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ПОТЕРИ В ДОРОЖНО-ТРАНСПОРТНЫХ ПРОИСШЕСТВИЯХ РЕСПУБЛИКИ БЕЛАРУСЬ И ПУТИ ИХ МИНИМИЗАЦИИ

The Losses from the Road Transport Accidents in the Republic of Belarus and the Ways for Their Minimization

The quality of the road traffic or its particular characteristics may be estimated in the quantity indicators as per the size of the losses, defined as social and economic cost of optional expenditures in the process of road traffic [1,2].

According to the preliminary estimates, nowadays the total losses in the road traffic of the Republic Belarus are about 4 billion USD per year, including their distribution by type as following: economic losses – 70%, environmental losses – 20%, accidental losses – 10% (unfortunately, there is no methodology to evaluate social losses). The main sources of the losses are the following: road traffic management – about 50% (i.e. in large cities and megacities – up to 75%), roads, transport vehicles and road users – about 15% each.

For the past 5 years there are about 400,000 accidents registered in the Republic of Belarus, where 7,800 people died and about 40,000 people were injured, while the accidental losses were estimated for about 1.7 billion USD [3,4,5].

Table 1 – Statistics of Accident Rate and Its Relative Indexes in the Republic of Belarus and Foreign Countries [5,6,7]

Country	Accidents	Died	Injured	Severity of the Consequences	Risk of Common Trauma in Accidents	Risk of Fatal Injuries in Accidents	No. of Accidents per 1,000 Citizens	No. of Died People per 1,000 citizens	No. of Affected People per 1,000 Citizens	No. of Transport vehicles per 1,000 Citizens
Australia	41 096	691	40 405	1.7	100.0	1.7	495.1	8.3	495.1	557.5
Belarus	**92 553** 6 739	1 322	7 198	15.5	126.4	19.6	**976.3** 71.1	13.9	89.9	302.8
UK	188 105	3 059	185 046	1.6	100.0	1.6	308.4	5.0	308.4	525.1
Italy	230 871	5 131	225 740	2.2	100.0	2.2	388.8	8.6	388.8	677.3
Latvia	**35 058** 3 160	254	3 930	6.1	100.0	5.3	**1550.3** 139.7	11.2	185.0	463.2
Albania	1 254	384	1 344	22.2	137.8	30.6	39.7	12.1	54.7	104.1
Russian Federation	203 603	26 084	257 034	9.2	136.1	12.8	143.3	18.4	199.5	290.0
USA	1 749 000	41 259	2 491 000	1.6	144.8	2.4	580.8	13.7	840.9	827.8
Finland	6 657	380	6 277	5.7	100.0	5.7	125.9	7.2	125.9	547.1
Azerbaijan	3 104	1 107	3 432	24.4	146.2	35.7	36.2	12.9	52.9	88.0
Czech Republic	23 060	1 221	21 839	5.3	100.0	5.3	223.1	11.8	223.1	469.8
Switzerland	21 911	384	27 132	1.4	125.6	1.8	290.2	5.1	364.4	573.2
Estonia	2 449	196	2 253	8.0	100.0	8.0	182.5	14.6	182.5	453.4

Note: The data are given as of 2007 for the countries, except the Russian Federation, Latvia and Belarus. For Latvia and Belarus the data are given, i.e. accidents with material damage.

As one may see from the Table 1, the possibility of the fatal injuries in results of accidents are about 20% (19.6%) in the Republic of Belarus, while in Azerbaijan every one third person die among those, affected by accidents. However, the mentioned indicator, the risk of fatal injuries, cannot be considered as a reliable one (as well as others) [4]. For example, there were registered 100,000 road accidents in two countries with the same number of citizens. However, there are 50,000 accidents happened in one country, where 500 people got fatal injuries. At the same time, there are only 5,000 accidents happened in another country with the total number of 50 people, who got fatal injuries. The risk of fatal injuries will be equal 1 for both countries (please, see the Table 2). Therefore, all relative data are recommended to compare not with the accidents with affected people, but with the total number of road accidents (i.e. taking into consideration the accidents with material damage).

Table 2 – Accident Rate Statistics

Total No. of Accidents	Total No. of Accidents with the Affected People	Died	Risk of Fatal Injuries in Accidents	*Common Risk of Fatal Injuries in Accidents (proposed indicator)*
100 000	50 000	500	1.000	0.005
100 000	5 000	50	1.000	0.001

Table – Number of Citizens in the Republic of Belarus, thousand people

Year	No. of Citizens
2003	9848.8
2004	9800.1
2005	9750.5
2006	9714.2
2007	9689.7
2008	9671.4
2009	9480.2
2010	9481.1
2011	9465.4
2012	9463.3
2013	9468.1

Table – Statistics on the Number of Transport Vehicles in the Republic of Belarus

Year	Number of Transport Vehicles						Total Cars	Total motorcycles	Total Vehicles
	Personal			Companies, Organizations, Institutions					
	Car	Motorcycle	Trailer	Car	Motorcycle	Trailer			
2003	1677633	493547	144495	369410	10599	49763	2047043	504146	2745447
2004	1754176	479528	189685	355397	11297	56397	2109573	490825	2846480
2005	1901916	449340	130372	367628	12152	55187	2269544	461492	2916595
2006	2023298	422221	124384	382542	13642	59151	2405840	435863	3025238
2007	2181372	382807	128949	381012	12328	61157	2562384	395135	3147625
2008	2301804	360860	135032	403561	12890	62092	2868464	360068	3426035
2009	2464903	347178	135411	405771	13209	66549	2870674	360387	3433021
2010	2631452	332399	142921	411213	12917	68602	3042665	345316	3599504
2011	2777149	366675	149920	412945	12601	69629	3190094	379276	3788919
2012	2774832	383348	152686	421700	12684	72542	3196532	396032	3817792
2013	2810248	376984	156409	421308	10964	77477	3231556	387948	3853390

Table – Relative Data of the Level of Automobilization

	Year										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Coefficient of the level of automobilization (number of vehicles per 1 thousand citizens)	207.8	215.3	232.8	247.7	264.4	279.7	302.8	320.9	337.0	337.8	341.3
Number of personal cars per 1 thousand citizens	170.3	179.0	195.1	208.3	225.1	238.0	260.0	277.5	293.4	293.2	296.8

Table – Accidents with the Affected People and Affected People by Accidents for the Period between 2003 and 2013

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Всего
Accidents	7194	7218	7717	8283	7501	7238	6739	6363	5897	5187	4730	74067
Died	1764	1688	1673	1726	1518	1564	1322	1190	1200	1039	894	15578
Injured	7361	7522	8047	8832	7990	7577	7198	6832	6334	5569	5033	78295
ДТП в н/с	722	755	822	867	855	1012	1022	893	894	702	577	9121
Severity of Consequences	19.3	18.3	17.2	16.3	16.0	17.1	15.5	14.8	15.9	15.7	15.1	16.6

Table – Relative Data of the Accident Rate with the Affected People for the Period between 2003 and 2013.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Number of Road Traffic Accidents per 100 Thousand Citizens	73.0	73.7	79.1	85.3	77.5	74.8	71.1	67.1	62.3	54.8	50.0
Number of Road Traffic Accidents per 10 Thousand Cars	35.1	34.2	34.0	34.4	29.3	26.8	23.5	20.9	18.5	16.2	14.6
Number of Lethal Cases in Road Traffic Accidents per 10 Thousand Cars	8.6	8.4	7.4	7.2	5.9	5.8	4.6	3.9	3.8	3.3	2.8

Table – Distribution of Road Traffic Accidents with the Affected People as per Elements of Streets and Roads for the Period between 2003 and 2013

	Year										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Pedestrian Crossing unregulated	304 (0.04)	350 (0.05)	395 (0.05)	473 (0.06)	496 (0.07)	550 (0.08)	486 (0.07)	512 (0.08)	606 (0.10)	478 (0.09)	543 (0.11)
Pedestrian Crossing regulated	115 (0.02)	120 (0.02)	173 (0.02)	129 (0.02)	147 (0.02)	152 (0.02)	129 (0.02)	153 (0.02)	226 (0.04)	189 (0.04)	185 (0.04)

Table – Distribution of Accident Participants with the Affected People as per Categories for the Period between 2003 and 2013

Categories of Participants	Participated in Accident Died Injured										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Drivers	8826	8932	9648	10474	9477	9270	8796	8421	7696	6881	6400
	440	397	413	437	398	430	369	329	315	304	247
	1796	1879	2105	2400	2181	2171	2052	1999	1828	1605	1496
Pedestrians	3524	3508	3529	3647	3236	3011	2806	2638	2455	2095	1901
	756	725	720	745	601	596	518	483	474	396	371
	2757	2773	2803	2897	2631	2411	2280	2147	1978	1695	1527
Passengers	2712	2742	2995	3376	3052	2984	2785	2577	2471	2239	1898
	367	393	374	358	365	391	302	256	287	241	194
	2302	2308	2591	2975	2649	2560	2448	2286	2162	1989	1691
Bicyclists	638	624	644	671	612	512	484	468	440	336	355
	184	149	152	173	138	127	119	112	115	85	71
	450	468	488	493	466	382	358	350	323	249	281
Carters	87	114	74	74	74	60	55	51	45	44	32
	17	19	12	12	11	12	7	5	8	10	4
	48	73	44	47	45	33	39	33	25	22	19
Others	8	27	25	26	23	27	30	25	20	12	26
	0	5	2	1	5	8	7	5	1	3	7
	8	21	16	20	18	19	21	17	18	9	19
Total	15795	15947	16915	18268	16474	15864	14956	14180	13127	11607	10612
	1764	1688	1673	1726	1518	1564	1322	1190	1200	1039	894
	7361	7522	8047	8832	7990	7576	7198	6832	6334	5569	5033

Table – Distribution of Road Traffic Accidents with the Affected People and the Affected People for the Period between 2003 and 2013

	1 Vehicle and Pedestrian/Total		
	Accident	Died	Injured
2003	3371 / 7194	760 / 1764	2809 / 7361
2004	3361 / 7218	739 / 1688	2831 / 7522
2005	3370 / 7717	729 / 1673	2855 / 8047
2006	3513 / 8283	749 / 1726	2945 / 8832
2007	3103 / 7501	606 / 1518	2671 / 7990
2008	2872 / 7238	596 / 1564	2431 / 7576
2009	2684/6739	520/1322	2300/7198
2010	2517 / 6363	485 / 1190	2178 / 6832
2011	2361 / 5897	478 / 1200	2021 / 6334
2012	2010 / 5187	396 / 1039	1710 / 5569
2013	1834/4730	371/894	1537/5033

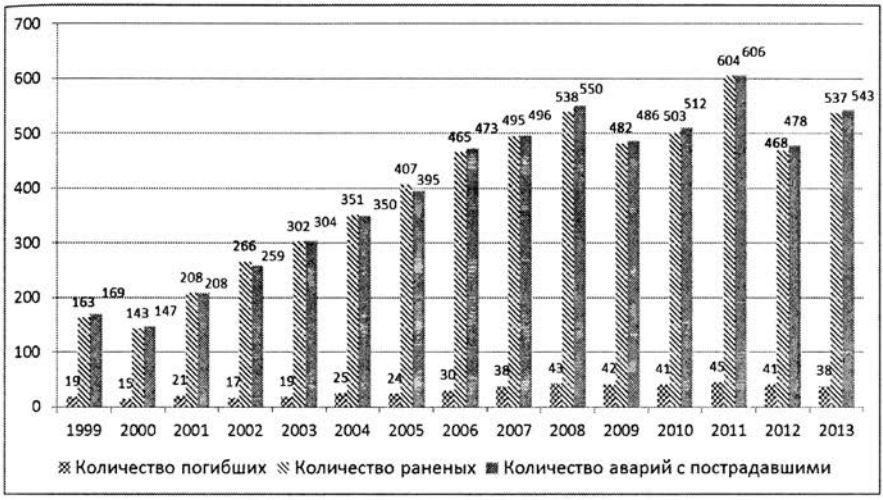
Table – Distribution of Road Traffic Accidents with the Affected People due to the Fault of Main Participants of Road Traffic

Categories of Participants	Road Traffic Accidents Died Injured										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Drivers	5013	5226	5857	6247	5680	5695	5334	4949	4655	4112	3737
	1232	1223	1222	1225	1106	1201	966	831	862	769	628
	5578	5866	6559	7210	6462	6326	6083	5715	5370	4718	4278
Pedestrians	1844	1882	1793	1863	1521	1309	1236	1193	1027	890	787
	434	454	446	482	388	356	324	319	313	248	244
	1476	1495	1409	1441	1184	993	942	903	746	664	564
Bicyclists	300	288	303	327	292	241	218	235	201	156	185
	78	60	68	76	60	55	52	52	51	31	32
	228	242	243	255	234	192	173	185	154	127	154
Carters	34	44	36	34	20	22	24	21	18	17	14
	11	14	8	9	9	8	4	4	4	4	4
	27	46	36	32	18	19	27	27	19	21	14

Table – Distribution of Road Traffic Accidents with Affected People and Affected People due to the Reasons of Break of the Traffic Rules by Pedestrians for the period between 2003 and 2013

	Road Traffic Accidents Died Injured										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Road Crossing in the Place, where It is Prohibited	1228	1102	1055	1154	907	710	682	605	507	442	369
			216	230	198	153	132	119	123	102	94
			872	958	728	573	559	505	403	347	283
Alcohol Intoxicated Condition of a Pedestrian	575	650	533	547	498	400	411	369	314	298	289
			101	105	87	74	83	66	76	64	71
			453	459	436	343	335	314	247	245	226
Unexpected Appearance of a Pedestrian on the Road from Another Vehicle, Buildings, Tress, etc.	298	296	217	217	213	202	156	167	146	104	77
			37	39	45	43	22	34	31	14	14
			183	181	176	166	135	134	124	92	63
Disobedience of a Pedestrian to the Road Management	71	88	135	79	77	86	73	75	83	81	63
			11	5	4	11	7	6	10	12	8
			126	77	79	80	70	70	75	70	58
Play at Road	120	262	239	235	163	156	156	165	178	70	57
			106	117	64	70	71	72	100	33	27
			150	132	106	95	93	97	84	38	33
A Pedestrian below 7 years old without a Guardian	26	36	37	26	19	17	10	14	16	9	8
			6	1	1	1	0	3	1	1	0
			35	26	18	16	10	11	15	8	8
Other Misbehavior of Pedestrains	226	222	330	236	386	350	336	342	306	243	177
			90	105	172	164	143	155	151	117	84
			146	135	228	195	203	192	165	131	97

The number of road traffic accidents increases proportionally with the increase of a number of vehicles, especially at the pedestrian crossings without special regulations (Pic. 1 and Table 3), where less secured participants of the road traffic die or get injuries [5]. For example, the Picture 1 shows that the number of people with lethal injuries in results of the accidents has not decreased within last three years.



Picture 1 – Dynamics of the People with Lethal Injuries, Injured and the Number of Accidents with the Affected People at the Unregulated Pedestrian Crossings in the Republic of Belarus for the Period between 1999 and 2013

It is worth to mention that, as known, about 70% of all accidents happen in alopecia (so called alopecia accident) and only 30% of accidents happen at the rest of the road (so called background accident). The alopecia is defined as a conflict space, for example, junction, pedestrian crossing, etc. or a line space of little length (where there may be conflict "transport-road"), for example, turn, constriction, bridge, etc., where there are not less than three accidents happened per year. At some point, the alopecia accident answers to the question: where an error in the work of the system "Driver-Car-Road-Environment" (DCRE) comes from, where the level of danger increases the permissible limits.

As we see, the decrease of a number of accidents is an urgent task that requires reasonable and purposeful activity to decrease the number of accidents and severity of their consequences by implementation of preventive actions, especially on the road management.

Conclusions and Recommendations

It is necessary to consider several practical, scientific and methodological tasks to resolve the problem of safety of the road traffic. There are the following ones among them:

– develop statistical reporting on all accidents, including the ones without affected people;

– assign the respective status to the alopecia accident that would require monitored reporting, efficiency assessment, optimization of solutions and implementation of activities;

– economic component of accidental losses from transport complications at the place of the accident should be included into evaluations;

– it is necessary to develop the methodology for estimation of the cost of accidents in the Republic of Belarus in order to ensure efficiency of decision making;

– improvement of the system of the state control under the conditions of the transfer of the controlling authority to the Ministry of Transport;

– optimization of the conditions for operation of vehicles, taking into consideration economic, environmental and accidental losses;

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MARKETING AND INTERNET MARKETING

Internet marketing, or online marketing, refers to advertising and marketing efforts that use the Web and email to drive direct sales via electronic commerce, in addition to sales leads from websites or emails. Internet marketing and online advertising efforts are typically used in conjunction with traditional types of advertising such as radio, television, newspapers and magazines.

If you're not using internet marketing to market your business you should be. An online presence is crucial to helping potential clients and customer find your business - even if your business is small and local. Online is where the eyeballs are so that's where your business needs to be.

According to Strategy Analytics, in 2015 digital advertising accounted for approximately 30% of overall spending on advertising, or $52.8 billion. This still puts it almost $30 billion behind advertising spent on TV. However, online advertising grew by 13% in 2015, the fastest of any category.

Internet marketing can also be broken down into more specialized areas such as Web marketing, email marketing and media-marketing: