NON FARE REVENUE OPTIMIZATION FOR PUNE METRO
COURSE

Leaders Program in Urban Transport Planning & Management

Mentor - Shri. Gautam Patel

Presented by -

❖ Ajit Kawade, Under Secretary, Urban Development Dept, GoM
❖ Dr. Pradnya Kasar, Section Officer, CM Office, GoM
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7. Identified NFR sources for Pune Metro with description of each.
8. Graded criteria
9. Doability matrix
10. Recommendations
OBJECTIVE & PROBLEM STATEMENT

- **Objective** – To identify possible Non – Fare Revenue sources for Pune Metro using literature study, case studies and stakeholder discussions

- Study the identified sources to assess their potential, regulatory and other hurdles for their implementation

- Prepare a strategy for tapping identified NFR sources and thus provide an optimised solution for supplementing fare revenue with NFR sources for proposed Pune Metro.

- **Statement of Problem** - Identify the resource gap in Pune metro in revenue terms and employ appropriate methodology to arrive at potential sources to optimize NFR sources for Pune metro & integrate the NFR measures to enhance the sustainability of Pune Metro

PUNE-THE CULTURAL, EDUCATIONAL, DEFENCE & SOFTWARE HUB
**PUNE METRO — AN INTRODUCTION**

- Project approved by Govt. of India on 07/12/2016 and by Govt of Maharashtra on 23/12/2016.
- DPR was prepared in 2009 and revised in November 2015.
- Project is being implemented by Maha Metro.
- Total project Cost as per DPR is as follows: RS.11420 Crores

**Project status as on date is as follows:**

- Physical Progress has started in both the corridors.
- Land survey work completed.
- EIA and SIA commenced.
### REVENUE PROJECTIONS AS PER DPR

<table>
<thead>
<tr>
<th>HEAD</th>
<th>EXPENDITURE IN Cr Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment Cost</td>
<td>100</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>200</td>
</tr>
<tr>
<td>Interest Payment</td>
<td>60 (@ 1% p.a.)</td>
</tr>
<tr>
<td>Principal Repayment</td>
<td>400 (6000 cr To be returned in 15 years)</td>
</tr>
<tr>
<td>Minimum Committed Expenditure</td>
<td>760</td>
</tr>
</tbody>
</table>

### Fare Box Revenue Calculations

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Ridership /day</td>
<td>3 lakhs</td>
</tr>
<tr>
<td>Average no. of Trips/Day</td>
<td>6 lakhs</td>
</tr>
<tr>
<td>Average Fare</td>
<td>Rs 20</td>
</tr>
<tr>
<td>Daily Earning</td>
<td>1.2 Cr</td>
</tr>
<tr>
<td>Yearly Earning (325day)</td>
<td>400 Cr</td>
</tr>
</tbody>
</table>

**Revenue Gap/year = 360 Cr**
METHODOLOGY

- Literature Review & Case Studies
- Stakeholder Consultations

List of Non-fare revenue Sources

Development of grading/mark criteria

Grading / Marking of each source

Do-ability Matrix and Recommendations
REVIEW OF EXISTING LITERATURE
REVIEW OF POLICIES

NUTP - NATIONAL URBAN TRANSPORT POLICY

- Cleaner and modern technology in Urban transport
- Intermodal integration
- Seamless travel across operators
- Increased role of Private sector
- Innovative financing mechanism

NMRP - NATIONAL METRO RAIL POLICY

- Integration of various modes of transport
- Non fare revenue sources
- Techno-economic feasibility
- Last mile connectivity, NMT
- National Metro Rail Policy
- VCF, PPP
- UMTA
- Local bodies should have stake in the Metro
The Pune Metro DPR speaks of all these NFR measures.

The Pune Metro DPR speaks of TOD and VCF

Identifying influence zone – 500-800 m from along the corridors

National Policy for Transit Oriented Development – (TOD)

Densified Mixed land use

Value capture, parking, etc

Preference to walkability and NMT

Inclusive housing

TOD- FAR of 4

TDR in lieu of the land acquired.

Additional Cess on newly developed buildings

Increase in Stamp duty and registration charges

Formation of a dedicated Urban Transport Fund.

INNOVATIVE FINANCING BY MRTS CELL, GOI

Formation of a dedicated Urban Transport Fund.

Increase in Stamp duty and registration charges
## REVIEW OF EXISTING LITERATURE

1. **TOD and Value Capture - Dr Wing-Tat Hung, The Hong Kong Polytechnic University**

- The development of Metro rail by MTR.
- Rail + Property model
- Value capture and integrating land use and metro rail development.

- Pune Metro runs through the congested areas and so green field development not possible. Also as most land is privately owned, Pune Metro cannot be the land developer.
- However FAR and other value captures proposed by Pune Metro.
The Value Capture is the identification & capture of land value resulting from public investment in infrastructure. Some measures to capture VC highlighted are:

✓ Impact Fees-
1. Cost of infrastructure development is borne by real estate developer State level legislation is critical. Significant capacity building at institutional level is must.
2. There is moderate opposition from stake holders.
3. The revenues are moderate.

✓ Tax Increment Financing-
1. The increase in the property tax after the infrastructure investments are made are allotted to the Infra Authority.
2. Requires state level enabling legislature and significance institutional capacity.
3. The stakeholder opposition specially from residence is high.
4. The revenue stream is moderate and stable.
Special Assessment District-
1. Development charges for all infrastructure developed are collected from the residents of the area. Robust legal provisions required. Institutional capacity required to garner community support.
2. Revenue stream is large and stable.
3. Cities- Seattle, LA, Portland & NY.

Joint development and Air right charges-
1. Development in collaboration of Local Authority and Private player
2. Local clear policy framework is needed.
3. Significant capacity building is required.
4. Stakeholder opposition may arise because of increase in traffic, noise pollution.
5. Revenue stream is high and stable

- **Congestion pricing** - Singapore & London.

- **Cordon or Area Pricing** - Singapore & London

- **Time Dependent Tolling** - Hong Kong, Seoul & Singapore.
  - In Seoul, private vehicles using Namsan-1 and 3 tunnels are charged for one or two occupant private vehicles. Rest vehicles are exempted.
  - 34% reduction in traffic, 50% increase in speed, annual revenue of ~$15 million / year used exclusively for transport projects

- **Electronic Road Pricing (ERP)** - Singapore.
  - Introduced in 1998, electronically paid. Restricted zone traffic dropped by 20-24%, traffic speed increased from 35 to 45 km/hr

- **Excessive taxes** on cars to limit ownership of private vehicles – Denmark, Hong Kong & Tokyo.

- **High parking charges** - Many cities in UK & France.
Urban transport can no longer be funded exclusively by government finances

Means to raise funds:

- Fuel taxes- Tax on fuel. California, Colombia, Germany
- Eco-taxes- Principal of ‘Polluters Pay’ - Japan, France
- Road infrastructure Charges or Toll- San Francisco, commonly accepted principal in India for road infrastructure development.
- Parking charges- Montpellier – The Transport authority of Montpellier (TaM) is responsible for public transport, NMT & managing 40% of parking spaces in the city center. TaM creates residential parking at lower parking rates & reduces parking places near work places, implements park & ride facility, encourages parking at residence or at park & ride sites, manages over 21,000 car parks in city. Uses car parking fees as a lever to decongest city center.
4. Who pays for urban transport- handbook of good practices- AFD (Agence Francaise de Development) - Continued


  In London managed by TFL. Payment is compulsory on weekdays and working hours, use of technology, public vehicles and taxies are exempted, resulted in 35% decongestion, increase in traffic speed & 14000 users shifted to public transport.

- Taxes on employers and business activities - France, any establishment having more than 9 employees has to transport tax.

- Land value capture tool to raise finances.

- PPP Mode to develop transportation projects.

- Pune Metro is proposing - Land Value capture.
STAKEHOLDER FEEDBACK

**Policy makers**
- Additional Chief Secretary to Chief Minister
- Principal Secretaries, Urban Development
- Additional Chief Secretary Housing

**Policy implementers**
- Municipal Commissioners, Pune and Pimpri-Chinchwad cities
- Metropolitan Commissioner, PMRDA,
- CMD, PMPML (Pune and Pimpri Chinchwad Municipal Transport)

**Organizations**
- Team, Pune Metro,
- Organisations like RITES, CREDAI,
- Town planners of PMC and PCMC,
## Grading System

<table>
<thead>
<tr>
<th></th>
<th>Weightage-1</th>
<th>Weightage-5</th>
<th>Weightage-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory Framework</td>
<td>No provision in existing Statutes and difficult to incorporate</td>
<td>Provision exists in Statute but requires other empowering provisions</td>
<td>Can be within existing regulatory framework</td>
</tr>
<tr>
<td>Institutional Framework</td>
<td>Institutional arrangement does not exist</td>
<td>Institution arrangement exists but requires strengthening/capacity building</td>
<td>Can be carried out within existing Institutional capacity.</td>
</tr>
<tr>
<td>Stakeholder Alignment</td>
<td>Creates heavy burden on stakeholders</td>
<td>Moderately aligned</td>
<td>Fully aligned as it creates acceptable burden on stakeholders</td>
</tr>
<tr>
<td>Resource Potential</td>
<td>Small resource potential (range will need to be defined)</td>
<td>Moderate</td>
<td>High resource potential</td>
</tr>
</tbody>
</table>
## A) Land Based Tools

<table>
<thead>
<tr>
<th></th>
<th>Impact Fees</th>
<th>Incremental Property Tax</th>
<th>TDR</th>
<th>Higher FSI</th>
<th>Betterment levy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory framework</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Institutional framework</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Stakeholder alignment</td>
<td>4</td>
<td>4</td>
<td>10</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Resource Potential</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31</strong></td>
<td><strong>21</strong></td>
<td><strong>27</strong></td>
<td><strong>39</strong></td>
<td><strong>25</strong></td>
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</tbody>
</table>
## B) Non-Land Based Tools

<table>
<thead>
<tr>
<th>Tool</th>
<th>Regulatory framework</th>
<th>Institutional framework</th>
<th>Stakeholder Alignment</th>
<th>Resource Potential</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congestion Pricing/ERP Weightage</td>
<td>2</td>
<td>10</td>
<td>2</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>Higher Parking Charges Weightage</td>
<td>6</td>
<td>10</td>
<td>2</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>Fuel Tax Weightage</td>
<td>2</td>
<td>10</td>
<td>1</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>Restrictive Tax on Car Ownership Weightage</td>
<td>2</td>
<td>10</td>
<td>2</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Auctioning of vehicle ownership rights in TOD Weightage</td>
<td>2</td>
<td>10</td>
<td>1</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Integrated Ticketing Weightage</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>6</td>
<td>36</td>
</tr>
</tbody>
</table>
## C) OTHER TOOLS

<table>
<thead>
<tr>
<th></th>
<th>Advertisement</th>
<th>Station naming</th>
<th>Joy rides</th>
<th>Metro ambulance</th>
<th>Solar energy</th>
<th>Pouring rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory framework</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Institutional framework</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Stakeholder alignment</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Resource Potential</td>
<td>6</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
<td><strong>35</strong></td>
<td><strong>33</strong></td>
<td><strong>31</strong></td>
<td><strong>37</strong></td>
<td><strong>35</strong></td>
</tr>
</tbody>
</table>
SUGGESTED TOOLS ON GRADING

Land based
- Increased FSI
- TDR
- Impact Fees
- * Joint development & Air rights

Non land based
- Integrated Ticketing
- Higher Parking Charges
- Auctioning of vehicle ownership rights in TOD

Others
- Advertisement
- Station naming
- Solar energy
- * Metro ambulance
- * Joy rides
- * Pouring rights
## Land Based Tools for NFR for Pune Metro

### 1- Addl FSI-
- Additional FSI of 2.9 along 500 meters on either side of TOD in the Pune DCR
- Maximum FSI in TOD is 4 (1.1 + 2.9)
- Additional FSI is subject to road width, size of land parcel, available parking space etc.
- No provision for affordable housing in TOD.
- Revenue expected will be moderate as the metro runs from area which is densely populated, already developed and congested.
- In view to increase ridership an additional FSI of 2 is recommended. (Policy Makers have Agreed)

### 2- TDR
- The provision for TDR not made in the DCR, however provision for TDR would reduce the acquisition cost for Pune Metro.
- The process for provision for TDR would have to be made in the DCR.
- The revenue saving will be substantial and the Metro will have more acceptability among the stake holders.
<table>
<thead>
<tr>
<th>3) Air Rights</th>
<th>4) Joint Development Rights</th>
<th>5) Impact Fees-</th>
</tr>
</thead>
<tbody>
<tr>
<td>The vertical space above the Metro station specially where sufficient land is</td>
<td>2 km stretch much of which is a unused land recommended for joint commercial development.</td>
<td>The public expenditure on metro necessitate the value capture which can be achieved by impact fees.</td>
</tr>
<tr>
<td>available e.g. Swargate, Civil Court, Vanaz Corner, PCMC is recommended.</td>
<td>The land being in the heart of the city will fetch a strong and stable revenue source.</td>
<td>The impact fee need statutory provision from the State.</td>
</tr>
<tr>
<td>The revenue generation through air development rights through rent will be</td>
<td>The revenue may shared between Pune Metro and the local cantonment.</td>
<td>The municipal corporation may be authorized to levy and collect the Impact fees from the demarcated</td>
</tr>
<tr>
<td>stable and moderate.</td>
<td></td>
<td>influence zone of the Pune Metro.</td>
</tr>
<tr>
<td>It will also make the Metro community oriented.</td>
<td></td>
<td>The proceeds may be deposited in the proposed Pune Metro Development fund used for Opex &amp; Capex.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The impact fee will face opposition &amp; therefore considerable public education about Impact fees is</td>
</tr>
<tr>
<td></td>
<td></td>
<td>necessary.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The Impact Fee should be in commensurate with actual additional value created because of Pune Metro.</td>
</tr>
</tbody>
</table>

It is recommended that Pune Metro be made a SPA for Joint development and Air Rights
# NON LAND BASED TOOLS FOR NFR FOR PUNE METRO

<table>
<thead>
<tr>
<th>1) Auctioning of Vehicle ownership Rights</th>
<th>2) Smart Mahacard</th>
<th>3) Higher Parking Charges-</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ It’s a behavior changing tool. In order the higher FSI of 6 is permissible in TOD, the number of vehicles need to be restricted.</td>
<td>➢ The Pune DPR envisages integrated ticketing for metro and public transport.</td>
<td>➢ The parking near the city/commercial centres may be kept high, whereas the parking near the residences and near the mass parking places low.</td>
</tr>
<tr>
<td>➢ Therefore, the auctioning of vehicle ownership is proposed, though the revenue would be low it would be compensated by higher ridership for Metro.</td>
<td>➢ This card would also be integrated with the train, municipal transport, state transport, rickshaw and fleet taxi services.</td>
<td>➢ The Municipal corporation will be required to pass a resolution to the effect.</td>
</tr>
<tr>
<td>➢ The state level legislation is required.</td>
<td>➢ MAHACARD will be a multi utility, pan city card.</td>
<td>➢ This is a behavior changing tool.</td>
</tr>
<tr>
<td>➢ The road traffic organization may be authorized to auction the ownership of vehicles.</td>
<td>➢ The Metro would gain user charges if the card is used for non transport activities.</td>
<td>➢ This would make the people prefer public transport.</td>
</tr>
<tr>
<td>➢ The public need to be educated regarding this measure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### OTHER NFR RESOURCES

<table>
<thead>
<tr>
<th>Advertising-</th>
<th>Station Naming-</th>
<th>Metro Ambulance-</th>
<th>Solar Energy-</th>
<th>Joy Rides &amp; Pouring Rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ The space available for advertising will be large and accompanied with a high footfall. The advertising revenue will be large. ➢ The station, Pillars, the metro, the tickets, announcements on the lines of “Mind the Gap”. ➢ Day Screens and other innovative sources. ➢ Regulatory and the Institutional framework exists.</td>
<td>➢ Pune has famous cultural, historical and commercial institutions. ➢ They make be approached for naming the station after their institution,</td>
<td>➢ Pune is well known health care centre of the State. ➢ The Metro may provide ambulance services to all hospitals. ➢ This is an important step to connect metro to the riders.</td>
<td>➢ The Pune Metro provides a huge scope for solar energy harvesting. ➢ The solar energy so harvested may be used for in house consumption and the excess may be sold privately.</td>
<td>➢ The metro may be used joy rides and hiring activities for private purposes. ➢ The <strong>Pouring Rights</strong> may be auctioned.</td>
</tr>
</tbody>
</table>
“NFR - THE BRIDGE TO CONNECT THE RIDERS WITH METRO”

THANK YOU!