



RAILWAY AND METRO RAIL SAFETY EXCELLENCE MISSION

A Flagship Safety, Knowledge and Professional-Excellence Initiative of
ALL INDIA RAIL SAFETY COUNCIL (AIRSC)

Advancing Safety • Strengthening Systems • Empowering Professionals • Protecting Every Journey



Towards
Better Tomorrow
Safe Metro
Better Life

The Railway and Metro Rail Safety Excellence Mission is a visionary initiative of the All India Rail Safety Council (AIRSC) dedicated to promoting the highest standards of safety, reliability, resilience and professional excellence across railway, metro rail and urban rapid-transit systems.

The Mission provides a comprehensive knowledge and collaboration framework to advance safety culture, strengthen institutional capabilities, encourage responsible innovation and support continuous improvement throughout the transport ecosystem.

India is witnessing an extraordinary transformation in passenger mobility through railway modernisation, metro expansion, high-speed rail development, station redevelopment, freight-corridor growth, advanced signalling, electrification, digital technologies and intelligent infrastructure.

This transformation creates significant opportunities while also requiring stronger safety governance, skilled professionals, resilient assets, responsible passenger behaviour and technology-supported risk management. The Mission seeks to address these priorities through research, education, awareness, capacity building, professional dialogue and multi-stakeholder cooperation.

SAFETY
IS A SHARED
RESPONSIBILITY
EVERY LIFE
MATTERS

SAFE SYSTEMS



SMART TECHNOLOGY



SKILLED
PROFESSIONALS

OUR MISSION PILLARS



SAFETY CULTURE

Build a strong culture where safety is everyone's responsibility.



KNOWLEDGE & EDUCATION

Promote learning, research and continuous professional development.



PROFESSIONAL EXCELLENCE

Strengthen expertise, standards and ethical professional practices.



INNOVATION & TECHNOLOGY

Encourage smart solutions, digital transformation and responsible innovation.



COLLABORATION & PARTNERSHIP

Work together with stakeholders for safer, smarter and stronger systems.



SUSTAINABILITY & RESILIENCE

Promote sustainable, resilient and future-ready mobility solutions.

- ✓ Safety First
- ✓ Integrity in Action
- ✓ Excellence in Operations
- ✓ Innovation with Responsibility
- ✓ Sustainability for the Future

OUR FOCUS AREAS



- Metro Rail Safety
- Station & Platform Safety
- Train Operations Safety
- Signalling & Communication Safety
- Infrastructure & Asset Safety
- Electrical & Power Safety
- Emergency Preparedness
- Cybersecurity & Data Safety
- Human Factors & Behavioural Safety
- Environment & Sustainability

WHO WE ENGAGE



- Railway & Metro Authorities
- Engineers & Technical Professionals
- Research Institutions & Universities
- Industry Partners & Technology Providers
- Safety Specialists & Consultants
- Students & Young Professionals
- Passenger Communities & Civil Society
- Government & Regulatory Bodies

WHAT WE DELIVER

- Research & Knowledge Development
- Training & Capacity Building
- Safety Audits & Advisory Support
- Conferences, Seminars & Workshops
- Public Awareness & Outreach
- Digital Learning & Resources
- Standards, Guidelines & Best Practices
- Policy Support & Institutional Dialogue

OUR IMPACT



- ✓ Safer Stations & Trains
- ✓ Reduced Risks & Incidents
- ✓ Skilled & Competent Workforce
- ✓ Stronger Systems & Processes
- ✓ Informed & Responsible Passengers
- ✓ Sustainable & Resilient Operations
- ✓ Greater Public Confidence

OUR COMMITMENT TO A SAFER TOMORROW



Ensure
Safety



Share
Knowledge



Build
Capacity



Strengthen
Systems



Uphold
Integrity



Drive
Excellence



Serve
Society



**TOGETHER,
LET'S BUILD A
SAFER, SMARTER
AND STRONGER
RAIL INDIA**



SAFE METRO
SAFE COMMUTE



SMART TECHNOLOGY
SMART OPERATIONS



INFORMED PASSENGERS
SAFE JOURNEYS



TRUSTED SYSTEMS
STRONG NATION



SUSTAINABLE MOBILITY
BETTER FUTURE



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Safety Helpline
Contact Local
Authorities

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ADVANCING SAFETY **STRENGTHENING SYSTEMS** **EMPOWERING PROFESSIONALS** **PROTECTING EVERY JOURNEY**

OUR VISION

The vision of the Railway and Metro Rail Safety Excellence Mission is to contribute to the creation of **safe, smart, resilient, inclusive and globally respected** railway and metro systems in which the protection of human life remains the highest priority. It aspires to build an ecosystem where safety is embedded in policy, planning, design, construction, commissioning, operation, maintenance, modernisation and passenger service.

The Mission envisions railway and metro organisations that anticipate risks, learn from experience, adopt appropriate technologies, strengthen workforce competence and continuously improve their safety performance.

It seeks to establish safety excellence not merely as a compliance requirement but as a deeply rooted professional value and organisational responsibility.

MISSION PURPOSE

The Mission aims to bring railway and metro safety stakeholders together under a structured platform for knowledge exchange, professional development, research, innovation and public engagement.

Its purpose is to encourage the adoption of systematic and evidence-based approaches to **accident prevention, infrastructure protection, operational risk management, emergency preparedness and passenger safety.**

It also seeks to bridge the gap between technical knowledge and field-level implementation. By connecting experienced professionals, engineers, researchers, academic institutions, technology providers, industry representatives, students and communities, the Mission supports the **translation of safety ideas into practical and measurable improvements.**

SAFETY EXCELLENCE ACROSS THE SYSTEM LIFE CYCLE

Railway and metro safety begins long before a train enters service. It must be integrated into route planning, engineering design, procurement, construction, systems integration, testing, commissioning, operation, maintenance, renewal and eventual decommissioning. The Mission therefore promotes a **whole-life approach** to safety management.

This approach encourages systematic hazard identification, risk assessment, design assurance, independent review, quality control, configuration management and performance monitoring at every stage.

It also promotes **clear responsibilities, documented decision-making and effective coordination** among infrastructure managers, operators, contractors, consultants, manufacturers and other stakeholders.



SAFE INFRASTRUCTURE



SMART OPERATIONS



SKILLED PROFESSIONALS



SAFE PASSENGERS



OUR CORE COMMITMENT



Safety First



Integrity in Action



Excellence in Every Step



Innovation for Better Safety



Sustainability for the Future

TOGETHER WE BUILD A SAFER AND SMARTER RAIL FUTURE



EDUCATE AWARENESS



ENGAGE STAKEHOLDERS



EMPOWER PROFESSIONALS



ENHANCE SYSTEMS



ENSURE SAFETY



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SAFE METRO SAFE COMMUTE



INFORMED PUBLIC SAFE JOURNEYS



TRUSTED SYSTEMS STRONG NATION



SUSTAINABLE MOBILITY BETTER TOMORROW



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Advancing Safety Strengthening Systems Empowering Professionals Protecting Every Journey



1. SAFETY GOVERNANCE AND LEADERSHIP

Effective safety performance depends upon responsible leadership and transparent governance. The Mission encourages senior leadership to establish clear safety priorities, provide adequate resources, review performance and maintain an environment in which employees can report hazards and concerns without fear.

Managers and supervisors are encouraged to lead by example, communicate safety expectations and ensure that operational pressures do not override established safeguards. The Mission promotes ethical leadership, professional accountability and continuous engagement between decision-makers and frontline personnel.



LEADERSHIP IN ACTION

- Set Clear Safety Priorities
- Provide Adequate Resources
- Review Safety Performance
- Encourage Open Reporting
- Lead by Example
- Ensure Accountability



Safety First



Ethical Leadership



Accountability



Open Communication



Engaged Workforce



2. INTEGRATED SAFETY-MANAGEMENT SYSTEMS

The Mission supports the development and continuous strengthening of risk-based safety-management systems appropriate to railway and metro operations. Such systems should clearly define responsibilities, identify hazards, assess and control risks, monitor safety performance, investigate incidents and support corrective and preventive action.

Safety-management arrangements should be integrated with engineering, operations, asset management, quality, occupational health, security, cybersecurity, environmental management and business continuity. This integrated approach helps organisations understand how risks interact and prevents important safety concerns from being managed in isolation.

INTEGRATED SAFETY FRAMEWORK



INTEGRATION WITH KEY FUNCTIONS

- Engineering
- Operations
- Asset Management
- Quality
- Occupational Health
- Security & Cybersecurity
- Environment
- Business Continuity



3. RAILWAY OPERATIONAL SAFETY

Operational safety is central to reliable railway performance. The Mission promotes disciplined observance of authorised operating procedures, effective communication, competent supervision and systematic control of operational risks.

Areas of attention include:

- Train Movement & Regulation
- Station Working & Passenger Safety
- Control-Room Coordination
- Shunting & Yard Operations
- Route Setting & Speed Restrictions
- Worksite Protection
- Fatigue Management
- Situational Awareness
- Teamwork & Clear Communication



4. METRO RAIL AND URBAN-TRANSIT SAFETY

Metro rail systems operate in complex urban environments. The Mission promotes a specialised approach to metro safety that addresses these operating conditions.

Focus areas include:

- Platform & Train-Interface Safety
- Platform-Screen Doors
- Escalators, Lifts & Vertical Mobility
- Automatic Train Operation
- Passenger Evacuation & Tunnel Safety
- Ventilation, Fire & Life Safety
- Depot Operations & Maintenance Safety
- Crowd Management
- Multimodal Interchange Safety
- Accessibility & Inclusive Design



KEY ENABLERS



Technology & Innovation



Competent Workforce



Training & Competence



Standards & Best Practices



Data & Analytics



Culture of Safety

OUR COMMITMENT

- Build a strong safety culture across railway and metro systems
- Strengthen systems, processes and risk-based decision-making
- Empower professionals and frontline teams
- Protect passengers, employees, assets and communities
- Continuously improve for a safer and smarter tomorrow

SAFETY IS A SHARED RESPONSIBILITY EVERY LIFE MATTERS



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ADVANCING SAFETY **STRENGTHENING SYSTEMS** **EMPOWERING PROFESSIONALS** **PROTECTING EVERY JOURNEY**

1

INFRASTRUCTURE AND TRACK SAFETY

- Systematic inspection, condition monitoring and preventive maintenance.
- Timely renewal of tracks, bridges, tunnels, viaducts, embankments, drainage systems, stations and depots.
- Plan for climate risks: flooding, heat, landslides, erosion, waterlogging, high winds.
- Resilient engineering practices for safe operations in all conditions.



TRACKS



BRIDGES



TUNNELS



DRAINAGE



STATIONS



DEPOTS



MONITORING



RESILIENCE



2

ROLLING-STOCK SAFETY

- High standards in design, manufacturing, testing, operation and maintenance.
- Focus on braking, wheels & axles, doors, couplers, suspension, propulsion, electrical systems and fire detection.
- Onboard emergency communication and passenger-information systems.
- Use condition monitoring and predictive maintenance with professional oversight.



BRAKING SYSTEMS



WHEELS & AXLES



DOORS & COUPLERS



SUSPENSION



PROPULSION SYSTEMS



FIRE DETECTION



EMERGENCY COMMUNICATION



PASSENGER INFORMATION



3

SIGNALLING, TRAIN PROTECTION AND COMMUNICATION

- Interlocking systems, automatic signalling, train detection and traffic control.
- Authorised Train Protection technologies to prevent unsafe movements.
- For Metro: CBTC, ATP, ATO, ATS systems.
- Safe system integration, cybersecurity, testing, validation and fail-safe design.



INTERLOCKING SYSTEMS



AUTOMATIC SIGNALLING



TRAIN DETECTION



TRAFFIC CONTROL



TRAIN PROTECTION



CBTC/ATP SYSTEMS



CYBER SECURITY



SAFE SYSTEM INTEGRATION



4

ELECTRICAL AND FIRE SAFETY

- Electrical risk awareness and safe maintenance of traction and power systems.
- Isolation procedures and lockout-tagout practices.
- Fire detection, suppression and smoke management in stations, tunnels & depots.
- Evacuation planning, emergency lighting and regular safety drills.



ELECTRICAL SAFETY



TRACTION POWER



SUBSTATIONS



LOCKOUT TAGOUT



FIRE DETECTION



FIRE SUPPRESSION



EVACUATION PLANNING



SAFETY DRILLS



5

HUMAN FACTORS AND ORGANISATIONAL SAFETY CULTURE

- Understand workload, fatigue, communication, leadership and workplace design.
- Encourage reporting of hazards and near-misses.
- Learn from experience and drive improvement.
- Fair, learning-oriented approach with accountability and professional respect.



LEADERSHIP



COMMUNICATION



TEAMWORK



TRAINING & COMPETENCE



REPORT HAZARDS



LEARN & IMPROVE



RESPECT & ACCOUNTABILITY



SAFETY CULTURE



6

PASSENGER SAFETY AND INCLUSIVE MOBILITY

- Safe station access, platform behaviour, orderly boarding and alighting.
- Clear announcements, visible signage and real-time passenger information.
- Assistance for persons with disabilities, senior citizens, women, children and tourists.
- Accessible, inclusive and multilingual safety information for all.



SAFE ACCESS



PLATFORM SAFETY



ORDERLY BOARDING



PASSENGER INFORMATION



ACCESSIBILITY



SENIOR CITIZENS & CHILDREN



WOMEN SAFETY



MULTILINGUAL INFORMATION



TOGETHER, WE BUILD SAFER RAIL SYSTEMS FOR A STRONGER INDIA
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SAFE JOURNEYS



SMART TECHNOLOGY



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PROTECTING EVERY JOURNEY

1 CROWD MANAGEMENT AND MAJOR-EVENT PREPAREDNESS

- Evidence-based crowd-flow planning and controlled access.
- Real-time monitoring, clear passenger communication and coordinated emergency arrangements.
- Temporary barriers, queuing systems and movement controls by competent personnel.
- Plans reviewed through drills and post-event learning.



Crowd Planning



Controlled Access



Real-time Monitoring



Clear Communication



Emergency Ready

2 LEVEL-CROSSING AND TRESPASS PREVENTION

- Sustained awareness, community participation and responsible enforcement.
- Use authorised crossings, foot overbridges and subways.
- Tracks must never be used as walking routes, shortcuts or locations for photography.
- Schools, local bodies and communities reinforce safety messages.



Use Authorised Crossings



Stop, Look Listen, Live



No Trespassing on Tracks



No Shortcuts Save Lives



Community Participation

3 OCCUPATIONAL HEALTH AND WORKFORCE SAFETY

- Safe systems of work and task-specific risk assessments.
- PPE, contractor safety and ergonomic practices.
- Focus on work at height, confined spaces, electrical, trackside, depots, tunnels and construction sites.
- Mental well-being, fatigue control and access to health support.



PPE & Safety Gear



Workplace Safety



Health Monitoring



Ergonomics



Mental Well-being & Support

4 EMERGENCY PREPAREDNESS AND DISASTER RESILIENCE

- Integrated emergency-response plans and clear responsibilities.
- Regular drills, scenario exercises and command-post simulations.
- Prepared for fires, derailments, floods, collisions, security threats and more.
- Evacuation, medical assistance, communication and service restoration are key priorities.



Emergency Planning



Regular Drills



Rapid Response



Passenger Evacuation



Resilient Operation

5 SECURITY AND SAFETY INTEGRATION

- Coordination between safety, security, asset protection and surveillance.
- Security measures support safe operations without hindering accessibility.
- Report suspicious activity and unattended objects through official channels.
- Do not interfere with authorised security operations.



Integrated Security



Surveillance & Monitoring



Access Control



Report & Respond



Safe & Secure Environment

6 CYBERSECURITY AND DIGITAL RESILIENCE

- Secure system design, controlled access and network monitoring.
- Vulnerability management, incident response and data protection.
- Workforce awareness and alignment with legal, technical and institutional requirements.
- Cybersecurity ensures safe, reliable and continuous operations.



Secure Systems Design



Network Monitoring



Incident Response



Data Protection



Cyber Aware Workforce

7 ARTIFICIAL INTELLIGENCE AND EMERGING TECHNOLOGIES

- AI, IoT, digital twins, drones, robotics, computer vision and analytics enhance safety.
- Predictive maintenance and intelligent monitoring improve reliability.
- Technologies must be tested, validated and used with human oversight.
- Innovation complements safety systems and complies with all approvals and controls.



AI & Analytics



IoT & Sensors



Drones & Robotics



Digital Twins & Simulation



Predictive Maintenance

8 SUSTAINABILITY AND FUTURE-READY OPERATIONS

- Safe, efficient and sustainable operations for a better tomorrow.
- Energy efficiency, green mobility and responsible resource use.
- Building resilient systems for climate challenges.
- Together we build a safer, smarter and stronger rail future.



Green Mobility



Energy Efficiency



Climate Resilience



Resource Conservation



Sustainable Future

SAFETY IS A SHARED RESPONSIBILITY • EVERY ACTION MATTERS • EVERY JOURNEY COUNTS

TOGETHER,
LET'S BUILD
A SAFER INDIA



SAFETY
FIRST
SAFETY
ALWAYS



SAFE RAIL
SAFE JOURNEYS



SMART TECHNOLOGY
SMART OPERATIONS



SKILLED WORKFORCE
STRONG NATION



INFORMED PASSENGERS
SAFE COMMUNITIES



TRUSTED SYSTEMS
RELIABLE FUTURE



SUSTAINABLE MOBILITY
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EMPOWERING PROFESSIONALS



PROTECTING EVERY JOURNEY

1

RESEARCH, INNOVATION AND KNOWLEDGE DEVELOPMENT

- Strengthen applied research in railway and metro safety.
- Translate research into practical guidance, training resources and pilot projects.
- Encourage collaboration between industry, academia and practitioners.



Applied Research



Innovation



Knowledge Sharing



Data & Analytics



Pilot Projects



Global Collaboration

2

EDUCATION, TRAINING AND PROFESSIONAL DEVELOPMENT

- Structured learning for all railway and metro professionals.
- Certification, workshops, seminars, conferences and simulation exercises.
- Role-appropriate, updated and connected to real operational challenges.



Certification Programs



Workshops & Seminars



Simulation Training



Executive Development



E-Learning Resources



Professional Competence

3

SAFETY AUDITS AND PERFORMANCE IMPROVEMENT

- Independent reviews to identify gaps and verify controls.
- Assessments across safety, infrastructure, fire, security, cyber and safety culture.
- Prioritise findings and track corrective & preventive actions.



Safety Audits



Risk Assessment



Compliance Check



Performance Review



Action Tracking



Continuous Improvement

4

INCIDENT REPORTING, INVESTIGATION AND ORGANISATIONAL LEARNING

- Timely reporting of accidents, incidents and near misses.
- Professional investigation of technical, human and organisational factors.
- Share lessons learned to prevent similar risks.



Report Promptly



Investigate Professionally



Analyse Root Causes



Learn & Share



Implement Actions



Prevent Recurrence

5

CLIMATE RESILIENCE AND SUSTAINABLE SAFETY

- Climate-informed risk assessment and resilient infrastructure.
- Early warning systems and emergency preparedness.
- Sustainable practices with rigorous safety assurance.



Climate Resilience



Early Warning Systems



Sustainable Infrastructure



Energy Efficiency



Green Mobility



Life-Cycle Safety

6

COLLABORATION AND STAKEHOLDER PARTICIPATION

- Engage with professionals, institutions, industries and communities.
- Professional forums, research, awareness campaigns and publications.
- All activities within legal, regulatory and institutional frameworks.



Railway & Metro Bodies



Academia & Research



Industry & Technology



Passengers & Communities



Emergency Services



Civil Society Partners

7

PROPOSED MISSION ACTIVITIES

- The Railway, workshops, training and technical seminars.
- Research studies, awareness campaigns and innovation showcases.
- Safety benchmarking, case studies, simulations and recognition programs.



Conferences



Training Programs



Research Studies



Awareness Campaigns



Innovation Showcases



Recognition Programs

8

ALIGNMENT WITH NATIONAL DEVELOPMENT

- Support national priorities for safe infrastructure and smart mobility.
- Contribute to Viksit Bharat 2047, Atmanirbhar Bharat, Make in India, Skill India, Digital India.
- Strengthen connectivity, inclusion and sustainable growth.



Viksit Bharat 2047



Atmanirbhar Bharat



Make in India



Digital India



Sustainable Mobility

OUR INSTITUTIONAL COMMITMENT

The All India Rail Safety Council believes that safety excellence is a continuing journey founded upon knowledge, integrity, competence and shared responsibility.

The Railway and Metro Rail Safety Excellence Mission reflects AIRSC's commitment to bringing stakeholders together, advancing professional dialogue and promoting responsible practices across the mobility sector.

The Mission aspires to help create an environment in which risks are anticipated, lessons are shared, innovations are responsibly evaluated and every decision recognises the value of human life.



CALL TO ACTION

Railway and metro safety cannot be achieved by any single institution or technology. It requires committed leadership, competent professionals, reliable infrastructure, responsible industries, vigilant communities and disciplined passengers.

The Railway and Metro Rail Safety Excellence Mission invites responsible stakeholders to participate in building a stronger culture of prevention, preparedness and continuous improvement.



SAFER SYSTEMS



SKILLED PROFESSIONALS



RESPONSIBLE PASSENGERS



RESILIENT MOBILITY

SAFETY EXCELLENCE FOR EVERY TRACK, EVERY STATION AND EVERY JOURNEY



The Railway and Metro Rail Safety Excellence Mission is a safety-awareness, of the All India Rail Safety Council certification or emergency-response responsibilities of Indian Railways, metro or other authorised organisations. All proposed activities are subject to applicable laws, +primitiions requirements. +pdt.



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