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Road crash and road crash injury data for setting and monitoring targets

UNECE Seminar on Improving Global Road Safety

Bishkek 1-3 December, 2009

Gayle Di Pietro, Global Road Safety Partnership

2009



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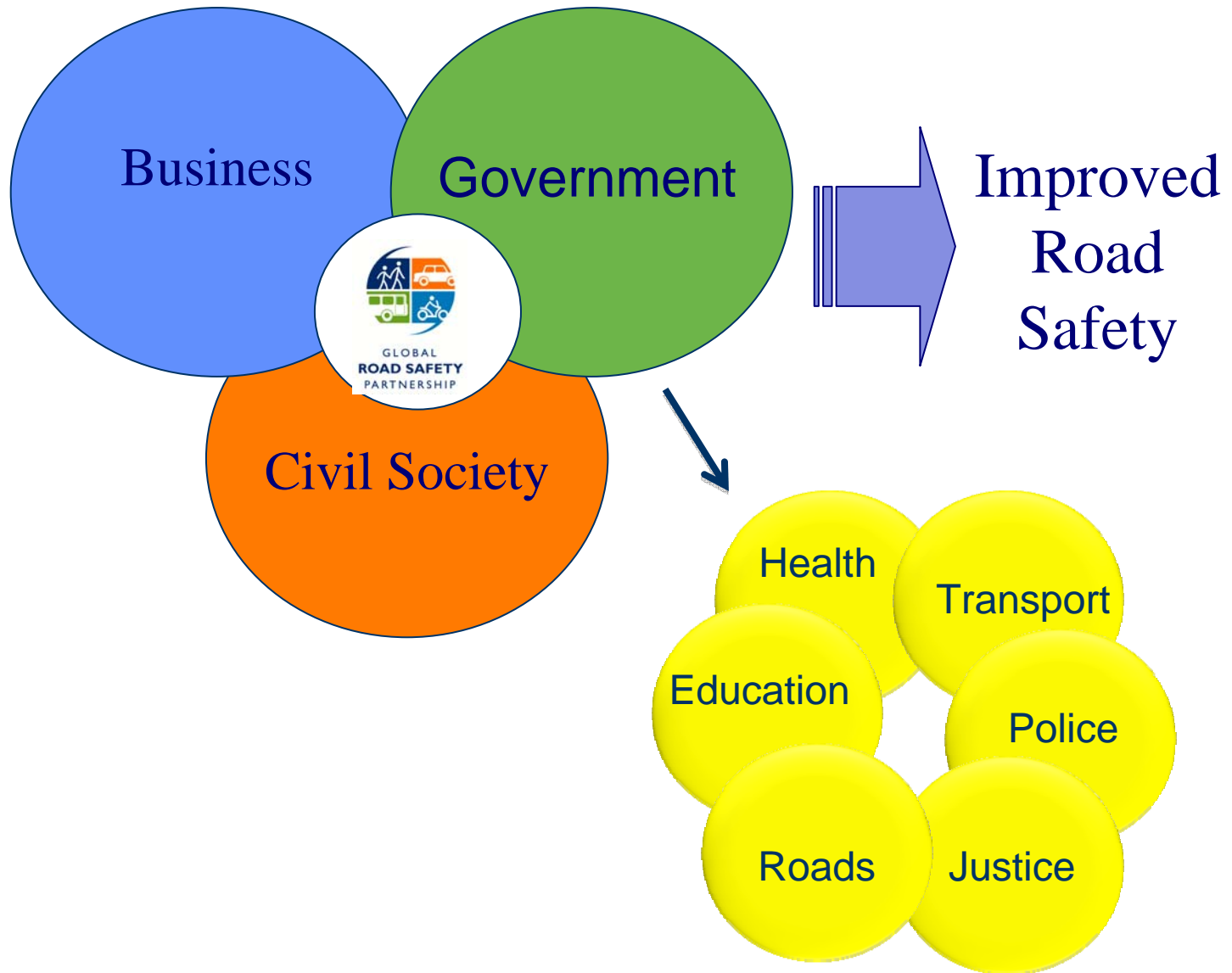
GRSP Mission

The Global Road Safety Partnership is a not-for-profit organisation dedicated to the sustainable reduction of road death and injury in low- and middle-income countries



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Partnership – the core of GRSP





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Partnership – at every level



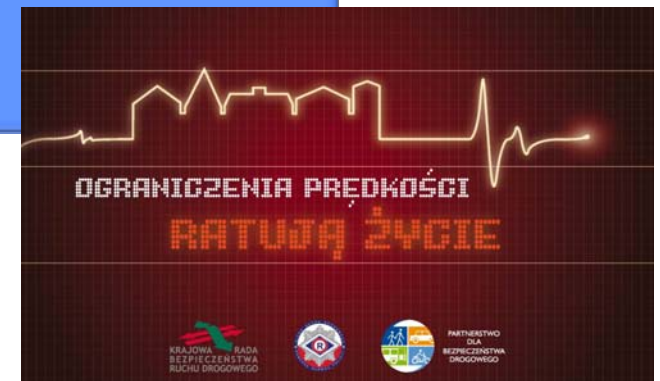
Global



Regional

Community

National

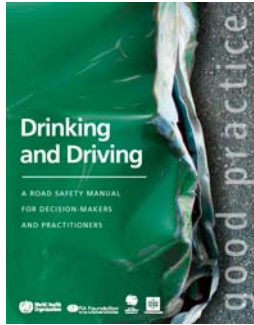


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What we do – implementation



Good Practice



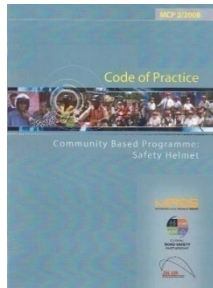
Knowledge Share



Global Advocacy



Regional Workshops



Project Guidelines



Demonstration Projects



Professional Development

Az övet bekötni hátul is gyerekjáték.



Seat Belts



Safe routes to school



Drink Driving



City Awards



Fleet Safety

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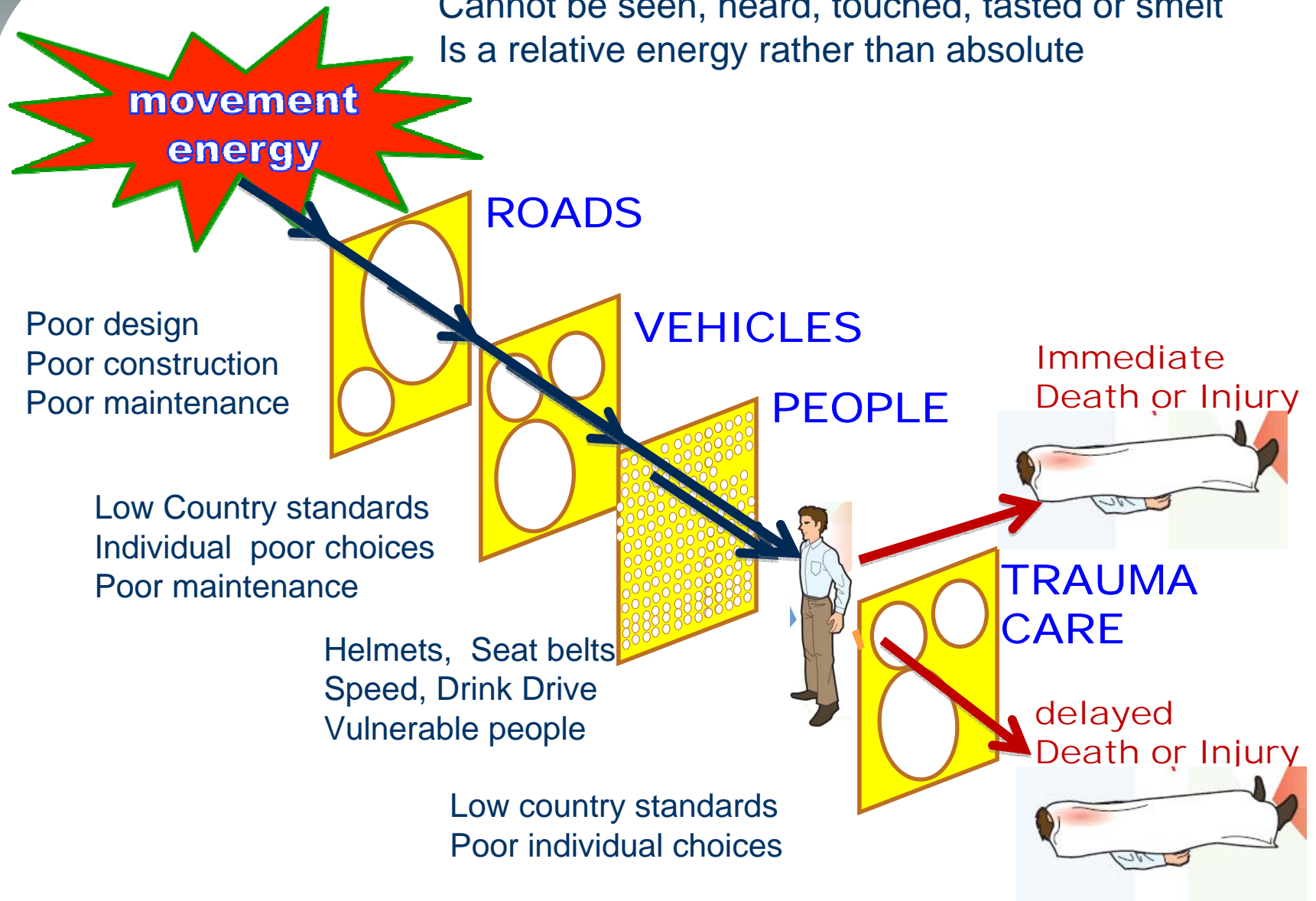




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Safe System

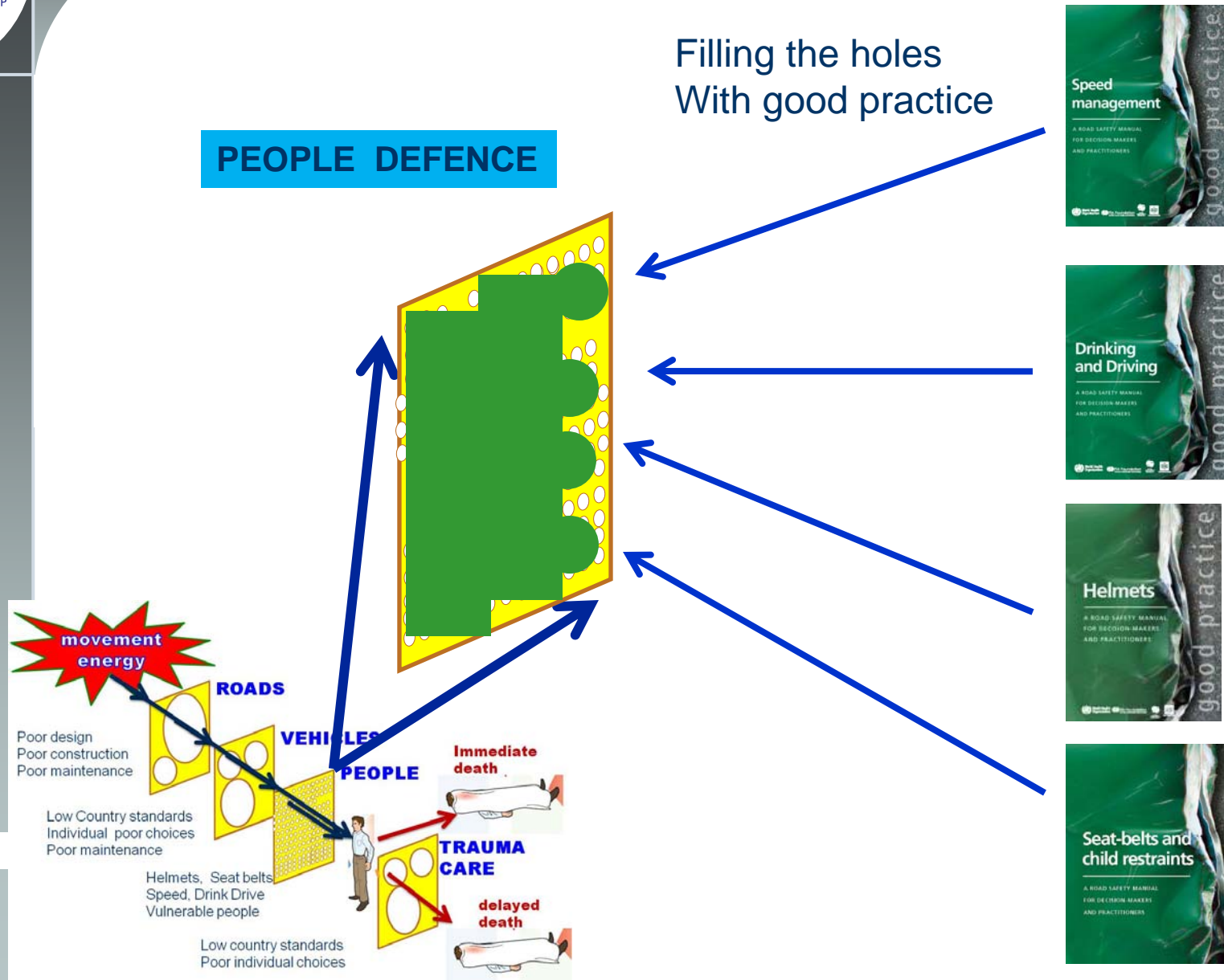
Cannot be seen, heard, touched, tasted or smelt
Is a relative energy rather than absolute





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GRSP Focus on Good Practice

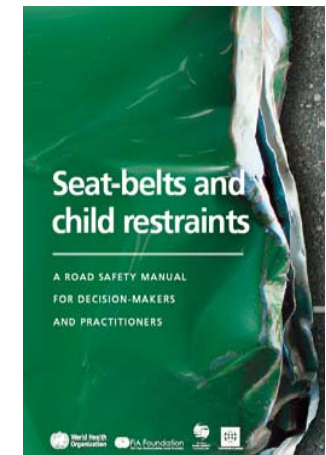
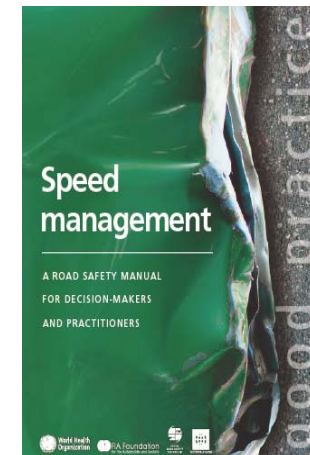
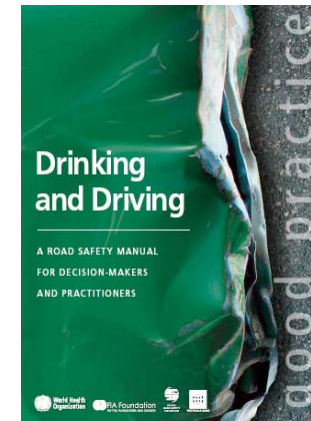
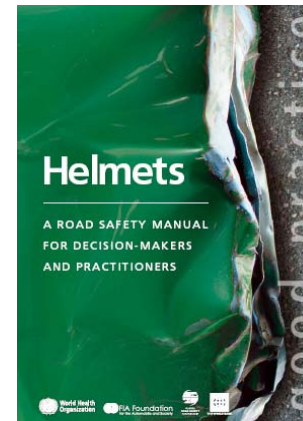




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UN Road Safety Collaboration

- GRSP, WHO, the FIA foundation and WB have developed a series of manuals on:
 - helmets
 - drinking and driving
 - speed management
 - seatbelts
 - road safety management
 - data collection



www.who.int/roadsafety



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Data

DATA SYSTEMS

A ROAD SAFETY MANUAL
FOR DECISION-MAKERS
AND PRACTITIONERS



FIA Foundation
for the Automobile and Society



good practice



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Why collect data and build evidence on road crashes and road crash injuries?



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Why data is important?

- Understand the problem and social and economic burden of road crashes and injury
- Plan effective interventions
- Advocate action and investment in road crash and road crash injury prevention programmes



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Planning— data can help with...

- understanding the scope of the problem, also in comparison to other public health issues
- understanding crash and injury trends
- identifying high risk groups and locations
- identifying main risk factors (crash and injury)
- designing effective strategies, interventions
- facilitating objective decision-making about resource allocation (time, money)
- monitoring and evaluating effectiveness towards achievement of targets



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Advocacy– data can help with ...

- illustrating to politicians and the public the magnitude of the problem and burden vs other (competing) social and economic issues
- aiding politicians demonstrate the value of unpopular policies (e.g. speed limits) to the public and solidly face opposition
- winning public support and demand for safer roads



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Road crash and injury data indicators

Indicators are important tools for

- measuring the magnitude of a problem,
- setting targets and
- assessing performance



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What are common indicators?

Number of injuries

Absolute figure of people injured
Serious or slight injuries

Number of deaths

Absolute figure of people killed

Fatalities per 10 000 vehicles

Ratio fatalities per vehicles

Fatalities per 100 000 population

Ratio fatalities to population

Fatalities per vehicle km travelled

Ratio fatalities to
vkm travelled

Disability adjusted live years (DALYS)

Healthy life years lost
due to disability and

mortality

2009





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What are common data sources?

Police

Crash, victim, location, injury
related information

Health sector

Injury severity and costs, victim
related information

Insurance firms

Crash, victim, location, injury
related information

Companies with vehicle fleets

Same + damage and losses

Government planning departments

Population, exposure, health,
economic, fuel, pollution

Special interest groups

Research, advocacy, unions,
institutions involved in safety activities

International databases

IRTAD, CARE

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Other sources - Special surveys

- In-depth crash investigations
- Community based surveys eg Red Cross
- Road user surveys - conflicts, seat belt and helmet wearing, speeds, drink-drive, violations
- Travel surveys and origin destination
- Crash costing
- Private sector studies – crashes involving people travelling for work purposes



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Brazil - Health sector indicators

Sao Jose dos Campos

	2007	2008
Fatalities and serious injuries (per/10,000 vehicles)	14.04	12.49
Hospital admissions from road crashes	866	569

Guaiba

48% reduction in hospital occupancies due to road crashes

63% reduction in related social, medical etc costs

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*Data for 2007 vs 2008





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Additional indicators?

What data is needed to set and achieve targets that are evidence based?



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Data needs for setting targets

What can be measured can be managed!

Minimum data needs for general road crash and casualty reduction target setting

Data needs vary by type of intervention

Common indicators (slide 6)

Injury severity (slight, serious)

Demographic (age, gender, population)

Traffic volume (by mode)

Safety indicators (speed, seat-belts)

Crash location

Vehicle registration

Social, health economic costs



Data reliability

- Accurate data is critical for setting achievable targets
- Shortfalls and under-reporting
influence understanding of the situation
complicate monitoring and evaluation, also for target setting purposes

Netherlands comparison of police and health data (2007)

Up to 6% fatalities, 40% of in-patients and 86% of minor injuries were not reported by police



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Other data concerns

- Poor quality and missing data
- Burden on police and health ‘collectors’
 - Police are not always sufficiently trained for data collection, e.g. injury definitions
 - Health sector sometimes lacks the tools and systems
- Inadequate analysis system
- Access to information restricted
 - This hinders proper planning, monitoring and evaluation of prevention interventions



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Other data concerns

- Use of vehicle registration can be problematical due to
 - delays in adding or removing vehicles
 - changes in definitions
- Changes in traffic system and economic factors (e.g. rise in oil price) can lead to changes in
 - choice of traffic mode
 - crash exposure

London congestion charge has contributed to 40 -70 fewer annual personal injury accidents in the zone*

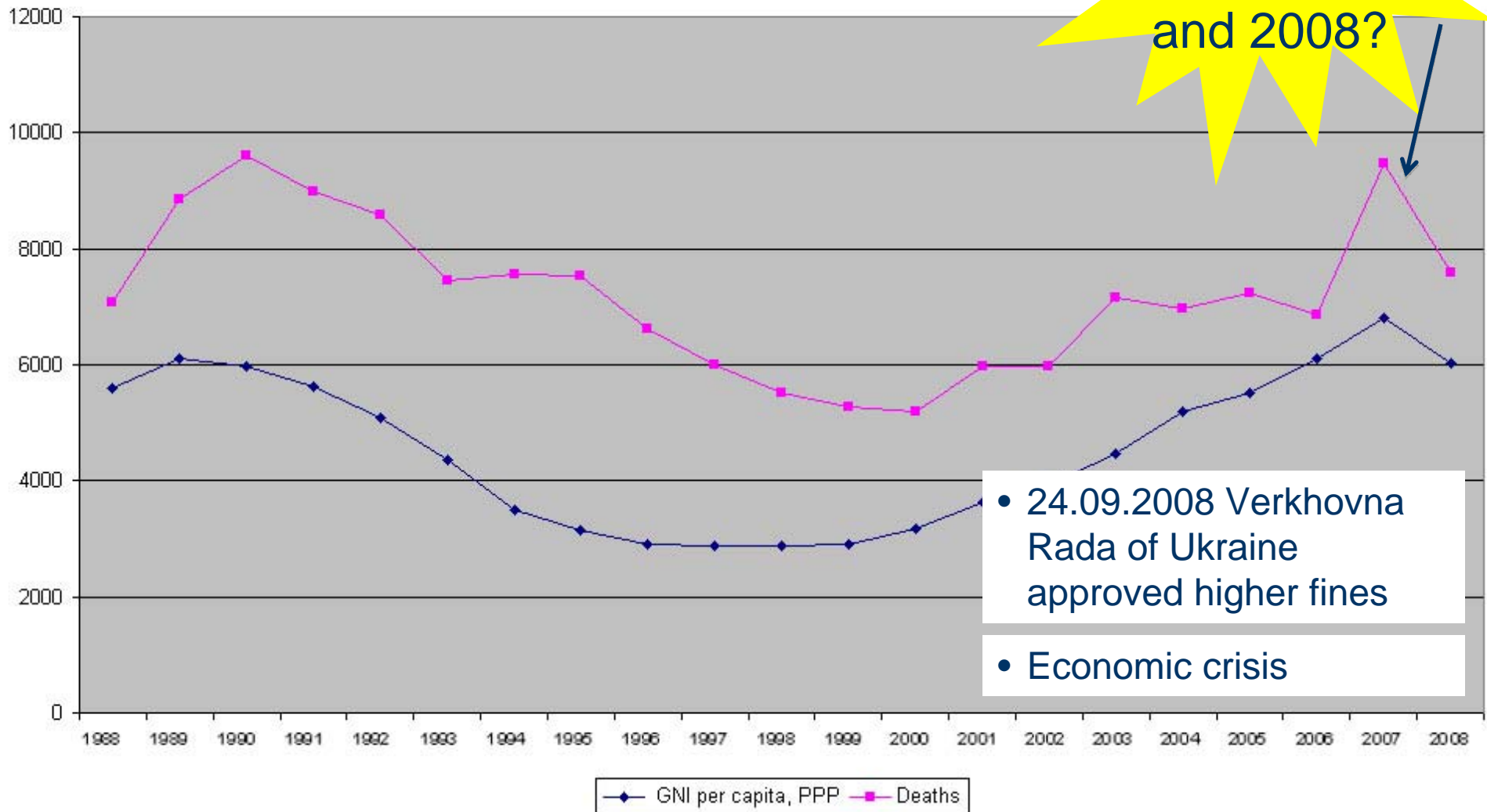
2009

*Central congestion charging - Impacts monitoring Fourth Annual Report, June 2006 Overview. Transport for London, 2006



Ukraine: road deaths and GNI/capita

What happened between 2007 and 2008?



- 24.09.2008 Verkhovna Rada of Ukraine approved higher fines

- Economic crisis

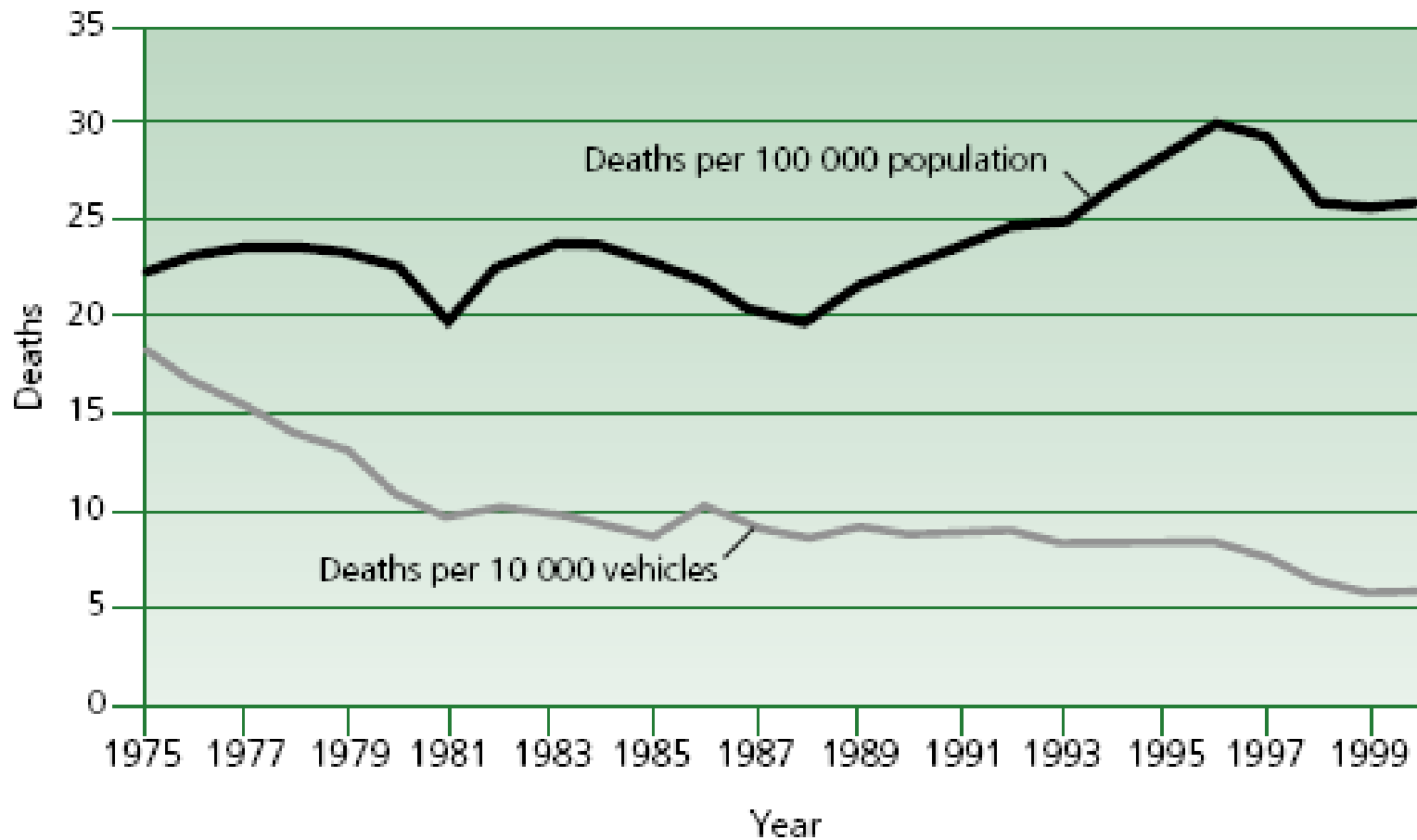
Sources: GNI/capita at PPP (US\$): World Bank except 2008 CIA. Road deaths World Road Statistics / DerzhavtotransDorNDI, except 2008 - DAI



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Data interpretation

Road traffic deaths in Malaysia



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Fatalities have increased more slowly than motorization rates but more quickly than growth in population

source: World report (2004)



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Definitions

- Road accident
 - Involves moving vehicle or not?
 - Involves injury or not?
- Death
 - Police definition varies from dead on the spot to unlimited time
 - WHO recommendation within 30 days of crash
 - Note theory and practice often different
- Injury severity
 - Several definitions



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Improving data quality

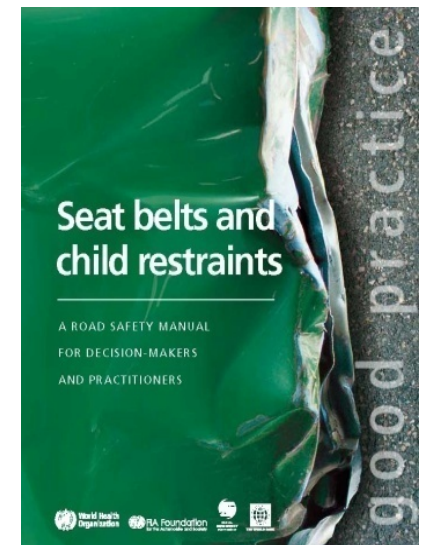
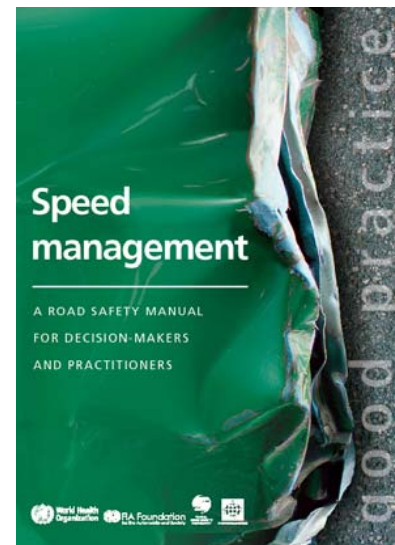
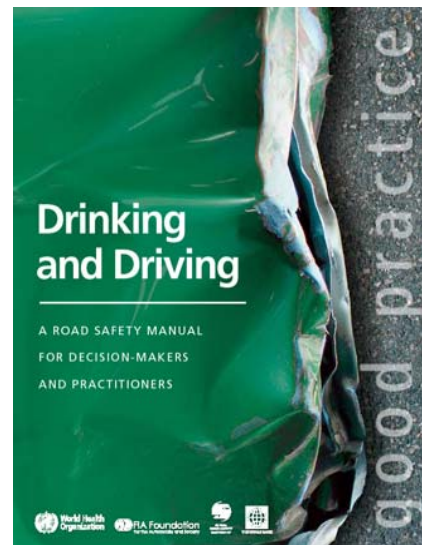
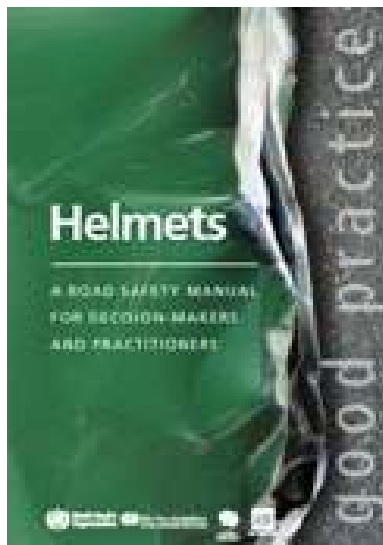
- Mandatory reporting requirement
- Regular training for police and health
- Standard definitions
- Simplify data requirements
- Quality control system
- Consider sampling



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UN Collaboration Good Practice Manuals

Build on the recommendations of the World report
Recipe books for good practice on main risk
factors implemented via a systems and
partnership approach



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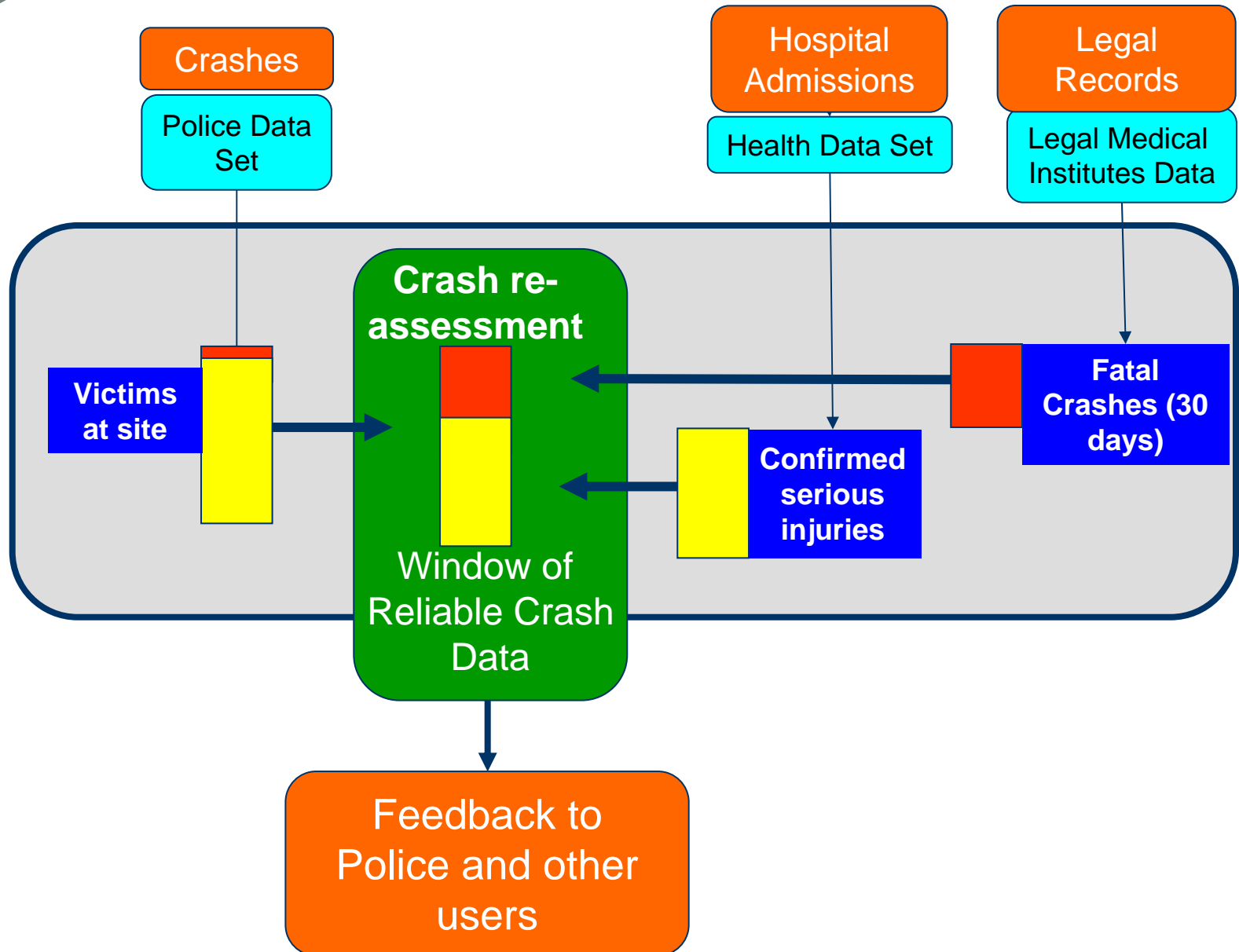
Data Systems (expected 2010)

Translations into many languages

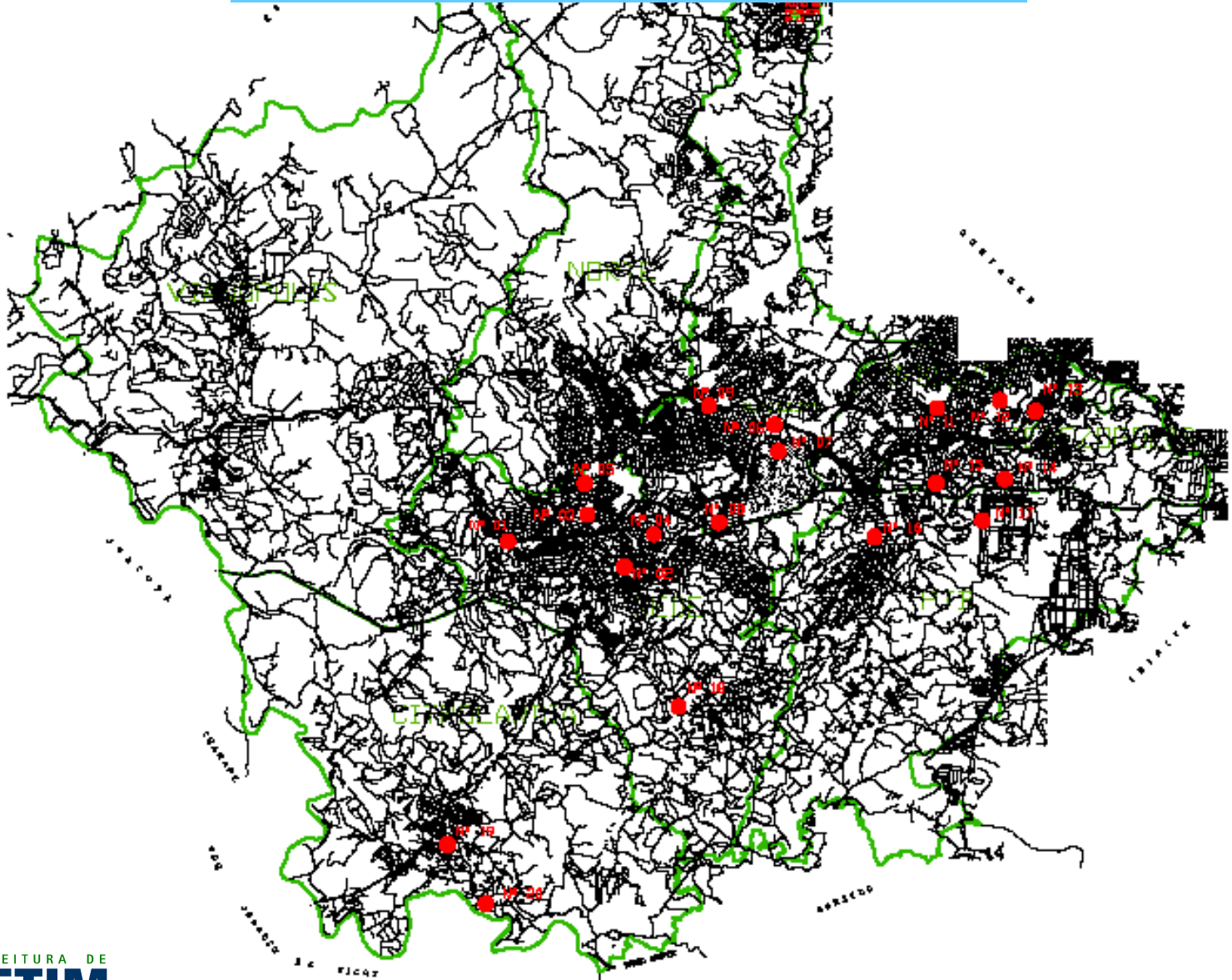


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GRSP in Brazil - Data Collection, Analysis



Mapping reliable data





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Additional indicators?

What data is needed for effective interventions and target setting on the main risks and risk groups?

Seat-belts and child restraints

Drink-drive

Speed

Vulnerable road users (pedestrians, cyclists, elderly, children)

Young drivers

Professional drivers (fleet safety)

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Discussion in small groups

- What kind of road safety data is collected in your country?
- Who is responsible for data collection, analysis, maintenance?
- How is the data reported? – public through media?
- Who has access to the data?
- What should data help you do?
- If you were to develop a strategy on the following issues, what data would you collect?
 - Seat-belts and child restraints?
 - Drink drive prevention?
 - Speed management?
 - A pedestrian safety?



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Example indicators

Drinking and driving

You can collect
this data through
surveys

See UNRSC
manual

- Police crash data
- BAC or BrAC levels – day, time, location, gender, age, vehicle type
- Health sector data on BAC, gender, age
- Crash type (single vehicle)
- Public opinion survey

Objectives and performance indicators (Olsztyn, Poland)

Possible Objectives	Possible Performance Indicators	Possible Measurement tools
Reduce the number of deaths, injuries drink-drive crashes	Fewer deaths, injuries from crashes involving driver with illegal BAC	<ul style="list-style-type: none"> • Police crash data ✓ • Health sector data
Reduce the number of drivers who are drinking and driving	Fewer drivers over the legal BAC limit	<ul style="list-style-type: none"> • Police breath test data ✓ • Health sector data by gender, age
Increase action in community to prevent drinking and driving	More community drink-drive prevention activities	<ul style="list-style-type: none"> • Pre/post campaign survey • Increase in number of community activities ✓
Increase number of drivers prosecuted for drink-driving	<ul style="list-style-type: none"> • Number of court cases for drink-drive • Fewer drunk drivers 	<ul style="list-style-type: none"> • Pre – post campaign data from justice ✓ • Increase in (RBT) ✓



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Seat-belts, child restraints

You can collect this data through surveys

See UNRSC manual



Sakhalin Island, Russia

- Wearing rates
 - occupant position, gender, age;
 - vehicle type
- Injury data from hospitals
- Vehicle inspection
- Changes in public opinion

2009

Place measured	2005 Before Campaign	2005 After Campaign	2006 Before Campaign	2006 After Campaign	2007 Before Campaign	2007 After Campaign	2008 Before Campaign
City Roads	4%	14%	14%	22%	31%	44%	79%.
Rural Roads	26%	51%.	56%	77%	72%		



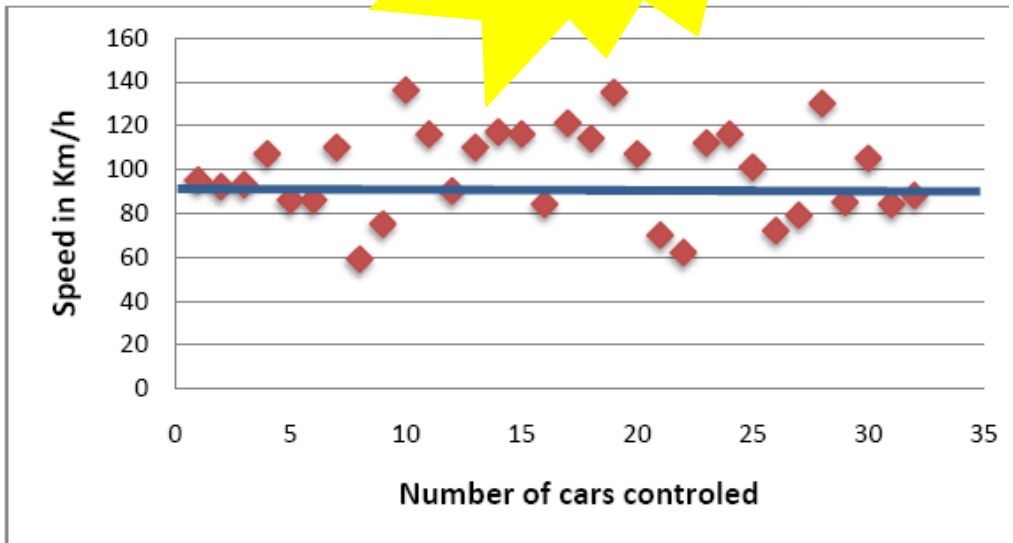
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Speed

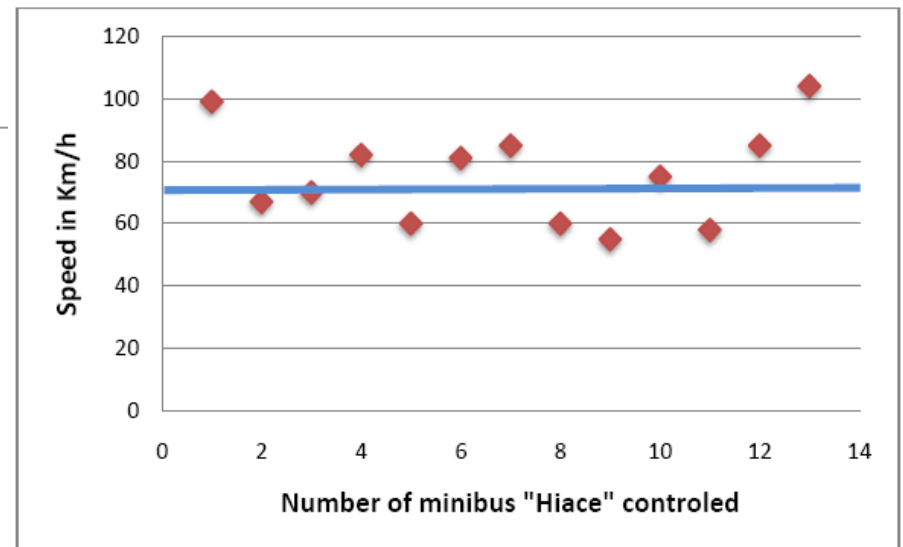
You can collect
this data through
surveys

See UNRSC
manual

- Speed trends at specific locations on the road network, days, times, vehicle types
- Crash type
- Injury data from hospitals
- Changes in public opinion



The blue line corresponds to the speed limit fixed by the law



The blue line corresponds to the speed limit fixed by the law on national road

GRSP Speed Survey
Niger



Vulnerable Road users (pedestrians, cyclists)

You can collect
this data through
surveys

- Crash location, time, day of week
- Road user (pedestrian, cyclist, age, gender)
- Average speed at location
- Observational survey
- Road crossing behavior

GRSP VRU project, Beijing

Pedestrians cross the street
from the surface of the road
per hour

Before
project

After
project

27

12



Work related road safety

You can collect
this data through
surveys

- Management policy on road safety
- Crash data
- Injury severity
- Damage claims
- Fuel costs
- Vehicle km travelled
- Number of vehicles in fleet

www.fleetsafetbenchmarking.net

www.orsa.org.uk

Also, global good practice manual on fleet safety in production (possible pilot testing 2010)



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DATA SYSTEMS

A ROAD SAFETY MANUAL
FOR DECISION-MAKERS
AND PRACTITIONERS



World Health
Organization



FIA Foundation
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good practice



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Common database content

Annual statistics - 500 data items - aggregated on country level:

- Injury accidents by road network areas
- Fatality figures by road usage / gender / age bands or network
- Hospitalization by road usage, age bands or network areas
- Accident involvement by road usage
- Population figures by age bands
- Vehicle population by vehicle types
- Mileage by road network areas or vehicle types
- Network length by road type
- Seat belt wearing rates by road network
- General indicators (area, modal split)
- Rates: casualty data related to population or kilometrage etc.
- Key accident data on monthly basis

New variables will be included soon.



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Using data

- Gather relevant data
- Analyze key crash types and behavioral issues
- Focus on these crash types and behavioral issues.
- Use the *Safe Systems* and *Haddon* as your framework



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Key questions around data

Why are data systems important?

Why do we need to do a Situational Assessment

How do we implement or improve a road safety data system?

How do we use data to improve road safety?





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Importance of data and data systems



Quality data systems are needed to:

- **Measure incidence of crashes and injuries**
- **Identify characteristics (risk/protective factors)**
- **Develop and test interventions**
- **Link data within and across sectors**
- **Facilitate multi-sectoral collaboration**
- **Monitor impact**



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Situational Assessment

- Why assess the situation?
- Who are the stakeholders?
- What are the objectives for data collection?
- What data are available, what systems?
- What are the quality of the data?
- What resources are available?



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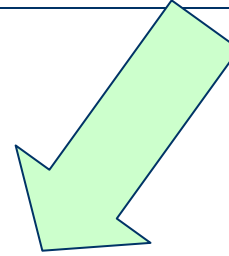
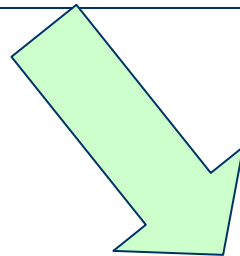
Situational Assessment

Situation Assessment:

- Preliminary objectives
- Data sources and accessibility
- Data quality
- Resource availability

Stakeholder mobilization:

- Data collectors and users convened
- Partners for data system identified
- Objectives refined



Choose appropriate course of action:

Do existing data sources provide the data you require?

Does existing system meet your requirements? If not, is it feasible to modify/improve?



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Design and implementation

- Mobilizing stakeholders
- Improve an existing system
 - Evaluation
 - Data collection and entry
 - Data management and analysis
- Implement a new data collection system
 - Plan for the system
 - Choose and define minimum data elements
 - Choose data collection tools
 - Designing the database
 - Develop a data management and analysis plan
 - Collect, process, disseminate and use data
 - Implement quality assurance measures



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Using data to improve road safety

- Dissemination
- Road safety indicators
- Target setting
- Assessing the impact of interventions





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Thank you for your attention!

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