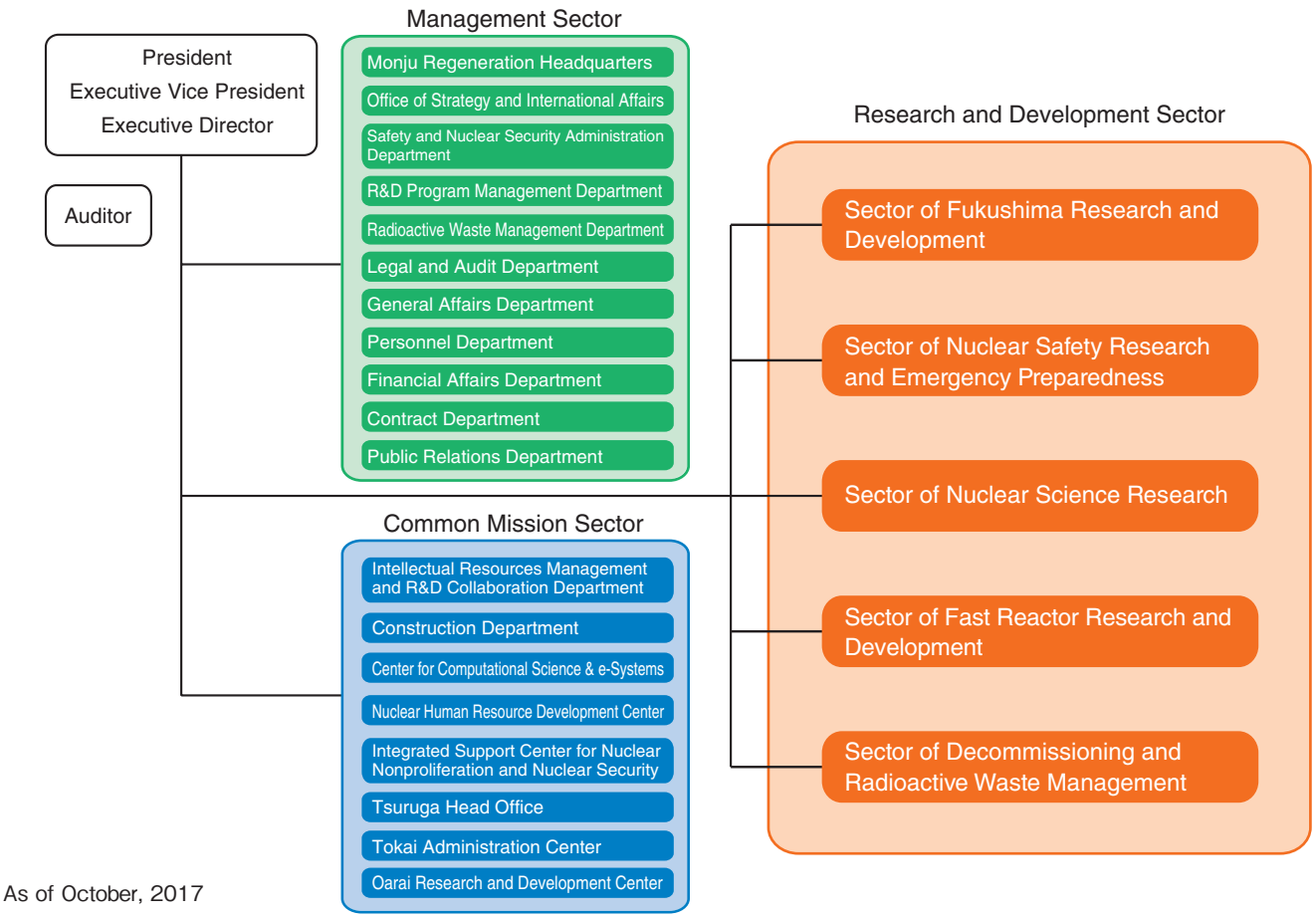
About This Publication and the Outline of the Organization of JAEA

This publication introduces our latest research and development (R&D) results in each field. Each chapter presents the activities of one R&D Sector. The various R&D Sectors perform their activities through R&D centers or institutes. Depending on the R&D activities, some of these centers or institutes comprise only one site, whereas others comprise two or more sites. The R&D centers and institutes are located throughout Japan, as shown on the map below. The following brief introduction outlines the research undertaken by each R&D Sector at various R&D centers and institutes.

1. **The Sector of Fukushima Research and Development** is engaged in R&D, aimed at promote the decommissioning of the Fukushima Daiichi Nuclear Power Station (1F) of Tokyo Electric Power Company Holdings, Inc. (TEPCO) and environmental recovery after the 1F accident.
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 bodies that regulate nuclear power plants, nuclear fuel cycle facilities, and radioactive waste-disposal facilities. This work is being conducted at the Nuclear Science Research Institute.
3. **The Advanced Science Research Center, Sector of Nuclear Science Research,** explores yet-undiscovered disciplines and studies advanced atomic energy sciences via the Nuclear Science Research Institute to develop new theories and investigate novel phenomena, materials, and technologies. In particular, six research themes have been organized under the two divisions "advanced actinides science" and "advanced nuclear materials science".
4. **The Nuclear Science and Engineering Center, Sector of Nuclear Science Research,** is engaged in key and basic research on various fundamental technologies that support nuclear power use. These efforts are being conducted mainly at the Nuclear Science Research Institute and the Oarai Research and Development Center.
5. **The Materials Sciences Research Center, Sector of Nuclear Science Research,** is engaged in research using neutrons at the Nuclear Science Research Institute and Japan Proton Accelerator Research Complex (J-PARC). Research using synchrotron radiation is being performed at the Harima Area.

Japan Atomic Energy Agency -Outline of Organization-



As of October, 2017

6. **The HTGR 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 the Monju Project Management and Engineering Center are conducting R&D on "MONJU" and preparation toward decommissioning of "MONJU". R&D activities are also aimed at enhancing the safety of the FR system at the Oarai Research and Development Center and at 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 of radioactive waste in their R&D centers or institutes. This sector also conducts multidisciplinary R&D aimed at improving the reliability of geological disposal 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 the technologies for disposal facility design and safety assessment. Furthermore, the development of nuclear fuel cycle technology for light water reactors (LWRs) is in progress at the Nuclear Fuel Cycle Engineering Laboratories.

9. **The Center for Computational Science & e-Systems** performs research on advanced simulation technology and on basic technology in computational science, and also operates and maintains computer systems. These efforts are mainly conducted at the Nuclear Science Research Institute and the Kashiwa Office.

10. **The Integrated Support Center for Nuclear Nonproliferation and Nuclear Security (ISCN)** plays an active role in technology development in the field of nuclear nonproliferation and nuclear security in international organizations, such as the International Atomic Energy Agency (IAEA), and each country, activities to contribute nuclear material management and peaceful uses on ensuring transparency, and policy research. And ISCN continues human capacity development support projects which contribute the capacity building in Asian countries. These efforts are carried out mainly at the Head Office and the Nuclear Science Research Institute.

R&D Institutes/Centers of JAEA