THE SAFE SYSTEM

WHAT IS THE SAFE SYSTEM?

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SAFE ROADS

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WHAT IS THE SAFE SYSTEM?

At the heart of the Towards Zero vision is the belief that no one should be killed or seriously injured from using the road network. The aim of Towards Zero is for a world free from road fatalities and serious injuries and the vision is underpinned by the Safe System approach to road safety.

The Safe System (otherwise known as Vision Zero, Towards Zero or Sustainable Safety) views human life and health as paramount to all else and should be the first and foremost consideration when designing a road network.

The principles underpinning the Safe System acknowledge that:
People make mistakes which can lead to crashes; however, no one should die or be seriously injured on the road as a result of these mistakes.
The human body has a limited physical ability to tolerate crash forces – any impact greater than 30km/h increases the risk of dying significantly.
Road safety is a shared responsibility amongst everyone, including those that design, build, operate and use the road system.
All parts of the road system must be strengthened in combination to multiply the protective effects and if one part fails, the others will still protect people.

At the centre of the system is people – people that are fragile and will at times make mistakes that can lead to crashes. With that understanding, the road system needs to put layers of protection in the form of safe roads, vehicles, speeds, people around the fallible and vulnerable human in order to prevent deaths and serious injuries.
SAFE SYSTEM PRINCIPLES

PRINCIPLE 1: HUMAN FALLIBILITY
People make mistakes which can lead to crashes

People by nature will make mistakes. When these mistakes occur on the road, they can lead to crashes. Even when people are not deliberately taking risks, they can still make mistakes that can result in a crash. As people are fallible, road trauma cannot be eradicated just by improving road user behaviour. With many millions of drivers in the world, expecting everyone to not make a single mistake that can lead to crashes every time they use the road system is not realistic so a safe road system needs to be able to accommodate and account for people making mistakes.
PRINCIPLE 2: HUMAN VULNERABILITY
The human body has a limited physical ability to tolerate crash forces

The human body is vulnerable not built to withstand impact forces greater than 30km/h – any impact greater than 30km/h greatly increases the risk of dying. In the road environment, unprotected road users such as pedestrians are most at risk of sustaining injury in the event of a crash. While a vehicle can help reduce or absorb some of the crash forces generated in a crash and help protect the occupant, the impact speed for different crash types, before the risk of death significantly, is still not as high as people may think and is not compatible with many of the speed limits set around the world. To build a safe road system and to reduce deaths and serious injuries, the human body’s tolerance to impact forces should be used as a guiding tool.

<table>
<thead>
<tr>
<th>Crash Type</th>
<th>Impact speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>head on</td>
<td>70 km/h</td>
</tr>
<tr>
<td>side-impact</td>
<td>50 km/h</td>
</tr>
<tr>
<td>side impact with tree</td>
<td>30 km/h</td>
</tr>
<tr>
<td>pedestrian</td>
<td>30 km/h</td>
</tr>
</tbody>
</table>

*Figure 2 - Impact speeds for different crash types after which the risk of death escalates*

PRINCIPLE 3
Road Safety is a shared responsibility

Traditionally, the responsibility for staying safe on the road fell on individual road
users. However, under the Safe System approach, road safety is a shared responsibility amongst everyone, including those that design, build, operate and use the road system. Everyone has a part to play in keeping ourselves and each other safe on the roads.

PRINCIPLE 4
Building a safe and forgiving road system

To help build a safe road system that is forgiving of mistakes, investment needs to made in the creation of Safe Roads, Safe Speeds, Safe Vehicles, Safe People and Post Crash Care to put layers of protection around people to keep them safe from death and serious injuries on the road. All parts of the road system must be strengthened in combination to multiply the protective effects and if one part of the system fails, the other parts will still protect people.

WHY THE SAFE SYSTEM APPROACH?

Each year, more that 1.2 million people are killed and millions more seriously injured in road crashes worldwide2. To reduce the global burden of road traffic injuries, the United Nations (UN) Global Goals for Sustainable Development have set the ambitious goal of reducing road fatalities and serious injuries by 50% by the end of the current UN Decade of Action for Road Safety (2011-2020). The Global Goals represents the UN's strongest ever mandate for action to promote road safety and provides new urgency in the implementation of of the Global Plan for the Decade of Action

To achieve the UN's ambitious goals, a new way of thinking and new strategies for road injury prevention are needed. The starting point for a new approach is the recognition that road deaths are unacceptable and can be avoided if effective injury prevention strategies are adopted worldwide1. The experience of countries that have achieved the greatest reductions in road fatalities have shown that the most effective strategies are those which anticipate the likelihood of human error so that crashes don't result in loss of life or health. This ‘forgiving’ or Safe System approach recognizes that whilst mistakes are inevitable, deaths and serious injuries from road crashes are not.

The Safe System approach to road safety challenges the traditional thinking and understanding of how to address road trauma, looking at how the elements that the road transport system is comprised of can work together to protect people from being killed or seriously injured.
The key differences between the traditional and Safe System approaches have been summarised in Figure 2:

<table>
<thead>
<tr>
<th></th>
<th>TRADITIONAL</th>
<th>SAFE SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is the problem?</td>
<td>Accidents</td>
<td>Fatalities and serious injuries</td>
</tr>
<tr>
<td>What causes the problem?</td>
<td>Human factors</td>
<td>People makes mistakes, people are fragile</td>
</tr>
<tr>
<td>Who is ultimately responsible?</td>
<td>Individual road users</td>
<td>System designers</td>
</tr>
<tr>
<td>What is the major planning approach?</td>
<td>Incremental approach to reduce the problem</td>
<td>Systematic approach to build a safe road system</td>
</tr>
<tr>
<td>What is the appropriate goal?</td>
<td>Optimum number of fatalities and serious injuries</td>
<td>Zero fatalities and serious injuries</td>
</tr>
</tbody>
</table>

*Figure 2 – Traditional Approach to Road Safety vs. Safe System Approach to Road Safety*

SAFE ROADS

Roads and road features play a vital role in reducing crashes and/or the injury outcomes in the event of a crash. Improved infrastructure provides solid and well understood crash and injury reduction outcomes and are critical for long term and sustainable trauma reduction.

Some examples of road features that can help reduce deaths and serious injuries include: