Background of the MODARIA II programme

Models are essential tools for use in the regulatory control of nuclear facilities and activities in planned, existing and emergency exposure situations. Modelling the fate of radionuclides in the environment and assessing the resulting radiation doses to people and the environment is needed, for example, in the evaluation of the radiological relevance of routine and accidental releases of radionuclides, to assist in decision making during remediation activities, in the framework of long-term safety assessments of nuclear waste disposal facilities, as well as for clearance and exemption of material with low levels of radioactivity.

These topics were addressed during the IAEA's Modelling and Data for Radiological Impact Assessment (**MODARIA**) programme which ran from 2012 to 2015. The IAEA continues these activities in the follow-up programme, MODARIA II: Development, Testing and Harmonization of MOdels and DAta for Radiological Impact Assessment, which was launched during the first Technical Meeting, held at the IAEA's headquarters in Vienna from 30 October to 3 November 2016.

A **proposal for the work under the MODARIA II** programme was prepared, primarily focussing on applications of radiological impact assessments to support the implementation of the IAEA safety standards, taking into account the experience gained during previous IAEA environmental modelling programmes and suggestions made by operators, scientists, and regulators participating in the previous phase of MODARIA. Work programmes for the following topics were developed:

- Remediation and decision making;
- Exposures in urban and rural environments following accidents;
- Modelling radionuclide releases to the environment;
- Analysis and evaluation of radioecological data, including radionuclide transfer in tropical and sub-tropical environments;
- Radiation exposures and effects on wildlife;
- Biosphere modelling for long-term safety assessments of waste disposal facilities;
- Marine modelling.