

# What happened to nuclear safety work/focus in Europe after Fukushima?

NKS SEMINAR ON THE FUKUSHIMA ACCIDENT AND PERSPECTIVES FOR  
NORDIC REACTOR SAFETY AND EMERGENCY PREPAREDNESS

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# Outline

- Safety assessments (Stress Tests), Emergency Preparedness
- Research needs
- Current discussion topics
- Other safety related focal areas
- Remarks

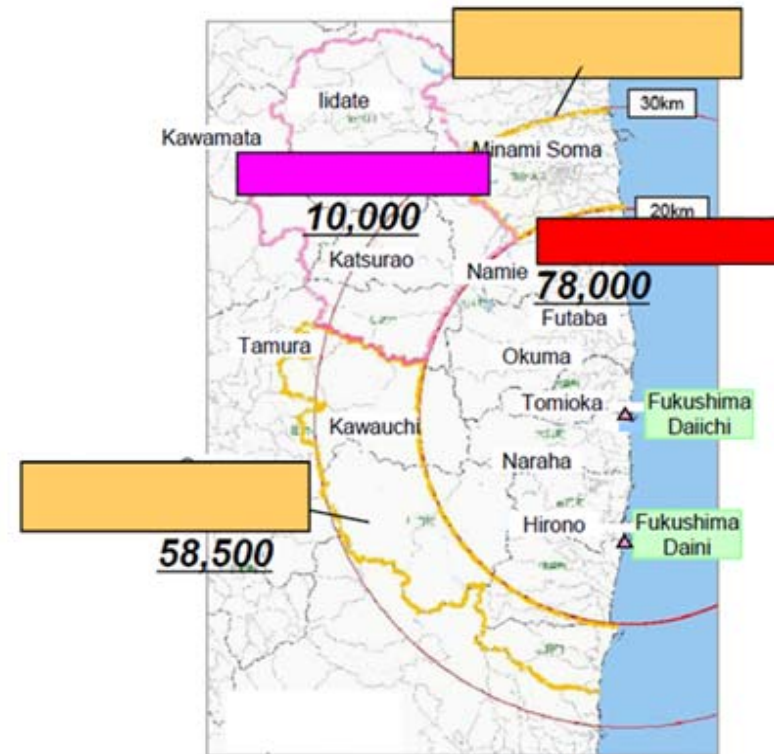
# Safety Assessments (Stress Tests)

- Questions
  - How well nuclear power plants can withstand flooding, earthquakes and other extreme external hazards
  - How long nuclear power plants can survive without ultimate heat sink and/or electrical supply
  - How well nuclear power plants can cope with severe accidents
- Extensive effort in these focused areas with useful results to improve safety



# Emergency Preparedness

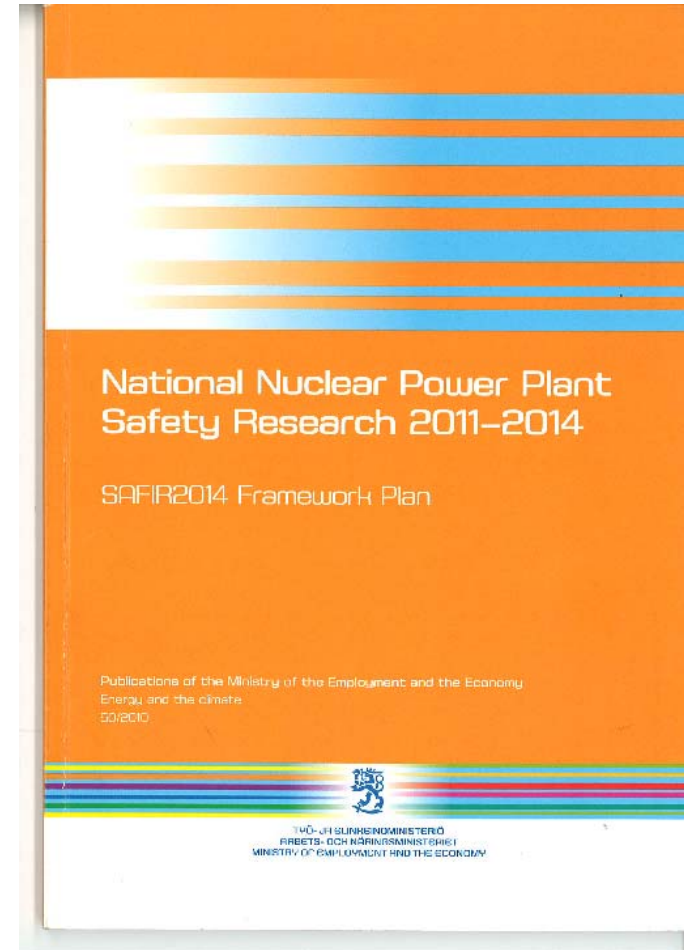
- Design basis of emergency planning and preparedness
  - Multiunit accidents
  - Destroyed infrastructure
  - Radiation monitoring and communication capabilities
  - Emergency centres on and off-site
  - Scope of protective zones
  - Adequacy of resources and emergency exercises
  - Transboundary issues
  - International assistance possibilities and capabilities
- Crisis communication
  - National and international



Source: NISA website

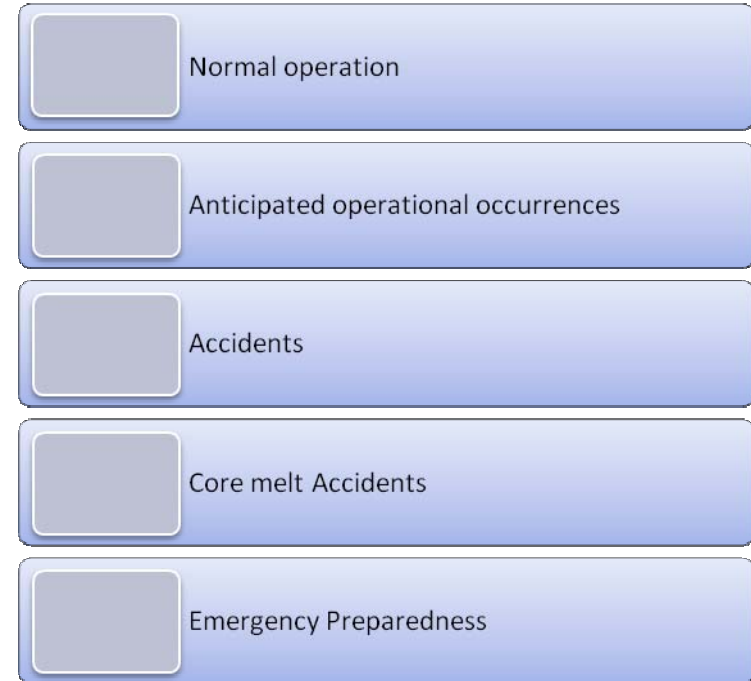
# Research areas

- Methodologies for defining and assessing external events, combination of events, seismic safety of NPPs
- Effects of climate change to extreme natural phenomena
- Hydrogen generation and management in and outside containment
- Accident management in the long term
- Radionuclide source term analysis
- Safety of spent fuel pool storage
- Human and organisational performance under stressful conditions
- Cultural aspects and safety culture



# Discussion Topics – Defence in Depth

- Is the concept still valid?
- Is it adequately implemented (with regards to external events)?
- Is the concept commonly agreed and adequately regulated?
- Is the balance between prevention and mitigation correct?
- Is the end goal changing – health effects - other effects?



# Discussion Topics – Safety Culture

- Most discussions in the international forums have focused on technical issues
    - e.g. reasons for accident progress, prevention and mitigation of the accident and Emergency preparedness
  - Safety and Organizational culture issues underlying the accident have not really been discussed
    - Diet report (2012) raises a number of significant issues that could be of generic nature
  - What cultural or traditional factors we might have in our own culture having an impact on safety culture?
- *“It was a profoundly man-made disaster — that could and should have been foreseen and prevented”*
  - *“The underlying issue is the social structure that results in “regulatory capture,” and the organizational, institutional and legal framework that allow individuals to justify their actions, hide them when inconvenient, and leave no records in order to avoid responsibility. Across the board, the Commission found ignorance and arrogance unforgivable for anyone or any organization that deals with nuclear power. We found a disregard for global trends and a disregard for public safety. We found a habit of adherence to conditions based on conventional procedures and prior practices, with a priority on avoiding risk to own organization. We found an organization-driven mindset that prioritized benefits to own organization at the expense of the public.”*

# Other safety related focal areas due to the accident

- Role of international co-operation, especially role and importance of Peer Reviews
- Importance of effective utilisation of operating experience feedback
- Changes in regulatory framework, legislation, programmes, openness and transparency
- Licensee's responsibility for safety





# Remarks

- It is clear that we have to learn all the lessons from the accident and make the right conclusions
- We should be sure that what is planned to be done as a result of the accident really improves safety at NPPs
- We shall not loose focus on other and more safety significant issues on NPPs

