



Transport Decarbonization in India

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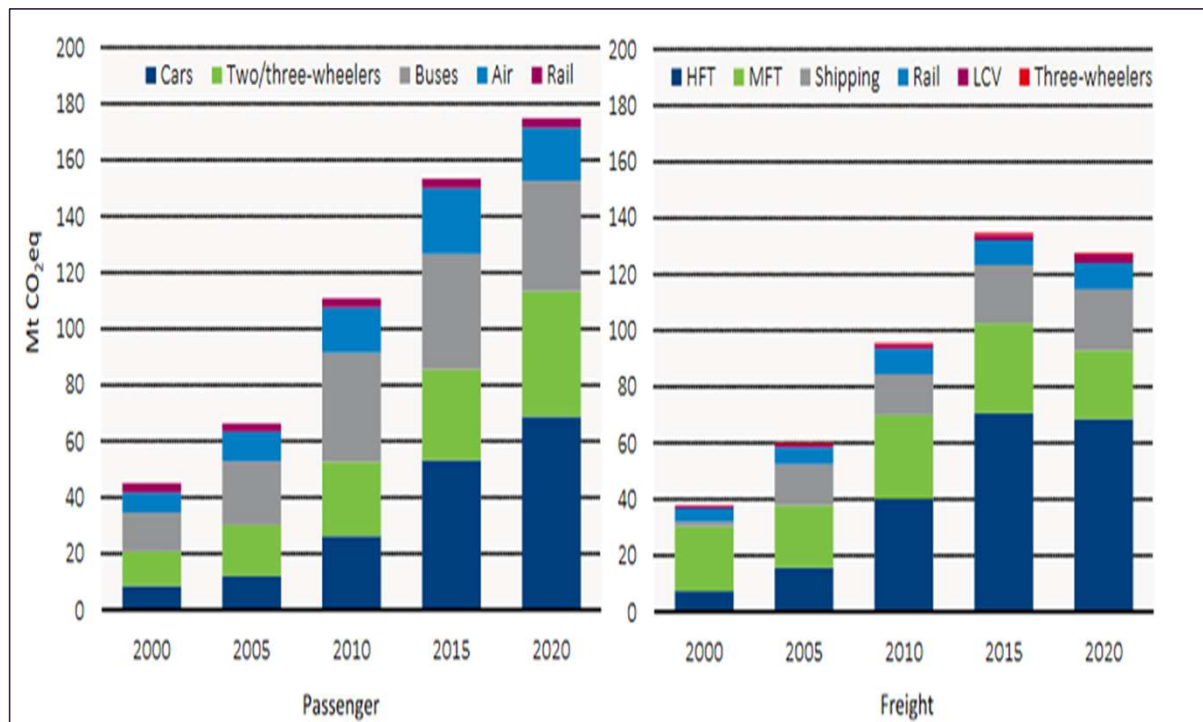
Road Transport in Indian Cities

Indian road transport is as diverse as it can get, filled with solutions suited for the local needs



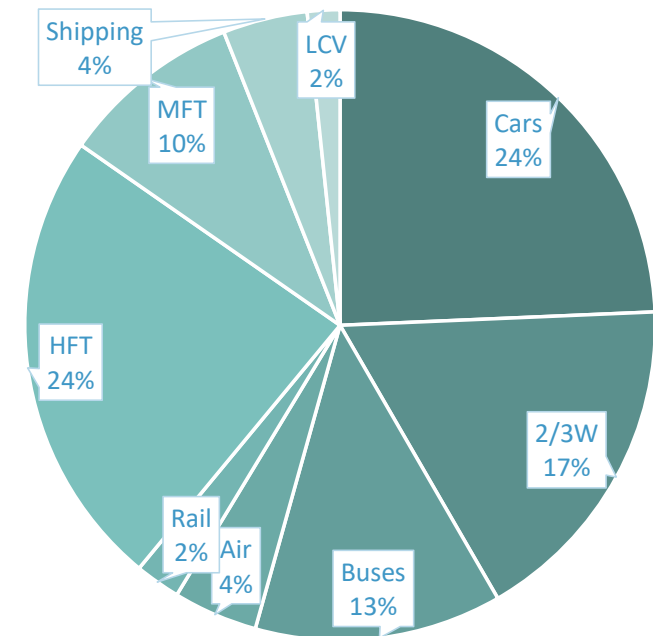
Transport Sector Emissions in 2020

Road transport accounted for 90% of the 300 MtCO_{2e} transport GHG emissions in 2020



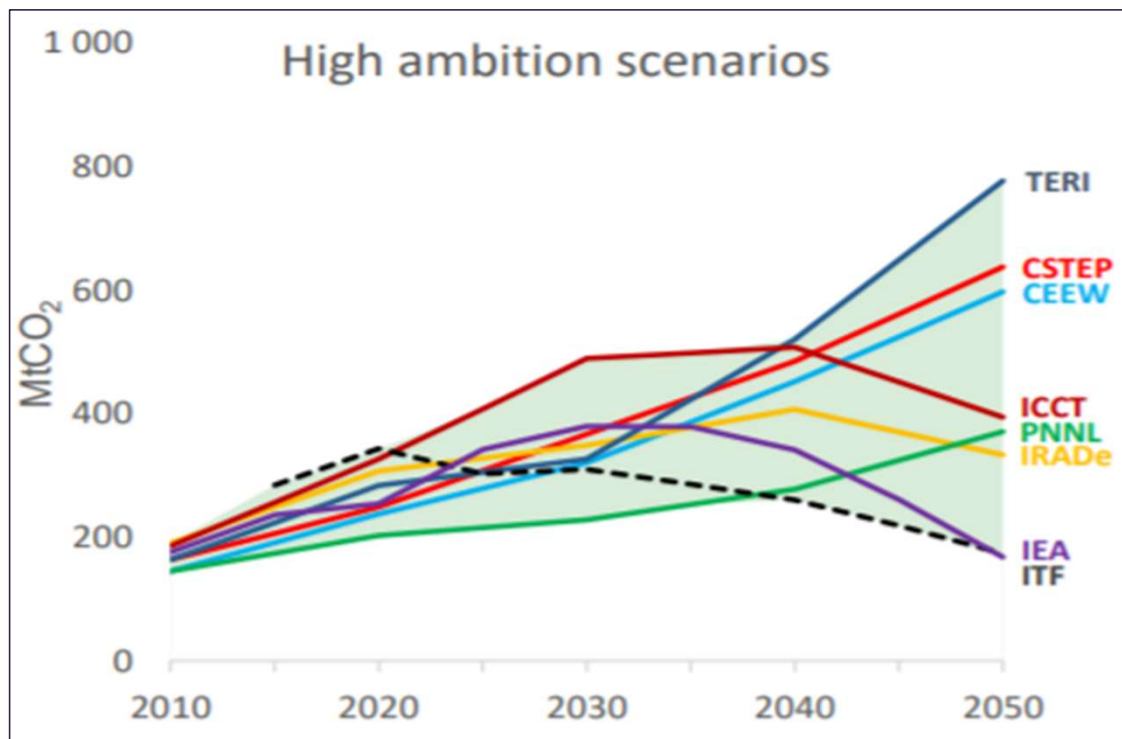
Source: ITF (2021), Decarbonizing India's Transport System

GHG Emissions Share (2020)



Transport Sector Emissions in 2050

2-degree mitigation pathways exist but further policy action needed to achieve net zero emissions



Source: ITF (2021), Decarbonizing India's Transport System

Car Density 20 as compared to 575 in Germany, however it has doubled since 2010

Population and GDP per capita is set to expand by 27% and 360% from 2010 levels by 2050 (IMF 2020)

Road transport demand is estimated to grow 300% - 500% between 2010 and 2050

Transport in India's NDC

Transport is a critical piece in India's commitment to net zero emissions by 2070



All new car sales will be zero-emission by 2040

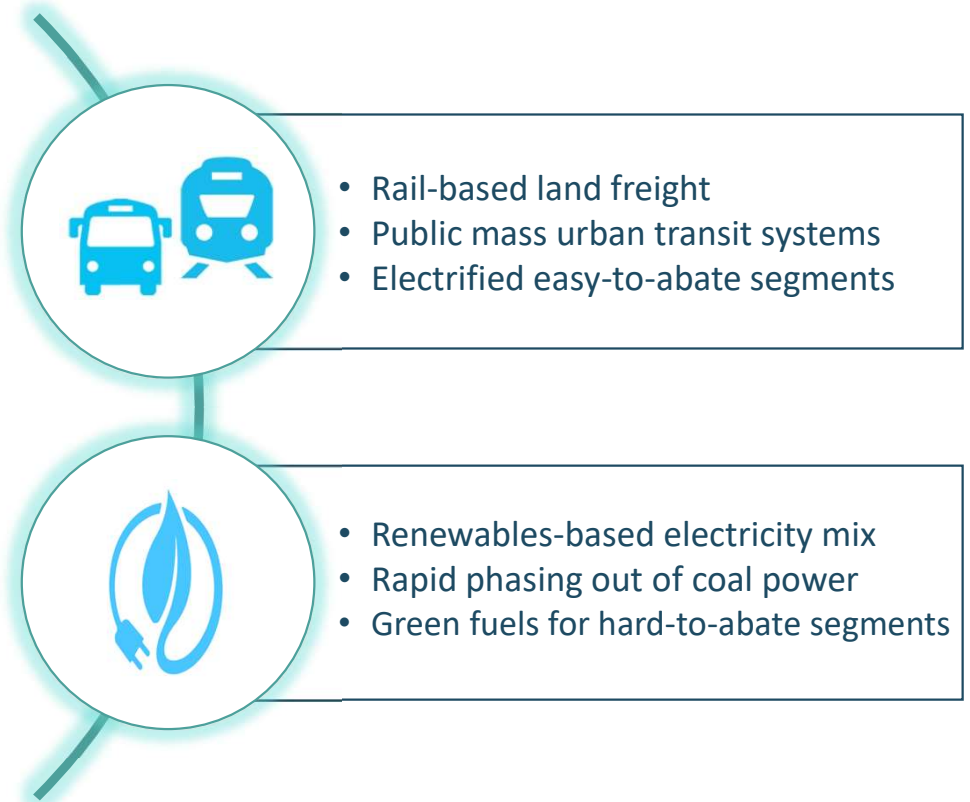
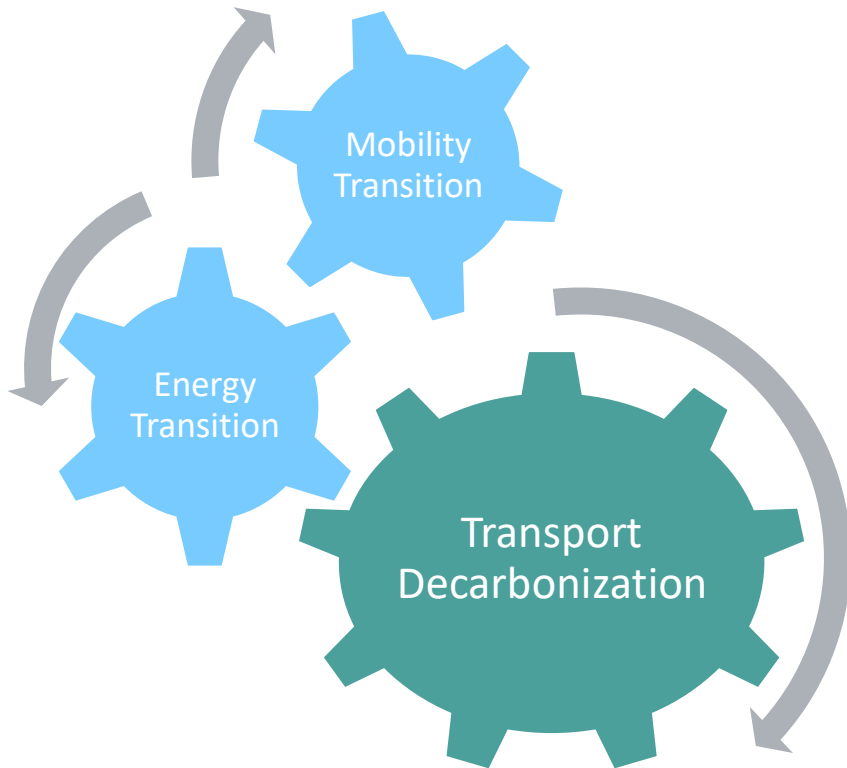
Increase share of rail in freight transport to 45%

Indian Railways to be net zero by 2030

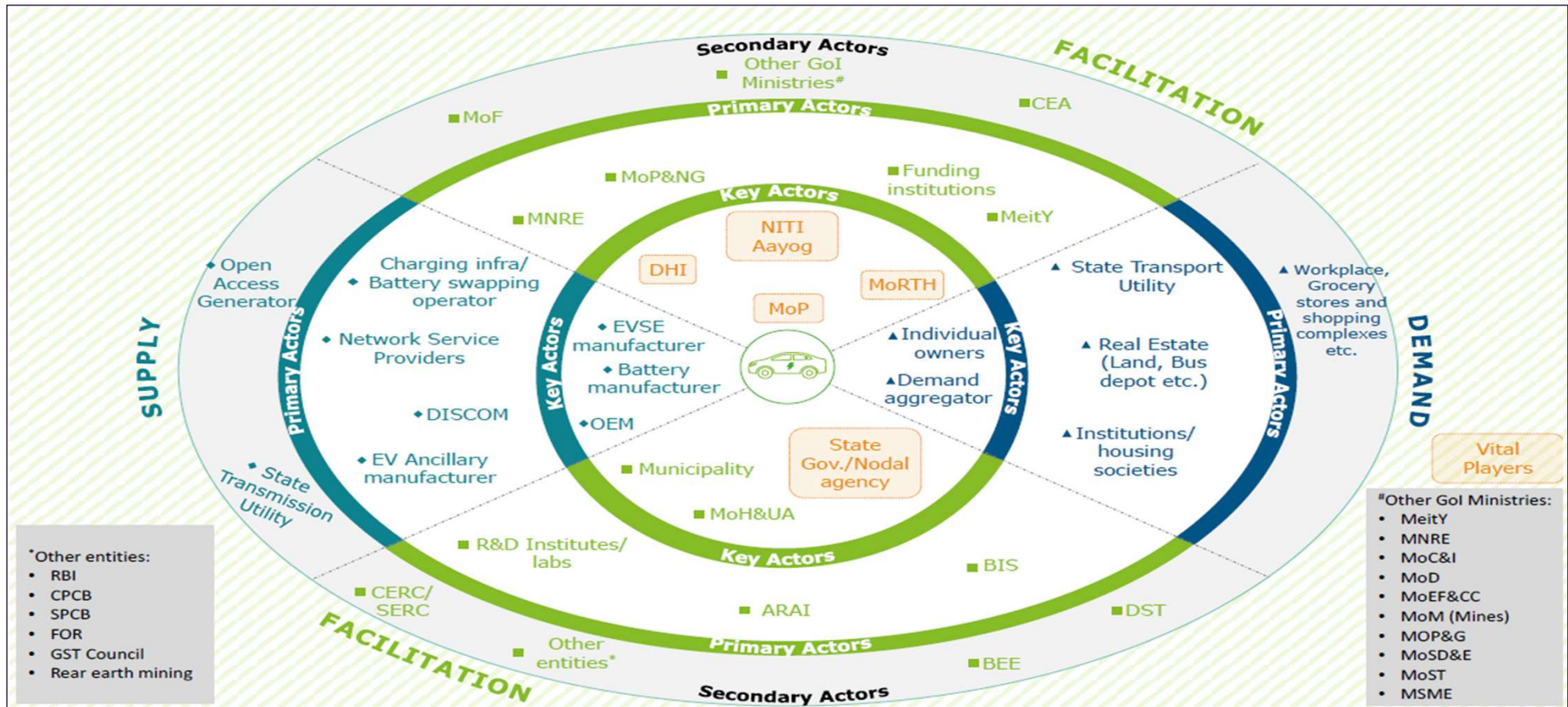
Vehicles emissions and fuel efficiency standards

50% of installed electricity capacity to be renewable or nuclear by 2030

Drivers of Transport Decarbonization



Transport Decarbonization Ecosystem in India



Source: GIZ and Deloitte (2021)

Transport Decarbonization Policies in India

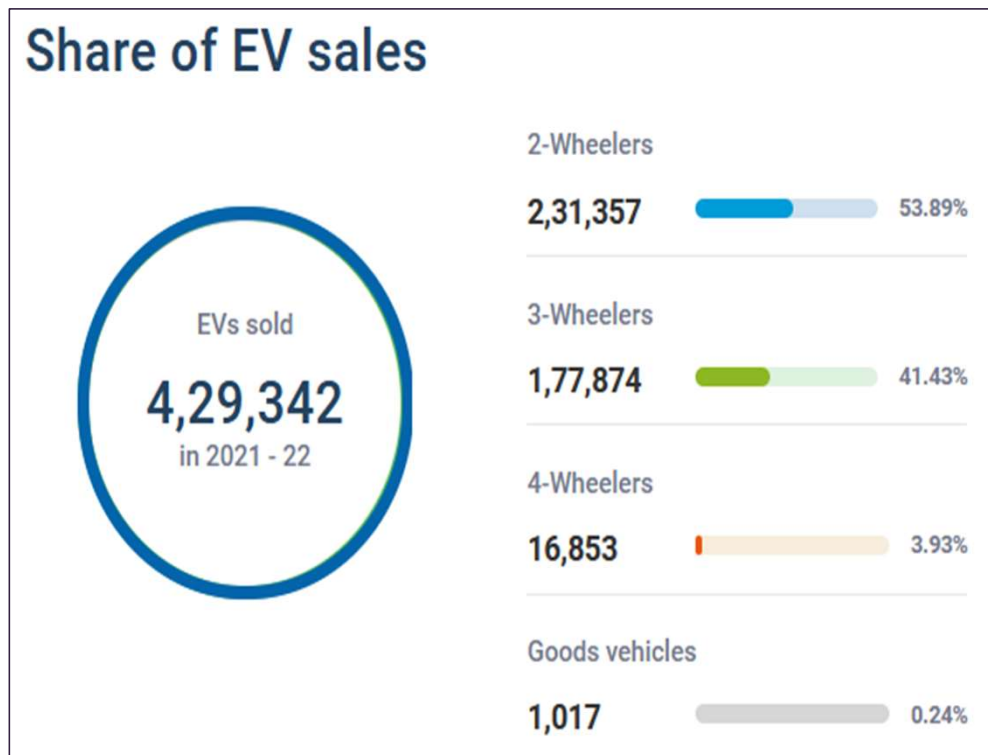
		Policy Instruments		
		Market-based	Regulations	Infrastructure based
Policy Approach	Improve	<ul style="list-style-type: none"> ➤ Faster Adoption and Manufacturing of Electric Vehicles (FAME) Scheme ➤ State-level EV policies ➤ Scrappage policy ➤ Green tax 	<ul style="list-style-type: none"> ➤ Auto-fuel policy, 2015 ➤ National Policy on Biofuels, 2018 ➤ CAFÉ-1 ➤ CAFÉ-2 (upcoming) ➤ Fuel efficiency standards for M/HDVs ➤ Acceptance of hydrogen and LNG as automotive fuel 	<ul style="list-style-type: none"> ➤ National Electric Mobility Mission Plan ➤ National Hydrogen Mission ➤ Electrification of railway operations ➤ CNG program
	Shift			<ul style="list-style-type: none"> ➤ National Rail Plan, 2020 ➤ Waterways Act, 2016 ➤ Higher budget allocation for buses and metros ➤ JNNURM scheme
	Avoid/Reduce			<ul style="list-style-type: none"> ➤ National Transit Oriented Development (TOD) Policy ➤ Urban Green Mobility Fund ➤ Smart Cities Mission

Source: TERI (2021), Decarbonization of Transport Sector in India

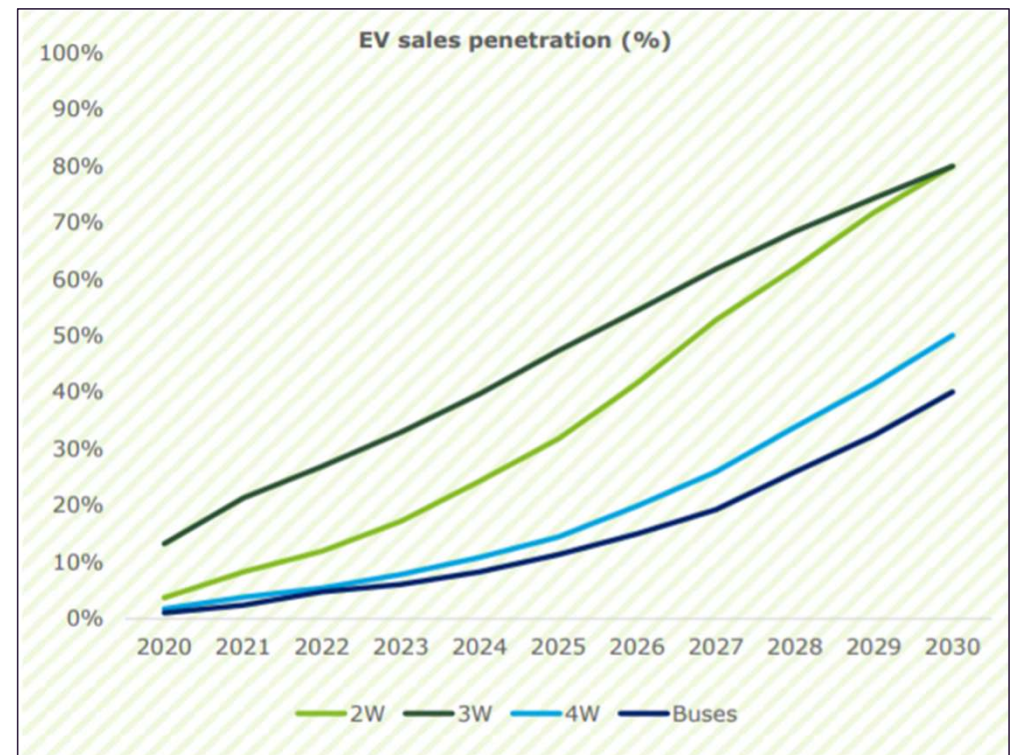
Govt. Agency	Primary Role
NITI Aayog	Apex public policy think tank of Indian federal government
Mo Heavy Industries	NEMMP, FAME-II
Mo Road Transport & Highways	CAFE-II, Scrappage policy, Green Mobility Fund
Mo Power	National Hydrogen Mission, Charging Infrastructure
Mo Housing & Urban Affairs	AMRUT, Smart Cities Mission, TOD policy
Mo Petroleum & Natural Gas	Auto Fuel policy, Biofuels policy, CNG program
State Nodal Agencies (SNAs)	Implementation of federal/central policies

Fleet Electrification Current Status

2.6% share of EVs in overall vehicle sales in 2021-22, up from 0.9% in 2020-21



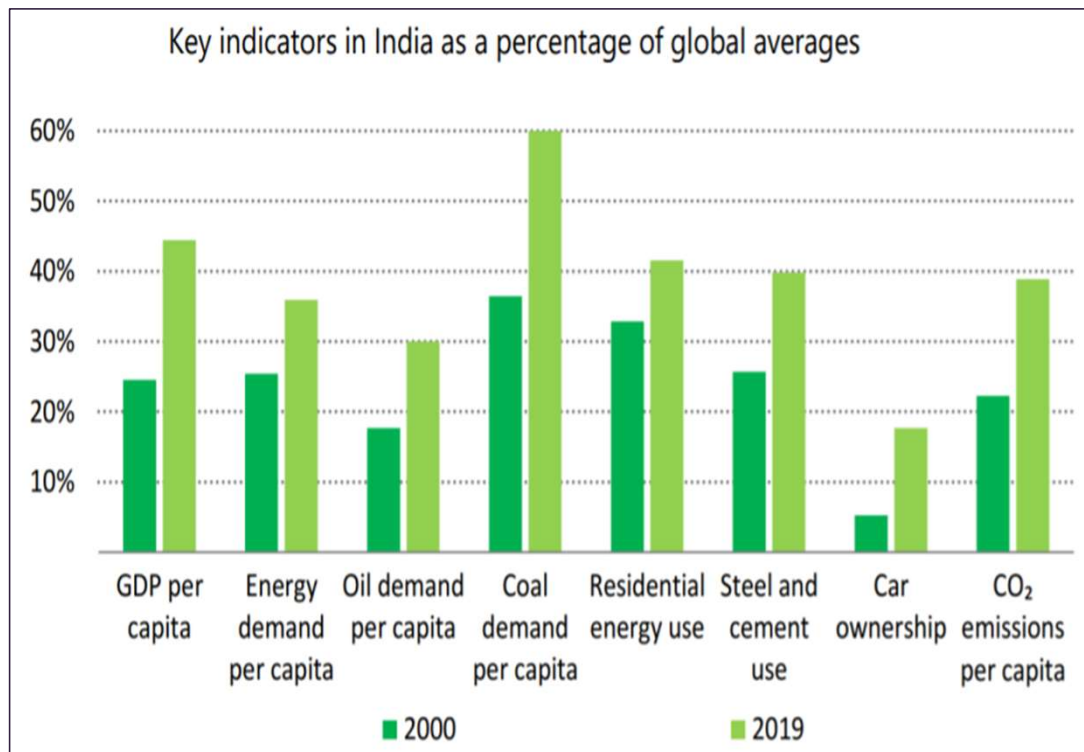
Source: CEEW Electric Mobility Dashboard



Source: NITI Aayog 2019

The Equity Debate

The issue of how to fairly share the climate action ambition continues to be a big concern for India



Source: India Energy Outlook (2021)

2.7 tCO_{2e} per capita GHG emissions – less than half of the global average of 6.5 tCO_{2e} m (*India BUR3*)

3.2% of global cumulative CO₂ emissions as compared to 24.5% for USA, 13.9% for China and 5.5% for Germany (*Our World in Data*)

“India is on track to over-achieve its Paris targets. India’s emissions intensity in 2030 will be 50% below 2005 level, far ahead of the 33-35% target” (*Climate Action Tracker*)



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