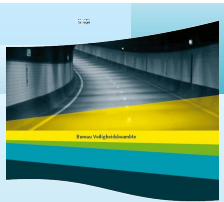


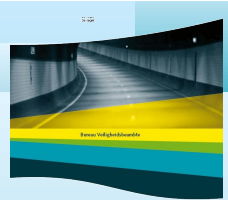
# IMPLEMENTATION EU-DIRECTIVE IN THE NETHERLANDS

**Ir. E.W. Worm**  
**Safety Officer State owned**  
**Road Tunnels. The Netherlands**



## Considerations:

- **Meeting Dutch rules implies meeting European rules.**
- **New rules as few as possible**
- **Not back in safety level**



# Dutch regulations





# Extra compared to the Directive



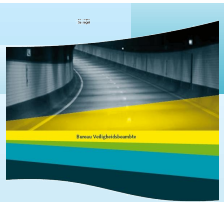
- **Not only the TEN tunnels**
- **Mandatory for tunnels  $> 250$  m**
- **Irrespective of the owner/manager**
- **Only unidirectional traffic**
- **Mandatory consult independent committee of (tunnel) experts**



# Extra compared to the Directive

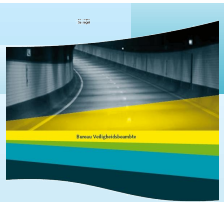


- **Control centre > 500 m (EU: > 3000m)**
- **Mech.ventilation > 500 m (EU: > 1000 m)**
- **Emergency exit < 250 m (EU: < 500 m)**
- **Fire extinguishing connections < 100 m (EU: < 250 m)**



## Roles:

- **Tunnel manager:** *road manager*
- **The administrative authority:** *the city council (mayor and aldermen)*
- **The inspection entity:** *the municipal Building and Housing Inspection Department*



## Roles:

- **Emergency services:** *nothing special*
- **Expert Committee:**
  - designated knowledge centre for tunnel safety
  - advice when defining the route
  - Advice when submitting the request for the construction

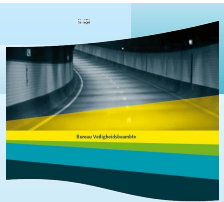
The logo for Tunnel Manager, featuring a perspective view of a tunnel interior with a yellow and blue floor, and the text 'Tunnel Manager' below it.

# Tunnel manager



- **Council**
- **Private parties**
- **Provinces**
- **State**



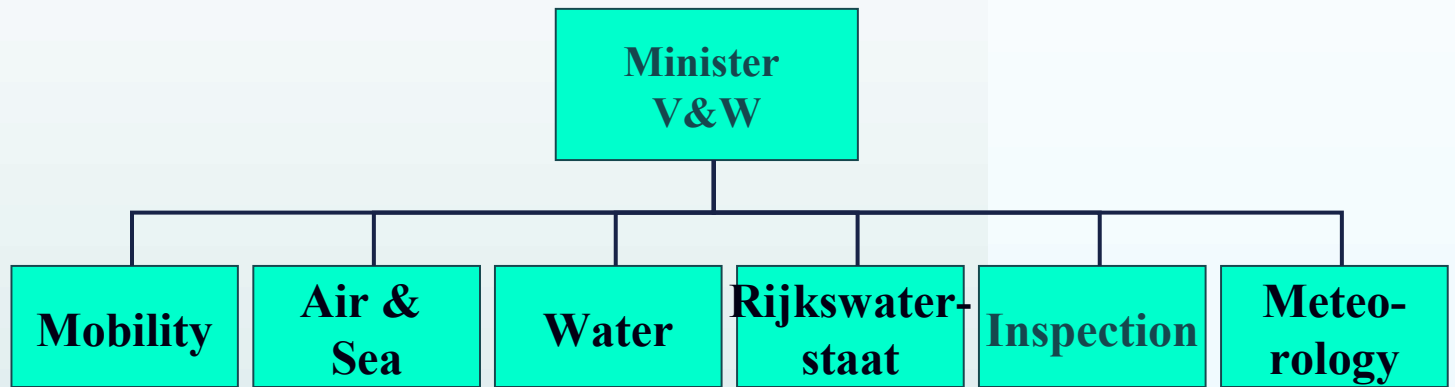
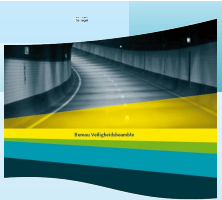


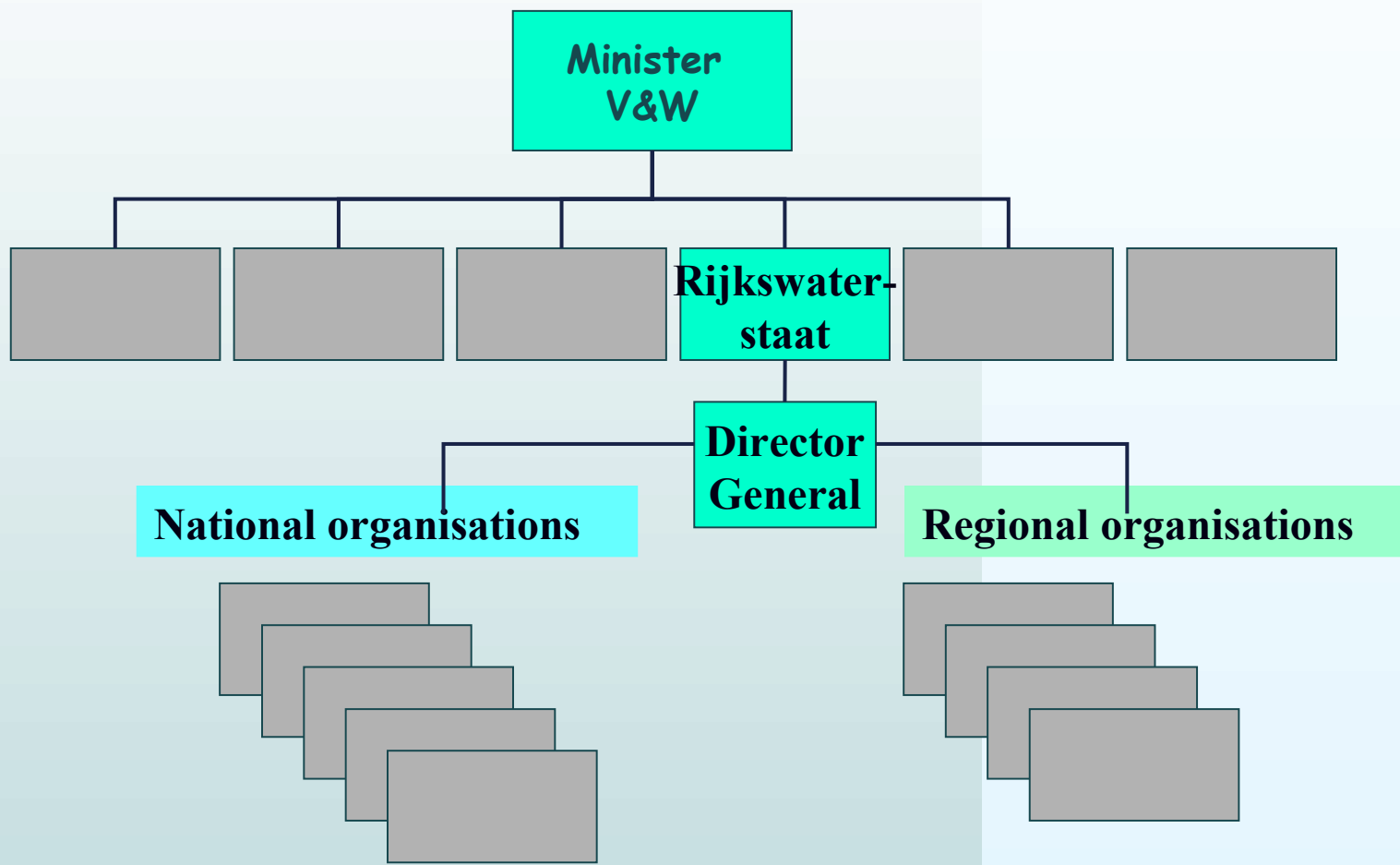
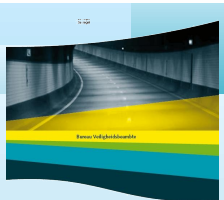
# Tunnel manager

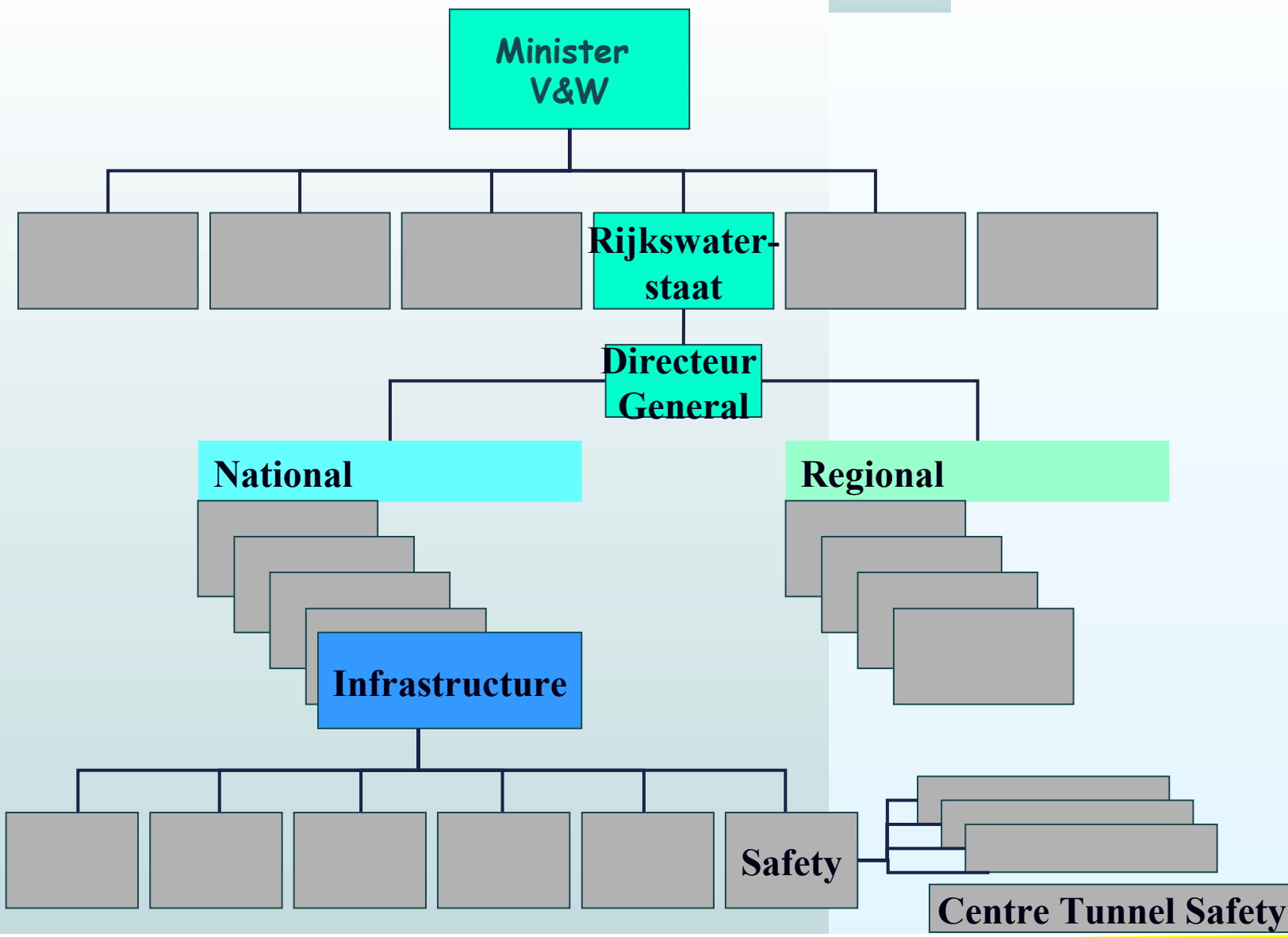
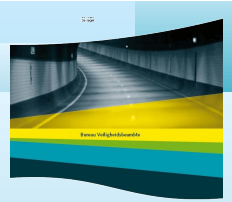
- **Council**
- **Private parties**
- **Provinces**
- **State:**

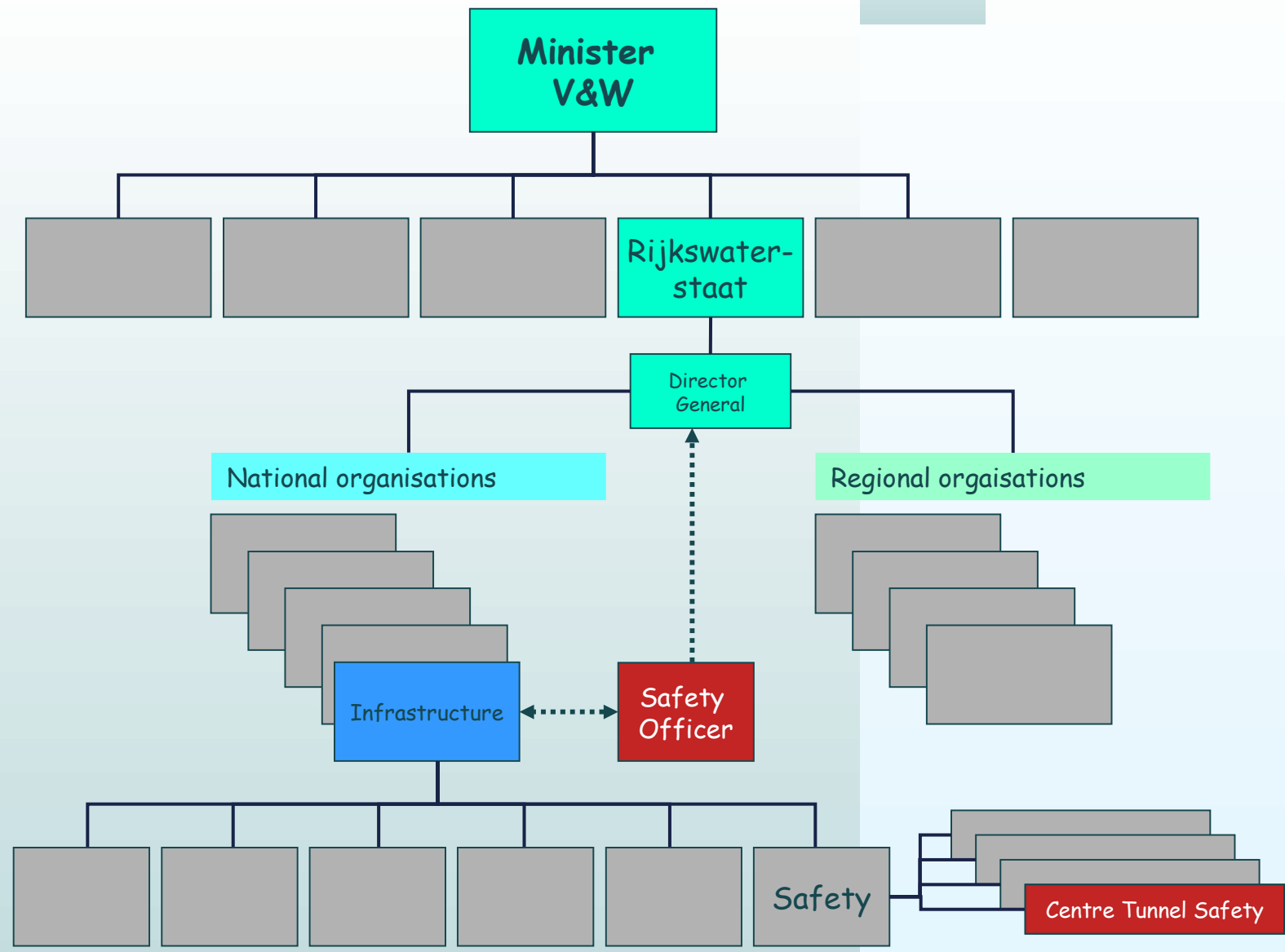
*state owned tunnels;*

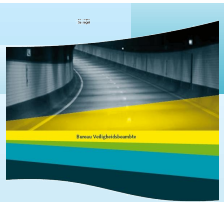
*(Ministry of Transport and public works)*





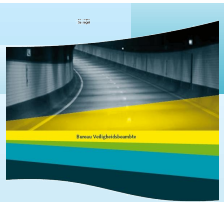






## Safety officer RWS:

- *Why not at the emergency services?*
- **In principle other professional group**
- **Too far from the object**
- **Too little direct contact with tunnels**
- **Knowledge difficult to build up and maintain**
- **Difficult to obtain national unity**



## Safety officer RWS decentral:

- *Advantages:*
- Safety officer close to manager
- Always knowing what's going on
- Directly approachable
- *Disadvantages:*
- knowledge and know how difficulties
- Difficult to obtain national unity
- Many safety officers



## Safety officer RWS central:

- *Advantages:*
- **Easier to obtain national unity**
- **bundling knowledge and know how**
- **Integation benefits in terms of jobs**
- **A bit removed from the object**
- **Less influence of daily management**





## Safety officer RWS central:

- *disadvantages:*
- **Further removed; less informed**
- **Not appreciated central “interference”**
- **Decentral first line representatives necessary**
- **Linking pin dependency**



## **Safety officer RWS central:**

- **Small steady core of 6 ftes**
  - **The safety officer**
  - **The deputy**
  - **Safety expert on installations**
  - **Safety expert civil engineering, risk analysis**
  - **Safety expert organisational and legal aspects**
  - **Administrative support**



## **Safety officer RWS central:**

- **Small steady core of 6 ftes**
  - **With own budget**
  - **Clearly identifiable within RWS**
  - **With the national specialist infrastructure service**
  - **Independently added to director (only “care boss”)**



## Safety officer RWS central:

- **Small steady core of 6 ftes**
  - **Advices the directors of the regional services**
  - **With direct feedback to the director general**
  - **Strictly separated from the centre for tunnel safety**
  - **Decentral officials as linking pin**



## **Safety officer RWS central:**

- **Small steady core of 6 ftes**
  - **Advices the directors of the regional services**
  - **With direct feedback to the director general**
  - **Strictly separated from the centre for tunnel safety**
  - **Decentral officials as linking pin**
- **Steady core handle work themselves**
- **Or hire additional market capacity**





# Formal moments of advice:



- **The route is decided** (Environmental effects analysis)
- Advice based on a so called tunnel safety plan
- (guideline for the contents was developed)
  
- **Construction permit is requested**
- Advice based on a so called construction plan
- (guideline for the contents of this construction plan)
-

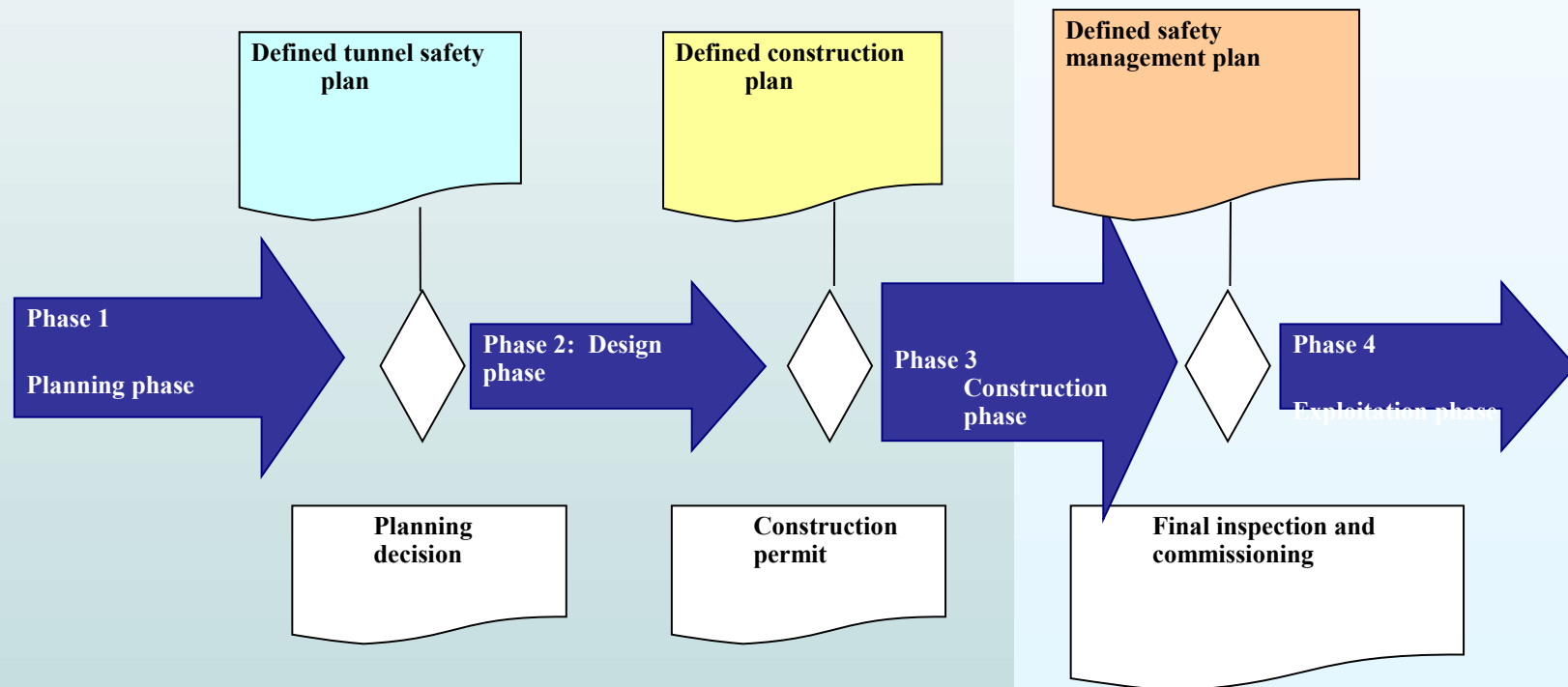


## Formal moments of advice:

- **New tunnel has to be commissioned**
- **Advice based on a so called safety management plan**  
(guideline has been developed for the contents)
- **Tunnel construction and/or use have been changed**
- **Advice based on modified sections of the safety management plan**



# Formal moments of advice:



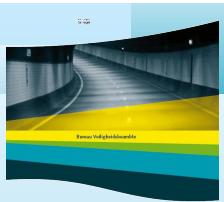


# Standards:

- **Quantitative risk analysis**
- **Guideline for scenario analysis**
- **Guideline for incident entry and evaluation**

*In development:*

- **Guideline for training and exercises**



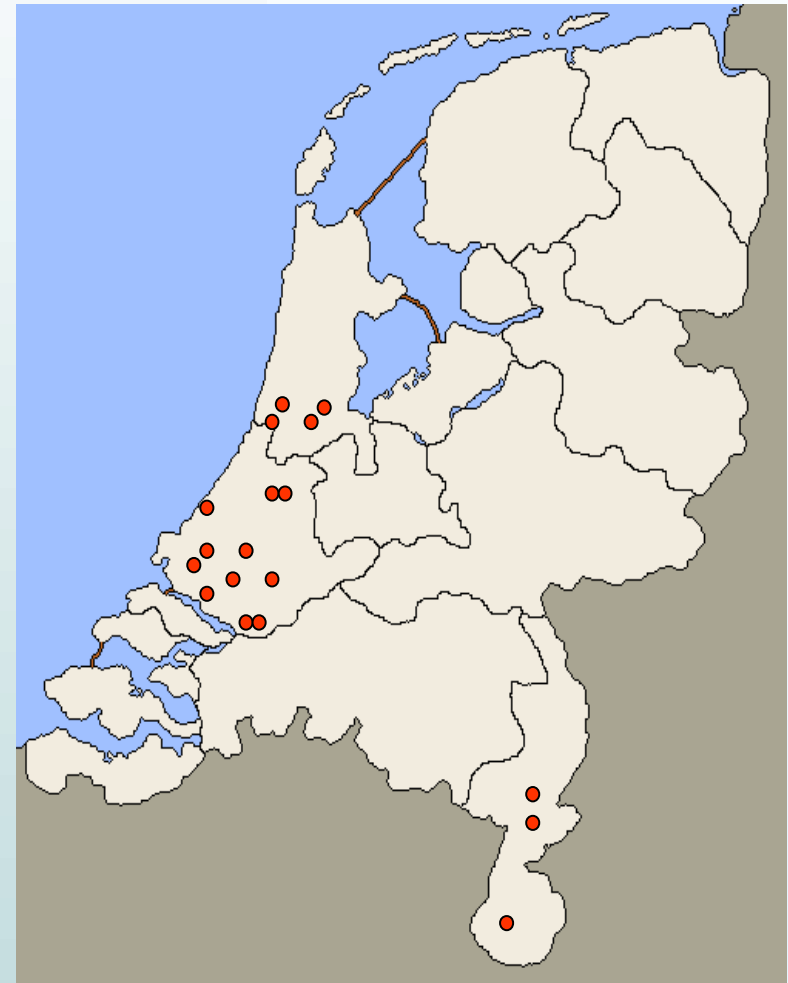
**Thank you for your attention**

# OVERZICHT RWS TUNNELS IN HET TRANS-EUROPESE WEGENNET



## TEN TUNNELS:

A4	Schiphol tunnel	(1966) 537 m
A4	2 <sup>e</sup> Schiphol tunnel	(2000)
A4	Beneluxtunnel	(1967) 713 m
A4	2 <sup>e</sup> Beneluxtunnel	(2002)
A29	Heinenoordtunnel	(1969) 605 m
A16	Drechtunnel	(1977) 553 m
A15	Botlektunnel	(1980) 541 m
A15	Noordtunnel	(1991) 553 m
A9	Wijkertunnel	(1996) 700 m
A15	Thomassentunnel	(2004) 1100 m
A73	Tunnel Swalmen	(2008) 400m
A73	Roertunnel	(2008) 2050 m
A2	Tunnel Leidsche Rijn	(2009/10) 2 x 1650 m
A2	Traverse Maastricht	(2013) .. m
A6-A9	Keizer Karel tunnel +	(2015)
A6-A9	Gaasperdammertunnel	2 x 2000 m





# OVERZICHT NIET TEN-TUNNELS IN HET RIJKSWEGENNET (RWS TUNNELS)



- A22 Velsertunnel 1957 (768 m)  
Bevat ook spoortunnel
- A10 Coentunnel 1966 (587 m)
- A10 2e Coentunnel (Bouwfase) 2012 (660 m)
- A10 Zeeburgertunnel 1990 (546)
- N14 Vliettunnel 2003 (1100 m)  
Omvat ook tunnelbuis voor tram en light-rail.
- N14 Parktunnel 2003 (275 m)
- N14 Spoortunnel 2003 (400 m)
- N35 Tunnel Nijverdal (Ontwerpfase) 2012 (500 m)  
Heeft aanliggende spoortunnel.
- A4 Tunnel Delft – Schiedam 2014 (2000 m)  
(Ontwerpfase)
- A58 Vlaketunnel 1967 (376m)