

Local-national cooperation in nuclear and radiological emergency and recovery



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Background

- Norway do not have nuclear power, but to very small research reactors
- Norway was caught by surprise by the Chernobyl accident in 1986
- A management system had to be put in place after the accident, and it is still running
- Today, acknowledgement that radioactive contamination is a long-term societal challenge
- **Radioactive contamination affects health, environment, economy, production, living conditions**
- NRPA is strongly involved in the continuous improvement of the emergency preparedness and response system

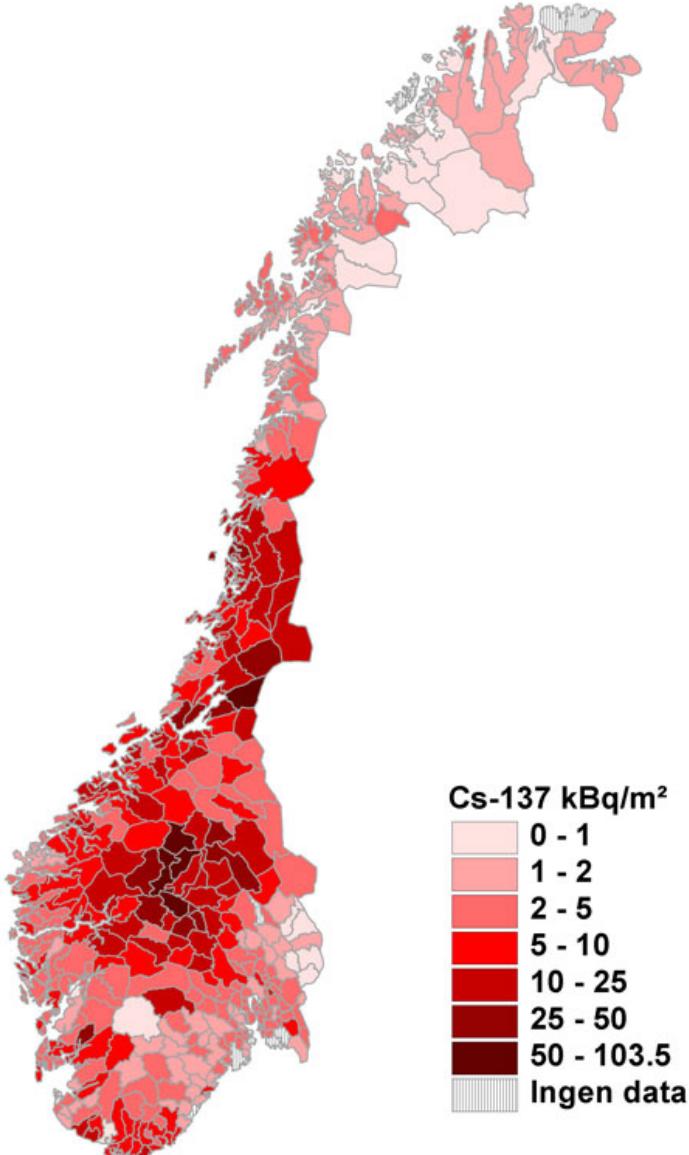


Steps to build country resilience

- Run dedicated seminars and exercises with various actors and levels within the emergency planning and response
- EC EURANOS project "Involvement of people affected by the contamination of an area – a Norwegian pilot study"
- Establishment of a local-national forum as part of the EC NERIS-TP project
- Acknowledge the need to involve stakeholders, such as operators, professional organisations, research institutes, universities, NGOs, consultants and all levels of the food production system (farmers, processing industries and retailers)



Post-Chernobyl management in Norway



- Large areas contaminated, in particular natural pastures
- Food products from natural pasture areas are still today contaminated above the intervention limits
- Countermeasures are still necessary for goat milk, sheep and reindeer production

Caesium binders (Prussian blue) i concentrates, bolus og salt licks



Distribution of boli



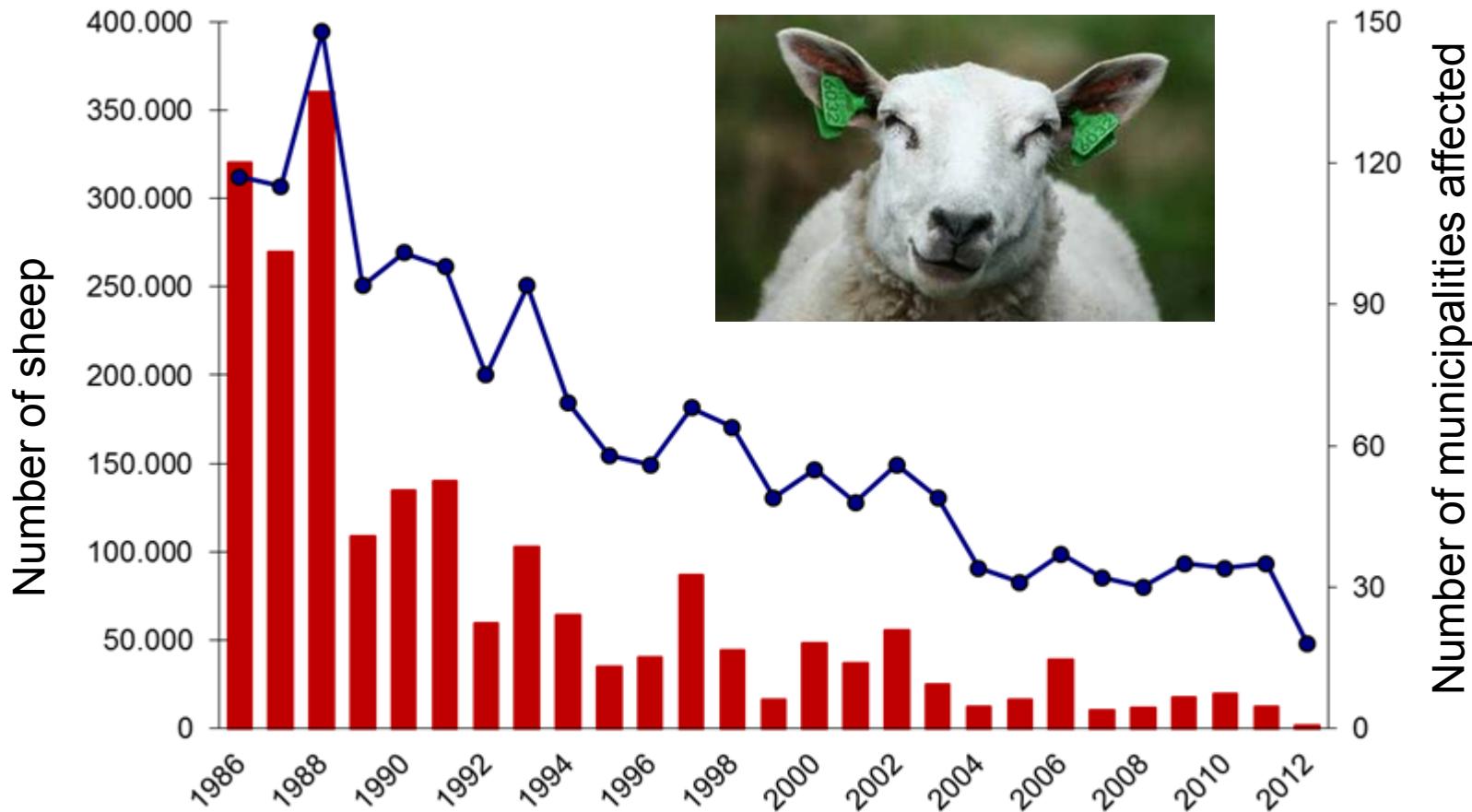
Boli for sheep



Salt lick with Prussian
blue

Countermeasures in sheep production

Number of sheep on clean feeding before slaughter 1986-2012



Measurements of live animals prior to slaughter



Consequences for reindeer production and the Sami culture

Reindeer herding is a key factor in the Sami cul

- Reindeer are extremely vulnerable to contamination by radioactive caesium
 - Outdoor throughout the year
 - Need large grazing areas
 - Lichen is the key source for food
 - Reindeer are not domesticated
 - Up to 150 000 Bq/kg in 1987, still up to 7000 Bq/kg in 2007
- Countermeasures often conflicted with the cultural traditions
 - Earlier slaughter
 - Clean feeding
 - Caesium binders
 - Select low contaminated animals for slaughter



Public reports on nuclear emergency preparedness after Chernobyl



«Information crisis»



November 1986:
«Countermeasures in nuclear power accidents – Part I: experiences after the nuclear accident in Chernobyl»



Tiltak mot atomulykker
Anbefalinger om videre styrking av norsk beredskap mot atomulykker

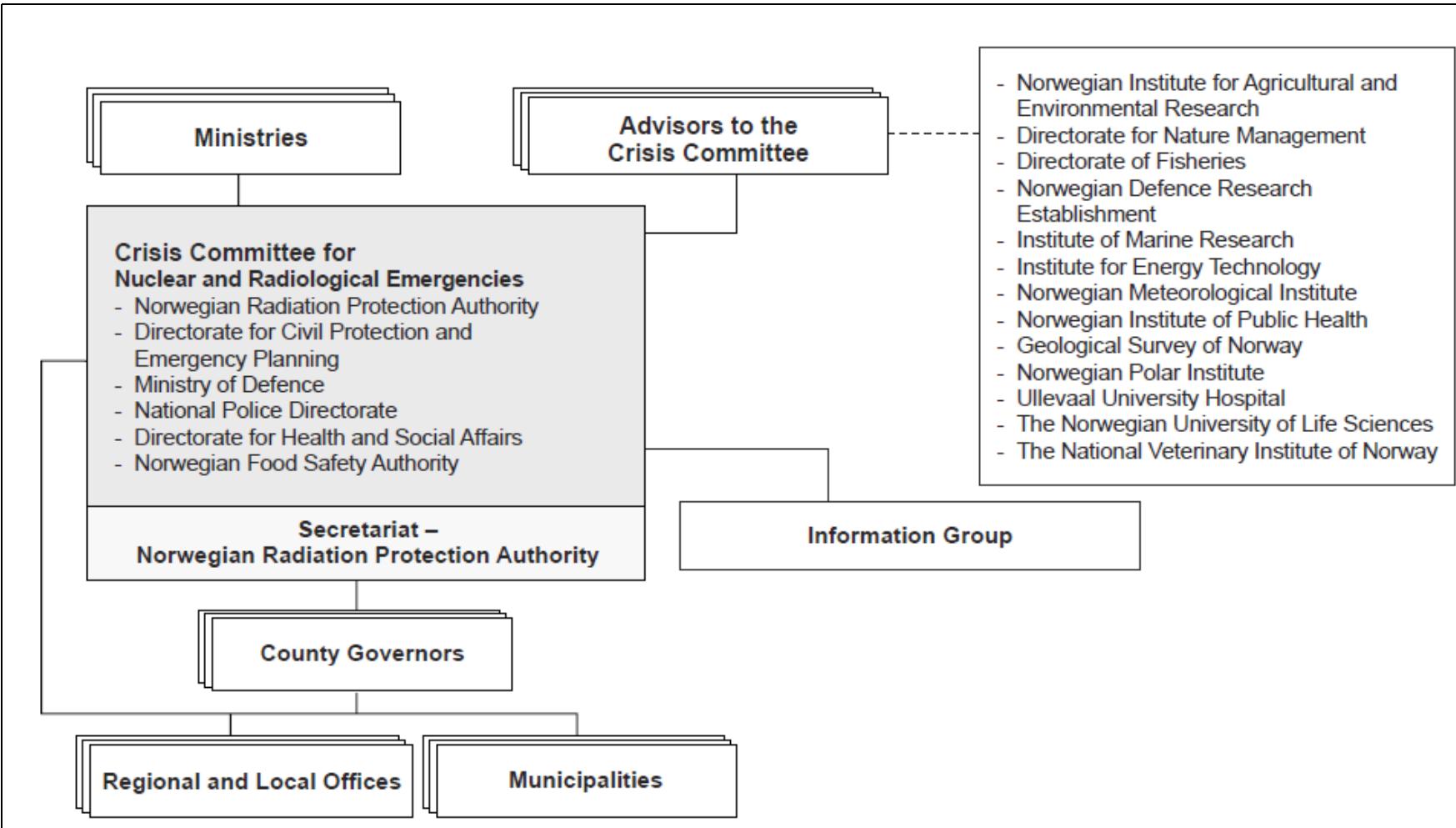


February 1992:
«Countermeasures in nuclear accidents – Recommendations on further strengthening of Norwegian emergency preparedness towards nuclear accidents»



June 1998, updated Feb. 2006 and Aug. 2012:
«Nuclear Preparedness – National and Regional Organisation» (royal decree)

Nuclear Preparedness – National and Regional Organisation in Norway



Challenges in long-term resilience

- Still need for countermeasures in reindeer and domestic animal husbandry in some areas due Chernobyl 27 years later
- Countermeasures and monitoring are part of everyday practice, but only for a few districts nowadays
- No longer a challenge at the national level so we experience a general loss of competence in several fields, such as radioecology, measurement strategies and planning, countermeasures etc.
- There is still need for nuclear and radiological emergency preparedness at both local, regional and national level, but the need is not very visible in day-to-day life



Project: Nuclear and radiological emergency preparedness seminars

- A series of seminars in nuclear and radiological emergency preparedness for the 19 county governors in Norway
- One day-seminar arranged by the NRPA for the county governor, the emergency board and the administration
- Content of the seminars
 - Threat/hazard assessment and the nuclear and radiological emergency preparedness organisation
 - Methods and tools for decision making
 - Information strategies
 - Countermeasure strategies
- Table top exercise for a relevant nuclear/radiological scenario



The EURANOS project – Involvement of people affected by the contamination of an area

- How do we best prepare for the long-term consequences of nuclear accidents?
- Who may help to develop the best management practices and which methods should be used?
- How do we get appropriate information so that the concerns of the affected people will be included in the management plans?



The involvement process in Norway

- Participants from the local communities; local, regional, and national authorities responsible for health, agriculture and environment; and NGO's
- Participants with and without Chernobyl experience
- Two workshops of 2 days each in January and March 2008
- Two facilitators organized the workshops
- IDPA-method was used



Recommendations from the EURANOS stakeholder group in Norway

- Local nuclear emergency preparedness should be strengthened by
 - Increasing the number of local measurement stations
 - Improve and exercise municipality emergency plans
 - Involve the primary health care services
- At the State level
 - Clarify the roles of the Food Safety Authority and the health sector
 - Sector-wise understanding of how to implement countermeasures at a regional and local level
- Information strategies are important means of alleviating psycho-social stress
 - Information must be based on local measurements
 - Information must be available in more languages than Norwegian and Sami
- Division of responsibilities between industry and authorities should be clarified to secure safe food production and maintain the reputation of Norwegian foodstuffs



How to proceed forward from the EURANOS project?

- In practice: Change the authorities mind set from "making plans FOR" to " making plans WITH" the affected people. This means that local- regional and national administrations and people representing other interests should cooperate when improving the emergency preparedness.
- This requires that we:
 - Increase the general knowledge about nuclear risks and possible countermeasures
 - Create arenas for cooperation for potential partners
 - Start cooperative planning processes before a contamination situation occurs



EC NERIS-TP – sub project on local-national fora

A series of seminars are set up where authorities and stakeholders at all levels and sectors are involved. These seminars will address the following challenges:

- **I. Threat assessment** - what are possible scenarios that could cause radioactive contamination of our municipality/local territory??
- **II. Sensitivity analysis** - what part of the community would be most effected?
- **III. Evaluating mitigating actions** - what are the choices? Can they be implemented in our community?
- **IV. Engaging local actors** - who need/should be involved in the local cooperation to solve the challenges, at various phases of the emergency? What are the responsibilities and roles? How will the engagement be done in practice?
- **V. National assistance** – (i.e. assistance between different national levels) what are the expectations and what is possible? How will the chain national → regional → municipality/local cooperation work in practice? Roles and responsibilities of each level.



Local-national forum for emergency and recovery strategies in Norway

- The aim of the project is to establish local-national fora for improvement of both local and national capabilities
- These fora will build strongly on already existing national and local initiatives. The fora will address the challenges met by municipalities/ local communities when planning for nuclear and radiological emergency and recovery preparedness and response
- The Norwegian forum was established in the county of Østfold.
- The initiative and planning of the seminar was done by the County Governor of Østfold, The Farmers Association, Norwegian Food Safety Authority and the Norwegian Radiation Protection Authority
- The County Governor wanted to bring together all involved parties to strengthen the late phase emergencies after a nuclear accident/incident in the county and the municipalities



Local-national forum in Østfold

Østfold:

Most southeastern county in Norway with a variation of agricultural produce, like potatoes, vegetables, different animal production, as well as recreation and hunting

The county also hosts Norway's largest research reactor, with associated storage and transportation of radiological and nuclear materials



Participants:

Regional and local food authorities, NRPA, the Ministry of Health and Care Services, the Farmer's association, the food industry, members of the regional forum for coordination of nuclear emergency preparedness, representatives from local municipalities, the local health sector, and NGOs

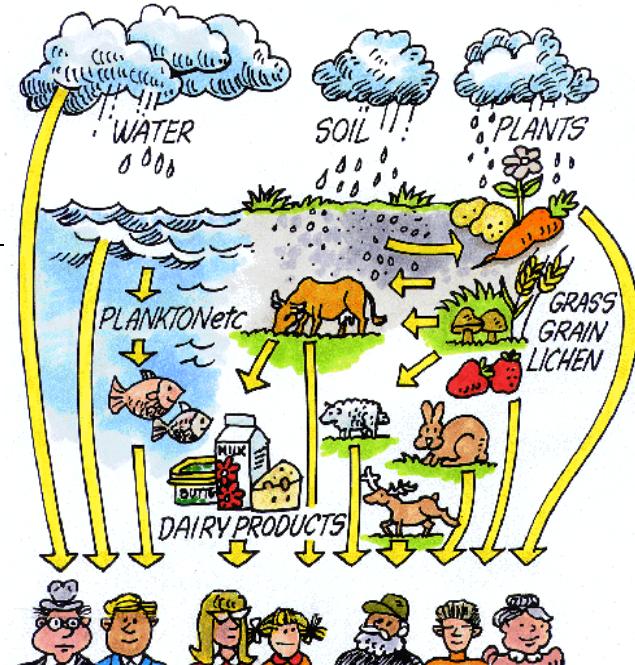
Local-national forum in Østfold

Introductory sessions

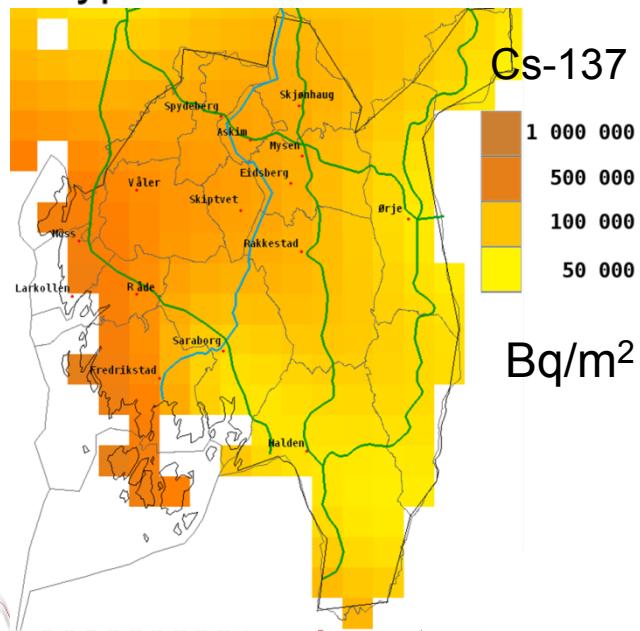
- Presentation of radioecology
- The emergency preparedness organisation
- The responsibilities of different authorities
- Relevant countermeasures in nuclear and radiological emergency preparedness and recovery

Table-top exercise

- Presentation of a scenario with a dispersion map
- Participants were divided into groups where they discussed countermeasures and mitigation actions in different parts of the recovery phase
- Conclusions from the group discussions were presented and further discussed in a plenary session



Hypothetical scenario



Lessons learned

- Through the discussions, the participants realised their roles and responsibilities and the need to be better prepared for this kind of emergencies
- There are many practical challenges which need to be solved locally, and there need to be prepared emergency plans. It is important that these plans are elaborated with stakeholders on all levels.
- Need for different kinds of decision support tools and educational tools for the local and regional authorities. These tools need to be well-known and adapted to regional specificities in 'peace time'
- Procedures and systems for communication between local, regional and national levels in the emergency response organisation need to be developed in order to have a successful implementation of countermeasures during an emergency and late phase recovery



September 2013 – Regional emergency response exercise

- Initiated by the Food Safety Authority
- Started with educational seminar by NRPA
- Emergency exercise for the regional level
- National, regional and local food authorities
- 3 County Governors with staff
- Civil defence
- Most focus on challenges in the food production system
- Countermeasures in early to mid phase, division of responsibilities and tasks
- Cooperation between municipalities and counties



General summary points

- It is important to keep and to transmit knowledge on nuclear emergency preparedness and response
- To build country resilience, all levels and sectors must be involved
- Radiation protection authorities can play an important role in education, exercises and facilitation of seminars
- Research projects can contribute, but must work in line with national plans (in particular in small countries)
- Difficult to keep the interest of the local actors over time



Co-expertise with the affected people

- The inhabitants are the owners of the situation in the affected areas.
- To better address their expectations experts should
 - be at their service
 - listen to their concerns
 - respond in an understandable way.
- The development of common evaluation of the situation by evacuees, residents, experts and authorities in the various communities (co-expertise) should be supported.

