Financing Environmental Infrastructure for Asia's Cities

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Overview

Context of Asia Urbanization

Context of Finance for Urban Infrastructure

ADB’s Role in Asia’s Urban-based Prospects

Overview – cont.

Context of Asian Megacities → Challenges

- ☑ environment
- ☑ climate change
- ☑ poverty
- ☑ vulnerability
- ☑ coordination

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Background and Challenges

City Region Economies and the climate issues

- Cities use about 85% of energy and generate about 75% of GHGs to produce about 80 % of the GDP
- CO_2-emissions are per capita in many third world cities as high as in cities of high income countries and pollution is much worse

Asian Cities

- show an enormous population growth (average 3 %/a) compounding their global environmental impact
- are especially vulnerable to climate change

Rise in pollution and sea levels puts trillions in economic output and hundreds of millions of people at risk

Urgent need for efficiency gains, reduction in pollution and GHGs and integrated planning for adaptation and mitigation

Map of Metro Manila

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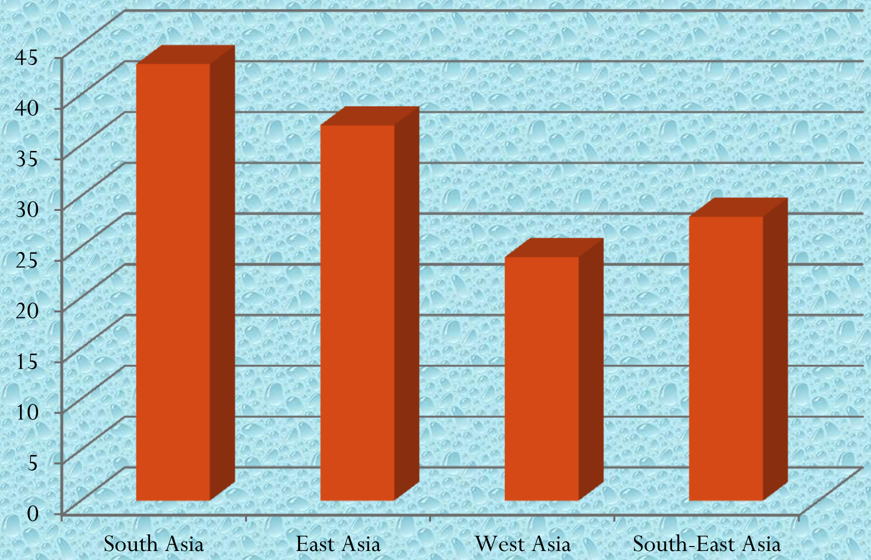
With growth and urbanization, poverty also urbanizes

- **Over 240 million urban dwellers live on less than $1/ day in Asia**
- **Poverty has income, access and power dimensions**
- **The poor are most vulnerable to environmental problems and the effects of climate change**
- **Infrastructure delivery plays a key role in fighting urban poverty**

Prevalence of slums in Asia's cities (% of urban population)



Source: State of the world's cities 2008/2009

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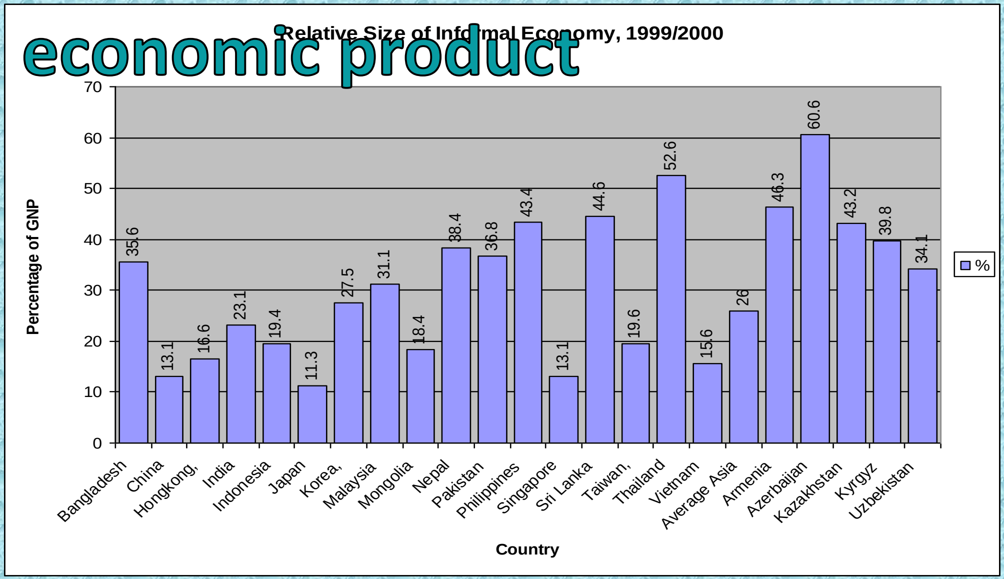
Opportunities

- Resources and Scale
- Innovation
- Capacity

Informal Economic Giants

City	Country	Population '000s 2005	Economic Product $m 2004
Shanghai	China	12,665	89,980
Mumbai	India	18,336	83,528
Jakarta	Indonesia	13,194	24,592
Manila	Philippines	10,677	32,277
Bangkok	Thailand	6,604	63,088
Tokyo	Japan	35,327	740,000
	Sweden	8,855	255,400
	Denmark	5,300	174,400
	Cambodia	13,107	26,990
	Bangladesh	136,600	56,600

Megacities are nation-sized in population and economic product



But they contain a large informal economy

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Environmental Management Issues

Management Issues

- Pollution legislation largely in place
  – not enforced
- Planning for city form and development control
  – largely not effective and not enforced
- Incentives for reducing (eg energy efficiency, urban transport), reuse and recycle (eg solid waste, waste water)
  – not in place

Few global/ regional incentives for global public goods such as climate change

– no effective incentives for developing cities to change investment patterns and consumption behavior

Capacity to handle these issues is inadequate

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What Cities Can Do for 'Planet Positive Growth'

- ◊ **Local land use and transportation patterns**. Municipal land use and transportation planning decisions directly influence whether people and businesses will have mobility choices that allow them to save energy and money.
- ◊ **Building construction and energy efficiency.** Through zoning codes, building codes and the permitting process, municipalities can encourage building designs that save energy and resources.
- ◊ **Local economic activity.** Municipal economic development initiatives are opportunities to encourage development in low-energy, zero-carbon directions, by both incentive and example.

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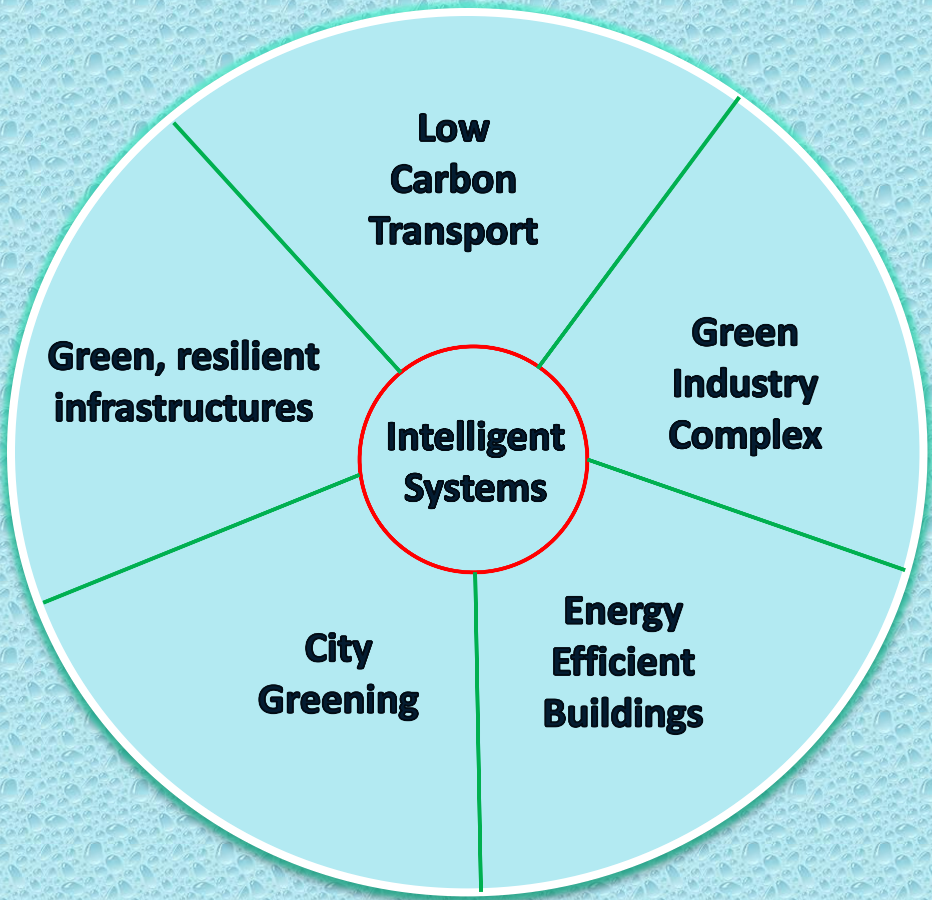
Investments for Green Cities



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UOP Outcomes

Leveraging Funds

- ☑ National Government
- ☑ Local Government
- ☑ Local Financial Institutions
- ☑ Local Private Sector
- ☑ International Private Financial Institutions
- ☑ International Private Sector
- ☑ International Transfers
  (aid & climate funds)

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Tianjin Eco-city
integrated transport and land use

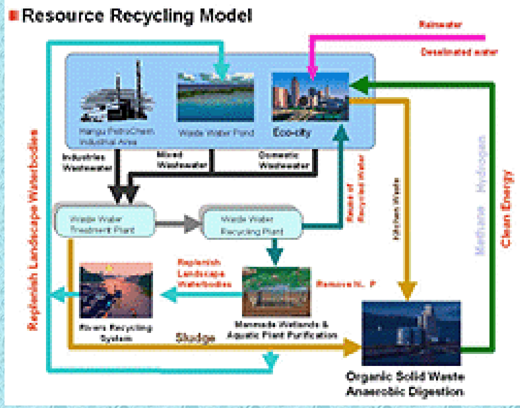
Green Transportation

An efficient and easily accessible public transport system focusing on 'Green trips', which include public transportation, cycling and walking. The target is for at least 90 per cent of the trips within the Eco-city to be via walking, cycling, or use of public transport.

A light rail transit system will be part of public transport in the Eco-city

Use of Clean, Renewable Energy and Ecologically Friendly Waste Management

Particular emphasis on the "3Rs" of waste management - Reduce, Reuse and Recycle.



Balance of Economic and Social needs – Preservation of Heritage

Conservation through adaptive reuse or partial rebuilding.

Qingtuozi and Wuqi Villages

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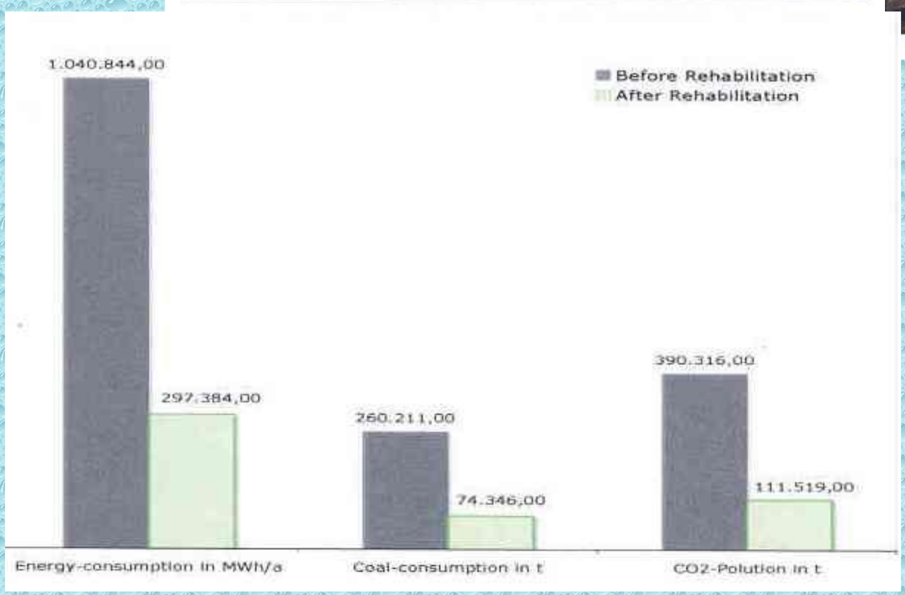
Investments: Energy Savings for Mongolian Housing > Retrofitting the City

The Building – before and after



The Savings
– energy, coal and CO2
– ability to close one out of three power plants

The Financing
– KfW, CDM, ADB, and local banks

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Low Carbon Transport

Case study:
Guangzhou Bus-Rapid Transit (BRT) system

- Integrated with metro system and other non-motorized transport means
- Integrated with surrounding buildings
- Pedestrian-friendly and accessibility features
- Passenger information services

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Context of Finance - Public

- **National incentive funds CC** → **JNNURM**
- **National DFIs** → **some sophisticated most not**
- **Local Gov.** → **usually constrained and weak**

Green Finance

1) **Maximize conventional finance**
   - **User Charges**. Utility resources are charged for at the full cost of usage, which includes the cost of providing supply, including externality costs.
   - **Emission (Effluent) Charges.** For maintaining the environment itself and are in addition to user charges for the public service provided by government or industry.
   - **Tradable Rights/ Marketable Permits/ Deposit Refund Systems**.

2) **Then look to leverage private sector**
   - Identify and unbundle potentially profitable investments

3) **Then seek specialist green financing**
   - **CDM**
   - **ADB Funds**
   - **GEF**
   - **CIF**
   - **Export credit for new green tech**

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Capital Markets and Climate-Friendly Investment

Asia's capital markets are highly liquid, but short term:

- Asia has high levels of savings, banks and other financial institutions have money, BUT investments tend to be short term
- With no clear regulatory structure – high transaction costs
- Limited mechanisms to encourage institutions holding long term funds, such as pension funds and life insurance companies, to invest in infrastructure
- Lack of mechanisms for public sector debt finance and for public/ private Special Purpose Vehicles
- Issues of inter-jurisdictional coordination make project formulation and structuring difficult

Developed country pension funds and life insurance companies are highly liquid and seek long term investments, BUT they are highly risk averse and have unrealistic expectations of returns

Some intensive effort is needed to structure projects for capital market participation

- ➢ Need for project development resources
- ➢ Cities Development Initiative for Asia

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Context of Finance – International Transfers

Aid	⮊	reducing to Asia
IFIs	⮊	Need to switch role to catalyst and leveraging local/private finance
Transfers	⮊	CDM NAMA transfer

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Constraints to Effective Finance

Enabling Policy	⊃ local/subsovereign, inter-governmental fiscal transfers capacity in mandate
	⊃ capital markets
Project Development	⊃ capacity
	⊃ institutions (eg, cross-jurisdictional structure)
Project Structuring	⊃
Capital Market	⊃ risk-return requirements
	⊃ role of credit enhancement

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Addressing the Constraints – ADB's Role

Enabling framework	⮊	Policy & Green Financing Network
Project Development	⮊	Cities Development Initiative for Asia
Project Structuring	⮊	Project Development Facilities, eg. Indonesia
Capital Markets	⮊	Municipal Development Funds
	⮊	Channeling Financial Institutions
	⮊	Bonds Markets
	⮊	Credit Enhancement

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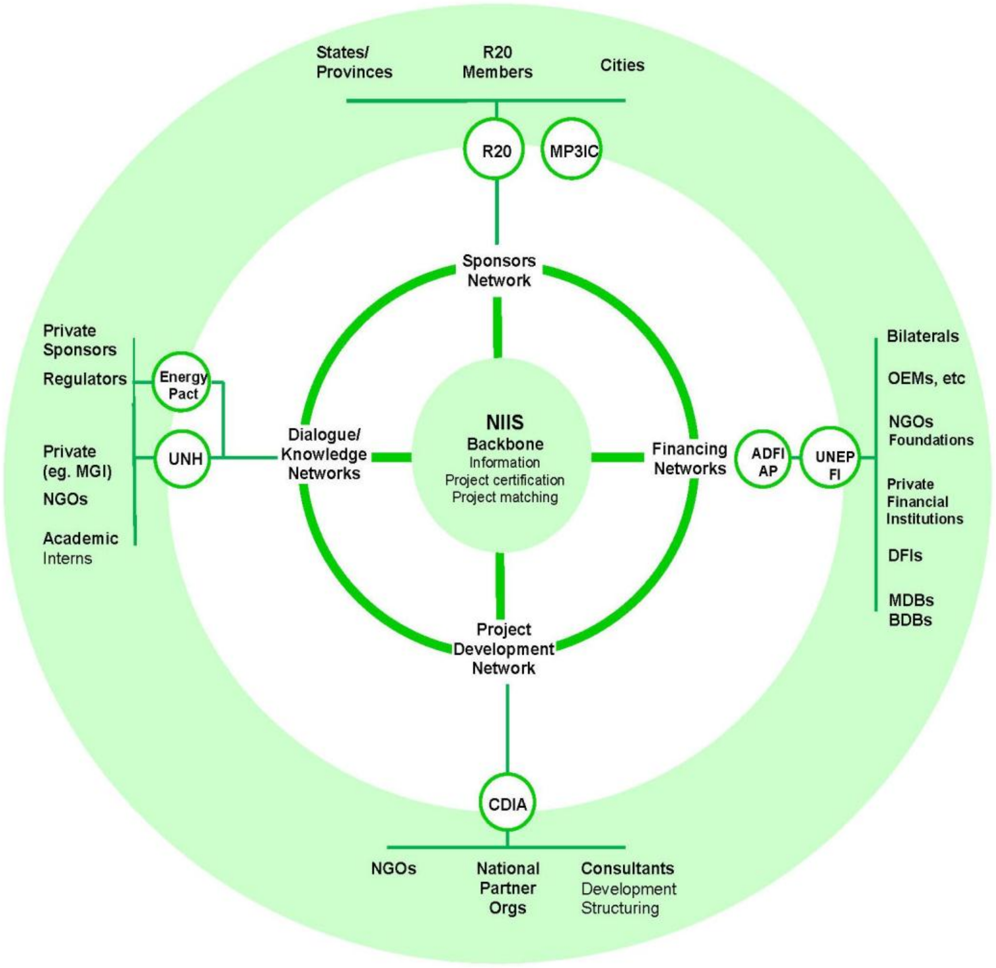
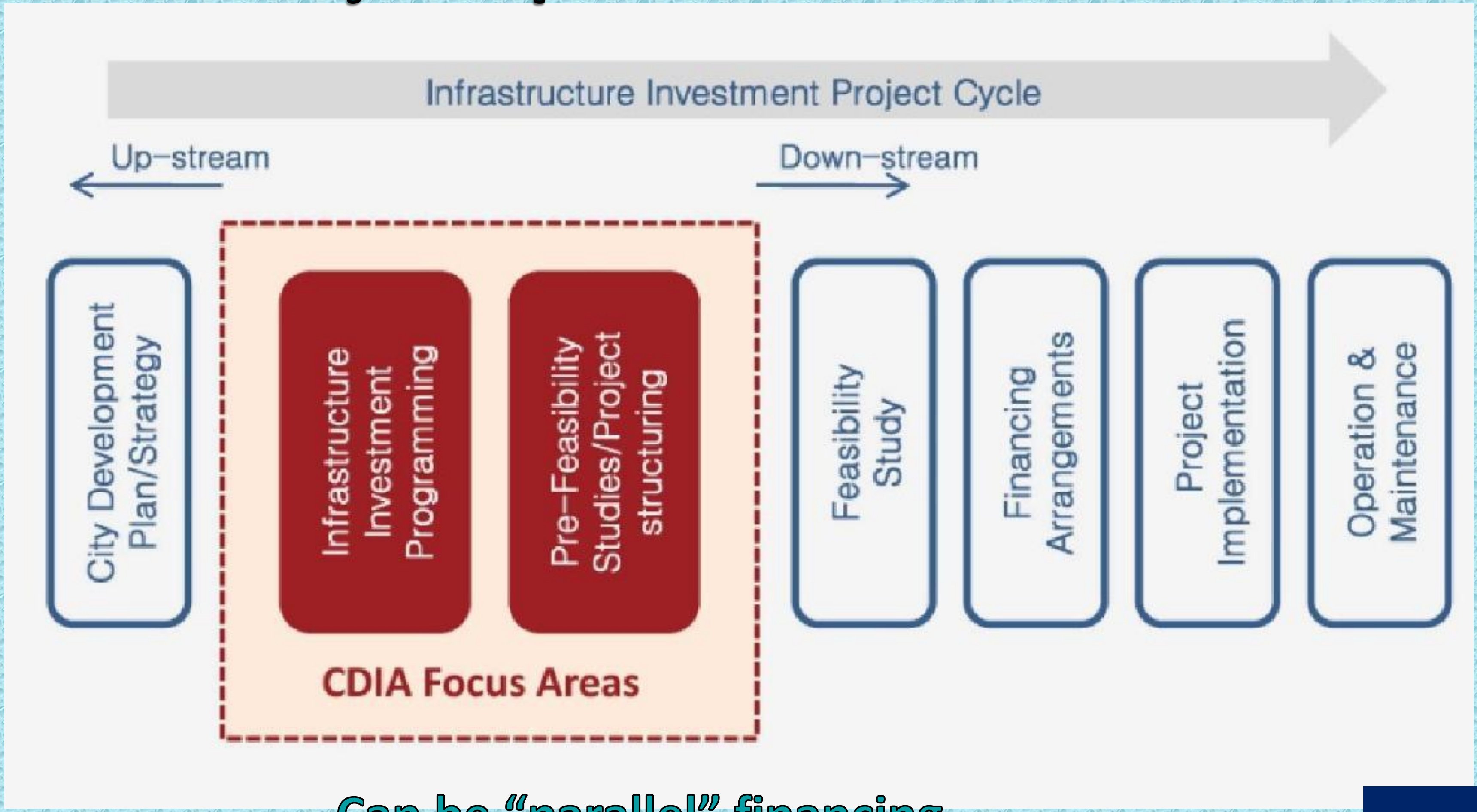
Enabling Framework

GREEN FINANCING NETWORK STRUCTURE



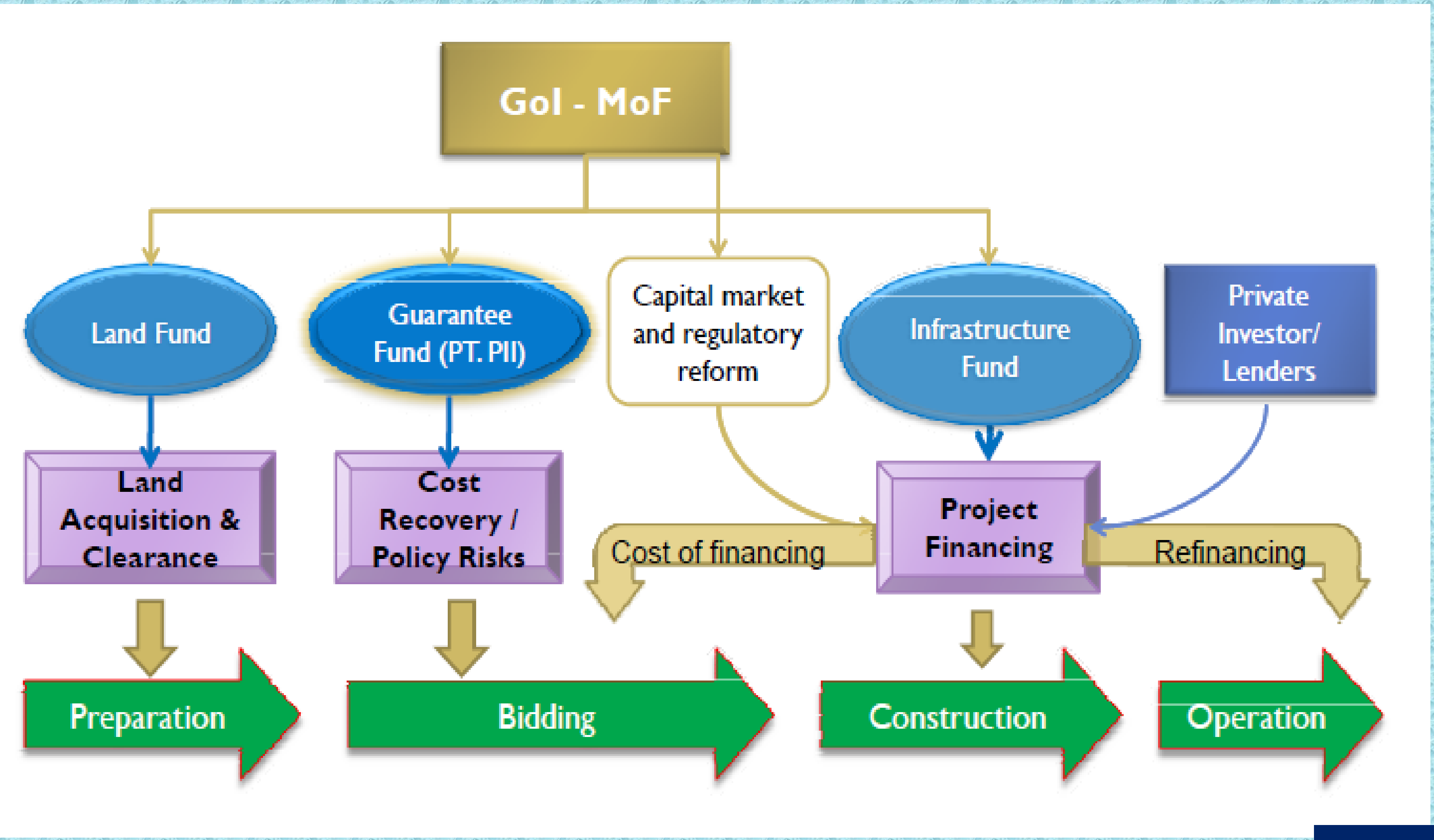
BDB	–	bilateral development bank
CDIA	–	Cities Development Initiative for Asia
DFI	–	development finance institution
MDB	–	multilateral development bank
NIIS	–	National Infrastructure Information System
NGO	–	nongovernment organization
OEM	–	original equipment manufacturer
UNEP-FI	–	United Nations Environment Programme Financial Institutions
UNU	–	United Nations University

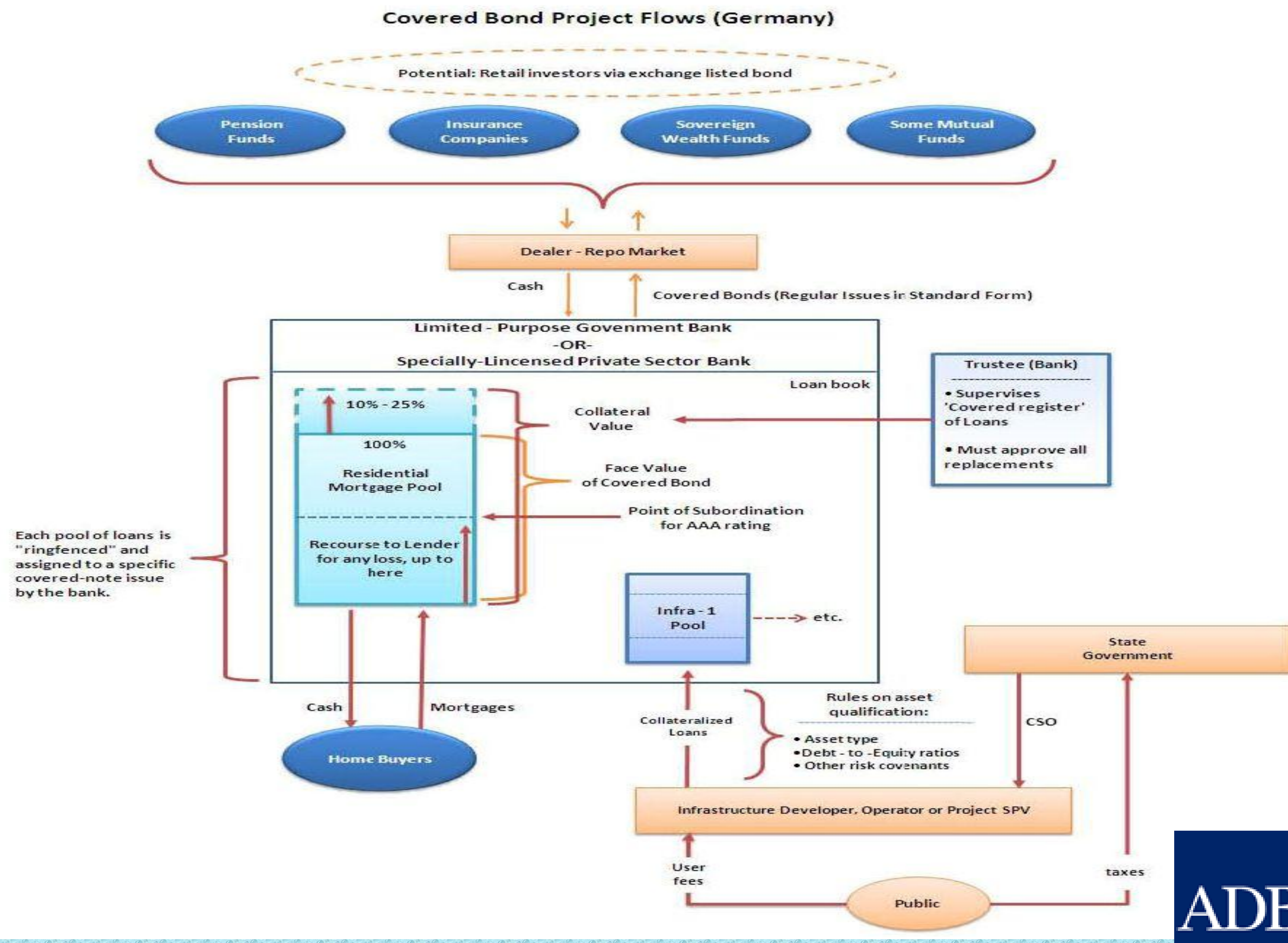
Cities Development Initiative for Asia (CDIA) Focus Areas of Intervention in the Project Implementation Process



Can be "parallel" financing.

Indonesia Infrastructure Fund Facility





Covered Bond Project Flows (Germany)
Potential: Retail investors via exchange listed bond
Pension Funds
Insurance Companies
Sovereign Wealth Funds
Some Mutual Funds
Dealer - Repo Market
Cash
Covered Bonds (Regular Issues in Standard Form)
Limited - Purpose Govenment Bank
-OR-
Specially-Lincensed Private Sector Bank
Loan book
10% - 25%
100%
Residential Mortgage Pool
Recourse to Lender for any loss, up to here
Collateral Value
Face Value of Covered Bond
Point of Subordination for AAA rating
Trustee (Bank)
• Supervises 'Covered register' of Loans
• Must approve all replacements
Each pool of loans is "ringfenced" and assigned to a specific covered-note issue by the bank.
Infra - 1 Pool
etc.
State Government
Cash
Mortgages
Home Buyers
Collateralized Loans
Rules on asset qualification:
• Asset type
• Debt - to - Equity ratios
• Other risk covenants
CSO
Infrastructure Developer, Operator or Project SPV
User fees
taxes
Public

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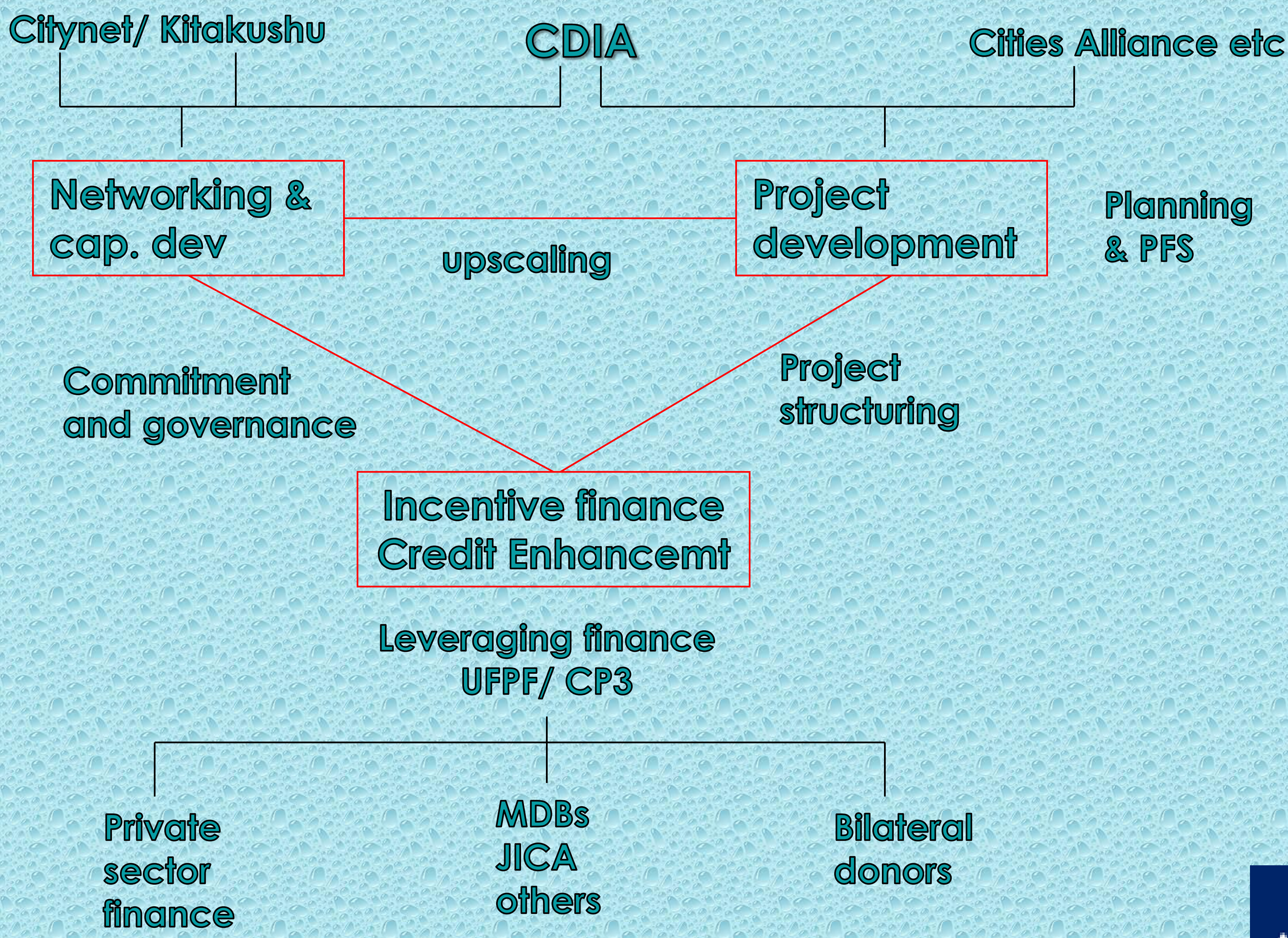
ADB's financing partners



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Urban Forum – Financing Future Cities

Networks of best practice dissemination / innovation in finance of:

- Green Cities
- Competitive Cities
- Inclusive Cities

Thank You

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