



## Research Article

# Transportation Policies in Increasing Traffic Safety

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### ABSTRACT

In our century, all economical social, cultural and touristic facilities are available through the rapid, confident and satisfactory transporting. Transportation policies are of great importance in terms of increasing productivity. Country's transport system plays an important role in revitalizing the social, cultural and economic activities of countries. Therefore, the efficient use of resources, the rapid distribution of goods and services, the development of domestic and foreign trade will only be possible with careful planning of transport and the establishment of a regular transport network. It is desirable that the transport system to be selected for passenger and freight transport should be fast, economic, safe, and environmentally friendly systems suitable for the country conditions. Transportation policies are determined in the direction of these expectations. Besides the positive results of transport systems, it brings some problems. The most important of these problems is related to traffic safety, which is also the main topic of study. There are some studies on road safety in the World and in Europe. These studies; the development of new technologies, such as the provision of road signs and traffic penalty analogies, the restriction of alcohol content, the reduction of the number of lives lost in road traffic accidents, the development of electronic driving licenses, the limitation of intelligent transportation systems and the speed of vehicles. The aim of this study is to examine the policies to increase traffic safety. As a result of this study, the applications of the policies for traffic safety and the deficiencies of the implementation point in the country of Turkey are determined and suggested.

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## 1. Introduction

Given that the transport sector's main purpose is to present transportation requests safely at the shortest possible time and at the lowest possible cost, it is achieved by creating a sub-structure that will provide coordination between transport systems, rather than focusing on one of these purposeful systems. This necessitates the preparation of the national transport master plan. All needs, resources, social and cultural interactions for a healthy transport service should be addressed and evaluated within this planning [1].

It is desirable that the transport system to be selected for passengers and freight transport should be a fast, economical, safe, environmentally friendly transportation system suitable for the country conditions. However, it is quite difficult for a system to sum up all of these things. Each system has advantages and disadvantages over the others [2].

Turkey offers the opportunity to use all transport systems together due to its geographical location. Policies that have been implemented for many years have a large share in the resultant road transport. The share of other transportation systems is very low. Therefore, traffic safety problem on highways is increasing day by day [3-6]. 7000 people lose their lives because of road traffic accidents every year in Turkey. 3 493 people crash site in the country occurred in 2016 as a result of 185 128 mortal injury traffic accident, the cause of the accident and 3 807 people wounded after being shipped to health facilities and died within 30 days under the influence. While 48.3% of the deaths and 67.3% of the injuries occurred within the settlement area, 51.7% of the deaths and 32.7% of the injuries were out of settlement [7]. Besides, the damage caused by traffic accidents is too great to be underestimated.

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## 2. Traffic Safety Studies in Turkey

In recent years, with regard to traffic safety, the run-of-the-mill transportation system has a large share in the current stage. Especially in the USA, Europe and Japan, the transportation investments made mainly lead to the formation of advanced road networks. These roads, constructed with extremely high quality standards, have brought with them various problems due to the inevitable nature of development over time. Traffic safety and traffic accidents are at the top of these problems. In order arising from a traffic accident deaths occur Turkey ranks 10<sup>th</sup> in the world. Countries like Brazil, Cambodia, China, and Egypt are in the first place. In Australia, Sweden, the Netherlands and the United Kingdom, the number of traffic accidents has decreased by almost half in the last 40 years. Undoubtedly, in this situation, effective transportation policies and public opinion in these countries are showing a common action against these policies. To reduce the number of people who died due to traffic accidents and to increase traffic safety, many studies were carried out from past to present. For example, despite the fact that the number of motor vehicles in Britain doubled between 1972-1999, the death rate decreased by half [8]. Since the late 1990s, there have been discussions on many topics in Sweden and the Netherlands, which are among the best countries on road safety, in order to reduce the deaths and injuries caused by traffic accidents. Vision Zero implemented in Sweden [9, 10] and the Dutch Sustainable Security Approach aimed to design the road traffic system as self-reliant. Our loss of life occurring in traffic accidents in Turkey were more than deaths from terrorism. Preventing traffic accidents and reducing the worst possible losses starts with, above all, having a vision of national transport and traffic safety. There is not enough traffic safety culture in the country. In solving traffic problems, people, vehicles, roads, environmental factors and other factors interacting together must be considered together. Putting rules in writing is not enough to create a sustainable transport and traffic safety policy. Evaluation and planning together with training and auditing activities are required. Unfortunately, in the country, temporary solutions are being sought instead of developing permanent and sustainable measures and policies on this issue. Traffic safety is a topic that covers more than one sector and area. For this reason, many organizations and very different kinds of experts are required to participate in the solution process of this problem.

In 2001, the National Traffic Safety Program was developed in the framework of the Traffic Safety Project, funded in part by World Bank credits and partly by the Turkish Government [11]. This program has been prepared in cooperation with the Executive Board of the Traffic Safety Project, which is composed of the Ministry of Transport, the Ministry of Construction and Public Works,

the Ministry of Interior, the Ministry of Health and the University of Gazi and the Swedish National Road Consultancy Organization (SweRoad). The essence of this study is to suggest the solutions to the relevant departments after the problems related to traffic safety are identified. A road safety vision is short for the first time this program has been adopted in Turkey, weed, long-term plans have been made. Unfortunately, the High Council, which must convene twice a year according to the law before and after the mentioned date, has never been able to hold a meeting and the National Traffic Safety Program cannot be misled [2].

In our country which has serious problems about road and traffic safety, big and comprehensive projects are being carried out in recent years. World Health Organization as a result of the Global Road Safety Report, released in 2009, Turkey was included, and as is most simultaneously in 10 countries of deaths in traffic collisions to increase traffic safety (this is why Road Safety referred to as 10-RS10) to carry out work has been sponsored by Bloomberg Philanthropies for an international project. In this study, which is also known as the "Global Road Safety Program", the safety belt and speed in Ankara and Afyonkarahisar pilots firstly started, there has been considerable progress on the safety belt as well as the formation of structures that will provide coordination at the national level, such as the Traffic Safety Platform[12].

The increase in the number of traffic accidents in the World and Turkey, the growing population dependent transport movements shown. However, when examined statistical reports on the number of people who lost their lives in traffic accidents occurred in Turkey, the increase in the number of human deaths occur is lower than the rate of increase in traffic accidents. The reason of this; Turkey has gained importance in the last 15 years is that the policy for the divided road construction in general. In similar reports, deaths after the accident are seen in 2015 and 2016. This is because deaths after the accident are only in 2015 and 2016, because no such statistics have been studied before. Summary information about traffic accidents occurred in Turkey in recent years is shown in Table 1.

Another factor affecting traffic accident numbers is that the amount of people in transportation demand varies according to the month. Especially in summer, the volume of traffic increases with the desire to relocate due to the holiday, which causes an increase in traffic accidents in the summer months (Table 2).

## 3. European Union Transportation Policies and Traffic Safety

The European Union (EU), which was founded in 1951 as the "European Coal and Steel Community" by the Treaty of Paris and the Federal Republic of Germany, Italy, France,

Belgium, the Netherlands and Luxembourg, gained a new dimension in 1957 with the decision to establish the Rome Treaty and the European Economic Community entered the process.

The European Community Commission has agreed to establish a common policy in the fields of foreign trade, agriculture and transport, through the Treaty of Rome. Articles 74 to 84 of the Rome Treaty concern transport.

In 1972, the United Kingdom (UK), Denmark and Ireland were redefined mainly for the transport policy of participation. After this date, it has also been observed that the transportation infrastructure is important. In 1973, the commission emphasized freedom in waterway transport. A report prepared in 1977, transportation market and infrastructure activities were emphasized. In the 1980s, more and more "adjustment" was emphasized.

At the Maastricht Summit, held in 1992, the powerful

single European idea is a multi-faceted union. Transportation is one of the most important sectors for economic and social cohesion. We can say that EU-orienting policies emerged in the 1990s. Especially in the worrying developments in the highway and transport sector, this period has begun to come to fruition [13].

These concerns; the increase in the share of road transportation was caused by the increase in passengers and loads that cannot be avoided day by day. As a consequence of the disruption of this balance in the transportation system, the environment has been damaged in great quantities and there has been a great increase in traffic accidents. It is revealed that the losses in traffic accidents are 2.5% of Gross National Product (GNP), besides traffic congestion, air pollution and noise effects also account for 4.5% of GNP when total cost is added to the account.

Table 1. Information regarding traffic accidents occurred in Turkey  
(Source: General Directorate of Public Security and General Command of Gendarmerie)

Year	Total number of accidents	Accidents involving material loss only	Accidents involving death and personal injury	Total	At accident scene	Accident follow-up
2002	439 777	374 029	65 748	4 093	4 093	-
2003	455 637	388 606	67 031	3 946	3 946	-
2004	537 352	460 344	77 008	4 427	4 427	-
2005	620 789	533 516	87 273	4 505	4 505	-
2006	728 755	632 627	96 128	4 633	4 633	-
2007	825 561	718 567	106 994	5 007	5 007	-
2008	950 120	845 908	104 212	4 236	4 236	-
2009	1 053 346	942 225	111 121	4 324	4 324	-
2010	1 106 201	989 397	116 804	4 045	4 045	-
2011	1 228 928	1 097 083	131 845	3 835	3 835	-
2012	1 296 634	1 143 082	153 552	3 750	3 750	-
2013	1 207 354	1 046 048	161 306	3 685	3 685	-
2014	1 199 010	1 030 498	168 512	3 524	3 524	-
2015	1 313 359	1 130 348	183 011	7 530	3 831	3 699
2016	1 182 491	997 363	185 128	7 300	3 493	3 807

Table 2: Number of road traffic accidents involving death or injury, persons killed and injured by months, 2016  
(Source: TurkStat, Road Traffic Accident Statistics, 2016)

Month	Number of accidents involving death or injury	Number of persons killed			Number of persons injured
		Total	At accident scene	Accident follow-up (1)	
Total	185 128	7 300	3 493	3 807	303 812
January	10 891	433	229	204	18 214
February	11 110	401	197	204	17 938
March	12 952	440	202	238	19 935
April	15 533	559	256	303	24 189
May	16 388	620	290	330	26 398
June	16 692	716	336	380	27 048
July	19 857	916	458	458	35 385
August	19 704	837	392	445	33 350

September	18 344	740	360	380	31 745
October	17 006	684	319	365	26 624
November	14 857	589	284	305	23 674
December	11 794	365	170	195	19 312

(1) Includes the deaths within 30 days after the traffic accidents due to related accident and its impacts for people who were injured and sent to health facilities.

For all these reasons, besides an expensive transportation, the prevention of unacceptable external influences, namely the enhancement of security and the necessity of a rational policy, the main objective of the EU is to realize a healthy, balanced and sustainable transportation system [14]. The Netherlands, Denmark, Germany and Belgium are the countries with the highest bicycle use in Europe. In The Netherlands the bicycle percentage in the modal split has been approx. 26% over the last decades. In Denmark the bicycle percentage is between 15 and 20%. In Germany on average 10% of all trips are made by bicycle. Belgium has an average bicycle percentage of not much more than 8% [15]

When the statistics of the traffic accidents shown by the tables are examined; the policies implemented in the transport sector in Turkey is seen reflections of positive results. For example, when we evaluate without the results of 2015 and 2016; it is seen that the life in traffic accidents is generally similar to the number of lost people despite the fact that there is an increase of 3 times in the number of traffic accidents coming to the square in years. The increase in the number of passengers who lost their lives in traffic accidents during the years of 2015 and 2016 can be explained by the fact that tour buses belonging to tourists are involved in traffic accidents. When the distribution of the traffic accidents arriving in the square in 2016 is examined; the increase in traffic accidents is caused by the necessity of traveling due to the tourist activities of people, the summer holidays of the schools and the increase of cultural activities and the increase of the need to transport agricultural workers.

#### 4. Transport Policy Proposals for Traffic Safety

Traffic safety is a multidisciplinary issue that deals with different branches such as engineering, sociology, psychology, health, education, security and law. Policy makers should keep this in mind. Transportation problems are problems that concern every part of the society. It is important to be offered to the public when an investment in transportation is to be made. In order to ensure traffic safety in the country, it is listed below.

1. The use of all transport systems in integration, railway, inland waterway, short sea transport and combined transport should be given priority. In addition, transportation of passengers should be given priority, especially on public transport.

2. To ensure that users, employees and all collective,

social and environmental aspects of an acceptable, safe transport environment are improved, transport safety is improved and objectives are set for this purpose.

The following measures must be taken in order to achieve the above mentioned policies:

- Development of modal transport,
- Passenger transport, development of public transport,
- Development of infrastructure,
- Development of intelligent transport systems,
- Cooperation in research and development

#### 5. Results

This study aims to determine the current status of transport policy in Turkey in terms of traffic safety and transport policy should be to determine the probable future. This study identified transport policy in Turkey, but no studies have been done carried out. Short-term, day-to-day solutions for transportation problems have been produced. This situation enlarged the problem rather than solving it.

As a result, the share of road transportation should be reduced in freight and passenger transport. Transportation systems should be operated in such a way that they complement each other. Institutions and organizations related to transportation should work in coordination with one another.

In recent years, Turkey has made large investments particularly in terms of transport infrastructure. However, railway transportation infrastructure is strengthened and high-speed train works are being carried out. It is hoped that the above-mentioned policies will be implemented when these studies are completed.

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