



2017

Private Participation
in Infrastructure (PPI)

ANNUAL REPORT



THE WORLD BANK
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Acknowledgement & Disclaimer

This report was prepared by a team comprising Deblina Saha (Task Team Leader), Seong Ho Hong, Alex Shao, Akhilesh Modi and Iuliia Zemlytska, and designed by Victoria Adams-Kotsch. The team is very grateful for the support and guidance received from Laurence Carter (Senior Director, IPG Group), Jordan Schwartz (Director, IPG Group), Abha Joshi-Ghani (Senior Adviser, IPG Group) and Cledan Mandri-Perrott (Head of Infrastructure Finance and PPPs, Singapore). The team is thankful to Darwin Marcelo (Senior Infrastructure Economist, IPG Group) and Fernanda Ruiz-Núñez (Senior Economist, IPG Group) for providing valuable comments which helped shape the report. Cover photo © 3dmentat/istockphoto.com.

This report describes Private Participation in Infrastructure (PPI) as indicated in the [Private Participation in Infrastructure Database](#). The database records investment information for infrastructure projects in low- and middle-income countries globally.

The PPI Database represents the best efforts of a research team to compile publicly available information, and should not be seen as a fully comprehensive resource. Some projects—particularly those involving local and small-scale operators—tend to be omitted because they are usually not reported by major news sources, databases, government websites, and other sources used by the PPI Projects database staff.

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2017 Key Highlights

- In 2017, private investment commitments in energy, transport, ICT backbone and water infrastructure in low- and middle-income countries totaled US\$93.3 billion across 304 projects.
- Although the 37 percent increase in investments over the 2016 level could be a sign of recovery, it is still the second-lowest level of investment in the past 10 years, and 15 percent below the average for the past five years.
- East Asia and Pacific received the highest level of investment while, respectively, Latin America and the Caribbean, and Sub-Saharan Africa received the lowest and the second-lowest levels of investment made in the past 10 years.
- 52 countries received investments, with China, Indonesia, Mexico, Brazil, and Pakistan (the top five) accounting for 58 percent of the global total.
- In total, 105 projects received some form of development finance institution support.
- In total, 90 projects received direct government support and 45 received indirect government support.
- Of the total investment¹, 70 percent was debt-financed, with 24 percent of this raised from bilateral providers, and 22 percent from commercial providers. Overall, international sources financed 55 percent of the debt.
- Private sources financed 45 percent of investment, public sources financed 25 percent, and development finance institutions—which are both multilateral and bilateral—financed 30 percent.
- Of 197 electricity generation projects, 173 were in renewables, which accounted for 61 percent of total electricity generation investment, and 57 percent of total capacity (16.4 out of 28.9 gigawatts).

¹ Based on available information, total financing across 168 projects was US\$61.6 billion.

Executive Summary

Private Participation in Infrastructure (PPI) investment² in 2017 at US\$93.3 billion across 304 projects marks an increase of 37 percent from 2016 levels. Yet it still remains the second lowest level of investment in the past 10 years and is 15 percent lower than the past 5-year average investment level of US\$109.8 billion. The increase over 2016 levels can be attributable to a few megaprojects in China and Indonesia as well as a recovery in South Asia, led by Pakistan. The number of projects also increased marginally by nine percent from 280 to 304 in 2017. The average project size increased by 26 percent from US\$244 million in 2016 to US\$307 million in 2017, as there were 20 megaprojects with an average size of US\$2.4 billion accounting for 51 percent of the total PPI investment, in contrast to 13 projects accounting for 40 percent of total PPI investment in 2016.

In 2017, East Asia and Pacific (EAP) accounted for more than half of total PPI investment and, for the first time, overtook Latin America and the Caribbean (LAC). At US\$49.0 billion, which was the highest level of investment ever recorded in EAP, the region's share of total global investment was 53 percent. Despite receiving the second-highest level of investment in 2017, LAC's share was the lowest in the past 10 years. Investment in Middle East and North Africa (MENA) tripled over the 2016 level, while that in the South Asia Region (SAR) almost doubled. Only Sub-Saharan Africa (SSA) saw declining investment, and this was its second-lowest level in the past 10 years.

Fifty-two countries received PPI investments in 2017, which was a significant increase over the 2016 level of 37 countries, and the past five-year average of 41 countries. China received US\$17.5 billion across 73 projects; Indonesia received US\$15.4 billion across 11 projects; Mexico received US\$8.6 billion across 20 projects; Brazil received US\$7.3 billion across 24 projects; and Pakistan received US\$5.9 billion across four projects. These five countries attracted US\$54.5 billion, which was 58 percent of global investment in 2017.

Barring Mexico, for which the share of commercial financing was 63 percent, the share of commercial financing in the other top five investment destinations was quite low. Indonesia raised only 23 percent of its total debt as commercial finance, Pakistan raised only seven percent, and Brazil, only four percent. While information on debt financing in China was not available, Chinese projects are known to be mostly publicly financed.

Egypt had an unprecedented number of projects, while Brazil, Colombia, and Turkey saw a sharp drop in their totals. In Egypt, the number of projects shot up from two in 2016 to 25 in 2017. This was a result of national policy encouraging investment in renewables, and almost all projects were within Benban Solar Park. However, the number of projects dropped significantly in Brazil from 68 to 24; in Colombia, from 15 to one; and in Turkey, from 16 to five.

² "Investment" refers to private investment commitments at the time of financial closure in energy, transport, water and ICT backbone projects serving the public in low- and middle-income countries, including natural gas transmission and distribution, but excluding oil and gas extraction. For the first time, the investment reported includes information and communication technologies (ICT) backbone infrastructure like fiber optic cables, mobile towers and other hard assets, with an active government component.

Investments in IDA countries³ reached 8.5 percent of global investments in 2017 compared to 4.3 percent in 2016, with US\$7.9 billion worth of investments across 35 projects in 17 countries compared to the past 10-year average of 14 countries. Three ASEAN member countries, namely, Myanmar, Lao PDR, and Cambodia together contributed to 60 percent of the IDA investment, and in fact these three countries recorded projects for the first time after two years of inactivity. Of the 35 new IDA PPI projects in 2017, 19 received multilateral support. DFI support⁴ plays a major role in IDA countries contributing to almost half of the debt raised.

Energy continues to dominate sectoral investments, but transport investments doubled, with three railway megaprojects. The newly introduced ICT backbone also saw a sharp increase. The energy sector continues to be the focus of PPI investments, accounting for US\$51.9 billion, or 56 percent of total investment in 2017. Transport sector investments almost doubled from US\$ 18.8 billion in 2016 to US\$36.5 billion in 2017. This was largely due to the US\$6.8 billion high-speed railway (HSR) project in China; another HSR project in Indonesia, worth US\$6.0 billion; and a US\$3.1 billion monorail project in Thailand. For the ICT backbone sector, investments grew from only US\$462 million in 2016 to US\$3.0 billion in 2017—a result of two network development megaprojects. However, due to lower activity in Brazil, the water and sewerage sector saw a marginal decline of seven percent below the 2016 level.

Investments in renewable energy continued to increase in 2017; but the share of electricity generation dropped due to coal megaprojects in Indonesia. Of the 197 electricity generation projects in 2017, 173 projects (88 percent) were renewable energy projects. However, the share of renewable energy investment in 2017 dropped to 57 percent from the previous five-year average of 64 percent. This was due to four Indonesian coal projects worth US\$7.7 billion, which reached financial close in 2017. In addition, nearly 70 percent of large-scale projects (that is, with capacity greater than 500 megawatts) still use conventional power sources.

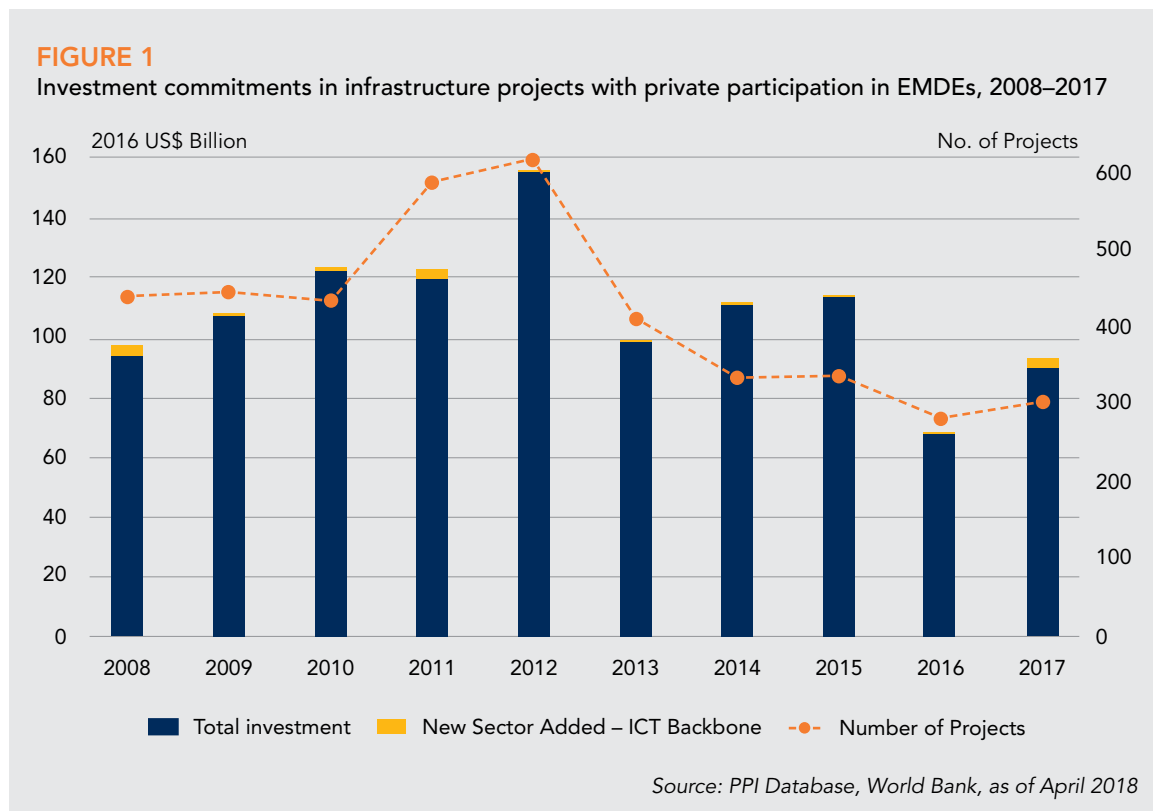
Government support to PPI projects increased from 94 projects in 2016 to 135 in 2017. This upward turn correlates positively with an increase in government support for projects, signifying the important role that government policy plays in encouraging private participation. The declining share of government support for projects corresponds with the decline in investment levels from 2012 to 2016.

3 “IDA countries” refers to countries that are eligible for support from the International Development Association, the part of the World Bank that helps the world’s poorest countries. For more information on IDA, see: <http://ida.worldbank.org/>.

4 Development finance institution (DFI) support refers to both multilateral and bilateral support.

1. Global PPI Investment Trends

In 2017, for the first time, investment commitments in emerging markets and developing economies (EMDEs) included backbone infrastructure for information and communications technology (ICT).⁵ In 2017, PPI investment totaled US\$93.3 billion across 304 projects, an increase of 37 percent over 2016 levels. This significant increase in 2017 was mainly due to an unforeseen level of investment in East Asia and Pacific (EAP), which was driven by a few megaprojects in China and Indonesia, as well as recovery in South Asia, led by Pakistan. However, total investment for 2017 is still 15 percent lower than the average for the last five years (US\$109.8 billion). The number of projects also increased marginally by nine percent, up from 280 in 2016, to 304 in 2017. This increase was mostly due to Egypt, where the number of projects shot up (from two to 25), plus a marginal increase in projects in China (from 64 to 73), and in India (from 32 to 43). However, the number of projects dropped significantly in Brazil (down from 68 to 24), in Colombia (down from 15 to one), and in Turkey (down from 16 to five). Also, PPI investment transactions occurred in 52 countries in 2017, which is a significant increase over the 2016 level of 37 countries, and the average of 41 countries for the past five years.

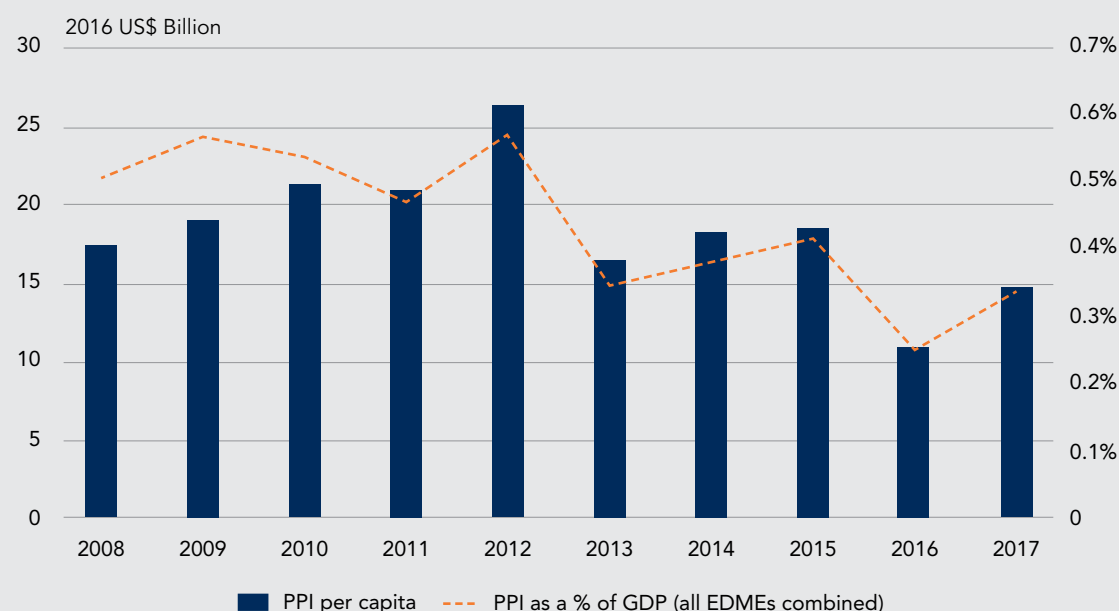


In 2017, at US\$14.7, the PPI per capita also increased by 35 percent over the 2016 level. Investment as a percentage of GDP improved as well, up from 0.25 percent in 2016 to 0.34 percent in 2017. Despite the increase in 2017, investments in infrastructure remained a very low portion of GDP in all EMDEs.

⁵ Information and communications technology (ICT) backbone infrastructure refers to physical assets such as fiber optic cables, mobile towers, and other hard assets that have an active government component.

FIGURE 2

Investment commitments in infrastructure projects with private participation in EMDEs per capita and as a percentage of GDP, 2008–2017



Source: PPI Database, World Bank, as of April 2018

In 2017, the average project size increased by 26 percent—up from US\$244 million in 2016, to US\$307 million. This also marks an increase in project size over the average of US\$276 million for the past five years. However, the median project size only increased by eight percent (up from US\$95 million to US\$103 million), which indicates that megaprojects had a significant impact in 2017. Indeed, there were 20 megaprojects, with an average size of US\$2.4 billion, which accounted for 51 percent of total PPI investment. In contrast, in 2016, there were 13 megaprojects, which accounted for 40 percent of total PPI investment. These numbers are comparable with the previous five-year average of 22 megaprojects, which accounted for 47 percent of total investment.

TABLE 1: FREQUENCY DISTRIBUTION OF PROJECT SIZES IN US\$ MILLION OVER THE PAST FIVE-YEAR PERIOD AND 2017

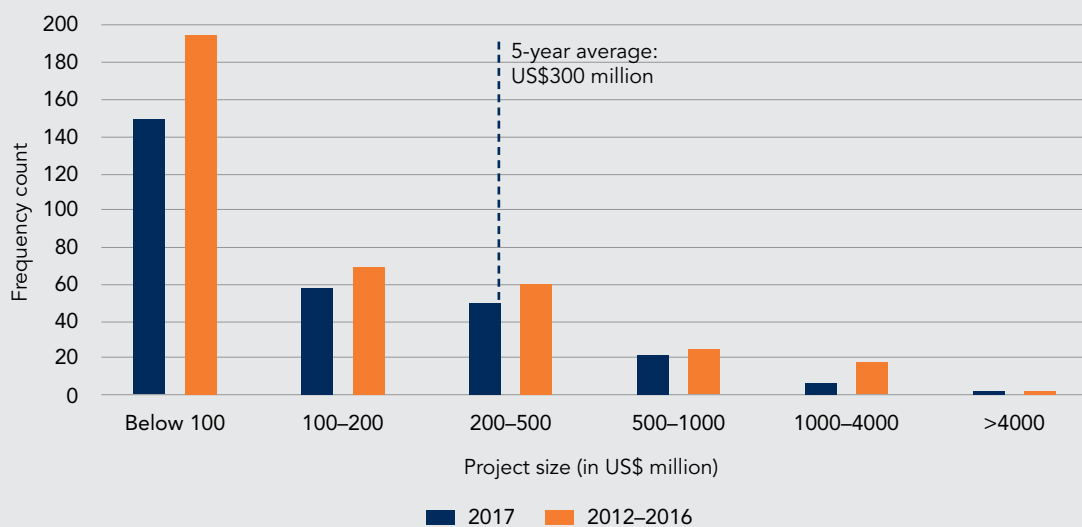
Year	No. of Projects	Mean	Median	Maximum
2012	614	289	94	15,471
2013	410	253	101	3,720
2014	338	348	87	10,653
2015	341	341	87	36,035
2016	280	261	95	5,190
2017	304	310	103	6,882

Source: PPI Database, World Bank, as of April 2018

With the increase in project size, the number of projects has decreased exponentially (see Figure 3). From 2012 to 2016, 50 percent of projects were worth less than US\$100 million each. A similar trend occurred in 2017, with almost half of projects worth less than US\$100 million each. However, as mentioned above, the average project size of US\$310 million is misleading, as the calculation is skewed by a handful of megaprojects.

FIGURE 3

Frequency distribution in sizes of infrastructure projects with private participation in EMDEs, 2017 and 2012–2016



Source: PPI Database, World Bank, as of April 2018

In 2017, greenfield projects accounted for almost four-fifths of all PPI projects. As expected, and in line with past trends, the majority of greenfield projects were in the energy sector, while the 48 brownfield projects were mostly in the transport sector. It is noteworthy that the brownfield to greenfield ratio was the lowest in EAP, where there were 99 greenfield projects and only seven brownfield projects. In contrast, this ratio was the highest in South Asia: 21 brownfield projects versus 35 greenfield projects. This is due to the large number of highway expansion projects reaching financial closure in India. Also, interestingly, 18 of the 21 brownfield projects received capital subsidies. In 2017, only three transactions were recorded as divestitures or management contracts.

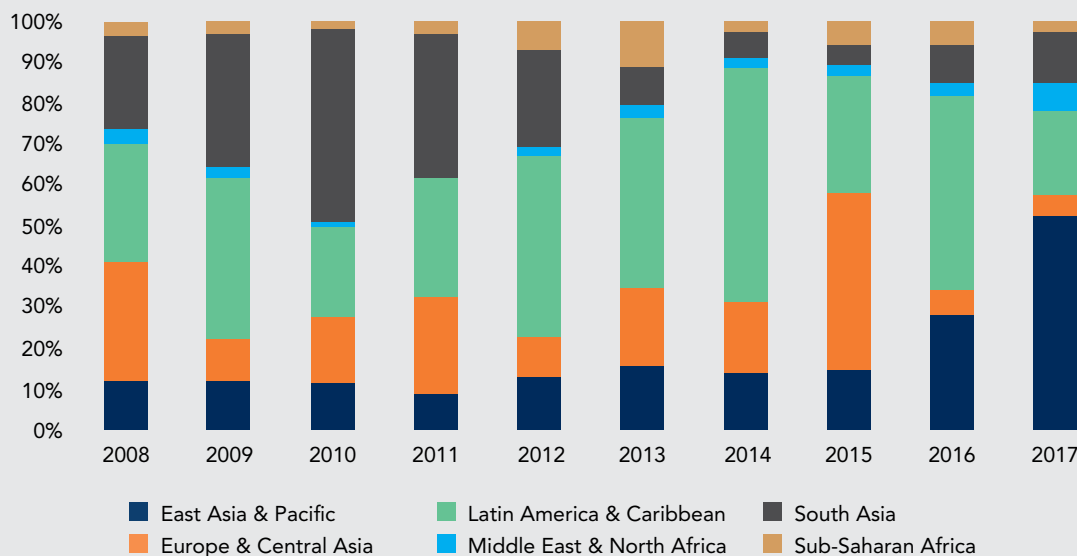
2. Geographic Spread

The global investment share for EAP has been rising and reached its peak in 2017, accounting for over half of global investment, and overtaking LAC for the first time in PPI history. Although LAC has always dominated PPI investment, its share in 2017 dropped significantly to 21 percent from its peak of 68 percent in 2016. Investments in SAR continue to recover after their lowest level in 2015 (see Figure 4). The share for MENA, which has remained consistent over the years, at around two percent, tripled to six percent in 2017. In absolute terms, investment commitments for all the regions except LAC and SSA, were higher in 2017 than in 2016; in these two regions, investment declined by 40 percent and 44 percent, respectively.

At a country level, the five countries with the highest levels of investment in 2017 were: China, with US\$17.5 billion across 73 projects; Indonesia, with US\$15.4 billion across 11 projects; Mexico, with US\$8.6 billion across 20 projects; Brazil, with US\$7.3 billion across 24 projects; and Pakistan, with US\$5.9 billion across four projects. In 2017, in total, these five countries attracted US\$54.5 billion, and captured 58 percent of global investment. This share was six percent lower than in 2016, and 10 percent lower than the five-year average. As described in Section 1 on trends, this indicates a more diversified country portfolio.

FIGURE 4

Regional share of investment commitments in infrastructure projects with private participation in EMDEs, 2008–2017



Source: PPI Database, World Bank, as of April 2018

In 2017, at US\$49.0 billion (a 53 percent share of global investment), **East Asia and Pacific** recorded its highest investment level ever, led mainly by China and Indonesia. China by itself accounted for 19 percent of global investment commitments, with total investment of US\$17.4 billion across 73 projects. Of China's US\$17.4 billion, the transport sector alone received US\$13.0 billion for only three

megaprojects. These projects, which accounted for 83 percent of China's transport investment, were a US\$6.9 billion railway project, and two expressway projects worth US\$2.0 billion and US\$1.8 billion. In 2017, the 36 energy projects that reached financial closure in China, will add 1.7 gigawatts of capacity to the country, a decline from 2.6 gigawatts in 2016 across 39 projects. Indonesia received the EAP Region's second-highest level of investment in 2017, at US\$15.5 billion. This was across only 11 projects. One high-speed railway project worth US\$6.0 billion,⁶ and two coal megaprojects worth

FIGURE 5

Investment commitments in infrastructure projects with private participation in EMDEs by region and country, 2017



Source: PPI Database, World Bank, as of April 2018

⁶ Refers to Jakarta-Bandung HSR to be developed by the joint venture – PT KCIC- formed between a consortium of Indonesian state-owned companies (60% stake) and China Railway Construction Corp (40% stake). When SOEs invest and implement projects in foreign countries, in this case CRCC, they are considered as PPI investment. The project has a 50-year DBOM concession. China Development Bank will finance 75% of the project cost through a 40-year loan to the project SPV, and the remaining will be provided as equity by the JV partners. Based on some online news sources it is reported that there isn't any guarantee from Govt. of Indonesia and the consortium will break-even after around 40 years of operations.

US\$4.2 billion and US\$2.2 billion, were the reason for Indonesia's high investment level. Although in most countries, investment in renewables seems to be rising, in Indonesia, almost 90 percent of investment was in coal projects.

Although **Latin America and the Caribbean** had the second-highest level of investment in 2017 (US\$19.4 billion), investment declined by almost half in comparison with the 2016 level, and was the lowest in the past 10 years. The number of projects also fell to almost half, down from 114 in 2016, to 67 in 2017. Mexico received the highest level of investment in LAC, at US\$8.6 billion across 20 projects, and the country was also one of the top five investment destinations for 2017, alongside Brazil. For Mexico, this was the highest level of investment in the past 25 years. However, for Brazil, which has been the traditional leader in PPI investments in LAC, and was among the world's top five investment destinations in 2017, investment continued to decline—down from US\$59.2 billion in 2012, to US\$7.3 billion in 2017. For Brazil, 2017 saw the lowest level of investment in the past 10 years, with the number of projects dropping significantly to only 24—far below the 10-year average of 95 projects. For both Mexico and Brazil, investors focused mostly on renewable energy projects.

The **South Asia** Region attracted US\$11.7 billion in investments in 2017, which was 90 percent higher than the 2016 level. This increase was mainly driven by Pakistan, which received US\$5.9 billion in investments in 2017, far above the 2016 level of US\$1.7 billion. In 2017, this rise put Pakistan on the list of the world's top five PPI investment destinations. For the first time ever, investment in Pakistan surpassed that of India, which has traditionally been the heavyweight in the region. India saw a slight increase in investment from US\$4.3 billion in 2016 to US\$4.8 billion in 2017. Notably, for the first time since 2012, Sri Lanka and Afghanistan each received one investment project.

Investment in **MENA** at US\$5.9 billion tripled compared to that of 2016 levels. This was also the first time in the last five years that MENA was not one of the bottom two regions for PPI investment. This significant increase was driven primarily by investments in Jordan and Egypt. For Egypt, the level of investment was unprecedented (US\$2.9 billion across 25 projects). Of these projects, 24 were for renewables. This surge was a result of government policy that encouraged investment in renewables. Almost all the investments were in Benban Solar Park, which is expected to become the largest solar installation in the world. Jordan received US\$2.9 billion for six energy projects, of which almost all investment (US\$2.1 billion) was for an oil shale-fired power plant.

Europe and Central Asia received US\$5.3 billion in PPI investment in 2017, an increase of 28 percent over 2016 levels. Russia and Turkey were the two major destinations for PPI investment in the region, and contributed to 71 percent of region's total. Although, investment in Russia saw a ten-fold increase over its 2016 level, investment remained low when compared with level for the past 10 years. In Turkey, in 2017, investments were 60 percent lower in comparison with the 2016 level.

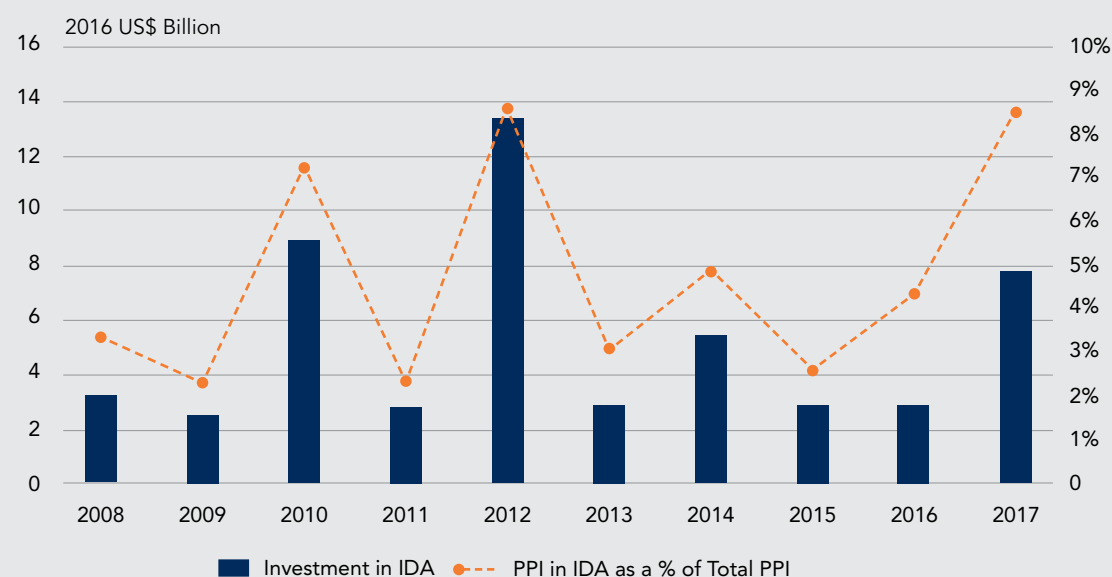
Sub-Saharan Africa received US\$2.1 billion across 19 projects, which was the region's second-lowest level of investment in the past 10 years. In 2017, Ghana and Rwanda received the largest PPI commitment in the region, with US\$550 million and US\$422 million, respectively. With 11 countries in the SSA region receiving investments in 2017, the region was only second to EAP, where 12 countries received investments in 2017.

3. Investment in IDA Countries

PPI investment in IDA countries in 2017 was US\$7.9 billion, which is more than double the 2016 level, and also 42 percent higher than the average investment over the past five years. IDA countries' share of global PPI investment rose significantly in 2017, up from 4.3 percent in 2016 to 8.5 percent. This investment level was among the highest since 2012. The number of IDA countries receiving PPI investments in 2017 was 17, with an average investment in each country of US\$466 million. For 14 countries, the average investment size of US\$353 million in 2017 was higher than the average for the past 10 years.

FIGURE 6

Investment commitments in infrastructure projects with private participation in IDA countries, 2008–2017



Source: PPI Database, World Bank, as of April 2018

The performance boost in 2017 for PPI investments is led by three ASEAN member countries, namely, Myanmar, Lao PDR, and Cambodia. In these three countries, PPI investment amounted to US\$4.8 billion, which was more than 60 percent of the total for IDA countries. This was notable, as over the last two years, none of the three countries received any PPI investment. In Lao PDR, the biggest of its three projects was a US\$1.5 billion electricity generation project that will increase the country's capacity by 650 megawatts. For Myanmar and Cambodia, respectively, this was only the second and third time in the last 10 years that either country received any investment. In Myanmar, a US\$1.5 billion information and communications technology project, and in Cambodia, a US\$1.0 billion airport construction project, are the main reasons why these countries recorded a high level of investment. In 2017, for the first time in 10 years, Afghanistan, Burkina Faso, Madagascar, and Samoa recorded PPI projects.

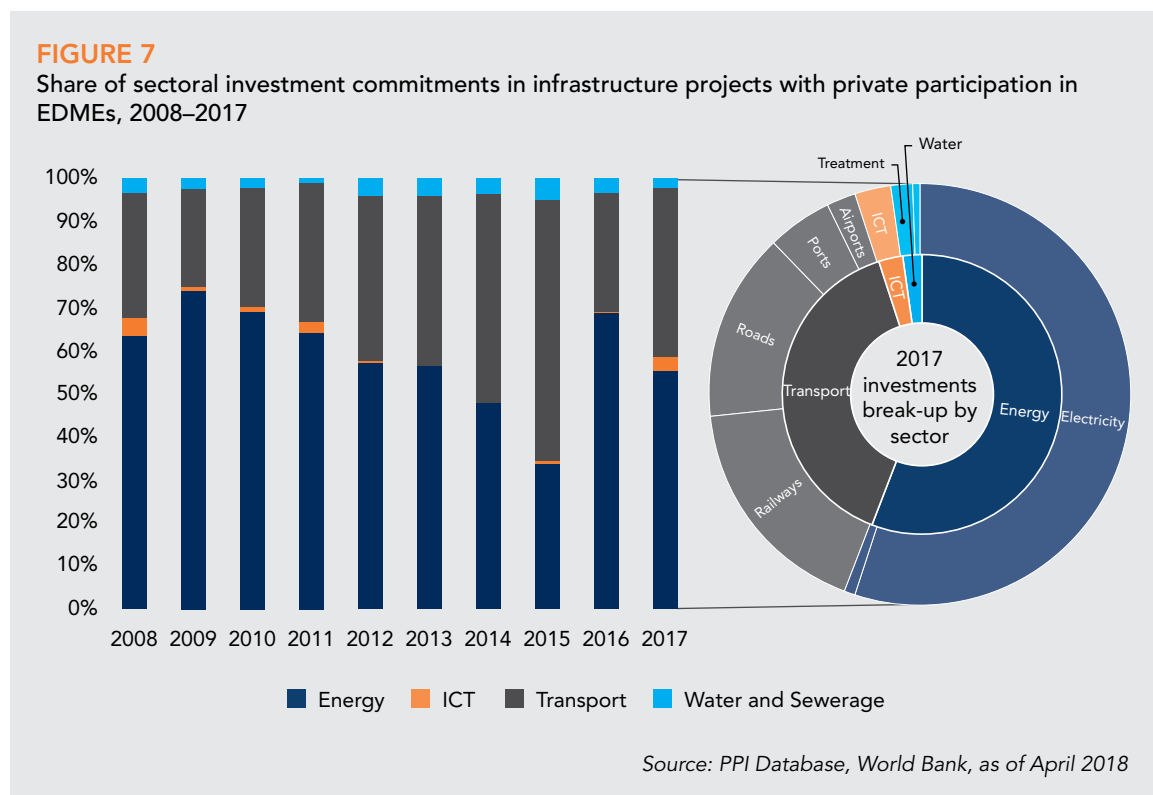
Of the 35 new IDA PPI projects in 2017, 17 received multilateral support and 15 received bilateral support (of which nine projects received joint support). This compares to six projects receiving multilateral support and 11 projects receiving bilateral support (of which four projects received joint support) in 2016 out of a total of 14 projects in IDA countries. Detailed financing information was available for 28 IDA projects, based on which loans from multilaterals and bilaterals seem to play a key role in financing infrastructure projects in IDA countries, accounting for 43 percent of the total debt flowing to IDA.

TABLE 2: INVESTMENT COMMITMENTS AND NUMBER OF INFRASTRUCTURE PROJECTS WITH PRIVATE PARTICIPATION IN IDA COUNTRIES IN 2017		
Country	Total Investment (US\$ million)	Number of Projects
Myanmar	\$1,934	3
Lao PDR	\$1,850	3
Cambodia	\$1,013	2
Bangladesh	\$618	3
Ghana	\$550	2
Rwanda	\$422	3
Mozambique	\$357	2
Honduras	\$260	3
Nepal	\$258	4
Madagascar	\$245	1
Mali	\$136	1
Senegal	\$114	3
Zambia	\$59	1
Burkina Faso	\$45	1
Samoa	\$29	1
Uganda	\$19	1
Afghanistan	\$19	1
IDA Total	\$7,927	35

Source: PPI Database, World Bank, as of April 2018

4. Sector Trends

In 2017, the energy sector outpaced other sectors in attracting private sector investment, with US\$51.9 billion invested in 203 projects. This accounted for 56 percent of global PPI investment. The transport sector accounted for US\$36.5 billion in investments in 2017, which was 39 percent of global PPI investment. The 66 transport projects had an average size US\$552.3 million, which was double the investment in the energy sector. Added together, the transport and energy sectors comprised 95 percent of total PPI investment. The ICT sector received only US\$3.0 billion across five projects, followed by the water and sewerage sector, with only US\$1.9 billion across 30 projects.



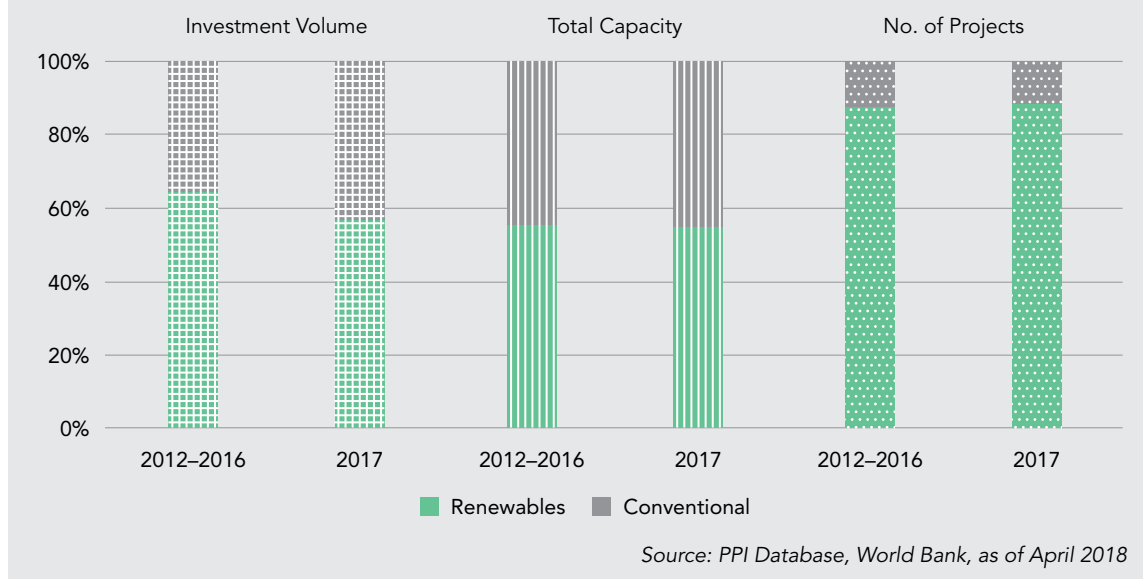
The US\$51.9 billion invested in the energy sector in 2017 reflects an 11 percent rise over the previous year's commitment of US\$46.8 billion. Of the electricity generation projects, renewables continued to dominate in 2017. Of the 197 electricity generation projects, 173 (88 percent) were renewable projects for generating power from wind, solar, biomass, waste, geothermal, and hydropower.

Even though the number of 2017 electricity generation projects, and the total capacity generated using renewable technology, were similar to the respective averages for these for the last five years, i.e. 88 percent and 55 percent, the volume of renewable energy investment fell to 57 percent, from an average of 64 percent for 2012 to 2016. This was largely due to the four Indonesian coal projects, worth a total of US\$7.7 billion, which reached financial closure in 2017. In contrast, almost all the newly added electricity capacity in Egypt, China, and Brazil adopted renewable technology, largely as a result of di-

rect and indirect support from government. Conversely, nearly 70 percent of the large-scale electricity generation projects (i.e. those with capacity greater than 500 megawatts) still use conventional sources of power such as coal or natural gas.

FIGURE 8

Electricity generation project using renewables and conventional resources by investment volume, capacity and number of projects, 2017 and 5-year average



In 2017, the transport sector attracted investment amounting to US\$36.5 billion across 66 projects, which was almost double the 2016 level, but 25 percent lower than the past five-year average of US\$48.4 billion. Among the 66 transport projects in 2017, 39 were for roads, 15 were for ports, seven were for railways, and five were for airports. With investment of US\$16.5 billion, railway projects attracted the highest amount of investment within transport (five times the investment level for 2016). This can be attributed largely to the US\$6.8 billion high speed rail (HSR) project in China, another US\$6.0 billion HSR project in Indonesia, and a US\$3.1 billion monorail project in Thailand.

In the ICT sector, a total of US\$3 billion was invested in five projects. Two of these five projects were for network infrastructure development, and the rest were for submarine/land fiber optic cable installation. Interestingly, the two projects that contributed to more than 80 percent of total ICT investment were a US\$1.5 billion project in Myanmar to construct over 5,000 base stations for a 4G network, and a US\$946 million project in Mexico to develop a national mobile network.

At US\$1.9 billion across 30 projects, investment in the water sector in 2017 was 55 percent lower than the five-year average of US\$4.2 billion. Water treatment projects received investment of US\$1.6 billion, which was comparable to that in 2016, but 50 percent higher than the five-year average. However, the water utility subsector received only US\$291 million across three projects. China accounted for four-fifths of the 30 water sector projects, most of which were greenfield water treatment projects.

5. Financing Trends

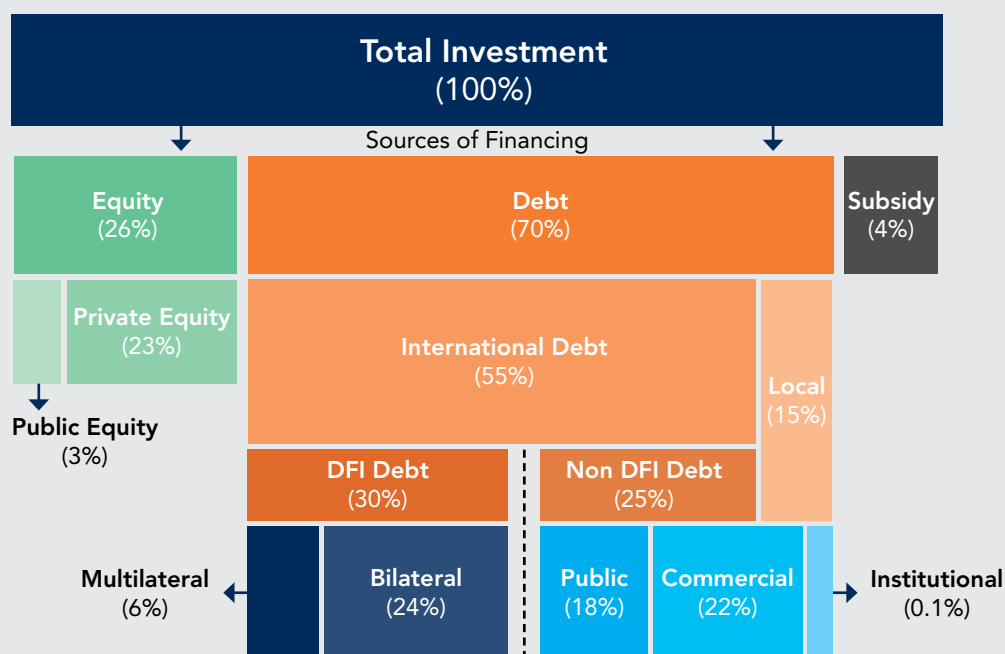
In 2017, detailed financing information was available for approximately 74 percent of PPI projects (168 out of 232 projects). For China's 73 projects, financing information was not available. For the 168 projects, which have a combined investment commitment of US\$61.6 billion, the investments were dedicated entirely to building physical assets, with no investment earmarked for government fees.

5.1 FINANCING MIX

With respect to the financing provided by public, private, and development finance institutions, out of the total investment of US\$61.6 billion, approximately 25 percent (US\$14.9 billion) came from public sources, 45 percent (US\$28.1 billion) came from private sources, and 30 percent (US\$18.7 billion) came from development finance institution sources. Figure 9 provides a detailed breakdown of the sources for this investment.

FIGURE 9

Sources of financing for infrastructure projects with private participation in EMDEs in 2017*



* All figures as a percentage of total investment

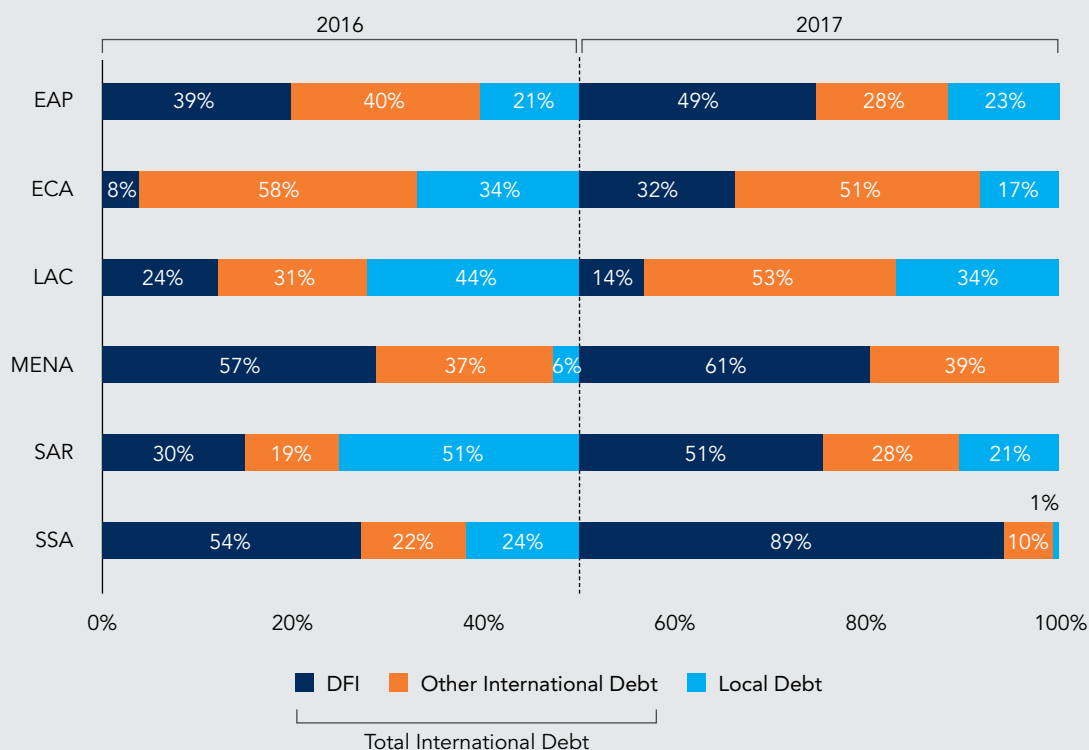
Source: PPI Database, World Bank, as of April 2018

Of the US\$16.0 billion in total equity provided in 2017 for 168 projects, financing largely came from private sources. These accounted for 89 percent of total equity, or US\$14.2 billion. The remaining 11 percent of equity, or US\$1.8 billion, was financed by the state-owned enterprises that participated in joint venture projects. 10 projects recorded government financing of US\$2.3 billion (information was available only for four percent of the total investment) via upfront capital grants.

Debt was the most popular source of financing in 2017, accounting for 70 percent of investment commitments, or US\$43.4 billion. The majority of debt providers were international (providing 78 percent of total debt or US\$33.6 billion), while in 2016, international sources provided 70 percent of debt financing. Only EAP saw a two percent increase in local financing, rising from 21 percent in 2016 to 23 percent in 2017. This was driven largely by Thailand where all the debt raised came from local sources. In Indonesia, however, which had the most investment in EAP, almost all debt was raised from international sources, as was the case in 2016 (see Figure 10). For debt financing, EMDEs prefer international sources because the interest rates charged are lower than the rates charged in local, under-developed debt and capital markets.

FIGURE 10

Share of international and local debt by region for infrastructure projects with private participation in EMDEs, 2016 and 2017



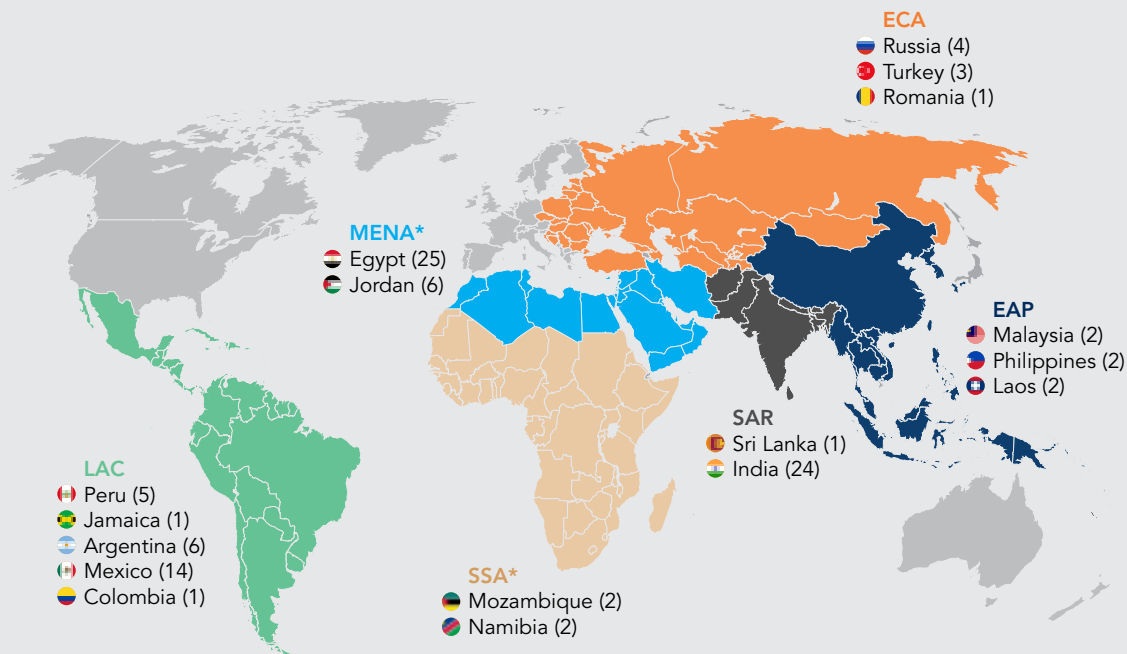
Source: PPI Database, World Bank, as of April 2018

In ECA and LAC, more than half of the debt raised in 2017 came from commercial sources. This was followed by EAP and SAR which, respectively, received 30 percent and 23 percent of their debt from commercial sources. In line with previous years, debt in SSA and MENA was raised mostly from DFI sources, with only an 11 percent and eight percent contribution, respectively, from commercial sources. For each region, the top recipients of commercial debt, as a share of the total debt raised in the region, are depicted in Figure 11. It is interesting to note that with the exception of Mexico, for which the share of commercial financing was 63 percent, in the other four top investment destinations, the share

of commercial financing was quite low. For example, Indonesia raised only 23 percent of its total debt as commercial finance; Pakistan raised only seven percent; and Brazil, only four percent. While debt financing information was unavailable for the Chinese projects, they are known to be publicly financed in most cases.

FIGURE 11

Countries which received a significant share of commercial financing for infrastructure projects with private participation in each region, from highest to lowest (2017)



*All countries with a share of commercial financing greater than 50 percent are depicted, barring those in MENA and SSA where these were the only countries in the region that raised commercial debt.

() The number in bracket represents the number of projects in the country

Source: PPI Database, World Bank, as of April 2018

For Russia and Malaysia, with four and two projects, respectively, all the debt was financed through commercial sources. Peru and the Philippines were two other countries which had a notable level of commercial financing. In Peru, total investment of US\$0.5 billion was spread across five projects, and the commercial financing level was 93 percent. In the Philippines, total investment of US\$1.7 billion was spread across two projects, and the commercial financing level was 83 percent.

For the 14 projects that received commercial financing in 2017, some form of guarantee was provided by the respective government. Of the 14 projects, eight in Benban Solar Park in Egypt received tariff rate guarantees; three projects in Indonesia received payment guarantees; two projects in MENA received revenue guarantees; and a single project in Romania received a debt guarantee.

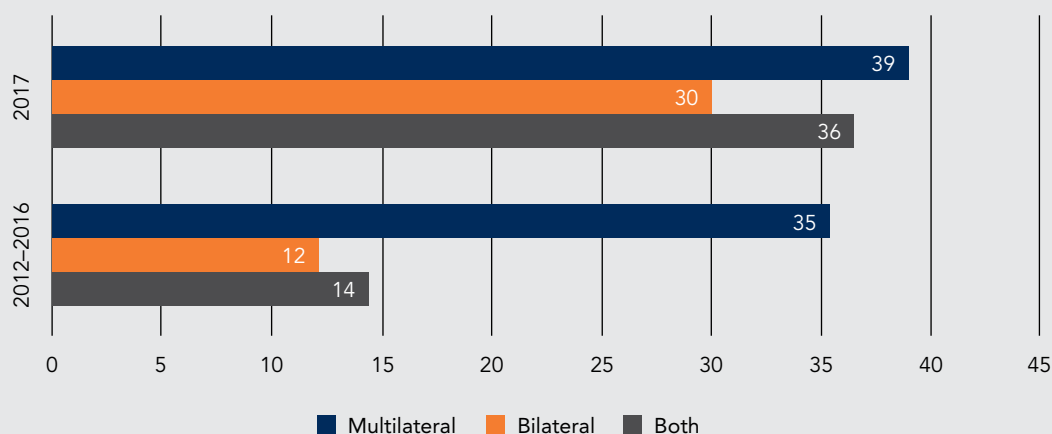
5.2 DEVELOPMENT FINANCE INSTITUTION (DFI) SUPPORT

In 2017, 105 projects received some form of development finance institution (DFI) support. Of these, 36 projects received joint multilateral and bilateral support, while 39 projects received only multilateral support, and 30 projects received only bilateral support. While the level of sole multilateral support has remained consistent over the past five years, there has been a surge in bilateral activity, rising from 12 to 30 projects, and the number of projects with joint support has increased too from 14 to 36.

DFIs played an instrumental role in financing projects in 2017. Cumulatively, they contributed 30 percent of total investment (US\$18.6 billion), which was 56 percent of the total international debt raised, and 44 percent of total debt raised. The DFIs provided direct debt support of US\$18.6 billion, of which almost three-quarters (US\$14.6 billion) was provided by bilateral institutions. The multilateral institutions provided 69 projects with a total of US\$4.0 billion in direct loans⁷, and provided syndication support of US\$1.2 billion to 26 projects. The International Bank for Reconstruction and Development and International Finance Corporation jointly supported 42 projects with US\$1.6 billion in debt financing (A-loans), and facilitated syndication for 22 projects, worth US\$851 million (B-loans). In 2017, the Multilateral Investment Guarantee Agency (MIGA) also extended a series of guarantees to 10 projects.

FIGURE 12

Number of infrastructure projects with private participation in EMDEs getting multilateral, bilateral and joint support from DFIs in 2017 and 2012-2016



Source: PPI Database, World Bank, as of April 2018

All regions, with the exception of LAC, have greatly increased their financing from DFIs (see Figure 10 in Section 5.1). The regions that have seen the highest increase in DFI financing are SAR (30 percent in 2016 rising to 51 percent in 2017), ECA (8 percent in 2016 rising to 32 percent in 2017) and SSA (54 percent in 2016 rising to 89 percent in 2017). For LAC, the DFI debt dropped from 24 to 14 percent.

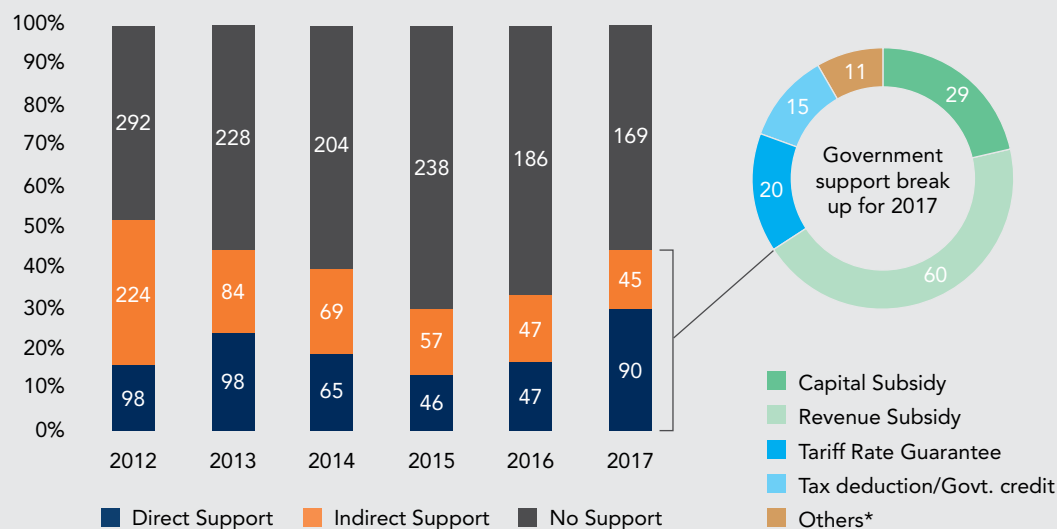
⁷ Information on the amount of debt provided by multilaterals was unavailable for six projects.

6. Government Support

Government support falls into two categories—direct and indirect. Direct government support includes government liabilities that directly cover project costs. These are either in cash or in kind, are certain to occur, and include capital subsidies, revenue subsidies, and land. Indirect government support is given either in the form of contingent liabilities (liabilities that may not actually occur as they are contingent on a predetermined event) or government policies that support investment. These supportive policies include guarantees such as the exchange rate, payment, revenue, debt, and tax breaks or benefits extended by the government.

FIGURE 13

Break up of government support for infrastructure projects with private participation in EMDEs, 2012–2017



Source: PPI Database, World Bank, as of April 2018

* Others include 1 debt guarantee; 4 revenue guarantees and 6 payment guarantee projects

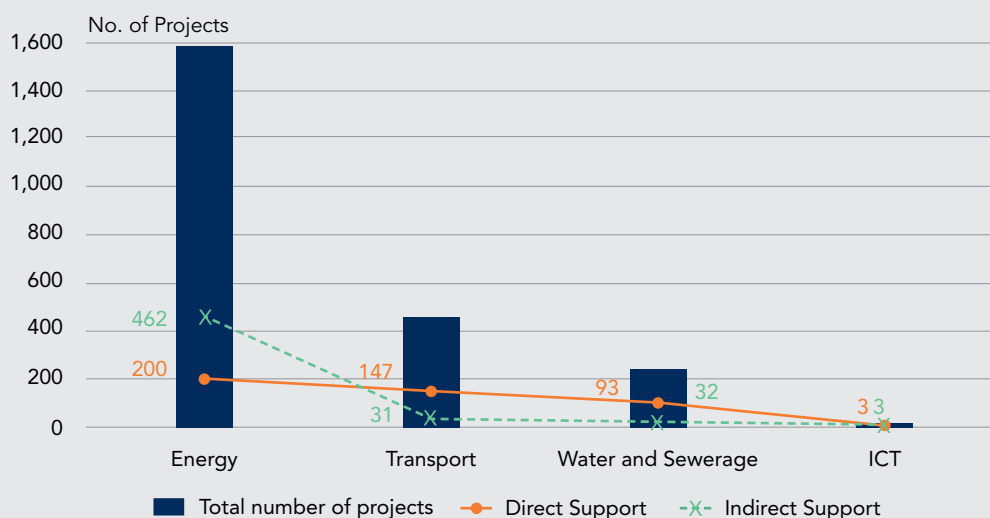
During the period from 2012 to 2017, the share of projects receiving government support gradually dropped from 2012 to 2015, after which the share picked up, and reached 45 percent of all projects in 2017. The declining share of government support to projects corresponded with the decline in investment levels which lasted from 2012 to 2016. The upward turn in investment levels in 2017 correlates positively with the increase in government support to projects, and signifies the important role that government policy plays in encouraging greater private participation in infrastructure development.

In terms of the divide between direct and indirect support (see Figure 13), 2017 highlighted a significant deviation from the preceding years as, for the first time, the share of projects receiving direct support, at 30 percent, exceeded the share of projects receiving indirect support at 15 percent. Revenue subsidy was the preferred type of support, with 60 projects receiving this. Of these projects, half were energy projects in China, and 17 were Chinese water projects. This occurred because the Government

of China is strongly committed to subsidizing energy and water projects. In 2017, capital subsidy, which is the next most popular form of government support, was extended to 29 projects. Most of these were in the transport sector, where 24 transport projects (36 percent) out of 66 transport projects received capital subsidy. Three water projects and two energy projects also received capital subsidy. Six energy projects, including three in Indonesia, and one each in Rwanda, Uganda, and Zambia, received payment guarantees.

FIGURE 14

Direct and indirect support of infrastructure projects with private participation in EMDEs by sectors, cumulative for 2012–2017



Source: PPI Database, World Bank, as of April 2018

In line with historic trends, in 2017, the number of energy projects that received indirect government support (42), is still higher than the number of projects which received direct government support (37). However, due a decline in the number of payment guarantees, the difference in these two numbers is no longer as great.

From 2012 to 2017, for the transport and the water and sewerage sectors, the number of projects that received direct government support was five times, and three times higher, respectively, than the number of projects that received indirect government support (see Figure 14). Over the last five years, the ICT sector received the least government support. Only six of the 19 ICT projects received support from government, with three ICT projects receiving indirect support, and three projects receiving direct support. In the transport sector, direct government support was primarily in the form of capital subsidies (130 projects out of 148). Transport projects received 78 percent of all capital subsidies. The highest number of projects that received revenue subsidy were in the energy sector (185 projects), while revenue subsidy was granted to 70 water and sewerage projects, and 17 transport projects. Thus, energy projects accounted for over 68 percent of the projects that received revenue subsidy. Payment guarantees formed the largest type of indirect support offered by governments, and were extended primarily to energy sector projects (90 percent of projects).

About the Private Participation in Infrastructure Projects Database

The Private Participation in Infrastructure Database is a product of the World Bank Group's Infrastructure, PPPs and Guarantees team. Its purpose is to identify and disseminate information on private participation in infrastructure projects in low- and middle-income countries. The database highlights the contractual arrangements used to attract private investment, the sources and destination of investment flows, and information on the main investors. The site currently provides information on more than 8,000 infrastructure projects dating from 1984 to 2017. It contains over 50 fields per project record, including country, financial closure year, infrastructure services provided, type of private participation, technology, capacity, project location, contract duration, private sponsors, debt providers, and development bank support.

For more information, please visit: **ppi.worldbank.org**

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