IFC’S IMPACT IN THE CITY OF IZMIR, TURKEY
FINDINGS FROM A CASE STUDY
IZMIR CONTEXT – RAPID URBANIZATION

2nd fastest growing metropolitan area in 2015

- 4 million population
- 45.3% employment rate
- 3rd most developed city in Turkey
- 91.4% urbanization rate

Rapid growth is posing challenges:

- Expanded boundaries, sprawl, and migration
- Congestion
- Risk of pollution of fragile ecosystems

IFC’s partnership with Izmir spans over a decade

IFC role evolved from financing single transactions to become a trusted advisor.

Potential to inform future initiatives -> **looking forward assessment**:
1. Estimation of effects at the **city level** (not individual transactions)
2. Analysis of benefits from strategic engagement with the city
1. Investments leading to expanded transport network ops and integration -> **better urban mobility**.

2. Significant contribution to **increase accessibility to employment** at the city level, a precondition to enable agglomeration benefits.

3. Limitations: assessment of agglomeration effects constrained by data granularity.

4. Positive implications: city planning and monitoring of global commitments (notably SDG- 11)

5. IFC enabled Izsu (water utility) to test innovative solutions to reduce carbon footprint from waste water treatment plant operations -> demo **operationalization of circular economy concepts**

6. IFC engagement with both sub sovereign entities (IMM and Izsu) in line with MFD -> **catalyzing commercial financing**
DIRECT IMPACTS – IMPROVED URBAN MOBILITY

IFC investments -> expanded transport operations and obtained synergies between transport modes -> improved urban mobility due to network effects

Benefits for Izmir citizens:

- **TIME SAVED**: 101,158,789 hours
- **LIVES SAVED**: 296 deaths
- **AIR POLLUTION AVOIDED**: 1,109,976 tons

**MONETIZED BENEFIT (USD)**: 424 million

Izmir transport system
### CITY WIDE IMPACTS – METHODOLOGY

<table>
<thead>
<tr>
<th>Baseline Scenario 1</th>
<th>IFC projects Scenario 2</th>
<th>IFC + Other City Investments - 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro Line (Existing route)</td>
<td>Metro line + <strong>new extension (8 new stations)</strong></td>
<td>Baseline + IFC</td>
</tr>
<tr>
<td>Izban (80km Existing route from Aliaga to Cumaovasi)</td>
<td>Same as baseline</td>
<td>Izban + <strong>new extensions to Bergama and to Selçuk + new direct services added from Aliaga to Tepekoy</strong></td>
</tr>
<tr>
<td>Ferries (18 routes)</td>
<td>Baseline + <strong>added fleet</strong></td>
<td>Baseline + IFC</td>
</tr>
<tr>
<td>Tramways (Konak and Karsiyaka)</td>
<td>Same as IFC</td>
<td>Same as IFC</td>
</tr>
<tr>
<td>Bus network (48 routes)**</td>
<td>Same as baseline</td>
<td>Same as baseline</td>
</tr>
</tbody>
</table>

**Note:** The table highlights the differences in baseline and impact scenarios due to various transportation projects.
ACCESSIBILITY - CITY WIDE

Baseline

Access to Jobs (Baseline Scenario)
- 8,016 - 47,092
- 47,093 - 106,208
- 106,209 - 163,329
- 163,330 - 209,411
- 209,412 - 258,501

IFC

IFC + other investments

Improvement in Access to Jobs (Based on IFC investment)
- 42 - 2,878
- 2,879 - 15,855
- 15,856 - 39,574
- 39,575 - 64,611
- 64,612 - 84,377
- 84,378 - 100,189
- 100,190 - 116,002
- 116,003 - 129,180
- 129,181 - 159,487
- 159,488 - 195,088

Improvement in Access to Jobs (Based on citywide investment)
- 487 - 2,878
- 2,879 - 15,855
- 15,856 - 39,574
- 39,575 - 64,611
- 64,612 - 84,377
- 84,378 - 100,189
- 100,190 - 116,002
- 116,003 - 129,180
- 129,181 - 159,487
- 159,488 - 201,760

Maps by OpenStreetMap contributors.
IFC + other investments

Improvement in Access to Jobs
(Based on citywide investment)

- 487 - 2,678
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IFC projects contributed to increase by 4% the number of jobs accessible

- 5.7% increase -> service sector

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Izmir (Scenario 3)</th>
<th>New York Metro</th>
<th>Los Angeles Metro</th>
<th>Greater Buenos Aires</th>
<th>Greater Cairo</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Total jobs accessible within 60 mins</td>
<td>12%</td>
<td>14%</td>
<td>6%</td>
<td>34%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Positive results when compared with highly dense Cities with better infrastructure
IMPACTS FROM THE ENGAGEMENT WITH IZSU

- Introducing a case for operationalization of circular economy
- Replacement of septic tanks with municipal sewerage service & new wastewater plant in Yeni Foca district
- Expansion of the treatment capacity of Cigli wastewater treatment plant (WWTP)

IZSU has 27 WWTPs

Now, 80% wastewater is treated at the Cigli WWTP.

CIRCULAR ECONOMY and integrated urban water management

“IZSU and Izmir have gained valuable experiences in implementing circular economy based on the ongoing operations of drying sludge via solar energy and recycling nutrients via organic fertilizers.”

*IZSU is water utility of Izmir Metropolitan Municipality

Significant impacts on the fragile marine ecosystem
Protection of vital resources

Improved treatment standards according to EU requirements

Innovative solutions to reduce the carbon footprint

Improved sanitation

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Creating Markets, Creating Opportunities
Four categories of additionality identified through IFC Engagement

1. **Financial risk mitigation** – access to long term commercial financing on attractive terms when others not willing to provide financing.

2. **Non-financial risk mitigation** – risk comfort, facilitator role with new partners.

3. **Knowledge and Innovation** – shared knowledge, improved fin risk management.

4. **Standard setting**: better processes --> strengthened transparency and accountability.

**Piloting of MfD** -> IMM access to commercial financing and testing of circular economy concepts by IZSU.

- **Main benefit**: Validation to the Market that Izmir Municipality is a credible borrower without seeking recourse to sovereign guarantees.

- More collaboration between IFC and Izmir is necessary before market equity finance interest is generated.

- On Izmir's side, willingness to provide open access to urban services performance data is necessary for attracting private investor interest.
**Key findings**

1. Evidence of significant IFC contributions to city wide impacts:
   a. 4% increase in number of accessible jobs, notably services.
   b. A citizen in Izmir will reach 12% of available jobs, similar to other mega cities.

2. Limitations: agglomeration effects constrained by data granularity/access.

3. IFC enabled IZSU (water utility) to test innovative solutions to reduce carbon footprint -> demo circular economy concepts

**Lessons learned on methodology**

1. Tool -> simple and leverages digital, open, and standardized data (Open street map, GTFS) – challenges to get data when ownership is not well defined.

2. Method -> Bertraud indicators useful to measure city wide effects.
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ANNEX 1 – THEORY OF CHANGE

IFC INPUT
- Transportation & Urban Mobility
  - Investment in private companies
  - Equity Loans Guarantees
  - Municipal finance Loans Guarantees
  - PPP transaction advisory to govt (% to structure & tender concessions)
  - As on energy efficient solutions

SECTOR
- Tramway Lines
  - Tramway Rolling Stock
  - Metro Cars + Electric bus
- Ferries
- ITS- Traffic Mgmt system
- Emergency Vehicles
- Port Expansion (Nemrut bay)
- Çiğli Waterplant (wastewater treatment)
  - Sewage Network

OUTPUT
- Improved environmental standards in public transportation
- Increased and improved fleets and lines
- Improved efficiency of road network
- Better equipped emergency services
- Improved cargo transportation
- Expanded capacity of wastewater collection and treatment

OUTCOMES
- Increased energy efficiency and reduced pollution
- Improved ridership (access) and quality of transportation on services
- Reduced travel time & congestion/traffic
- Improved emergency services response
- Increased access to markets for city firms
- Reduced risk of pollution (soil and ocean)
- Improved sanitation
- Improved coverage of water and waste services

IMPAIRS
- Reduced / avoided GHG emissions from public transportation
- Improved accessibility
- Increased urban mobility & safety
- Increased productivity for firms and households
- Improved environmental and social sustainability
- Improved compliance with EU environmental standards
- Investments attracted to preserved / recovered areas

More holistic and integrated planning
- Increased trade
- Access to green finance
- Improved brand awareness
- Increased economic activity and contribution to GDP growth
- Increased Induced & indirect employment
- Increased environmental and social sustainability
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- Increased Induced & indirect employment
ACCESSIBILITY ANALYSIS FOR IZMIR

Changes in job accessibility within an area near the Konak tram and Metro extension, within 75 minutes

The table and map display dramatic improvements in job accessibility within an area near the Konak tram and Metro extension between Scenarios 1 and 3 within a 75 minute travel time window.
ACCESSIBILITY BY EMPLOYMENT SECTORS

<table>
<thead>
<tr>
<th>Population-weighted Average Accessibility to Jobs within 75 mins</th>
<th>Agriculture/ Natural Resources</th>
<th>Manufacturing</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>769</td>
<td>24,507</td>
<td>88,419</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>801</td>
<td>25,708</td>
<td>92,990</td>
</tr>
<tr>
<td>% Increase between the two scenarios</td>
<td>4.16%</td>
<td>4.90%</td>
<td>5.17%</td>
</tr>
</tbody>
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