

# Achieving the SDG on halving road deaths and injuries: impacts and the role of Infrastructure



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**Case Studies**  
**ADB Transport Forum 2016**  
12 September 2016

# How is iRAP being used?

## Policy

- Setting targets, such as “roads of national importance must be at least 4-stars”

## Network planning

- Large-scale assessments of existing road networks and for tracking infrastructure risk over time

## Feasibility

- Assessing safety benefits of road projects (new roads and road upgrades)
- Developing targeted safety projects

## Design

- Assessing risk for design iterations, providing guidance on countermeasure options and economic assessments

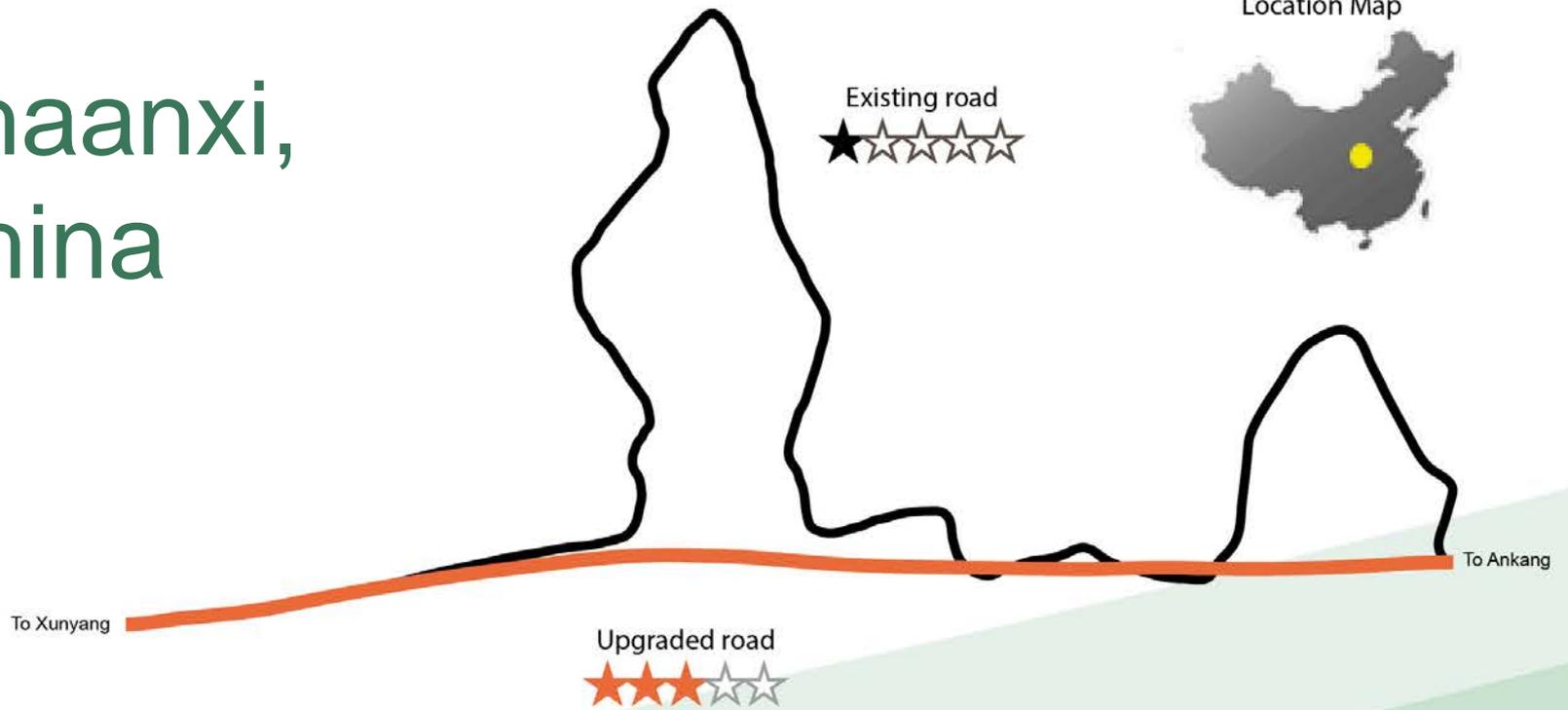
## Evaluation

- Post-construction evaluations

# Bangladesh

- See presentation by Arif Uddin

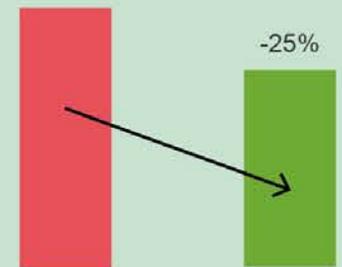
# Shaanxi, China



The existing road experiences a higher-than-average number of vehicle occupant deaths and serious injuries. It is in mountainous terrain and has many sharp curves and hazardous roadsides

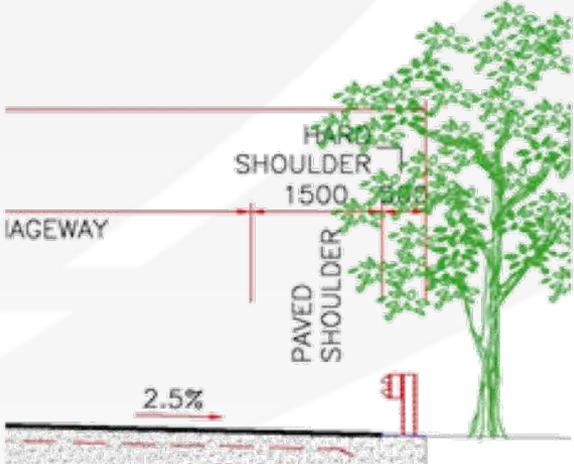
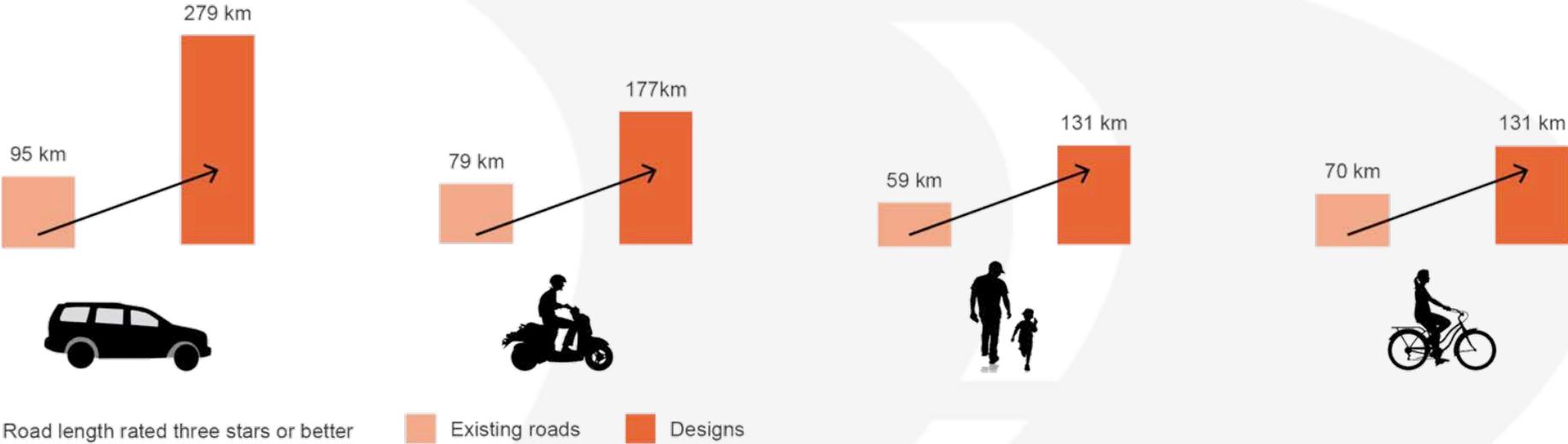


The new design includes updated safety barriers, realignments, paved shoulders, improved delineation and curve markers, enhanced skid resistance and traffic calming



It is estimated that the road improvements will result in 25% fewer deaths and serious injuries, even though traffic speeds are expected to increase

# Green Tunnels in Gujarat, India



# Agoo – Baguio Road Safety Demonstration Corridor



- Estimated 48% reduction in deaths and serious injuries
- USD 2.1 million per year saved
- 1-star sections for pedestrian and bicyclists eliminated

# Buray-Tinani Road

## Change in fatalities and serious injuries (20 years)

Scenario	Fatalities and serious injuries	Cost of fatalities and serious injuries
Before upgrades	721	PHP 587
After upgrades	651	PHP 530
Change	-70	-PHP 57
Change (%)	-10%	-10%

Before



After



# Belize



- 600 km surveyed
- Inspected & assessed 50 attributes at 10m intervals
- Conducted speed surveys
- +70% of network 1-2 stars
- Identified Demonstration Corridor options



Star Rating	Vehicle Occupants		Motorcyclists		Bicyclists		Pedestrians	
	Length (km)	%	Length (km)	%	Length (km)	%	Length (km)	%
★★★★★	0	0	0	0	0	0	1	1
★★★★	4	5	4	5	4	5	1	1
★★★	0	0	0	0	0	0	72	94
★★	44	57	0	0	44	57	0	0
★	29	38	73	95	29	38	0	0
N/A	0	0	0	0	0	0	3	4
<b>TOTAL</b>	<b>77</b>	<b>100%</b>	<b>77</b>	<b>100%</b>	<b>77</b>	<b>100%</b>	<b>77</b>	<b>100%</b>

## Road Safety Management

### TARGET

**1000**  
GOVT. STAFF TRAINED  
(Ministry workers, Transport workers, Police Department)

### ACHIEVED SEPT. 2015

**753**  
PERSONS TRAINED

## Safer Roads

### TARGET

**82KM**  
OF ROAD IMPROVED

### ACHIEVED SEPT. 2015

**71KM**  
OF ROAD IMPROVED

## Safer Roads

### TARGET

**800**  
TEACHERS TRAINED

**15000**  
PUPILS TRAINED

**2**  
PATROL VEHICLES DELIVERED

**70**  
PUBLIC SECTOR EMPLOYEES RECEIVED ENFORCEMENT TRAINING

**3000**  
YOUTH (AGES 16-29) TRAINED IN ROAD SAFETY AWARENESS

FOUR BIENNIAL ROAD SAFETY CAMPAIGNS BY 2017

### ACHIEVED SEPT. 2015

**616**  
TEACHERS TRAINED

**9850**  
PUPILS TRAINED

**2**  
PATROL VEHICLES DELIVERED

**30**  
PUBLIC SECTOR EMPLOYEES RECEIVED ENFORCEMENT TRAINING

**1800**  
YOUTH (AGES 16-29) TRAINED IN ROAD SAFETY AWARENESS

FIRST CAMPAIGN IN PROGRESS

## Post-Crash Response

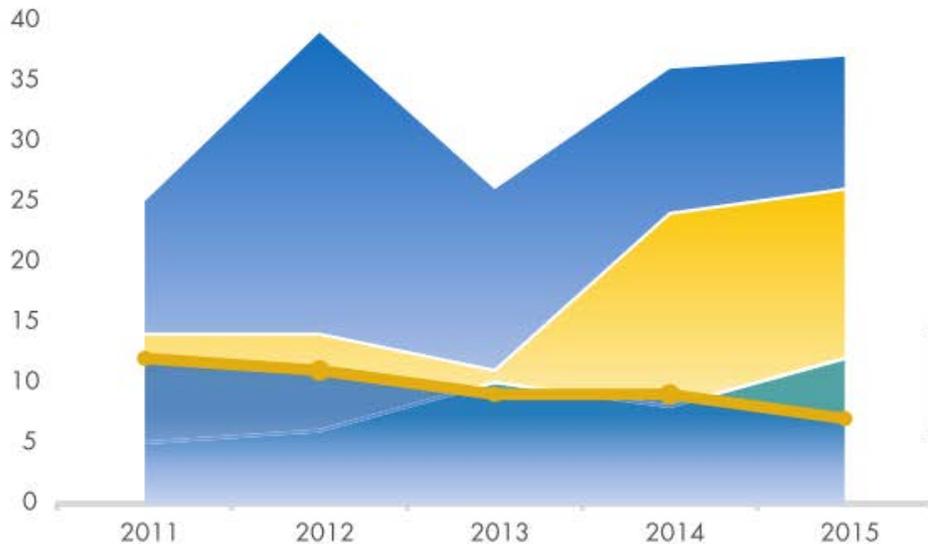
### TARGET

**2**  
AMBULANCES DELIVERED  
**650**  
PERSONS TO RECEIVE MEDICAL TRAINING  
(First Response Training, Basic Life Support Training, Emergency Medical, & Technician Training)

### ACHIEVED SEPT. 2015

**2**  
AMBULANCES DELIVERED  
**450**  
PERSONS COMPLETED MEDICAL TRAINING

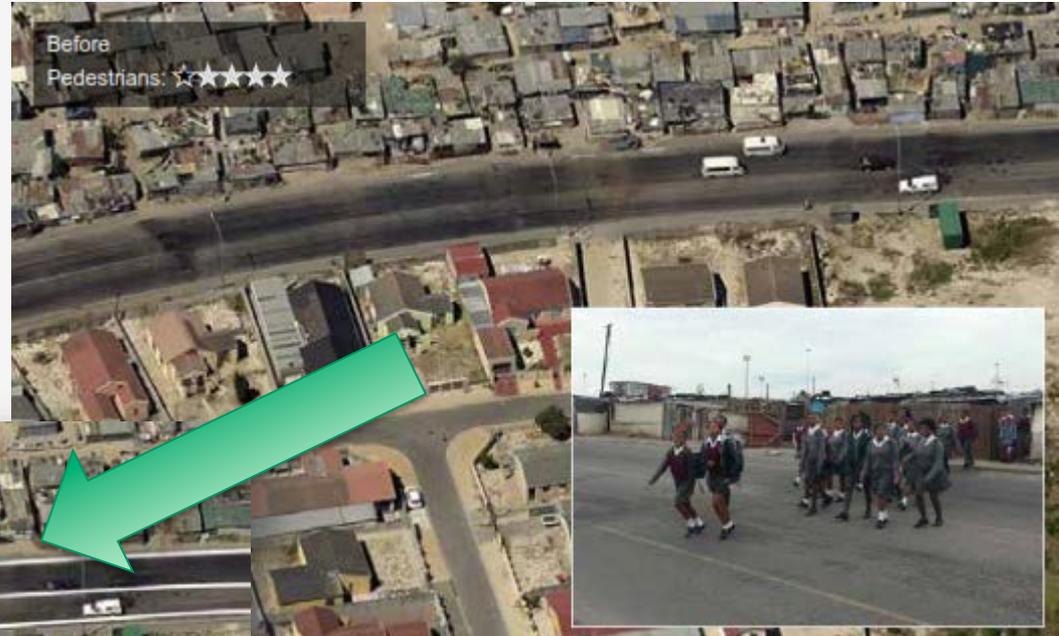
## RTF TRENDS FOR 2011 TO 2015



● **Demonstration Corridor**



# Capetown Schools



# A404, UK



Road rated three stars or better for pedestrians



Number of pedestrian crashes



Road rated three stars or better for vehicle occupants



Number of vehicle occupant crashes



# SNAPSHOT: SAFETY COUNTERMEASURES IN UKRAINE

Safety countermeasures suggested for the Holoskiv–Dyakivtsi section of the M21 in Ukraine have the potential to prevent more than 500 deaths and serious injuries over 20 years. These countermeasures were identified as part of the \$562 million World Bank-financed Second Road and Safety Improvement Project



Median treatment



Traffic calming



Paved shoulders



Bicycle facilities



Footpaths and crossings



Safety barriers



Delineation treatment

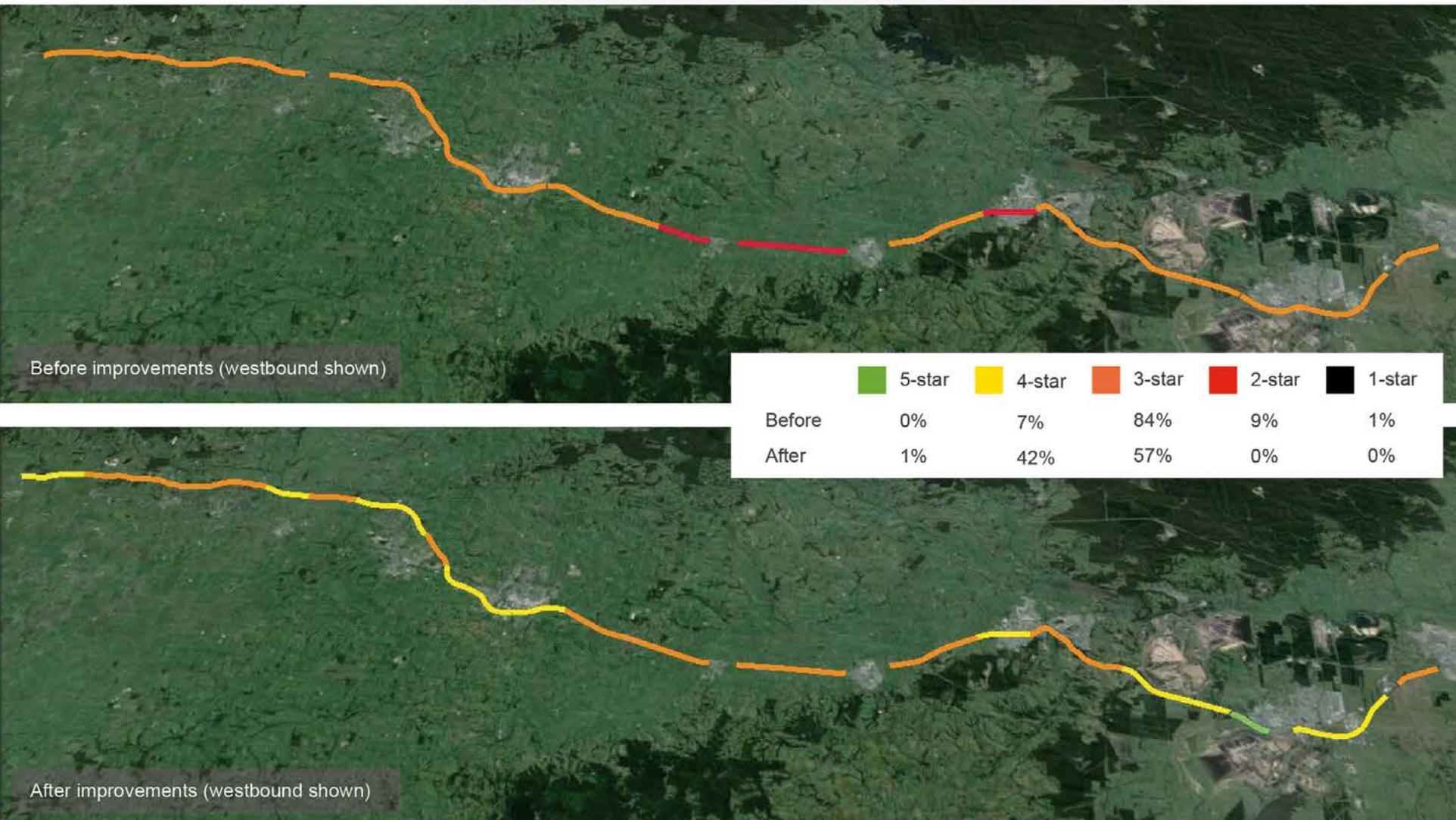


Intersection treatment



Fatal and serious injury crash costs per vehicle kilometre travelled by Star Rating on the Bruce Highway

# Princes Highway, Australia





MIROS Retweeted



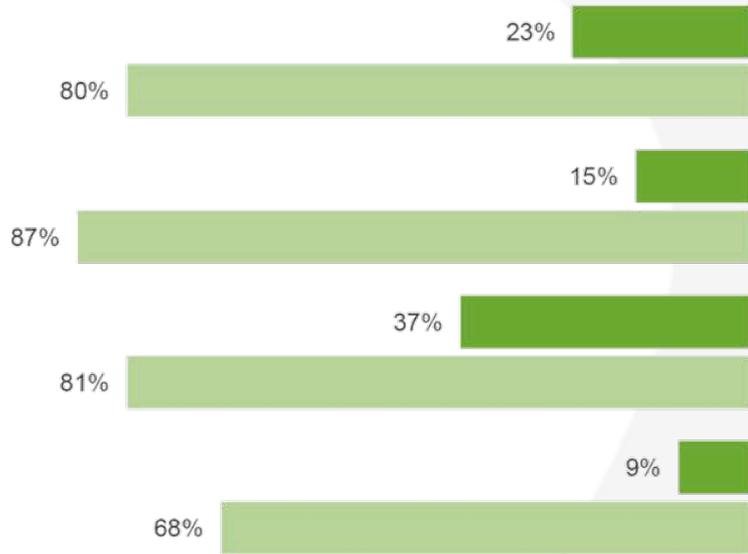
Wong, Shaw Voon @Wongsv · Sep 7

@mirosroadsafety @APEC TPTWG sharing @iRAPSavingLives initiatives. 75% travel on 3Star+ roads by 2020 in Malaysia.

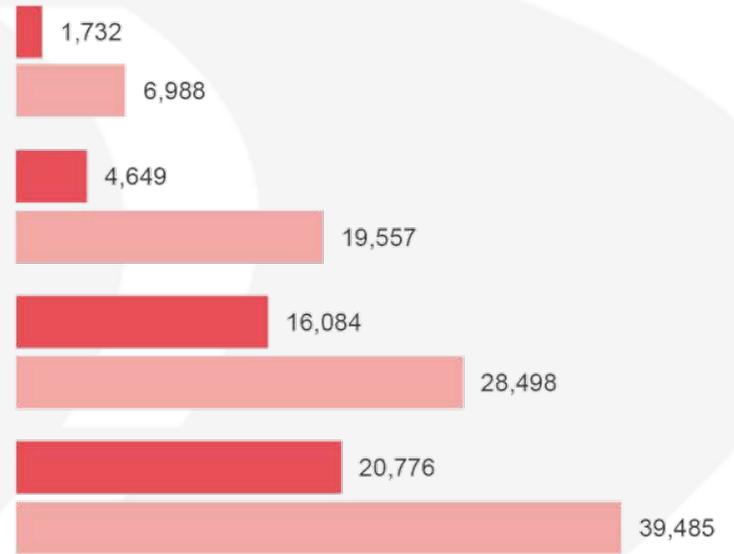


# BIGRS

Roads rated one or two stars



Annual fatalities and serious injuries

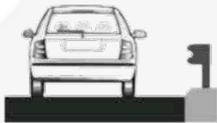


■ With treatment   ■ Without treatment

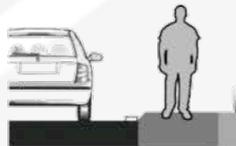
Examples of safety countermeasures for the roads in four countries



Median barriers could prevent 7,170 fatalities and serious injuries per year



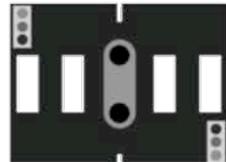
Roadside safety barriers could prevent 7,039 fatalities and serious injuries per year



Footpaths could prevent 3,265 fatalities and serious injuries per year



Signs and lines could prevent 1,158 fatalities and serious injuries per year



Pedestrian crossings could prevent 486 fatalities and serious injuries per year

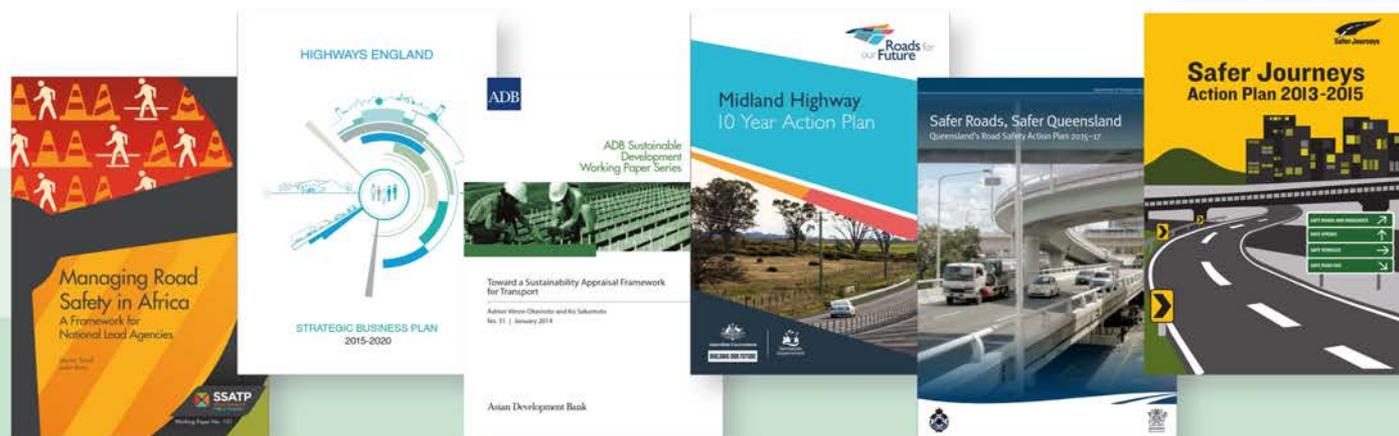
# Midlands Highway, Australia



# Roads of National Significance, New Zealand



- Malaysia: 75% of national road travel 3-stars + by 2020
- England: 90% of national road travel 3-stars + by 2020
- Netherlands: now very close to 3-star + national roads
- Sweden: 75% of roads 3+ by 2020
- Queensland: 85% of national road travel 3-stars + by 2020
- New Zealand: RONS 4-stars +
- ADB: All new or rehab roads 3-stars +
- World Bank: Road designs achieving 3-stars +



# For more information

*Vaccines for Roads:*

<http://irap.org/en/about-irap-3/vaccines-for-roads>

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