IE CONNECT FOR IMPACT

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1. EVOLVING CONTEXT
### MDBs TRANSPORT LOANS AND GRANTS (US$ BILLION)

<table>
<thead>
<tr>
<th>Year</th>
<th>Road Projects</th>
<th>Urban Transport Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>20.6</td>
<td>19.4</td>
</tr>
<tr>
<td>2017</td>
<td>21.7</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td></td>
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</tr>
</tbody>
</table>

### MDB TRANSPORT PROJECTS

**Road Projects**

- 2016: 98
- 2017: 70
- 2018: 64

**Urban Transport Projects**

- 2016: 44
- 2017: 52
- 2018: 50

### TRANSPORT SHARE* (IN TOTAL MDB PORTFOLIO)

* Aggregated as transport and storage

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9.44</td>
<td>10.78</td>
<td>9.45</td>
</tr>
</tbody>
</table>

Source:

(a) and (b) Progress Report on the MDB Working Group on Sustainable Development (Jan 2019)

**EVIDENCE OF IMPACT - FRAGMENTED**

### Economic Growth
- Banerjee et al. (2012): 0.7% increase in GDP per capita per 10% decrease in distance from transport in China.
- Donaldson (2010): 16% increase in real agricultural income due to railway construction in India.

### Economic Development
- Mu and van de Walle (2011): 17-30% increase in primary school completion due to road rehabilitation and construction in rural Vietnam.

### Poverty Reduction
- Dercon et al. (2008): increased access to an all weather road reduced poverty by 7% and increased consumption by 16% in Ethiopia.
- Bird and Straub (2014): expansion of road network in Brazil accounted for half of GDP per capita growth and spurred a significant decrease in spatial inequality.

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**IEs published post-2000 in IER**

- **Water & sanitation**: 4.2%
- **Urban development**: 0.8%
- **Transportation**: 0.4%
- **Social protection**: 15.1%
- **Public sector management**: 3.3%
- **Private sector development**: 5.1%
- **ICT**: 2.8%
- **Health nutrition & population**: 64.9%
- **Finance**: 5.5%
- **Environment & disaster management**: 3.4%
- **Energy**: 0.6%
- **Education**: 23.1%
- **Economic policy**: 0.7%
- **Agriculture & rural development**: 9.7%

*Impact Evaluation may cover more than one subject area.*
An EVOLVING MULTI-DIMENSIONAL CONCEPT

- Carbon Emissions
- Air Pollution
- Congestion
- Road Traffic Fatalities
A SHIFT IN FOCUS

SUSTAINABLE MOBILITY (as defined by:)

- **UNIVERSAL ACCESS**: Connect all people, including women, and communities to economic and social opportunities.
- **EFFICIENCY**: Optimize predictability, reliability and cost-effectiveness of transport systems.
- **SAFETY**: Reduce fatalities, injuries, and crashes (SDG Target 3.6).
- **GREEN MOBILITY**: Minimize the environmental footprint of mobility (GHG emissions, noise and air pollution).

Source: Global Mobility Report (2017)
2. OUR RESPONSE
Launched in 2015

- Partnership with DIME and Transport GP
- 30 ongoing activities
OUR OBJECTIVES

Generate data and evidence on impact

Understand the mechanisms

Optimize global development impact
OUR APPROACH

SYSTEMATIC

- To use new technologies to build data systems
- To test policy interventions and inform mid-course decisions
- To use one project for multiple experiments

GP ALIGNMENT

- To select most relevant research questions
# NEW TECHNOLOGIES TO BUILD DATA SYSTEMS

## Geospatial
[Night-Time Lights, Satellite Imagery]
- Rwanda
- Lake Victoria
- Ethiopia Corridor
- Iraq
- Tunisia
- Guinea-Bissau
- Mozambique
- Pakistan
- Senegal BRT

## High-Frequency
[Market price, Smartcard, Telecom, Web Scraping]
- Rwanda
- Colombia Fare Subsidy
- Kenya
- Malawi
- Rwanda/Lake Victoria
- Senegal BRT

## Administrative
[Land registry, firm, labor, price, census, crashes, hospital records, EMS dispatchers]
- Tanzania BRT
- Senegal BRT
- Rwanda
- Ethiopia Urban
- Ethiopia Hawassa
- Ethiopia Corridor
- Tunisia
- Lake Victoria
- Guinea Bissau
- Malawi
- Nicaragua Safety
- Pakistan
- Tanzania BRT
- India

## Technologies
[Apps, CCTV, GPS Trackers, speed guns, pollution monitors]
- Ethiopia/Addis
- Liberia
- Rio de Janeiro
- Peru
- Kenya
- Nicaragua Safety
- Senegal BRT
- Tanzania BRT
- South Africa Subsidy
- India

## Surveys
[Electronic Data Collection]
- Senegal BRT
- Peru
- Ethiopia Hawassa
- Guinea Bissau
- Nicaragua
- Senegal Construction
- Senegal BRT
- Tanzania BRT
- Nigeria
- India
- Pakistan
Examples:

• Targeted **public transport fare subsidies** to low-income populations
• Midline survey found increases in land value along the BRT corridor. Pilot launched to provide **location based conditional cash transfers** to avoid displacement of the poorest populations.
One Project for Multiple Impact Evaluations

Tanzania/Dar es Salaam BRT

- Impact of the BRT on mobility, employment, productivity, and welfare
- Impact of a targeted subsidy (fare and rent) on mobility, employment, displacement, and welfare.
- Impact of an integrated safety response system on violence against women.
- Impact of recruiting and training women bus drivers on labor outcomes and women empowerment.
- Impact of BRT on road safety.
PHASE 1: EFFICIENCY

Projects
- Rwanda
- Senegal BRT
- Tanzania BRT
- Lake Victoria
- Ethiopia Urban
- Ethiopia Hawassa
- Ethiopia Corridor
- Iraq
- Tunisia
- Pakistan
- Senegal Construction

IE Activity
- Intervention
  - Infrastructure
    - BRT
    - Rural Roads
    - Transport Corridor
  - Targeted Subsidies
  - Logistics Interventions
  - Training and Employment

- Complementary policies

Outcomes
- Labor
- Productivity
- Income
- Land Value and Displacement
- Transport Costs and Competitiveness
- Market Integration
- Travel Time and Congestion

Results
- Households in the most remote and poorest areas experience the largest benefits from road rehabilitation (roughly 30%)
- High variance of product prices within Rwanda caused by large transport costs
PHASE 1: UNIVERSAL ACCESS

**Projects**

- Rwanda Rural Feeder Road
- Peru
- Nigeria
- Nicaragua
- Ethiopia Urban
- Guinea Bissau
- Nepal
- Tanzania BRT
- Senegal BRT
- Colombia Fare Subsidy
- South Africa Fare Subsidy

**IE Activity**

- **Infrastructure**
  - BRT
  - Rural Roads
  - Transport Corridor
  - Targeted Subsidies
  - Logistics Hubs

**Outcomes**

- Mobility
- Access to Jobs
- Access to Services
- Access to Markets

**Results**

- Those near the operational BRT route shift their commutes from daladalas to BRT, improving access.
- BRT has reduced commuting time and travel costs.
PHASE 2: ROAD SAFETY

Projects
- Senegal BRT
- Ethiopia Urban
- Nicaragua Safety
- Malawi
- Kenya smarTTrans
- Liberia

IE Activity
- Intervention
  - Infrastructure
    - BRT
    - Transport Corridor
    - Complete Street Upgrade
  - Data System
    - Targeted Subsides
    - Post-Crash Emergency Care
    - Training and Employment
- Outcomes
  - Road Deaths and Serious Injuries
  - Road Crashes
  - Near Collisions
  - Violations (speeding, jaywalking)

Results
- There are at least 50% more crashes reported by bystanders than are reported in the police crash reports.
- Deaths and injuries are concentrated between 5 a.m. and 8 a.m. and between 5 p.m. and 11 p.m.
PHASE 3: GENDER

Projects

- Brazil: Rio segregated cars
- Tanzania BRT
- Nicaragua
- Guinea-Bissau
- Ethiopia Hawassa
- India

IE Activity

- Intervention
  - Infrastructure
    - BRT
    - Rural Roads
  - Gender-segregated transport
    - Safety Response systems
    - Training and Employment

- Outcomes
  - Women’s income and Employment
  - Violence against women
  - Women’s economic empowerment
  - Participation in transport jobs

Results

- A third of riders are willing to forego a subsidy equivalent to 10% of the fare to ride in the “safe space”
- “Safe space” reduces women’s experiences of physical harassment by 40%, but there are issues with compliance.
3. WHAT NEXT?
SELECT RESEARCH QUESTIONS WITH GP PORTFOLIO

• Green mobility (air pollution, GHG emission and noise pollution)
• Gender parity in all aspects of transport
• Testing other complementary policies and investments
Proposes a coherent and integrated menu of **182 policies** to transition toward attaining the SDGs by 2030 and achieve sustainable mobility.

Access the GRA on [www.sum4all.org/GRA](http://www.sum4all.org/GRA)
WHAT WE EXPECT FROM YOU

» Use your project to **think about contributing** to sustainable mobility

» **Stretch your mind** for impact evaluation design

» **Open your project** to new ideas
THANK YOU
FOR YOUR ATTENTION
Examples:

- Program to support agricultural productivity improvements along rehabilitated rural road (Peru IE)
- Digital speed sign with behavioral feedback to reduce speeding and improve road safety
- Targeted public transport fare subsidies to low-income populations

Impact Evaluation can inform mid-course decisions in the project:

For the Tanzania BRT IE, the midline survey found increases in land value along the BRT corridor, therefore, a pilot was launched to provide location based conditional cash transfers to avoid displacement of the poorest populations.
Tanzania/Dar es Salaam BRT

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