

Fine Increment Soil Collector (FISC) for expediting and standardizing sampling processes during in-situ investigations

Amelia Lee Zhi Yi , Arsenio Toloza, and Lionel Mabit

Soil and Water Management and Crop Nutrition Laboratory - Joint FAO/IAEA Division, Seibersdorf, Austria
(A.Lee-Zhi-Yi@iaea.org; A.Toloza@iaea.org; L.Mabit@iaea.org)

Tools that facilitate standardization of environmental sampling during on-site inspections (OSI) present a potential to expedite the response processes upon approval of a State Party's inspection request by the CTBTO Executive Council. Due to the nature of fresh radioactive fallout on soil, it is important to characterise the first millimetres of the soil carefully and in a timely manner, as any irregularity in the topsoil depth distribution and concentration of radioactivity may provide crucial evidence of atypical incidents. In this research, we present the Fine Increment Soil Collector (FISC), created by the Soil and Water Management & Crop Nutrition Laboratory of the Joint FAO/IAEA Division, as a potential tool to assist in OSI environmental soil sampling processes.

The FISC was originally developed for use in the precise determination of naturally occurring and anthropogenic radionuclide concentration in soil erosion investigations. Due to its design characteristics and simple modus operandi, the FISC may also be applied in other exercises that require quick and standardized collection of soil samples. The straightforward set up and operation of the FISC makes it a practical one-man operated on-site sampling device during OSI. It is a highly mobile device that allows for high resolution (millimetres precision) incremental sample collection. Furthermore, the customizable soil extraction cylinder can be tailored to the OSI's analytical requirements.