



Can migration of soil containing radioactive materials be curbed?

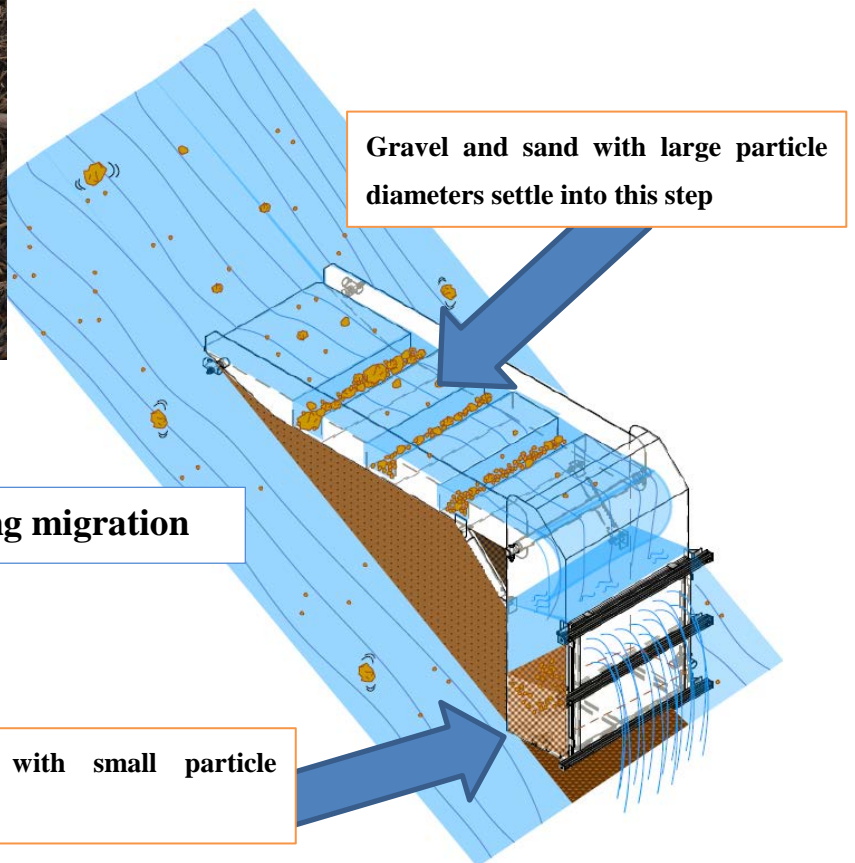
In December 2012, the Japan Atomic Energy Agency (JAEA) started the project "Long-Term Assessment of Transport of Radioactive Contaminant in the Environment of Fukushima" (F-TRACE), and at present is investigating the migration behavior of radioactive materials released by the accident at the Fukushima Daiichi Nuclear Power Station, in environments such as forests, rivers and dams in Fukushima Prefecture. Here we introduce research and development efforts for curbing the migration of contaminated soil together with rain water.

It is September 3, in Kawauchi village, Fukushima Prefecture. Cutting a path through the dense forest, three workers carry newly developed test equipment to conduct a survey.



This equipment was devised and fabricated by the JAEA to investigate the best way to capture radioactive cesium adsorbed to forest soil.

The equipment is comprised of two parts. The top part captures and recovers comparatively large particles of soil washed in by rain water. It is designed with three grooves, so that particles are collected in order of diameter, from large to small, due to the action of gravity. The lower part has a recovery box made using fine metal mesh, and this part can capture fine soil particles such as clay and sand. An important point is that this equipment was designed by skillfully combining commercially available parts. The weight of each unit is about 20 kg. It is heavy so it cannot all be carried at one time, and is carried by separating the unit into two parts and making two trips.



The equipment is carried up, and installed on the slope of a mountain. The angle of the equipment can be adjusted to suit the shape of the mountain. In a forest heavy with the lingering summer heat, the three men manually put the equipment together while properly setting the angle.

Hiroyasu Ishikawa, the man in charge of this research, has been technically assisting decontamination in Fukushima Prefecture since immediately after the accident at the Fukushima Daiichi Nuclear Power Station.

"Full-scale decontamination is currently underway in Fukushima Prefecture. However, we have heard the concerns of citizens who were worried that radioactive cesium would migrate in from nearby forests where decontamination was still not finished. We began examining the situation, to



determine whether there was something we could do to reduce those concerns. Basically, we want to develop a simple, low-cost technique for collecting radioactive cesium, without affecting the forest."

Going forward, it is planned to install this test equipment in multiple forests, conduct analysis of particle diameter distribution, soil components and cesium concentration of soil collected with each unit, and use the results in research on curbing the migration of cesium.