Book Launch Event
Infrastructure Financing in Asia
Robert B. Banks Auditorium
Asian Institute of Technology
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Perspectives on infrastructure financing in Asia

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Three key questions

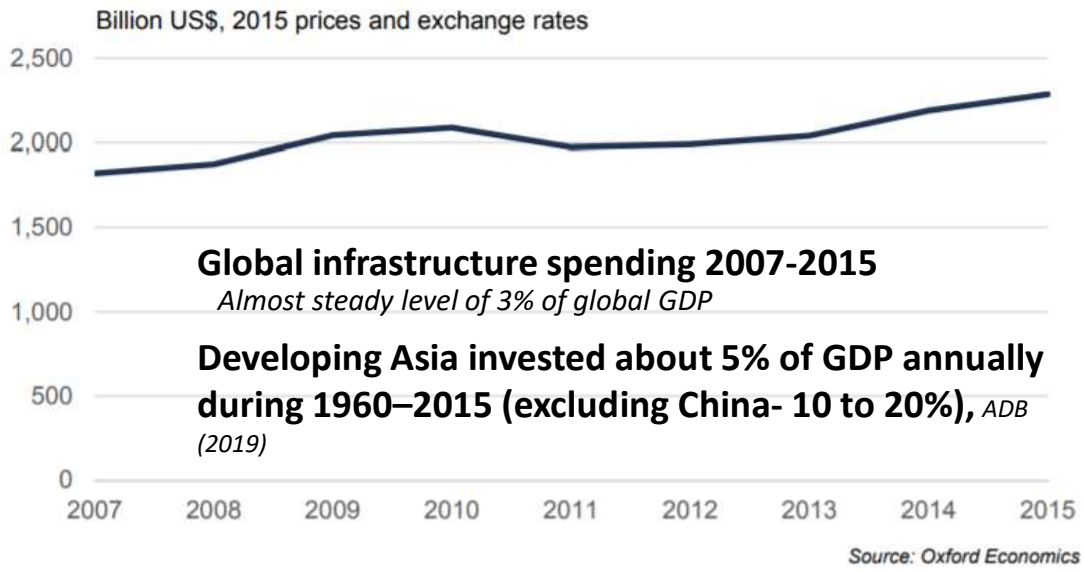
What is the scale of investment gap and where?

How to source these investment?

Do countries have sufficient capacity and efficiency to deliver those intended infrastructure?

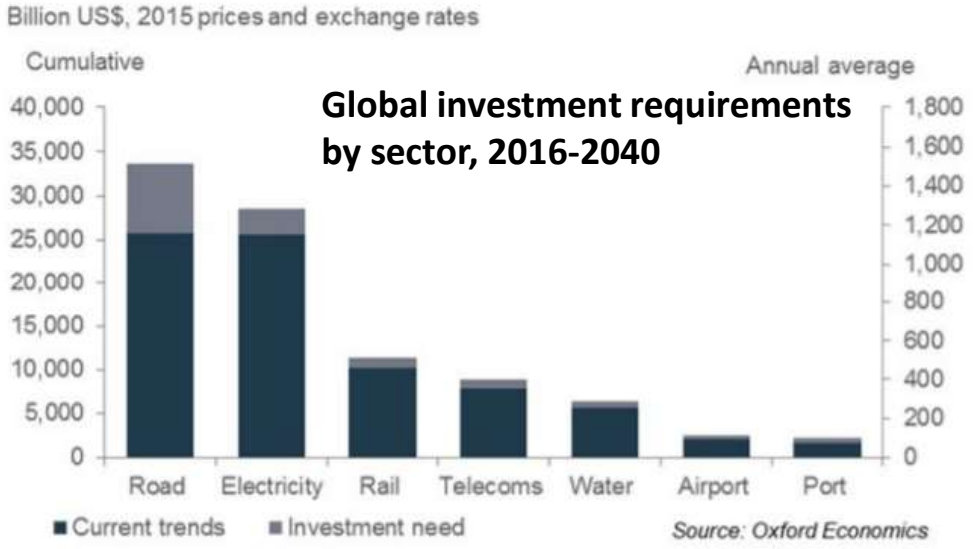
Global infrastructure financing needs

- Global infrastructure investment need between 2016-2040: $94 trillion ($3.7 trillion/year)- need 3.5% of GDP
- Asia to dominate, now and in the future (over 54%) in this global infrastructure market → China, the US, India and Japan to contribute almost half, and China alone 30%
- If GDP grows higher then used in these analysis, the demand for infrastructure will further increase



Global infrastructure spending 2007-2015
Almost steady level of 3% of global GDP

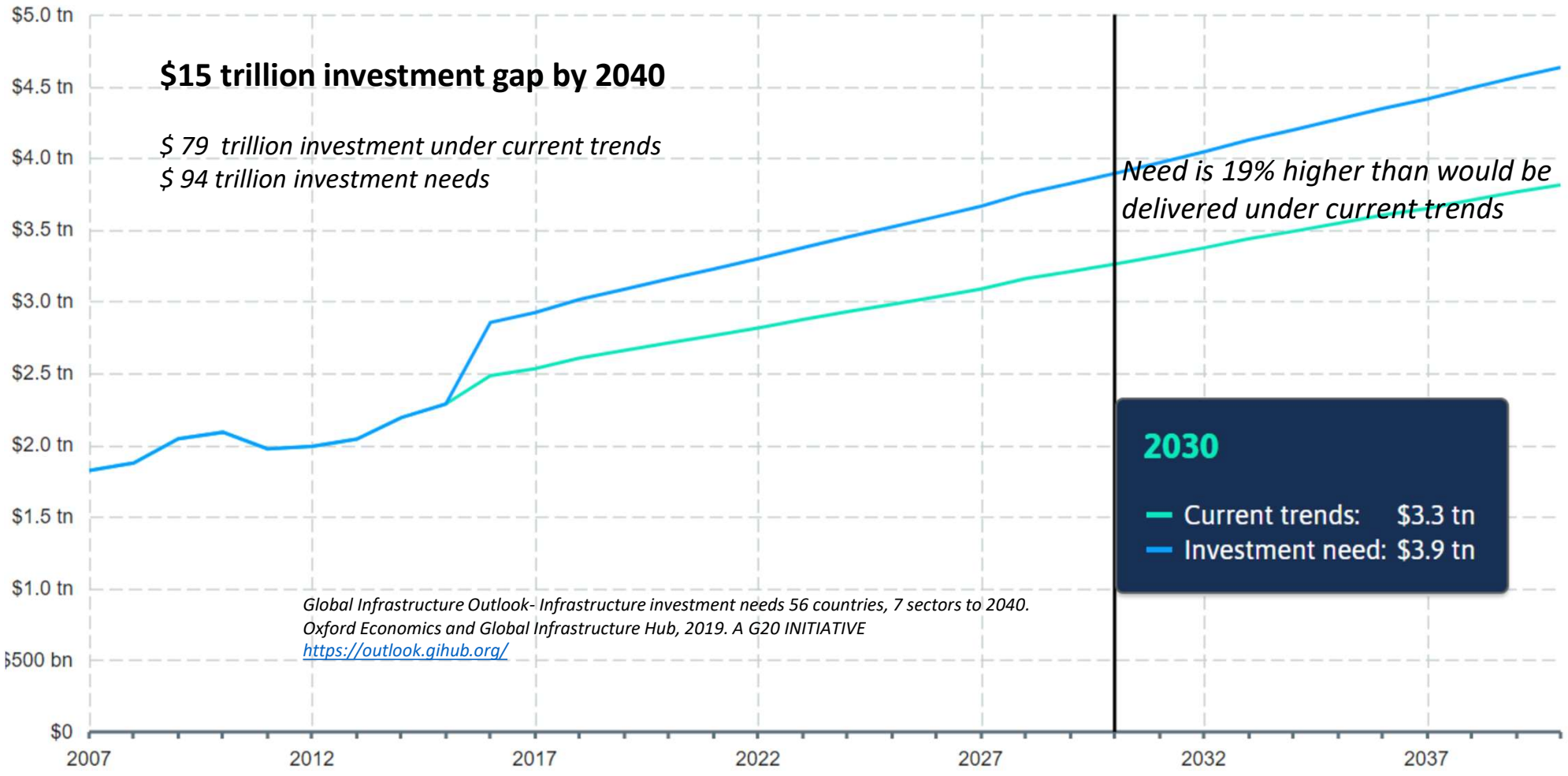
Developing Asia invested about 5% of GDP annually during 1960–2015 (excluding China- 10 to 20%), *ADB (2019)*



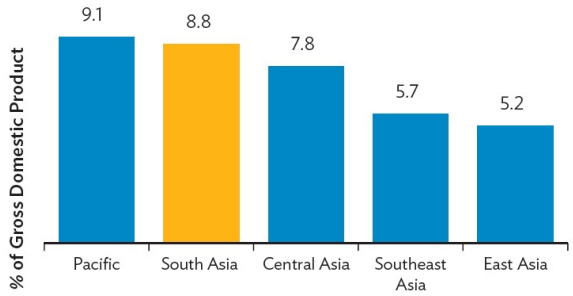
Global investment requirements by sector, 2016-2040

Global Infrastructure Outlook- Infrastructure investment needs 50 countries, 7 sectors to 2040. Oxford Economics and Global Infrastructure Hub, 2019. A G20 INITIATIVE
https://www.oxfordeconomics.com/recent-releases/Global-Infrastructure-Outlook

Global infrastructure investment gaps



Estimated Asian infrastructure investment needs by region, 45 DMCs, 2016–2030
($ billion in 2015 prices)



Region/Subregion	Projected Annual GDP Growth	2030 UN Population Projection (billion)	2030 Projected GDP Per Capita (2015 $)	Baseline Estimates			Climate-adjusted Estimates**		
				Investment Needs	Annual Average	Investment Needs as % of GDP	Investment Needs	Annual Average	Investment Needs as % of GDP
Central Asia	3.1	0.096	6,202	492	33	6.8	565	38	7.8
East Asia	5.1	1.503	18,602	13,781	919	4.5	16,062	1,071	5.2
South Asia*	6.5	2.059	3,446	5,477	365	7.6	6,347	423	8.8
Southeast Asia	5.1	0.723	7,040	2,759	184	5.0	3,147	210	5.7
The Pacific	3.1	0.014	2,889	42	2.8	8.2	46	3.1	9.1
Asia and the Pacific	**5.3**	**4.396**	**9,277**	**22,551**	**1,503**	**5.1**	**26,166**	**1,744**	**5.9**

Note: * Pakistan and Afghanistan are included in South Asia. ** Climate change adjusted figures include climate mitigation and climate proofing costs, but do not include other adaptation costs, especially those associated with sea level rise.

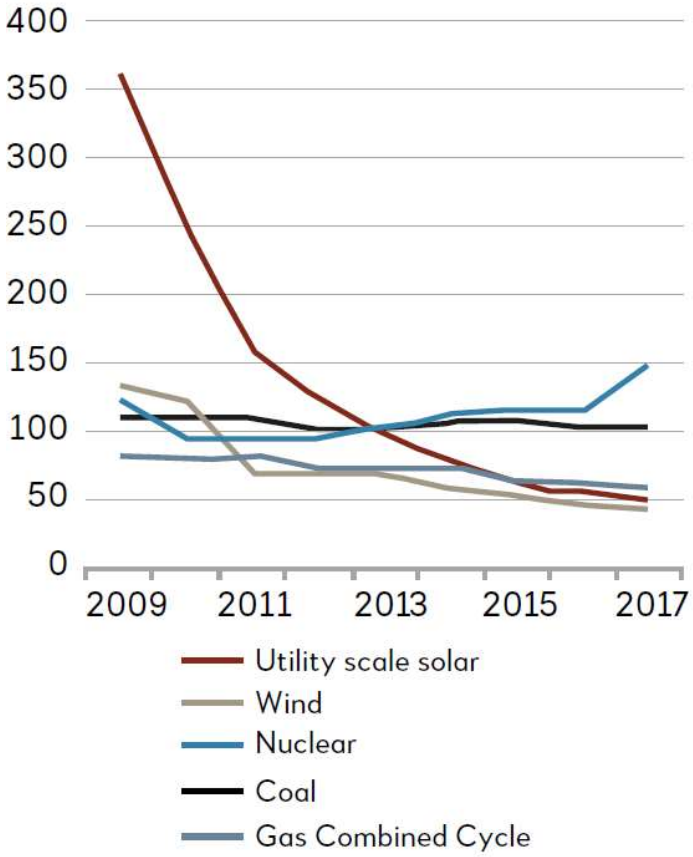
ADB. 2017. Meeting Asia's Infrastructure Needs
https://www.adb.org/sites/default/files/publication/227496/special-report-infrastructure-highlights.pdf

Estimated Asian infrastructure investment needs by region, 45 DMCs, 2016–2030 *($ billion in 2015 prices)*

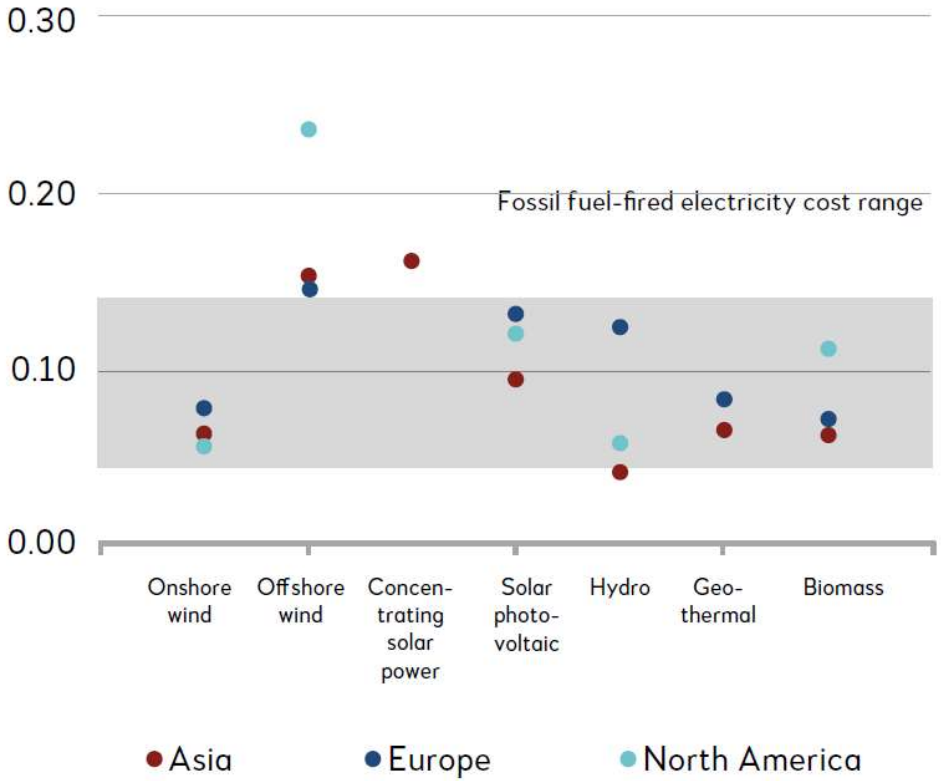
Sector	Baseline Estimates			Climate-adjusted Estimates			Climate-related Investments (Annual)	
	Investment Needs	Annual Average	Share of Total	Investment Needs	Annual Average	Share of Total	Adaptation	Mitigation
Power	11,689	779	51.8	14,731	982	56.3	3	200
Transport	7,796	520	34.6	8,353	557	31.9	37	–
Telecommunications	2,279	152	10.1	2,279	152	8.7	–	–
Water and Sanitation	787	52	3.5	802	53	3.1	1	–
Total	**22,551**	**1,503**	**100.0**	**26,166**	**1,744**	**100.0**	**41**	**200**

ADB. 2017. Meeting Asia's Infrastructure Needs
https://www.adb.org/sites/default/files/publication/227496/special-report-infrastructure-highlights.pdf

Selected historical mean LCOE values, USD/MWh



Weighted average levelized cost of electricity by renewable power generation technology, 2016 USD/kWh



ASIAN INFRASTRUCTURE FINANCE 2019 Bridging Borders: Infrastructure to Connect Asia and Beyond, AIIB
IRENA (2018). Renewable Power Generation Costs in 2017.
Lazard (2017). Lazard's Levelized Cost of Energy Analysis—Version 11.0.

This brings few big and key questions !!

- Are countries investing enough?
- How to source the investment?
- Do countries have sufficient capacity and efficiency to deliver those infrastructure?

- No, investment is far below needs
- Public finance and private finance (about 70% of infrastructure investment is by public sector now)
- Needs substantive institutional capacity enhancement

Source-ing the investment

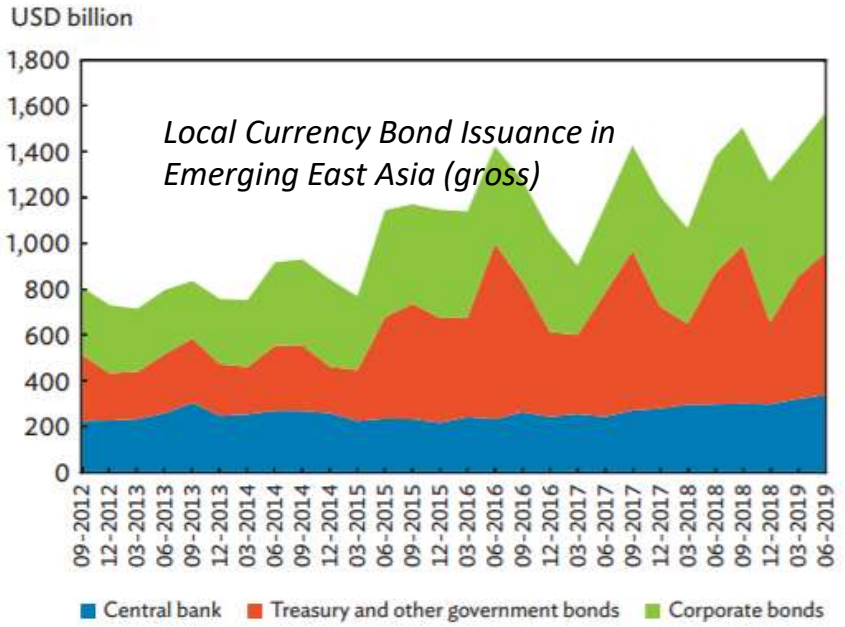
Tax base, tax rate, user charge, capital recycling, public borrowing, budget deficit	Widening the public financing space
Charging externality tax/effects: carbon tax, road congestion; Land value capture, public-private-partnerships	New financing means incl. leveraging the private sector
Infrastructure bond; local currency bond, green bond market	Capital markets: Enabling long-term bond market
About 2.5% infrastructure financing in developing Asia by MDB; 10% excluding China and India.	Development/MDB financing
Sovereign wealth funds, pension funds, and insurance companies	Attracting long term institutional investors

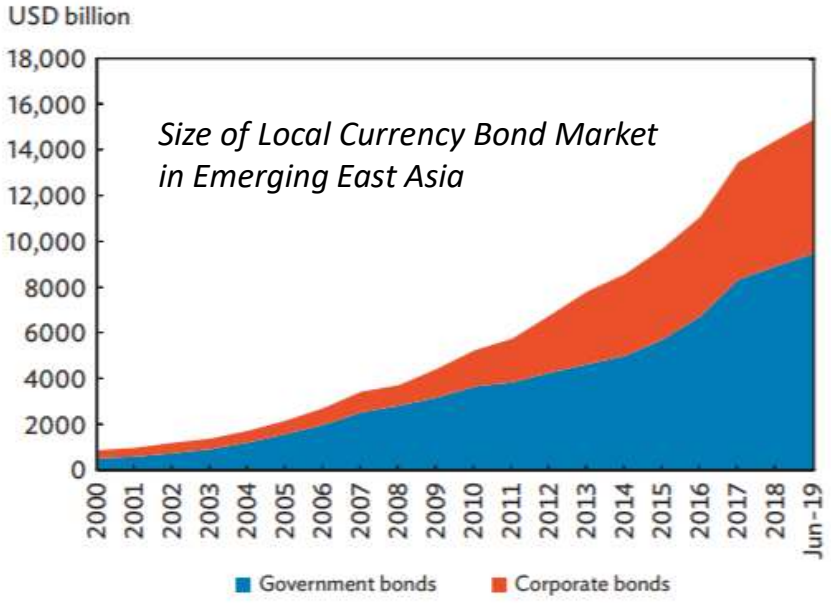
Infrastructure bond in Asia

- Contribution of infrastructure financing raised from infrastructure bond in Asia during the period 2015-2018 was just 10.8% (ESCAP, 2019);
- Means, its at very early stage.

Bond market

- Local currency bonds outstanding in emerging East-Asia reach 15.3 US$ Trillion by end of June 2019



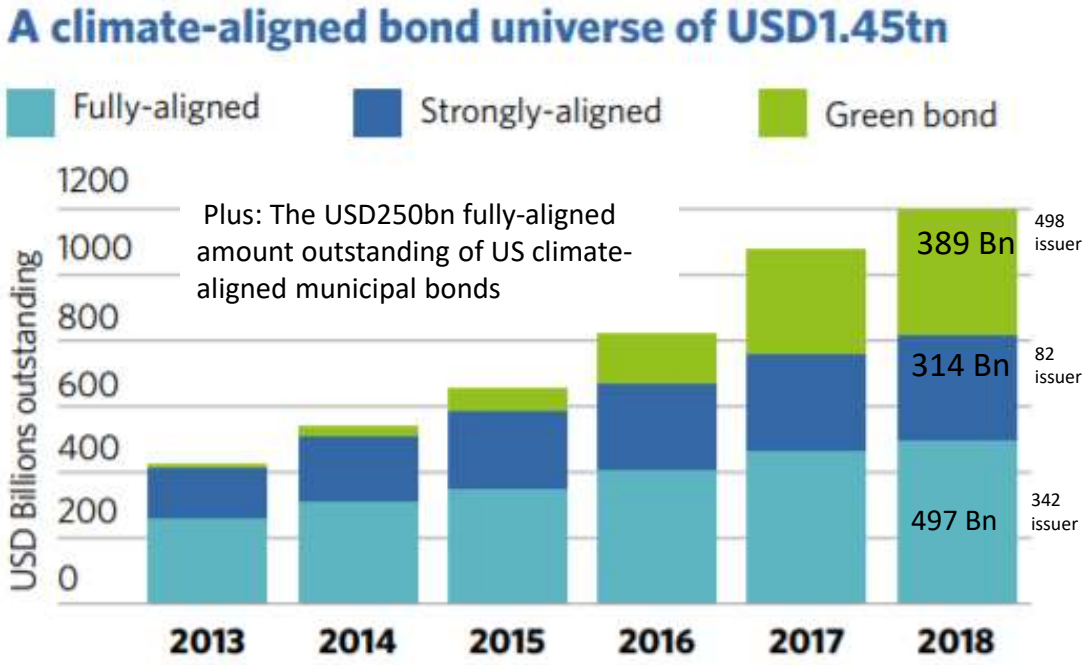


Asia Bond Monitor- Sept 2019, Asia Development Bank
https://www.adb.org/sites/default/files/publication/523826/asia-bond-monitor-september-2019.pdf

Asia/Pacific already leading labelled green bonds (pp 79, ESCAP (2019)

Infrastructure financing for sustainable development in Asia and the Pacific. Series No 3)

$ 32 trillion global bond market



BONDS AND CLIMATE CHANGE: THE STATE OF THE MARKET 2018. Prepared by Climate Bonds Initiative, Commissioned by HSBC, Sept 2018
https://www.climatebonds.net/resources/reports/bonds-and-climate-change-state-market-2018

Green bonds: Bonds issued in order to raise finance for climate change solutions and labelled as green by the issuer. They can be issued by governments, banks, municipalities or corporations and can be applied to any debt format, including private placement, securitisation, covered bond and sukuk.

Strongly-aligned climate issuers: Bond issuers where 75%-95% of revenues are derived from climate-aligned assets and green business lines. For bonds from strongly-aligned issuers, we analysed a pro rata amount corresponding to green revenue rather than the full outstanding value.

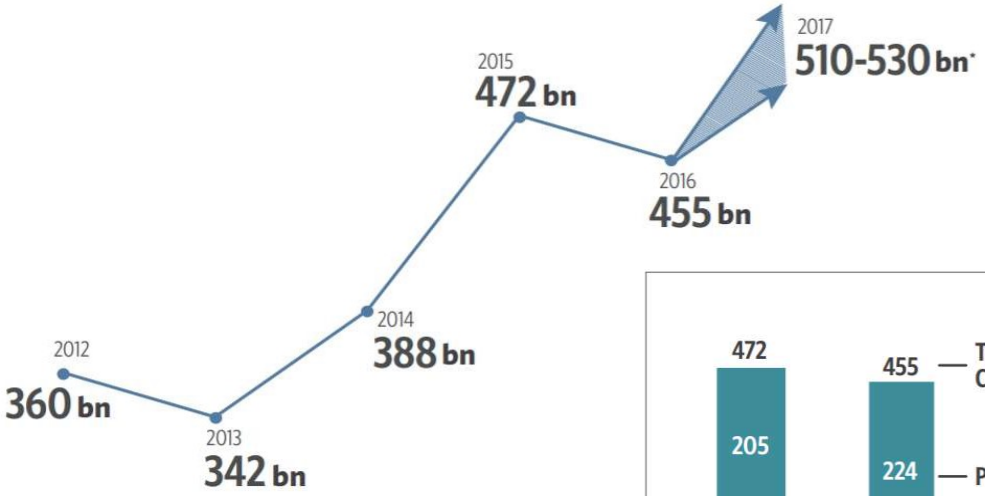
Fully-aligned climate issuers: Bond issuers that derive >95% of revenues from climate-aligned assets and green business lines. These are also referred to as 'fully-aligned' issuers.

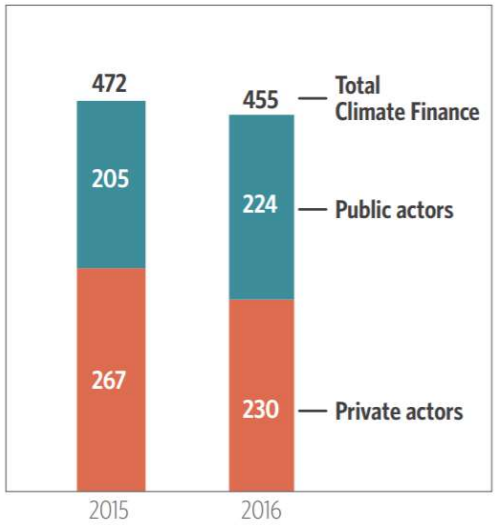
India:

→ Hyderabad-based Greenko group issues $950 million green bond in July 2019

→ Adani Group issues $ 500 million green bonds in July 2019

Global climate finance





* Preliminary estimates for 2017

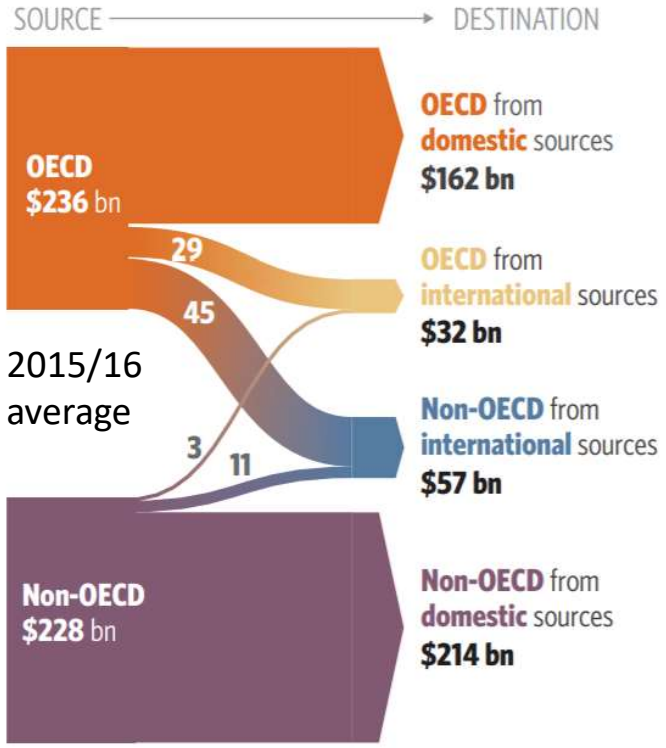
Steady investment in

- Renewable energy
- Rising electric vehicle, and
- Rising investment from development banks

https://climatepolicyinitiative.org/wp-content/uploads/2018/11/Global-Climate-Finance-An-Updated-View-2018.pdf

USD 1.6-3.8 trillion investment in energy system necessary to keep up with 1.5-degree Celsius scenario

(IPCC, 2018)



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Policy and institutional reform is key in Asia!!

- Public financing reform to source financing → yet not enough →could contribute about half of the investment gap → private is MUST
- Regulatory and institutional reforms are needed to generate bankable projects (many are not bankable without support) as well as to attract private investment
- Information flow, good governance, addressing corruption, investment confidence building

- Major reform could be around: making PPP work, attracting capital market (especially bond market) to help channel region's savings into infrastructure investment
- We 'want to see' carbon pricing but lets see → need more traction

This book is an excellent contribution !!

Infrastructure Financing in Asia

Edited by Bambang Susantono, Donghyun Park, and Shu Tian

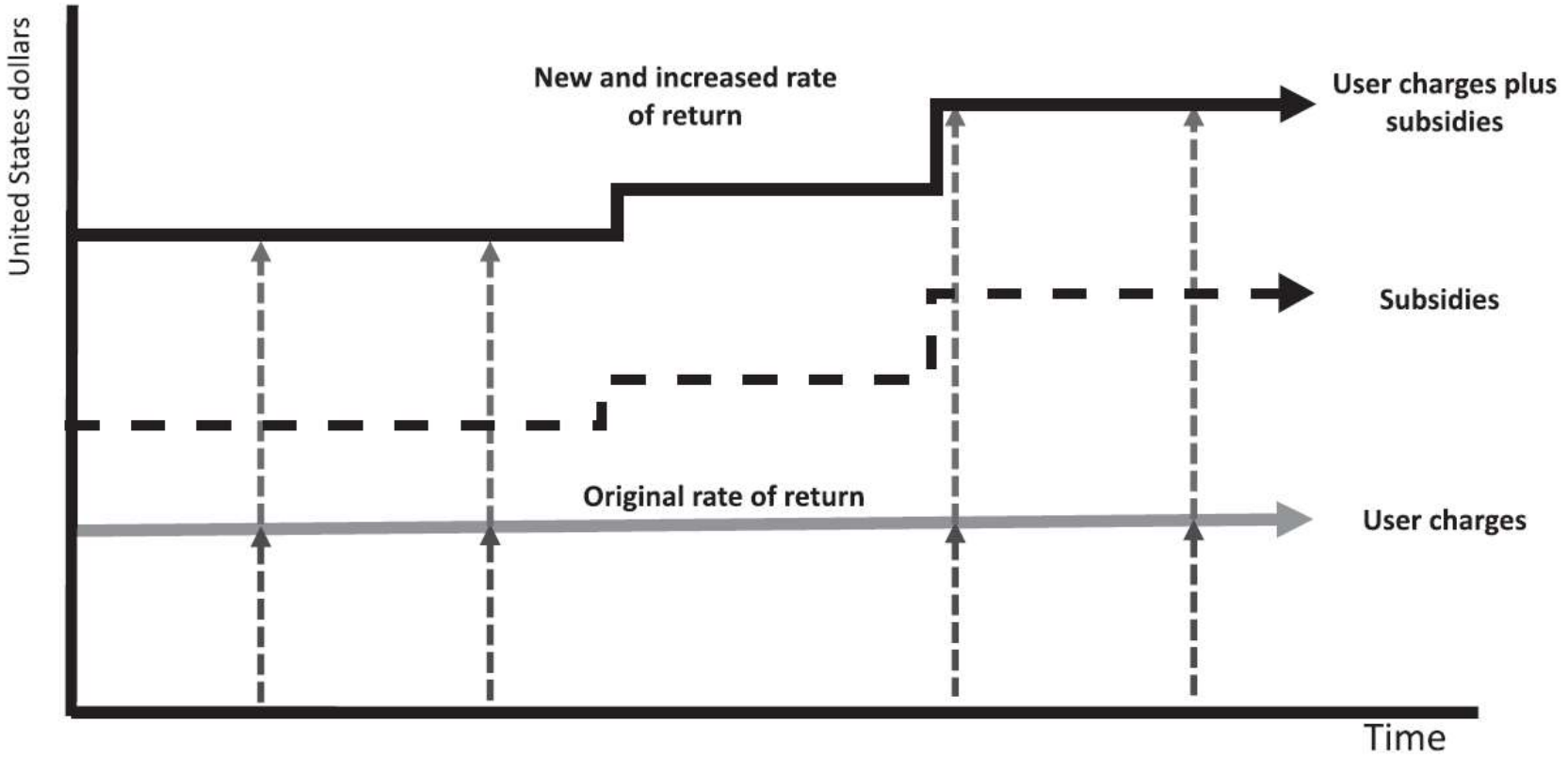
- Provides key insights on
  - Investment gaps
  - Means to fill those gaps → key focus on spillover capture, PPP, bond market to supplement long-term infra investment, ASEAN+3 and South Asia
  - Enabling those means → institutions
  - Other benefits → Human Capital Formation and Inclusive Growth through Infrastructure

What more “Part 2” of the book ‘could’ cover in the future that is missing?

- Uncertainties of investment gaps
- Demand – side issues
  - Analysis of barriers and challenges for making bankable projects in developing countries when investment funds are available
  - Key problem of developing economies to source/use funds
  - Why reform is slow? Politics, corruption, political will, dominance of interest groups
- More case studies and showcasing them on what makes them work
- Beyond smart grid →Renewable energy and climate finance deserves a greater degree of attentions
- Considerations to geo-politics, political volatility and political-economy

Thank you !!

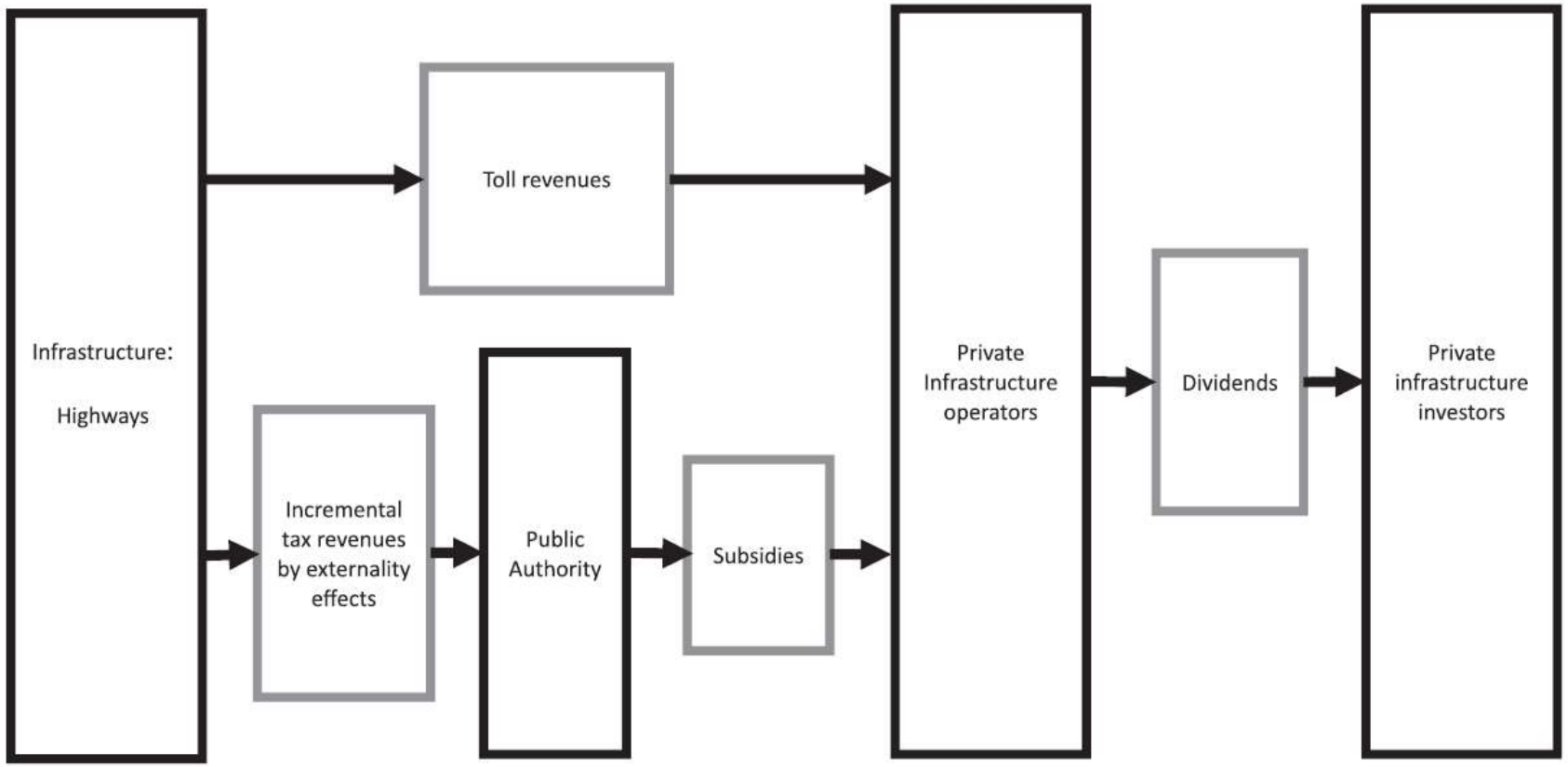
Linking externality tax revenues with public subsidies to increase the rate of return



Source: ESCAP.

ESCAP (2019) Infrastructure financing for sustainable development in Asia and the Pacific. Series No 3

Injection of fraction of externality tax revenues as subsidies



Source: ESCAP.

ESCAP (2019) Infrastructure financing for sustainable development in Asia and the Pacific. Series No 3