

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

**EMRAS II
Approaches for Assessing Emergency Situations
Working Group 8
"Environmental Sensitivity"**

MINUTES

of the Fifth WG8 Meeting held in Brussels, Belgium

27–28 September 2011

IAEA Scientific Secretary	Working Group Leader
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Attending	
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* Initials used to refer to participants within minutes and actions as appropriate.

Contributed presentations, but were unable to attend.

Working Group Attendance

Nine participants of the EMRAS II Environmental Sensitivity Working Group (WG8) gathered for 2 days (27–28 September 2011) at the SCK•CEN Headquarters in Brussels, Belgium. They were joined on the first day by two staff members from SCK•CEN. Three other WG8 participants were unable to attend the meeting but sent presentations and results by e-mail.

Overall Objectives and Tasks of the Working Group

The objective of WG8 is to explore the concept of environmental sensitivity in rural and semi-natural environments within the framework of assessments after an emergency situation. The main tasks of the WG8 are to:

- Formulate the concept of environmental sensitivity;
- Compile a list of sensitivity factors;
- Design scenarios; and
- Carry out modelling exercises.

Objectives of this Meeting

- Present the final results of the modelling exercises;
- Discuss the findings and conclusions; and
- Plan the drafting of the final report.

Presentations

The following presentations were given by participants at the meeting or submitted electronically by absent working group members:

- Hildegarde Vandenhove (HV) – *Biosphere Impact Studies at SCK•CEN
- Johan Camps (JC) - *Crisis Management Decision and Support at SCK•CEN
- Sohan Chouhan (SC) – *More CHERPAC Results for the Agricultural Scenario;
- Catrinel Turcanu (COT) – *JRODOS update for Agricultural Scenario;
- Jochen Tschiersch – Results for the *Alpine Scenario;
- Mikhail Iosjpe (MI) – Radioecological Sensitivity of the *Coastal Marine Regions;
- Maria Psaltaki (MS) -- ¹³⁷Cs and Heavy Metals in Marine Ecosystems: *Doses and Concentrations;
- Georgos Eleftheriou (GE) -- Mediterranean Coastal Regions *Thermaikos Gulf (Greece) Modeling Exercise with MOIRA-PLUS;
- Gene (Jige) Shen (JS) – *Forest Scenario in Northern Saskatchewan;
- Bliss Tracy (BLT) – Canadian *Arctic Scenario.

* Indicates the name of the presentation given on the WG8 web page:

(<http://www-ns.iaea.org/projects/emras/emras2/working-groups/working-group-eight.asp?s=8>).

Discussions

In the agricultural scenarios, it was noted that CHERPAC was predicting first-year adult doses about one order of magnitude higher than JRODOS. Since both of these models deal with standard agricultural practices in temperate zones, it seems more likely that the differences are due to differing model assumptions rather than to characteristics of the environments. The CHERPAC model predicts 1000 Bq/L of ¹³⁷Cs in milk, which seems excessive for a 1000 Bq/m² deposition. Some details about time-of-harvest of hay need to be clarified in the CHERPAC calculations. It was not possible to resolve these discrepancies at the meeting, since SC was not able to attend. It is requested that SC and COT correspond by email in order to discuss the differing assumptions of the two models.

Results from the Alpine scenario were in good agreement with those from JRODOS, with any differences being readily explainable by the higher altitudes in the Alpine situation, the different growing periods, and the different consumption habits in this area. It was noted that both approaches are based on the ECOSYS model.

The results from the three calculations in coastal marine environments (*MI*, *MS*, and *GE*) seem to be in good general agreement with one another. All of the doses from this scenario are considerably lower than for the other scenarios.

JS presented detailed calculations, based on IMPACT software, for the forest scenario in northern Saskatchewan. The results compared favourably with earlier preliminary calculations from CHERPAC and from Health Canada.

BLT presented a detailed model for the uptake of radiocesium in the lichen → caribou/reindeer → human pathway, which dominates radiation doses in the Arctic. More details are needed on other pathways and radionuclides in the Arctic.

Progress on the Working Group 8 Report

About one third of the text for this report had been provided in advance of the Brussels meeting. Much of this material requires revision and condensation. During the meeting, the Working Group agreed on the format for a number of common templates to aid in the comparison of results from widely different scenarios. These templates have been revised and circulated to Working Group members, who were asked to provide their completed templates by 30 November 2011. This will in turn allow one month for revisions and editing, with a target to submitting the complete report early in 2012.

EMRAS II Follow-up Programme

VB provided an update from IAEA headquarters with regard to the plans for the follow-up programme to EMRAS II, which finishes in 2011. Following the Fukushima accident, there is a continuing demand for modelling work, especially for emergency situations. It is planned that the new programme will be comprised of fewer working groups and it is unlikely that Environmental Sensitivities will continue as a separate working group. Thus the Brussels meeting was the last formal meeting of this group. However, the modelling experience and expertise of WG8 members will definitely be needed in other working groups under the new program.

The follow-up programme to EMRAS II – “MODARIA” MOdelling and DAta for Radiological Impact Assessments) – will run for 4 years (2012–2015) and the first Technical Meeting will take place at IAEA headquarters in Vienna, 19–22 November 2012.