CONTINUITY & CHANGE IN URBAN TRANSPORT DEVELOPMENT ARENA- A CASE OF INDORE

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1. Need of the Study
2. Aim & Objectives
3. Methodology
4. Literature Review
5. Introduction to Indore
6. Continuity and change in timeline
   • Role of actors, institutions and politics
7. Conclusion
   • Transport Trajectory
   • Windows of opportunity
   • Direction of Sustainability
NEED OF THE STUDY

- City’s efficiency depends directly on the effectiveness of transport systems.

- Policy decisions are affected by external factors and involve multiple actors like political decision-makers, policy makers, civic action groups, representatives of non-governmental organizations, media, administrators and institutions.

- Continuity and Changes in the policies and programs go hand in hand with policy implementation and affect the urban transport development which directly affect the direction of city’s sustainable development.

- Thus, there is an emerging need for cities to assess their position and travel direction of their existing policies in order to move towards sustainable transport development.
FOCUS OF STUDY

AIM

This research aims to trace the continuity and change in policies, plans, and programs, and to analyse the direction of urban transport development with respect to sustainable transportation by taking a case of Indore.

OBJECTIVES

1. To develop urban transport development trajectory and identify the windows of opportunity for policies, plans, and programs

2. To analyse the role of politics, actors, and institutions in influencing transport development trajectories

3. To assess the direction of change in transport development by using sustainability parameters
METHODOLOGY

**Objective**
- To develop urban transport development trajectory and identify the windows of opportunity for policies, plans, & programs
- To analyse the role of politics, actors, and institutions in influencing transport development trajectories
- To assess the direction of change in transport development by using sustainability indicators

**Data required**
- Collection of information on historical developments with respect to transport & land use
- Site visit & Stakeholders Interview: AICTSL, Indore metro, IMC, IDA, Smart city ltd., Bus operators
- Data collection includes references from reports, news articles plans, and other research works

**Output**
- Understanding continuity & change in development trajectory
- Understanding Path dependency & Window of opportunity
- Identification of Quantitative & qualitative parameters of Sustainable Transport
- Finalization of time period of analysis and creation of timeline
- Narration of events and application of theories
- Identification of sustainability indicators in and against the direction of sustainability

**Conclusion**
## CONTINUITY & CHANGE

### CONTINUITY
- An unbroken and consistent existence of policies, programs and plans or operation of the transport system in the timeline of transport development

### CHANGE IN URBAN TRANSPORT SYSTEM
- A significant and dramatic difference or discontinuity in historical events known as “Turning Point”
- No distinctive innovation phase
- Influenced by external factors

### CHARACTERISTICS OF CHANGE

<table>
<thead>
<tr>
<th>Rate of Change</th>
<th>Process of change</th>
<th>Direction of change</th>
<th>Extent of change</th>
<th>Outcome of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid</td>
<td>Incremental</td>
<td>Positive: Sustainability focused</td>
<td>Local</td>
<td>Substantial effect:</td>
</tr>
<tr>
<td>Gradual</td>
<td></td>
<td>Negative: Private vehicle focused</td>
<td>Regional</td>
<td>Relatively permanent</td>
</tr>
<tr>
<td>Erratic</td>
<td>Decremental</td>
<td>Neutral: General growth trend</td>
<td>National</td>
<td>Widespread</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>Global</td>
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</tbody>
</table>

Source: Jornson & Tengstorm, 2005
**PATH DEVELOPMENT & DIVERGENCE**

1. **PATH DEPENDENCY**
   - Path developed along a specific path and future developments are locked in along that path.
   - Influence of initial conditions: Very Weak
   - Triggering events: Contingent
   - Influence on sustaining conditions: Actors, institutions & politics
   - Outcome: Lock-in

2. **WINDOW OF OPPORTUNITY**
   - **Coalition Building**
     - Sustains attention of problems
   - **Policy Learning**
     - Knowledge about the issue
   - **Agenda Setting**
     - Focusing on policy issues to get them on policy agenda
   - Change in political or administrative leadership
   - Institutionalized events
   - Contingent events
   - Opposition to an existing policy network
   - Same beliefs of elected urban or state local bodies

Source: Adapted from (Vergne & Durand, 2010), (Ashford, Smith, De Souza, Fikree, & Yinger, 2006)
SUSTAINABILITY IN TRANSPORTATION

In the Direction of Sustainability

Economic Sustainability
- Plans influencing urban forms
- Fare revisions

Environmental Sustainability
- Energy choice for PT & IPTs
- Initiative to promote NMT

Social Sustainability
- Political acceptance
- Public acceptance
- Leadership

Transportation effectiveness
- Planning & implementation
- Technology adoption
- Investment for PT
- Recognition to PT

Against the Direction of Sustainability

Congestion
Accidents
Investment in roads & flyovers construction
Vehicular growth
Increase trip lengths

Source: Adapted from concepts of (Kennedy et al., 2005) (Jeon, Amekudzi, & Guensler, 2010) (Zegras, 2006)
INTRODUCTION TO INDORE

- Indore is the largest city of M.P.
- ‘Mini Bombay’
- Educational & Industrial hub
- Strong political constituency

- Ranks 14th among million plus cities (as per census 2011)
- 10 Census towns + 7 Outgrowths
- 19 Zones & 85 wards

- IPA 2.17 million 4534 per/sq. km
- IMC 1.96 million 15315 per/sq. km
- Annual Growth rate 1.97%
- IPA 505.25 sq. km
- IMC 130.17 sq. km

- 1911 Km Road Network
- Trip Length 6.18 km

Mode share

- 2W
- 4W
- Public
- IPT
- Walk
- Cycle

Source: CMP 2012

District Area 3,898 sq. km

Source: Retrieved from Maps of India
CONTINUITY AND CHANGE IN TIMELINE

1. Period of inception of planning (1900-1948)
2. Period of growth (1948-1990)
1. PERIOD OF INCEPTION OF PLANNING (1900-1948)

**1912** Shri H. V. Lancaster invited by local body to advice

**1912** Municipality became semi-autonomous institution through municipality act

**1918** Sir Patrick Geddes was invited by Maharaja Tukoji Rao Holker to advise govt. & local body came up with General Development Plan

**1921** Indore Railway Station was reconstructed by B.B. & C.I. Company

**1923** Vehicle tax was introduced in municipal area

**1924** Control of Municipal govt. handed over to elected representatives

**1924** City improvement trust was constituted (as per Geddes Plan)

**1938** R. H. V. Stamper invited by Holkars who came up with Traffic Route Plan

**1938** Proposal of 7 traffic routes for heavy intra & inter city traffic. Subhash Marg & Jawahar Marg were proposed

**1948** Air services from Indore to Gwalior, Delhi and Mumbai began
2. PERIOD OF GROWTH (1949-1989)

- **1950s**
  - 1950 Indore served as summer capital of Madhya Bharat till 1956
  - 1956 Indore was included in Madhya Pradesh
  - 1956 IMC was established

- **1960s**
  - 1960 IMC limit 55.8 sq. km
  - 1962 Outline Development Plan
  - 1968 Interim Development Plan under MP Town Planning (Amendment) Act, 1968
  - 1962 MPSRTC under Road Transport Corporations Act, 1961

- **1970s**
  - 1972 Existing land use map was published
  - 1972 Cycle & Tempo became most popular modes of passenger movement
  - 1973 City improvement trust was converted into IDA under M.P. Town & Country Planning Act, 1973

- **1974**
  - First Master Plan/ Draft Development Plan (1974-91)

- **1978**
  - Madhya Pradesh Rajya Setu Nirman Nigam Limited established

Window of opportunity
Indore has increased spatially over 5 times from 1940 till 2018 spanning 118 years.

Decentralization (1975-1990): about 2.5 times within a period of 15 years.

Data Source: GIS Analysis, Reference from Google Earth, DP 1991, DP 2021, Smart City Indore
### Population Growth

<table>
<thead>
<tr>
<th>Year</th>
<th>In Millions</th>
<th>Pop. (IMC)</th>
<th>Pop. (IPA)</th>
<th>Urban Area</th>
<th>Decadal Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1911</td>
<td>0.0</td>
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<td></td>
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<tr>
<td>1921</td>
<td>36.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1931</td>
<td>38.5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1941</td>
<td>52.6</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>1951</td>
<td>59.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1961</td>
<td>15.5</td>
<td></td>
<td></td>
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<tr>
<td>1971</td>
<td>44.8</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1981</td>
<td>33.1</td>
<td></td>
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<tr>
<td>1991</td>
<td>48.5</td>
<td></td>
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<tr>
<td>2001</td>
<td>21.6</td>
<td></td>
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<td></td>
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<tr>
<td>2011</td>
<td>39.8</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2021*</td>
<td>100.0</td>
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</tr>
</tbody>
</table>

**Epidemic** -42.7

**Reorganization of State**

**Shifting of capital**

**New policies declared to encourage industrialization (Textile)**

**Reorganization of MP & Advancement in Educational, Medical**

*27.85 Lakhs Projected population for 2021*

Data Source: Population data DP 2021, Census 2011
3. PERIOD OF RISE OF PRIVATE OPERATIONS (1990-2004)

1990-2004, 14 yr

- **Central State City Govt.**
  - BIP (1990-92)
  - RSS (1993-99)
  - BIP (1989-2019)

### Year Events

- **1990s**
  - 1992 74th Constitutional Amendment Act
  - 1995 Tenure of Mayor was increased from 1 to 5 years.
  - 1997 Traffic flow study
  - 1999 Indore Development Fund Limited formed

- **2000s**
  - 2000 Reorganization of MP & Chhattisgarh
  - 2000 Emission Standard India 2000
  - 2004 Comprehensive Traffic & Transportation Study
  - 2004 Madhya Pradesh Road Development Corporation Ltd. was incorporated
  - 2004 Tempos & Mini buses were replaced by Maruti vans & Tata Magic
  - 2005 MPSRTC services shut down

- **Window of opportunity**
SHUTTING DOWN OF MPSRTC (43 YEARS OF OPERATION)

- Condition of MPSRTC buses got degraded-
- State government sanctioned 250 cr. for improvement of the system

- Break in continuity for funding to MPSRTC after 1995 & entry to private operators
- MPSRTC owned 4 factories, despite of that private company was given order to make bus structure
- Increasing financial burden on MPSRTC debt of Rs 800 crores
- Local political leaders owned private buses

Political instability: Congress at State Level and BJP at city level

Negative externalities:
- Increase in number of accidents
- Congestion on routes profitable to operators
- Dependency on private vehicles triggered the already growing motorization

- No agenda setting for improvement of system among coalitions
- Different coalitions/actors were seeking their profits
- Beliefs did not match
- Lack of leadership who could pull everyone at same plane of thoughts

Source: RTO

2005:
- Transfer of Vivek Aggarwal, District Collector
- BRTS sanctioned by central govt.
- JNURM Emission Standard BSII
- AICTSL formed

2006:
- CDP Indore 2nd Development Plan 2021
- DPR for BRTS
- NUTP came into existence
- City bus started

2007:
- MoU signed by EMBARQ & AICTSL for technical support
- Study for Traffic & travel pattern
- Preparation of BRTS operations plan
- Study for ITS solution, Transit signal priority & AFCS

2010:
- Involvement of CEPT for technical support
- Emission Standard BS III
- National Green Tribunal was established under the National Green Tribunal Act

2012:
- CMP Draft final report
- Electrification of the Indore–Dewas–Ujjain rail was completed

2013:
- Petition filed Against BRTS
- Traffic pre-feasibility study for Indore Metro
- BRTS operation started

- Rapid changes in coalition, decisions, planning and implementation can be seen in the transport development trajectory from 2005 onwards
- Political stability till 2018

**CITY BUS & BRTS**

- **Formation of AICTSL**
- **Policy learning:** Cross-country analysis was by District Collector
- **Failure of BRTS in Pune and Delhi & success of Ahmedabad**
- **Transfer of District Collector**
- **Coalition with Joint Collector**
- **Funding from JNNURM**
- First Coalition IMC + IDA formed AICTSL at 50% equal shares
- Second with IMC, IDA, Traffic police, IPTS operators and citizens groups & vision was framed
- **Political disagreement over the livelihood of existing private bus operators**
- **Demand for routes:** Political pressure for decision of routes depending upon the electoral profits
- **Recognition as Indore Model (NCC)**
- Competition with the Tata magic, Maruti vans and Auto-rickshaws
- Demand for addition of new routes by people
- Operators were not willing to expand services other than profitable routes
- Launch of Sky buses on NCC model in 2014. Route premium of intercity services are cross-subsidized for VGF of intra city bus services.

**Source:** AICTSL

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**Influence of initial conditions**

- Triggering Events
- City Bus
- Actors/Institution
- Political Scenario
- Outcome

**Source:** CDP 2006

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**Fleet**

- **City Bus Avg Ridership**

**Ridership**

- **Year**
  - 2006: 36
  - 2007: 48
  - 2008: 48
  - 2009: 48
  - 2010: 52
  - 2011: 58
  - 2012: 71
  - 2013: 82
  - 2014: 147
  - 2015: 147
  - 2016: 147
  - 2017: 257
  - 2018: 257

**Source:** AICTSL

**Graph:**

- **Fleet**
  - 2006: 36
  - 2007: 48
  - 2008: 48
  - 2009: 48
  - 2010: 52
  - 2011: 58
  - 2012: 71
  - 2013: 82
  - 2014: 147
  - 2015: 147
  - 2016: 147
  - 2017: 257
  - 2018: 257

**Source:** AICTSL

Contrasting beliefs in coalition & response acc. to their past experiences

Conflict in coordination among different coalitions
- BRTS construction overlapped with the proposals of CDP
- Construction of bus stations also got stretched for a year

Lack of acceptance among public for a radical change
- **Citizens**: Resistance from society for land acquisition
- **Citizens & Media**: Delay in road widening

High Court Jurisdictions
- HC order permitted BRTS trial runs but it allowed PV to enter BRTS lane
- PIL filed to National Green Tribunal against BRTS on the use of diesel buses

Opportunities missed
- Expiration of grant from JNNURM Phase 2 for bus fleet
- Internal arrangements were made for augmentation of bus fleet

Acceptance among stakeholders for change in contracting model
- Change in leadership for pushing GCC Model
- Influencing the other actors for decision

Source: AICTSL
4. PERIOD OF REFORM

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Proposed</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network length</td>
<td>120.46 km (23.8 km)</td>
<td>11.4 km</td>
</tr>
<tr>
<td>Routes</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Total cost</td>
<td>Rs 868.15 Cr</td>
<td>Rs 98.45 Cr</td>
</tr>
<tr>
<td>Bus fleet</td>
<td>50 buses</td>
<td>18 buses</td>
</tr>
<tr>
<td>Avg. Daily ridership</td>
<td>70,000</td>
<td>21,000</td>
</tr>
</tbody>
</table>


**Metro rail**

- Proposals in CTTS
- IMC and IDA approached L&T for feasibility study of monorail Rs 6310 Cr for 31.55 kms 30 Stations
- The state government approached DMRC for feasibility study of metro

**State legislative elections**

**Synergy between Chief Minister & Finance Minister**

**Political stability** Same political parties at Center, State & local level

**Proposals in CTTS**

**Triggering Events**

- IMC and IDA approached L&T for feasibility study of monorail Rs 6310 Cr for 31.55 kms 30 Stations
- The state government approached DMRC for feasibility study of metro

**Influence of initial conditions**

**Stages of Policy Learning, Agenda Setting - vision**

- Different combinations of coalitions had carried different beliefs and acted accordingly
- Some coalitions were strong enough to dominate the others in the decision-making process
- Aligns with the path dependency theory where the decisions of policy makers were influenced by decisions taken in the past or experiences of past
- Continuity & changes are affected by changes in coalitions during planning & implementation phases
- Development of any public transport system whether a BRTS or metro or infrastructure is formed by synergy between network of actors/coalitions

**Actors/Institution**

- Discussions on the feasibility of monorail over metro after change in political party
### Conclusion: Transport Development Trajectory & Window of Opportunity

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<tbody>
<tr>
<td>Rise of private operations (1990-2004)</td>
<td>Decremental change</td>
<td><em>Bharat Stage norms</em></td>
<td><em>Implementation of CTTS</em></td>
<td><em>JNNURM phase II funding</em></td>
<td></td>
</tr>
<tr>
<td>Period of reform (2005-2013)</td>
<td>Incremental change</td>
<td><em>JNNURM, NUTP and FAME India</em></td>
<td><em>Introduction of CNG buses</em></td>
<td><em>High court petitions against BRTS</em></td>
<td></td>
</tr>
<tr>
<td>Growth of public transport (2014-2019)</td>
<td>Incremental &amp; Decremental change</td>
<td><em>Involvement of district collector</em></td>
<td><em>Elections during metro proposal</em></td>
<td><em>Internal arrangements to cover up JNNURM Phase II funding</em></td>
<td></td>
</tr>
</tbody>
</table>

*In contrast to what theory suggest that “urban transport systems have no distinct innovation phase and new systems functioned in parallel to old systems”, this period show completely opposite*
CONCLUSION: DIRECTION OF SUSTAINABILITY

IN THE DIRECTION OF SUSTAINABILITY
- Break in from the cultural barrier
- Demonstrated leadership
- Timely adaptations, innovations and risks had been taken
- Capacity of system and required timely support from state and national government.

AGAINST THE DIRECTION OF SUSTAINABILITY
- Increasing trip lengths after centralization to decentralization
- Private vehicles and non-motorized modes of transport which comprises of 45% and 27% respectively
- 90% of the roads don’t have sidewalks
- Cycle infrastructure is absent

Increase in PT ridership & segregation of BRTS lane

Source: Traffic Police, Indore
CONCLUSION: DIRECTION OF SUSTAINABILITY

Inclination towards automobile dependency

Adapted from Rodrigue, J.-P. (2017) The Geography of Transport Systems
Thank You