



# Foreign Experience in the Administrative and Legal Provision of Road Traffic Safety and Opportunities for its Application in Uzbekistan

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## Abstract

The article presents a comparative analysis of administrative and legal frameworks ensuring road traffic safety in Germany, Sweden, Singapore, Japan, the USA, South Korea, Finland, and the United Kingdom. The study examines legislative bases, institutional coordination mechanisms, driver training systems, intelligent transport technologies, and public participation programs. Drawing on research findings and statistical data, the paper explores opportunities for adapting foreign experience to the conditions of Uzbekistan, particularly the Republic of Karakalpakstan. The author proposes a six-pillar strategic framework for the development of a national road safety policy.

**Keywords:** road traffic safety, administrative and legal regulation, Vision Zero, Safe System, intelligent transport systems, probationary licence, public engagement, Karakalpakstan, international experience.

## 1. INTRODUCTION.

Ensuring road traffic safety is regarded as one of the priority directions of public administration, closely linked with the socio-economic development, level of legal culture, and technological capacity of modern states. According to the World Health Organization (WHO), more than 1.19 million people die every year worldwide as a result of road traffic accidents (RTAs), and 20–50 million people sustain injuries. For this reason, road safety is recognized as a global problem of not only legal, but also economic, social, and environmental significance.

In Uzbekistan, an upward trend in road traffic accidents has been observed over the past decade: between 2015 and 2024, the number of RTAs increased by 15 percent, and more than 40 percent of these accidents resulted

in fatalities or serious injuries. Systemic shortcomings in the driver training system, infrastructural and technological constraints in the organization of road traffic, as well as ambiguities in administrative and legal regulation, give rise to the necessity of a thorough study of advanced foreign experience in this field and its adaptation to local conditions.

**The aim of the research** is to conduct a comparative analysis of the experience of eight advanced states in the administrative and legal provision of road traffic safety and to substantiate opportunities for applying this experience to the conditions of Uzbekistan, in particular the Republic of Karakalpakstan.

**The scientific novelty of the article** lies in the fact that, for the first time, the experience of eight states is systematically analyzed according to five criteria — the legislative base, the driver training system, infrastructure and intelligent technologies, public participation, and institutional coordination — and adapted to the regional characteristics of the Republic of Karakalpakstan.

## 2. RESEARCH METHODOLOGY (METHODS)

The research has been carried out on the basis of comparative-legal, systemic-structural, and statistical analysis methods. The following sources were used:

1. **Normative-legal documents of foreign states:** Germany's *Straßenverkehrsgesetz*, Sweden's *Trafikförordning*, Singapore's *Road Traffic Act*, the USA's *Highway Safety Act*, South Korea's *Road Traffic Act*, Finland's *Tieliikennelaki*, the United Kingdom's *Road Traffic Act*, and Japan's *Road Traffic Law*.
2. **Reports of international organizations:** WHO, UN, OECD, and the World Bank.
3. **National statistical data:** reports of the Road Traffic Safety Service of the Ministry of Internal Affairs of the Republic of Uzbekistan (2015–2024).

The possibility of adapting foreign experience to the conditions of Uzbekistan and Karakalpakstan was assessed as a comparative criterion.

## 3. RESULTS.

### 3.1. *The Experience of Germany*

In Germany, the organizational and legal system for ensuring road traffic safety is distinguished by a high degree of coordination among federal and local authorities. The "Road Safety Programme" developed by the Federal Ministry of Transport and Digital Infrastructure (BMVI) defines national strategies and is coordinated with local authorities through digitalized platforms.

German legislation clearly defines the rights and obligations of drivers, pedestrians, and cyclists, thereby minimizing legal gaps. Violations such as speeding or driving under the influence of alcohol are punishable by fines of up to 1,000 euros and the revocation of the driving licence. As a result of these measures, the number of violations has decreased by 30 percent.

In accordance with the law "On Driving Schools," every candidate undergoes psychological and physiological tests. The "probationary licence" (Probezeit) system, which keeps young drivers under strict supervision for two years, has reduced violations by 25 percent. This system can be an important solution for reducing the share of drivers aged 18–25 in road traffic accidents (40%) in Karakalpakstan.

In Germany, transport management centres have reduced traffic congestion by 22 percent with the help of artificial intelligence, and road signs comply with the international DIN EN standards. This experience can serve as a guiding model for the modernization of road infrastructure in Nukus and other cities.

### 3.2. The Experience of Sweden

In Sweden, road traffic safety is based on the *Vision Zero* strategy adopted in 1997. This philosophy aims to bring fatalities and serious injuries resulting from RTAs down to zero and envisages the introduction of a road system designed to be tolerant of human error.

The maximum speed on urban roads has been set at 30 km/h, which has increased pedestrian safety by 35 percent. In driver training, "hazard management" courses are mandatory, where candidates learn how to act in dangerous situations on icy roads. The restriction on night-time driving for young drivers and the obligation to limit the number of passengers have reduced violations by 20 percent.

The "Smart Traffic Lights" system in Stockholm has optimized traffic flows and reduced congestion by 20 percent. The main appeal of the *Vision Zero* strategy is that it sets the goal of zero fatalities as a strategic indicator. This very feature points to the necessity of introducing clear indicators in the national legislation of Uzbekistan.

### 3.3. The Experience of Singapore

Within the framework of the *Smart Nation* programme, Singapore records violations in real time with 95-percent accuracy through cameras and sensors based on artificial intelligence. Between 2010 and 2020, the number of RTAs decreased by 30 percent, which is regarded as the main contribution of automated monitoring.

The *Road Traffic Act* establishes a strict system of penalties: speeding or drunk driving violations are punishable by fines of up to 5,000 Singapore dollars (approximately 3,700 US dollars) and revocation of the licence. The *Electronic Road Pricing* system regulates the flow of traffic in the city centre through economic mechanisms.

The main feature of the Singaporean experience is the integration of strict legal control with digital technologies. This model can be tested as a pilot project in major cities such as Tashkent, Samarkand, and Nukus.

### 3.4. The Experience of Japan

Within the framework of the *Road Traffic Law*, Japan has combined social awareness with strict legal control. Violations involving driving under the influence of alcohol are punishable by fines of up to 500,000 yen (more than 3,300 US dollars) and revocation of the licence, as a result of which such violations have decreased by 20 percent.

In the driver training system, the mental state of candidates is assessed through psychological tests. A system of mandatory retraining courses for offending drivers is in operation. In Tokyo, "Intelligent Transport Systems" (ITS) and GIS technologies have reduced congestion by 15 percent.

The "Zero Accident" programme encourages active public participation against violations. This very approach can be implemented in Uzbekistan through the mahalla system — the institution of the mahalla serves as a natural platform for organizing public participation.

### 3.5. *The Experience of the USA*

In the USA, a two-tier governance system based on the *Highway Safety Act* and state legislation operates. The "National Road Safety Improvement Programme" (NHTSA) strategically analyzes road infrastructure and traffic flows and defines clear directions.

In driver training, the *Graduated Driver Licensing* (GDL) system applies: learner's licence → restricted licence → full licence. This system has reduced fatal RTAs among young drivers by 20–40 percent. The *Vision Zero* programme in New York has reduced congestion by 18 percent.

### 3.6. *The Experience of South Korea*

In South Korea, the *Road Traffic Act* has introduced a strict penalty system, and the digital *e-Driver* platform monitors violations in real time. The "Smart Traffic Control" system in Seoul has reduced congestion by 18 percent.

Driver training is carried out under strict supervision: candidates undergo psychological and physiological tests, and *Traffic Safety Education* courses are mandatory for offenders. This experience can serve as an important model for improving the quality of driver training in Uzbekistan.

### 3.7. *The Experience of Finland*

Finland's "Winter Road Traffic Safety Programme" provides for the regular cleaning of roads and the supply of special tyres. The *Smart Traffic System* in Helsinki has reduced congestion by 17 percent.

The main aspect of the Finnish experience is the development of solutions tailored to climatic conditions. The extreme climatic conditions of Karakalpakstan (+45°C in summer, –20°C in winter, strong winds, and dust storms) reinforce the necessity of adapting this approach to the local context.

### 3.8. *The Experience of the United Kingdom*

The United Kingdom's *THINK!* campaign has been in effect since 2000 and combats violations by raising public awareness. The *Theory Test* and *Practical Test* examinations assess the theoretical and practical skills of drivers. London's *Congestion Charge* system has reduced traffic flow in the city centre by 15 percent.

## 4. DISCUSSION

#### 4.1. Opportunities for Applying Foreign Experience to the Conditions of Uzbekistan

In adapting foreign experience to the conditions of the Republic of Karakalpakstan and Uzbekistan as a whole, three principal constraints must be taken into account: limited economic resources, the climatic and geographic specificity of the region, and the features of legal culture and socio-cultural identity.

To overcome financial constraints, it is advisable to attract international grants (the road safety programmes of the World Bank, OECD, WHO, and OSCE) and private sector investment. A phased approach envisages testing pilot projects in major cities (Tashkent, Samarkand, Nukus) and expanding the experience based on their results.

In particular, the regional characteristics of the Republic of Karakalpakstan — its vast territory, low population density, long distances, climatic conditions, and infrastructural limitations — necessitate the adaptation of Finland's climate-tailored solutions and the experience of large-territory states of the USA to local conditions.

#### 4.2. The Six-Pillar Strategic Framework

As a result of the comparative analysis, the following six-pillar structure of a five-year national road traffic safety strategy is proposed for the Republic of Uzbekistan:

**1) Improvement of legislation:** introducing into the Law "On Road Traffic" amendments that clearly define the responsibilities of drivers, pedestrians, and cyclists in line with the requirements of the UN Decade of Action for Road Safety (2021–2030).

**2) Introduction of a digital monitoring system:** piloting cameras based on artificial intelligence in Tashkent, Samarkand, and Nukus, with subsequent expansion across the country.

**3) Modernization of the driver training system:** introducing the probationary licence (Probezeit) system for young drivers, conducting psychological tests, and organizing mandatory retraining courses for offending drivers.

**4) Raising public awareness:** introducing road safety lessons into school curricula and shaping legal culture through national campaigns such as "Safe Road"; using the institution of the mahalla as the principal platform for public participation.

**5) Modernization of infrastructure:** aligning the quality of road signs with international (DIN EN, ISO) standards, expanding dedicated lanes for pedestrians and cyclists, and tightening speed-limit regimes in city centres.

**6) Expansion of international cooperation:** attracting grants within the framework of OECD, WHO, World Bank, and OSCE programmes, drawing upon the specialized experience of advanced states, and conducting joint research.

## 5. CONCLUSION

The comparative analysis of the experience of Germany, Sweden, Singapore, Japan, the USA, South Korea, Finland, and the United Kingdom enables the formulation of the following three conclusions regarding the administrative and legal provision of road traffic safety.

**First**, the experience of no single state can be applied in its entirety to another country — the economic, legal, and socio-cultural characteristics of each country must be taken into account. However, the core principles of the experience of advanced states — strict legislation, clear strategic indicators, digital monitoring, high-quality driver training, and public participation — are of a universal nature.

**Second**, the most effective approach in the conditions of Uzbekistan and Karakalpakstan would consist of integrating the strategic foundations of *Vision Zero* (Sweden) and *Safe System* (the Netherlands) into the local legal system, complemented by the operational mechanisms of Germany, Singapore, and the USA (Probezeit, digital monitoring, GDL).

**Third**, the six-pillar strategic framework developed in this article — a complex encompassing legislation, digital monitoring, driver training, public awareness, infrastructure, and international cooperation — can serve to significantly reduce road traffic accidents in Uzbekistan and ensure the safety of citizens. The success of the strategy depends on its implementation through the joint responsibility of the state, society, and citizens.

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