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CENTRE FOR REGIONAL DEVELOPMENT

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Ministry of the Environment (MOE), Japan
Partnership on Sustainable, Low Carbon Transport
United Nations Economic and Social Commission for Asia and the Pacific, and
United Nations Office for Sustainable Development

TENTH REGIONAL ENVIRONMENTALLY SUSTAINABLE TRANSPORT (EST) FORUM IN ASIA,
14-16 MARCH 2017, VIENTIANE, LAO PEOPLE'S DEMOCRATIC REPUBLIC

Economics of Road Safety – What does it imply under the 2030 Agenda for Sustainable Development?

(Presentation for EST Plenary Session 10 of the Provisional Programme)

Final Draft

This presentation has been prepared by Prof. Jac Wismans, SAFER Vehicle and Traffic Safety Centre at Chalmers University for the Tenth Regional EST Forum in Asia. The views expressed herein are those of the author only and do not necessarily reflect the views of the United Nations.

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Economics of Road Safety – What does it imply under the 2030 Agenda for Sustainable Development?

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Background paper for the 10th Regional Environmentally Sustainable Transport (EST) Forum in Asia, 14-16 March 2017 in Vientiane, Lao PDR



Objectives Background Paper



- **Review the Road Safety problem in the Asian EST region**
- Discuss the SDG's on Road Safety and Asian "goals, targets and indicators"
- Present a Dashboard on the status of road safety in the EST region
- Introduce the basics of road safety economics and the benefits of road safety investments
- Recommendations on the most cost-effective road safety measures in Asia

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UNISCAP indicator (see Annex)	Related WHO 2015 indicator (see Global Status report on road safety 2015)	Afghanistan	Bangladesh	Bhutan	Burma (Myanmar)	Cambodia	China	India	Indonesia	Japan	Korea	Malaysia	Moldova
1	Number of road deaths and /100,000 pop.												
7	Number of pedestrian deaths												
9	Number of motorcycle deaths												
3	National road safety strategy?												
	Reduction target?		50% (2015-2020)	1.07 (2015-2020)	50% (2011-2015)	1.27 (2015-2020)	50% (2015-2020)	50% (2015-2020)	50% (2015-2020)	50% (2015-2020)	50% (2015-2020)	50% (2015-2020)	50% (2015-2020)
4	Name of the national law agency on road safety												
16	Formal audits for new road construction projects												
	Regular inspections of existing road infrastructure												
	Routes to promote walking or cycling												
	Routes to separate road users and protect VLOS												
21	Frontal impact standard (UNECE)												
	Side-impact protection standard (UNECE)												
	Pedestrian protection standard (UNECE)												
20	Emergency access 'B' Number												
10_25	National Motorcycle helmet law?												
	Enforcement level												
12	Law for child restraints in cars?												
13	Height and weight limit of child seat restraints?												
26	National seat belt law												
	Applies to drivers and passengers												
	Enforcement level												
	Enforcement rear seat, front/rear %												
	National law mobile phone use during driving?												
27_28	National drink-driving law?												
	Limit (mg/dl) general population												
	Enforcement level												
	% death involving drunk driving												
	Urban speed limit (km/h)												
	Rural speed limit (km/h)												
	Maximum speed limit (km/h)												
	Speed Enforcement												

■ No ■ Alcohol consumption legally prohibited
 sub-national but actual information not available

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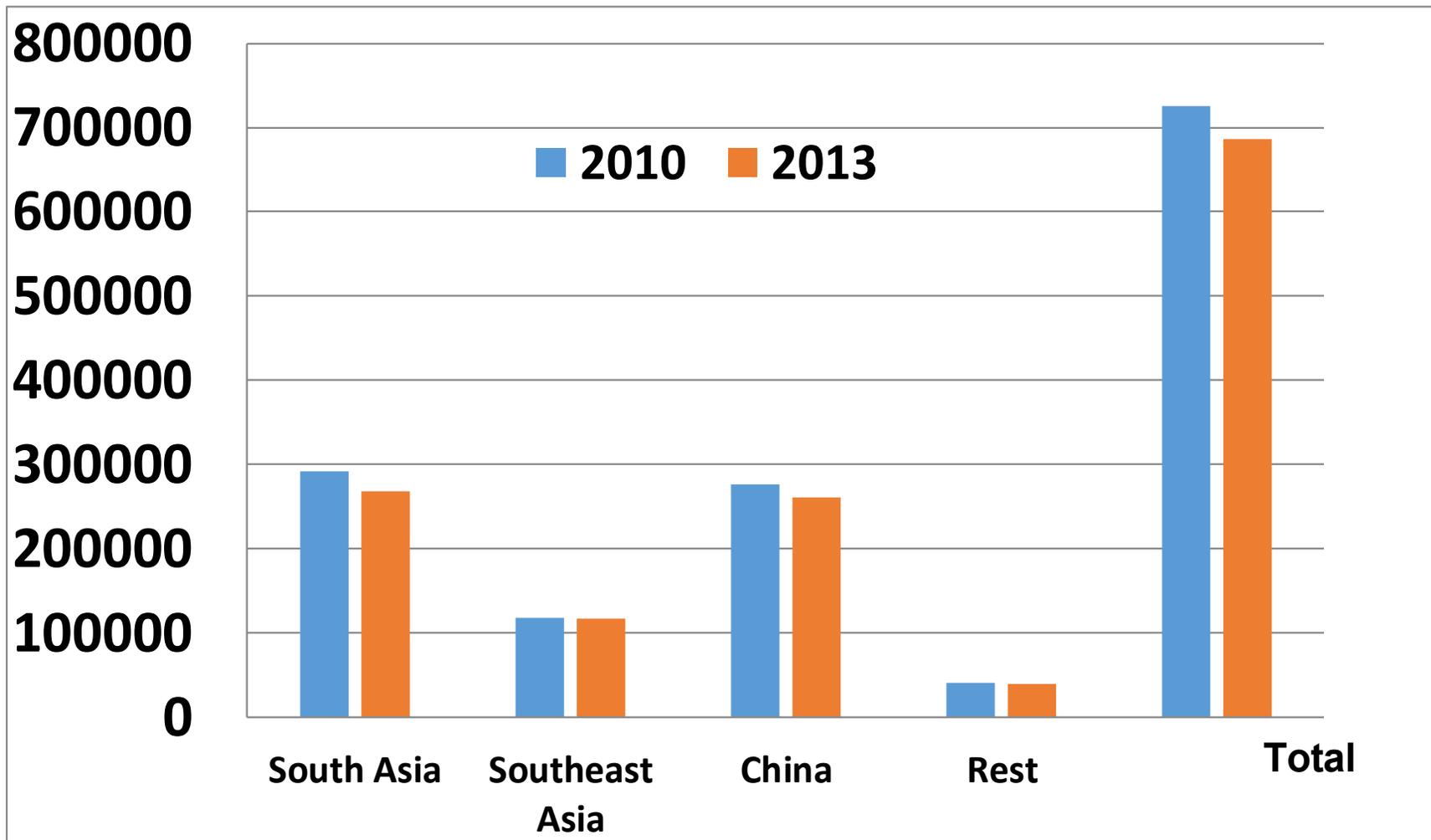
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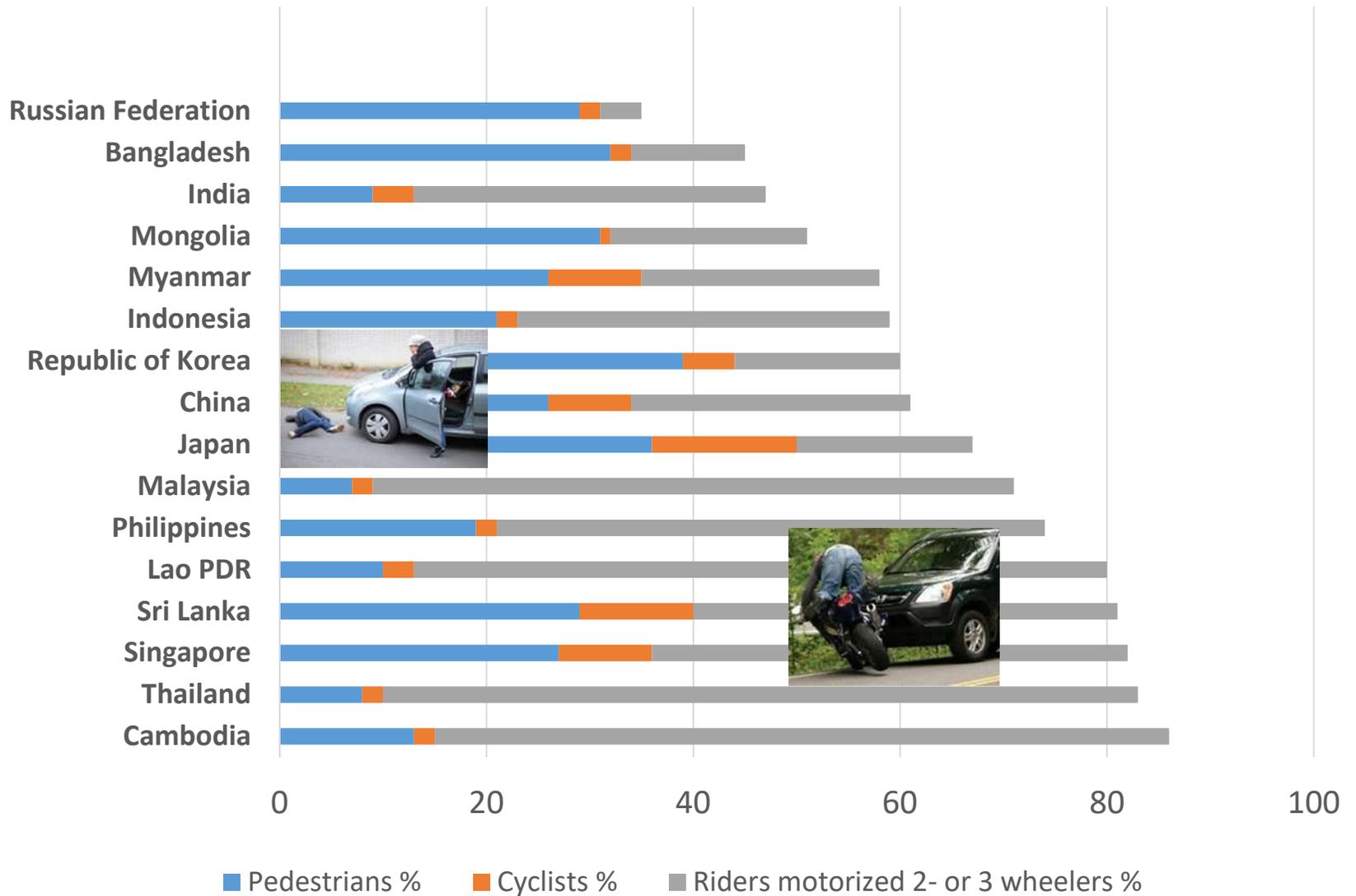


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The Road Safety Problem in Asian EST region: number of fatalities

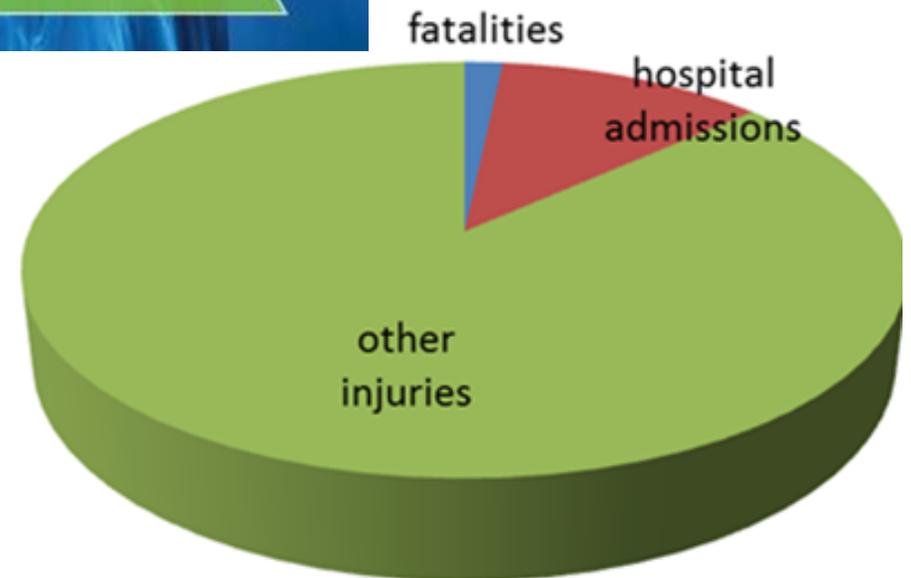


Vulnerable Road Users in 2013 (WHO)



Fatalities are just the top of the Iceberg (WHO 2013/2015 and Worldbank/IHME 2014)

In addition to **700.000 fatalities**, in the Asian EST region there are **50 million people injured**, of which **6 million** requiring hospital admission



United Nations Road Safety milestones

- 1958 Agreement on **Technical Vehicle Regulations**,
- 1968 Convention on Road Signs and Signals
- 1969 Convention on **Road Traffic: Vienna Convention**
- 1957 Agreement on Transport of Dangerous Goods,
- 1997 Agreement on Periodic Techn. Inspection of Vehicles
- 1998 Agreement on Global Technical Regulations (GTR's)
- 2004 World report on road traffic injury prevention and start of the **UN Road Safety Collaboration (UNRSC)**
- 2010 Start **Decade of Action 2011-2020 for Road Safety**
- 2015 **2030 Agenda for Sustainable Development**

2030 Agenda for Sustainable Development

Targets

3 GOOD HEALTH
AND WELL-BEING



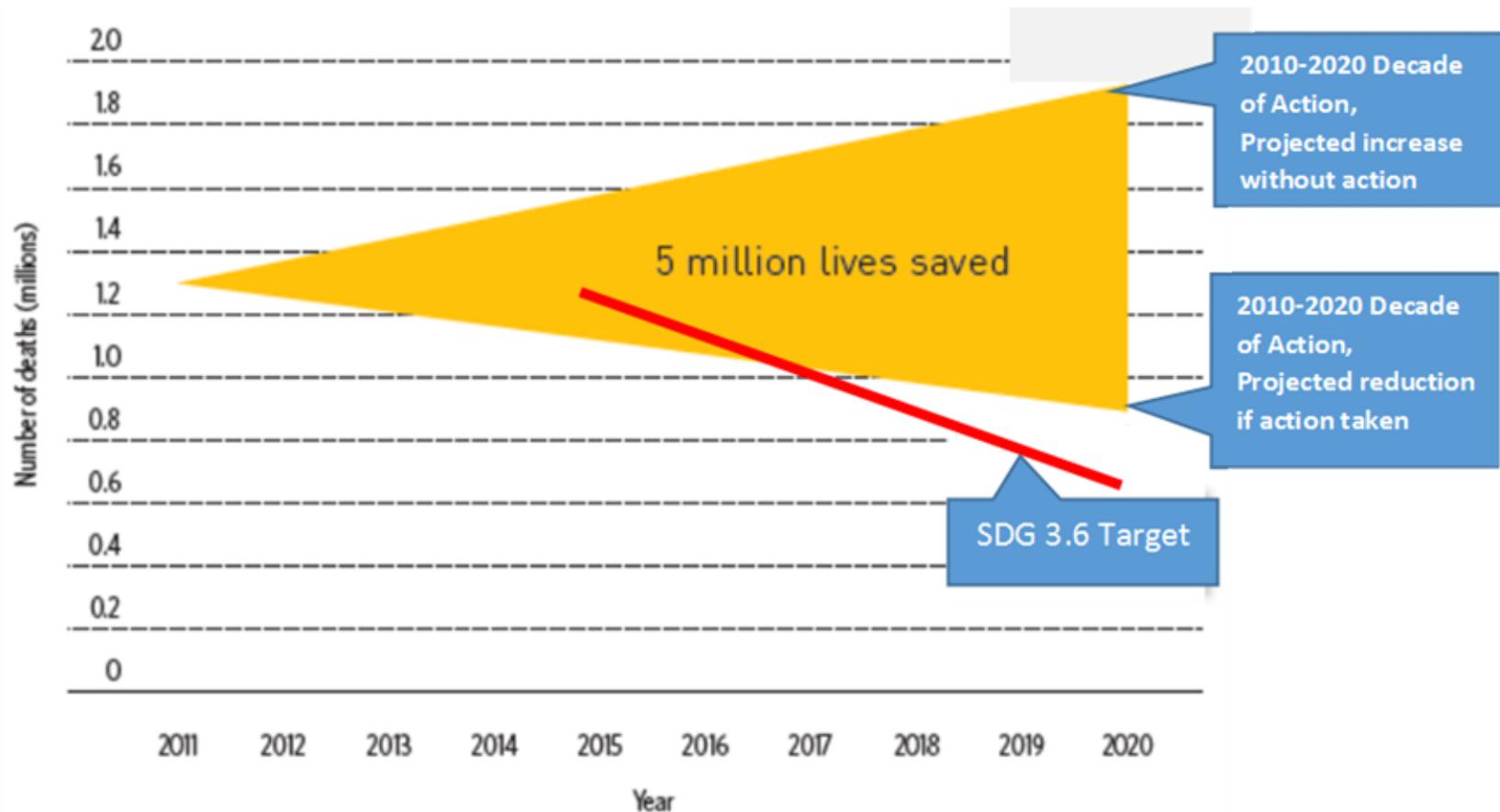
3.6: by 2020, halve the number of global deaths and injuries from road traffic accidents.

11 SUSTAINABLE CITIES
AND COMMUNITIES



11.2: by 2030, provide access to safe, affordable, accessible, and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women and children, persons with disabilities and older persons.

SDG target 3.6: By 2020, halving number of fatalities and injuries



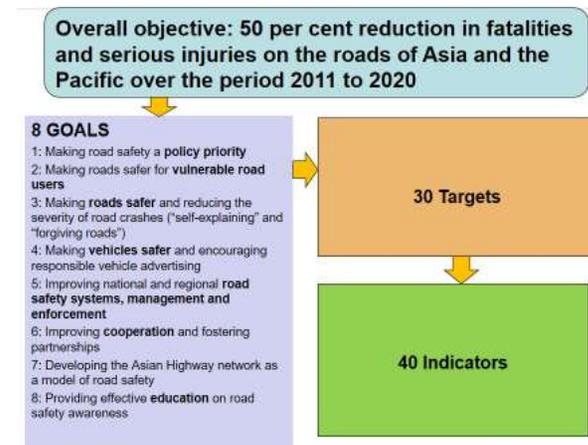
Road safety goals, targets and indicators in Asia: UNCRD-EST

- 2010: Bangkok 2020 Declaration, Goal 13: Adopt a **zero-fatality** policy
- 2013: Bali Declaration, “Vision Three Zero’s - Zero Congestion, Zero Pollution and **Zero Accidents**”



UNESCAP Road safety goals, targets and indicators

- 2006: Declaration on Improving Road Safety in Asia & Pacific: save 600,000 lives from 2007-2015
- Dec. 2016 (Moscow) Ministerial Conference on Transport: update 8 goals with corresponding targets and indicators in view of Decade of Action for Road Safety and the SDG's



Overall objective: 50 per cent reduction in fatalities and serious injuries on the roads of Asia and the Pacific over the period 2011 to 2020



8 GOALS

- 1: Making road safety a **policy priority**
- 2: Making roads safer for **vulnerable road users**
- 3: Making **roads safer** and reducing the severity of road crashes (“self-explaining” and “forgiving roads”)
- 4: Making **vehicles safer** and encouraging responsible vehicle advertising
- 5: Improving national and regional **road safety systems, management and enforcement**
- 6: Improving **cooperation** and fostering partnerships
- 7: Developing the **Asian Highway network** as a model of road safety
- 8: Providing effective **education** on road safety awareness



30 Targets



40 Indicators

Road safety economics: cost categories

Medical costs



Administrative costs



Property damage costs



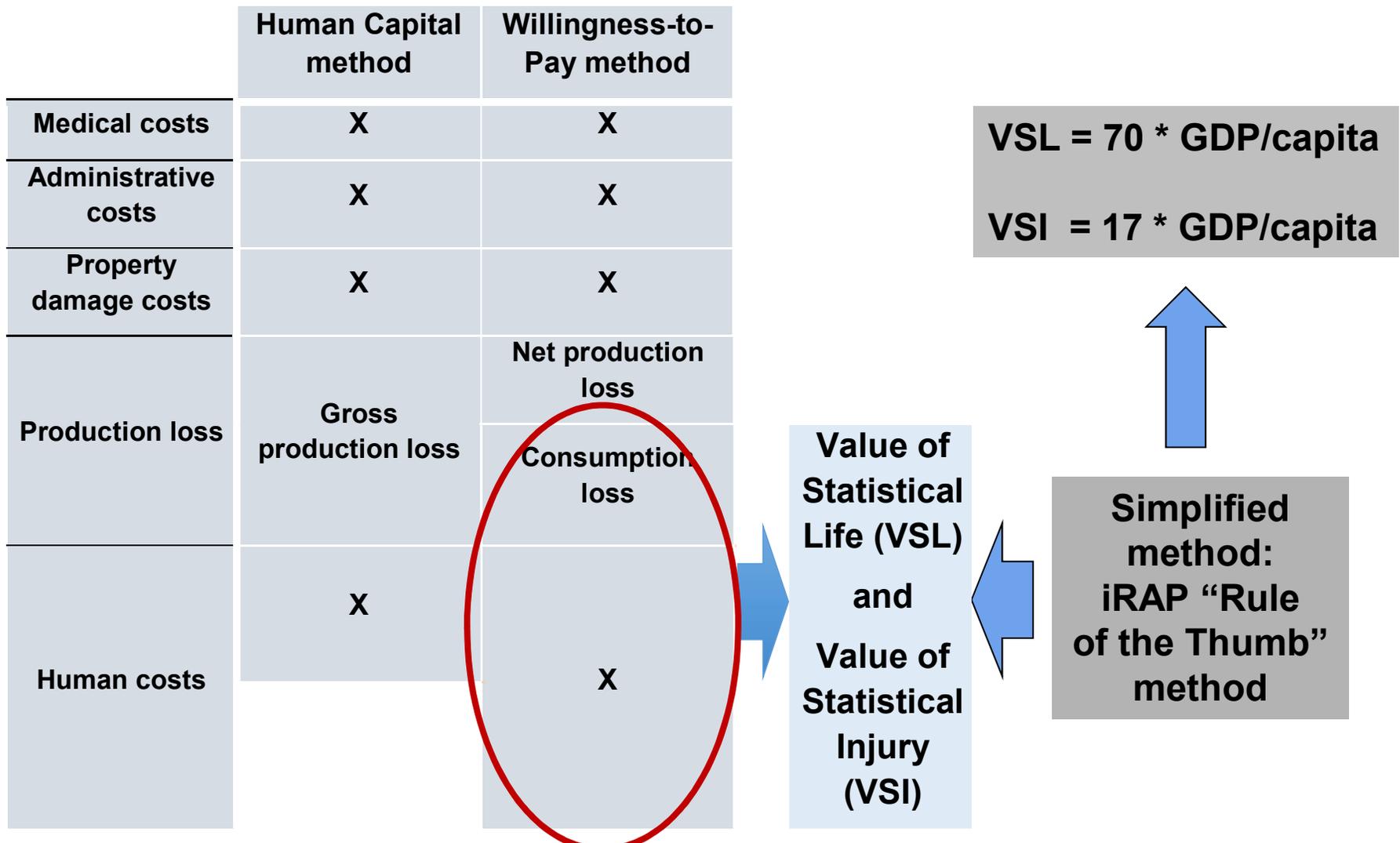
Production loss



Human costs: suffering, pain etc.



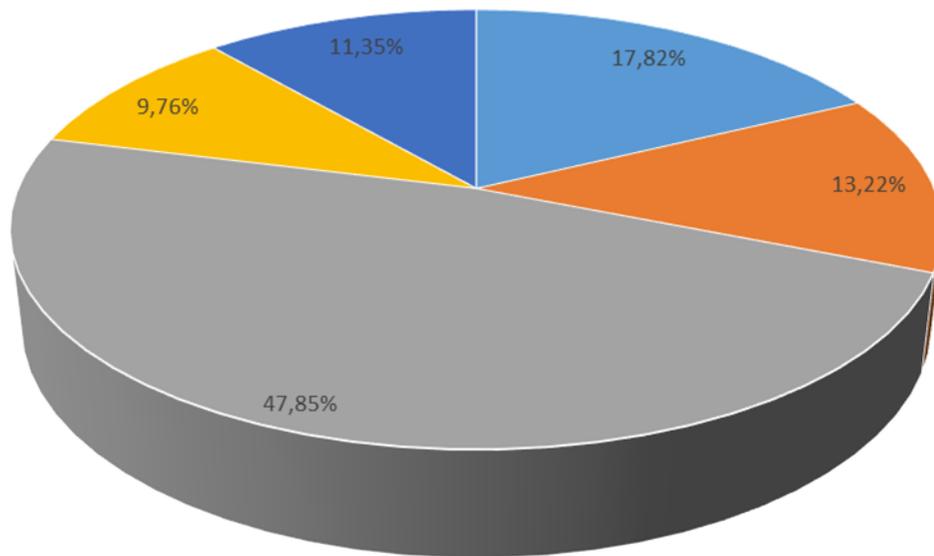
Methodologies for determining accident costs



Economic Burden of Road Accidents in Asian EST Region

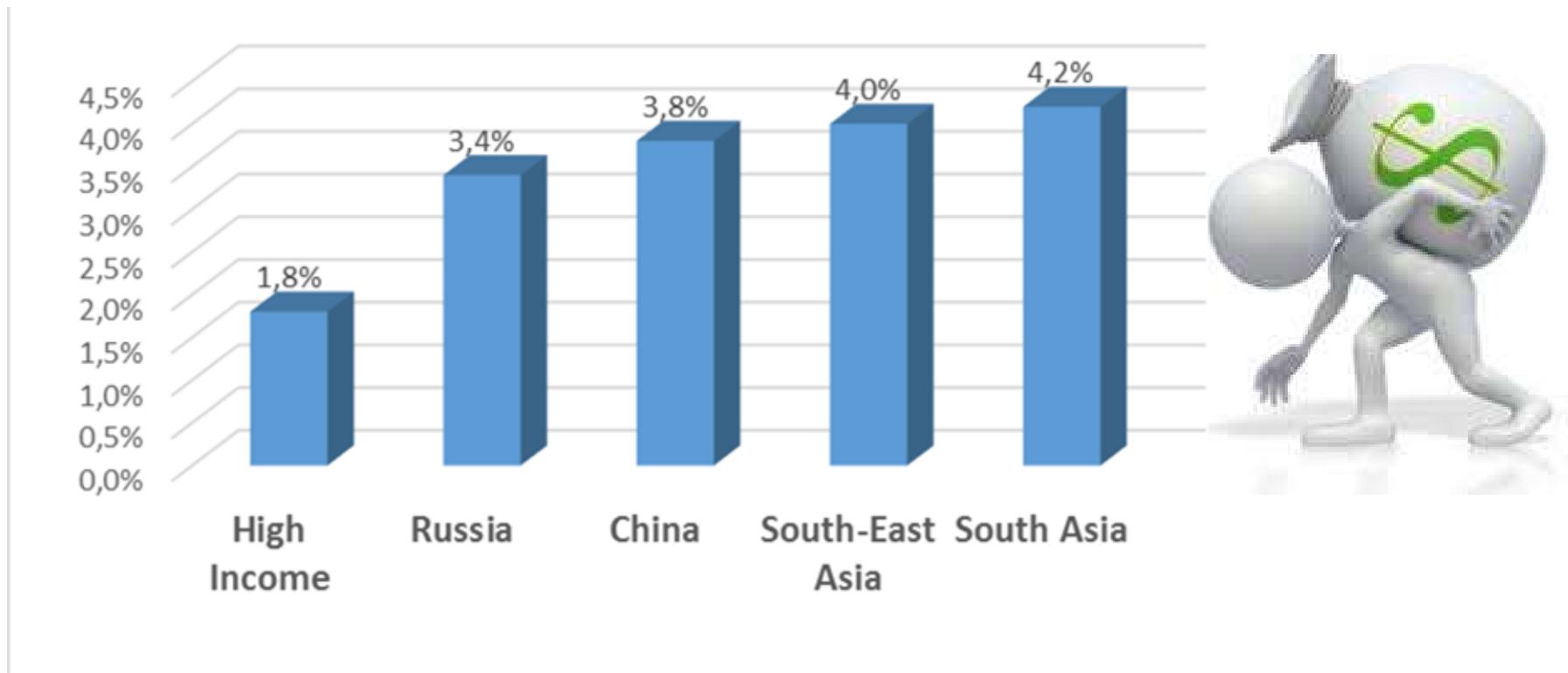
Total costs: **735 billion US\$** (iRap method)

- High Income
- South Asia
- China
- Russia
- Southeast Asia



Economic Burden of Road Accidents in Asian EST Region

Average percentage loss of GDP: 3.3%

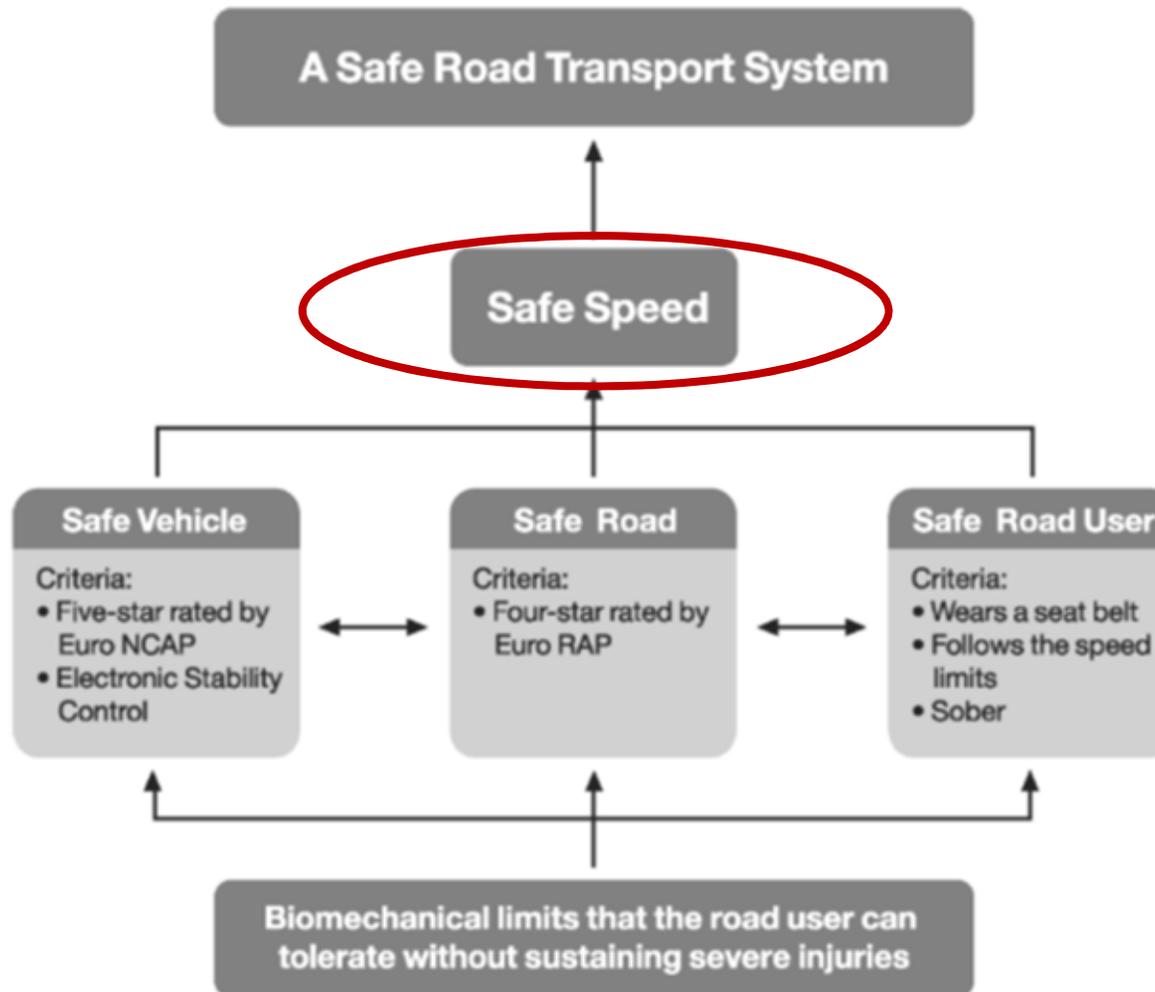


Cost-effective measures

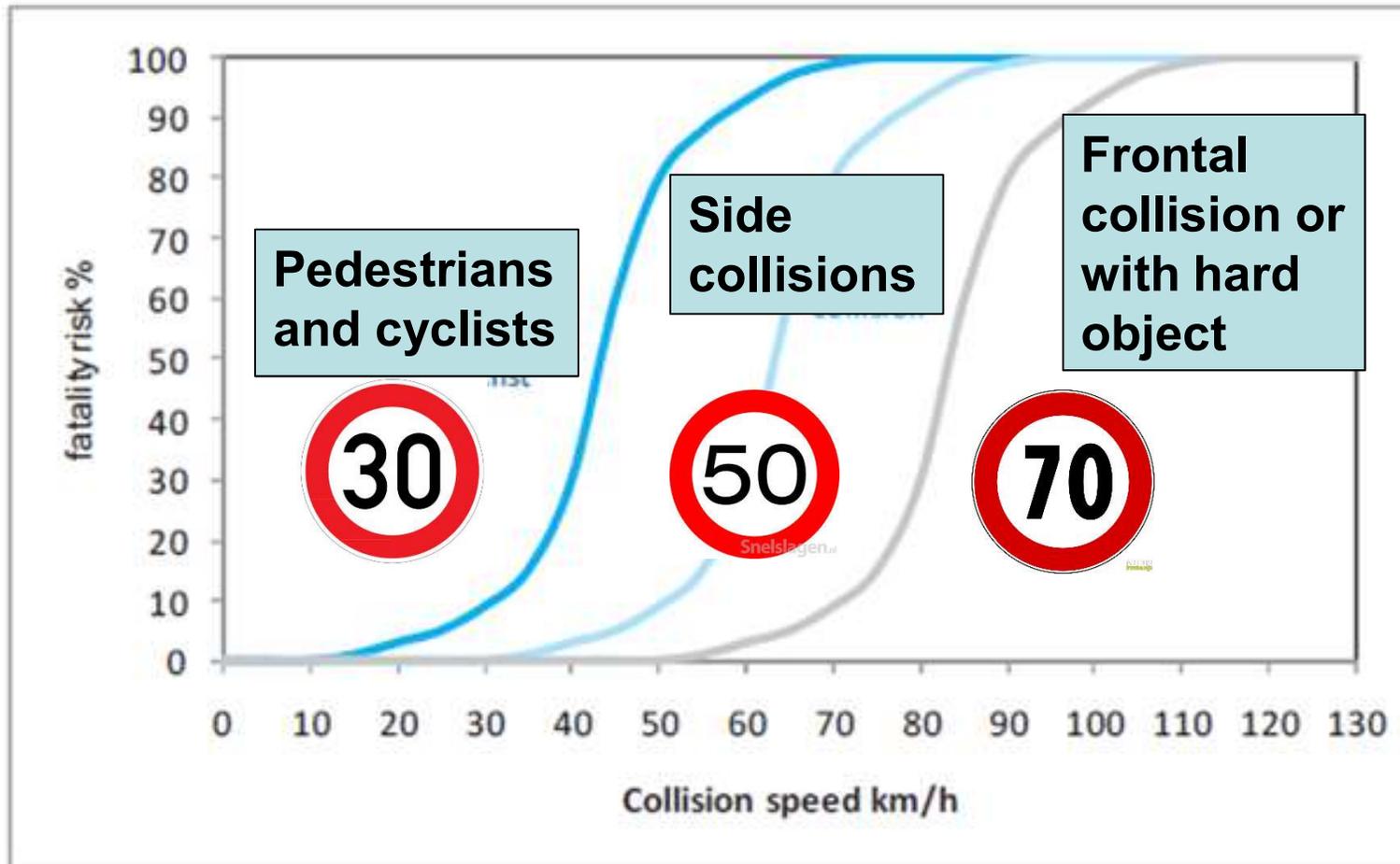
- Meeting SDG 3.6 in the ASIAN EST would reduced the burden on the economy > 350 billion US\$ per year (1,5% growth in GDP).
- Significant efforts in policy development are needed to achieve the SDG's related to traffic safety.
- In the background paper many examples of cost-effective measures are presented like on helmets, speed, drunk driving, vehicle safety requirements, ITS, public transport and infrastructure measures for pedestrians and cyclists
- Many of these measures can be implemented relatively fast without the need of cost benefit analyses



Road Safety Framework



Effect of Speed on Fatality Risk



Dashboard of road safety measures in Asian EST region

UNESCAP Indicator see Annex	Related WHO 2015 indicator see Global Status report on road safety 2015	Afghanistan	Bangladesh	Bhutan	Brunei WHO 2013	Cambodia	China	India	Indonesia	Japan	Lao	Malaysia	Maldives	Mongolia	Myanmar	Nepal	Pakistan	Philippines	Rep. of Korea	Russia	Singapore	Sri Lanka	Thailand	Timor-Leste	Vietnam
1	Number of road death and /100,000 pop.	See Table 1												See Table 1											
7	Numbers of pedestrian deaths	See Table 2												See Table 2											
9	Number of motorcyclist deaths	See Table 2												See Table 2											
3	National Road Safety strategy?																								
	Facility reduction target?	50% (2011-2020)	<1.0 / 10000 vehicles (2011-2020)		50% (2011-2020)	<2.2 / 100000 veh. (2011-2015)		50%	<3000 / year in 2015	50% (2011-2020)	50% (2020)			50% (2012-2020)	50% (2011-2015)	35% (2013-2020)		50% (2011-2020)	<4000 / year by 2017	8000 reducti on by 2020			<10 /100000 pop. (2010-2020)	5-10% annually (2012-2020)	
4	Name of designated lead agency on road safety																								
16	Formal audits for new road construction projects																								
	Regular inspections of existing road infrastructure																								
	Policies to promote walking or cycling																								
	Policies to separate road users and protect VRUs																								
21	Frontal impact standard (UNECE)?																								
	Electronic Stability Control standard (UNECE)?																								
	Pedestrian protection standard (UNECE)?																								
30	Emergency access tel. Number																								
Risk Factors																									
10, 25	National Motorcycle Helmet law?																								
	Helmet standard?																								
	Required for Drivers and Passengers?																								
	Helmet to be fastened?																								
	Wearing rate % drivers/passenger				64/6		20/60/-		80/52					97/89											
	Enforcement level	4	10	10	5	6	4	8	9	7	5	7	1	3	9	3	6	6	6	9	7	6	6	9	
12	Law for child restraints in cars?																								
13	Usage and enforcement of child seat restraints?																								
26	National seat belt law																								
	Applies to drivers and passengers																								
	Enforcement level				3	6	3	8	4	8	8	2	4	4	3	5	3	5	7	7	8	8	6	2	6
	Seatbelt wearing rate, front/rear in %				72/-		37/-	26/-		98/68		77/13		82/-			80/-	84/19	70/24			54/-			
	National Law mobile phone use during driving?																								
27, 28	National drink-driving law?																								
	BAC limit g/dl general population				<0.08	<0.08	<0.05	<0.02	<0.03		<0.03	<0.05	<0.08		<0.04	<0.08		<0.05	<0.05	<0.03	<0.08	<0.08	<0.05	<0.05	...-0.05
	Random Breath testing?																								
	Enforcement level drunk-driving	1	2	5	5	4	9	4	5	5	2	5		3		3	1	8	6	8	6	6	4	5	
	% death involving drunk driving				5	15	4	5	6	6	23		20				1	14	9	11		26		34	
	Urban speed limit km/hr	No	30	80	40	No	70	60	40	30	30		60	40	80	90	40	80	60	70	50	80	50	50	
	Rural speed limit km/hr	90	112	50		90	No	100	60	90	30	30		80	80	80	110	80	80	90	70	90	90	80	
	Motorway speed limit km/hr	No	50			100	120	No	No	100		110	No	100	No	130	No	120	110	90	No	120	120	No	
	Speed Enforcement	1	3	5	6	4	8	3	9	7	4	6		2	0	7	4	5	8	8	8	4	3	5	6

■ No
■ Yes
 Alcohol consumption legally prohibited
 Sub-national but actual information not available

Dashboard

	No
	Yes
	Sub-national

UNESCAP Indicator see Annex	Related WHO 2015 indicator see Global Status report on road safety 2015	Afghani- stan	Bangla- desh	Bhu-tan	Brunei WHO 2013	Cam- bodia	China	India	Indo- nesia
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	Fatality reduction target?		50% (2011- 2020)	< 1.0 / 10000 vehicle s (2011- 2020)		50% (2011- 2020)	< 2.2 / 100000 veh. (2011- 2015)		50% 2020
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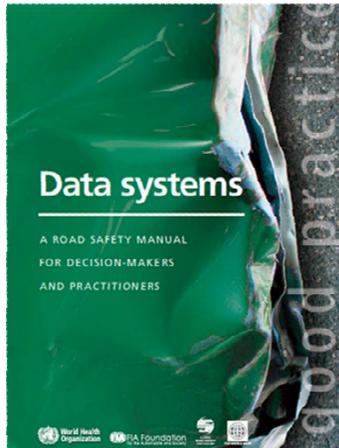
Recommendations

- In the background paper recommendations are presented concerning economics of road safety, effective road safety measures, a dashboard for road safety etc...
- A few of the recommendations will be summarized here.

12 Recommendations
in the Background paper

Good accident data needed

- Introduction of good data systems for accidents including establishment of a “base-line” status
- Analyses of the accident data



Enforcement of laws concerning risk factors

If not done yet implement laws concerning risk factors (speed, helmets, seat belts, drunkdriving etc..) and introduce and maintain a strict enforcement policy concerning such measures.



Safety of vulnerable road users

- Invest in infrastructure that benefits pedestrians and cyclists. Such investments are highly cost effective.
- If such measures cannot simply be implemented, strict speed measures (< 30 km/h) should be introduced in case of mixed traffic.



Include safety in road network and public transport planning

- In the stage of road network and public transport planning, road safety should be taken into account in any Cost Benefit Analysis, next to mobility and environment
- Public transport is much safer per km travelled than other forms of transport, which should be taken into account in the analyses



Economics of Road Safety

- For Cost Benefit Analysis the Human Cost are very important to take into account and the WTP approach is the recommended method to determine the Value of Statistical Life (VSL).
- If VSL data are not available it is recommended to use the iRAP “rule of the thumb method” to estimate VSL.



YOU CAN'T
AFFORD TO
IGNORE

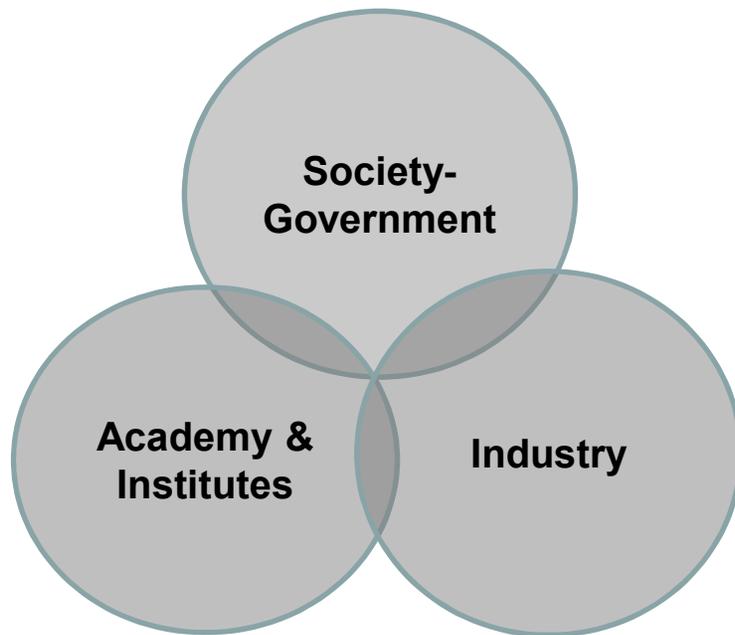
Funding opportunities

Name	Goal
The World Bank Global Road Safety Facility (GRSF)	Increase funding and technical assistance for global, regional and country level initiatives designed to enable low- and middle-income countries to implement their own road safety programmes.
The FIA Foundation	Ensure safe, clean, fair and green mobility of all via road safety philanthropy, practical environmental research, interventions to improve air quality and tackle climate change, and strategic advocacy in road traffic injury prevention and motor vehicle fuel efficiency.
The Road Safety Fund of the FIA Foundation and WHO	Facilitates alliances between private sector donors and NGOs to support road injury prevention programmes in countries and communities
The Road Safety Grants Programme	Support country- and city-level NGO projects to develop and deliver high-impact, evidence-based interventions designed to strengthen road safety policies and their implementation.
Bloomberg Philanthropies Initiative for Global Road Safety	Strengthen national road safety legislation, and implement proven road safety interventions at the city level.

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> 30 partners in collaboration



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