

Croatia and Europe: Same traffic rules – different interpretation!?

There were 4,077 people fatally injured in ten Danube area countries throughout 2017 alone. Putting that number in perspective, comparing it for example, with an epidemic outbreak and it will be clear how we underestimate that number only because our opinion regarding traffic accidents is biased by the idea that it is entirely drivers' fault. Precisely this outdated way of thinking, which does not lead us towards saving those lives, is being tackled by the RADAR project seeking to increase awareness on all levels, from general public to key decision-making stakeholders – states **Marko Ševrović Ph.D.**

Did you know that, throughout Europe, different traffic safety approaches exist, some traffic rules are even interpreted differently? Those are the discoveries, among others, brought to us by the RADAR project, whose goal is to influence the road traffic safety infrastructure in Danube region (ten countries are involved in the project). The project, financed by the European Union with 2,15 million euro, started in June 2018, while the project finish date is in May 2021. Croatian project partner is the Faculty of Transport and Traffic Sciences, and we interviewed **Marko Ševrović Ph.D.**, from the European Institute of Road Assessment in Ljubljana (EIRA – EuroRAP), and **Sanja Leš LL.M.**, **RADAR project manager** from the Faculty of Transport and Traffic Sciences.

RADAR project (Risk Assessment on Danube Area Roads) is a three-year project under the transnational cooperation project – Interreg Danube, whose goal is the development of cooperation regarding traffic infrastructure safety level improvement in countries of the Danube region. Ten partners are involved in the project, with other 12 associated partners from 13 countries.

RADAR project is motivated by the lack of awareness regarding the problem of traffic infrastructure safety in the region, as well as the lack of insufficiently qualified professionals which are dealing with this problem. Based on data at our disposal for project purposes, in ten states of the Danube region, 4,077 persons were fatally injured throughout 2017 alone! Try to put that number in perspective, comparing it for example, with an epidemic outbreak and it will be clear how we underestimate that number only because our opinion regarding traffic accidents is biased by the idea that it is entirely drivers' fault. Precisely this outdated way of thinking, which does not lead us towards saving those lives, is being tackled by the RADAR project seeking to increase awareness on all levels, from general public to key decision-making stakeholders. We were interested in which phase RADAR project is.

RADAR travelled a lot last year, we conducted training to implement methods for traffic safety increase on roads in Croatia, Slovenia, Montenegro, Bosnia and Herzegovina, Bulgaria, Austria, Hungary and Czech Republic. Training was conducted for engineers who work in the domain of road infrastructure, as well as for decision-making stakeholders in those countries.



On a partnership level, case-study visits were carried out in Croatia, Slovenia, Great Britain and Hungary. Road safety expert group meetings, composed by leading European experts in fields of concerns by the project, are also of great importance. Only topic which remained for discussion by the expert group is the one regarding safety in school zone.

We also collected data from partner states in the project and delivered a “Report on road safety state in RADAR project”, in which the current state, impact monitoring, knowledge and practices in ten countries of the Danube region were assessed. A big quantity of data was collected such as road network length, traffic accident data and information on the European directive on road infrastructure safety (2008/96/EC). Those are just a few of the activities that are being carried out during the project, until 2021. Throughout the project, differences in safety of the road infrastructure between countries in eastern and western Europe will be assessed. Our guests reveal what those differences are and provide us with some examples.

Even though traffic rules and road signs are equal across Europe (dating back to the Vienna Convention on Road Signs and Signals), there are differences in interpretation of some rules. Croatian drivers, who know that the speed limit on Croatian roads outside urban areas (excluding motorways and expressways) is 90 km/h and that every road sign restriction is only valid until the next junction will be surprised knowing that in Austria, those rules do not apply. In Austria, the speed limit on roads outside urban areas is 100 km/h, and the restriction on the road sign is valid even after a road junction, if the vehicle continues its trip along the main road. In Croatia, the yellow road sign indicating entrance in the urban area, implies a speed limit of 50 km/h, while in Austria, city limit road sign does not alter in any way a restriction indicated on the previous road sign. Another difference is the warning sign installation. In Croatia and some other countries, there are usually pairs of warning signs, one right at the location of danger and the other 150-250 meters before the first one. In Austria and some other countries this is not the case, and, for example at a pedestrian crossing, in Austria only one warning road sign is placed right in front of it, while in Croatia there are two signs. Another interesting fact lies in the pedestrian road crossing marking. In some countries, if the pedestrian road crossing is signalized, the zebra horizontal crossing is not drawn, the crossing is marked only with a dashed line. Biggest differences were found at railroad crossings, where there are differences in interpretation of same or similar signs.

As there are ten countries involved in the project, it is interesting to hear their experience.

During the project, majority of the partners involved were surprised by the amount and significance of different approaches to the road safety infrastructure which exist in other countries in specific fields. I think that the purpose of this project is precisely that, reduction in interpretation of differences and implementation of best practices found within case-studies in other countries. It is easier to implement an idea if there are countries who already implemented it and if there is concrete evidence that the implementation will have its wanted effects. Our guests explain that the road infrastructure is one of the three key factors in traffic safety, alongside human and vehicle. Concept, which is popularly called as Safe System, is the backbone of the project.



General idea of the concept is that all three key factors must act mutually and correct shortcomings between them. When considering vehicles, it is generally accepted that systems such as ABS and automatic stability control became part of the standard equipment. Those systems are doing nothing else than helping the imperfect driver in critical situations to prevent traffic accidents and its consequences.

When the driver fails, even with those systems, to correct the error, then, secondary safety systems installed in the vehicle set in. Secondary safety systems are the safety belt, airbags and various chassis reinforcements which have the task to decrease consequences of the inevitable accident.

BETTER AND HIGH-QUALITY ROADS DO NOT NECESSARILY MEAN LESS FATALLY INJURED.

We can often witness an increase in number of road accidents after a road section has been reconstructed, compared to the number of road accidents prior to reconstruction. Here comes in play the third key factor of the road safety – human. Increase in driving speed is almost a rule on newly reconstructed road sections. Key to traffic safety is adjusting the driving speed to road conditions. Goal of every traffic system should be the achievement of transport work at maximal safe speed. In simple terms, roads with big traffic load should ensure maximal safety at highest speeds, while those roads on which there is no traffic load do not justify major financial investments in the infrastructure which provides safety at higher speeds but they require the implementation of other traffic calming measures – as stated by experts from the Faculty of Transport and Traffic Sciences.

Roads with big traffic load should ensure maximal safety at highest speeds.
— Sanja Leš, LL.M



Figure 1 Sanja Leš, LL.M., Project Manager at University of Zagreb, Faculty of Transport and Traffic Sciences

IT WOULD BE IDEAL IF ALL THE ROADS COULD BE RATED 5-STARS, but that isn't realistic, that's why it is considered that roads rated tree stars or higher should be a realistic goal for every state. 3-, 4-, 5- stars – what do they mean for a driver, pedestrian, motorcyclist, bicyclist or passenger?

For example, 5-star road is a dual carriageway road separated by a safety barrier distant one meter from the road edge, where the speed limit is 100 km/h. Possibility of a fatal injury, and possibility of road accident in general on that type of road is halved, compared to a 4-star road (typical Croatian motorway) and four times less than on a 3-star road (good state road).

Generally, one more star means the possibility of fatal injury reduced in half. If we consider that a lot of roads with high traffic load in Croatia are rated with 1 or 2-stars which means that there is a very high possibility for serious road accident to occur, few times higher than on roads rated tree or for stars, it is clear which road sections require investment, in order to drastically increase traffic safety level.

Can you estimate, how much money should countries invest into road infrastructure in order to achieve a tree star rating or higher? How long would it take for such large-scale intervention? Marko Ševrović Ph.D. explains:

As I mentioned earlier, it is almost impossible to expect at least 3-star rating on all roads, given that there are roads with very small traffic load, there is just no economic logic behind that. When we are talking about specific investment, it is fair to say that road sections require relatively small investments, in a range between 3,000 and 7,000 euros per kilometre, that is necessary to increase a road star rating from 2- to 3-stars. When constructing new roads, difference between 3- or 4-star rated road is about 3 to 5 % of total investment, which is negligible, given that a 1-star increase in safety rating reduces traffic accidents by 50 %. Regarding the investment dynamic, it is necessary to define and select priorities. Investment priority are those roads on which most road traffic accidents occur.

Given that proposals based upon EuroRAP methodology consider the cost benefit analysis of investment, roads with the highest traffic load (highest risk exposure) and roads where traffic accidents happen frequently are prioritized.

Existing partnership between Faculty of Transport and Traffic Sciences and Croatian Auto Club in performing EuroRAP projects, with support and financing under National road safety programme of the Republic of Croatia and Ministry of the Interior, made possible the realization of a number of project and proposals which were, more or less, accepted by road managers.

Croatian roads, Croatian Motorways and Bina Istra invest great effort and substantial financial resources for the improvement of the road network safety. I am proudly saying how I consider that EuroRAP greatly contributed in raising awareness to road managers about potentially dangerous locations, today it is even considered a standard when evaluating a road safety.



European commission changed the directive regarding road traffic infrastructure safety and now we consider safety management on the entire road network, instead of black spot management, which is being abandoned because considered outdated and morally unacceptable principle. It is not acceptable to wait for the death of a defined number of persons on the same spot, in order to start acting and repairing the road.

Experience exchange for a higher traffic safety!



Figure 2 Marko Ševrović, Ph.D., EIRA-EuroRAP

What should the RADAR project bring us, after it ends 2021? Will the project results be implemented into the legislation of states involved in the project?

Final product of the RADAR project is a Danube strategy for road infrastructure safety level increase and an Action plan for the implementation of proposed measures. The entire project is conceived so that the mentioned documents are being prepared in cooperation with local partners which will encounter case studies and good practice examples from other countries of the region, and those good practice examples will then turn into strategic guidelines for the whole region. Current project experience shows us that Austria implements very advanced motorcyclist's safety measures on tourist roads, while at the same time Croatia and Bulgaria are preparing state of the art regulations regarding safety barrier standards according to latest technological achievements. Second question, regarding legislative framework, requires a more elaborate answer than a simple yes or no. All Danube area countries will receive the mentioned documents, which will also be available to all those preparing the legal framework, in form of proposals. It is then up to the legislature to evaluate if they will accept all or only certain proposals, considering other priority investments in the transportation sector. We, as project partners, are available for policy makers in case they need clarification or detailed explanation. – explains Marko Ševrović Ph.D.