SIAM

Society of Indian Automobile Manufacturers

Building the Nation, Responsibly.

CONTEXT PAPER ON

Analyzing India's Imperatives for Road Safety

सुरक्षित सफर
SAFE JOURNEY
An initiative by SIAM

CONTENTS

SIAM
Society of Indian Automobile Manufacturers

About SIAM

The Society of Indian Automobile Manufacturers (SIAM) is an apex national body representing all major vehicle and vehicular engine manufacturers in India. It is a society with charitable objectives registered under the Societies Registration Act, 1860. Its objectives include enhancing the contribution of automobile industry to the growth and development of Indian economy, assisting the automobile industry to meet its social obligations and encouraging the efficiency of industry in general and automobile industry particularly in India. SIAM focuses on activities related to improvement of environment and ensuring safety and protection of automobile vehicle users and public at large. Recognising these objectives, SIAM has been granted registration under the Income Tax Act, 1961 as an institution with charitable purpose.

To meet these objectives, SIAM works closely with stakeholders in the formulation of the economic, environment and commercial policies, regulations and standards relating to automobiles. It provides economic and statistical information as well as technical and public policy services to the stakeholders on behalf of Indian Automobile Industry. It publishes Monthly Industry Statistics, Monthly Commodity Price Monitor and other periodic reports. SIAM organises seminars and workshops on the subjects of topical relevance and interest to the industry. It also carries out various public policy activities, particularly in the field of Road Safety and Environment.

SIAM works closely with various Government departments, both at Central and State level and with international bodies like International Organisation of Motor Vehicle Manufacturers (OICA), International Motorcycle Manufacturers Association (IMMA) and coordinate with other counterpart international associations.

SIAM, jointly with ACMA and CII, organises the Auto Expo - The Motor Show, an exhibition showcasing the trends in the Automobile Industry.

SIAM aims to promote Sustainable Mobility through focused initiatives and campaigns on जैविक पहल (Bio Initiative), हरित हाइड्रोजन (Hydrogen Mobility), गैस गतिशीलता (Gas based mobility), विधुतीकरण (Electrification), चक्रीयता (Circularity) and सुरक्षित सफर (Safe Journey) in alignment with Sustainable Development Goals, 2030 and Net Zero by 2070.

About SAFE

In order to achieve advancement of Inspection and Certification I(I&C) of vehicles and increased safety on roads, the Society of Indian Automobile Manufacturers (SIAM) has incorporated an independent body Society for Automotive Fitness & Environment (SAFE) in year 1999 with membership from Industry, Testing Agencies and NGOs.

SAFE works to spread education & awareness among the various stakeholders on the concerns of in-use vehicles which would lead to safer vehicles and cleaner environment

SAFE organizes inspection clinics for in-use vehicles and training workshops in various parts of the country for technicians in the area of pollution checking for prevention and control of air pollution from vehicles. These programmes are aimed at creating awareness amongst vehicle owners on importance of regular maintenance of their vehicles. It is one of the most effective ways to control emission levels from vehicles in the country.

In addition, SAFE also organizes seminars and interactive sessions/events on these subject with State Governments and other stakeholders.

SAFE has also commenced various initiatives for imparting road safety education to students, drivers and the general public at large. Through Road Safety Awareness Programmes, SAFE tries to sensitize the community on traffic rules and also to inculcate correct and responsible attitude towards fellow road users.

SAFE is playing a catalytical role in the automobile industry's endeavour to fulfil its commitment towards its mission for a cleaner and a safer environment and will continue to support and enhance the industry's role as a responsible corporate citizen in the country.

Executive Summary

India, with its rapidly expanding vehicle population, faces a significant challenge in road safety reporting the highest number of road accidents globally. In 2022, the country witnessed 460,000 road accidents, resulting in 168,491 fatalities. The primary causes of these accidents were over speeding and dangerous or careless driving, accounting for 55.9% and 27.5% of road accident deaths, respectively. Inadequate enforcement of traffic laws exacerbates the problem.

The impact of road accidents extends beyond human tragedy, affecting India's economy by reducing GDP by approximately 3.14%. To address this growing concern, the Indian government has adopted the 4Es of road safety - Engineering, Education, Enforcement, and Emergency Care as key paradigm to enhance road safety.

The Society of Indian Automobile Manufacturers (SIAM), through its Society for Automotive Fitness & Environment (SAFE) initiative, has further broad-based the functions with the integration of Education, Enforcement, Engineering, Emergency Care and Evaluation in its "सुरक्षित सफर" (Safe Journey)- a flagship initiative on road safety . This endeavour focuses on raising awareness among various stakeholders about vehicle safety and environmental concerns through various activities, including vehicle inspection clinics and technician training workshops. The organization aims to promote safer motoring practices and contribute to a cleaner, healthier environment, ultimately improving ambient air quality and overall quality of life in India. In addition, SAFE also organizes specific thematic events on the subject of road safety in partnership of with State Governments and other stakeholders.

SAFE has shown its stewardship and dedication towards road safety and the protection of environment through their initiatives impacting the 4Es of Environment, Education, Enforcement, Engineering and Emergency Care. SIAM-SAFE jointly will continue to support safe motoring and improvements across the 4Es of Road Safety. Simultaneously, SAFE is committed to working towards a healthier and cleaner environment to improve air breathability and quality of life.

In SAFE's efforts towards road safety, the context paper serves as an important cornerstone, providing a comprehensive analysis of the current road safety landscape in India. The paper sheds light on key initiatives across five states i.e Kerala, Rajasthan, Punjab, Andhra Pradesh, and West Bengal to demonstrate varied yet focused efforts to reduce road accidents and fatalities. These include advanced traffic monitoring technologies, awareness campaigns, stringent enforcement measures, and enhanced emergency response systems. India can further improve its road safety strategies through technological advancements, including AI, 5G, and IoT, that are crucial in enhancing predictive accident analysis, enforcement, and real-time traffic management.

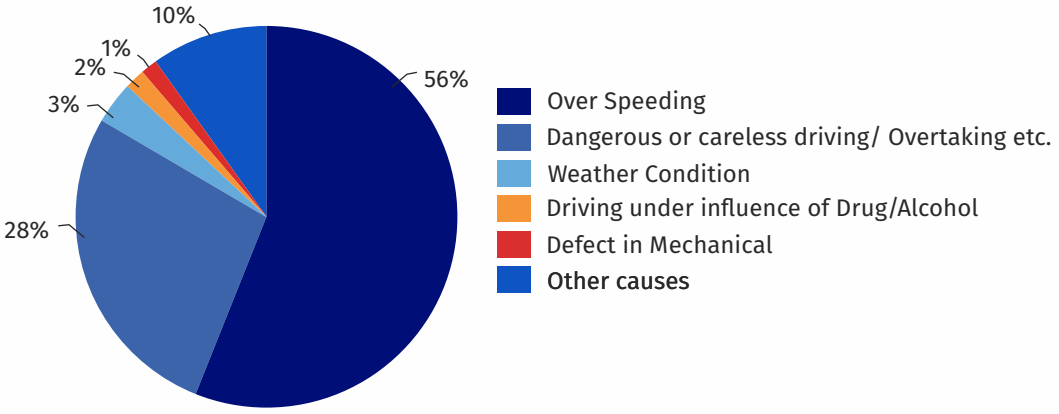
The report highlights the need for continued improvement in road design & engineering, education, enforcement, and emergency care to mitigate road accidents and promote safer driving environments in India.

Need for Road Safety

India is an automotive behemoth with an estimation of more than two crore vehicles added every year. With an expanding middle class in this growing economy, the vehicle parc (also called vehicle population) is bound to increase exponentially.

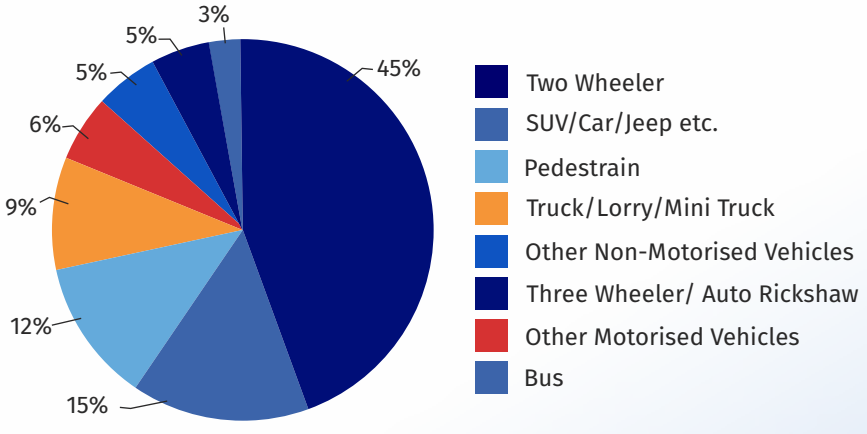
In 2022, India witnessed an all-time high road accidents of 4,60,000, resulting in 168,491 fatalities. According to a World Bank report 2021India accounts for 11% of global road accident deaths, with 53 accidents and 15 deaths occurring every hour. Traffic rules violation has been the leading cause of road accident deaths in 2021, where 56% of accidents occurred due to over speeding followed by dangerous or careless driving (27.5%). In 2022, the country's road accident death rate was 0.53 per thousand vehicles where approximately 45% of the victims of road accident fatalities were reported to be two-wheeler riders.

Major Causes of Road Accidents during 2021



As per date provided by States/UTs

Vehicle wise Road Accident Deaths during 2021



Other Motorised Transport includes Tractor etc.

The government, taking into account the severity of the issue, has recognised the need to introduce policy and regulations to reverse the increasing trend of road accidents. The government has adopted the 4Es of road safety framework for improving the Engineering, Education, Enforcement, and Emergency Care ecosystem to reduce road accidents in India.

Education: This component aims to raise awareness and educate various road users about road safety practices. Governments and authorities worldwide conduct diverse awareness campaigns across multiple media platforms to sensitize citizens about traffic rules to promote safe & responsible behaviour. Additionally, traffic education is often integrated into school curricula to instil good habits from an early age. For example, the Ministry is implementing a scheme to promote road safety through various publicity and awareness campaigns, utilizing electronic media, print media, NGOs, and other channels to reach road users. From 2018-19 to 2020-21, a total of 714 work orders were issued to different NGOs. Additionally, National Road Safety Month/Week is observed annually to enhance awareness and reinforce road safety measures. A Certification Course for Road Safety Auditors has also been launched at the Indian Academy of Highway Engineers (IAHE).

Enforcement: To ensure compliance with traffic laws, authorities implement a range of enforcement measures. These include mandatory periodic vehicle inspections, stringent driving license issuance processes, and penalties for traffic violations such as not wearing seatbelts, speeding, drunk driving, or ignoring traffic signals. For instance, the recently enacted Motor Vehicles (Amendment) Act, 2019 introduces stringent enforcement measures through technology and imposes severe penalties to ensure compliance and enhance deterrence against traffic rule violations. Additionally, guidelines for the protection of Good Samaritans and draft rules in accordance with the MV (Amendment) Act, 2019 have been published.

Emergency Care: Prompt and effective emergency response can be critical in saving lives after road accidents. Governments worldwide prioritize this area by ensuring the availability of ambulances and emergency communication systems along highways, recognizing the importance of swift action during the crucial "golden hour" following an accident. The Motor Vehicles (Amendment) Act, 2019 includes a scheme for providing cashless treatment to accident victims during the critical golden hour. The National Highways Authority of India (NHAI) has implemented provisions for ambulances at all toll plazas along completed corridors of National Highways. Additionally, 297 of these ambulances have been upgraded to Basic Life Support (BLS) standards as per AIS 125, with further upgrades for the remaining ambulances currently in progress.

Engineering: This pillar focuses on creating safer road infrastructure through improved road design and engineering. It involves regular review and updating of road specifications, conducting periodic safety audits, implementing appropriate speed limits, and installing safety features like guardrails. Vehicle engineering is also crucial, incorporating advanced safety technologies as mandated by government regulations. The Ministry has delegated powers to Regional Officers of MoRTH to provide technical approval for detailed estimates related to the rectification of identified road accident black spots. Another example can be given of the iRAD initiative by the Ministry of Road Transport and Highways.

iRAD: Apart from the 4E's, Data collection and analysis of road safety information is also taken into consideration by the Government of India. The National Crime Records Bureau (NCRB) tracks traffic accidents in India to analyse trends and guide the development of preventive measures. Additionally, Ministry of Road Transport and Highways has initiated the Integrated Road Accident Database (iRAD) project with the objective of developing of accident Database, to enrich the accident databases from every part of the country. The project would generate various types of insights by analysing the collected road accident data across the country.

iRAD is an initiative by the Union Ministry of Transport and Highways in collaboration with National Informatics Center (NIC) and IIT Madras. This project would be implemented with the support of data provided by 4 key departments namely the Police Department, the Transport Department, the Highway Authority and the Health Department. In Chhattisgarh, the project was launched in May 2021. The state team set an example for others by implementing the initiative ahead of schedule. As per the annual report 2023 published by the Ministry of Road Transport and Highway, iRAD has been successfully implemented in 36 states/UTs.

How iRAD works?

- Data Collection: The iRAD system is equipped with mobile and web applications for on-ground data collection by police, transport, and health departments. The data includes various aspects such as accident location, time, vehicle types involved, causes, and severity.
- Technology and Infrastructure: Advanced technologies like Artificial Intelligence (AI) and Geographic Information Systems (GIS)[ii] are being used to analyze data, identify accident-prone zones, and suggest improvements in road design and traffic management.

Good Practices at the Global Level

Countries worldwide have been advocating to combat the challenge of road accidents. Western countries like Sweden, Germany and Netherlands have been promoting road safety over the years and have witnessed promising results. In Sweden, mission "Vision Zero", which targets zero road fatalities and avoids severe injuries on the road, provides the guidelines for all road safety efforts. The same program has been implemented in other countries.

Germany has targets to reduce the annual number of fatalities by 40% and serious injuries significantly by 2030, under the motto, "Safe mobility – everybody is responsible, everyone is involved".

Similarly, Southeast Asian countries like Japan and Korea have been actively taking measures to promote road safety.

Japan has launched the 11th Traffic Safety Programme to ensure a safer road environment for all users. This is a 5-year plan launched to build upon previous efforts to promote road safety. Korea witnessed reduced road fatalities for consecutive 10 significant years. This sustained reduction is due to the successful implementation of measures like lowering the maximum blood alcohol level to 0.3 g/l in 2019, and in 2021, reducing the maximum speed limit in urban areas to 50 km/h on general roads and 30 km/h in residential areas.

The table below illustrates a few key initiatives by Japan and the Republic of Korea to promote road safety in their respective countries:

Category	Initiatives/ Measures
Road Engineering	**Japan**: Implementation of earthquake-resistant roads and advanced expressways to minimize the impact of natural disasters on road safety[iii] . Japan has also invested in Intelligent Transport Systems (ITS) for real-time traffic management.
	Korea: Adoption of smart road technologies, including ITS, to monitor traffic and enhance road safety. Korea has also focused on the development of cycling infrastructure as part of its broader environmental and road safety strategies.
Road Education	**Japan**: Comprehensive road safety education starting from a young age, with initiatives like the "Yellow Hat" program[iv], where children wear bright yellow caps to increase their visibility to motorists during their commute.
	Korea: Nationwide public campaigns promoting safe driving and pedestrian safety, often using multimedia platforms. Korea also focuses on community engagement, involving citizens in road safety awareness programs.
Enforcement	**Japan**: Strict DUI laws with heavy penalties, including fines and license suspensions. Japan has also introduced cognitive testing and medical examinations for elderly drivers to assess their fitness to drive.
	Korea: Implementation of a zero-tolerance policy for speeding in school zones, with strict enforcement through automated speed cameras. Korea also emphasizes strict penalties for traffic violations, particularly in high-risk areas like school zones.
Emergency Care	**Japan**: Establishment of a robust emergency care network, including the use of helicopters for emergency medical treatment and the deployment of Safety Support Cars equipped with advanced safety features.
	Korea: Development of a comprehensive emergency care system with trauma centers and specialized medical teams for rapid response to road accidents.

Use of Advanced Technologies For Improving Road Safety

Advancements in technology have significantly impacted road safety, presenting both challenges and opportunities. While distractions from mobile phones and in-car entertainment systems pose risks, innovations such as 5G, artificial intelligence (AI), and the Internet of Things (IoT) are enhancing safety measures. For instance, 5G technology facilitates real-time alerts about weather conditions and traffic hazards, potentially reducing crashes by up to 80% according to the U.S. Department of Transportation. AI is pivotal in the development of autonomous vehicles, which adhere strictly to traffic regulations and can respond to hazards more efficiently than human drivers.

AI's role extends beyond autonomous vehicles; it also enhances predictive analytics for traffic accidents. Studies indicate that AI algorithms can forecast accidents with up to 86% accuracy by analyzing traffic patterns and historical data. Advanced Driver Assistance Systems (ADAS), which utilize sensors and cameras, have been shown to reduce rear-end crashes by 50% through automatic emergency braking. Additionally, Intelligent Speed Adaptation (ISA) systems can adjust vehicle speeds based on GPS data, potentially lowering road fatalities by 20%.

The IoT is transforming vehicle and infrastructure connectivity, enabling Vehicle-to-Everything (V2X) communication that shares critical data about road conditions and potential hazards. This technology could address 80% of unimpaired vehicle crashes. Smart traffic management systems, powered by IoT sensors, optimize traffic flow and reduce congestion, further enhancing road safety. Cooperative Intelligent Transport Systems (C-ITS) provide real-time warnings about road conditions, allowing drivers to anticipate dangers effectively.

Autonomous vehicles promise to eliminate human error, a factor in 94% of serious crashes. Studies suggest that even a modest increase in their safety compared to human drivers could save hundreds of thousands of lives over time. Techniques like platooning, where vehicles travel closely together, can reduce fuel consumption and emissions while minimizing rear-end collision risks. Moreover, the use of advanced materials in vehicle design, such as self-healing composites and energy-absorbing structures, enhances crash resistance and occupant protection.

Monitoring and enforcement technologies, including AI-powered traffic cameras and drone surveillance, are improving traffic law enforcement. These systems detect violations with greater accuracy and efficiency than traditional methods. For example, automated speed enforcement cameras have led to a significant reduction in speeding violations and injury crashes in cities like Chicago. Virtual and augmented reality are also being utilized in driver training, allowing for immersive experiences that enhance hazard perception and decision-making skills.

Emerging technologies such as 5G networks, blockchain for vehicle data security, and emotional AI are poised to further revolutionize road safety. 5G enables rapid data exchange between vehicles and infrastructure, while blockchain can ensure the integrity of shared safety information. Additionally, emotion AI systems that monitor driver fatigue and stress levels could prevent accidents caused by distracted or drowsy driving. Overall, the integration of these advanced technologies is not only improving accident prevention but also transforming the future mobility.

Advancement in technology has both its pros in cons when it comes to road safety. While technologies such as mobile phones, entertainment systems etc. have caused distraction while driving, technologies like 5G, AI and IoT has contributed to reducing the risks associated with driving.

Road Safety Standards in India

The National Road Safety Policy was approved by the Union Cabinet on 15th March 2010 based on the recommendations of the Sunder Committee. The policy document detailed initiatives and actions to be undertaken by the government at all levels to enhance and strengthen road safety in India. The main highlights of the policy are as follows:

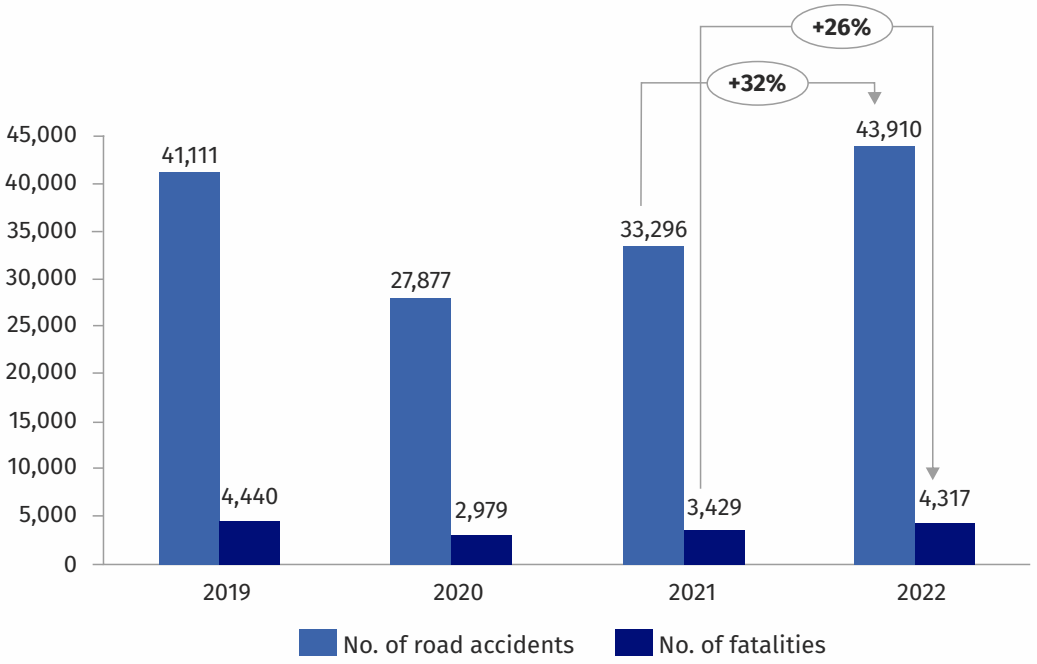
1. Road Safety Information Database: Support local bodies, Union Territories, and States in enhancing the quality of crash investigation, data collection, transmission, and analysis. A National Road Safety Information System was announced to provide policy guidelines for these activities.
2. Safer Road Infrastructure: Continue the implementation of Intelligent Transport Systems (ITS) under a national road safety framework, and review safety standards for the design of rural and urban roads, aligning them with global standards.
3. Safer Vehicles: Ensure that requisite and mandated safety features are incorporated in vehicles at the stages of design, manufacture, usage, operation, and maintenance for both motorized and non-motorized vehicles, in line with global standards.
4. Safer Drivers: Enhance and strengthen the licensing and training system to improve drivers' competence and capability.
5. Road Traffic Safety Education and Training: Raise awareness through education, training, and publicity campaigns. This includes road safety education, with a special focus on school children and college students, to promote good road safety practices.
6. Enforcement of Safety Laws: Implement measures to assist various states and governments in strengthening and improving the enforcement of road safety laws. The establishment of highway patrols on National and State Highways, in collaboration with State governments and Union Territories, was also recommended.
7. Emergency Medical Services for Road Accidents: Ensure timely trauma care and handling and management for all accident victims. The proposal also includes making trauma care and rehabilitation services available alongside National and State Highways.
8. HRD & Research for Road Safety: Promote increased efforts in road safety research by identifying priority areas, funding research, and disseminating research findings and recommendations
9. Strengthening of Legal, Institutional, and Financial Environment for Road Safety: Establish a mechanism for effective coordination among various stakeholders to ensure active participation and progress in road safety initiatives.

To analyse status of road safety in the Indian states, every year the context paper covers various initiatives, activities and programs of any five states from the country. This year the report examines road accident data and the preventive policy measures in place for five major Indian states: Kerala, Rajasthan, Punjab, Andhra Pradesh and West Bengal as mentioned below.

Kerala

The state of Kerala recorded 43,910 cases of road accidents in 2022 compared to 33,296 such cases in 2021, which is an increase of over 31% [v]. The increase in the number of road accident deaths is primarily attributed to careless driving, violations of traffic rules and an increase in vehicle density by the Economic and Statistics Department of Kerala [vi]. Although the number of accidents in Kerala has been on the rise, the state has shown a lower fatality rate per 100 accidents which is 9.8 against the national average of 36.5 in 2022i. Kerala also recorded 550.6 deaths per lakh new vehicle registrations in the year 2022, which is relatively lower than the national average of 780.8 for the same period.

Number of Road Accidents & Fatalities in Kerala from 2019 to 2022



Source: Ministry of Road Transport & Highways

In 2007, the Kerala Road Safety Authority Act was introduced to improve road safety in the state . The act creates provisions for:

- Creation of Kerala Road Safety Authority
- Introduction of a dedicated Road Safety Fund
- Execution of Road Safety Initiatives

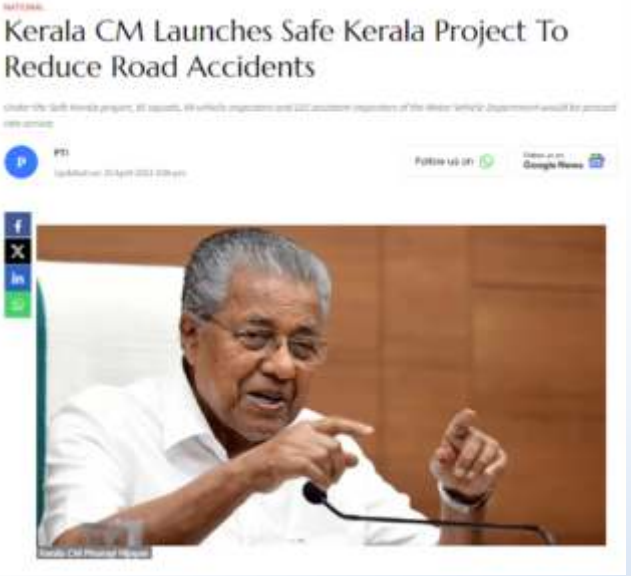
The Kerala Road Safety Authority is responsible for advising the government on road safety policies, setting standards, and overseeing the implementation of safety programs. It coordinates the efforts of various agencies, conducts awareness campaigns, manages funds, and approves expenditures for safety schemes, projects, and trauma care initiatives. Additionally, the Authority supports research, authorizes administrative expenses, and establishes self-help groups for accident rescue operations, ensuring comprehensive management of road safety in the state. The Kerala Road Safety Fund, established under Section 11 of the Kerala Road Safety Authority Act, is dedicated to enhancing road safety across the state. Managed by the Kerala Road Safety Authority, the fund supports various departments and District Road Safety Councils (DRSC) in implementing measures aimed at reducing road fatalities and serious injuries through targeted, multi-sectoral interventions.

Other important measures:

a) **SAFE Kerala Project:** Launched in 2020, the SAFE Kerala Project is an initiative by the Kerala Motor Vehicle Department (MVD) aimed at reducing road accidents and fatalities. It includes the installation of AI-based surveillance cameras at major traffic junctions to monitor and penalize traffic violations, thereby promoting safer driving habits. The State Crime Records Bureau reported that in 2022, over speeding and reckless driving were responsible for 57% of all accidents. The Chief Minister of Kerala inaugurated the updated version of the project on April 20, 2023

   Under Safe Kerala Project, 726 cameras have been installed across the state, allowing the motor vehicles department to enforce penalties for traffic violations including riding without helmets, triple riding on two-wheelers, not wearing seatbelts, using mobile phones while driving, running red lights, speeding, reckless driving, and illegal parking.

The AI cameras are solar-powered, and will use 4G LTE technology to send the data to the control room.



Kerala witnessed a drastic reduction in the number of traffic violations after the deployment of AI cameras to monitor the traffic violations. The number of traffic violations reduced to 2.1 lakhs per day on inauguration day from 4.5 lakhs.

b) Road Safety Clubs:[viii] Kerala has set up Road Safety Clubs in schools and colleges to educate students about safe driving practices and the importance of following traffic rules. This initiative has been taken up under regional and joint regional transport offices. These clubs also conduct awareness campaigns and road safety activities within the community. The objective of the clubs are as follows:

- Educating road users on traffic rules, regulations, and related matters
- Cultivating skills in students for navigating various traffic scenarios
- Supporting the enforcement of traffic regulations
- Serving as a volunteer group assisting in Trauma Care activities
- Undertaking all necessary actions to ensure the safety of road users

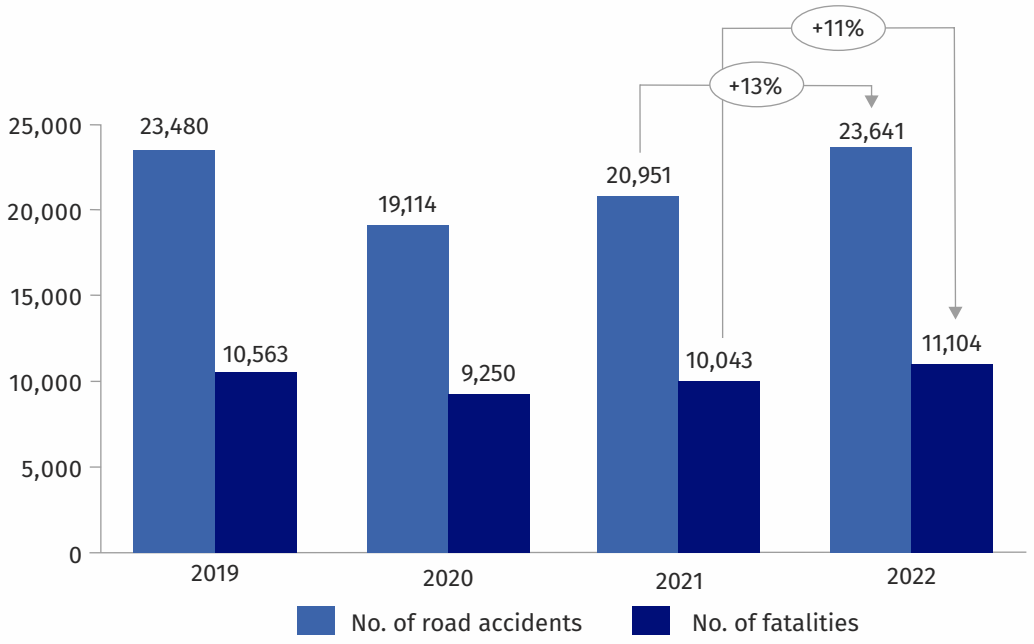
c) Smart Traffic Management Systems: [ix] The implementation of Intelligent Traffic Management Systems (ITMS) in major cities like Thiruvananthapuram [x] and Kochi has improved traffic flow and reduced congestion. These systems use real-time data to manage traffic signals, monitor vehicle movement, and provide timely interventions to prevent accidents.

d) Subhayathra Programme: Subhayathra Programme is launched by the Kerala Police in the year 2015 [xi] with the objective of reducing accidents and building a safer driving culture. Through this program, virtual mechanisms for effective traffic management like a traffic helpline WhatsApp number and Facebook page are provided. As part of initiatives like the "Subhayathra 2015" project in Kerala, a designated WhatsApp number was introduced for citizens to report traffic complaints, suggestions, or information. This platform allows for easy and immediate sharing of photos, videos, or location details related to traffic issues. The received information is logged, forwarded to the relevant officers, and followed up for action. The public is informed about the steps taken, and the system ensures accountability through proper documentation and reporting. The Subhayathra Programme is promoted by the Malayam Actor, Mohanlal through social media campaigns on Facebook.

Rajasthan

The state of Rajasthan recorded 23,614 casesi of road accidents in 2022 compared to 20,951 such cases in 2021, which is an increase of over 12%. Deaths per 100 accident for Rajasthan in the year 2022 is 47i, which is higher than the national average of 36.5 for the same year. Rajasthan recorded 863 deaths per one lakh vehicles registered, which is higher than the national average of 780.8 for the same period.

Number of Road Accidents & Fatalities in Rajasthan from 2019 to 2022



Source: Ministry of Road Transport & Highways

Given the alarming road safety situation, the state government is taking proactive steps to improve the scenario.[xii] The plan, supported by a government policy, will focus on public awareness and behavioural changes regarding road safety. The World Bank will assist in developing the plan, which will be executed in three stages: 2025-2027, 2027-2030, and 2030-2033, addressing key areas such as speed limits, traffic signals, pedestrian safety, and vehicle insurance.

In the first phase i.e. 2025-2027, the primary focus will be on addressing fundamental road safety issues, such as adherence to speed limits and traffic signals. In the second phase i.e. 2027-2030, the emphasis will shift towards promoting safety behaviors, including the consistent use of seatbelts and helmets. In the final stage i.e. 2030-2033, advanced measures will concentrate on enhancing infrastructure and creating safer pedestrian areas. Coordination among various state departments will be crucial for its success.

[xiii] The Transport Department of Rajasthan has been made the nodal department for road safety in the state and renamed to Transport & Road Safety Department in the year 2021. The State Road Safety Cell within the department has the following major functions:

- Serves as the secretariat for State-Level Road Safety Committees
- Coordinates with all relevant departments and agencies on road safety matters
- Oversees the implementation of the State Road Safety Policy through a goal-driven Road Safety Action Plan
- Ensures timely compliance with directives from the Hon'ble Supreme Court Committee on Road Safety
- Monitors and ensures the execution of all road safety-related activities in the state

The state of Rajasthan has the following committees to maintain road safety at the state level:

- High Power Committee
- State Road Safety Council
- Traffic Management Committee
- Special Task Force

At the district level, Rajasthan has the District Road Safety Committee. The Government of Rajasthan has set up various schemes to improve the road safety in the state:

Mukhyamantri Chiranjeevi Jeevan Raksha Yojana 2022: [xiv]Under this scheme, 10,000 INR and a certificate of appreciation are rewarded for transporting a seriously injured road accident victims to the hospital. The present amount has been revised from 5000 INR to 10,000 INR on August 2024. Additionally, a certificate of appreciation is rewarded for transporting an injured minor to the hospital.

Mukhyamantri Chiranjeevi Sadak Suraksha Yojana 2022: [ix] Under this scheme, the road accident victims of any state are eligible for free treatment upto 72 hours at any Government/Private hospitals

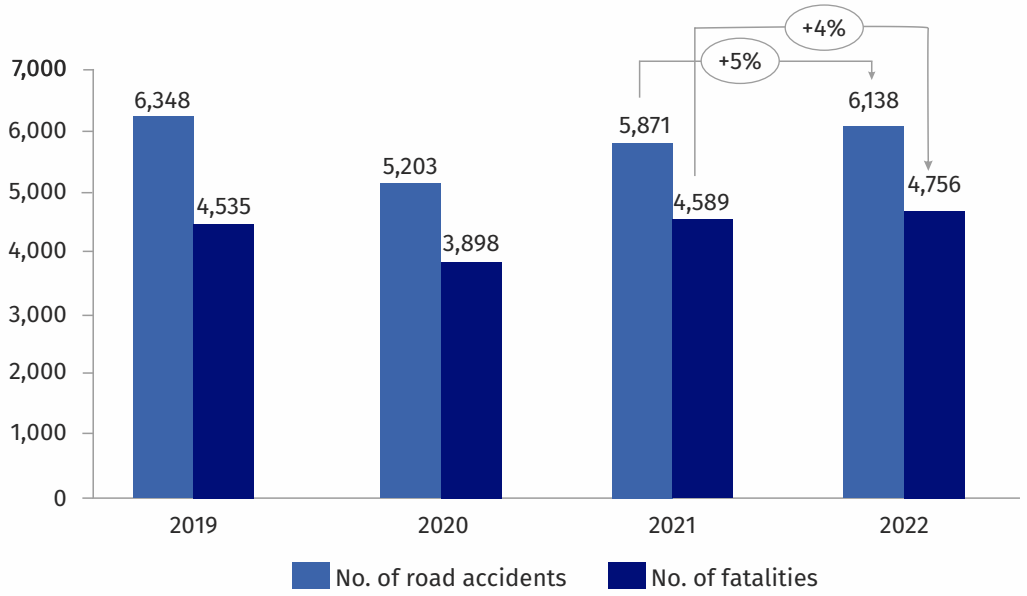
Mukhyamantri Chiranjeevi Durghatna Bima Yojana 2022: [xv] Under this scheme, financial assistance upto 10,00,000 INR is provided to the families whose one or more family member(s) is(are) dead or disabled in an accident. As per National Family Health Survey (NFHS-5) (2019-2021), 88% households received insurance coverage which is more than double of the national average of 41%. 1.44 Cr families registered under Mukhyamantri Chiranjeevi Durghatna Bima Yojana 2022 scheme.

Chief Minister Road Safety Award: [xvi] The top 5 districts in making roads safer and reducing accident mortalities received the Chief Minister Road Safety Award. These districts achieved a record of reducing the death rate by 10% or more as compared to the other districts in the state.

Punjab

The state of Punjab recorded 6,138 cases of road accidents in 2022 compared to 5,871 such cases in 2021, which is an increase of over 4%[i]. Punjab ranked 3rd in 2022 in terms of accident severity at 77.5 deaths per 100 accidents, which is more than double of the Indian national average of 36.5 for the same year. The state also recorded a high deaths per one lakh vehicles registered with a value of 855.9, which is also higher than the national average of 780.8 for the same period.

Number of Road Accidents & Fatalities in Punjab from 2019 to 2022



Source: Ministry of Road Transport & Highways

[xvii] In 2014, the state of Punjab launched the Punjab State Road Safety Policy with the aim of reducing road accidents and fatalities in the state. This policy was part of broader efforts to improve road safety and traffic management across Punjab. The policy focused on improving traffic management, enhancing road infrastructure, increasing public awareness, and strengthening enforcement of traffic laws.

The Punjab Road Safety Policy focuses on creating an integrated and sustainable approach to road safety by addressing multiple dimensions, including infrastructure, human resource development, and public transport enhancement. It emphasizes the importance of research and development, along with establishing road safety standards tailored to the state's specific needs. The policy also prioritizes non-motorized transport, financial viability, and the creation of a robust road safety database management system to ensure informed decision-making. Overall, the policy aims to improve road safety through coordinated efforts across various sectors, promoting safer roads for all users.

The Punjab Road Safety and Traffic Research Centre (PRSTRC) has proposed several innovative road safety measures aimed at enhancing traffic management and reducing accidents in the state such as collaboration of Punjab Police and a university to integrate advanced technologies such as artificial intelligence and data analytics into traffic management systems to implement road safety audits, m-policing and e-policing, and developing predictive analytics models to inform evidence-based policymaking. [xviii]The introduction of the Road Crash Investigation Unit Vehicle by the Punjab Police equipped with state-of-the-art technology, including a Crash Investigation Kit, drones for videography allows for a scientific approach to identifying the root causes of accidents in accident investigation.

Other important measures:

Sadak Surakhya Force: [xix]Sadak Surakya Force is launched in 2024 to combat drunk driving and over speeding. The force comprises 1,600 personnel, strategically deployed every 30 kilometres across Punjab's extensive road network. The force also includes 129 state-of-the-art vehicles equipped with advanced technology. These vehicles are connected to nearby trauma centres to ensure rapid medical response for accident victims.

Punjab Chief Minister Bhagwant Mann launched the Sadak Surakhya Force. (Photo Credit: Punjab Police)

Vision Zero Campaign: [xx]With the launch of 'Vision Zero' campaign on February 2023, MoU was signed among the government of Punjab, WRI India and Honda for road safety. This initiative is part of the broader Mission Tandrust Punjab, focusing on creating a healthier living environment and ensuring safer roads. The campaign identifies ten accident-prone districts for targeted interventions.

Stricter Traffic Laws: [xiv]The government is considering implementing a point-based system for traffic violations, which would penalize repeat offenders more severely, thereby promoting safer driving behaviours

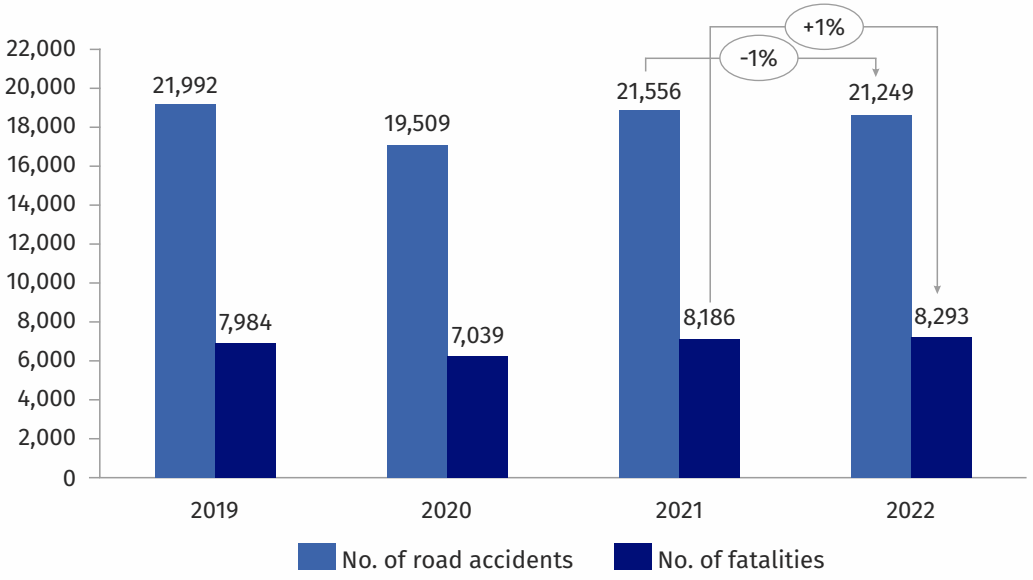
Farishtey Scheme: [xxi]All road accident victims will be provided free treatment under the Farishtey scheme. As on January 2024, 384 hospitals have registered under the scheme, out of which 146 are public hospitals and 238 are private hospitals. Additionally, the person taking the road accident victim to the hospital would be rewarded with 2000 INR.

Health minister Dr Balbir Singh said the scheme will help to provide prompt aid to road accident victims in the first golden hour (HT Photo)

Andhra Pradesh

The state of Andhra Pradesh recorded 21,249_cases[i] of road accidents in 2022 compared to 21,556 such cases in 2021, which is a decline of over 1%. The accident severity in the state is 39 deaths per 100 accidents, slightly above the national average of 36.5 for the same year. Andhra Pradesh also recorded a high deaths per one lakh vehicles registered of 972.6 in 2022, which is higher than the national average of 780.8 for the same period.

Number of Road Accidents & Fatalities in Andhra Pradesh from 2019 to 2022



Source: Ministry of Road Transport & Highways

[xxii] The Andhra Pradesh Road Safety Policy was introduced in the year 2017 to reduce road accidents and fatalities in the state through coordinated efforts across the various government departments and agencies. The Andhra Pradesh government has identified the following focus area for the policy-:

- Increase public awareness of road safety concerns
- Enhance the institutional framework
- Develop and maintain a comprehensive road safety information system
- Improve road infrastructure for safety
- Promote the use of safer vehicles
- Encourage responsible and safe driving
- Protect vulnerable road users
- Provide education and training on road traffic safety
- Strengthen the enforcement of road safety laws
- Improve emergency medical response for road accidents
- Conduct research to advance road safety
- Establish financial support structures for road safety initiatives

Other important measures:

S A F A R (Safety Always For All Roads): [xxiii]The SAFAR initiative in Andhra Pradesh was launched on March 2008. This initiative aims to improve road safety by focusing on major roads, protecting vulnerable road users, and enhancing driver training and monitoring. It includes awareness campaigns targeting drivers, vehicle owners, and pedestrians. The key objectives are:

- Reduce accident rates
- Allocate dedicated funds for road safety initiatives
- Develop targeted programs to enhance the safety of major roads, protect vulnerable road users, and improve driver training, licensing, and monitoring processes
- Enhance coordination between different departments and NGOs
- Establish an information system for tracking accidents and propose post-accident relief measures and other remedies

Other Initiatives:

The Sudheekshan Foundation promotes road safety awareness in Andhra Pradesh through educational workshops, community engagement activities, and significant events like World Road Safety Week. They advocate for policy changes, collaborate with various stakeholders, and have published materials aimed at educating young people about safe driving practices.[xxiv]

A key initiative to incorporate infrastructure development for "demonstration corridors" is the Kadapa to Renigunta safety demonstration corridor in Andhra Pradesh, which implemented infrastructure improvements, established trauma care facilities, and enhanced traffic law enforcement, resulting in significant reductions in road crashes and fatalities.[xxv]

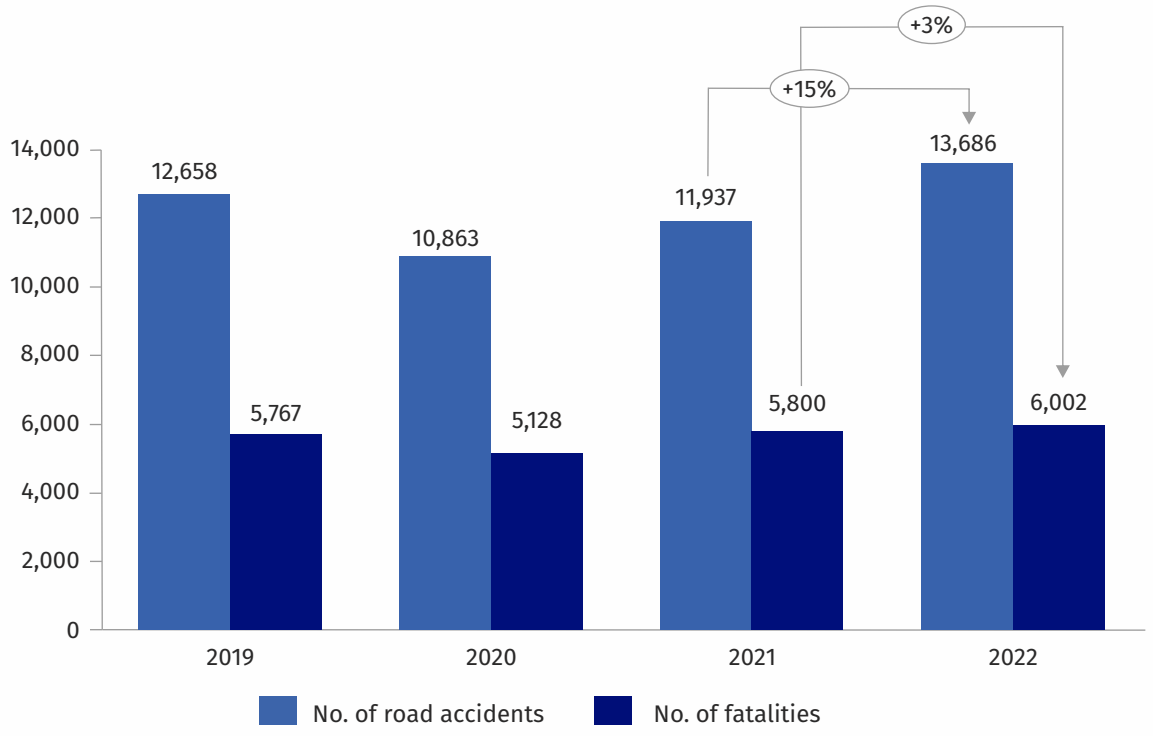
Driving Schools and Training: The state government plans to establish driving schools in each parliamentary constituency to enhance driver training. Rigorous testing and monitoring of driving schools are implemented to ensure quality training for drivers, particularly for heavy vehicles. It also intends to establish trauma care centers at the 16 new medical colleges being developed in the newly formed districts, along with a rehabilitation center in Visakhapatnam. [xxvi]

District Road safety committee: Andhra Pradesh is enhancing road safety by strengthening District Road Safety Committees, chaired by the District Magistrate and comprising officials from various departments. These committees are tasked with reviewing road accidents and implementing safety policies, guided by the Supreme Court Committee on Road Safety. The state has also established a Road Safety Lead Agency and a non-lapsable ₹50 crore Road Safety Fund to support infrastructure improvements and awareness campaigns.

West Bengal

The state of West Bengal recorded 13,686 cases[i] of road accidents in 2022 compared to 11,937 such cases in 2021, which is an increase of over 14%. The accident severity of West Bengal so at 43.9 deaths per 100 accidents, which is above the national average of 36.5 for the same year. The state recorded 617 deaths per one lakh vehicles registered, which is lower than the national average of 780.8 for the same period.

Number of Road Accidents & Fatalities in West Bengal from 2019 to 2022



Source: Ministry of Road Transport & Highways

[xxvii] Road Safety Action Plan (RSAP) was launched in the year 2013 with the objective of promoting road safety and reducing accidents in the state. The policy identified six pillars on road safety:

1. Capacity building an institution on road safety
2. Enhanced mobility and road safety
3. Enhanced vehicle safety
4. Upgrade in enforcement of traffic regulations for safer road users
5. Education
6. Emergency care

Figure 2- Chief Minister addressing the workshop

Road Safety Fund:

[xxviii]In June 2024, the state government of West Bengal established Road Safety Fund to promote the safety of roads across the state. This initiative focuses on reducing road fatalities, preventing accident-related injuries, identifying accident-prone areas (black spots), improving trauma care networks, implementing intelligent road surveillance, and enforcing speed regulations.

Key components of the fund include:

- Identification of Accident-Prone Areas: The fund will help identify and address "black spots" where accidents frequently occur.
- Trauma Care Enhancement: A significant portion of the fund will be allocated to strengthening trauma care services, ensuring timely medical treatment during emergencies.
- Infrastructure Improvements: The fund will support minor road repairs, the installation of essential road safety features (such as signage and traffic signals), and the development of automated vehicle testing stations.
- Advanced Technology Implementation: It will facilitate the use of intelligent road surveillance systems and geo-tagging platforms for better management of road safety data.
- Budgetary Framework: An order from the transport secretary outlines that 30% of the receipts from road safety expenditures will be credited to the Road Safety Fund at the end of each fiscal year.

While the government has previously invested in road safety, this dedicated fund will enable more focused measures to reduce accidents and fatalities throughout the state.

Safe Drive Safe Life Campaign: The "Safe Drive, Save Life" campaign [xxix] launched by the West Bengal government in July 2016 has significantly impacted road safety in the state. Here are the quantifiable outcomes of the campaign.

Since the campaign's inception, West Bengal has experienced a notable reduction in road accidents in the target districts. For instance, in the Nadia district, the number of accidents fell from 761 in 2016 to 502 in 2017, representing a 34% reduction. By June 2018, the number of accidents had further decreased by 17.69% compared to the previous year.

The campaign has also led to a decrease in fatalities. In the same district, casualties dropped from 360 in 2016 to 274 in 2017, marking a 24% reduction. By mid-2018, there was a further reduction of 29.60% in casualties.

Figure 3 - Safe Drive, Save life - Compaign Artwork

Key Road Safety Initiatives Across the 5 States

This subsection highlights the major initiatives undertaken by the state governments of Kerala, Rajasthan, Punjab, Andhra Pradesh, and West Bengal in relation to the 4E's of road safety

Road Engineering Initiatives

Kerala	Rajasthan	Punjab	Andhra Pradesh	West Bengal
• Implementation of Safe Kerala Initiative [xxx], through which traffic violations would be monitored using fully automated technologies • Implementation of Intelligent Traffic Management System (ITMS) in major cities like Cochinv and Trivandrumvi	• Installation of ATCS (Area Traffic Control System) in Jaipur for enhancing and monitoring urban traffic [xxxi]	• MoU among Punjab government, WRI India & Honda with the launch of Vision Zero to reduce road fatalities[xv] • Installation of advanced cameras at 18 junctions in Mohali and speed violation detection systems at Airport road [xxxii] • Launch of Sadak Surakhya Force[xiv]	• Regular road safety audits on state and national highways[xvii]	• The government is taking initiative for identification of black spots to reduce road fatalities [xxxiii] • Installation of CCTV cameras and speed detection systems in major cities through Smart City Projects [xxxiv]

Education

Kerala	Rajasthan	Punjab	Andhra Pradesh	West Bengal
• Extensive road safety education programs are conducted, targeting drivers, pedestrians, and school children to promote safer road behaviour [xxxv] • Mandatory refresher courses for commercial drivers to ensure adherence to safety standards	• The state has incorporated road safety modules in school curricula to instil safe practices from a young age	• Special training sessions for commercial and heavy vehicle drivers to enhance their understanding of road safety norms [xxxvi]	• Awareness campaigns through SAFAR program [xviii]	• Launch of Safe Drive Save Life Campaign which includes extensive educational outreach, with road safety workshops, rallies, and media campaigns aimed at reducing accidents [xxi]

Enforcement

Kerala	Rajasthan	Punjab	Andhra Pradesh	West Bengal
• Kerala has introduced automated systems, such as speed cameras and red light violation detectors, to enforce traffic laws strictly[xxxvii]	• ITMS also supports law enforcement by enabling real-time monitoring of traffic violations and swift action against offenders [xxxviii]	• Deployment of the Sadak Suraksha Force in 2024, specifically targeting drunk driving and over-speeding violations [xiv]	• Deployment of 12 highway patrolling teams across national highways to enforce road safety regulations and respond to incidents quickly [xxxix] • Use of speed cameras and radar guns near accident prone areas to monitor and penalize speeding on highways[xl] • Strict enforcement of helmet and seatbelt laws[xli] • Establishment of district-level councils to oversee road safety projects and coordinate efforts among various departments under SAFARxviii	• Implementation of e-challan system[xlii] • Implementation of ATMS in Kolkata including automated enforcement mechanisms such as speed cameras and signal jump detectors[xliii]

Emergency Care

Kerala	Rajasthan	Punjab	Andhra Pradesh	West Bengal
• Kerala has developed an integrated trauma care network under KANIV-108 scheme [xliv]	• Rajasthan has various government schemes to aid the road accident victims such as Mukhyamantri Chiranjeevi Jeevan Raksha Yojana 2022, Mukhyamantri Chiranjeevi Sadak Suraksha Yojana 2022 and Mukhyamantri Chiranjeevi Durghatna Bima Yojana 2022	• Establishment of a network of "Golden Hour Clinics" along major highways, specializing in rapid trauma response under the Farishtey Scheme	• Introduction of mobile trauma care units with the objective to make heathcare accessible at the mandal level across the state	• A significant amount of the Road Safety fund would be allocated to enhancing trauma care within the state[xx]

Key Takeaways

The Indian government has been actively taking measures ensure road safety by introducing a number of policies and initiatives as the road accidents not only hampers the victim but also the country's economy as a whole.

In our analysis of the five Indian states - Kerala, Rajasthan, Punjab, Andhra Pradesh and West Bengal, we identified that all the states have their respective road safety policies in place. Below are our key recommendations.

1. **Enhancement of Road Safety Audits:** Expanding the scope of periodic road safety audits beyond major cities and highways including rural areas and lesser-known accident-prone zones.
2. **Improving Road Conditions:** Improved road design can significantly help prevent crashes. The following things should be done to improve the condition of roads:
    a) Fixing the speed limit signs on the roadsides and using reflectors/reflective paints at the start of road dividers, on side railings, poles and trees for safe driving during the night on the state and national highways.
    b) Use speed breakers before intersections, nose of flyovers, and at the point of merging traffic.
    c) Speed calmers should be present on minor roads just before it meets any major roads to stop small vehicles from randomly entering into the fast and heavy movement of vehicles on major roads.
    d) Unnecessary cuts on the road should be identified and closed. Slow-moving vehicle drivers and two-wheeler riders usually take shorter U-turns if the actual crossing passage is far away.
3. **Use of Safety Barriers**: Safety barriers and roadside guardrails should be mandatorily made a part of the road design to prevent collisions. Though most urban road infrastructure has some traffic separation, rural infrastructure needs special attention.
4. **Intelligent Traffic Management System (ITMS)**: Few States have already started implementing ITMS. Other state governments should also push for the adoption of the same. It will help improve mobility, discipline on the road, and congestion management through optimised signal timings based on real-time intelligent inputs from the road.
5. **Improvement of Infrastructure for Two-Wheelers and Pedestrians**: While some states have already implemented the infrastructure for two-wheelers and pedestrians, some are still lacking the necessary infrastructure. Initiatives must be taken to increase the construction of dedicated lanes for two-wheelers and develop continuous pedestrian paths in both urban and suburban areas.

6. **Creation of Unified Driver Databases**: Develop a unified driver database and implement a point-based system to record real-time offender tracking. is observed that people have more than one driving license issued from different authorities, and their previous violations and offences cannot be accessed in one place. A unique Point-based system, like in Germany, should be implemented at the country level to keep track of administrative offences and felons that affect road safety.
7. **Enforcement Drives**: Most states are doing fairly well in spreading awareness about road safety through different campaigns. But adherence to road safety laws remains an issue. Strict enforcement must be introduced as pre-emptive measures to maintain discipline on the road.
8. **Construction of Foot Over Bridges**: People in India are usually seen crossing the roads amid live traffic without waiting for traffic signals[xlv]. The state authorities should carefully identify such locations, and foot-over bridges should be built for safe passage. Grills should be installed on the road barriers to prevent people from crossing the street at the accident-prone points.

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NOTE

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