Periodica Polytechnica
Transportation Engineering

State of the Art of Slovenian Road Safety

42(2), pp. 173-182, 2014
DOI:10.3311/PPtr.7484

Jure Kostanjšek / *Vesna* Marinko / *Peter* Lipar

RESEARCH ARTICLE

RECEIVED 18 APRIL 2014

Abstract

The State of the Art of Slovenian Road Safety aims to provide a short description of road safety situation in Slovenia as well as to record all activities taken in Slovenia. This article is based on ROSEE ROad safety in South East European regions report. The road safety performance of Slovenia in comparison to other countries of South Eastern Europe is discussed. Basic road safety trends in Slovenia and a macroscopic analysis of road accident factors related to road users, road environment and vehicles are presented. Also the assessment of road safety legislation, policy and institutional capacity in Slovenia is undertaken. In this article, the assessment of needs and availability of road safety related data and information in Slovenia is also presented. Finally, the road network conditions in Slovenia, a general road safety assessment of the interurban road network and the status of Road Safety Audits are described.

Keywords

road safety · Slovenia

Jure Kostanjšek
University of Ljubljana, Faculty of Civil and Geodetic Engineering, Traffic Technical Institute, Jamovacesta 2, 1000 Ljubljana, Slovenia
e-mail: jure.kostanjsek@fgg.uni-lj.si

Vesna Marinko
Slovenian Traffic Safety Agency, Trdinovaulica 8, 1000 Ljubljana, Slovenia
e-mail: vesna.marinko@avp-rs.si

Peter Lipar
University of Ljubljana, Faculty of Civil and Geodetic Engineering, Traffic Technical Institute, Jamovacesta 2, 1000 Ljubljana, Slovenia
e-mail: peter.lipar@fgg.uni-lj.si

1 Road safety situation in Slovenia in comparison to SEE countries

South East Europe (SEE) is an area comprising of sixteen countries which have been members of the European Union (EU) for decades or for few years, candidate countries and others. This diversity is reflected to road safety situation in the area as well as to the availability of road safety data. For EU members, there are available data on road fatalities from EUROSTAT. IRTAD also provides data from several EU members as well as for few other countries from SEE (e.g. Serbia). For non EU and/or IRTAD members, data on road fatalities are found in the World Health Organisation (WHO). Great differences are recorded among countries of the SEE regarding the number of road fatalities per year. As shown in Table, road fatalities range from over 6,000 in Ukraine to less than 100 in Montenegro. Slovenia with 141 road fatalities in 2011 is the second to last among SEE countries.

Tab. 1. Road fatalities in SEE countries, 2011 (*2010)

SEE County	Number of fatalities in 2011
Ukraine *	6.121
Italy	3.860
Romania	2.018
Greece	1.141
Serbia	731
Bulgaria	658
Hungary	638
Bosnia and Herzegovina *	558
Austria	523
Moldova *	496
Croatia *	456
Albania *	408
Slovakia *	324
Macedonia *	162
Slovenia	141
Montenegro *	95
Total	18.330

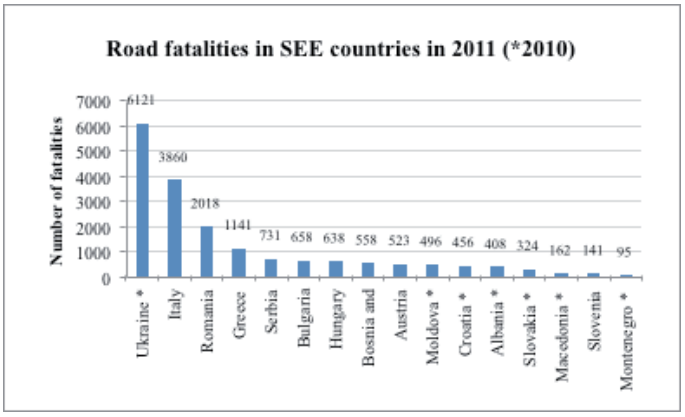

Fig. 1. Road fatalities in SEE countries, 2011 (*2010) Sources: EUROSTAT, IRTAD, WHO – Global Status Report on Road Safety 2013

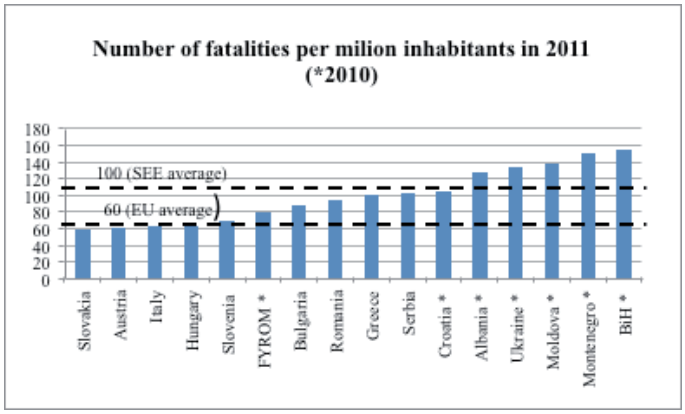

Fig. 2. Number of fatalities per million inhabitants
Sources: ETSC, IRTAD, WHO global report 2013

All partners of the ROSEE project, except Slovenia, are among the eight SEE countries with the highest numbers of road fatalities.

Actual road fatalities numbers provide an indication of road safety in a country. However, the comparison of road fatalities in different countries is more meaningful in relation to the population and not in plain numbers.

Road safetysituation in SEE countries is much worse than in other EU countries. All of the SEE countries are below EU average. Slovenia is one of the most successful counties in this region. The safest SEE countries are Slovakia, Austria and Italy with 63. Slovenia is on 5th place with 69 fatalities per million inhabitants in 2011.

In Slovenia, the trend was rather unstable until 2007 after when an importantdecrease was recorded until 2010.

Tab. 2. Number of fatalities per million inhabitants in 2011

SEE country	Number of fatalities per million inhabitants in 2011
Slovakia	60
Austria	62
Italy	63
Hungary	64
Slovenia	69
FYROM *	79
Bulgaria	88
Romania	94
Greece	101
Serbia	102
Croatia *	104
Albania *	127
Ukraine *	135
Moldova *	139
Montenegro *	150
BiH *	156

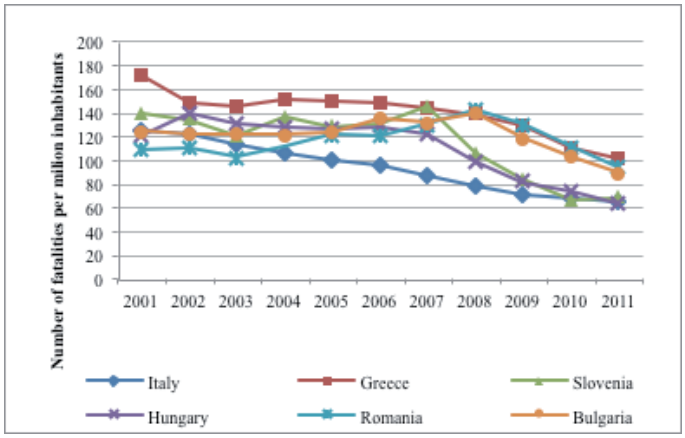

Fig. 3. Number of fatalities per million inhabitants in ROSEE partner country

Tab. 3. Road fatalities per million inhabitants in ROSEE partners countries (2001 – 2011)

ROSEE partner country	Number of fatalities per million inhabitants										
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Italy	125	122	114	106	100	96	87	79	71	68	65
Greece	172	149	146	151	150	149	144	139	129	111	101
Slovenia	140	135	121	137	129	131	146	106	84	67	69
Hungary	121	140	131	128	127	129	122	99	82	74	64
Romania	109	110	102	112	121	120	130	142	130	111	94
Bulgaria	124	122	122	121	123	135	131	139	118	103	89

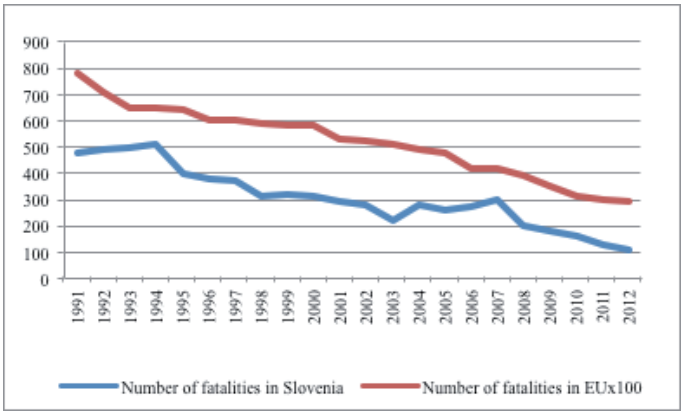

Fig. 4. Comparison of trends in the number of fatalities in EU and Slovenia from 1991 to 2012

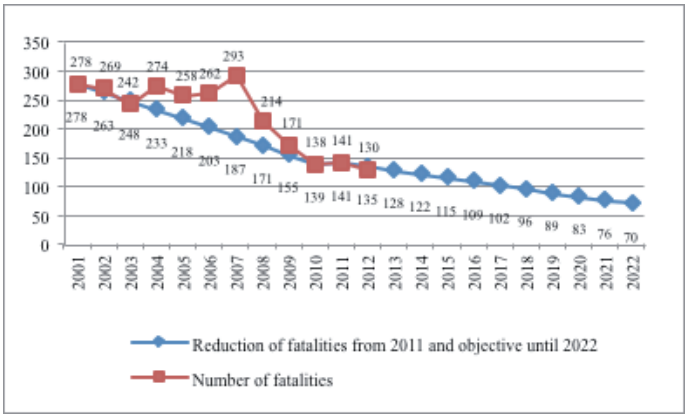

Fig. 5. Achieving the objectives of the National road safety programme from 2001 to 2011and objective until 2022

Tab. 4. Review of road safety situation in Slovenia

Year	Traffic accidents with injuries	Fatalities	Serious injuries	Slight injuries
2001	9.335	278	2.481	10.384
2002	10.305	269	1.561	12.538
2003	11.739	242	1.393	15.310
2004	12.787	274	1.295	17.662
2005	10.509	258	1.295	13.424
2006	11.622	262	1.261	15.368
2007	11.640	293	1.305	15.185
2008	9.165	214	1.105	11.658
2009	8.721	171	1.054	11.241
2010	7.596	138	880	9.512
2011	7.273	141	919	8.754
2012	6.864	130	848	8.300
Comparison 2012/2001	-26%	-53%	-66%	-20%

2 Basic Road safety trends

The number of fatalities has been reducing until 2003. Period from 2004 to 2007 was unsuccessful because numberof fatalities has increased up to 293 in 2007. In that year a National road safety programme was launched for aperiod 2007-2008. This period was very successful – number of fatalities has reduced for 52% till 2011. Thenumber of injured road traffic participants has been reducing from 2001. From 2001, number of seriously injured has reduced for 66% and number of slight injuries for 20%. Slovenia has also reached European Union-plan from 2001 to halve the number of fatalities for 50% till 2010 (50% reduction).

In 2013 the new National road safety programme for a period 2013 – 2022 was released. Goal in 2022 is to reduce the number of fatalities and serious injuries for 50 percents.

Basic road safety indicators have improved in last 20 years for more than 70%. This indicator puts Slovenia in the middle class of European countries. The positive trend is still continuing. On the other side, the number of vehicles has increased for 88% in last 20 years. According to figures in 2012 it was registered almost 1.4 million vehicles what makes 0,68 registered vehicle per person.

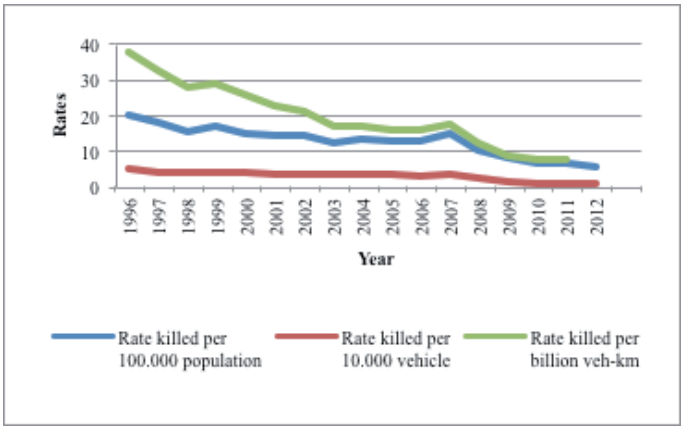

Fig. 6. Basic road safety indicators (Source: Slovenian Traffic Safety Agency)

Tab. 5. Road safety indicators

Rates	Year						% change		
	1990	2000	2001	2010	2011	2012	2012 over 2011	2012 over 2001	2012 over 1990
Fatalities (number)	517	314	278	138	141	130	-7,8%	-53,2%	-74,8%
Number of vehicles (x1000)	740	1036	1059	1375	1386	1392	0,4%	31,4%	88,1%
Rate killed per 100.000 population	25,9	15,8	13,9	6,7	6,9	6,3	-8,7%	-54,7%	-75,7%
Rate killed per 10.000 vehicle	6,9	3,1	2,7	1	1	0,9	-10,0%	-66,7%	-87,0%
Rate killed perbillionveh-km	65,1	26,7	23,1	7,7	7,8	/	/	/	/

Tab. 6. Amounts of fines

Police tickets	The amount of speeding tickets by the Police	The amount of alcohol tickets by the Police	The amount of seatbelt wearing tickets by the Police	The amount of helmet tickets by the Police
2001	229.104	51.351	139.548	14.585
2002	215.155	48.741	146.058	10.510
2003	218.103	47.325	138.946	9.585
2004	214.911	43.439	124.205	6.831
2005	108.702	29.088	75.018	4.546
2006	1.112	31.918	68.912	4.214
2007	131.073	34.483	71.205	3.865
2008	134.929	27.301	75.166	2.877
2009	153.684	22.383	70.447	2.674
2010	115.413	20.788	59.272	2.076
2011	99.869	14.192	52.750	2.069
2012	68.330	9.147	45.139	1.526
comparison 2012/2001	-70%	-82%	-68%	-90%

Number of police actions has significantly reduced from 2001 till 2012. The amount of speeding tickets has reduced for 70%, amount of alcohol tickets for 82%, amount of seatbelt wearing by 68% and amount of helmet tickets for 90%. Reason for less police action is also greater authority for city traffic wardens.

Reduction from 13% to 88% has been achieved in different user groups of roadfatalities. It has been achieved also on various characteristics of the road environment and vehicles. Among different road user types (Torok, 2013), moped riders and passengers are those showing the greatest decrease. Examine different age categories reveal a great reduction of road fatalities of young drivers (18-24 year old) and also young riders (15-24 years old). Unfortunately, the number of fatalities has increased at children (0-14 years) for 50% (especially because of a bad situation in 2011). Between male and female drivers the reduction is greater for women (-52%). The reduction of fatalities is also greater outside built-up areas. Detected reduction was also in traffic accidents at crossings.

Tab. 7. Road fatalities basic characteristics

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	change 2001-2011
total fatalities	278	269	242	274	258	262	293	214	171	138	141	-49%
drivers killed	175	163	153	177	165	171	196	146	110	90	98	-44%
passengers killed	60	64	51	62	55	55	64	28	36	22	22	-63%
pedestrian killed	42	41	38	35	37	36	32	39	24	26	21	-50%
motorcyclists killed	36	18	25	27	33	42	41	40	28	17	28	-22%
moped riders killed	16	5	4	5	5	12	12	8	3	5	2	-88%
cyclists killed	16	18	0	22	19	15	17	17	18	16	14	-13%
buses or coaches occupants killed	0	0	0	1	1	0	0	0	1	0	0	0%
lorries or trucks occupants killed	5	3	3	6	8	2	5	3	6	2	2	-60%
young drivers killed (18-24)	33	37	32	32	33	33	45	28	20	12	13	-61%
young riders killed (15-24)	11	7	5	8	11	9	14	11	4	2	3	-73%
old drivers killed (65+)	22	28	24	24	16	15	29	15	15	8	13	-41%
children killed (0-14)	4	3	3	9	10	9	6	4	2	2	6	50%
men drivers killed	154	142	135	156	139	156	172	133	100	73	83	-46%
women drivers killed	21	21	18	21	26	15	24	13	10	16	10	-52%
non-national drivers killed	8	14	12	5	10	12	-	9	9	3	7	-13%
non-national riders killed	1	1	5	1	1	5	-	3	5	0	1	0%
inside built up areas	91	81	72	83	81	92	94	73	64	60	47	-48%
in junctions	28	28	17	19	28	23	24	-	12	14	12	-57%
outside built up areas	187	188	170	191	177	170	199	141	107	78	94	-50%
on motorways	24	35	34	37	20	33	37	13	30	19	16	-33%
when raining	31	23	21	21	18	16	17	13	18	18	11	-65%
during daylight	147	163	148	153	157	161	167	134	114	93	94	-36%
during night-time	131	106	94	121	101	102	126	80	57	45	47	-64%
killed in single vehicle accidents	162	150	137	138	140	155	159	115	85	85	64	-60%
killed in alcohol related accidents	115	101	93	150	51			75	58	49	33	-71%

Tab. 8. Road fatalities by age, gender, road user type in Slovenia 2012 (Source: Slovenian Traffic Safety Agency)

Age and gender	2001	2011	2012	2012 over 2001	2012 over 2011	Drivers	Passengers	Pedestrian
Females	*51*	*28*	*33*	*-35%*	*18%*	*15*	*9*	*8*
0-14	1	3	2	100%	-33%	0	2	0
15-17	4	1	1	-75%	0%	0	0	1
18-24	4	4	5	25%	25%	3	2	0
25-49	16	14	4	-75%	-71%	4	0	0
50-64	11	3	10	-9%	233%	4	2	4
65+	15	3	11	-27%	267%	4	3	3
Males	*227*	*113*	*97*	*-57%*	*-14%*	*75*	*10*	*11*
0-14	3	3	1	-67%	-67%	0	0	1
15-17	16	3	0	-100%	-100%	0	0	0
18-24	48	13	14	-71%	8%	10	4	0
25-49	100	48	43	-57%	-10%	36	5	2
50-64	29	26	24	-17%	-8%	14	1	8
65+	31	20	15	-52%	-25%	15	0	0
Total	*278*	*141*	*130*	*-53%*	*-8%*	*90*	*19*	*19*

3 Road user related road accident factors

In Slovenian male drivers cause more than 80% of all road fatalities. The most problematic is age category between 25 and 49 years (almost 50% of all male fatalities). Number of fatalities among passengers and pedestrians are the same in 2012. When we look fatalities among pedestrians, age group between 50 and 64 years has got more than 50% share of fatalities.

Main problem concerning driversis in age group from 25-49 years, concerning passengers between 18-24 years and concerning pedestrians in age group between 50-64 years.

Use of projective systems is systematically recorded in Slovenia for seat belts and child restraints. If we compare data from 2011 with 2007 we can notice that share of use of seat belt and childrestraints is increasing among drivers, passengers and children. It is also increasing on all road types. Data are based on a systematic observation of use of seat belt and child restraints.

Tab. 9. Seat belt use rates

Year	Drivers	Front seat passenger	Back seats (adults)	Older children (8-14)	Younger children (0-7)
2007	79,3%	83%	38,4%	53,3%	70,6%
2010	91,6%	92,9%	50,4%	69,8%	91,7%
2011	93,1%	94,5%	66,2%	87,0%	94,0%

Tab. 10. Seat belt use rates on different road categories

Roads	Driver	Front seat passenger	Back seats (all)
Local road in urban area	85,8%	84,7%	69,9%
State road in urban area	91,7%	93,0%	76,6%
Rural area	94,6%	95,8%	79,0%
Highway	96,8%	97,5%	82,6%

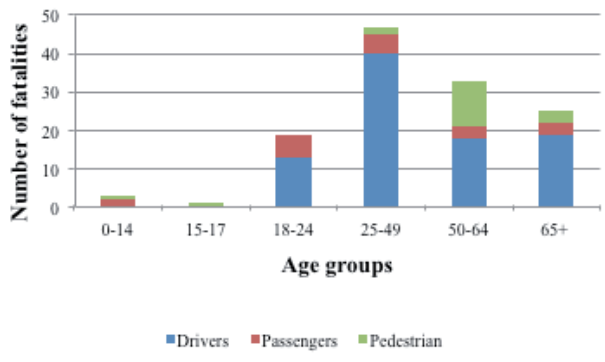

Fig. 7. Fatalities among drivers, passengers and pedestrians in 2012

4 Road environment related road accident factors

The majority of accidents occur in built area but majority of road fatalities occurred in rural area. In 2012, 130 traffic participants died on Slovenian roads. Most of participants died on National roads especially in rural area.

On the basis of this survey, we found out that 25% of all drivers use mobile phone for calling or texting text messages.

Majority of drives who use mobile phone while driving use mobile phone mostly for short talks. Some of the key findings:

- 50% of call is not work related,
- 45% of drivers make 1 or 2 calls while driving,
- 60% of drivers have got 1 or 2 received calls while driving.

Tab. 11. Road fatalities by road category and area (Source: Slovenian Traffic Safety Agency)

Municipal or national road	Road accidents				Fatalities			
	Rural area	Urban area	Total	%	Rural area	Urban area	Total	%
Municipal roads	598	14.028	14.626	66%	8	39	47	36%
National roads	6.507	902	7.409	34%	80	3	83	64%
Total	7.105	14.930	22.035	100%	88	42	130	100%

Tab. 12. Type of road (Source: Slovenian Traffic Safety Agency)

Type of road	Number of accidents	Injures			% of fatalities
		Severely injuries	Slight injuries	Fatalities	
Motorway	2.307	66	698	20	15%
main road	1.616	82	783	23	18%
Regional road	3.486	210	1.748	40	31%
Urban area	13.748	431	4.693	37	28%
Local road	878	59	378	10	8%
Total	22.035	848	8.300	130	100%

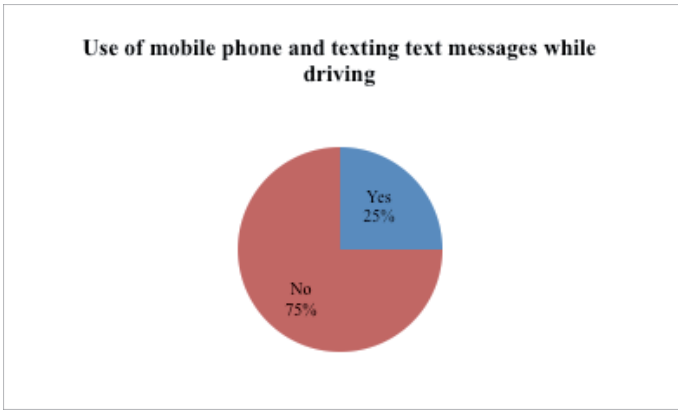

Fig. 8. Use of mobile phone and texting text messages while driving (Source: Preventive campaign of using mobile phone while driving, Slovenian Traffic Safety Agency)

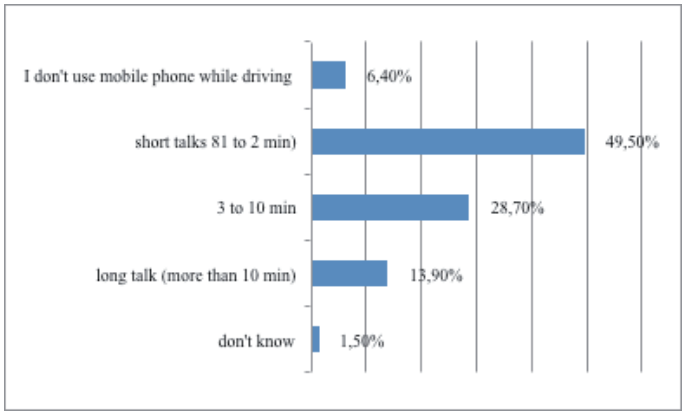

Fig. 9. How much time do you spend as a driver to talk on the phone while driving? (Source: Preventive campaign of using mobile phone while driving, Slovenian Traffic Safety Agency)

Tab. 13. Primary cause of the road accident (Source: Slovenian Traffic Safety Agency)

Primary cause of the accident	Road accidents				Fatalities			
	Rural area	Urban area	Total	%	Rural area	Urban area	Total	%
changing line	1.773	1.376	3.149	14%	30	10	40	31%
faulty road	42	30	72	0%	0	0	0	0%
faulty vehicle	17	24	41	0%	1	0	1	1%
ignoring give-way rules	2.330	631	2.961	13%	4	7	11	8%
improper overtaking	228	292	520	2%	3	0	3	2%
improper vehicle distance	1.593	951	2.544	12%	1	0	1	1%
incorrect cargo	29	54	83	0%	0	0	0	0%
other causes	2.164	1.345	3.509	16%	3	6	9	7%
pedestrian's fault	93	24	117	1%	3	3	6	5%
speeding	1.824	1.795	3.619	16%	40	13	53	41%
vehicle manoeuvres	4.837	583	5.420	25%	3	3	6	5%
total	14.930	7.105	22.035	100%	88	42	130	100%

Tab. 14. Primary type of the road accident (Source: Slovenian Traffic Safety Agency)

Primary type of the accident	Road accidents				Fatalities			
	Rural area	Urban area	Total	%	Rural area	Urban area	Total	%
frontal collision	691	1.264	1.955	9%	27	7	34	26%
capsizing on the road	1.183	1.069	2.252	10%	17	6	23	18%
collision with obstacle	1.070	1.158	2.228	10%	14	7	21	16%
collision with pedestrian	53	470	523	2%	3	10	13	10%
collisions with standing or parked vehicles	299	3.134	3.433	16%	2	0	2	2%
lateral collision	1.148	3.098	4.246	19%	15	5	20	15%
other collision	684	1.217	1.901	9%	2	5	7	5%
rear collision	1.073	1.465	2.538	12%	5	1	6	5%
side by side collision	904	2.055	2.959	13%	3	1	4	3%
Total	7.105	14.930	22.035	100%	88	42	130	100%

Tab. 15. Day / night time (Source: Slovenian Traffic Safety Agency)

Time of day	Road accidents				Fatalities			
	Rural area	Urban area	Total	%	Rural area	Urban area	Total	%
Day time	4.894	11.116	16.010	73%	61	23	84	65%
Night time	2.211	3.814	6.025	27%	27	19	46	35%
Total	7.105	14.930	22.035	100%	88	42	130	100%

Tab. 16. Road accidents by weather conditions (Source: Slovenian Traffic Safety Agency)

Weather conditions	Road accidents				Fatalities			
	Rural area	Urban area	Total	%	Rural area	Urban area	Total	%
clear	4.055	9.021	13.076	59%	62	20	82	63%
fog or mist	61	87	148	1%	0	1	1	1%
hail	9	0	9	0%	0	0	0	0%
overcast	1.912	3.948	5.860	27%	18	16	34	26%
rain	704	1.128	1.832	8%	7	5	12	9%
snow	277	255	532	2%	1	0	1	1%
unknown	69	466	535	2%	0	0	0	0%
wind	18	25	43	0%	0	0	0	0%

The most common accident cause in rural area was vehicle manoeuvres and ignoring give-way rules. Speeding and changing line is the most common cause in accident with fatalities. In urban area the main cause of the road accident is speeding and changing line. As in rural area, in urban the most common cause of road accidents with fatalities is also speeding and changing line.

The most common accidenttypes in rural area are capsizing on the road, lateral collision and collision with obstacle. Frontal collision is notmost common type of the accident on rural area but is the most common type at fatal accident. The most common accident types in urban area are collision with standing or parkedvehicles and lateral collision.

5 Road safety legislation, policy and institutional capacity in Slovenia

National policies and strategies

The need of taking road safety action has been advocated by government bodies, primarily Slovenian Traffic Safety Agency. Different sectors such as the transport sector (Ministry of Infrastructure and Spatial Planning, Roads Agency, Railway Agency, Slovenian Traffic Safety Agency), the enforcement sector (Ministry of Interior Police) and the health sector (Ministry of Health, National Institute of Public Health) as well as from others (Ministry of Education, Science and Sport, Ministry of Labour and Social Affairs, Ministry of Justice) are included in developing,

implementation and monitoring of road safety policy in Slovenia. Alsoeducational institutions, such as Faculty of Civil and Geodetic Engineering – Traffic Technical Institute, Faculty of Mechanical Engineering, Faculty of Arts, etc. are active in road safety field. In addition, also several non-governmental organizationsactively promote road safety in Slovenia. Among them are Automobile Association, Safe Journey Institute, Association of Professional Drivers and Mechanics of Slovenia, Slovenian Motorcycle Association etc.

Local authorities (municipalities), which are represented in Road Safety Councils, are consulted as to the part they are called to play in national road safety policy before setting up targets, finalizing an inter - sectorprogram and adopting specific policy components. Local road safety policy components are also integrated into the national road safety policy by including them into the Resolution of National programme for roadsafety for 2013-2022. Local authorities are actively advocating the need for taking road safety action throughdifferent preventive campaigns.

The contribution of the private sector to road safety policy implementation and funding is also very important. There were more than 20 partners from private sector (mainly NGOs) cofinanced by Slovenian TrafficSafety Agency until 2011. Various actors carry out road safety activities in cooperation with the public authorities, mainly withad hoc agreements of cooperation within a specific preventive campaign. Their contribution may be in terms of management of particular activities, expertise, research, funding and communication on key road safety issues.

Road safety legislative and institutional capacity

The new National road safety programme for the period 2013-2022 was debated by the government andadopted in April 2013 by the parliament. It anticipates active role of the parliament by addressing roadsafety topic once a year. The parliament also has a traditional role of initiating decision-making onroad safety orientations and directions and is involved in adopting road safety orientations and directions.

The leadingroad safety agency, formally appointed to take responsibility, is Slovenian Traffic Safety Agency. Its mission is to reduce the worst consequences of accidents. Agency performs regulatory, developmental, technical, and other tasks regarding drivers and vehicles, analytical and research work in the field of road safety, prevention, education,and training.

In 2002 Slovenia established high level intersection decision-making institution to prepare policy orientationsin the field of road safety. At the beginning there was Secretary of state and ministers (2002-2005), then Interdepartmental working group (2007-2011) and now Board of directors and Interdepartmental workinggroup (2013-), which was established by the government. The Board of directors works on strategic level and represents all governmental sectors which are potentially involved in road safety (transport and trafficplanning, road infrastructure, justice, health, vehicles, research, education, labour and social affairs) and itmembers meet once or twice per year. According to Drivers Act (2010) the Ministry of Infrastructure and Spatial Planning is responsible for the preparation and coordinationof the national programme's tasks.

There are several different subjects who are performing multidisciplinary road safety research (Faculty of Civil and Geodetic Engineering, Faculty of Mechanical Engineering, etc). Roadsafety research results are published on national level and are systematically made available to thedecisionmakers and policymakers. In addition, policy makers use the research results in formulating thecountry's road safety policy. Moreover, the teams of road safety researchers in the country are systematically requested by policy makers to contribute knowledge for policy formulation. The Slovenian Traffic SafetyAgency is providing factual and valid information on road accidents and injuries. The analysis is published regularly on a monthly basis on the agency's website and sent to Ministry of Infrastructure and Spatial Planning. Also the road safety institutions systematically inform the citizens of the national road safety policies through media coverage of prevention campaigns and other road safety events. When major road accidents happen or decrease in road safety is noticed, there is a great media response and public debate on road safety legislation, measures and activities.

Road safety is a theme on different faculty courses. Specialized courses addressing future professionals who may be involved in road safety are offered by either universities or other educational institutions, for example Faculty of Civil and Geodetic Engineering, Faculty of Mechanical Engineering and Faculty of Maritime studies and Transportation for urban planners and road engineers,teachers, driving instructors etc.

The national road safety management system

Strategic orientation of the road safety should consider orientations and platforms of other road safety fields. Road safety is closely related to policies of energy, environment, employment, education, public health,innovation and technology, justice, insurance, trade and foreign affairs. The representatives of all related areasaffecting road safety are associated in the Board of Directors on strategic level and in interdepartmental working group on professional level.

Slovenian Parliament addresses the development and issues of road safety in Slovenia once a year. For thispurpose the Government considers a report on the implementation of the National Programme in the light of the implementation of strategies, programs and action plans, at least once a year. The Government prepares thereport for the Parliament to address road safety topic. The Parliament ensures social and political support,consider and adopt the annual report on the results and implementation of the program, provide the necessary guidelines and tasks for the effective implementation of the measures.

The Government establishes the Board of Directors as a body responsible for policy coordination and strategic direction for the implementation of the National Programme. In the Board of Directors the representatives (directors) from: Transport Directorate or Infrastructure Directorate (Ministry of Infrastructure and Spatial Planning), Slovenian Traffic Safety Agency, Slovenian Roads Agency, Slovenian Motorway Company, The Pre-School and Basic Education Directorate or The Secondary, Higher Vocational and Adult Education Directorate (Ministry of Education, Science and Sport), Police and other representatives are appointed by the Government.

Also interdepartmental working group is established for professional knowledge exchange. Participants in theinterdepartmental working group are public authorities and NGOs, individual experts, businesses, Pan-Slovenian Insurance Association and local communities.

6 Road network conditions in Slovenia

General road safety assessment of the interurban road network

In Slovenia, there is a long tradition in the field of road network management. The 6.545 km of state roads aremanaged by two companies:

- motorways and expressway by Motorway company of Republic of Slovenia DARS (770 km),
- main roads and regional roads by Slovenia roads Agency DRSC (5.775 km).

There are about 30.000 km of municipal roads Municipal Roads (LC, JP) are managed by 212 municipalities. The level of maintenance and management differs widely, in regard to municipality size, available finance resources and management staff.

Ministry for transport prepared "National Guidelines for Road Network Safety Management.For TEN road network, the EU Directive 2008/96/EC on road infrastructure safety management was adopted and implemented.

The nongovernment auto club AMZS together with Traffic Technical Institute leads the independent road safety ranking through the EuroRAP project. The latest results show, that in regard to EuroRAP "Risk maps" (traffic accidents in relation to traffic flow):

- motorways and expressways show low or low-to medium risk,
- main roads show that 1/3 shows low or low-medium risk,
- regional roads show 38,5% of length low or low-medium risk, 30,3% medium risk and 31,2% mediumhighor high risk.

The pilot roads results of EuroRAP Star Rating (Road and road side condition) show:

- pilot expressway (86 km): 7% of length three stars, 92% of length four stars, 1% of length five stars,
- pilot main roads (183 km): 35,2% of length one star, 49,8% of length two stars, 10,6% of length threestars, 4,4% of length four stars and 0% of length five stars.

The expected rating for motorways and expressways is four or five star ranking, but for main and regional roadsfrom one to three stars, with some exceptions being four stars rated.

Slovenian Roads Agency (DRSC) also regularly performs measurements of condition of pavement structure interms of bearing capacity, roughness, deformations, cracking, ravelling, deflections, ruts and potholes.

The results show that about 2/3 of sate road network (of main and regional roads) is in bad to mediumcondition.

Slovenian Roads Agency (DRSC) performs traffic counting on all state roads, using automatic counting devices.Data is available annually, as detailed and aggregated data, in terms of traffic flow and by vehicle types.

Also, annually, Slovenian Roads Agency (DRSC) performs analysis of traffic accidents hot spots, usingdesignated procedure for allocating "black spots". Report is published annually; also immediate action is takenon those locations, from studies to design plans, both for instant measures to lasting solutions.

The Police maintain the official Traffic Accident database. The monthly and annual reports are regularlyissued. Also, key data is available for further research.

Status of Road Safety Audit (RSA) in Slovenia

Slovenian Traffic Safety Agency is responsible for having auditors trained and licensed. The first groupof 23 auditors was trained and licensed in 2011. Course materials and courses were designed. Courses lasted 6days, where 1 day was filed road inspection. There are plans for newgroup to be trained and also for upgrade/refreshing course for existing auditors.

In 2012, the selected auditors performed RSA on 20 km for motorway A5, and RSI on 50 km of motorway A1. The plan is, to have TEN network (about 500 km) inspected in two years and also selected other primary and secondary roads in the following years.

7 Conclusion

Main road safety priorities in Slovenia are defined in Resolution of National programme for road safety for 2013-2022. The main objective for 2022 is to halve the number of fatalities and seriously injured road users or not to have more than 35 deaths per million inhabitants or 420 seriously injured road users per million inhabitants. With periodic plans (madefor a 2 year period, based on National programme) road safety priorities in next years are defined. The most importantpriority is to reduce the number of fatalities and seriously injured road users (Dabbour, 2012; Bosurgi, D'Andrea and Pellegrino, 2013; Pesic et al., 2013). Additional, establish a sustainable and morestable system

of financing road safety. In the field of education, introducing road safety education into school curriculumat all levels is necessary as well as positioning health as an integral part of road safety.

As both EuroRAP assessment and MSI index measurements have proven, a newly built motorway and expresswaynetwork is in good condition and comprises to good safety result. On the other hand, state road network, encompassingmain and regional roads, needs a new national reconstruction plan. The missing parts of national motorway/expressway network must be constructed as soon as possible, called 3rd and 4th axis, as well as missing sections towards Croatia.

As motorways and expressways are newly built, most of them within TEN network, the road safety audit and inspectionprocedures should be also used on lower levels, such as main roads and regional roads, and, in some cases, also onimportant local roads.

Slovenia is among countries which are just below the average of the European Union road deaths per million population.On latest data (2012) Slovenia is on 16. place among 27 members with 63 deaths per million population. The number offatalities from 2001 was decreased by 53%. Reduction from 13% to 88% has been achieved in different user groups of road fatalities. Reduction has been achieved also on various characteristics of the road environment and vehicles. Among different road user types, moped riders and passengers are those showing the greatest decrease of 88% and 63%.

A Resolution of National Programme for road safety for 2013-2022 has been set on national level, where vision zero andgoals for the next decade were defined. The National Assembly voted on the Resolution of National Programme for roadsafety 2013-2022, which was submitted by the government. The national programme has already triggered some actionby establishing the ongoing period plan for 2013 and 2014, which includes different preventive actions and other road safetymeasures.

Acknowledgement

This research was carried out within the project ROSEE-ROad safety in South-East European regions, co-funded by the South East Europe Transnational Cooperation Program. The publication of the research results have been supported by KTI Institute for Transport Sciences, Centre for Road Safety.

References

AVP (2013) *Resolution of National programme for road safety 2013-2022.* Ljubljana: Slovenian Traffic Safety Agency. 123 p.

AVP (2013) *ROSEE Slovenian National Report, wp3 Policy and data analysis*. Ljubljana: Slovenian Traffic Safety Agency. 61 p.

Bosurgi G., D'Andrea A. and Pellegrino O., (2013) *What variables affect to a greater extent the driver's vision while driving?*. Transport, 28 (4), pp. 331-340.
DOI: 10.3846/16484142.2013.864329

Dabbour E. (2012) *Using logistic regression to identify risk factors causing rollover collisions*. International Journal of Traffic and Transport Engineering, 2 (4), pp. 372-379.
DOI: 10.7708/ijtte.2012.2(4).07

ETSC (2012) *6th Road Safety PIN Report – A Challenging Start towards the EU 2020Road Safety Target.* Brussels: European Transport Safety Council. 96 p.

IRTAD (2013) *Road Safety Annual Report 2013,* Paris: International Transport Forum. 458 p.

Pesic D. et al. (2013) *New method for benchmarking traffic safety level for the territory*. Transport, 28 (1), pp. 69-80.
DOI: 10.3846/16484142.2013.781539

Torok A. (2013) *Simplification of Road Transport Infrastructure Layout for Better Self-Explanation*. American Journal of Vehicle Design, 1 (1), pp. 16-20.
DOI: 10.12691/ajvd-1-1-3

WHO (2013) *Global status report on road safety 2013*. Geneva: World Health Organization. 318 p.