Public Transport for All: Micro-Mobility is the Key
Indexed estimated growth in travel demand (in Asian cities)

Growth between 1980 to 2015

- Human population: 2 times (~90%)
- GDP: 5 times
- Transport demand: 8 times
- Registered vehicles: 40 times! (5.4 Mil in 1981, 210 Mil in 2015)

Sources: World Bank; OECD; National center for Sustainable transportation; BCG analysis
### Sale of Automobiles in India

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</thead>
<tbody>
<tr>
<td>Passenger Vehicles</td>
<td>26,29,839</td>
<td>26,65,015</td>
<td>25,03,509</td>
<td>26,01,236</td>
<td>27,89,208</td>
<td>30,47,582</td>
<td>32,88,581</td>
<td>33,77,436</td>
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<tr>
<td>Commercial Vehicles</td>
<td>8,09,499</td>
<td>7,93,211</td>
<td>6,32,851</td>
<td>6,14,948</td>
<td>6,85,704</td>
<td>7,14,082</td>
<td>8,56,916</td>
<td>10,07,319</td>
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<tr>
<td>Three Wheelers</td>
<td>5,13,281</td>
<td>5,38,290</td>
<td>4,80,085</td>
<td>5,32,626</td>
<td>5,38,208</td>
<td>5,11,879</td>
<td>6,35,698</td>
<td>7,01,011</td>
</tr>
<tr>
<td>Two Wheelers</td>
<td>1,34,09,150</td>
<td>1,37,97,185</td>
<td>1,48,06,778</td>
<td>1,59,75,561</td>
<td>1,64,55,851</td>
<td>1,75,89,738</td>
<td>2,02,00,117</td>
<td>2,11,81,390</td>
</tr>
<tr>
<td>Grand Total</td>
<td>1,73,61,769</td>
<td>1,77,93,701</td>
<td>1,84,23,223</td>
<td>1,97,24,371</td>
<td>2,04,68,971</td>
<td>2,18,63,281</td>
<td>2,49,81,312</td>
<td>2,62,67,156</td>
</tr>
<tr>
<td>Annual growth</td>
<td>2.49%</td>
<td>3.54%</td>
<td>7.06%</td>
<td>3.78%</td>
<td>6.81%</td>
<td><strong>14.26%</strong></td>
<td>5.15%</td>
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</table>

Source: Society of Indian Automobile Manufacturers, 2019

Alarming growth in the sale of private vehicles, especially **2 Wheelers**, accounting to over **80% of total sales**
**RESULT:** MOST POLLUTED & CONGESTED CITIES

**India Has The Most Polluted Cities On Earth**
Average level of particulate matter (PM 2.5) pollution in 2018

1. Gurugram
2. Ghazipur
3. Faisalabad
4. Faridabad
5. Bhiwadi
6. Noida
7. Patna
8. Jodhpur
9. Lucknow
10. Lahore
11. Delhi
12. Muzaffarpur
13. Varanasi
14. Moradabad
15. Agra
16. Dhaka
17. Gaya
18. Kashgar
19. Jind

**The Cities With The Worst Traffic Congestion**
Percentage of extra travel time due to congestion in 2018

- Mumbai (India) - 65%
- Bogota (Colombia) - 63%
- Lima (Peru) - 58%
- New Delhi (India) - 58%
- Moscow (Russia) - 56%
- Istanbul (Turkey) - 53%
- Jakarta (Indonesia) - 53%
- Bangkok (Thailand) - 52%
- Mexico City (Mexico) - 52%
- Recife (Brazil) - 49%
- Bucharest (Romania) - 48%
- Saint Petersburg (Russia) - 47%
- Kiev (Ukraine) - 46%
- Dublin (Ireland) - 45%
- Lodz (Poland) - 44%

**Source:** IQAir AirVisual 2018 World Air Quality Report

- 15 of the top 20 - NOT PROUD!

- Mumbai tops, and Delhi at 4th place out of 403 cities
- Estimated loss of two cities – USD 15 billion annually
- Adequate PT available, last mile connectivity missing!
While PT and NMT mode share is decent for large cities, extra intervention is needed to shift users from private modes to Public Transport in Tier II and Tier III cities.
**METRO RAIL: COMMISSIONED AND PLANNED**

- 642 kms of operational metro lines
- 691 kms under construction
- Almost equal no. of metro stations
- First / Last mile connectivity to play a crucial role in bringing users on to the system

**Operational Metro length**

Source: Ministry of Housing and Urban Affairs, 2019
A comparison proves that public transit supply in major Indian cities is at par with global cities. However, accessibility to the system and availability of integrated and shared mobility is not up-to-the mark.

Source: The 2019 Deloitte City Mobility Index
YULU MIRACLE

Yulu Miracle is one of the most advanced shared NMT Electric Vehicle in the world

Battery – Li-ion (swappable)
Range per Charge – 55 to 60 Km
Max Speed – 25 Km/h

NMT EV – No license, Permit or Registration

Assembling

Our Partner is a leading 2 W Manufacturer in India

Make in India
YULU: FRUGAL INNOVATIONS – Designed For India

MOVE – First PBS Cycle
Made For India
India centric PBS Bicycle
State of the Art IoT/Lock

MIRACLE – The NMT EV
No License or Registration
Uniquely built for durability, ease of use with swappable batteries

ATOM – The Mover
Vehicle for Relocations
Design Innovation for capacity and efficiency

MAX – The Charger
Battery Charging Station
First of its kind in the world, it can charge all form factors
<table>
<thead>
<tr>
<th>Metric</th>
<th>Bengaluru</th>
<th>Pune</th>
<th>Navi Mumbai</th>
<th>Bhubaneswar</th>
<th>NCR</th>
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<tbody>
<tr>
<td>Vehicles on Road</td>
<td>8000 Move + 3800 Miracle</td>
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<tr>
<td>Total Rides Completed</td>
<td>50 lacs+</td>
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<tr>
<td>Total Distance Travelled</td>
<td>2 crore+</td>
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<td>Carbon Emissions Prevented</td>
<td>1600+</td>
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<tr>
<td>Avg. Distance / Travel Time</td>
<td>4.1 kms / 22 mins</td>
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<tr>
<td>Avg. Vehicle Utilization</td>
<td>85%</td>
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GOVERNMENT: Interventions Required

- Provide **Footpaths & NMT Lanes** within 5 Km of all current/future metro stations (Metro Rail Policy, 2017)
- Provide dedicated and accessible **Parking Space** for shared mobility vehicles at all metro stations (to enable MMI and First/Last Mile connectivity), including retrofitting at the existing metro stations
- Opt for a **Permit based PBS System** (and not tendering), to allow multiple players to offer their services
- **De-link Advertisement Rights from PBS** services to ensure PBS is the priority, and not the Ad Revenue
- **Provide VGF Support in Tier 2 Cities** (wherever needed), to make shared-mobility available and viable
For Tier II and Tier III cities, where cost/ridership of Metro cannot be justified, an EBL / BRTS should be planned with proper First & Last Mile connectivity, and integrating well with the system. Not only will it offer user convenience; but also bring a great shift from private transport to PT, and reduce the pollution and congestion in the cities.
Let’s join hands to provide an accessible and affordable micro-mobility solution to all Indians.