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# Re-invigorating and refining Safe System advocacy

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## Key Findings

- Safe System principles and Vision Zero for road safety are delivering successes in many countries.
- However, interpretations of the approach limit advocacy for road safety in two ways:
  - The push for road safety investment and action based on a moral imperative for zero road crash deaths is uncompelling for many critical audiences;
  - The approach is dismissed in many low and middle income countries (and even high income jurisdictions) because the prevention of all road crash deaths is seen as prohibitively expensive and unrealistic.
- Recommendations are made to address these limitations, in order to re-invigorate the adoption of Safe System principles.

## Keywords

*Safe System, road safety advocacy, Vision Zero, costs.*

## Introduction

The Safe System approach to road safety is based on asserting the responsibility of the system operators for safety, promoted early in Australia as the accountability of the political system for road safety (Job, Fleming & Brecht, 1989), famously promoted in the USA by Ralph Nader (1965) in relation to cars, and pioneered in Sweden in 1996 (Larsson, Dekker & Tingvall, 2010). It is generally presented as encapsulating the following principles:

1. *People make mistakes:* Humans will continue to make mistakes, and the transport system must accommodate these.
2. *Human physical frailty:* There are known physical limits to the amount of force the human body can withstand before serious injury of death occur.
3. *A forgiving road transport system:* A Safe System ensures that the forces in collisions do not exceed the limits of the human body. (The OECD report 2016 describes this as the need to strengthen all parts of the system so that if one part fails the other parts will still protect the road user: ITF, 2016).
4. *Shared responsibility:* Responsibility for road safety is shared by all system designers, builders, operators and users.
5. *Vision Zero*: The ultimate objective of a Safe System is that no one should die or be seriously injured in road crashes.

The above description of principles has been slightly reworded from a variety of descriptions in many road safety strategies which have adopted safe system guiding principles, including the current New Zealand road safety strategy (NZTA, 2011), the current Australian National Road Safety Strategy (noting that it does include shared responsibility but not as a safe system principle: NTC, 2011), current Australian state strategies (e.g., New South Wales: Transport for NSW, 2012; Western Australia: Government of Western Australia, 2009; South Australia: Government of South Australia, 2011), Ireland's strategy (Road Safety Authority [Ireland], 2013), Poland's strategy (National Road Safety Council [Poland] 2013), and Qatar's strategy (National Traffic Safety Committee [Qatar], 2012). Global guidance documents such as the Organisation for Economic Co-operation and Development (OECD) road safety reports (ITF, 2016; OECD, 2008), the World Bank road safety capacity review guidelines (Bliss & Breen, 2019, 2013), and the United Nations Global Plan for the Decade of Action on Road Safety (UN, 2011) also adopt and advocate for a safe system approach, as do numerous road safety papers (Belin, 2016; Larson et al., 2010; Mooren, Grzebieta, Job & Williamson, 2011).

A Safe System approach has been applied successfully in multiple countries (Mooren et al., 2011; De Roos & Marsh, 2016); Safe System principles and successes have been outlined and promoted (Mooren et al., 2011; Larsson et al., 2010); principles of road design based on a safe system have been provided (Marsh & De Roos, 2016; World Road Association, 2015); the safe system principles are identified as critical for low and middle income countries (LMICs) to adopt, by the World Bank (Bliss & Breen, 2009) and others (Gururaj, 2014); the World Road Association (2015a) noted that its plans include that "Attention shall be paid to the implementation of the "Safe System approach" and its adoption in low and middle income countries"; and the United Nations Global Plan for the Decade of Action on Road Safety advocates for safe systems (UN, 2011). Despite all these promotions, advocacy, successful applications, and guidance from the most credible and influential road safety organisations globally, most road safety activities in LMICs and indeed in many high income countries are not based on Safe System principles. The focus often remains on behaviour change, education, training, and support of victim blaming (Job, 2017). This commentary paper identifies reasons for the non-adoption of safe systems and suggests ways to re-invigorate the adoption of safe systems thinking.

### Challenges to advocacy arising from Safety System principles

In addition to the many challenges to road safety advocacy generally, Safe System principles in particular generate two additional challenges. These are considered below.

*Challenge 1: The push for road safety investment and interventions is based on a moral imperative for zero road crash deaths which is uncompelling for many critical audiences.* The moral imperative of the Safe System approach and vision zero is that no-one should die or be seriously injured in road crashes, and this is commonly the basis of advocacy (OECD, 2016). The concern raised here is not with the ethical imperitive *per se*, but with its use as the key to advocacy in many countries. Many LMICs face multiple major challenges to the health of their citizens. While road crashes kill an estimated 1.25million people per year and over 90% of those deaths occur in LMICs (WHO, 2015), globally road crashes are still fifth among the leading causes of disability adjusted life years (DALYs) behind ischaemic heart disease, lower respiratory infections, cerebrovascular disease, and low back & neck pain (Global Burden of Disease Study Authors, 2015) and in many low incom countries road crash deaths while more much prevalent than in high income countries, have for many years remained at a less prevalent than deaths from diarrheal diseases, and other manageable diseases (Mathers, Boerma & Fat, 2009). Thus, for the governments of many countries a asserted moral imperative to commit the huge resources required to attempt to eliminate road crash deaths and serious injuries is not appropriate to their circumstances or their priorities, and is seen as unaware of the multiple life-threatening problems they must manage. Finally, poverty itself facilitates many of the major health risks (including

road crash deaths), and thus road funding is seen (correctly) as a way to improve the country's economy and health. Thus, more kilometres of road allowing effective transport of goods and access to markets, health and other services are seen as a priority. Countering this with a moral imperitive to avoid all deaths and serious injuries is uncompelling. In the author's experience in many countries, the challenge is not that Governments do not care about road safety or their citizens, but that they see crashes as a consequence of improved transport which must be balanced against the benefits of improved economy, improved access, and reductions in the many other problems (including health problems which may be killing more people than road crashes). The ethical imperitive is more complex, and thus presentation of a singular road safety focus can be readily dismissed.

An alternative advocacy approach, which has worked well for the author in many countries is to identify the large economic cost being paid for road crash injuries and deaths, and thus the economic burden which is reduced by addressig road safety. This correctly identifes road safety as a poverty generating issue. A number of specific details are often helpful:

1. It is not uncommon for countries to have made an estimate of costs of crashes from a number of years ago, employing methods now seen as substantially underestimating death and injury costs. It is critical to identify if such a study exists for the target country and point out its limitations.
2. Make a more up-to-date estimate of costs is essential. This can be done as an approximation by employing the iRAP general estimates of the costs of each death and injury based on multiples of GDP per person (70 times GDP for death and 17 time DGP for injury: Dahdah & MacMahon, 2008). It is best to employ estimates of numbers of deaths based on WHO (2015), not official figures if there is a significant discrepency. This will often result in an estimate of crash costs equal to 5 to 6% of GDP per year (see Dahdah & Bose, 2013) not the 1 or 2% commonly estimated (see WHO, 2015 for examples in many LMIC profiles).
3. In addition, Government officials must be persuaded of the credibility of this approach, which is generally quite achievable. Reminding people of the key human and economic impact of deaths around age 18-25 (the age group with the highest risk of road crash death) is helpful.
4. Identify that the costs of crashes are commonly largely born by the Government itself (though emergency services, health care, lost taxes, etc.), and thus the benefits of reduced crash costs will directly reduce Government costs.
5. Identify that deaths and injuries (and thus the costs of crashes) can be systematically reduced by evidence based safety engineering of roads, speed reductions, etc. noting the large benefit:cost ratios (BCRs) achievable. The BCRs show the real value of investment in road safety.
6. Road crashes also risk downward movement to poverty for specific families when the breadwinner is killed or injured to the point of being unable to work.
7. All these discussions must be undertaken with specific detail of the target country being demonstrably considered, not an in principle discussion. This is critical because countries are often focused on what makes them unique rather than the many features they share in common with other countries. Thus, acknowledgement of the country's particular circumstances (which do always exist) and selection of relevant road safety interventions as examples are critical to persuasion.

The above approaches are often effective in persuading governments and government departments in high and middle income countries as well as low income countries.

*Challenge 2: The Safe System/Vision Zero approach is dismissed in many low and middle income countries (and even high income jurisdictions) because the objective of a Safe System which prevents all road crash deaths is seen as prohibitively expensive and unrealistic.* There are many causes of premature deaths suffered in low income countries (including some more prevalent than road crash deaths) combined with inadequate resources to address them. In these circumstances Vision Zero amounts to the suggestion that these causes of death can be ignored in favour of expending resources solely on road crashes. Nonetheless, Safe System principles provide important guidance for road safety interventions.

Alternative methods of advocacy for a Safe System can be successful, including:

1. The principles of a Safe System are essentially correct for road safety, even if the resources to fully deliver a Safe System are not (yet) available.
2. Even with limited resources, Safe System principles can guide sound investments for better road safty outcomes. Examples of strong successes arising from selected investments in road engineering for safety, rather than a continuing singular focus on education and behaviour change, can be persuasive.
3. The multiple and often unknown behavioural contributors to crashes which must be addressed versus the singularity of an engineering solution for many locations can be compelling as an in-principle argument. For example, multiple serious crashes with cars leaving the road on the outside of a curve on a rural highway may be caused by speeding, fatigue, misjudgement of the curve, drink-driving, drug driving, inattention/distraction, medical episodes, or in rarer cases vehicle problems. To address all of these is a huge underaking, yet all these crashes, regardless of cause, may be addressed by installing an effective safety barrier on the outside of the curve.
4. Description of the case for more focus on managing speeds as a Safe System intervention and the ancillary economic benefits to be capured is also helpful (for details to assist in making the case see Job &

Sakashita, 2016). An appreciation of the role of speeding in crashes in the country will be critical to credibility.

Not even one single high income country has yet committed the resources required to create a fully operational Safe System based road network, though Sweden is the closest and in a number of countries there are some exceptional roads on which a Safe System has been largely provided such as the United Kingdom. Thus, the above suggestions remain relevant to, and can be effective in, high income countries as well as LMICs.

## Conclusions

Safe System and Vision Zero principles are being successfully applied and strongly promoted, yet many countries are not embracing them. Two additional advocacy challenges for road safety are created by the Safe System approach, despite its value.

While agreeing with the Vision Zero moral objective of zero deaths on the roads, with many audiences this may not be the most effective basis for advocacy for a Safe System approach. In addition, the objective of zero deaths is seen as currently inappropriate and out of step with the many other life threatening problems LMICs face. Alternatives for promotion of the Safe System approach are available in terms of economic costs, social consequences, and the success of road safety interventions beyond the traditional behaviour change approaches.

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