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THE DUTCH
SAFETY BOARD

Integrated system of transport safety in The Netherlands

The Dutch Safety Board

Marjolein Baart

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Presentation outline



1. About the Dutch Safety Board

- History
- Organisation
- Tasks and legal basis

2. The investigations

- Selection
- Assessment framework
- Multimodal Board

3. Examples of investigations





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1. About the Dutch Safety Board

History



- Transport:
 - shipping disasters since early 20th century
 - 1931: Committee Inland Shipping Disasters Act
 - 1935: Civil Aviation Disasters Act -> Civil Aviation Board
 - 1956: Railway Accidents Inquiry Board
 - 1999: multimodal Transport Safety Board (incl. road transport and pipelines)
- Defence:
 - 1928: Netherlands Naval Boards (accidents on warships)
 - 1987: Advisory Body on Aviation Accidents
 - 1998: Defence Accidents Board

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History



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Bijlmer disaster: 4 October 1992

El Al Boeing 747 (freight plane) crashed into apartment buildings: 47 died (incl. 4 crew members), 26 injured

Parliamentary inquiry 1998-1999

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History



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Enschede fireworks disaster:
13 May 2000

Firework Company exploded,
destroyed entire neighbourhood:
23 died, 950 injured

Report of the Committee Oosting:
21 February 2001

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Volendam Café Fire:
New Year's Eve 2000/2001

Fire at party caused by sparkles:
14 died, 180 injured

Report of the Committee Alders:
21 February 2001

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History



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Founding of the Dutch Safety Board:

- 2000: Parliament moved two motions on legislation in order to found an independent investigation board for disasters and major accidents
- 2001: Government decision to implement these motions
- 2005: Start of the Dutch Safety Board, replacing:
 - Transport Safety Board
 - Defence Accidents Board
 - Ad hoc committees

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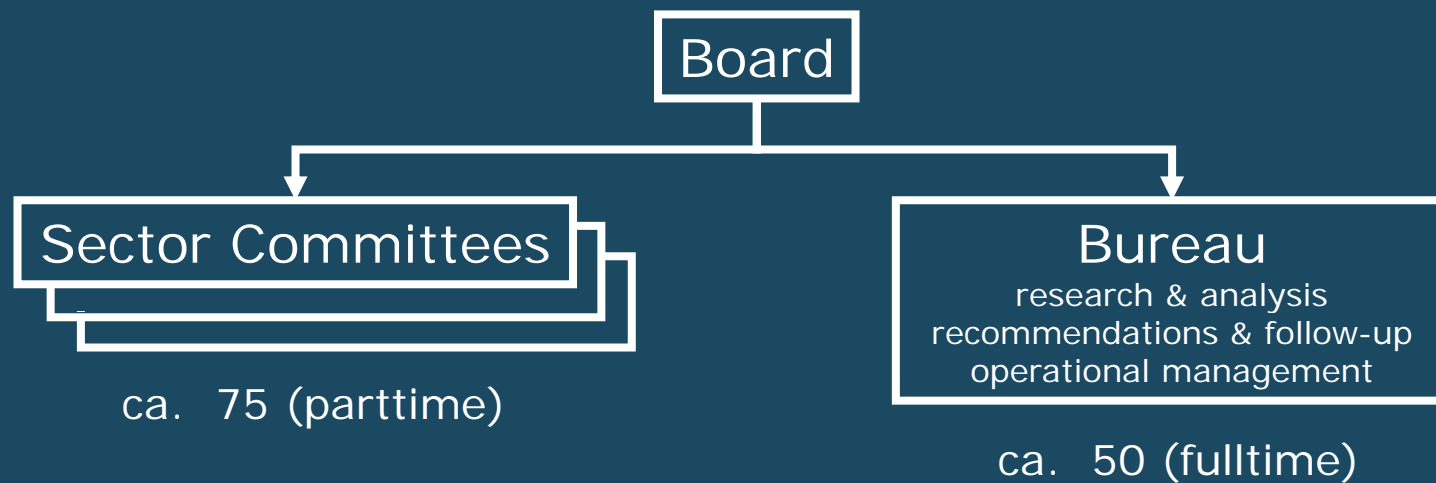
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Organisation



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The Board



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Operational sectors



- Aviation
- Shipping
- Rail transport
- Road transport
- Pipelines
- Defence
- Industry
- Buildings and trade
- Crisis management and emergency services
- Health care
- Nature

Excluding: disturbances of public order
 law enforcement by competent authorities
 conduct of armed forces in war situations

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1. About the Dutch Safety Board

Philosophy



- Sectors, organisations, companies
 - have their own responsibility for good safety management
 - implicating a.o.
 - adequate safety policy
 - effective enforcement of safety regulations
 - good registration/evaluation of (near) accidents
- The Safety Board → does not replace but enhances this 'own responsibility'

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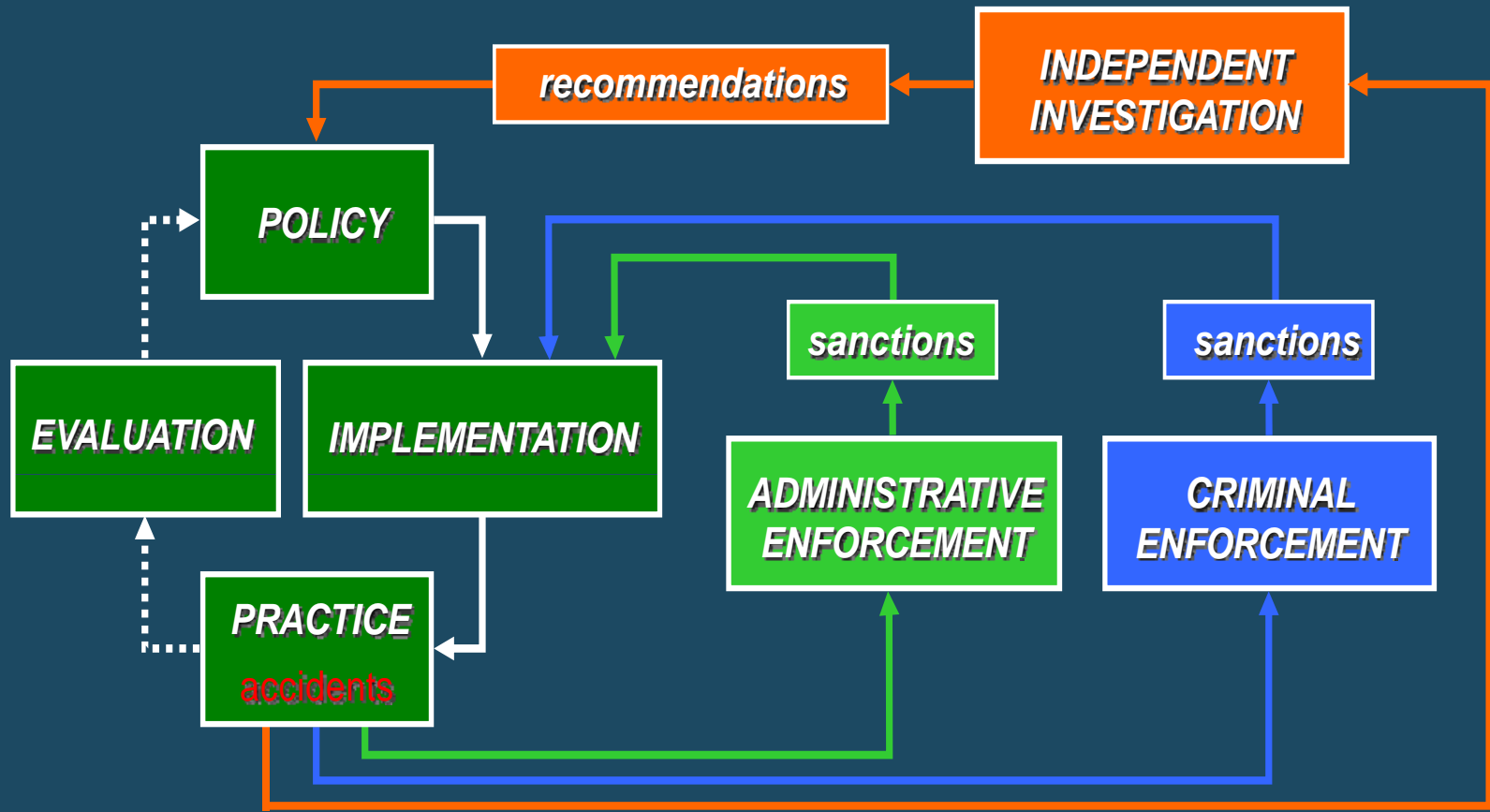
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1. About the Dutch Safety Board

Position



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1. About the Dutch Safety Board

Aim



The Board has the task, with the exclusive aim of preventing future incidents or limiting the consequences thereof, to:

- investigate and establish the causes or probable causes of individual incidents or categories of incidents
- of the extent of the consequences thereof
- to make recommendations accordingly (if necessary).

art. 3 Kingdom Act concerning Dutch Safety Board

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1. About the Dutch Safety Board

Tasks



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- Investigation of accidents and incidents
- Analysis and reporting
- Thematic safety studies
- Formulating recommendations
- No investigation into blame or liability, but answering the "what", "how" and "why" questions
- Information and findings are shielded from legal, administrative and discipline investigations

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2. *The investigations*

When do we investigate?



- Some sectors → mandatory investigation
 - aviation / rail traffic / pipelines
 - dangerous substances (Major Accident Reporting system of the European Commission)
- Other sectors → added value investigation by the Board
 - disclosing the truth (social unrest)
 - safety issues are not well known / recognised
 - valuable recommendations (ambitious, realistic, supported)



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2. *The investigations*

What do we investigate?



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- Investigating underlying causes
- Subjects may include:
 - Legislation (was it sufficient?)
 - Inspectorates (surveillance, enforcement)
 - Crisis management, aftercare
- Own responsibility of those involved

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2. *The investigations*

Notifications and signals



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- Inspectorates
- Police
- Media
- The public

Mandatory: aviation / rail / pipeline / installation operator

Notification number for (severe) accidents and incidents:

0800 MELDOVV or 0800 6353 688

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2. *The investigations*

Investigators in the field



- Emergency services always come first
- Investigator checks in with Commanding Officer
- Identification on request
- Protocols with Public Prosecutor, police, inspectorates
- Broad investigation authorities:
 - access to location/objects
 - freezing situations, confiscating objects, post-mortem examination
 - obligatory information supply (no extenuation)
 - hearing on oath, analyses of cockpit voice recorder



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2. The investigations

Selection



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- Primary criteria:
 - many victims / social unrest / public transport / dangerous substances / conspicuous circumstances
 - further information: police / fire brigade / inspectorate
- Further selection:
 - (potentially) severe and structural safety deficits
 - insufficiently known/handled
 - probable possibilities for improvement (with support)
 - reckless behaviour excluded, except for innocent bystanders
 - procedure
 - long list → sector committee
 - investigation requests → the Board



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2. *The investigations*

Assessment framework



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- Safety management:
 - risk identification
 - risk analysis
 - safety policy
 - implementation and compliance of safety policy
- Structural safety deficits:
 - operational level: similar accidents
 - organisational level: other accidents within same organisation or sector
 - system level (e.g. legislation): more accidents



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2. *The investigations*

Multimodal / multisectoral board



- Most investigations are unimodal / unisectoral.
- Being a multimodal board however has certain advantages:
 - every investigation is similar, whatever the accident:
 - expertise on e.g. human factors, safety management, policy, legislation
 - methods for accident analysis
 - problems with safety are similar in every sector
 - recommendations issued on a bigger scale have more authority
 - a multimodal board will ensure more attention for safety than individual safety boards per transport mode



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3. Examples

Prolonged unsafety of regional roads



- Safety study about so called “killer roads”
- Following two studies into specific “killer roads” the Board decided to investigate thematically why some roads remain unsafe for a long time
- Conclusions:
 - Road administration is concerned primarily with maintenance
 - No mandatory regulations for road safety, whilst competing with other interests (economic, environment, urban design)
 - Factors taken into consideration in road administration are not transparent



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3. Examples

Prolonged unsafety of regional roads



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Recommendations:

- Road administrators (both national and provincial):
 - give more explicit consideration to safety in the administration and maintenance of the roads (e.g. safety management)
- Minister of Transport (responsible for traffic safety system):
 - stimulate safety management among road administrators
 - introduce minimum safety requirements for designs for the infrastructure (which requirements from the Manual for Road Design should be marked as (legally) mandatory)
 - introduce independent monitoring to these mandatory requirements

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3. Examples

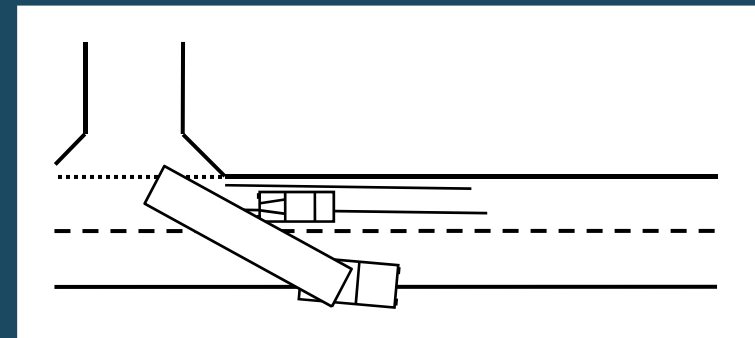
Visibility of trucks in darkness



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Accident:

- 22-11-2000 – Marknesse
- passenger vehicle hits side of truck which was driving backwards into an entrance in an unlit road in darkness
- 1 died, 2 seriously injured



Investigated aspects:

- visibility truck sides
- RRCM
- entrances of company premises



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3. Examples

Visibility of trucks in darkness



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underrun
(fatal for vehicle occupants)



similar accident
(marking lights did not provide sufficient
visibility)

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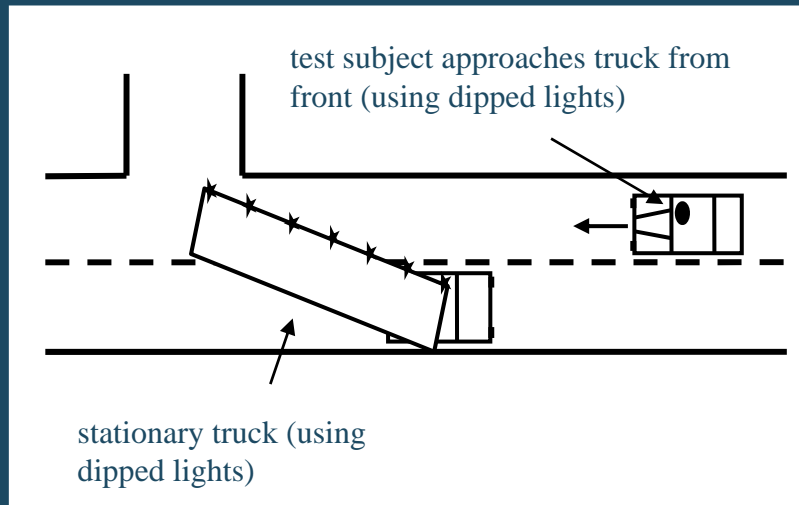
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3. Examples

Visibility of trucks in darkness



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field tests:

- SR + SML + RRCM
- different angles
- dry / wet windscreen

wet + 37 graden	SR	SML	RRCM
detection	<	>	>
SR-SML-RRCM	25 m	300 m	300 m
danger recognition	<	ca.	>
	25 m	60 m	200 m
trailer recognition	<	ca.	ca.
	25 m	25 m	200 m

wet + 37 graden	SR	SML	RRCM
detection	<	>	>
SR-SML-RRCM	25 m	300 m	300 m
danger recognition	<	ca.	>
	25 m	60 m	200 m
trailer recognition	<	ca.	ca.
	25 m	25 m	200 m

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3. Examples

Visibility of trucks in darkness



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side reflectors (SL)
(mandatory until 1996)



side marking lights (SML)
(mandatory from 1996)

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3. Examples

Visibility of trucks in darkness



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odblaskowe oznakowanie
konturowe (RRCM)
(nowa wytyczna RE)

Implementing in entire fleet
(retrofit) will prevent:

- hundreds of accidents
- 2-3 deaths
- 20-30 seriously injured

Benefits € 15-20 million per year

Costs ca. € 500 per truck/trailer
and

€ 350 per trailer (lasts 6 years)

Costs ca. € 10 million per year

Transport sector not supportive of
voluntary implementation.
Government and insurance
companies unresponsive on co
financing.

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3. Examples

Visibility of trucks in darkness



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Recommendations:

- Road operators:
 - only supply exit permits for company premises where trucks can enter and exit while driving forwards
- Ministry of Transport:
 - stimulate European legislation
 - implement nationally as soon as possible
 - include visibility issues in training and exams
- Transport companies
 - inform drivers on visibility issues



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