



ROAD AND RAIL INFRASTRUCTURE IN ASIA: INVESTING IN QUALITY

**Kensuke Tanaka, Head of Asia Desk, and
Prasiwi Ibrahim, Economist, OECD Development Centre**

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Outline

- **Comprehensive perspective on infrastructure**
- **Message 1: Improving infrastructure financing**
- **Message 2: Building up local governments' capacity to implement infrastructure investment**
- **Message 3: Bringing development strategies and infrastructure planning into closer alignment**



Comprehensive perspective on infrastructure

- Achieve value for money over the full project lifecycle
- Environmental impacts, disaster preparation, job creation, etc.

→ Comprehensive perspective on infrastructure
“**Externality effect of infrastructure**”
↔ financial feasibility (NPV>0)

- Mu and Van de Walle (2011)
- Datta (2012)
- ADBI (2018)



Quality of infrastructure varies considerably within Emerging Asia

Qualitative status of Infrastructure in Emerging Asia in 2014

	Road		Rail	Telecom	Electricity			Water and sanitation			
	Roads paved ^a	Road quality ^b	Rail quality ^b	Secure Internet servers ^c	Power losses ^d	Rural access to electricity ^e	Urban access to electricity ^f	Improved water source		Improved sanitation facilities	
								Rural ^e	Urban ^f	Rural ^e	Urban ^f
Brunei Darussalam	82.3	41	..	153.0	6.4	100.0	100.0	..	..	..	..
Cambodia	6.3	93	98	3.0	23.4	49.2	96.9	67.1	97.8	29.1	86.0
Indonesia	57.0	75	39	6.2	9.4	94.3	99.7	78.7	94.0	47.5	72.3
Lao PDR	13.7	91	..	2.1	..	68.1	94.7	69.4	85.6	56.0	94.5
Malaysia	80.9	20	15	87.6	5.8	100.0	100.0	93.0	100.0	95.9	96.1
Myanmar	45.7	..	..	0.5	20.5	49.0	85.5	74.4	92.7	77.1	84.3
Philippines	20.0	106	89	10.8	9.4	82.5	97.3	89.7	93.6	69.8	77.5
Singapore	100.0	2	5	822.3	2.0	100.0	100.0	..	100.0	..	100.0
Thailand	97.5	90	96	23.1	6.1	100.0	100.0	98.0	97.6	96.1	89.9
Viet Nam	47.6	89	52	11.9	9.2	98.9	99.9	95.2	98.7	68.1	93.2
China	63.7	39	14	7.0	5.5	100.0	100.0	91.5	97.5	62.8	85.9
India	53.8	51	23	5.5	19.4	70.0	98.3	92.6	97.1	28.5	62.6
East Asia & Pacific	65.0			131.4	5.4	94.9	99.6	89.0	97.3	63.6	86.7
South Asia	45.1			4.7	18.9	71.8	97.8	90.8	95.3	34.7	64.4
OECD members	79.3			992.0	6.3	99.7	100.0	98.4	99.5	95.4	98.4
World	57.0			188.7	8.3	73.1	96.4	83.9	96.4	49.8	82.0

Note: The unit of measurement for each column is as follows

- Percentage of total roads; data have different years depending on availability: 2004 for Cambodia, 2009 for Lao PDR, 1999 for the Philippines, 1999 for Thailand, 2007 for Viet Nam, and 2011 for the rest.
- Ranking out of 138 countries; quality of infrastructure is based on Executive Opinion Survey.
- Number per 1 million people.
- Electric power transmission and distribution losses as a share of output.
- Percentage of rural population with access.
- Percentage of urban population with access.

Source: World Bank (2018), World Development Indicators (database); WEF (2016), The Global Competitiveness Report 2016-2017.



Stimulating local development through infrastructure investment

Thilawa Special Economic Zone (SEZ) of Myanmar

- As of April 2018, foreign investment in the SEZ totalled over USD 1.374 billion and more than 40 factories were operational according to the Thilawa SEZ Management Committee, the site's governing body.
- Investments are being made in a number of sectors, including the manufacturing of garments, toys, radiators, steel products and aluminium cans; food processing; packaging; and logistics.
- 8 000 people were employed during the construction phase of Zone A and the government estimated that 30 000 to 50 000 jobs will be created with the development of Zone A and B.
- Improved skills and technological transfers should help to generate positive spillovers to local industries outside of the SEZ. Existing roads and power supplies were also upgraded, improving the investment climate and contributing to the well-being of the local community.



Recent and ongoing quality infrastructure projects in Asia

Project	Location	Infrastructure type
Delhi mass rapid transport system	Delhi, India	Urban railway
National Highways Development Project (NHDP)	India	Highway
Gujarat state highway project	Gujarat, India	Highway
Railway double tracking on Java's South Line	Java, Indonesia	Railway
Construction of a mass rapid transit system in Jakarta	DKI Jakarta Province, Indonesia	Urban railway
Champasack road improvement project	Champasack, Lao PDR	Road
Project to improve the transport network in the northern part of the Greater Mekong sub-region	Louang Phrabang and Xaignabouri, Lao PDR	Road
Enhancing the capacity of mass transit systems in Metro Manila	Manila, the Philippines	Urban railway
Southern transport development project	Southern Sri Lanka	Highway
Regional road-improvement project	Central and southern Thailand	Highway
MRTA initial system (Blue Line)	Bangkok, Thailand	Urban railway
Bangkok urban transport project	Bangkok, Thailand	Highway
Mass transit system in Bangkok (Purple Line)	Bangkok Metropolitan Area, Thailand	Urban railway
Construction of a tunnel at the Hai Van pass	Central Viet Nam	Highway tunnel
Third rural transport project	Viet Nam	Road
Construction of the Nhat Tan bridge (Vietnam-Japan Friendship Bridge)	Hanoi, Viet Nam	Road bridge

Source: OECD Development Centre.



Message 1: Improving infrastructure financing

- **Broadening infrastructure financing options**
- **Optimal financing depends on type and phase the project**
(Pre-construction, construction and post-construction/maintenance)



Funding from the public sector

- **Fuel and carbon taxes
(Special purpose taxes)**
- **Vehicle and road user charges**
- **Land value capture tools (Tax increment financing)**

Revenues from congestion charges in selected cities

London	Singapore	Stockholm	Milan	Gothenburg
USD 352 million/year (in 2014)	USD 60 million/year	USD 94 million/year (2013), plus USD 12 million in penalty charges	USD 28 million/year	USD 99 million/year, plus USD 9.6 million/year in fines

Source: Amelsfort, D.V. (2015), "Introduction to congestion charging: a guide for practitioners in developing cities"



Infrastructure financing from private sector has increased in the region

Private ownership and number of projects by geographic cluster, 2007-16
Infrastructure projects with private-sector participation, by region

Number of Projects	All projects	Transport	Land Transport
Emerging Asia	1 594	399	340
Europe and Central Asia	390	51	18
Latin America and the Caribbean	1 014	250	165
Middle East and North Africa	84	13	1
Sub-Saharan Africa	226	23	6
Investment, USD billion	All projects	Transport	Land transport
Emerging Asia	352.9	118.9	108.1
Europe and Central Asia	198.1	74.4	28.2
Latin America and the Caribbean	339.9	150.6	107.4
Middle East and North Africa	27.2	4.1	0.2
Sub-Saharan Africa	51.0	11.1	1.5
Average private ownership, %	All projects	Transport	Land transport
Emerging Asia	94.7	94.9	97.0
Europe and central Asia	93.5	92.6	84.1
Latin America and the Caribbean	95.6	98.6	99.9
Middle East and North Africa	89.8	86.9	100.0
Sub-Saharan Africa	94.1	93.7	87.0

Note: Not all projects have data on investment level and/or private ownership. Average private share pertains to simple average of private ownership in documented infrastructure projects where data are available. Year refers to financial closure year as defined in the World Bank PPI database.

Source: OECD Development Centre's calculations using World Bank PPI database (World Bank, 2017).



Private sector participation for infrastructure projects varies across countries

Infrastructure projects with private-sector participation in Emerging Asia
Average investment by project, USD billion

	All projects		Transport		Land Transport	
	1997-2006	2007-16	1997-2006	2007-16	1997-2006	2007-16
Cambodia	0.03	0.25	0.04	-	0.01	-
China	0.13	0.10	0.21	0.57	0.20	0.89
India	0.32	0.32	0.13	0.26	0.07	0.26
Indonesia	0.38	0.50	0.34	0.32	0.18	0.35
Lao PDR	0.47	0.70	0.003	-	-	-
Malaysia	0.58	0.45	0.35	0.35	0.40	0.35
Myanmar	0.29	0.47	-	0.20	-	-
Philippines	0.45	0.41	0.24	0.31	0.42	0.47
Thailand	0.19	0.21	0.17	-	0.44	-
Viet Nam	0.25	0.12	0.10	0.18	0.13	0.28

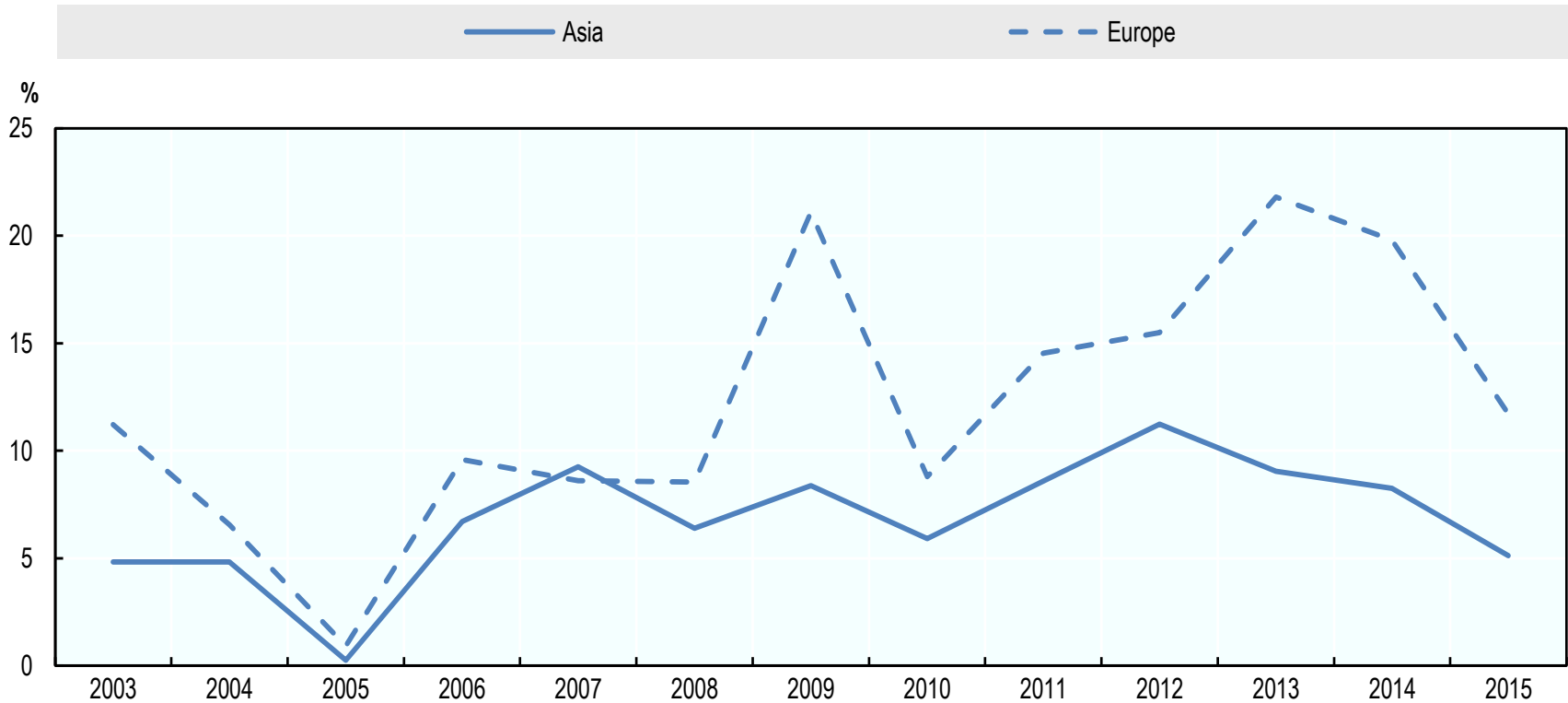
Note: Calculation only included projects with investment data. Year refers to financial closure year as defined in the World Bank PPI database.

Source: OECD Development Centre's calculations using World Bank PPI database (World Bank, 2017).



Asian capital markets for infrastructure financing are relatively underdeveloped

Infrastructure bonds outstanding as share of gross domestic product in Asia and Europe, 2003-15



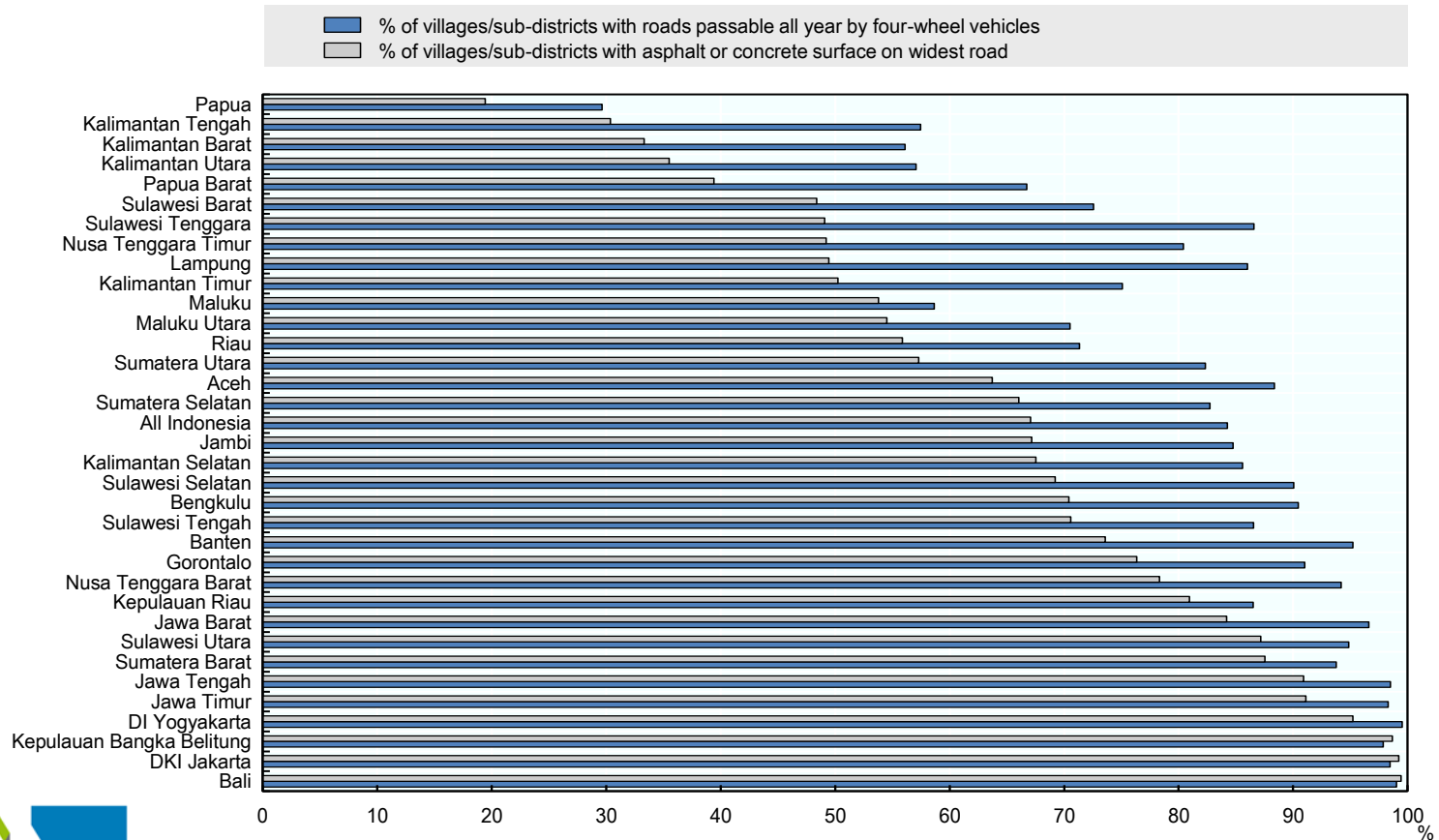
Note: Simple average values for the gross domestic product of all economies in each region are used.

Source: ADB (2016), Asia Bond Monitor, <https://www.adb.org/publications/series/asia-bond-monitor>.



Access to quality infrastructure differs considerably across regions in Indonesia

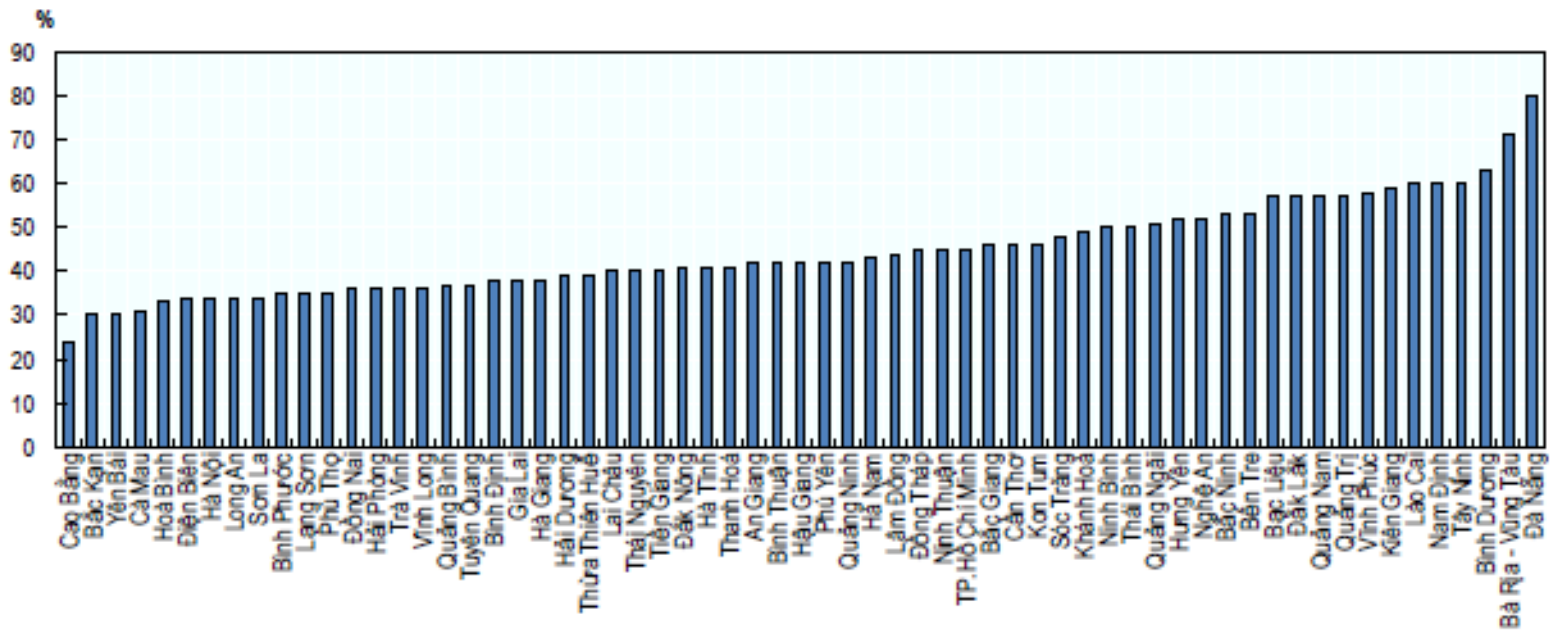
Villages and sub-districts in Indonesia with access to quality roads by province, 2014





Businesses in Viet Nam perceive their access to local infrastructure as insufficient

Percentage of business owners satisfied with transport infrastructure in Viet Nam by province, 2016





Local governments play important roles in infrastructure development

Local governance tiers in Indonesia, the Philippines and Viet Nam

	Regional or state level	Intermediate level	Municipal level
Indonesia	34 provinces (provinsi)	-	508 regencies (kabupaten) and cities (kota)
Philippines	81 provinces	1 489 municipalities and 105 cities	42 028 villages (barangays)
Viet Nam	63 provincial-level entities, including 5 city-provinces	710 districts (cities/towns)	11 145 communities

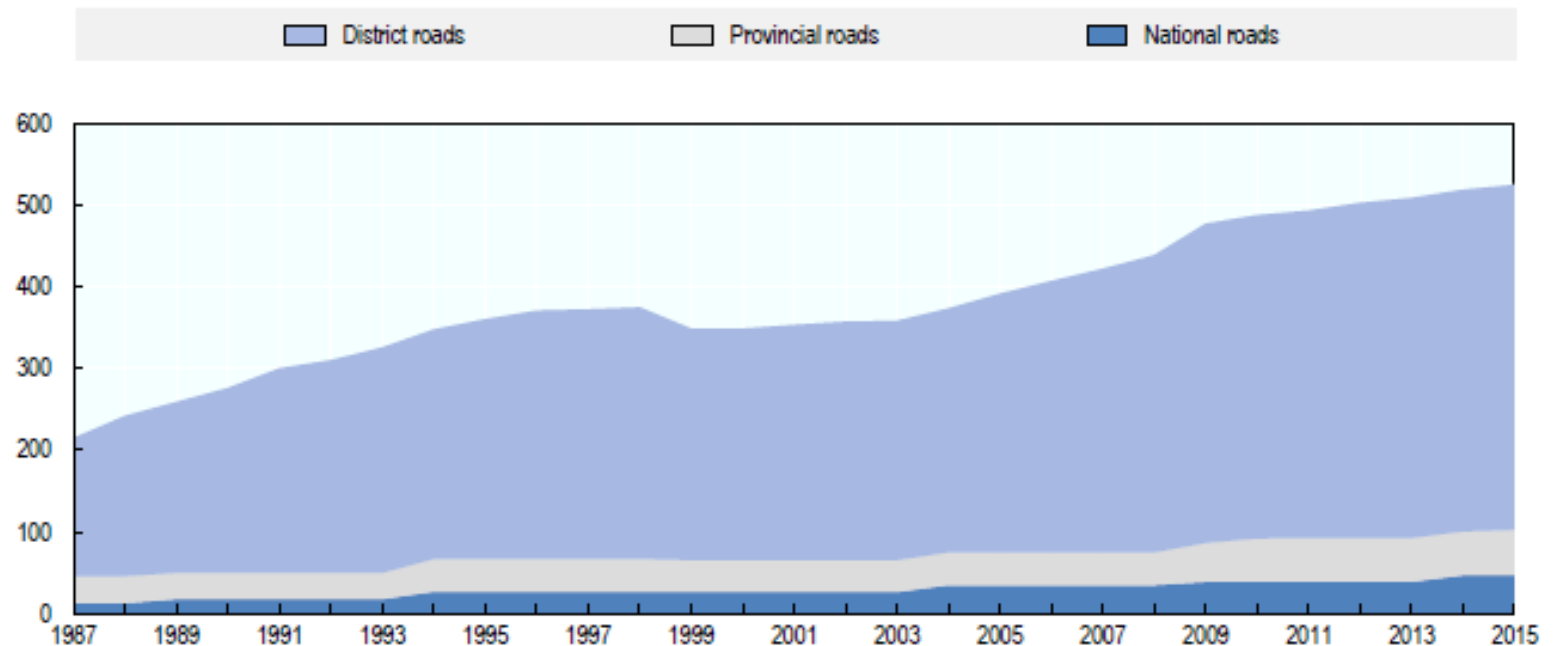
Source: OECD/UCLG (2016), Subnational Governments around the World: Structure and Finance.



Local governments play important roles in infrastructure development

Length of national, provincial and district roads in Indonesia, 1987-2015

Thousands of kilometres

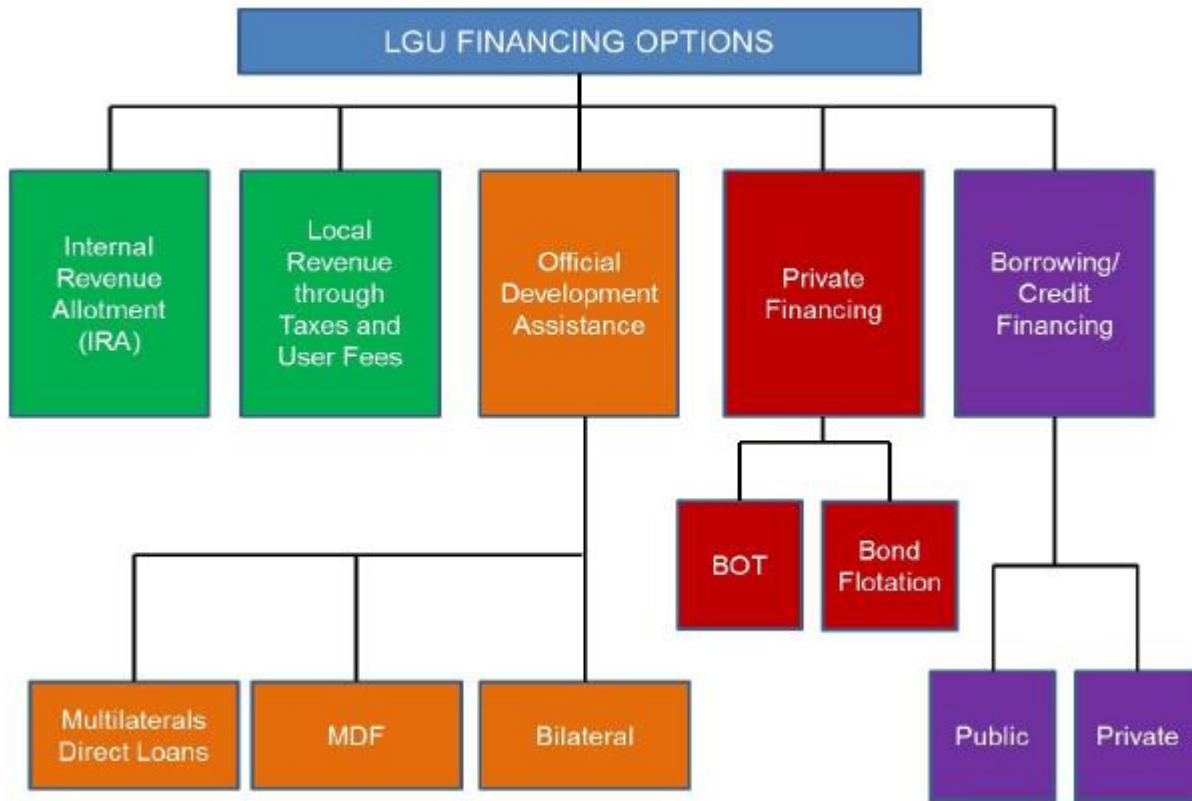


Source: BPS (2017), "Length of road by level of government responsibility Indonesia, 1987-2015 (Km)", <https://www.bps.go.id/linkTableDinamis/view/id/808>.



Local governments' financing options

The financing options of local governments in the Philippines





Local governments' financing options

Investment capital for development of transport infrastructure in Viet Nam by level of government, 1994-2011

	Capital (VND trillion)			Share (%)		
	Central	Local	Total	Central	Local	Total
1994	2	1	3	60.8	39.2	100
1997	4	2	6	68.1	31.9	100
1998	5	2	7	68.6	31.4	100
1999	5	3	8	63.1	36.9	100
2000	6	3	9	62.8	37.2	100
2001	8	6	14	58.0	42.0	100
2002	9	7	16	56.4	43.6	100
2009	36	28	64	55.8	44.2	100
2010	39	22	61	63.5	36.5	100
2011	35	19	54	64.3	35.7	100

Source: Tuong. P. V. (2015); plus collected from World Bank data from 2005, and from Viet Nam's transport ministry from 2012.



Message 2: Building up local governments' capacity

Key issues for improving the implementation of local infrastructure investments:

- Improvements can be made to infrastructure planning and co-ordination
- Local governments may benefit from capacity-building assistance
- Broadening sources of financing will help to fund infrastructure investments



Message 3: Bringing development strategies and infrastructure planning into closer alignment

- A key component of quality infrastructure investment that could be developed further in many Asian countries is the use of complementary and coordinated development strategies and infrastructure planning.
- Two important issues to be addressed:
 - The use of efficient public investment management mechanisms.
 - Effective processes of project appraisal.



Transport development plan in Viet Nam

Responsibilities for transport development plans and policies in Viet Nam

Type of infrastructure	Responsible authority	Regulations on functions and duties	Regulations governing multi-modal initiatives
Roads	Directorate for Roads of Viet Nam (DRVN), reporting to the Ministry of Transport	Decision No. 60/2013 / QD-TTg dated 21/10/2013	Ministry of Transport, as stipulated in Decree No. 12/2017/ ND-CP
Highways	Generally, the Ministry of Transport, although sometimes unclear		
Railways	Railway authority, reporting to the Ministry of Transport; Viet Nam Railways, reporting to the Prime Minister		
Inland waterways	Vietnam Inland Waterways Administration, reporting to the Ministry of Transport	Decision No.27/2008/ QD-BGTVT dated 2 September 2008	
Ports	Vietnam Maritime Administration, reporting to the Ministry of Transport and Vietnam National Shipping Lines (Vinalines), reporting to the Prime Minister	Decision No.1155/QD-BGTVT dated 3 April 2015	
Aviation	Civil Aviation Administration of Vietnam, reporting to the Ministry of Transport	Decision No.121/QD-BGTVT dated 14 January 2016	



THANK YOU FOR
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