

New Safety System Approach -- a Prescription for “hidden epidemic”

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Abstract: As a threat to international health and development, global road traffic injury has been a serious concern in recent years. According to Global Road Safety Status Report, about 1,354,840 road traffic-related deaths occurred in 2018 which means there will be a death just every 23 seconds. World Health Organization (WHO) predicts that road traffic injuries will become the fifth leading cause of death by 2030 beyond the lung cancer and HIV. The Safe System approach to road safety, conceptualized in Sweden as a road safety policy tool “Vision Zero”, has been one of the most effective way of improving global road safety. General Assembly resolution 74/299 (2020) has acknowledge the positive catalytic role of it and urge a new integrated approach to global road safety. A systematic review of road safety interventions in low-and middle-income countries (LMICs) found that approximately 90 percent of all comprehensive studies on road safety interventions were based on legislation and education strategies. In this paper, the possible solutions have been discussed and superiority of the new approach compared with traditional one is presented. Besides, barriers to the adoption of the Safe System approach are also identified along with recommendations on how to overcome these barriers.

1. Analysis

The Sustainable Development Goals Report 2020 published by UN has noted that the Sustainable Development Goals (SDGs) 3.6 of halving globally road-related deaths by 2020 is unlikely to meet and Member States still suffer from incalculable economic losses continuously. When discussing this topic, many United Nations (UN) entities refer to it as a ‘hidden epidemic’, calling it ‘ubiquitous yet invisible’. According to Guide for Road Safety Opportunities and Challenges: Low- and Middle-income Country Profiles, a report by World Bank’s Global Road Safety Facility (GRSF), the insufficiency of Safe System Approach and post-crash care are the main driver of increasing number of road crashes in low-and middle-income countries (LMICs) and result in more than 19.63 million deaths as well as serious injuries recorded, costing economies 1.7 trillion dollars which account for over 6.5% of their GDP while it is 2.7% for developed countries. Therefore, obviously, it is imperative to develop a new systematic safety approach to achieve safety standardization and effect a radical cure global ‘epidemic’.



Figure 1. Critical Factors [1]

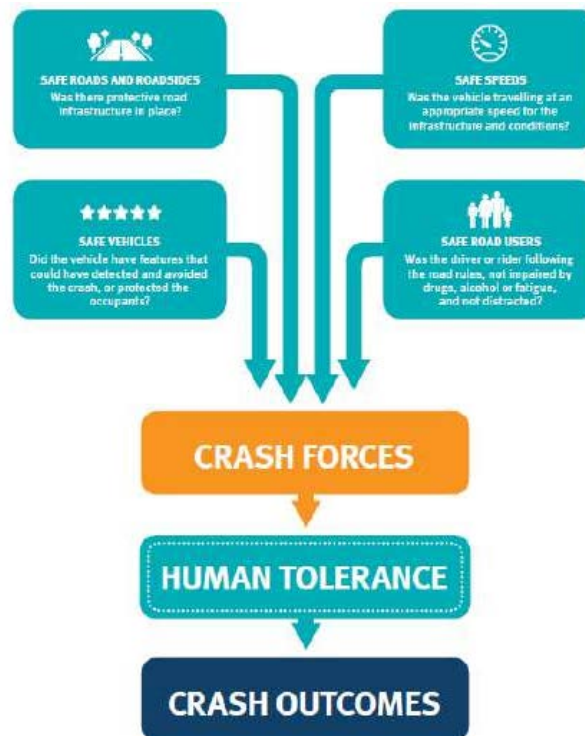


Figure 2. Safe System Factors and Impact on Crash Outcome [1]

The aiming safety approach focus on four critical causal factors that determine the forces during the crash to reduce the severity of the crash outcome: safe roads and roadsides, safe speeds, safe vehicles, and safe road users, which is more effective in the reduction of road crash fatalities and injuries compared to the traditional approach which primarily focused on narrowly-implemented interventions such as education and enforcement. The Figure 1 and 2 above has shown the superiority of the approach.

The new safe system approach supports a broader approach implemented in a multifaceted manner for maximal effectiveness while narrow approach significantly inhibited the effectiveness of road safety measures, leading to a misguided understanding of the relationship between road safety measures and their outcomes.

The following figure 3 has demonstrate the approach from principles, core elements, and action areas.

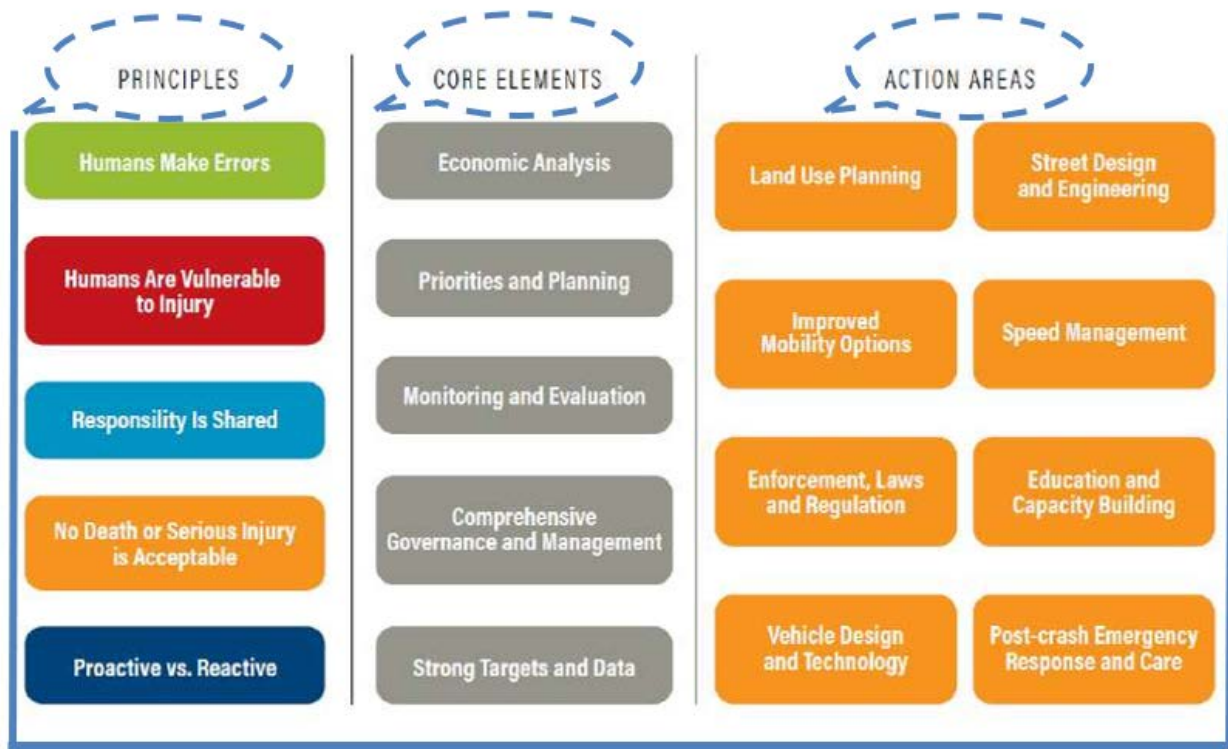


Figure 3. principles, core elements, and action areas.

Commonly, both in low-and middle-income countries (LMICs) and sometimes high-income countries (HICs), the extensive scientific evidence base of road safety interventions is not employed in vital decisions regarding road safety. The successful safe system approach is still not adopted, and the irrefutable evidence of the road safety value of lowering speeds, using speed cameras, employing traffic calming, and exercising general deterrence is often ignored. There is also clear evidence for weak or non-existent effects on road safety from skills-based driver training and general school-based education.

However, there are still immediately obvious differences between LMICs and HICs on road safety: HICs have better vehicles, more effective enforcement processes including unavoidable penalties delivering general deterrence, better roads, better post-crash care with well-equipped and well-funded ambulances as well as emergency departments. Besides, these countries also have developed comprehensive education systems. In addition, each country does have distinct cultural features, often combined with distinct geographical, political, and religious differences. These are commonly presented as a sound basis for not considering the adoption of solutions known to work in other countries, especially HICs.

2. Impact Factor

Besides, the under-reporting of road crash fatalities and injuries is a significant problem globally-affecting both developed and developing countries. It is a critical inhibiting factor in understanding the scale and impact of the road safety challenge, more so with the rising trend of fatalities and serious injuries globally. Not only does the under-reporting cause under-estimates of the problem, but it also causes systematic errors in the nature and location of the problem because unreported crashes and fatalities differ systematically from reported crashes.

Country Classification	Percentage Under-reporting of Road Crash Fatalities
Low-Income	84%
Middle-Income	51%
High-Income	11%

Figure 4. Percentage of Under-reporting in High, Middle-and Low-Income Countries (Analysis by GRSF based on WHO data)

For example, in European Union (EU), police records only capture approximately 70 percent of the vulnerable road user casualties because of high under-reporting for cyclists, pedestrians, and motorcyclists. Males, young people and injured victims from road crashes occurring in remote and inner regional areas are also likely to be under-reported. This is a critical under-reporting bias since rural areas experience approximately twice the fatal crash incidence density of road crashes as compared to urban areas—even with the lower human and vehicle population.

Moreover, LMICs also rely heavily on police recorded road crash fatalities and injuries data, too, as indicated in the reviewed studies. Police recorded data are limited quantitatively and qualitatively, due to other conflicting duties police must perform and to reporting biases, including biases in what is reported to the police. However, police recorded road crash data are essential in providing an overall outlook of road crash fatalities, including details of crash locations and other information which can only be determined by attending the scene for the crash. Thus, health-based crash data cannot inform road safety management to the same extent as sound police data. However, linkages to other data sources, such as health-based systems, improve the accuracy, completeness, and quality of road crash fatalities and injuries data in a country.

Therefore, following details should be considered especially in the new system approach: estimation of the proportion of road crash fatalities reported by the traffic police using complementary sources such as death certificates and hospital injury data as well as developing linkage frameworks and a single platform with the institutions handling the supplementary sources of information (that is, health and justice institutions) to improve the completeness and quality of the data. In this regard, it is recommended to improve a set of systemic security approach to be included in the new safe system approach, which are also applicable to developing countries on the basis of existing Vision Zero.

After all, the dismissal of proven solutions from some developed countries may be too hasty. Many vital factors run counter to this dismissal, essentially because in road safety, despite all our wonderful diversity, we have more in common than separates us.

3. Conclusion

Here are some specific and accessible measurements to overcome the barriers of adoption for improved system approach. Firstly, recommend the standardization on legislation by unifying the definition of road traffic death with the help of International Organization for Standardization, WHO and International Road Transport Union by Global Forum for Road Traffic Safety. It will provide the basis for application of the approach. Then, a regional and multilateral road safety communities between LMICs and HICs should be established based on UNESCAP and UNECLAC as well as UNECE respectively and develop cross-regional collaborations between UNECE, ECLAC, and ESCAP work to strengthen national road safety management capacity in various regions and Member States through the identification of road safety priorities and capacity-building opportunities. Last but not least, a dynamic standard-upgrading and monitoring mechanisms for the feasibility of measurements of integrated system should be built based on International Road Transport Union of

harmonized and internationally recognized standards for the vocational training of road transport professionals and an updated Road Safety Manual should be developed by the World Road Association to offer guidance to officials at various levels on measures, considering of vehicles, enforcement processes including penalties delivering general deterrence, roads, post-crash care with ambulances and emergency departments, and education systems’.

Under the impact of the COVID-19 Pandemic, undeniably, governments, NGOs, industries, communities, and academia across the globe are expected to work together for benefits and welfare of all citizens who rely on new safe system approach as well as affordable transport systems with additional safety measures to mitigate the risk of virus transmission. It is maintained that by deepening international cooperation, all member states can help optimizing multiple-win effects of the package solution for bettering global road safety.

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