IRF-INDIA CHAPTER

Newsletter

About

The International Road Federation - India Chapter (IRF-IC) is a leading non-governmental organization dedicated to promoting safer and sustainable road networks. Established in 2011, IRF-IC collaborates with government bodies, corporates and international organizations to enhance road safety and mobility across India.

INDIA CHAPTER

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EDITOR'S DESK

Mr. Somenath Ghosh

Editor, IRF India Chapter

It is my pleasure to pen this message for the October edition, which comes at a crucial time for India's road safety movement. The much-awaited Road Accident Report 2023, released in August this year, provides deep insights into the prevailing road safety scenario across the country. The report once again highlights that human error continues to be the primary factor behind most road traffic accidents. This observation clearly indicates that road crashes, injuries and fatalities can be contained through targeted interventions and better system design.

While human error is inevitable, global examples such as Sweden's Vision Zero Program, the Netherlands' Sustainable Safety Program, and Singapore's Smart Traffic Management Program demonstrate that roads and traffic systems can be designed to accommodate human fallibility. These nations have shown how infrastructure, enforcement, and technology — especially data-driven traffic management systems — can collectively guide driver behavior and reduce the likelihood of errors. India, too, can draw valuable lessons from these best practices and localize them effectively.

At IRF-IC, we remain steadfast in our commitment to advancing road safety through continuous awareness initiatives and capacity-building programs. Our flagship initiative, Maruti IDTRs, now in its fourth consecutive year, continues to build a cadre of trained Good Samaritans capable of providing life-saving pre-hospital care as first responders.

We also take immense pride in Mr. K.K. Kapila's global recognition through the Louis Prangey Award, a prestigious acknowledgment of his unparalleled contributions to road safety at the international level.

In this edition, we have included practical safety tips — such as the importance of rotating vehicle tyres every six months and ensuring they are not worn out, as bald tyres can be a hidden cause of fatal crashes — along with safe driving guidelines for vulnerable road users and pedestrians.

In conclusion, I invite all readers to share their feedback, experiences, and innovative ideas. Road safety is a shared responsibility and through collective effort, awareness and empathy, we can move closer to our vision of zero fatalities on Indian roads

FOUNDER PRESIDENT'S DESK

Mr. K. K. Kapila

President (Emeritus), IRF Geneva &
Founder President, IRF India Chapter

Dear Members and Readers,

I hope you all had a joyous and safe Diwali celebration with your family and loved ones. As we step into the post-festive season, it is an opportune moment to renew our collective commitment toward building safer, smarter and more sustainable roads across India.

This edition highlights IRF-IC's continued focus on international capacity building and professional excellence. The recently launched IRF International Registry Program for Road Safety Auditors, introduced in India with the support of TotalEnergies, NHAI and MSRDC, marks a significant milestone in our journey. The program is designed to open up new avenues for knowledgeable and skilled engineers, equipping them to participate in international road safety audits and eventually lead such initiatives. Over 40 professionals from road authorities, academic and research institutions, the industry and consultancy services have undergone this rigorous training. From being observers in international audits, this program empowers Indian engineers to take up leadership roles in future audit teams — a step forward in strengthening India's technical capacity to conduct road safety audit globally

Looking ahead, preparations are gaining momentum for GRIS 2026 (Global Road Infrastructure Summit & Expo) — a landmark event being organized in collaboration with IRF, the ITS Forum and the Bitumen Forum on 5-6th February 2026 in Delhi. The objective is to bring together a wide spectrum of national and international stakeholders to facilitate the exchange of knowledge, innovations and global best practices. GRIS 2026 will serve as a unique platform for dialogue and collaboration, reinforcing IRF-IC's role as a catalyst in advancing road and infrastructure safety.

We have also initiated a membership drive aimed at expanding our professional network. The rationalization of individual membership rates will make it easier for professionals, researchers, and young engineers to join the IRF-IC community and contribute to our shared mission of improving road safety outcomes in India.

As we move forward from the festival of lights, let us carry forward its message — to illuminate not just our homes, but also our roads, systems and minds with awareness and responsibility. Together, we can make meaningful strides toward achieving Vision Zero and ensuring that every journey is a safe one.

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PRESIDENT'S DESK

Mr. Akhilesh Srivastava

President, IRF India Chapter

Dear Readers,

As we welcome this quarter marked by festivities, I want to take a moment to reflect on the consistent strides we are making in our journey towards improving road safety in India. Our commitment to reducing road traffic injuries and fatalities remains steadfast, and I reiterate that your support is instrumental in our efforts.

Road safety is not just a statistic; it is a matter of life and death as conveyed by the Road Safety Report 2023 brought out by the Ministry of Road Transport and Highways. The high incidence of road traffic accidents in India can be attributed to a mix of systemic issues, behavioral factors, and infrastructural challenges, despite the efforts of the Ministry of Road Transport and Highways and stakeholders like IRF-IC.

We believe it is our collective responsibility to change this narrative on a mission mode. In line with this mission, this quarter, we have been undertaking several initiatives aimed at increasing awareness about road safety, enhancing infrastructure, and advocating for stricter enforcement of traffic laws through our social media campaigns, advocacy, webinar and lecture series.

One of our key focus has been on educating and training drivers at the IDTRs of Maruti Suzuki on First Aid Trauma Care. In a span of 6 months we will strive to train 12500 drivers in various IDTRs in the country. Complementing the efforts we are also reaching out to Corporates to make this program a must for their employees as a skilled first responder has a potential to save lives in the roads as well as handle emergencies at work place and homes.

We believe that knowledge is power and that educating the masses consistently is a vital step toward safer roads.

We are also actively collaborating with local authorities to identify high-risk areas and implement effective solutions through our flagship 5E program and School Zone Safety Initiatives. From improved signage to better lighting, our aim is to ensure that every road user feels secure while navigating the streets.

As we move forward, let us all remain vigilant and proactive. I encourage each one of you to take this message to heart, spread awareness, and be ambassadors of road safety. Together, we can make a difference and save countless lives.

Thank you for your continued support and commitment to this essential cause.

Always put your Safety First on roads which will ensure safety for others.

Road and Bridge Safety in India: CSIR-SERC's Role in Advancing R&D to Industry-Driven Solutions

Voggu Srinivas, B. S. Sindu, P. S. Ambily, M. B. Anoop and N. Anandavalli
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India's infrastructure network is among the largest in the world, with 6.3 million kilometers of roads, more than 1.5 lakh bridges and culverts, and a railway network exceeding 67,000 route kilometers. These assets form the backbone of mobility, commerce, and national integration. Yet, the safety and resilience of this vast infrastructure remain pressing concerns. Challenges such as increasing traffic loads, aging infrastructure, environmental impacts, and extreme climatic events have heightened concerns regarding the safety and durability of roads and bridges. In this context, ensuring road and bridge safety has emerged as a crucial national priority, calling for innovative approaches that blend cutting-edge research with industry-ready solutions.

The Council of Scientific and Industrial Research - Structural Engineering Research Centre (CSIR-SERC), Chennai, has been at the forefront of addressing different challenges in our country through its pioneering work in structural engineering. Its contributions span both fundamental R&D and direct industry-driven applications, creating an impact that bridges the gap between laboratory research and field implementation. CSIR-SERC has contributed to the development of guidelines and design aids that align with modern codes and international standards. Its work on seismic- and wind- effects, and blast-resistant design has provided solutions to challenges unique to India's diverse geographical and climatic conditions. Partnerships with construction companies, government agencies, and technology providers have enabled the scaling of CSIR-SERC solutions to real-world challenges.

Over the past decades, CSIR-SERC has developed advanced methodologies, technologies, and tools to assess, monitor, and enhance the performance and safety of roads and bridges across the country. Equally important is the Centre's focus on cost-effective and innovative rehabilitation and retrofitting technologies. CSIR-SERC has developed fiber-reinforced polymer (FRP) composites, advanced repair materials, and strengthening techniques that extend the service life of aging structures. The following are few of the CSIR-SERC's significant developments and contributions to Road and Bridge Infrastructure in the recent times, which are highlighted in this article:

- Innovative Solutions for Structural Health Monitoring (SHM) and Non-Destructive Evaluation (NDE) of Bridges
- Expansion Joint-Free Bridge Deck System using Engineered Cementitious Composites
- Cement-Free Geopolymer Concrete (GPC) for roads

Innovative Solutions for Structural Health Monitoring (SHM) and Non-Destructive Evaluation (NDE) of Bridges

CSIR-SERC has made significant contributions in the area of Structural Health Monitoring (SHM) and non-destructive evaluation (NDE). The Centre has developed advanced sensors, fiber optic monitoring systems, and data-driven models that allow real-time monitoring of bridges, thereby enabling early detection of distress and prediction of failures. These innovations have been successfully deployed in critical bridge projects, including long-span cable-stayed and prestressed concrete bridges, ensuring safety while minimizing maintenance costs. By integrating artificial intelligence and machine learning into SHM framework, CSIR-SERC is advancing towards predictive maintenance models, shifting the paradigm from reactive repair to proactive safety assurance. Some of the recent achievements of CSIR-SERC in this area are:

- Structural Health Monitoring of India's first vertical lift span of New Pamban Railway bridge for real-time continous monitoring of the structural performance (Fig. 1)
- Failure investigation of age-old masonry arch railway bridge and development of innovative retrofitting technique (Fig. 2)
- Failure investigation and recommendation of remedial measures for 2nd longest Rail-Road Bridge (JP Setu) in India across River Ganga, Patna, through instrumentation and field testing (Fig. 3)
- Development of in-service live load stress measurement system for existing masonry arch bridges (Fig. 4)

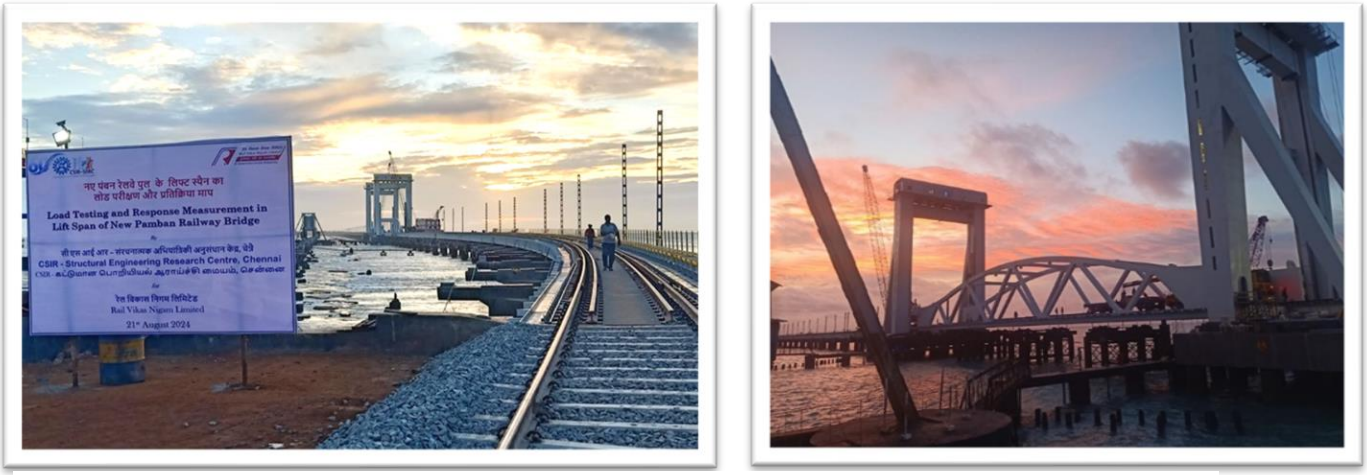


Fig. 1 SHM of India's first vertical lift span of New Pamban Railway bridge

Fig. 2 Failure investigation and innovative retrofitting of age-old masonry arch railway bridge

Fig. 3 Failure investigation and remedial measures for JP Setu across River Ganga, Patna

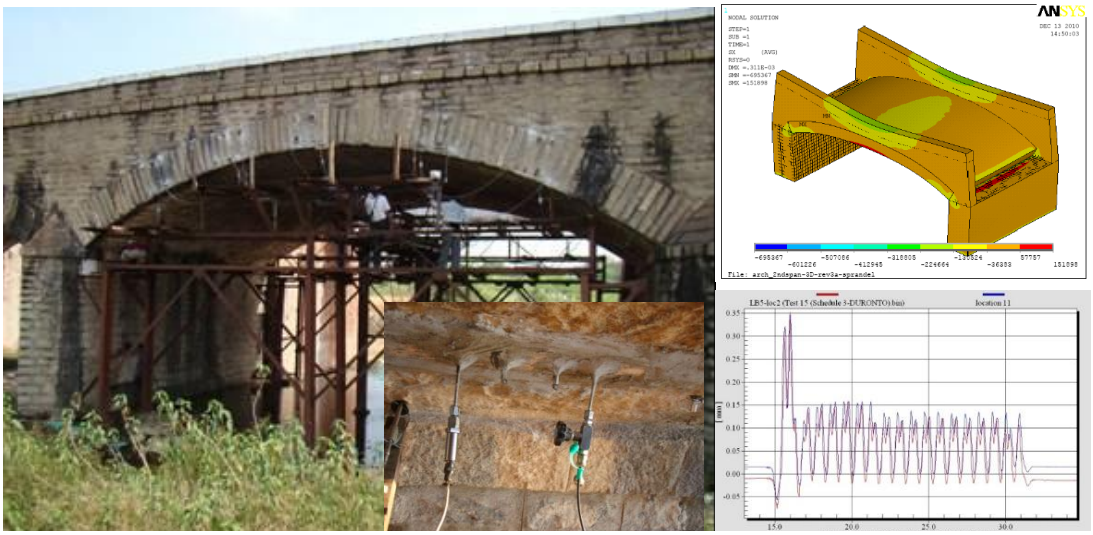


Fig. 4 In-service live load stress measurement system for existing masonry arch bridges

Technology for Expansion Joint-Free Bridge Deck System using Engineered Cementitious Composites

Expansion joints in conventional bridges have long been recognized as weak links in terms of durability, service life, and maintenance. These joints, meant to accommodate thermal movements and relieve stresses, often become sources of persistent structural and operational challenges, such as water leakage leading to corrosion and premature damage, debris accumulation restricting free expansion and creating additional stresses on the superstructure. Together, these issues result in increased maintenance costs, frequent repairs, and accelerated deterioration of bridges (Fig. 5).

To address this long-standing challenge, CSIR-SERC has developed an innovative and robust "Technology for Expansion Joint-Free Bridge Deck System Using Engineered Cementitious Composites." This system-level solution enables bridges to retain the functional performance of simply supported spans, while creating a continuous deck system that eliminates the need for conventional expansion joints (Fig. 6). At the heart of this technology lies the concept of link slabs, which connect adjacent simple-span girders. Conventionally, link slabs are subjected to negative bending and often develop tensile cracks, and hence require heavy reinforcement resulting in unnecessary stiffness, design difficulties, and construction challenges. To resolve this, CSIR-SERC has employed a specially engineered concrete (eCON), a micro-mechanically designed cementitious composite with high tensile strength, superior ductility, and crack control properties.

Unlike ordinary concrete, eCON has the ability to accommodate large deformations while maintaining micro-cracks within limits far below those prescribed by AASHTO. This allows link slabs to perform effectively without relying on heavy reinforcement. The result is a joint-free bridge deck system that is structurally efficient, easy to construct, and highly durable.

The benefits of this breakthrough are multi-fold:

- **Enhanced service life**
- **Reduced lifecycle costs**
- **Improved ride quality**
- **Fuel efficiency and socio-economic benefits**
- **Ease of implementation**
- Adaptability to diverse environmental exposures

In addition, the system is easily repairable with the same engineered concrete. This ready-to-deploy technology is poised to be a game changer and holds tremendous promise for transforming India's bridge infrastructure in line with the vision of *Atma Nirbhar Bharat*, offering a sustainable, durable, and economical alternative to conventional systems. By addressing long-standing durability and maintenance issues, enhancing ride comfort, and reducing lifecycle costs, it provides a holistic solution that will significantly improve the performance, safety, and serviceability of bridges for decades to come.

(b) dif

(a) Typical conventional expansion joint

Fig. 5 Distress caused by conventional expansion joints

Fig. 6 Innovative expansion joint-free bridge deck system

Cement-Free Geopolymer Concrete (GPC) for roads

Geopolymer concrete is a potential alternative to conventional Portland cement concrete for use in transportation infrastructure. It relies on minimally processed natural materials or industrial by-products to significantly reduce the carbon footprint, and also very resistant to many of the durability issues that can plague conventional concrete. CSIR-SERC has been in the forefront of geopolymer research for nearly two decades and has developed expertise in this area.

Roads built with Geopolymer concrete in the CSIR-SERC Campus has been serving for fifteen years (Fig. 7), demonstrating its superiority. The GPC roads have advantages such as: i) user-friendliness (Low molar solution), ii) Ambient temperature curing (Low energy for setting), iii) Low embodied energy, iv) Low carbon dioxide binder, v) Fast setting, vi) No water requirement for curing, and, vi) Suitability for Cast- in-situ applications.

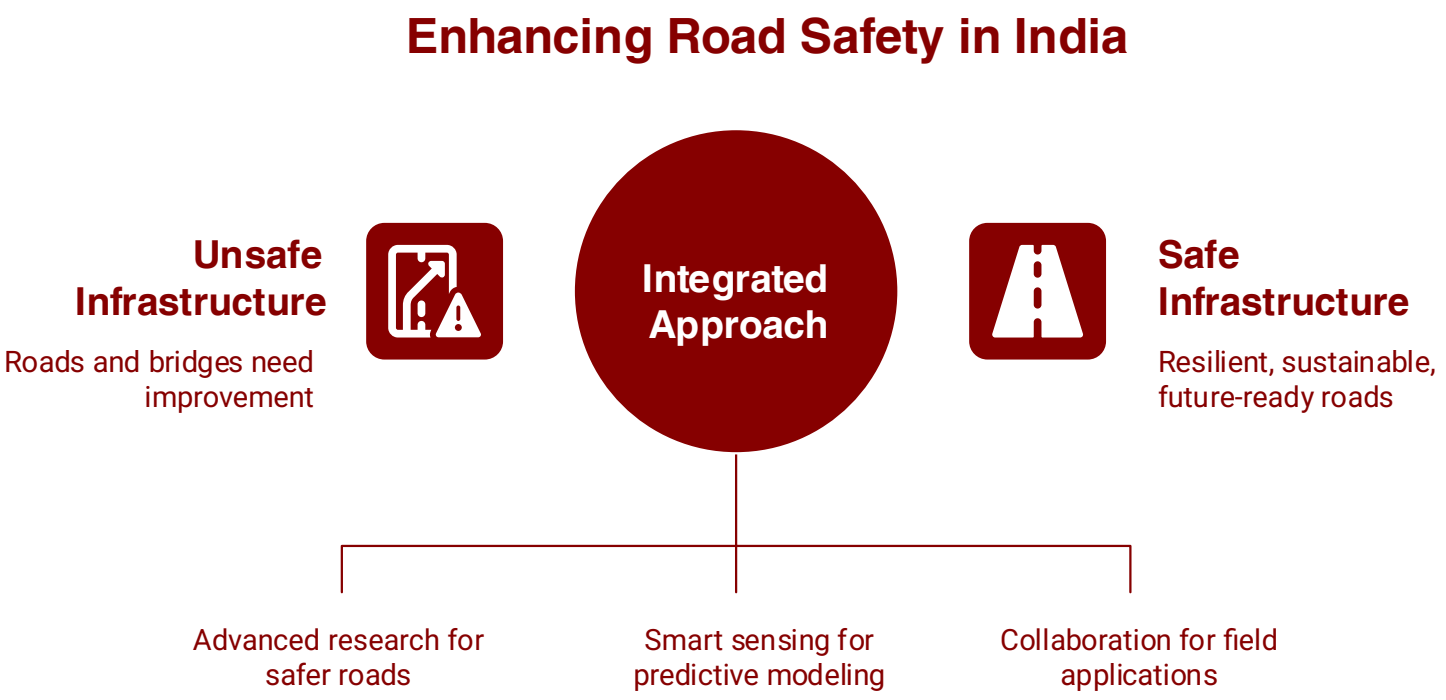
(a) During construction (2010) *(b) Present condition (2025)*

Fig. 7 GPC road at CSIR-SERC Campus

The construction and maintenance of roads consumes large amount of energy. Even a minor reduction in this energy usage will have a positive impact on the sustainable development. Thus, the use of cement free greener GPC roads will have positive impact on the environment, safety, economy, social inclusion and accessibility.

Concluding Remarks

Ensuring road and bridge safety in India requires a multi-pronged approach that integrates R&D, monitoring, and industry participation. CSIR-SERC, through its sustained efforts in advanced research and industry-driven applications, has emerged as a national leader in this domain and has collaborated with agencies such as the Ministry of Road Transport and Highways (MoRTH), Indian Railways, and state governments, for translating the research into field applications, ensuring wider dissemination and impact. By harnessing smart sensing, predictive modeling, and innovative materials, the Centre is contributing not only to safer infrastructure but also to the vision of a resilient, sustainable, and future-ready India.



REJUBIT: India's Indigenous Breakthrough in Sustainable Road Recycling

By Ooms Polymer Modified Bitumen Pvt Ltd

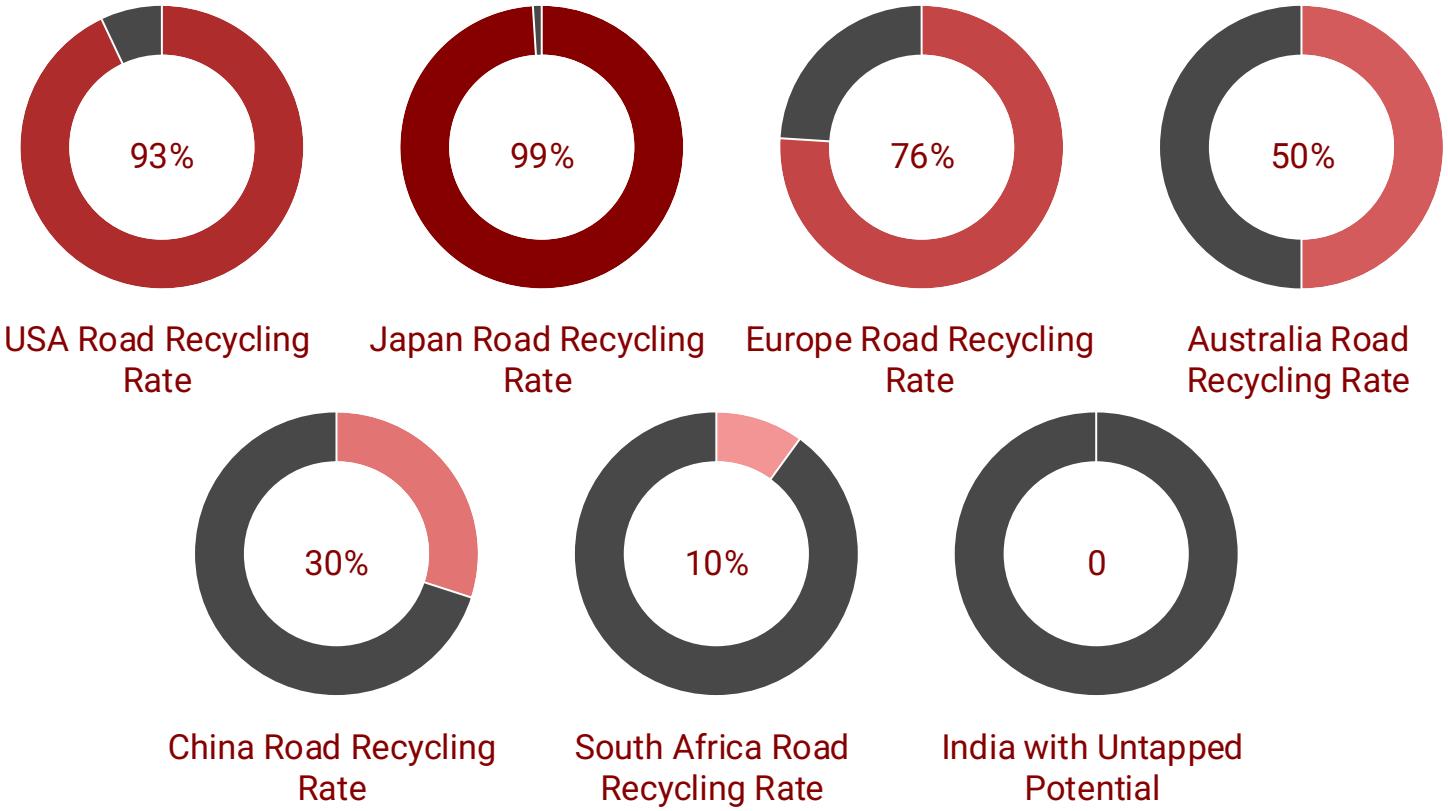
India's highway infrastructure is undergoing rapid expansion, with a bold ambition to reach 200,000 km under government-led initiatives. However, this scale of development brings significant environmental and logistical challenges: a soaring demand for virgin bitumen and aggregates, heavy reliance on costly imports, and an ever-growing mountain of Reclaimed Asphalt Pavement (RAP) generated from widening and maintenance operations.

Traditional approaches to road maintenance often involve periodic overlays, which may improve surface quality temporarily but create long-term complications. Each new overlay raises the pavement level, leading to drainage blockages, flooding, and recurring maintenance burdens. Moreover, without proper recycling, RAP stockpiles continue to rise, contributing to environmental degradation and wasted resources.

In this context, the need for innovative, sustainable, and cost-effective technologies has never been more urgent. India's road sector must align with the Ministry of Road Transport and Highways (MoRTH), NHAI, and national green infrastructure goals. Solutions must not only conserve natural resources but also deliver high performance across diverse climatic and traffic conditions.

Globally, road recycling rates vary significantly: USA (93%), Japan (99%), Europe (76%), Australia (50%), China (30%), and South Africa (10%). India, despite being one of the largest road networks, has immense untapped potential to leapfrog into global leadership in high-RAP usage.

Global Road Recycling Rates



Introducing REJUBIT: A Next-Gen Rejuvenator

REJUBIT is a 100% “Made in India” rejuvenator developed by Ooms Polymer Modified Bitumen Pvt. Ltd. in technical collaboration with CSIR-Central Road Research Institute (CRRI). It is engineered to chemically restore aged bitumen in RAP at the molecular level—unlike conventional softening agents that merely reduce viscosity.

The innovation lies in REJUBIT’s ability to rebalance the SARA (Saturates, Aromatics, Resins, Asphaltenes) fractions within oxidized binder, effectively reversing the aging process and rejuvenating the RAP to perform like virgin material. This enables production of asphalt mixes with up to **60% RAP** content—without compromising durability, flexibility, or structural integrity.

REJUBIT was launched by Shri Nitin Gadkari, Hon'ble Minister of Road Transport & Highways, on February 6, 2025 at the CSIR-CRRI auditorium in New Delhi.

Not Just a Product. A Catalyst for Transformation.

REJUBIT is more than a product—it is a symbol of India's engineering ingenuity and commitment to sustainable infrastructure. It reflects the nation's capacity to deliver world-class, eco-conscious road technologies that address both performance and environmental imperatives.

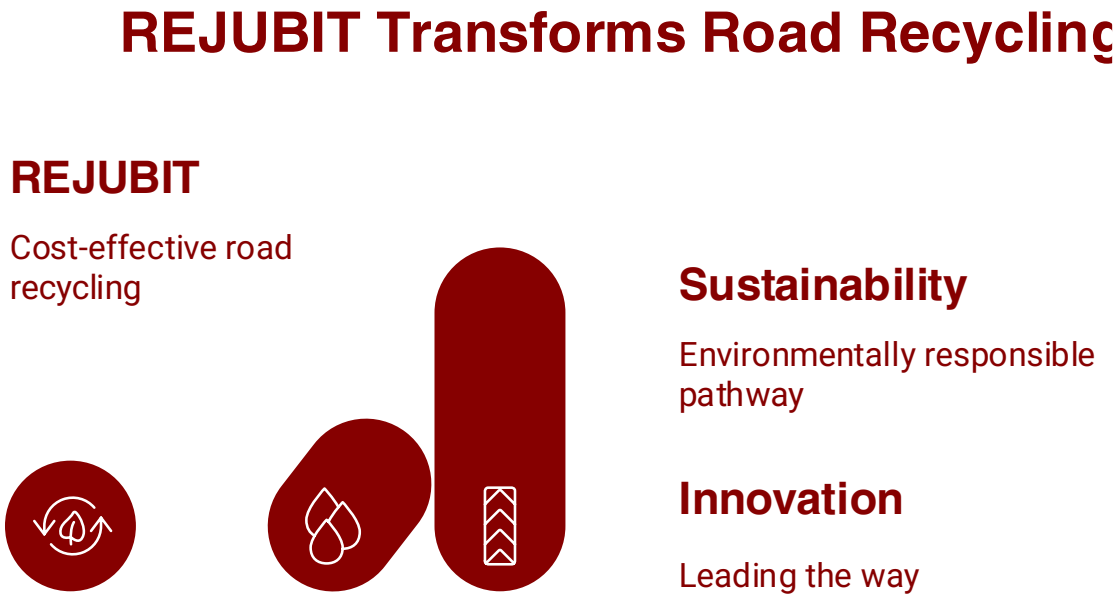
By accelerating its adoption across national highways, state roads, and urban corridors, REJUBIT can unlock significant economic value while enhancing climate resilience and promoting responsible resource utilization.

Far beyond a mere bitumen additive, REJUBIT stands as a breakthrough enabler of next-generation infrastructure. It represents a convergence of innovation, institutional support, and executional strength—setting a global precedent in sustainable infrastructure. Its performance across diverse applications—from arterial roads to airports—positions it as a benchmark for environmentally responsible engineering. Scalable, field-proven, and aligned with national priorities, REJUBIT elevates India from a consumer of road technologies to a global exporter of sustainable pavement solutions.

Conclusion

As India races towards becoming a $5 trillion economy, infrastructure must be built not just faster, but smarter. REJUBIT offers a technically validated, cost-effective, and environmentally responsible pathway to transform road recycling from an exception to the norm.

The road to sustainability is paved with innovation—and REJUBIT is leading the way.



Building Sustainable Roads with Geosynthetics: CTM Technical Textiles' Contribution to India's Infrastructure Future

India's road network, stretching over 6.3 million kilometres—the second largest in the world—is the backbone of its economy. Roads connect industries, markets, and people, driving growth at every level. But challenges are mounting: heavier traffic, varied soil conditions, escalating construction costs, and rising pressure to cut carbon emissions.

At **CTM Technical Textiles Ltd.**, we believe the answer lies not just in building *more* roads, but in building them *better*—smarter, stronger, and more sustainable. That's where **geosynthetics**, an advanced class of engineered materials, are transforming road construction.

Why Geosynthetics Are the Future of Roads

Conventional road-building methods depend heavily on natural resources such as stone, sand, and aggregates. While tried and tested, they have limitations:

- Pavements wear out quickly under heavy loads.
- Maintenance costs rise year after year.
- Quarrying and transport increase carbon emissions.

Geosynthetics—such as geogrids, geotextiles, geocells, and reinforcement fabrics—solve these problems. They improve load distribution, strengthen soil, and cut down material use. The results are longer-lasting pavements, lower costs, and reduced emissions.

Research shows that geosynthetics can:

- Cut aggregate use by **20–30%**
- Extend pavement life by **50–70%**
- Reduce CO_2 emissions by **15–25%**

CTM's Range of Geosynthetic Solutions

As one of India's leading manufacturers, CTM offers a comprehensive portfolio tailored to road and highway projects:

1. Polypropylene (PP) Biaxial Geogrids

- Produced in a world-class facility with 22 million sqm annual capacity.
- Ideal for base reinforcement in highways, rural roads, and estate roads.
- Prevents rutting and improves load-bearing capacity.

2. Polyester (PET) Geogrids

- Designed for MSE walls, slopes, and embankments.
- High tensile strength and long-term durability.
- Widely used in highways, rail corridors, and industrial infrastructure.

3. Glass Fibre Geogrids

- Engineered for asphalt reinforcement.
- Prevents reflective cracking and reduces rutting.
- Perfect for overlays, airport runways, and busy urban highways.

4. Geotextiles

- Nonwoven and woven options for separation, filtration, and drainage.
- Extensively used in subgrade stabilization and rail projects.

5. Geocells

- 3D HDPE confinement systems.
- Ideal for load support, slope stability, and rural road construction.

Together, these solutions enable engineers to optimize designs, reduce resource use, and deliver roads built to last.

Supporting India's Infrastructure Vision

Government initiatives like **Bharatmala Pariyojana, PMGSY, and the National Infrastructure Pipeline** aim to expand India's road network while ensuring durability and sustainability. CTM contributes by:

- **Manufacturing locally:** Reducing dependence on imports.
- **Partnering with contractors and consultants:** Providing design and technical support.
- **Driving sustainability:** Each project using CTM geogrids conserves natural resources and lowers emissions.
- **Ensuring quality:** Advanced testing facilities ensure compliance with global standards.

Real-World Applications

- **Highway Base Reinforcement (PP Geogrids):** Improved pavement life by 60%, lowering maintenance cycles.
- **Slope Reinforcement (PET Geogrids):** Enabled stable construction on steep and challenging terrains.
- **Asphalt Reinforcement (Glass Fibre Geogrids):** Extended overlay life by 3–5 years on urban highways and runways.

Impact on Sustainability and Safety

- **Resource Conservation:** Reduced reliance on quarried aggregates.
- **Lower Emissions:** Optimized designs cut CO_2 per kilometre of road.
- **Improved Road Safety:** Longer-lasting pavements prevent failures and ensure safer travel.

At CTM, sustainability is not an add-on—it's at the core of every product we design.

Conclusion: Roads Built for Tomorrow

Roads are more than asphalt and concrete—they are the arteries of growth and progress. Geosynthetics are no longer optional; they are essential to modern road construction.

CTM Technical Textiles Ltd. is committed to building stronger, longer-lasting, and eco-friendly roads. With our advanced range of PP, PET, and Glass Fibre Geogrids, Geotextiles, and Geocells, we are helping India create infrastructure that balances growth with sustainability.

Together with policymakers, engineers, and builders, we are paving the way for the future—**one reinforced road at a time.**

The AI-Driven Highway Ahead: Shaping India's Future with Smarter Roads and Safer Transport

By: Karunamoy Ghosh, ITD Cementation India Ltd.

Introduction

India's infrastructure faces pressing challenges—traffic congestion, rising emissions, frequent road accidents, and climate risks such as flooding. Artificial Intelligence (AI), when combined with the Internet of Things (IoT), is redefining how transport systems are planned, built, and managed. IoT sensors embedded in roads, vehicles, and public infrastructure capture real-time data on traffic flow, pavement stress, and weather conditions, while AI algorithms transform this data into actionable insights—for example, predicting congestion, identifying accident-prone zones, or scheduling preventive maintenance.

Together, these technologies connect highways, bridges, and logistics corridors with advanced digital platforms such as Building Information Modeling (BIM), Geographic Information Systems (GIS), and digital twins. Unlike static models, digital twins are dynamic replicas of infrastructure that evolve with IoT data, allowing engineers to simulate stresses, floods, or seismic risks at the design stage, monitor construction quality with drones and Light Detection and Ranging (LiDAR), and guide predictive maintenance across the asset's lifecycle. The outcome is a smarter ecosystem that delivers safer roads, optimized freight movement, reduced emissions, and better use of resources such as time, energy, and money.

AI in Engineering and Construction

AI is reshaping project delivery and safety. By scanning CAD drawings and BIM models, AI can detect missing guardrails, unsafe curves, or poor drainage. When combined with hydrological and rainfall datasets, machine learning predicts flood-prone stretches, as demonstrated by IIT Madras. Generative design tools simulate alternative layouts and material usage, providing optimized solutions. On construction sites, autonomous pavers and tunneling machines supported by IoT compaction sensors improve quality, while drone-based LiDAR surveys compare site progress against BIM models. Worker safety is enhanced with IoT wearables, and predictive analytics help Planning managers forecast delays and optimize resources.

Smart Traffic Management

Congestion costs India billions each year. AI + IoT solutions bring real-time improvements. Adaptive traffic signals fed by IoT cameras and sensors dynamically adjust cycles; Bengaluru piloted such systems under the "Actionable Intelligence for Sustainable Traffic Management (ASTraM)" initiative. On expressways, ramp meters and variable speed signs use AI traffic prediction to smooth flows and cut emissions.

AI in Road Safety and Monitoring

Road safety remains urgent, with nearly 150,000 fatalities annually. AI-enabled Advanced Driver Assistance Systems (ADAS) detect fatigue, lane drift, and collisions; Tata Motors has begun integrating these features. AI-powered Automatic Number Plate Recognition (ANPR) cameras now detect speeding, overloading, and wrong-way driving, with deployments being expanded by NHAI

Logistics and Freight Optimization

AI optimizes freight through dynamic routing, using IoT GPS trackers to account for congestion, tolls, and weather. Predictive maintenance keeps fleets reliable by monitoring engines and brakes. End-to-end visibility is strengthened with RFID-based IoT devices, while AI dashboards aggregate this data into accurate ETAs.

Sustainable and Green Mobility

AI supports India's green mobility goals. IoT-linked EV chargers supply usage data that allows AI to balance grid demand and forecast charging needs. Public transit systems benefit from IoT passenger counts feeding AI demand models that adjust bus frequency dynamically. Air-quality sensors stream emission data to AI dashboards that help identify and mitigate pollution hotspots, aligning with COP26 commitments.

AI for Infrastructure Planning and Asset Management

AI combined with IoT strengthens long-term asset management. Real-time stress and vibration data from embedded sensors are analyzed to identify assets needing urgent repair. Predictive models help prioritize budgets and prevent breakdowns. Feedback loops connect IoT-enabled construction data with asset management platforms for continuous improvement. In the US, RoadBotics has shown how smartphone-based AI can assess pavement conditions and generate cost-effective maintenance maps.

Global and Indian Case Studies

Worldwide adoption shows measurable results. Singapore's ERP system uses IoT and 5G to dynamically manage toll pricing and urban mobility. In the US, IBM and New York DOT predict potholes with AI and IoT data, cutting repair costs, while Nevada's Waycare predicts crashes up to two hours in advance. In Europe, the C-Roads platform links IoT-equipped vehicles with AI for eco-driving and hazard warnings, while the HERON project (EU) combines AI, IoT, and autonomous robots for road maintenance.

India has several strong pilots. The iRASTE project in Nagpur—led by Intel India, IIIT-Hyderabad, CSIR-CRRI, and Mahindra—uses AI to train drivers and reduce fatalities. The iRAD app collects accident data across agencies to identify blackspots. Kerala's Safe Camera initiative deployed 726 AI + IoT cameras to significantly reduce traffic violations. On the Dwarka Expressway, India's first AI-based Advanced Traffic Management System (ATMS) now detects 14 types of violations in real time.

Roadmap for India

India's roadmap should start with a **National AI–IoT Mobility Mission** that defines a unified framework and governance standards. **Open data platforms** must integrate traffic, logistics, and accident datasets from IoT devices to enable real-time analytics. **Successful pilots**—such as Bengaluru's adaptive signals and Kerala's AI enforcement cameras—should be expanded to tier-2 and tier-3 cities. **Capacity building** is equally vital, embedding AI–IoT modules into engineering curricula and establishing centers of excellence for research and training. Finally, AI and IoT must be **embedded in green mobility strategies**, from EV charging networks to multimodal transport planning, ensuring India's transition toward carbon neutrality.

Future of 3D Geospatial Technology

3D geospatial tools will play a central role in the next phase of infrastructure. By combining 3D GIS, drones, and LiDAR with AI and IoT, engineers can build highly accurate digital models of cities, simulate floods or slope failures, and detect risks early. These capabilities support smarter urban mobility planning, resilience to climate change, and compliance monitoring, making infrastructure safer and more sustainable.

Conclusion

AI, powered by IoT, is already transforming India's transport ecosystem. From safety reviews at the design stage to predictive maintenance, adaptive traffic management, and EV integration, AI offers practical answers to congestion, safety, and sustainability. With 3D geospatial tools integrated into planning, India can move toward a future where digital models, LiDAR mapping, and simulation shape infrastructure that is safer, smarter, and more resilient. Adopting AI, IoT, and geospatial technologies is not just modernization, but a pathway to building world-class roads and mobility systems for all citizens.

AWARDS

5

Mr. K. K. Kapila Conferred with the Prestigious FIDIC Louis Prangey Award

At the **FIDIC Global Infrastructure Conference 2025** in **Cape Town**, our **Founder President, Mr. K. K. Kapila**, was conferred with the **Louis Prangey Award** — the highest recognition by **FIDIC** in its illustrious **113-year history**.

The **FIDIC Louis Prangey Award** is the federation's most prestigious global honour, recognizing individuals who have made outstanding contributions to the consulting engineering profession worldwide.

Mr. Kapila becomes the **first-ever Asian** and only the **20th recipient worldwide** of this ultimate distinction. The award, presented by the **International Federation of Consulting Engineers (FIDIC)**, represents the pinnacle of honour in the global consulting engineering profession. It acknowledges outstanding service and exceptional leadership in advancing engineering, infrastructure development and professional excellence across the world.

This recognition, aligned with the **G20 theme of "Solidarity, Equality and Sustainable Development,"** celebrates **Mr. Kapila's lifelong commitment** to creating safer, sustainable, and inclusive infrastructure. His contributions have significantly shaped the global dialogue on road safety, engineering standards and sustainable mobility.

A **proud milestone for India and Asia**, and a **moment of inspiration** for the entire global road safety and infrastructure fraternity.

The IRF family extends its heartfelt congratulations to **Mr. K. K. Kapila** for this historic achievement that reinforces India's growing leadership in the global consulting and infrastructure ecosystem.

IRF-IC at the 7th FICCI Road Safety Awards & Symposium 2025

"Vision Zero: Life First, Always"

The **International Road Federation – India Chapter (IRF-IC)** participated in the **7th Edition of FICCI Road Safety Awards & Symposium 2025**, held on **4th September 2025 at Federation House, New Delhi**, under the theme *"Vision Zero: Life First, Always."*

The symposium brought together policymakers, industry experts, and NGOs to discuss road safety challenges and innovations — from tyre technology and AI-driven enforcement to corporate accountability, community awareness and emergency care.

🏆 Member Recognition: Maruti Suzuki Awarded for Trauma Care Initiative

IRF-IC congratulates **Maruti Suzuki India Limited** for receiving recognition at the symposium for its impactful **Trauma Care Programme**. Conducted through its **IDTR Centres** in Rohtak, Bahadurgarh, Dehradun, Aurangabad (Bihar), Raipur (Chhattisgarh), and Delhi, the initiative has trained thousands of drivers as first responders in trauma and CPR — a true example of leadership under IRF's 5th 'E', *Emergency Care*.

IRF-IC's Message: A Call for National Mission on Road Safety

IRF-IC highlighted that India recorded **173,000 deaths** and **nearly 5 lakh accidents** in 2023, with over **70% of fatalities due to human error** — overspeeding, negligence, and rule violations — costing the nation nearly **3% of GDP** each year.

Despite the efforts of numerous NGOs working in different areas, the results remain fragmented, and fatalities continue to rise.

IRF-IC therefore urged that **Road Safety be declared a National Mission**, much like *Swachh Bharat Abhiyan*, and appealed to the **Hon'ble Prime Minister** and **Shri Nitin Gadkari ji** to address the nation — inspiring citizens to stop overspeeding, follow rules, and protect every life on the road.

With unified leadership and public participation, road safety can truly become a **people's movement**, achieving *Vision Zero – Life First, Always.*

IRF-IC ENGAGEMENT

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Enabling Safe & Smart Cities – CXO CSR Roundtable, Bengaluru

Held on 7th August 2025 | Taj, MG Road, Bengaluru

The **International Road Federation – India Chapter (IRF-IC)**, with the support of **The India Advantage Summit (TIA Summit)** and **Arcadis**, successfully hosted the **CXO CSR Roundtable on Enabling Safe and Smart Cities** at Taj, MG Road, Bengaluru. The event brought together senior corporate leaders, policymakers, and road safety experts to discuss collaborative solutions for creating safer and more sustainable cities.

During the roundtable, **Mr. Akhilesh Srivastava**, President, IRF-IC, delivered an impactful presentation on the **School Zone Safety Programme** being implemented across **809 schools in Bengaluru**, covering over **5 lakh children**. The programme—anchored on the principles of *Adopt, Audit, Act*—aims to transform "danger zones" around schools into safe, child-friendly mobility environments through data-driven audits, design improvements and community engagement.

The initiative is supported by **Arcadis** as the *Knowledge and Execution Partner*, ensuring global best practices in road safety audits, digital monitoring and infrastructure interventions.

The session witnessed strong participation and commitment from leading corporates such as **HP, Mercedes-Benz, Intel, and Dalmia Cement Ltd.**, who expressed their intent to support this cause under their CSR initiatives. Together, these partnerships will help make Bengaluru **India's first model city for school zone safety**.

A glimpse video of the event captured the spirit of collaboration and commitment towards protecting young lives and shaping safer cities for the future.

"Every child deserves a safe journey to school — not just as a goal, but as a responsibility we all share."

Join the Movement – Adopt, Audit, Act.

IRF India Chapter invites corporates and organizations to partner under their **CSR framework** to make school zones safer across India. By adopting schools and supporting the School Zone Safety Programme, your organization can play a pivotal role in **saving lives, empowering communities, and building a lasting legacy of road safety.**

For partnership and CSR collaboration opportunities, please write to:
✉ **india@irf.org.in** | 🌐 www.indiairf.com/szs

Mr. K. K. Kapila delivers Keynote Address at Curtain Raiser for Leadership Program on Intelligent Transportation Systems (ITS)

We are pleased to share that **Mr. K. K. Kapila**, President Emeritus, IRF & *Founder President, IRF India Chapter*, delivered the **Keynote Address** at the **Curtain Raiser of the Leadership Program on Emerging Opportunities & Innovations in Intelligent Transportation Systems (ITS)**.

The event was held on **Wednesday, 10 September 2025**, at the **South Asian University (SAU), New Delhi**, organized **in collaboration with SAU and the ITS India Forum**.

In his keynote address, Mr. Kapila emphasized the transformative role of **Intelligent Transportation Systems** in shaping the future of road safety, traffic management, and sustainable mobility. He highlighted the importance of integrating technology-driven solutions—such as real-time traffic monitoring, connected vehicles and smart infrastructure—to achieve **efficiency, safety and sustainability** in India's transport ecosystem.

The leadership program aims to nurture professionals and policymakers with a comprehensive understanding of emerging ITS opportunities, innovations, and implementation strategies. It serves as a platform for cross-sector collaboration among academia, government agencies, and industry leaders to drive India's transition towards intelligent, data-driven mobility systems.

The International Road Federation remains committed to supporting such initiatives that align with its vision of **safer roads and smarter mobility for all**.

IRF India Chapter joins as Supporting Partner at ET Infra Roads & Highway Summit

Building India's Next-Gen Infrastructure: The Critical Role of Digital Enablement

Can India build **smarter, faster, and more sustainable infrastructure—digitally?** That was the central theme explored at the **ET Infra Roads & Highway Summit**, where a thought-provoking **Fireside Chat** brought together leaders shaping the future of India's infrastructure landscape.

The **International Road Federation – India Chapter (IRF-IC)** was proud to serve as a **supporting partner** for this high-impact event, underscoring its mission to promote **technology-driven, efficient and resilient infrastructure development** across the country.

Shri Akhilesh Srivastava, President, IRF India Chapter invited for a session, titled *"Building India's Next-Gen Infrastructure: The Critical Role of Digital Enablement,"* highlighted how digital transformation is reshaping project delivery — from **EPC digitization and automation** to **real-time data integration** and **policy innovation**.

🎯 Key Takeaways

- **Construction technology is now mission-critical**, bridging the gap between vision and execution.
- **Empowering EPCs** with digital workflows, project intelligence, and real-time data is essential for timely and efficient delivery.
- **Policy, platforms, and financing mechanisms** must evolve in sync to enable scalable tech-first models.
- **Connected collaboration** among contractors, technology providers, and government agencies will define the next phase of infrastructure growth.

❗ *"Speed and scale will define tomorrow's infrastructure—technology is the enabler that ensures we don't compromise on quality."*

IRF-IC's Perspective

As a supporting partner, **IRF India Chapter** reaffirmed its commitment to advancing the digital transformation of India's infrastructure ecosystem. Through collaboration with policymakers, industry leaders, and technology providers, IRF-IC continues to champion initiatives that integrate **digital enablement, safety and sustainability** — building a stronger foundation for India's next growth era.

IRF-IC in News Media

7

Jamshedpur **BUSINESS** Tuesday, Nc

IRF lauds govt's move to install QR code on road projects

New Delhi, Nov 3 (IANS) The International Road Federation (IRF) on Monday lauded the Ministry of Road Transport and Highways for its initiative to install QR codes on major road projects.

The IRF called the initiative a significant step towards transparency, participatory governance, and monitoring of construction quality.

"This forward-thinking measure marks a significant milestone in the nation's journey towards creating a more transparent, accountable, and technology-driven infrastructure management system," the organisation said in a letter to Union Minister of Road Transport and Highways, Nitin Gadkari.

QR codes will provide public access to data on road construction and maintenance, enhance contractor accountability, and improve durability and safety throughout the national road network.

Gadkari had announced that all national highway projects in India will soon feature QR codes displaying complete project details -- from contractors and consultants to funding.

The organisation, along with the Intercontinental Consultants and Technocrats Pvt. Ltd, applauded the "foresight in ensuring that contractors remain accountable for road maintenance for up to 10 years, which will go a long way in strengthening the culture of responsibility and excellence in the sector."

International Road Federation (IRF) applauds government's new mandate to install QR codes on major road projects, citing increased transparency and accountability.

आईआरएफ ने सड़क परियोजनाओं पर क्यूआर कोड लगाने के कदम का स्वागत किया

नई दिल्ली, (भाषा)। अंतरराष्ट्रीय सड़क महासंघ (आईआरएफ) ने सोमवार को प्रमुख राजमार्ग परियोजनाओं पर क्यूआर कोड लगाने की हालिया घोषणा का स्वागत किया और इसे पारदर्शिता की दिशा में एक नई और साहसिक पहल बताया। केंद्रीय सड़क परिवहन एवं राजमार्ग मंत्री नितिन गडकरी ने सड़कों की गुणवत्ता में सुधार के लिए उनके किनारे क्यूआर कोड लगाने की पहल की है। आईआरएफ एक वैश्विक सड़क सुरक्षा निकाय है, जो दुनिया भर में बेहतर और सुरक्षित सड़कों के लिए काम करता है। आईआरएफ के मानद अध्यक्ष के के कपिला ने कहा कि भारतीय सड़कों की गुणवत्ता और निगरानी में सुधार के लिए क्यूआर कोड लागू करने की यह साहसिक, नई और दूरदर्शी पहल है। उन्होंने इसे अधिक पारदर्शी, जवाबदेह और प्रौद्योगिकी संचालित बुनियादी ढांचा प्रबंधन प्रणाली बनाने की दिशा में मील का पत्थर बताया। कपिला ने कहा, सड़क निर्माण की गुणवत्ता और रखरखाव की वास्तविक समय पर निगरानी को सक्षम करके, यह पहल भारत के सड़क नेटवर्क के स्थायित्व, सुरक्षा और दीर्घकालिक स्थिरता को सुनिश्चित करने में एक महत्वपूर्ण भूमिका निभाएगी। गडकरी ने हाल में कहा था कि राष्ट्रीय राजमार्गों पर यात्रा करने वाले जल्द ही संबंधित ठेकेदारों और अधिकारियों के नाम, पते और मोबाइल नंबर सहित आवश्यक विवरण प्राप्त कर सकेंगे।

The Pioneer

NEW DELHI | TUESDAY | NOVEMBER 4, 2025

IRF welcomes highways ministry's move to install QR code on road projects

PRESS TRUST OF INDIA
New Delhi

International Road Federation (IRF) on Monday welcomed highways minister Nitin Gadkari's recent announcement to install QR code on every major road project for improving the quality of roads and termed it as a bold new transparency push and a major step towards participatory Governance.

IRF is a global road safety body working for better and safer roads worldwide. IRF president emeritus KK Kapila said the bold new transparency and visionary initiative to introduce QR codes for improving the quality and monitoring of Indian roads marks a significant milestone in the nation's journey towards creating a more transparent, accountable and technology — driven infrastructure management system.

"By enabling real-time tracking of road construction quality and maintenance, this initiative will go a long way in ensuring durability, safety, and long-term sustainability of India's road network," Kapila said.

The move to implement QR codes is seen as a significant step towards real-time tracking of construction quality, enhancing durability, safety, and long-term road network sustainability.

IRF launches global registry training for Road Safety auditors at NHAI

TSN/New Delhi:

The International Road Federation (IRF), a Geneva-based global body dedicated to improving road safety worldwide, has launched its International Registry for Road Safety Auditors, a 10-day certified training programme, at the National Highways Authority of India (NHAI) premises in New Delhi.

The programme, supported by IRF's India Chapter and global sustainable organisation Total Energies, aims to build a pool of certified road safety professionals in India. Participants include engineers and professionals from NHAI, NHIDCL, CRRI, highway operators, consultants, and the infrastructure industry.

Designed to blend theory, practical case studies, and on-ground fieldwork, the training focuses on equipping professionals in highway development, road construction, traffic engineering, and urban transport planning with advanced auditing skills. The sessions are being conducted by Eur Ing. Miguel-Angel Serrano Santos, a UK-based expert with over 25 years of experience in international road safety audit practices.

The course covers a wide range of subjects including legal and institutional frameworks, Safe System and Vision Zero strategies, crash data analytics, blackspot identification, economic evaluations, road design audits, vulnerable road user (VRU) safety, iRAP tools, and work zone safety.

Speaking at the inauguration, Mr. Vivek Jaiswal, CGM, NHAI, praised IRF's initiative and reaffirmed NHAI's support in strengthening India's road safety framework. Mr. K. K. Kapila, President (Emeritus), IRF, acknowledged the contribution of Total Energies in promoting this global program and urged participants to leverage the learnings to enhance safety standards.

Mr. Akhilesh Srivastava, President, IRF-India Chapter (IRF-IC), emphasised that as part of IRF-IC's flagship 5E programme, this initiative underscores the importance of engineering safer roads and promoting the concept of "forgiving roads" across the country.

The training, which has previously been held in countries such as Tanzania, the UK, and Australia, marks a significant step toward advancing road safety capacity building in India. By launching the International Registry for Road Safety Auditors, IRF aims to strengthen professional standards and foster international collaboration in pursuit of Vision Zero – the goal of eliminating road crash fatalities and serious injuries worldwide.

IRF urges zero GST on helmets to curb road deaths

New Delhi:

The International Road Federation (IRF), a Geneva-based global body working for safer roads, has raised alarm over the rising number of road accident deaths in India. Citing the latest data released by the Union Ministry of Road Transport and Highways (MoRTH), the federation noted that two-wheeler riders remain the most vulnerable group on Indian roads, accounting for nearly half of all fatalities.

According to MoRTH figures, 45 percent of road accident deaths in 2023 involved two-wheeler riders. Out of 77,539 such deaths, around 50,000 riders lost their lives because they were not wearing helmets. The IRF has written to Prime Minister Narendra Modi urging the government to reduce the Goods and Services Tax (GST) on helmets from the current 18 percent to zero in order to make quality helmets more affordable.

"One of the most effective measures to reduce two-wheeler accident injuries and fatalities is the use of standard helmets. About 31 percent of the riders died due to head injuries. Yet helmet usage in our country remains low," said K K Kapila, President Emeritus of IRF.

Kapila explained that a large share of two-wheeler riders belong to economically weaker and lower-income groups. Many of them opt for cheaper helmets, often of inferior quality, that fail to provide adequate protection during accidents. "Currently, helmets attract 18 percent GST de-

Mr. K. K. Kapila conferred the Louis Prangey Award

Ahmedabad, Mr K K Kapila, chairman Intercontinental Consultants and Technocrats (ICT) and President Emeritus, International Road Federation (IRF) has been conferred with the Louis Prangey Award, the highest recogni... individuals who have ma... contributions...

an individual for service to the profession. Geneva based FIDIC is an international standards organization for construction technology and consulting engineering. FIDIC Awards are global honors that recognize excellence in infrastructure projects, consulting engineering, and the use of FIDIC contracts worldwide. The FIDIC Louis Prangey Award is FIDIC's highest recognition for outstanding service to the global consulting engineering profession, established to honor founding FIDIC President Louis Prangey. It is presented to

Mr. K. K. Kapila, the first-ever Asian to be conferred this ultimate distinction in FIDIC's 113-year history.

IRF, led by President Emeritus K. K. Kapila, strongly urged the government to implement zero GST on helmets.

Membership / Upcoming Events

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Types of memberships

For more details: www.indiairf.com/full-membership-plan/

Upcoming Events:

Research & developments in autonomous vehicle technologies in India
Their Potential in Road Safety and Implication (Lecture)
14th of November 2025

National Road Safety Mission For Schools
An IRF – IC & Acdmemia Axis Edtech Initiative
20th of November 2025

IRF – IC's Foundation Day
21st of January 2026

IRF INDIA CHAPTER

IRF INTERNATIONAL ROAD FEDERATION

Global Road Infratech Summit & Expo

05-06 FEBRUARY 2026
Hotel The Ashok | New Delhi | India

GRIS GLOBAL ROAD INFRATECH SUMMIT & EXPO 2026

"Vision Zero India: Integrating Safety, Sustainability and Technology in Infra"

In Collaboration with
ITS India Forum
Bitumen Forum

Supporting Partners
CERA Construction Equipment Rental Association
Lifeline Foundation

Event Managed by
Roccia Group International

Knowledge Partner
CSIR CRRI

Launch Alert
Our New Road Safety LMS is Here!

We are pleased to announce the launch of our brand-new Learning Management System (LMS), specifically designed to enhance the training and education of all road users.

This cutting-edge platform offers engaging, **easy-to-access modules and resources covering everything** from defensive driving techniques to the latest traffic laws. Whether you're a new driver, a seasoned professional, or simply looking to refresh your knowledge, this LMS is your essential tool for building safer, more responsible road habits.

Get ready to explore a better way to learn! We believe that better-educated road users lead to safer roads for everyone, and this new platform is central to that mission.

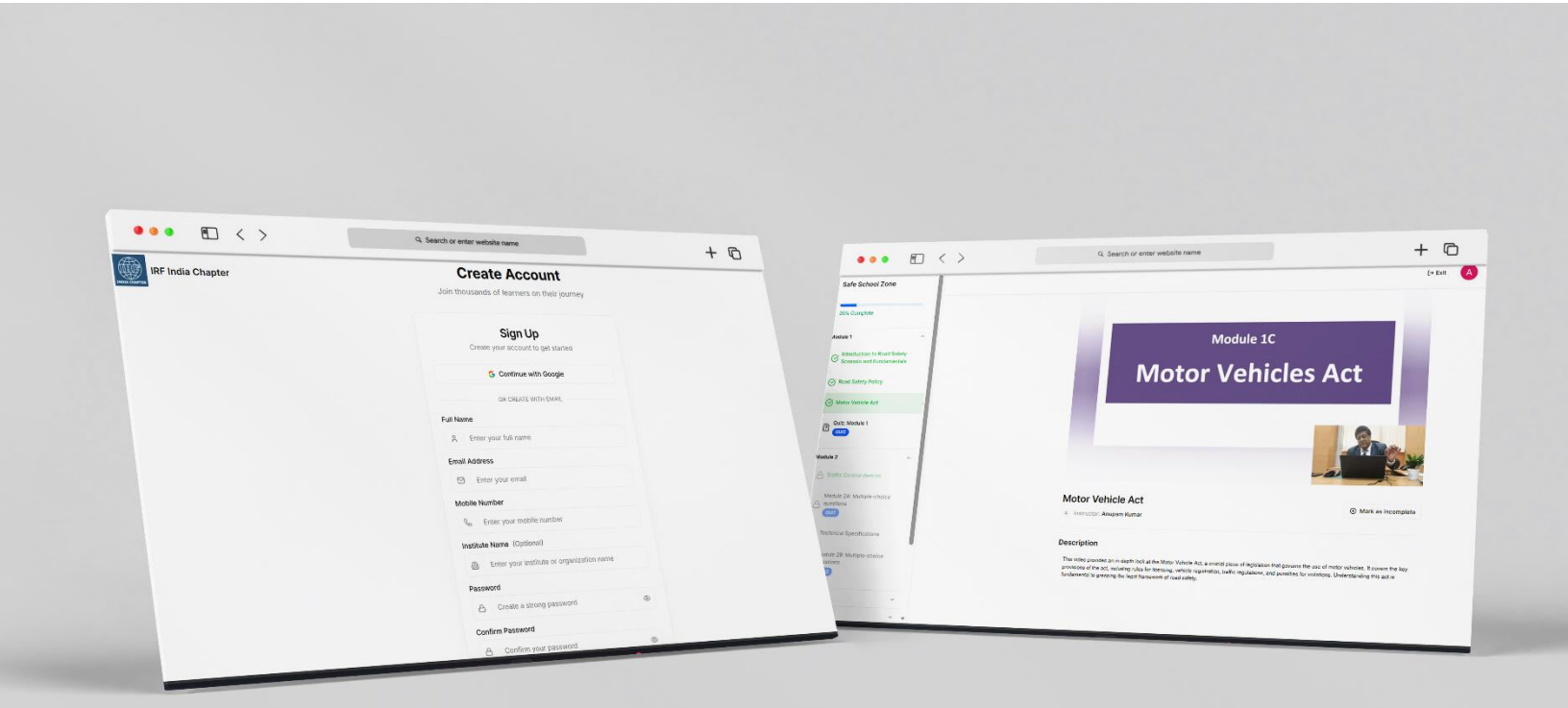
What's Inside?

- **This is more than just a website:** it's your essential, all-in-one resource for building safer driving habits and mastering road knowledge. Inside the LMS, you'll find:
- **Interactive Modules:** Engaging, short-form courses covering defensive driving, understanding new traffic regulations, hazard perception, and more.

Accessible Anytime, anywhere: Learn at your own pace, on any device—whether you're on a desktop at home or using your phone on the go.

We believe that better-educated road users are the foundation of a safer community. By providing these engaging, easy-to-access tools, we are taking a significant step toward reducing incidents and fostering a culture of road responsibility.

Ready to explore? Log in today to see the exciting changes and start your journey toward becoming the safest road user you can be! (https://irf-lms.prodioslabs.com/sign-in)



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What Chanakya Says...

Why the Traffic Signs & Markings are Poor in India?

Hon'ble Minister of Road Transport & Highways made a very serious remark in the Inaugural Function of GRIS-2025 (March 2025) that the country's standards on Road Signs and Road Marking are probably not very good and that is why all these are in shamble across the country in urban and non-urban roads and highways. He also highly praised the signs and markings in most European countries. Based on his bad experiences about signs and markings, Hon'ble Minister blamed the IRC (Indian Roads Congress) Codes and Manuals, which describe the country's standards for Road Signs and Road Markings. International Road Federation – India Chapter has done a detailed causal analysis about the poor conditions of signs and markings, a summary of that report is given here. The standards adopted for use in India are largely based on research of developed world and those adopted in AASHTO (American), BS (UK) and CEN (European) standards, duly modifying them for the need and appropriateness in India. Therefore, there is no concern of shortcomings in the standards and specifications given in the codes/manuals of IRC, which are adopted uniformly across the country.

The problems are mainly created by the way these standards are implemented by the Road Agencies when they develop a road along a virgin alignment or upgradation of an existing road/highway. The deficiencies are largely due to the fact that DPRs do not include the complete detailed designs of signages and markings for the road/highway. Secondly, the implementation arrangement is always through the subsidiary agencies by the civil works contractor (where civil works contractor does not have any understanding or expertise of signs and markings). As a result the project implementation team of the Road Authority starts directing the awarded contractor for implementation of signs and markings, in absence of detailed designs for these. Thirdly, the criticality is further vitiated by the contractual system, where the Engineer of the project is given supreme authority, who probably does not have skills and expertise on these matters.

The **Code of Practice for Road Signs** (IRC:67) is prepared as per the protocol of Vienna Convention (1968) with symbolic representation for conveying the message in most cases. These have to fulfill five basic requirements: (i) for a specific purpose, (ii) command attention and respect, (iii) convey clear and simple meaning, and (iv) and give adequate time for response. The design, placement, maintenance and their uniformity are to be ensured completely to maximize the ability of road signs to meet these objectives. The codal provisions are for special understanding and needs of field engineers, and these are equivalent of any international standards for signs. Similarly, **Code of Practice for Road Markings** (IRC:35), which guides for uniformity in design, position and application so that these are recognised and understood immediately by road users. They perform an important function of guiding traffic for correct placement of vehicles, especially for channelizing traffic through the intersections. While a sign may be stolen or vandalised and even missed by a road user, but markings are never missed, as these are on the pavement surface. Codal provisions are with details of material and design, which are equivalent of any international standard for markings.

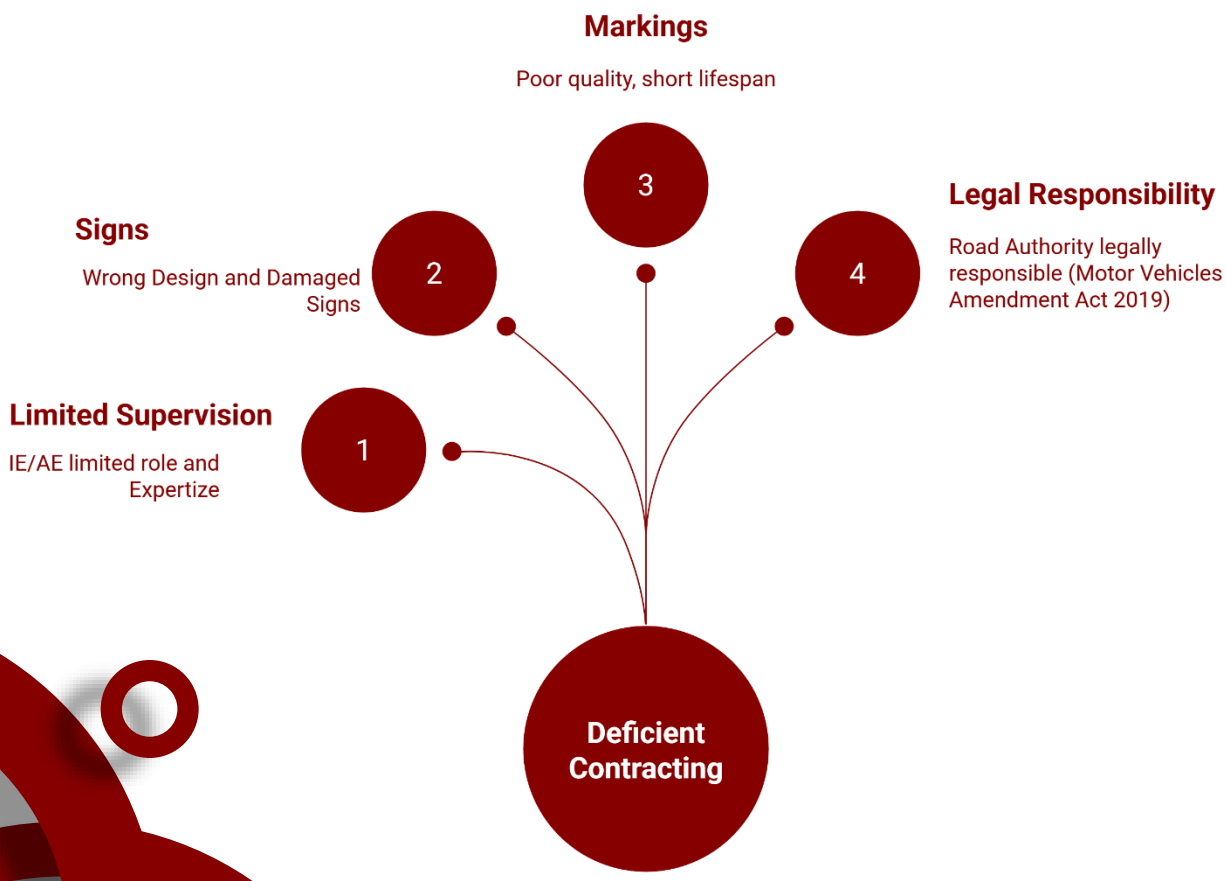
As part of the DPR (detailed design of a road), the signs and markings are also to be completely designed with detailed sign schedule and marking schedule as per the respective codal provisions. The size, shape and symbols of all signs are given in the code except the direction/information signs, which are to be designed for the information content. Thus, sign and marking schedules, as part of the DPR, should give the signs and markings to be provided with their exact chainages and the designed layouts and placements indicating the dimensions and specifications. Anything planned and designed well is likely to be implemented well, and therefore, it may be better to execute these under the supervision of the designer.

The implementation arrangements for signs and markings are also having serious flaws. The civil works contractor has least competence on signs and markings, and therefore, the PD and IE/AE advises the contractor and the agencies selected for signs and markings use their converter and applicator for actual execution of the work. This lowest cadre of agencies have limited knowledge and expertise for the work (some of them are probably not fully equipped also), the output of which is having most serious implications on safety of traffic operation for the road. Even a deficient design also can be operated safely with strict control of traffic by well-designed and implemented signs and markings. The other complicacy in implementation is that, while the design and layout are given by the IRC codes, the specifications of the materials are to be used as per MoRTH Specifications. In addition, for some specific cases, Ministry also has issued circulars for overriding deviations from the provisions of IRC codes. All these create a highly confusing environment for implementation, and contractors are often found to take advantage of such confusions. Due to these deficiencies in Implementation only, a large number of signs and markings are with wrong design and placement, many are missing, and also not designed as per standard, leaving them in a shamble (as stated by Hon'ble Minister).

The contracting system for DPR consultant, civil works contractor, and the sub-contracting with sign and marking vendors and their collateral outsourcing for execution by converters and applicators, all of which need a complete overhaul for achieving appropriate and standard output for signs and markings to be provided on roads. All the deficiencies in the system are assumed to be covered by MoRTH Specification (Orange Book) in the provision as "In the absence of details or for any missing details in the contract documents, the signs shall be provided as directed by the Engineer", which is further vitiating the system. Contractually there is very limited requirement of technical supervision and quality check from the IE/AE for any of the projects, which is only for the documentation of construction. Further, like any other part of the road infrastructure, signs and markings also need maintenance; and signs are seen to be stolen and often damaged by accidents or even defaced/vandalized by miscreants. Similarly, markings fade over time and non-standard markings may not be reflective or fades in a short time. A hazardous location not duly warned by signs and markings can lead to serious failure of road user causing devastating consequences. As per M.V. Amendment Act (2019) Road Authority will be legally responsible for any such mishaps, which implies that the responsibility of the Contractor and Road Authority that the responsibility of the Contractor and Road Authority does not get absolved for damaged or missing signs and faded road markings. The information communicated to the road users by sign and marking must be complete always without fail.

The signs and markings are highly sensitive elements of a road or highway in respect of safety, and must not be delegated to anyone with half or no knowledge at any stage of development and O&M of a road or highway. Trained and experienced traffic engineer only shall always be responsible for signs and markings for best result in traffic control.

Deficient Contracting Impacts Road Safety



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Major Safety Milestone

IRF–IC Engineers Certified

The International Road Federation – India Chapter (IRF–IC) is pleased to announce that two of our engineers have successfully completed the prestigious Road Safety Audit – Observer Level Certification under the IRF International Registry for Road Safety Auditors Program.

The certification programs were conducted at two distinguished venues — NHAI Headquarters, New Delhi (6th–17th October 2025) and MSRDC Office, Mumbai (27th October–7th November 2025) — under the expert guidance of Eur Ing Miguel-Angel Serrano Santos, IRF Lead Examiner,with over three decades of experience across Europe, Asia, and Africa.

Each session comprised 60 hours of intensive theoretical and practical training, culminating in written and practical examinations. The training focused on international best practices in road safety engineering, crash investigation, safe system approach, and the structured methodology for conducting road safety audits.

This globally recognized program, supported by the TotalEnergies Foundation, aims to build a professional cadre of certified road safety auditors worldwide and enhance India's technical capacity in implementing the 5E Safe System Approach.

The IRF–IC extends heartfelt congratulations to the participants for this achievement and reaffirms its commitment to advancing road safety excellence through capacity building and international collaboration.

Acknowledgement

We extend our sincere thanks to all our contributors, supporters, and readers who continue to inspire the content of this newsletter. Your engagement and feedback help us grow and serve you better in each issue.

IRF-IC Newsletter intends to reach a wide audience in India. We, therefore, seek to project and showcase activities of all our honourable members. Your contributions in the form of brief reports of all your activities, events, awards, brief articles and other accomplishments are invited

Editorial Board

We welcome Road Safety articles, snippets done by you and your Organization

International Road Federation – India Chapter

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