

Efficiency assessment of urban transport systems secure development

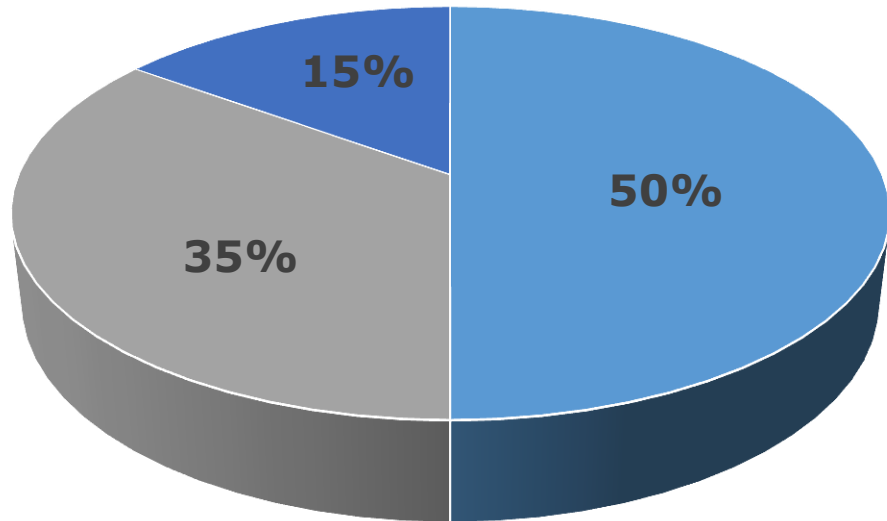


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The structure and amount of damage from negative transport factors

Structure of negative transport consequences

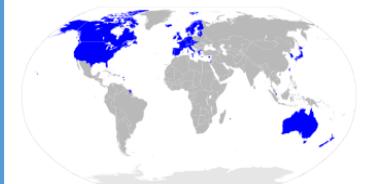


■ overloading of transport systems ■ accident rate ■ damage to the environment

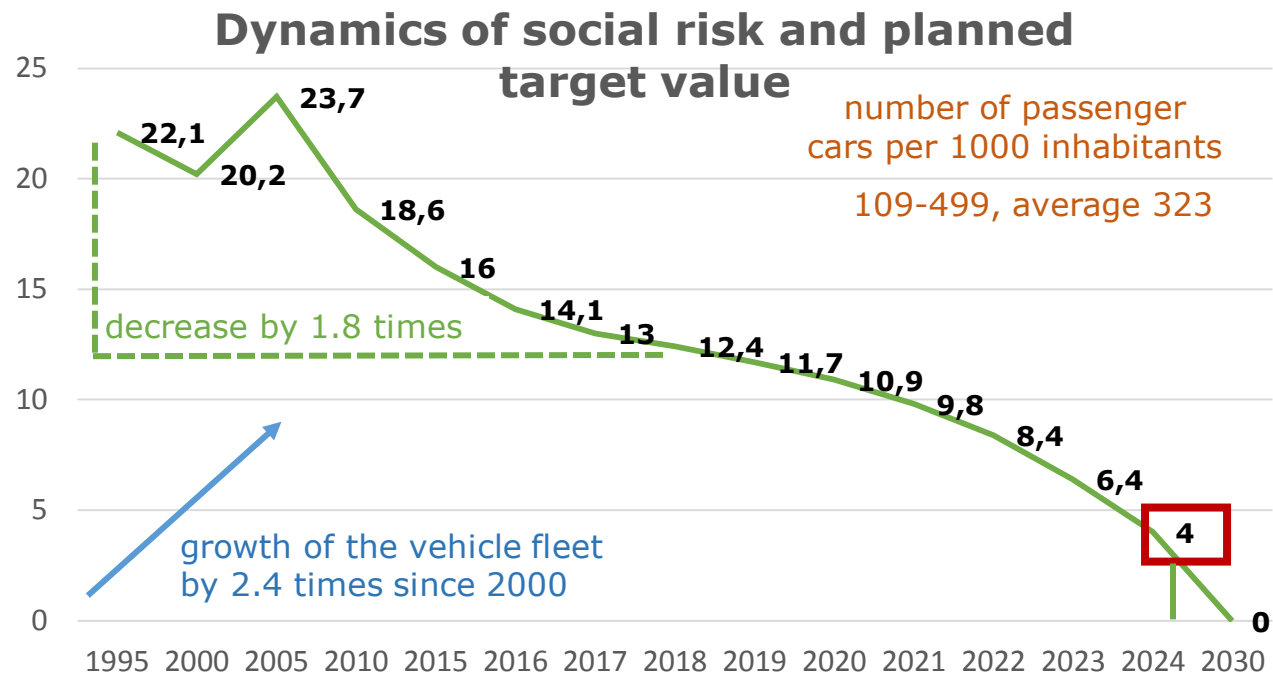


70% of the number of accidents
Damage \$ 35 trillion annually

30% of the number of accidents
Damage \$ 200 trillion annually



Social risk in EU countries and Russia



Achievement of the target in accordance with the Road Safety Strategy in Russia for 2018-2024



Indicators of road traffic accidents in Russia

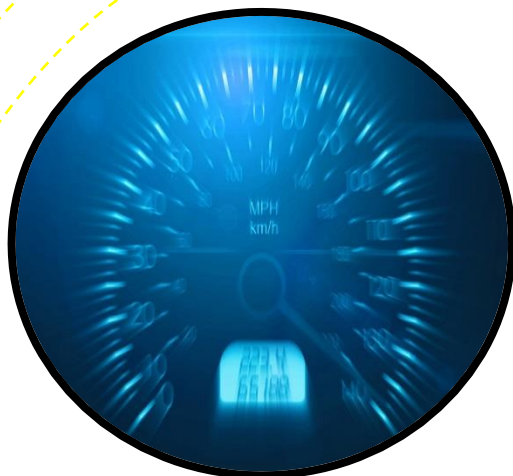
168 099
road
traffic
accident

18 427
deaths

193 195
injuries

>3,7
million
damaged
vehicles

0,9% GDP
general economic
damage



Methodology for assessing social and economic damage from road accidents



Socio-economic damage from the death of people in road traffic accidents



Socio-economic damage from injuries and disabilities of people in road traffic accidents



Material damage as a result of the accident and its consequences



Damage to road infrastructure



Damage from loss of time of road users



The structure of the methodology for assessing the socio-economic damage from road accidents

- Loss of income of deaths in road accidents, 30,4%
- Loss of underproduced GDP due to deaths in road traffic accidents, 61,9%
- Losses of GDP due to the reduction in the number of future generations, 6,1%
- Losses of business entities, 1,1%
- Expenses for funeral services, losses to the state for the education of children and payment of pensions and survivors' benefits, 0,5%

68,10 %

- Damage to vehicles, 93,85%
- Damage to the transported goods, 6,08%
- Underload due to vehicle write-off, 0,07%

18,27 %

- Income loss of the injured, 1,4%
- Government spending on medical care for the injured, 4,4%
- Loss of income due to disability, 9,7%
- Payment of temporary disability benefits from the Social Insurance Fund, 9,0%
- Government expenditures on the payment of pensions and social support to disabled people, 12,8%
- Loss of underproduced GDP due to disability, 60,4%
- Losses of business entities due to injuries and disability of employees, 4%
- Payments to victims of road traffic accidents under motor third party liability insurance contracts (deducted from the total amount of damage), -1,7%

13,63 %



Results of calculating socio-economic damage from road traffic accidents in Russia (2018 data)

Indicator	Range of values
Years of lost life, years	19,8-37,6
Average damage from the death of 1 person as a result of an accident, thousand euros	172-5 312
Average damage from the death of 1 person as a result of an accident, thousand euros*	213,3-11 314,7
Average damage from road accidents, thousand euros	26,7-533,3
Average damage from 1 injured person in an accident, thousand euros	0,5-4,9
Average damage per 1 disabled person as a result of an accident, thousand euros	24,9-457,3
Average material damage in road accidents, thousand euros	4,8-41,5

* - Accounting for the contribution of certain categories of deaths to road accidents

Estimating the cost of temporary losses of road users

$$C_{1mt} = 0,6 * C_{1mwt} + 0,4 * C_{1mft}$$

Indicator	Range of values	Middle level	Modal level
GRP per 1 employed (including the added value of non-market collective services), thousand EUR	7,3-203,7	20,4	14,7
Average nominal accrued wages, EUR	340-1320	580	445
Economic assessment of 1 minute of the passenger's journey, EUR	0,04-1,02	0,11	0,08
Cost of 1 minute of working time, EUR	0,06-1,68	0,17	0,12
Cost of 1 minute of free time, EUR	0,01-0,05	0,02	0,02

Age	The number of fatalities in road accidents	
	women	men
0-1	21	15
1-4	72	81
5-9	79	107
10-14	87	122
15-19	238	494
20-24	283	1164
25-29	344	1539
30-34	393	1728
35-39	393	1582
40-44	386	1308
45-49	322	1111
50-54	343	962
55-59	414	1173
60-64	366	827
65-69	332	599
70-74	213	246
75-79	294	237
80-84	235	150
85 and older	93	74
Total	4908	13520

Methodology for assessing socio-economic effects from the implementation of traffic management measures

- the effect of reducing the travel time of the obstructed section
 - the effect of reducing the time spent on the way of passengers of individual and public transport
 - the effect of changing the travel time of vehicles for carriers
 - the effect of changing travel time for business entities
 - the effect of reducing capital investments in transport
 - the effect of reducing transport fatigue of passengers
- the effect of reducing accidents and the number of deaths and injuries in road accidents
- ecological effect

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