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# Paving the Path: Decarbonising Transport in India and the Region

Vatsalya Sohu, Deputy Project Manager

## **Intergovernmental Organisation**

linked to OECD  
66 member countries

## **Think Tank**

Policy analysis and research  
Modelling, data and statistics

## **Annual Summit**

Forum for Ministers,  
industry, research



# ITF Decarbonising Transport (DT) Initiative



# The DT initiative provides decision makers with tools to identify CO<sub>2</sub> mitigation measures that deliver on their climate commitment



- **Launched in 2016** after the Paris agreement
- **Provides targeted analytical assistance** for countries and partners
- **Gathers and shares evidence** for best practices
- **Shapes the climate change debate** by building a global policy dialogue

See: <https://www.itf-oecd.org/decarbonising-transport>

# The case of Decarbonising Transport in India: DTEE + NDC-TIA



# Decarbonising Transport in Emerging Economies: India

- **Project objective**

- Help countries identify effective measures and pathways to reduce transport CO<sub>2</sub> emissions

- **Funding**

- International Climate Initiative (“IKI”) of the German Ministry of Economic Affairs and Climate Action

- **Partners**

- NITI Aayog in India
- ITF – main implementing partner
- Wuppertal Institute, Germany – focus on work in cities

- **Project countries**

- Azerbaijan, Argentina, **India**, Morocco

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and Climate Action



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# NDC Transport Initiative for Asia: India

- **Project objective**

- Promote a comprehensive approach on decarbonizing transport, i.e. a coherent strategy of effective policies that are coordinated among various sector ministries, academia, civil society and the private sector.

- **Funding**

- International Climate Initiative (“IKI”) of the German Ministry of Economic Affairs and Climate Action

- **Partners**

- NITI Aayog in India
- GIZ, **ITF**, ICCT, WRI, SLoCaT, REN21 and Agora Verkehrswende

- **Project countries**

- **India**, China, Vietnam

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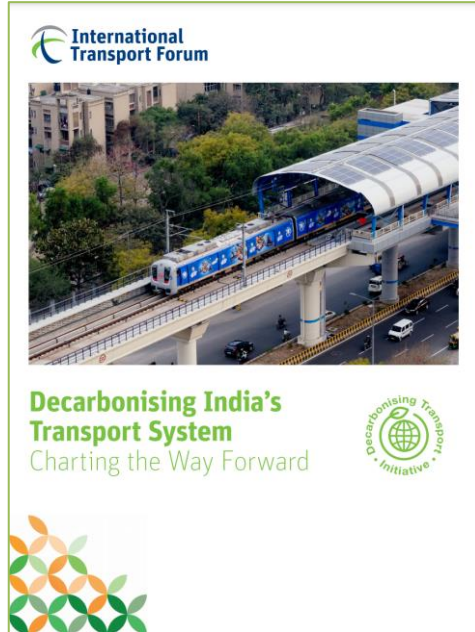


Federal Ministry  
for Economic Affairs  
and Climate Action



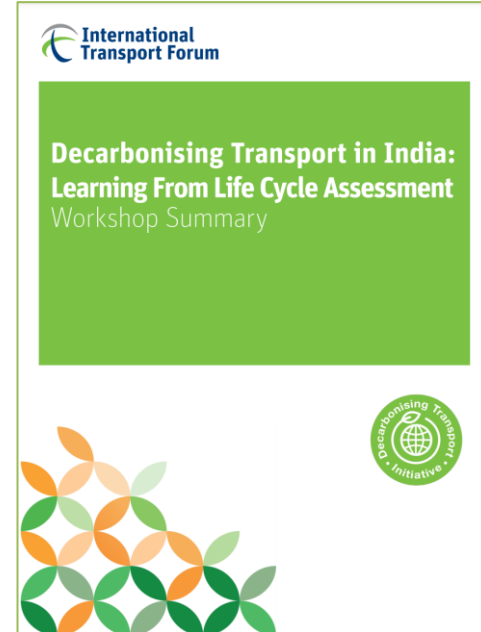
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## Reviewing existing transport policy and modelling in India



See: <https://www.itf-oecd.org/decarbonising-india-transport-system>

## Life cycle analysis for decarbonising transport in India

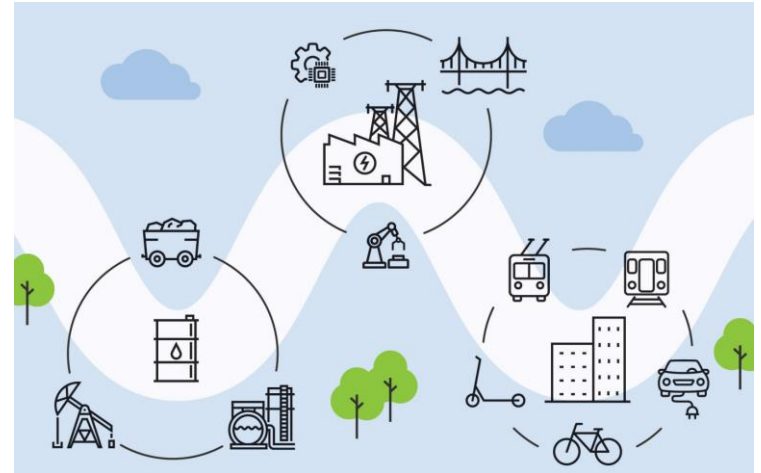


See: <https://www.itf-oecd.org/decarbonising-transport-india-learning-life-cycle-assessment>



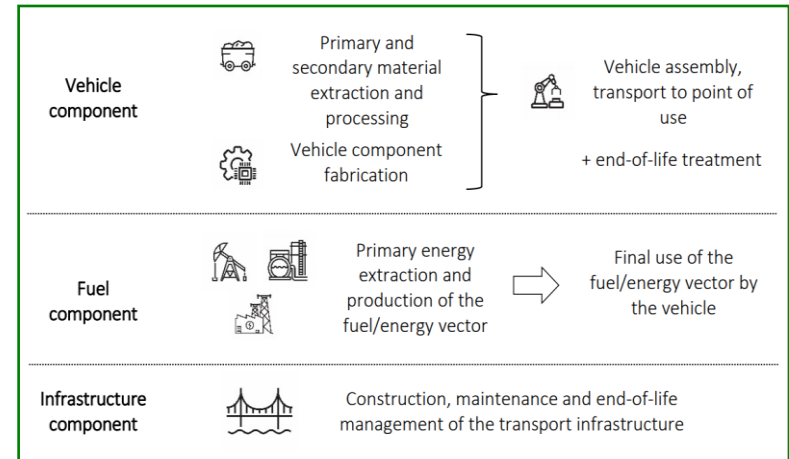
## The ITF Transport Life Cycle Analysis Tool for India

- It helps **understand holistically**, the implications of changes in transport modes, vehicles and fuels in the Indian transport sector.
- It provides insights on **how these different choices impact transport emissions** from a holistic perspective.



# The ITF Transport Life Cycle Analysis Tool for India

- For a given vehicle (mode, powertrain, fuel type) and use case, determines the **energy use and green house gas emissions** at each phase of the lifecycle
- Phases: vehicle manufacturing and material disposal, transport, use, operational services, and transport infrastructure (construction and maintenance).

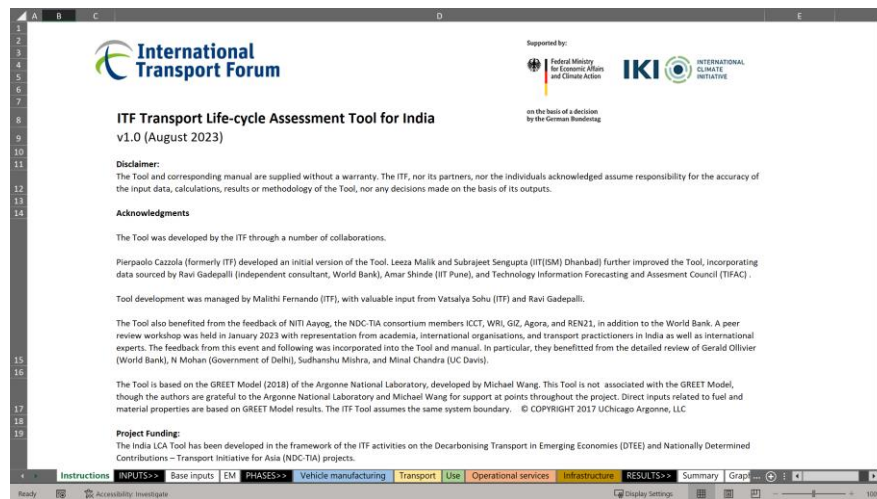
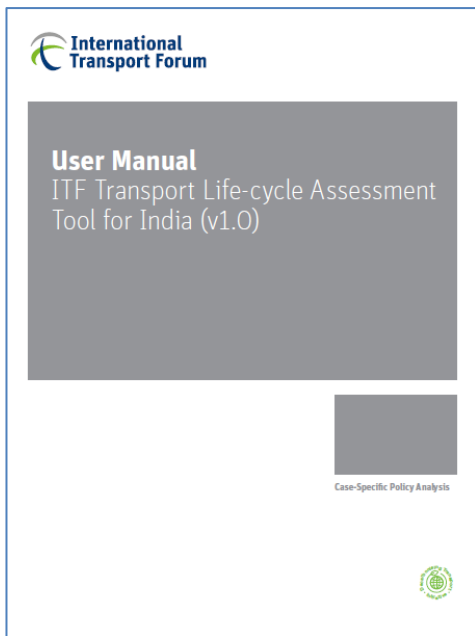


## The passenger tool includes 32 vehicle types

Mode	Application	Vehicle technology
Car	Private	Petrol/ EV
	Ride-hailing	Diesel/ EV
2W	Scooter-Private	Petrol/ EV
	Scooter-Shared	Petrol/ EV
	Motorcycle-Private	Petrol/ EV
	Motorcycle-Shared	Petrol/ EV
3W	Commercial	Diesel/ CNG/ EV
Urban Bus	12m AC	Diesel/ CNG/ EV
	12m Non-AC	Diesel/ CNG/ EV
	9m AC	Diesel/ CNG/ EV
	9m Non-AC	Diesel/ CNG/ EV
Intercity Bus	12m AC	Diesel/ CNG/ EV/FCEV
Metro	Metro rail	EV

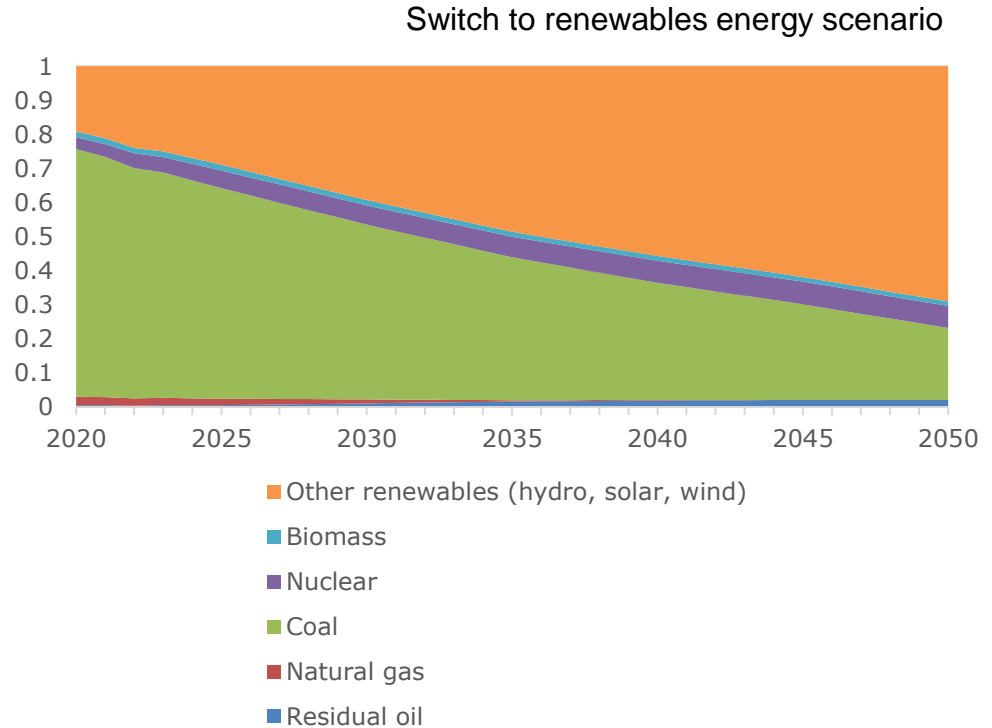
# Open access tool

Download the tool  
here:

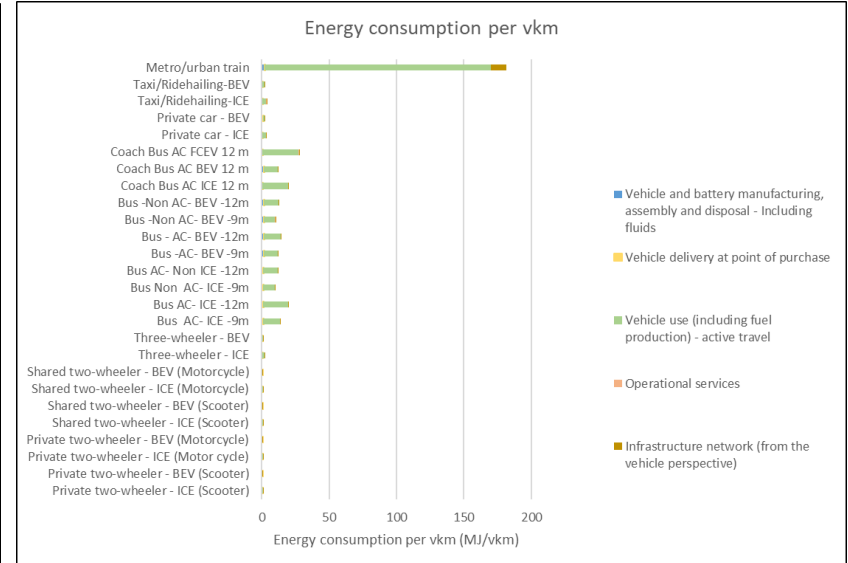
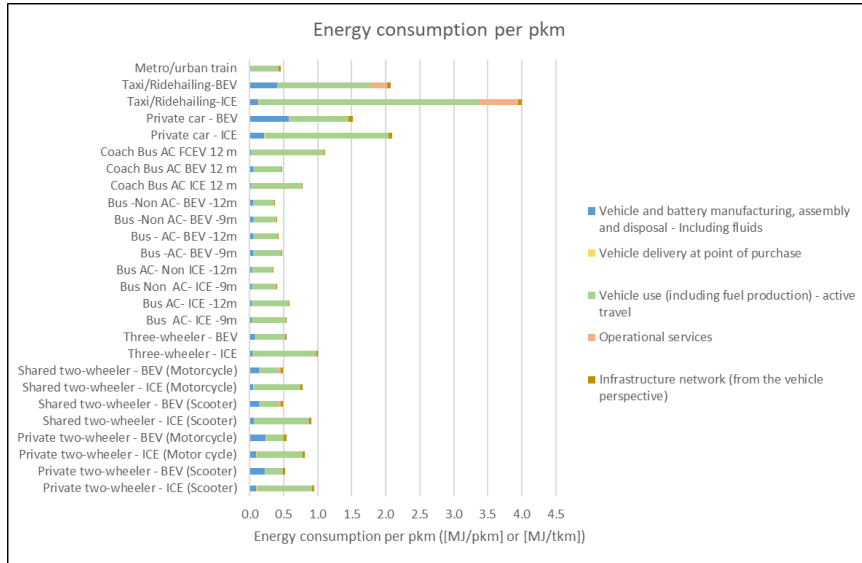


## The tool inputs

- Provide input data or choose a default
- Three different energy scenarios + a fourth user defined scenario



# The tool results





## Life-Cycle Assessment of Passenger Transport

An Indian Case Study

# Technical study on Life Cycle Assessment of Passenger Transport in India

- Jointly developed with the World Bank
- Focuses on the **Indian passenger transport** sector
- Results from three electricity grid evolution scenarios on GHG emissions per pkm, vkm and vehicle.

## 25 VEHICLE CATEGORIES



Private two-wheeler – ICE/BEV (Scooter)



Private two-wheeler – ICE/BEV (Motorcycle)



Shared two-wheeler – ICE/BEV (Scooter)



Shared two-wheeler – ICE/BEV (Motorcycle)



Three-wheeler – ICE/BEV



Bus AC- ICE/BEV -9m



Bus AC- ICE/BEV -12m



Bus Non-AC- ICE/BEV -9m



Bus Non-AC- ICE/BEV -12m



Coach Bus AC ICE/BEV 12 m



Private car – ICE/BEV



Taxi/Ridehailing-ICE/BEV



Metro/urban train



## Scope



### Passenger transport

- Private and shared transport modes (cars including taxis and ride-hailing services, such as Uber or Ola and two-wheelers)
- Public transport modes (three-wheelers, buses and metro-rail systems)

### Vehicle technologies

- Internal combustion engines (ICE)
- Battery electric vehicle (BEV)
- Fuel cell electric vehicle (FCEV)

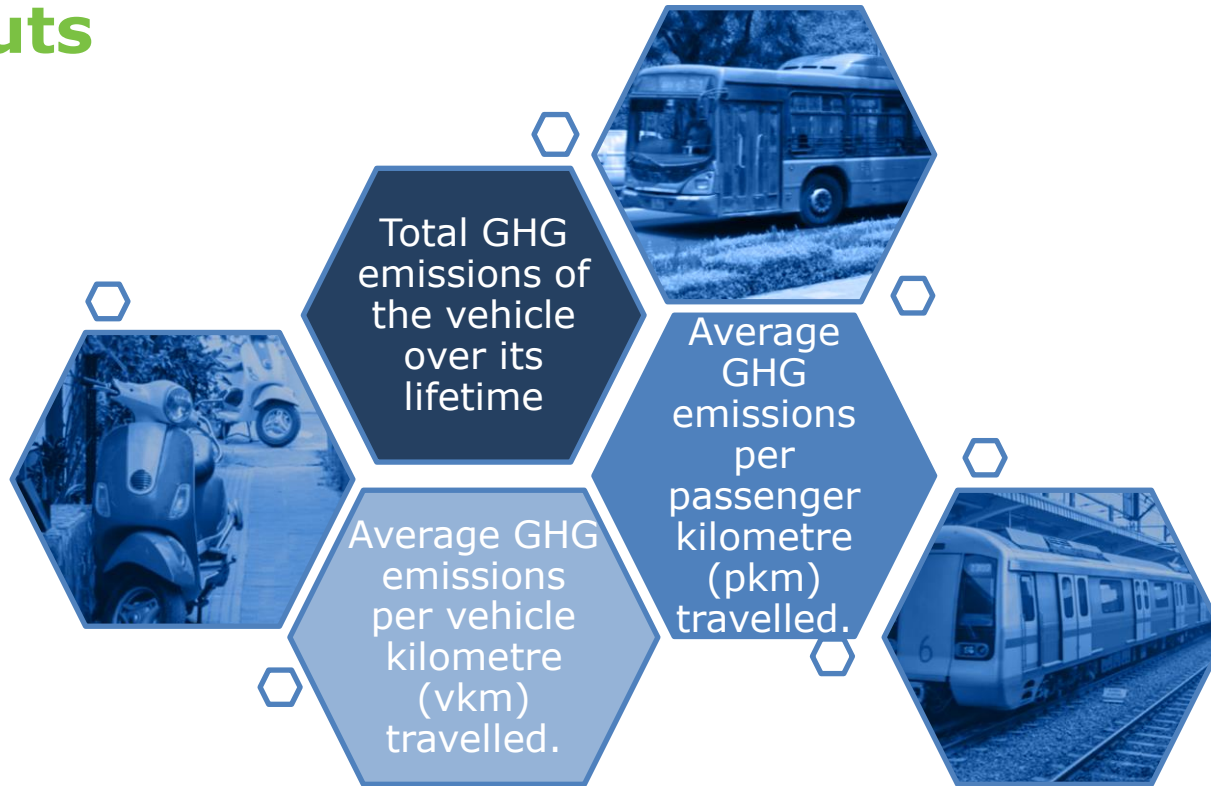
### Fuels

- Diesel
- Petrol
- Compressed natural gas (CNG)
- Blue hydrogen (CNG based)
- Green hydrogen (100% renewable energy based)

### Life-cycle phases

- Vehicle and battery manufacturing
- Transporting the vehicle to the point of sale
- Vehicle usage
- Related infrastructure

# Outputs



## Recommendations

**Initiate a modal shift from private vehicles to buses and prioritise their electrification**

**Promote electric two- and three-wheelers**

**Encourage a shift in the car fleet towards shared electric vehicles**

**Choose corridors with high passenger demand for new metro lines**

**Accelerate the transition to battery electric vehicles and complement it with the provision of cleaner energy**

**Mainstream lifecycle assessment into public policy and investment decisions**

## Pathway to Zero Emission Trucking in India – June 2024

- Assessment of decarbonising heavy-duty trucks in India with focus on battery electric technology
- Four-pillared roadmap addressing technology, operations, infrastructure, financing, and policy
- Economic viability analyzed using WRI India – UC Davis techno-economic analysis tool
- Examination of international policy developments and meta-review of global TCO studies



# Thank you

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