CLIMATE CHANGE AND URBAN TRANSPORT IMPACT

INTEGRATING MITIGATION AND RESILIENCE FOR URBAN TRANSPORT

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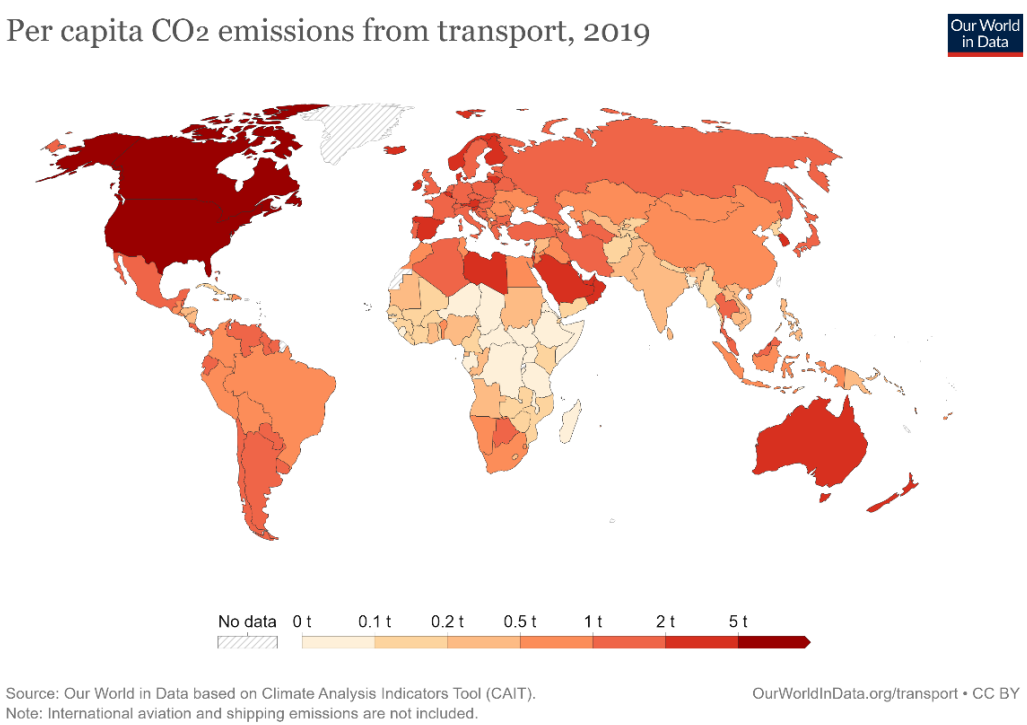
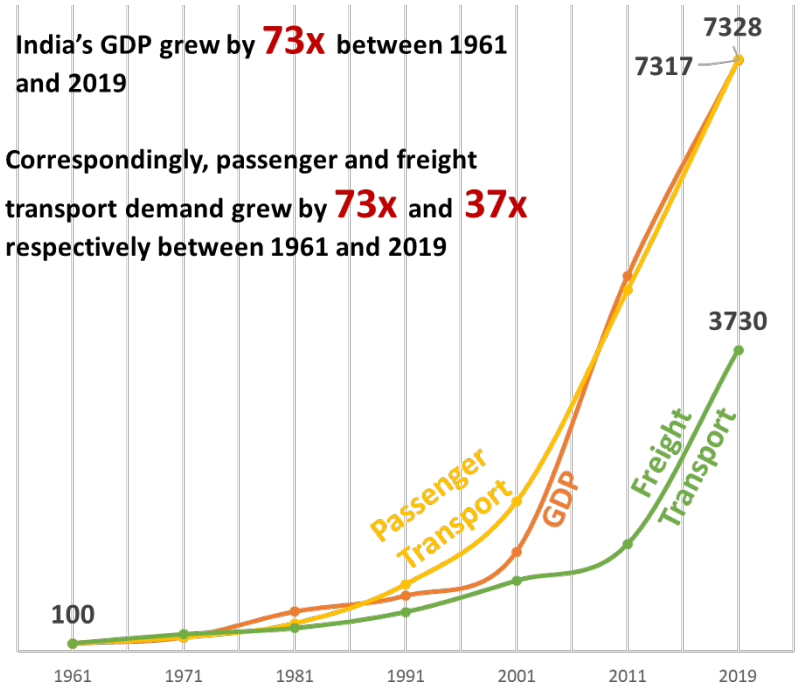
15th Urban Mobility India Conference & Expo2022

TRANSPORT EMISSIONS IN INDIA TO GROW RAPIDLY

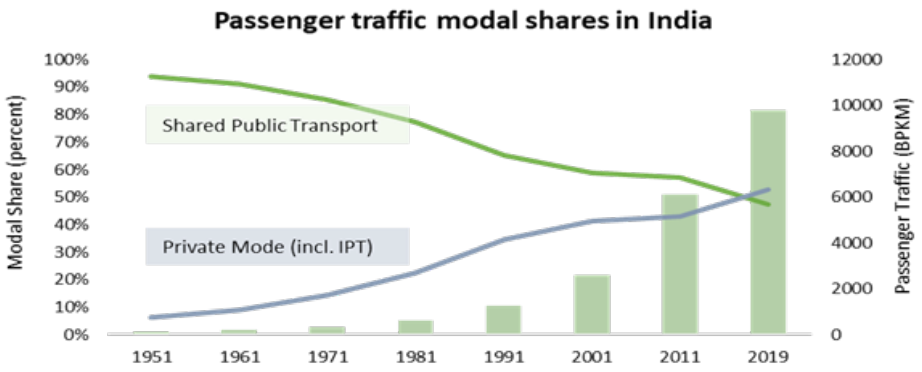
Demand for travel in India is low on a per capita basis but growing



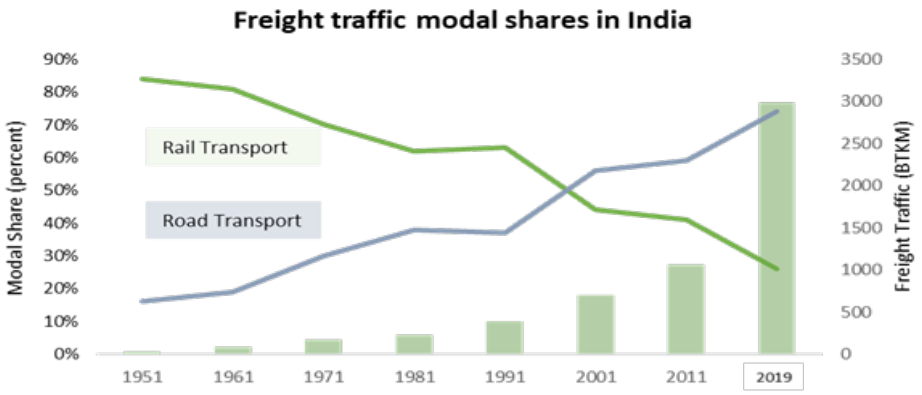


EMISSIONS COULD DOUBLE BY 2050 UNDER BAU

Current trends in mode share paint a difficult picture for transport



Passenger traffic by public modes has **reduced by half** over 70 years



In the same period, road share in freight transport has **increased by ~5 times**

TRANSPORT EMISSIONS

12%

Contribution to national GHG emissions

ROAD TRANSPORT

87%

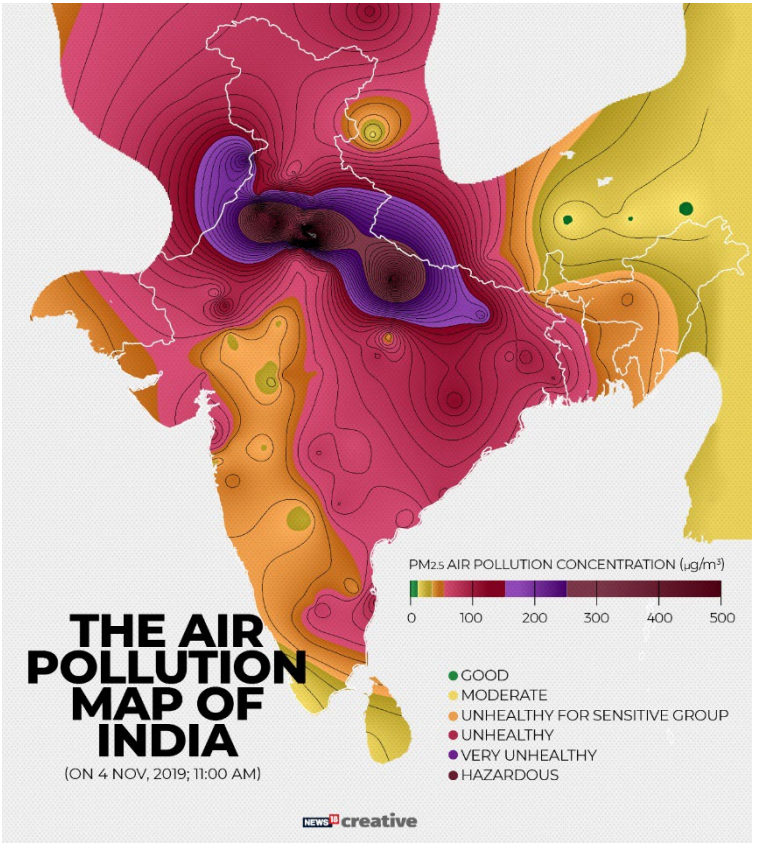
Contribution to transport emissions

2052 TRANSPORT EMISSIONS

620MtCO$_2$

under BAU
double of current level

INDIA HAS WORST LEVEL OF AIR POLLUTION



INDIA RANKED 7TH IN GLOBAL CLIMATE RISK INDEX

CLIMATE RISKS TO CITIES

India severely at risk of storm surges, heat waves & flooding

Coastal cities to face high level risk from Sea Level rise

- Coastal cities could face a sea level rise of 0.1 to 0.3 m by 2050*
- **USD 4 trillion** of assets at risk due to coastal flooding

Indian cities to face lethal heat

- By 2030, **2.5 - 4.5% GDP** at risk annually due to working hours lost
- By 2050, **360 million people** in 142 cities exposed to extreme heat

Climate change will increase flooding impacts in Indian cities

- **3/4** urban land exposed to high frequency flooding by 2030
- **$14.3 billion** currently exposed to river flooding in India (on average per year)
- which can rise **10-fold** by 2030

*as per NASA's Sea Level Portal

IMPACTS ON JOBS

If those risks are not addressed, there is a direct impact for jobs

***Inaction** in the face of slow-onset events*

*like heat waves **will cost** India*

***34 million jobs** by 2030.*

BALANCING ACT

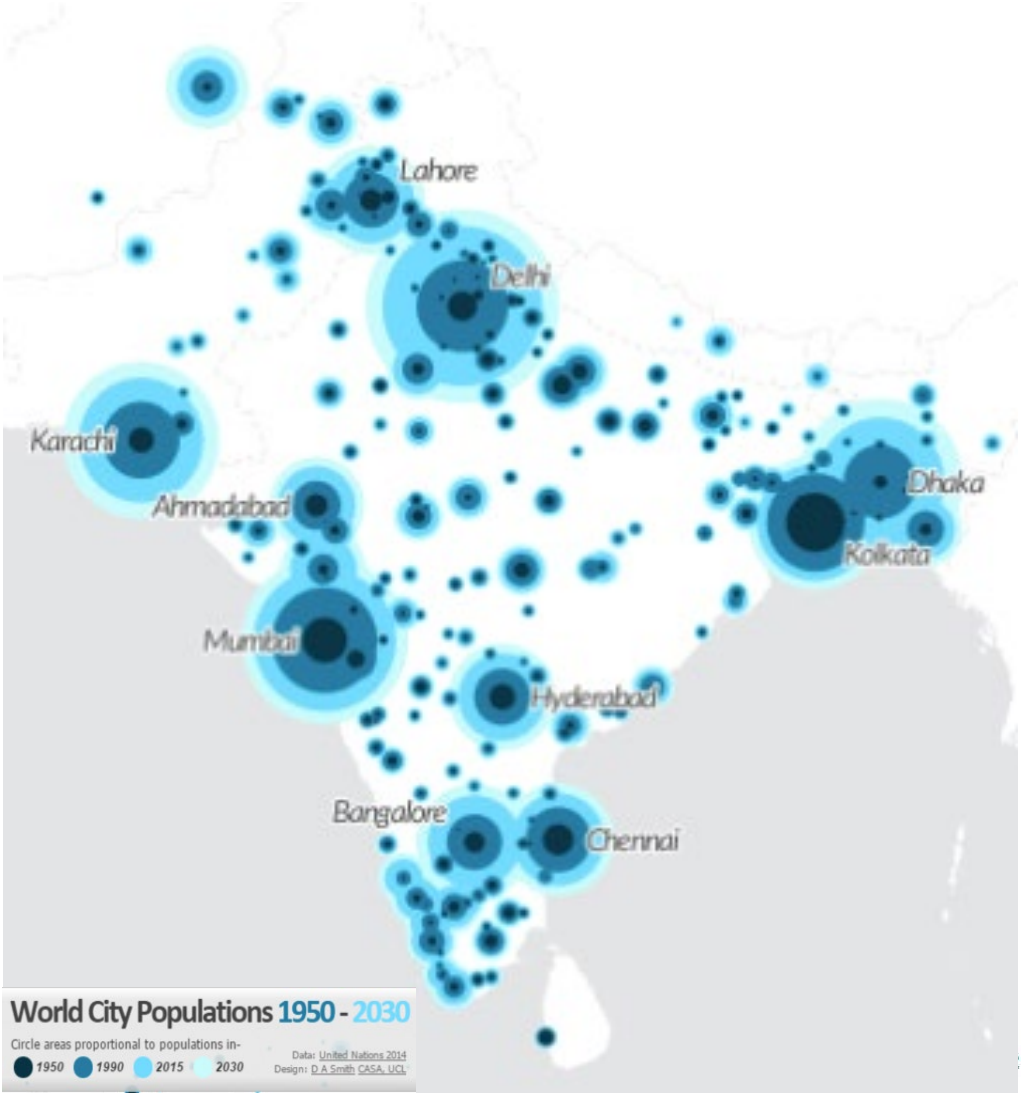
Is there a balancing act between climate and development in transport?

Support the collective global effort to mitigate and adapt to climate change

Increase accessibility to opportunities (jobs, health, leisure, goods) or minimize “transport poverty ”

OPPORTUNITIES

Cities are economic powerhouses



ECONOMIC POWERHOUSES

63%
Of the GDP is contributed by cities (Census/HPEC 2011)

3rd Rank
World Ranking in start-up ecosystem
(Economic Survey, 2018-19)

81%
Workers in informal economy
(ILO, 2018)

RAPIDLY EXPANDING

4400+
CITIES AND TOWNS
(Census 2011)

53
CITIES WITH MILLION+ POPULATION
(Census 2011)

20
Cities contribute to 50% of India's Bank deposits (Shaban et al, 2020)

PROJECTED URBAN GROWTH

75%
Of GDP will come from Cities in 2030

877m
Urban dwellers by 2050- 53% of national population

5
Economic growth corridors anchored by major cities

CHALLENGES

Curbing transport emissions while demand for mobility rises rapidly

Inclusive Development Challenges

35%
Living in slums, exposed to high disaster risk

90%
Jobs are in Informal sector

20%
Participation of women in labor force & declining

Sustainable Development Challenges

9,822km2
Urban footprint expansion in 2000 -2014 - swallowing agriculture land

12
Indian cities with higher built-up area outside official boundaries

18
Cities with pollution 10 times higher than advised by WHO

Massive Needs by 2030

200m
Additional urban dwellers; Need 600-800m sqm/year

90m
Workers will move to non-farm activities

25m
Affordable housing units needed

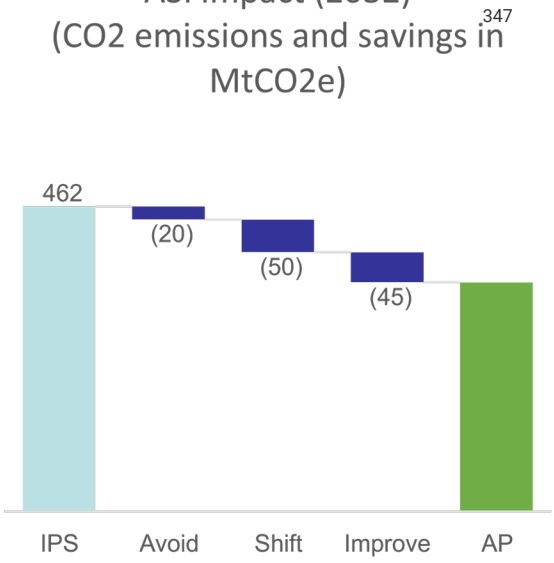
TRANSPORT DECARBONIZATION

Transport decarbonization will also address air pollution & resilience

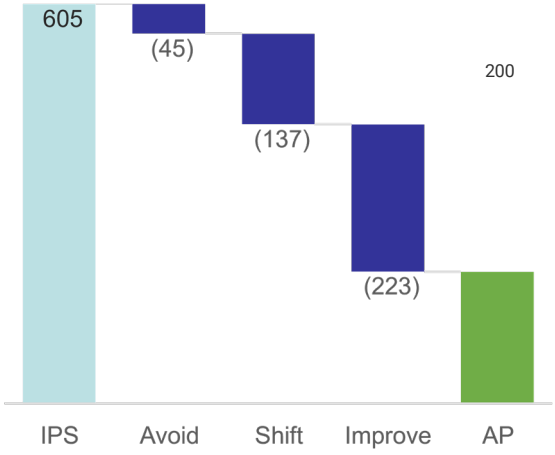
- **10%** of emission reduction from AVOID [better urban, regional & logistics planning];
- **30%** from SHIFT [to buses, rail and NMT];
- **60%** reduction from IMPROVE interventions [from ICE to Evs, Hydrogen]

Preliminary data

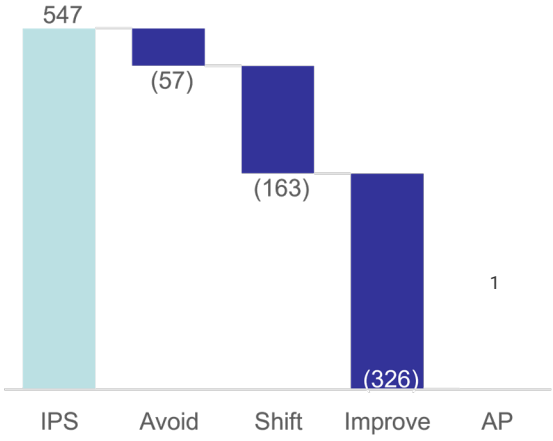
ASI Impact (2032)
(CO2 emissions and savings in MtCO2e)



ASI Impact (2047)
(CO2 emissions and savings in MtCO2e)



ASI Impact (2070)
(CO2 emissions and savings in MtCO2e)



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AVOID-SHIFT-IMPROVE-RESILIENCE

70%-80% of infra in 2050 is yet to be built, an opportunity to build resilience

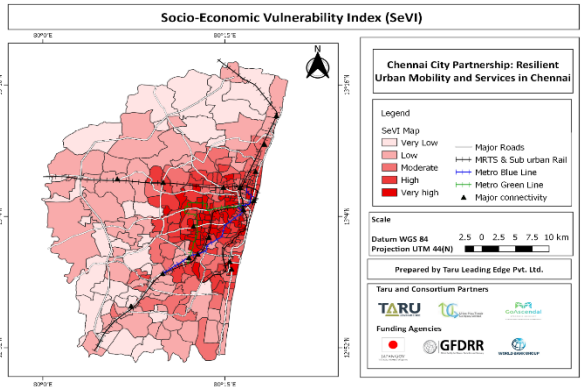
Conduct vulnerability assessment

Avoid vulnerable regions, maximize use of other regions

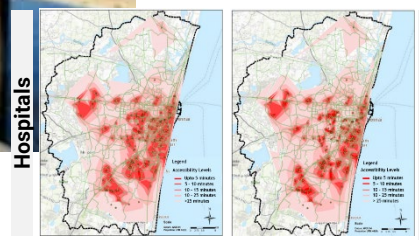
Inform designs, cost and implement

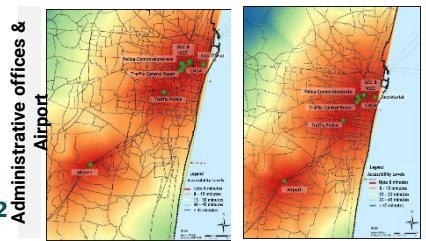
Create emergency response systems

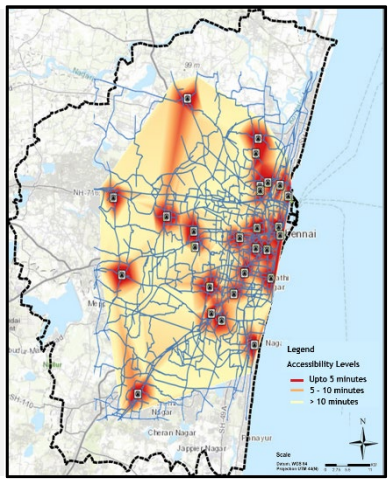
Resilience is business continuity



- City planning emphasizes on mitigation rather than adaptive efforts;
- Most cities addressed climate mitigation and adaptation in separate efforts, potentially reducing synergies between the two types of action and even creating conflicts.







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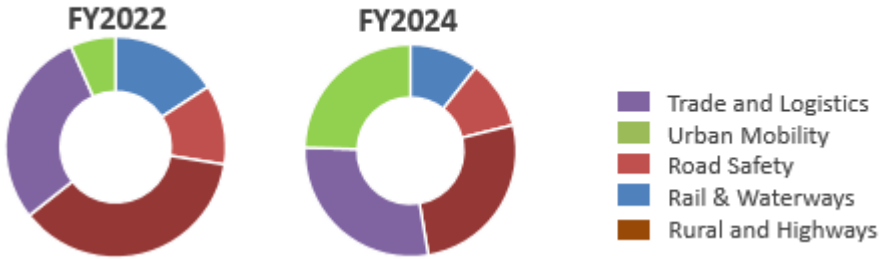
WHAT IS “OUR” VIEW ON RESPONDING

Low carbon urban transport faces intense competition from low-occupancy high footprint modes	→ Cities to implement more stringent pro low-carbon policies, reducing road space to low-efficiency mode
Institutional limitations to deliver with the required level of urban integration	→ Governance but also “aligned” financing with urban investment that complements/synergizes with low-carbon transport
Climate crediting financing is limited, and so is public financing	→ Other sources of climate financing must be made available; public financing must be complemented with private financing
Private financing has been limited and PPPs have not been able to address sector risks	→ Improve risk identification and mitigation measures, find opportunities to increase accessory revenues

PORTFOLIO WORLD BANK

An evolving portfolio to match intense urbanization…



An increasing focus on leveraging private capital IFC

MIGA DFCs (RAIL) Guarantees – E-BUSES PSM

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THANK YOU

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