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Germany`s new approach to siting a nuclear waste repository

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As a consequence of a decision of the German government, the use of nuclear energy for the industrial generation of electricity will end in 2022 at the latest. Against this background Germany resolved to take a new approach to looking for a disposal facility for heat-generating radioactive waste in particular. On the basis of a transparent and scientifically-based procedure, a location is to be sought which guarantees optimal levels of safety for a period of one million years. The legislator stipulated that a "Commission for the Storage of High-level Radioactive Waste" with a pluralistic membership was to define the basic stipulations before the implementation of the actual site selection procedure. The recommendations are to be presented to the German Bundestag (national parliament) by mid 2016, and then to be enacted by parliament. Defining sites for underground exploration is to follow on from the end of surface exploration in 2023. The decision on a site is expected in 2031 after completion of the underground exploration and a comparison of the sites. The subsequent approval process is then expected to take several more years. Commissioning is not expected before 2050 at the earliest.

The categorisation of the radioactive waste in Germany differs from standard international practice by making a subdivision into heat-generating waste and waste with negligible heat generation. In connection with the storage and disposal of negligible heat generating radioactive waste Germany is currently dealing with three projects. The **Asse** nuclear facility, an abandoned salt mine, which was used as a disposal facility from 1971 is now decommissioned pursuant to the German Atomic Energy Act. The **Konrad** disposal facility, a decommissioned iron ore mine is currently in the construction phase as a repository for negligible heat generating waste. The **Morsleben** disposal facility (ERAM), a salt mine, which was used as a repository for operating radioactive waste from nuclear power plants in the former German Democratic Republic and the Federal Republic of Germany, will be decommissioned. The planning permission decision to decommission the disposal facility is currently being implemented. The **Gorleben** salt dome has been investigated since 1979 to assess its suitability as a disposal facility for radioactive waste. The exploration findings were assessed as part of a "Preliminary safety analysis Gorleben (VSG)". As part of a political decision, work at the Gorleben site has been reduced to mere maintenance since 2013 to keep the essential underground workings open.

More research will be required in Germany in future as a result of changes to legal frameworks, and the associated complete restart of the search for a disposal facility. The following thematic changes have arisen compared to the previous research programmes:

- More intense research activity covering a range of potential host rocks (rock salt, clay stone, crystalline rocks).
- The analysis of longer interim storage of radioactive waste.
- Scientific investigations on alternative disposal methods instead of direct disposal.
- More intense incorporation of socio-technical issues.

In addition to research work focused at a national level, international co-operation activities of German research institutes are also indispensable for disposal facility research. The most important component at the scientific-technical level is the collaboration in international rock laboratories, which is undertaken by Germany in particular because of a shortage of in-situ investigation possibilities within its own borders. Apart from geoscientific-technical research activities, it is also indispensable to implement socio-technical issues, which make it possible to transparently present and explain the current scientific understanding of technical and social issues to interested and critical members of the general public and all stakeholders.