

# ASIA AND THE PACIFIC TRANSPORT FORUM 2024 CLEAN TRANSPORT FOR ALL

14-17 May 2024 | ADB Headquarters, Manila, Philippines



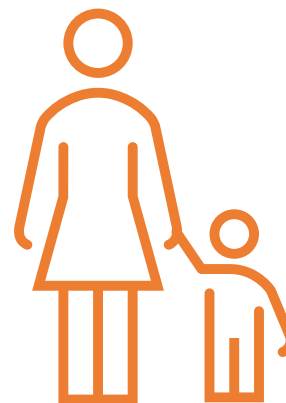
# SHAANXI MOUNTAIN ROAD SAFETY DEMONSTRATION PROJECT

Rebecca Stapleton



# SNAPSHOT

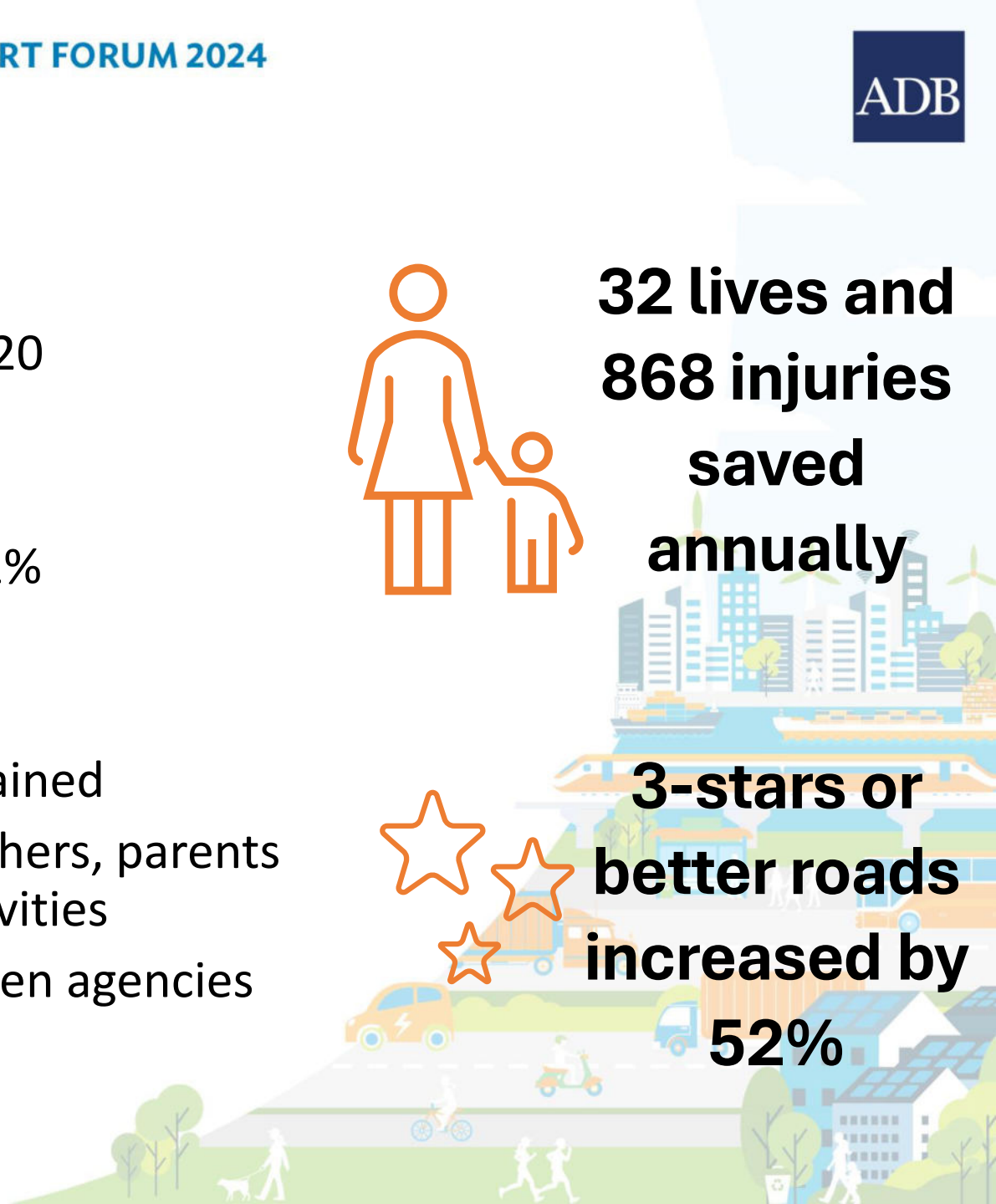
- ✓ USD 344m, 2015-2020
- ✓ 850km roads
- ✓ 3-stars + ↑ 52%
- ✓ Monthly travel ↑ 31%
- ✓ Deaths ↓ 33%
- ✓ Injuries ↓ 53%
- ✓ 200 professionals trained
- ✓ 2,400 students, teachers, parents and residents in activities
- ✓ Collaboration between agencies



**32 lives and  
868 injuries  
saved  
annually**



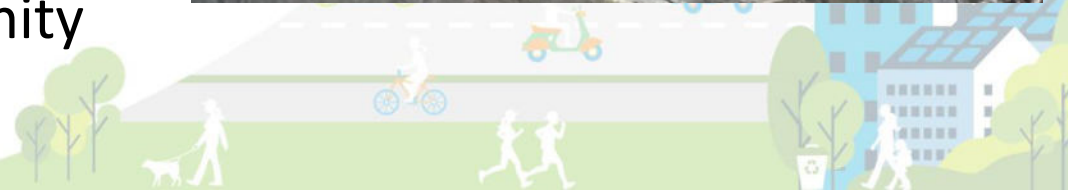
**3-stars or  
better roads  
increased by  
52%**





# BACKGROUND

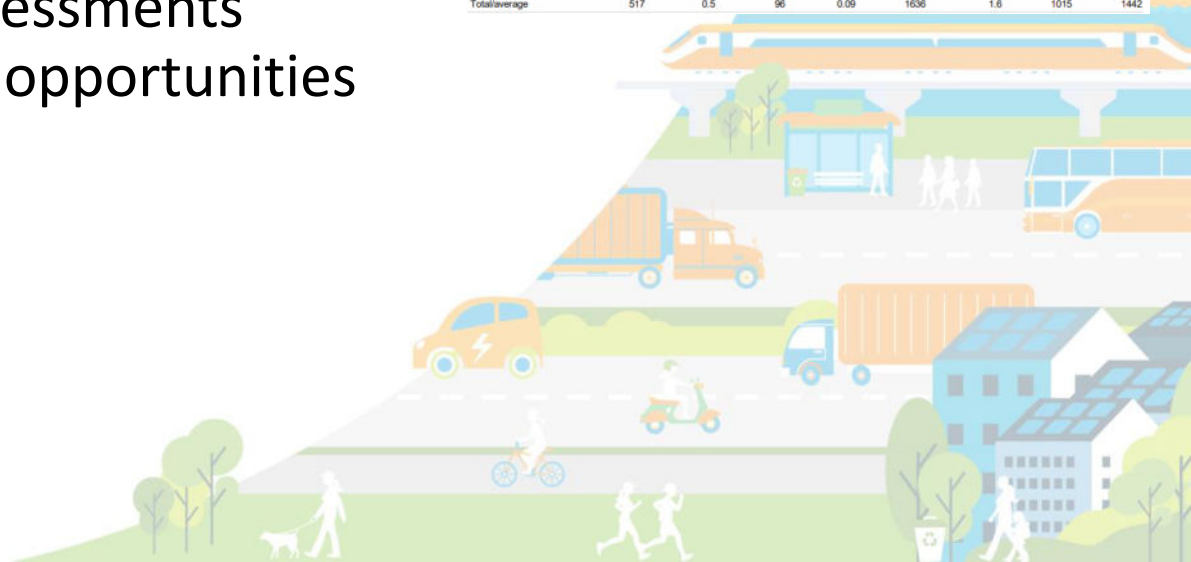
- ✓ USD 344m, 2015-2020
- ✓ 850km of trunk, rural and additional roads
- ✓ Objectives:
  - Upgrading trunk roads with safety
  - Crash reduction program
  - Strengthening road safety design and management practices
  - Introducing road safety education and community awareness programs



# CONTEXT

- ✓ Safe and sustainable transport a priority in the Twelfth Five-Year Plan (2011–2015)
- ✓ Injury rates 4 x national average
- ✓ Fatalities and injuries on 1,000km sample cost >US\$80 million
- ✓ Earlier ChinaRAP assessments indicated significant opportunities for safety

County - road name	Class	Annual crash costs (RMB million)		Average annual casualties			Length (km)	AADT (vpd)
		Total	Per km	Deaths	Deaths per km	Injuries		
XY-G316 *	3	105	1.3	27	0.29	199	2.1	350
XY-S102 **	4	75	1.1	19	0.27	128	1.8	3874
BH-G316	3	56	1.3	14	0.29	103	2.1	3030
SN-S224 ***	3	54	0.6	6	0.06	259	2.7	731
SN-Y338	4	37	0.5	3	0.04	201	2.6	490
SN-X316	4	27	0.7	2	0.05	154	3.9	702
SN-X313	4	26	1.3	2	0.07	149	6.4	714
HB-G316 *	3	22	1.3	5	0.29	40	2.1	3915
XY-X304	4	20	0.2	3	0.04	70	0.8	1525
SN-Y206	4	12	0.5	1	0.04	61	2.7	578
SN-Y335	4	11	0.5	1	0.05	55	2.6	577
SN-Y339	4	8	0.9	1	0.11	38	4.0	577
HB-X213	4	8	0.1	2	0.03	7	0.1	792
XY-Y304	4	7	0.3	1	0.04	33	1.5	1122
XY-Y201	4	6	0.3	1	0.07	12	0.6	500
XY-Y302	4	6	0.5	1	0.05	27	2.5	508
HB-X210	4	5	0.1	1	0.02	8	0.1	743
HB-Y103	4	4	0.1	1	0.02	6	0.2	593
XY-Y311	4	4	0.2	1	0.03	11	0.5	500
XY-Y303	4	4	0.1	1	0.02	12	0.5	255
XY-Y203	4	3	0.1	1	0.02	12	0.5	262
XY-Y308	4	3	0.3	1	0.06	10	1.1	287
XY-Y206	4	2	0.1	0.4	0.03	6	0.4	551
XY-Y313	4	2	0.2	0.4	0.05	6	0.7	526
XY-Y301	4	2	0.2	0.2	0.02	8	0.8	1052
XY-Y212	4	2	0.1	0.2	0.01	7	0.4	254
HB-Y202	4	2	0.2	0.4	0.04	2	0.2	587
XY-Y312	4	1	0.1	0.2	0.02	6	0.6	254
HB-Y201	4	1	0.1	0.2	0.02	2	0.2	587
XY-Y305	4	0	0.1	0.1	0.02	2	0.3	310
Total/average		517	0.5	96	0.09	1636	1.6	1015

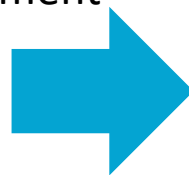


# PROBLEM SOLVING

## Barriers

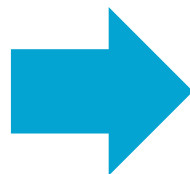
### Infrastructure

- ✓ Engineers hesitant to implement treatments not in design standards
- ✓ “Expensive”



### Other

- ✓ Resistance to cross-departmental collaboration
  - Separate funding
  - Different KPIs
  - Lack of incentives
- ✓ Stakeholder and political support



## Solutions

- ✓ International evidence base (ChinaRAP/iRAP)
- ✓ Local, capable technical team
- ✓ Pilot project evidence
- ✓ Measurable outcomes / economic analysis
- ✓ Ministry endorsed a guideline
- ✓ National program/agenda aligned
- ✓ Leadership
  - Champion within government
  - Bring the right people to the table
- ✓ Communication for collaboration
  - Relevance of content to other stakeholders/partners





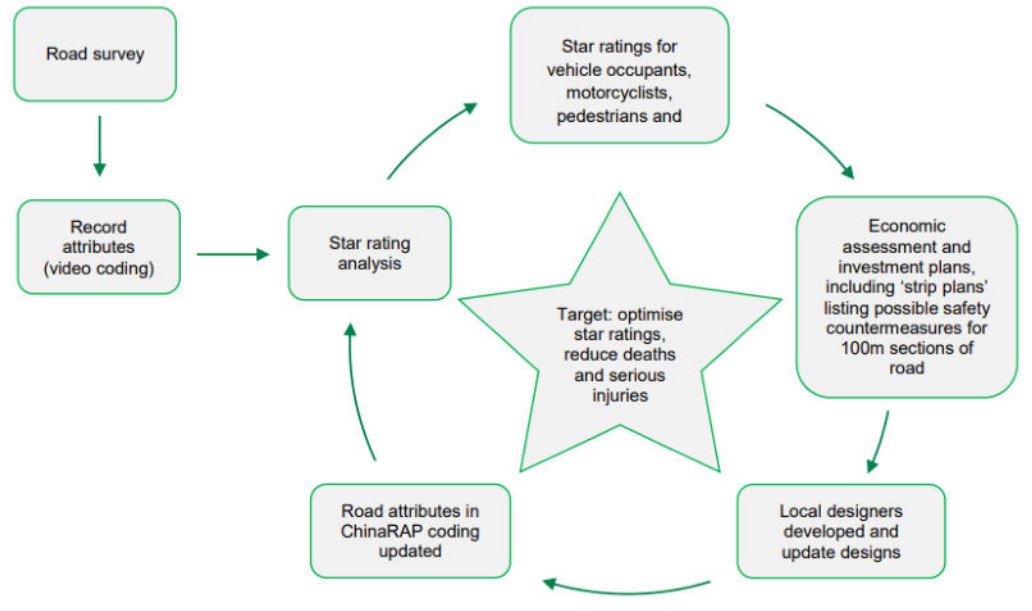
# INNOVATION

- ✓ Safety as the focus.
- ✓ ADB's first application of the iRAP star ratings at design stage and post-construction
- ✓ Used iRAP in the economic evaluations.
- ✓ Used new guidance on acceptable safety treatments.
- ✓ Road safety education and awareness using human-centered design principles.
- ✓ First comprehensive program in the PRC to successfully coordinate between transport bureaus, traffic police, and schools to ensure traffic safety for children commuting between school and home.



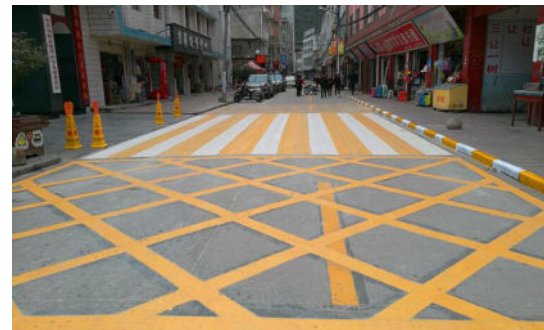
# CHINARAP ASSESSMENTS

- ✓ Baseline, design and post-construction assessments performed by ChinaRAP team (RIOH, MOT) with iRAP.
- ✓ Interactive design process enabled quantitative infrastructure safety targets and indicators to be set and monitored.
- ✓ When combined with MOT guidance on safety treatments, significant improvement in star ratings.





# ROAD IMPROVEMENTS



# COMMUNITY ENGAGEMENT

Baseline survey:



Adults surveyed lack road safety behaviors (no helmets on motorcycle, jaywalking, children sit next to driver, no seatbelts etc.)



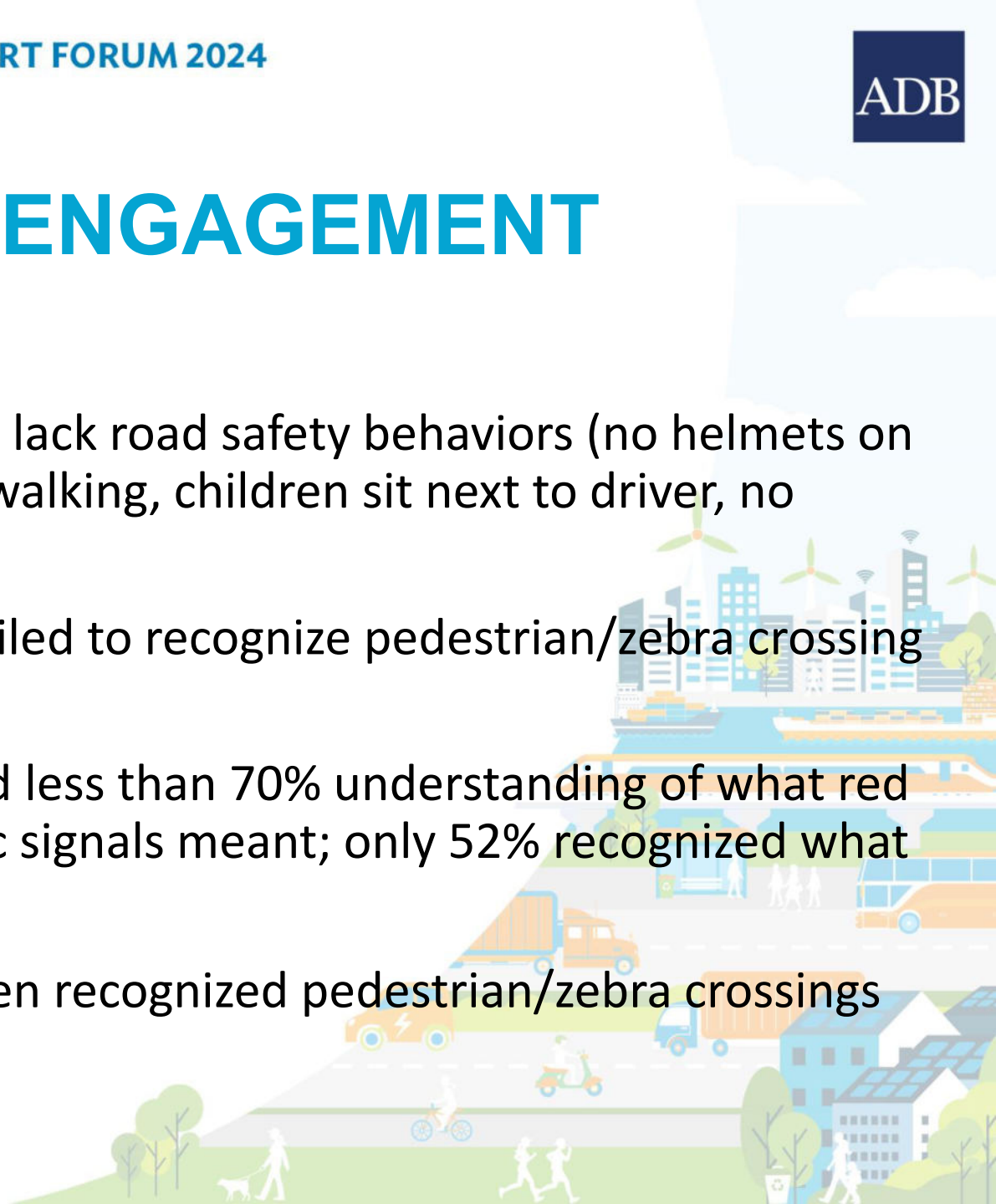
25% of adults failed to recognize pedestrian/zebra crossing signs



Children showed less than 70% understanding of what red and green traffic signals meant; only 52% recognized what yellow meant.



Only 52% children recognized pedestrian/zebra crossings





# HUMAN-CENTERED DESIGN

- ✓ Innovative approach to road safety education and awareness, using human-centered design principles, codesigning and developing meaningful engagement with students and other road users in the community





# MEDIA ENGAGEMENT

- ✓ Local media was invited to attend all community engagement activities
- ✓ 3 pieces of official media reporting
- ✓ 11 social media campaigns run through WeChat and Tik Tok



# POLICE ENFORCEMENT

- ✓ Police came to engage closely with the project
- ✓ In 2020:
- ✓ 56 enforcement campaign operations implemented
- ✓ 61,310 violations issued
  - 711 driving without licence
  - 3,042 speeding
  - 534 drunk driving
  - 1,750 vehicles were detained
  - 498 licenses confiscated
  - 18 people in jail



# COMMITMENT, REPLICABILITY, SUSTAINABILITY

- ✓ Active participation in workshops, training increasing capability
- ✓ Effective relationships with key stakeholders
- ✓ Replication in other ADB projects \*
- ✓ ChinaRAP team has strong capability and has supported many subsequent projects throughout China and globally
- ✓ Safety treatments implemented are long-lasting, often with service lives running into decades
- ✓ Sustainable public awareness through an education and awareness campaign





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THANK YOU!

