evaluation, validation, implementation
of measures to improve transport safety
13th Workshop, Corfu - 5th and 6th October 2000

"Effectiveness evaluation results of road safety measures world-wide"

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Road Safety Internationally

☑ The best road safety performing countries of the European Union and world-wide have moved on from fragmented actions to integrated targeted Road Safety Strategic Plans.

☑ This strategic approach of targeted road safety programmes has also created opportunities for enhancing knowledge about the effectiveness of countermeasures.

☑ The number of effective measures has increased and - to some extent - the consequences of several policy choices can be predicted.
The development of the Greek Road Safety Strategic Plan 2001 – 05

- It is an ongoing Research Project being carried out by DTPE/NTUA in collaboration with ARRB Transport Research and funded by the Greek Ministry of National Economy.

- It is a project of national importance, which needs in depth analysis and credible input from international research and experience.

- It proposes a set of promising road safety measures to be considered by the road safety decision makers.
Road Safety Measures Effectiveness

(Source: ATSB 1999)
Road User Behaviour: Drinking and Driving

Australia:

- Application of Random Breath Testing (RBT).
- Setting of low permissible blood alcohol levels (effectively zero for novice drivers).
- Use of advertising/publicity campaigns.
Road User Behaviour: Drinking and Driving

USA:
✓ Defining high visibility, frequent checkpoints.
✓ Setting high publicity.

Studies concerning 14 different campaigns implemented from 1986 to 1996 reported 8% to 71% reduction in alcohol related crashes, while alcohol related traffic fatalities have declined falling almost 30% during the same period.

New Zealand:
✓ Compulsory breath testing (CBT) enforcement programs.
✓ Increase in the number of breath testing devices available to enforcement authorities.
✓ Maintenance of publicity levels to support CBT programs.
Road User Behaviour: **Speed Detection**

**Australia:**

- Extensive use of **speed cameras**.
- Major **publicity campaigns** focusing on the need for concentration during travel.
- Intensive policing of **speed limits**.

![Bar chart showing % of vehicles exceeding speed threshold from 1989 to 1998.](chart.png)
Road User Behaviour: **Speed Detection**

**USA:**

*Similar results demonstrating safety benefits associated with lower speed limits.*

**New Zealand:**

- **Improved targeting** of speed cameras enforcement programs.
- **Increase** in speed camera **program hours**.
- **Introduction** of **advanced laser speed detectors** to supplement the speed camera program.
- **Maintenance of publicity levels** to support the speed camera programs.

*Speed as a contributing factor dropped by 6% in the first year and 6% again in the second year.*
Road User Behaviour: **Seatbelts**

- Advertising campaigns promoting adult seat belt usage.
- Supporting increased enforcement of seat belt offences.

**Australia:**

Australia has achieved very high front seatbelt wearing rates (around 90-95% in 2000).

**USA:**

Studies showed that campaigns focusing on front seat belt usage resulted in an respective increase from an estimated 11% in 1981 to 69% in 1997.

**New Zealand:**

Related studies reported that adult compliance rates increased to 88% in front seats and 56% in rear seats.
Road Environment

**Australia:**

National accident Black Spot Programme
(cost / benefit ≅ 1 / 4)

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction of new roundabouts</td>
<td>80%</td>
</tr>
<tr>
<td>New traffic intersection signals</td>
<td>55%</td>
</tr>
<tr>
<td>New pedestrian signals</td>
<td>45%</td>
</tr>
<tr>
<td>Remodelling traffic signals</td>
<td>45%</td>
</tr>
<tr>
<td>Construction of traffic islands and medians</td>
<td>40%</td>
</tr>
<tr>
<td>Road resurfacing and shoulder sealing</td>
<td>20%</td>
</tr>
<tr>
<td>Tactile edgelining, improved road linemarking and installation of raised reflective pavement markers</td>
<td>10%</td>
</tr>
</tbody>
</table>
Vehicle Safety

**Australia:**

- **Development and implementation of the Australian Design Rules (ADRs),** which seeks to improve the protection of vehicle occupants in crash situations.
- **ADRs apply only to the manufacture** of new vehicles. Approximately 40% of vehicles involved in casualty crashes in Australia are more than 10 years old, and it will take around 20 years before the entire vehicle fleet in Australia will be renewed.

**USA:**

- Between 1990 and 1996, air bags were much more available in passenger cars. Air bags have saved 1.198 lives from 1987 to 1995.
Estimated Combined Future Effect of Safety Measures

Australia:

The following reductions in road fatalities are foreseen by the year 2004 due to its contributing factor:

<table>
<thead>
<tr>
<th>Road user behaviour</th>
<th>14%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road improvements</td>
<td>13%</td>
</tr>
<tr>
<td>Vehicle safety features</td>
<td>9%</td>
</tr>
<tr>
<td>Emergency medical services</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td><strong>35%</strong></td>
</tr>
</tbody>
</table>
Conclusions

☑️ This research identified a series of promising measures, focused on promoting safety in specific key areas (drinking and driving, speeding, seatbelts, black spot programmes).

☑️ Quantified evaluation of measures' effectiveness is possible but the results should be considered with great attention.

☑️ Countries or societies can be very different from each other both at a structural and a cultural level. Promising measures internationally cannot just be adopted without thinking and understanding.

☑️ Relevant knowledge is incomplete and uncertain. Targeted research on the measures' effectiveness in each country or even region is needed.
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