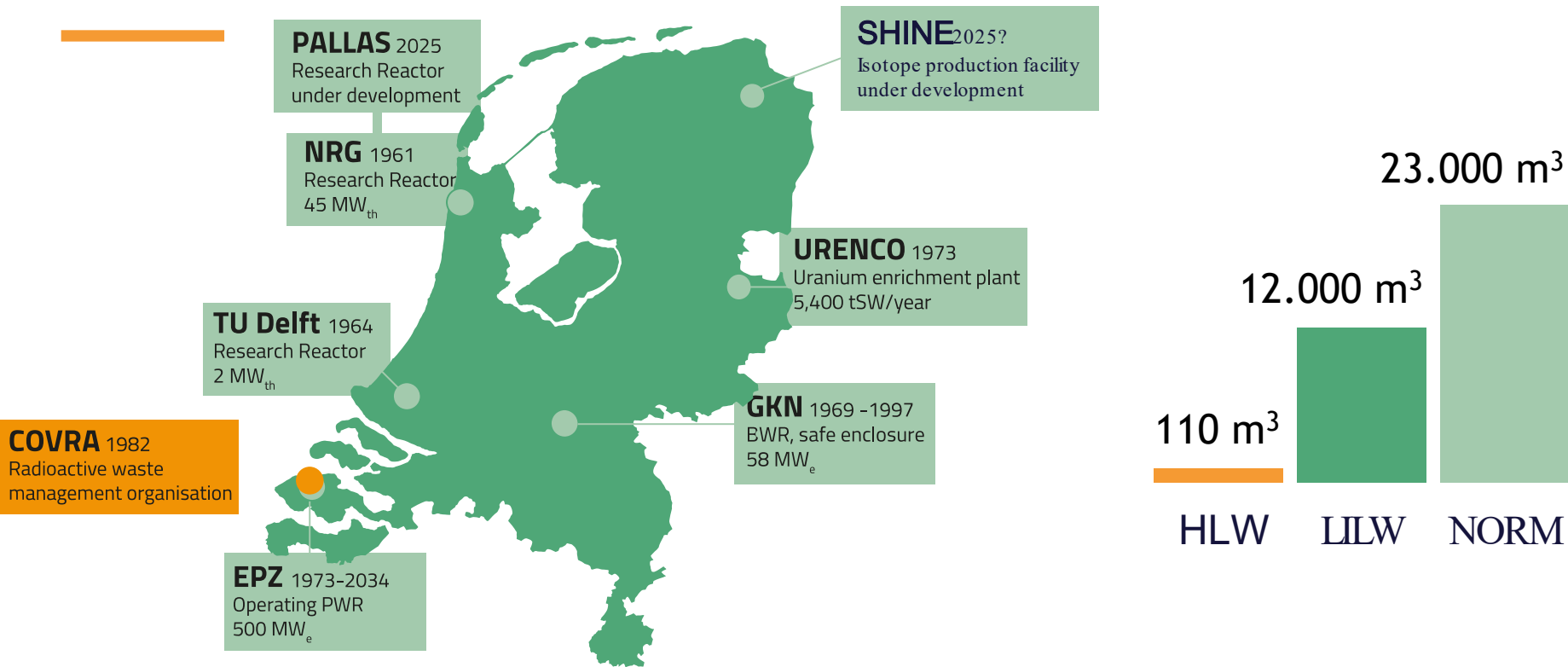


Optimization of the
management of radioactive
waste through
international collaboration

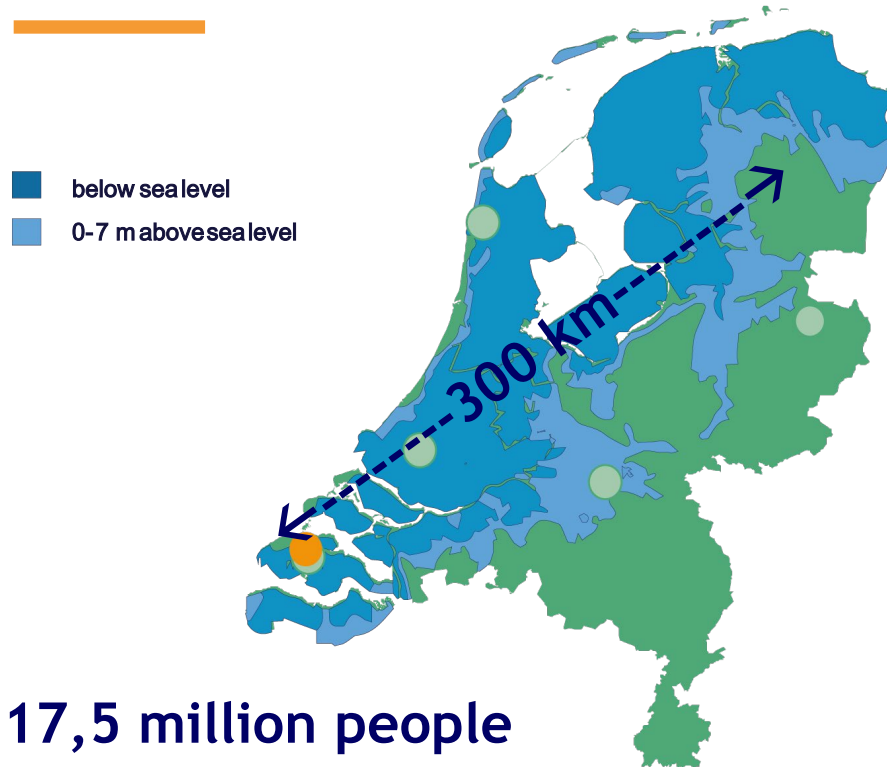
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RADIOACTIVE WASTE



SOLUTIONS FOR THE NETHERLANDS



- Small volume of waste
- High ground water table
- High population density
- Little space

No surface disposal, only
deep geological disposal

COVRA

- Established 1982
→ Nieuwdorp 1992
- State-owned enterprise 2002
- 70 people
- 25-30 million turnover

Only statutory task: care for Dutch
RW to protect people & the environment



MONEY: WAIT OR COLLABORATE

- Polluter pays
- Costs covered by fees
- Cost effective
- No retrospective adjustment of fees paid
- COVRA takes over full title

- Contribution per m³
- In 2130 € 2 billion
- Real interest of 2,3 %
- Safe investment
- The State as a safety net

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RADIOACTIVE WASTE POLICY

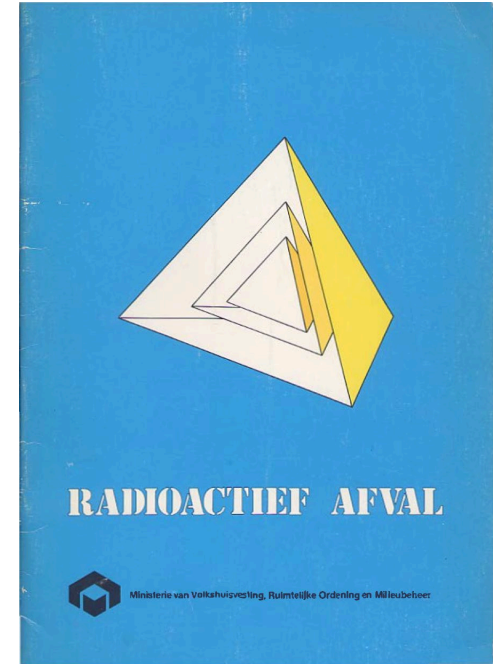
- All waste managed and owned by COVRA
- All waste at one industrial site
- At least 100 years storage
- Disposal after 100 years



RADIOACTIVE WASTE POLICY

In 1984 memorandum the government's position on radioaction waste policy is set out:

“During the storage period, options for final disposal can be further studied, international developments can be followed and it may even be possible to link up with a possible internationally established disposal facility.”



NEW ADDITIONAL POLICY: FLEXIBILIZATION OF THE TIMETABLE

“Developments may take place in the future, such as innovations or international cooperation in creating a multinational disposal facility, as a result of which society will want to deviate from the selected timetable of aboveground storage at COVRA till 2130. Because radioactive waste is stored aboveground, it is possible in the Netherlands to deal flexibly with the timetable.”



The national programme for the
management of radioactive waste
and spent fuel

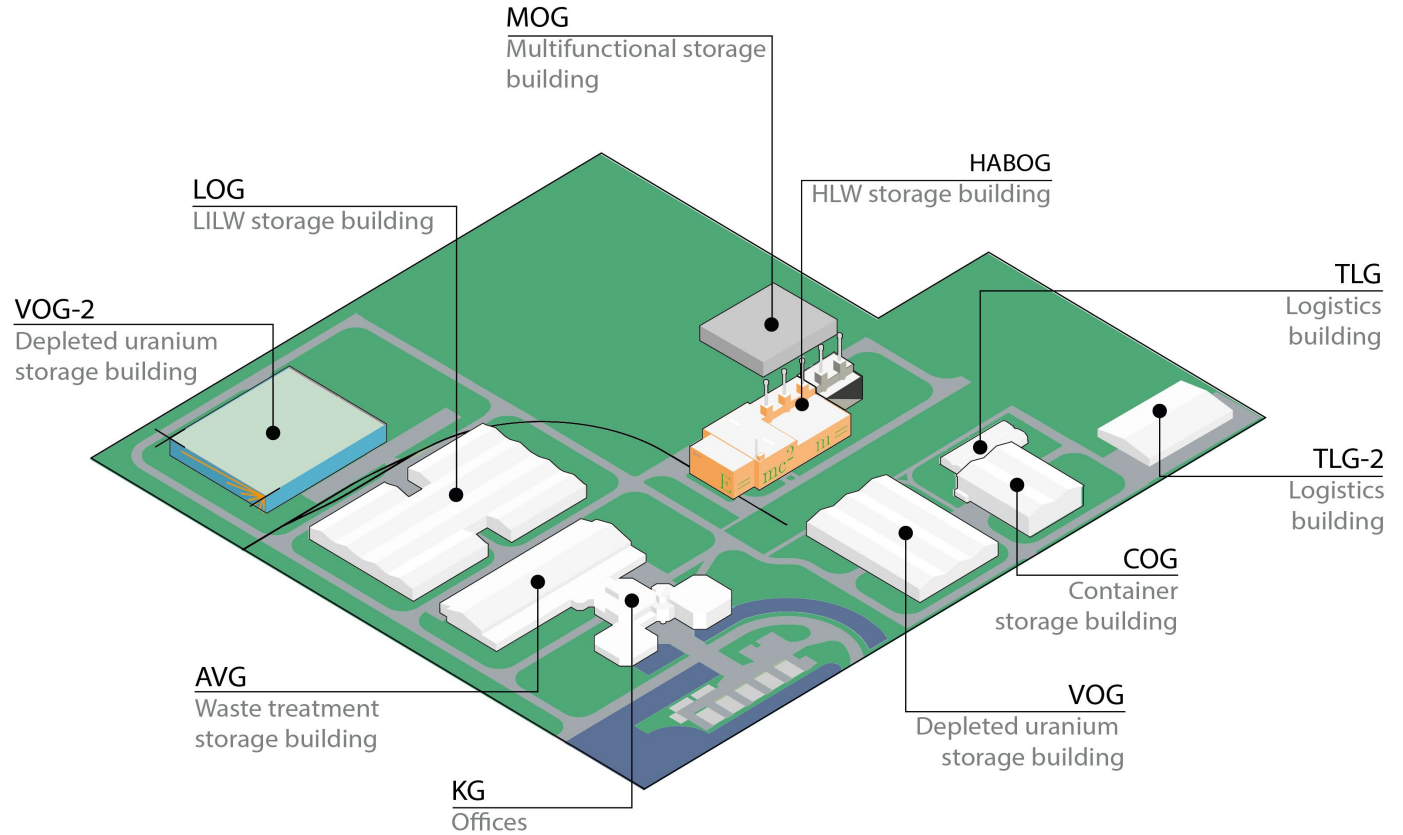
The Netherlands, June 2016

Note: the official document is in Dutch (Parliamentary papers, session year 2015-2016, 25-402, no. 149).

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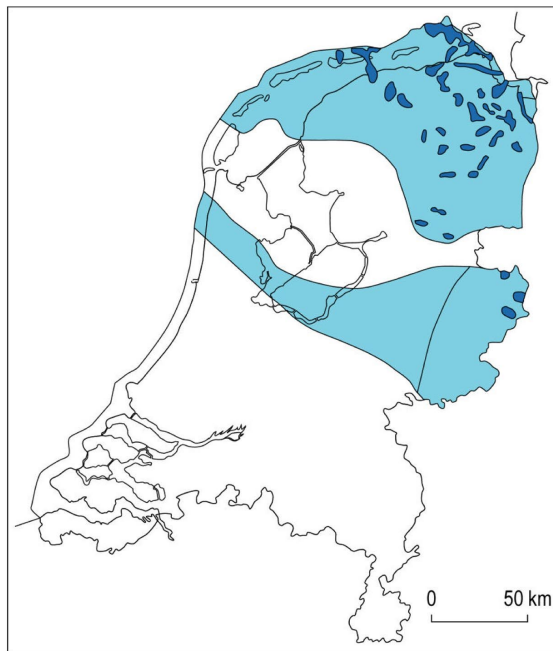
SPACE



RESEARCH ON DISPOSAL

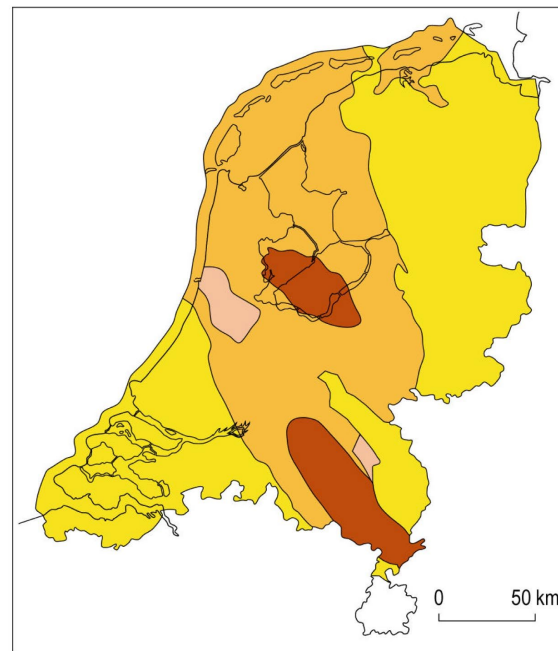
National disposal
facility host rock
options

Zechstein steenzout



zout lagen
zout koepels en kussens

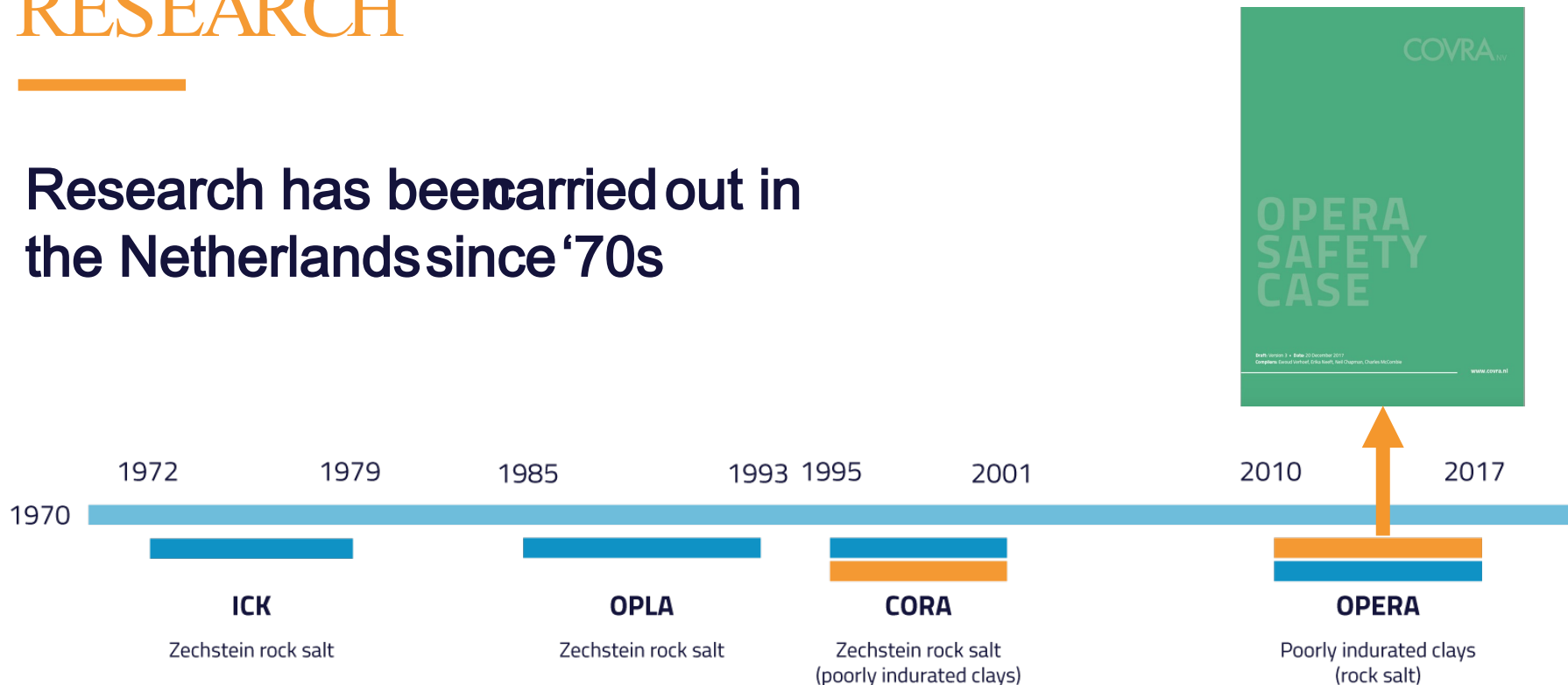
Boomse klei



0 - 500 m
500 - 1000 m
1000 - 1500 m
diepte onzeker

RESEARCH

Research has been carried out in the Netherlands since '70s



CURRENT PROGRAMME

An essential part of the knowledge management is an active, continuous research programme on geological disposal, both for national and international solutions

The principal driving forces for research programme are:

1. **Strengthen the confidence in the safety of disposal**
2. **Assess the disposability of different waste and waste packaging families:** investigating waste packaging options and requirements on collection, treatment and conditioning of waste families
3. **Assure adequate funding for disposal, based on regularly updated cost estimates for the GDF** identifying and where possible optimising cost-determining features of a GDF.

COVRA_{NV}

LONG-TERM RESEARCH PROGRAMME

FOR GEOLOGICAL DISPOSAL OF RADIOACTIVE WASTE

Overall research programme and work programme for 2020-2025
Date: Winter, 2019 - 2020

www.covra.nl

LOGIC OF A DUAL TRACK POLICY

CLEAR ADVANTAGES

- Lower costs
- More choice of possible suitable locations
- Pooling technical capacity, personnel and facilities
- Diversification of disposal per waste type

DISADVANTAGES

- Longer distances
- Deviating (national) legislation and definitions
- Different timetables and several locations from where the waste will be delivered



INTERNATIONAL CO-OPERATION

eurad



igd:tp
↓



IAEA
International Atomic Energy Agency

COVRA_{NV}

DECOVALEX
2023

ERDO

Association for Multinational
Radioactive Waste Solutions

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TO CONCLUDE

- Dual track approach since 1984 - work on national repository and a multinational repository by policy-maker and RWMO alike
- The second track costs little extra, but provides a potential long-term reward
- Due to long timescales
 - Central storage– for safety
 - Flexible for policy changes space availability, modular storage facilities
 - Self sufficiency– treatment technologies at own hands
 - Knowledge building and transfer – continuous research (on disposal)
- Collaboration towards shared repository starts pre-disposal