Strategies to improve road safety
How to learn from Dutch experiences?

Seminar on Road Safety - Ankara 6 November 2012
Seminar on Road Safety - Istanbul 7 November 2012

On the occasion of the visit of the Dutch Prime Minister Mark Rutte to Turkey, The Netherlands embassy in Ankara and the consulate-general in Istanbul are organising a half-day seminar on the successful road safety strategy of the Netherlands on 6 and 7 November 2012. During these events road safety experts will openly exchange their experience and knowledge on what has been successful in the Netherlands, but also on what turned out to be less effective than expected. Objective is the promotion of road safety by means of permanent academic, policy and commercial exchange and cooperation between Turkey and the Netherlands.

The Netherlands consistently ranks in the top 3 of the world’s safest countries in road traffic casualty statistics. This is a remarkable achievement since traffic in Holland is also Europe’s densest. In addition it has a high share of vulnerable two-wheelers, mainly bicycles.

Since the 1990s the Dutch road safety strategy is based on the ‘Sustainable Safety’ concept, which is characterized by a pro-active approach. This means that the weak spots in the traffic system are dealt with generically. The seminar aims to elaborate on this ‘Sustainable Safety’ concept.

Improving road safety is not only morally important, but also an economically essential issue for all countries. Academic studies estimate the annual losses as a result of road crashes at 1.3 – 3.2% of GDP.

The seminar seeks to address various key aspects of the successful Dutch road safety strategy and its execution and features speakers from the public, academic and private sector. Keynote speaker on the Dutch side is Dr. Marjan Hagenzieker. She is associate professor at the Delft University of Technology and also holds a senior research position with SWOV (Dutch Institute for Road Safety Research). Dr. Hagenzieker's research and education activities focus on the road safety effects of the transport system, with particular interest in road user behaviour aspects. Her PhD-research was on the effects of rewards on road user behaviour. The second academic speaker is dr. Maura Houtenbos, a traffic psychologist from SWOV. GATSO, Goudappel Coffeng and Philips Lighting represent Dutch industry with non-commercial presentations on enforcement, road safety and integrated planning and the safety benefits of innovative road lighting.

A matchmaking event will be organised both in Ankara and Istanbul after the seminar to facilitate the objective to promote exchange and cooperation in road safety between Turkish and Dutch academics, researchers and companies.
Improving road safety: experiences from the Netherlands

Dr. Marjan P. Hagenzieker
Associate professor Delft University of Technology & Scientific advisor SWOV

Ankara / Istanbul, 6-7 November 2012
Top-11 meest voorkomende zelfstandige naamwoorden bij baby's tot twee jaar

PAARD
horse

POP
doll

KOEKJE
bicky

OPA
gramps

MAMA
mama

AUTO
car

PAPA
papa

POES
cat

OMA
granny

BAL
ball

HOND
dog

Top-11 of most commonly used nouns for Dutch babies up to two years old

Delft University of Technology

- Transport and Planning Department
- Faculty of Civil Engineering and Geosciences
- See also: Transport Institute at DUT
SWOV: then and now

12 July 1962: SWOV founded by
• Dutch Ministry of Transport
• Royal Dutch Touring Club ANWB
• Dutch Association of Automobile Insurers
• Netherlands Bicycle and Automobile Industry RAI

SWOV mission today

*International top research institute + network organization:*

• Contribute to road safety improvements with knowledge from high-quality scientific research
• Independent research institute
• SWOV cooperates with other research institutes and universities, both in the Netherlands and internationally
• Target groups consist of ‘road safety professionals’ and road safety stakeholders
Killed per 100,000 population
(UN 2009)
Predicted road traffic fatalities (World Bank, Kopits & Cropper, 2003)
Not only fatalities ....

- Fatal crashes and injury crashes are not telling the whole and the same story
- Injuries form a substantial proportion of road crash costs (NL 50%)
- Major problems with data on injury crashes: definitions, data quality, international comparability
- European Union: a common “injuries reduction target”
- 2011 IRTAD report ‘Reporting on serious road traffic casualties’
The Netherlands relatively safe, however we still wish to improve

• 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 2020
• Results in the past are no guarantee for the future!!
• Next steps?
Effective interventions in traditional areas (‘evidence based interventions’)

- Human behaviour (legislation + enforcement)
  - Speed, alcohol, seat belts and safety helmets
  - Driver education, schools, mass-media campaigns

- Infrastructure: black spots, safe designs, manuals

- Safe vehicles, crashworthiness, inspection, special attention for trucks/buses and motorised two wheelers

- Post-crash response

- Always new developments: such as drugs, mobile phones, ageing society
Our fundamental road safety problem

- Today’s road traffic is inherently unsafe
- Not sufficient to take traditional measures
- 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 whether a road user makes a mistake or error in preventing a crash
- Another approach is needed: Safe System Approach
In general, road crashes are the result of a chain of events

- Intervening in chain of ‘system design’ to ‘traffic behaviour’ as early as possible
- Don’t blame the victim

Who or what caused the crash?

How could this happen?

Dr. Marjan Hagenzieker
Ankara / Istanbul, 6-7 November 2012
Traffic management & road safety

Dr. Marjan Hagenzieker

Istanbul, 7 November 2012
Putting people at the centre

• Design the road system to expect and accommodate *human error*, because it is inevitable that road users make mistakes and sometimes violate the law (and crashes occur)

tailor environment (road, vehicle) to human characteristics

prepare road user for traffic tasks (training, education)
  • beware: not all training is beneficial -> e.g. skid training!

• In a crash, interaction between vehicle – roadway – human body must be managed so that serious injury likelihood is minimized, if not eliminated
Sustainable Safety: the first example of a Safe System Approach

Aims

– Prevention of serious crashes by eliminating conditions/circumstances where serious crashes can occur
– Reduction/elimination of probability of serious injury when a crash occurs

Report downloadable from www.sustainablesafety.nl
Vision on road safety and on road safety research

- **Ethical**
  - Humanitarian and economical reasons
  - A proactive approach

- **An integral approach**
  - Integrate man, vehicle and road into a safe system
  - Covers the whole network, all vehicles, all road users
  - Align with other policy areas: infrastructure, planning, health, etc.

- **People are the measure of all things**
  - Human capacities and limitations are the guiding factors

- **Reducing latent errors (system gaps) of the system**
  - which means we will not be fully dependent on whether a road user makes a mistake or an error in preventing a crash

- **Use criterion of preventable injuries**
Success factors of road safety in the Netherlands

- High political interest (Dutch Parliament)
- Road Safety Strategy: ‘Sustainable Safety’
- Road safety targets + targeted programmes
- Key stakeholders act: Transport and Justice Ministries, provinces, municipalities, police forces, interest groups, etc.
- National road safety research institute (SWOV)
- Advocacy work by many, such as ngo’s

Keywords:
- Persistence
- Analysis

Dr. Marjan Hagenzieker
Ankara / Istanbul, 6-7 November 2012
10 years sustainable safety in NL: An assessment

• Many measures implemented, e.g.
  – 41,000 km of 30 km/h road and over 33,000 km of 60 km/h road constructed (= ca 50% of total length)
  – Regional traffic enforcement teams
  – Education for specified target groups
  – Vehicle safety measures (EU)

• Estimated 1,600-1,700 fatalities saved 1998-2007
  – About 33% fewer than expected without these measures

• Cost beneficial: BC ratio 3.6 : 1

Source: SWOV; Weijermars & Wegman (2011)
Effective measures are a result of …
Research: the numbers tell the tale

- Good data systems
  - IRTAD / WHO data manual (police data, hospital data, SPIs)

- Road safety research
  - Trained researchers embedded in an academic culture

- Research to better understand why crashes occur and injuries

- Research to support road safety management
  - Road safety strategies + monitoring + evaluation
  - Decision making on interventions (effectiveness and Efficiency Assessment Tools)
  - Advocacy
Transferability of knowledge?

• 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

• Customize knowledge to local conditions

• Where to find knowledge, can I trust it and is it applicable to my circumstances?
  – SWOV offers support: training
  – Delft University of Technology: www.roadsafetycourse.org
Thank you for your attention

Teşekkürler
TU Delft helps improving traffic safety in Turkey

28 November 2012 by Webredactie T&P

Representatives of different organizations, companies and sectors, among which road safety, took part in the visit. Marjan Hagenzieker, associate professor at CITG / Transport & Planning and also scientific advisor at the SWOV Institute for Road Safety Research, was member of the Dutch delegation travelling to Turkey. This mission took place 5-7 November 2012 to commemorate 400 years of diplomatic relations between Turkey and the Netherlands.

The Netherlands have been among the world leaders in the area of road safety for years. To compare: per 100.000 inhabitants, a factor three more people die in crashes in Turkey than do in the Netherlands. Plenty of room for improvement, as Prime Minister Erdoğan also stressed at the launch of the Turkish Road Safety Strategy in July, earlier this year.

As part of the visit, two seminars were chaired by Marjan Hagenzieker about strategies for road safety improvement. In these seminars, which were held in Ankara and Istanbul, experiences were shared, in addition to Turkish contributions about the local state of affairs. In addition to DUT and SWOV – with contributions about road safety in the Netherlands and the role of Sustainable Safety– several other Dutch companies (Gatso, Goudappel Coffeng and Philips Lighting) shared their experiences.

In the seminars it became clear that the road safety topic is high on the political agenda in Turkey. In Ankara as well as in Istanbul, about seventy representatives of national and local governments, the academic environment, and trade and industry participated. In Istanbul, the recently appointed Dutch Minister for Foreign Trade and Development Cooperation, Lilliane Ploumen, held an opening speech.

The visit has resulted in many contacts with relevant Turkish ministries, local governments, universities and companies.