LAND USE TRANSPORT DECISIONS IN THE DEVELOPMENT PLAN - A CASE OF VADODARA

Urvi Bhatt
Prof. Bhargav Adhvaryu
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• Methodology
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• Vadodara and Gujarat context
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Introduction – Background

- **590 Million** India’s urban population will increase by 2030.

- **68 cities** will have population more than 1 million by 2030.

- **18.6 Million Hectares** In the absence of rigorous planning there will be the demand for urban land in future that can lead to the lose of non-urban (Agricultural) land to unplanned urban sprawl.

- **6.2 Million Hectares** India could potentially save this much hectares of Potentailly arable land through effective planning for land use.

Source: MCKinsey Global Institute
Thus, the current performance of India’s cities is poor.

Therefore, efficient planning for Indian cities is required.
Introduction – Need of Study

- Developing urban areas are more challenging.
- Adopt strategies to combat the challenges and use the opportunities.
- DP’s failed target in both - contents and implementation.
- Need of systematic framework in implementation Phase.
- Enhancement of DP making process by assessing its strength and weaknesses.
Introduction – Need of Study

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- Adopt **strategies** to combat the challenges and use the opportunities.
- DP’s failed target in both - **contents** and **implementation**.
- Need of **systematic framework** in implementation Phase.
- Enhancement of DP making process by assessing its **strength** and **weaknesses**.

“Strong desire to study and evaluate the implementation level of Development Plan for Land use transport integration decisions.”
Introduction - Aim & Objectives

- The study aims to critically evaluate Vadodara DP specifically in the context of Land use transport integration.
Introduction - Aim & Objectives

• The study aims to critically evaluate Vadodara DP specifically in the context of Land use transport integration.

• Objectives:
  – To review the methods for critically evaluating urban plan.
  – To review successful master plans for understanding the level of LUT integration.
  – To develop a methodology for critically evaluating Vadodara DP.
  – To recommend for improvement implementation level.
Introduction – Scope & limitation

- Recommendations for enhancing DP making process.
- Google satellite images have been used in the analysis.
- Limitation is the accurate interpretation of land parcels at plot level at the available resolution.
- Variation among data collected due to varying preferences.
Methodology

PROJECT IDENTIFICATION
A basic understanding of the project which includes aim, objectives, scope and limitations of the study.
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LITERATURE REVIEW
• Understand different kinds of evaluation models to evaluate DP.
• Take learnings from the successful implemented DP’s to understand the approach of LUTI in them.
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**DERIVE A FRAMEWORK**
- Using one evaluation to evaluate the DP.
- Considering the evaluation method & case studies together, adapt a methodology for quantifying the DP.
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• Interviews and meetings with town planners and experts.
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DATA ANALYSIS
- In depth analysis of data collected from the authority & experts and coming up with the desired output for achieving study aim.
- Analysis of two DP of Vadodara city on the basis of derived framework and data collected.
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CONCLUSION
Methodology

DATA ANALYSIS
In depth analysis of collected data as per derived methodology, to find out the appropriate results.

QUANTITATIVE ANALYSIS

QUALITATIVE ANALYSIS
Methodology

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QUANTITATIVE ANALYSIS
Task 1: Spatial land use analysis over trend.

QUALITATIVE ANALYSIS
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QUANTITATIVE ANALYSIS

Task 1: Spatial land use analysis over trend.

Task 2: Assessment of population projection based on planning process.
- To understand the planning process based on population projection and assess the gaps between projection & actual scenario by demography study trend till now.

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QUALITATIVE ANALYSIS

Task 1: Study of DP and its targeted objectives
- Understanding the approach in DP reports.
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QUALITATIVE ANALYSIS

Task 1: Study of DP and its targeted objectives
- Understanding the approach in DP reports.

Task 2: Interviews with the town planners.
- Meeting with town planners, discussing the reports and observation.
Literature Review- Evaluation concept

- Evaluation mainly focuses on the targeted objectives, what was forecast or either what and how it met the deadlines or not.

- The systematic and objective assessment of an ongoing or competed projects or programme, its design, implementation and results. (OECD)

- The exact definition of evaluation would have been personalized in context of its need, theories, data collected, purpose or may be methodology itself.
Literature Review - Evaluation Models

- Evaluating plan mainly emphasis on what and how to evaluate.
  1. Plan assessment in which it ensures that the plan demonstrates its given criteria.
  2. Plan testing and evaluation in which alternative ways are evaluated in order to accomplish plan’s goal.
  3. Plan critique in which other planners subjectively review the prepared plan, it is a kind of book or movie review.
  4. Comparative research and professional evaluation in which various DP’s and its reports would be compare with or without seeing the outcomes.
  5. Post hoc evaluation in which plan’s outcome will be evaluated.
Literature Review - Case studies

- various planning approaches of the international cities to understand the successful implementation of plan and techniques used for evaluating Development plans.

- The cities selected for the purpose are Singapore, London, New York and Guangzhou (China).
Case study - Singapore

40 -50 year high level concept plan

Components of concept Plan

– Vision for the city.
– Target population, GDP, and employment by region.
– High level land use plan including areas for greenfield development and regeneration.
– Strategic transportation projects
Case study - Singapore

Broken down into an 20 year master plan

Components of Master Plan

- Detailed land-use plan including zoning, FAR, setback etc. by region.
- Greenfield development and regeneration projects
- Sectorial norms such as urban design, sustainability, etc.
Case study - London

- City follows a unique cascaded model of urban planning.
- First priority given to the transport policies and its implementation which mainly focuses on public transport improvements.
- Master plan sets with vision, socio economic forecast including population and employment.
- Forecast then translated into broad land use plan and key initiatives in transportation, affordable housing and basic services
- Initiatives taken forward in sequenced manner with financing mechanism.
Case study - London

Implementation, Monitoring and Reviewing Process

- Implementation process ensure the most effective coordination of the contributions of various stakeholders.

- Two phases of Master plan preparation: Strategies for proposing plan and strategies for Implementation.

- Third phase: Monitoring and reviewing the plan on annual basis.
Case study – New York

- Plan provides guidelines for policies-projects more than 95 initiatives across six priority areas.

- NY Plan are rich in detail.

- NY uses granular planning norms

- Transparency creating & executing plan

- 200 planners.
Case study – China

Adopts the grid overlay method and identify three indicator:

- Types of Accordance-Consistence in plan
- Type of unfulfillment - not implemented
- Type of Deviation - Land use deviated from its actual use.
Case studies- learnings

• Importance of strategic development, public participation, strong correlation between policies, plans and projects.

• Common strategy is to integrate the sectorial plan with policies and projects related to DP.

• Major importance is given to the land use transport integration specifically in the case of London.
Vadodara & Gujarat - GTPUD Act

- It involves,
  - Delimiting an area,
  - Reconstituting properties,
  - Levying charges for infrastructure provision,
  - Levying betterment charges,
  - Informing landowners of proposed plans,
  - Compensating dispossessed landowners,
  - Seeking consent and recording suggestions,
  - Empowering quasi-judicial officers for grievance redressal (Ballaney, 2008)
Vadodara & Gujarat - GTPUD Act

• **Macro Planning : Development Plan consists**
  
  – Proposing new land uses, reservations for public purposes and other allocations of land for different purposes.

  – Infrastructure facilities, transportation and Road networks

  – Green & Open spaces, environmental and pollution control zone.

  – Provision of Drainage, Sewerage, storm water and water supply.
Vadodara & Gujarat - GTPUD Act

• **Micro Planning : Town Planning Schemes** -
  - The areas to be developed is clear and divided into small portion of **100 to 200 hectares**

  - Taking the **equal proportion of land** from each landowners and by developing land for infrastructure developments.

  - Includes continuous **public participation** for finalizing final plots after deducting parcel of land from original plot.
Proposed DP 2001 made in 1985

- Objectives
  - Orderly plan development
  - Balanced distribution of population, amenities and facilities in urban and rural areas, in hierarchical system.
  - Effective linkages to various settlements.
  - Optimum use of urban land by compact development
  - Co-ordination of development activities for urban areas.
  - Growth Centres with an broad objectives “to diffuse, decentralise and diversity
  - “Mini Counter Magnets” against the “Pull” generated by Vadodara City.
Proposed DP 2011 made in 1996

• **Vision:**
  – To develop Vadodara as a **central city**.

• **Objectives:**
  – To identify 6 potential villages i.e. Kelanpur, Varnama, Padra, Sindhrot, Padamla and Nimetha, the 10-15 surrounding villages will get services and linkages from that 6 villages.

  – Major concentration on “**central village concept**”.

  – TP Schemes proposed for VUDA area.
Proposed DP 2031 made in 2006

- **Objectives:**
  - To create better *employment opportunity*.
  - To provide for *comprehensive developed areas* for residential, industrial, commercial & recreational uses.
  - To improve *connectivity and circulation*.
  - Mobilizing the land resources by the various planning proposals.
  - To tap potentialities of private entrepreneurship.
Data Analysis- Population Projection

The whole planning process and its content is based on population projection, so it is necessary to analysis the prediction of population and to justify it.

<table>
<thead>
<tr>
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<th>Difference</th>
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Data Analysis – Spatial Analysis

- Overlay Result of Proposed DP 2001 on Existing DP 2004 has been shown to identify:
  - Non implemented land uses.
  - Major land uses which didn’t got implemented are residential and industrial which id followed by commercial and public purpose.
Data Analysis – Spatial Analysis

- Overlay Result of Existing DP 2004 on Proposed DP 2001 has been shown to identify:
  - Land uses that came into existence which was not proposed in DP.
  - Major land uses which is existing irrelevant of Proposed DP are public purpose, residential which is followed by commercial.
Data Analysis – Spatial Analysis

The accordance and deviation between the proposed DP of 2001 and Existing DP of 2004 has been shown.

- Highest amount of deviation is found in commercial i.e. 78% of 1.1 sqkm.
- Followed by Public Purpose, Industrial and Residential.
Data Analysis – Spatial Analysis

source: 1st Asia BRTS Conference
The accordance and deviation between the proposed DP of 2011 and Existing DP of 2016 has been shown.

- Slight deviation is found in Residential i.e. 17% of 64.33 sqkm.

- Deviation is very less Compared to last proposed DP, due to initiative taken for BRTS in 2012.
## Data Analysis – Proposed Projects

<table>
<thead>
<tr>
<th>Projects</th>
<th>Authority involved</th>
<th>Proposed</th>
<th>Implemented</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPS</td>
<td>VUDA</td>
<td>53</td>
<td>11</td>
<td>Late approval and lack of staff</td>
</tr>
<tr>
<td>TPS</td>
<td>VMSS</td>
<td>85</td>
<td>30</td>
<td>Late approval and lack of staff</td>
</tr>
<tr>
<td>Parks and Gardens</td>
<td>Garden department VMSS</td>
<td>38</td>
<td>23</td>
<td>Small area provided according to garden requirement</td>
</tr>
<tr>
<td>Special Projects</td>
<td>Special Project Department VMSS</td>
<td>38</td>
<td>7</td>
<td>Project team started 2 years before, and proposals were made since 1985</td>
</tr>
<tr>
<td>Bridges</td>
<td>Bridge and road department</td>
<td>78</td>
<td>40</td>
<td>Project team started 2 years before, and proposals were made since 1985</td>
</tr>
<tr>
<td>Housing</td>
<td>JNNURM</td>
<td>5 schemes</td>
<td>5</td>
<td>5th scheme work is in progress.</td>
</tr>
<tr>
<td>Housing</td>
<td>Gujarat Housing Board</td>
<td>6 reserved land</td>
<td>2</td>
<td>Other 11 schemes are in progress since 2011</td>
</tr>
</tbody>
</table>

### Railway over Bridges (Work Done existing)

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Name of Bridge</th>
<th>Cost in Crore</th>
<th>Start date of project</th>
<th>Completion date</th>
<th>Work status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vishwamrity ROB at Gujarat Tractor</td>
<td>24.84</td>
<td>Not yet started</td>
<td></td>
<td>Work Sanction</td>
</tr>
<tr>
<td>2</td>
<td>Jetalpur ROB over Jetalpur Underpass</td>
<td>17.52</td>
<td>29-08-2011</td>
<td></td>
<td>work completed</td>
</tr>
<tr>
<td>3</td>
<td>Shastri Bridge ROB near paverthanyak</td>
<td>17.52</td>
<td></td>
<td></td>
<td>work in progress</td>
</tr>
<tr>
<td>4</td>
<td>D-Cabin Navaik Road ROB</td>
<td>12.16</td>
<td>29-08-2011</td>
<td></td>
<td>work completed</td>
</tr>
<tr>
<td>5</td>
<td>Vadstandard ROB (VJTC Vadstandard)</td>
<td>13.13</td>
<td>01-02-2010</td>
<td></td>
<td>work completed</td>
</tr>
<tr>
<td>6</td>
<td>Pratapnagar ROB (Pratapnagar - Chhatavadpur in Line)</td>
<td>12.12-1990</td>
<td></td>
<td></td>
<td>work completed</td>
</tr>
<tr>
<td>7</td>
<td>Lalbagh ROB (Pratapnagar - Limburt N.G.Line)</td>
<td>44.97</td>
<td>01-12-2011</td>
<td></td>
<td>work completed</td>
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<tr>
<td>8</td>
<td>Somatulav ROB</td>
<td>40.84</td>
<td>14-02-2014</td>
<td></td>
<td>work completed</td>
</tr>
<tr>
<td>9</td>
<td>Kaili ROB</td>
<td>52</td>
<td>12-06-2015</td>
<td></td>
<td>work completed</td>
</tr>
<tr>
<td>10</td>
<td>Railway and river over bridge at Akota to Dandiyabazar</td>
<td>41.99</td>
<td>01-05-2014</td>
<td></td>
<td>work completed</td>
</tr>
</tbody>
</table>

### Fly over Bridges

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<th>Sr.No</th>
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<th>Start date of project</th>
<th>Completion date</th>
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</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Aminnagar Fly over Bridge</td>
<td>31</td>
<td>12-06-2015</td>
<td>work completed</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>BPL flyover bridge at Fatehpur</td>
<td>62</td>
<td>25-12-2015</td>
<td>work completed</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Harinagar flyover bridge at Harinagar Junction</td>
<td>31.45</td>
<td>16-10-2015</td>
<td>work completed</td>
<td></td>
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Results

- City depicts slow and steady growth as compared to Ahmedabad & Surat, in spite of being a university hub, an industrial hub and a gateway to the golden corridor due to good rail & road connectivity.

- Before the proposal of BRTS in DP 2001, no steps for integrating LUT decisions for allocating different zones and land uses which depicts the deviation and unfulfillment in the land uses.

- Thus showing its content and implementation failure which is the major component of DP as discussed.
Results

• Later in the proposed DP of 2011, existing scenario of year 2016 shows 90% of its accordance level, due to the initiative taken for the land use integration for the BRTS proposal for the inner city of Vadodara, in year 2012.

• Thus results show that there was a sudden change and increase in fulfilment in the land use during past 4 years after the announcement of BRTS proposal in 2012 and steps taken for LUTI decisions for the same.
Conclusion and Recommendation

- Delay in approval of TPS from the state government and insufficient staff

- Lack of awareness among people and also the failure of Development Authority

- Monitoring and reviewing can play a major role.

- GTPUD Act gives no enforcement for plan evaluation and monitoring on annually base.
Conclusion and Recommendation

• Case studies suggest a good staff capacity can really improve the activities in reviewing and monitoring the development plan.

• Case studies also suggest the changes in planning approach by considering public participation and involving strategic planning while proposing proposals as well as while implementing them.

• It also suggest evaluation model to evaluate the plan which can help in setting the further goal of development plan by reviewing and analysis the existing or post hoc situation.
Conclusion and Recommendation

• As from analysis, considering three criteria i.e. Fulfilment, unfulfillment and deviation it can be seen that plan is 60% in fulfilment, 20% unfulfillment and 20% deviation mostly in commercial, public purpose, industrial and residential.

• No harm or violence is seen in natural uses, say open spaces and water bodies

• By evaluating the development plans these mistakes can be avoided & changes be done as per market approach and requirements.
Conclusion and Recommendation

• According to project base VMSS doing quite well in comparison of VUDA and quality of life is better.

• According to population projection, it seems little questionable as all projects and land use allocation is based on population.

• By evaluating the successive development plans of Vadodara the reasons for non implementation were found lack of staff, late approval of TPS, revising TPS after 10 years after passing from Government, locality, market demand, political influence, and wrong assumption.
Thank you
Data Analysis – Spatial Analysis
Data Analysis – Spatial Analysis

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Deviation %         | 3.8%           | 1.7%      | 78.2%        | 0.0%          | 0.0%      | 54.56%      | 3.2%          | 53.4%           | 44.8%         | -             | 2.0%     | -         | 7.8%         |             |
Accordance          | 96.2%          | 98.3%     | 21.8%        | 100.0%        | 100.0%    | 45.5%       | 95.8%         | 46.6%           | 55.2%         | -             | 98.0%    | -         | 92.2%        |             |
# Data Analysis – Spatial Analysis

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