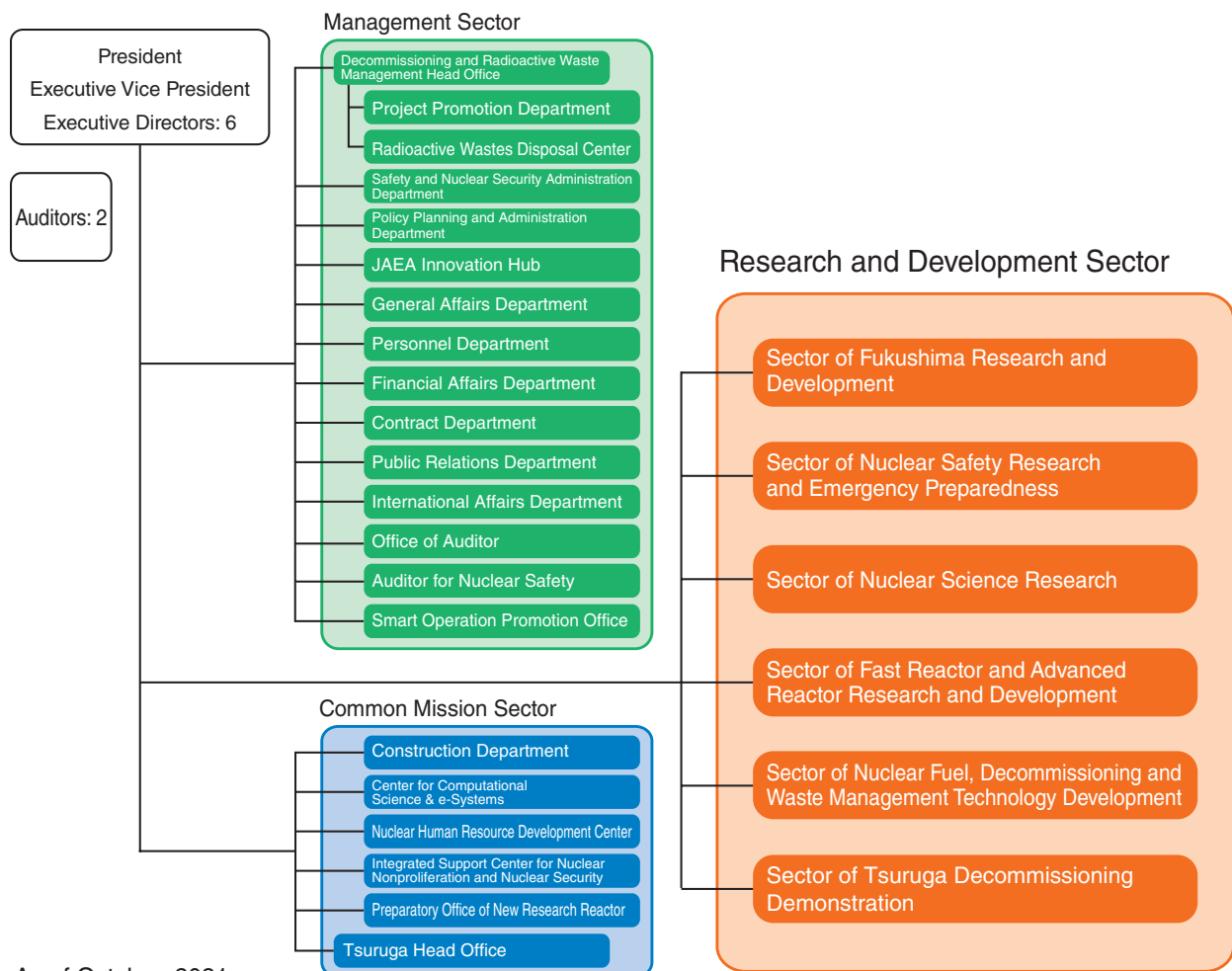


About this Publication and the JAEA Organizational Outline

This publication introduces the latest research and development (R&D) in the various fields of the Japan Atomic Energy Agency (JAEA). Each chapter presents the activities of a single sector. The R&D sectors perform their activities through R&D centers or institutes, the bases of which span one to several locations. These centers and institutes are located throughout Japan, as highlighted on the map below. The following introduction outlines the research undertaken within each sector.

1. **The Sector of Fukushima Research and Development** promotes R&D on the decommissioning and environmental restoration corresponding to the accident at the Fukushima Daiichi Nuclear Power Station (1F) of the Tokyo Electric Power Company Holdings, Inc. (TEPCO). This sector promotes the development of the essential R&D infrastructure of the 1F decommissioning efforts.
2. **The Nuclear Safety Research Center and Nuclear Emergency Assistance and Training Center in the Sector of Nuclear Safety Research and Emergency Preparedness** perform research into safety measures that support the national nuclear safety bodies that regulate nuclear facilities (e.g., nuclear power plants) at the Nuclear Science Research Institute. Further, they perform R&D for nuclear emergency monitoring and protective measures in Hitachinaka City, Ibaraki Prefecture.
3. **The Advanced Science Research Center in the Sector of Nuclear Science Research** explores novel disciplines in advanced atomic energy sciences to develop theories and investigate novel phenomena, materials, and technologies. In particular, seven research themes have been organized under two divisions: advanced actinides science and advanced nuclear materials science.
4. **The Nuclear Science and Engineering Center in the Sector of Nuclear Science Research** undertakes fundamental research into vital technologies that are required for nuclear energy use at the Nuclear Science Research Institute.
5. **The Materials Sciences Research Center and J-PARC Center in the Sector of Nuclear Science Research** are engaged in research using neutrons at the Nuclear Science Research Institute and the Japan Proton Accelerator Research Complex (J-PARC). Research using synchrotron radiation is performed at the Harima SR Radioisotope Laboratory.
6. **The headquarters and the HTGR Research and Development Center in the Sector of Fast Reactor and Advanced Reactor Research and Development at the Oarai Research and Development Institute** further the development of high-temperature gas-cooled reactor (HTGR) technology, technology for hydrogen production through high-temperature water splitting, and technology for helium gas turbines.

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7. **The headquarters, the Fast Reactor Cycle System Research and Development Center, and the Tsuruga Comprehensive Research and Development Center in the Sector of Fast Reactor and Advanced Reactor Research and Development** aim to establish fast reactor (FR) cycles to address long-term energy security and global environmental issues. This work includes enhancing the safety of the FR system at the Oarai Research and Development Institute, compiling the results on the prototype fast breeder reactor Monju (MONJU), attaining inspection and repair technologies for the FR system at the Tsuruga Comprehensive Research and Development Center, manufacturing plutonium fuel and reprocessing spent FR fuel at the Nuclear Fuel Cycle Engineering Laboratories in cooperation with the Sector of Nuclear Fuel, Decommissioning and Waste Management Technology Development.
8. **The Sector of Nuclear Fuel, Decommissioning and Waste Management Technology Development** advances technologies for the safety and rational decommissioning of nuclear power facilities and measures for the processing and disposing of radioactive waste. It operates at the Aomori Research and Development Center, the Nuclear Fuel Cycle Engineering Laboratories, and the Ningyo-toge Environmental Engineering Center. The sector also performs multidisciplinary R&D that intends to improve the reliability of the geological disposal of high-level radioactive waste in Japan. One vital field is the establishment of techniques for the evaluation of the long-term stability of the geological environment. This is performed at the Tono Geoscience Center. The primary focus at the Horonobe Underground Research Center and the Nuclear Fuel Cycle Engineering Laboratories is safety assessment and improving technologies for the design of geological disposal facilities. The Nuclear Fuel Cycle Engineering Laboratories also focus on developing nuclear fuel cycle technology.
9. **The Center for Computational Science & e-Systems** aims to advance simulation technologies and fundamental technologies in computational science. Further, it aims to improve the operation and maintenance of computer systems and networks. These activities are primarily conducted at the Nuclear Science Research Institute and the Kashiwa Office.
10. **The Integrated Support Center for Nuclear Nonproliferation and Nuclear Security (ISCN)** is involved in strengthening nuclear nonproliferation and nuclear security both domestically and internationally. This is achieved through the development of technologies for IAEA safeguards and nuclear detection and forensics, policy research and analysis, capacity-building support activities targeting Asian countries, operation of CTBT international monitoring facilities (located in Japan), and coordination and support for nuclear fuel transportation undertaken by the JAEA. These efforts are primarily undertaken at Head Office and the Nuclear Science Research Institute.

R&D Institutes/Centers of JAEA

