

Editorial

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Transport infrastructure is a key contributor to the sustainable development of nations. Road construction has significantly increased during the past decades, particularly in developing countries, to stimulate economic growth and meet social needs. However, the increased road network has led to more vehicles and an increase in traffic-related road accidents. This can be attributed to lack of driver's experience, education and safety regulations; deficiencies in road design, construction and maintenance; and poor weather conditions.

According to the World Health Organization, more than 1.25 million people die each year as a result of road traffic crashes. Injuries from road traffic accidents are the leading cause of death among people between 15 and 29 years of age. Between 20 and 50 million more people suffer non-fatal injuries. More than 90% of road traffic deaths occur in low- and middle-income countries (Jackson and Cracknell, 2018).

On the positive side, the current worldwide Covid-19 crisis is likely to change our future communications and social activities for good. During the past few weeks, a substantial reduction in road traffic users has been noticed. This has led to a positive impact on the environment, and a potential reduction in traffic-related road accidents. This is likely to continue post-Covid-19, when society adapts to new way of working, communicating and travelling. However, research on road safety improvement is still required to reduce traffic accidents.

This issue of *Transport* presents four technical papers comprising international research projects on road safety assessment and recommendations for improvement, and a paper detailing performance assessment of roller-compacted concrete pavements.

Zhang *et al.* (2020) detail a fuzzy expert system used to identify hazardous road sections in China. They consider traffic accident economic losses in order to establish indices and characterise 30 road sections in mountainous areas. The results show that hazardous section classification is greatly

affected by the horizontal radius, grade and declination angle of the horizontal curve.

Xu *et al.* (2020) recommend a Markov switching logit model with spatial dependencies for real-time crash risk assessment. They use a spatial simultaneous autoregressive process to account for possible dependencies in crash likelihood between neighbouring freeway segments. The model is used to link crash likelihood with real-time traffic, weather and road geometry data. They conclude that the key contributing factors to crash likelihood are detector occupancy, occupancy difference between adjacent lanes, speed variance and occupancy difference between upstream and downstream detector stations.

Zolali and Mirbaha (2020) evaluate the impact of foggy weather on drivers' speed choice in two-lane highways in Iran. Driver behaviour varies depending on their personal and socio-economic characteristics and driving experience. They analyse the speed behaviour of more than 75 licenced drivers in six different weather scenarios using a driving simulator. They conclude that the significant factors are light and heavy fog, driving experience and the rate of accident involvement.

Mubaraki (2020) analyses the traffic flow impact on road accident and driver behaviour in the Jazan region of Saudi Arabia. He finds that that 85% of the accidents are attributable to drivers under the age of 40 and the highest percentage of accidents occurred during the holy month of Ramadan. The percentage of deaths resulting from accidents relating to fatigue is close to 20% of the total number of deaths in the sample for cities, and only between 30 and 60% of vehicle drivers show commitment to comply with regulated speeds.

Sok *et al.* (2020) assess the need for saw cutting joints within roller-compacted concrete pavements (RCCP) to improve performance. Large crack spacing will naturally develop within the concrete due to early life shrinkage and thermal movements. This will lead to wide crack opening, poor load transfer across the crack and future durability issues. The researchers

use an analytical approach to predict the natural crack spacing for unjointed RCCP, and verify the results using data observed in the field. They conclude that large natural crack spacings will compromise load-transfer efficiency and saw cutting cracks at uniform spacing is required.

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