Rijkswaterstaat
Ministry of Infrastructure and the Environment

Road Safety in The Netherlands

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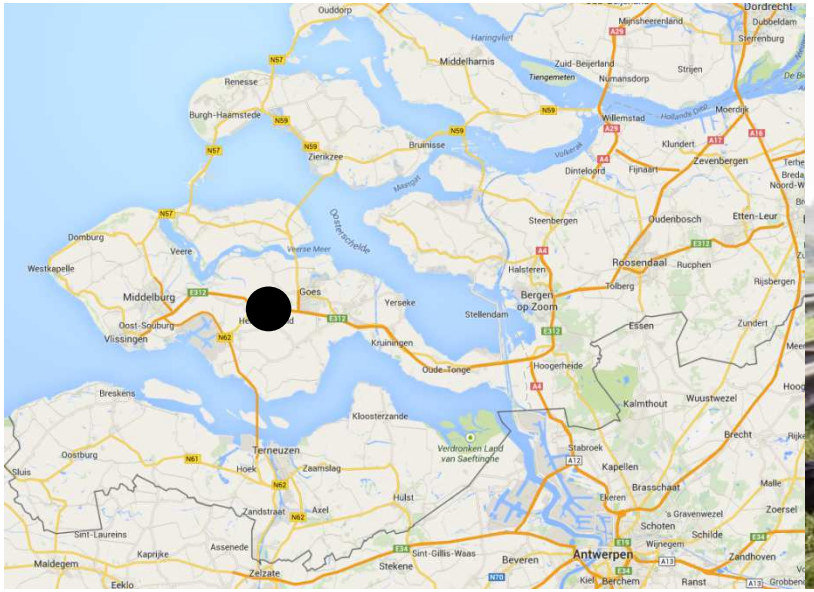
European Transport Conference
Sept. 29th – Oct. 1st, 2014
Frankfurt, Germany

Accident A58 due to fog

- Tuesday 16-09-2014
- 150 vehicles
- 2 fatalities
- 28 hospitalisations



Content presentation

- **Some general facts**
- Some road safety facts
- Targets
- Measures
- Sustainable safety
- Implementation sustainable safety in The Netherlands

The Netherlands

In 2013:

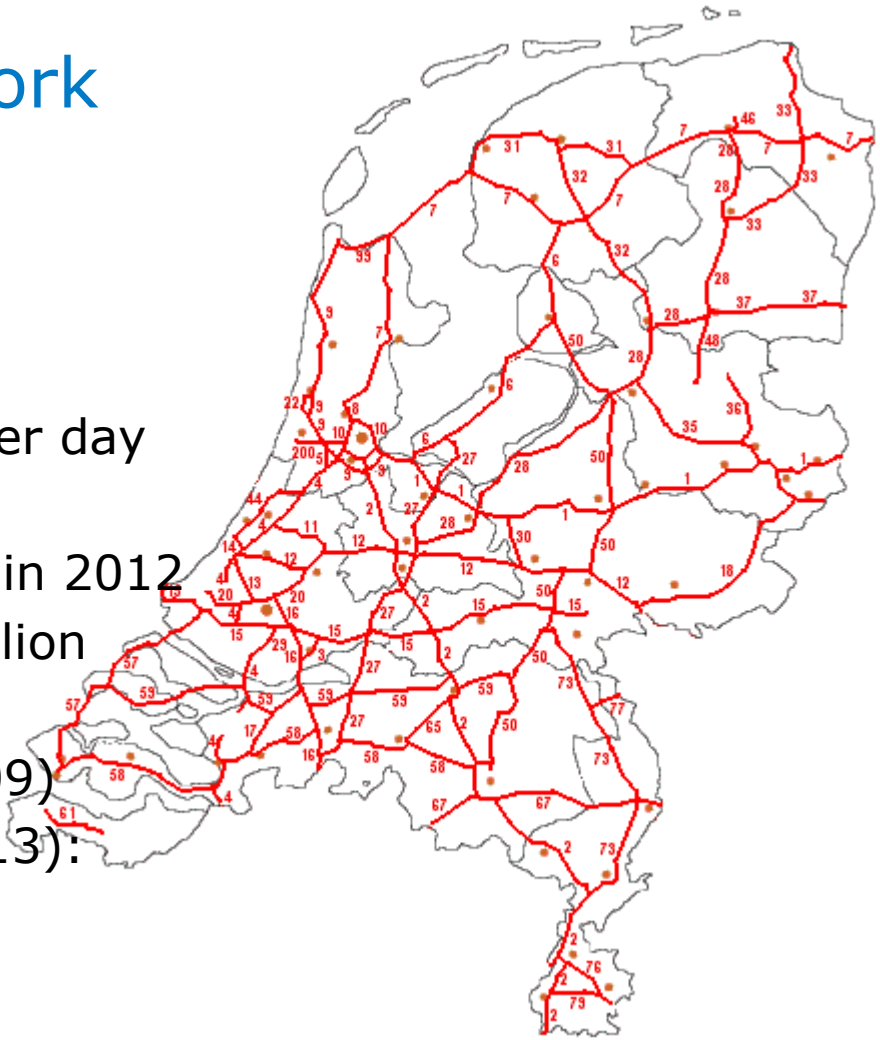
- 16,8 million inhabitants
- 2784 km highways
- 5050 km expressways
- 7,9 million passenger cars
- 2,1 million heavy good vehicles
- 41.526 km2

Until 2030 growth expected (2004):

- Passenger transport: 20% - 47%
- Freight transport: 10% - 75%

Dutch National Road Network

- 3058 km highways (2013)
- 7,9 million cars (2012)
  - 16 million trips per day
  - 177 million vehicle kilometres per day
- 470 million tons of freight yearly
- 40.000 traffic jams and congestion in 2012
  yearly cost of € 1.800 - € 2.400 million
- 650 fatalities in 2012
  yearly cost of € 12.500 million (2009)
- Annual budget Rijkswaterstaat (2013):
  - Construction € 1.450 million
  - Maintenance € 400 million



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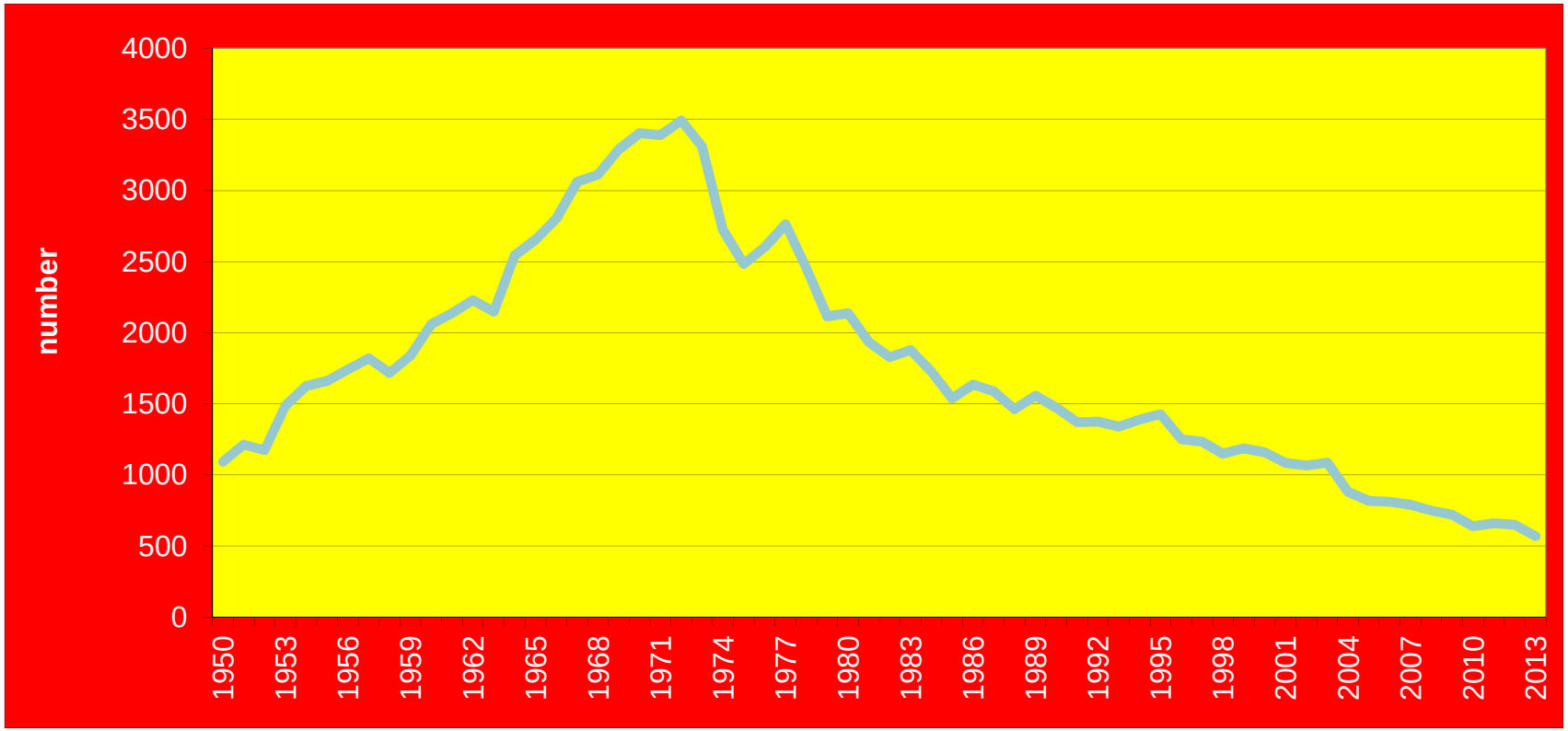
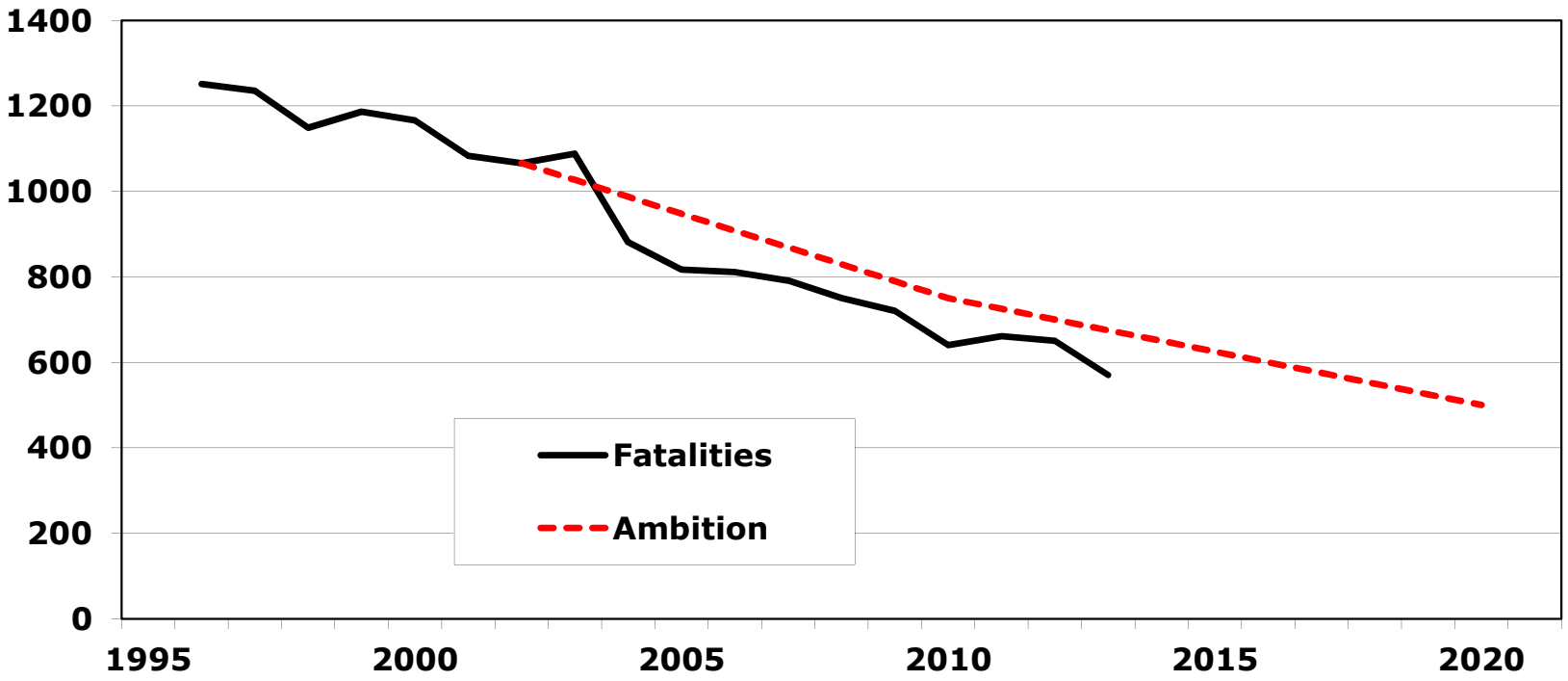
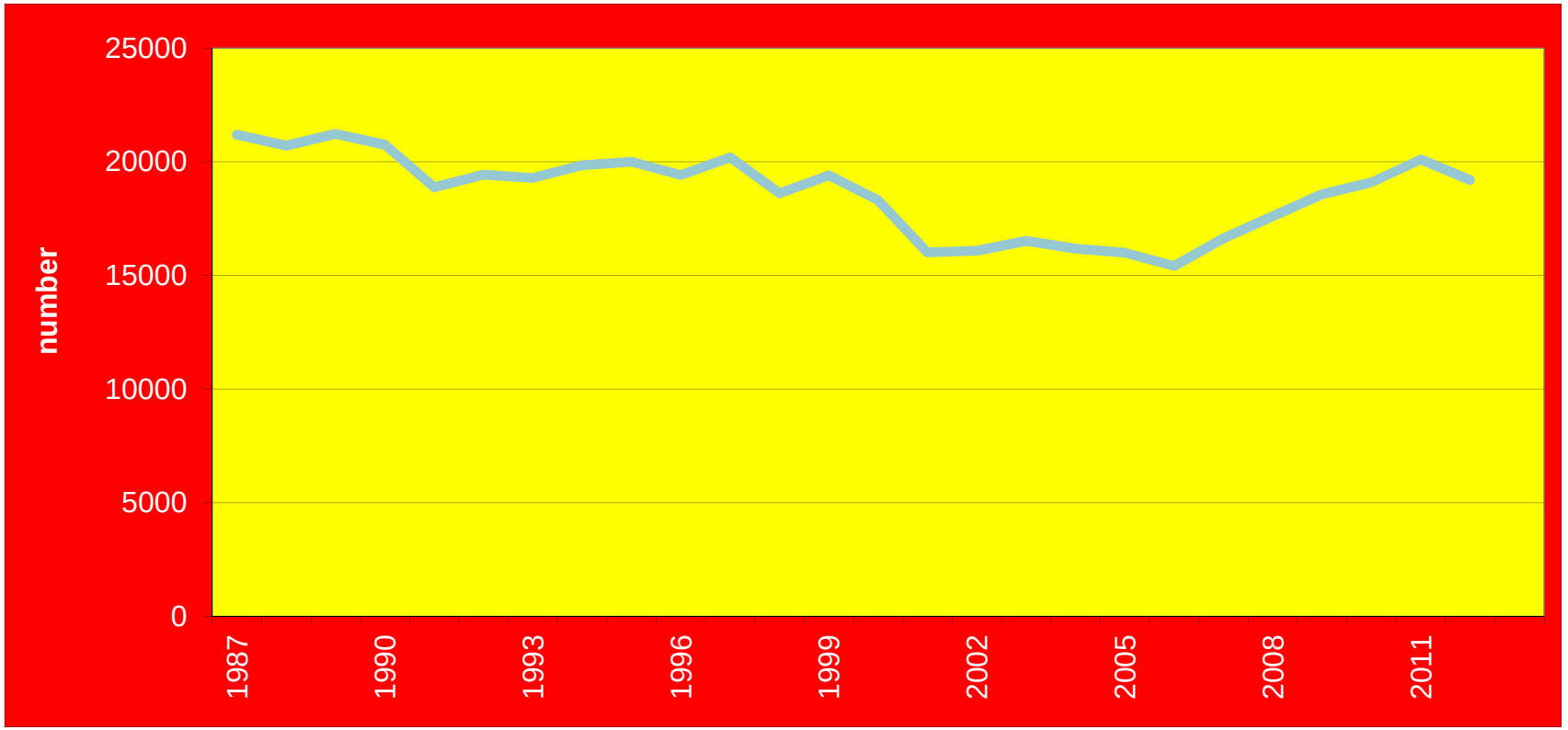
Traffic Fatalities



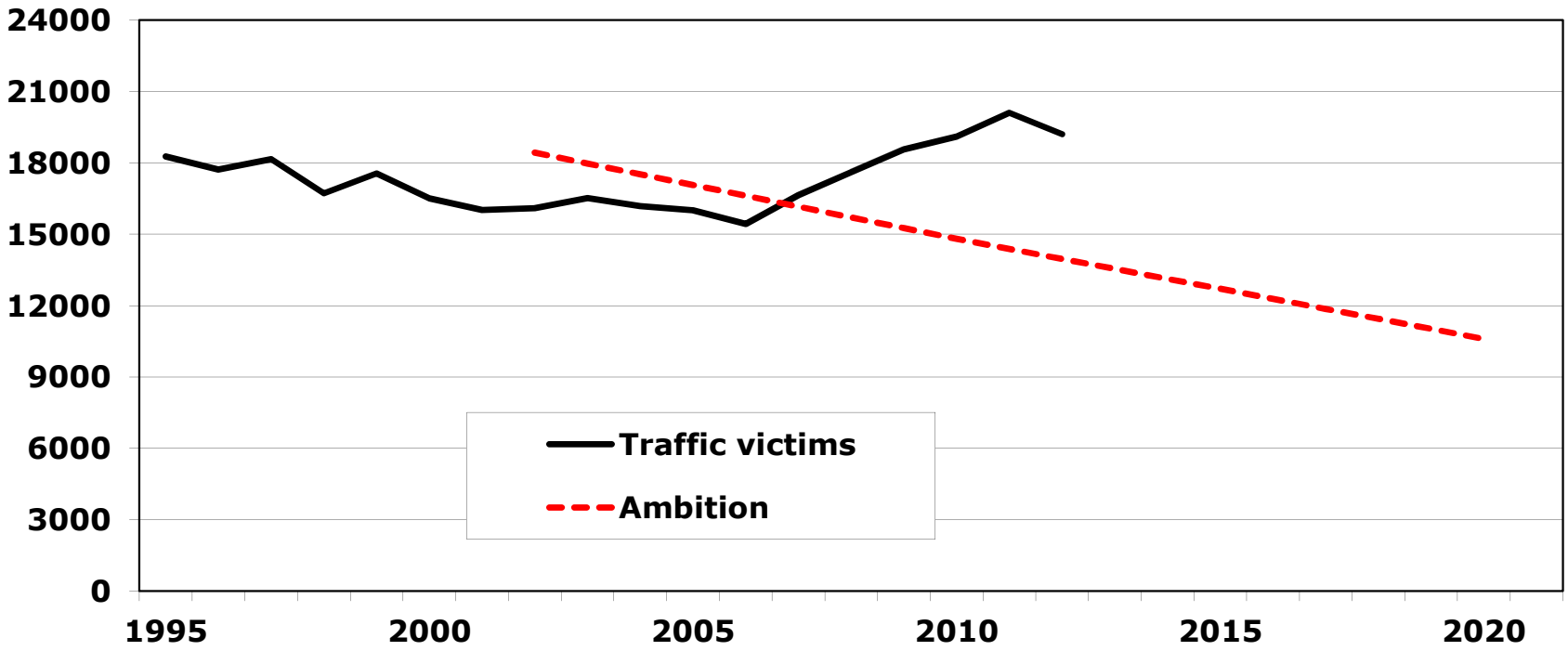
Fatalities and ambition



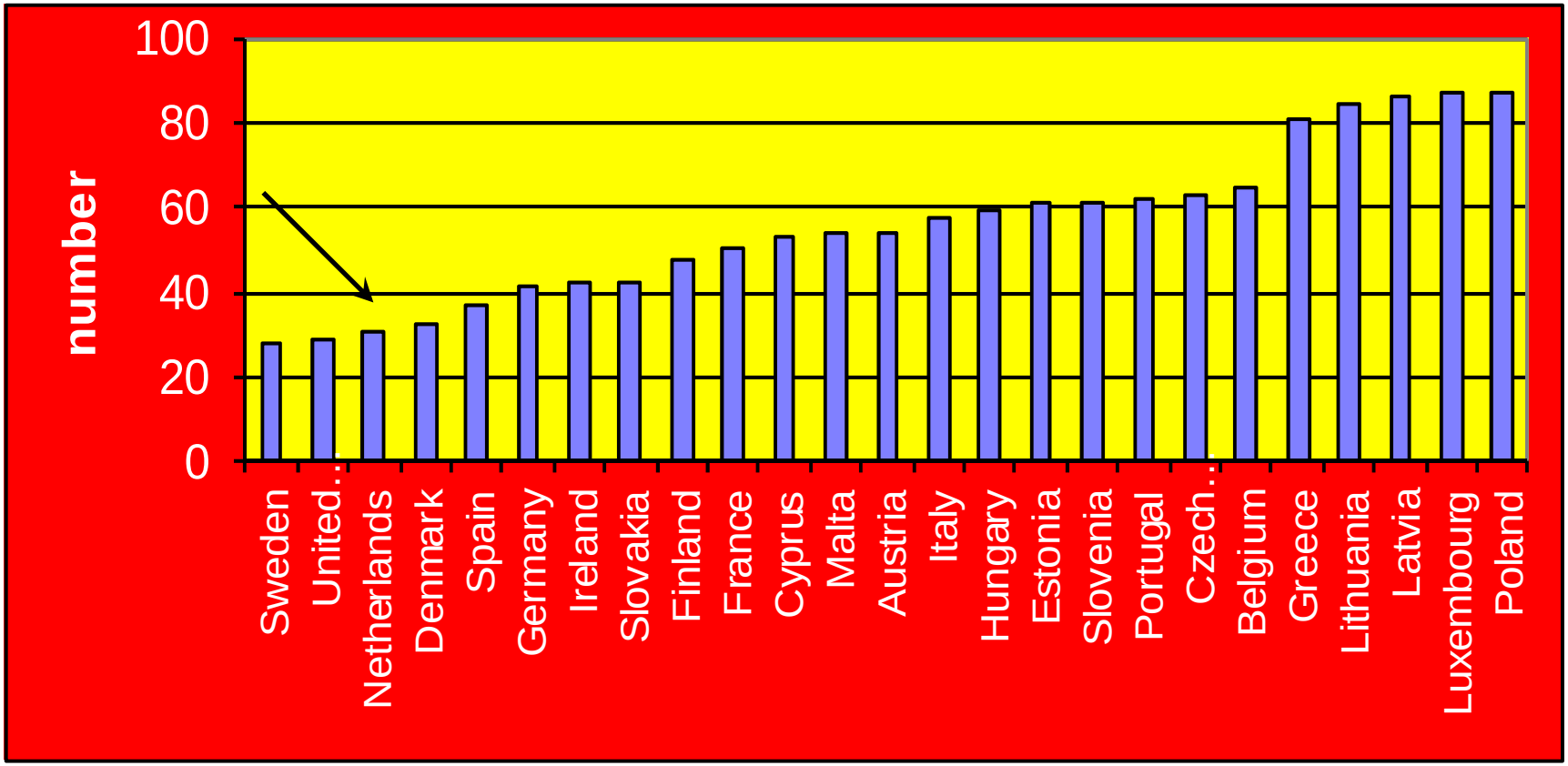
Hospitalised traffic victims



Victims and ambition

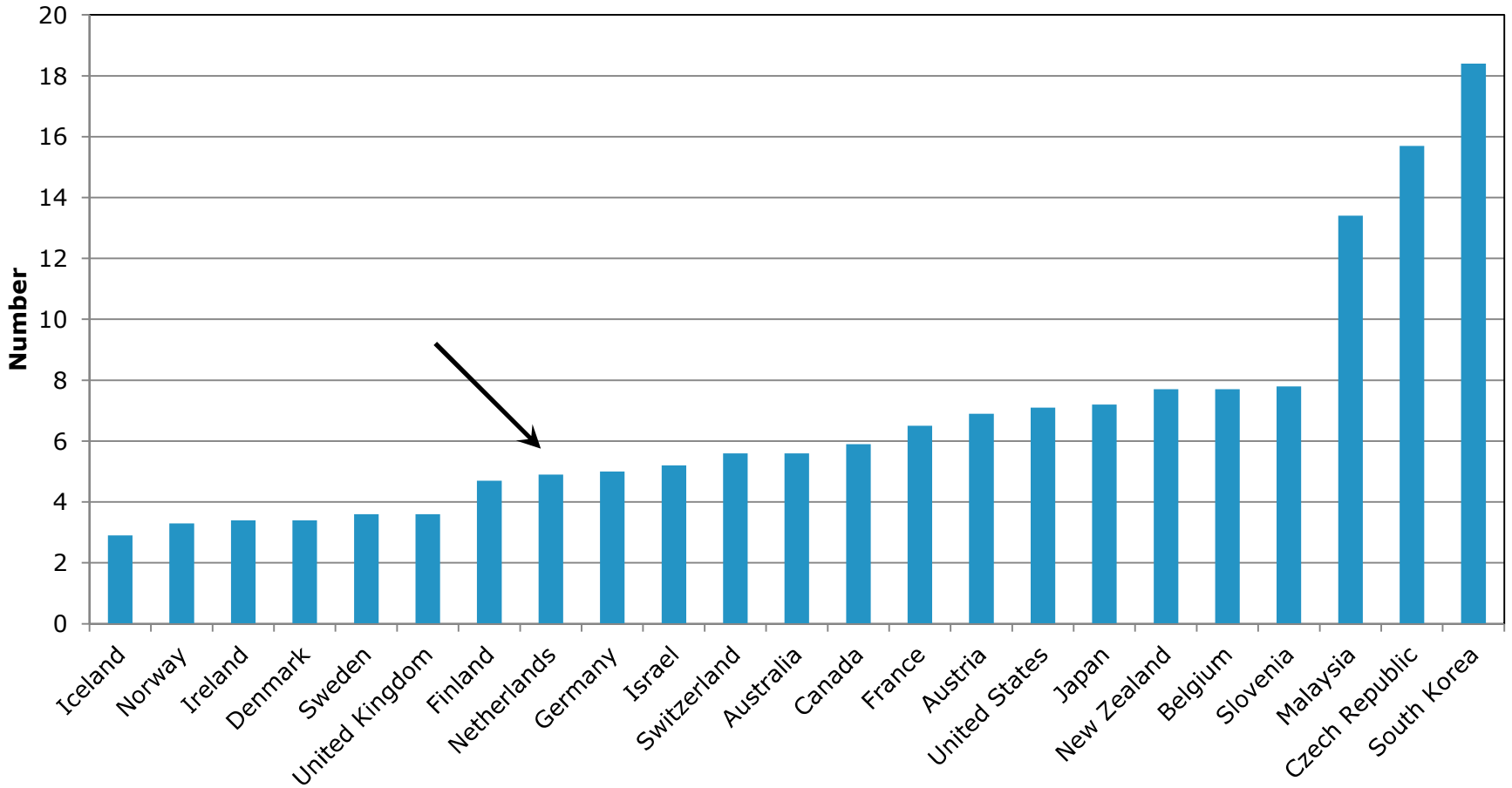


Fatalities per million inhabitants (2013)



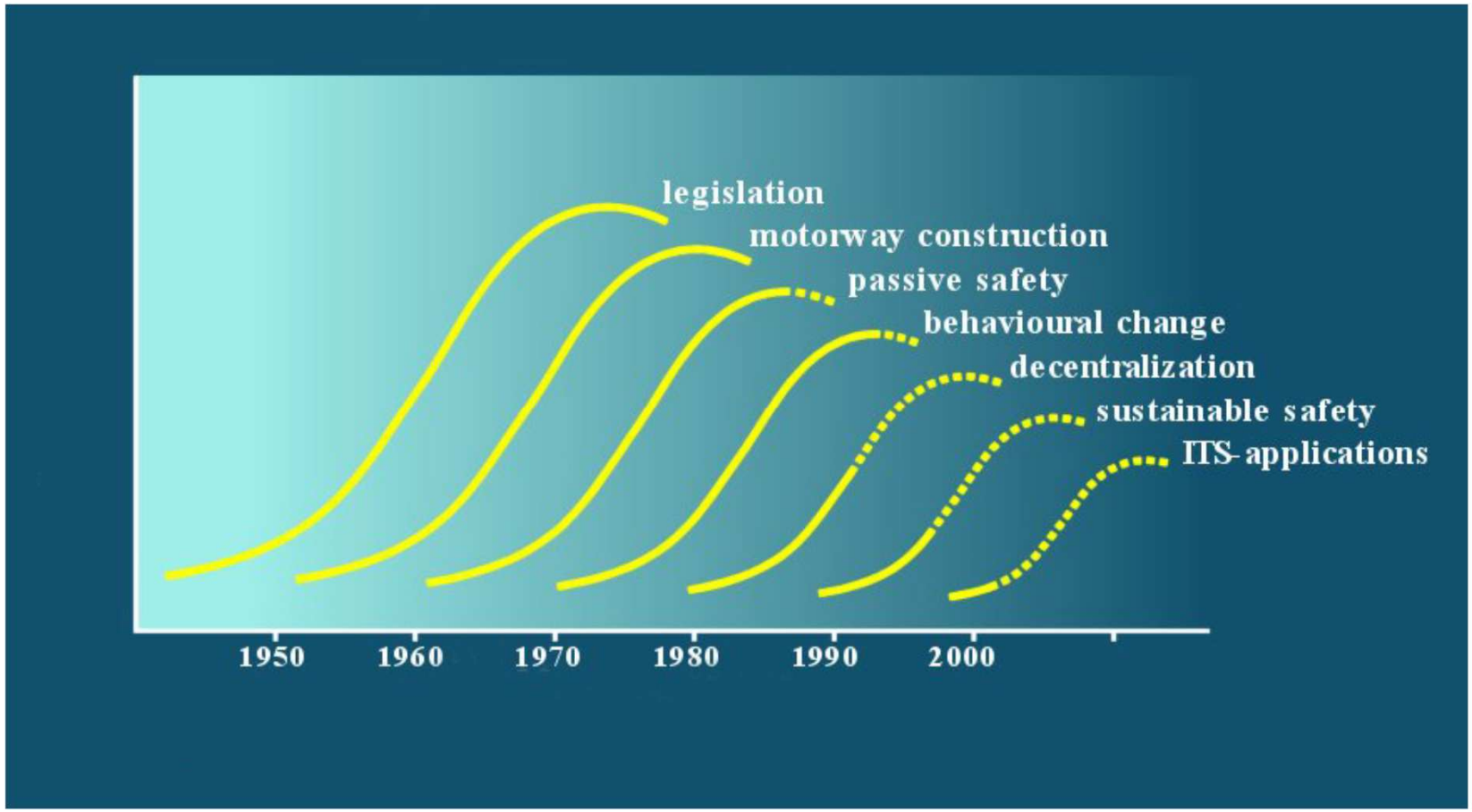
Source: EUROSTAT

Fatalities per billion kilometres (2013)

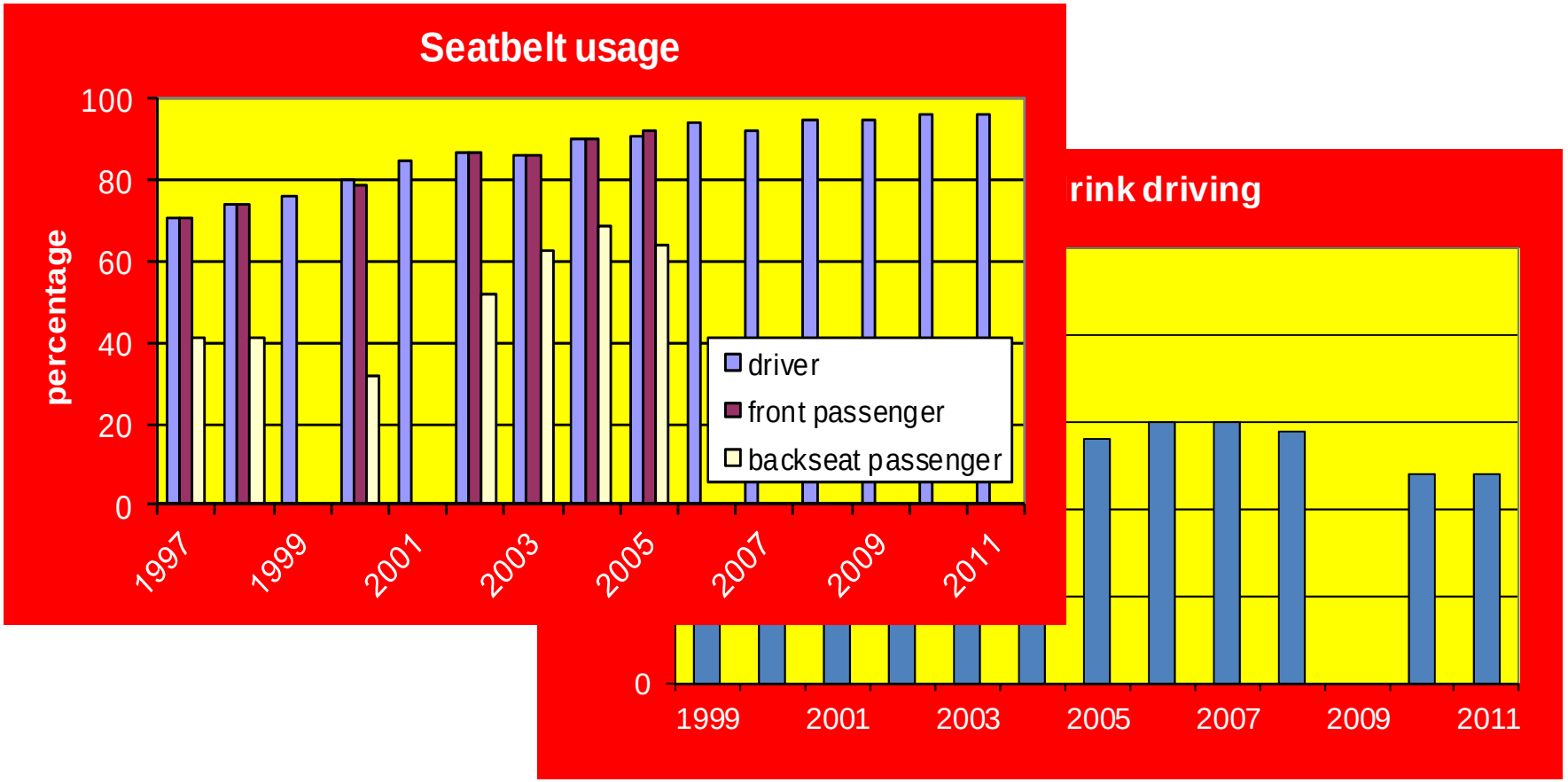


Source: IRTAD

Developments in safety policy



Behaviour indicators



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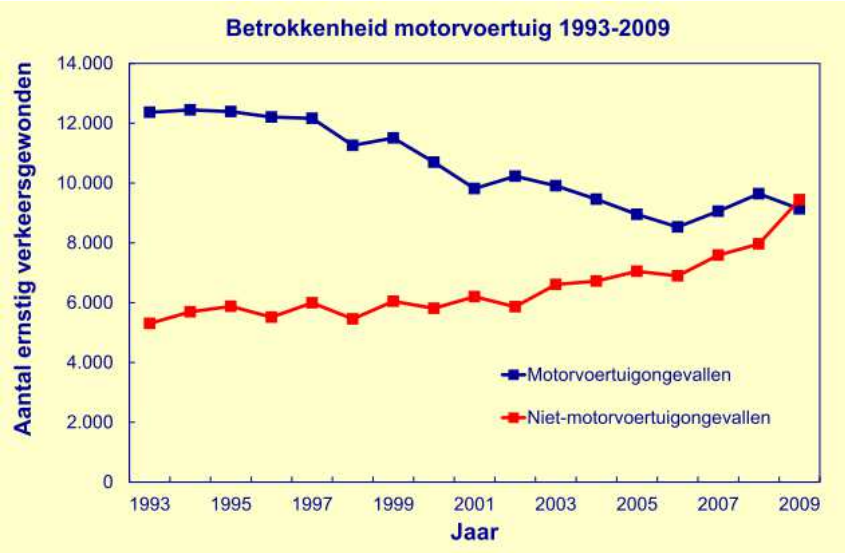
Road Safety Targets

- Strategic Plan Road Safety 2008-2020
- Addendum June 2012
- Targets for 2020
  - A maximum of 500 fatalities (-47%)
  - A maximum of 10.600 serious injured



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Measures until 2010

- National Government
  - subsidies 50% of the cost of regional measures to a maximum of 352 million euros
  - invests 100 million euros in safety measures at national roadwork
- Measures targeted at new qualified drivers (provisional driving license, alcohol limit of 0,02 g/dl)
- Alcohol lock
- Safe cars
- Sustainable safe infrastructure
- Safety measures in freight transport (i.e. safety culture, Intelligent Speed Adaptation in vans)
- Information campaigns in combination with enforcement

Measures 2010 - 2020

- Regional road safety plans (national government will invest € 800 million)
  - Sustainable safe infrastructure
  - Education
- Intelligent vehicle measures
  - Intelligent speed adaptation
  - Euro NCAP, ESP, LDWA, etc.
- Education, communication and enforcement at least on the same level as before 2010
- Road pricing?

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Sustainable safety

Goals

- Prevention of serious accidents
- When an accident happens, seriousness as less as possible

The human being as the base for all things

- Fysical dimensions
  - The human being is vulnerable

- Psychological dimensions
  - The human being is not always able to -> mistakes
  - The human being can not always -> offenders

Sustainable safety

Integral approach

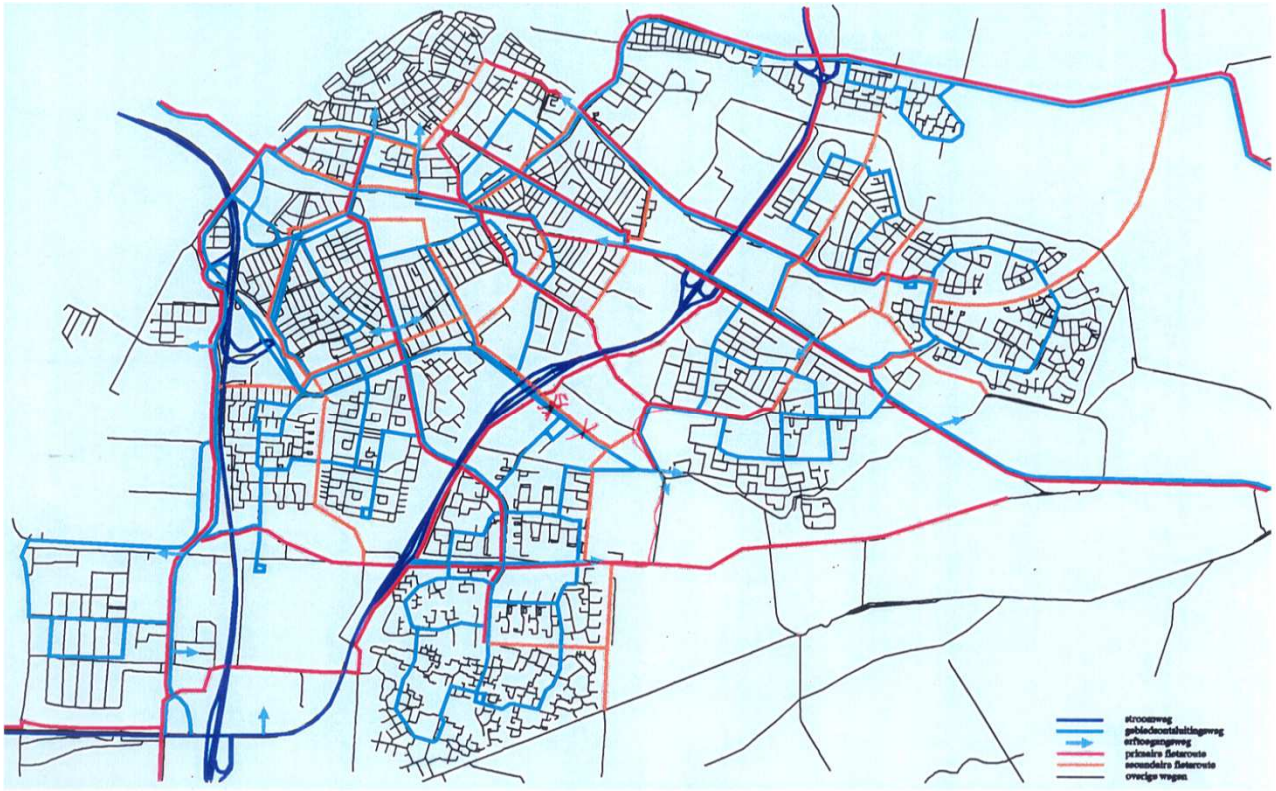
- Infrastructure
  - Design of roads is based on human capacity
  - 10 Golden rules for human factors
- Vehicles
  - Support driving task
  - Offer protection
- Human being
  - Well informed and educated
  - When necessary: enforcement

Sustainable safety

Principles

- **Functionality** of roads
- **Homogeneity** of mass, speed and direction
- **Recognisability** of the road design and predictability of the road course and road user behaviour
- **Status recognition** by the road user
- **Forgivingness** of the physical surroundings and of the road users to each other

Categorisation plan



Access road inside built up area

Distributor road inside built up area

Access road outside built up area

Distributor road outside built up area

Through roads

10 Golden Rules

1. The road user is rather selfish
2. The road user can not do all at the same time
3. You can tell the road user to do something, but will he do it
4. The road user only accepts measures which he thinks are useful
5. The road user will surprise you!
6. The road user has expectations and will act accordingly
7. What if something goes wrong with the system or the road user?
8. Tell the road user only what is really important
9. Don’t confuse the road user
10. Information should be visible, clear and understandable

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Implementation sustainable safety

- Two phases
  - Start program
  - Integral implementation
- Start program (1997 – 2003)
  - Road categorisation
  - Extending 30 km-zones
  - Extending 60 km-zones
  - Give way on trunk roads
  - Making give-way rule on roundabouts uniform
  - Mopeds on the roads
  - Give way for cyclists from right
  - Other measures, such as self explaining roads

Integral implementation

- Integral approach: human being, vehicle and road
  - No national influence at regional level and measures
  - Measures are dependent from regional and local situation
  - Further implementation of sustainable safe infrastructure (self explaining roads)
  - Technology in and around the vehicle
  - Education
  - Communication and enforcement

Self explaining roads (1)

- Self explaining ≠ self enforcing
- Comparison and implementation of approaches:
  - self-explaining roads in theory and practice
- Bridge the gap between science & practice
- Result:
  - Decision Support Tool (DST) for road authorities
  - checklist & advice
  - SER approaches
  - Relevant parameters

Self explaining roads (2)

- Relevant concepts for SER
  - recognisability
  - credibility
- Features that can influence the credibility of the speed limit (= behaviour):
  - Road width
  - Presence or absence of a bend
  - View ahead and to the right
  - Clarity of the situation
  - Presence or absence of buildings
  - Presence or absence of trees (or outdoor advertising) on the right hand side

Most important markings for recognisability

	Through road	Ditributor road	Access road
Outside built up area			
Inside built up area			

Summary

- The Netherlands is one of the safest countries in the World and want to stay in the top 3
- Policy is heading for realisable targets
- Base is the integral approach on human being, vehicle and infrastructure, together with a strong organisation
  - Sustainable safe infrastructure
  - Intelligent vehicles
  - Education
  - Communication
  - Intelligent enforcement
  - Organisation

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