

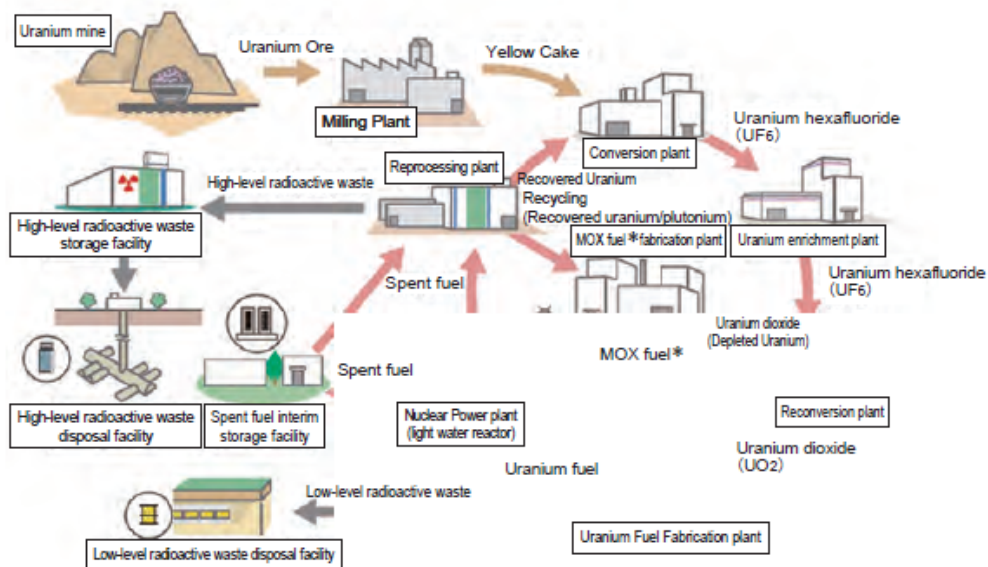
Processing after nuclear power generation

Nuclear fuel cycle

Fuel that has been used in a nuclear power plant, "spent fuel", can be reused by removing uranium and plutonium in a reprocessing plant, and then sending the extracted uranium and plutonium to a conversion plant and a mixed oxide (MOX) fuel fabrication plant, respectively. This flow is known as the nuclear fuel cycle.

Using MOX fuel, where plutonium and uranium are mixed in nuclear power generation, is called "pluthermal" in Japan.

Nuclear fuel cycle



* Mixed oxide (MOX) fuel: fuel containing a mixture of plutonium and uranium
Sources: Graphical Flip-chart of Nuclear & Energy Related Topics

Processing and disposal of radioactive waste

Operating nuclear power plants and reprocessing spent fuel generates effluent containing radioactive materials, as well as waste contaminated with radioactive materials. Such waste is called "radioactive waste", and must be properly processed and must then be disposed of carefully. The correct disposal method depends on the type of radioactive material and its concentration. Radioactive waste can be categorized as "low-level radioactive waste" or "high-level radioactive waste", containing low and high concentrations of radioactive materials, respectively.

Most radioactive waste is low-level radioactive waste, and includes materials such as paper towels used to clean up, work clothes, gloves, and wastewater from equipment. The volume of this waste is reduced by concentration, compression, and/or combustion, and is then hardened, for instance by using cement, sealed in metal drums, and then disposed of by burial.

Examples of high-level radioactive waste include the nuclear fission products that remained after extracting uranium and plutonium in a reprocessing plant. These require more stringent management, and careful measures are taken as part of their disposal into a stable geological layer more than 300 meters below the ground level.