Stakeholder interactions in nuclear emergency response for the Dutch food supply chain

Esther van Asselt, Puck Brandhoff and Chris Twenhöfel

RIKILT WAGENINGEN UR

rivm Rijksinstituut voor Volksgezondheid en Milieu

Background

In the Netherlands, EPAn (Unit Planning and Advice – Nuclear) assesses the radiological situation and advises the national and regional levels on protective actions. This advice is based on radiological and human health expertise provided by the Crisis Expert Team (CET) radiation. At the start of the project, CET lacked insight in the measures taken by food producers in case of a nuclear accident and communication with these stakeholders was limited. Furthermore, experience on recovery measures was primarily focused on the first stage after an incident.

Objective

- To create awareness of the emergency management problems related to the contamination of food and feed after large scale accidents.
- To establish cooperation between industry and government and learn from each other's action plans.
- To learn about countermeasure options available for the food industry and the applicability of predefined Maximum Protection Limits (MPLs)

Methodology

In-depth interviews were organised with governmental institutes (n=5), organisations in the food supply chain (n=5) and NGOs (n=3) as a preparation for two panel meetings. The aim of these meetings was to get acquainted and learn about the decision making process regarding nuclear emergency response. The two meetings focused on a case study with a fictive incident in the NPP Borssele (Figures 1 and 2).

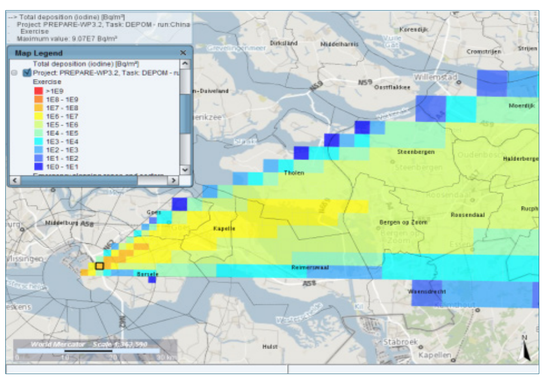

Figure 1. Model calculations performed with RODOS. Results show the contaminated area around Bergen op Zoom for the Iodine group (Bq/m^2) after a fictive incident in Borssele.

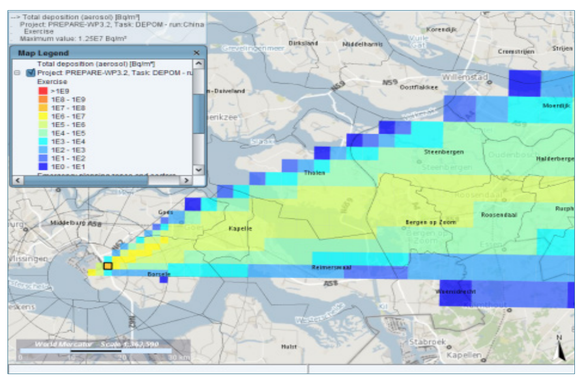

Figure 2. Model calculations performed with RODOS. Results show the contaminated area around Bergen op Zoom for the Caesium group (Bq/m^2) after a fictive incident in Borssele.

In the first meeting (n=13), problems encountered after an incident were discussed as well as responsibilities of the various stakeholders. The second meeting (n=12) focused on intervention measures for three products (pork, dairy and carrots) within one municipality. The effects for I-131 and Cs-134/137 were studied. Two groups of participants were asked to evaluate the feasibility and social aspects of five packages of intervention measures. Subsequently, they had to weigh the importance of human health, costs, feasibility and social aspects (acceptability and reassurance of the population). An MCDA approach was followed using Web-HIPRE (http://hipre.aalto.fi)

Results

The first panel meeting showed that a good cooperation is needed between government and industry in order to quickly exchange information and to streamline communication towards clients and consumers. The MCDA-analysis in the second meeting showed that the two groups of participants made different choices (figure 3).

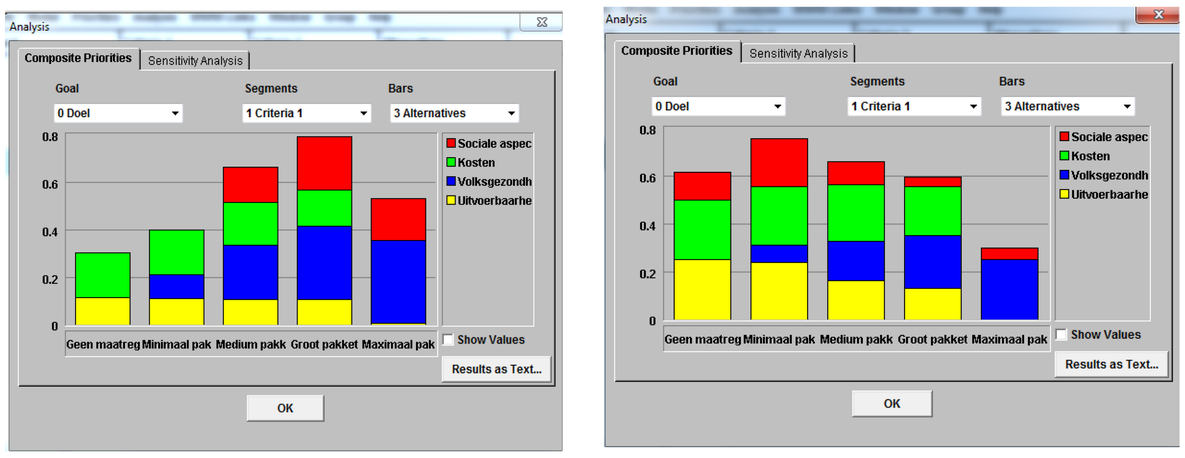

Figure 3. Outcome of the MCDA analysis in two groups of participants. Five packages of intervention measures ranging from no measures to maximum measures were weighed for human health aspects, cost aspects, feasibility and social aspects.

Lowest scores were obtained for package 1: no measures and package 5: maximum measures. The first package scores badly on human health and social aspects, whereas the last package scores badly on costs and feasibility. According to the participants, measures that result in levels above the MPLs are only acceptable in case of food shortages. Stakeholders stressed that good communication is essential for acceptance and reassurance of the population.

Conclusions

- PREPARE initiated cooperation between industry and government.
- MCDA helps to gain insight into the various aspects involved in the decision making process.
- Communication aspects and export interests need to be included in decision making.
- A good communication between stakeholders and with the public is extremely important.
- Input from both government and industry is needed in order to adapt current nuclear emergency response protocols.

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RIKILT Wageningen UR
P.O. Box 230, 6700 AA Wageningen
Contact: esther.vanasselt@wur.nl
T + 31 (0)317 480268 M +31 (0)623079834
www.wageningenUR.nl/en/rikilt

National Institute of Public Health and the Environment (RIVM)
P.O. Box 1, 3720 BA Bilthoven
Contact: chris.twenhofel@rivm.nl
T + 31 (0)302743570, M +31 (0)6 52486312
www.rivm.nl