation with the International Atomic Energy Agency (IAEA), the USA, Europe etc.

Specifically, it shall develop infrastructure technologies required to strengthen nuclear non-proliferation and nuclear security, carry out political research in response to international trends, support capacity-building programs for Asian and other countries, develop verification technologies related to the Comprehensive Nuclear-Test-Ban Treaty (CTBT), operate domestic CTBT monitoring facilities, actively deliver information on nuclear non-proliferation and nuclear security and participate in international deliberations. In light of domestic and foreign situations, the Agency shall provide flexible responses.

4. Basic and fundamental research and human resource development for nuclear power

To promote research, development and utilization of nuclear power, it is necessary to promote basic and fundamental research of nuclear power and develop human resources in the nuclear power sector that support these cross-cutting activities. The Agency shall maintain and improve basic technologies, work on creation of new nuclear utilization technology and industrial applications by promoting basic and fundamental research and develop human resources by using them while maintaining and controlling nuclear power infrastructure in a well-planned and proper manner based on users' needs as the only comprehensive nuclear R&D institute in Japan.

In addition, to ensure smooth R&D activities etc., the Agency shall properly confirm the suitability of facilities with respect to new regulation standards if required.

(1) Promotion of basic and fundamental research, advanced nuclear scientific research and research on neutron utilization that underpin nuclear power

Based on the basic direction of the reform, the Agency promotes basic and fundamental research on nuclear power by taking global technical trends and social needs into consideration and focusing on them. In particular, in advanced basic science research, the Agency shall carefully select themes directly related to the development of nuclear science. In addition, the Agency shall promote research on nuclear science by using neutron and synchrotron radiation and materials science that support nuclear energy.

Specifically, the Agency shall perform R&D with important themes of nuclear and reactor engineering, fuel and material engineering, nuclear chemical, environmental and radiation sciences and computational science and technologies to use nuclear power in the future, upon requests from industry-academia-government. In addition, the Agency shall carefully select research themes in the field of nuclear power, leading the dawn of this field such as advanced fundamental actinoids science centering on nuclear physics/chemistry and advanced nuclear materials science and shall conduct world cutting-edge basic research to gain new findings beyond the framework of existing knowledge. In addition, the Agency shall utilize J-PARC and JRR-3 etc. and advance technical development concerning advancement of neutron facilities and devices and perform advanced nuclear research on nuclear science using neutron and

synchrotron radiation and materials science that support nuclear energy.

These efforts shall improve basic technologies to support nuclear energy utilization in R&D sites and industries and accumulate common intellectual properties and technologies, creating world cutting-edge research results in nuclear power science with strong academic and technical impact that lead the way to developing technologies and nuclear science to open up new nuclear energy utilization. In addition, neutron utilization research etc., shall create innovative results and seeds in a wide range of science, technology and academic sectors. Moreover, the Agency shall utilize results for industrial application through collaboration with industry-academia- government.

Furthermore, to undertake R&D, the Agency shall receive an intermediate evaluation on the progress and direction of R&D from external experts during the objectives period and properly reflect it in its efforts.

(2) R&D for high-temperature gas reactors and associated heat utilization technologies

Based on the Basic Energy Plan, the Agency shall perform R&D on high-temperature gas reactors and associated heat utilization technologies to pursue the potential for further diversification and advancement of nuclear energy utilization.

Specifically, as for the High Temperature Engineering Test Reactor (HTTR) that could contribute to the practical use of high-temperature gas reactors with intrinsic safety and is also expected to be applied in various industries including power generation and hydrogen generation etc., the Agency shall reduce the maintenance and management costs for HTTR during the time until its restart, giving the highest priority to ensuring safety. And, the Agency shall restart the stations immediately after receiving confirmation of conformity to the new regulation standards, based on “*Ko-on Gasu Ro Gijutsu Kaihatsu ni Kakawaru Kongo no Gijutsu Kaihatsu no Susumekata ni Tsuite* (Future Process in R&D related to the Development of High-Temperature Gas Furnace Technology)” (the Working Group on HTGR, the Nuclear Science and Technology Committee, the Subdivision on R&D Planning and Evaluation, the Council for Science and Technology, September 2014) and governmental policies such as studies related to the future concrete image of practical applications and prioritize R&D and global cooperation that contributes to the verification of safety of high-temperature gas reactors and establishment of unique technologies and technology in connection

with heat utilization systems. In particular, the Agency will commission an external committee to evaluate the R&D progress and properly reflect it in 2016 for a connection test of the heat utilization system.

In addition to these efforts, the Agency shall clarify challenges for practical application in the future and results to be obtained, as well as a method to utilize the results etc. and proceed R&D on element technologies concerning heat utilization including hydrogen production and development of human resources mainly for HTTR. In particular, as regards a hydrogen production technology, the Agency will shall complete engineering R&D including reliability of hydrogen production on an engineering scale within this mid to long-term objective period, clarify research goals and results for the future practical use and technology transfer to private business operators from a viewpoint of economic efficiency and then summarize these research results and pave the way to transfer them to private business operators etc.

(3) Promotion of public utilization of specific advanced large research facilities

The Agency shall make efforts towards the smooth operation of J-PARC and maintenance and improvement of its performance and promote public utilization based on the operation prescribed in paragraph 2 of Article 5 of the Act on the Promotion of Public Utilization of the Specific Advanced Large Research Facilities (Act No. 78 of 1994) (excluding usage promotion services by registered institutions for facilities). It shall also promptly review necessary matters on current reduction of service charges.

By promoting such utilization of the facilities, the research basis can be reinforced and the utilization of such improved research basis could contribute to the promotion of science and technology, academia and industry in Japan. Also, the Agency shall promote the integration of various knowledge by interaction between researchers through research institutions.

(4) Development of nuclear human resources and promotion of service facility uses

Based on the Basic Energy Plan, with human resources in a wide range of sectors as a target, the Agency shall develop researchers and engineers with a high problem-solving ability in the nuclear power sector in the R&D sites, human resources via training corresponding to the needs of industries, universities, government agencies etc., human resources who can be active both domestically and abroad and human resources for nuclear power upon requests etc. from

relevant administrative organizations.

In addition, the Agency shall maintain and manage its own infrastructure facilities such as engineering test reactor and radioactive substance treatment facilities, which are difficult for private business operators, universities etc., to maintain, in a well-planned and proper manner and based on user's needs, receive reasonable value and provide the facilities to many external users in a wide range of sectors domestically and abroad. In particular, facilities such as JRR-3 etc., which have stopped their operations after the earthquake disaster, shall immediately restart the operations after receiving a certification of compliance with new the regulation standards.

These efforts shall maintain and develop nuclear technology and human resources at a high level and support nuclear R&D infrastructure.

5. R&D on Fast-Breeder Reactors (FBR)

In the Basic Energy Plan, “Fast-Breeder Reactors Development Policy” (Decision by the Council of Ministers Related to Nuclear Energy in December 2016), Fast-Breeder Reactors (FBR) are expected to undertake new roles, not only by using uranium resources effectively in a conventional way, but also by reducing the volume and toxicity of radioactive waste and technologies related to non-proliferation. The Agency shall contribute to solving these challenges of Japan and diversifying the future energy policy by promoting R&D to establish verification technologies for Fast-Breeder Reactors (FBR). In addition, as for “MONJU,” efforts are made to implement safe and steady decommissioning based on the “Government's Policy on Handling of 'MONJU” (Decision by the Council of Ministers Related to Nuclear Energy in December 2016).

(1) Efforts to decommission “MONJU”

The Agency shall establish a basic plan concerning decommissioning by April 2017, and improve the decommissioning system designed to gather knowledge in Japan and abroad. The Agency undertakes the necessary efforts, aiming to complete retrieval of fuel from a reactor core to a fuel pond (water pool) while safety is secured within about five and a half years since formulation of the basic plan concerning decommissioning. In addition, when advancing future efforts, the Agency shall prioritize ensuring safety and endeavor to enhance local and other citizens' understanding above all in accordance with NRA.

(2) Global strategy planning aiming at the establishment of verification

technologies for Fast-Breeder Reactors (FBR) and maximization of R&D achievements

To establish verification technologies for FBR, the Agency shall use experiences learned from R&D on “MONJU” and the fast breeder laboratory reactor “Joyo,” which is used as an irradiation facility (hereinafter referred to as “Joyo”) and carry out R&D on FBRs through participation in international projects such as the ASTRID reactor in France which is in the verification stage. To smoothly carry out these R&Ds, the Agency shall obtain a confirmation of conformity with new regulation standards for Joyo, resume its operation and implement irradiation tests etc.

Furthermore, through the participation in international projects such as the ASTRID reactor in France, it is necessary to sufficiently reflect past research results and accumulated technologies into the projects. The Agency shall use the necessary human resources and develop human resources with international negotiation skills. At the same time, the Agency shall make use of the project results in future R&D. The Agency shall receive an intermediate evaluation for the R&D achievements from external experts by the midst of objectives period and reflect it in future plans.

To proceed (1) and above-mentioned R&D, the Agency shall consider technical, economic and social risks in view of the efficient use of resources, reduction of high-level radioactive waste and toxicity etc. and maximize the results of safe and efficient R&D of FBR. To achieve this, in light of the international trends in FBR R&D, the Agency shall plan a global strategy for R&D on FBR in consideration of a smooth transition to the verification process, effective and efficient resource allocation, maintaining and development of FBR technologies and human resources in Japan, agree policies with interested parties such as the government and contribute to policy planning etc.

In addition, the Agency shall formulate a policy of FBR safety design standard draft and lead the international standardization of FBR safety design standards by using the Generation-IV International Forum (GIF) and ASTRID cooperation between Japan and France.

6. R&D of reprocessing related to the nuclear fuel cycle and treatment of fuel fabrication and disposal of radioactive waste

As shown in the Basic Energy Plan, technology is needed to certainly execute countermeasures against radioactive waste that are generated in using nuclear power

lest the present generation that has generated the waste should push the burden toward the future. In addition, Japan is based on the nuclear fuel cycle and needs technology to support the basic policy to efficiently use resources and reduce high level radioactive waste and toxicity etc. Therefore, the Agency shall specify the roles and promote the development of technologies under collaboration with industries and ministries concerned.

In addition, to ensure these smooth R&D activities etc., the suitability of a facility for a new regulation standard should be properly confirmed if required.

(1) Technology development for reprocessing spent fuel and fuel fabrication

Based on the Basic Energy Plan, the Agency shall promote the following R&D:

The Agency shall develop basic technologies toward the advancement of reprocessing technology and reprocessing of light water reactor MOX fuel etc. and provide technical support to nuclear fuel cycle operations based on these results.

In addition, the Agency shall develop basic technologies keeping the production process and reprocessing of FBR MOX fuel in mind and gain results helpful for determining which technologies are promising to establish MOX fuel fabrication and reprocessing technologies in the future.

In addition, the Agency shall have stopped some facilities of Tokai Reprocessing Plant, which resolves and shears spent fuels and plan to apply for a decommissioning plan, clarify the process and the period until decommissioning, re-organize the R&D system of spent fuel reprocessing technology after decommissioning, utilize of facilities for the time being and formulate a decommissioning plan etc. after that and contribute to the establishment of a technical system concerning prospected decommissioning of reprocessing facilities.

Moreover, the Agency shall prioritize securing safety and reducing risks above all and properly work on improving safety based on new regulation standards to safely manage stored spent fuel and waste, and steadily implement the plan etc. to decommission the Tokai Reprocessing Plant, which was submitted under direction from NRA, to complete solidifying and stabilizing plutonium solution and high-level radioactive waste liquid in 2028 to reduce potential sources of danger.

The Agency shall receive an intermediate evaluation on results of technology development from external experts by the midst of the objectives period and reflect it in future plans.

(2) R&D on reducing the volume and toxicity of radioactive waste

Based on the Basic Energy Plan, the Agency shall use the global network and promote R&D to reduce the volume of high-level radioactive waste and its long-term residual toxicity. As high-level radioactive waste include long-life and high toxicity minor actinoid (MA), it is necessary to manage them safely over a long period of time and process their disposal properly. Therefore, with a view of ensuring a wide variety of options, it is important to develop technologies that enhance safety, reliability, efficiency of the radioactive waste by increasing the effective disposal capacity at disposal sites through reduction of the volume of radioactive waste and reduction of long-term risks through reduction of toxicity.

Specifically, the Agency shall promote R&D of nuclear conversion technology using FBR and an accelerator driven system (ADS) including R&D on common base technology for MA separation. Especially, in the case of ADS, based on national policies, the Agency shall proceed elemental technology development necessary to design/construct J-PARC Transmutation Experimental Facility and get a decision to undertake a construction for each facility after carefully examining expenses required for maintenance of the facilities and the achievement state of technical problem solving early in the objectives period in the case of an ADS Target Test Facility or within the objectives period in the case of the Transmutation Physics Experimental Facility (T-FEP).

These efforts shall produce results helpful for determining how promising future technologies for handling radioactive waste are incorporating long-term risk reduction etc.

(3) R&D concerning processing technologies of high-level radioactive waste etc.

Based on the Basic Energy Plan, the Agency shall develop technologies required for disposal of high-level radioactive waste, which are generated when using nuclear power.

Specifically, the Agency shall steadily develop basic R&D required to realize the geological disposal of high-level radioactive waste, maintain and provide technical infrastructure for the geological environment investigation by the implementing entity, design/safety evaluation of disposal systems and government measures on safety regulations. In addition, as for the Mizunami Underground Research Laboratory Project Plan and Horonobe Underground Research Laboratory Project Plan, the Agency shall steadily proceed them while focusing on them by consigning the survey and study for the projects, based on the basic

direction of the reform. Furthermore, as regards Mizunami Underground Research Laboratory Project Plan, the Agency shall carry out these surveys and studies with the land lease period of January 2022 in mind. Furthermore, through these efforts, the Agency shall promote personnel exchange with the implementing entity to promote smooth technology transfers. In addition, JAEA proceeds with surveys and studies on direct disposals of spent fuel as an alternate disposal option.

These efforts create research results that contribute to future geological disposal planning in Japan.

- (4) Well-planned performances and technological developments in decommissioning of nuclear facilities and treatment and disposal of radioactive waste

Based on the Basic Energy Plan, the Agency shall proceed with well-planned performances and technological developments in decommissioning of nuclear facilities, treatment and disposal of radioactive waste to fulfill its duties as a licensee of nuclear facilities and generator of radioactive waste.

Specifically, as technological developments related to the decommissioning, treatment and disposal of radioactive waste, the Agency shall consider contributing decommissioning of the Fukushima Daiichi Nuclear Power Station while actively working on pioneering R&D of technologies to decrease costs and waste. In addition, the Agency shall steadily formulate specific processes etc. at an early stage, ensure safety, compress and burn solid waste, reduce, stabilize and solidify of liquid waste etc., treat and dispose of and store and manage waste. In disposal activities to bury low-level radioactive waste generated in R&D etc., considering social situations etc., the Agency shall formulate specific processes etc., as early as possible and steadily perform according to the processes.

Furthermore, while utilizing knowledge of senior staff, etc., who are familiar with facilities which are not used at this time, the Agency shall conduct decommissioning in a safe and well planned manner and clear disorganized matters generated by decommissioning.

Through such efforts, the Agency shall decommission its own nuclear facilities in a well-planned manner and propose strategies to solve problems and reduce costs concerning the treatment and disposal of waste through development of technologies required for treatment and disposal of radioactive waste.

7. Activities to promote industry-academia-government collaboration and gain trust

from society

Based on the Basic Energy Plan and the Fifth Science and Technology Basic Plan, we shall ensure the trust in society by strengthening collaboration among industry, academia and government to create innovation etc., supporting nuclear fuel cycle technology for private nuclear business operators, implementing global collaboration and contribution, carrying out active release of information, strengthening public relations and outreach activities as well as returning results to society. Furthermore, in handling information, the Agency shall pay attention to the handling of information on physical protection and the proper handling of intellectual property.

(1) Efforts to create innovation

The Agency shall strive to maximize R&D achievements and widely return them to the public and society and strategically construct an optimal R&D system including enhancement of industry-academia-government collaboration to create innovation.

Specifically, in R&D to resolve national and social challenges such as responses to the accident at Fukushima Daiichi Nuclear Power Station, the Agency shall grasp needs from the planning stage to implementation of results in the society from the viewpoint of the public and build an effective industry-academia-government collaboration while in the basic research sector etc., the Agency shall actively collaborate on creating excellent R&D achievements and seeds with industries etc. and “bridge” the results and seeds.

In addition, the Agency shall systematically organize and actively disclose research results and intellectual property created by the Agency, as well as information on the facilities it owns and widely collect and organize academic information on domestic nuclear science technology and provide it widely in Japan and abroad, including international organizations. Through such efforts, the Agency shall realize returning the results back to the society and enhance the nuclear R&D environment both domestically and internationally.

In addition, the Agency shall support activities such as policy planning etc., in response to requests from relevant administrative institutions.

(2) Support for the nuclear fuel cycle operations of private nuclear business operators

To promote private nuclear business operators’ use of results of the Agency’s

R&D on the nuclear fuel cycle, the Agency shall provide human and technical support required for promoting nuclear fuel cycle operations upon request from private nuclear business operators.

(3) Promotion of international cooperation

In operations implemented in each R&D sector including responses to the accident at the Fukushima Daiichi Nuclear Power Station, the Agency shall strive to maximize R&D achievements through the use of wisdom of foreign countries etc. and promote strategic and various international cooperation to make use of Japanese nuclear technology and experience etc., not only in Japan but also around the world.

Also, upon request from relevant administrative institutions, the Agency shall carry out activities that can lead to international contributions such as peaceful utilization of nuclear power by participation in formulating global standards in international institutions.

Furthermore, the Agency shall ensure export control, which is an export risk management factor due to activation of international cooperation.

(4) Efforts to gain trust from society and siting areas

Public understanding and cooperation including interested parties such as local authorities and residents of the siting of nuclear related facilities are required for nuclear energy utilization in Japan. Therefore, in light of the Energy Basic Plan, the Agency shall make the information based on scientific knowledge into more understandable knowledge mainly in the fields of public interest including safety and radioactive waste. In addition, it shall actively release the knowledge in a method that provides easy access to the public and makes the knowledge easy to understand to secure transparency and gain trust in the Agency from society and siting areas through proper public hearings, public relations and dialogue after due consideration of the views of utilizing results to return R&D achievements to society.

At that time, the Agency must coordinate with external institutions such as academic societies etc. and organize and communicate the technical and social challenges of nuclear power from an interdisciplinary viewpoint.

In addition, the Agency shall work on risk communication activities including the status of risk management implemented by the Agency to enhance trust in the Agency as well as gain understanding on the meaning of its own R&D from the

public such as local residents.

V. Matters Concerning the Improvement of the Efficiency of the Administration of the Business Operations

1. Streamlining and efficiency of operations

(1) Streamlining and efficiency of operational expenses

In JAEA's operations, the Agency shall improve the efficiency of existing business and review the business, reduce general administrative expenses (excluding tax and other dues) by 21% or more versus 2014 during the period for the mid to long-term objectives and reduce other business expenditures (excluding required expenses, which are generated due to provisions of law, business expenditures from external source of finance) by 7% or more during the period for the mid to long-term objectives versus 2014. However, if a new operation is added or an operation is enhanced, it shall improve the efficiency of the business in a similar way. In addition, the Agency shall enhance the efficiency of personnel expenses according to the next paragraph.

Furthermore, in streamlining and efficiency of operational expenses, the Agency shall ensure that safety levels do not drop, due to its special status as an Agency that handles potentially hazardous materials and give the highest priority to ensuring safety. In addition, the Agency shall pay consideration to consistency with the maximization of R&D achievements.

(2) Standardizing management of personnel expenses

The Agency shall keep on streamlining and making personnel expenses efficient as well as strictly reviewing the salaries of employees in light of government policies on overall personnel expenses.

As for salary levels, it shall carefully consider the salary levels of national public officers and those of private companies of closely associated industries, verify what salaries for officers and staff should be, maintain proper levels in light of special characteristics of duties and release verification results and the state of efforts. In addition, the Agency shall be able to set flexible salaries as required to secure suitable human resources and at that time provide satisfactory explanations to the public.

(3) Appropriateness of contract

Putting the utmost priority to safety for articles and service contracts related to R&D etc. in light of the special duties as a National Research and Development Agency and an institution handling nuclear energy, the Agency shall steadily undertake initiatives in accordance with “Promotion of Streamlining Initiatives Including Procurement at Incorporated Administrative Agencies” (Decision by the Minister for Internal Affairs and Communications on May 25, 2015), as the Agency works on appropriateness of contracts and ensures the optimum contract method, all while ensuring appropriateness in contracts. Moreover, in concluding contracts through general competitive bidding etc., the Agency shall strive to improve the situation to ensure further competitiveness, transparency and fairness and proceed with contracts at appropriate prices.

(4) Utilization of information technology etc.

The Agency continues streamlining operations by utilizing information technology (IT). In addition, based on the information security measures in government agencies including Common Standards of Information Security Measures for Government Agencies (the Information Security Policy Conference), the Agency shall take information security measures and maintain and strengthen IT infrastructure.

VI. Matters Concerning the Improvement of Financial Conditions

The Agency shall increase its income such as through income from joint research, competitive research funds, commission revenue, facility use fee revenue etc., making financial conditions more sound.

In addition, the Agency shall execute budgets in a well-planned manner in consideration of debt service payments operating support funds. The Agency shall properly dispose its own property when is realized as unnecessary property and in the case of transferring any important property, shall proceed with it in a well-planned manner.

VII. Other Important Matters Concerning the Administration of Operations

1. Establish an effective and efficient management system

(1) Effective and efficient administration of organization

Based on the basic direction of the reform and under the leadership of the chief

director, the Agency shall consistently review the organization system, perform rapid, effective and efficient administration of organization, properly construct and perform the management control cycle and continuously improve it. At that time, each officer shall advance efforts on the duties they are responsible for.

(2) Reinforcement of internal control

To reinforce appropriate, effective and efficient internal controls, the Agency shall improve and operate an internal control environment including thorough compliance, decision making by management, improvement and operation of internal rules, risk management etc. and consistently review it. In addition, the Agency shall regularly monitor and verify development status and whether these functions effectively work well or not through internal audits etc. and strengthen the audit functions and system by auditors to evaluate them fairly and independently. To ensure reliability of R&D activities and soundness of science and technology, the Agency shall enhance efforts to prevent fraudulent research in advance as an organization to deal with fraudulent research properly and clarify administrative responsibilities. In addition, the Agency shall enhance the system to respond in the event of research fraud.

In addition, while referring to “*Dokuritsu Gyosei Hojin no Gyomu no Tekisei wo Kakuho surutame no Taisei to no Seibi* (Development of System Ensuring the Proper Operations of the Incorporated Administrative Agency)” (Notification by the Director-General of the Administrative Management Bureau, the Ministry of Internal Affairs and Communications in November 2014), the Agency shall make necessary efforts.

(3) Maximize R&D achievements through cooperation among research organizations and R&D evaluation

The Agency shall strengthen efforts to maximize research results as a whole through efforts over departments in the Agency and effective utilization of research infrastructure in the organization.

Based on “*Dokuritsu Gyosei Hojin no Hyoka ni Kansuru Shishin* (Guidelines for Incorporated Administrative Agency Evaluation)” (Decision by the Minister for Internal Affairs and Communications in September 2014) and “*Kenkyu Kaihatsu Seika no Saidaika ni Muketa Kokuritsu Kenkyu Kaihatsu Hojin no Chuchoki Mokuhyo no Sakutei oyobi Hyoka ni Kansuru Shishin* (Guidelines for Formulation and Evaluation of Mid to Long-Term Objectives of National

Research and Development Agencies for Maximization of R&D Achievements)” (Council for Science, Technology and Innovation, July 2014), the Agency shall perform effective and efficient R&D and maximize the results of R&D by implementing self-evaluation and reflecting its results into research plans and resource allocation.

In addition, the Agency shall pay due consideration to make the self-evaluation objective and highly reliable and properly utilize evaluation results of the external evaluation committee.

2. Matters concerning facilities and equipment

The Agency shall steadily proceed with decommissioning of facilities shown in a reform implemented based on the basic direction of the reform. As for the exhibition facility, the Agency shall verify whether it should possess the facility or not at an early stage and if it no longer required, steadily dispose of it. The Agency shall strictly verify whether the Agency is required to continuously possess asset holdings other than the exhibition facilities, steadily promote disposals etc., under specific plans. In addition, taking future R&D needs and safety research needs for technical support to nuclear regulatory administration, as well as repair/maintenance costs into account comprehensively, the Agency shall rapidly decommission unused facilities and equipment which have finished their roles with a view of efficiency of its operations. Also, the Agency shall formulate plans related to collecting and focusing on and decommissioning of existing facilities and steadily deal with them.

Furthermore, the Agency shall focus on effectively upgrading and developing facilities and equipment required to perform operations and comply with earthquake resistance and new regulation standards in a well-planned and proper manner.

3. Matters concerning the faithful implementation of international agreements

With regard to the administration of the Agency’s business operations, it shall faithfully carry out a convention on research, development and utilization of nuclear energy and other international agreements concluded by Japan.

4. Matters concerning personnel

Based on the operation which gives the highest priority to safety, the Agency shall formulate a plan concerning personnel including active female participation and the diversification of researchers and develop a strategy to maximize R&D achievements and perform operations effectively and efficiently. In addition, it shall

properly and strictly implement the evaluation of abilities and operational performance of officers and staff and reflect the results on their treatment aiming at improving their motivation and capacity and clarifying their responsibilities and appoint the right person in the right place to improve the ability of staff.