team examined the results of inspections carried out after the earthquake, as well as the technical basis of the hazard assessments and risk analyses. It also reviewed KHNP's mid-term action plans that had been established in response to the 2016 earthquake.

While operation of the nuclear plants and other Korean power generation facilities was not affected by the event, the four Wolsong nuclear units—all CANDU 6 heavy-water reactors—had to be manually shut down, as the tremor that hit the plant was above the internally set quake ground acceleration threshold of 0.1g. KHNP noted, however, that the units were built to withstand much higher seismic levels (up to 0.2g). (As explained in the press release, seismic waves are assessed for each power plant. Once the result of the assessment is above the threshold of 0.1g—which is lower than the design specification [in this case, 0.2g]—requirements call for plant operation to be halted within four hours after the onset of the quake to allow for a thorough inspection.) As for the two Shin-Wolsong units, according to the company, the threshold was not reached due to features of the site, such as the building foundation and geological characteristics.

To carry out its review, the IAEA team was provided with information on the process conducted by KHNP and the results obtained over the past four decades for assessing seismic hazards and safety at the two plants. Talks were also held with managers and experts at KHNP's headquarters in the city of Gyeongju and at the site. According to Shin Morita, head of the IAEA's External Events Safety Section, "The team was impressed by the positive attitude and concrete actions taken by KHNP and partly coordinated with the government to continuously improve safety against natural external events."

Photo: KHNP

The IAEA SEED mission team observes the installation of a seismometer used to measure earthquake velocities at the Wolsong plant.

Among the good practices identified, the team noted the government's nationwide plan for assessing seismic hazards, which has enabled KHNP to update parameters of site-specific external natural hazards. KHNP has also established a new organization, the Seismic Engineering Office, aimed at continuously improving safety against seismic hazards at all nuclear sites in the country. This office will be leveraging the relevant lessons learned and knowledge gained at the two plants.