



International Cooperation on Theories and Concepts in Transport Safety

**evaluation, validation, implementation  
of measures to improve transport safety**

13<sup>th</sup> Workshop, Corfu - 5<sup>th</sup> and 6<sup>th</sup> October 2000

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

**Michael Tziotis**

Research Director

ARRB

**Chris Karadimas**

Research Associate

NTUA

**George Yannis**

Lecturer

NTUA

**George Kanellaidis**

Professor

NTUA



National Technical University of Athens

Department of Transportation Planning and Engineering

**arob**

Transport

Research

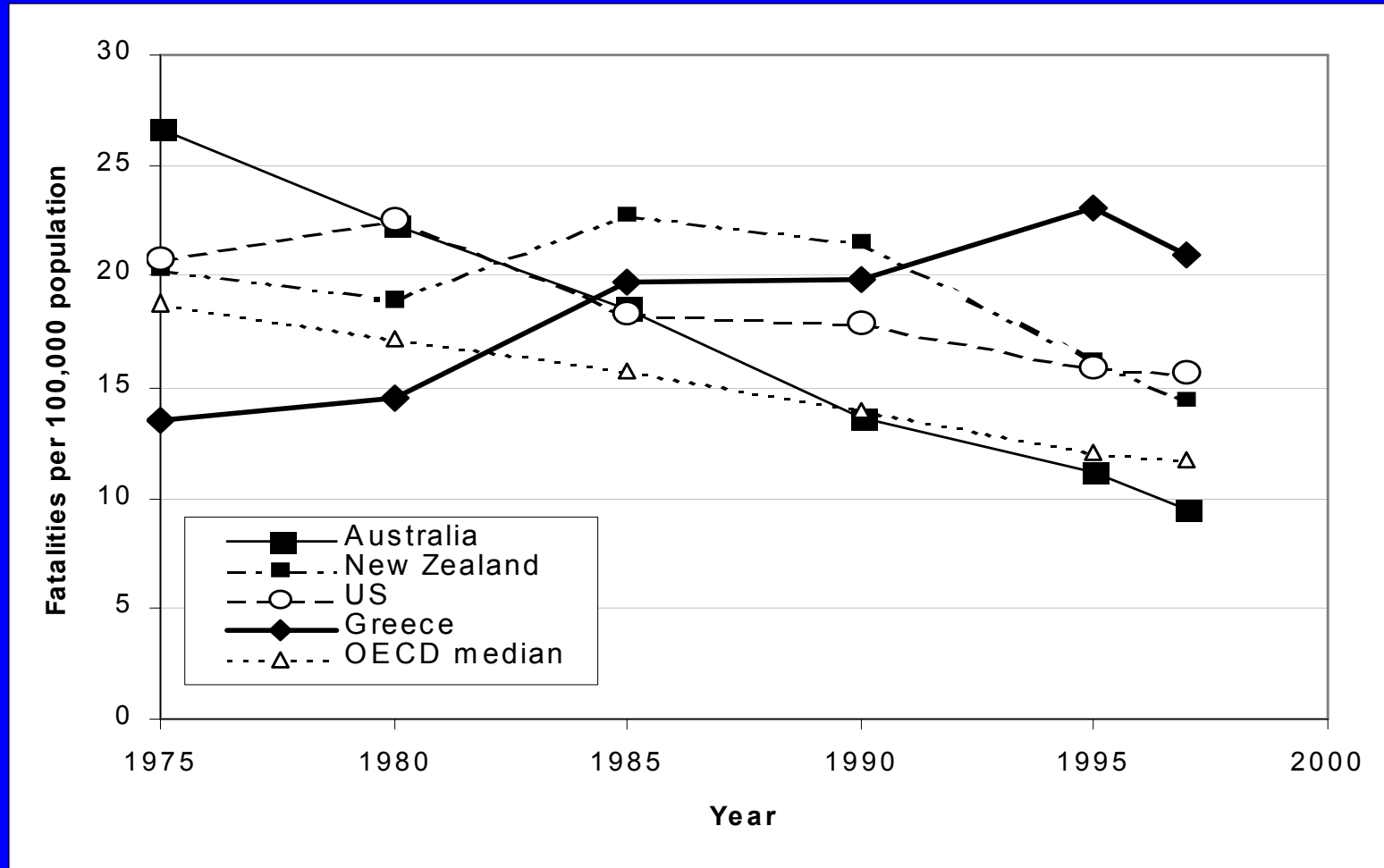
## Road Safety Internationally

- ☑ 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.

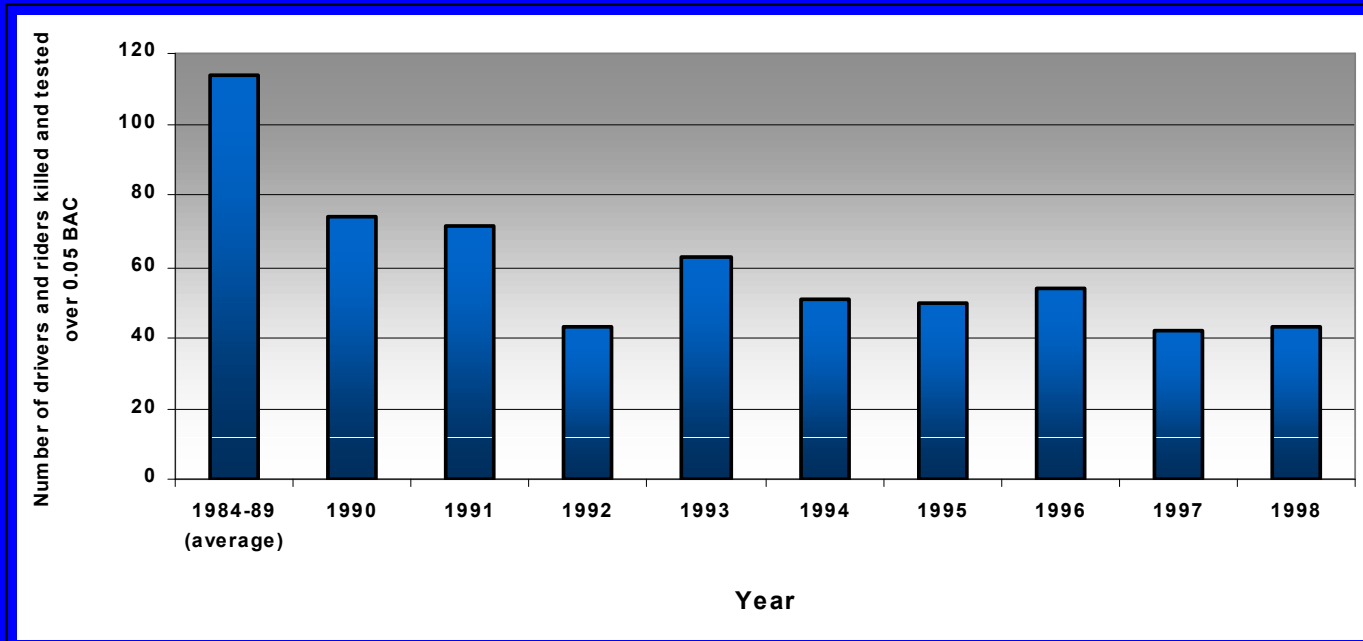
# Road Safety Measures Effectiveness



(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.**

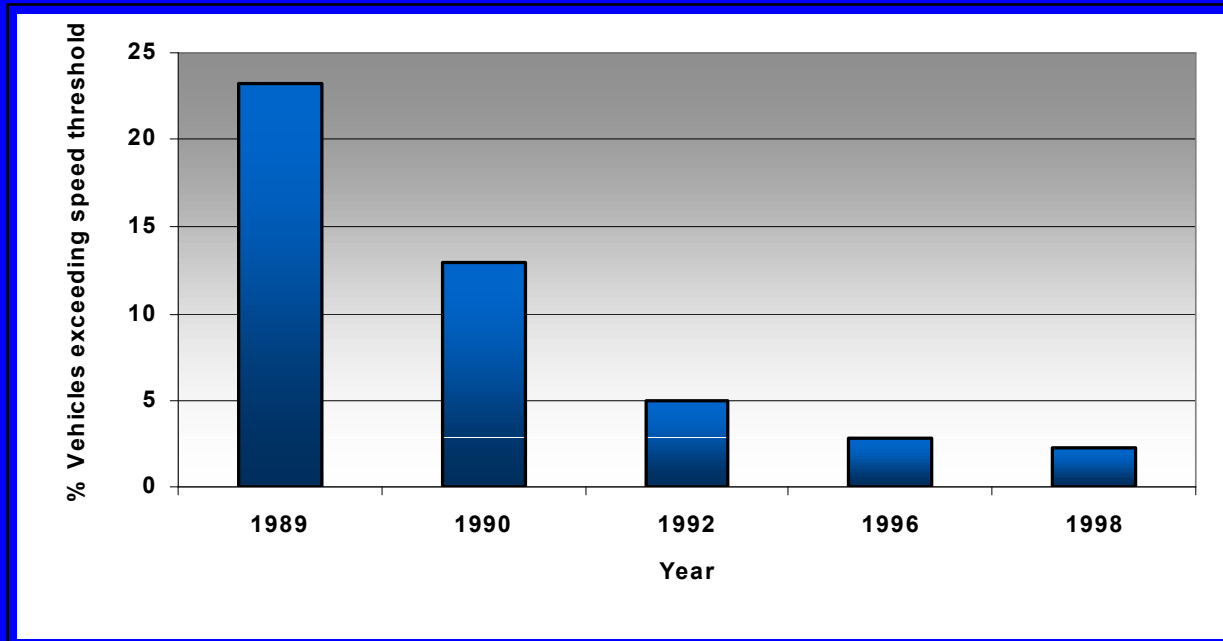
*Studies concerning 14 different campaigns implemented from 1986 to 1996 reported 8% to 71% reduction in alcohol related crashes, while alcohol related traffic fatalities have declined falling almost 30% during the same period.*

## **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**.

## 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.* <sub>9</sub>

# Road Environment

## Australia:

### National accident **Black Spot Programme**

(cost / benefit  $\cong$  1 / 4 )

Construction of new <b>roundabouts</b>	80%
New <b>traffic intersection signals</b>	55%
New <b>pedestrian signals</b>	45%
<b>Remodelling traffic signals</b>	45%
Construction of <b>traffic islands and medians</b>	40%
<b>Road resurfacing and shoulder sealing</b>	20%
Tactile <b>edgeline</b> , improved road <b>linemarking</b> and installation of raised reflective <b>pavement markers</b>	10%

# 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:

Road user behaviour	14%
Road improvements	13%
Vehicle safety features	9%
Emergency medical services	5%
<b>Overall</b>	<b>35%</b>

## 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.



International Cooperation on Theories and Concepts in Transport Safety

**evaluation, validation, implementation  
of measures to improve transport safety**

13<sup>th</sup> Workshop, Corfu - 5<sup>th</sup> and 6<sup>th</sup> October 2000

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

**Michael Tziotis**

Research Director

ARRB

**Chris Karadimas**

Research Associate

NTUA

**George Yannis**

Lecturer

NTUA

**George Kanellaidis**

Professor

NTUA



National Technical University of Athens

Department of Transportation Planning and Engineering

**arob**

Transport

Research