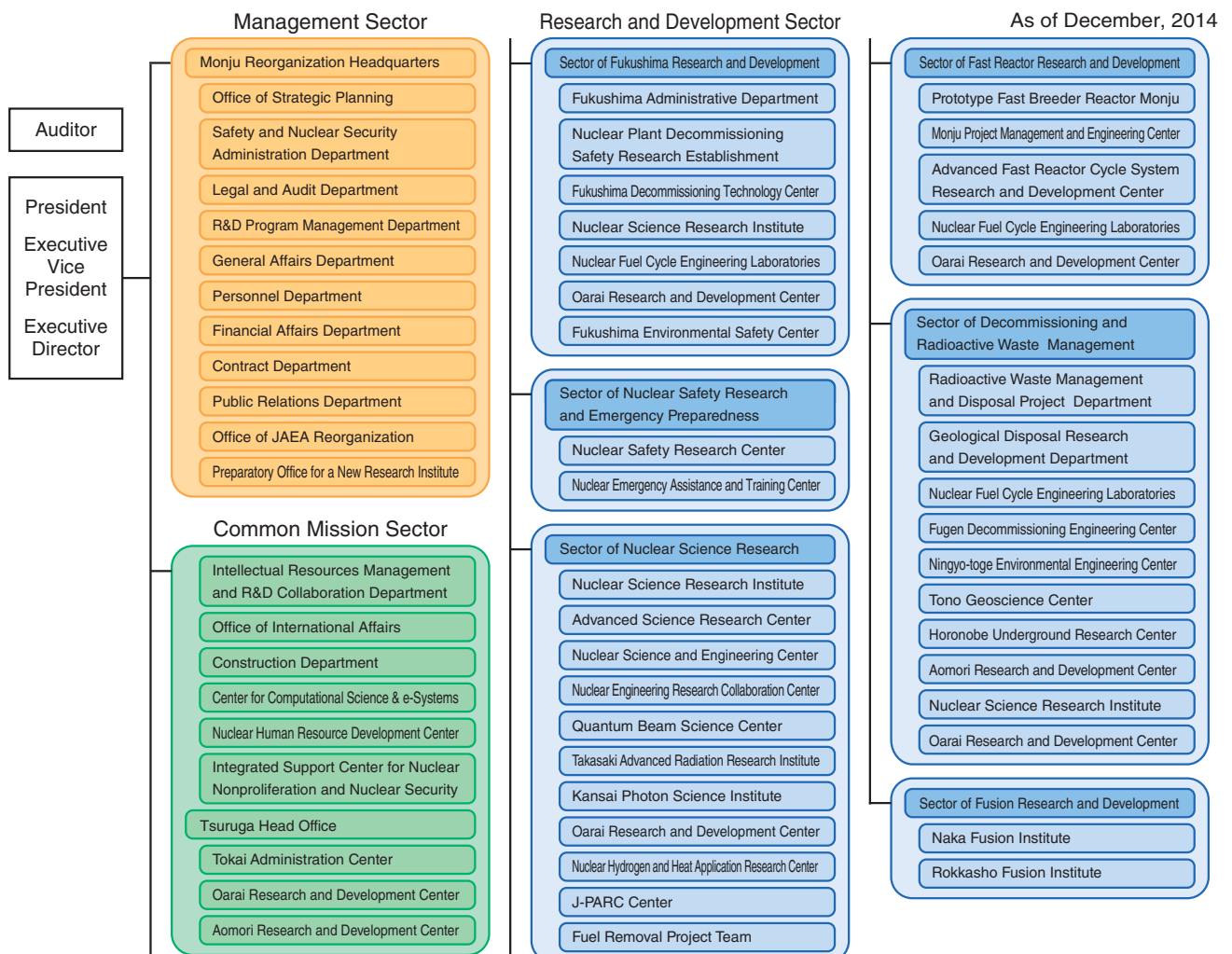


About This Publication and the Outline of Organization of JAEA

This publication introduces our latest research and development (R&D) results in each field. Each chapter presents the activities of one R&D Directorate. As shown in the organization chart, the various R&D Directorates perform their activities through R&D centers or institutes. Some of these centers or institutes consist of only one site, while others are located at two or more sites, depending on the R&D activities. The R&D centers and institutes are located throughout Japan, as shown in the map below. The following brief introduction outlines the research undertaken by each R&D Directorate at various R&D centers and institutes.

1. **The Sector of Fukushima Research and Development** is engaged in R&D to recover from the accident at the Tokyo Electric Power Company, Incorporated Fukushima Daiichi Nuclear Power Station. The Fukushima Decommissioning Technology Center is conducting R&D to restore the nuclear power plant. The Fukushima Environmental Safety Center in the Fukushima prefecture is conducting R&D concerning decontamination technologies to restore the environment, outreach activities concerning radiation, and investigations of internal exposure of the human body. Additionally, the Nuclear Plant Decommissioning Safety Research Establishment is conducting research and analysis of radioactive materials, development of remote-controlled robots, and establishment of research base facilities.
2. **The Nuclear Safety Research Center, Sector of Nuclear Safety Research and Emergency Preparedness**, is in charge of safety research that supports the national nuclear safety regulatory bodies that regulate nuclear power plants, nuclear fuel cycle facilities, and radioactive waste disposal facilities. This work is conducted at the Nuclear Science Research Institute and at the Tsuruga Head Office.
3. **The Advanced Science Research Center, Sector of Nuclear Science Research**, conducts pioneering research in basic fields of nuclear power science mainly through the Nuclear Science Research Institute and the Takasaki Advanced Radiation Research Institute.
4. **The Nuclear Science and Engineering Center, Sector of Nuclear Science Research**, is engaged in key and basic research on various elemental technologies that support nuclear power use. These efforts are carried out at the Nuclear Science Research Institute and the Oarai Research and Development Center.
5. **The Quantum Beam Science Center, Sector of Nuclear Science Research**, is engaged in research using neutrons at the Nuclear Science Research Institute and J-PARC. Work using electron beams, gamma rays, and ion beams is conducted at the Takasaki Advanced Radiation Research Institute. Research using lasers and synchrotron radiation is performed at the Kansai Photon Science Institute.

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6. **The Nuclear Hydrogen and Heat Application Research Center, Sector of Nuclear Science Research**, conducts R&D on technologies for high temperature gas-cooled reactors (HTGRs) and thermochemical hydrogen production at the Oarai Research and Development Center.
7. **The Sector of Fast Reactor Research and Development** is conducting R&D toward the establishment of fast reactor (FR) cycles to address long-term energy security and global environmental issues. In Tsuruga, staff at the Prototype Fast Breeder Reactor Monju and Monju Project Management and Engineering Center are conducting R&D on “MONJU.” R&D activities are also aimed at enhancing the safety of the FR system at the Oarai Research and Development Center, and manufacturing plutonium fuel and reprocessing spent FBR fuel at the Nuclear Fuel Cycle Engineering Laboratories.
8. **The Sector of Decommissioning and Radioactive Waste Management** develops technologies for the safe and rational decommissioning of nuclear power facilities as well as measures for processing and disposing radioactive waste in their R&D centers or institutes. This sector also conducts multidisciplinary R&D aimed at improving the reliability of geological isolation of high-level radioactive waste in Japan. A particular focus involves establishing techniques for investigating the deep geological environment through R&D at the Tono Geoscience Center and the Horonobe Underground Research Center. At the Nuclear Fuel Cycle Engineering Laboratories, the focus is on improving technologies for designing disposal facilities and safety assessment. Additionally, ongoing work is focused on the development of a next-generation knowledge management system based on the above R&D activities. Furthermore, the development of nuclear fuel cycle technology for LWRs is in progress at the Nuclear Fuel Cycle Engineering Laboratories.
9. **The Sector of Fusion Research and Development** is performing fusion R&D as a domestic agency of the International Thermonuclear Experimental Reactor (ITER) project and an implementing agency of Broader Approach (BA) activities. The procurement activity of the ITER project, the upgrade of JT-60 to a superconducting machine as a BA activity, fusion plasma research, and R&D on various element technologies are conducted at the Naka Fusion Institute. Moreover, the International Fusion Energy Research Center project and the Engineering Validation and Engineering Design Activities of the International Fusion Material Irradiation Facility as a BA activity are performed mainly at the Rokkasho Fusion Institute.
10. **The Center for Computational Science & e-Systems** conducts research work on advanced simulation technology and on basic technology in computational science, as well as operation and maintenance of computer systems. These efforts are carried out mainly at the Nuclear Science Research Institute and the Kashiwa Office.
11. **The Integrated Support Center for Nuclear Nonproliferation and Nuclear Security** develops technologies for nuclear nonproliferation and safeguards to ensure peaceful nuclear energy use. These developments are conducted at the Nuclear Science Research Institute and the Techno Community Square Ricotti.

R&D Institutes/Centers of JAEA

