Sustainable Safety in the Netherlands

2nd UN Stakeholders Forum on Global Road Safety

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Where we are…
A busy country indeed
Road safety in the Netherlands

- Well developed system of safety legislation and (massive) enforcement
- Good safety quality of roads, especially for vulnerable road users, incl. traffic calming
- Well developed system of post-crash care
Fatalities per million inhabitants in the European Union (2005)
Road safety interventions over the years

Interventions

- General
- Slow traffic
- Fast traffic

Fred Wegman
April 2007

www.swov.nl

Advancing Sustainable Safety
We are making progress …

• On safety performance indicators (SPI’s), e.g.

**Seat belts**

**Drink driving**

**Speed management**
Road fatalities in the Netherlands since 1950

Fatalities

2006: 811

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April 2007

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However,

- We still wish to improve road safety, because
  - Economical costs 12 billion euro per year are substantial
  - We don’t want to live with *preventable crashes*: we know the causes, we know what to do with cost beneficial investments

- Road safety targets for 2010 and 2020
- Results in the past are no guarantee for the future!!
- Next steps?
Traditional approach

• Treat high risk groups and take cost-effective countermeasures, e.g.
  ▪ Young novice drivers
  ▪ Black spots
  ▪ Vehicle inspection
  ▪ Violators, recidivism

• Certainly progress can be made, but we reach a stage that this will be less effective/efficient

• We need a paradigm shift
Discussion on a paradigm shift

Relative contribution

Driver
Vehicle
Road

'System' failures
driver / vehicle / road

Driver failures:
'inexperience'

Driver failures:
'excess'

Rod Kimber TRL (2003)
Our fundamental road safety problem

- Today’s road traffic is inherently unsafe
- The road system of today has not been designed with safety in mind, as is the case with air transport or rail transport
- Which means we are almost fully dependent on ‘human behaviour’, whether a road user makes a mistake or error in preventing a crash
- The Dutch approach to a solution: Sustainable Safety
Sustainable Safety

- *Sustainable* means: we don’t want to hand over a road system to our children which, inevitably, results in the number of road crashes as of today

- (inspired by the Brundtland-report on sustainable development)
Sustainable Safety fundamentals

• User oriented system approach
• Brings knowledge from different fields together: transportation planning, traffic engineering, social sciences, biomechanics, management, economics
• It is a safe system for everyone
Sustainable Safety: the Dutch approach

- 1992: the Sustainable Safety vision
- 2005: updated by ‘Advancing Sustainable Safety’

- Aims of Sustainable Safety:
  - to prevent crashes in advance
  - and, if impossible to reduce crash severity (serious injuries virtually excluded)
Sustainable Safety

• Philosophy developed in early nineties by SWOV
• Basis of the Dutch road safety policy
• Implementation since mid nineties
• Update in 2005

English version published in November 2006
Copies free downloadable from
www.sustainablesafety.nl
Man is the measure of all things

- Physical properties
  - Humans are vulnerable

- Psychological properties
  - Humans are error prone
  - Humans do not always obey rules
Proactive approach

- Proactive: preventing system gaps
  - Intervening in chain of ‘system design’ to ‘traffic behaviour’ as early as possible

Who or what caused the crash?

How could this happen?

- Making road safety less dependent on individual choices
Proactive approach

- Systems approach: prevention of latent/hidden errors
  - Intervene as early in chain as possible
  - Make unsafe acts less dependent from choices of individual road users

Diagram:
- Latent errors
- Unsafe acts
- System design
- Quality control
- Psychological precursors of unsafe acts
- Acts during traffic participation
- Defence mechanisms
Principles in the advanced vision

<table>
<thead>
<tr>
<th>Sustainable safety principles</th>
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<tbody>
<tr>
<td><strong>Functionality</strong> of roads</td>
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<tr>
<td><strong>Homogeneity</strong> of masses and/or speed and direction</td>
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<tr>
<td><strong>Predictability</strong> of road course and road user behavior by a recognizable road design</td>
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<td><strong>State awareness</strong> by the road user</td>
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<td><strong>Forgivingness</strong> of the environment and of road users</td>
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Some thoughts for discussion

- Public acceptance of crashes/injuries
- It just don’t happen to me: ordinary vs. villain driver
- Cultural change: values, beliefs, norms, behaviour
- Specific vs. general deterrence
- Government involvement: shared responsibilities
- Good will and low-cost interventions are not enough
- Opinion, intuition, folklore vs evidence based
- Make organisations accountable
- Distinguish short term and long term wins
- Safe system approach ??
Relevance for developing countries

• Fundamentals are true all over the world
  ▪ Human being is fallible/vulnerable and makes errors
  ▪ Risk increasing factors
  ▪ Road transport system is inherently unsafe

• Only evidence based interventions: knowledge transfer + capacity building + partnerships

• Where to find knowledge:
  ▪ WHO/World Bank World report on road injuries ++
  ▪ WorldBank Transport Note: 2nd generation interventions
  ▪ ERSO
Further progress ??

2020 Mortality rate
3 per 100,000?