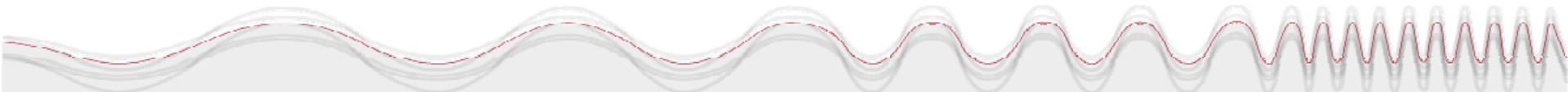


Recovery phase – Norwegian experience of relevance for the Japanese and vice versa



Astrid Liland

Head of the Research Section, NRPA

Stockholm, 8 January 2013

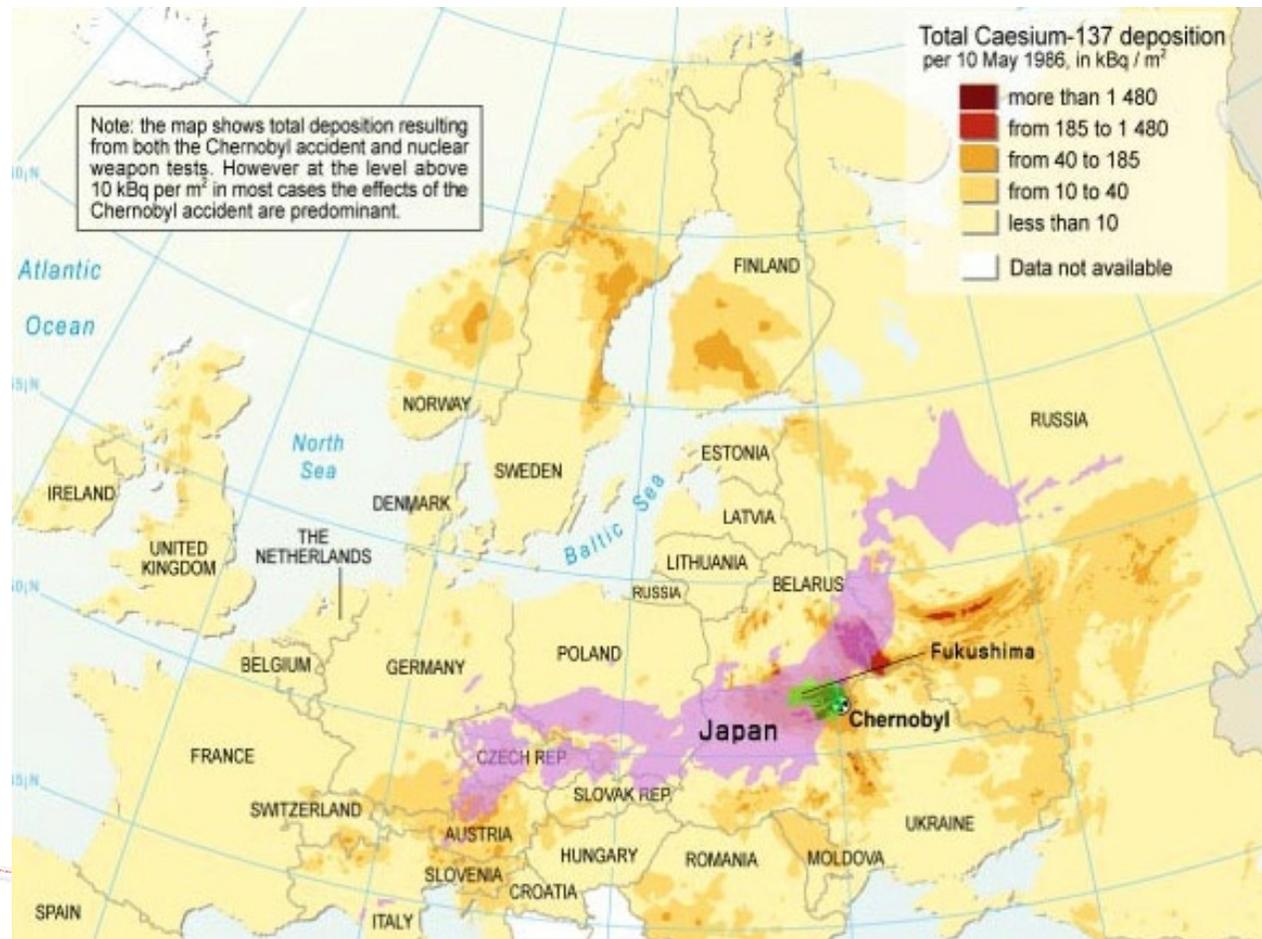
www.nrpa.no



Statens strålevern
Norwegian Radiation Protection Authority

Chernobyl and Fukushima

Differences and similarities – common learning points



Planning for recovery and long-term management is key to successful handling in the transition and post-accident phase



Measurements of animals



and humans



Decontaminated agricultural plot in Date, Japan



Administration of bolus with Prussian blue

Tools are available

- EURANOS Handbooks
- ARGOS and RODOS food chain models, MOIRA, ERMIN...
- TMT Handbook (for malevolent use)
- NKS reports (e.g. URBHAND)
- National RN emergency preparedness plans (do they include recovery and long-term management plans?)
- A wealth of publications

**BUT: They need to be known to the experts
and the decision makers on beforehand
and adapted to local needs!**

Large scale contamination – a societal problem

- Affects health, environment, economy, production, living conditions → need for cross-sectorial work in both the planning and the recovery / late phase
- Important that the experts and the governmental institutions involves themselves in educating the public about the situation → increased understanding gives people the possibility to take informed actions to reduce their doses and to assist in mitigating actions for a faster return to normality
- Local monitoring stations for foodstuffs, and whole body measurements are important for reassurance and building confidence among the affected public

ICRP dialogue seminars in Fukushima

- Arranged every ~4 months since November 2011 with a mix of local, regional and national actors along with foreign (independent) experts
- Gradual change in the population:
 - Confusion, fear
 - Anger and frustration
 - Willingness to participate in voluntary work to improve the situation
 - Gradually more optimism as their effort pays off



BUT: Problems of a durable character

- Difficulty to sell food products even when clean
 - Worries about the health of the family and future generations
 - Stigmatisation and discrimination
- People leave the territory for good, in particular families with young children. Youth will not return after their higher education
- High risk that the contaminated region will fall into a long recession



Director of hotel who hosted évacuées

Some reflections of relevance for an accident in the Nordic countries

- Will evacuation be temporary?

Termination of current restricted area

Lifting of Evacuation - Prepared Zone
(102 km²) < 20 mSv/y

Decontamination

- 10 – 20 mSv/y (Dec. 2012)
- 5 – 10 mSv/y (March 2013)
- 1 – 5 mSv/y (March 2014)

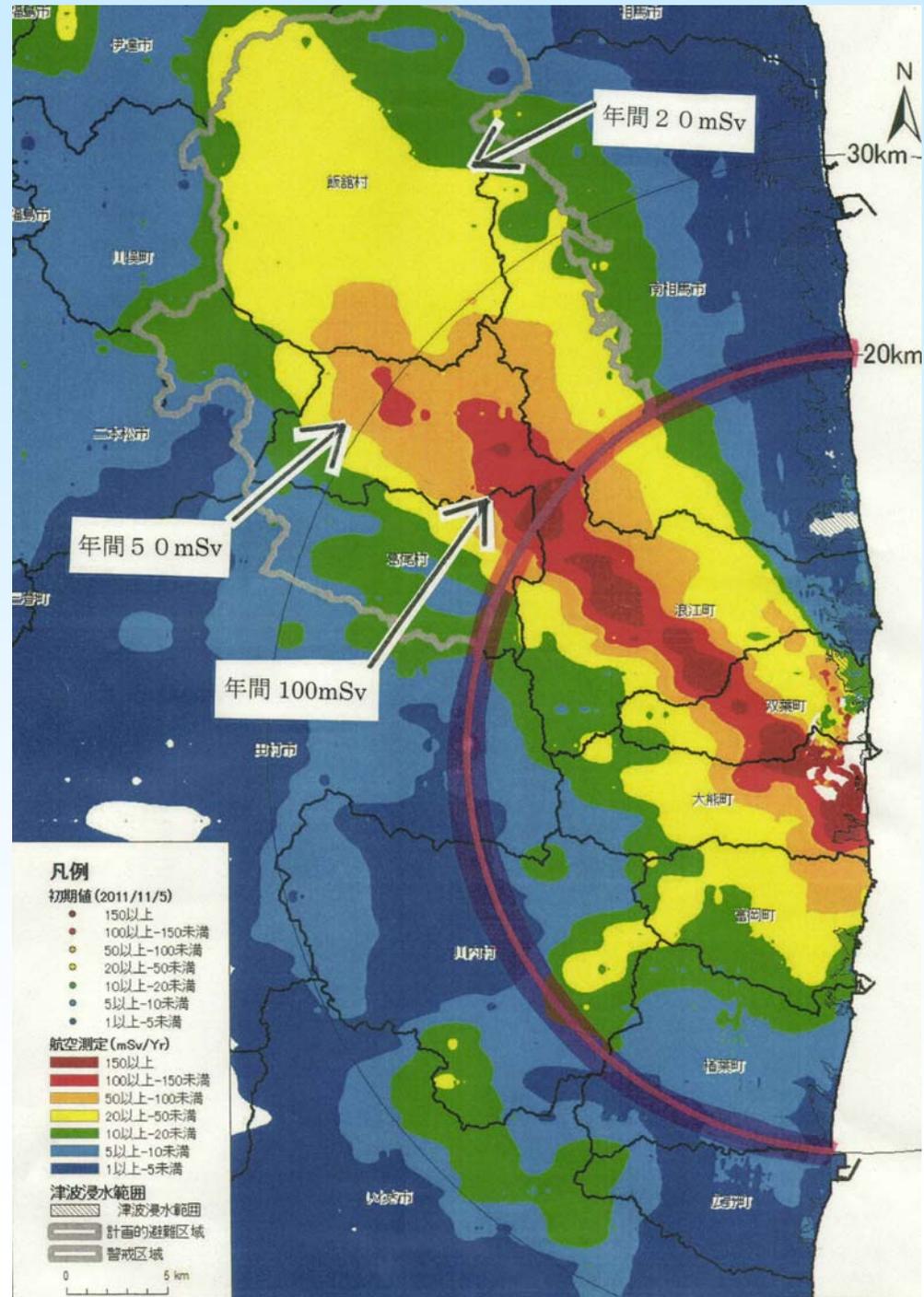
Restricted Zone (72 km²)
20 mSv/y < < 50 mSv/y

- Decontamination will be implemented at the level below 20 mSv/y by the end of March 2014.

“Difficult to Return” Zone (93 km²)
50 mSv/y <

- It will decide on measures while observing the effectiveness of model decontamination work.

(NERH, Dec 26, 2011)

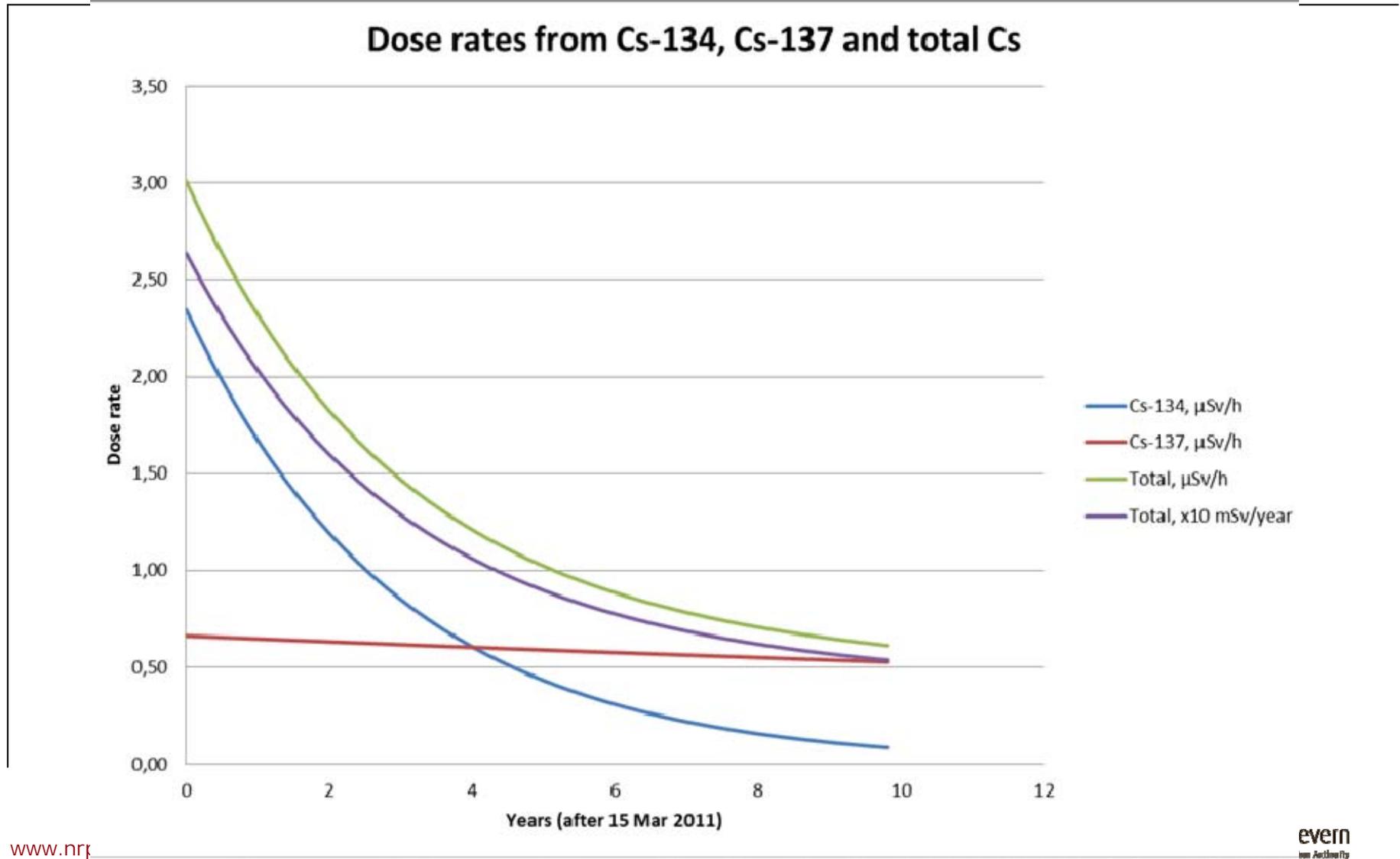


Some reflections of relevance for an accident in the Nordic countries

- Will evacuation be temporary?
- The importance of external vs. internal dose to humans



External doses in Date with initial deposition of 275 kBq/m² of each of Cs-134 and Cs-137



The need for decontamination of areas

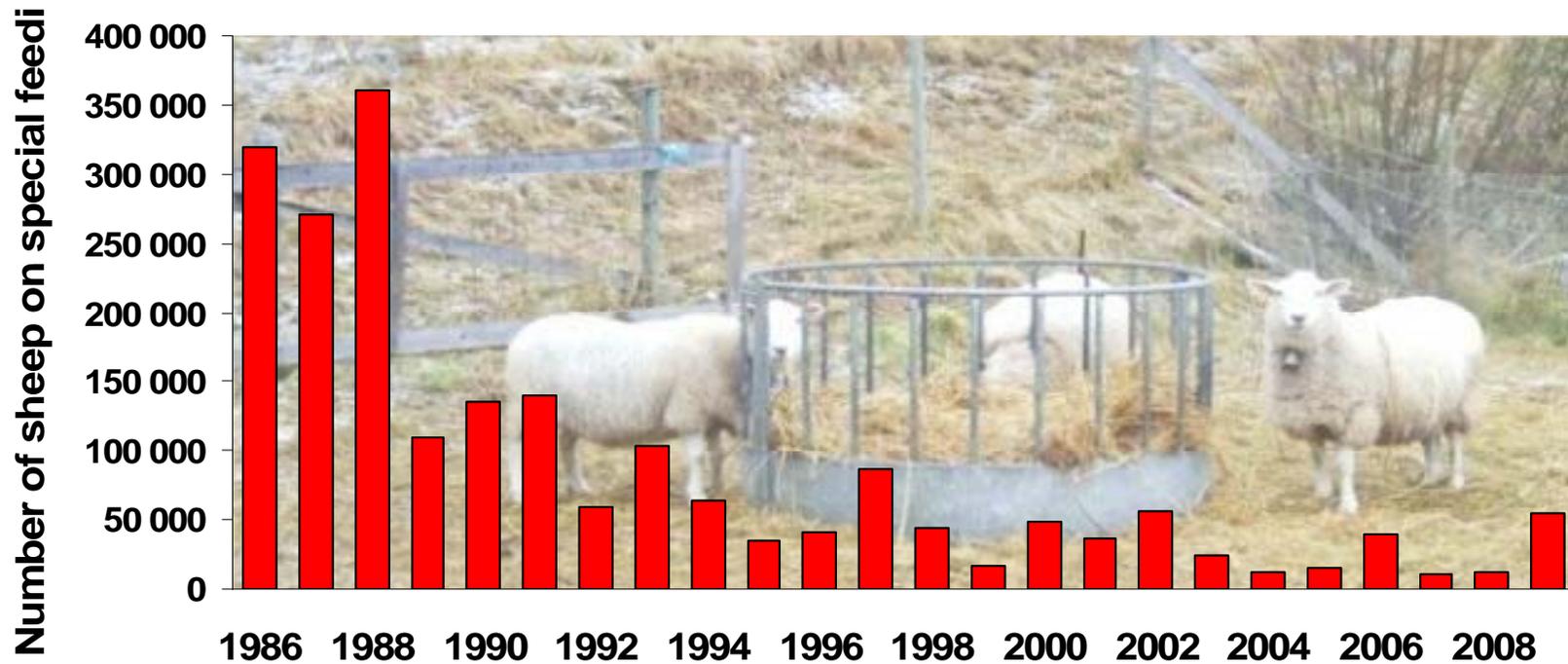
- Sandblasting driveways
- Removing vegetation and top soil



Where to dispose of all the waste generated?



Natural and semi-natural pastures vulnerable for caesium contamination



Some reflections of relevance for an accident in the Nordic countries

- Will evacuation be temporary?
- The importance of external vs. internal dose to humans
- How will the contamination of the marine environment influence on the export of sea food?



Some reflections of relevance for an accident in the Nordic countries

- Will evacuation be temporary?
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- How will the contamination of the marine environment influence on the export of sea food?
- The public interest in quality food, diet and health is very strong today along with a strong food industry – how will this impact on the food trade?

Information on contamination in fish

グリーンピース スーパーのかわりにグリーンピースが放射能測定しました 調査期間 2011 9/8・11/8 実施

秋冬のお魚調査



マダラ
不検出～**47.3 Bq/kg** (サンプル数 8)



不検出～**23 Bq/kg** (サンプル数 7)
マアジ



不検出～**23 Bq/kg** (サンプル数 10)
マイワシ

魚介類	サンプル数	セシウム134と137の合計値(Bq/kg)
サンマ	9	不検出
サケ	5	不検出
ワカサギ	1	88
スズキ	3	不検出～14.6
ゴマサバ	8	不検出～13

※放射線量は、セシウム134と137の合計値。単位：ベクレル(Bq)/キログラム(kg)



不検出～**22 Bq/kg** (サンプル数 21)
カツオ



不検出～**60 Bq/kg** (サンプル数 12)
ブリ

調査内容 & 調査結果まとめ

- 調査方法：イオン、イトーヨーカドー、ユニー、ダイエー、西友の三洋一両家の店舗で、東日本太平洋側を産地とする季節の魚を中心に抜き打ちで購入
- 調査方法：「グリーンピース放射能測定室 シルベク」にて簡易検査の後、第三者機関においてゲルマニウム半導体検出器で検査
- 10月の調査では秋の魚のブリやカツオ、そして11月の調査では冬のお鍋に欠かせないマダラや、年末年始に消費が多いメバチマグロなど、大型の魚から放射性物質が検出されました
- 特定のスーパーではなく対象5社すべてで販売している魚介類商品から放射性物質が検出され、放射能汚染された魚介類が広く販売されていることがわかりました
- 調査の詳細はウェブ
www.greenpeace.org/japan/ja/earthquake/monitoring

私たちができること

業界最大手イオンは、6,000の消費者の声を受けて変わりました。他の大手スーパーも政府ではなく消費者の方向を向いて放射線汚染問題に取り組みよう、毎日行くスーパーや変わってほしいスーパーに「お客様の声」を届け、その成長をサポートしてください！店頭にある「お客様の声」用紙に要請事項を記入して、請求付けの箱に投函しましょう！！

お客様の声



メバチマグロ
4.4～**12.7 Bq/kg** (サンプル数 5)

グリーンピースは環境保護を願う市民の立場で活動するため、政府や企業からの資金援助を受けず、280万人の個人会員(サポーター)にサポートされて世界40カ国で活動しています。(サポーター随時募集中)

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GREENPEACE
シルベク
グリーンピース放射能測定室





Some reflections of relevance for an accident in the Nordic countries

- Will evacuation be temporary?
- The importance of external vs. internal dose to humans
- How will the contamination of the marine environment influence on the export of sea food?
- The public interest in quality food, diet and health is very strong today along with a strong food industry – how will this impact on the food trade?
- **Information moves incredibly fast today and people have access to a wealth of information – which experts to trust?**



The aim is to restore normal living conditions for people in the contaminated territories

- The government should plan how to cooperate between local, regional and national level in the recovery and long term management phase.
- The reality for people is what's going on at the local level, not in a national crisis center.
- The public lacks knowledge of how to handle the situation and often don't understand the information given.
- Most people are rational and willing to help out, but they need expert assistance.

Experts must assist and involve local specialists and the population

- Inform, educate
- Work in the field: discuss and assist to find locally adapted solutions
- Offer local monitoring stations for foodstuffs
- Offer whole body measurements with personal dialogue
- Engage in a long term commitment to assist the local communities in the late phase management



Summary remarks

- Acknowledge the possible severity and long duration of contamination
- Plans for the recovery and late phase must cover, and be shared by, all sectors and levels of the society
- Authorities must familiarise themselves with existing tools and adapt them to national needs
- Exercises involving all sectors and levels are essential for building societal resilience