



# Disposal programme The Netherlands

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# THE NETHERLANDS



- small country
- 16 mio people
- small nuclear programme

# WASTE PRODUCERS IN THE NETHERLANDS

- 2 nuclear power plants
  - 1 operating (1973-2034)
  - 1 decommissioned (1968-1997)
- 2 reprocessing plants
- 1 fuel element plant

## Waste inventory (1982-2012)

HLW: 60 m<sup>3</sup>

LILW: 10.000 m<sup>3</sup>

NORM: 10.000 m<sup>3</sup>





# SOLUTIONS FOR THE NETHERLANDS



- small amount of waste
- high ground water table
- high population density
- high environmental awareness
- advanced spatial planning

**no shallow disposal,  
only deep disposal**

**COVRA<sub>NV</sub>**

# DISPOSAL SOLUTIONS

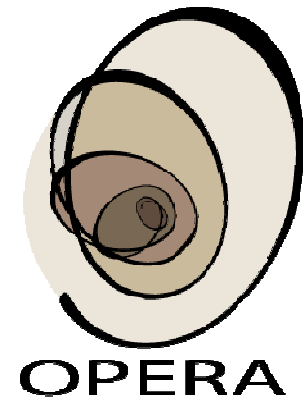


# POLICY THE NETHERLANDS

- at least 100 years storage, in buildings
- deep disposal HLW+LILW after 100 years
- look for cooperation
- double track policy
- research programme: OPERA

# OPERA

## OnderzoeksProgramma Eindberging Radioactief Afval



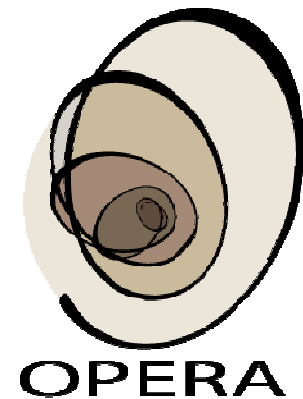
- five year programme:  
“possibility of safe, long-term disposal in the Netherlands”
- focus:  
Boom clay (and rocksalt)



# OPERA

## Research Programme Disposal Radioactive Waste

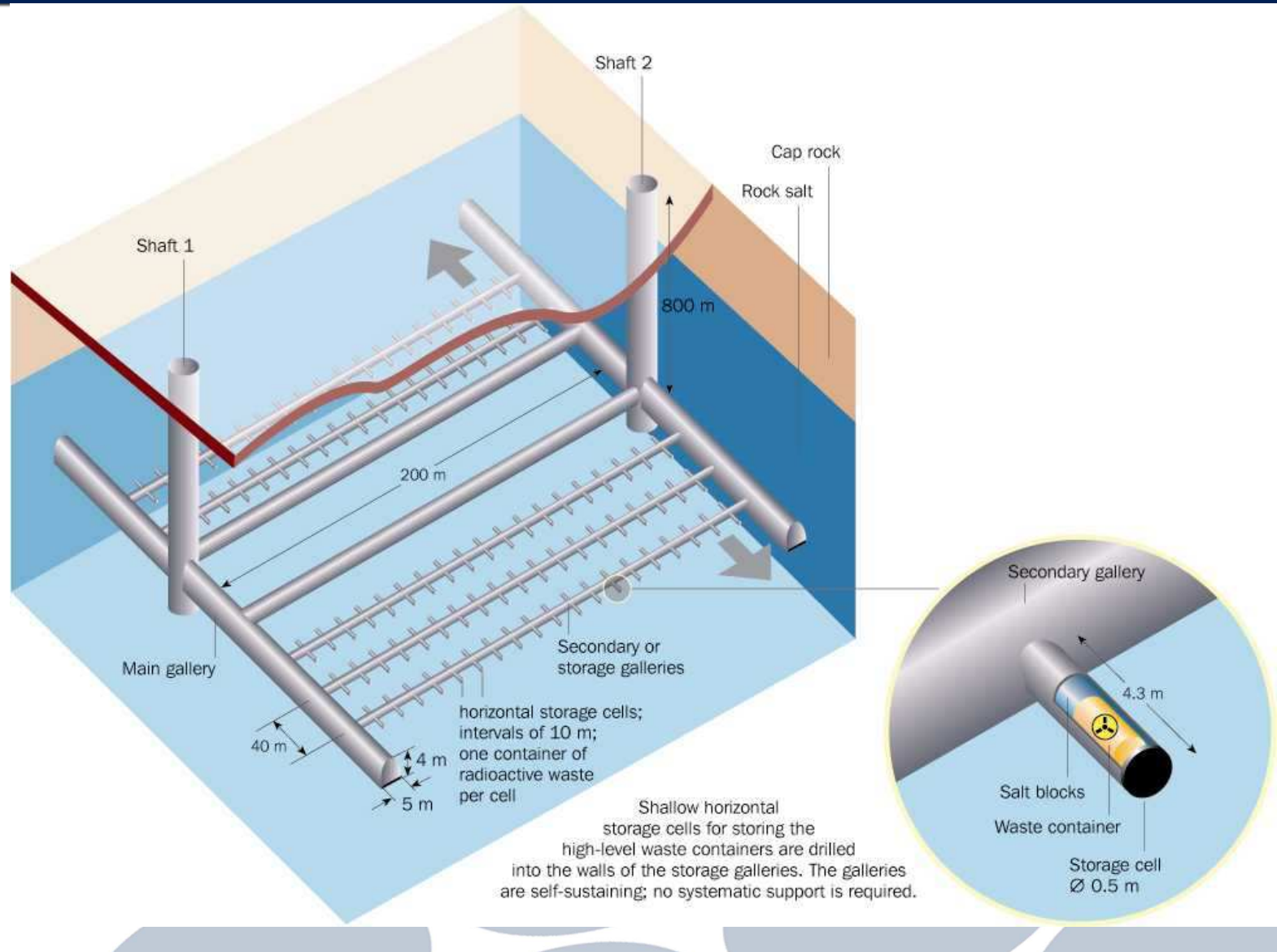
- **Goals:**
  1. Evaluation previous studies
  2. Initial, conditional Safety Case
  3. Societal aspects



# FEASIBILITY STUDIES

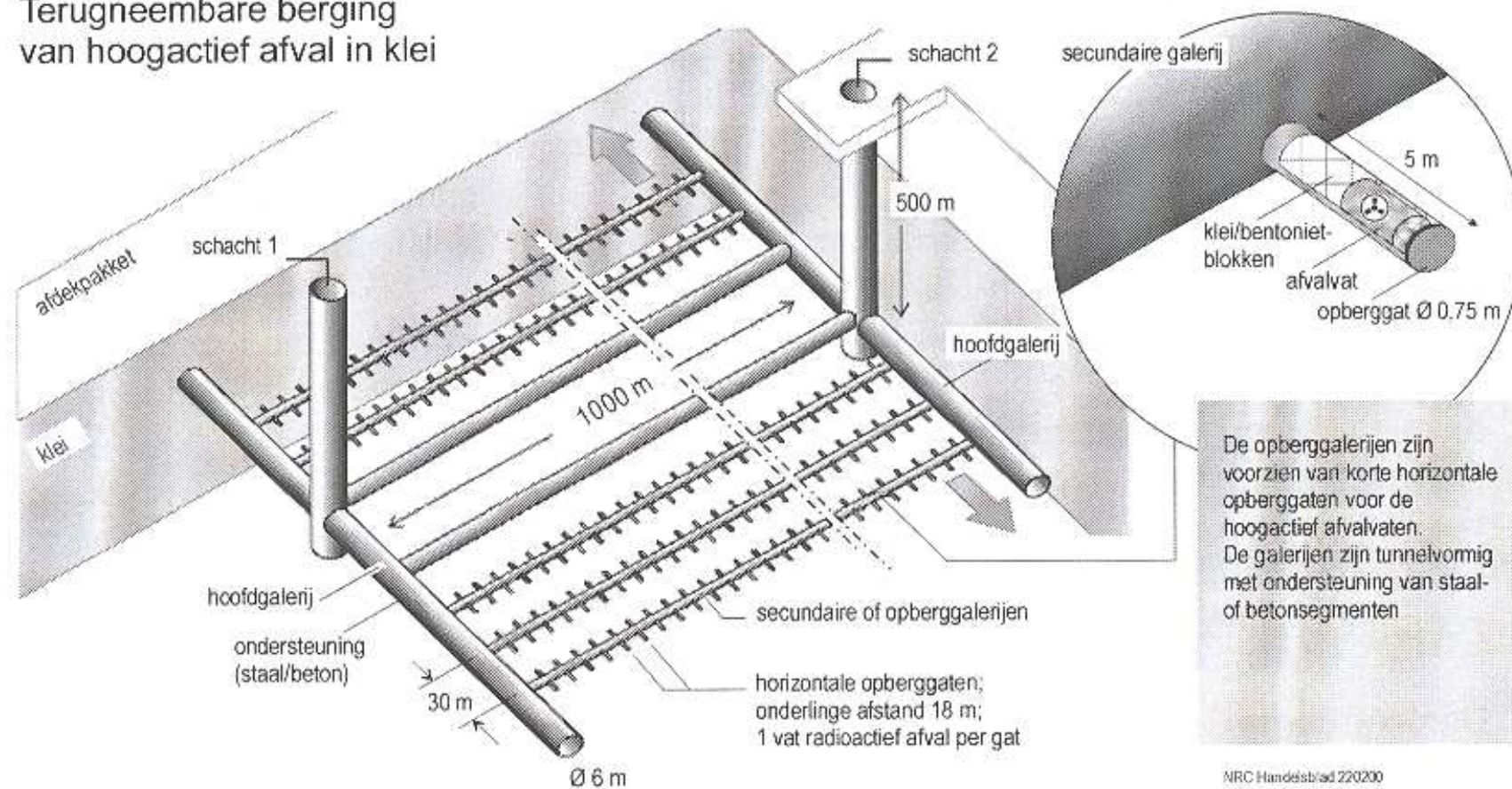
- Research since 1970
- 1982
  - Disposal,
  - National - International
- OPLA (rocksalt)
  - 1984 -1989
  - 1989 -1993
- 1993 retrievability
- CORA (rocksalt, clay, retrievability)

# DISPOSAL CONCEPT - rocksalt

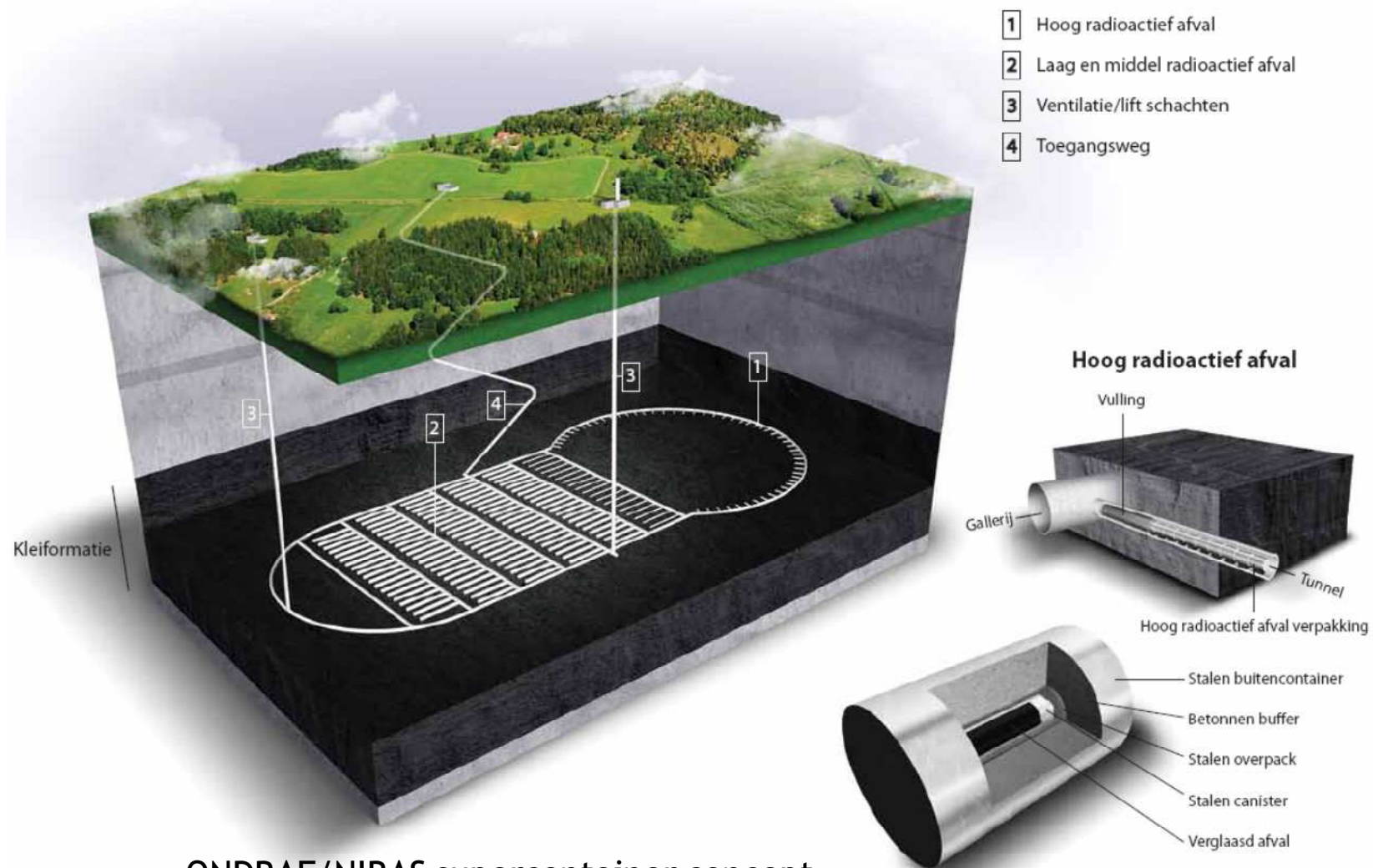


# DISPOSAL CONCEPT - clay

Terugneembare berging  
van hoogactief afval in klei



# DISPOSAL CONCEPT - OPERA



# ERDO: 'Dual Track'

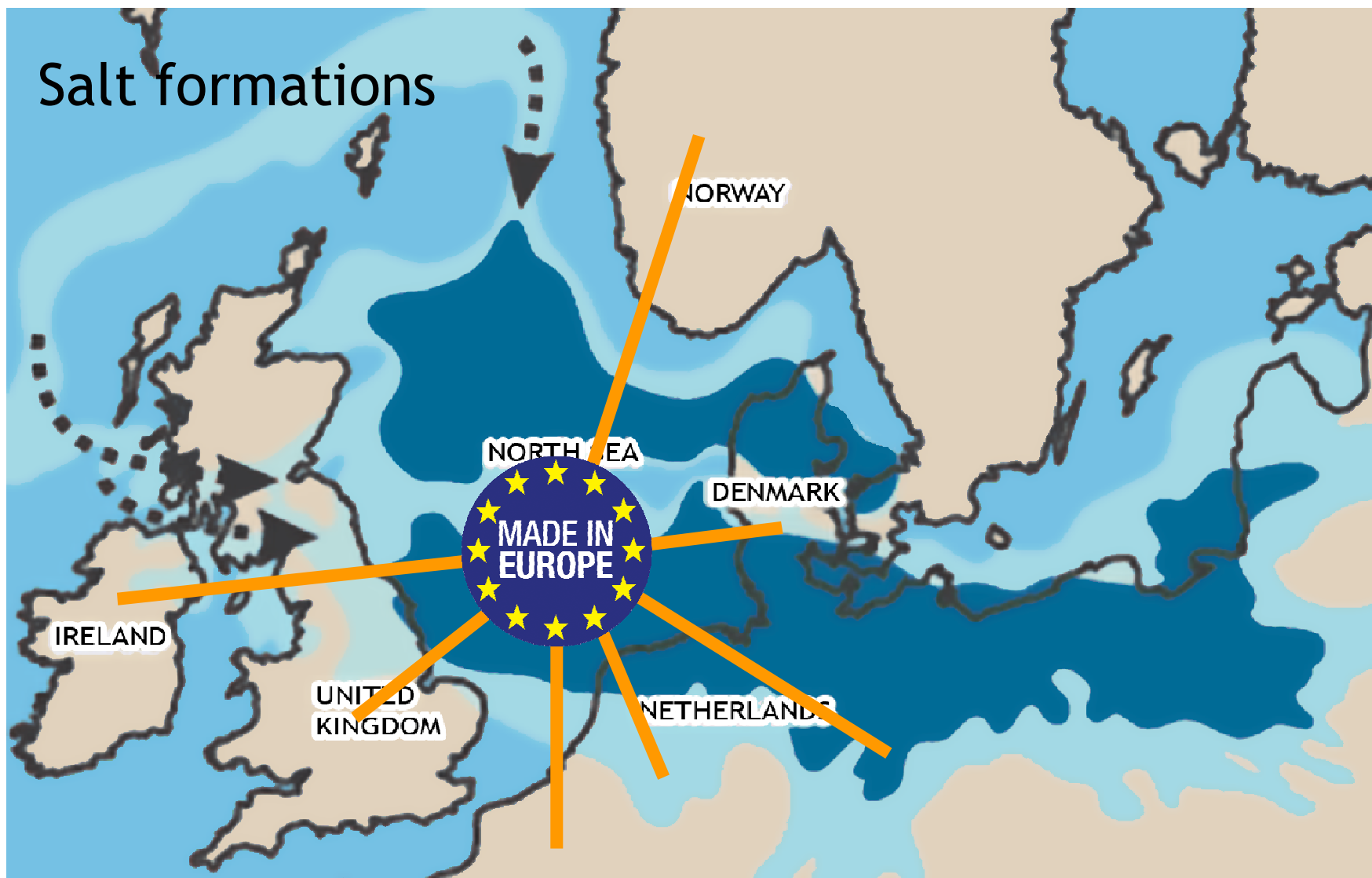
- participating countries **must** have a national programme to seek a national solution
- shared staff, teams, facilities, projects... reduces costs
- membership of ERDO provides prospect of a shared solution
- National and shared 'tracks' run together, nested within each other



ERDO Shared  
Programme

National  
Programme

# NORTH SEA DISPOSAL in SALT?



A large, red, textured wall with a grid pattern. In the center, there is a large green logo that resembles a stylized 'H' or a similar symbol. Overlaid on the wall in large, white, bold, sans-serif capital letters is the word 'COVRA'. In the bottom left corner, a person wearing a blue hard hat and dark clothing is walking, casting a shadow on the wall. The sky is blue and clear.

# COVRA

*Active for the future*  
[www.COVRA.nl](http://www.COVRA.nl)