MEETING ASIA'S INFRASTRUCTURE NEEDS

HIGHLIGHTS

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HIGHLIGHTS

- Developing Asia will need to invest $26 trillion from 2016 to 2030, or $1.7 trillion per year, if the region is to maintain its growth momentum, eradicate poverty, and respond to climate change (climate-adjusted estimate). Without climate change mitigation and adaptation costs, $22.6 trillion will be needed, or $1.5 trillion per year (baseline estimate).

- Of the total climate-adjusted investment needs over 2016–2030, $14.7 trillion will be for power and $8.4 trillion for transport. Investments in telecommunications will reach $2.3 trillion, with water and sanitation costs at $800 billion over the period.

- East Asia will account for 61% of climate-adjusted investment needs through 2030. As a percentage of gross domestic product (GDP), however, the Pacific leads all other subregions, requiring investments valued at 9.1% of GDP. This is followed by South Asia at 8.8%, Central Asia at 7.8%, Southeast Asia at 5.7%, and East Asia at 5.2% of GDP.

- The $1.7 trillion annual estimate is more than double the $750 billion Asian Development Bank (ADB) estimated in 2009. The inclusion of climate-related investments is a major contributing factor. A more important factor is the continued rapid growth forecasted for the region, which generates new infrastructure demand. The inclusion of all 45 ADB member countries in developing Asia, compared to 32 in the 2009 report, and the use of 2015 prices versus 2008 prices also explain the increase.

- Currently, the region annually invests an estimated $881 billion in infrastructure (for 25 economies with adequate data, comprising 96% of the region's population). The infrastructure investment gap—the difference between investment needs and current investment levels—equals 2.4% of projected GDP for the 5-year period from 2016 to 2020 when incorporating climate mitigation and adaptation costs.

- Without the People's Republic of China (PRC), the gap for the remaining economies rises to a much higher 5% of their projected GDP. Fiscal reforms could generate additional revenues equivalent to 2% of GDP to bridge around 40% of the gap for these economies. For the private sector to fill the remaining 60% of the gap, or 3% of GDP, it would have to increase investments from about $63 billion today to as high as $250 billion a year over 2016–2020.

- Regulatory and institutional reforms are needed to make infrastructure more attractive to private investors and generate a pipeline of bankable projects for public-private partnerships (PPPs). Countries should implement PPP-related reforms such as enacting PPP laws, streamlining PPP procurement and bidding processes, introducing dispute resolution mechanisms, and establishing independent PPP government units. Deepening of capital markets is also needed to help channel the region's substantial savings into productive infrastructure investment.

- Multilateral development banks (MDB) have financed an estimated 2.5% of infrastructure investments in developing Asia. Excluding the PRC and India, MDB contributions rise above 10%. A growing proportion of ADB finance is now going to private sector infrastructure projects. Beyond finance, ADB is playing an important role in Asia by sharing expertise and knowledge to identify, design, and implement good projects. ADB is scaling up operations, integrating more advanced and cleaner technology into projects, and streamlining procedures. ADB will also promote investment friendly policies and regulatory and institutional reforms.

Infrastructure's pivotal role in developing Asia's economic growth and poverty reduction

- **This report estimates infrastructure investment needs in Asia and the Pacific between 2016 and 2030.** The analysis covers transport, power, telecommunications, and water supply and sanitation.[1] The report describes how much the region will need to invest in infrastructure to continue its economic growth momentum, eradicate poverty, and respond to climate change. It examines how much countries have been investing in infrastructure, using data from a variety of sources—including government budget data, components of gross fixed capital formation, and information on private sector investment. It also presents a snapshot of infrastructure stocks currently available. It concludes with a discussion of the financial and institutional challenges the region must overcome to meet future infrastructure needs.

- **The region's infrastructure has improved rapidly but remains far from adequate.** Developing Asia has seen dramatic improvements in its transportation network, electricity generation capacity, and telecommunications and water infrastructure, among others. Better access to infrastructure has driven growth, reduced poverty and improved people's lives. Yet over 400 million Asians still lack electricity; roughly 300 million have no access to safe drinking water and 1.5 billion lack basic sanitation. Poor quality remains a problem. In many countries, power outages constrain economic growth. And city traffic congestion alone costs economies huge amounts daily in lost productivity, wasted fuel, and human stress.

- **This report updates ADB's earlier assessment of the region's future infrastructure investment.** In 2009, ADB and the Asian Development Bank Institute (ADBI) projected infrastructure needs for developing Asia

1 For the most part, infrastructure in this report refers to physical infrastructure covering transport (roads, railways, airports, and seaports), power (generation, distribution, and transmission), telecommunications, and water supply and sanitation.

from 2010 to 2020 in *Infrastructure for a Seamless Asia* (*Seamless Asia*).[2] The study was based on 32 of ADB's 45 developing member countries (DMCs). It projected that total investment needs for the four infrastructure sectors would reach a little more than $8 trillion (in 2008 prices) over the 11-year period—or almost $750 billion a year. These projections must be updated as the region continues to grow robustly, better data are available, and the role of infrastructure in tackling the impact of climate change has become clearer.

- **The new estimates cover all 45 DMCs over the 15-year period from 2016 to 2030.** Following the "top-down" methodology adopted by *Seamless Asia*, estimates of infrastructure needs are based on (i) the estimated empirical relationship between an economy's infrastructure stocks and key economic and demographic factors (such as per capita GDP, population density, share of urban population, and share of industry in the economy, controlling for country-specific characteristics) over the last four decades; (ii) projections of these economic and demographic variables over 2016–2030; and (iii) estimates of the unit cost of building each type of infrastructure. The data indicate that the stocks needed for all types of infrastructure increase with income level, but at a declining rate; increased population density and urbanization require greater road and sanitation infrastructure; and a higher share of manufacturing in GDP requires greater stocks of seaports and power generation infrastructure.

The two sets of estimates: (i) baseline; and (ii) climate-adjusted (baseline plus climate mitigation and adaptation costs)

- **Two sets of estimates are generated.** The first are baseline estimates. The second set of estimates incorporates the effects of climate change. It adjusts the baseline estimates by adding the costs of climate mitigation (in particular, for more efficient and cleaner power generation and electricity

2 See ADB and ADBI (2009).

transmission) and adaptation (in particular, for "climate proofing," mainly in transport and water by making infrastructure more resilient to the impacts of climate change).

- **The baseline estimate is $22.6 trillion; the needs increase to $26.2 trillion including climate mitigation and adaptation costs.** The baseline scenario indicates that developing Asia will need to invest $22.6 trillion (in 2015 prices)—or $1.5 trillion annually—in infrastructure from 2016 to 2030. This is equivalent to 5.1% of projected GDP. Factoring in climate mitigation and adaptation costs raises the investment required to $26.2 trillion—$1.7 trillion annually—or 5.9% of projected GDP.

- **The $1.7 trillion annual climate-adjusted estimate is more than double the $750 billion ADB estimated in 2009.**[3] The inclusion of climate-related investments is a major contributing factor. An even more important factor that explains the difference between the two estimates is the continued rapid growth forecasted for the region, which generates new infrastructure demand. The inclusion of all 45 ADB member countries in developing Asia, compared to 32 in the 2009 report, and the use of 2015 prices versus 2008 prices also explain the increase.

- **There is wide variation across subregions.** Including climate change, East Asia—driven by the PRC—accounts for 61% of developing Asia's projected 2016–2030 infrastructure investment, followed by South Asia, Southeast Asia, Central Asia, and the Pacific (Table 1). South Asia accounts for about a quarter of the total needs. However, as a share of GDP, the Pacific's needs are highest at 9.1% of GDP, followed by South Asia's at 8.8%. Southeast Asia's economies will need to allocate 5.7% of GDP for infrastructure investment needs through 2030, and Central Asia at 7.8% of GDP.

- **Differences in existing infrastructure stocks, level of economic development and growth prospects are the main reasons for**

3 Annex Table 1 compares this report's estimates with those of *Seamless Asia* for the common 32 DMCs, expressed in 2008 prices.

subregional variations. As our analysis of the empirical relationship between an economy's infrastructure stocks and key economic and demographic factors reveals, an economy with lower infrastructure stocks, lower GDP per capita, and greater growth prospects will have higher investment needs as a percent of future GDP. As GDP per capita increases, the stock of infrastructure will rise, but annual infrastructure investment needs as a share of GDP will decline. For example, with South Asia's GDP per capita about 60% below that of Southeast Asia in 2015, and the projected average annual growth of South Asia 1.4 percentage points higher than Southeast Asia, infrastructure investment needs as a percent of GDP are significantly higher in South Asia.

Table 1: Estimated 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.
Source: 2015 Revision of World Population Prospects, United Nations; ADB estimates.

- **Infrastructure investment needs vary considerably by sector** (Table 2). Power and transport are the two largest sectors, accounting for 52% and 35%, respectively, of total infrastructure investments for the baseline projections; and 56% and 32%, respectively, of total climate-adjusted investments. Telecommunications and water and sanitation are relatively small, accounting for 9% and 3%, respectively, of total climate-adjusted investments. However, the figures for these two sectors by no means suggest they are less important for the economy or individual welfare.

- **Climate mitigation costs are estimated at $200 billion annually.** These primarily come from the power sector, which is particularly important in controlling carbon emissions through investments in renewable energy, smart grids, and energy efficiency. The transport sector is also important for mitigating climate change through shifts from more carbon-intensive modes of travel (private cars) to less carbon-intensive modes (public transit and railways). However, over the longer term, these shifts in transport should be promoted by policy and regulations, and are unlikely to incur additional costs over baseline transport estimates. Countries may need to invest more in railways, but less in highways; thus aggregate investment can be even lower. Hence, we do not introduce any mitigation-related adjustments to our transport sector investment needs estimates.

- **The costs of climate proofing, a subset of climate adaptation, are estimated at $41 billion annually.** Transportation accounts for the majority of climate proofing investments—estimated at $37 billion annually. Countries must ensure their infrastructure is resilient to the projected impacts of climate change, as phenomena such as sea level rise and intensified extreme weather can damage infrastructure, and affect its longevity and performance. This can be done by measures such as elevating road embankments, relocating upstream water intake and treatment works, and enhancing design and maintenance standards.

Table 2: Estimated Infrastructure Investment Needs by Sector, 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**

Note: – denotes not applicable.
Source: ADB estimates.

Data issues

- **An important and unique task in preparing this report was to better understand how much countries have been investing in infrastructure.** Given the lack of comprehensive data on actual infrastructure investments across countries, this report tries several ways of measuring actual infrastructure investment. It adopts a benchmark measure—infrastructure expenditures from government budget documents plus information on private investment in infrastructure from the World Bank's Private Participation in Infrastructure Project database.

- **National and international agencies should prioritize constructing more comprehensive, better quality data on infrastructure investments.** A promising approach is to partner with national accounts statisticians to estimate infrastructure investments using gross fixed capital formation data disaggregated by type of fixed asset, the institution undertaking the investment, and the industry in which investment is taking place. This approach would be comprehensive as it would capture investments by governments, state-owned enterprises (SOEs), and the private sector; allow disaggregation by sector and institution; and generate a time-series of infrastructure investments.

Boosting infrastructure investment to meet development and sustainability goals

- **Focusing on 25 DMCs and the 5-year period from 2016 to 2020, the gap between current and needed investment levels works out to $330 billion (baseline) or $460 billion (climate-adjusted) annually**. Information from government budgets and the World Bank's Private Participation in Infrastructure Project database for 25 DMCs with adequate data and covering 96% of the region's population suggest the region invested $881 billion in infrastructure in 2015 (Table 3). This is well below the estimated $1.2 trillion (baseline) or $1.3 trillion (climate-adjusted) annual investment needs over the 5-year period from 2016 to 2020 for the 25 DMCs. The baseline infrastructure investment gap is

around $330 billion, equivalent to 1.7% of projected GDP of the 25 DMCs. If climate-related needs are included, the gap is around $459 billion, or 2.4 % of the projected GDP.

- **These aggregate figures mask wide variations in infrastructure investment gaps across the region.** The PRC has a gap of 1.2% of GDP using climate-adjusted estimates. Without the PRC, the gap in the climate-adjusted scenario as a share of the remaining economies' GDP is much higher at 5%. In general, lower income economies tend to have larger gaps. Thus, the South Asia climate-adjusted gap is 5.7% of projected GDP—or 1.6 percentage points higher than that of more developed Southeast Asia. But, factors other than income levels are also at work, such as the prospects for economic growth.

- **The gap should be filled by both public and private sectors.** Public finance reforms could generate additional revenues estimated to bridge around 40% of the gap (or 2% of GDP) for the 24 economies (excluding the PRC) in the climate-adjusted scenario. For the private sector to fill in the remaining gap (or 3% of GDP), it would have to increase investments from about $63 billion today to as high as $250 billion a year over 2016–2020.

Table 3: Estimated Infrastructure Investments and Gaps, 25 DMCs, 2016–2020
($ billion in 2015 prices)

	Estimated Current Investment (2015)	Baseline Estimates			Climate-adjusted Estimates		
		Annual Needs	Gap	Gap (% of GDP)	Annual Needs	Gap	Gap (% of GDP)
Total (25)	881	1,211	330	1.7	1,340	459	2.4
Total without PRC (24)	195	457	262	4.3	503	308	5.0
Selected Central Asia Countries (3)	6	11	5	2.3	12	7	3.1
Selected South Asia Countries (8)	134	294	160	4.7	329	195	5.7
Selected Southeast Asia Countries (7)	55	147	92	3.8	157	102	4.1
Selected Pacific Countries (5)	1	2	1	6.2	2	2	6.9
India	118	230	112	4.1	261	144	5.3
Indonesia	23	70	47	4.7	74	51	5.1
PRC	686	753	68	0.5	837	151	1.2

PRC = People's Republic of China.
Numbers in parentheses refer to the number of selected countries.
Note: The gap as a % of GDP is based on the annual average of projected GDP from 2016 to 2020. The 25 DMCs covered here are listed in Annex Table 2.
Source: ADB (2016); Country sources; Investment and Capital Stock Dataset, 1960-2015, IMF; Private Participation in Infrastructure Database; World Bank; World Bank (2015a and 2015b); World Development Indicators, World Bank; ADB estimates.

Financing infrastructure investment

- **The public sector currently dominates infrastructure financing.** The public sector currently finances around 92% of the region's infrastructure investment (as captured by the 25 DMCs with adequate available data).[4] There is a wide difference in the relative importance in public finance across subregions, however, with its share ranging from a high of over 90% in East Asia (driven by the PRC) to a low of 62% in South Asia. Public sector finance covers tax and nontax revenues, borrowing via bonds and loans, official development assistance from donor countries, and support from multilateral development banks (MDBs). The importance of each of these components varies across countries.

- **MDB operations in developing Asia, most of which provide support for public sector finance, are estimated to have contributed around 2.5% of the region's infrastructure investments in 2015.** However, the MDB contributions rise above 10% if both the PRC and India are excluded. MDB operations in Asia are led by ADB and the World Bank. In 2015, ADB approved $10 billion of financing in the four major infrastructure sectors covered in this report. In the same period, the World Bank Group also committed about $10 billion to the same group of countries, of which $3 billion went to the private sector through the International Finance Corporation. The Islamic Development Bank Group approved $3 billion in Asian infrastructure.

- **Governments in many DMCs can increase public investment in infrastructure by raising more revenues, reorienting spending, and through prudent borrowing.** Policy makers must evaluate how much fiscal space is available to increase infrastructure investment under various options for reforming public finance. Many countries in developing Asia can increase revenues through tax reform (including improving tax administration). There is also scope to reorient budget expenditures toward public investment by cutting energy subsidies, for example, and by borrowing prudently while keeping debt levels manageable.

4 Public sector infrastructure investment covers SOEs in India, Indonesia and the PRC, but may underestimate SOE infrastructure investment in other DMCs.

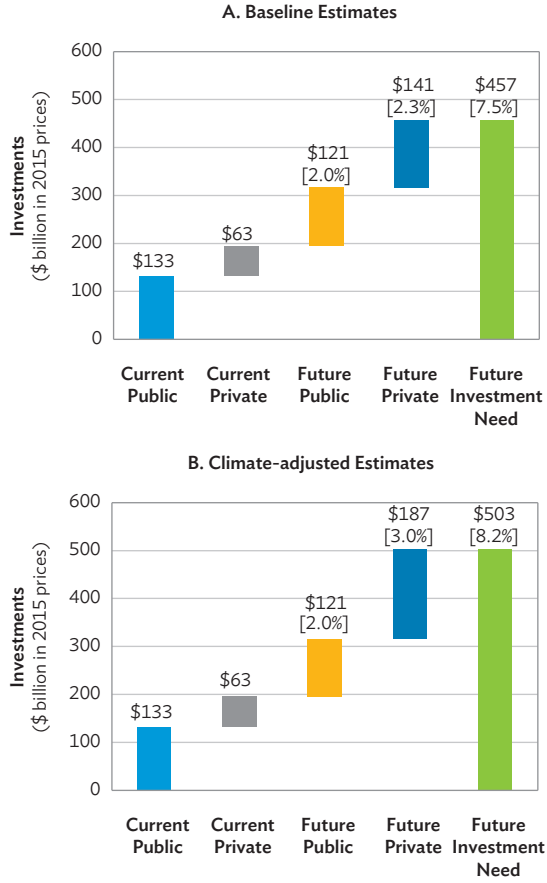
- **Innovative approaches exist to expand government funds available for financing infrastructure development.** Given that increases in private sector infrastructure finance of the amounts needed will likely increase gradually, innovative ways to bolster government finance for infrastructure will be needed. These include, for example, using "land value capture" to finance infrastructure, or capital recycling (selling brownfield assets and auctioning concessions, and allocating proceeds to finance greenfield infrastructure). At the same time, other actions, like setting user charges for infrastructure services with greater regard to cost recovery will also help.

- **Private sector investments are particularly important in telecommunications and power generation.** In telecommunications, around 49% of investments have been made by the private sector in low to lower middle income countries, while it is much higher for upper middle income countries, at around 99%. For the power sector, the private share of investment averaged around 40% for both sets of DMCs. Especially in the subsector of power generation, independent power producers play an important role in some countries. Private sector finance in the transport and water supply and sanitation sectors tends to be far more limited. However, there are subsectors in transport and water where relatively high feasibility and desirability of cost recovery make private financing possible. Examples include airports, seaports, toll roads, and some types of water supply and treatment facilities.

- **Public finance reforms are estimated to cover a little less than half of the infrastructure gap, implying that private finance for infrastructure will have to increase dramatically**. This is best seen by examining data for selected DMCs. Public finance reforms can create extra fiscal space in many countries—increasing public infrastructure financing from the current $133 billion to $254 billion annually for the selected DMCs as a whole, an increment equivalent to 2% of projected GDP (Figure 1, first and third bars from the left in both panels). With current private financing at around $63 billion (second bar from the left in both panels), an additional

$141 billion–$187 billion annually will be needed from private sources, depending on whether climate-related costs are included or not. This is equivalent to 3.0% of future GDP.

Figure 1: Meeting the Investment Gaps: Selected ADB Developing Member Countries,* 2016–2020
(annual averages, $ billion in 2015 prices)



* Countries include the 25 DMCs in Table 3 minus the People's Republic of China; future public investments are based on the 50% fiscal space assumption.
Numbers in brackets indicate investment as a percentage of GDP.
Note: Numbers may not add up due to rounding.
Source: ADB (2016); Country sources; Investment and Capital Stock Dataset, 1960–2015, IMF; Private Participation in Infrastructure Database, World Bank; World Bank (2015a and 2015b); World Development Indicators, World Bank; ADB estimates.

Attracting private participation and strengthening institutional capacity

- **An enabling environment that delivers well-prepared, viable proposals for private investment is critical for PPPs.** PPPs are an important modality for attracting private investment in infrastructure. However, to meet their potential, they need to be structured within a regulatory and institutional environment conducive to private investment and better project preparation capabilities that generate a robust pipeline of bankable PPP projects. Many countries are moving in this direction. For example, recent PPP reforms involve enacting PPP laws, streamlining procurement and bidding processes, using PPP tool kits, introducing dispute resolution mechanisms, building capacity for planning and managing projects, and establishing independent PPP government units.

- **Deepening bond markets is critical to attract long-term institutional investors.** While banks will remain important finance vehicles, increased capital requirements (like Basel III) and the inherent maturity mismatch related to long-term project lending implies bond financing must assume a greater role to complement banks. Credit enhancement through bond guarantees can allow long-term contractual investors like pension and insurance funds to invest in infrastructure bonds. More generally, to promote deeper and more liquid bond markets, countries need to introduce reforms such as strengthening bankruptcy laws and credit rating agencies.

- **A well-functioning, multi-stakeholder institutional "ecosystem" for infrastructure development is essential.** Close coordination across government levels—national, provincial, and local—is essential for infrastructure development. Also required is the capacity for high-quality planning and project design, feasibility studies and project implementation to get projects done on time and within budget. This "ecosystem" not only helps ensure that public investments in infrastructure are efficient; it also helps attract private investment by creating a pipeline of "bankable" projects.

The role of multilateral development banks

- **MDBs like ADB have an important role to play in public and private sector infrastructure financing.** ADB is scaling up its operations by 50% from $14 billion in 2014 to more than $20 billion in 2020, with 70% of this amount for sovereign and nonsovereign infrastructure investment. A growing proportion of ADB finance is expected to go to the private sector. Its nonsovereign operations—which mainly comprise private sector operations—are projected to grow from an average of 17% of nonconcessional approvals over 2012–2014 to 22% by 2019. ADB can also engage in cofinancing with bilateral development assistance and catalyze private foreign capital.

- **MDBs like ADB have been effective in building good infrastructure because they combine finance with expertise and knowledge, drawing on their experience across countries.** In addition to bringing advanced technologies to projects, ADB has helped strengthen government capacity in planning and implementing infrastructure projects. ADB can further help countries promote climate-proofing design; modernize procurement processes; enhance safeguard standards for social and environment impacts; support the development of a regulatory environment conducive to PPPs; and develop capital markets. It is urgent that ADB plays a pivotal role in helping identify bankable projects and provide transaction advisory services for PPPs. Finally, ADB—with experience in regional cooperation and integration, trust of DMCs and technical skills—can facilitate cross-border and regional infrastructure projects.

References

ADB. 2016. *Key Indicators for Asia and the Pacific 2016*. Manila.

_____. International Comparison Program. https://www.adb.org/data/icp

ADB and ADBI. 2009. *Infrastructure for a Seamless Asia*. Tokyo.

International Monetary Fund. Fiscal Monitor Database. http://data.imf.org/?sk=4BE0C9CB-272A-4667-8892-34B582B21BA6 (accessed 01 July 2016).

United Nations. 2015 Revision of World Population Prospects. https://esa.un.org/unpd/wpp/ (accessed 1 July 2016).

World Bank. International Comparison Program. http://siteresources.worldbank.org/ICPEXT/Resources/ICP_2011.html

_____. World Development Indicators. http://data.worldbank.org/indicator (accessed 01 July 2016).

_____. 2015a. "High Expectation." *Indonesia Economic Quarterly*, http://www.indonesia-investments.com/upload/documents/World-Bank-Indonesia-Economic-Quarterly-March-2015-Indonesia-Investments.pdf.

_____. 2015b. *Technical Note: Estimating Infrastructure Investment and Capital Stock in Indonesia*. Jakarta.

Annex

Annex Table 1: Scenario Without Climate Change in Comparison with *Seamless Asia+*

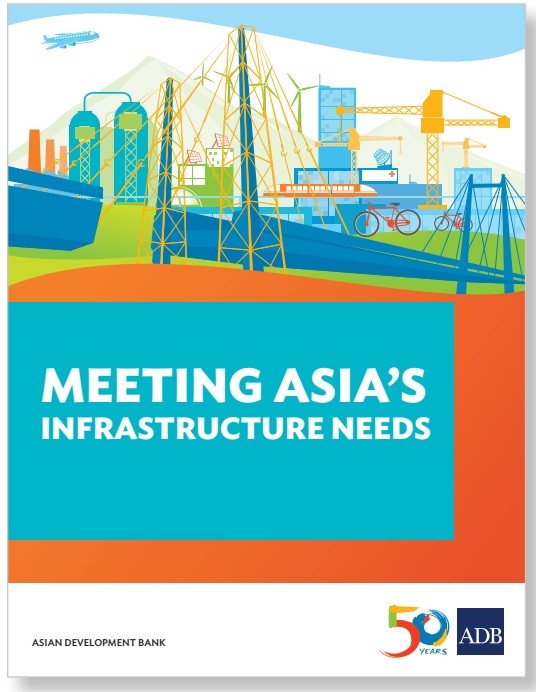
Region/Subregion	Total for the Period ($ billion in 2008 prices)		Annual ($ billion in 2008 prices)	
	Seamless Asia+	This report	*Seamless Asia+*	This report
Time period	2010–2020	2016–2030	2010–2020	2016–2030
DMCs covered	32	32	32	32
Central Asia	374	396	34	26
East Asia	4,378	9,728	398	649
South Asia*	2,370	5,095	215	340
Southeast Asia	1,095	2,171	100	145
The Pacific	6	36	1	2
Asia and the Pacific	**8,223**	**17,426**	**748**	**1,162**

DMC= developing member country.
+Seamless Asia refers to the Infrastructure for a Seamless Asia (ADB and ADBI 2009).
*Pakistan and Afghanistan are included in South Asia.
Source: ADB and ADBI (2009); ADB estimates.

Annex Table 2: Country Coverage—Special Report versus *Seamless Asia*

Subregion / Economy	*Seamless Asia* 32 DMCs	This report 45 DMCs	This report 25 DMCs	Subregion / Economy	*Seamless Asia* 32 DMCs	This report 45 DMCs	This report 25 DMCs
Central Asia				**Southeast Asia**			
Armenia	✓	✓	✓	Brunei Darussalam		✓	
Azerbaijan	✓	✓		Cambodia	✓	✓	✓
Georgia	✓	✓		Indonesia	✓	✓	✓
Kazakhstan	✓	✓	✓	Lao PDR	✓	✓	
Kyrgyz Republic	✓	✓	✓	Malaysia	✓	✓	✓
Tajikistan	✓	✓		Myanmar	✓	✓	✓
Turkmenistan		✓		Philippines	✓	✓	✓
Uzbekistan	✓	✓		Singapore		✓	
				Thailand	✓	✓	✓
East Asia				Viet Nam	✓	✓	✓
People's Republic of China	✓	✓	✓	**The Pacific**			
Hong Kong, China		✓		Cook Islands		✓	
Republic of Korea		✓		Fiji	✓	✓	✓
Mongolia	✓	✓	✓	Kiribati	✓	✓	✓
Taipei,China		✓		Marshall Islands		✓	✓
				Micronesia, Fed. States of		✓	✓
South Asia				Nauru		✓	
Afghanistan	✓	✓	✓	Palau		✓	
Bangladesh	✓	✓	✓	Papua New Guinea	✓	✓	✓
Bhutan	✓	✓	✓	Samoa	✓	✓	
India	✓	✓	✓	Solomon Islands	✓	✓	
Maldives		✓	✓	Timor-Leste	✓	✓	
Nepal	✓	✓	✓	Tonga	✓	✓	
Pakistan	✓	✓	✓	Tuvalu		✓	
Sri Lanka	✓	✓	✓	Vanuatu	✓	✓	

DMC = developing member country; Lao PDR = Lao People's Democratic Republic.



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Meeting Asia's Infrastructure Needs
Highlights

Infrastructure is essential for development. This publication presents the highlights of a report on the current condition of developing Asia's infrastructure—defined here as transport, power, telecommunications, and water supply and sanitation. The report itself examines how much the region has been investing in infrastructure and what will likely be needed through 2030. Finally, the report analyzes the financial and institutional challenges that will shape future infrastructure investment and development.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to a large share of the world's poor. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

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