Press release

Emergency Responses in Transportation

(Athens, August 2020) Term "emergency" may refer to any situation that poses an immediate risk to health, life, property, or environment[1]. Such situations require urgent intervention. However, in some cases, mitigation may not be possible. Agencies may only be able to offer fully palliative care for the aftermath. Transportation network system comprises from bridges, tunnels, and roads, among many. All these components are susceptible to a wide variety of "emergency" situation, including natural disasters.

Earthquakes, landslides, and floods are the most common examples of possible catastrophic hazards that threaten the safety of civil infrastructures. The damage assessment, in the event of a failure, highways and bridges in a transportation network system, hinders the effort of evacuation and emergency responses of post-disaster rescue and relief. As a result, the repair and reconstruction related tasks are very costly[2]. A worth-noticing example is the landslide in Austria, Felbertauern Road, which was an important traffic artery. In 2013 it was totally blocked for several weeks resulted in a cost of €4.2 million[3].

On the one hand, there are situational natural hazards such as earthquakes, landslides or floods. On the other hand, emergency situations in transportation system include accidents. Between 2001 and 2010, the road-related fatal rates in Europe decreased by 43%, and between 2010 and 2017 by another 20%. Nevertheless, 25,300 people lost their lives in European roads in 2017 (i.e. 70 lives lost per day per year), and about 135,000 people were seriously injured, including a large percentage of pedestrians, cyclists, and motorcyclists. These numbers result to a large humanitarian and social cost. The annual cost of road fatal cases and serious injuries has been estimated to be more than €120 billion, equivalent to approximately 1% of Czech Republic's GDP[4].

The described cases are just few among many, strongly indicating that measures need to be taken to make transportation systems safer. Towards that direction we could start by decreasing the risk of civil infrastructures towards natural hazards induced damage, or by the early detection of the emergency situations. The EU funded PANOPTIS project has already created a smart multi-modal road surveillance system, which consists of satellite, aerial, static and road vehicles. Such system permits the early detection of emergency situations, providing multiple advantages. An additional advantage is that they can inform in almost real time the drivers to adjust their driving behaviour, given an adverse situation.

Additional information can be found in PANOPTIS site, just follow the link: http://www.panoptis.eu/

[1] 'Wayback Machine', 6 June 2007, https://web.archive.org/web/20070606230917/http://www.ukresilience.info/upload/assets/www.ukresilience.info/15mayshortguide.pdf.
[2] 'Full Article: Seismic Performance Assessment of Highway Bridge Networks Considering Post-Disaster Traffic Demand of a Transportation System in Emergency Conditions', accessed 4 November 2020, https://www.tandfonline.com/doi/full/10.1080/15732479.2017.1299770.
[3] Clemens Pfurtscheller and Elisabetta Genovese, 'The Felbertauern Landslide of 2013 in Austria: Impact on Transport Networks, Regional Economy and Policy Decisions', *Case Studies on Transport Policy* 7, no. 3 (1 September 2019): 643–54, https://doi.org/10.1016/j.cstp.2019.05.003.
[4] J. Procházka, Š. Hošková-Mayerová, and D. Procházková, 'The Risks Connected with Accidents on Highways and Railways', *Quality & Quantity* 54, no. 5 (1 December 2020): 1537–48, https://doi.org/10.1007/s11135-019-00899-1.

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement no769129.