

# Problems of open solicitation for HLW repository candidates and responsibility of earth sciences: A case study of Saga Town, Japan

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In Japan, the siting process of a HLW repository consists of three stages. For the first stage of selection of preliminary investigation areas (PIAs), Nuclear Waste Management Organization of Japan (NUMO) started Open Solicitation for Volunteers for PIAs for a HLW Repository in December 2002. Responding to this procedure, some inhabitants in Saga Town in Kochi Prefecture in Shikoku Island, southwest Japan, made petition to the town assembly for the application of this volunteer in December 2003. Some other town people supported this action because of a huge amount of money delivered to voluntary municipalities, while other inhabitants began activities against the application due to the fear of danger of a HLW repository. This local strife ended in September 2004 with the rejection of the petition by the town assembly. During the controversy, NUMO people often visited the town and made explanation for a HLW repository and its siting process.

Saga Town is located just above the huge hypothetical fault plane of the anticipated great Nankai earthquake of M 8 or larger. Nankai earthquakes have recurred many times during historical times every 100 to 150 years due to the subduction of the Philippine Sea plate beneath the land plate of southwest Japan, and are believed to recur in the future. If a HLW repository were constructed in Saga Town, it would be very dangerous because of the repeated effects by Nankai earthquakes, strong ground motion, crustal movements and large-scale stress and strain changes. Moreover, it would be very dangerous during its operation lasting for about 50 years from around 2040, because during this period the probability of the occurrence of the next great Nankai earthquake is very high, being the last one in 1946. Once it hit the Saga area, repository facilities and transportation systems including ships and a port would be heavily damaged by sudden strong ground motions and large-scale tsunamis and HLW would be scattered out of control.

Thus, the Saga Town case obviously shows serious problems in the existing siting process for a HLW repository in Japan. Related earth sciences have a grave responsibility to show to the public a clear scientific guideline for the siting.