

IndiaRAP Progress Report 2017-2020



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List of Abbreviations

ADB: Asian Development Bank	MIROS: Malaysian Institute of Road Safety Research
AITD: Asian Institute of Transport Development	MoRTH: Ministry of Road Transport and Highways
ASEAN: Association of Southeast Asian Nations	MOU: Memorandum of Understanding
BIGRS: Bloomberg Initiative for Global Road Safety	NCR: National Capital Region
CCMC: Coimbatore City Municipal Corporation	NGO: Non-Government Organization
CEO: Chief Executive Officer	NH: National Highway
CRR: Central Road Research Institute	NHAI: National Highway Authority of India
CSR: Corporate Social Responsibility	NIT: National Institute of Technology
FIA: Federation Internationale de l'Automobile (International Automobile Association)	NMT: Non-motorized Transport
GDP: Gross Domestic Product	PIU: Project Implementation Unit
GIZ: Deutsche Gesellschaft für Internationale Zusammenarbeit (German Corporation for International Cooperation)	PWD: Public Works Department
GQ: Golden Quadrilateral	RAP: Road Assessment Programme
GRSF: Global Road Safety Facility	RDA: Road Development Authority
GRSP: Global Road Safety Partnership	RIOH: Research Institute of Highway
GSHP: Gujarat State Highway Project	SASEC: South Asia Subregional Economic Cooperation
HOAI: Highway Operators Association of India	SCDP: Safe Corridor Demonstration Project
IAHE: Indian Academy of Highway Engineers	SDG: Sustainable Development Goal
IIT: Indian Institute of Technology	SRIP: Safer Roads Investment Plan
IRC: Indian Roads Congress	SUTP: Sustainable Urban Transport Project
IRF: International Road Federation	SVNIT: Sardar Vallabhbhai National Institute of Technology
IRSM: Indian Road Survey Management (Co. Pvt. Ltd.)	TNRSP: Tamil Nadu Road Sector Project
ITF: International Transport Forum	TTPL: Trichy Tollway Private Limited
JEPL: Jadcherla Expressways Private Limited	UN: United Nations
KSHIP: Karnataka State Highway Improvement Project	UNESCAP: United Nations Economic and Social Commission for Asia and the Pacific
LASA: Lea Associates South Asia Pvt. Ltd	UPCRNDP: Uttar Pradesh Core Road Network Development Program
MCGM: Municipal Corporation of Greater Mumbai	WB: The World Bank
	WRM: World Road Meeting



Introduction

Since launch of the local road assessment programme, IndiaRAP in 2017, numerous activities focusing on the following have been performed,

- Establishment of the programme hosted by local not-for-profit organization and building core team to deliver activities
- Capacity building and strengthening of government and other organizations responsible for planning, designing, building, and maintaining roads
- Advocacy to develop and adopt (1) national and state-level road safety policy and guideline outcomes, and (2) Project level design and policy outcomes that improve road safety
- Effective communications with stakeholders and government organizations sharing the progress
- Training and accreditation of local suppliers to enable them to deliver high-quality iRAP services
- Road safety assessments delivered locally
- Find out ways so that the programme sustains beyond the FedEx sponsorship (2020 and beyond)

This report is third in the series of progress reports shared each year of FedEx support to IndiaRAP and is meant to appraise the host AITD, sponsor FedEx, and iRAP to give information on the activities performed.



IRF WORLD ROAD MEETING 2017

/ 14-17 NOV / NEW DELHI / INDIA /



About IndiaRAP

The Ministry of Road Transport and Highways reports that 1,51,417 people were killed on the road in India in 2018, equating to 17 deaths every hour. iRAP estimates that road crashes cost India more than 3% of national GDP each and every year. India is investing in large-scale road upgrades across the country and maximizing the safety of this investment will deliver additional economic benefits to the country.

The Indian Road Assessment Programme, IndiaRAP, was officially launched on 14th November 2017 at the IRF World Road Meeting (WRM) in Delhi, India. The programme is proudly hosted by the Asian Institute of Transport Development, an independent, not for profit organization based in Delhi and supported by iRAP with sponsorship from FedEx. The programme draws on local technical expertise and research from key national stakeholders including the Indian Road Congress, MoRTH, NHAI, IIT, CRRI, FIA and IAHE in addition to state-level partners. IndiaRAP project level activities are also supported through partnerships between the Government Agency, World Bank, Global Road Safety Facility and similar development agencies.



IndiaRAP benefits from the global charitable work of iRAP across more than 100 countries worldwide. As part of the iRAP family that includes development agency, government and non-government partners from EuroRAP to AusRAP and usRAP to BrazilRAP, the IndiaRAP team joins a global community committed to a world free of high-risk roads.



IndiaRAP Establishment

Prior to the launch, an MoU was signed between iRAP and AITD (Asian Institute of Transport Development) in August 2017 to locally host the program. AITD is a not for profit organization devoted to capacity building, non-partisan research, and regional cooperation in infrastructure with a special focus on transport, trade and logistics. AITD has close ties to MoRTH, has United Nations Consultative Status and has ties to 14 countries in Asia. The program office has been established within the AITD campus.



iRAP/AITD MOU signing, August 2017. Left to right: Prof A. Veeraragavan (IIT Madras), Samir Raval (Government of Gujarat), Secretary-General Sanjay Nirmal (IRC), Jigesh Bhavsar (IndiaRAP), Prof Pradip Sarkar (AITD), Rob McInerney (iRAP), Alison Leeson (IndiaRAP)

IndiaRAP Team

Jigesh Bhavsar is graduate in Civil Engineering and post-graduate in Transportation Systems Engineering from IIT Bombay with overall professional experience of 14 years of in the field of Road Safety, Traffic and Transportation Engineering. He is working with International Road Assessment Program (iRAP) since 2013 as Senior Road Safety Engineer to save lives in India and many other countries. As part of the IndiaRAP team, Jigesh is working as Technical Manager responsible for delivery of projects involving iRAP assessment and training.



Albin Tharakan is a graduate in Civil Engineering with a post-graduation in Transport Planning from School of Planning and Architecture, New Delhi. He has an overall professional experience of 8 years in the field of transport engineering/planning and road safety. He is associated with International Road Assessment Program (iRAP) since 2018 as Road Safety Engineer. He is also working as part of IndiaRAP technical team responsible for delivery of iRAP assessment projects, Star Rating for Schools programme, and training.

Dr. Subhamay Gangopadhyay joined IndiaRAP team as Programme Manager in August 2019. Dr. Gangopadhyay has nearly 4 decades of experience in Road Transport and Safety. He worked over a long time in Central Road Research Institute (CRRI) and retired as Director of the institute. He has excellent experience working with government organizations including Ministry of Road Transport and research/educational institutes. As a Programme Manager his efforts are to connect the programme with local research and educational institutes, implementing agencies and other road safety non-government organizations.



Establishment of IndiaRAP as an entity

A major decision regarding the entity status is necessary for IndiaRAP in order to maintain its own sustainability and wider publicity within India and also in the South Asia region. To facilitate the process several round of discussions were held with Asian Institute of Transport Development (AITD) who is currently hosting the programme.

Since currently IndiaRAP is operating within the premises of AITD with the arrangement of working partnership, the discussion emerged at that IndiaRAP can function as an exclusive Cell within AITD. This will enable the IndiaRAP team to deliver local projects through AITD. To enable this the following agreements are being made,

- Renewal of the Memorandum of Understanding (original MoU signed in Aug 2017 for a period of 3yrs). This mentions AITD continues to host the IndiaRAP.
- National Programme Licence Agreement. This grants a royalty-free non-exclusive licence so that under IndiaRAP, AITD can use the iRAP Star Rating and Safer Roads Investment Plan Methodology to conduct local road safety assessments.



Road Safety Policy

To help the government organizations to develop and adopt National and/or State level road safety policy and guideline that improve road safety is one of the key to improve road safety. The establishment of local programme has enabled IndiaRAP team to advocate adopting such policy as shown in the examples below,



Road Design Standards of IRC (Indian Roads Congress): The IndiaRAP Technical Manager has been appointed as a member of technical committee (H-7) to review and update the design standards that applies uniformly to all National and State Highways in India. In the inception meeting of H-7 committee, IndiaRAP shared a concept note on a case study of Star Rating the standard cross-section of single carriageway highways. Using this approach IndiaRAP is contributing to an update of the design standards that take account of the speed limits on different configurations of Indian highways or recommend lower speed limits where infrastructure constraints are present.

National Center for Road Safety: AITD, the host of the IndiaRAP Programme, has been established as a center for road safety by MoRTH. Under this programme AITD is preparing road safety awareness modules for select highway stretches and training over 4,000 engineers on Road Safety Engineering and Road Safety Audit. The training was delivered in regional centers such as IITs, NITs, and other research and educational institutes. IndiaRAP participated in this training programme and more details are given under the 'Capacity Building' section of this report.

Road Safety Strategy Support: MoRT&H has appointed PwC to develop a comprehensive strategy and action plan to improve road safety in India. The center for road safety (AITD) is overseeing the development of strategy. IndiaRAP is supporting PwC in the development of the national strategy. Key tasks where IndiaRAP is supporting the strategy development are:

- Analyzing existing road inventory data with IndiaRAP’s assessments of 10,000+ km of state road network and the current assessment of 5000+km of National Highway (Golden Quadrilateral)
- Conducting primary research by interviewing stakeholders including those from state PWDs IndiaRAP is working with
- Development of a comprehensive strategy to advocate for and include a target to have x% of travel on 3-star or better roads by 2030 mainly drawing from IndiaRAP’s road assessment database, review of national road design standards and the newly launched Business Case for Safer Roads.

The Business Case for Safer Roads in India

India	
Annual number of fatalities (WHO, 2015)*	207,551
Population	1,252,139,596
Fatalities per 100,000 population	16.6
Annual number of fatalities and serious injuries	2,283,061
Annual cost of fatalities and serious injuries	\$75,542,500,000
Annual cost of fatalities and serious injuries (% of GDP)	4.1%
What can be achieved with >75% of travel on 3-star or better roads for all road users by 2030	
Infrastructure and Speed Management Investment required	\$91,630,968,000
Annual Investment as a % of GDP (2019-2030)	0.29%
Reduction in fatalities per year	83,020
Reduction in fatalities and serious injuries (FSI) over 20 years	18,264,488
Economic Benefit	\$549,896,400,000
Benefit Cost Ratio	6

* Full assumptions and national snapshots are available at www.vaccinesforroads.org. All cost figures are expressed in US dollars. Global data that is available and consistent has been used for the business case for safer roads. Where more accurate national or local data is available that should replace this analysis.

<https://www.vaccinesforroads.org/irap-big-data-tool-map/>



IIT Kharagpur (an IndiaRAP key partner) secured a road safety grant under the ‘Global Road Safety Grants Programme’. The IIT Kharagpur delivered a policy paper on ‘Promotion of Safe Speed in India through the regulation of Speed Limit, Speed Management, Enforcement and Public Awareness’. This involved

conducting several regional workshops and IndiaRAP was a key partner showing how lowering the speed limit on highways passing through built-up or urban areas can help to reduce deaths and severe injuries amongst pedestrians, bicyclists and other vulnerable road users. The aim of this road safety grant was to develop a policy paper on speed regulation and management along with strong advocacy to legalize Speed Limits at the state/national level as the current road design standards lack such provision. The draft manual on 'Speed Management' has been prepared and being reviewed by the grants committee.



Supreme Court Committee on Road Safety: With a view to strengthening the working network of IndiaRAP in the Pan-India region and for its successful implementation, a meeting was held with the Honorable Supreme Court Committee on Road Safety on 30 January, 2020. The main purpose of the meeting was to seek support of the Supreme Court Committee on Road Safety for adoption of the iRAP Approach by various State Governments and other local Authorities. The meeting included the following:

- Brief presentation on IndiaRAP introduction and on extent of activities of IndiaRAP in different states of India along with success stories in reduction of road crash fatalities and serious injuries
- Potential benefits of adopting UN Global Road Safety targets in terms of reduction in road crash fatalities and how it can be achieved through systematic safety assessment and implementation of targeted interventions

After the presentation, the Committee appreciated the work being carried out by IndiaRAP. The Committee advised that letters to all the State Transport Secretaries should be written requesting them to undertake the Star Rating approach for the roads in the respective States.



Capacity Building

To build local capacity across India, IndiaRAP has been involved in training of road engineers from both government and private organizations in using Star Rating as tool to measure and manage road safety. IndiaRAP has delivered the following training activities under the locally established programme.



National Center for Road Safety: AITD has trained road engineers in road safety by delivering two courses of 5-days each during the period from February 2017 till end of 2019. Additionally, during this period AITD has organized special modules for rural roads department engineers of various state. IndiaRAP's association in the training activities undertaken include:

- The development of training material that includes background of IndiaRAP, process of Star Rating and Safer Roads Investment Plan, case studies from different states of India showing how Star Ratings have been undertaken as part of World Bank funded projects to design and build 3-star or better roads that save lives and reduce severe injuries.
- Road Safety Engineering Training Course with an introduction to Star Rating and the Safer Roads Investment Plan process and associated case studies.
- Road Safety Audit Course that includes a Star Rating Demonstrator session where smaller groups of 4-5 participants each are given a road section image to Star Rate and suggest safety treatments using the online Star Rating Demonstrator Tool. At the end of this interactive session each group presents baseline and after improvement Star Ratings.

- Safety of Vulnerable Road Users one day workshop with MoRTH using IndiaRAP case studies.

The training program began in February 2018 with 55 batches of the ‘Road Safety Engineering Course’ and 13 batches of the ‘Road Safety Audit Course’ delivered. The training courses have been organized in different regions of India including Guwahati, Kharagpur, Surat, Mumbai, Delhi, Jaipur, Chennai and Bhopal, and more places.

Central Road Research Institute (CRRI) and Indian Academy of Highway Engineers (IAHE) organize a 15 day and 6-week version of the ‘Road Safety Audit Training Course’. IndiaRAP participates in both the courses to deliver an IndiaRAP introduction session in the course organized by CRRI and a full day workshop to train the participants in using Star Rating under the IAHE course.

Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS): Under BIGRS programme, World Bank and iRAP are local partners in Mumbai city and India as a country. As part of the BIGRS supported work the several training programs were organized in 2019 to disseminate the results.

- Three workshops were organised at MCGM Engineering Hub at Worli, Mumbai in August 2019 for MCGM engineers from City, Eastern and Western regions respectively. The purpose of these one-day workshops were to brief the participants about the results of iRAP assessment and recommended safety improvements so that it may be taken up for implementation. Around 100 attendees including Executive Engineers, Assistant Engineers and Sub-Engineers of MCGM participated.
- Two workshops were conducted for Regional Officers and Project Directors of NHAI to



disseminate findings following iRAP assessments of Delhi-Mumbai-Chennai Golden Quadrilateral National Highway. The workshops were organized by the IndiaRAP team, World Bank and Road Safety Cell of NHAI in Gandhinagar and Bengaluru in April 2019. About 83 participants including PIU staff, concessionaires and consultants involved in the road construction, operation and maintenance of Delhi-Mumbai section and Mumbai-Chennai section attended these workshops.

IIT Kharagpur has been mandated by the state Public Works Department (PWD) to carry out road safety audit of 1400km of state highways. The institute decided to conduct IndiaRAP assessment on this network as it would help in presenting the results in a more effective manner. IndiaRAP team assisted the institute to carry out the safety assessments. Four doctoral research scholars, around ten post graduate students and a project staff of IIT Kharagpur have been trained to conduct iRAP road surveys, data coding and data processing. The trained team conducted road surveys, collected supporting data, performed data coding, and processed data in ViDA to generate Star Ratings and Safer Roads Investment Plan for 1400km of the state road network. The results of the assessment were shared with the PWD.

Other academic institutes: Five students from three universities/institutes namely: School of Planning and Architecture (New Delhi), Gujarat Engineering College and College of Engineering Trivandrum (Kerala) are using/referring to IndiaRAP methodology and assessment tool in their doctoral and post graduate thesis. IndiaRAP team are guiding the students in data collection, coding, supporting data collection and processing. The students have been provided access to use the iRAP online software ViDA.

2017

2018

2019

2020

BIGRS IndiaRAP Webinar: World Bank and iRAP helping save lives on Indian Roads

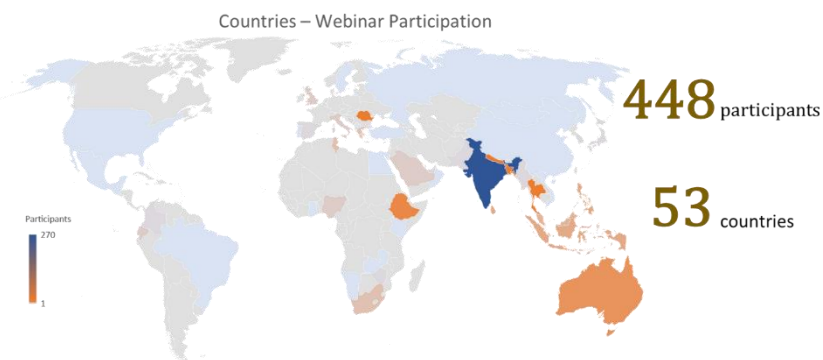
The IndiaRAP team jointly with iRAP and GRSF organized a 4 session webinar series in June 2020. The focus of this webinar series was on the road safety experience and lessons learned in India, specifically on how IndiaRAP was created, and the safety assessments were conducted across the country. This online training was supported by the World Bank's Global Road Safety Facility (GRSF) under the Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS) and is in continuation of GRSF and World Bank's active engagement with various State Public Works Departments (PWDs), Ministry of Road Transport and Highways (MoRTH) and National Highways Authority of India (NHAI), through the BIGRS 2015-2019.

The training material was developed by the iRAP and

IndiaRAP team with the webinar introductions provided by World Bank and GRSF team members. The following were covered in the webinar:

- An introduction to the Bloomberg Philanthropies Initiative for Global Road Safety and how the World Bank is using iRAP safety assessments as a tool to ensure new roads are designed and built with cost-effective safety features
- An introduction to iRAP and the Star Rating and Safer Road Investment Plan methodology
- Examples of iRAP application in India with case studies
- Safer Road Investment Plans – interpretation and use
- Accessing new and existing iRAP results through the online platform VIDA
- How road authorities can conduct iRAP assessments and procure iRAP services

This webinar series successfully delivered online training to engineers and planners focusing on building the capacity of road authorities to better understand the iRAP methodology and how it has been used in India to improve the safety of road infrastructure. The series received a record 670



registrations from 77 countries around the world. In total 448 people from 53 countries attended the live sessions. In addition to this, 295 participants chose to participate in the online learning course where they could complete assignments for each session and get certifications.

Following the successful completion of this webinar series, iRAP is promoting the recordings of all four sessions which are available on YouTube. This will remain available, free of cost, to those who could not participate in the live webinar sessions.

A link to the iRAP YouTube channel for the recorded sessions is given below:

Session 1: Introduction to BIGRS and iRAP <https://youtu.be/mbmRst8F8Ps>

Session 2: Star Ratings and Safer Road Investment Plans <https://youtu.be/fPWI-Oi3w2w>

Session 3: Introduction to ViDA <https://youtu.be/Bj-hGjWcrO8>

Session 4: How road authorities can conduct iRAP safety assessments
<https://youtu.be/sOlWq5VExo>

iRAP and 3M Collaboration

iRAP and 3M became a Global Programme Partner in iRAP's Star Rating for Schools (SR4S) programme. 3M provides an annual contribution to support the programme and its goal of ensuring that children are able to travel safely to and from school. The 3M India team is actively working on school zone safety partnering with CoRPS and United Way. The team worked with some 20 schools in 2019



where safety treatments have been implemented and keen to use SR4S showing comparison of before-after Star Ratings to leverage advocacy with the government to fund infrastructure improvement around schools where the 3M India Safe School program can be scaled up. Potential for IndiaRAP team to support 3M's initiative in India and other countries in Asia by providing technical support using SR4S, more training, quality assurance check on the data collection process, and support for technical reporting.



In this connection the IndiaRAP team had a series of meetings with the 3M Asia team and organized a webinar of two sessions. In the webinar the IndiaRAP team shared more information on the Star Ratings methodology, the data collection process, details of road infrastructure data that influence likelihood and severity of road crashes, and using Star Rating demonstrator. In this webinar 42 of 3M staff participated.



IndiaRAP workshop

A One-day workshop on IndiaRAP was organized on 01 October, 2019 at AITD Delhi to deliberate on the achievements and Way Forward.

The main purpose of the Workshop was to disseminate the activities of IndiaRAP to the participants comprised of various stake holders from the Government, Academia, Research Institutions etc. and to prepare a framework on achieving the UN Global Road Safety Targets particularly the goal of SDG 3.6 of halving the number of Road Deaths. Discussion on a tentative formation of the Steering Committee for IndiaRAP was also carried out during the workshop. The key dignitaries participated in the workshop include Mr. S K Nirmal (Secretary General, Indian Roads Congress), Mr. R K Pandey (Member-Projects, NHAI), and Matthew Davies (Managing Director of Sales for FedEx Express in India).

The workshop included technical presentations made by IndiaRAP team, World Bank and PWDs from different states, panel discussion and interactive section using Star Rating Demonstrator. Stakeholders emphasized on the need of more rigorous work for the Road Safety in India and lauded the role of IndiaRAP for executing the Star Rating projects in various parts of the country.





Safety Assessments

Establishment of local programme has enabled delivering the high-quality safety assessments using local resources. This includes training and accreditation of the local suppliers, training of the implementing authority's officers to access and understand results, providing technical support so that the identified safety treatments can be implemented. The key road safety assessments delivered by IndiaRAP since launch of the programme are detailed below.



Abertis¹ Toll Roads in India

NH44 Thondapalli-Jadcherla (JEPL) in Telangana and NH45 Ulundurpet-Padalur (TTPL) in Tamil Nadu (length 309km) were assessed by IndiaRAP team. The assessment helped toll road operator (iSADAK) to identify high-risk locations and safety treatments which would help improve safety. The customized Investment Plans looking at alternative upgrades considering only the low-cost and easy to implement treatments were also prepared. The toll company is discussing these treatments with NHA for approval and implementation.

¹ <https://www.abertis.com/en/safety-and-tech/road-safety>

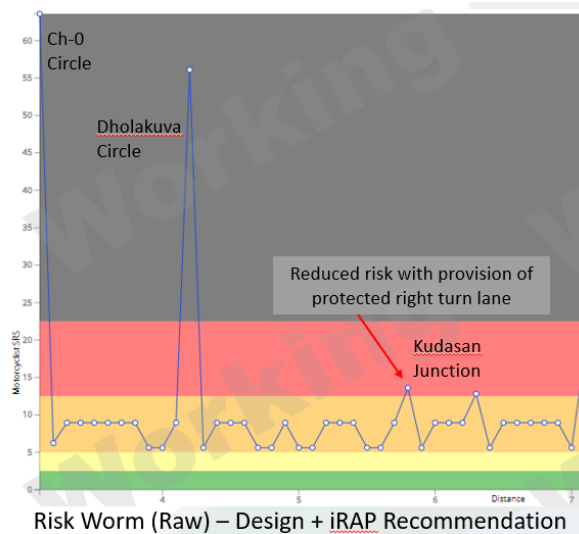
Rajasthan Road Sector Modernization Project (RRSMP)²

Under RRSMP, the Public Works Department (PWD) Government of Rajasthan appointed a consultant to conduct iRAP safety assessment, road design, and supervision of construction and implementation the safety treatments on a demo corridor. The consultant conducted iRAP safety assessment of over 700km road network and choose a 100km road corridor as a demo corridor for implementing the safety treatments along with implementation of non-engineering measures. The IndiaRAP team assisted the consultant's team and the PWD Rajasthan and providing training on using the Star Ratings and Safer Roads Investment Plans as a tool to improve safety on the state road network.



Second Safe Corridor Demonstration Project (SCDP-2) in Gujarat

Under the World Bank funded Second Gujarat State Highway Project³ (GSHP-II) a 12km long corridor connecting Gandhinagar with Ahmedabad airport has been identified as a second SCDP in Gujarat. IndiaRAP and Lea Associates South Asia Pvt. Ltd. (LASA) who is the Project Management Consultant to the Govt. of Gujarat conducted the assessment of the corridor. The IndiaRAP team prepared Star Ratings and Safer Roads Investment Plan options and LASA prepared the road design of the corridor mainly drawing from the treatments identified under SRIP. The road designs were star rated and further safety treatments were included in the revised version of the design such that it achieves 3-star rating for all road users as required for such SCDP.



² <https://projects.worldbank.org/en/projects-operations/project-detail/P130164?lang=en>

³ <https://projects.worldbank.org/en/projects-operations/project-detail/P114827>

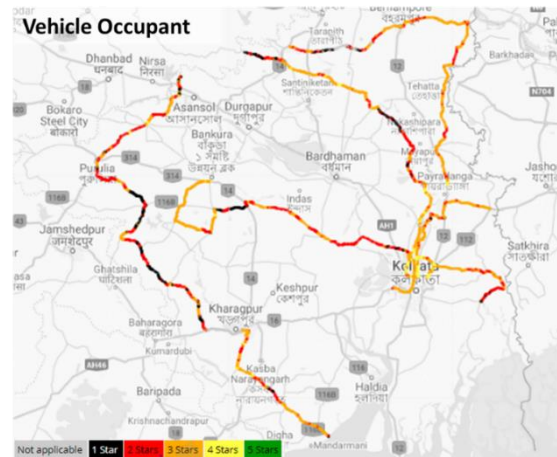
Post Construction assessment Gujarat and Karnataka

The Ministry of Road Transport and Highways (MoRTH) and the State Public Works Departments (PWDs) of Kerala, Andhra Pradesh, Karnataka and Gujarat prepared road improvement projects financed by World Bank loans, and the iRAP road safety assessments were undertaken as part of these projects in the year of 2012-2013. The iRAP assessments were conducted for major state highway network in these states at two stages, (1) before improvement (baseline), and (2) during design stage. The iRAP assessment at design stage served a tool to ensure that proven and cost-effective road safety treatments are included in the designs. The Mehsana-Himmatnagar road (SH-55) and Belgaum – Yaragatti road (SH-20) were assessed post-construction in April 2019. This post-construction assessment helped to compare the baseline (before improvement) and as built (after construction) Star Ratings, comparison of key road infrastructure risk attributes and road crash data. The assessment reports were shared with the road authorities of Karnataka and Gujarat and the Global Road Safety Facility. More details are given under ‘Life-Saving Road Upgrades’ in this report.

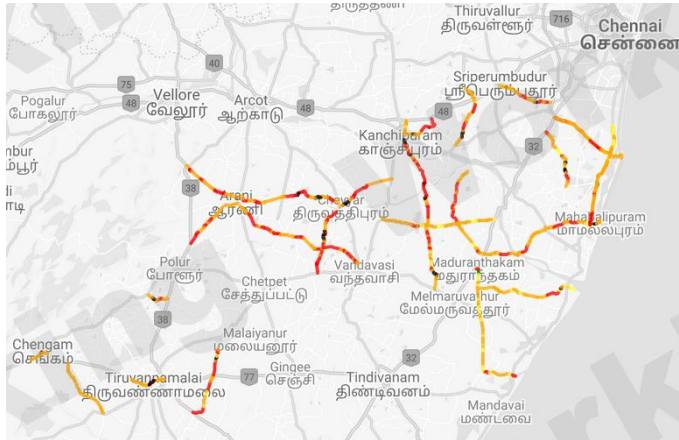


Assessment of State Highways in the State of West Bengal

PWD of West Bengal and IIT Kharagpur carried out the road safety audit of five state highways with a total length of 1400km. IIT Kharagpur being a key partner of IndiaRAP conducted iRAP assessment of the network. IndiaRAP team provided technical assistance to the team of research scholars and students in all stages of the assessment through training and quality assurance. The results of safety assessment were shared with the state PWD and the team is working in close coordination with the PWD for implementing the economically viable safety treatments.



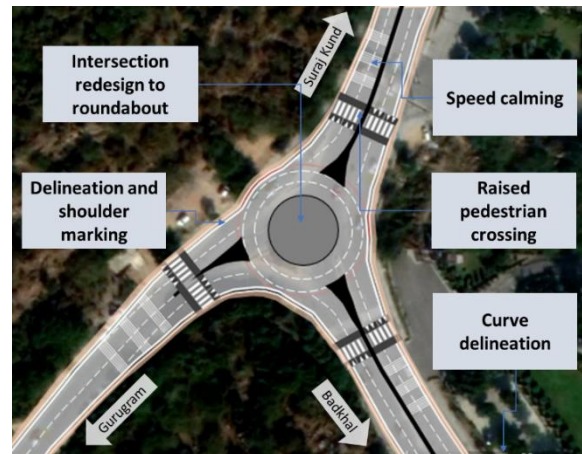
Assessment of road network in Tamil Nadu



IndiaRAP team assisted Indian Road Survey and Management (IRSM) in the iRAP assessment of identified high risk State Highways and Major District Roads in Tiruvannamalai and Kancheepuram districts in the State of Tamil Nadu. The total assessment length is 584.4km. IndiaRAP team carried out the quality assessment of coding data and analysis results and assisted IRSM in data processing to generate Star Rating and Safer Road Investment Plans (SRIP). IRSM is iRAP accredited supplier and the IRSM team

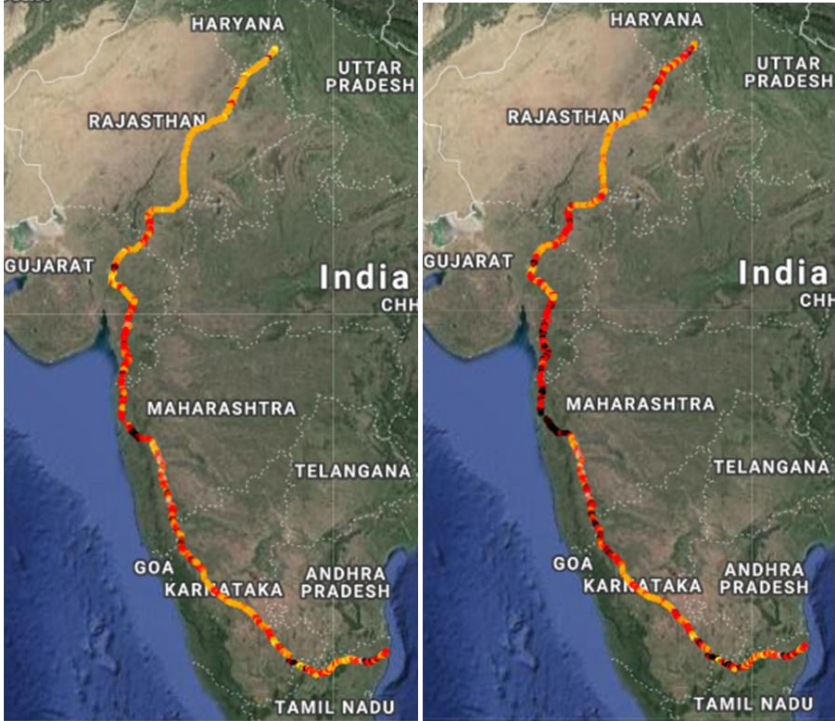
prepared report including the results of safety assessment and Safer Roads Investment Plan for the Government of Tamil Nadu.

Assessment of intersection area near Surajkund, Faridabad: Trax NGO for Road safety has engaged IndiaRAP and Central Road Research Institute (CRRI) for the assessment of a crash prone intersection near Surajkund, Faridabad. IndiaRAP team carried out baseline assessment of the road and prepared Star Ratings and identified safety treatments to improve the Star Ratings for all road users. The identified treatments include, intersection redesign and quality improvement, raised pedestrian crossing, speed calming and delineation. A schematic drawing showing the treatments were also provided by IndiaRAP.



Safety assessment of Delhi-Mumbai-Chennai Golden Quadrilateral:

Star Rating Map of Vehicle Occupant: Delhi – Mumbai and Mumbai – Chennai section of GQ



Maximum speed limit 80kmph (current)

Maximum speed limit 100kmph (recent MORTH notification)

With an aim to reduce fatalities and injuries from road traffic crashes on the major highway network in India, the Global Road Safety Facility (GRSF), International Road Assessment Program (iRAP) and National Highway Authority of India (NHAI) conducted safety assessments on the Delhi-Mumbai and Mumbai-Chennai sections of Golden Quadrilateral (GQ). These two sections of GQ are among the most strategic set of corridors in India in terms of linking major cities, ports, and industries. The safety assessment has been conducted using iRAP Star Rating which is a systematic approach to identify deficiencies and improve safety infrastructure provisions across major road network.

The Safer Roads Investment Plan (SRIP) specifically tailored to reduce risk on Delhi-Mumbai and Mumbai-Chennai sections of GQ provided a list of affordable and economically sound road safety treatments. The identified safety treatments, if implemented, would help to reduce the number of fatalities and severe injuries by 32% with benefit-to-cost ratio of 11. Safety treatments like installing crash barrier in the median and roadside, shoulder rumble strips, improving quality of intersection, dualling of single carriageway highway, and improving road delineation



Central median barrier

Length: 750.9km
 Investment: INR 194 crore
 FSI: 20,200
 Prevented: 10
 BCR: 10



Shoulder rumble strips

Length: 4310km
 Investment: INR 67 crore
 FSI: 16,500
 Prevented: 24
 BCR: 24



Intersection improvement

Length: 806 sites
 Investment: INR 154 crore
 FSI: 14,100
 Prevented: 9
 BCR: 9



Roadside crash barriers

Length: 817.1km
 Investment: INR 212 crore
 FSI: 13,800
 Prevented: 6
 BCR: 6



Duplication with median barrier

Length: 23.5km
 Investment: INR 46 crore
 FSI: 10,400
 Prevented: 22
 BCR: 22



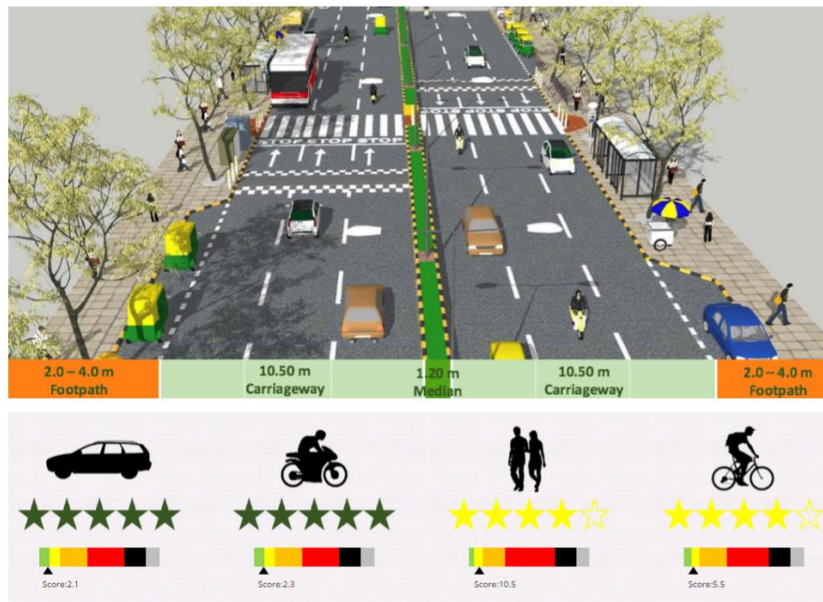
Improve Delineation

Length: 843.4 km
 Investment: INR 51 crore
 FSI: 7,000
 Prevented: 13
 BCR: 13

would help to prevent over 100,000 deaths and serious injuries in next 20 years. The results of iRAP safety assessment of the two GQ sections shows that implementing the cost-effective safety treatments will help achieving the Global Road Safety Targets set by the UN.

Two workshops were organized involving regional NHAI officers with an aim to share the results and make the data available on ViDA. More details are given in 'Capacity Building'.

Safety assessments in Mumbai City and Capacity Building of Municipal Corporation of Greater Mumbai (MCGM):



Mumbai is one of the ten cities around the world chosen under the Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS) for improving road safety through strengthening and supporting local government. The IndiaRAP team conducted safety assessments of over 200km urban roads in city, provided support for implementing the identified safety treatments and trained local road engineers and planners. Key achievements are

as listed below,

- Baseline and design assessments for LBS Marg were completed and recommendations adopted for implementation. The safety treatments are under construction.
- Assessments of a network of priority urban roads were completed and combined with black spot to generate recommendations for safety improvements.
- Assessments of the Eastern Express Highway (EEH) were completed and recommendations focusing on motorcycle safety were made.
- Recommendations were made to support improvements to Netaji Subhash Chandra Bose Road (NS Road) focusing on key pedestrian crossings and intersections
- Supported implementation of safety countermeasures on PD Mello Road. The safety treatments are under construction.
- 200 people were involved in training courses, workshops and presentations on performing iRAP assessments and using data to enhance designs and implementation.

Life-Saving Road Upgrades

Many state road improvement projects are being implemented focusing on provision of safer infrastructure for all groups of road users. The iRAP assessments were conducted in several states in partnership with GRSF and state government road authorities to find the baseline (before improvement) Star Ratings. The road designs were prepared by road authorities which were Star Rated and the additional safety treatments recommended as part of the SRIP were incorporated to further improve safety. The table below provides a summary of the road projects completed or under construction with indicative project cost. The IndiaRAP process of Star Rating the baseline and design has made these multimillion-dollar investments safer by ensuring that economically viable safety treatments were included.

Road upgrade works under progress and completed

Road/Project Name	Under construction or complete (Length km)	Cost in US\$M
Andhra Pradesh Road Sector Project	262	645*
Gujarat State Highway Project-II (GSHP-II)	1,142	767*
Kerala State Transport Project-II (KSTP-II)	194	171*
Karnataka State Highway Improvement Project-II (KSHIP-II)	612	240*
Delhi/Haryana border to Panipat National Highway-44	119	304*
LBS Marg in Mumbai (BIGRS Mumbai)	19	26*
Rajasthan State Highway Safety Corridor	114	227**
Tamil Nadu Road Sector Project (TNRSP)	392	778.2**
Uttar Pradesh Core Road Network Dev. Program (UPCRNDP)	260	570**
Total road length and investment influenced	3,114	\$3,728

*Civil cost of road construction

** Total project cost including commitment amount under World Bank funding



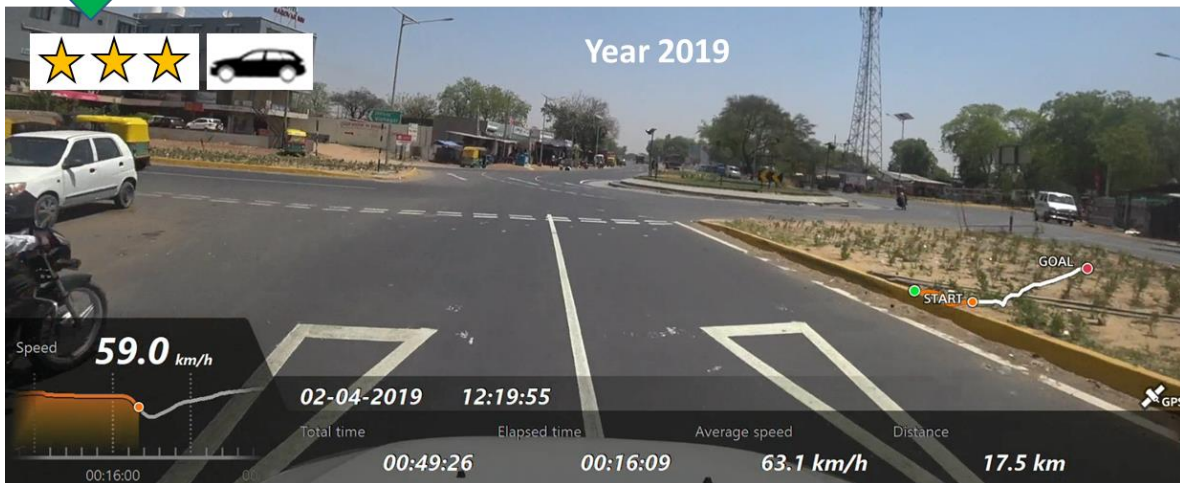
SH20 connecting Belgaum with Yaragatti in Karnataka was designed to achieve a 3-star or better rating. After construction the number of road deaths were reduced by 50%. The safety improvement on this demonstration corridor also involves safety awareness and enforcement campaigns.



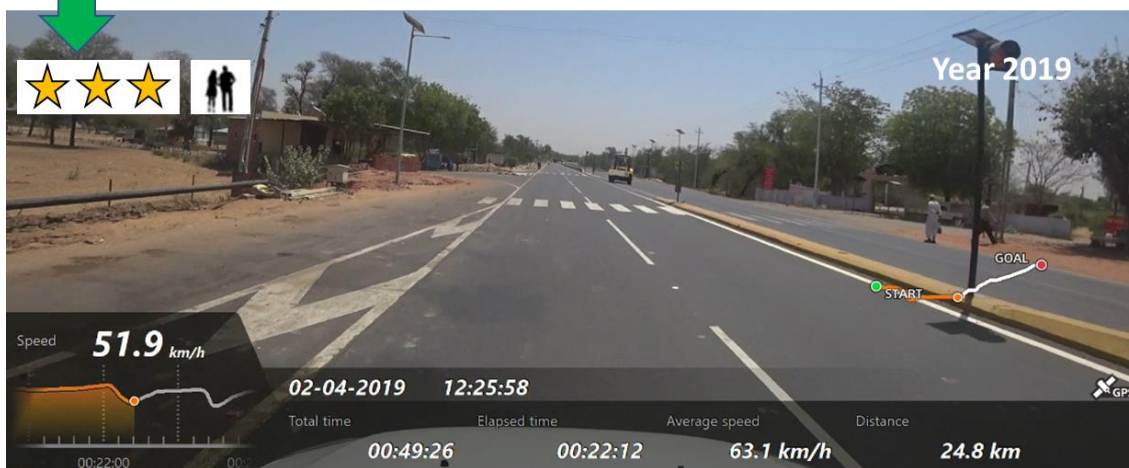
Another similar Safe Corridor Demonstration Project connecting Bharuch with Dahej is under construction in Gujarat. The before and after image of road improvement for Dabhoi-Bodeli road in Gujarat shows a significant improvement from 2-star to 4-star (for vehicle occupant), image below.



Mehsana – Himmatnagar State Highway-55 in Gujarat has been recently improved under World Bank funded GSHP-II. The iRAP safety assessment of baseline road (before improvement) and design Star Rating (during project preparation) helped to make sure that the life saving treatments are included in the road design. The post-construction assessment conducted on this road observed that almost entire road length has been improved to achieve 3-star or better safety ratings for vehicle occupant and motorcyclist and majority of the road length in urban area achieves 3-star or better ratings for pedestrian and bicyclist, sample images below.



The four-leg intersection shown in the above image at Km 126.9 of Mehana – Himmatnagar SH-55 has been replaced by a well-designed roundabout with splitter islands and crossing facility for pedestrian. The roundabout is a safe treatment for an intersection as it reduces the vehicle-vehicle conflict points and also the vehicles approaching a roundabout need to slow down. The roundabouts on this road are provided with streetlights and blinkers to catch attention of approaching drivers.



The safe infrastructure facility for pedestrian at an intersection provided on SH-55 include marked pedestrian crossing with median refuge and streetlights which reduces the risk of pedestrian being hit by vehicle while crossing the road. Bus bays and thermoplastic painted strips as traffic calming measure are also provided on the approaches to these intersections on both carriageways of the road.

Star Rating for Schools in India

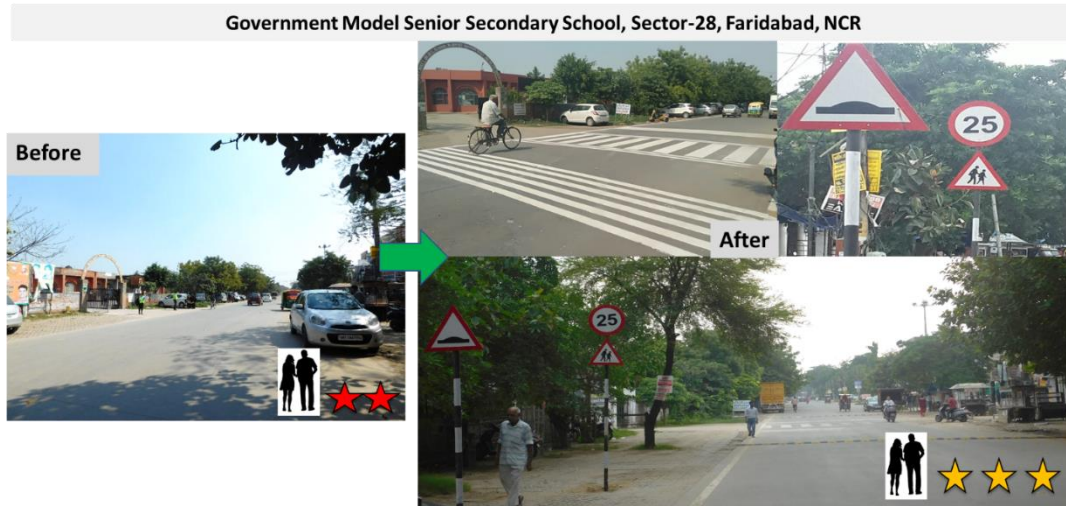
The SR4S app developed with sponsorship from FedEx is widely being used since 2018 under global pilot training programme. Under IndiaRAP, the members of Global Alliance of NGOs for Road Safety from Asia have been trained. Some of the NGOs have been using SR4S for school zone safety assessment. More details with example of implementation are given below.



- ✓ 2018 India: 20 NGO members of Global Alliance trained using SR4S
- ✓ 2018-19: TRAX and Avoid Accident are using SR4S for school zone safety assessment with some good examples of implementing safety treatments
- ✓ 2020-21: CoRPS and United Way likely to use SR4S in partnership with 3M India to make School Zones safer



Two NGOs Trax and Avoid Accident are making use of the SR4S app extensively for school zone safety assessments. Trax assessed few school localities in Delhi NCR area with support from IndiaRAP and has implemented treatments such as pedestrian crossing facilities, speed calming measures, signages etc. to improve the star rating for pedestrians. Images comparing the before and after Star Rating at few school locations are shown below.





Communications

Effective communications with stakeholders (government and non-government agencies which set policy and are involved in building, planning, designing and maintaining roads) are important to amplify the impact of IndiaRAP efforts to improve road safety in India. Working together with FedEx and iRAP colleagues, communications in the form of media releases, local brochures, case studies and social media including Twitter and LinkedIn has been a priority.

Press Release


FedEx India shared information about the CSR initiative aimed at saving lives to the press media.

CSR News

 **Print**  **Alerts**

IndiaRAP, Sponsored by FedEx, Is Helping Save Lives Across the Country


Submitted by: **FedEx Corporation**
Categories: **Corporate Social Responsibility, Philanthropy & Corporate Contributions**
Posted: **Mar 17, 2020 – 11:50 AM EST**



Mar. 17 /CSRwire/ - IndiaRAP: International Road Assessment Program initiative in India, sponsored by FedEx, is helping save lives across the country.

IndiaRAP is a locally led, globally supported road assessment programme for India. It is a collaboration between iRAP and the Asian Institute of Transport Development (AITD), generously supported by FedEx.

With the help from World Bank Global Road Safety Facility, national, state and local governments and the Bloomberg Initiative for Global Road Safety (BIGRS), 17,600km of roads have been assessed, opportunities to save thousands of lives have been identified and thousands of engineers have been trained.



The graphic features the IndiaRAP logo (Indian Road Assessment Programme) with a stylized road and a truck. It includes the text: 'Case studies of implementation: Saving lives through safer roads' and 'IndiaRAP is using the star ratings methodology to track performance of road safety improvement. The following are 3 recent high profile examples.' Logos for AITD and FedEx are also present.

https://www.csrwire.com/press_releases/44068-IndiaRAP-Sponsored-by-FedEx-Is-Helping-Save-Lives-Across-the-Country

Newspaper article on BIGRS Mumbai:

IndiaRAP is working with World Bank as one of the partners in Mumbai to strengthen the road safety capacity of the municipal corporation under the Bloomberg Initiative for Global Road Safety. Over 200km urban of road network has been assessed and the recommended safety treatments are being included in preparing safer road design. The news about this initiative and its outcome was published in the local newspaper.

Mumbai: 40% drop in number of fatal accidents over 2 years

Nitasha Natu | TNN | Updated: Jun 21, 2018, 13:14 IST

✉ 🖨 A- A+



MUMBAI: The number of fatal accidents in the city dropped by 40% in the first five months of this year compared to the same period in 2016. The traffic police attribute the drop to better vigil and enforcement at the 'black spots' or chronic accident points identified by them.

Read more at:

<http://timesofindia.indiatimes.com/articleshow/64626814.cms?>

Newspaper article on Star Rating of Golden Quadrilateral Highway:

30% of Delhi-Mumbai NH unsafe for cars, finds study

Dipak K Dash | TNN | Sep 17, 2018, 05:36 IST

✉ 🖨 A- A+

According to IRAP, while it is possible to raise high-volume roads to a five-star rating in a cost-effective manner, it would be more realistic for the central and state governments to aim for a three-star rating all road users.

The report gains importance considering that NHs, which have only 2% share of the country's road network, account for almost 36% of the total road deaths. In 2017, about 52,000 people lost their lives in accidents on the NHs while another 40,000 persons were killed on state highways.



HIGHLIGHTS

- Nearly 30% of the Delhi-Mumbai and almost half of the Mumbai-Chennai stretches of the Golden Quadrilateral are unsafe for car, according to a study
- The study found that these NH stretches were even more unsafe for two wheelers, pedestrians and cyclists

Read more at:

<http://timesofindia.indiatimes.com/articleshow/65835209.cms>

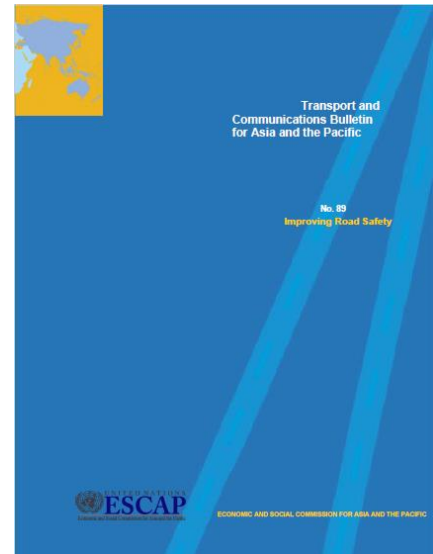
Safety assessment of 5,400km (carriageway length) of Golden Quadrilateral sections of Delhi-Mumbai and Mumbai-Chennai were conducted. The Star Ratings and recommended treatments were shared with World Bank and NHA in 2018. To disseminate the details of findings to Project Implementation Units (PIU), the field offices of NHA, workshops are being organized in 2019. For this activity IndiaRAP is coordinating with NHA and MoRTH so that details of findings including Star Ratings and safety treatments along with their location details can be shared with PIU offices.

Publications

UNESCAP Transport and Communications Bulletin for Asia and the Pacific

Article titles “Star Ratings for life-saving road improvements in India” was published in UNESCAP Transport and Communications Bulletin for Asia and the Pacific Improving Road Safety, in November 2019. The article discussed IndiaRAP assessments on the road network across many states in India and describes how Star Ratings were used to measure risk, design and construct two safer roads. Case studies on road crashes reduction on Belgaum – Yaragatti corridor in Karnataka and Mehsana – Himmatnagar in Gujarat were elaborated in the article.

<https://www.unescap.org/publications/transport-and-communications-bulletin-asia-and-pacific-no-89-improving-road-safety>

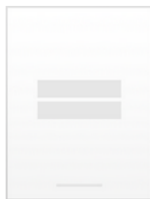


Star Rating and Prioritization of Black Spots

IndiaRAP and partners (Shawon Aziz and Prof. P K Sarkar) presented a study paper in a road safety seminar (RATE 2018) held at SVNIT Surat. Later, the work was published in a book ‘Recent Advances in Traffic Engineering, Select Proceedings of RATE 2018.

» [Engineering](#) » [Civil Engineering](#)

Lecture Notes in Civil Engineering



© 2021

Recent Advances in Traffic Engineering

Select Proceedings of RATE 2018

Editors: [Arkatkar](#), [Shriniwas](#), [Velmurugan](#), S., [Verma](#), Ashish (Eds.)

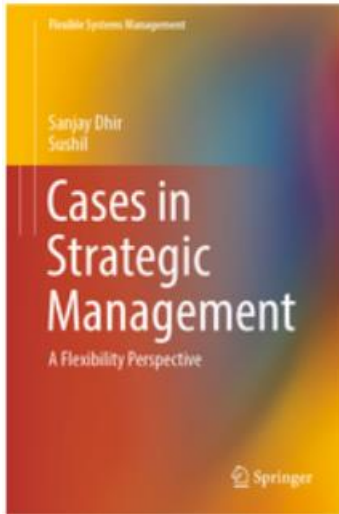
Rating and Prioritization of Accident Black Spots and Road Safety Measures. Case Study: National Highway-44, India. Lecture Notes in Civil Engineering, Vol.69, Shriniwas S. Arkatkar et al: Recent Advances in Traffic Engineering, 978-981-15-3741-7, 472894_1_En (37)

Covers a wide range of topics in the domain of traffic engineering and road safety

» [see more benefits](#)

<https://www.springer.com/gp/book/9789811537417#aboutBook>

IndiaRAP, as a FedEx sponsored road safety programme, features in “Cases in Strategic Management: A Flexibility Perspective” textbook



This book shows how strategic management can be practiced in the context of flexibility. It discusses strategic formulation and implementation perspectives and practices, including vision and mission, general environment analysis, industry analysis, competitive advantage, resource and capability view, generic strategies, business level strategy, corporate level strategy, international strategy, change and turnaround, strategic implementation, and strategic controls, as well as flexibility.

The textbook features a chapter on [FedEx](#). In addition to other corporate information and analysis, the chapter also features [IndiaRAP](#), a FedEx-sponsored road safety programme.

<https://www.springer.com/gp/book/9789811370632#aboutBook>

IndiaRAP Website

For a wider publicity and promotion of the activities of IndiaRAP, it is planned to launch a new website. The website is being developed by hiring a local freelance consultant. The domain name 'indiarap.org' and hosting server space have been reserved. The draft website is ready, and design, contents and logos are being finalized.

Launching soon.....

www.indiarap.org

Homepage preview

IndiaRAP

Home About Us What we do? Training & Accreditation Resources Media Contact Us

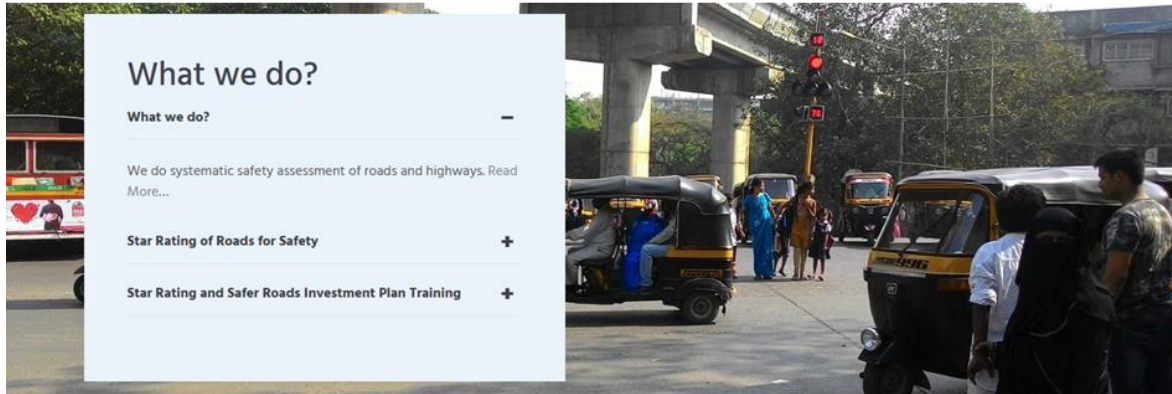
**ACHIEVING UN TARGET 3
STANDS TO SAVE 9 LAKH
LIVES AND SERIOUS
INJURIES EVERY YEAR IN
INDIA**

About Us

IndiaRAP, is a locally led, globally supported road assessment programme for India. It is a collaboration between iRAP and the Asian Institute of Transport Development (AITD), generously supported by FedEx Express. The programme draws on local technical expertise and research from key national stakeholders including the Indian Road Congress, MoRTH,...

READ MORE

Homepage preview



Our Team



Jigesh Bhavsar



Albin Tharakan



Subhamay Gangopadhyay



INDIARAP

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Sector-9 Dwarka
New Delhi India 110077
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Phone: +91 11 28080177



Participation in meetings and conferences

2017

2018

2019

2020

FIA Region-II Meeting, Kathmandu



IndiaRAP team participated FIA Region-II Meeting in Kathmandu, Nepal on 17-18 September 2018. FIA encourages all regional members to use the Star Ratings as a systematic way of safety assessment of road networks and also for improving safety of children on their journey to school. The club members of the region were introduced to the SR4S app in a special interactive workshop. The region president encouraged the club members to adopt an advocacy campaign in their own countries to make the school zones safer.

79th Annual Session of IRC:

IndiaRAP participated in the 79th Indian Roads Congress Annual Session held in Nagpur. The event was attended by over 3,000 participants. An update of IndiaRAP activities was shared with the participants of the annual session through an Expert Talk. An advertisement of IndiaRAP was published in the IRC Souvenir of the 79th Annual Session.

Indian Road Assessment Programme successfully completes one year. Activities are undertaken in partnership with National and State Governments, development banks and private sector road operators.

The programme is generously supported by FedEx Express and hosted by Asian Institute of Transport Development

3 2030	
Target 3: By 2030, all new roads achieve technical standards for all road users that take into account road safety, or meet a three star rating or better.	

4 2030	
Target 4: By 2030, more than 75% of travel on existing roads is on roads that meet technical standards for all road users that take into account road safety.	

UN's Global Road Safety Performance Target #3 and #4 mention 3-star or better standard for all road users to be achieved by 2030

Targeted safety improvements to just 10% of India's roads would prevent more than 1,000 deaths and serious injuries daily

For further information contact 'india@irap.org'
Office: IndiaRAP, Asia Bhawan, Sector-9 Dwarka, New Delhi

Promotion of IndiaRAP during ITF Summit in Leipzig 2018

The IndiaRAP programme received national and global attention at the recent ITF Forum in Leipzig, Germany, where iRAP CEO Rob McInerney participated in a 5 minute video interview with the [Times of India](#).



Conference on Road Safety organized by the HOAI



IndiaRAP participated in the Conference on Road Safety organized by the Association of Road Operators of India (HOAI), in collaboration with the MoRTH and NHA. HOAI comprises of a total of 46 road concessions covering around 4000 km of national and state roads in more than 9 states in India. With the focus on road safety, their efforts are focused on reducing road accidents through awareness-raising programs, improving signage, engineering solutions, and collaborating with compliance agencies. HOAI collaborates proactively with the MoRTH and the main stakeholders of the sector to facilitate the deployment of a cooperative, safe and sustainable road transport ecosystem. IndiaRAP presented the status of systematic safety assessment and Star Rating of highways done in India to the group of toll road companies, MoRTH and NHA.

FIA Region-II Meeting, Chennai: IndiaRAP team participated FIA Region-II Meeting in Chennai on 3-4 October 2019. FIA encourages all regional members to use the Star Rating for School in their road safety programs and also to advocate the local governments to construct 3-star or better roads.

The IndiaRAP team also had a brief meeting with Joint Secy. Transport Mr. Abhay Damle in Chennai to appraise him with the status of IndiaRAP and how the local programme can help the Indian Government to achieve the UN Global Road Safety Target-3 and 4.

1st Workshop on iRAP Developments in Asian Countries



The workshop organized to bring together the road assessment programs (RAPs) developments in Asian countries. IndiaRAP's participation in the workshop provided an opportunity to establish cooperative linkages among key road safety institutions like Chulalongkorn University in Thailand, MIROS in Malaysia, RIOH in China, and AITD in India.

This workshop enabled RAP Collaboration in Asian Countries. iRAP released a video profiling how IndiaRAP is working with MyRAP, ChinaRAP and ThaiRAP to save lives in the Asian region, with the global support of iRAP, FIA Foundation, Bloomberg Philanthropies and the Global Road Safety Facility.

Video link: <https://youtu.be/LrWe60Tuuc8>



2019 Asia Pacific Road Safety Seminar



The road safety event was organized by Global Road Safety Partnership, held in Kuala Lumpur, Malaysia. The seminar had participation from Malaysian Institute of Road Safety Research (MIROS) and Chulalongkorn University Thailand who are iRAP centers of excellence and hosts for MalaysiaRAP (MyRAP) and ThaiRAP respectively. The three RAPs had discussion on motorcycle safety researches being carried out and agreed to share the outputs.

World Economic Forum

IndiaRAP is one of the founding partners of the Global Road Safety Initiative - Road Safety Partnership for India that is being convened by the FIA and the World Economic Forum. The first workshop of partners was held in New Delhi in June, 2019 and the IndiaRAP road safety and data partnerships across India were shared with all participants. The potential policy platform for 3-star or better roads across India was shared as well as the potential of the FedEx sponsored Star Rating for Schools Initiative.

The Road Safety Partnership for India seek to mobilize private sector and NGO partnerships for road safety

FIA
FEDERATION INTERNATIONALE DE L'AUTOMOBILE

WORLD ECONOMIC FORUM
COMMITTED TO IMPROVING THE STATE OF THE WORLD

FOR IMPROVED ROAD SAFETY

As leading stakeholders of the Global Road Safety Initiative and its pilot project, the Road Safety Partnership for India, launched by the World Economic Forum and the Fédération Internationale de l'Automobile, we are convinced by the transformative power of public-private partnership, and thus support Road Safety Initiatives leading to...

- Improved legislation
- Better statistics
- Safer vehicles
- Safety at the workplace, as well as safety to and from the workplace
- Improved fleet management with attention not only to vehicles, but also to drivers and driver fatigue
- Safer infrastructure
- Protection of vulnerable road users
- Improved post-crash treatment and service
- The involvement of our constituents, communities and civil society collaborating to make road mobility safe

- Development of safe local public transport
- "Road Accident Database", road safety data collection and statistics
- Driver training, improved driving licensing
- Safe and human-centered road infrastructure
- Stringent vehicle standards and periodic technical inspections
- Better conditions for pedestrians and two-wheelers
- Improved trauma care, emergency medical services, ambulance availability and other emergency services
- Behaviour change
- The implementation and enforcement of the Motor Vehicle Amendment Bill

WORLDWIDE

IN INDIA

in collaboration with Government. The initiative will seek to share and accelerate good practice and promote a culture of safe mobility on the roads in India.

The high-profile India Economic Summit was held in New Delhi from October 3-4, 2019. With the theme of Making Technology Work for All the forum provided an opportunity to elevate the importance of the work of IndiaRAP, FedEx, AITD and also the potential of initiatives like the Star Rating for Designs and Star Rating for Schools.

Regional Agenda

World Economic Forum on India Overview

New Delhi, India 3-4 October 2019

WORLD ECONOMIC FORUM
COMMITTED TO IMPROVING THE STATE OF THE WORLD

Making Technology Work for All

Symposium for Safer Roads, MoRTH and NHAI

Ministry of Road Transport and Highways, Govt. of India observed 31st national Road Safety Week from 11th to 17th January 2020. As part of MoRTH's efforts towards improvement of road safety through engineering measures on National Highways a symposium was organized where IndiaRAP presented the Star Rating of roads and highways in India.

Regional Conference on Safe Mobility and Regional Connectivity in SASEC Subregion

IndiaRAP participated in the Regional Conference on Safe Mobility and Regional Connectivity in SASEC Subregion organized by ADB, MoRTH and AITD in New Delhi held in January 2020 and made a presentation on the iRAP experience in ASEAN and India. The objective of the conference included discussion on status of



road safety to share and highlight best practices in road safety and draw a framework and plan of action for regional safe mobility in SASEC member countries.

2020 Innovation Workshop and 3rd Global Ministerial Conference on Road Safety, Sweden

IndiaRAP participated in the 2020 Innovation Workshop and 3rd Global Ministerial Conference on Road Safety held in Stockholm, Sweden in February 2020. The conference was hosted by iRAP, ITF and World Bank.

The Ministerial Conference had minister-led delegations from more than 140 countries including the Minister of Road Transport and Highways of India Mr. Nitin Gadkari. Key focus of the conference was on how countries can achieve UN Targets 3 and 4 to save lives by 2030 with 3-star or better road infrastructure for all road users.



Regular updates on Social Media

Apart from the above-mentioned communications, important updates were shared on social media platforms.

Judy Williams @judywilliams_ · Jun 25, 2019

Love this clear example of #road #infrastructure made safer in #India. This 1-star #safety jump has halved the crash burden on this road stretch & will #save lives every single day. Well done @WorldBank @BloombergDotOrg #IndiaRAP

iRAP @iRAPSavingLives · Jun 25, 2019

Great progress in #Gujarat #India lifting the #roadsafety #starratings of their network. Thanks to the #leadership of @WorldBank and @BloombergDotOrg [linkedin.com/feed/update/ur...](#)



Judy Williams @judywilliams_ · Apr 12, 2019

Great example of #IndiaRAP success! #3StarorBetter

Jigesh Bhavsar @jnbhavsar · Apr 8, 2019

Second GQ Workshop in Bangalore #NHAI sharing @iRAPSavingLives safety treatments. NHAI asks field officers to implement safety treatments to make Mumbai-Chennai GQ safer achieve @UN Target4 #IndiaRAP @oconnorshane @OfficeOfNG @FedEx @krish70 @AlbinTharakan



iRAP @iRAPSavingLives

#3StarorBetter #road upgrades rolling out in #India thanks to @WorldBank GRSF @MORTHIndia & State Public Works Departments. Fatalities and injuries slashed 50% on #Karnataka & #AndhraPradesh #highways. Read the #project blogs bit.ly/30Vff09 #IndiaRAP by @FedEx @FIAFdn



11:35 AM · Oct 9, 2019 · Twitter Web App

Jigesh Bhavsar @jnbhavsar

Workshop with #NHAI team from Delhi, Rajasthan & Gujarat sharing @iRAPSavingLives Star Rating and safety treatments for Delhi-Mumbai GQ. Potential to save 46% of road deaths and severe injuries and achieve @UN Target4 #IndiaRAP #RoadSafety @FedEx @oconnorshane @OfficeOfNG



8:38 PM · Apr 1, 2019 · Twitter for Android

iRAP @iRAPSavingLives · Dec 5, 2019

#TBT: Great outcomes from the #IndiaRAP workshop, where the main purpose was to share the life saving work of #IndiaRAP activities to date to various #stakeholders in Government Departments, Research Institutes & Academia. #sharingknowledge #3starorbetter irap.org/2019/10/indiar...



1 8

iRAP @iRAPSavingLives · Aug 9, 2019

Full house at the iRAP intro and methodology training session in Kerala (AITD training centre) #buildingcapacity #knowledgesharing #IndiaRAP #3starorbetter



2 11

iRAP @iRAPSavingLives · Aug 23, 2019

#FBF to earlier in the week - #IndiaRAPs @jnbhavsar and @AlbinTharakan helping to #buildcapacity for #roadengineers in #Mumbai

Jigesh Bhavsar @jnbhavsar · Aug 20, 2019

Workshop with MCGM #training and #capacitybuilding of road engineers to implement safer road infra on Mumbai roads under #BIGRSMUMBAI @saferoadsmumbai @iRAPSavingLives @WBG_Transport #IndiaRAP @krish70 @AlbinTharakan



5

iRAP @iRAPSavingLives · Jul 25, 2019

#TBT - #IndiaRAP's Technical Manager facilitating training for @iitkharagpur research and technical staff last week - the team is now ready to prepare Star Ratings and Safety Treatment plans for 1400km of the West Bengal road network. #buildingcapacity #3starorbetter #localRAP

Jigesh Bhavsar @jnbhavsar · Jul 19, 2019

#RoadSafety training and capacity building of @iitkharagpur research and technical staff on @iRAPSavingLives road survey, coding, VIDA processing. The team ready to prepare Star Ratings and life saving Safety Treatment plans for 1400km West Bengal road network #IndiaRAP



2 3

Jigesh Bhavsar @jnbhavsar · 18 Dec 2018

Impressive results under @WorldBank road improvement programme in Andhra Pradesh 60% reduction in fatal and severe road crashes. Demo corridor assessed and designed with @iRAPSavingLives @OfficeOfNG #StarRatings. #RoadSafety #IndiaRAP



Road safety action pays off, and “demonstration corridors” are here

Last year, road crashes claimed more than 150,000 lives in India, making road safety an essential element of any road project in the country. In line...
blogs.worldbank.org

TRAX Road Safety NGO, India @Trafficzam_DEL · Mar 11, 2019

Thanks to @SR4Schools, @irapsaving and @jnbhavsar for the support!

Jigesh Bhavsar @jnbhavsar · Mar 11, 2019

Inspiring #RoadSafety improvement work under progress @Trafficzam_DEL for GBSS school in #Gurugram using @SR4Schools @iRAPSavingLives @oconnorshane @RajniGandhi2102 @RoadSafetyNGOs #IndiaRAP



Jigesh Bhavsar @jnbhavsar · 27 Nov 2018

#AllianceAdvocates demonstrate how basic improvements can provide #3StarorBetter infra around schools. @oconnorshane @iRAPSavingLives @SR4Schools #IndiaRAP




Road Safety Alliance @RoadSafetyNGOs

This morning, the Alliance Advocates went out in the field collecting data at Nutan Marathi Senior Secondary School, New Delhi, India. #FedExIndia #FedExCares #AllianceAdvocates

Greg Smith • 1st
Managing Director, Strategic Projects at iRAP
2mo

Really pleased to see these life-saving efforts in Karnataka, India. This intersection has been transformed with better alignment, protected turn lane and median island. These sorts of road improvements are being combined with enforcement and education to make travel safer for everyone. Congratulations to KSHIP (<https://lnkd.in/fXqEaHB>)! The World Bank #roadsafety




LinkedIn article on Safe Corridor Demonstration Project SH20 in Karnataka designed with 3-star or better infrastructure which resulted in to 50% reduction in number of fatalities.

IndiaRAP Brochure and Case Study

To support the promotion of IndiaRAP across the country a promotional brochure and a case study brochure (shown below) have been prepared to highlight the success so far – and to encourage the wide adoption of IndiaRAP by potential Government and other stakeholders across the country.

IndiaRAP Case Study – pg.1



The brochure cover features a green-tinted photograph of people on a road. The title 'CASE STUDY RAP PARTNERSHIPS SAVING LIVES IndiaRAP' is prominently displayed. Logos for IndiaRAP, AITD, and FedEx Express are included. Five circular icons highlight key statistics: US\$5.4 billion locked in for road upgrades, Star ratings & SRIPs across 12 states, Target for 4-star roads by 2025 in Andhra Pradesh, 5,000km assessment on Golden Quadrilateral, and New safer road designs across 7 states.

IndiaRAP
ROAD RISK ASSESSMENT PROGRAMME

CASE STUDY
RAP PARTNERSHIPS SAVING LIVES
IndiaRAP

In collaboration with:
AITD
Special Consultative Status with the United Nations

FedEx
Express

- US\$5.4 billion locked in for road upgrades
- Star ratings & SRIPs across 12 states
- Target for 4-star roads by 2025 in Andhra Pradesh
- 5,000km assessment on Golden Quadrilateral
- New safer road designs across 7 states

IndiaRAP is a locally led, globally supported road assessment programme for India. It is a collaboration between iRAP and the Asian Institute of Transport Development (AITD), generously supported by FedEx Express. With the help of World Bank and Bloomberg Philanthropies, IndiaRAP is shaping government investment in safer road infrastructure across the country.

ROADS & ROAD TRAUMA IN INDIA

Over 231,000 people are killed on roads in India each year, at an estimated economic cost of \$US70 billion per year or 5% GDP (WHO, 2013). Road trauma represents an enormous public health challenge. IndiaRAP partners assessed 6,500km of World Bank financed investment on high-risk roads and found:

- 97% of roads above 40km/h (25mph) have no footpath
- 99% of roads above 40km/h (25mph) have no bicycle facilities
- No roads with high motorcycle flows have motorcycle facilities
- 89% of roads carrying traffic at 80km/h (50mph) are undivided single carriageways
- 72% of curves where traffic flows at 80km/h (50mph) have hazardous roadsides
- 95% of intersections where traffic flows at 60km/h (40mph) or more have no roundabout, turn lanes or interchanges

OBJECTIVES

Improving 10% of India's highest risk roads (332,041km) to a 3-star or better standard would save over 7.6 million lives and serious injuries over the next 20 years. IndiaRAP aims to do this by:

- Eliminating 1 and 2-star unsafe roads
- Targeting investment for upgraded roads and the implementation of life-saving countermeasures
- Becoming a world-leader in the design and construction of brand new 5-star safe and smart motorways in the country
- Working with local partners to undertake targeted assessments
- Ensuring risk assessment is placed at the heart of strategic decision making and road design practice.

KEY ACHIEVEMENTS

Since 2010, IndiaRAP has driven major policy, road upgrade and public health outcomes including:

- Investments to improve many of India's roads are locked into ongoing and planned upgrades worth more than US\$5.4 billion.
- IndiaRAP Star Ratings and Safer Road Investment Plans are used in World Bank, National Highways Authority of India (NHAI) and State Government supported projects across 12 states (Andhra Pradesh, Kerala, Assam, Punjab, Gujarat, Rajasthan, Telangana, Tamil Nadu, Karnataka, Uttar Pradesh and Haryana).
- Another 5,000 kms are currently under assessment on the Golden Quadrilateral, linking the major cities of Delhi, Mumbai, Bangalore and Chennai.
- IndiaRAP Star Ratings are informing safe road design by state Public Works Departments of Assam, Gujarat, Karnataka, Kerala, Rajasthan, Tamil Nadu and Uttar Pradesh. Measuring the impact on crash risk of road design options ensures new roads are built to minimum 3-star standard that save lives.
- The Government of Andhra Pradesh has an aspirational target for 4-star roads by 2025.
- Post-construction assessments have been undertaken on roads upgraded with World Bank finance, including road safety demonstration corridors in Karnataka and Gujarat.

Targeted improvements to just 10% of India's roads would prevent more than 1,000 deaths and serious injuries daily.

www.irap.org

India RAP Case Study – pg.2



SAVING LIVES

The IndiaRAP programme with local leadership, research expertise and energy, will share experience and success across the country. As a Road Safety Centre of Excellence, AITD will guide policy and action across all 5 pillars of the UN Decade of Action. It is anticipated the IndiaRAP/ AusRAP twinning agreement will continue to build capacity and connect road safety experts between India and Australia.



iRAP/AITD MOU signing, August 2017. Left to right: Prof Amirthalingam Veeraragavan (IIT Madras), Samir Raval (Government of Gujarat), Secretary-General Sanjay Nirmal (IRC), Jigesh Bhavsar (IndiaRAP), Prof Pradip Sarkar (AITD), Rob McInerney (iRAP), Alison Leeson (IndiaRAP)



IndiaRAP Media Launch, Delhi, November 2017: Hemant Pimplikar, (FedEx Express, India), Rob McInerney (iRAP), Shane O'Connor (FedEx, USA) and Jigesh Bhavsar (IndiaRAP)

TIMELINE FOR SUCCESS

- 2010 World Bank GRSF invites iRAP to work with MoRTH, public works departments, research institutes, local engineering firms and automobile associations to assess the safety of Indian Roads
First project: Assessment of 'Safer Greener Highway Pilot' NH-1 Delhi to Panipat, with NHAI
- 2011 World Bank GRSF and Bloomberg Philanthropic support for India '4 states' project assessing 3,000km of state highway and building local capacity in Andhra Pradesh, Assam, Gujarat and Karnataka
- 2012 Star Rating of road designs used for first time: Karnataka, Assam and Gujarat
- 2013 Assessments in Kerala and Rajasthan plus additional surveys in Andhra Pradesh, Gujarat and Karnataka
- 2013 Local road safety engineer joins team
- 2015 Bloomberg Initiative for Global Road Safety support leads to urban assessment in Mumbai
IndiaRAP Workshop hosted and builds local road safety capacity
- 2016 Partnership with WB and NHAI to assess safety on Golden Quadrilateral. Agreement with NHAI to assess Panipat-Chandigarh national highway
- 2017 VicRoads twinning agreement and secondment of Australian engineer to develop IndiaRAP
iRAP & AITD sign MOU
FedEx Express-sponsored IndiaRAP launched
IndiaRAP's Jigesh Bhavsar becomes H7 committee member for the Indian Roads Congress

FOR MORE INFORMATION

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A world free of high risk roads: #3StarorBetter

icanhelp@irap.org [irapsavinglives](https://twitter.com/irapsavinglives) [irapfb](https://www.facebook.com/irapfb)

The International Road Assessment Programme is a global registered charity. iRAP partners with automobile associations, governments, funding agencies, research institutes and other non-government organisations in more than 85 countries to provide the tools and training to make roads safe. Registered Charity Number: 1140357 Registered Office: 60 Trafalgar Square, London, WC2N 5DS, United Kingdom. Published: March 2018

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IndiaRAP

INDIAN ROAD ASSESSMENT PROGRAMME

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3-star or better roads to save lives

Achieving UN Target 3 stands to save 9 lakh lives and serious injuries every year in India.

IndiaRAP is a locally led, globally supported road assessment programme for India. It is a collaboration between iRAP and the Asian Institute of Transport Development (AITD), generously supported by FedEx.

With the help from World Bank Global Road Safety Facility, national, state and local governments and the Bloomberg Initiative for Global Road Safety (BIGRS), 17,600km of roads have been assessed, opportunities to save thousands of lives have been identified and thousands of engineers have been trained.

Target 3: By 2030, all new roads achieve technical standards for all road users that take into account road safety, or meet a three star rating or better.

Target 4: By 2030, more than 75% of travel on existing roads is on roads that meet technical standards for all road users that take into account road safety.

UN Target 3 can be achieved by:

- A shared commitment by stakeholders including the IRC, MoRTH, NHAI, IIT, CRRI, IAHE, state and local governments, industry and development banks to put risk assessments at the heart of strategic decision making, design, construction and management.
- Building local capability to perform IndiaRAP assessments and build 3-star or better roads.
- Performing IndiaRAP network assessments to identify the highest-risk road stretches.
- Implementing proven, affordable safety treatments on a large-scale and institutionalising 3-star or better roads.
- Working with IRC to review National Road Design Standards.
- Ensuring no new 1 or 2-star roads are built.

IndiaRAP Snapshot Since 2010

- 17,600km Star Rated across 13 states.
- 2,000km of designs Star Rated.
- 5,000km of the Golden Quadrilateral Highway Star Rated.
- Safety demonstration corridor achieving 3-stars or better and a reported 50% reduction in deaths.
- 3,000km upgraded or being constructed with improved safety facilities.
- 2,000 engineers have been trained.
- Growing community of iRAP accredited suppliers.



★ 1-star ★★ 2-star ★★★ 3-star ★★★★ 4-star ★★★★★ 5-star

GRSF | Bloomberg Philanthropies

IndiaRAP safety assessments

What is Star Rating?

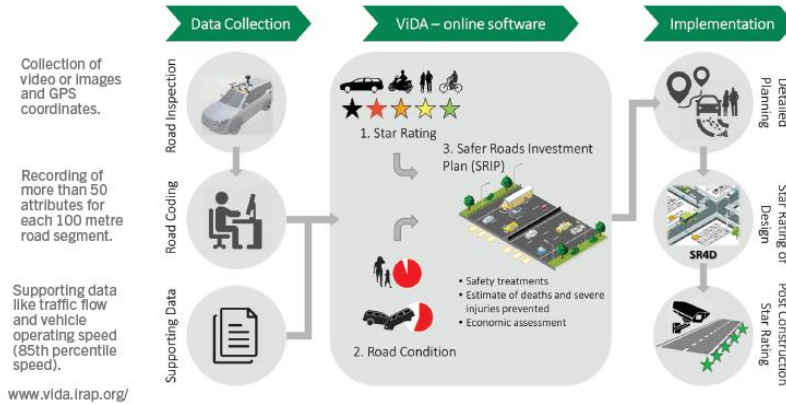
Star Ratings are based on road inspection data and provide a simple and objective measure of the level of safety which is 'built-in' to the road for vehicle occupants, motorcyclists, bicyclists and pedestrians.

Five-star roads are the safest while one-star roads are the least safe. Star Ratings can be completed worldwide, in urban and rural areas and without reference to detailed crash data, which is often unavailable in low-income and middle-income countries. The safest roads (4- and 5-star) have road safety attributes that are appropriate for the prevailing traffic speeds. These might include separation of opposing traffic by a wide median, pedestrian crossings and sidewalks, forgiving roadsides and safe intersections such as roundabouts.

A Safer Road Investment Plan (SRIP) is a prioritised list of countermeasures that can cost-effectively improve Star Ratings and reduce infrastructure-related risk. The plans are based on an economic analysis of a range of countermeasures, which is undertaken by comparing the cost of implementing the countermeasure with the reduction in crash costs that would result from its implementation. The plans contain extensive planning and engineering information such as road attribute records, countermeasure proposals and economic assessments for 100-metre segments of a road network.

The plan also provides an estimate of how many lives and serious injuries are likely to be saved along with an economic analysis, if the suggested treatments are implemented.

Star Rating and Safer Roads Investment Plan Process



Road Attributes we Record and Measure

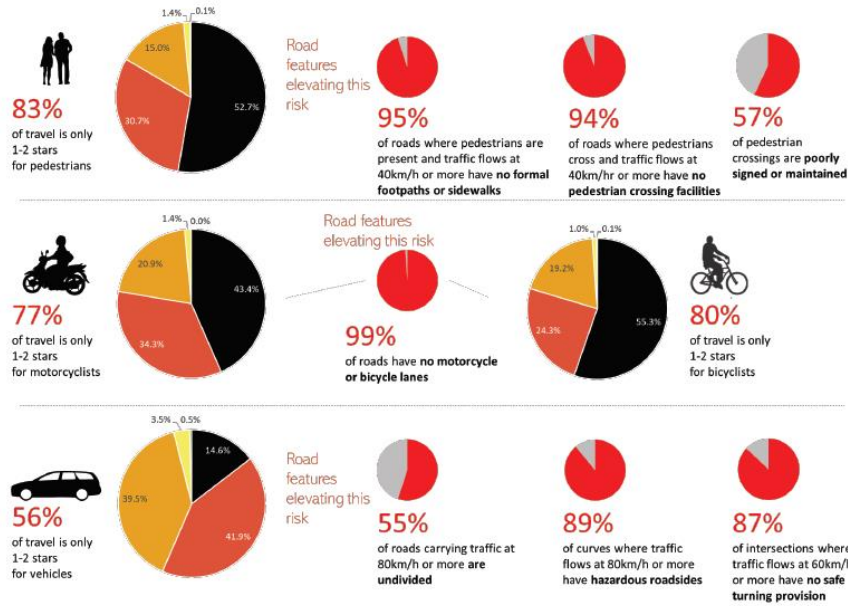


Safety Performance

The IndiaRAP safety assessment of 17,600km of roads provides an insight into why road trauma remains one of the country's leading public health challenges. The majority of roads assessed in India rate 1- and 2-star for safety, indicating a significant level of risk. It is estimated that more than 80,000

deaths and serious injuries occur each year on this road network and there is a potential of halving this by implementing affordable safety treatments. The following risk factors play a significant role in the Star Rating results and provide a basis for planning life-saving treatments.

Based on 17,600km of National Highways and State Highways assessed in India



Life Saving Treatments

Across the 17,600km assessed, an investment of INR 32,000 crores would prevent 10 lakh deaths and serious injuries over 20 years. Extending this success to the major roads across India will ensure the achievement of UN Target 4 for >75% of travel to be on the equivalent of 3-star or better roads for all road users by 2030.



Roadside crash barrier (Includes both sides)	Intersection Improvement	Road delineation	Pedestrian crossing
Length: 14,000km	Sites: 29,000	Length: 8,700km	Sites: 21,000
FSI prevented: 1,34,000	FSI prevented: 1,56,000	FSI prevented: 52,000	FSI prevented: 38,000
BCR: 3.4	BCR: 2.4	BCR: 11	BCR: 2

FSI: Fatal and seriously injured (over 20 year analysis period)
BCR: Benefit-cost ratio

How Can You Get Involved?

- Work with IndiaRAP to establish a road assessment programme in your State and set policies to maximize travel on 3-star or better roads.
- Develop a partnership of local stakeholders to actively contribute to programme leadership, technical, communication and road upgrade activities in your area.
- Build a knowledge of the existing work and safer roads investment completed or underway across India and add your expertise to ensure roads are upgraded and made safer.
- Undertake iRAP training to build globally recognised skills and knowledge.
- Develop local research programmes to build an evidence base on the impact of road features on crash outcomes across India.
- Become an advocate for safer roads, support the need for 3-star or better roads and help celebrate road investment that saves lives.
- Sign up to receive iRAP newsletters at irap.org to hear more about IndiaRAP and global safer roads activities.
- Contact us to discuss how we can work together to support your initiatives to improve road safety.



Let's make India
free of high-risk roads

TAKE ACTION NOW

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 **FOUNDATION**

 **IndiaRAP**
INDIAN ROAD ASSESSMENT PROGRAMME

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 **iRAP**

The International Road Assessment Programme is a global registered charity with a vision for a world free of high-risk roads. iRAP partners with mobility clubs, governments, funding agencies, research institutes and other non-government organisations in more than 100 countries to provide the tools and training to make roads safe.

Registered Charity Number: 1140357 Registered Office: 60 Trafalgar Square, London, WC2N 5DS, United Kingdom

Produced August 2019

IndiaRAP Case Study of Implementation – pg.1



IndiaRAP

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Case studies of implementation: Saving lives through safer roads

IndiaRAP is using the star ratings methodology to track performance of road safety improvement. The following are 3 recent high profile examples.

SH-20 Belgaum – Yaragatti, Karnataka

The Belgaum–Yaragatti (SH-20) corridor in Karnataka (56.4km long) is part of the World Bank funded Second Karnataka State Highway Improvement Project (KSHIP-II).



Before upgrade (year 2011)

After upgrade (year 2019)



Before upgrade (Year 2011)

After upgrade (Year 2019)

Being road safety demonstration corridor, a target of achieving at least 3-stars was set. Several iterations of road designs were star-rated to achieve desired safety outcome. In addition to the road engineering measures, enhanced police enforcement and improved post-crash medical response initiatives were implemented.

Key road safety features implemented:

- Improved road markings and signs
- Intersection Improvement
- Raised pedestrian crossings
- 2+1 lanes in ghat/hill road section
- Speed calming measures.



54% Reduction in annual average deaths after road improvement.

42% Reduction in annual average injuries.

53% Reduction in deaths and serious injuries estimated by IRAP baseline and post-construction assessment.



Year	Injuries	Deaths
2015	309	50
2016	272	49
2017	208	22
2018	125	23

Source: blogs.worldbank.org/ (Human lives need not be lost in road crashes-much less at current levels)

IndiaRAP Case Study of Implementation – pg.2

SH-55 Mehsana – Himmatnagar, Gujarat

The Mehsana-Himmatnagar state highway in Gujarat has been developed from single carriageway to dual carriageway as part of the World Bank funded Gujarat State Highway Project-II (GSHP-II). The road construction on this 59km long highway began in February 2017 and finished in August 2018.

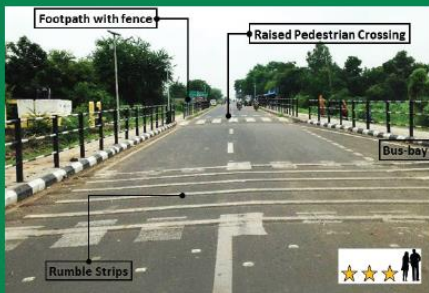


Key road safety features implemented:

- Upgrade from 2-lane to 4-lanes with provision of a concrete median barrier separating opposing traffic flows.
- Provision of paved shoulders on some sections.
- Improved road markings, traffic signs and intersections.
- Streetlights, pedestrian markings and bus bays in the urban areas and major intersections in rural areas.

After road upgrade:

- Most of the road length lifted to 3-star or better for vehicle occupants and motorcyclists.
- Urban areas where pedestrian and bicyclists present achieves 3-star or better.



Dhansura – Meghraj Highway, Gujarat

Safer Road Design being implemented in Mumbai

The 10km stretch of LBS Marg in Eastern suburbs of Mumbai has been developed as a safety demonstration corridor under the BIGRS (Bloomberg Initiative for Global Road Safety). This road was star rated as part of more than 200km of urban roads in Mumbai.

Incredibly, around 13 people were being killed on this road each year. The majority of people killed are pedestrians, motorcyclists or those in auto-rickshaws.

The iRAP assessments showed that, for example, very little of the road had formal sidewalks or effective pedestrian crossings, despite the fact that pedestrian flows were very high.

Following a series of iterations of design, prepared by WRI, to ensure that it really fits the local context, the final design included:

- Wide sidewalks and pedestrian crossings with traffic calming.
- Adjustments to car parking, bus stops, and intersections to especially make better use of "dead space" for pedestrians.



50%
Estimated reduction in annual deaths and serious injuries.



LBS Marg, Mumbai

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IndiaRAP
INDIAN ROAD ASSESSMENT PROGRAMME

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GRSF
Global Road Safety Foundation

Bloomberg Philanthropies

The case studies presented were performed with the support of the GRSF and Bloomberg Philanthropies.

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Produced March 2020

The Human Impact Every Day

In India more than 22,000 people are injured in road crashes each and every day. The new costs that will be borne by the victims, their families, emergency services, health systems, insurers and business increases by over \$354 million every day. This is unsustainable.

The Human Impact of Road Injuries every day

NEW VICTIMS EVERY DAY	HUMAN IMPACT	NEW COSTS EVERY DAY
819	Lives Lost	\$ 101 million
5,750	Fractures - Limb	\$ 58 million
174	Severe Acquired Brain Injury	\$ 57 million
2,277	Internal Injuries	\$ 38 million
1,283	Brain Injury (Mild) / Head Injury	\$ 23 million
15	Quadriplegia	\$ 19 million
3,195	Soft Tissue (Neck / Back) / Whiplash	\$ 10 million
1,245	Fractures - Other	\$ 9 million
196	Other Spinal	\$ 8 million
836	Dislocations	\$ 8 million
3,801	Contusion / Abrasion Laceration	\$ 5 million
16	Paraplegia	\$ 5 million
224	Degloving	\$ 4 million
1,913	Other Injuries	\$ 4 million
1,032	Sprains / Strains	\$ 3 million
56	Amputations	\$ 2 million
457	Concussion	\$ 929,000
52	Burns (Severe / Moderate)	\$ 598,000
10	Nerve Damage	\$ 128,000
2	Lost Of Sight / Eyes	\$ 7,000
23,353	TOTAL	\$ 354 million

The Business Case for Safer Roads in India

India	
Annual number of fatalities (WHO, 2015)*	299,091
Population	1,324,171,392
Fatalities per 100,000 population	23
Annual number of fatalities and serious injuries	3,290,001
Annual cost of fatalities and serious injuries	\$129,087,481,191
Annual cost of fatalities and serious injuries (% of GDP)	5.6%
What can be achieved with >75% of travel on 3-star or better roads for all road users by 2030	
Infrastructure and Speed Management Investment required	\$91,630,968,000
Annual Investment as a % of GDP (2020-2030)	0.26%
Reduction in fatalities per year	101,231
Reduction in fatalities and serious injuries (FSI) over 20 years	22,270,776
Economic Benefit	\$801,757,136,251
Benefit Cost Ratio	9

* Full assumptions and national snapshots are available at www.vaccinesforroads.org. All cost figures are expressed in US dollars. Global data that is available and consistent has been used for the business case for safer roads. Where more accurate national or local data is available that should replace this analysis.

<https://www.vaccinesforroads.org/irap-big-data-tool-map/>

iRAP's 5-Star Global Connection Pilot with IndiaRAP

The iRAP 5-Star Global Connections Initiative is a 3-year project supported by FedEx which commenced in 2019. The initiative recognises UN Global Road Safety Performance Targets 3 and 4 as a framework for infrastructure safety performance all countries can strive for by 2030 and the vital role locally owned and led RAP programmes will play in achieving them.

The 3-year project aims to build the systems to connect iRAP partners in over 100 countries and support to mobilise them in countries where iRAP is able to leverage inputs by local partners for the benefit of all. The major components of the project include,

Development of iRAP Connect, a global partner management system, to store and track programme and partner success across more than 100 countries. The System will link iRAP knowledge including 100+ countries and RAP Programmes the charity works with, Contacts, Organisations, Agreements, Knowledge Articles (reports, presentations etc), News Items, 3-Star or Better Policy, National and Global Programme Metrics, Training Events, the Accreditation Programme and Strategic Projects.



Phase two of the initiative will see development of a 5-Star Connections Strategy and use of the system to connect people and resources for high impact local RAP Programmes that celebrate 3-star or better roads that save lives and leverage for more. The Strategy will be piloted in India with a focus on celebrating success and generating positive communications and media in conjunction with the local FedEx teams.

Informed by the Pilot, a Celebrating Success Package will be produced as a framework for other countries to follow to achieve the UN Targets. IndiaRAP will participate in the pilot.

IndiaRAP 2020-2025

Delivering the safety assessment projects within India has helped the IndiaRAP team to build relations with road authorities and various government and non-government organizations. To sustain the local program in future, delivering more such safety assessments in partnership with local institutes is key. Some important prospects and proposals are detailed below,



Collaboration of GIZ for Star Rating for School under SUTP Project in Coimbatore

GIZ, under SMART-SUT project⁴, is working on Safe Schools in Coimbatore city (Tamil Nadu). The Coimbatore City Municipal Corporation (CCMC) is being supported under this project through street designs and capacity building programs to improve the accessibility of school zones in the city. Under this activity GIZ is studying the travel patterns and accessibility gaps of few CCMC run schools in the city based on which the project team will come up with detailed problem-solutions. The GIZ team wishes to explore opportunities to collaborate with the iRAP team in India on the following aspects,

1. Using SR4S as a tool to measure the risk school going children are exposed during their school journey
2. Star Rating the design of an urban street prepared under this project
3. Training and Capacity Building for Stakeholders (NMT-centric training module)
4. Road Safety Assessment of Coimbatore District Roads

IndiaRAP team is having rounds of online meetings with GIZ team to shape up the training contents and the way school zone safety assessments can be conducted.

Safety Assessments for Two Highways operated by ROADIS

ROADIS is an international firm in the development, operation and management of highway concessions with 710 kilometers of highway projects in India and wishes to conduct safety assessment of Panipat – Jalandhar National Highway (operational stage) and Varanasi – Aurangabad National Highway (design/construction stage) utilizing the iRAP Star Rating and Safer Roads Investment Plan methodology. In this regard, IndiaRAP has submitted a proposal to ROADIS to deliver the project.



Collaboration of IndiaRAP with 3M India and partners for Star Rating for Schools

Following iRAP and 3M's global collaboration for Star Rating for Schools (SR4S) programme, there is Potential for IndiaRAP team to support 3M's initiative in India and other countries in Asia by providing technical support using SR4S, more training, quality assurance check on the data collection process, and

⁴ <https://www.giz.de/en/worldwide/81898.html>

support for technical reporting. In this regard, there have been a series of discussions and the 3M India team and partners are participating in the Star Rating for School webinar training.



Proposal to assess National Highway network

One of the major developments for IndiaRAP is the Star Rating work proposed to be undertaken for 80 percent of the National Highways in India. As an outcome of IndiaRAP team's presentation proposing the scope for road safety improvement for National Highways to the Chairman, NHAI, IndiaRAP has been asked to submit formal proposals for the assessment of major National Highway network in India. Two high level proposals as below have since been submitted to NHAI and the decision from NHAI is awaited:

- IndiaRAP assessment of Major NH road network in design stage
- IndiaRAP assessment of Major NH road network in operation and maintenance stage

State Highway Network Safety Assessment in Karnataka under KSHIP-III

The Public Works Department of Karnataka is implementing state highway network improvement under the Third Karnataka State Highway Improvement Project (KSHIP-III) with funding from the Asian Development Bank (ADB). The Karnataka PWD wishes to conduct safety assessment of over 18,000km state road network using iRAP Star Rating methodology. The IndiaRAP team is assisting Karnataka PWD in planning the project and procuring services of an accredited supplier. During the assessments, the IndiaRAP team will help the Karnataka PWD by providing training on using the Star Ratings and Safer Roads Investment Plan to identify and implement economically viable safety treatments.

Safety Assessments under Road Safety Technical Assistance in the State of Himachal Pradesh

The Department of Transport (DoT), Govt. of Himachal Pradesh has invited bids from eligible consultants to provide technical assistance for road safety services. This includes conducting iRAP safety assessment of major road network in the state. The IndiaRAP team will provide quality assurance services and training of consultants and the DoT staff on using the iRAP tool to identify and implement economically viable safety treatments.

iRAP Safety Assessments in Sri Lanka

The Road Development Authority (RDA) of Sri Lanka under its Transport Connectivity & Asset Management Project has invited eligible consultants to express their interest to conduct iRAP assessment of 1,170km of roads under World Bank funding. During the assessments, the IndiaRAP team is likely to provide training and iRAP accreditation to the RDA staff to enable them to conduct similar safety assessments on their own for larger road network in future.



Bloomberg Philanthropies Initiative for Global Road Safety (BIGRS 2020-2025)

BIGRS is a multi-country programme that aims to reduce road crash fatalities and injuries, supported by Bloomberg Philanthropies. In 2020, the BIGRS commenced its third phase, which is a US\$240 million initiative that builds from the success and impact of the RS10 phase (2010 – 2014) and the BIGRS phase 1 (2015 – 2019). The new phase of the BIGRS will run until 2025 and aims to save 600,000 lives and prevent up to 22 million injuries in low- and middle-income countries. The priority countries of this phase of BIGRS include India among 15 countries and 3 cities (Mumbai, Bengaluru, and New Delhi) among 15 cities around the world. IndiaRAP is likely to be involved in training and capacity building component of this new Phase of BIGRS.

Summary of IndiaRAP Activities

The activities conducted under IndiaRAP from 2017 to 2020 are listed in the table below.

Indicator		Description
Safety Assessments	Kms Star Rated	21,457
	Kms Road Designs (Star Rated)	1,525
	Kms roads upgraded	835
	Est. Value of Investment made Safer USD million	5,585.38
	SR4S – Number Schools Assessed	8
Capacity Building	Number of People Trained	2,894
	Number of People Trained (online format)	382
	Training events hosted in India	54
	Valid/In Progress iRAP Accreditations	24

Indicator		Description
Programme establishment and	IndiaRAP establishment	<ul style="list-style-type: none"> • MoU between iRAP and AITD for hosting the local programme has been renewed to a further 3 years duration (2020-23) • National Programme Licence Agreement signed with AITD • IndiaRAP team comprising 2 technical staff and 1 programme manager
	Establishment of the forums / committees	Workshop in Oct. 2019 is the steppingstone for establishment of local programme committee. Formal committee setup to follow the signing of National Programme Licence. IndiaRAP is member of Technical Committee within IRC responsible to create road design standards.
Policy Outcomes	National and state-level policy and guideline outcomes that improve road safety outcomes	The draft road safety strategy being prepared by MoRTH includes a target to have x% of travel on 3-star or better roads by 2030 mainly drawing from IndiaRAP's advocacy to MoRTH (refer 'Road Safety Policy').
	Project level design and policy outcomes that improve road safety outcomes	GQ Assessments and various Safe Corridor Demonstration Projects

Indicator		Description
Communications	Key statistics in accessing iRAP websites	Users from India were, <ul style="list-style-type: none"> • Highest in accessing 'Vaccines for roads' in June 2020 • Second highest in accessing ViDA in April and June 2020 • Second highest in accessing the 'iRAP toolkit' from March to June 2020 • Second highest in accessing schools.irap.org in March 2020 • Third highest in accessing iRAP.org from March to June 2020
	Connections with local organizations	394
	Number of active contacts	1,927
	Information brochures and Case Studies developed and shared	<ol style="list-style-type: none"> 1. IndiaRAP Case Study 2. IndiaRAP Brochure 3. Case Study of Implementation featuring success of road upgrades in Gujarat, Karnataka and Mumbai refer 'IndiaRAP Brochure and Case Study'
	Number of road safety stakeholder organizations connected to the IndiaRAP programme	10
	First IndiaRAP Newsletter launch planned	August 2020
	Research papers, articles and reports that can be used to objectively influence government thinking in future policy and technical model development	<p>'Star Ratings for life-saving road improvements in India' published in UNESCAP Transport and Communications Bulletin for Asia and the Pacific - Improving Road Safety, November 2019</p> <p>'Star Rating and Prioritization of Black Spots' published in a book Recent Advances in Traffic Engineering, Select Proceedings of RATE 2018.</p> <p>One report each on Delhi-Mumbai and Mumbai-Chennai section of GQ</p>

Indicator		Description
IndiaRAP 2020-2025	Leveraged investment by others in IndiaRAP activities	1400km of State roads in West Bengal assessed by IIT Kharagpur in partnership with IndiaRAP; ongoing World Bank and NHAI Investment
	Funding to ensure the core IndiaRAP team can be sustainable	The programme established and demonstrated success with FedEx funding (2017-2020). The prospects of local road safety assessments and collaboration for SR4S is key to funding the IndiaRAP activities for future (refer 'IndiaRAP 2020-2025')

In conclusion

The work outlined in this report was only possible through the great generosity of FedEx supporting the three years of programme and AITD for making national partnership and proudly hosting the local programme. AITD is going to continue hosting the programme as the MoU with iRAP has been renewed for next three years. Signing national programme licence agreement between iRAP and AITD will enable delivering the local road safety assessment projects by AITD. This will help to further strengthen the capacity for delivering quality road safety assessments, training and capacity building of local institutions and organizations.

Road safety has now been included among the Sustainable Development Goal (3.6) by the United Nations. Improving India’s roads to a 3-star or better standard is a key to achieve the SDG target of halving the road deaths and injuries. Many countries (United Kingdom, Malaysia, Sweden, Chile, China, Australia, New Zealand) are setting targets to increase the percentage of travel on 3-star or better roads and establishing 3,4 or 5-star standards for new and upgraded roads. IndiaRAP is actively engaging with the IRC (an apex body of roads and highways engineers responsible for preparing standards and specifications for road design and construction) and the MoRTH to advocate adopting such targets. The MoRTH’s new comprehensive strategy (under preparation) includes a target to have x% of travel on 3-star or better roads by 2030. This will help the government to adopt a powerful metric to specify and track road safety performance at the network and project level, which will help reduce road trauma in India.

The IndiaRAP team is grateful for the generous sponsorship of FedEx and the host AITD to enable the progress made in three years. The team will focus on building a high-impact and sustainable programme for the coming years. The important partnerships with AITD, MoRTH, IRC, NHAI, Bloomberg Philanthropies, the World Bank, and toll road companies are key to the success so far and for future to make India free of high-risk roads.

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