

Are the conclusions of the IAEA Fukushima Daiichi report of relevance in a Nordic context?

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1. Are there any unexpected findings of the Fukushima Daiichi accident that wasn't known before?
2. Is it important to have a common Nordic strategy to manage the consequences of nuclear and radiological disasters?
3. Is it valuable to have common Nordic information strategies?
4. Sharing of competence (radiation protection) between the Nordic countries in case of nuclear or radiological emergencies - is that an optimized strategy? Logical?

Nordic Guidelines and Recommendations –Flag book 2014

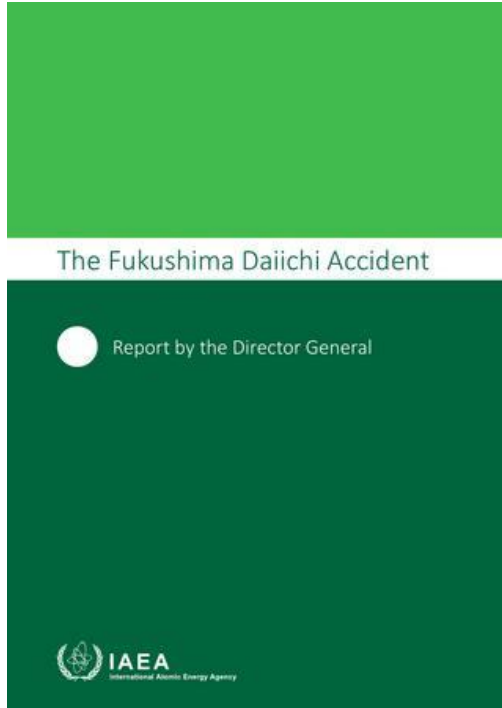


Protective measures in early and intermediate phases of a nuclear or radiological emergency

Stated overall aims and guidelines/recommendations

- ...to provide a common Nordic starting point for practical application of protective measures;
- ..primarily based on Finnish guides [STUK, VAL Guide 1 & 2] for radiological emergency situations;
- System for applying reference level and using OIL´s is given;
- Based on ALARA;
- **Crisis communication is not included;**

Observations and lessons stated in Chapt. 3 (*Emergency Preparedness and Response*) of the IAEA Fukushima report

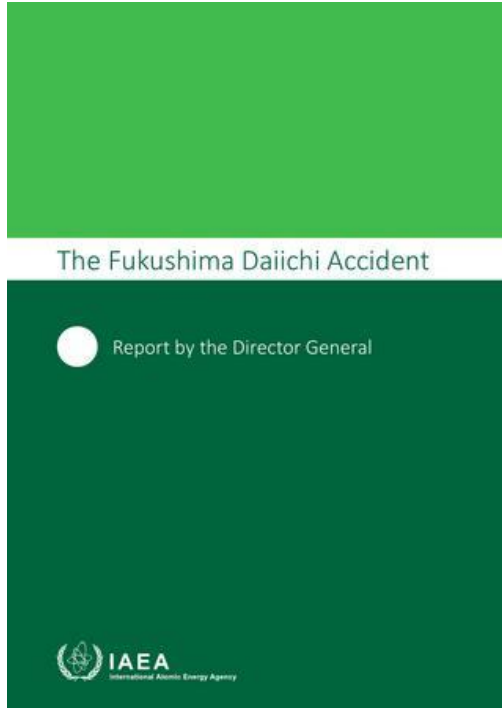


- There is a need to improve consultation and sharing of information among States on protective actions and other response actions (!!)
- Arrangements need to be in place to assist decision makers, the public and others to gain an understanding of radiological health hazards in a nuclear emergency in order to make informed decisions on protective actions. Arrangements need to be in place to address public concerns locally, nationally and internationally (??)

Occupational exposure management – example from Vattenfall (*Fritioff et al, QP.50078.001-65783909*)

- Post Fukushima working group established ;
- Recognize areas for improvements within emergency preparedness;
- Develop overall strategies based on international recommendations (Flag book) and national requirements;
- Provide recommendations on protective equipment and dose monitoring
- Consider early phase as well as intermediate and late phases of accidents;
- Optimization of protective measures (ALARA);

Observations and lessons stated in Chapt. 4 (*Radiological consequences*) of the IAEA Fukushima report



- A robust system is necessary for monitoring and recording occupational radiation doses. It is essential that suitable and sufficient personal protective equipment be available for limiting the exposures of workers (!!)
- Clearer guidelines on occupational medical management of potentially overexposed workers would be beneficial. It is necessary that people responsible for workers' health have a clear understanding on how, when, for how long and to whom protective therapies need to be administered.

Conclusions from the *KAMEDO-report 2013 about the Fukushima accident* (Nat. Board of Health and Welfare)

- **The Swedish medical expertise ought to be strengthened in case of nuclear accidents;**
- The emergency medical planning needs to take into account the various needs at the acute phase (i.e. flexibility);
- Well defined and detailed plans need to be developed that also must be practiced and be relevant for the participants;
- Communication (various media).....
- **Radiation fear among medical personnel – information!**

The Fukushima Daiichi Accident

Report by the Director General



Are the major “lessons learned” from the IAEA report on the Fukushima accident considered??

Monitoring and assessments

Prompt quantification and characterization of the amount and composition of radioactive material released to the environment are needed following a nuclear disaster (**Chapt. 4.1**)

.....but that doesn't exclude the need of (theoretical) assessments and appropriate simulation tools.

Is this an area where Nordic coordination is extra valuable? The results of the NORCON project are indicative....

NERIS – the European Platform on preparedness for nuclear and radiological emergency response and recovery with the **aim of e.g. *improving the effectiveness of current European, national and local approaches for preparedness concerning nuclear or radiological emergency response and recovery.***

STUK and DTU are members of NERIS.....

Risk communication

The risks of radiation exposure and the attribution of health effects to radiation need to be clearly presented to stakeholders, making it unambiguous that any increases in the occurrence of health effects in populations are not attributable to exposure to radiation if levels of exposures are similar to the global average background levels of radiation
(*Chapt. 4.4*)

- **Very few activities despite recognized as the most important health consequence after nuclear accidents;**
- **Lack of interest or/and lack of competence?**
- **Responsibility??**
- **Need for continuous information/explanations to educate and avoid desinformation (scientific);**

Natural Environment

- The focus during any emergency is on protecting people;
- Few (if any) measures can be taken in post accident situations although the radiation exposures may be significant;
- But that is not synonymous with neglecting the environment;
- People care for the environment and answers need to be given to avoid confusion and “non scientific observations”;
- Need for a strategy how to assess and communicate the consequences of wild animals and plants ;
- There may be difficulties in collecting information in accidental situations but that does not rule out use of reliable methods and correct statistical treatment of data ;...

Suggestion – Nordic Flag book



- Share similar environment...
- Long experience of environmental monitoring....
- "Nordic" competence...
- ICRP and IUR approaches aredisputed....
- Not be "stranded" when the questions arises....

Conclusions

- Nordic consensus on radiation protection in case of nuclear accidents (here exemplified by the Flag book) shows that many of the lessons learned from the Fukushima accident have been considered;
- The operators of NPPs in Sweden have acknowledged the shortcomings during the management of the Fukushima accident and provide recommendations for improvements of the effectiveness;
- The competence in some scientific disciplines underpinning radiation protection is inadequate and actions are needed;
- **Radiation risk needs to be addressed and communicated in the society for better understanding and to decrease radiation fear. The ultimate responsibility lies on crisis management;**
- Natural environment – trustworthy answers must be given even in an emergency situation;

Thank you

