

Ramping up the Ambition of Transport Related Climate Policy Targets in Asia and the Pacific

Knowledge Sharing Session & Report Release

September 2, 2026

Asian Development Bank | Manila



THE ENERGY AND
RESOURCES INSTITUTE

Creating Innovative Solutions for a Sustainable Future

Delivering India's NDC Targets

Role of Transport



THE ENERGY AND
RESOURCES INSTITUTE

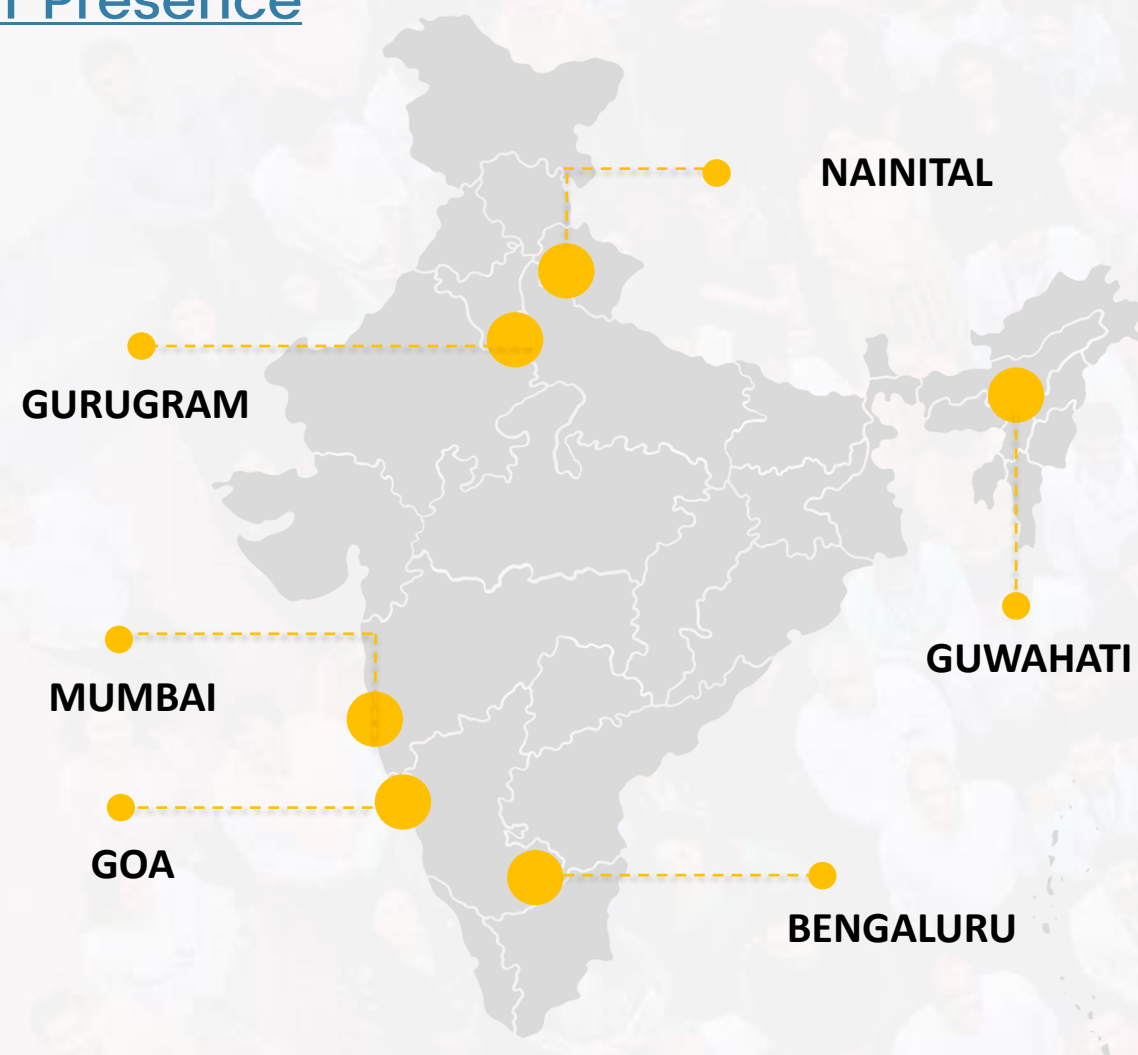
Creating Innovative Solutions for a Sustainable Future



About TERI

Established in 1974, TERI is one of the **world's pre-eminent think tanks** and research institutions in the field of **energy, climate change and sustainability**

Our Presence



06

Regional Centers Pan-India

7574+

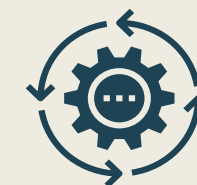
Projects Undertaken

650+

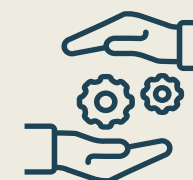
Team comprising of scientists,
sociologists, economists,
engineers and others



MULTIDISCIPLINARY RESEARCH



POLICY ADVOCACY



POLICY DEVELOPMENT

Thematic Areas



**SUSTAINABLE
AGRICULTURE**



CLIMATE CHANGE



ENERGY



ENVIRONMENT



**SUSTAINABLE
HABITAT**



**ENVIRONMENT AND
PUBLIC HEALTH**



**RESOURCES &
SUSTAINABLE
DEVELOPMENT**



Transport & Urban Governance Division - Key Partners

Government Bodies	Public Sector	International Partners	Academic and Research	City Partners
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Ministry of Housing and Urban Affairs
Government of India



DIRECTORATE OF URBAN LAND TRANSPORT
UDD, Government of Karnataka
shaping the way cities move



GIDC
GUJARAT INDUSTRIAL DEVELOPMENT CORPORATION



ISA INTERNATIONAL SOLAR ALLIANCE



SCHOOL OF PLANNING AND ARCHITECTURE
Bhopal
स्वायत्ति स्थापनाई स्यात् सर्वोत्कृष्टिगच्छेत्



teri school of advanced studies



SHIMLA MUNICIPAL CORPORATION
SHIMLA
WORK IS WORSHIP



GOVERNMENT OF INDIA



BUREAU OF ENERGY EFFICIENCY
Government of India, Ministry of Power



GOVERNMENT OF ANDHRA PRADESH
ఆంధ్ర ప్రదేశ్
సत्यमेव जयते



THE WORLD BANK



Mercedes-Benz



INDIAN INSTITUTE OF TECHNOLOGY MADRAS
सिद्धिर्भवति कर्मजा



GOVERNMENT OF GOA



Ministry of Environment, Forest & Climate Change



NITI Aayog



भारी उद्योग मंत्रालय
MINISTRY OF HEAVY INDUSTRIES
सत्यमेव जयते



पत्तन, पोत परिवहन एवं जलमार्ग मंत्रालय
MINISTRY OF PORTS, SHIPPING AND WATERWAYS
सत्यमेव जयते



giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH



LLOYDS METALS



UKPACT



தூத்துக்குடி மாநகராட்சி
THOOTHUKUDI CORPORATION



भारतीय प्रौद्योगिकी संस्थान दिल्ली
INDIAN INSTITUTE OF TECHNOLOGY DELHI



हिमाचल प्रदेश सरकार



सड़क परिवहन एवं राजमार्ग मंत्रालय
MINISTRY OF ROAD TRANSPORT AND HIGHWAYS
सत्यमेव जयते



CAQM



भारतीय डाक
डाक सेवा-जन सेवा
India Post
Dak Sewa-Jan Sewa



विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF SCIENCE & TECHNOLOGY
सत्यमेव जयते



कॉनकॉर
CONCOR



Federal Ministry for Economic Affairs and Climate Action



IKI INTERNATIONAL CLIMATE INITIATIVE



CEPT UNIVERSITY



NIIUA
National Institute of Urban Affairs



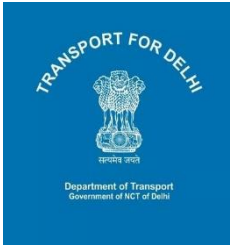
IIMB
तेजस्वि नावधीतमस्तु



Naroda Industries Association
n/a Naroda
ESTD. 1967



GREATER VISAKHAPATNAM MUNICIPAL CORPORATION
GVMC



TRANSPORT FOR DELHI
Department of Transport
Government of NCT of Delhi



दिल्ली मेट्रो रेल कॉर्पोरेशन लिमिटेड
Delhi Metro Rail Corporation Limited



నమ్మా
namma metro



EESL



UNU EHS



CONCOR-TERI Centre of Excellence for Green & Sustainable Logistics

Emission Accounting

GHG Emissions Tool for Truck Operations - CONCOR



Version 4.0 - September 2025

About the Tool

This Excel tool helps estimate GHG emission savings from switching between Diesel, LNG, and Electric vehicles. It supports three methods: Direct Fuel Input, Distance Input, Container Specifications Input

Instructions to use the Tool

- Choose a method: Select Fuel Input, Distance Input, or Container specifications input method.
- Select primary fuel: Choose between LNG or Electricity to trigger relevant emission factors and fuel efficiency.
- Enter key inputs: Provide required values such as fuel consumed, distance, container type, load conditions, etc.
- Review outputs: See total emissions, emission factors (kgCO₂e/kg, kgCO₂e/kwh, kgCO₂e/km, kgCO₂e/Hkm and kgCO₂e/TEU), and diesel comparison.
- Compare savings: View emission reductions from switching to LNG or electricity versus diesel.
- Check Parameter sheet: Edit fuel efficiencies, emission factors, etc, if needed.

Sheet Navigation Guide

Sheet Name	Description
Cover	Tool overview and usage guidelines
Limitations	Fixed assumptions that define the scope and limitations of the
Parameters	Energy content, emission factors, payloads and efficiencies
Calculator	Main dashboard for user inputs and output
Dashboard Data Sample	Data entries for a particular day from the portal

Cover

Assumptions & Limitations

Parameters

Calculator

Dashboard Data Sample



Low Emission Technologies & Infrastructure

CONCOR-TERI
Centre of Excellence for
Green and Sustainable Logistics

Exploring Feasible Routes and Corridors for Electric Truck
Deployment at ICD Tughlakabad

May 2026



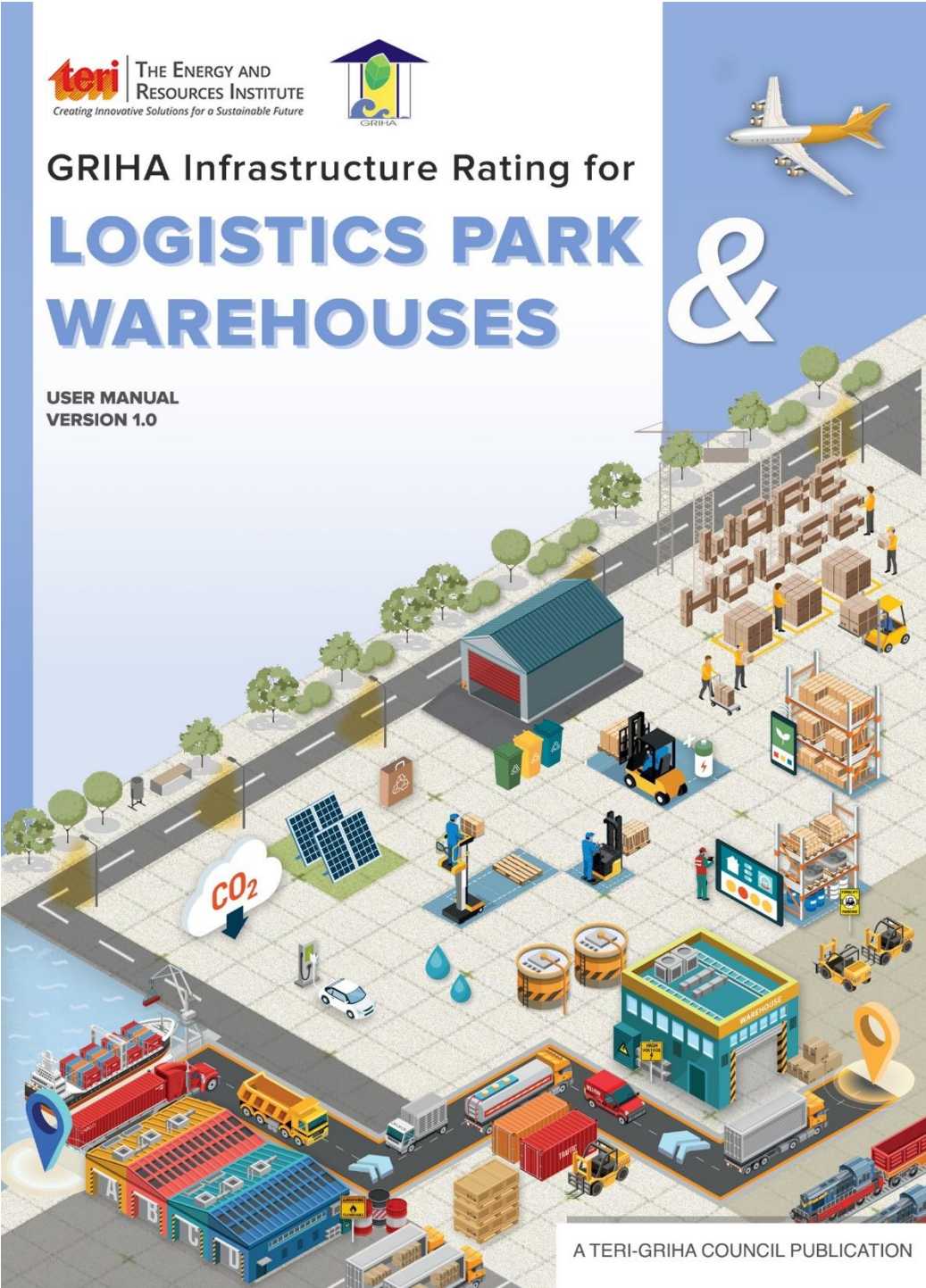


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GRIHA Infrastructure Rating for
**LOGISTICS PARK &
WAREHOUSES**

USER MANUAL
VERSION 1.0



A TERI-GRIHA COUNCIL PUBLICATION



Research Impact: Railways



STRATEGIES TO INCREASE RAILWAY'S SHARE IN FREIGHT TRANSPORT IN INDIA

Executive Summary

IR TERMINAL Rating System

Referential

ContinueReset

Compare Terminals (*Maximum 5)

Select TerminalsCompare

Total Terminals1442

★★★★★

100

★★★★

25

★★★

18

★★

18

★

14

Terminal: SOG★★★★★

DESCRIPTION	SCORE	MAXIMUM SCORE
Total	142	196
Goods Handling	40	55
Terminal Infra	78	96
Eco-System	25	47
Rail Infra	17	39
Maintenance	19	50

Rail Green Points



Rail Green Statistics (Indian Railways)

60782343

*Carbon Emission Saved in TonnesCO2 (since 01-04-2022)

Rates Circular No.6 of 2022

3.0 Rail Green Point(RGP)

It is the amount of saving of carbon emission in Tonnes of CO₂ on account of transportation of goods by railways instead of road., The Rail Green Points will be estimated based on NTKM through booked route once RR is generated. These Rail Green Points will also be printed on Railway Receipts.

4.0 Estimation of Rail Green Point

The Energy and Resource Institute (TERI) has developed as calculator for estimation of Green House Gas (GHG) emission in tonnes of CO₂ for road and rail based on tonne-km. The GHG calculator of TERI is available at <http://freightghgcalculator.com/>. The same methodology will be used to estimate carbon emission saving on account of transportation by rail (instead of road) and the same will be termed as Rail Green Point(RGP).

As per latest details collected by CRIS/FOIS from TERI, the following emission factor may be considered: (as modified from time to time)

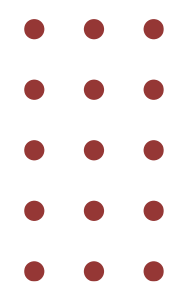
Mode	Emission Factor (KgCO ₂ per ton-km)
Rail	0.009
Road	0.040

This incorporation by CRIS must be done under advice to TERI considering their emission factor is being used for the calculation of Rail Green Point.

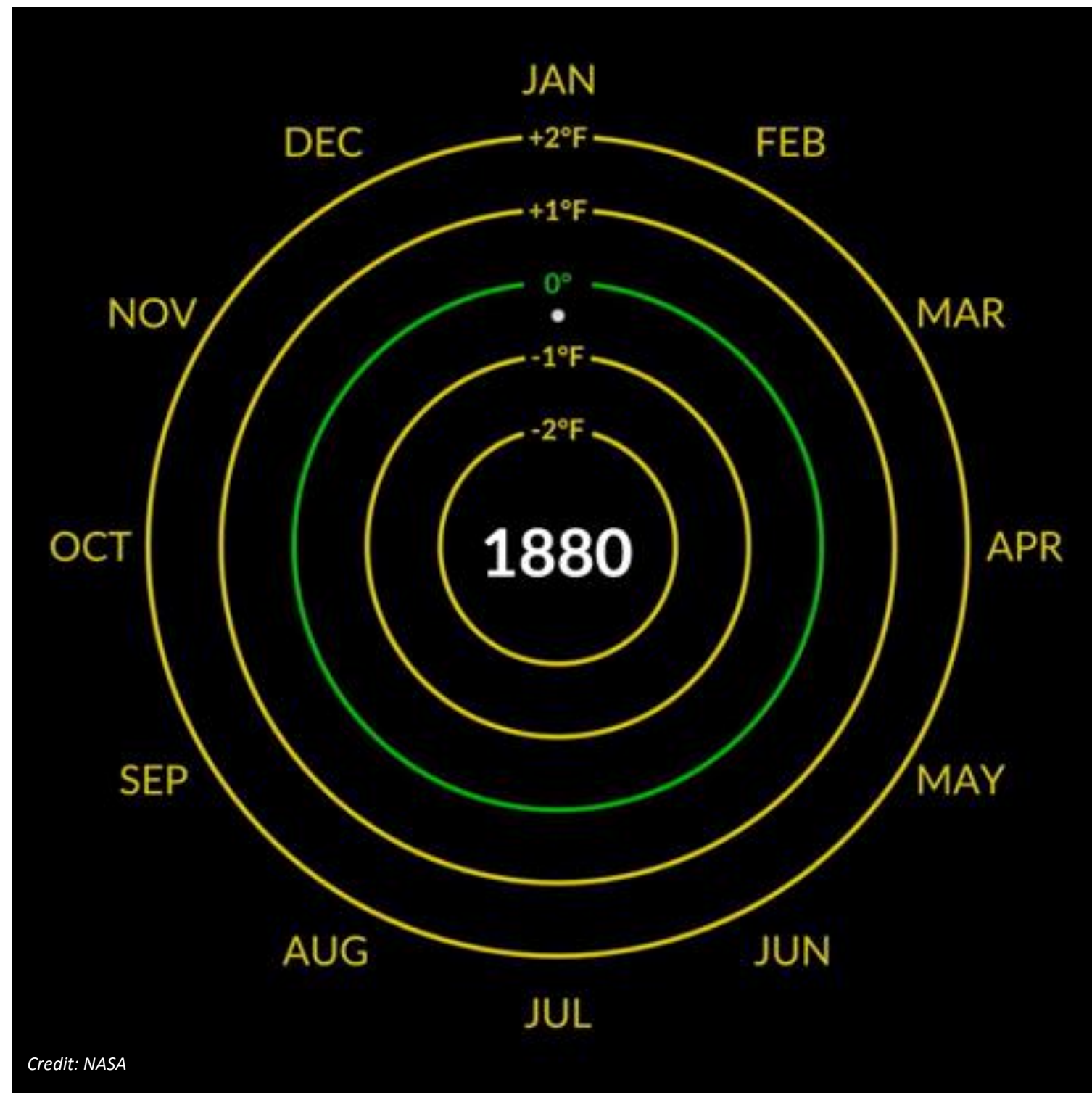


Delivering India's NDC Targets

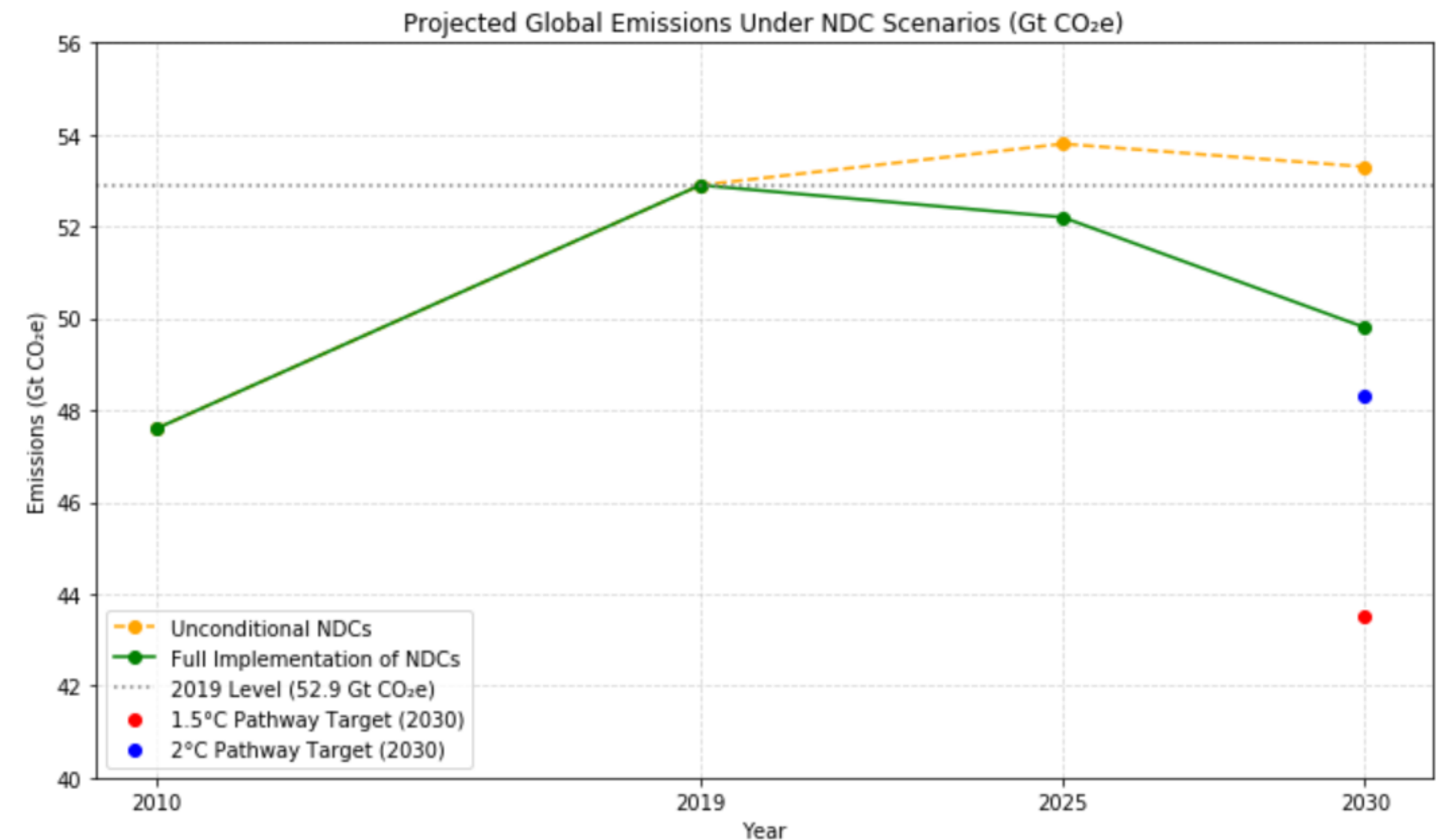
Role of Transport



Climate Challenge: Gap between Ambition and Action



Global Temperature Change (1880-2022)



Source: NDC Synthesis Report, UNFCCC, 2024

Ambition Gap vs Paris Goals

Under both unconditional and fully implemented NDCs, emissions are expected to remain above 50 Gt CO₂e in 2030—far exceeding the targets of 1.5°C or even 2°C.

Carbon Budget at Risk

NDCs for 2020–2030 would consume ~87% of the 1.5°C carbon budget, leaving room for only ~2 years of emissions post-2030.

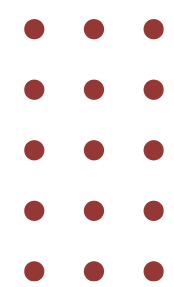


Transport: Critical Lever for Emerging Economies

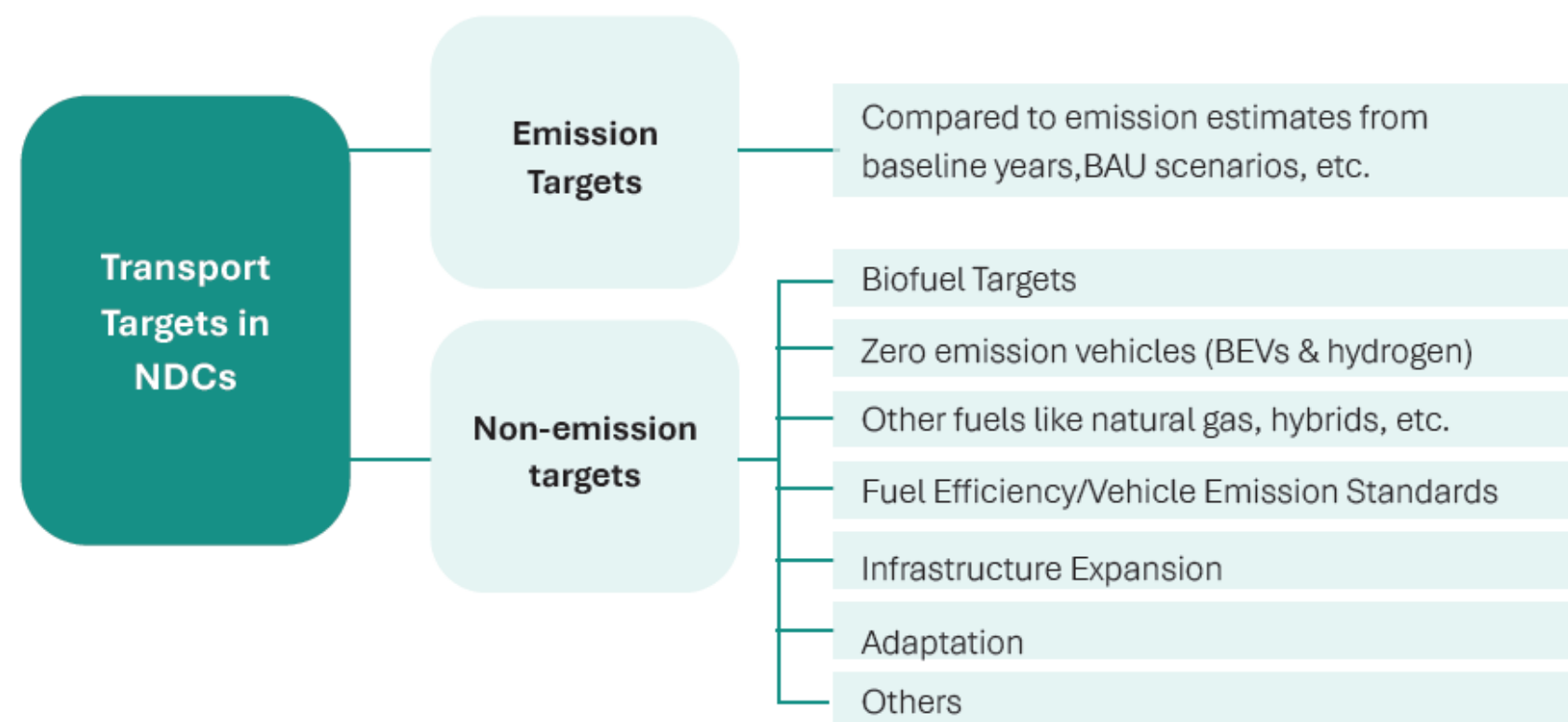
Income Group	No. of Countries	GHG Emissions (MtCO ₂ eq/yr)			GHG Emissions per GDP (tCO ₂ eq/kUSD/yr)			Per capita GHG Emissions (tCO ₂ eq/cap/yr)			CO ₂ Emissions(Fossil only) – Transport (Mt CO ₂ /yr)		
		2005	2024	% Δ	2005	2024	% Δ	2005	2024	% Δ	2005	2024	% Δ
Low Income	24	40	50	27%	0.9	0.7	-17%	2.0	1.8	-14%	3.1	3.5	14%
Lower Middle Income	47	95	173	82%	0.5	0.3	-27%	2.2	2.4	8%	7	17	144%
Upper Middle Income	43	318	539	69%	0.5	0.3	-30%	6.9	7.2	5%	26	48	81%
High Income	31	635	573	-10%	0.6	0.5	-21%	21	17	-18%	123.0	122.8	-0.2%

Source: TERI analysis based on European Commission, Joint Research Centre (JRC), *GHG Emissions of All World Countries: 2025 Report*.

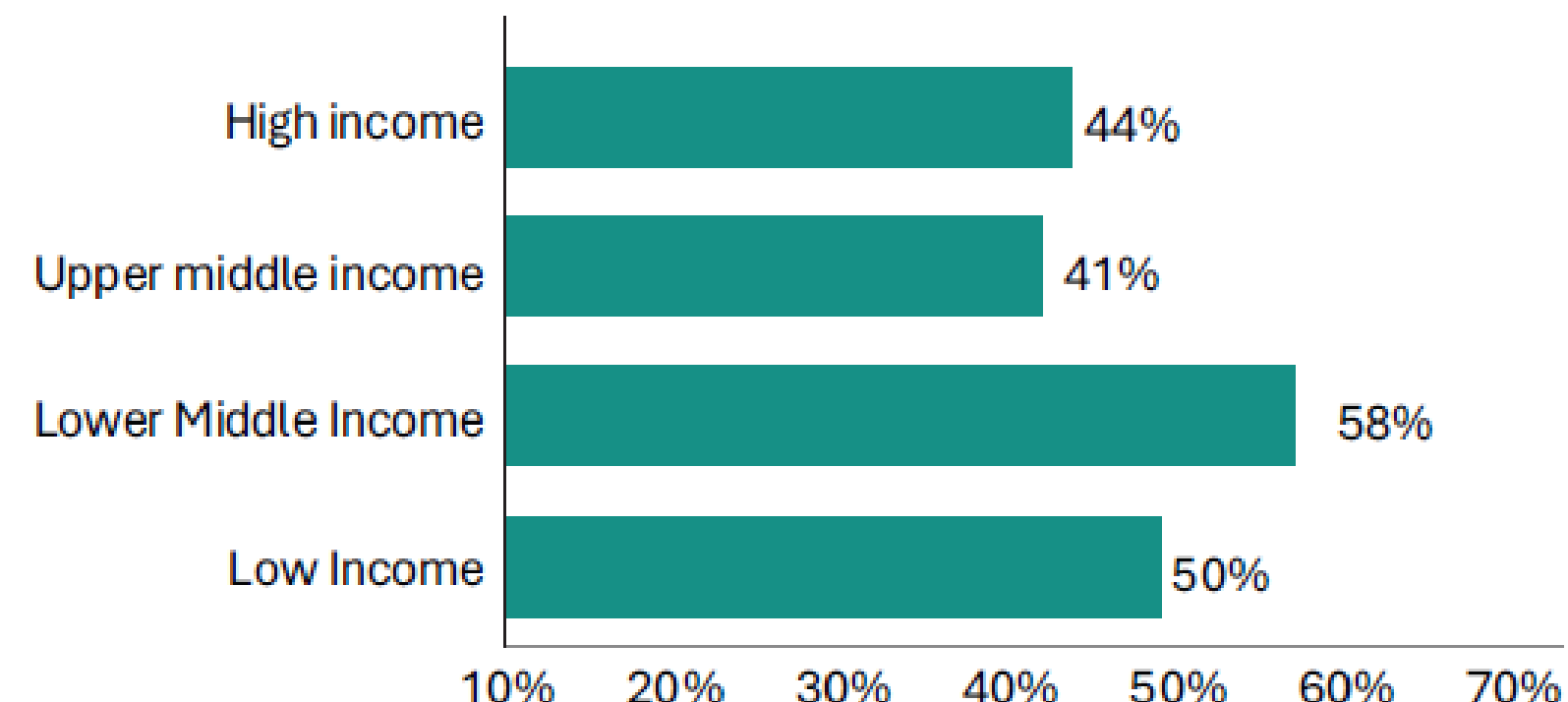
- TERI assessed **156 countries/country groups**, classified by the World Bank income groups.
- **Transport emissions are shifting towards lower- and upper-middle-income economies.** Between 2005 and 2024, transport CO₂ emissions increased by 144% in lower-middle-income countries and 81% in upper-middle-income countries.



Transport in NDCs: Global Commitments



Type of Transport Targets in NDCs: Emission and Non-Emission Targets

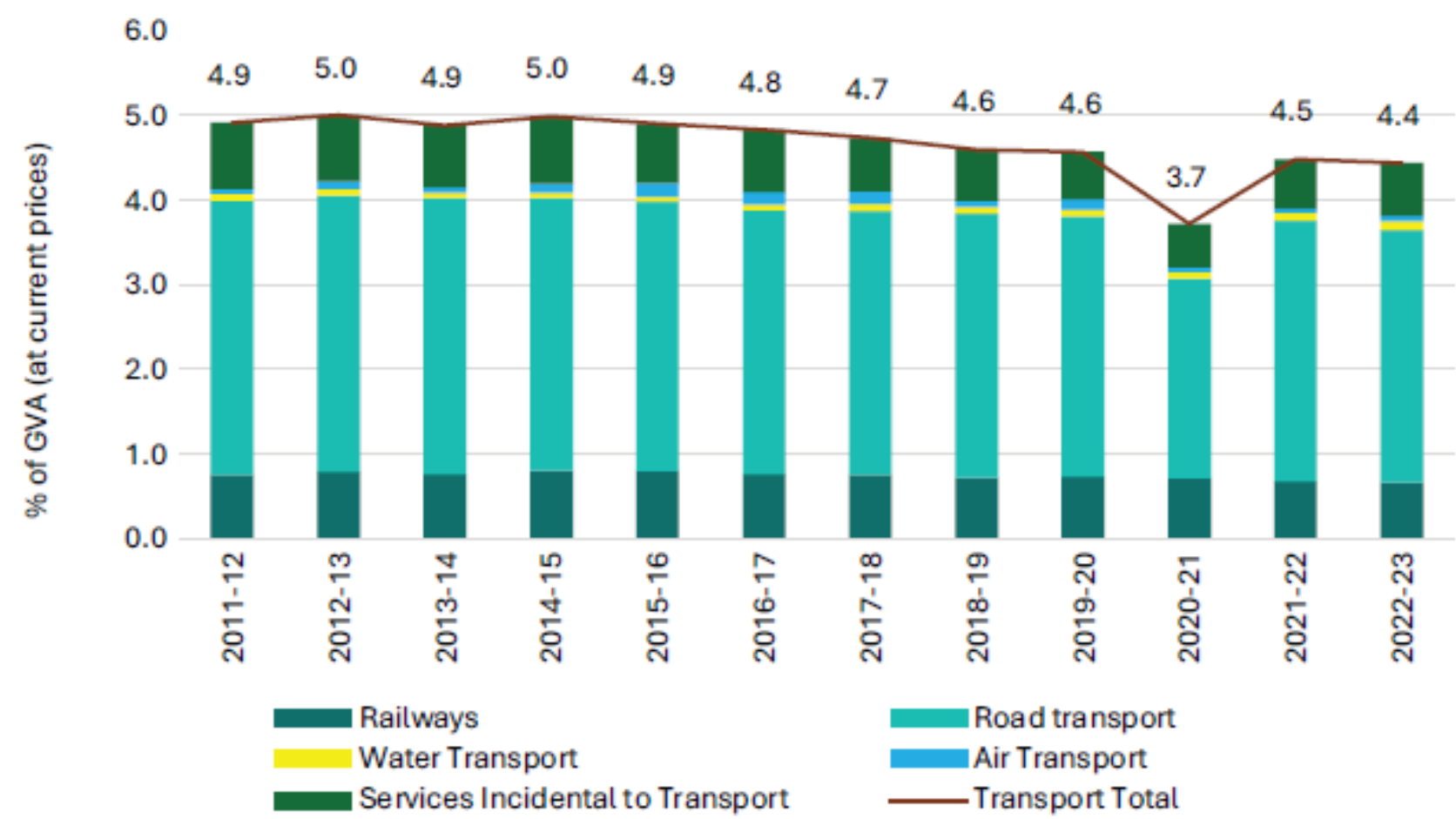
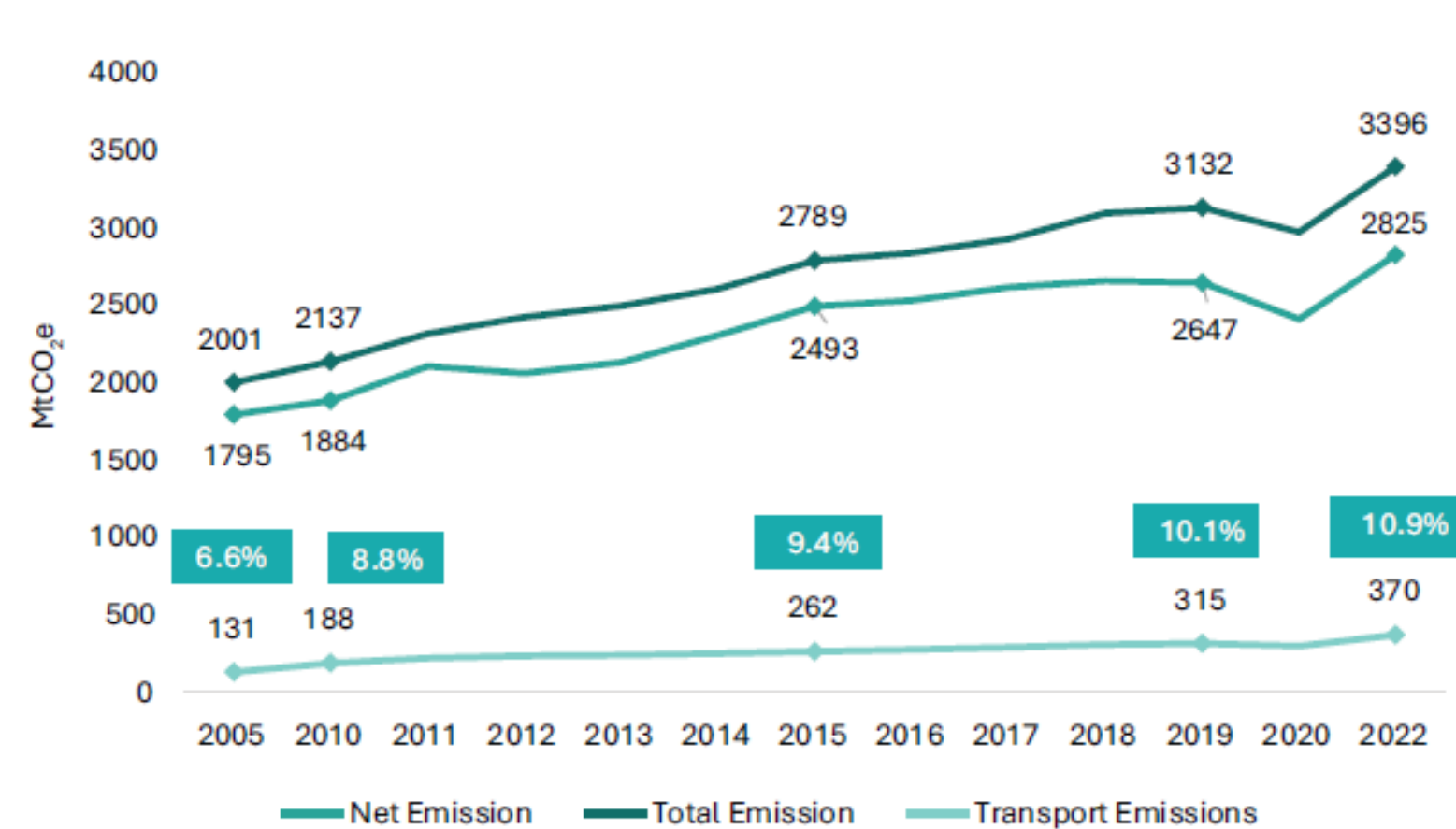


Inclusion of Transport Targets - Income Classification

- **76 of 156 countries (49%)** include transport-specific targets in their NDCs — with no clear link between income level and inclusion.
- High-income countries favour vehicle/technology-based measures (ZEVs, emission cuts); low- and middle-income countries use a broader mix — fuel efficiency, modal shift, adaptation, and infrastructure.
- **43% of LMI and 38% of low-income targets are conditional** vs. just 19% for high-income; LMI countries report only 7% fully unconditional targets, with 32% "mixed."



Emission Intensity Growth: India's Transport Sector



Between 2010 and 2020, economy-wide emission intensity (including LULUCF) fell from 24.8 to 19.2 kgCO₂e per 1,000 INR, a reduction of about 24%. However, the emission intensity specific to the transport sector has witnessed an overall increase of 26% in the same time period.

Emission Intensity (in kgCO ₂ e/1000 INR)	2010	2020	Net Change
Economy (without LULUCF)	28.1	23.3	-17%
Economy (with LULUCF)	24.8	19.2	-24%
Transport	50.4	63.3	26%

Source: NATCOMs, BURs, NID, National Accounts Statistics



Focus: High-Emission, High-Growth Segments

Mode-wise TTW GHG Emissions and Percentage Composition for 2019–20 and 2035–36

Years	Parameter	2W	3W-P	4W-C&J	4W-T	BUS	LGV	MHGV	Rail	Aviation	Total
2019–20	TTW GHG Emissions (MtCO ₂ e)	59	8	51	18	49	20	88	6	15	312
	Percentage Composition	19%	3%	16%	6%	16%	6%	28%	2%	5%	100%
2035–36	TTW GHG Emissions (MtCO ₂ e)	134	16	209	46	79	46	377	1	81	988
	Percentage Composition	14%	2%	21%	5%	8%	5%	38%	0%	8%	100%

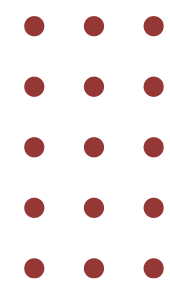
Mode-wise Passenger Activity (BPKM) and Percentage Composition for 2019–20 and 2035–36

Years	Parameter	2W	3W-P	4W-C&J	4W-Taxi	BUS	Rail	Aviation	Total
2019–20	BPKM	1,583	267	1,003	305	2,940	1,069	137	7,303
	Percentage Composition	22%	4%	14%	4%	40%	15%	2%	100%
2035–36	BPKM	3,896	604	4,401	897	4,413	2,295	813	17,320
	Percentage Composition	22%	3%	25%	5%	25%	13%	5%	100%

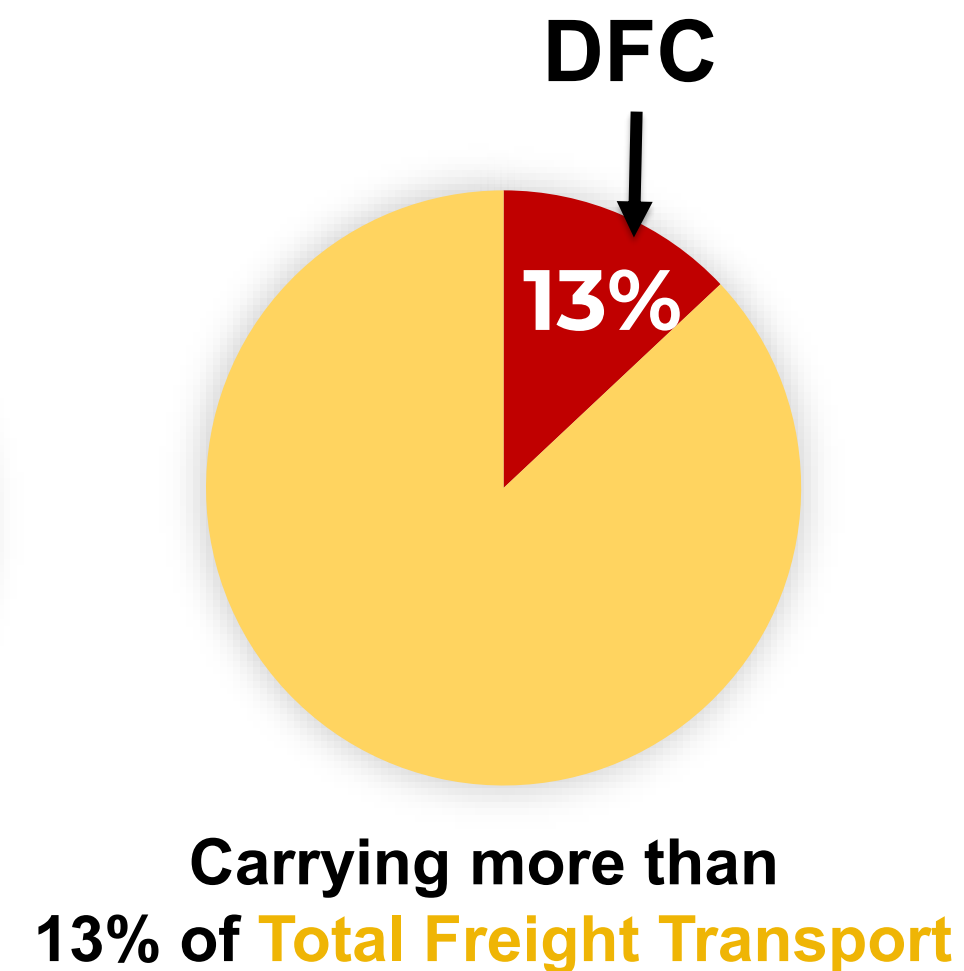
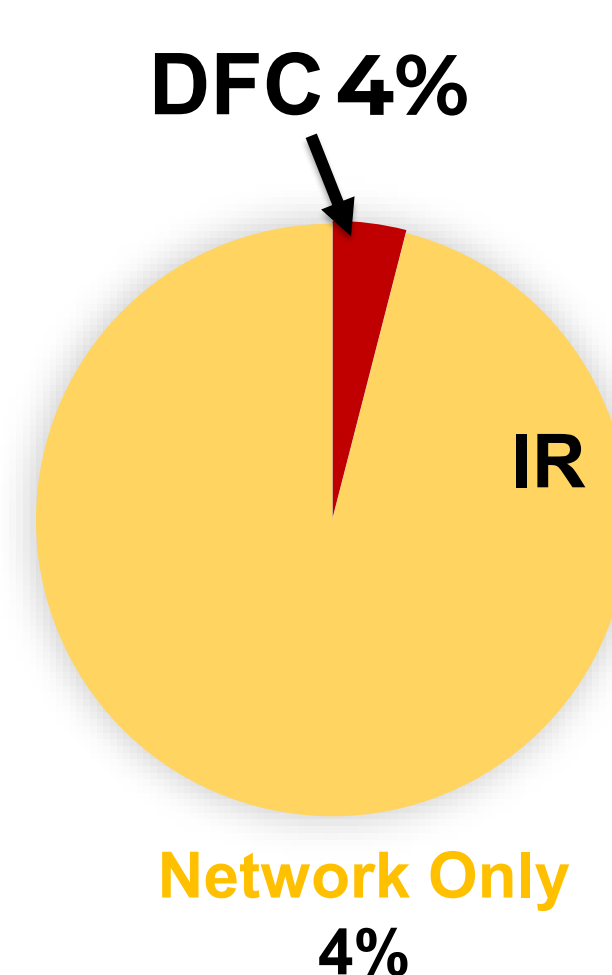
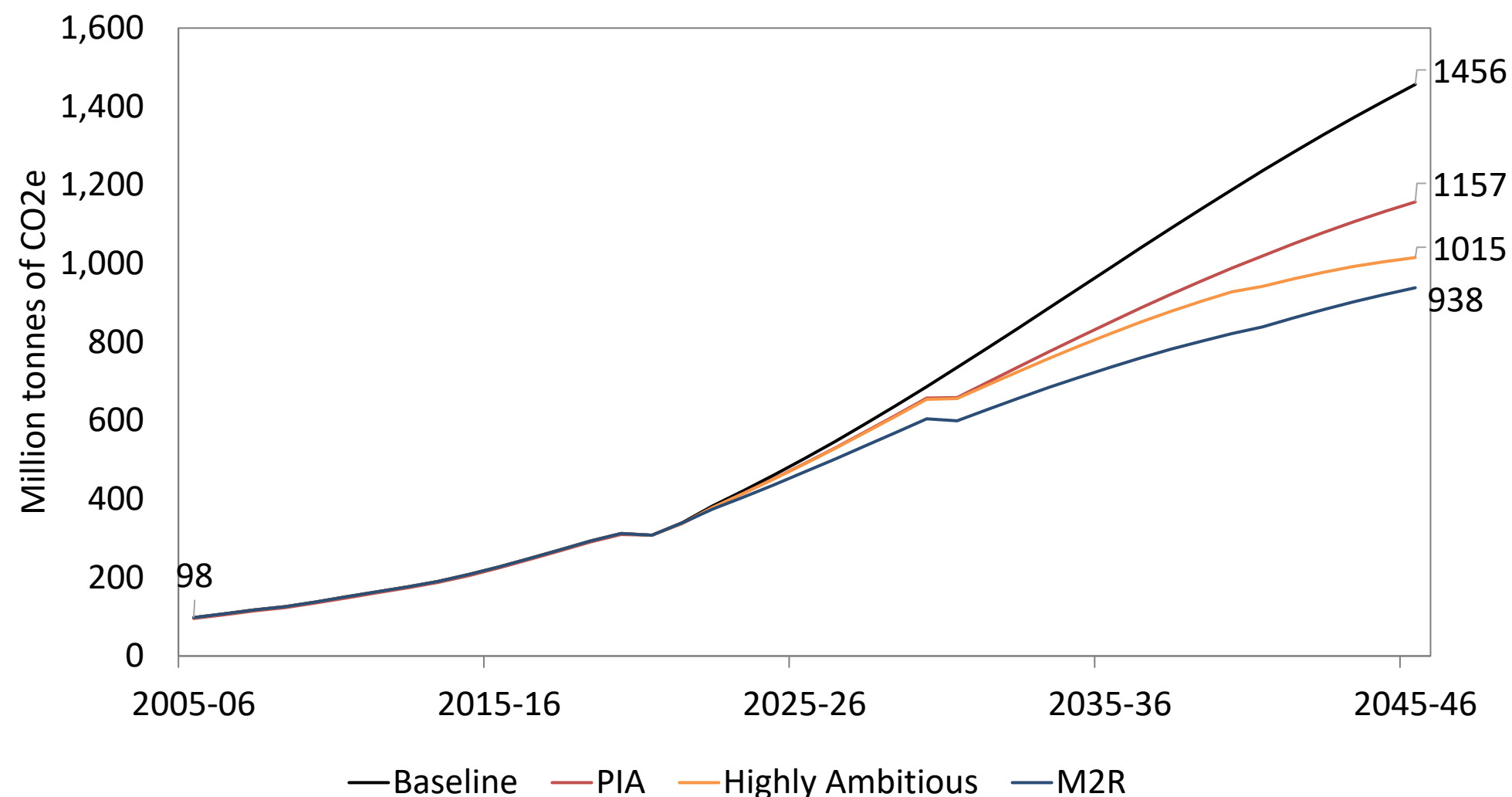
Mode-wise Freight Activity (BTKM) and Percentage Composition for 2019–20 and 2035–36

Years	Parameter	LGV	MHGV	Rail	Aviation	Total
2019–20	BTKM	128	1,846	708	1	2,682
	Percentage Composition	5%	69%	26%	0%	100%
2035–36	BTKM	356	8,854	1,229	3	10,441
	Percentage Composition	3%	85%	12%	0%	100%

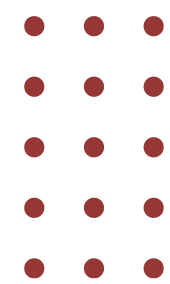
- **Emissions and freight growth are increasingly concentrated in MHGVs:** their emissions rise from ~88 to 377 MtCO₂e, increasing their share from 28% to 38% by 2035–36; their freight activity share rises from 69% to 85%.
- **Passenger cars and jeeps are the other major growth segment:** emissions increase from 51 to 209 MtCO₂e, with their share rising to ~21% by 2035–36.



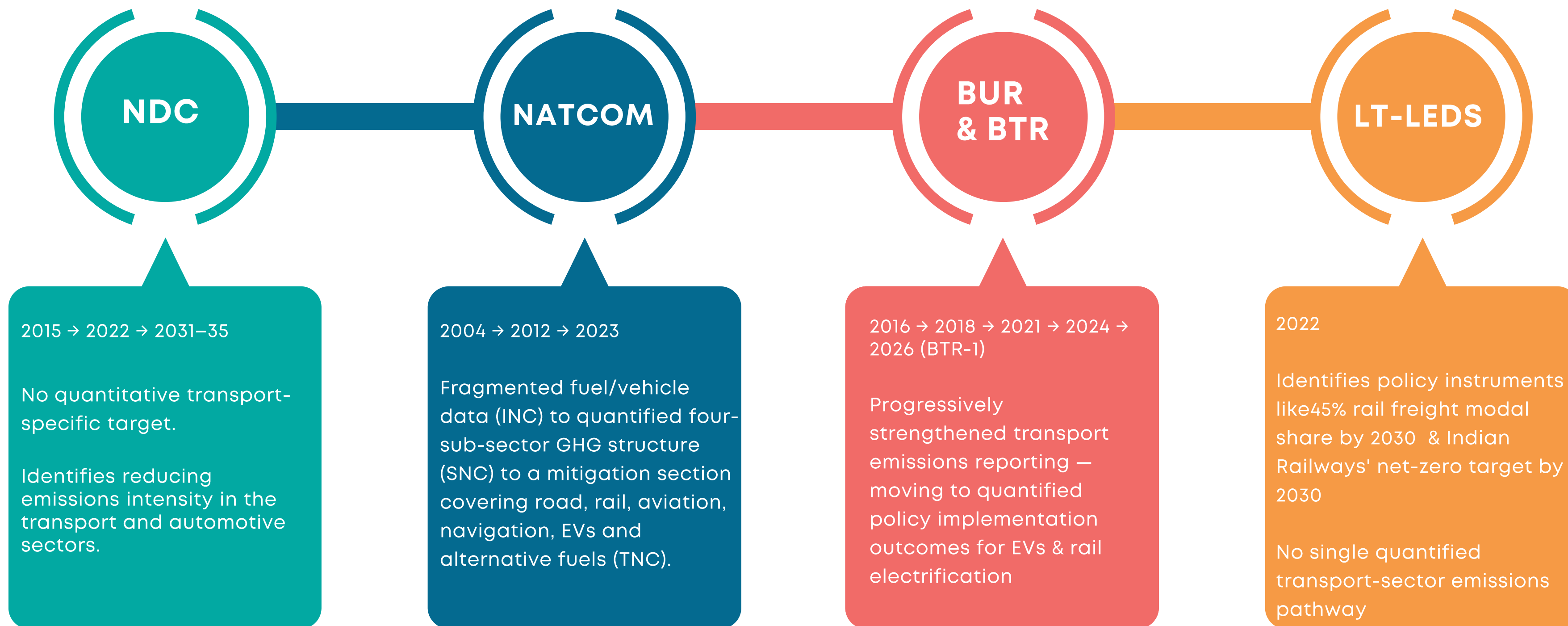
Emission Abatement Potential: Transport



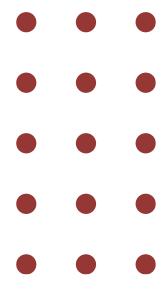
- Policy-in-Action (PIA): reflects implementation of existing policy commitments, including fuel-efficiency improvements, EV adoption and biofuel blending.
- Highly Ambitious (HA): assumes an accelerated technology transition, particularly higher EV adoption. It delivers further gains, reducing the increase to +19% for passenger and +11% for freight by 2035 — but still remains above 2010 intensity levels.
- **Modal Shift to Rail (M2R): combines PIA measures with an accelerated shift of long-distance freight from road to rail. It is the only scenario that achieves an absolute reduction in freight emission intensity — 19% below 2010 levels by 2035, compared with +23% under the Baseline.**



Transport in India's UNFCCC Submissions



India's first Adaptation Communication was included in NC-3 (2023), while the National Adaptation Plan is currently under preparation; transport-specific adaptation planning remains limited.



Key Anchors

Anchor 1: Emission Abatement Opportunities

**Rail-Freight Modal
Shift**

**De-risking MHGV
Segment**

**Two-Speed EV
Transition**

**Sequenced Policy
Interventions**

Anchor 2: Finance & MRV Toolkit

Regulatory Certainty

**Finance &
Procurement**

**Institutionalized MRV
Systems**

**Common but
Differentiated Pathways**



Scan the QR code to access the full report

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Delivering India's NDC Targets

Role of Transport

