Best Practices for Efficient Traffic Safety Law Enforcement Programs

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Objectives - Methodology

Objectives

- Identify key elements of the traffic enforcement system to improve road safety.
- Develop a framework of principles and proposals for selected enforcement programs.

Methodology

- Exploit international experience.
- Map current enforcement practices.
- Present an example from Greece.
- Evaluate and prioritize enforcement activities.

Enforcement of Seat Belt Use Worldwide

- Enforcement in combination with efficient informational and public awareness campaigns.
- Mild and continuous enforcement following in time the messages of the awareness campaign.
- Impose seatbelt use through relevant incentives.
- Utilization of warning devices inside the vehicle.

Enforcement of Drink Driving Worldwide

- Systematic enforcement of the legal blood-alcohol concentration limits.
- Inform drivers on relevant Traffic Police actions.
- Implementation of informational campaigns.
- Promotion of alcohol consumption avoidance before driving.
- Increase of the perceived probability for detecting offenders through the implementation of programmes including:
  - ✓large number of controls
  - ✓unpredictable controls in terms of time and location
  - ✓visible enforcement

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Enforcement of Speeding Worldwide

- Increase the perceived probability for detecting offenders
- Use of fixed means at evident locations and to enforce a significant number of drivers.
- Most common methods for monitoring:
  - ✓parked patrol car
  - ✓moving patrol car
- Use of real and virtual camera devices.

Principles of Selected Enforcement Programmes

- Intensify enforcement and presence of Traffic Police
- Select appropriate control sites
- Select appropriate control time periods
- **More frequent controls and lower fines**
- Collect fines effectively

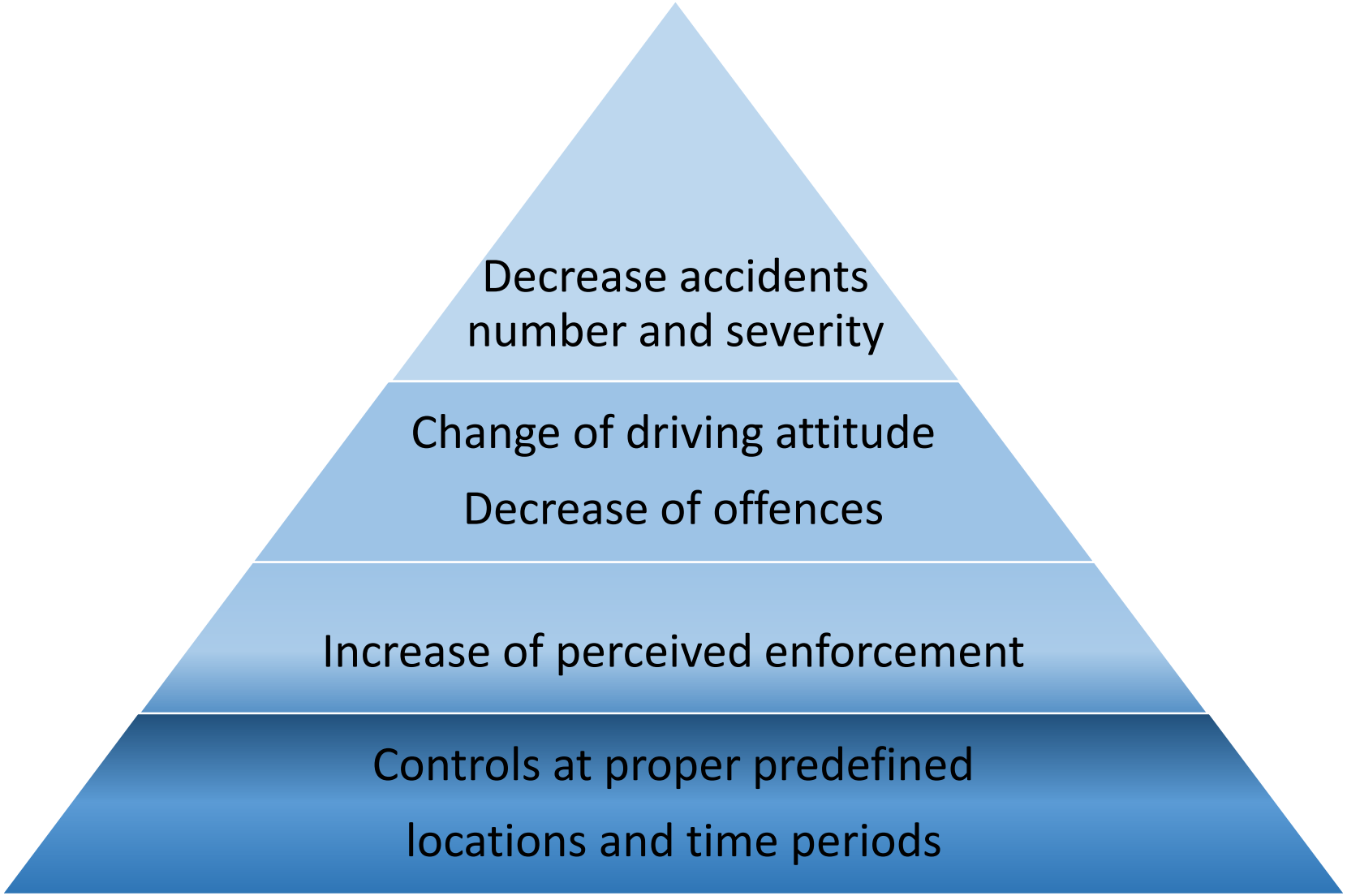
Principles of Selected Enforcement Programmes

- Operate Traffic Police with the appropriate personnel
- Traffic Police training in new technologies
- Supply Traffic Police with appropriate devices
- Use smart enforcement systems (e.g. cameras, section control)
- Develop drivers' rehabilitation programmes

Principles of Selected Enforcement Programmes

- Monitor implementation of enforcement activities
  - Number of traffic controls (speed, alcohol, belt, helmet, etc.)
  - Number of Traffic Police staff performing controls per day, region etc
  - Number of detected offences
  - Number of offences estimated based on surveys, studies etc
- Monitor road safety level
  - Number of road accidents, fatalities, injuries
  - Seat belt-helmet use, number of drunk drivers, speeding drivers
  - Number of offences estimated based on surveys, studies, etc
  - Results of random sampling controls
- Monitor enforcement effectiveness
  - Measure effectiveness using good-practice methods
  - Effectiveness concerning specific offences, road users, areas etc
  - Identification of effective and non-effective enforcement activities

Road Safety Enforcement Programme Objectives



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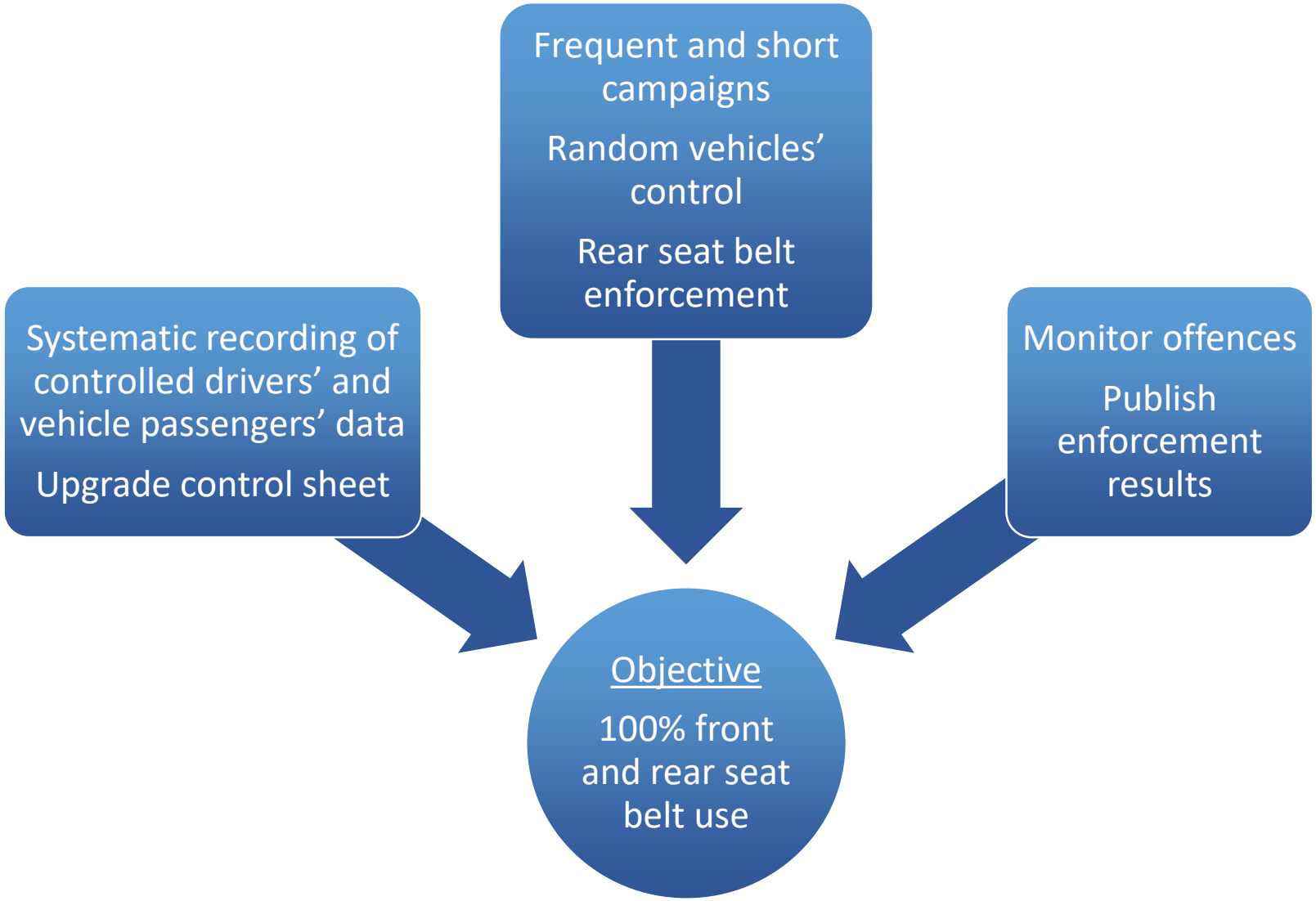
Seat Belt Enforcement Actions



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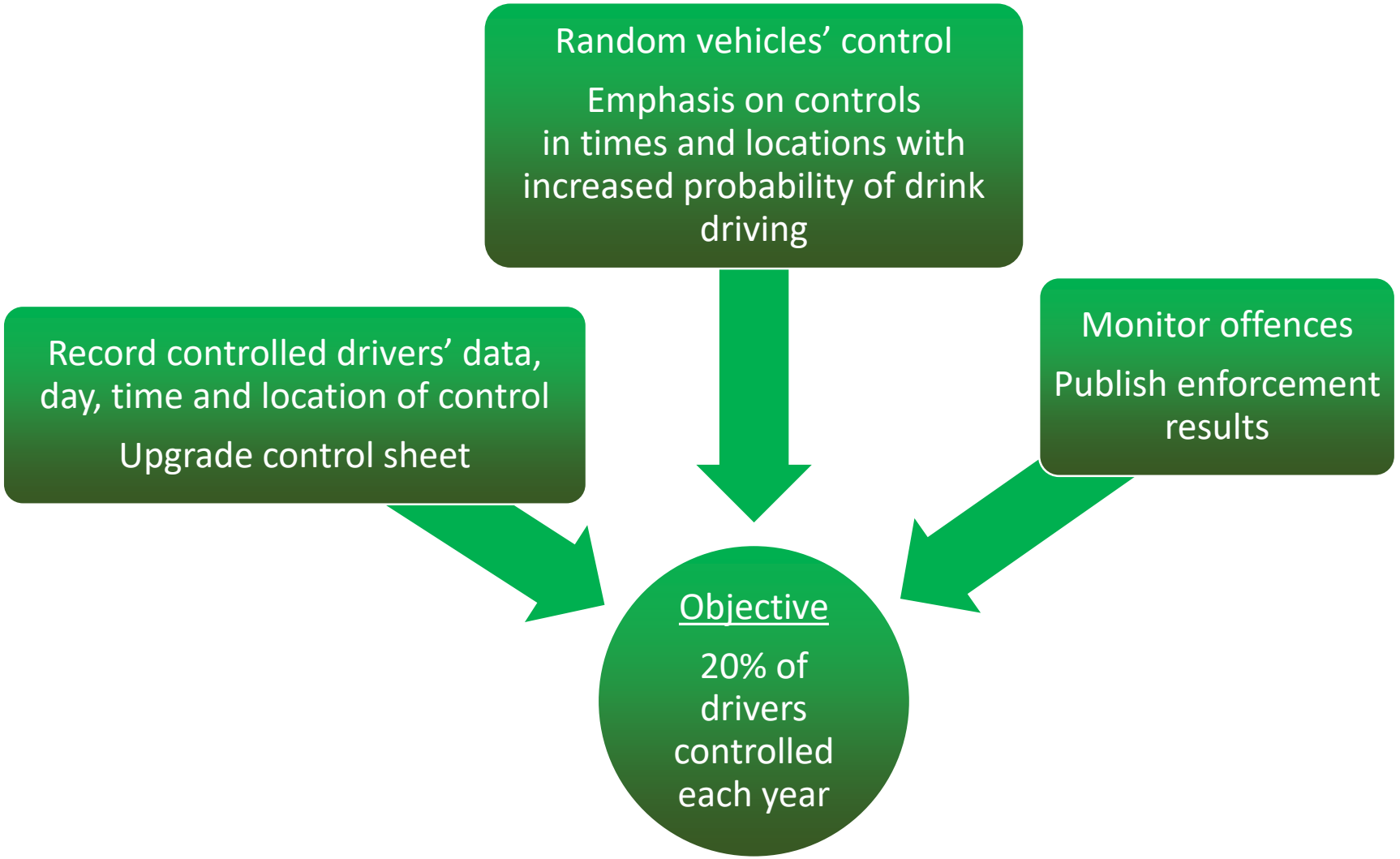
Drink Driving Enforcement Actions



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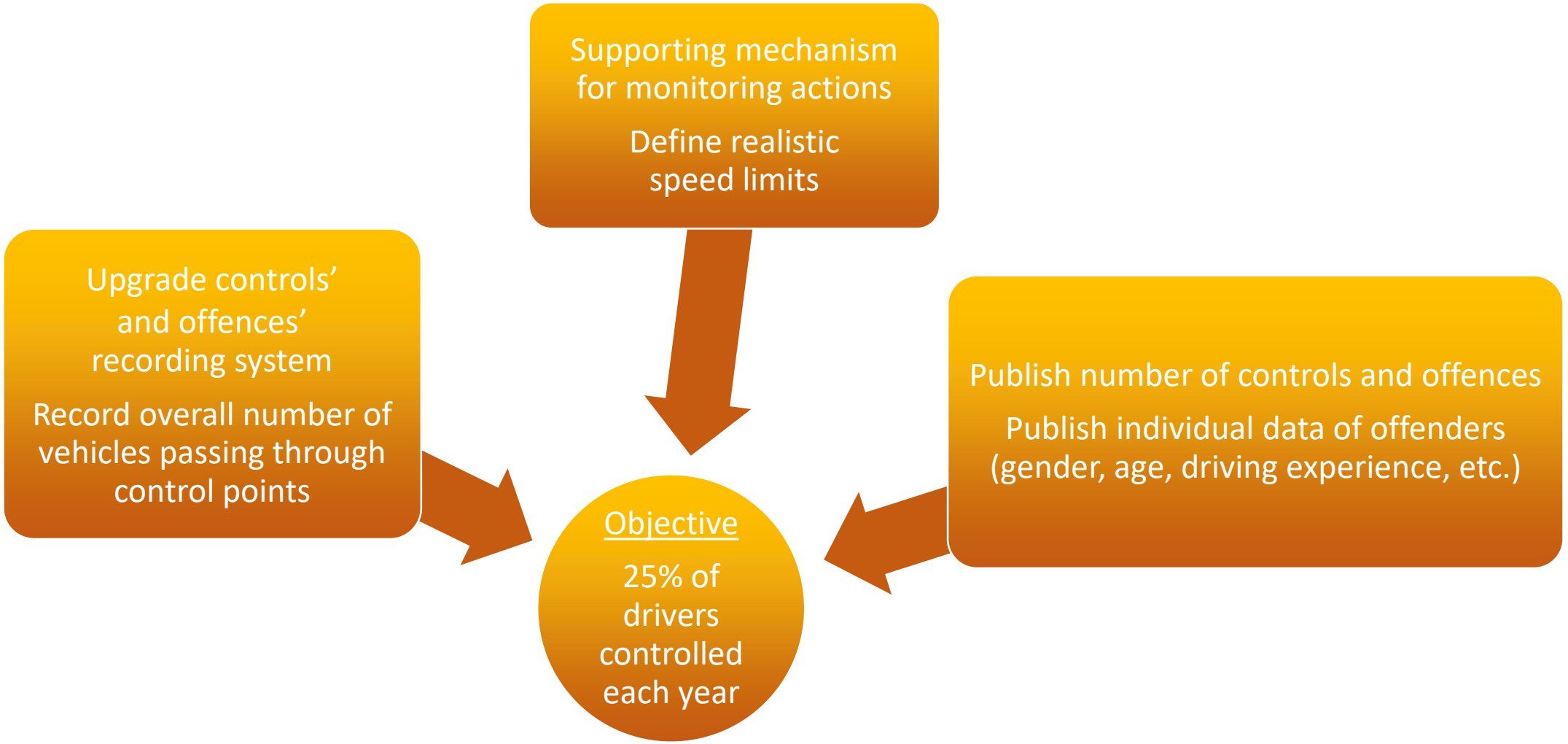
Speeding Enforcement Actions



International experience

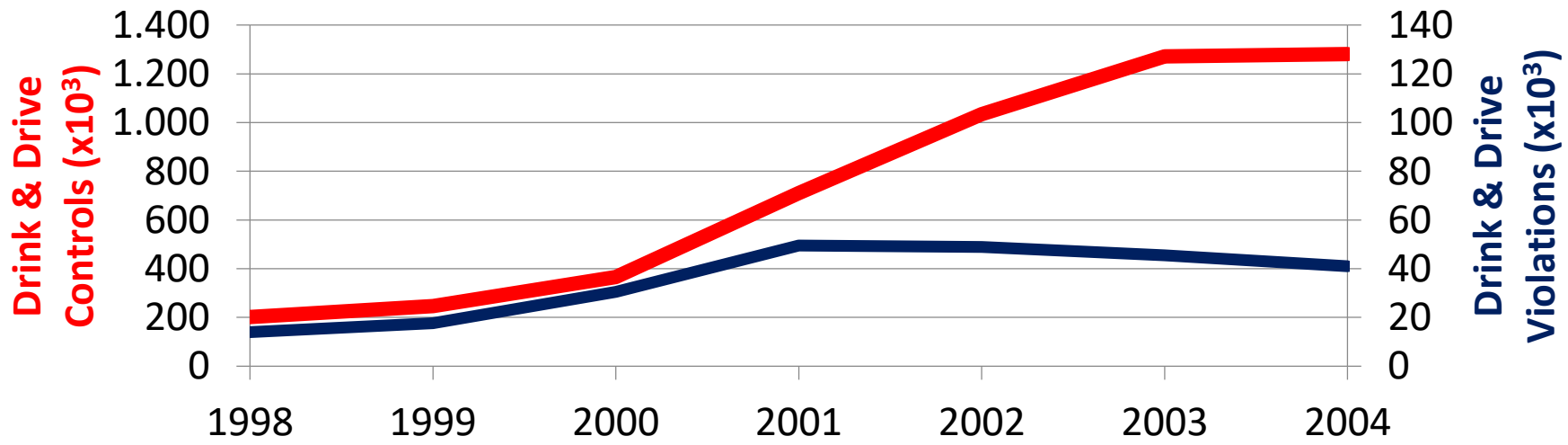
- Cost-benefit analysis results for road safety enforcement in different countries are very satisfactory for all types of enforcement schemes

Enforcement scheme	Country	B/C ratio range	
Concentrated general enforcement	Israel	3.5	5.0
Tripling stationary speed enforcement	Norway	6.5	
Tripling alcohol and seat belt enforcement	Norway	1.2	3.6
Increasing alcohol controls	Sweden and Norway	1.5	
Increasing speed controls	Sweden and Norway	2.0	8.8
Section automatic speed control on motorways	Austria	5.5	
Red light violations enforcement cameras	Scotland	2.2	
Red light violations enforcement cameras	Sweden	1.7	
Alcohol enforcement + publicity campaign	New Zealand	7.0	
Increased road safety enforcement + publicity campaign	Australia	3.9	7.9
Risky driving enforcement + publicity campaign	Switzerland	20.0	

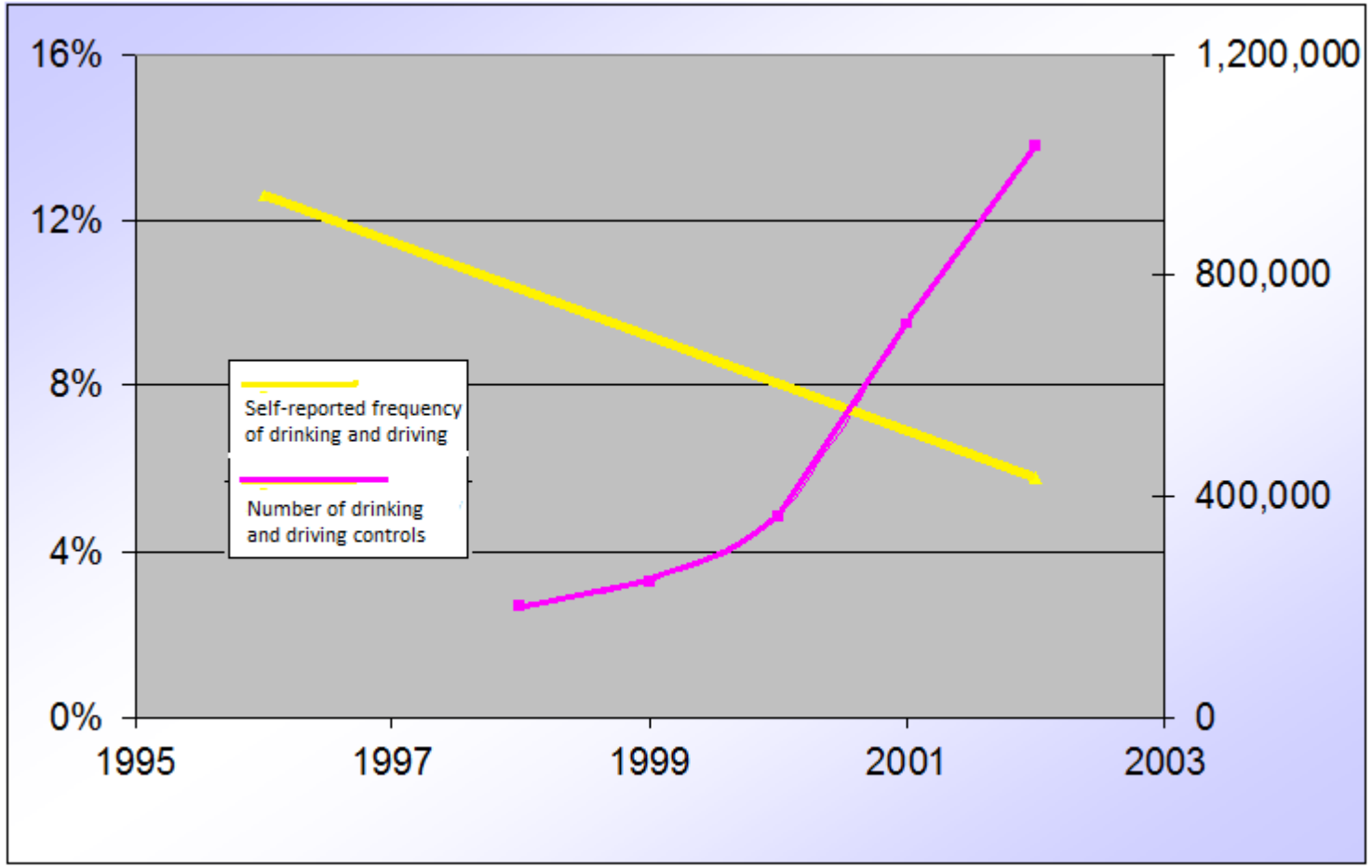
Source: ROSEBUD (2005)

Greece: Control vs Violations Efficiency

Greece	1998	1999	2000	2001	2002	2003	2004
Road Fatalities	2.182	2.116	2.088	1.895	1.654	1.605	1.670
Drink & Drive Controls	202.161	246.611	365.611	710.998	1.034.502	1.271.273	1.281.102
Drink & Drive Violations	13.996	17.665	30.507	49.464	48.947	45.546	40.986



Greece: Controls vs Behaviour Change



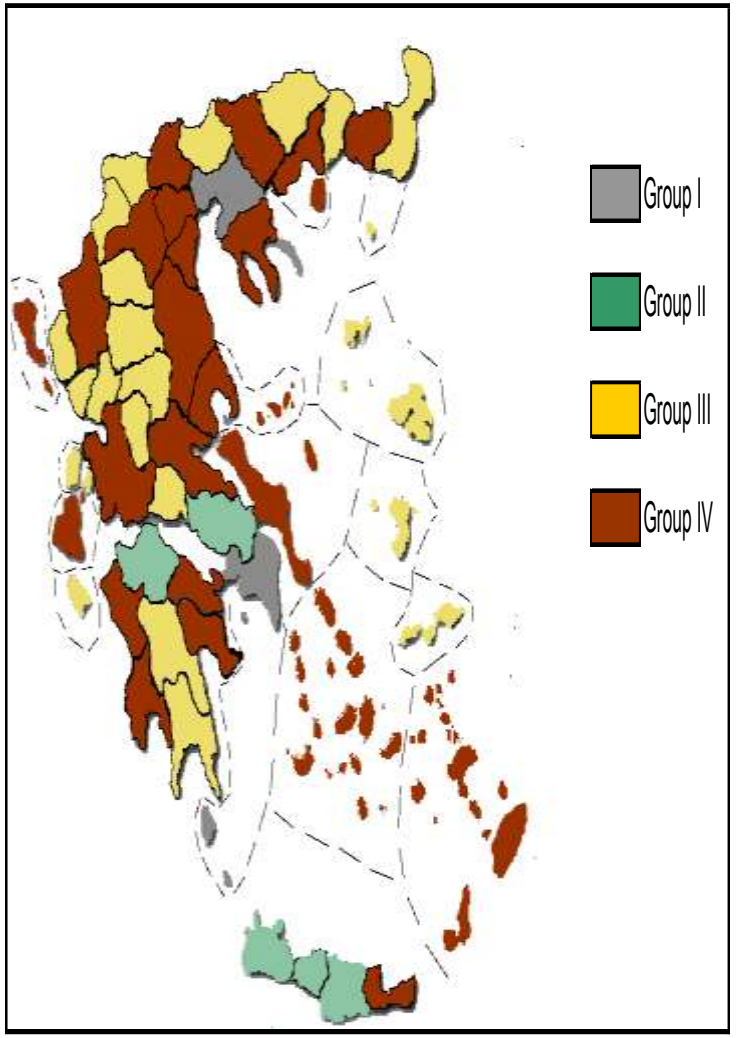
Source: SARTRE surveys (1996, 2002)

Greece: Modelling the effect of enforcement

- Data on road accidents / fatalities from the National Statistical Service of Greece
- Data on enforcement (controls, violations) and related costs from the Greek Police

- Cluster analysis of the 52 prefectures of Greece, based on road network, population density, vehicle ownership, traffic violations and accidents - 4 groups identified
- Poisson regression models for road safety in Greece in relation to enforcement, vehicles fleet, vehicle ownership, population:
  - Models with no time halo effect of enforcement ("conservative" scenario)
  - Models with a time halo effect of enforcement ("best" scenario)

- The effect of enforcement was significant in Groups II & IV



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Greece: Cost-Benefit analysis

- Calculation of accident socioeconomic cost in Greece: willingness-to-pay for accident risk reduction in Greece

	Conservative scenario	Best Scenario
Number of accidents prevented	772	1,142
Average accident cost (€)	128,972	128,972
Present value of benefits (€)	107,980,919	159,681,549
Cost of speed enforcement (€)	14,814,729	
Cost of alcohol enforcement (€)	24,709,862	
Total Enforcement Cost (€)	39,524,591	
Benefit - Cost Ratio	2.73	4.04

Conclusions

- A decrease in road accidents number and severity is achieved through the substantial change in driving behaviour and offence reduction.
- Increase of the perceived enforcement is achieved by frequent controls at many sites of the road network focusing on risk locations and hours.

Conclusions

- Effective enforcement programmes are reached through:
  - ✓increasing intensity of programs
  - ✓systematic monitoring (enforcement intensity, offences, driving behaviour)
  - ✓integrated communication policy (coordination with other actions, publishing actions and results)
  - ✓developing conscious safety culture for drivers (implement remedial programmes for recidivists, adopt point system)

Further Recommendations

- Enforcement should always be combined with the respective campaigns at national and local level.
- Collaboration on a regular basis between Traffic Police and relevant Experts (transportation engineers, communication specialists, psychologists, etc.)
- Publishing on a regular basis of control figures and their results in order to ensure the active commitment and involvement of road safety stakeholders.
- Study the specific features of each enforcement action (residential - non residential areas, time, day, vehicle type, etc.)

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