

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

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# Research Issues

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

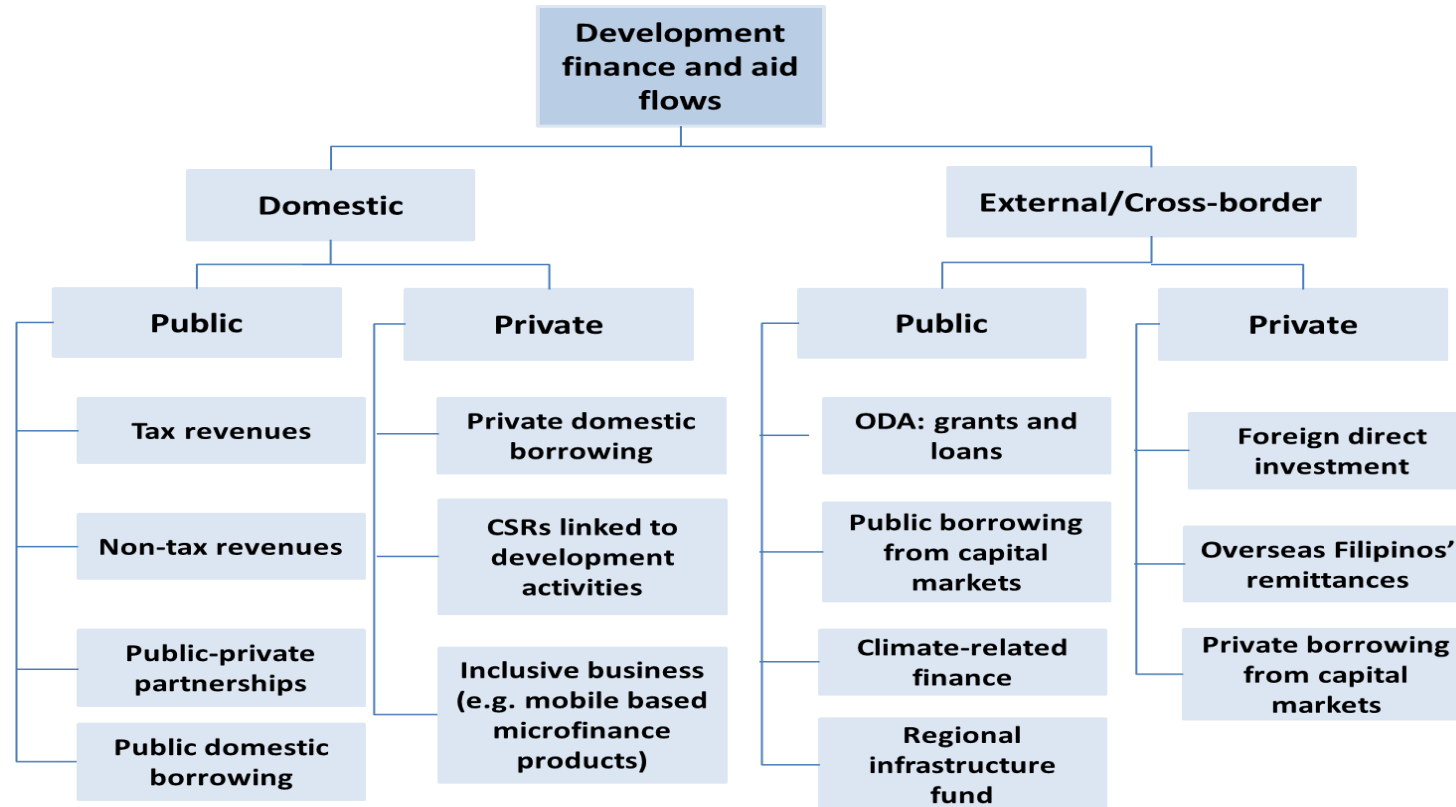
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# Study Approach

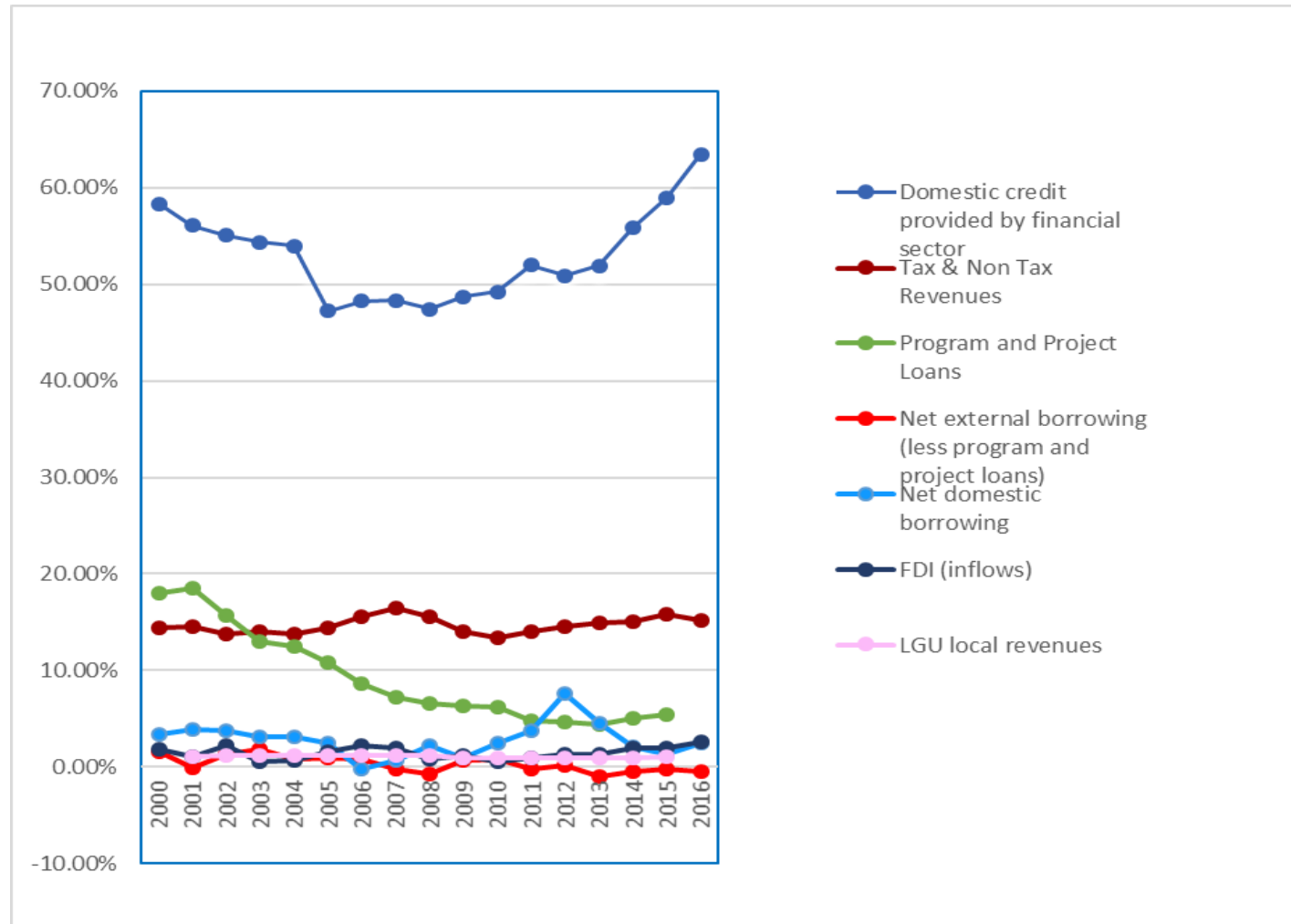
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- Review of Philippine development finance and climate related financing in the past 15 years
- Case study of big ticket or national urban infrastructure projects in three sectors – roads and transport; energy; waste and water management

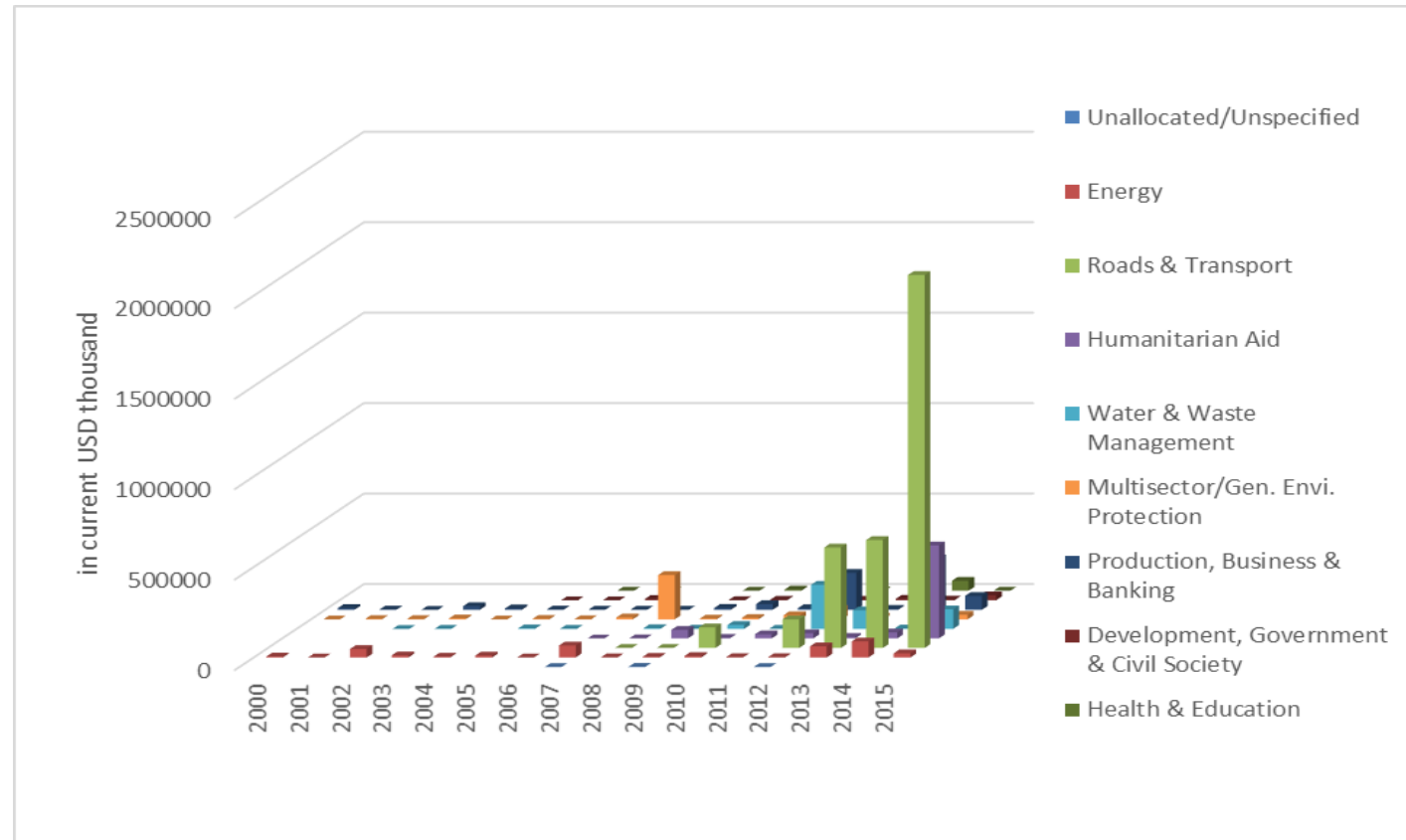
# Mapping Development Finance and Aid Flows in the Philippines



# 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 Humanitarian Aid: Emergency Response and Disaster Prevention & Preparedness

Source: Authors' summary based on OECD [www.oecd.org/dac/stats](http://www.oecd.org/dac/stats)

# Urban Infrastructure Projects by Source of Funding, Philippines, 2000-2016

| Infrastructure Sector            | Public    |                   | PPP       |                   | Private   |                   | Total     |                   |
|----------------------------------|-----------|-------------------|-----------|-------------------|-----------|-------------------|-----------|-------------------|
|                                  | No.       | Cost<br>P billion | No.       | Cost<br>P billion | No.       | Cost<br>P billion | No.       | Cost<br>P billion |
| Transport and Roads              | 26        | 438.61            | 10        | 458.59            | 1         | 0.75              | 37        | 897.95            |
| Energy                           | 4         | 26.06             | 1         | 1.16              | 15        | 47.33             | 20        | 74.55             |
| Waste and Water Mngt             | 12        | 405.23            | 3         | 165.96            | 1         | 26                | 16        | 597.19            |
| Building (Social Infrastructure) | 4         | 5.92              | 2         | 23.03             | -         | -                 | 6         | 28.95             |
| <b>Total</b>                     | <b>46</b> | <b>875.82</b>     | <b>16</b> | <b>648.74</b>     | <b>17</b> | <b>74.08</b>      | <b>79</b> | <b>1,598.64</b>   |

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

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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



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# Case #2: Burgos Wind Farm

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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

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# Case #3: Metro Manila Flood Control Master Plan

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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

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- 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

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## ❖ 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)



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# [ Thank you ]

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# Case #1: Cebu BRT

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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 RRROW and depot increased project cost
- Road widening implications on environment (cut down many trees)
- Dedicated road needed
- LRT vs BRT

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## Case #3: NLEX-SLEX Connector Road Project

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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 3<sup>rd</sup> 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

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



# FCMP Priority Long term Projects

| <b>Project Name</b>  | <b>Est. Cost in P Billion</b> |
|--|-------------------------------|
| Pasig-Marikina River Improvement and Dam Construction      | 198.43                        |
| Meycauayan River Improvement                               | 14.04                         |
| Malabon-Tullahan River Improvement                         | 21.63                         |
| South Paranaque-Las Pinas River Improvement                | 17.33                         |
| East Mangahan Floodway (Cainta & Taytay River Improvement) | 25.90                         |
| West Laguna Lakeshore Land Raising                         | 25.18                         |
| Land Raising for Small Cities around Laguna Lakeshore      | 7.16                          |
| Improvement of the Inflow Rivers to Laguna Lake            | 0.64                          |
| Manila Core Drainage Improvement                           | 27.26                         |
| West Mangahan Area Drainage Improvement                    | 5.52                          |
| Valenzuela-Obando-Meycauayan (VOM) Improvement             | 8.61                          |
| <b>Total</b>   | <b>P 351.71</b>               |

# Philippine Flagship Infrastructure Projects 2018-2022 (as of Sept 12 2017)

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|   | Number | Amount                          |
|---|--------|---------------------------------|
| TOTAL   | 75     | P3.2 Trillion ( US\$72 Billion) |
| NEDA Board Approved Projects<br>(airports, rail, roads) | 35     | P1.2 Trillion (US\$24 Billion)  |
| For ICC Processing/Approval                             | 40     | TBD                             |
|   |        |                                 |