Financing Urban Infrastructure in the Era of Climate Change and Disaster Risks: Philippines

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Research Issues

- Has the climate change agenda alter the mode of financing urban infrastructure?
- What are the challenges to financing resilient urban infrastructure?
Study Approach

- Review of Philippine development finance and climate related financing in the past 15 years
- Case study of big ticket or national urban infrastructure projects in three sectors – roads and transport; energy; waste and water management
Mapping Development Finance and Aid Flows in the Philippines

Development finance and aid flows

Domestic
- Public
  - Tax revenues
  - Non-tax revenues
  - Public-private partnerships
  - Public domestic borrowing
- Private
  - Private domestic borrowing
  - CSRs linked to development activities
  - Inclusive business (e.g. mobile based microfinance products)

External/Cross-border
- Public
  - ODA: grants and loans
  - Public borrowing from capital markets
  - Climate-related finance
  - Regional infrastructure fund
- Private
  - Foreign direct investment
  - Overseas Filipinos’ remittances
  - Private borrowing from capital markets
Philippine Development Finance Flows, as % of GDP, 2000-2016
Climate-Related External Finance by Sector and by year

*Under Production Sector: Agriculture, Forestry, Fishing, Mining and Tourism
*Under Humantarian Aid: Emergency Response and Disaster Prevention & Preparedness
Source: Authors’ summary based on OECD www.oecd.org/dac/stats
Urban Infrastructure Projects by Source of Funding, Philippines, 2000-2016

<table>
<thead>
<tr>
<th>Infrastructure Sector</th>
<th>Public</th>
<th>PPP</th>
<th>Private</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport and Roads</td>
<td>26</td>
<td>438.61</td>
<td>10</td>
<td>458.59</td>
</tr>
<tr>
<td>Energy</td>
<td>4</td>
<td>26.06</td>
<td>1</td>
<td>1.16</td>
</tr>
<tr>
<td>Waste and Water Mngr</td>
<td>12</td>
<td>405.23</td>
<td>3</td>
<td>165.96</td>
</tr>
<tr>
<td>Building (Social Inf)</td>
<td>4</td>
<td>5.92</td>
<td>2</td>
<td>23.03</td>
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<tr>
<td>Total</td>
<td>46</td>
<td>875.82</td>
<td>16</td>
<td>648.74</td>
</tr>
</tbody>
</table>

Source: See Annex 2 for details
Note: Building projects refer mainly to social infrastructure e.g. school building, postharvest facility, relocation facility
Case #1: DPWH Bridge Construction Acceleration Project for Calamity Stricken Areas

Objective: to reconstruct or build disaster resilient bridges

Under the government “Structural Resiliency Program” that applies new and upgraded disaster-resilient standards

The project approved in 2012; reapproved in 2014 due to increase in funds

Funding sources: PHL government, ODA

Issues:
- Upgraded standards can increase initial investment cost
- Change in administration stalled the ODA funding source and project remained locally-funded
- Weak investors environment; does not generate much interest from investors
Case #2: Burgos Wind Farm

Objective: increase country’s output of renewable energy
Funding source: private sector (Energy Development Corporation)
Incentive: Feed in tariff; commercial viability
Project completed within target timetable; has been under operation since Nov 2014

Issues:
- Conflict in land use with locals that use 214 as communal pasture lands
- The locals agreed with the allotted foraging area; conflict settled amicably partly due to the significance of project as renewable source and tourist attraction
Case #3: Metro Manila Flood Control Master Plan

Objective: comprehensive flood risk management plan for Metro Manila that adopts a river basin approach

Implementation of the entire project spans 23 years (2012-2035). Project implementation done by phases; As of 2015, 15-high impact flood control projects; 8 of the 11 long-term projects are under implementation; 1 completed and 2 subject to further evaluation

Funding source: initially government budget; P5 billion funding for the initial phase.

Issues on the 2 projects for evaluation
- No offers or bidders because the project is perceived not feasible- concerns on economic viability, balance of risks and rewards
- Unresolved issues on propriety and validity due to unclear property rights in the area
- Lack of scientific preparation on the project; data and maps use are not sufficient
Key Points

- Increase in mitigation projects – e.g. projects that reduce energy demand (green technology), cleaner fuel
- Climate change, disaster resilience is given more attention in the assessment of infrastructure projects.
- Difficulty of coming up with cost effective design that incorporates hazards and risks due to limited information
- Limited information on hazards can result in decisions driven by private and political interests
- Limited private sector participation but can be encouraged with the right incentives and regulatory environment.
Policy Considerations

**Cost effective infrastructure measures**
- What is the level of resilience to achieve?
- Need for more detailed information on risks and hazards
- Improving legal/regulatory environment on land property rights

**Private sector participation**
- Encourage investment by the private sector
  - Facilitate PPP
  - Provide subsidies
  - Capacity building for climate green financing
  - Improving legal/regulatory environment for property rights
- Taxation/Levies
  - Tax reform program
  - Price negative externalities from private sector activities
  - Betterment taxes (tax on gains or increment in the value of private properties from public sector infrastructure investment)
[ Thank you ]

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Case #1: Cebu BRT

Objective: develop efficient mode of public transport in fast growing metropolis

The BRT was proposed in 1990; project planning by the DOTr began in 2008; Approved in 2014 but implementation has yet to start.

Climate change impact?????

Source of Financing: WB Green Bonds, Clean Technology Fund, PHL Government

Issues:
- changes in RROW and depot increased project cost
- Road widening implications on environment (cut down many trees)
- Dedicated road needed
- LRT vs BRT
Case #3: NLEX-SLEX Connector Road Project

Objective: decongest Metro Manila traffic; better access to ports, airports within Metro Manila

Funding source: PPP (MNTC), MPIC in partnership with government (capital subsidy, revenue subsidies, guaranteed annual revenues)

Project was approved in 2012 by ICC with instructions to DPWH; Revisions by DPWH approved in 2015. Detailed engineering design and ROW acquisition is still on-going; construction targeted to start by 3rd Q 2017.

Issues:
- Assumption on RROW cost was invalidated by the DOJ; under renegotiation by MPIC to shoulder additional cost through more flexible tariff rates
- DOJ ruled that the MNTC and MPIC joint venture not legal, i.e. “Swiss Challenge”
- Private interests among oligarchies cause delay
### FCMP Completed High Impact Priority Projects

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Est. Cost in P Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valenzuela-Obando-Meycauayan (VOM) Project</td>
<td>1,531.03</td>
</tr>
<tr>
<td>Kalookan-Malabon-Navotas Area (KAMANAVA) Project Phase I</td>
<td>600.00</td>
</tr>
<tr>
<td>Manila Bay Seawall Project</td>
<td>211.05</td>
</tr>
<tr>
<td>Upper Marikina River Improvement Project (Nangka River)</td>
<td>222.50</td>
</tr>
<tr>
<td>Marikina River Dredging</td>
<td>50.00</td>
</tr>
<tr>
<td>Manggahan Floodway Dredging</td>
<td>100.00</td>
</tr>
<tr>
<td>East Side of Manggahan Floodway Project</td>
<td>190.00</td>
</tr>
<tr>
<td>Dredging of Labangan Channel, Hagonoy, Bulacan</td>
<td>100.00</td>
</tr>
<tr>
<td>San Fernando-Sto. Tomas-Minalin Tail Dike</td>
<td>139.00</td>
</tr>
<tr>
<td>Mitigation Measures for Breasched in the San Fernando-Sto. Tomas-Maliin Dike</td>
<td>637.00</td>
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<tr>
<td>Del Carmen-Balimbing Creek, City of San Fernando, Pampanga</td>
<td>30.00</td>
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<tr>
<td>Orani Channel, Bataan</td>
<td>50.00</td>
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<tr>
<td>DPWH-LLDA Flood Control and River Protection Converge Project</td>
<td>780.00</td>
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<tr>
<td>Purchase of various Dredging Equipment Nationwide</td>
<td>136.50</td>
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<tr>
<td>Other projects</td>
<td>169.90</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>4,946.98</strong></td>
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# FCMP Priority Long term Projects

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Est. Cost in P Billion</th>
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<tbody>
<tr>
<td>Pasig-Marikina River Improvement and Dam Construction</td>
<td>198.43</td>
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<tr>
<td>Meycauayan River Improvement</td>
<td>14.04</td>
</tr>
<tr>
<td>Malabon-Tullahan River Improvement</td>
<td>21.63</td>
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<tr>
<td>South Paranaque-Las Pinas River Improvement</td>
<td>17.33</td>
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<tr>
<td>East Mangahan Floodway (Cainta &amp; Taytay River Improvement)</td>
<td>25.90</td>
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<tr>
<td>West Laguna Lakeshore Land Raising</td>
<td>25.18</td>
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<tr>
<td>Land Raising for Small Cities around Laguna Lakeshore</td>
<td>7.16</td>
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<tr>
<td>Improvement of the Inflow Rivers to Laguna Lake</td>
<td>0.64</td>
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<tr>
<td>Manila Core Drainage Improvement</td>
<td>27.26</td>
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<tr>
<td>West Mangahan Area Drainage Improvement</td>
<td>5.52</td>
</tr>
<tr>
<td>Valenzuela-Obando-Meycauayan (VOM) Improvement</td>
<td>8.61</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>P 351.71</strong></td>
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## Philippine Flagship Infrastructure Projects 2018-2022 (as of Sept 12 2017)

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>Amount</th>
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<tbody>
<tr>
<td><strong>TOTAL</strong></td>
<td>75</td>
<td>P3.2 Trillion (US$72 Billion)</td>
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<tr>
<td>NEDA Board Approved Projects (airports, rail, roads)</td>
<td>35</td>
<td>P1.2 Trillion (US$24 Billion)</td>
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<tr>
<td>For ICC Processing/Approval</td>
<td>40</td>
<td>TBD</td>
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</table>

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