Current Travel Scenario in MMR

Low accuracy may be attributable to stark differences in urban form and behavior from the contexts (US) where these models are originally developed. This suggests a need for greater research and new theories.

Data complexities

Informality, Diversity, Density, Legality, Enforcement

Land Use

Unique local characteristics

- Land use typology: Informal settlements, slum areas
- High density and low high diversity
- Lack of access to lower groups government citizens

Our approach

- New approach for processing satellite and ancillary data (heat signature, roof types)
- New land use typologies (IRDAC approach)
- Infrastructure/Geographic
- Multilayered/Geographic
- Ancillary data/imagery
- Geocoded documents

Travel: Mode Share

<table>
<thead>
<tr>
<th>Mode</th>
<th>With Walk</th>
<th>Without Walk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk</td>
<td>14.85</td>
<td>52.4%</td>
</tr>
<tr>
<td>Train</td>
<td>6.98</td>
<td>24.6%</td>
</tr>
<tr>
<td>Bus</td>
<td>3.55</td>
<td>12.5%</td>
</tr>
<tr>
<td>Auto</td>
<td>1.05</td>
<td>3.7%</td>
</tr>
<tr>
<td>Taxi</td>
<td>0.23</td>
<td>0.8%</td>
</tr>
<tr>
<td>Two Wheeler</td>
<td>1.05</td>
<td>3.7%</td>
</tr>
<tr>
<td>Car</td>
<td>0.63</td>
<td>2.2%</td>
</tr>
</tbody>
</table>

Where do we start?

- Dev. Cap Analysis
  - K-W Road, 26 sq. km, 415,000 (ongoing)
  - Detailed land use documentation
  - Travel survey
  - Backcast estimation
  - Estimate future infrastructure demand and environmental stress.

"Integration" and Policy Analysis

- Key Policies:
  - Upzoning 1.3 to 4
  - Transit investments
  - Coastal Resource Management

Land Use & Transport

Unique local characteristics

- Mode share
- Employment
  - Job centers ~10% of emp.
  - Home-based ~33%
- Home-to-home ~20%

Our approach

- Household survey (door-to-door, 27 project)
- Traffic capacity and volume
- Land use type classification (typologies from LU model input)
- Statistical modeling

Result accuracy

<table>
<thead>
<tr>
<th>Method</th>
<th>Area</th>
<th>Accuracy</th>
<th>Kappa</th>
<th>Overall Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our Study</td>
<td>4355 km²</td>
<td>0.54, 0.74</td>
<td>0.64</td>
<td>71.2</td>
</tr>
<tr>
<td>Jantz et al. 2004</td>
<td>2370 km²</td>
<td>0.68</td>
<td>0.19</td>
<td>93.1</td>
</tr>
<tr>
<td>Al-shalabi et al. 2013</td>
<td>1528 km²</td>
<td>N/A</td>
<td>N/A</td>
<td>99.6</td>
</tr>
<tr>
<td>Hakan et al. 2007</td>
<td>2273 km²</td>
<td>0.51</td>
<td>0.89</td>
<td>98.1</td>
</tr>
</tbody>
</table>

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