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List of Abbreviations

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

<table>
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<th>What can be achieved with &gt;75% of travel on 3-star or better roads for all road users by 2030</th>
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<tr>
<td>Annual number of fatalities (WHO, 2015)*</td>
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<td>Population</td>
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<td>Fatalities per 100,000 population</td>
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<tr>
<td>Annual number of fatalities and serious injuries</td>
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<td>Annual cost of fatalities and serious injuries</td>
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<td>Annual cost of fatalities and serious injuries (% of GDP)</td>
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<tr>
<td>Infrastructure and Speed Management Investment required</td>
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<td>Annual Investment as a % of GDP (2019-2030)</td>
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<td>Reduction in fatalities per year</td>
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<td>Reduction in fatalities and serious injuries (FSI) over 20 years</td>
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<td>Economic Benefit</td>
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<td>Benefit Cost Ratio</td>
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* 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.
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 a 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.
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/mbmRst8F8Pp]
Session 2: Star Ratings and Safer Road Investment Plans [https://youtu.be/fPWl-Oi3w2w]
Session 3: Introduction to ViDA [https://youtu.be/Bj-hGjWcrO8]
Session 4: How road authorities can conduct iRAP safety assessments [https://youtu.be/sOlWq5VErxa]

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.

**Abertis**\(^1\) 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 NHAI for approval and implementation.

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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 Project\(^3\) (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.

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\(^3\) [https://projects.worldbank.org/en/projects-operations/project-detail/P114827](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.
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 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

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

*Civil cost of road construction

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

*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.*
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 Mehsana – 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.

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 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.

Newspaper article on Star Rating of Golden Quadrilateral Highway:
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 NHAI in 2018. To disseminate the details of findings to Project Implementation Units (PIU), the field offices of NHAI, workshops are being organized in 2019. For this activity IndiaRAP is coordinating with NHAI and MoRTH so that details of findings including Star Ratings and safety treatments along with their location details can be shared with PIU offices.

Read more at:
http://timesofindia.indiatimes.com/articleshow/64626814.cms

Read more at:
http://timesofindia.indiatimes.com/articleshow/65835209.cms
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.


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.

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.

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
Participation in meetings and conferences

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.
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 NHAI. 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 NHAI.

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.
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 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.
IndiaRAP Progress Report 2017-2020

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.
# IndianRAP Progress Report 2017-2020

**IndiaRAP** @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 with various #stakeholders in Government Departments, Research Institutes & Academia. #sharingknowledge #3starsbetter irap.org/2019/10/indiarap...

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**IndiaRAP** @IRAPSavingLives - Aug 9, 2019

Full house at the IRAP intro and methodology training session in Kerala (AIDT training centre) #buildingcapacity #knowledgeSharing #IndiaRAP #3starsbetter

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**IndiaRAP** @IRAPSavingLives - Aug 23, 2019

#TBT to earlier in the week - #IndiaRAPs @jimbhavasar and @AlbinTharakan helping to build capacity for roadway engineers in #Mumbai

Jigesh Bhavasar @jimbhavasar - Aug 20, 2019

Workshop with MCGM #training and #capacitybuilding of road engineers to implement safer road infra on #BGMumbai @saferoadmumbai @IRAPSavingLives @WBGT Transport #IndiaRAP @krish70 @AlbinTharakan

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**IndiaRAP** @IRAPSavingLives - Jul 25, 2019

#TBT - #IndiaRAP's Technical Manager facilitating training for #kritkharagpur 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 #3starsbetter #localRAP

Jigesh Bhavasar @jimbhavasar - Jul 19, 2019

#RoadSafety training and capacity building at #kritkharagpur 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
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

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/FXqEaH8) The World Bank #roadsafety

LinkedIn article on Safe Corridor Demonstration Project SH20 in Karnataka designed with 3-star or better infrastructure which resulted in 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

CASE STUDY
RAP PARTNERSHIPS SAVING LIVES
IndiaRAP

US$4.5 billion locked in for road upgrades
Star ratings & 5-star routes in 12 states
Target for 4-star roads by 2025 in Andhra Pradesh
5,900km assessed in 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 RAP 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 US$370 billion per year or 7% GDP (WHO, 2018). Road trauma represents an enormous public health challenge. IndiaRAP partners assessed 5,500km of World Bank financed infrastructure on high-risk roads and found:

- 94% of roads above 50km/hr (32mph) have no footpath
- 94% of roads above 50km/hr (32mph) have no bicycle facilities
- 92% of roads with high motorcycle flows have motorcycle facilities
- 92% of roads carrying traffic at 90km/hr (56mph) have unaligned single carriageways
- 72% of courses where traffic flows at 80km/hr (50mph) have inadequate runoff
- 75% of intersections where traffic flows at 65km/hr (40mph) or more have no roundabouts, turn islands or interchanges

OBJECTIVES

Improving 10% of India’s highest risk roads (3222 km) to a 3-star or better standard would save over 7.8 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$5.3 billion.
- IndiaRAP Star Ratings and Safer Road Investment Forums are used in World Bank, Regional Highways Authority of India (NPR-HA) and State Government supported projects across 21 states (Andhra Pradesh, Kerala, Assam, Punjab, Gujarat, Rajasthan, Telangana, Tamil Nadu, Karnataka, Uttar Pradesh and Haryana).
- Another 5,000 km are currently undergoing assessment on the Golden Quadrilateral, linking the major cities of Delhi, Mumbai, Bangalore and Chennai.
- IndiaRAP Star Ratings are informing safer road design by state Public Works Departments of Assam, Gujarat, Karnataka, Kerala, Rajasthan, Tamil Nadu and Uttar Pradesh. Meeting 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.
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 15 pillars of the UN Decade of Action. It is anticipated the IndiaRAP AITD learning agreement will continue to build capacity and connect road safety experts between India and Australia.

TIMELINE FOR SUCCESS

2010
- World Bank GRSF invokes AITD 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, Gothri to Fampat, with NHAI

2011
- World Bank GRSF and Bloomberg Philanthropies support for India’s ‘uked’ project assessing 3,500km of state highways and building local capacity in Andhra Pradesh, Assam, Gujarat and Karnataka

2012
- Bike Riding of road engineers used for first time in Karnataka, Assam and Gujarat

2013
- Assessments in Kerala and Rajasthan plus additional surveys in Andhra Pradesh, Gujarat and Karnataka
- Local road safety engineers join team

2015
- Bloomberg initiative for Global Road Safety support leads to urban assessment in Mumbai
- Indiameter: Warranted hosted and builds local road safety capacity

2016
- Partnership with WB and NHAI to assess safety on Golden Quadrilateral Agreement with NHAI to assess Fampat-Chandigarh national highway

2017
- FC/India training agreement and secondment of Australian engineer to develop IndiaRAP
- AITD and MOU
- FedEx Express-sponsored IndiaRAP launched
- IndiaRAP’s Jagdish Bharatar becomes H7 committee member for the Indian Roads Congress

FOR MORE INFORMATION
Jagdish Bharatar | jagdish.bharatar@rap.org | Web: +91 8881154 3517

IndiaRAP Case Study – pg.2
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.

**UN Target 3 can be achieved by:**

- A shared commitment by stakeholders including the IRC, MoRTD, NHAI, IIT, CRRI, IAEI, 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.
- 2,900km 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.
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 road sides 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 attributes, 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

1. Collection of video or images and GPS coordinates.
2. Road Inspection
   - Recording of more than 50 attributes for each 100-metre road segment.
   - Supporting data for traffic flow and vehicle operating speed (95th percentile speed).

Vida – online software

1. Star Rating
2. Road Condition
3. Safer Roads Investment Plan (SRIP)

Implementation

- Safety treatments
- Safety of roads and drivers improved
- Economic assessment

Road Attributes we Record and Measure

- Roadside barriers
- Horizontal alignment
- Streetlights
- Median type
- Lane width
- Number of lanes
- Road condition
- Pavement
- Intersection type
- Footpath
- Pedestrian crossing
- Traffic signal
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

- 83% of travel is only 1-2 stars for pedestrians
- 77% of travel is only 1-2 stars for motorcyclists
- 56% of travel is only 1-2 stars for vehicles
- 95% of roads where pedestrians are present and traffic flows at 60km/h or more have no formal footpaths or sidewalks
- 99% of roads have no motorcycle or bicycle lanes
- 94% of roads where pedestrians cross and traffic flows at 60km/h or more have no pedestrian crossing facilities
- 55% of roads carrying traffic at 100km/h or more are undivided
- 89% of curves where traffic flows at 60km/h or more have hazardous roadides
- 87% of intersections where traffic flows at 60km/h or more have no safeturning provisions

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)
- Length: 14,000km
- FSI prevented: 1,34,000
- BCR: 3.4

Intersection Improvement
- Sites: 29,000
- FSI prevented: 1,56,000
- BCR: 2.4

Road delineation
- Length: 8,700km
- FSI prevented: 52,000
- BCR: 11

Pedestrian crossing
- Sites: 21,000
- FSI prevented: 38,000
- 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

Proudly hosted by:

Sponsored by:

The International Road Assessment Programme (IRAP) is a global registered charity with a vision for a world free of high-risk roads. iRAP partners with mobility clients, 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: 1140057
Registered Office: 6X Trafalgar Square, London, WC2N 5DS, United Kingdom

Printed: August 2019

IndiaRAP Brochure – pg.4
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).

- 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-lane to 3-lane road section
- Speed calming measures.

<table>
<thead>
<tr>
<th>Year</th>
<th>Injuries</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>309</td>
<td>272</td>
</tr>
<tr>
<td>2016</td>
<td>205</td>
<td>125</td>
</tr>
<tr>
<td>2017</td>
<td>50</td>
<td>43</td>
</tr>
<tr>
<td>2018</td>
<td>32</td>
<td>33</td>
</tr>
</tbody>
</table>

54% Reduction in annual average deaths after road improvement.

42% Reduction in annual average injuries.

53% Reduction in deaths and serious injuries attributed to SH-20 road section post-construction assessment.
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 Highways 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 filled to 3-star or better for vehicle occupants and motorcyclists.
- Urban areas where pedestrian and bicyclists present achieves 3-star or better.

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 BBGIS (Bloomberg Initiative for Global Road Safety). This road was 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.
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.

<table>
<thead>
<tr>
<th>NEW VICTIMS EVERY DAY</th>
<th>HUMAN IMPACT</th>
<th>NEW COSTS EVERY DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>819</td>
<td>Lives Lost</td>
<td>$101 million</td>
</tr>
<tr>
<td>5,750</td>
<td>Fractures - Limb</td>
<td>$58 million</td>
</tr>
<tr>
<td>174</td>
<td>Severe Acquired Brain Injury</td>
<td>$57 million</td>
</tr>
<tr>
<td>2,277</td>
<td>Internal Injuries</td>
<td>$36 million</td>
</tr>
<tr>
<td>1,288</td>
<td>Brain Injury (Mild) / Head Injury</td>
<td>$23 million</td>
</tr>
<tr>
<td>15</td>
<td>Quadriplegia</td>
<td>$19 million</td>
</tr>
<tr>
<td>3,195</td>
<td>Soft Tissue (Neck / Back) / Whiplash</td>
<td>$10 million</td>
</tr>
<tr>
<td>1,245</td>
<td>Fractures - Other</td>
<td>$9 million</td>
</tr>
<tr>
<td>196</td>
<td>Other Spinal</td>
<td>$8 million</td>
</tr>
<tr>
<td>836</td>
<td>Dislocations</td>
<td>$6 million</td>
</tr>
<tr>
<td>3,801</td>
<td>Contusion / Abrasion Laceration</td>
<td>$5 million</td>
</tr>
<tr>
<td>16</td>
<td>Paraplegia</td>
<td>$5 million</td>
</tr>
<tr>
<td>224</td>
<td>Degloving</td>
<td>$4 million</td>
</tr>
<tr>
<td>1,913</td>
<td>Other Injuries</td>
<td>$4 million</td>
</tr>
<tr>
<td>1,032</td>
<td>Sprains / Strains</td>
<td>$3 million</td>
</tr>
<tr>
<td>56</td>
<td>Amputations</td>
<td>$2 million</td>
</tr>
<tr>
<td>457</td>
<td>Concussion</td>
<td>$929,000</td>
</tr>
<tr>
<td>52</td>
<td>Burns (Severe / Moderate)</td>
<td>$598,000</td>
</tr>
<tr>
<td>10</td>
<td>Nerve Damage</td>
<td>$129,000</td>
</tr>
<tr>
<td>2</td>
<td>Lost Of Sight / Eyes</td>
<td>$7,000</td>
</tr>
<tr>
<td>23,353</td>
<td>TOTAL</td>
<td>$354 million</td>
</tr>
</tbody>
</table>
## The Business Case for Safer Roads in India

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>India</strong></td>
<td></td>
</tr>
<tr>
<td>Annual number of fatalities (WHO, 2015)*</td>
<td>299,091</td>
</tr>
<tr>
<td>Population</td>
<td>1,324,171,392</td>
</tr>
<tr>
<td>Fatalities per 100,000 population</td>
<td>23</td>
</tr>
<tr>
<td>Annual number of fatalities and serious injuries</td>
<td>3,290,001</td>
</tr>
<tr>
<td>Annual cost of fatalities and serious injuries</td>
<td>$129,087,481,191</td>
</tr>
<tr>
<td>Annual cost of fatalities and serious injuries (% of GDP)</td>
<td>5.6%</td>
</tr>
</tbody>
</table>

### 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 | $91,630,958,000 |
| 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](http://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.

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 inclucde,

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 project, 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

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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.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Safety Assessments</strong></td>
<td></td>
</tr>
<tr>
<td>Kms Star Rated</td>
<td>21,457</td>
</tr>
<tr>
<td>Kms Road Designs (Star Rated)</td>
<td>1,525</td>
</tr>
<tr>
<td>Kms roads upgraded</td>
<td>835</td>
</tr>
<tr>
<td>Est. Value of Investment made Safer USD million</td>
<td>5,585.38</td>
</tr>
<tr>
<td>SR4S – Number Schools Assessed</td>
<td>8</td>
</tr>
<tr>
<td><strong>Capacity Building</strong></td>
<td></td>
</tr>
<tr>
<td>Number of People Trained</td>
<td>2,894</td>
</tr>
<tr>
<td>Number of People Trained (online format)</td>
<td>382</td>
</tr>
<tr>
<td>Training events hosted in India</td>
<td>54</td>
</tr>
<tr>
<td>Valid/In Progress iRAP Accreditations</td>
<td>24</td>
</tr>
<tr>
<td>Indicator</td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>
| Programme establishment and governance | • 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. |
<p>| Policy 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 |</p>
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
</table>
| Key statistics in accessing iRAP websites | Users from India were,  
- 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 | 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 | ‘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  
One report each on Delhi-Mumbai and Mumbai-Chennai section of GQ |
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leveraged investment by others in IndiaRAP activities</td>
<td>1400km of State roads in West Bengal assessed by IIT Kharagpur in partnership with IndiaRAP; ongoing World Bank and NHAI Investment</td>
</tr>
<tr>
<td>Funding to ensure the core IndiaRAP team can be sustainable</td>
<td>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’)</td>
</tr>
</tbody>
</table>
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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