Transit-enabled Economic Development:

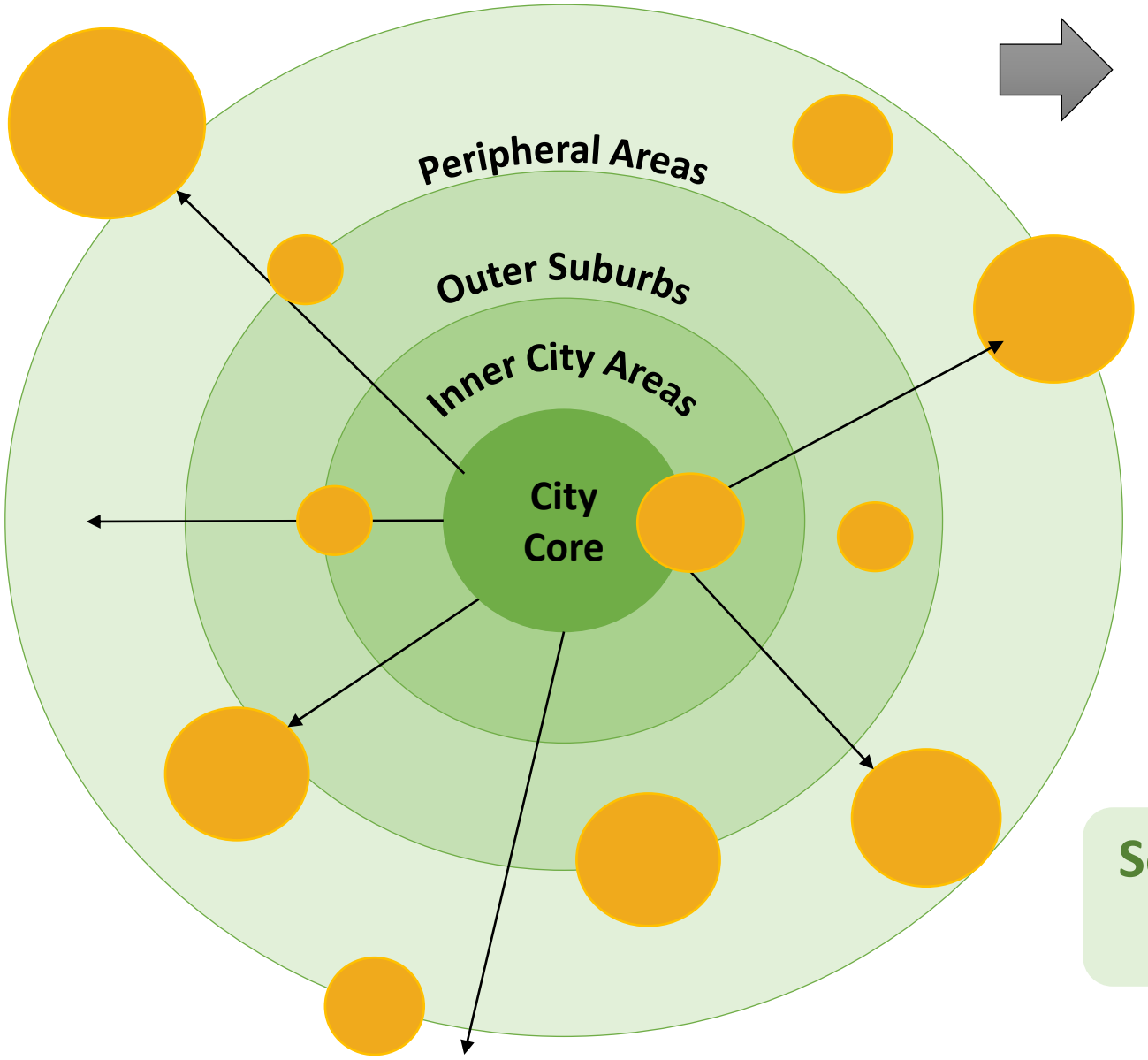
Leveraging public transport investments to boost productivity and competitiveness

18TH URBAN MOBILITY INDIA
CONFERENCE & EXPO 2025
URBAN DEVELOPMENT & MOBILITY NEXUS
GURUGRAM, HARYANA | 7TH–9TH NOV 2025

www.urbanmobilityindia.in

WRI INDIA

Integrated Economic and Transit Planning: THE NEED



Growing Traffic Congestion, Urban Sprawl

Longer Trips, Higher Costs

Air Pollution, Emissions, Road Crashes

Resource Inefficiency, Environmental Degradation

Hamper Access to Jobs and Labour Markets, Workforce and Economic Productivity, and Livability

Social cost of traffic congestion in Bengaluru
INR 38,000 Crs ~ 5% of city GDP (2018)

WRI INDIA

Integrated Economic and Transit Planning: THE OPPORTUNITY

Expanding Rail Transit Networks and Huge Investments

23 Indian cities with operational metro projects,
$29 billion investment till May 2025

- Operational: **1000+ kms**
- Under Construction: **575+ kms**
- Approved: **300+ kms**
- Proposed: **1000+ kms**

Source: GoI 2025, TMRG 2025, WRI India Analysis 2023-24

Projected vs. Actual ridership of Metro Rail systems in India

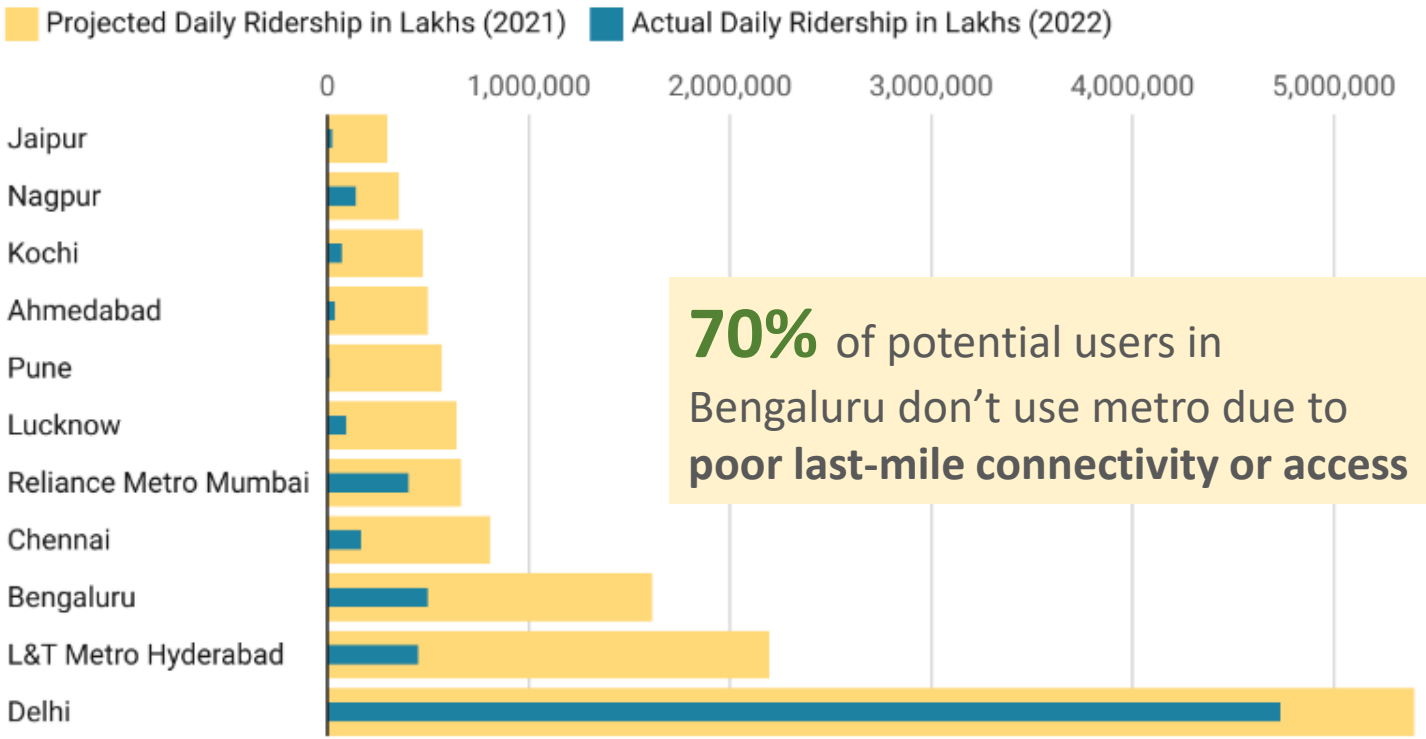


Chart: WRI India • Created with Datawrapper

70% of potential users in Bengaluru don't use metro due to **poor last-mile connectivity or access**

WRI INDIA

Integrated Economic and Transit Planning: THE OPPORTUNITY

National Level Policy & Funding Push for TOD-MMI

National TOD and Metro Rail Policies (2017) encourage adoption of TOD as a key urban planning strategy

Financial viability of infrastructure projects;
Maximize economic & quality of life gains

Jobs, 4-7x economic returns

Sub-national Level Adoption

TOD Policies: Haryana, Madhya Pradesh, Maharashtra, Uttar Pradesh, Delhi, Bengaluru

TOD Planning Strategies and Regulations: Delhi, Ahmedabad, Bengaluru, Nagpur, Mumbai, Pune, Naya Raipur, Hyderabad, Kochi

GoI Budget Speech 2024, 2025

- **TOD plans for 14 large cities** and **INR 1 trillion Urban Challenge Fund** to facilitate development of cities as **growth hubs**, **creative redevelopment, water and sanitation**
- Supporting Economic Development, PPP, Asset Monetization Policies

WRI INDIA

Aligning National, State and City Level Goals and Strategies

Transport infrastructure → Major enabler of economic growth

Road transport sector → Major contributor to GHG emissions and air pollution

India's Economic and Low-carbon Goals

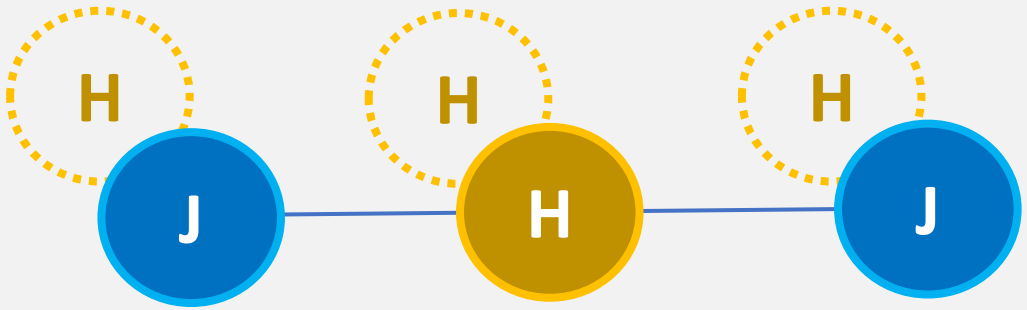
-**$30 trillion** economy, developed nation by 2047

- **45%** emission intensity reduction by 2030 v/s 2005 lvls; **net-zero** by 2070

Cities and TOD

Integrated Economic-Land Use-Transport Planning → Compact, Public Transport-oriented Cities (Accessibility + Agglomeration) → Globally Competitive (Productivity + Livability)

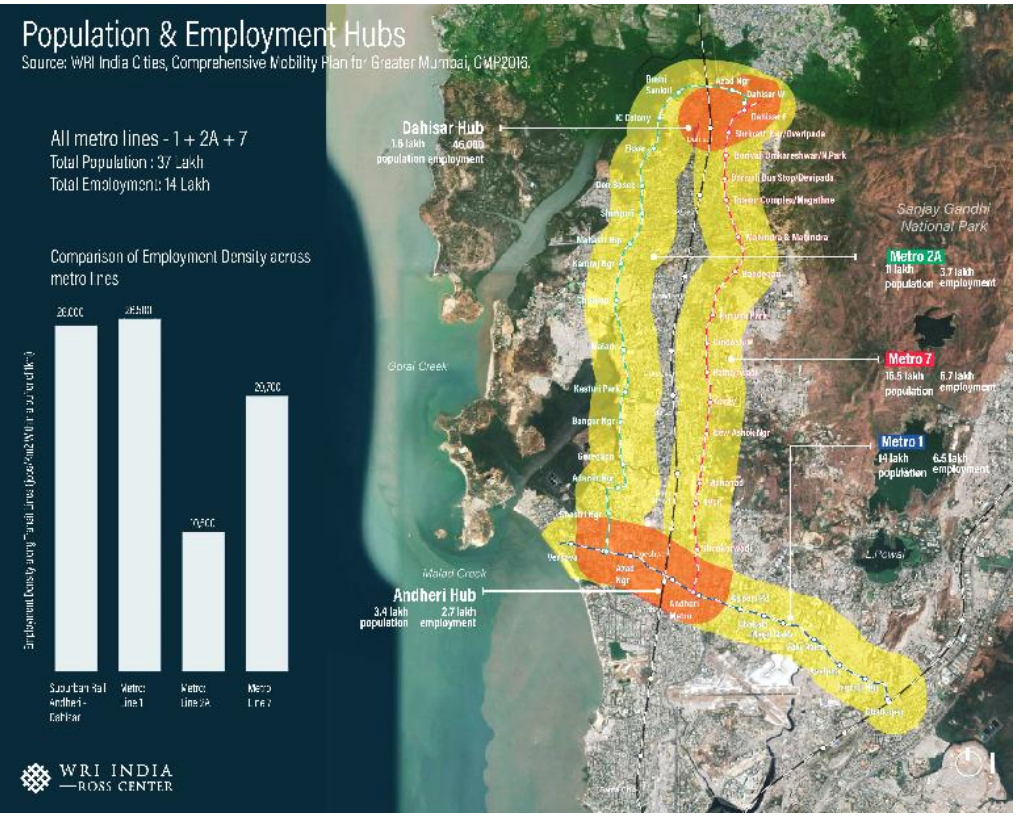
High-density job and housing locations connected by transit

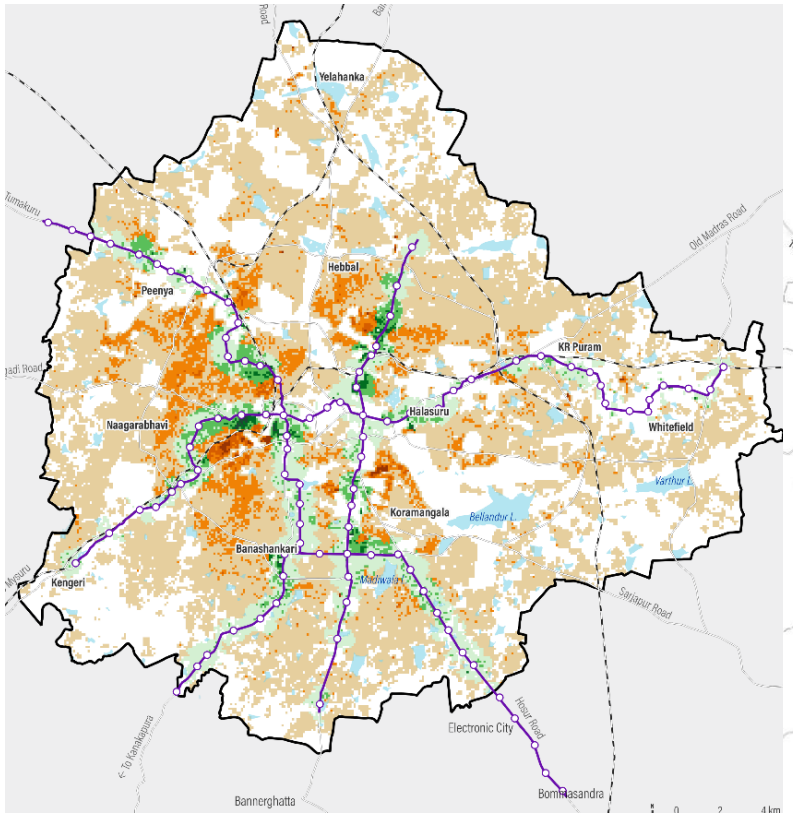


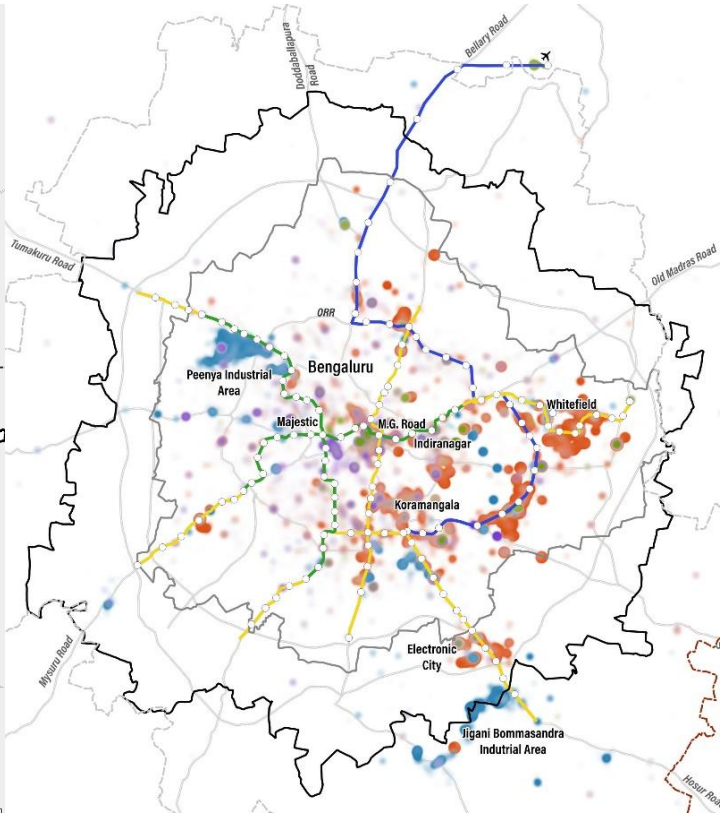
WRI INDIA

Population and Jobs Along Metro Corridors (Indian Cities)

2021-2022 data







Mumbai: about **18%** of population and **24%** of jobs are within 1 km of Metro lines 1, 2A and 7

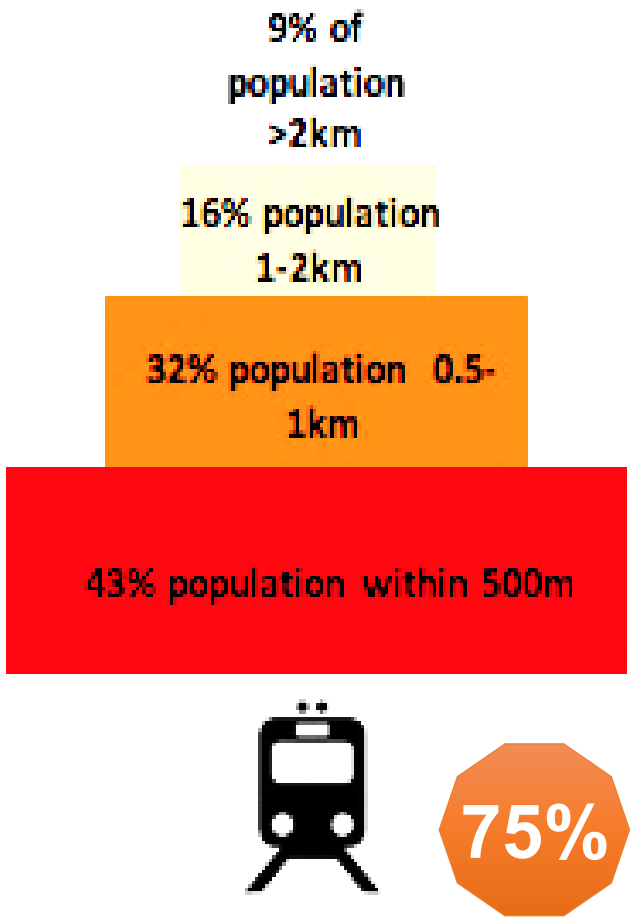
Bengaluru: about **25%** of population and **34%** of jobs are within 1 km of Metro Phases 1 and 2

Source: WRI India Analysis 2021-22

WRI INDIA

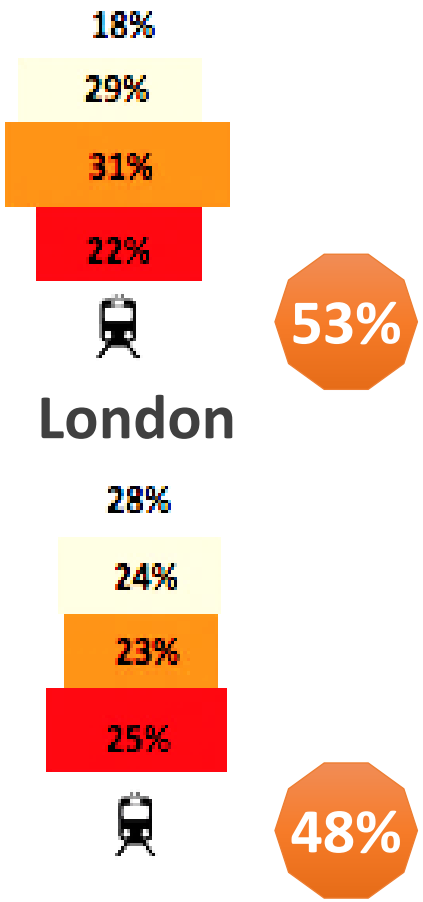
Population and Jobs Along Transit Corridors (World Cities)

2013 data



75%

Hong Kong Residents

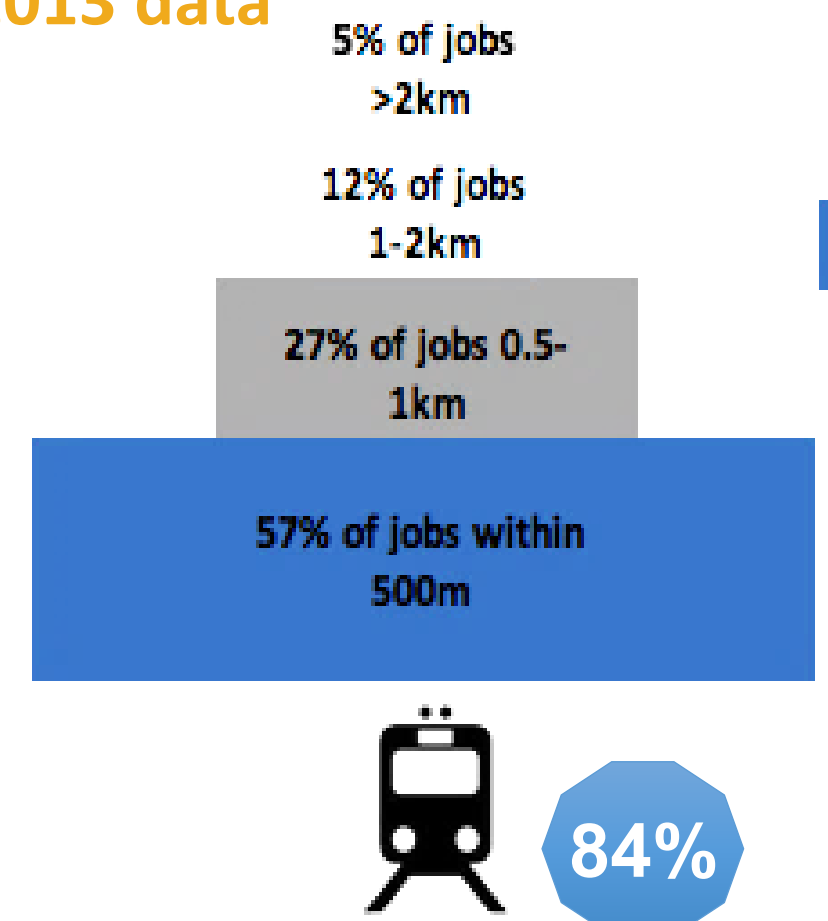


53%

London

48%

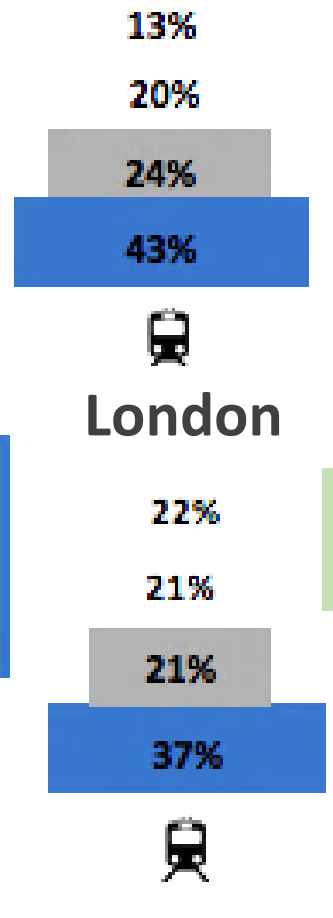
New York



84%

Hong Kong Jobs

120K jobs/sq. km



67%

London

140K jobs/sq. km

58%

New York

150K jobs/sq. km

City Core Peak Job Densities

Source: LSE Cities 2013

WRI INDIA

Good Densities Supported by Transit → Low Carbon Economic Growth

Hong Kong: 90% motorized trips by public transport, lowest levels of car ownership.

GVA p.c. increased **50%** (1993-2011), while fuel consumption and carbon emissions decreased **10%;**

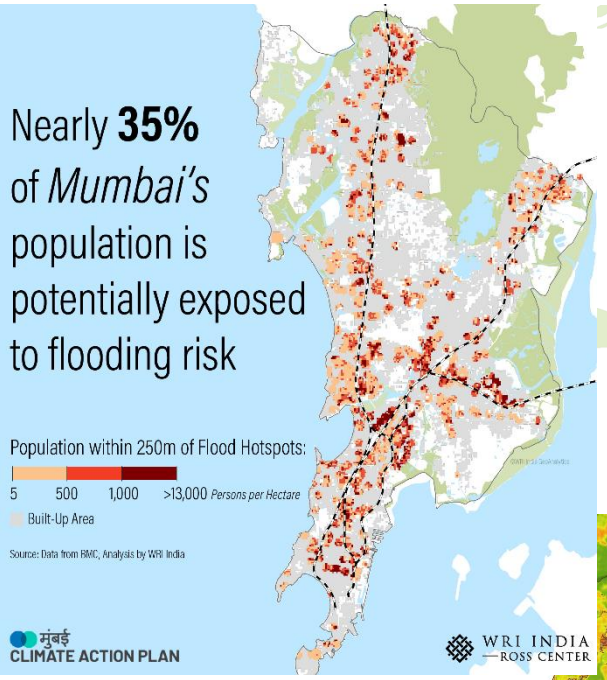
enhanced revenues, public housing and amenities

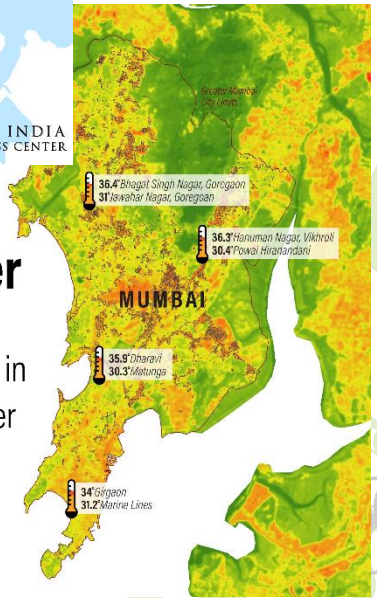
WRI INDIA

TOD A Key Climate Action Strategy (Mitigation + Adaptation)

Land-infrastructure carrying capacities and climate resilience crucial in TOD zones

Climate Action Targets: public open spaces, permeable cover, waste-water-energy efficiency (**30-50%** savings through demand management)





Dharavi is typically **over 5°hotter** than its immediate neighbour *Matunga* in the month of October

CLIMATE RESILIENT

RESOURCE EFFICIENT

PRODUCTIVE

LIVEABLE

ACCESSIBLE

DENSIFICATION

DECARBONISATION

DECONGESTION

Source: Mumbai Climate Action and Resilience Plan

WRI INDIA

Benefits of Compact, Public-Transport-Oriented Cities

GOVERNMENT

- **Resource & Economic Efficiencies** (optimum use of land, infrastructure, other resources & environmental protection)
- **Local Revenues** (for reinvestment in public good)
- **Low-Carbon, Economic Growth & Urban Development** (sustainable, resilient, inclusive)
- **Aligned with Public Policies, Plans & Targets**

CITIZENS

- **City-wide Accessibility** (jobs, education, other opportunities)
- **Workforce Productivity & Participation**
- **Enhanced Incomes & Socio-economic Inclusion**
- **Revitalized & Livable Neighborhoods** (improved public amenities, healthy & safer environments – quality of life)

CITY

Enhanced Global Competitiveness

DEVELOPERS

- **Better Project Marketability**
- **Economies of Scale**
- **Enhanced Property Values**
- **Business Profits & Growth**

BUSINESSES

- **Accessibility & Agglomeration Benefits, Enhanced Catchments** (employees, customers)
- **Lower Occupancy Costs** (lower expenditure on company transport & housing)
- **Enhanced Property Values** (owned/occupied)
- **Business Profits & Growth**

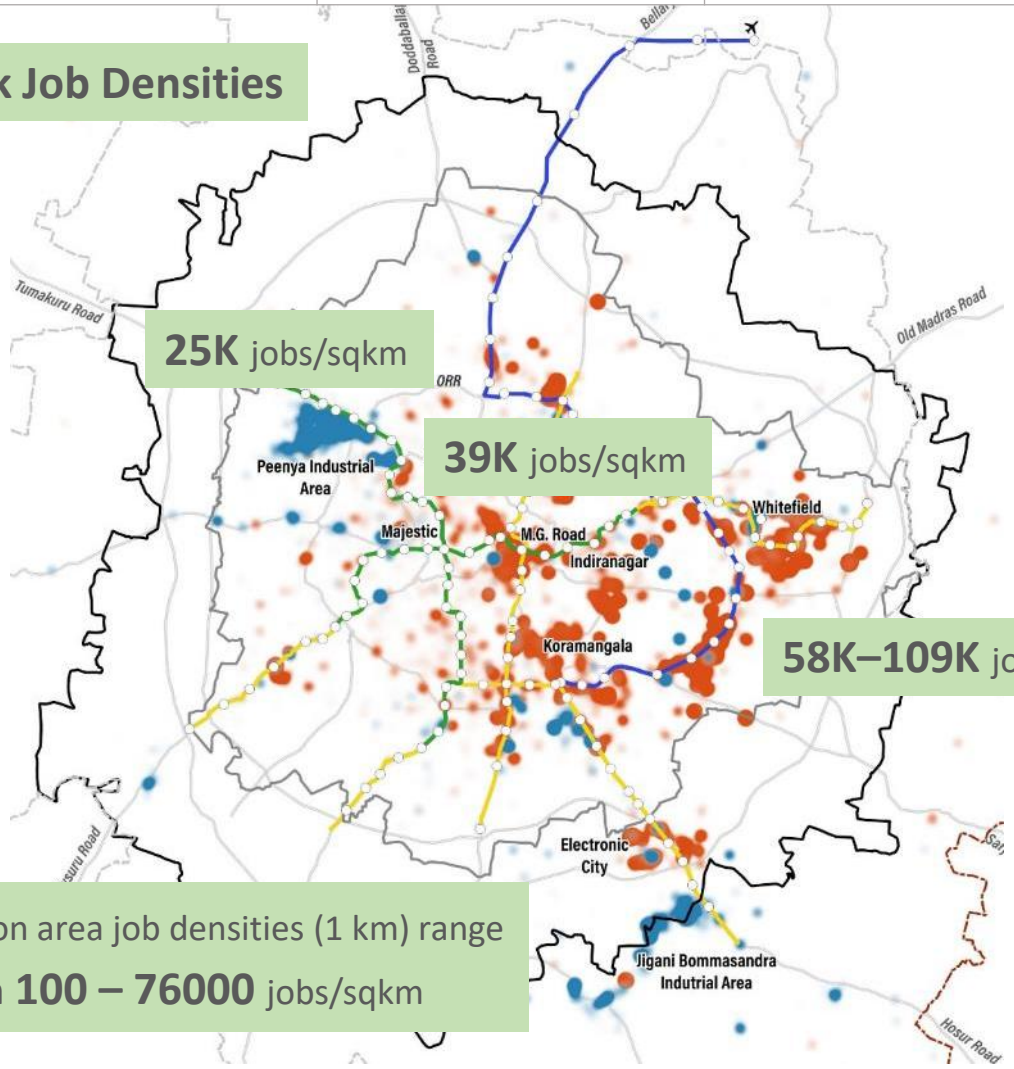
WRI INDIA

Job Distribution, Densities and Proximity to Metro in Bengaluru

Manufacturing-sector	Service-sector	Large enterprises (> 100 employees)
3% of enterprises, **12%** of jobs	**97%** of enterprises, **88%** of jobs	**2%** of enterprises, **60%** of jobs

Phases 1, 2, 2A-2B (172 kms): 28% of jobs will be within **500 m** of the nearest metro station, **59%** within **1 km**, and **85%** within **2 km**

Peak Job Densities

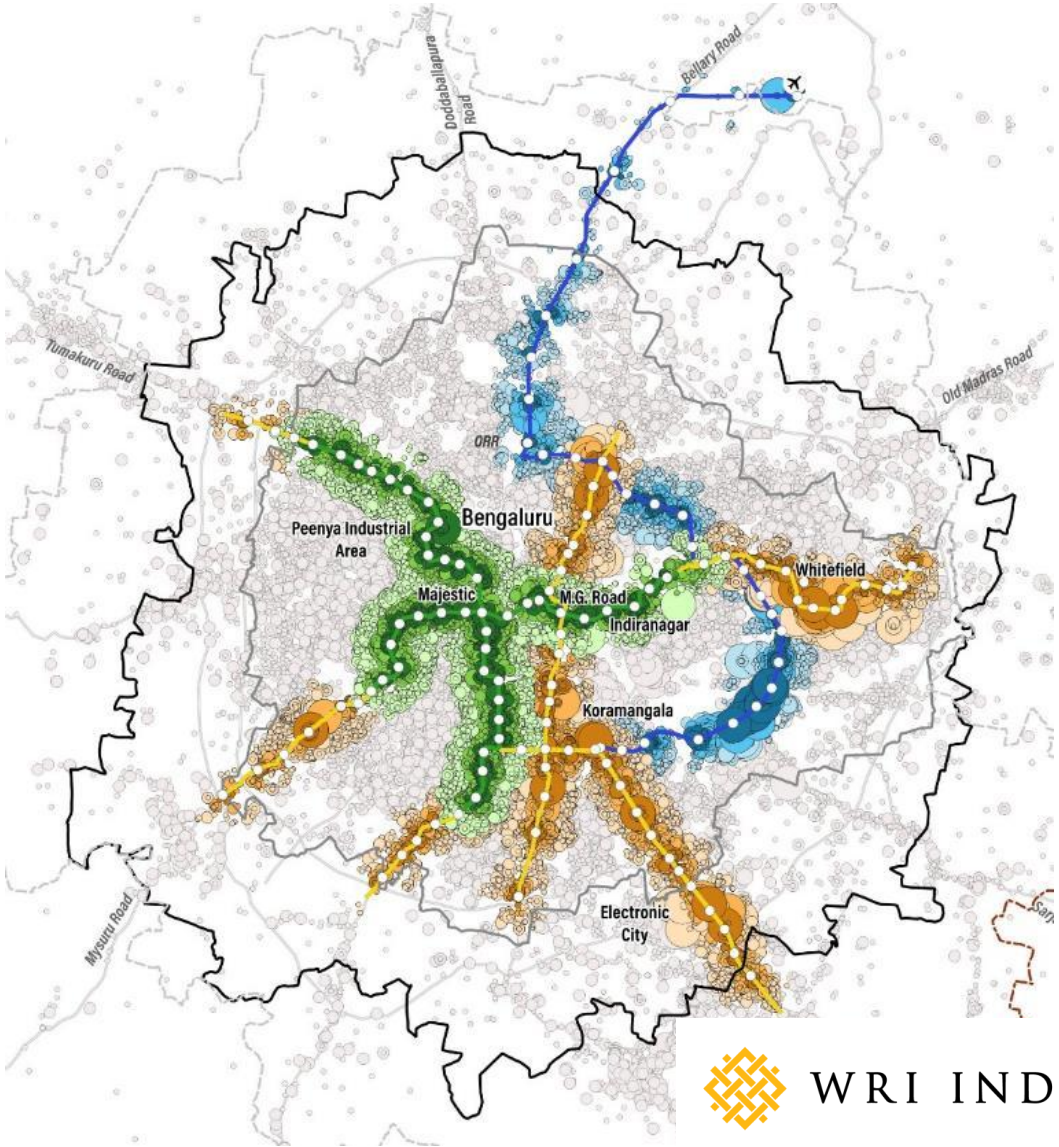


25K jobs/sqkm

39K jobs/sqkm

58K–109K jobs/sqkm

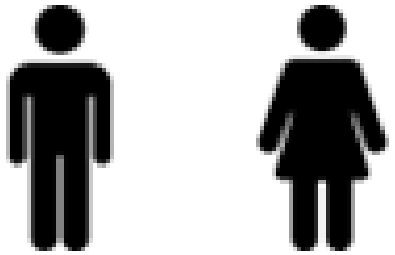
Station area job densities (1 km) range from **100 – 76000** jobs/sqkm



WRI INDIA

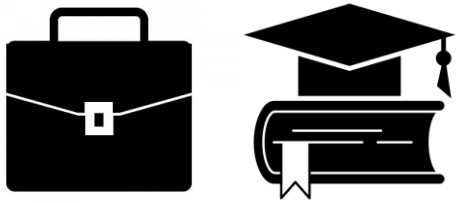
Demographics and Last-mile Modes of Metro Users

A very specific demographic currently uses the metro



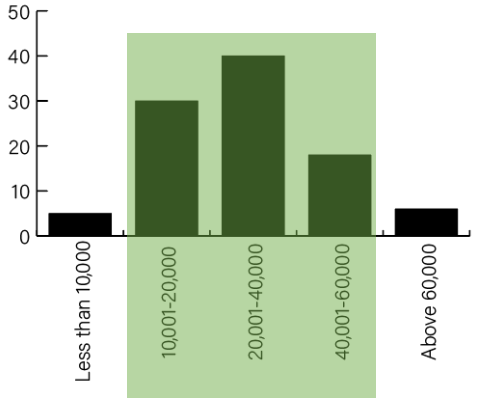
89% 19-35 YRS

9% 36-50 YRS



68% FOR WORK

22% FOR EDUCATION



79% MONTHLY HH INCOME BETWEEN 10K-60K

Existing users overwhelmingly opt for three last-mile modes

66% (avg. dist. 500m)

9% SHARED

10% REGULAR AUTO (avg. dist. 2-3 kms)

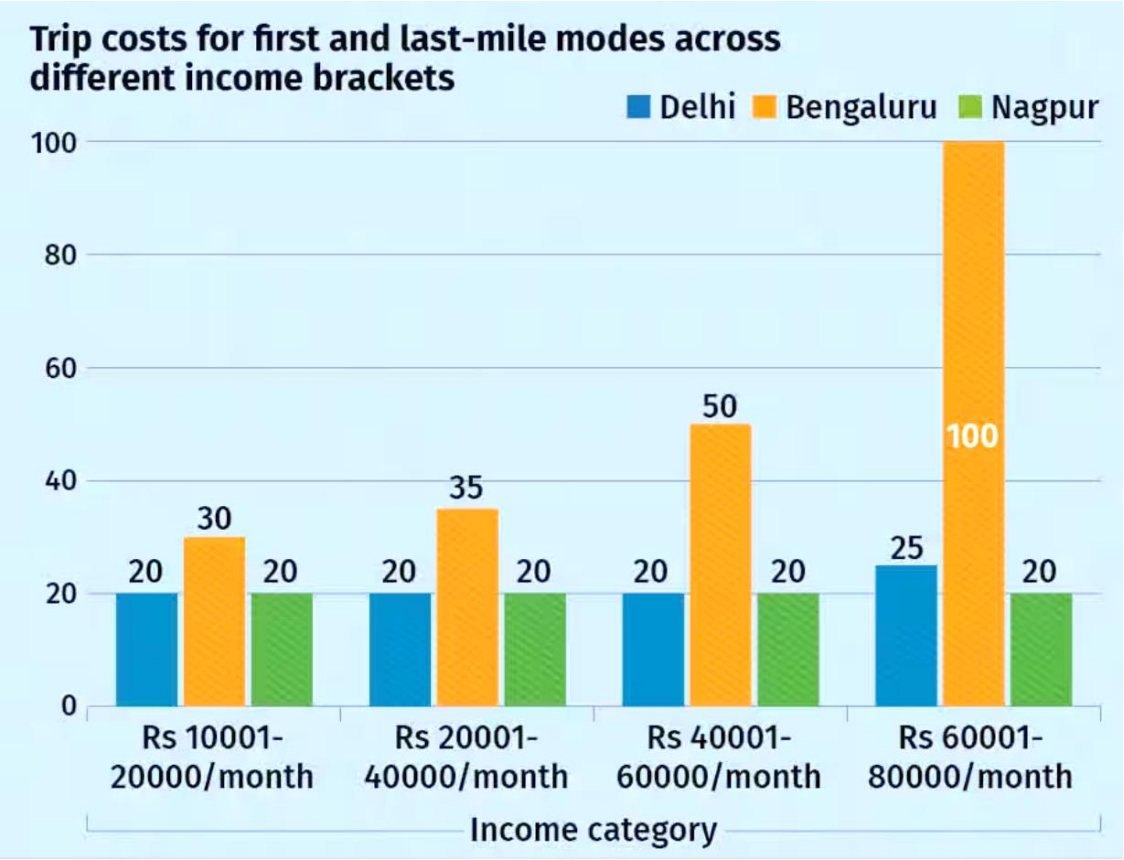
7% (avg. dist. 4 kms)

92% USERS

WRI INDIA

Last-mile Trips Costs and Access Time Thresholds

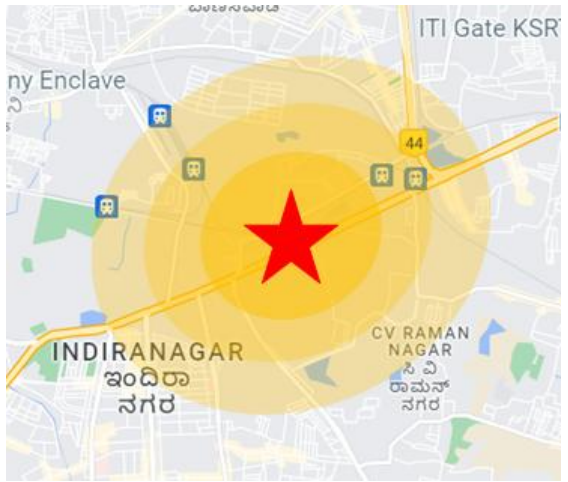
Avg. last-mile trip costs highest in Bengaluru ₹30-100



Willingness to pay upto ₹15 (except higher-income gps)

Users (especially women) highly averse to waiting for a last-mile mode; 5-10 mins

Shared modes *Buses and shared IPT*	**Low wait/dwell times**	
	Peak (ideal)	5 MIN
	Peak (max)	10 MIN
On-demand modes *Taxis, autos, bike taxis*	Offpeak (ideal)	10 MIN
	Offpeak (max)	15 MIN
Rental (self-drive) modes *Bikes, e-cycles, cycles*	**Availability**, high coverage of pickup/ dropoff points	
Non-motorised transport *Walking and cycling*	Good, well-lit footpaths, safe crossing facilities, segregated cycle lanes	



Users willing to take metro if access time is within

20 mins (wait + travel)

Catchment – function of time not distance

WRI INDIA

Push and Pull Factors for Businesses to Locate Near Metro

Location Considerations for Businesses

- Availability of suitable land parcels/properties - zoning, size, cost
- Monetary incentives (lower land/rental values, tax exemptions or fee subsidies
- Supporting infrastructure and amenities
- Market linkages and agglomeration benefits
- Good road + public transport connectivity enhancing catchments, accessibility (employees, customers

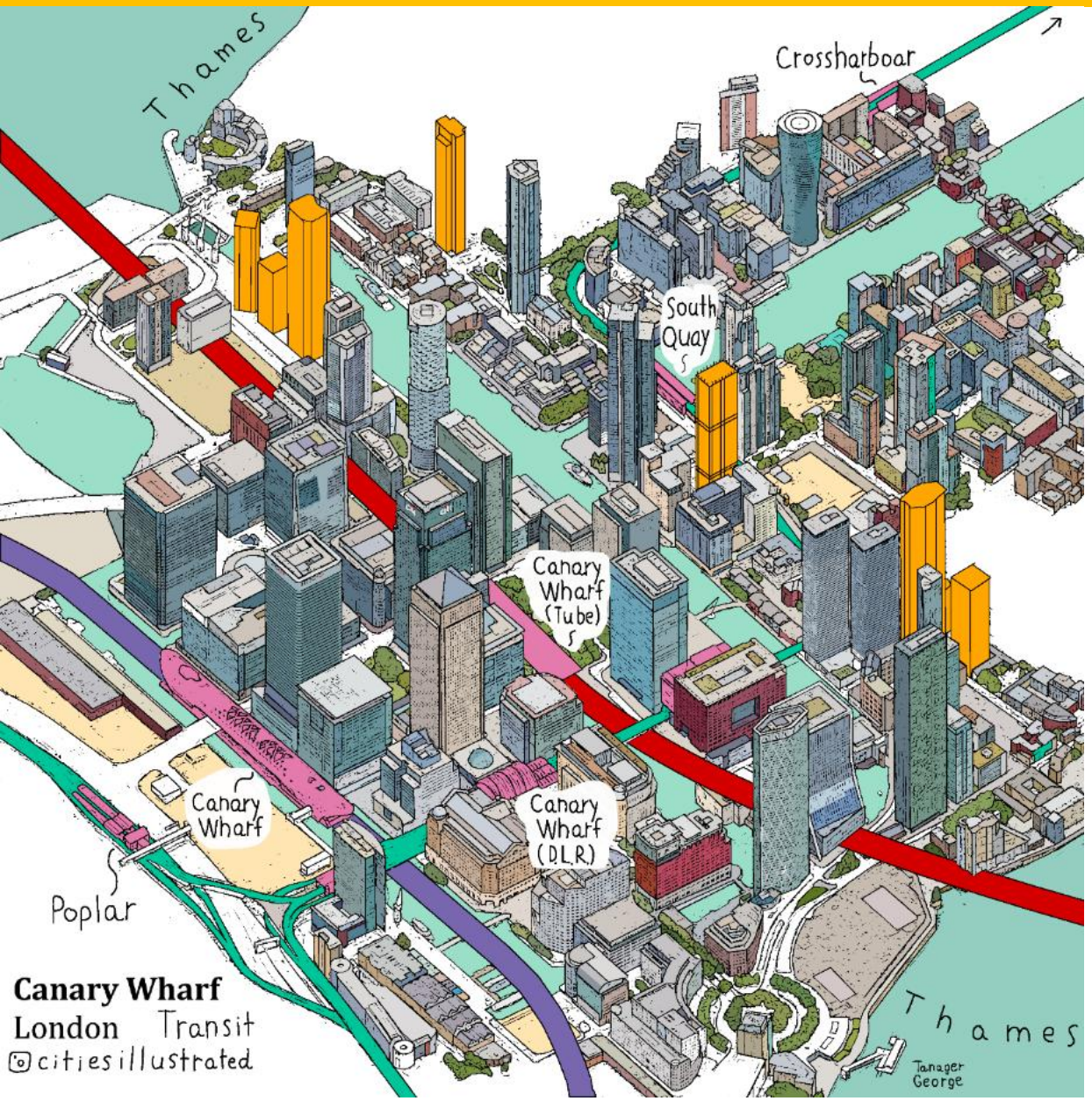
Major Challenges in Locating Near Metro

- In inner city developed areas, existing/older building stock often do not meet current requirements
- Limited land for commercial re/development, and land assembly can be difficult, risky, costly
- Development regulations hinder higher-density development (use of higher FAR incentives)
- Higher property values; market saturation or community resistance to greater commercialization (associated civic issues)
- Inadequate public infrastructure levels

{ Variations in manufacturing and service enterprises }

WRI INDIA

Canary Wharf, London



Ref: Salat and Ollivier 2017, WRI India 2021

- Derelict docklands **(40-50 ha)** → thriving business district with **>16 million sqft** office + retail space
- **120K+ high-value jobs** – highest job and office space density in London, Europe; **mixed uses and placemaking**
- **3** transit lines, bus and water transport; **>85%** of work trips by public transport**; 6000** parking spots, **2500** public
- Real estate value **£7-8 billion** (2022-23)

WRI INDIA

Hudson Yards, New York

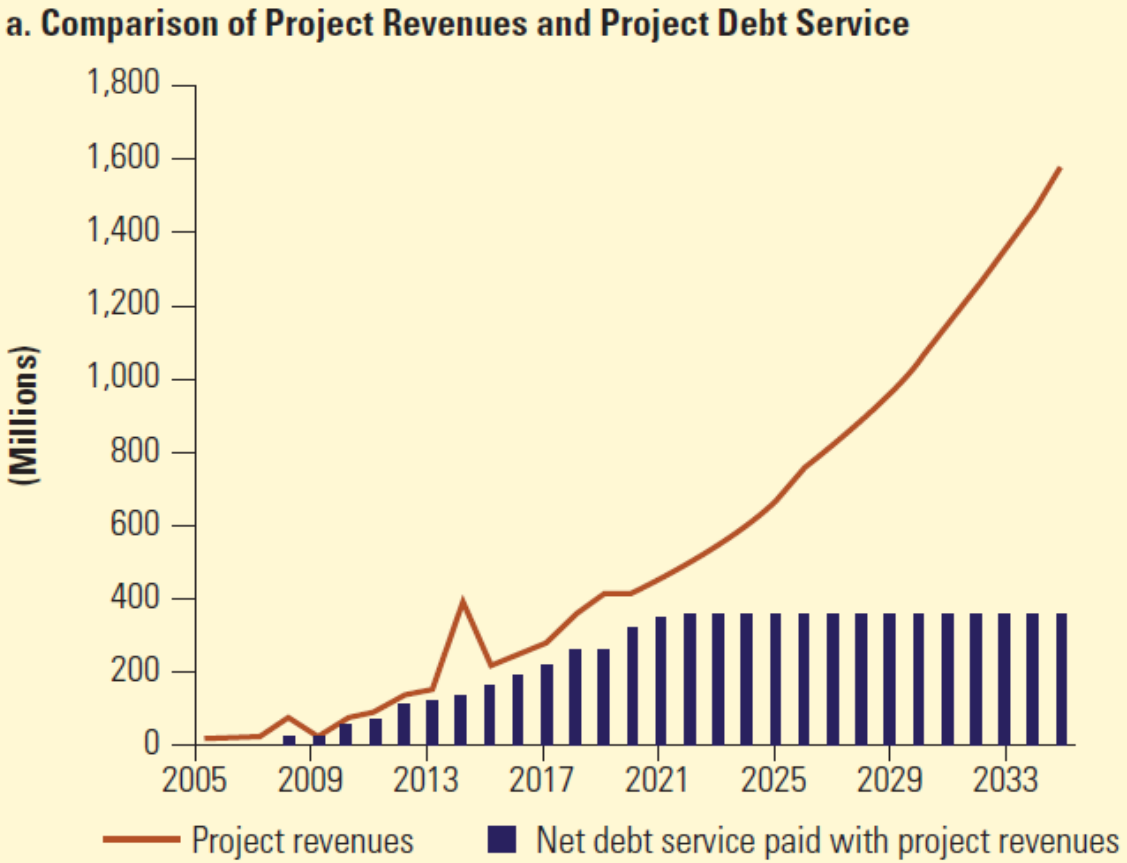
- Redevelopment project over industrial rail yards **(11 ha)** → high-density, mixed-use business district **(FAR 6-33).**
- **18 million sqft** of commercial and residential space with affordable housing; high-quality public open spaces **(50%)**
- Manhattan's first **LEED® GOLD Neighborhood Development;** among city's **most livable areas**
- Dynamo for tourism, real estate development (**5x** of Manhattan).
- Expected to bring **55K+ jobs;** contribute **$90 million** to MTA, **$19 billion** to New York's GDP **(2.5%)** and generate **$500 million** in tax revenues – annually.

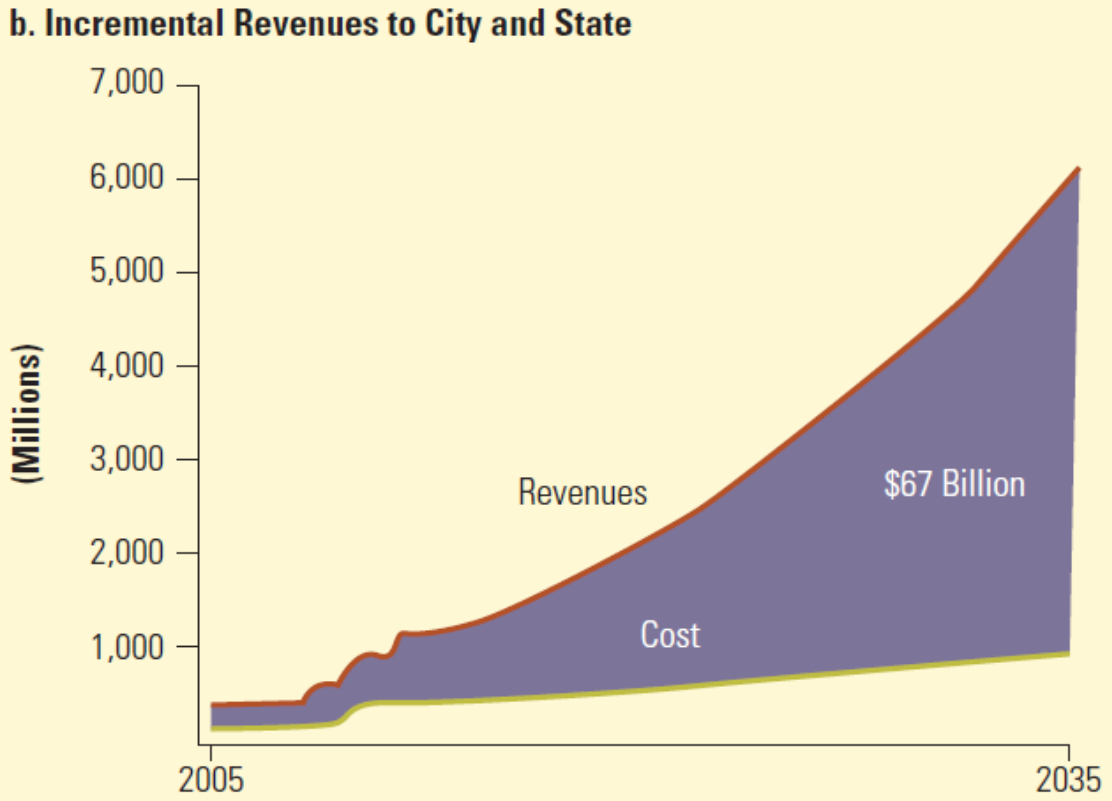
Source: Salat and Ollivier 2017; SOM 2024

WRI INDIA

Hudson Yards, New York

Projected Revenues and Debt Service Associated with Hudson Yards, 2005–35





Source: Hudson Yards Development Corporation July 12, 2004. © Hudson Yards Development Corporation. Used with the permission of Hudson Yards Development Corporation. Further permission required for reuse.

WRI INDIA

Yongsan International Business District, Seoul

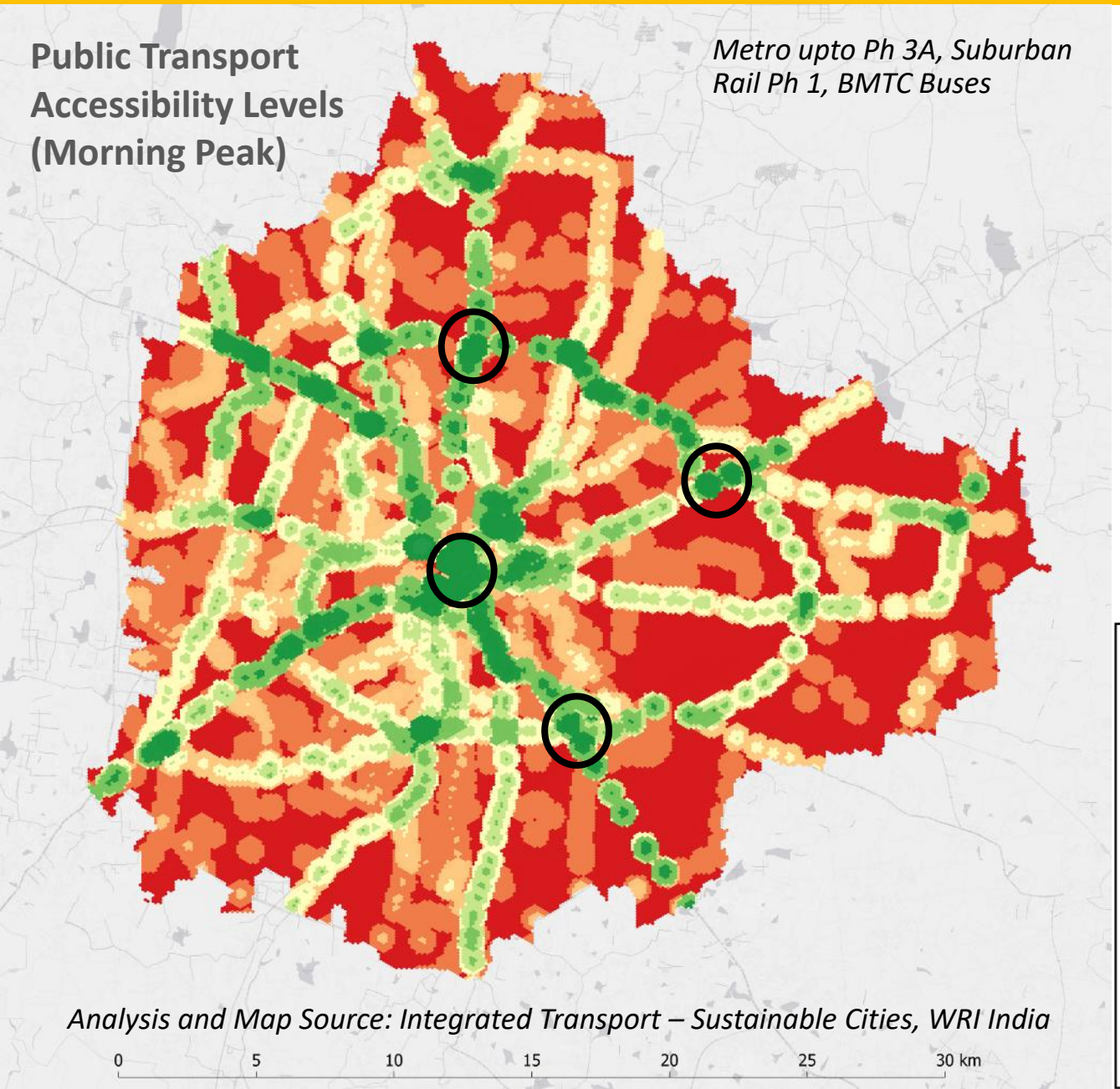
- Abandoned train maintenance depot **(50 ha)** → global business-innovation hub; project cost **$38 billion**
- **Water, rail, bus and air transport,** autonomous shuttle buses, air mobility
- **Comprehensive mixed-use development** (compact city principles)
- **LEED ND; 50%** green open spaces**, 50%** green roofs/walls.
- To create **146K jobs** and annual production of **$2.44 billion**

Ref: https://msp.world/projects/yongsan-international-business-district ;

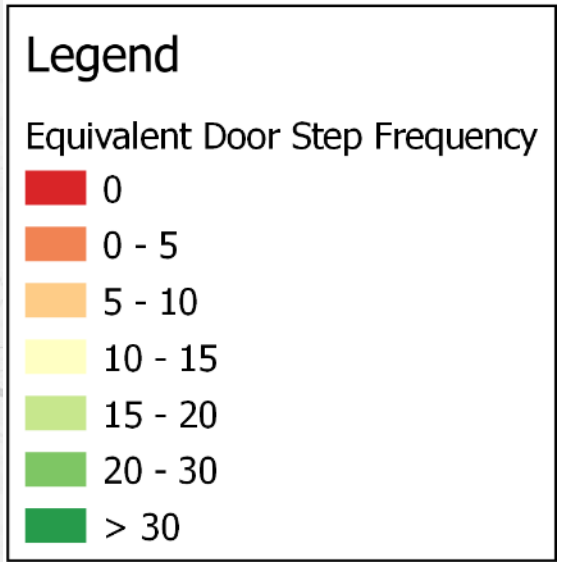
https://www.kedglobal.com/real-estate/newsView/ked202402050017; https://atlasofurbantech.org/cases/kor-yongsan/

WRI INDIA

Identifying Potential Land Parcels: MAJOR CONSIDERATIONS



- PTAL Analysis
- Land Ownership
- Reserved or Conservation Areas (eco-sensitive/ productive farmlands, urban greens, public amenities/ utilities etc).
- Climate Risk Proofing (flooding)
- Market Demand
- Development and Revenue Potential
- Ease of Implementation



WRI INDIA

Initiatives on TOD, MMI and 'Shift/Nudge' Campaigns

PERSONAL 2 PUBLIC

Campaign to nudge commuter shift from personal vehicles to public transport, at least twice a week - **FOCUS ON EMPLOYMENT HUBS (Whitefield, ORR)**

1) Coalition Building: transport agencies, business and civil society associations

2) Commuter Studies, Outreach/Awareness Initiatives

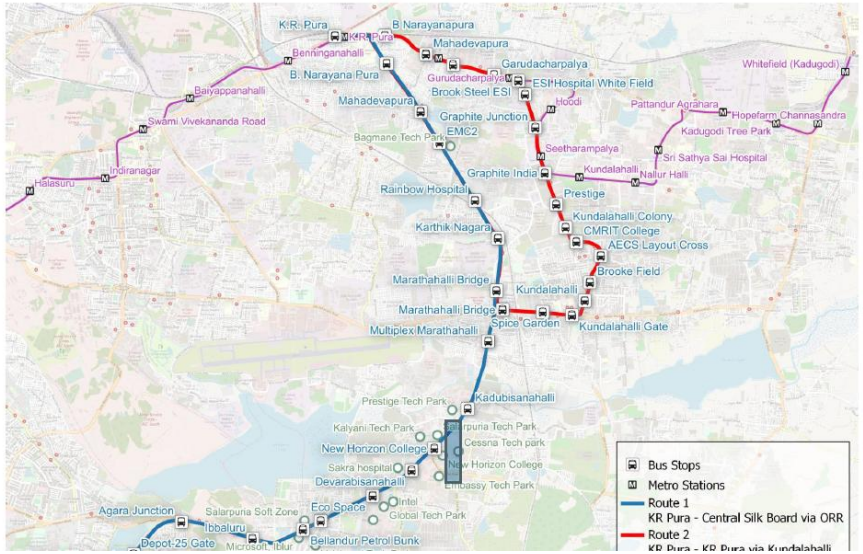
95% pvt vehicle users willing to shift to Metro, survey shows

Freeze mob exhorts citizens to switch to public transport

Armed With Posters, Group Seeks Ideas On Last-Mile Connectivity

3) Analysis, Action Plans (LMC-MMI) and Impact Assessment

New BMTC feeder bus routes from KR Pura



Route 1

KR Pura to Central Silk Board via ORR

Route 2

KR Pura to KR Pura via Kundalahalli

Number of buses

31

Frequency

5 min. in peak
8 min. off peak

BMTC publishes station-wise metro feeder bus details – live tracking app

WRI INDIA

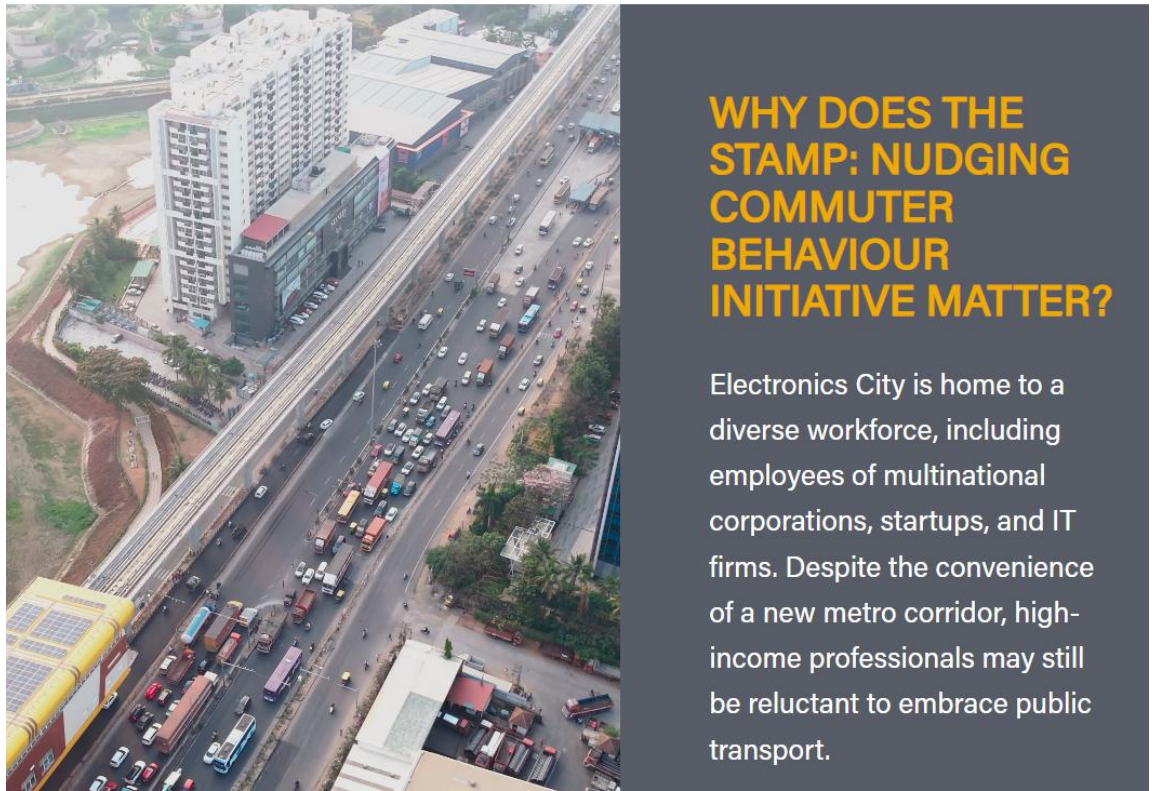
Initiatives on TOD, MMI and 'Shift/Nudge' Campaigns

STAMP: Nudge Innovation Challenge

BMRCL – BMTC – ELCIA – TMF – WRI India

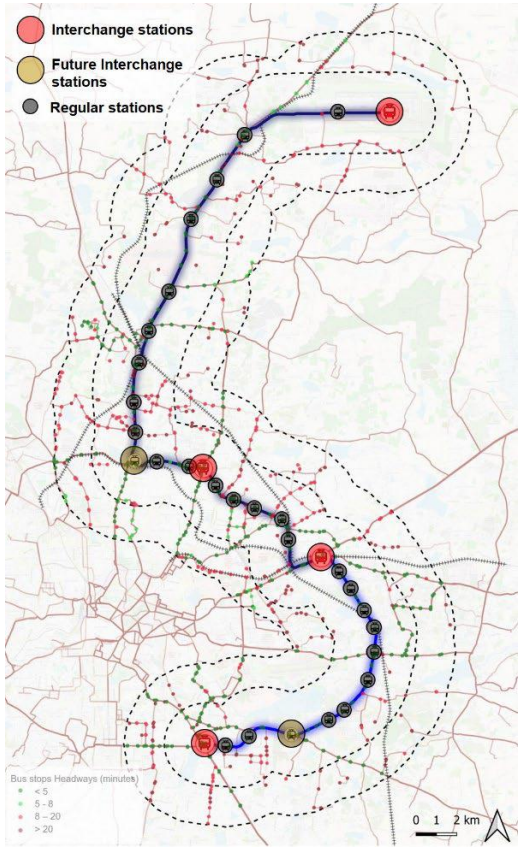
Pioneering initiative that leverages behavioral science and tech-enabled solutions to encourage shift from P2P -
FOCUS ON EMPLOYMENT HUBS (Electronic City)

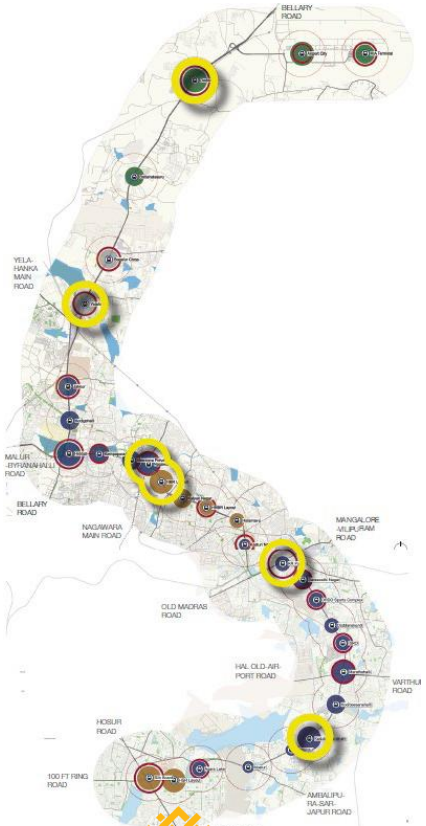
Gamification, Social Norm Campaigns, Incentive-based prog.



ADB TA Project: Blue Line Metro Ph 2A-2B

TOD Corridor Vision Plan; Pilot TOD, MMI, PMA Plans; Planning, Regulatory and Institutional Frameworks; Typology, Phasing and Implementation Strategies → Incorporate into RMP 2041

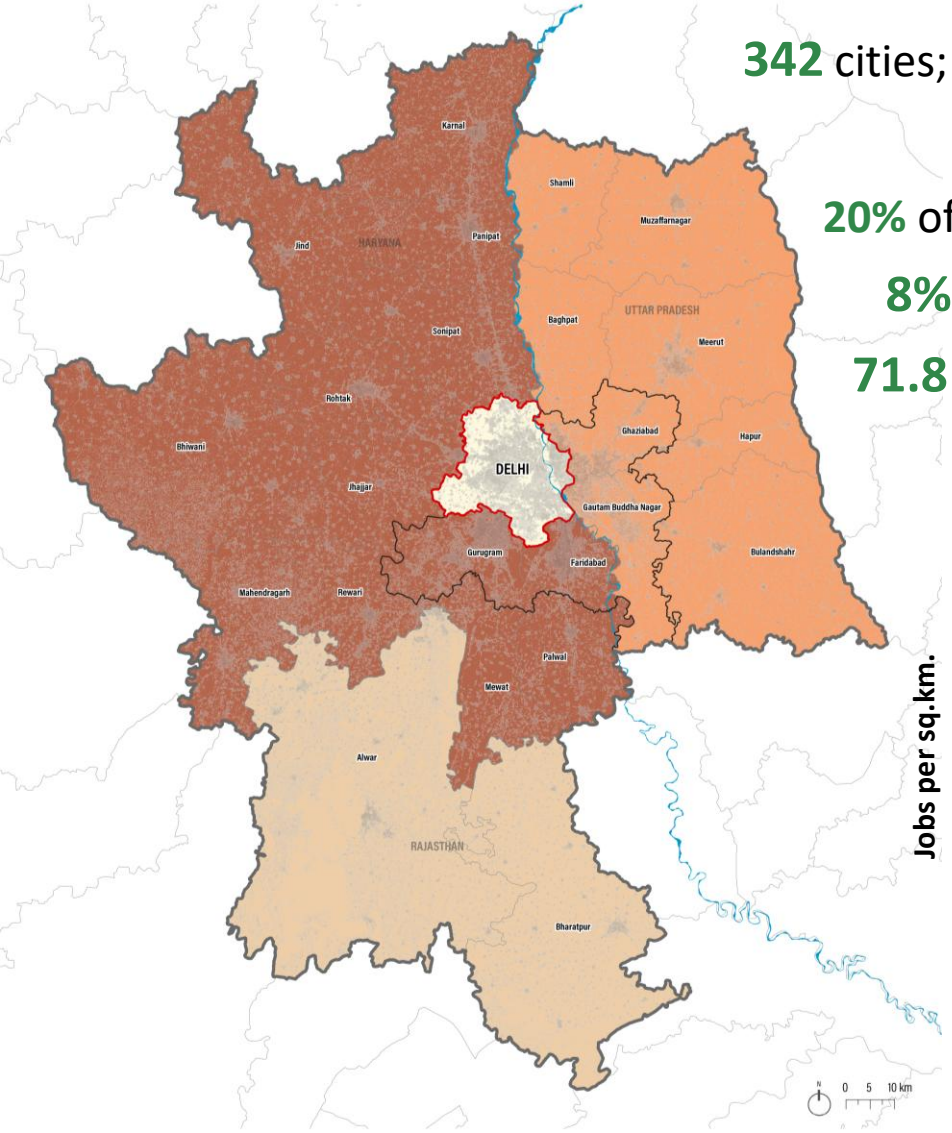




WRI INDIA

Economic Geography of Delhi NCR

Administrative boundaries within Delhi NCR



342 cities; **11,162** villages (2011)

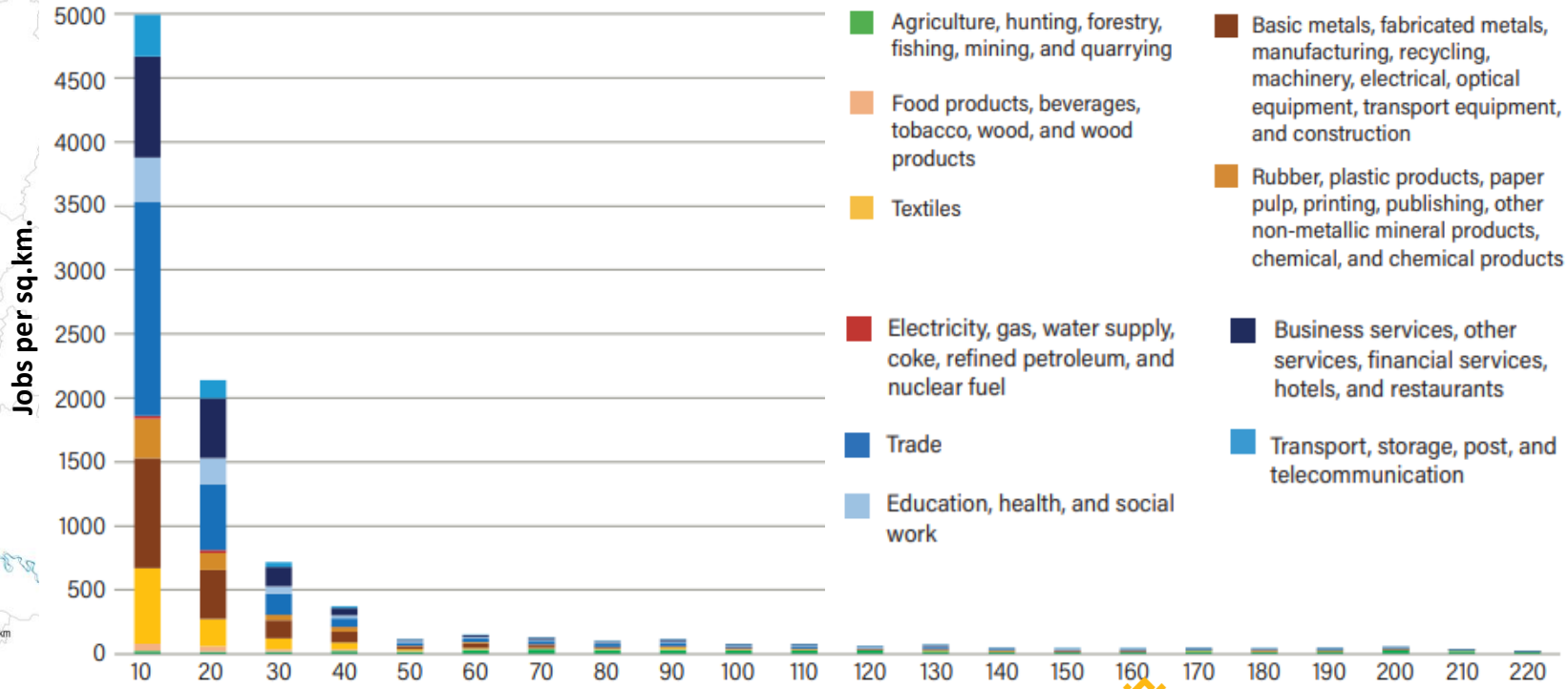
8.5 mn jobs (2013-14)

20% of nation's FDI (2010-15)

8% of nation's GDP (2016)

71.8 mn population (2021)

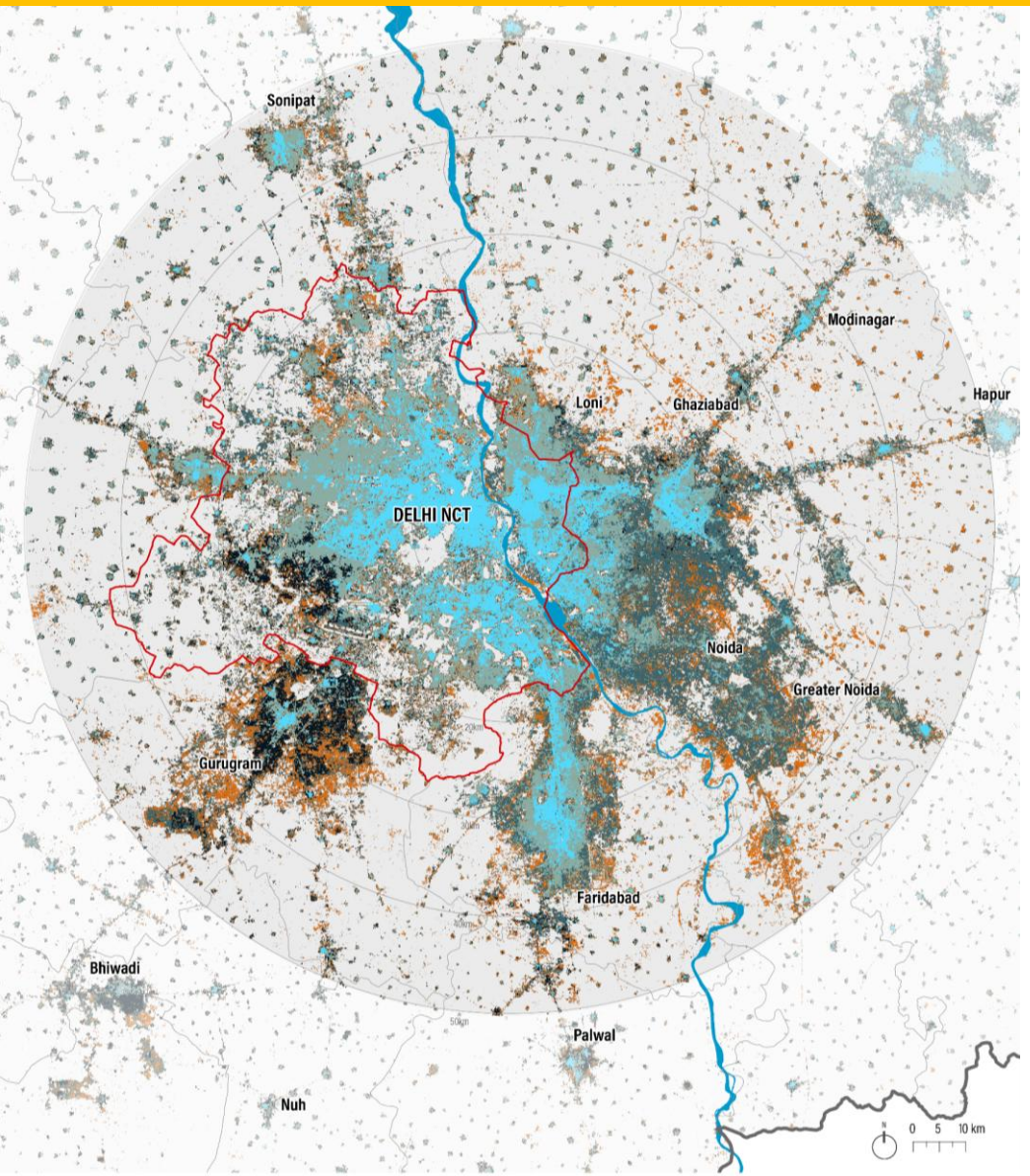
- **Job density** in tertiary sector highly centralized within 10-km radius and concentrated up to 20-km, before tapering off
- About **70%** of all jobs located within **1-km** buffer along Delhi metro network (2013-14)

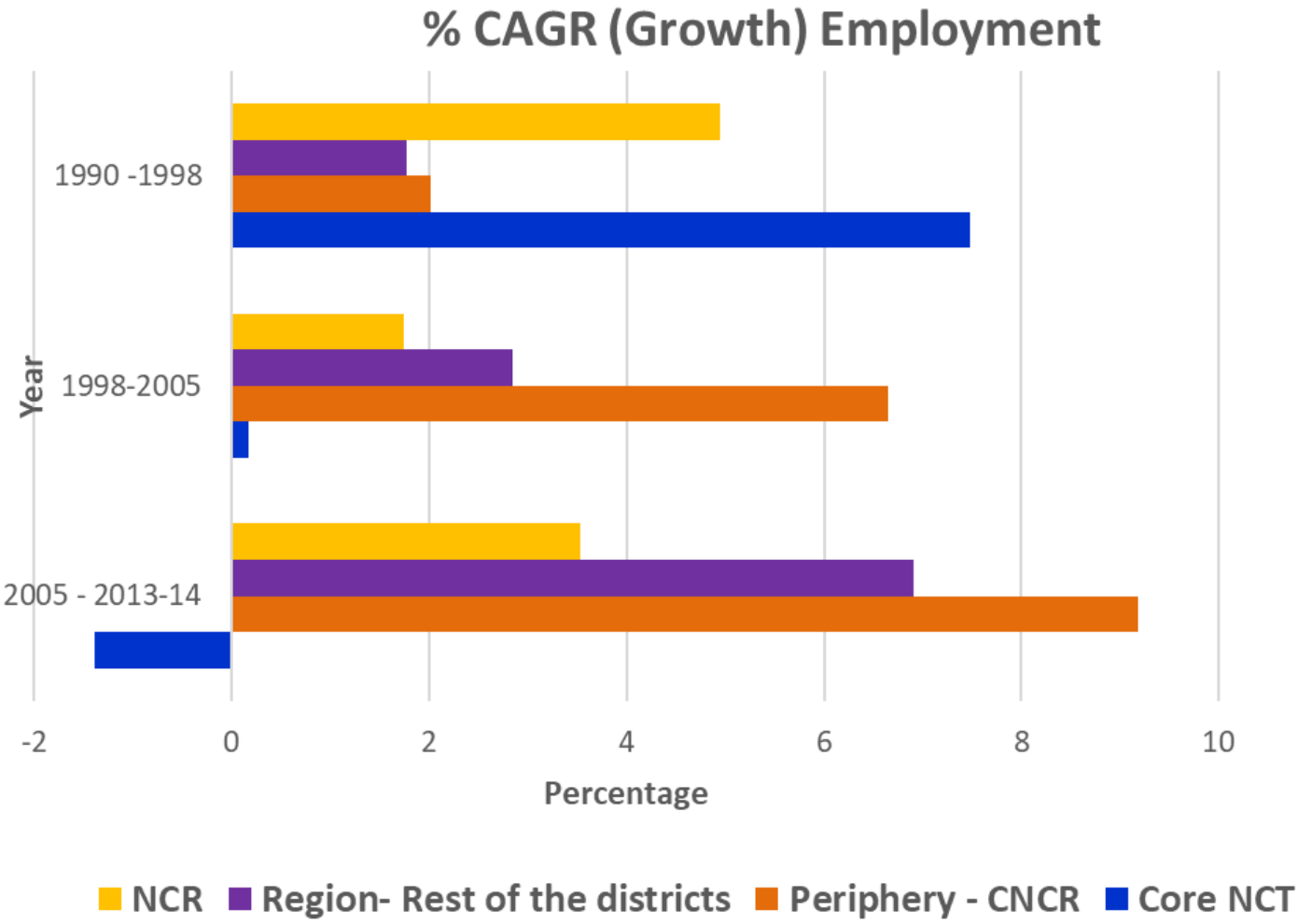


Source: WRI India Analysis 2023

WRI INDIA

Suburbanization of Urban and Economic Growth in Delhi NCR





Complementarity between sub-regions

Source: WRI India Analysis 2023

WRI INDIA

WAY FORWARD RECCOMENDATIONS

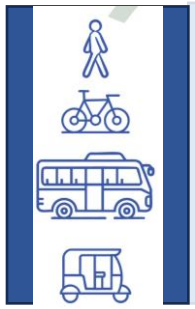
Transit → A key lever for economic and sustainable urban development

Set up City and Regional Economic Development Corporations/Cells: formulate economic development strategies for in/formal sectors, leverage existing frameworks, convene multiple stakeholders, foster healthy competition among ULBs/states to attract business

Set Aspirational Vision and Goals: Integrate economic-land use - transport planning and holistic TOD-MMI strategies into Master/Regional Plans

Conduct Spatio-economic Assessments and Strategize Transit Network Extensions: Target infrastructure investments to economically dynamic locations, transit connectivity to existing/planned economic hubs (metro urban rail system v/s suburban regional rail system)

Bring Jobs Near Transit: Identify well-connected areas, prepare contextual TOD Plans and ZRs, enable redevelopment of inner city and derelict industrial areas, provide location-efficient incentives for businesses, implement TOD projects and infrastructure upgrades through PPP



Bridge Last-mile Connectivity: Prioritize high-quality NMT infrastructure (<1km) and low-cost, high-frequency feeder services (1-3 kms)

Institute a nodal agency: coordinate action, update property databases, establish robust and time-bound appraisal-approval processes

Source: WRI India Analysis 2023, 2024

WRI INDIA

WRI INDIA

WORKING PAPER

Jobs near metro rail transit in Bengaluru: Enabling an accessible and productive city

Radha Chanchani, Amartya Deb, Jaya Dhindaw, Raj Bhagat Palanichamy, Jyoti and Madhav Pai

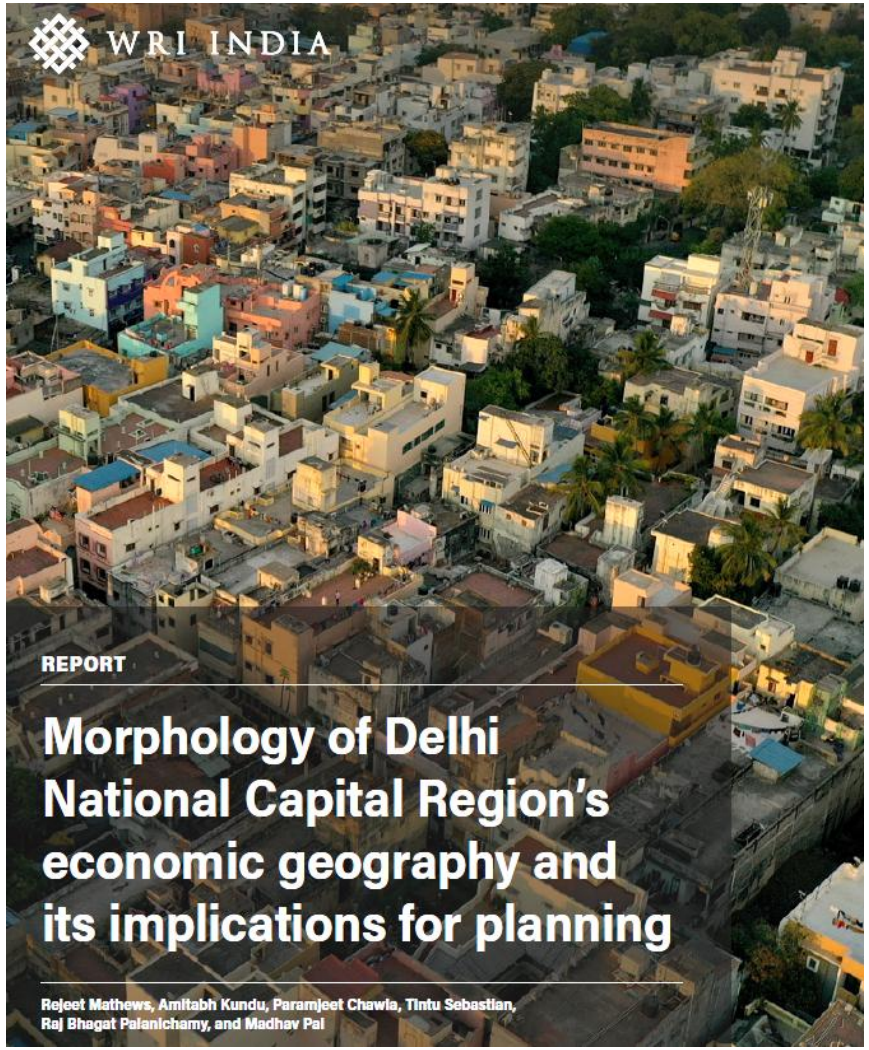
CONTENTS

Working Papers contain preliminary research, analysis, findings, and recommendations. They are circulated to stimulate timely discussion and critical feedback, and to influence ongoing debate on emerging issues.

Suggested Citation: Chanchani, R., A. Deb, J. Dhindaw, R. Palanichamy, Jyoti and M. Pai. 2024. "Jobs near metro rail transit in Bengaluru: Enabling an accessible and productive city." Working Paper. WRI India. Available online at: https://doi.org/10.46830 wriwp.23.00120

HIGHLIGHTS

- Bengaluru's public transportation system is struggling to keep up with the city's growing employment opportunities and urban expansion, and severe traffic congestion is hurting workforce productivity and city competitiveness. However, the city can use a transit-oriented development (TOD) strategy to address this.
- This study maps 2023 data on Bengaluru's registered factories, shops, and commercial establishments (location and associated jobs) to assess current job proximity to, and density along, the city's operational and under-construction metro network.
- We find that of the total mapped jobs in the Bengaluru Metropolitan Area, 28 percent are within 500 m of the nearest metro station, 59 percent within 1,000 m, and 85 percent within 2,000 m, considering Phases 1, 2, and 2A-2B of the metro network, which cover 172 km.
- Our study reveals that the lack of suitable properties, an enabling regulatory framework and incentives for redevelopment, and inadequate public infrastructure levels are the main barriers discouraging large businesses from locating near metro stations.
- The government can play a proactive role by setting aspirational benchmarks and prioritizing job densities in Bengaluru's TOD Policy and planning, providing location-efficient incentives, upgrading public infrastructure, leading catalytic TOD projects, and driving coordinated action.



WRI INDIA

WORKING PAPER

Improving metro access in India: Evidence from three cities

Aloke Mukherjee, Sowmya Muruganantham, Archana Balachandran, Sudeept Maiti, and Prasanna Kumar Ganesh

CONTENTS

Working Papers contain preliminary research, analysis, findings, and recommendations. They are circulated to stimulate timely discussion and critical feedback, and to influence ongoing debate on emerging issues.

Suggested Citation: Mukherjee et. al. 2023. "Improving Metro Access in India: Evidence from Three Cities" Working Paper. WRI India. Available online at https://doi.org/10.46830/wriwp.23.00009

HIGHLIGHTS

- Poor access (last-mile connectivity) to metro rail systems in India has contributed to lower-than-planned ridership, causing the underutilization of over US$25 billion in investments in the sector.
- There is little understanding of what metro commuters seek from their last-mile commute. Thus, policy pushes to improve last-mile connectivity since 2017 have not brought about meaningful improvement.
- This paper draws from a three-city survey of 7,200 metro commuters to understand current metro user demographics and last-mile choices and preferences.
- Our data show that Indian metro systems attract young (19–35), middle-income commuters. Affluent users are not attracted to the system, and low-income users are priced out of it.
- Indian metro commuters are highly sensitive to last-mile wait times and costs. Women are especially averse to waiting, and may opt for more expensive services to avoid waiting. Planners must prioritize high-frequency, low-cost shared services and improve pedestrian infrastructure around metro stations.
- There is, however, no universal approach to deploying last-mile services at metro stations. Robust, periodic data collection and analysis are required to plan viable commuter-centric last-mile services.

THANK YOU!

WRI INDIA