Road Safety Statistics – Experience from Republic of Serbia

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- Country between East and West...
- No mandatory use of EU Directives...
- Establish road safety management system...
- Achieved results...
- Already used as road safety model for Ex-Soviet countries...

Serbia basic data:
Population: 7 498 000
Vehicles: 2 300 000
Road Network (total): 43 000 km
Area: 77 474 square kilometer
Before 2000:
- Number of road fatalities oscillated due to significant variation of economical situation (including of dissolution of ex-Yugoslavia and surrounding wars, economic sanctions, NATO bombing...
2001:
- Traffic fines were increased 7 to 10 times
- Aggressive campaign for law changes (actually just for fines)
- Campaign for usage of safety belts
- Series of road safety research studies (projects) perform by Universities

**Lesson learned:** Enforcement is not enough
- First results were good, but not long lasting!
Lesson learned: Important step towards RS management
- After implementation of Report recommendations important RS capacity building was initiated!

Lesson learned: RS Capacity building is essential to RS management.
- Without this it will not be possible to achieve such significant reduction of fatalities (968 to 660 fatalities).

2007/2008: Establishment of road safety management system
Road Safety Management...

- To follow the implementation of measures and periodically correct the measures and activities.
- To determine the optimal measures for achieving the objectives.
- To define the wanted state.
- To monitor the current state.
Lesson learned: Adoption of Law on Road Traffic Safety was one of most important basis for improving of RS.
- Full scale Law implementation is IMPORTANT.
Main characteristics of the implementation of the Traffic Law from 2009:

• Very strong media campaign before implementation of Law started;

• New institutions were defined (Road Safety Agency: Article 9, National Road Safety Coordination Body, etc.)

• Financing of road safety (Unique model: Article 18)

• Traffic Regulation innovations
  (concerning road safety infrastructure management: Article 156)

• Penalty point system for drivers introduced,

Law presents good basis for establishing of road safety management system.
Lesson learned: RS Agency has essential role in improving of road safety in Serbia.
- Some preconditions were necessary (to have adequate and motivated staff...)!
1. Overview of the road safety in Serbia
2. Basic road safety indicators in 2012
3. Children in road safety accidents
4. Road safety outcomes for the period from 2002 to 2011...

- 30 tables and 72 graphs
- Road user categories, influential factors, risky categories, temporal and spatial analysis of traffic accidents...

www.abs.gov.rs
Number of killed children in traffic accidents
(Our “Vision 0” is working)
Lesson learned: Existence of OPEN integrated accident database is essence for research work and recognizing of RS problems.
- Some resistance from Traffic Police at the beginning, now cooperation is improved.
The National Road Safety Database
Examples of Road Safety WEB GIS applications

Sweden

Swedish National Transport Agency
Examples of Road Safety WEB GIS applications

Great Britain → Private Company „Crash Map Community“
Examples of Road Safety WEB GIS applications

Slovenia

Ministry of Interior
Examples of Road Safety WEB GIS applications

Kazakhstan

Ministry of Justice – General Prosecutors Office
Examples of Road Safety WEB GIS applications

SERBIA

Road Traffic Safety Agency
ROAD ACCIDENTS AND CONSEQUENCES
ROAD SAFETY RISKS
SAFETY PERFORMANCE INDICATORS

SOCIAL ATTITUDES ABOUT RISKS IN TRAFFIC

+ other data (population, registered motor vehicles, local bodies on road safety, etc.)
Importance of Application...

- **Local communities** recognized problems and direct the activities for road safety improvement (potential for own local road safety database).

- **Traffic police** may direct activities in accordance with data based on indicators, accidents and attitudes.

- **Other users** could get basic information and data for research papers, own researches, newspapers etc.

- **Available to everyone** from every software platform in every moment (for now lower aspect for mobile phone platform).

- Combination of different data from different data source.
WEB GIS Application
PUBLICLY AVAILABLE

serbia.gdi.net/azbs
Basic parts of Application...

Attributive

- Data available to everyone on the same condition
- Available from every software platform (without procedures) in every time
- Combination of tables directly in application
- Excel and PDF for export data, and review of data direct in the Application

Graphic

- Possibilities to analysing (search) interactive maps
- Possibilities to draw on maps (creating and producing of own maps)
- Exports of maps in PDF (A4 or A3)
- Getting a detail data by using of identification tool
ROAD ACCIDENTS

- Police departments (27)
- Municipalities (161)
- Year
- Month
- Day
- Hour
- Type of RA
- Category of vehicle
- Date of birth

PERSONS DATA (INVOLVED IN RA)

- ADDITIONAL OPTIONS
  - Type of road users
  - Gender
  - Persons connected with category of vehicles

ATTRIBUTIVE ANALYSIS !!!

CLUSTERING OF DATA & DATA FILTER
Who are injured or killed in road accidents?

When accidents happened?

Which are the types of road accidents?

Where* accidents happened?
ATTRIBUTIVE ANALYSIS
DATA VIEW
TOOL FOR IDENTIFICATION
Possibilities of reviewing data from the map
SEARCH TOOL
Possibilities of searching of all Layers
WEB GIS Application – Publicly Available

Available at serbia.gdi.net/azbs
2015/2016: Establishment of Road Safety accident databases at municipality level...
The Road Safety Database for Local Communities
In 2016, Automobile and Motorcycle Association of Serbia (AMSS) – Center for Motor Vehicles, start preparation of municipality accident databases that can help local communities in preparation of local road safety strategies and decreasing of fatalities on local roads...
Data Sets

1. Problems Identifications
2. Road Accidents
3. Participants
4. Safety Performance Indicators
5. Roads
6. Attitudes
Absolut indicators (number and consequences of road accidents – level of injuries), Source: MI-TPA

Road accidents locations (coordinates of road accidents) Source: MI-TPA

Descriptive Statistics (visualization – diagrams)
Road accidents and Participants
Road accidents and Participants
3. Data about Roads – Roads Characteristics

**Roads**, Source: AMSS-CMV ltd., PERS, MI-TPA, Local communities...

Road Safety Assessment, Source: AMSS-CMV ltd.

The Cadaster of Road signs, Source: AMSS-CMV ltd.

The brightness levels, Source: AMSS-CMV ltd.

The Road Structure Conditions Source: AMSS-CMV ltd.

The reference system (sections, nodes), AADT, Source: PERS and MI-TPA

Output Data from VIDA software, Source: AMSS-CMV Ltd.

Road signs quality (visibility, reflection...), Source: AMSS-CMV Ltd.

(Road lightning, pedestrian walking, sidewalk, etc), Source: AMSS-CMV Ltd.
Data about Roads – Roads Characteristics
3. Data about Roads – Roads Characteristics
Social Attitudes – for one local community

Data Set

Social attitudes about risks in road safety (Alcohol, Seat belts, Speeding, Police enforcement,....) Source RTSA for PD and AMSS-CMV ltd. for municipalities

Descriptive Statistics (visualization – diagrams)

Shape of municipalities and police departments
Safety Performance Indicators (alcohol, seat belts, child seats, helmets, speed,.....) Source RTSA for PD and AMSS-CMV ltd. for municipalities

Descriptive Statistics (visualization – diagrams)

Shape of municipalities and police departments
Problems identification – for one local community

6. Data Set

Relative Indicators – Rates – Road casualties risks

Descriptive Statistics (visualization – diagrams)

Road casualties risks by municipalities, Police districts (Model developed by DK), Source: AMSS – CMV ltd.

Spatial and attribute data

Risk Mapping and Star Rating (EuroRAP), Source: AMSS – CMV ltd.

Spatial and attribute data
Problems identification
Statistical Reports

6.
Success in the monitoring of the state of road safety

THE QUALITY ROAD SAFETY DATABASE

DEVELOPMENT OF DATABASE

DEFINING THE STANDARD FOR MONITORING THE STATE OF ROAD SAFETY

THANK YOU!