The IAEA's Programme on Environmental Modelling for RAdiation Safety (EMRAS II)

EMRAS II
Approaches for Assessing Emergency Situations
Working Group 9
Urban Areas

M I N U T E S

of the First Meeting held at IAEA Headquarters, Vienna
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IAEA Scientific Secretary	Working Group Leader
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Background

The EMRAS II Theme entitled "Approaches for Assessing Emergency Situations", includes three areas of interest in connection with emergencies or accidental releases of radionuclides. These areas include urban situations (dispersion and retention of radionuclides in urban environments), environmental sensitivity of various non-urban or rural situations, and tritium accidents. The Urban Areas Working Group (WG 9) intends to continue with and build on the work done by the Urban Remediation Working Group of the first phase of the EMRAS Programme. In particular, the WG 9's goal is to test and improve the capabilities of models used in assessment of radioactive contamination in urban settings, including dispersion and deposition events, short- and long-term contaminant redistribution following deposition events, and potential countermeasures or remediation efforts for reducing human exposures and doses.

Working Group Attendance

Seventeen participants from 15 countries attended at least some of the sessions of WG 9. Additional participants expressed interest (personal or institutional) in attending future WG 9 meetings. The initial sessions were moderated by Kathleen Thiessen (USA), and Volodymyr Berkovskyy served as the IAEA's Scientific Secretary. Ms Thiessen was selected to serve as Leader of the Urban Areas Working Group (WG 9). A list of the attending participants is provided at the end of these minutes.

Scope and Objectives of the Meeting

The main objectives of the initial WG 9 meetings, as outlined by the Chairman of the EMRAS II Programme, were to determine the viability of the WG, select a Working Group Leader, and establish preliminary work plans and a schedule for WG 9.

Work Performed

Part of an early session of WG 9 was spent assessing the interests of participants in specific areas of work (potential modelling scenarios). Most of the time available was spent discussing potential modelling scenarios and making initial plans for development of three scenarios for modelling exercises.

Outcomes of the Meeting

(1) WG 9 was considered to be viable, both in terms of number of people interested in participating and with respect to interest in a manageable number of modelling exercises.

(2) Ms Kathleen Thiessen (USA) moderated the initial sessions of WG 9 and was selected by the participants to serve as Working Group Leader for the duration of the programme.

(3) WG 9 identified three modelling exercises to be developed and carried out by the group:

   (a) Atmospheric dispersion, short-range;
   (b) Atmospheric dispersion, long-range; and
   (c) Contaminant transport and countermeasures.

The short-range atmospheric dispersion exercise will be based on data from experimental explosions contributed by Jiří Hůlka (Czech Republic). This exercise will include comparison of model predictions with measurements for several endpoints, including surface contamination, time-integrated air concentrations, and dose rates. Intercomparisons of model predictions will be possible for additional endpoints, including estimates of a 95% contamination zone, the effects of structures on the predicted dose rates, and validation of location factors.

The long-range atmospheric dispersion exercise will be based on a hypothetical NPP accident and the resulting predicted deposition in an urban environment. Emilie Navarro (France) will provide an accident scenario previously developed in France, and Raúl Periáñez (Spain) will provide relevant geographic data for an NPP in Spain, including nearby urban areas. This will be a model intercomparison exercise for all endpoints, including deposition on a reference lawn surface, deposition on specified urban surfaces and selected locations, and time-integrated air contamination.

The contaminant transport and countermeasures exercise will consider two situations, a defined (hypothetical) radionuclide deposition in part of a city for which detailed geographic and building information is available, and predicted deposition in an urban area from the NPP dispersion exercise. Won Tae Hwang (Republic of Korea) will provide detailed information for an area of Seoul. This will be a model intercomparison exercise for all endpoints, including dose rates, countermeasure effectiveness, doses for specified reference individuals, collective doses, and waste amounts and activities for specified remedial measures.

Initial outlines of all three scenarios were prepared, including the input information to be included and the endpoints for which model predictions will be requested.

Future Plans and Next Meeting

The preliminary schedule includes an interim Working Group Meeting in Prague (date to be announced). Draft scenarios will be circulated among participants prior to that meeting, for discussion during the meeting. Depending on the development of the scenarios, initial calculations for at least some scenarios are anticipated by the next (Second) EMRAS II Technical Meeting, IAEA Headquarters, Vienna, 25–29 January 2010.

List of Participants	
Name / Email	**Organization / Country**
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