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ATTACHMENT TO THE STUDIES OF CAUSES FOR TRAFFIC ACCIDENTS

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ABSTRACT
The most common causes for traffic accidents and errors by the participants in traffic, mainly the drivers, point to the need for a comprehensive and in-depth study of certain types of accidents with fatal consequences. The driving with unadjusted and improper speed, as the most common cause, significantly increases the risk of traffic accident. The recommendation of the Program for improvement of road safety oriented to the study of traffic accidents pointed to the need of establishing of a multidisciplinary body for independent study of the worst traffic accidents. These studies are necessary in order to determine actual causes of traffic accidents in details, publicly, transparently and independently upon which the body would propose recommendations for the prevention of accidents.
Keywords: Road traffic safety, traffic accidents, causes, speed, road worthiness of vehicle, studies.

1. INTRODUCTION
Indicators of safety conditions in road traffic in year 2012, as well as the achieved results of the Action plan for the implementation of measures for improvement of traffic safety[1] (2008-2013) point to a trend of reducing the number of traffic accidents, reduced number of fatalities and severe and minor injuries. In order to achieve goals from the 4th Action plan of the European Union[2], whose main goal is decreasing the number of fatalities in traffic for 50% in the period from 2011 to 2020 it is needed to carry out additional measures, actions and activities. Regardless of the application of modern technologies and technical solutions the efficiency of security policy in road traffic ultimately depends on the behaviour of traffic participants. For consideration of road traffic safety and traffic accidents it is needed a new approach which will deal with in-depth study of behaviour of road users as main causes and consequences of traffic accidents.

2. OVERVIEW OF SITUATION IN TRAFFIC SAFETY
Situation of safety in road traffic in past several years has got an improvement trend which was indicated by the information for year 2012. Generally, there is a decrease of the total number of traffic accidents and number of dead and injured persons.

[1] *Basics of the Strategy of traffic safety in FB&H 2008-2013*
[2] *Action plan of the traffic policy for improvement of road traffic safety in the European Union*

2.1. Total number of traffic accidents and consequences of traffic accidents

There is a decrease of the total number of traffic accidents in past six years in Bosnia and Herzegovina, chart 1.

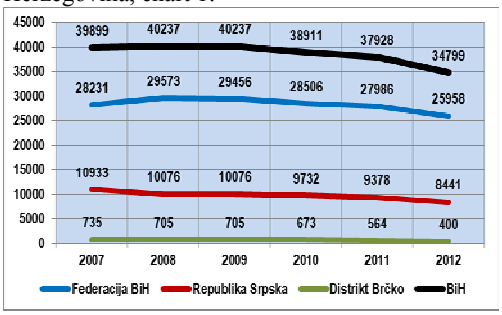

Chart 1. Total number of traffic accidents in B&H from 2007 to 2012 [2,3,4]

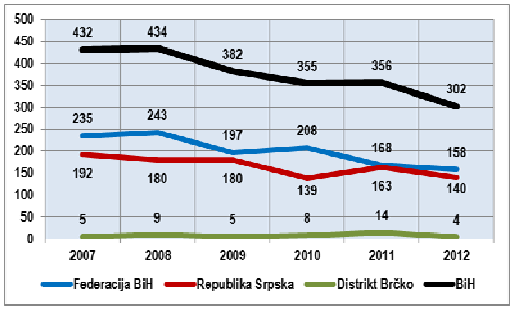

Chart 2. Number of dead persons in traffic accidents in B&H from 2007 to 2012 [2,3,4]

There were 25,958 traffic accidents on the roads of B&H in year 2012, which is less for 1,941 or 7% than in year 2011 [2]. There were 8,441 traffic accidents in the Republic of Srpska in year 2012, which is less for 937 or 10% than in year 2011 [3], and there were 400 traffic accidents in the Brčko District of B&H in year 2012, which is less for 164 or 29% than in year 2011.

There is a trend of reducing the number of killed and injured persons in traffic accidents in the past six years in B&H, chart 2. There were 158 dead persons in traffic accidents in the area of Federation of B&H in year 2012, which is for 6% less than in year 2011 [2], there were 140 dead persons in traffic accidents in the Republic of Srpska, which is for 14% less than in year 2011 [3], and in the District Brčko of B&H there were 4 dead persons in traffic accidents in year 2012, which is for 73% less than in year 2011. Compared to the traffic safety in Croatia the situation is similar. Also, there is a general trend of improvement in road traffic safety and a decrease in number of traffic accidents and casualties.

3. CAUSES OF TRAFFIC ACCIDENTS

The goal of safety is to prevent an accident and mitigate consequences, repair road locations for which it is estimated to be high risk even though there were no accidents on them [1].

The danger in traffic is the possibility or probability of the occurrence of some unwanted event during certain travel or participation in traffic. It contains two basic factors which is called the risk of traffic accident and it is a measure of danger of certain conditions in traffic.

3.1 Types of traffic accidents and the most common causes of traffic accidents

The most common types of traffic accidents in Croatia (table 1.) in the period from 2007 to 2011:

Table 1. Traffic accidents in Croatia in the period from 2007 to 2011

The most common types of traffic accidents compared to the total number of accidents, 2007-2011 [5]		Percentage of dead persons in certain type of traffic accident compared to the total number of dead persons, 2007 - 2011 [5]	
- Crashes from lateral directions	20 %	- Landing vehicle off the road	34 %
- Landing vehicle off the road	17 %	- Crashes from opposite directions	20 %
- Crashes while driving in a sequence	15 %	- Hitting a pedestrian	19 %
- Hitting the parked vehicle	12 %	- Crashes from lateral directions	7 %
- Crashes from opposite directions	11%	- Crashes while driving in a sequence	5 %
- Hitting a pedestrian	4 %	- Hitting the parked vehicle	1 %

According to available information about safety in road traffic for year 2012 in larger entity of B&H, of the total number of traffic accidents the cause in 22,4% of cases was inadequately adjusted speed to the road conditions, and in 4,8% the cause was the driving under the influence of alcohol [2]. In smaller entity of B&H of the total number of traffic accidents the cause in 28,5% was improper and

inadequately adjusted speed to the road conditions, and in 13,2& the cause was driving under the influence of alcohol [3].
It is characteristic that the technical breakdown of vehicle was almost never mentioned as the cause of traffic accident. According to earlier statistical indicators this participation in FB&H is 1,7%, and in RS it is 0,7% of the total number of traffic accidents. According to the results published by the professional institutions for the surveillance over the work of stations for technical inspection of vehicles for year 2012 there were 604,500 inspections conducted in FB&H of which there were 4% of returned vehicles and stated as irregular, and there were 338,350 inspections conducted in the RS of which there were 3,8% of irregular vehicles. When considering the average age of passenger's cars of 16.8 years, for buses 17.1 years, and for trucks 19.8 years we can rightly pose a question of the impact of human factor in both the control of technical regularity of vehicle and the reconstruction of traffic accidents starting from the police, court experts and persons entering and settling the database. [7]
According to the document "Basics of the Strategy of safety in road traffic" [6] the most common causes of traffic accidents in B&H were unadjusted speed (35%), non-compliance with rules of priority (11%) and driving under the influence of alcohol (6%). The most common cause of traffic accidents with fatalities in the reporting period, which is in average in 52,8% on annual basis, is unadjusted and irregular speed [5].
On the basis of aforementioned indicators the most common causes of traffic accidents are:

- unadjusted and irregular speed, and
- driving under the influence of alcohol.

These causes of traffic accidents for the reporting period are the same, and only changed a little in the percentage of their share. Therefore, in order to determine actual causes of traffic accidents it is needed to carry out comprehensive and in-depth research (study).

4. EXPERIENCES IN THE EU COUNTRIES WHILE INVESTIGATING TRAFFIC ACCIDENTS

As for Germany the investigation of traffic accidents is carried out by the German In-Depth Accident Study (GIDAS). The GIDAS investigating teams consist of technical investigators and medical investigators. Technical investigators are specially trained in accident investigation techniques, they collect information at the scene of accident meaning information on environment, weather conditions, traces, documentation, photographs of an accidents, damages to the vehicles, the vehicle condition before the accident, detailed data on deformations inside and outside vehicle, usage of safety equipment, habits of drivers involved in accident. The EU commission has entrusted the SafetyNet to establish an expert group dealing with the Road Strategy for Accident in Transport Working Group (ROSAT). This group has prepared Recommendations for transparent and independent investigation of traffic accidents[3]. These recommendations solve the safety oriented to investigation of traffic accidents.
In Section 5.2 of the Statement[4], the implementation of the EU directives of policy in road traffic 2011 – 2020, the joint instruments for monitoring and impact assessment of traffic safety are defined: to improve monitoring by collecting and analysing statistical data and increase awareness on understanding of crashes and risks.
Member countries are obliged to submit to the Commission statistics on traffic accidents with casualties and injuries that occur on their territory in order to create the database of community, CARE database. Available EU statistical data and knowledge on road safety are integrated and placed on the website of the ERSO – European Road Safety Observatory.
Technical expertise upon traffic accident can provide valuable feedback and experience that is useful for the future development of road safety. The Commission will investigate which extent the method and principles of expertise techniques can copy in the area of road traffic, taking into account its specific characteristics. To this purpose the Commission will work to improve the collection and analysis of statistical data on traffic accidents and development of the role of the EU observatory for

[3] *Recommendations for transparent and independent investigation of traffic accidents, SafetyNet (2008).*
[4] *Statement of the Commission to European Parliament, Council and European Social and Economic Board, and to the Board for Regions, to the Zone of European safety on roads: guidelines for road traffic safety 2011 – 2020, Brussels, 20 July 2010*

safety in road traffic and examine necessity of adopting common principles of technical expertise of traffic accidents.
EU Commission formed an expert group of 20 experts representing seven different organisations from the EU member countries, dealing with investigation of safety on road traffic with the emphasis on a comprehensive study of traffic accidents. After four years of work they suggested EU Commission recommendations for the formation of multidisciplinary and independent investigation of traffic accidents in all EU member countries with a joint methodology of investigation.
Some of recommendations by the Program for improvement of road traffic safety through investigation of traffic accidents are:

- investigation of traffic accidents should be carried out transparently and independently
- investigation of traffic accidents should be carried out by the multidisciplinary teams of experts with specialized knowledge, experience and common standards of investigation in all EU countries
- the investigation team should be informed about the accident at the same time as emergency services or as soon as possible, in order to allow timely response
- data on traffic accident should be collected in details about persons, vehicles and environment
- investigators should use standardised tools
- develop European manual on joint methodology of investigation and data collected, published in official languages of EU and will be freely available to the public
- should develop European database of traffic accidents to store collected data, and each Member country must be responsible for the accuracy and availability of data
- publish annual report on activities of investigations for the past year and information on recommendations on the European level, as well as recommendations for prevention of accidents, developed from the data on accidents that were investigated.

These recommendations should be viewed as a starting point for future projects in order to implement the program of European security oriented to the investigation of traffic accidents and work towards joint European methodology of investigation of traffic accidents.

5. CONCLUSION

In-depth investigation of causes of certain types of traffic accidents with fatal consequences may contribute to new knowledge in order to prevent future traffic accidents and improve safety in road traffic. These solutions will contribute to better understanding of behaviour of road users and processes of driving at the moment of collision and undertaking future measures and activities for avoiding traffic accident. The core of the road traffic policy should be multidisciplinary, independent and in-depth investigation of the hardest traffic accidents, because the existing levels of investigations are not sufficient due to large number of killed persons (fatalities).
Therefore, all Member countries should have an independent body for investigation of traffic accidents, structurally, organisationally and financially able to decide what an dhow to investigate and publish their research results.

6. REFERENCES

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