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Title

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Text

On the needs for revision of European countermeasure information for management of contaminated areas

In building an operational emergency preparedness it is essential to have developed descriptions of each countermeasure that might be considered for a given type of environment at a given time scale. Important elements of such descriptions include an outline of the method and associated equipment and consumables, its potential scale of use, its dose-reducing and other effects on the environment, feasibility and various potential constraints, and costs (direct and indirect). Countermeasure description compilations in standardised 'datasheet' templates were first developed in the mid-1990's in connection with the European Experimental Collaboration Project No. 4, and extended considerably several times to in 2009 become part of the Euranos project's European handbooks for assisting in the management of contaminated environments in Europe following a radiological emergency.

The descriptions should be used well in advance of any contaminating incident to identify those countermeasure methods that are locally acceptable and for a number of other reasons make sense to focus on and keep operational so they could be implemented with as little delay as possible, if needed. Even though many recovery countermeasures may be implemented quite efficiently several months after the contamination took place, and prior potentially highly time-consuming stakeholder consultation is required in some cases, it should also be made clear that countermeasure efficiency will generally decline with time, some types of surface need to be treated before other, and some very simple and inexpensive recovery countermeasures may be very advantageous (e.g. early mowing and removal of contaminated grass), but need rapid implementation. For instance this was not possible in the Fukushima case, where this type of planning had not been done.

Following up on the Fukushima recovery processes, both the Japan Atomic Energy Agency and the Japanese Ministry of Environment have issued series of countermeasure 'datasheets' for a number of countermeasures tested in different environment types. A number of new techniques were tried successfully, and may have potential for inclusion in the European compilations (e.g., dry ice blasting, use of road stripping equipment for turf removal). Both positive and negative experiences are interesting to learn from. Also a number of techniques have been combined in new ways at Fukushima. A method like shotblasting has been reinvented. This was tried in Denmark for road decontamination already before the Chernobyl accident, but not found to be as effective as the new Japanese findings report. Also a number of other parameters in the Japanese reports do not match European findings (e.g., wrt. time consumption), and some figures from some Japanese trials give no meaning (e.g., stating a countermeasure removal effectiveness of 10-90% without mentioning what gives the difference). There is clearly a need to revisit the European handbooks, also to look at data for a new range of surface materials and new Western methods, and uncertainty/variation concepts deserve more focus and elaboration. Clarification of the needs will be given on the basis of decades of specific countermeasure experience.

Further, all present handbook countermeasure descriptions (European and Japanese) are generally focused for cationic radiocaesium contamination. Different type of incidents will give different types of contaminants with different forced removal efficiencies. Examples will be provided of how much this can matter. Also sampling strategy guidelines to ensure in practice under field conditions the optimal effect of implementing a countermeasure are needed in Europe and examples will also be given of the importance of this.