USING TRANSIT-ORIENTED DEVELOPMENT TO SUPPORT SUSTAINABLE TERRITORIAL DEVELOPMENT IN THE BOGOTÁ-CUNDINAMARCA REGION

Presentation to World Bank’s TOD CoP

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WORLD BANK GROUP
IBRD · IDA | WORLD BANK GROUP

Korea Green Growth Trust Fund
AGENDA

1. Transit Oriented Development and Territorial Sustainable Management

2. Conditions of the Metropolitan Area of Bogota vis-a-vis TOD aspects and “reference” values

3. Scope and Findings of Consultancies and Case Studies

4. Conclusions and Recommendations
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TRANSIT ORIENTED DEVELOPMENT PRINCIPLES

More Competitive

High quality neighborhoods with lower infrastructure costs and lower CO2

Access and Mobility
Lower Transport and Housing cost

Resilient to Natural Hazards

Partly self financing by capturing value created

1. Regional connectivity and node hierarchy.
2. Local accessibility and permeability that promotes active transport.
3. Local mixed-use and mixed income group developments and homogeneous social infrastructure provision to reduce need for long distance – motorized transport.
4. Vibrant market (real estate and others) conditions.
5. High development densities.

Source: Gerard Ollivier, World Bank TOD-COP 2018
**LAC FRAMEWORK TO IMPLEMENT TRANSIT-ORIENTED DEVELOPMENT PRINCIPLES**

<table>
<thead>
<tr>
<th>Countries</th>
<th>Scoping</th>
<th>Planning</th>
<th>Financing</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil, Colombia</td>
<td>Macro-micro level</td>
<td>Municipal – National planning implementation</td>
<td>LVC, urban development, municipal finance</td>
<td>SPV, IA, Local political leadership</td>
</tr>
<tr>
<td>Argentina, Peru, Mexico</td>
<td>Macro-micro level</td>
<td>Municipal – National planning implementation</td>
<td>LVC, Municipal Finance Tools</td>
<td>National – subnational leadership</td>
</tr>
<tr>
<td>Ecuador</td>
<td>Macro-micro level</td>
<td>Municipal – National planning implementation</td>
<td>LVC, urban development, municipal finance</td>
<td>Local and National political leadership</td>
</tr>
<tr>
<td>Bolivia, Uruguay, Paraguay, Costa Rica</td>
<td>Macro-micro level</td>
<td>National planning</td>
<td>Municipal finance</td>
<td>National leadership</td>
</tr>
</tbody>
</table>

**UNBALANCED FRAMEWORK TO IMPLEMENT TOD GUIDELINES IN LAC COUNTRIES**
SOME CAVEATS ON THE APPLICATION OF TOD INTERVENTIONS IN BOGOTA REGION

DIVERSITY AND AUTONOMY WITHIN AND ACROSS LOCAL AND REGIONAL GOVERNMENTS AFFORD FOR A CHALLENGING ENVIRONMENT FOR TOD ASSESSMENT AND INTERVENTIONS

What are the priorities for TOD intervention across the Bogota – Cundinamarca region and along the First Metro Line (BML1) and RegioTram (RTO) corridor to improve TOD-performance?

What local and regional institutional arrangement upgrades are required to deliver TOD interventions in the Bogota – Cundinamarca Region?

Which local and regional regulatory upgrades should be made to support those TOD interventions?

What considerations or tools should be developed to support multiple simultaneous TOD interventions in the Bogota – Cundinamarca Region?

Source: Gerard Ollivier, World Bank TOD-COP 2018
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IN RECENT YEARS, BOGOTA HAS BECOME DENSER, BUT THE SURROUNDING MUNICIPALITIES HAVE NOT
THE REGION SHOWS AN UNEVEN DISTRIBUTION OF SOCIAL GROUPS AND THE CLUSTERING OF JOBS IN DOWNTOWN BOGOTÁ

Source: "Using Transit-Oriented Development Interventions to support Sustainable Territorial development in the Bogota – Cundinamarca Region" Technical Note, 2020
METRO CORRIDOR SEEMS MORE DENSELY DEVELOPED THAN THE REGIOTRAM’S.
LAND PRICES WITHIN BOGOTA VARY SIGNIFICANTLY

Source: “Using Transit-Oriented Development Interventions to support Sustainable Territorial development in the Bogota – Cundinamarca Region” Technical Note, 2020
UNEVEN PROVISION OF URBAN INFRASTRUCTURES AND LARGE BLOCKS AND LAND PLOTS ALONG VARIOUS STRETCHES OF THE REGIOTRAM CORRIDOR

Source: “Using Transit-Oriented Development Interventions to support Sustainable Territorial development in the Bogota – Cundinamarca Region” Technical Note, 2020
THE TWO PROJECTS FACE DIFFERENT CONDITIONS AND HAVE DIFFERENT TRANSFORMATION AND INTERVENTION CHALLENGES. CONSIDERING THAT, CAN THESE TWO VERY DIFFERENT REALITIES WITHIN THE SAME REGIONAL AREA CAN BE RECONCILED FOR A SIMULTANEOUS INTERVENTION? WHAT ASPECTS SHOULD BE TAKEN INTO ACCOUNT?

<table>
<thead>
<tr>
<th>Aspect</th>
<th>BML1</th>
<th>RTO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional and local Integration</td>
<td>Mid-to-high</td>
<td>Low</td>
</tr>
<tr>
<td>Station accessibility and local permeability</td>
<td>Mid-to-high</td>
<td>Low</td>
</tr>
<tr>
<td>Development density around stations</td>
<td>High</td>
<td>Low-to-high</td>
</tr>
<tr>
<td>Mixed uses around stations</td>
<td>Mid-to-high</td>
<td>Low</td>
</tr>
<tr>
<td>Mixed social groups around stations</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Supply (per capita) of urban infrastructures</td>
<td>Low</td>
<td>Mid-to-high</td>
</tr>
<tr>
<td>Mix of urban infrastructures around stations</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Presence of condominiums around stations</td>
<td>Mid-to-high</td>
<td>High in areas, low in large tracts of the corridor</td>
</tr>
<tr>
<td>Property/land price</td>
<td>Mid-to-high</td>
<td>Low-to-mid</td>
</tr>
<tr>
<td>Barrier effect</td>
<td>During construction</td>
<td>During operation</td>
</tr>
</tbody>
</table>

Source: EMB and Steer (2019a)
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2. Conditions of the Metropolitan Area of Bogota vis-a-vis TOD aspects and “reference” values

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4. Conclusions and Recommendations
SCOPe of Consultancy Work within the Technical Assistance

<table>
<thead>
<tr>
<th>Focus of analysis</th>
<th>RTO Corridor</th>
<th>BML1 Corridor</th>
<th>Bogota – Cundinamarca Region as a whole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspects considered</td>
<td>Physical, economic, institutional and regulatory conditions</td>
<td>Institutional and regulatory (+ real estate market and value capture)</td>
<td>Land use, socioeconomic activity, transport patterns, real estate market, land use regulations</td>
</tr>
<tr>
<td>Scope</td>
<td>(i) Analyze corridor in general, (ii) TOD assessment for 2 stations (iii) prefeasibility for 1 station</td>
<td>General consideration of BML1 Corridor and 2 stations</td>
<td>Create codebase for Urbansim model, process and load available data, link to urban canvas</td>
</tr>
</tbody>
</table>
| Deliverables      | •International review of train-tram TOD related schemes  
                    •RTO Corridor from TOD perspective  
                    •TOD assessment and recomendation for 2 stations  
                    •Prefeasibility of interventions for 1 station | •Regulatory analysis for intervention and value capture  
                    •Recommendations for strengthening institutions and regulation  
                    •Estimations of redevelopment and value capture potential | •Codebase developed and linked to Urbancanvas with mixed information for demonstration  
                    •Report about next steps |
TOD INTERVENTIONS ASSOCIATED TO REGIOTRAM IMPLEMENTATION

- RTO Corridor is disconnected from its surroundings.
- “Superblocks” around RTO corridor restrict local permeability.
- Lack of trip generation or attraction activities along RTO’s corridor.
- Weak institutional arrangements and regulations for territorial management at the regional scale.
- Weak institutional arrangements and regulations also at municipal level.
- Regulatory weaknesses limit value capture potential.

RECOMMENDATIONS

- Improve accessibility to stations and permeability in the areas surrounding the stations.
- Attract more significant trip generation or attraction activities in the surrounding of the RTO’s Stations.
- Strengthen institutional and regulatory arrangements at the regional and local scales. “Higher hierarchy” regulations could help to speed up and align local efforts.
- RTO needs to get regulatory and institutional arrangements tools similar to those adopted for BML1 in Bogota’s Decree 823/2019.
METHODOLOGY OF ANALYSIS – TOD FOR RTO CORRIDOR

BENCHMARKING
- Analysis of international cases of TOD and land value capture

CORRIDOR ANALYSIS
- Urban analysis
- Mobility analysis
- Regulation analysis
- Institutional and Financial framework for execution and LVC

STATION ASSESSMENT
- Station prioritization workshop
- 3V framework assessment
- TOD Standard comparison
- Lessons learned from international case studies

PILOT STATIONS
- Opportunity analysis
- Land occupation analysis and recommendations
- More detailed TOD compliance analyses
- General level recommendations

PRE-FEASIBILITY
- Conceptual urban design proposal
- Land use and transport / transit modelling
- Recommendations: Institutional, Regulatory, Financing
INTERVENTIONS AND RECOMMENDATIONS AROUND STATION 6 – WITHIN BOGOTA

Proposed interventions

TOD assessment result

- Rail corridor lined by river or industrial superblocks, limiting connectivity and accessibility.
- Low-quality urban and public spaces.
- No significant transit “destinations” in station’s influence area.

Institutional and regulation findings

- Empresa Ferrea Regional (EFR), RTO’s Sponsor, has no urban development powers.
- Bogota has institutional capacity but corridor misses adequate regulation for management or LVC.
- Public sector interventions require actions by many stakeholders and there is a need to coordinate them.
INTERVENTIONS AROUND STATION 15 – MADRID DOWNTOWN

Physical interventions

TOD assessment result
- Connectivity and accessibility problems with rest of Madrid.
- Little to no residential uses in immediate influence area.

Institutional and regulation findings
- Empresa Férrea Regional (EFR), RTO’s Sponsor, has no urban development powers.
- The Gobernación de Cundinamarca has limited land use planning powers.
- Local institutions and local regulations are weak to manage territorial growth and seek land value capture.
- Seizing sustainable development potential depends on weak institutions.
### PREFEASIBILITY ANALYSIS – MADRID DOWNTOWN

PUBLIC SECTOR AND ACCESSIBILITY INTERVENTIONS NEED TO BE MADE IN THE SHORT-TERM TO COINCIDE WITH RTO IMPLEMENTATION TIMETABLE. WITHIN THIS SHORT TIMESCALE, REGULATION LIMITATIONS LEAD TO OVER-RELIANCE IN PUBLIC FUNDS

<table>
<thead>
<tr>
<th>Name</th>
<th>Cost (Col$ Million)</th>
<th>LVC or PPP</th>
<th>Impl. Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public space upgrades around RTO Station</td>
<td>11,039.8</td>
<td>None</td>
<td>2022-2025</td>
</tr>
<tr>
<td>Railway as public space driver</td>
<td>26,362.9</td>
<td>18% from Betterment levy</td>
<td>2022-2024</td>
</tr>
<tr>
<td>Modal integration</td>
<td>11,039.8</td>
<td>100% private development</td>
<td>2023-2026</td>
</tr>
<tr>
<td>River integration to public spaces</td>
<td>61,386.7</td>
<td>43% from LVC from int.6</td>
<td>2023-2030</td>
</tr>
<tr>
<td>Shared streets</td>
<td>3,474.7</td>
<td>PPP</td>
<td>2025-2026</td>
</tr>
<tr>
<td>New real-estate development types</td>
<td>6,286.4</td>
<td>100% Private development</td>
<td>2025-2035</td>
</tr>
</tbody>
</table>
TOD INTERVENTIONS ASSOCIATED TO BML1 IMPLEMENTATION

- Empresa Metro’s (EMB) urban agency Powers set it aside and provide an advantage, but a joint public-private effort will still be required.
- Influence area around BML1 stations is 6-10 times the size of some large regeneration projects, which have taken years and large efforts to push forward.
- Adoption of renewal zoning for BML1 corridor “facilitates” management.
- Complete real estate absorption of development potential can take up to 20 years. Value capture may extend over a similar timeframe.
- Using voluntary commitment schemes for property owners to join redevelopment efforts, could reduce risk and increase ROI for (re)developers.

RECOMMENDATIONS

- Use a phased approach to station area interventions. Phases would take place at different times and would demand different engagement from EMB.
- Strengthen Bogota’s urban renewal institutional arrangements with a new Commission to be chaired by EMB.
- Strengthen the use of voluntary commitment schemes of property owners to renewal efforts.
METHODOLOGY OF ANALYSIS – TOD FOR BML1 CORRIDOR

CORRIDOR ANALYSIS

- Base definitions
- Institutional
- Regulatory
- Real Estate Market

STATION ASSESSMENT

- Institutional
- Regulatory
- Real Estate Market

PILOT STATIONS

- Institutional
- Regulatory
- Real Estate Market

CONCLUSIONS AND RECOMMENDATIONS

- Institutional
- Regulatory
- Real Estate Market

- What is required for TOD or LVC implementation along BML1 Corridors?
- What are today’s conditions?
- Are those conditions adequate?
- What aspects are missing?
- How should the local government approach the renewal effort?
- What are the key interventions?
- What is the timing of those interventions?
CORRIDOR AND STATION CONDITIONS FOR TOD INTERVENTIONS

Other large renewal projects in Bogota, that have taken years to bring forward for redevelopment, are a fraction of the size of the area of only 1 station.

Data from 220m properties within 220m buffer of Calle 72 station

| Blocks | 30 |
| Land Plots | 551 |
| Condo | 75 |
| Non-Condo | 476 |
| Properties | 2,679 |
| Condo | 2,203 |
| Non-Condo | 476 |

Block averages

| Blocks | Plots | 18 |
| Properties | 89 |

Average size

| Blocks | 6,657,23 m² |
| Plots | 306,77 m² |

Use of properties

- Residential: 22%
- Social Infr.: 2%
- Commerce: 76%

Ownership

- Public: 99%
- Private: 1%
Results of pilot analyses of stations

1. Listed (BIC) buildings and other “social infrastructures” may restrict redevelopment potential depending on location within block.

2. LVC potential depends not on “prior” FAR or other development allowances, but on those related to BML1.

3. Land assembly costs can escalate quickly in these downtown areas.

4. Areas of BML1 “landing” should be intervened early on to improve insertion.

5. LVC around two pilot stations of US$36.4 million over 20 years. Whole corridor estimate of US$440 million.

6. LVC potential is only tentative. Real revenue will depend on utility network upgrades.
In spite of the existing urban development powers and functions of EMB, the scope of the renewal challenge around the stations calls for internal adjustments and for strengthening external coordination and interaction with other institutions.
Stations influence areas are 6-12 times larger than some complex renewal initiatives.

Real estate market absorption should be considered, to maintain an land and property prices at developer-attracting and land value capture attractive levels.

Local attractions or listed buildings may strengthen the place value of stations but may also limit or block redevelopment in some cases.

Station should be firmly inserted in the urban fabric. Problems of accessibility to stations or permeability around them may discourage transit and non-motorized trips.

Improving the mix of uses and of social groups across the region seems challenging for locations with dense development, strong communities or high property/land prices.

The challenges above are likely to overwhelm any one institution. A coordinated public-private effort is needed.

Involvement of many institutions and/or local governments makes agreeing and pursuing common goals more challenging.

Regulatory frameworks need to be in place to back public sector efforts (e.g. RTO’s corridor lacks the same regulatory conditions of BML1).
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THE IMPLEMENTATION OF BML1 AND RTO WILL CHANGE ACCESSIBILITY CONDITIONS ACROSS THE REGION, INCREASING CHALLENGE.

(SIGNIFICANT) REDUCTIONS OF TRAVEL TIME DUE TO THE NEW MASS TRANSIT PROJECTS MAY INDUCE CHANGES IN LAND AND PROPERTY PRICE INCREASES THAT MODIFY REGIONAL GROWTH AND DEVELOPMENT PATTERNS.

Source: “Using Transit-Oriented Development Interventions to support Sustainable Territorial development in the Bogota – Cundinamarca Region” Technical Note, 2020
GENERAL RECOMMENDATIONS FOR REGIONAL SUSTAINABLE TERRITORIAL DEVELOPMENT THROUGH TOD-INTERVENTIONS.

- Approach each station’s TOD interventions through a phased strategy that begins with the blocks and spaces around the station and moves out as these are solved. Timing should consider real-estate market absorption capacity.
- Ensure accessibility to the mass transit station and the permeability of its surroundings by active means of transport.
- Promote or strengthen the trip origin or destination condition of stations or their immediate surroundings.
- Strengthen the region’s territorial management scheme, not to impose conditions, but to create, consolidate and maintain robust institutional and regulatory-enabling arrangements that sets developmental targets, monitors compliance, and supports them with incentives.
- Advance in the development of tools and capabilities that help analysts and decision-makers to make more effective decision and better coordinate interventions.

TOD INTERVENTIONS MUST FOLLOW A CLEAR STRATEGY AT A REGIONAL SCALE IN ORDER TO INCENTIVIZE PRIVATE DEVELOPERS TO PARTICIPATE AND ALSO TO MAXIMIZE VALUE CAPTURE TO SUPPORT PUBLIC-LED ACTIONS.
THANK YOU