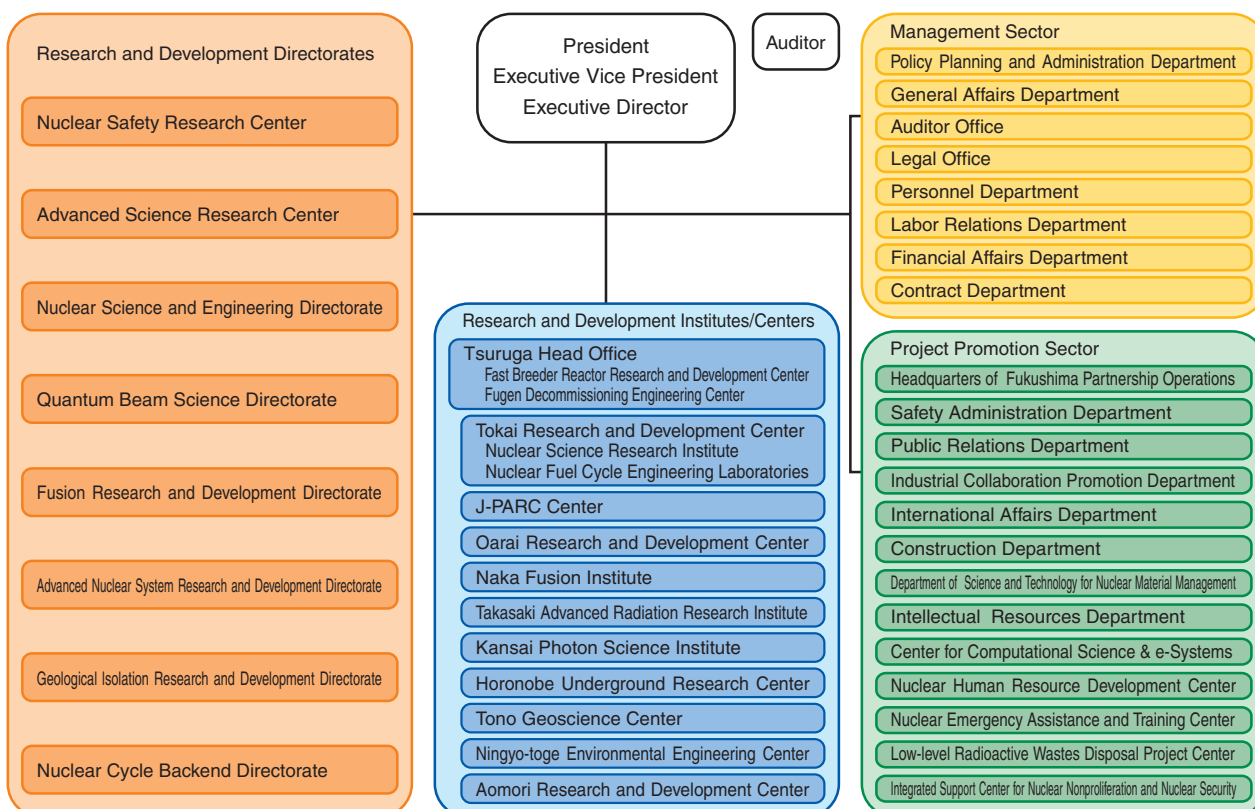


About This Publication and the Outline of Organization of JAEA

This publication aims to introduce the latest our R&D results in each field, divided into their respective chapters. The R&D results presented in each chapter, correspond to the activities of the relevant R&D Directorates. As shown in the Organization Chart, the various R&D Directorates carry out their activities through R&D Centers or Institutes. Some of these consist of only one site, while others are located two or more locations, depending on the components of their R&D activities. The R&D Centers and Institutes are located all over Japan, as shown in the map below. The following brief introductions give an outline of research undertaken by each R&D Directorate through the various R&D Centers/Institutes.

1. The **Advanced Nuclear System Research and Development Directorate** is carrying out R&D aimed at commercializing the fast breeder reactor (FBR) and its nuclear fuel cycle. The R&D of plant technology using the prototype fast breeder reactor “MONJU” is undertaken at the Tsuruga Head Office (Fast Breeder Reactor Research and Development Center), the R&D of innovative FBR technology is conducted at the Oarai Research and Development Center, and the R&D on manufacturing plutonium fuel and reprocessing spent FBR fuel, among others is conducted at the Tokai Research and Development Center (Nuclear Fuel Cycle Engineering Laboratories).
2. The **Geological Isolation Research and Development Directorate** is carrying out multidisciplinary R&D aimed at improvement in reliability of geological isolation of high-level radioactive waste in Japan. A particular focus involves establishing techniques for investigating the deep geological environment through researches both at the Tono Geoscience Center in crystalline rocks and at the Horonobe Underground Research Center in sedimentary rocks. At the Tokai Research and Development Center, the focus is on improving technologies for designing disposal facilities and safety assessment. In addition, work has been on going to develop a next generation knowledge management system based on the above R&D activities.
3. The **Fusion Research and Development Directorate** is executing research and development activities as a domestic agency of the International Thermonuclear Experimental Reactor (ITER) project and an implementing agency of the Broader Approach (BA) activities. The procurement activity of the ITER project, the upgrade of JT-60 to superconducting machine as the BA activity, fusion plasma research and the R&D on various element technologies are carrying out in 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 are executed mainly in the Aomori Research and Development Center.
4. The **Quantum Beam Science Directorate** is engaged in research using neutron in the Tokai Research and Development Center (Nuclear Science Research Institute) and J-PARC Center, research using electron beam, gamma ray, and ion beam in the Takasaki Advanced Radiation Research Institute, and research using lasers and synchrotron radiation at the Kansai Photon Science Institute.

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5. The **Nuclear Safety Research Center** is in charge of researching for national safety regulations on nuclear power plants, nuclear fuel cycle facilities and radioactive waste disposal facilities, among others, based in the Tokai Research and Development Center and the Tsuruga Head Office.
6. The **Advanced Science Research Center** conducts pioneering research in basic fields of nuclear power science, mainly through the Tokai Research and Development Center (Nuclear Science Research Institute) and Takasaki Advanced Radiation Research Institute.
7. The **Nuclear Science and Engineering Directorate** is engaged in key and basic research on various element technologies that support the use of nuclear power. These efforts are carried out in the Tokai Research and Development Center (Nuclear Science Research Institute) and the Oarai Research and Development Center.
8. The **Nuclear Hydrogen and Heat Application Research Center** conducts R&D on technology for the use of high-temperature heat supplied from high-temperature gas-cooled reactors and technology for hydrogen production using this heat in the Oarai Research and Development Center.
9. The **Nuclear Cycle Backend Directorate** develops technology for safe and rational decommissioning of nuclear power facilities as well as measures for processing and disposal of radioactive waste, in the Tokai Research and Development Center.
10. The **Center for Computational Science & e-Systems** develops pioneering simulation technology and basic technology in computational science, as well as operating and maintaining computer equipment, mainly in the Tokai Research and Development Center (Nuclear Science Research Institute).
11. The **Department of Science and Technology for Nuclear Material Management** and Integrated Support Center for Nuclear Nonproliferation and Nuclear Security develops technology for nuclear nonproliferation and safeguards to ensure the peaceful use of nuclear energy, in the Tokai Research and Development Center (Nuclear Science Research Institute) and Techno Community Square Ricotti.
12. The **R&D Centers and Institutes** located at 11 sites in Japan, manage and improve the performance of the facilities and equipments to support the above-mentioned R&D Directorates in the safe and efficient R&D activities.

R&D Centers of JAEA

