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Analysis of Traffic Accidents Regarding Traffic Participants in Recent Years in the Regions and Cities of the Republic of Uzbekistan

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Abstract: *In recent years, many people have died and been injured in road accidents in our country, as well as the moral and material damage caused by them. At the same time, their analysis plays an important role in the prevention and reduction of RTA. This article is devoted to the analysis of traffic accidents in the regions and cities of the country in 2015-2021.*

Keywords: *"Car-Driver-Road-Pedestrian-Environment" system, traffic accidents with the fault of drivers, traffic accidents involving pedestrians and cyclists.*

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INTRODUCTION. In general, the occurrence of road accidents in different situations at the regional or city level depends on a complex-dynamic system consisting of a variety of human-driven mechanical and non-mechanical vehicles, moving (or inactive) pedestrians on these roads.

The problems and special aspects of traffic are determined, first of all, by the system "Car-driver-road-pedestrian". They, in turn, operate in the environment.

The system includes the following organizational parts: C (car), D (driver), R (road), P (pedestrian), E (environment). Not only do these organizational units operate in the environment, but each of them is closely linked to the environment [1]. In the optimal operation of the system "C-R-D-P-E" separate and joint classifications of car, driver, road, pedestrian and environmental components of the system and their combined C-D, D-R, R-P, C-P and others. The design dimensions (parameters) of road transport affect the classification of traffic. The geometric dimensions of the car, the quality of traction and braking, the comfort of the driver's workplace and easy handling play an important role.

The highway affects the operation of the C-R-D-P-E system through changes in the dimensions of its geometric elements and the quality of transport and operation.

Road safety depends primarily on the reliability of the driver, his readiness and ability to work. Perfect knowledge and observance of traffic rules by pedestrians will help to ensure traffic safety in real road conditions. Optimally, in terms of road safety, it will be possible to prevent traffic

accidents by optimizing the classifications of each of the founders and collaborators in the C-R-D-P-E system in the first place.

METHODS. One of the most important factors in ensuring traffic safety is to determine the causes of the accident in connection with the system "C-R-D-P-E". Unfortunately, in recent years, the main causes of road accidents in all regions and cities of the Republic of Uzbekistan, according to statistics, are drivers, pedestrians or cyclists. Statistical methods were used in the analysis of RTAs.

According to these data, it is shown that in the regions 60% with the fault of drivers, more than 70% of some years RTA occurs, while in the cities 56-58%, in some years 60% with the fault of drivers is detected.

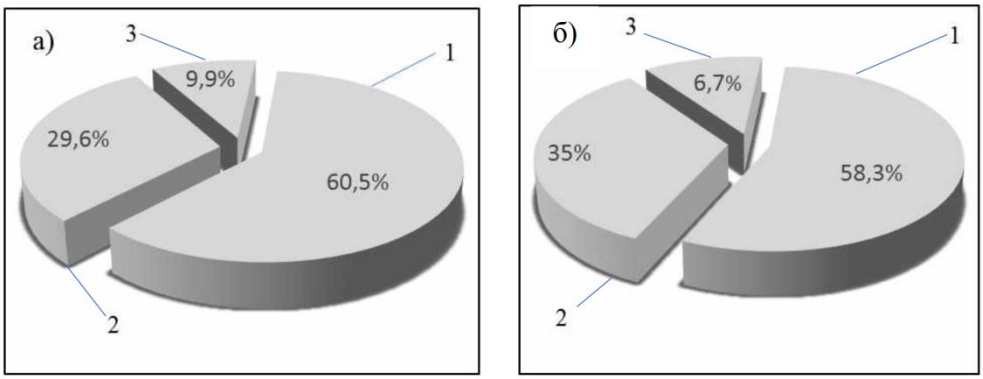

Figure 1. Average RTAs associated with the participants of the movement in Bukhara region in 2015-2021: a) for Bukhara region; b) For the city of Bukhara.

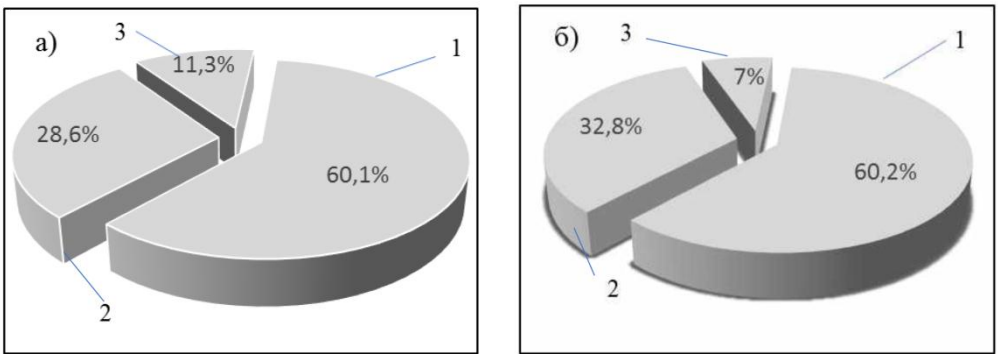

Figure 2. Average RTAs associated with the participants of the movement in Fergana region in 2015-2021: a) for Fergana region; b) For the city of Fergana.

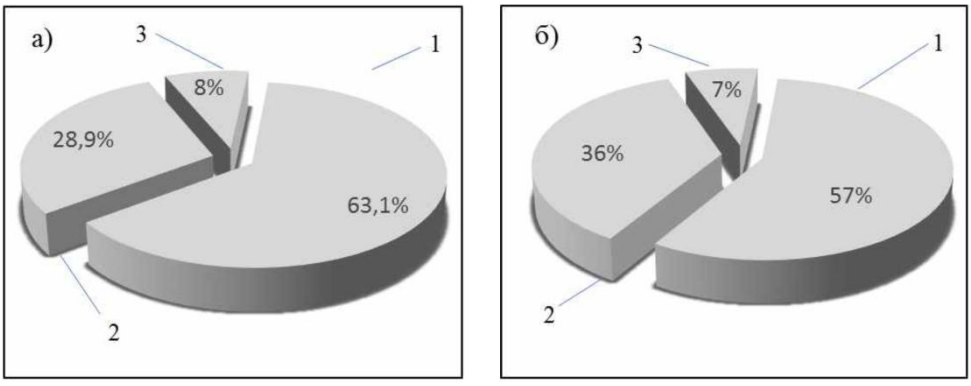

Figure 3. Average RTAs associated with the participants of the movement in Khorezm region in 2015-2021: a) for Khorezm region; b) For the city of Urgench.

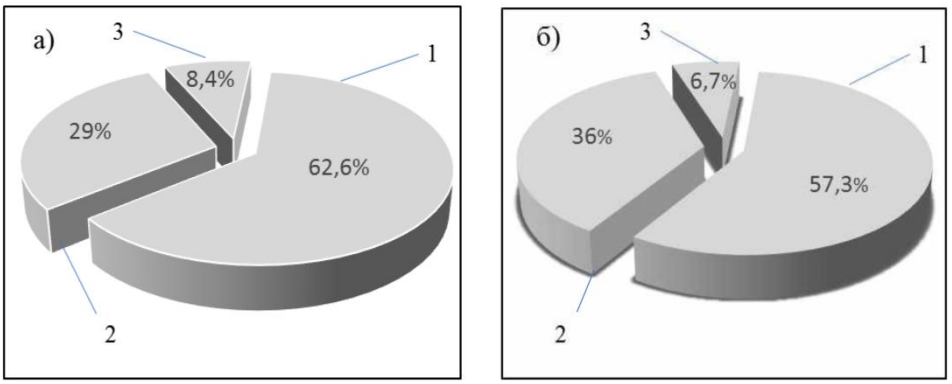

Figure 4. Average RTAs associated with the participants of the movement in Navoiy region in 2015-2021: a) for Navoiy region; b) For the city of Navoiy.

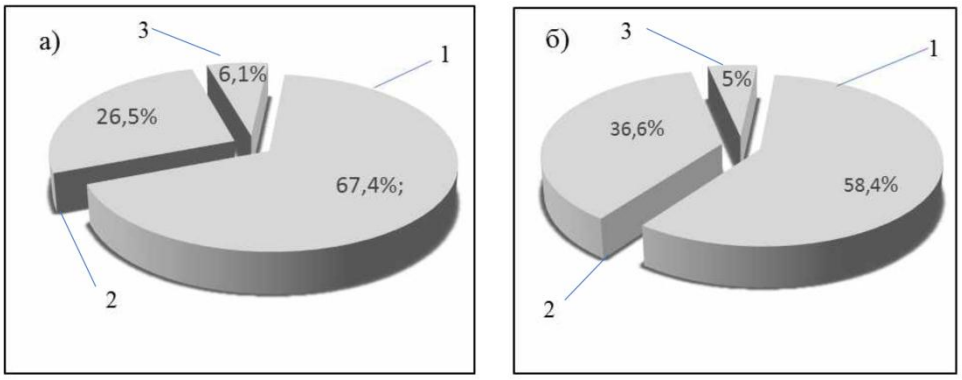

Figure 5. Average RTAs associated with the participants of the movement in Kashkadarya region in 2015-2021: a) for Kashkadarya region; b) For the city of Kharshi.

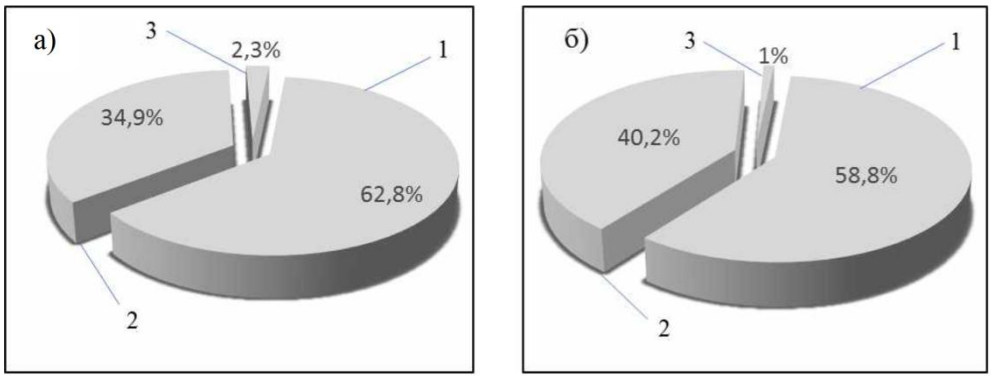

Figure 6. Average RTAs associated with the participants of the movement in Tashkent region in 2015-2021: a) for Tashkent region; b) For the city of Tashkent.

1. Related to drivers, 2. Related to pedestrians, 3. Related to cyclists.

RESULTS. The average number of pedestrian traffic accidents is 31.3% in the regions of the Republic of Uzbekistan and 38.6% in cities. At the regional level, the lowest number of pedestrians occurred in Kashkadarya and 28.9% in Khorezm, while the lowest number of pedestrians in the regional centers was 32.8% in Fergana and 36.0% in Navoi. The largest number of pedestrian accidents occurred in Tashkent (40.2%) (Figure 1-6).

The average number of cyclists is 6.4% in the regions of Uzbekistan and 2.7% in the regional centers. At the regional level, 11.3% of accidents involving cyclists occurred in Fergana and 9.9% in Bukhara, while in urban areas, accidents involving cyclists occurred in Fergana at 7.0% and in Bukhara at 6.7%.

DISCUSSION. According to the statistics of the Ministry of Internal Affairs of Uzbekistan for 2015-2021, the reasons for the occurrence of accidents are road conditions, vehicle failure and environmental impact. Such a conclusion was made due to insufficient attention or lack of knowledge and experience of specialists during the initial on-site study of traffic accidents, as in previous years, according to the above-mentioned departments and divisions, sometimes due to technical failures of vehicles recorded to be.

This mainly involves the condition of the vehicle's brakes, control system, tires, actuators and mechanisms. A faulty heating, cooling system, uncomfortable condition of the driver's seat, improperly installed rear view mirror or front view window cleaner malfunction at first glance do not seem to be the cause of the accident. However, these shortcomings worsen the psychophysiological condition of drivers, which in turn is a direct cause of RTA. Unfortunately, in practice, in most cases, such factors are considered to be caused not by the technical failure of the car, but by the negligence of the driver.

Table 1 shows the 2002-2008 data on road accidents in the Republic of Uzbekistan as a result of the use of a faulty vehicle.

According to the results of the analysis of traffic accidents in the previous union, it was found that 3-5% of the total number of accidents occurred due to car breakdowns.

Table 1

Years		2002	2003	2004	2005	2006	2007	2008
Number of accidents caused by technically defective vehicles	Total, pieces	27	33	31	12	8	3	5
	on account of %	0.25	0.31	0.29	0.11	0.07	0.03	0.5

The main guarantee of traffic safety in the system "Car-driver-road-pedestrian-environment" in the organization of traffic is the choice of the mode of movement of the driver in accordance with the rules of the road. According to Professor VF Babkov, 75 ÷ 80% of traffic accidents are caused by drivers. Excluding accidents caused by drunk driving, at least 45 ÷ 50% of accidents are caused by erratic driving [2].

Table 2 shows the 2015-2021 annual traffic accident in the Republic of Uzbekistan due to the fault of drivers.

Table 2

Years		Years	2016	2017	2018	2019	2020	2021
Number of accidents caused by technically defective vehicles	Total, pieces	6388	6218	6011	5454	5179	4476	6544
	on account of %	60,9	60,9	61,7	60,7	63,7	64,1	64,0

There is a big difference between the indicators identified by the researchers on the role of road conditions in the occurrence of traffic accidents and the indicators presented in the state statistics calculations. For example, in the 70s and 80s of the last century, researchers showed that road conditions played a role in the formation of traffic accidents [65], while in the former Soviet Union it was 7.1-12.1%. In Uzbekistan, in 2002-2008, this figure was 0.01 ÷ 0.02% (Table 3). Employees of the former All-Union Center for Traffic Safety Research say that 40 ÷ 45% of road accidents in 1991 were caused directly or indirectly by large-scale research on highways.

The difference in the data in the state statistics, recorded by the opinion of experts on the causes of occurrence of yth, can be explained as follows. The card on which the Yth is recorded is filled out is mainly by the employees of the road patrol service (RPS). The reason for the Yth, which occurred as a result of the fact that the employees of the ypx, which fills the card, do not fully understand the

road conditions kompleksly "C-R-D-P-E" system interconnection and scan the characteristics of each system elements, is not correctly indicated.

Table 3

Years		Years	2003	2004	2005	2006	2007	2008
Number of accidents caused by technically defective vehicles	Total, pieces	1	2	0	2	1	2	0
	on account of %	0,01	0,02	0,00	0,02	0,01	0,02	0,0

Due to poor road conditions in foreign countries, the following amounts to the total number of traffic accidents in the UK - 6.7%; Spain - 6.5%; France - 10.8%; Sweden - 6.1%; Yugoslavia - 20.4%; Japan - 17.3%.

The role of pedestrians in the formation of traffic jams should be emphasized, as most accidents are caused by pedestrians crossing unmarked roads, as well as lack of practical skills in traffic rules [4]. Table 4 shows the traffic accidents committed on the roads of the Republic of Uzbekistan in recent years due to pedestrians.

Table 4

Years		2015	2016	2017	2018	2019	2020	2021
Number of accidents caused by technically defective vehicles	Total, pieces	3493	3410	3147	3028	2463	1948	2914
	on account of %	33,3	33,4	32,3	33,7	30,3	27,9	28,5

CONCLUSION. Violation of the normal mode of movement of vehicles on highways, city streets and squares occurs as a result of improper actions of drivers or pedestrians, as well as due to vehicle malfunctions, poor road conditions and deterioration of the environment.

There is a big difference in the data of RTA, given in the state statistics, which are noted in the opinion of scientists and experts of the Institute of Scientific Research on the causes of RTA. The statistics do not record traffic accidents due to vehicle failure, poor road conditions and environmental impact. This is because the traffic police card is filled out mainly by traffic police officers. The card-filling RPS staff is unable to correctly indicate the cause of the RTA, which occurred as a result of the complex road conditions "C-D-R-P-E" interdependence of the system and a complete lack of understanding of the characteristics of each system element.

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