

Radioactive waste management in the Netherlands II

Ewoud Verhoef and Hans Codée
COVRA NV

8 December 2014



CONTENTS

- Siting
- Organisation

SITE SELECTION

- **1984 new policy: >>centralised solution**
- **siting? >>>>NIMBY**

- **1984 procedure approved by Parliament:**
 - **high level governmental committee**
 - **selection criteria**

SITE SELECTION



Criteria:

- industrial site
- large enough
- discharge water/
cooling water
- infrastructure
- directly available

➔ 12 sites

Co-operation from local government

SITE SELECTION

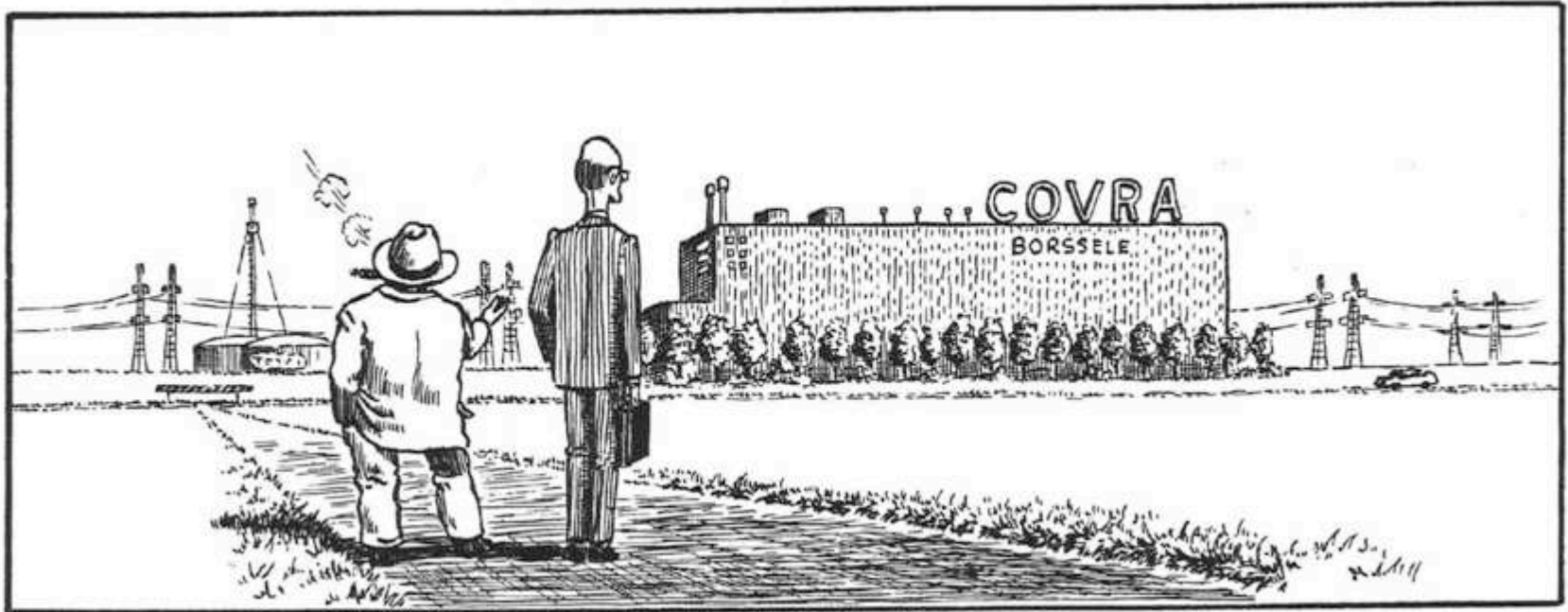


- 2 sites

COVRA had to choose:

>>> Borsele site

FINDING A SITE



*“...the municipality planted some trees around it,
“now you hardly see it.....”*

FINDING A SITE



37

1986



2004



2011

NORM storage

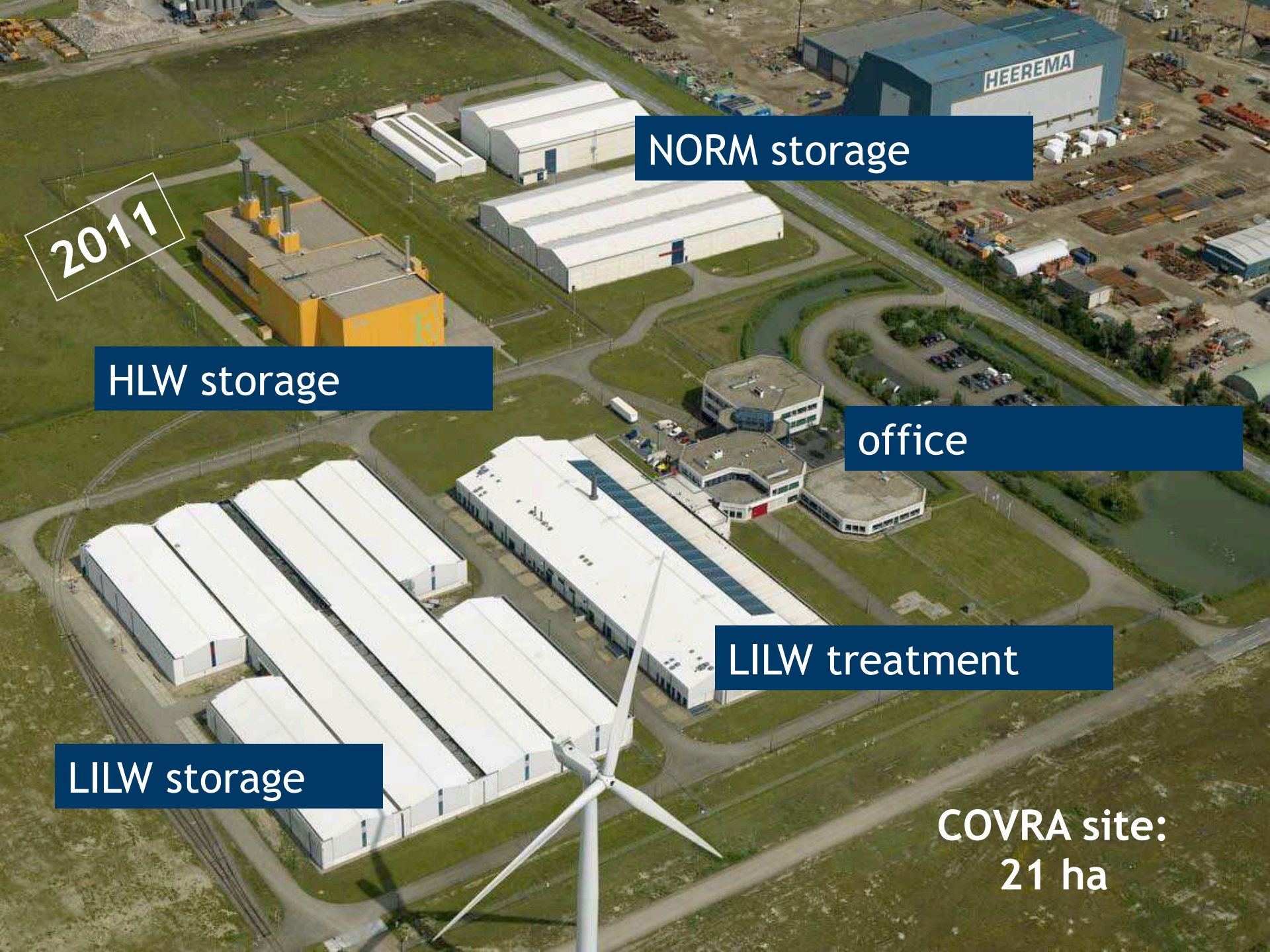
HLW storage

office

LILW treatment

LILW storage

COVRA site:
21 ha



CONTENTS

- Siting
- Organisation

WASTE MANAGEMENT ORGANISATIONS



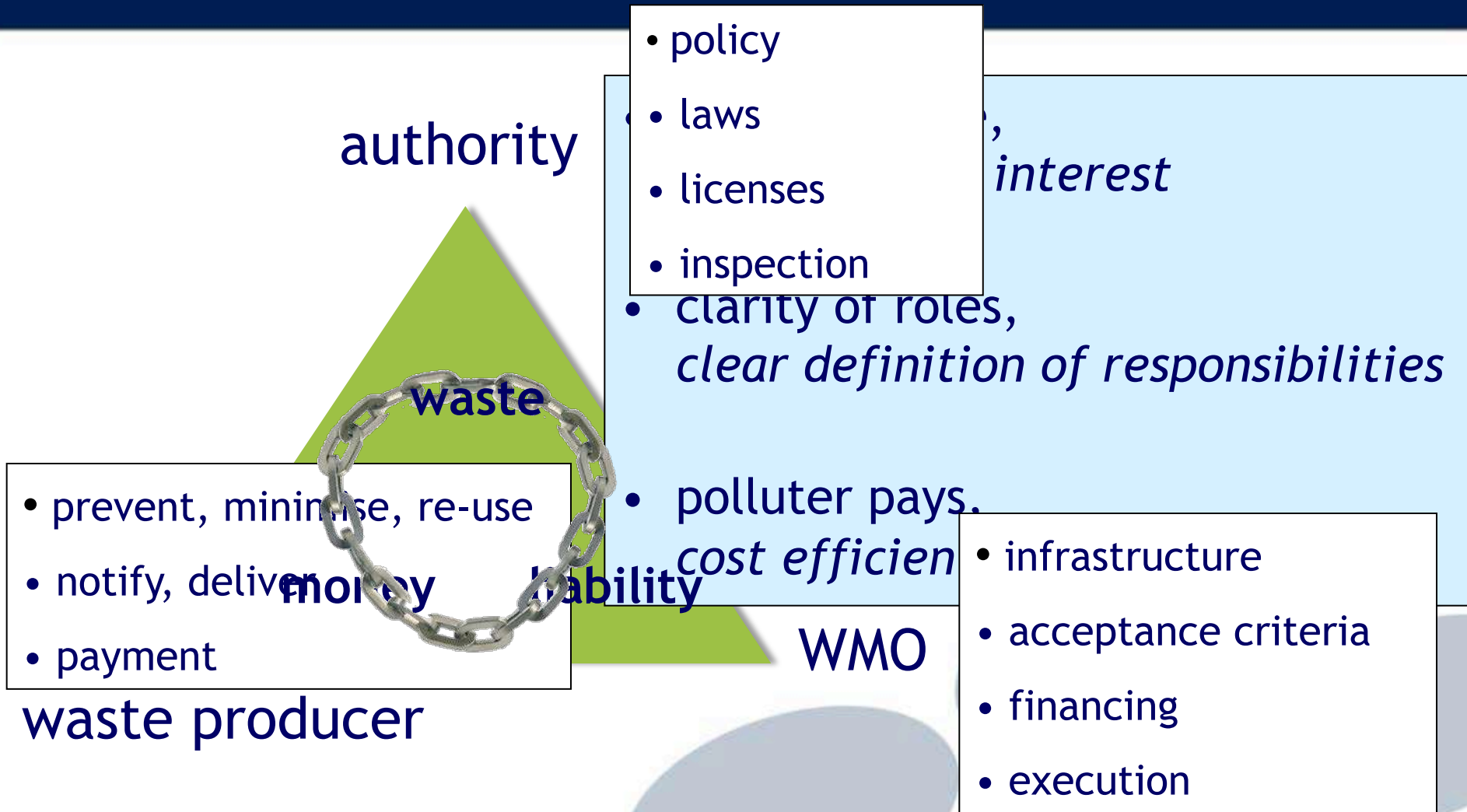
GENERAL PRINCIPLES RWM

- adequate framework to manage radioactive waste
- cover all responsibilities and liabilities in ‘the classical triangle’

INFRASTRUCTURE, RESPONSABILITIES?



CLASSICAL TRIANGLE



RWM POLICY THE NETHERLANDS

- all waste managed and **owned** by COVRA
- all waste managed at one industrial site
- at least 100 years storage, in buildings
- deep disposal after 100 years

stable policy since 1984!

- policy to be executed by COVRA

COVRA

- statutory task:
to take care of all Dutch radioactive waste
 - N.V. (Ltd. , Inc. or GmbH)
shareholders 1982:
 - ~~- 30% n.p.p. Borssele~~
 - ~~- 30% n.p.p. Dodewaard~~
 - ~~- 30% research foundation ECN~~
 - ~~- 10% Dutch state~~
- 2002: **100 %**

COVRA'S TASKS

- collection and shipment
- treatment and conditioning
- long-term storage
- final disposal
- monitoring
- administration
- informing the public

COVRA PRINCIPLES

- polluter pays
- costs covered by fees
- cost effective
- no retrospective adjustment of fees paid
- COVRA takes over full title
- future costs to be paid from funds
- capital growth fund

COVRA PRINCIPLES

1. polluter pays to COVRA
2. transfer of title to COVRA
3. capital growth fund within COVRA

COVRA PRINCIPLES

1. polluter pays:

LILW (including DSRS)

- collecting drum delivered to producer
- collection of filled drum + data
- treatment of waste >>cemented waste form
- at least 100 years storage
- final disposal

standard tariff for standard waste

cost-plus for other waste





FINANCING

- treatment and storage buildings financed by COVRA / capital loans / investment subsidy
- waste producers pay according to kind of treatment and storage volume (and radiation level at surface of conditioned waste)
- for LILW no relation to activity

COVRA PRINCIPLES

1. polluter pays:

HLW (spent fuel, reprocessing waste, other)

- shipment research SF, other waste to COVRA
 - packaging research SF, other waste
- all waste types
- at least 100 years storage
 - geological disposal



COVRA

E

=

mc²

m =

FINANCING

- direct payment upfront of share in treatment installations and storage volume
- shared between clients (1994: 2 npp, 3 research establishments; now: 1 npp, 2 research establishments)
- direct payment of shipment and delivery costs when executed

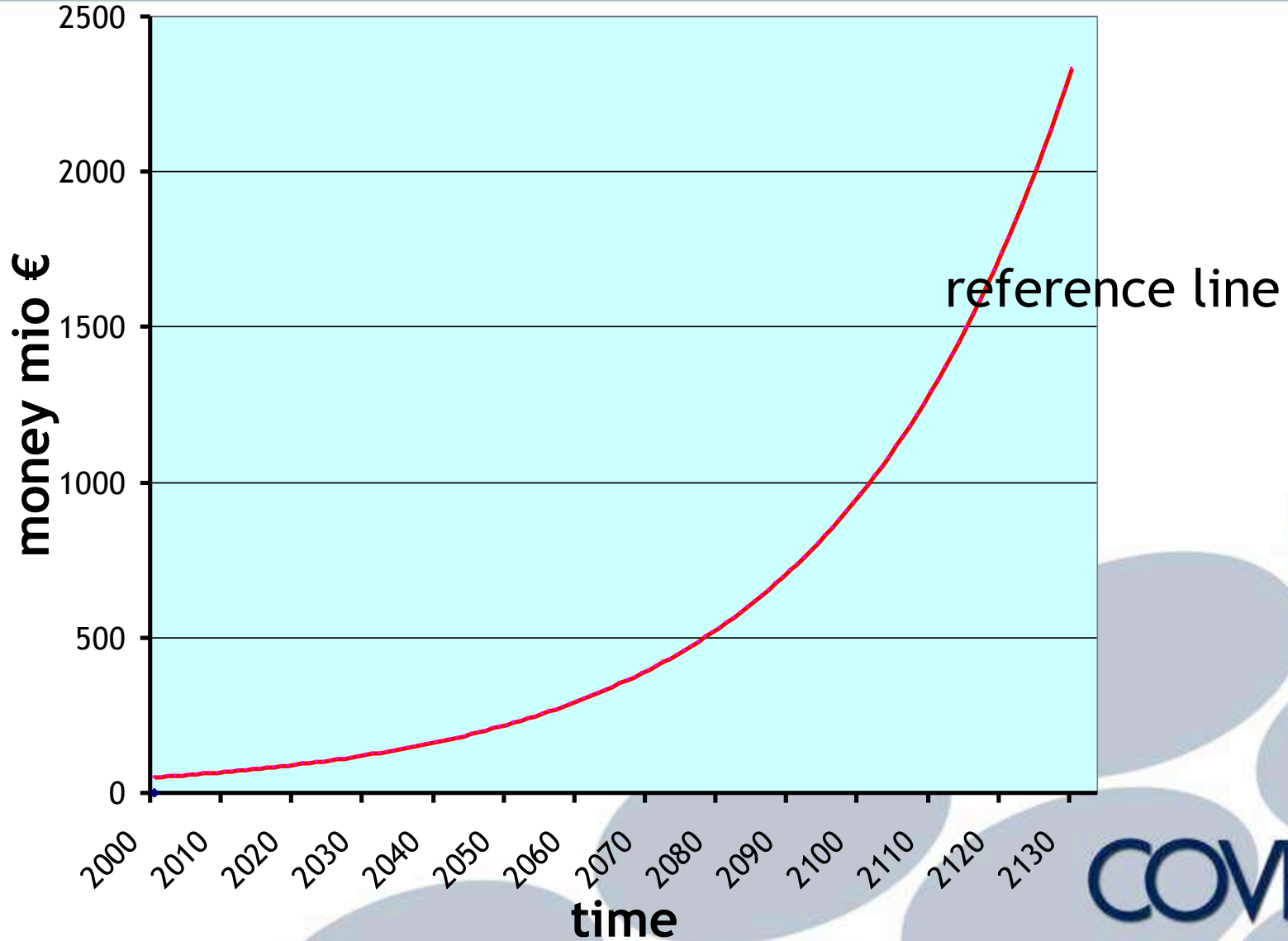
COVRA PRINCIPLES

2. transfer of title to COVRA:
ownership and all liabilities for COVRA
 - collection at waste producer:
at moment waste delivered in COVRA truck
 - delivery by train (repro waste, depU):
at moment waste delivered at COVRA premises
or inside building

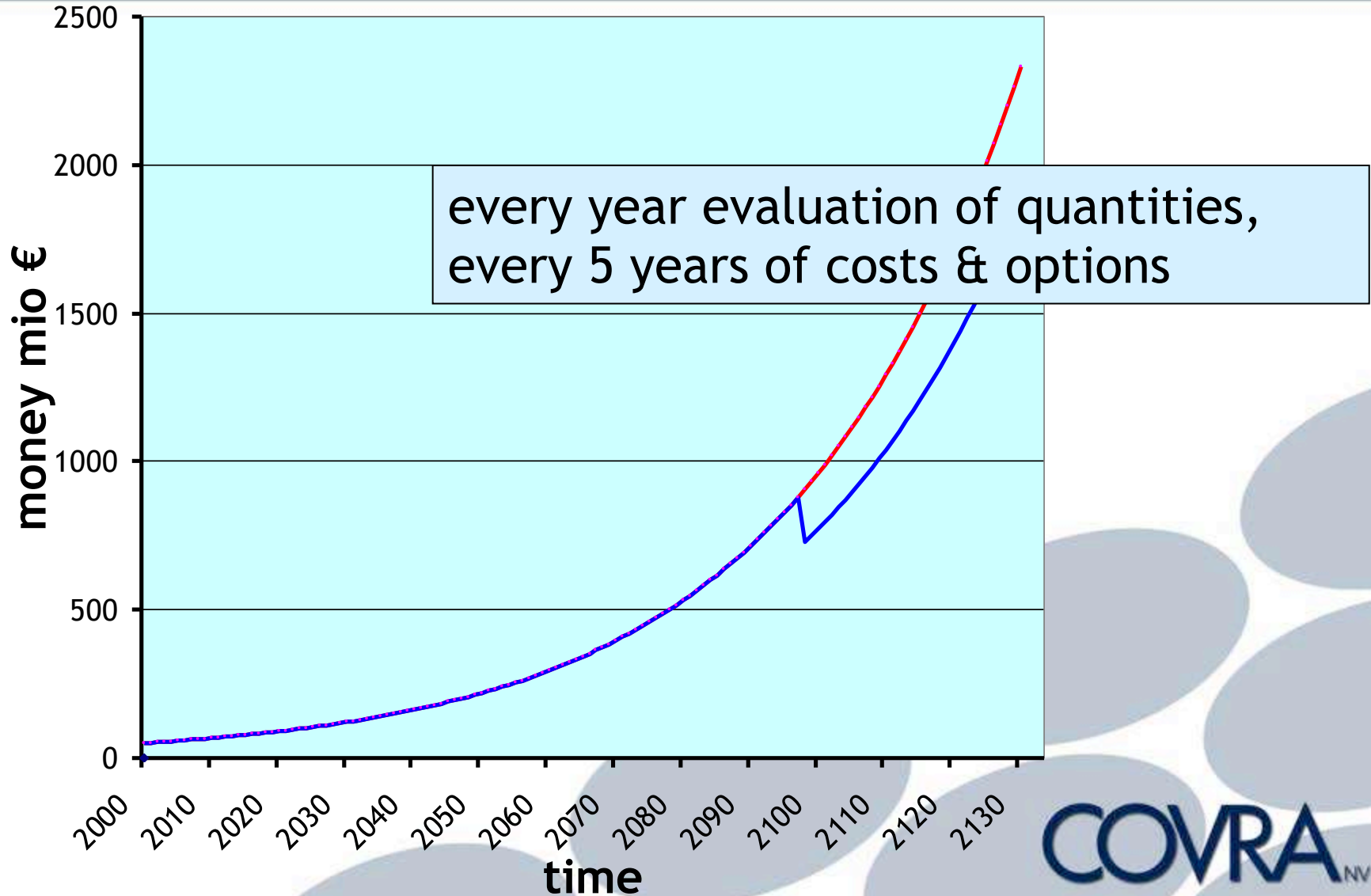
COVRA PRINCIPLES

3. Capital growth fund:
 - all producers pay
 - contribution per m³
 - HLW : LILW = 2 : 1
 - after 100-130 years: € 2 billion
 - real interest rate 2.3%
 - safe investments
 - State as back-up

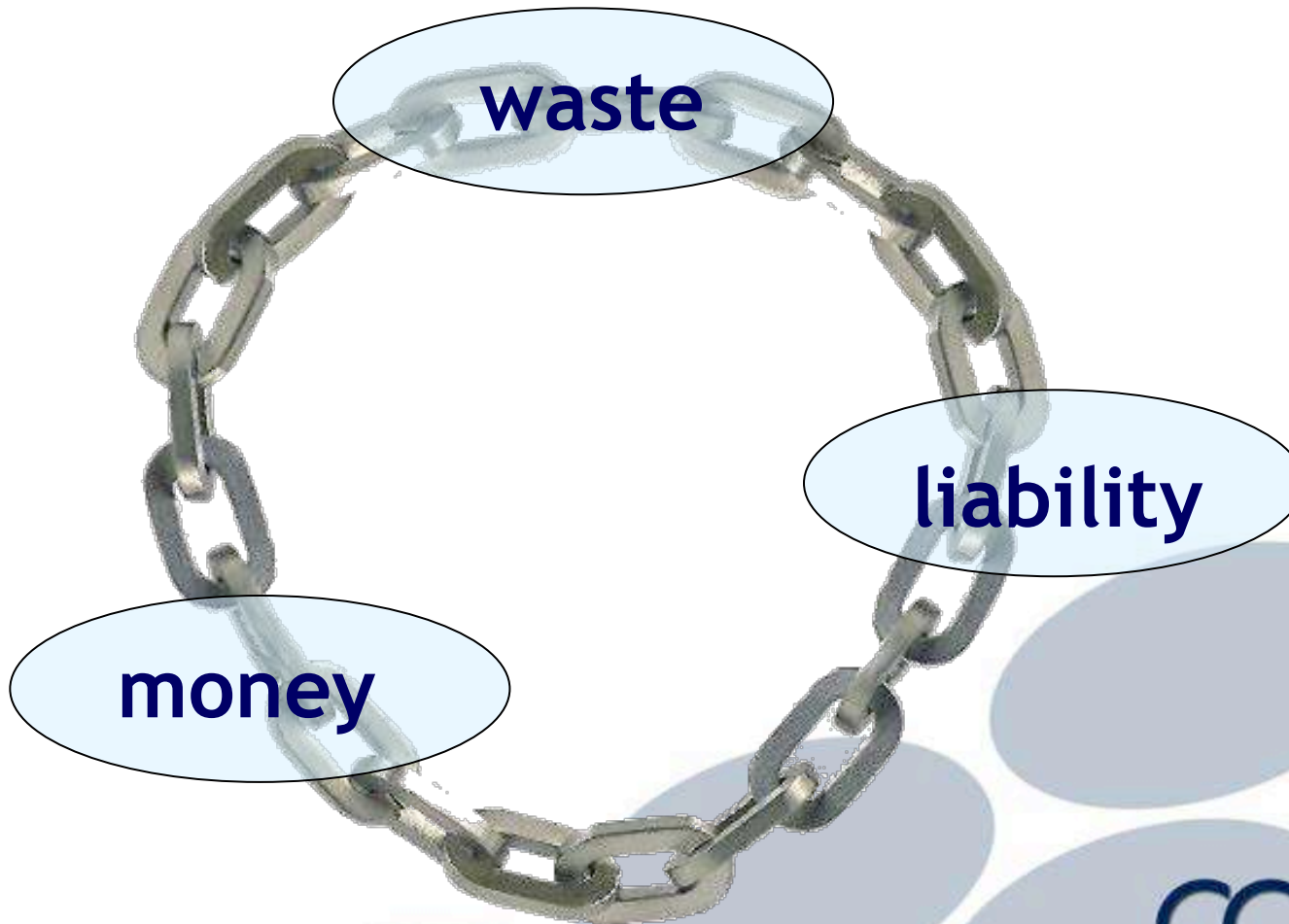
CAPITAL GROWTH FUND



CAPITAL GROWTH FUND



CONCLUSION



COVRA

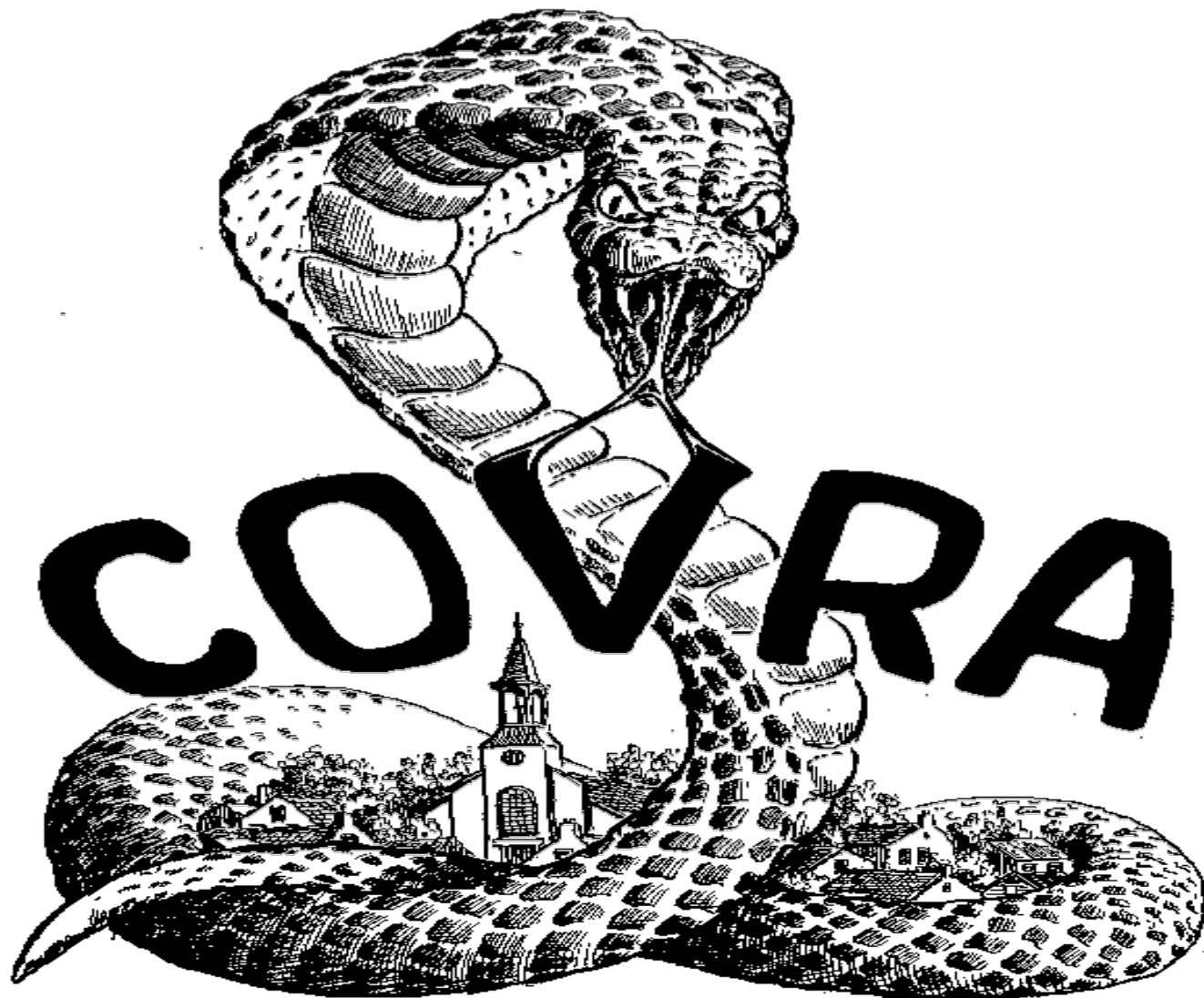
Active for the future

www.COVRA.nl

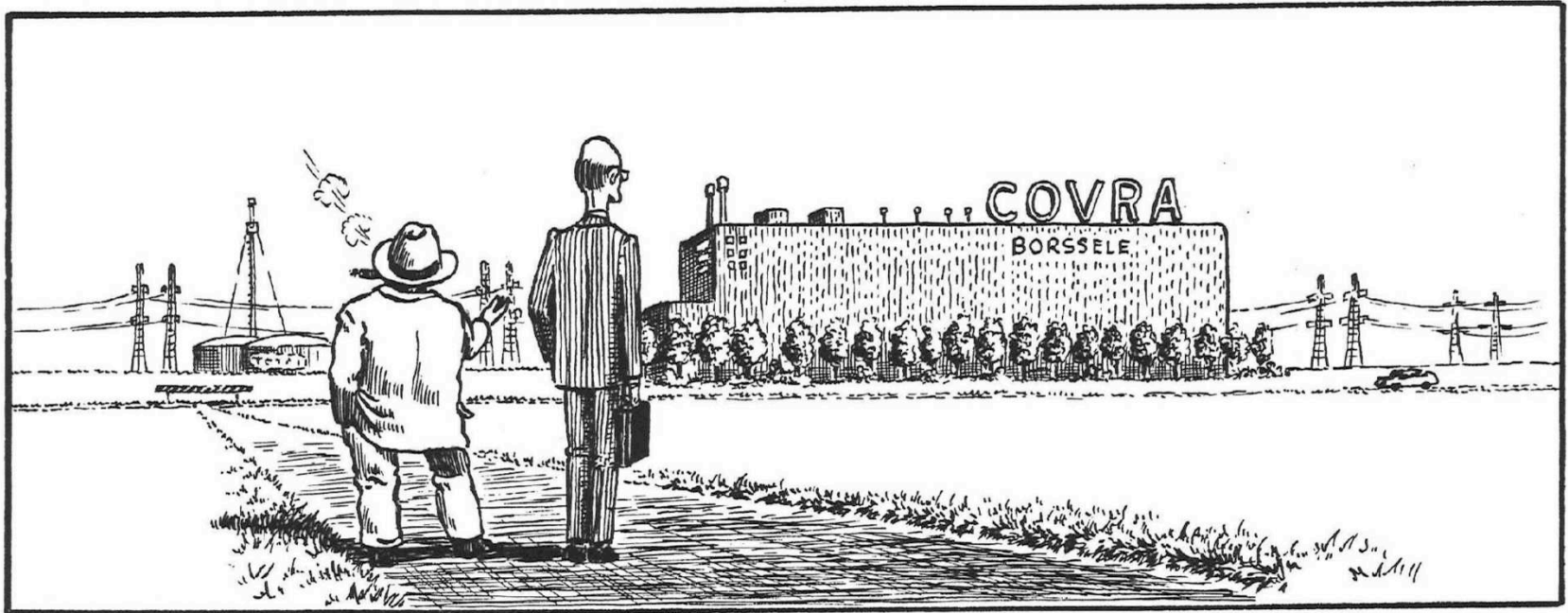


EXPERIENCE: A MIRROR

1986



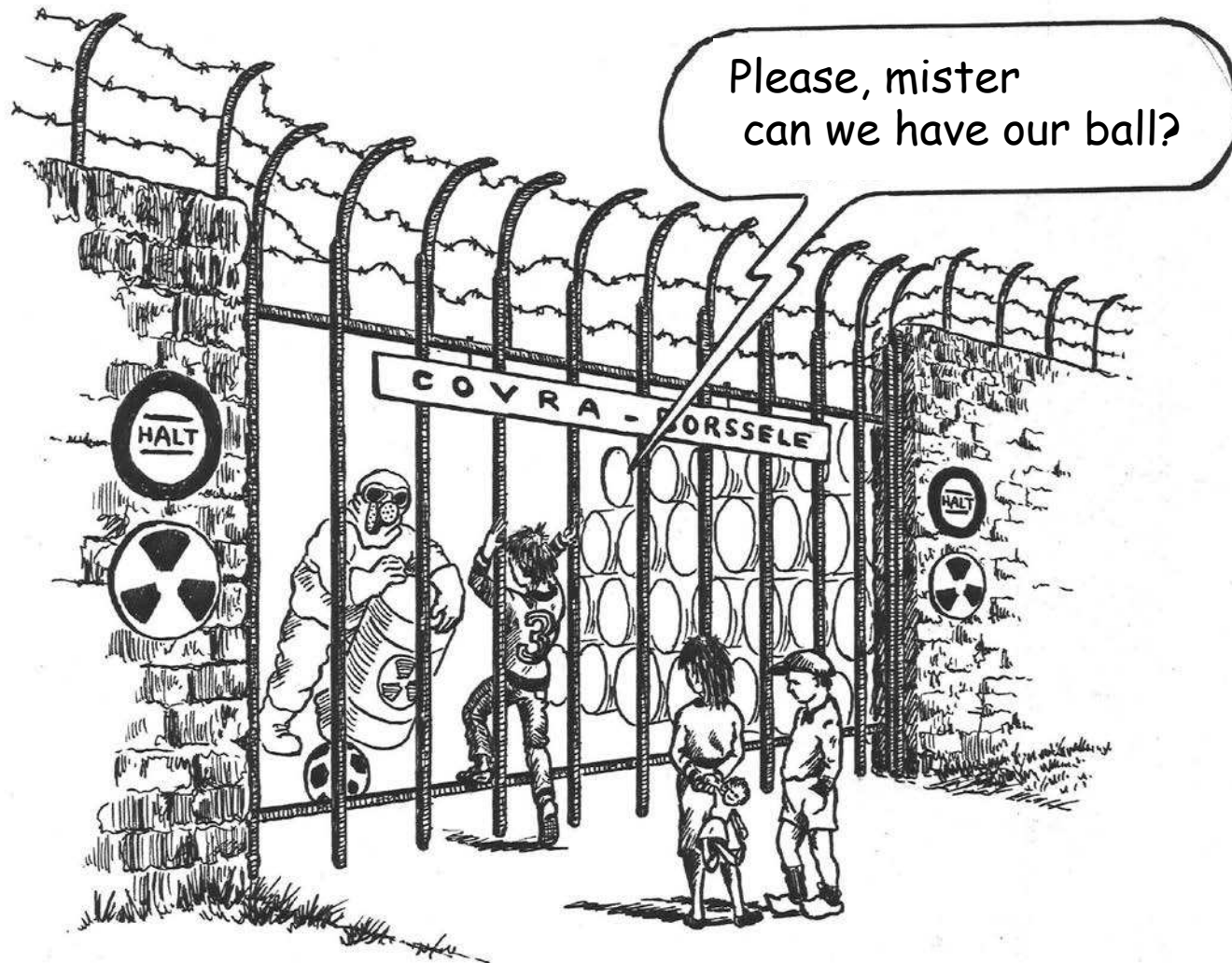
FINDING A SITE



*“...the municipality planted some trees around it,
“now you hardly see it.....”*

FINDING A SITE

37



COMMUNICATION 1986-1992

- door to door flyers
- local municipal interest group
- involvement of local companies

COVRA attitude:

rational approach (facts and figures)

SAFETY FIRST

COVRA experience with negative local attitude:
include communication in the design

YOUR NEIGHBOUR?



YOUR NEIGHBOUR?



OPENNESS IN DESIGN



open area
'freely' accessible,
friendly

TRANSPARANCY IN DESIGN



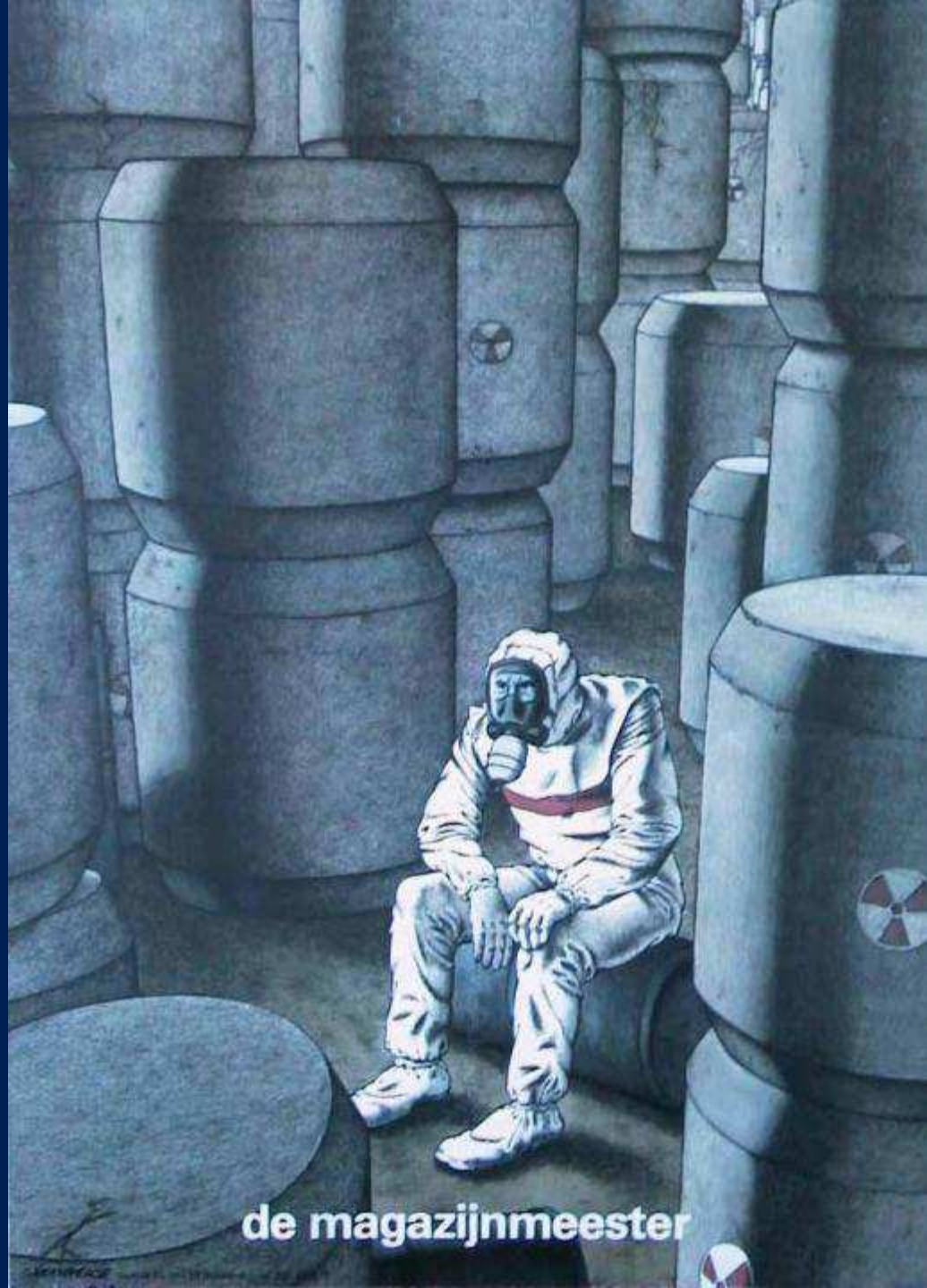
TRANSPARANC



be clean,
look tidy

EVERYBODY WELCOME





de magazijnmeester

GREENPEACE

COMMUNICATION 1992-2002

- impeccable behaviour
- be open, transparent
- all facts easy accessible and understandable
- always answer

but.....

- look for positive things to share
- focus on non technical aspects
- show emotions!!!!!!
- create opportunities

COMMUNICATION 1982-2003

1982-2003:

- rational approach: facts & figures



2003-now:

- emotional approach: art & time



COVRA_{NV}

COMMUNICATION 2003-NOW

Include Art:

- Safe is beautiful
- Metamorphosis 2003-2103
- Art exhibitions
- performances

- the Art of storage, the storage of Art

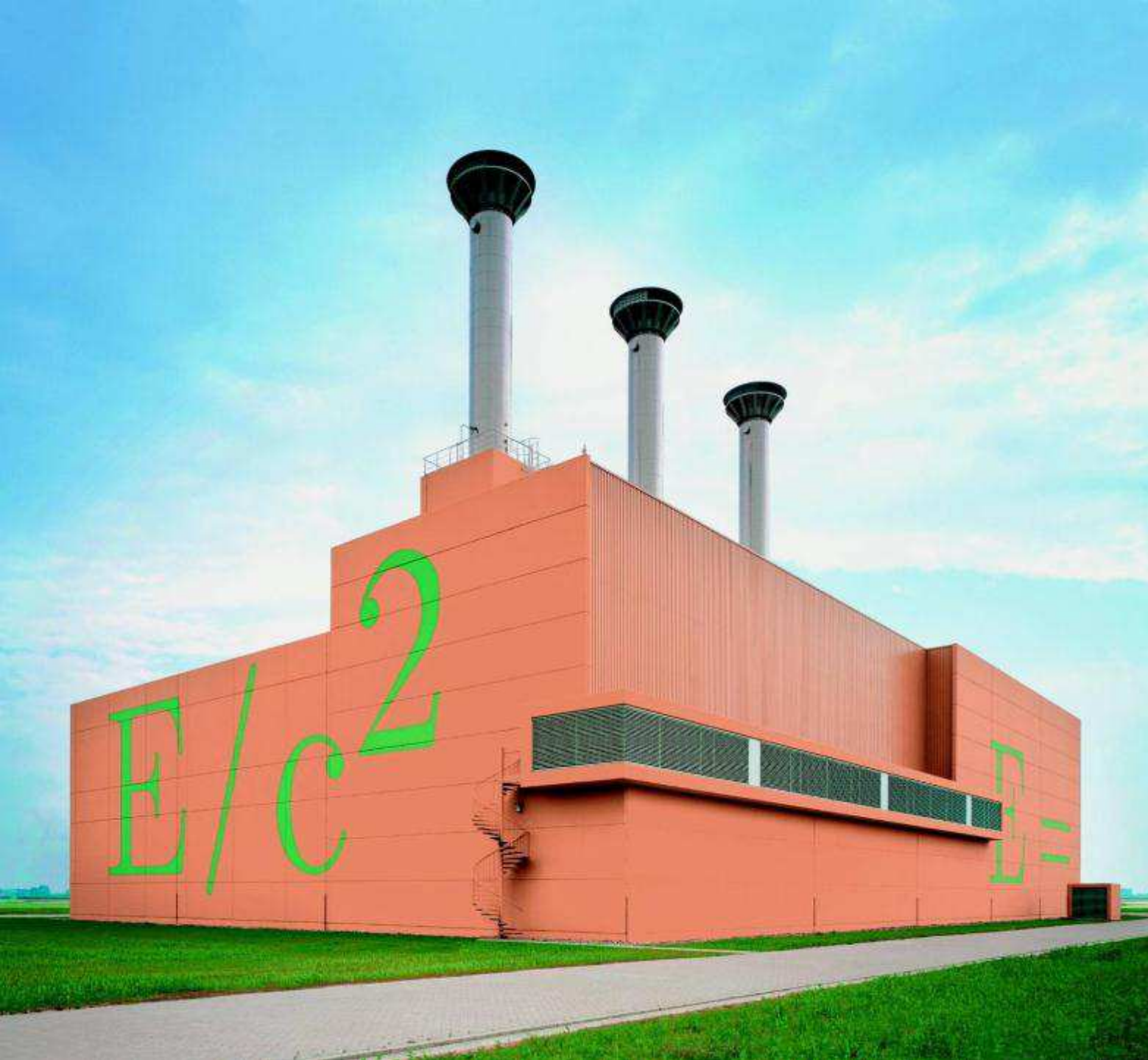
SAFE = BEAUTIFUL



2003



2023



2043



2063



2083





ART IS PART OF TECHNICAL VISIT



HABOG, METAMORPHOSIS

- the story about changing colour/art includes that we will take care
- people remember the concept of decay
- people understand the importance of time
- easy to be proud of something beautiful
- people remember the art, forget technical details

Store for 100 years?

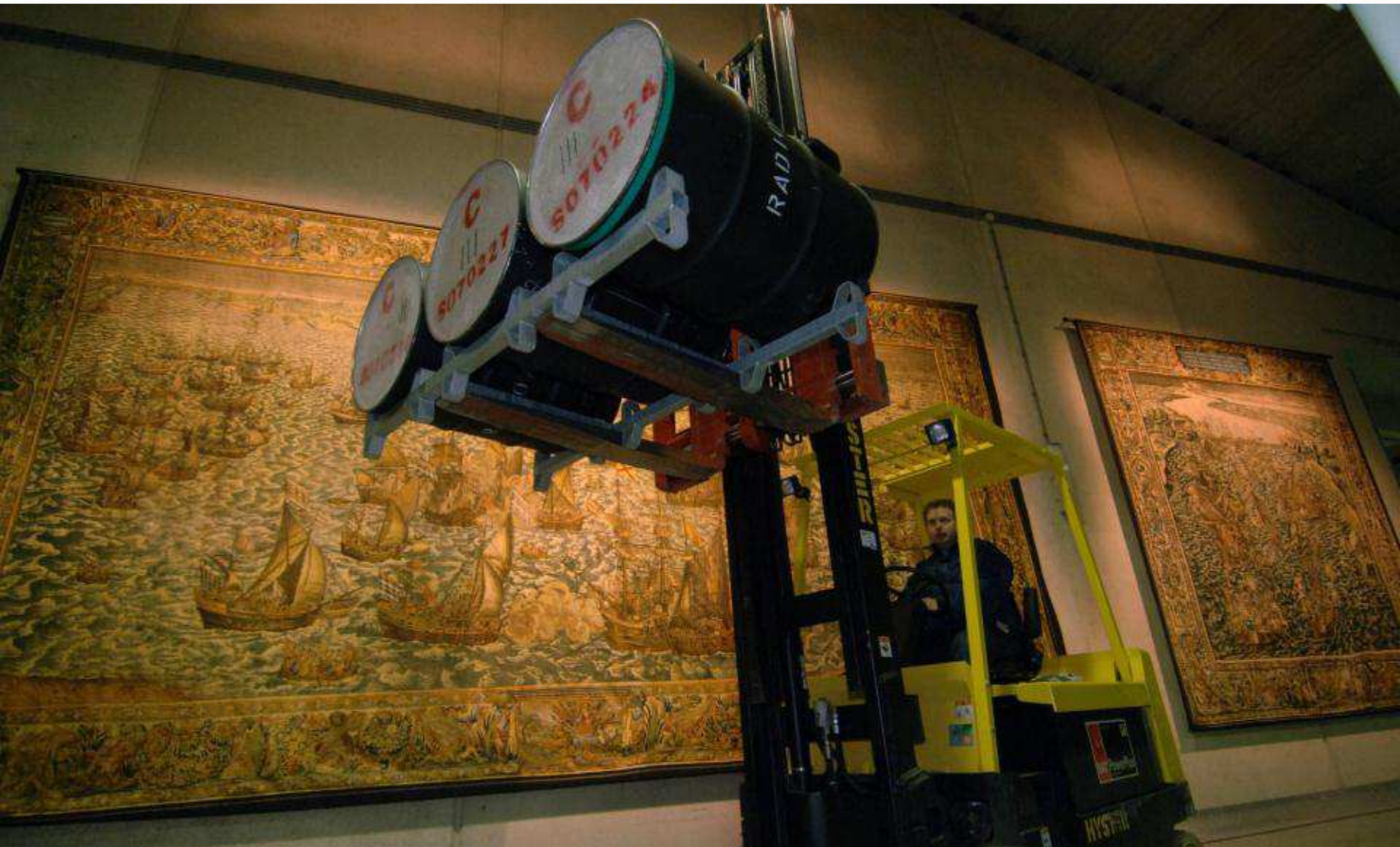


THE ART OF STORAGE

- unused space available
- well guarded
- only slow and gradual temperature changes
- air humidity 60% or lower
- available for a very long time

perfect depot storage for museums!

THE ART OF STORAGE



DEPOT FOR MUSEUMS

many museum artefacts
are > 400 years old
(golden age)



ART EXHIBITIONS



PERFORMANCES



zeeland
nazomerfestival.nl
26 aug t/m 6 sept 2008





THEATRE (QUARTET BY HEINER MÜLLER)



What did we learn?

THINK OUTSIDE
THE BOX

SHOW EMOTIONS!

