

International Perspectives on Private Financing in Road Safety and Opportunities for India

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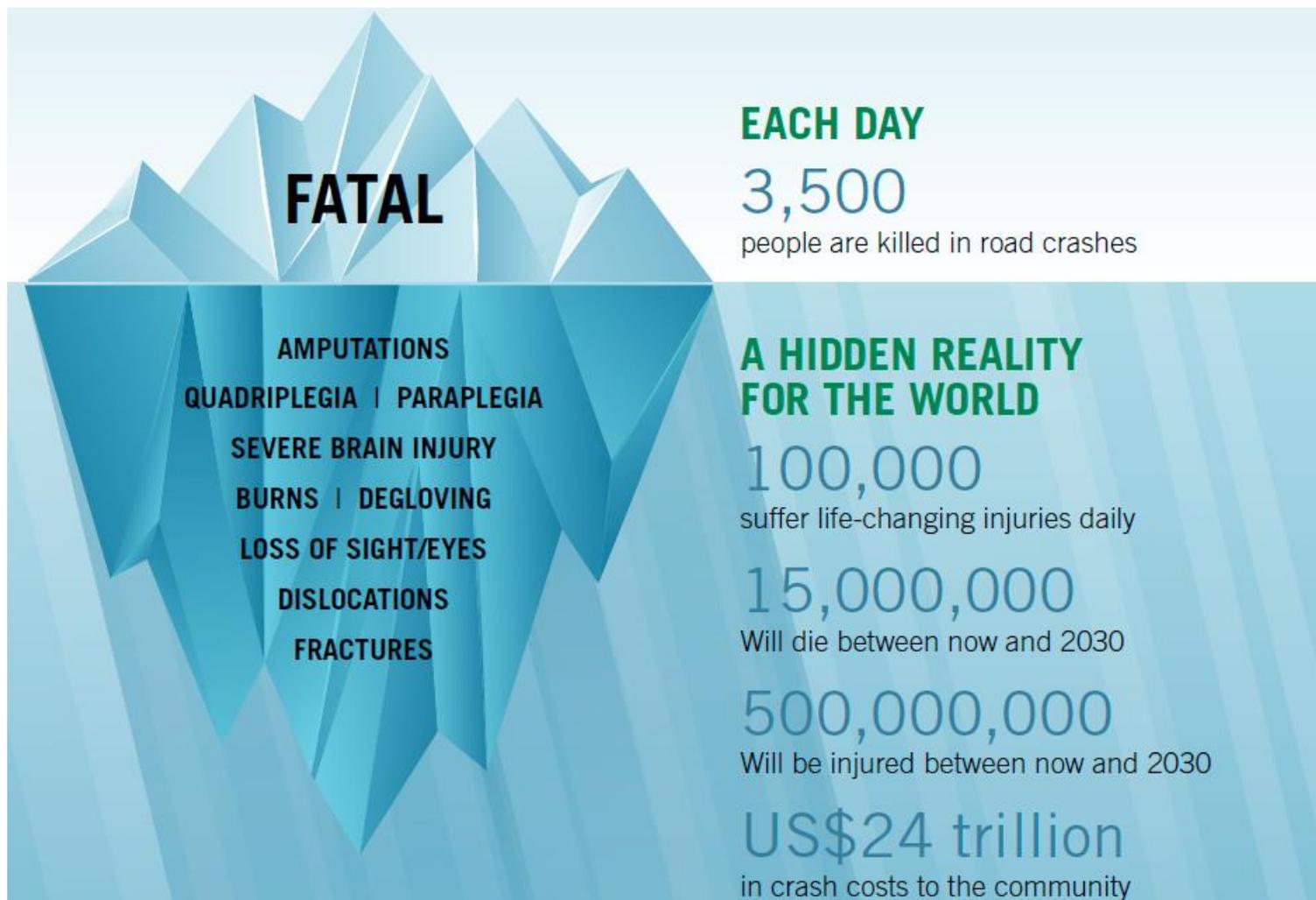
www.irap.org

The Human and Financial Impact of Road Trauma



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





SUSTAINABLE DEVELOPMENT GOALS

We know what to do We have the Vaccines

GUIDE FOR
ROAD SAFETY INTERVENTIONS:
EVIDENCE OF WHAT WORKS AND WHAT DOES NOT WORK

THE WORLD BANK
GRSF
Global Road Safety Facility
FUNDED BY
UKaid

iRAP Vaccines for Roads
FIFTH EDITION
iRAP'S BIG DATA TOOL
vaccinesforroads.org

Unlocking the potential of the world's largest road infrastructure safety database to explore the human and financial impact of road injury, how safe the world's roads are and provide the Business Case for Safer Roads.

How safe are the world's roads? Explore your region >

The human impact of road crash injuries Personal stories >

The global impact of road crash injuries 100,000+ people per day >

Saving lives with safer roads: Case studies of success Be inspired >

What is possible? The Business Case for Safer Roads Examine the full potential >

Explore the Data iRAP Big Data Tool >

100+ COUNTRIES
1.4 MILLION KM RISK MAPPED
1 MILLION KM STAR RATED
\$US75+ BILLION INVESTMENT MADE SAFER
22,000 TRAINED
695 SCHOOL ASSESSMENTS

A world free of high-risk roads #VaccinesForRoads #3StarorBetter
Because every life counts.

Maximising travel on 3-star or better roads for all road users vaccinesforroads.org

GLOBAL ROAD SAFETY PERFORMANCE TARGETS

TARGET 1 2020

Target 1: By 2020, all countries establish a comprehensive multisectoral national road safety action plan with time-bound targets.

TARGET 2 2030

Target 2: By 2030, all countries accede to one or more of the core road safety-related UN legal instruments.

TARGET 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.

TARGET 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.

TARGET 5 2030

Target 5: By 2030, 100% of new (defined as produced, sold or imported) and used vehicles meet high quality safety standards, such as the recommended priority UN Regulations, Global Technical Regulations, or equivalent recognized national performance requirements.

TARGET 6 2030

Target 6: By 2030, halve the proportion of vehicles travelling over the posted speed limit and achieve a reduction in speed-related injuries and fatalities.

TARGET 7 2030

Target 7: By 2030, increase the proportion of motorcycle riders correctly using standard helmets to close to 100%.

TARGET 8 2030

Target 8: By 2030, increase the proportion of motor vehicle occupants using safety belts or standard child restraint systems to close to 100%.

TARGET 9 2030

Target 9: By 2030, halve the number of road traffic injuries and fatalities related to drivers using alcohol, and/or achieve a reduction in those related to other psychoactive substances.

TARGET 10 2030

Target 10: By 2030, all countries have national laws to restrict or prohibit the use of mobile phones while driving.

TARGET 11 2030

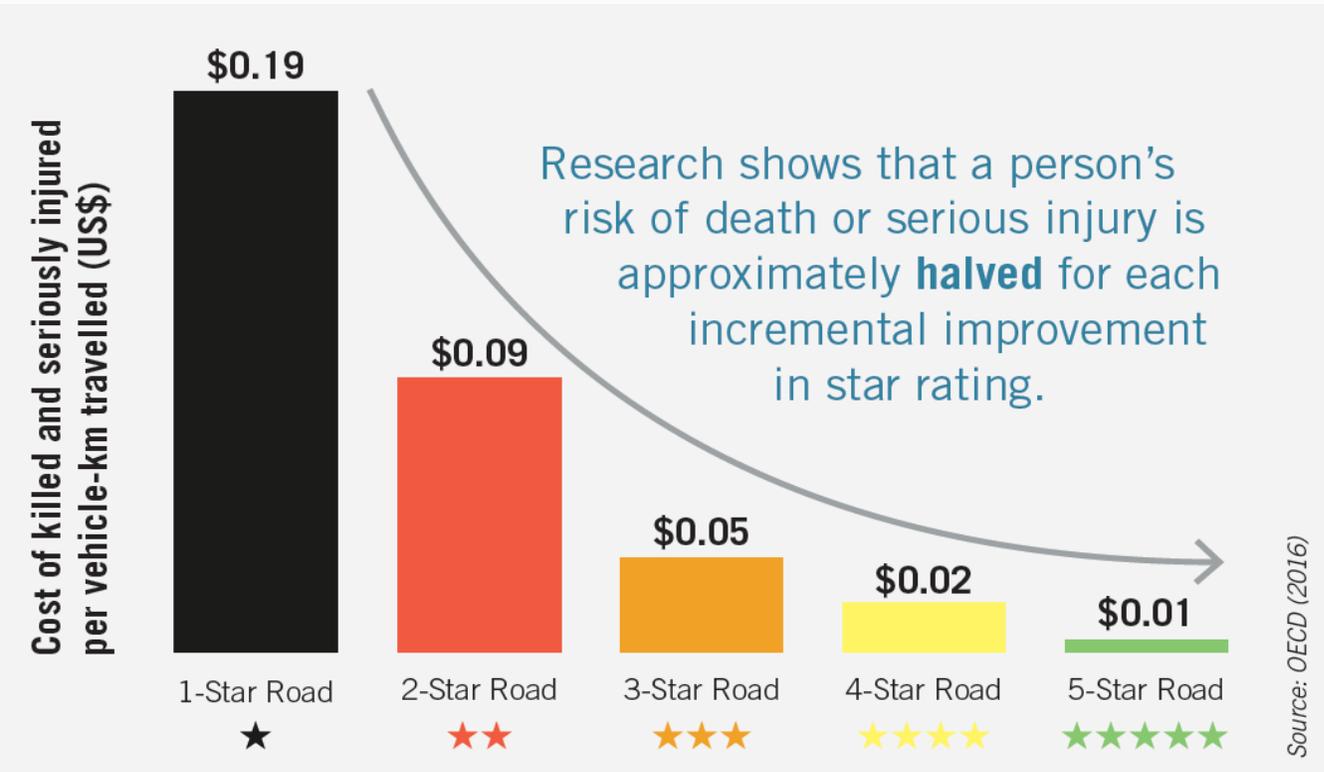
Target 11: By 2030, all countries to enact regulation for driving time and rest periods for professional drivers, and/or accede to international/regional regulation in this area.

TARGET 12 2030

Target 12: By 2030, all countries establish and achieve national targets in order to minimize the time interval between road traffic crash and the provision of first professional emergency care.

The Opportunity to Save Lives and Save Money

Evidence-based Impact



<https://www.oecd-ilibrary.org/transport/zero-road-deaths-and-serious-injuries>

Business Case for Safer Roads

Achieving >75% of travel globally on 3-star or better roads will save...

450,000+ lives a year

with a return on investment of...

\$8 for every \$1 invested



TARGET 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.

TARGET 4 2030

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global charity - global standard - local leadership



100+ countries



2,500,000+ km

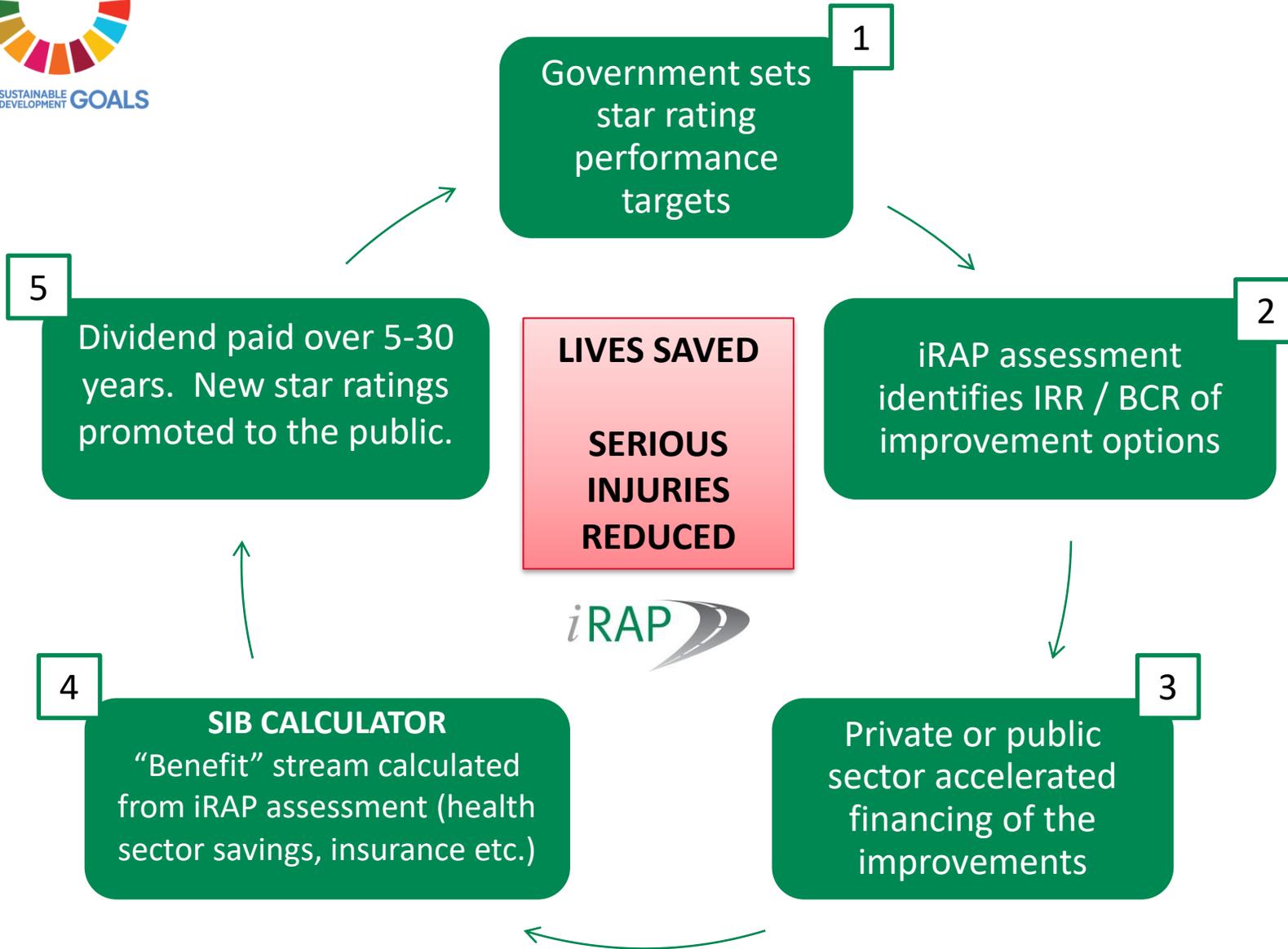


us\$80bn+ investment made safer

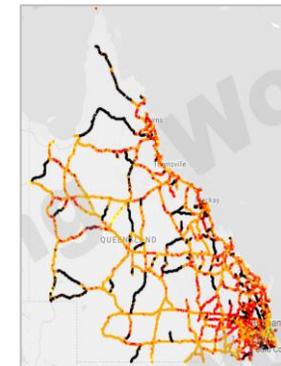




Results-based financing mechanism

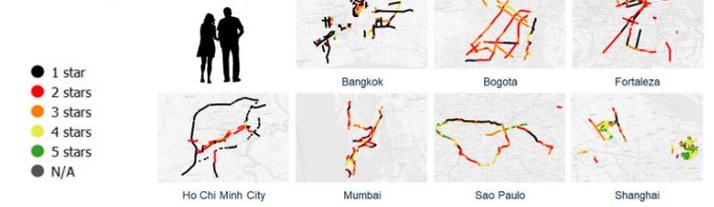


Global Standard



How does my city compare to others?

Pedestrian Star Ratings (before changes were made)



TARGET 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.

TARGET 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.

3-star or better PPPs and major highways



- PPPs to deliver a 3-star or better standard by 2030 or similar
- Shadow toll / availability payment funded through savings to government, insurance and/or health system
- Link concession period extensions to “higher-performing star rating outcomes” (e.g. 4 and 5-star)



Example of a vehicle occupant 5-star road section (Spain)





Brazil Investment in Safer Roads



4 new concessions structured with iRAP Star Rating KPIs

More than 4,000 km

More than 100,000
FSIs saved

48% of travel on
5-star roads
★★★★★

...4 more under development

MINISTÉRIO DA INFRAESTRUTURA

ANTT
AGÊNCIA NACIONAL DE TRANSPORTES TERRESTRES

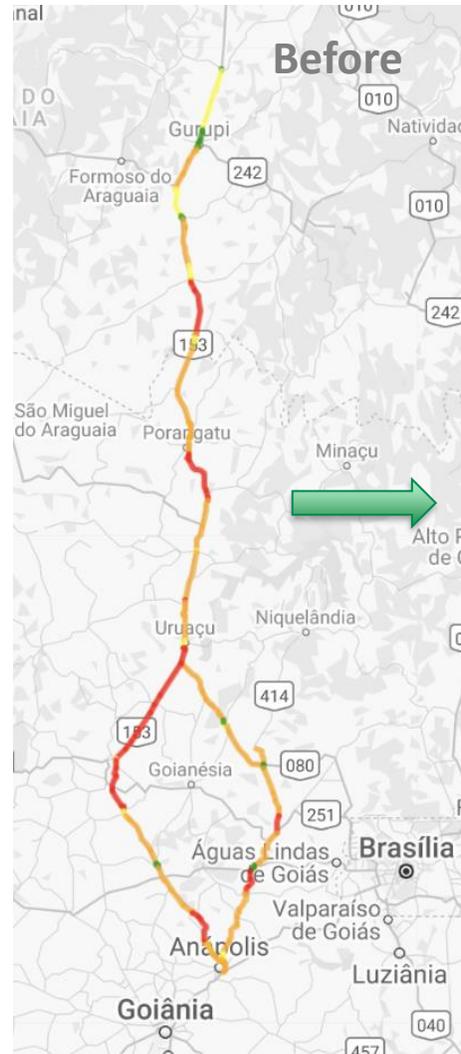
ARTESP
AGÊNCIA DE TRANSPORTE DO ESTADO DE SÃO PAULO

Star Ratings and investments modelled over 30 years

Nova Dutra Network



Trecho	ANO 0	ANO 5	ANO 10
TH-04	2	2	4
TH-05	2	2	4
TH-06	2	2	4
TH-07	2	3	3
TH-08	2	2	3
TH-09	3	3	3
TH-10	3	3	4
TH-12	2	2	3
TH-13	3	3	3
TH-18	3	3	4
TH-19	3	3	4
TH-20	3	3	4
TH-21	2	2	3
TH-22	5	5	5
TH-23	5	5	5
TH-24	3	3	4



BR-153 network



Duplication

Additional lane
(2 + 1 road with barrier)

Roadside barriers

Shoulder rumble strips

Intersection upgrades

Delineation & Signing



Piracicaba-Panorama (“PiPa”) highlights

AUTHORITY



ADVISORS



TECHNICAL



INVESTORS



CONCESSIONAIRE



- \$3.4bn including \$2.5bn CAPEX and \$0.28bn upfront concession fee to Sao Paulo State Government
- ARTESP monitors progress – toll collections only permitted after first performance milestone has been met
- Advisory team support for financing, design of bonus scheme, star rating targets + independent monitoring and reporting

3-star or better targets

User	Y0	Y10	Y30
Vehicle	77%	96%	...
Pedestrian	64%	77%	...
Motorcyclists	61%	75%	...
Bicyclists	67%	82%	...

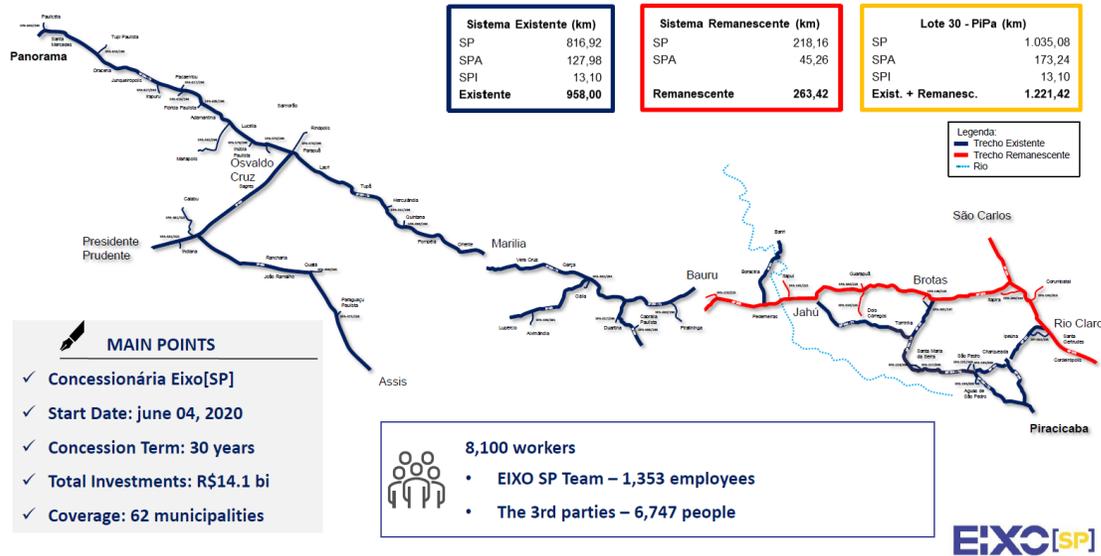
Bonus Tiers

Achieved	Bonus
110%-120%	0.5% of contribution
121%-130%	1.0% of contribution
131%-140%	1.7% of contribution
140%+	2.7% of contribution

Concessionaires in Sao Paulo are required to contribute a % of toll revenues to the Sao Paulo monetary fund. If performance exceeds targets, they receive a % payback of that contribution.

Piracicaba-Panorama (“PiPa”) analysis

Concession Contract



3-star or better

PIPA Network

User group	YEAR 0	YEAR 2	YEAR 6	YEAR 10
Vehicle Occupant	77%	78%	96%	96%
Motorcyclists	61%	60%	75%	75%
Pedestrians	64%	63%	77%	77%
Bicyclist	67%	66%	82%	82%

TARGET 4 2030

75%

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.



PIPA Network





The Indian Opportunity



5

iRAP Star Rating 2021

Low Risk

NATIONAL HIGHWAY AUTHORITY OF INDIA

भारत सरकार
MORTH
Government of India

YOUR LOGO

IndiaRAP AITD
Special Consultative Status with the United Nations

Achieving >75% of travel in India on 3-star or better roads will save...
100,000+ lives a year
 with a return on investment of...
\$9 for every \$1 invested

21,000
Kilometers Star Rated

3,000
Kilometers upgraded or being constructed

Raising safety standards on Indian roads.

AITD IndiaRAP
Special Consultative Status with the United Nations

For more information

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<https://www.vaccinesforroads.org/>

<https://vida.irap.org/>

<https://www.starratingforschools.org/>