



H1 2019

Private Participation in Infrastructure (PPI)

Acknowledgement & Disclaimer

This report was prepared by a team comprising Deblina Saha (Task Team Leader), Seong Ho Hong, Teshura Nair and Apala Bhattacharya, with editorial inputs by Luba Vangelova and design by Victoria Adams-Kotsch. The team is very grateful for the support and guidance received from Fatouma Toure Ibrahima (Manager of Global Infrastructure Programs and Analytics, IPG Group). The team is thankful to Helen Mary Martin (Senior PPP Specialist, IPG Group), Patrice Caporossi (Senior Infrastructure Finance Specialist, IPG Group) and Fernanda Ruiz-Nuñez (Senior Economist, IPG Group) for providing valuable comments which helped shape the report. Cover photo © Gwydion M. Williams/Creative Commons.

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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H1 2019 Key Highlights

- In the first half of 2019 (H1 2019), private investment commitments in energy; transport; information and communications technology (ICT) backbone; and water infrastructure in low- and middle-income countries totaled US\$49.8 billion across 175 projects in 38 countries.
- H1 2019 investment levels show a 14-percent increase over H1 2018, and an 18-percent increase over the five-year H1 average.
- East Asia and Pacific (EAP) continues to dominate global investments, accounting for 40 percent of total PPI investments in H1 2019. Investments in Latin America and the Caribbean (LAC) and South Asia (SAR) are higher than past half-year levels; investment levels have declined in the other regions.
- Seventy-six percent of total investments were concentrated in five countries (China, Brazil, India, the Russian Federation, and the Philippines).
- Investment commitments in the IDA countries¹ in H1 2019 totaled US\$2.5 billion across nine projects in seven countries. Investment commitments in H1 2019 surpassed those made over the full year in 2018, and represent the second-highest H1 level of the past 10 years.
- In H1 2019, the transport sector continued to outpace the energy sector, driven largely by China. Water-sector investments were lower than H1 2018 levels, but still considerably higher than the half-year average over the past five years. ICT-backbone investments declined sharply.
- Of 64 private electricity-generation projects, 59 were renewable energy projects, accounting for 72 percent of total electricity-generation investments and 70 percent of capacity. Solar was the dominant technology, and no investment was reported in coal power.
- Of the investment amounts for which financing information was available,² 63 percent was debt-financed. Sixty-six percent of the total debt was raised from commercial providers, 13 percent from multilaterals, and seven percent from bilateral providers, with the remainder coming from public sources. Overall, international sources financed 60 percent of the debt.
- Private sources financed 76 percent of investments; public sources financed 11 percent; and development and export finance institutions (DEFIs)—which are both multilateral and bilateral—financed 13 percent.

1 “IDA countries” refers to the 59 IDA-only countries that are eligible for support from the International Development Association (IDA), the part of the World Bank that helps the world’s poorest countries (<http://ida.worldbank.org/>).

2 Financing information was available for 70 percent of investment commitments made in H1 2019, with investments totaling US\$23.2 billion. Information was unavailable for all projects in China, including the megaprojects.

Executive Summary

Private participation in infrastructure (PPI) investment³ in H1 2019 stood at US\$49.8 billion across 175 projects, an increase of 14 percent from H1 2018 levels. Investment levels in H1 2019 were also higher than the five-year H1 average (US\$42.2 billion). The increase over H1 2018 can mostly be attributed to a rise in the number of road projects in China and a US\$8.6-billion divestiture of a natural-gas transmission project in Brazil. The overall number of projects rose by a marginal three percent, from 170 in H1 2018 to 175 in H1 2019.

H1 2019 saw investments in more countries and larger projects. Investments were made in 38 countries, which was higher than the number of countries with investment commitments in H1 2018, and the five-year H1 average (31 countries). Belarus, Belize, the Comoros, Sudan, and Uzbekistan recorded projects after a decade-long hiatus and St. Vincent and the Grenadines reported its first project ever. Investments in small projects (< US\$100 million) decreased, as small projects garnered only a 41-percent share in H1 2019, compared to 50 percent in H1 2018. Meanwhile, there was an increase in the share of medium-sized projects (US\$100 to US\$500 million), from 39 percent in H1 2018 to 46 percent in H1 2019.

EAP continues to dominate global investments, and investments in LAC and SAR increased. EAP garnered 40 percent of total PPI investments in H1 2019, with investments totaling US\$20 billion—a 17-percent increase from H1 2018. LAC's share increased significantly, from 17 to 32 percent, while the absolute value of its investment commitments in H1 2019 surpassed its full-year investment commitments in 2018; most of this can be attributed to a megaproject in Brazil. H1 2019 investments in SAR increased by 32 percent over H1 2018 levels and by 64 percent over the five-year H1 average. However, investment commitments in Sub-Saharan Africa (SSA), Europe and Central Asia (ECA), and the Middle East and North Africa (MENA) were lower than their respective H1 2018 levels.

The Philippines and the Russian Federation made a comeback to the top-five PPI countries, which also include China, Brazil and India. China alone accounted for more than a third (34 percent) of global investment commitments, which was largely due to a surge of road investments in the country, including four mega road projects. Brazil saw a fourfold increase over H1 2018 investment levels, largely driven by the privatization of a Petrobras natural-gas transmission project worth US\$8.6 billion. The Philippines re-entered the top-five country list, with five projects and US\$1.8 billion worth of investment, boosted by a US1-billion mega road-transport project. India had the second-highest number of projects (after China, with 60 projects), as in H1 2018, but reporting a higher investment level (US\$4.7 billion). Russia and India were the only top-five countries with no megaprojects.

Increased investments in IDA countries. Investment commitments in IDA countries in H1 2019 totaled US\$2.5 billion across nine projects in seven countries. These commitments surpassed the full-year levels of 2018 and mark the second-highest H1 PPI investment level in the past 10 years.

3 "Investment" refers to private investment commitments at the time of financial close 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. ICT-backbone infrastructure includes fiber-optic cables, mobile towers and other hard assets with an active government component.

Transport continued to outpace energy, whereas water and ICT saw declining investments. The transport sector attracted US\$25.8 billion across 78 projects, accounting for more than half of global PPI investments, driven largely by China. The energy sector received US\$21.5 billion across 75 projects—a 31-percent increase from H1 2018, mainly attributable to the megaproject in Brazil. The water sector attracted US\$2.4 billion over 21 projects, and the ICT sector reported a US\$74-million investment in one network-expansion project in the Comoros.

Renewable-energy capacity additions and investments were also significant in H1 2019. The share of renewables has hovered around the 90-percent mark, in terms of the number of projects, over the past five years (92 percent in H1 2019, and an average of 89 percent over the past five years). But in H1 2019, the share of renewable-energy investments in terms of new capacity additions has shot up from an average of 59 percent over the past five years to 72 percent in H1 2019, and from 60 percent to 70 percent in terms of investment volume. Aside from Armenia, Brazil, El Salvador, and Indonesia, all other countries invested only in renewable-energy projects. Solar was the dominant renewable-energy technology, followed by wind. There was no investment in coal power plants; all five conventional-energy projects used natural gas.

More projects received DEFI support,⁴ but the total amount of DEFI financing was lower. Forty out of 175 projects received some form of DEFI support—the second-highest proportion in the past five years. However, DEFIs played a reduced role in financing in H1 2019 compared to 2018, providing only 14 percent of total investments. In addition to financing projects, DEFIs continued to enable private investment through syndication support, guarantees and other risk-mitigation facilities. In H1 2019, nine projects received such non-financing support from DEFIs, with five of these projects receiving DEFI guarantees.

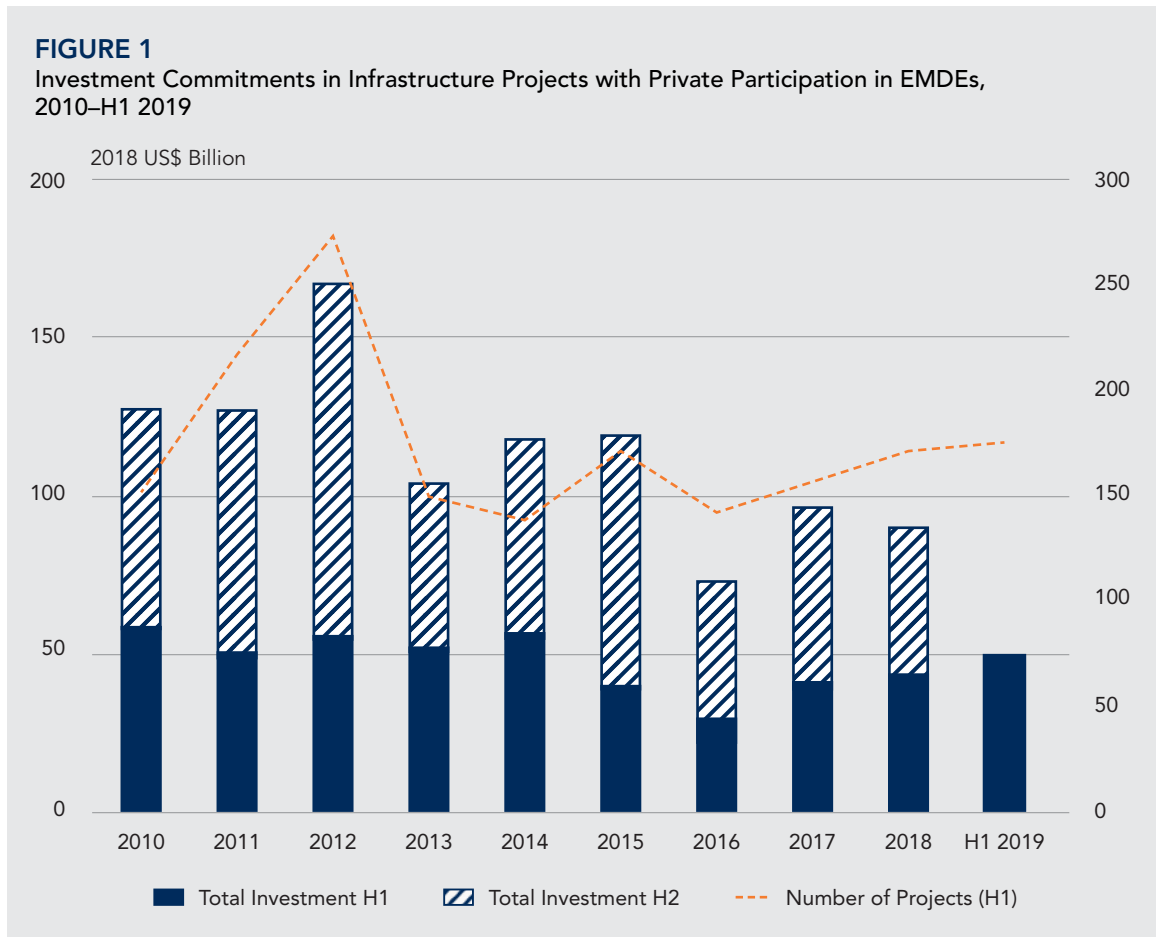
Reliance on commercial debt increased, as did international financing.⁵ Commercial debt in H1 2019 accounted for 67 percent of total debt funding, compared to 54 percent in 2018, though a large portion of the increase was due to the Brazilian megaproject. In all regions except MENA, more than half of debt raised for private infrastructure investments came from commercial sources. In Malaysia, Vietnam, and Morocco, all debt was raised from commercial sources. International debt accounted for 60 percent of the total debt, but local debt continued to play a large role in EAP, ECA and SAR, with local banks dominating lending in the Philippines, Vietnam, Russia and India.

4 DEFI stands for development and export finance institutions, and for the purposes of this report, refers to multilateral institutions and bilateral agencies with development mandates, as well as export credit agencies with mandates to support domestic businesses in pursuing investments abroad.

5 Financing information was available for 70 percent of investment commitments made in H1 2019, with investments totaling US\$23.2 billion. Information was unavailable for all projects in China, including the megaprojects.

1. Overview

PPI investment in H1 2019 totaled US\$49.8 billion across 175 projects, an increase of 14 percent over investments in H1 2018,⁶ and 20 percent above H1 2017 levels. The total investment recorded for H1 2019 is also 18 percent higher than the five-year H1 average (US\$42.2 billion).



Investment levels in H1 2019 have already reached 55 percent of the full-year investment levels in 2018. Because higher investment levels are typically recorded in the latter half of each year (Figure 1), full-year 2019 investment levels have the potential to increase significantly from 2018 levels.

H1 2019 saw investments in 38 countries—a significant increase over the number of countries with investment commitments in H1 2018, and the five-year H1 average (31 countries). H1 2019 also saw the return of investments in countries such as Belarus, Belize, the Comoros, Sudan, and Uzbekistan, which had not recorded any projects in the last decade. St. Vincent and the Grenadines reported investment commitments for the first time ever in H1 2019.

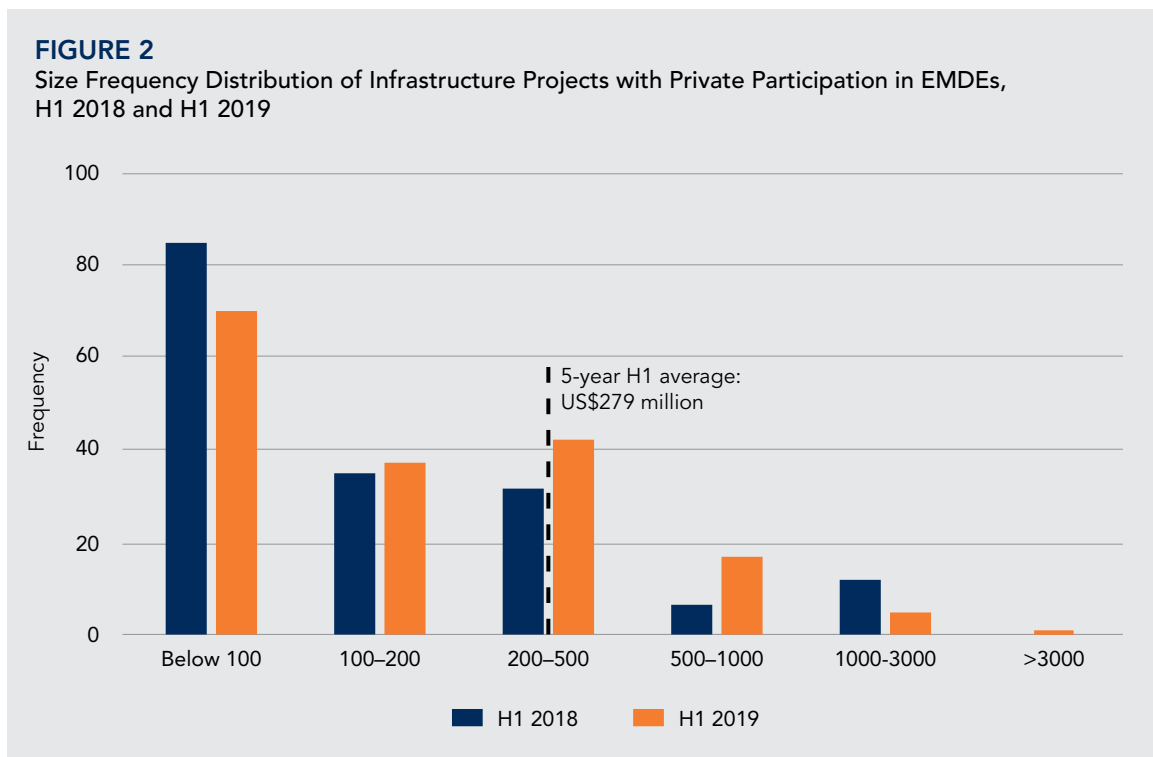
⁶ The reclassification of Argentina as an upper-middle-income country requires investment commitments in the country to be reported in the PPI database, hence this figure is higher than the one reported in the 2018 PPI annual report.

The recorded number of projects continued to increase, albeit marginally, from 170 in H1 2018 to 175 in H1 2019. However, it is a 13-percent increase compared to the previous five-year H1 average of 155 projects. The increased number of projects in H1 2019 was driven mainly by China, which saw a big jump from 41 projects in H1 2018 to 60 projects in H1 2019. The increased number of projects in China can be attributed to an increase in road projects, from 22 in H1 2018 to 41 in H1 2019.

PROJECT SIZE

The average (mean) project size in H1 2019 was higher than the average project size for the full year in 2018, as was the median project size—US\$139 million in H1 2019, versus US\$100 million in H1 2018. Although H1 2019 saw a relative increase in larger projects, as indicated by the higher median, the average project size for H1 2019 is skewed, due to the inclusion of the Brazilian megaproject (US\$8.6 billion).

Investments in small projects (< US\$100 million) decreased—such projects garnered only a 41-percent share in H1 2019, compared to 50 percent in H1 2018. Meanwhile, there was an increase in the share of medium-sized projects (US\$100 – 500 million), from 39 percent in H1 2018 to 46 percent in H1 2019 (Figure 2). The largest project in H1 2019 was US\$8.6 billion, compared to US\$3 billion in H1 2018 and US\$6 billion over the previous five-year H1 average.



PROJECT TYPE

Greenfield projects continue to dominate in H1 2019, accounting for 82 percent of all PPI projects, compared to the five-year H1 average of 76 percent. Globally, most greenfield investments happen in

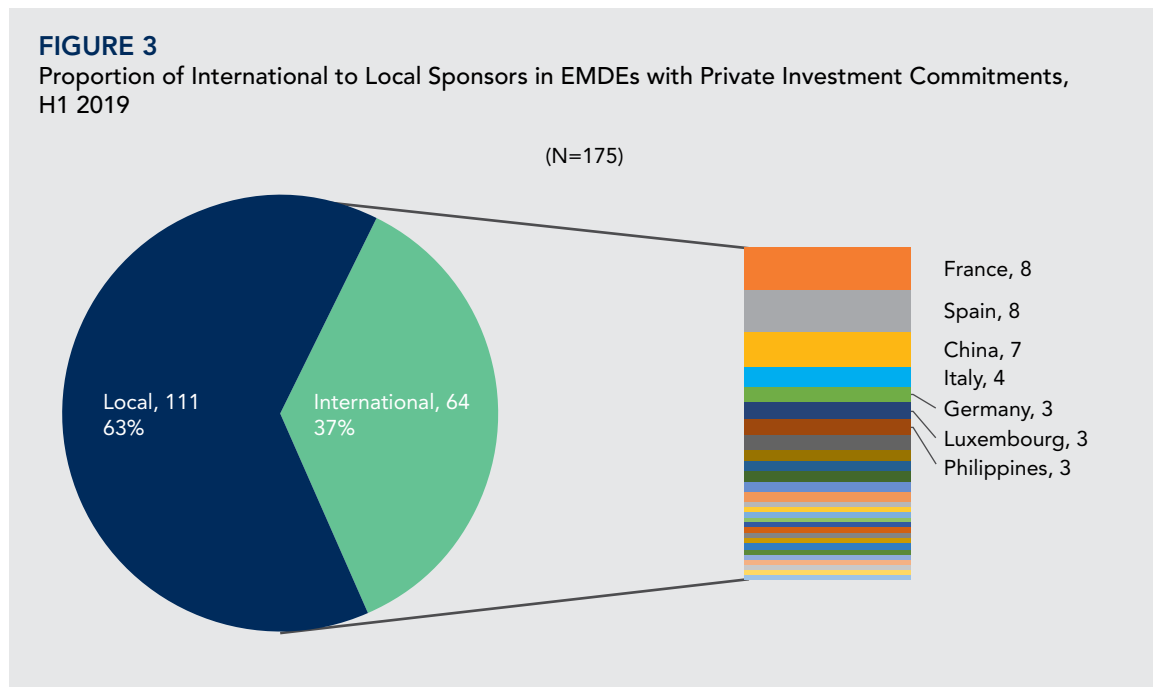
energy, because the construction period for power plants is very short (18 to 36 months), and therefore they are perceived to be of lower risk compared to projects in the transport sector, for which the construction period is much longer. In H1 2019 this trend continued, with most greenfield projects in the energy sector (50 percent) and a vast majority of brownfield investments (92 percent) in the transport sector.

In H1 2019, only five transactions were recorded as management contracts, and there were three divestitures. The latter included the largest project recorded in H1 2019: the divestiture of Petrobras' natural-gas transmission network, amounting to US\$8.6 billion.

DOMESTIC VERSUS INTERNATIONAL SPONSORS

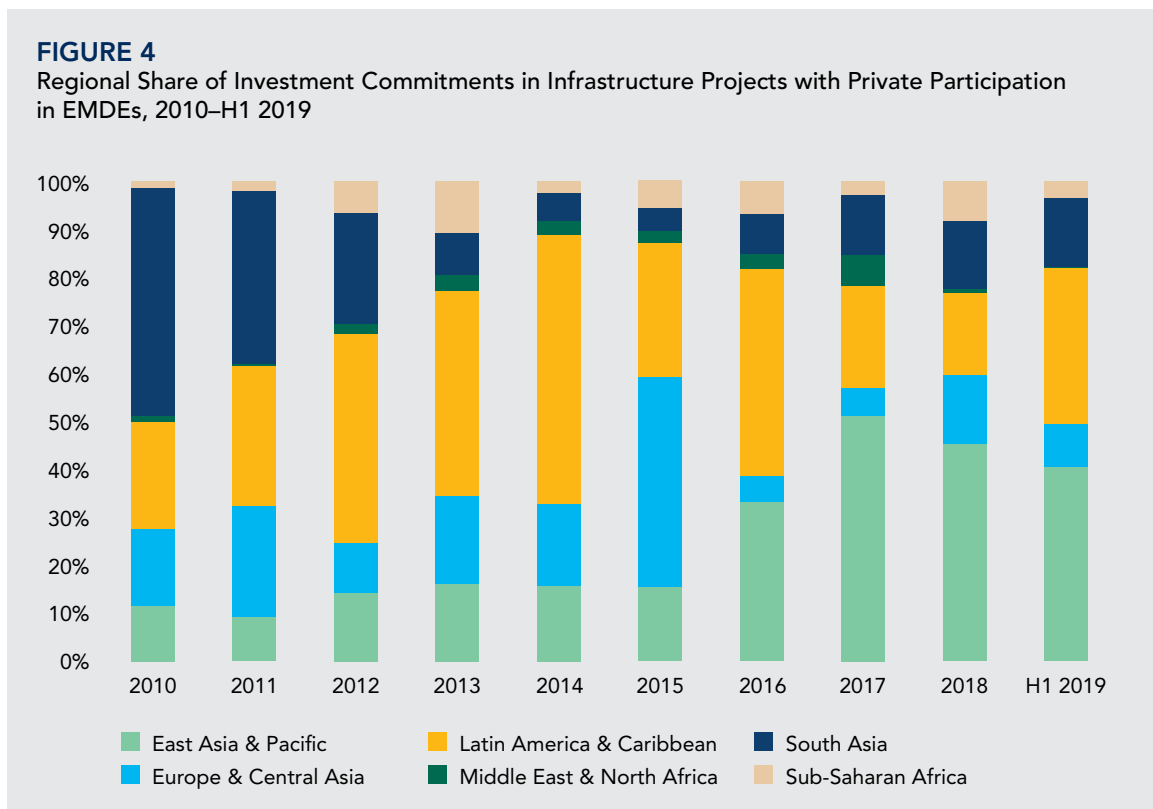
Of the 175 projects recorded in H1 2019, slightly more than a third (64 projects) had international sponsors. Most of these international sponsors were from high-income countries, namely France and Spain. There were also some investment flows between low- and-middle income countries in H1 2019—China sponsored seven projects abroad, and private firms from the Philippines sponsored three projects in Ghana, Sudan, and Vietnam (Figure 3).

Although locally-sponsored projects accounted for almost two thirds of the total, these were concentrated in only 11 countries. Argentina, Brazil, India Malaysia, the Philippines, the Russian Federation, Ukraine and Vietnam had a mix of both locally and internationally sponsored PPI projects, whereas projects in China and Indonesia were completely locally sponsored. These countries are relatively more mature markets, in terms of their track records of carrying out PPP projects, compared to the remaining 27 countries with only international sponsors.



2. Geographic Spread

EAP continues to dominate global investments, accounting for 40 percent of total PPI investments in H1 2019. This represented an increased investment commitment in EAP in absolute terms; however, its share of total investments has decreased, largely due to a significant increase in LAC. The share of LAC increased from 17 percent in 2018 to 32 percent in H1 2019, and the absolute value of LAC's investment commitments in H1 2019 have already exceeded the full-year level in 2018—an increase attributable to just one project, the US\$8.6-billion divestiture of Petrobras' natural-gas transmission network. Investments in SAR, which has been showing signs of recovery since 2017, surpassed H1 2018 levels; conversely, investment commitments in SSA, ECA, and MENA are lower than their respective H1 2018 levels (See Figure 4).

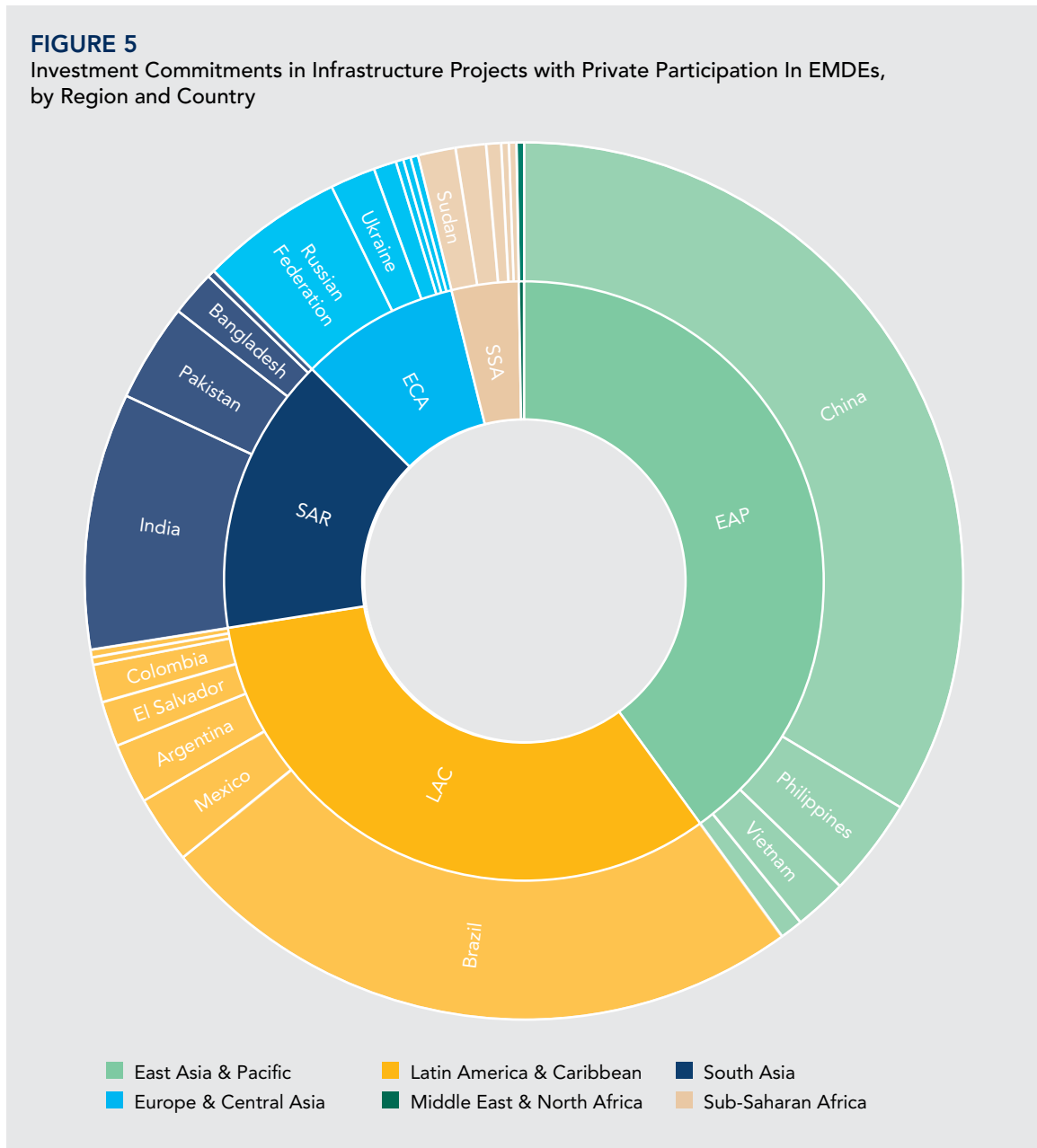


The five countries with the highest levels of investment in H1 2019 were: China, with US\$16.8 billion across 60 projects; Brazil, with US\$11.9 billion across 12 projects; India, with US\$4.7 billion across 24 projects; Russia, with US\$2.6 billion across seven projects; and the Philippines, with US\$1.8 billion across five projects. In H1 2019, these five countries together attracted US\$37.9 billion and captured 76 percent of global PPI investment.

EAST ASIA AND PACIFIC (EAP)

In H1 2019, EAP received the highest level of PPI investment (US\$20.0 billion), accounting for 40 percent of the global total (Figure 5). This was led mainly by **China**, which accounted for 84 percent of the regional investment (US\$16.8 billion). Since 2016, private investment commitments in China have been increasing, and the H1 2019 investment levels mark a 42-percent increase over the H1 2018 levels.

FIGURE 5
Investment Commitments in Infrastructure Projects with Private Participation In EMDEs,
by Region and Country



The Chinese government has continued its efforts to approve more infrastructure projects, anticipating slow growth amid trade tensions. It has implemented several measures to facilitate the process for municipal officials to raise funds for the construction of highways and railways. As a result, China's investment commitment in H1 2019 is highly concentrated in the transport sector, comprising 89 percent of China's total investment. However, H1 2019 saw no energy projects recorded in China. The data from the China National Renewable Energy Center suggests that the majority of installations in 2019 are related to distributed solar-power projects, instead of utility-scale projects. This can be attributed to the scrapping of China's national policy to support energy projects in the country in 2018. However, this year, the government of China has been laying the groundwork for a new policy framework that will boost market conditions for independent power producers (IPPs) and will lead to an increase in energy projects over the rest of the year and in the future.

The Philippines accounted for nine percent of regional investment commitments, with a total of US\$1.8 billion across five projects. The Philippines had projects in various subsectors, including roads, airports, and water. **Indonesia**, a common destination of large PPI investments in EAP, saw only two projects, worth US\$372 million, in H1 2019. The Riau Gas power plant in Indonesia is the only power plant using non-renewable technology reported in EAP in H1 2019.

Other countries with investment commitments include **Malaysia, Mongolia, and Vietnam.**

LATIN AMERICA AND THE CARIBBEAN (LAC)

With US\$16.2 billion, LAC was the region with the second-highest investment level in H1 2019, driven largely by **Brazil**, which accounted for three quarters of the regional investment (US\$11.9 billion). However, almost three quarters of Brazil's investment can be attributable to one project—the privatization transaction by the state oil group Petrobras of its network of gas pipelines to France's Engie and the Canadian fund CDPQ for US\$8.6 billion. Incidentally, this project alone accounts for 17 percent of all investment commitments made in H1 2019. A series of similar privatization transactions is expected in Brazil under the new president, given that the country has launched large-scale privatization and concession projects, with the aim of reducing the country's public debt.⁷

Mexico, with US\$1.3 billion, was the second-largest investment destination in the region. All of the country's private-investment commitments were channeled to electricity-generation projects using renewable technology.

St. Vincent and the Grenadines, a southern Caribbean nation, recorded its first private investment transaction (a 10-MW geothermal power plant) in the database in H1 2019.

Other countries with PPI transactions in the region were **Argentina, Belize, Colombia, the Dominican Republic, Ecuador, El Salvador, and Peru.**

⁷ Bautzer, T. January 29, 2019. "Brazil govt aims to sell at least \$20 billion in assets this year." Reuters. <https://www.reuters.com/article/us-brazil-privatization/brazil-govt-aims-to-sell-at-least-20-billion-in-assets-this-year-idUSKCN1PN1O4>.

SOUTH ASIA REGION (SAR)

SAR attracted US\$7.4 billion in investments in H1 2019, marking an increase of 32 percent over H1 2018 levels, and of 64 percent over the five-year H1 average. **India**, with investments totaling US\$4.7 billion, continued to be amongst the top-five investment destinations. Similar to 2018, the majority of investments in India (87 percent) were in the transport sector. This can be explained by the current road ministry's sustained efforts to attract more private investment since the start of 2018.⁸

In H1 2019, **Pakistan** saw a 42-percent increase in investment levels over H1 2018. All of Pakistan's US\$1.7 billion investment commitments in H1 2019 were in the energy sector. The Matiari-Lahore Transmission Line Project is notable, because it is the first power-transmission line in Pakistan financed through the private sector and has attracted foreign investment.

Other countries with PPI transactions in the region were **Bangladesh** and **Afghanistan**.

EUROPE AND CENTRAL ASIA (ECA)

ECA, with US\$4.4 billion, has seen a drop from H1 2018 levels (US\$10.6 billion), as well as from the five-year H1 average (US\$5.5 billion). This is mainly due to a significant decrease in **Turkey**. In H1 2018, Turkey alone had US\$7.5 billion worth of investments, most of which were in road projects. However, in H1 2019, Turkey's only investment was in a US\$86-million rail project.

Russia received US\$2.6 billion worth of investments, with more than one-third of it accounted for by a US\$900-million airport-expansion project.

Despite the small investment volume, H1 2019 saw more countries receiving investments in this region. For example, Belarus, Kosovo, Uzbekistan, and Bosnia and Herzegovina saw their first PPI transactions in the last decade. The projects in these new countries were all electricity-generation projects.

Other countries with PPI transactions in the region were **Serbia**, **Armenia**, **Kazakhstan**, and **Ukraine**.

SUB-SAHARAN AFRICA (SSA)

SSA received US\$1.7 billion across seven projects, marking a 12-percent decrease in investment levels from H1 2018. **Sudan** reported its first PPI project in the last 10 years—a US\$604-million port-container terminal that made Sudan the country with the largest PPI investment in the region in H1 2019. Similarly, the Comoros reported their first PPI project in the last decade—a telecommunication infrastructure-expansion project that was debt-funded by International Finance Corporation (IFC).

South Africa, previously a consistent destination for PPI investments in SSA, had no projects recorded in H1 2019. This can be partly attributed to a financial and operational crisis involving the national power agency, Eskom. Eskom's semi-annual results, announced at the end of 2018, highlighted 89-percent lower profitability than what had been recorded in the previous year, mainly due to its unsustainable debt level.⁹ Subsequently, market anxiety caused by reports that the government may ask independent

8 Sood, J. May 26, 2018. "Infrastructure in four years of Modi gov't: A thumbs up for better connectivity." PV magazine. <https://www.pv-magazine.com/2019/02/20/a-specter-is-haunting-south-africa-renegotiation-of-ppas-signed-between-2011-and-2012/>.

9 Mamai, P. December 12, 2018. "Eskom's debt is draining South African growth." Financial Times. <https://www.ft.com/content/94e9eb5a-fe0c-11e8-ac00-57a2a826423e>.

power producers to renegotiate the tariffs of power-purchase agreements (PPAs) awarded in the first two rounds of its renewable-energy program probably discouraged prospective independent power producers.¹⁰ However, in February 2019, the South African government announced plans to unbundle Eskom into three separate entities responsible for power generation, transmission and distribution. Hence, a series of privatization transactions in South Africa is anticipated in the coming years.

Other countries with PPI transactions in the region include **Kenya**, **Ghana**, and **Côte d’Ivoire**.

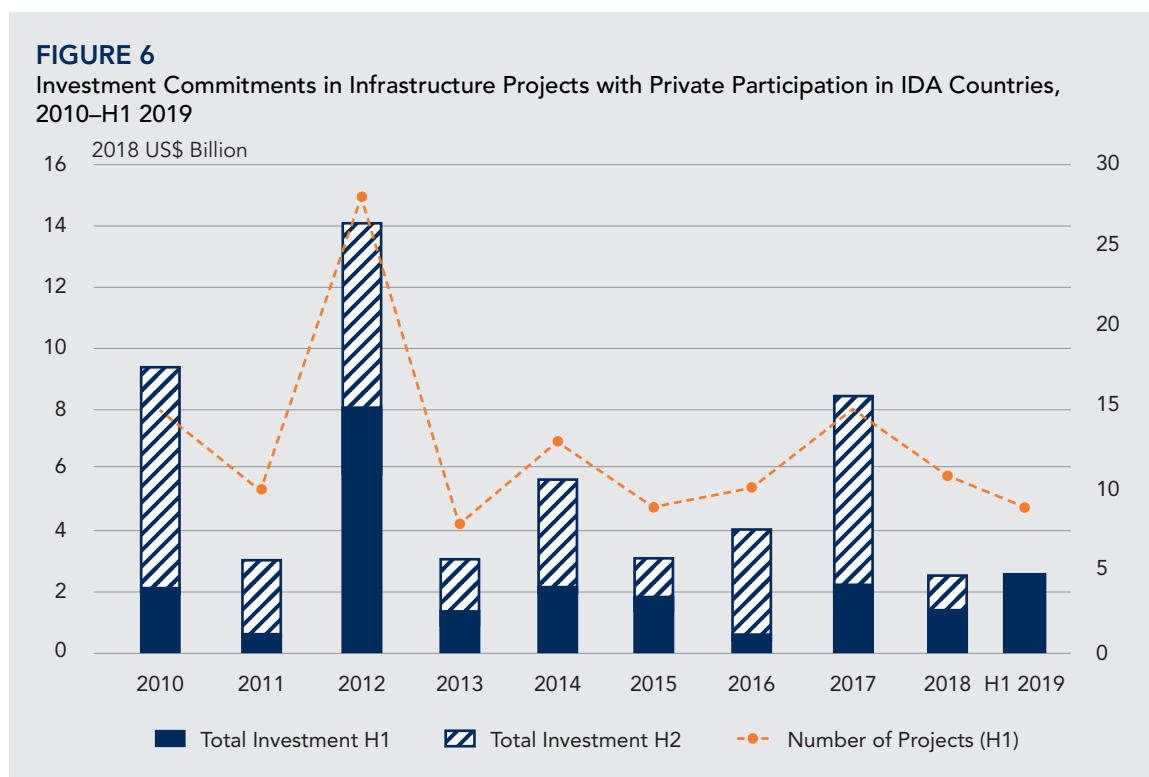
MIDDLE EAST AND NORTH AFRICA (MENA)

The H1 2019 investment level in MENA (US\$110 million) marked a decrease of almost two-thirds from the H1 2018 level (US\$300 million). Three countries received investment commitments in the region: **Jordan**, with US\$74 million for a solar power plant; **Morocco**, with US\$26 million for wind power plants; and **Tunisia**, with a US\$10-million solar project.

¹⁰ Bellini, E. February 20, 2019. “A specter is haunting South Africa, renegotiation of PPAs signed between 2011 and 2012.” PV Magazine. <https://www.pv-magazine.com/2019/02/20/a-specter-is-haunting-south-africa-renegotiation-of-ppas-signed-between-2011-and-2012/>.

3. Investments in IDA Countries

Investment commitments in IDA countries¹¹ in H1 2019 totaled US\$2.5 billion across nine projects in seven countries. Investment commitments in H1 2019 have already reached the full-year level of 2018, and represent the second-highest first-half level of the past 10 years (Figure 6).



H1 2019 saw higher levels of investment, despite fewer projects than there were over the full course of 2018. This is mainly due to sizable investments in Sudan and Bangladesh. Sudan had an investment transaction of US\$650 million for a brownfield port project, and Bangladesh had three projects across the ports, roads, and electricity subsectors, totaling US\$945 million.

Bangladesh has managed to sustain PPI investment commitments every year since 2005. The Comoros and Sudan had their first PPI investments of the last 10 years. Projects in IDA countries continued to receive a higher-than-average level of DEFI support. Although two-thirds (six out of nine) IDA projects received some form of DEFI support, the corresponding share for non-IDA projects was only 20 percent in H1 2019.

¹¹ As currently defined by the World Bank for fiscal year 2020, IDA countries are those with gross net income (GNI) per capita below US\$1,175. For this review, we focus on 59 countries that are eligible for IDA assistance and exclude blend countries. These 59 countries account for 3.5 percent of the gross domestic product (GDP) and 17 percent of the population of EMDEs.

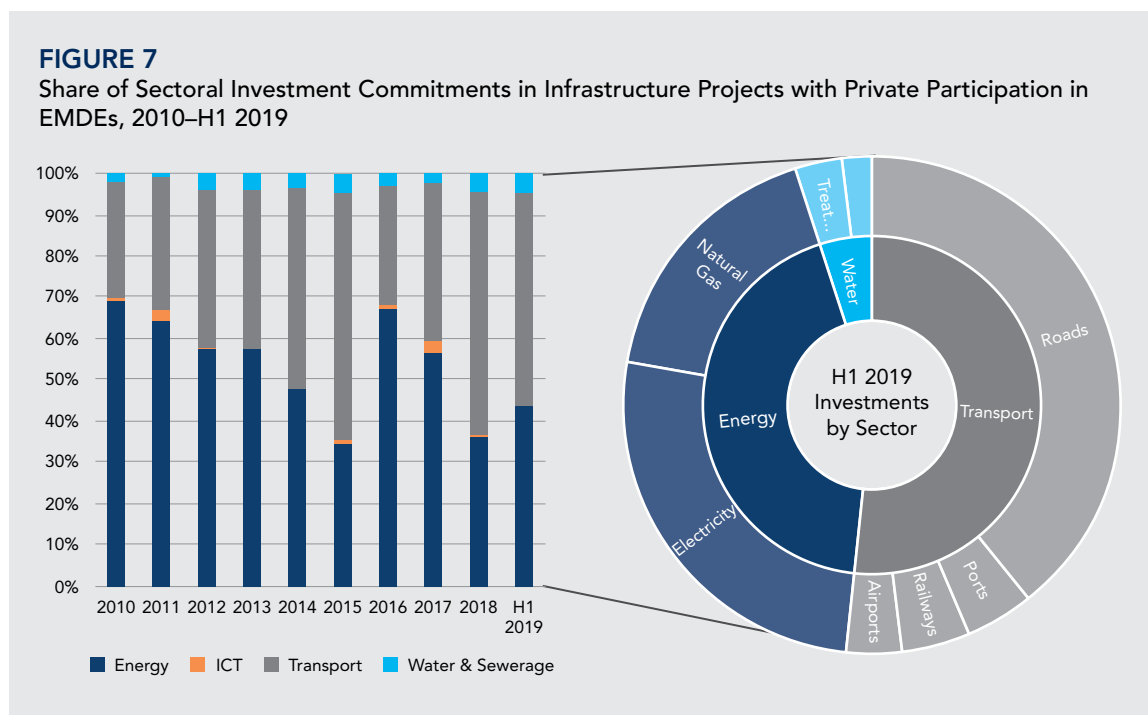
TABLE 1: INVESTMENT COMMITMENTS AND NUMBER OF INFRASTRUCTURE PROJECTS WITH PRIVATE PARTICIPATION IN IDA COUNTRIES

Country	Total Investment (US\$ million)	Number of Projects
Bangladesh	945	3
Sudan	604	1
Ghana	580	1
Côte d'Ivoire	216	1
Kosovo	83	1
Comoros	74	1
Afghanistan	19	1
IDA Total	2,521	9

4. Sector Trends

TRANSPORT

In H1 2019, the transport sector continued to outpace the energy sector, attracting US\$25.8 billion across 78 projects. This accounts for more than half of global PPI investments. The energy sector received US\$21.5 billion across 75 projects, accounting for 43 percent of investment commitment in H1 2019. The water sector attracted US\$2.4 billion over 21 projects, and ICT received US\$74 million for one project (Figure 7).



Transport-sector investment commitments totaled US\$25.8 billion across 78 projects in H1 2019, which is an eight-percent increase from H1 2018 levels and a 34-percent increase from the five-year H1 average. The number of projects (78) in H1 2019 was the highest in the past 10 years.

Within the transport sector, China received the largest investment commitments (US\$14.9 billion), followed by India (US\$4.1 billion) and Russia (US\$2.1 billion). Within transport, road investments dominated, accounting for more than four-fifths (76 percent) of the sector's investments (US\$19.5 billion across 62 projects). Of the remaining 16 transport projects, seven were port projects worth US\$2.3 billion, and five were airport investments totaling US\$1.9 billion. Finally, there were four railway projects worth US\$2.1 billion.

Similar to 2018, a bulk of the investment in **roads** took place in China and India, with US\$15.8 billion invested across 56 projects. In the case of China, this was a result of the Chinese government's efforts to expedite infrastructure projects as the country's economy showed signs of cooling. In the case of India, this can be attributed to the current road ministry's sustained efforts to attract more private

investment. Road projects in China were mostly greenfield projects, whereas the projects in India were rehabilitation projects.

H1 2019 saw **port** investments worth US\$2.3 billion across six countries. This was an increase of 16 percent over H1 2018 levels of US\$2.0 billion, and an increase of 41 percent over the five-year H1 average. The largest deal was a sea-port concession in Bangladesh, which had a total investment commitment of US\$647 million. The remaining six projects in Ecuador, India, Serbia, Sudan and Russia averaged US\$275 million.

In H1 2019, there were four **railway** projects, with a total of US\$2.1 billion in investment commitments, three Chinese projects accounted for US\$2.0 billion of this. Finally, the airport subsector had five projects in India, Russia, and the Philippines, totaling US\$1.9 billion.

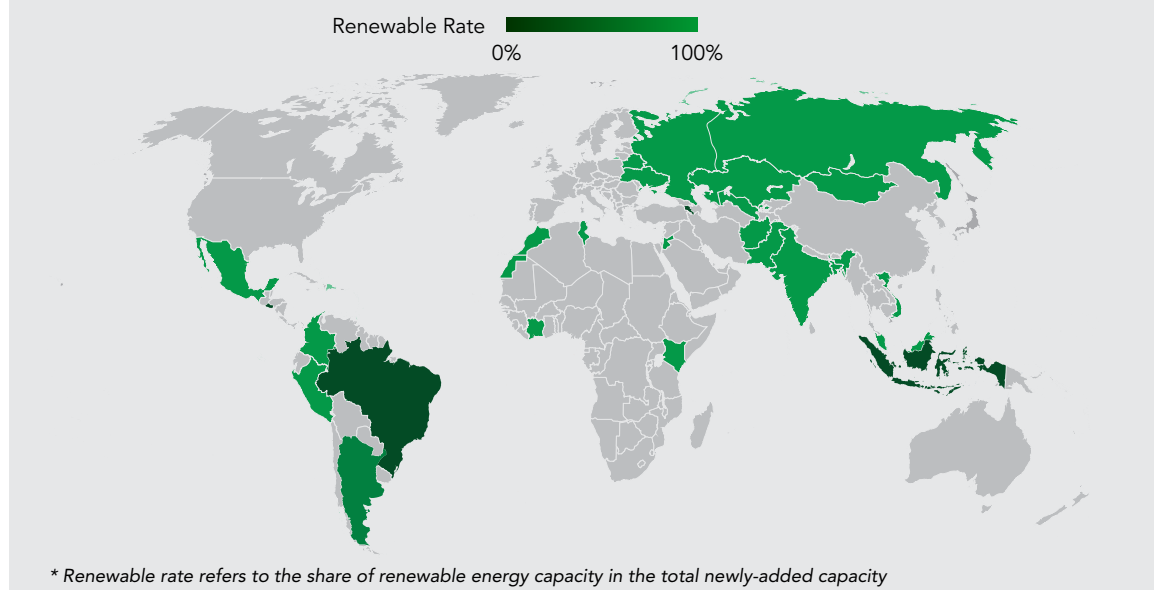
ENERGY

With US\$21.5 billion across 75 projects, investment in the energy sector in H1 2019 marked a 31-percent increase over H1 2018 levels (US\$16.4 billion) and a four-percent increase over the five-year H1 average (US\$20.8 billion). However, H1 2019 saw the lowest number of energy projects recorded in the initial half-years of the past five years. The large investment volume in H1 2019, despite the low number of projects, can be explained by the US\$8.6 billion Petrobras natural-gas network divestiture, which alone accounted for 40 percent of H1 2019 energy investments.

Excluding the megaproject in Brazil, investment commitments in the energy sector were actually the lowest in the past five years. This decline can be attributed to the absence of energy investments in China in H1 2019. In 2018, China had already seen a sharp drop due to a cessation of subsidies and government support for solar projects, and this trend continued in H1 2019.

FIGURE 8

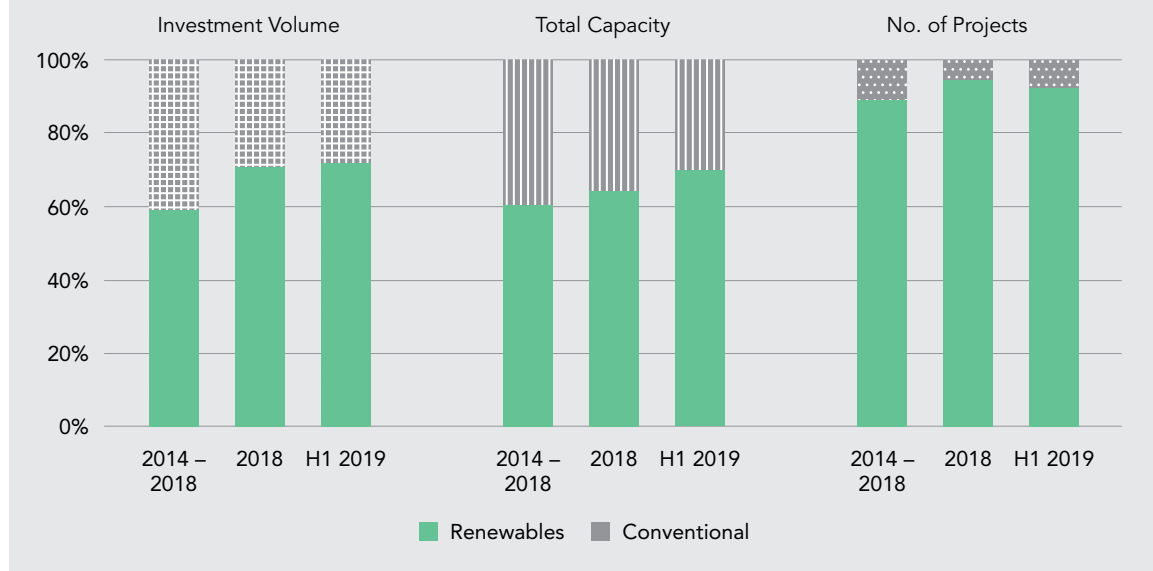
Rate of Renewable Energy Sources Used in Newly-Added Electricity Generation in EMDEs with Private Investment Commitment



Despite low sectoral investment commitments, renewable energy continued to play a significant role in new energy-generation projects. Of the 65 electricity-generation projects, 59 used renewables. Except in Armenia, Brazil, El Salvador, and Indonesia, most of the private investments in energy were in renewable-energy projects (Figure 8). Ninety-two percent of all new electricity-generations projects use renewable-energy sources, compared to 89 percent in the preceding five years. In terms of investment volume, almost 72 percent of electricity-generation investments were in renewables, compared to 59 percent over the past five years. Finally, 70 percent of the new added capacity was from renewable-energy sources, compared to 60 percent over the past five years (Figure 9).

FIGURE 9

Electricity Generation Projects in EMDEs (Renewable and Conventional Resources) by Investment Volume, Capacity and Number of Projects, 5-year average, 2018 and H1 2019

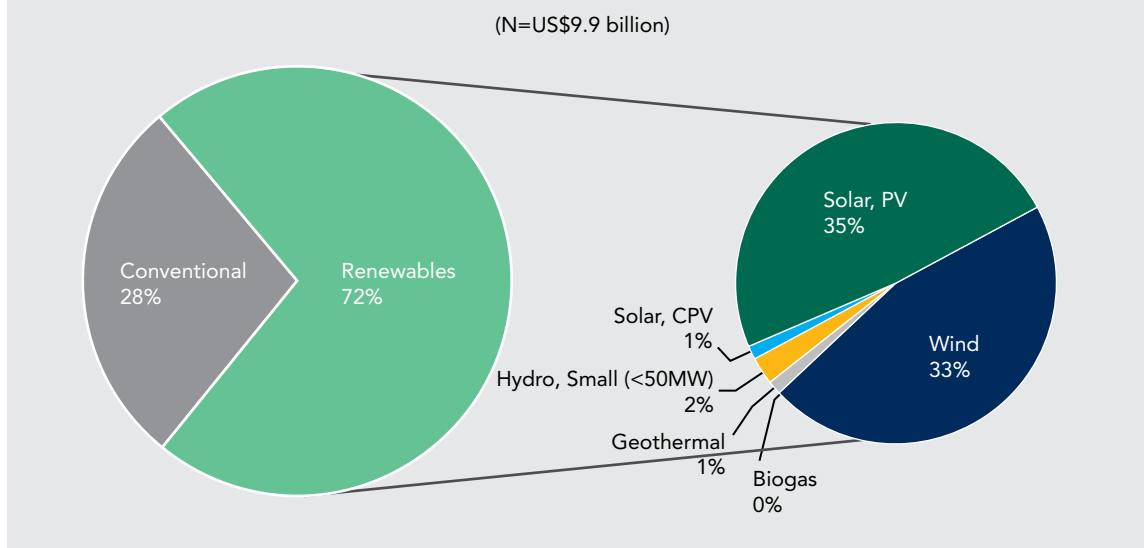


In terms of the number of projects, the most popular technology for electricity generation is solar photovoltaic—with 38 projects accounting for 59 percent of all power projects—followed by wind, with 17 projects.

In terms of capacity, solar added the most (3.3 GW) to emerging markets and developing economies (EMDEs). This represents about 40 percent of all new capacity added using private investment in H1 2019. Natural gas and wind were next, with 2.5 GW and 2.3 GW respectively, accounting for 30 percent and 28 percent of the total capacity added in H1 2019, respectively. Finally, it is also noteworthy that there were no coal power plants in H1 2019; all five new conventional power plants will use natural gas.

FIGURE 8

Investment Commitments in Infrastructure Projects with Private Participation in the Energy Sector in EMDEs in H1 2018, by Technology



In terms of private investment volume, the most dominant forms of technology in H1 2019 were solar and wind, accounting for 35 and 33 percent of total energy-generation projects (Figure 10). Solar-energy projects were recorded in 19 countries; Mexico and India led with six and five projects, respectively.

H1 2019 saw eight electricity-transmission projects, one electricity-distribution project, and one natural-gas divestiture project. The transmission projects were in Belize, Brazil and Pakistan. The electricity-distribution project was in Ghana, and the divestiture project was the megaproject in Brazil.

WATER AND SEWERAGE

At US\$2.4 billion across 21 projects, investment in the water sector in H1 2019 saw a 22-percent decrease over H1 2018 levels (US\$3.1 billion), but a 47-percent increase over the five-year H1 average. Water-treatment projects received investments of US\$1.5 billion across 14 projects. Investments in water-utility projects amounted to US\$896 million across seven projects in H1 2019. The majority of investment commitments in the water sector came from China, which accounted for 78 percent of this sector's investments in H1 2019, with US\$1.9 billion across 16 projects. Brazil and Vietnam received

US\$268 and US\$159 million worth of investments, respectively. The only other country with water-sector investments was Indonesia, which had a drinking-water supply-system project.

ICT BACKBONE

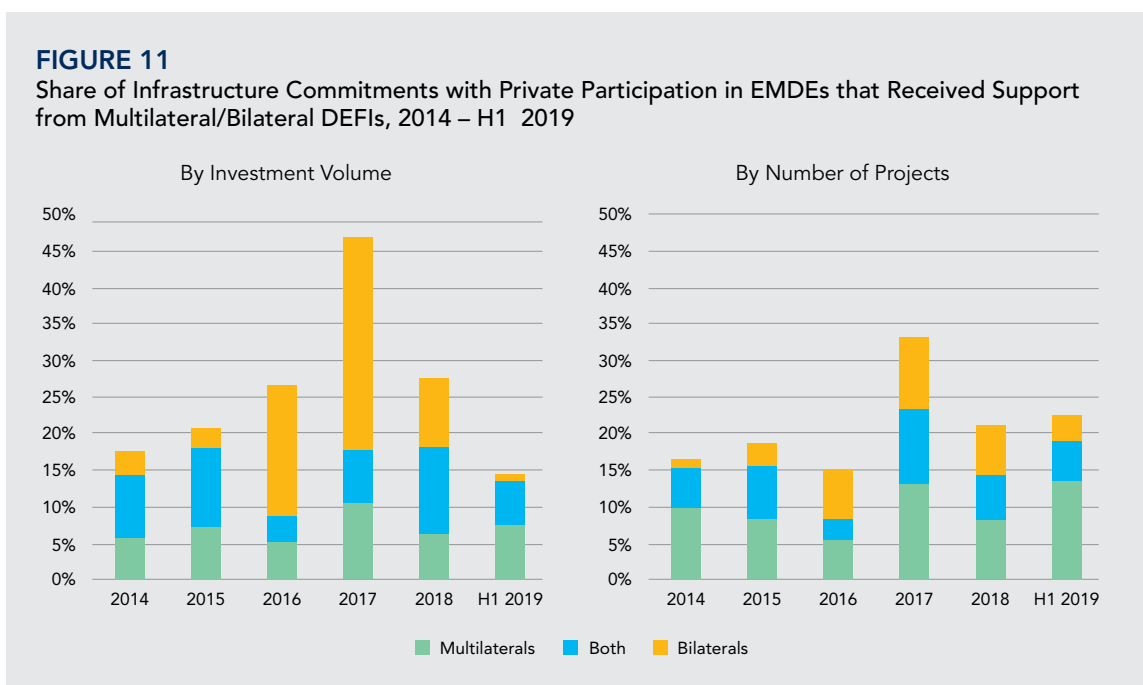
In the ICT sector, a total of US\$74 million was invested in one network-expansion project in the Comoros. IFC provided a loan of US\$15 million to Telma Comoros, the project company, to expand its network nationwide. From 2009 to 2018, there were 47 ICT-backbone projects, totaling US\$10.9 billion and accounting for 0.96 percent of global PPI investment. The ICT sector usually reports the lowest investment commitments in the PPI database—in 2018, the ICT-backbone sector had four projects totaling US\$297 million. The five-year average investment commitment in the sector is US\$978 mil-

lion, but it is skewed upwards because of a record investment of US\$3.1 billion in 2017, which was due to the financial closure of a megaproject (the Viettel 4G network development) in Myanmar that amounted to US\$1.5 billion.

5. Financing Trends

5.1 DEFI SUPPORT

In H1 2019, 40 projects received some form of DEFI support, which refers to multilateral institutions and bilateral¹² agencies with development mandates, as well as export credit agencies with mandates to support domestic businesses in pursuing investments abroad. This accounted for 23 percent of all PPI projects, which was the second-highest level of the past five years (Figure 11). By investment value, however, projects with DEFI support only accounted for 14 percent of total investment commitments. The decline in the share of investment value can be attributed to only one of six megaprojects having received DEFI support. By comparison, in 2018, both megaprojects received DEFI support. Excluding



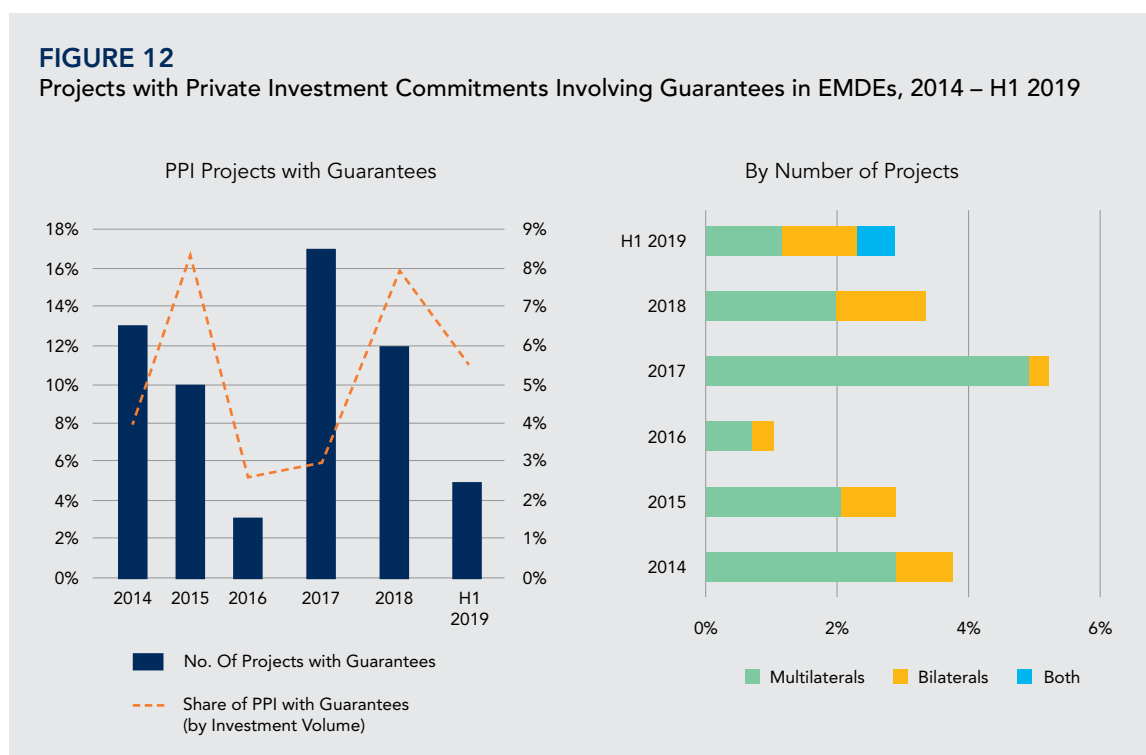
megaprojects, the share of investment value of projects with DEFI support increased to 17 percent.

DEFI support tends to be more focused in the energy sector, with 85 percent of DEFI support going to energy projects. In terms of number of projects, ECA and LAC had the most projects with DEFI support, whereas LAC had the highest amount of DEFI debt (US\$1.4 billion).

12 In this report, the term bilaterals includes bilateral institutions as well as export credit agencies.

The DEFI provided direct debt support of US\$3.0 billion in H1 2019; of this, 66 percent was provided by multilateral institutions. The multilateral institutions provided US\$1.9 billion in direct loans to 34 projects, and syndication support of US\$186 million to two projects. IFC, Asian Development Bank (ADB), Inter-American Development Bank (IDB), African Finance Corporation (AFC) and European Bank for Reconstruction and Development (EBRD) provided the majority of multilateral support (72 percent), with a total of US\$1.4 billion given in loans. In addition to financing projects, the role of DEFIs expanded to also enabling private investment through syndication support, transaction advisory, guarantees and other risk-mitigation facilities. In H1 2019, nine projects received other such non-financing support from DEFIs. Export credit agencies supported four projects, providing US\$64 million in loans to one project, and guarantees for the other three projects. Support in the form of insurance was also given to one project.

Guarantees¹³

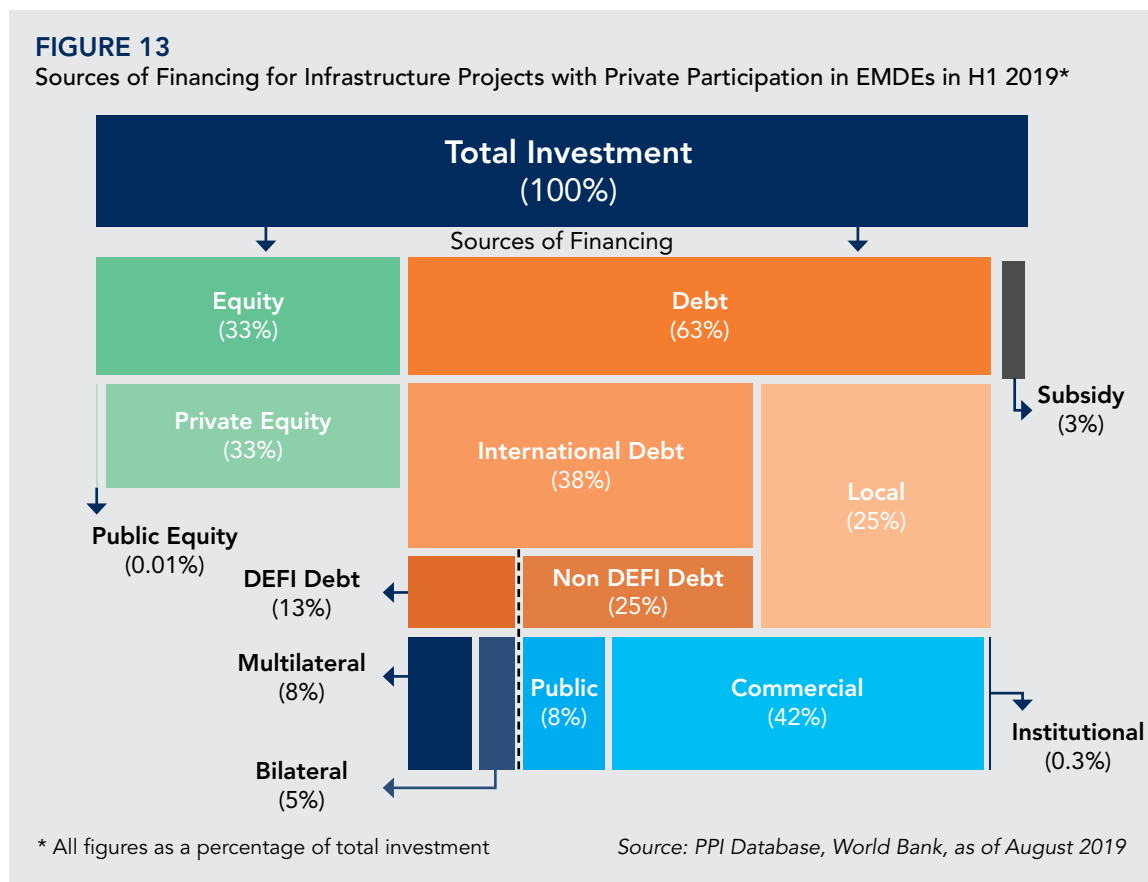


In H1 2019, five projects in five countries received guarantee support from DEFIs, accounting for five percent of total PPI volumes. Although the share of projects receiving guarantee support is lower than in 2017 and 2018, it is still higher than that seen in 2015 and 2016, with projects supported by guarantees in H1 2019 garnering five percent of total PPI investment volumes (Figure 12). Interestingly, a renewable-energy project in Argentina received guarantees from the World Bank and from an export

13 At this stage, the PPI Database only notes which projects received guarantees from which entities, without details about what the guarantees covered or what the guarantee amounts were. Hence, the debt for projects receiving guarantee support is categorized per the debt-provider's classification.

credit agency in H1 2019. Three of the five projects supported by guarantees are in LAC, with the other two in ECA. All five projects involved renewable-energy generation.

5.2 FINANCING MIX



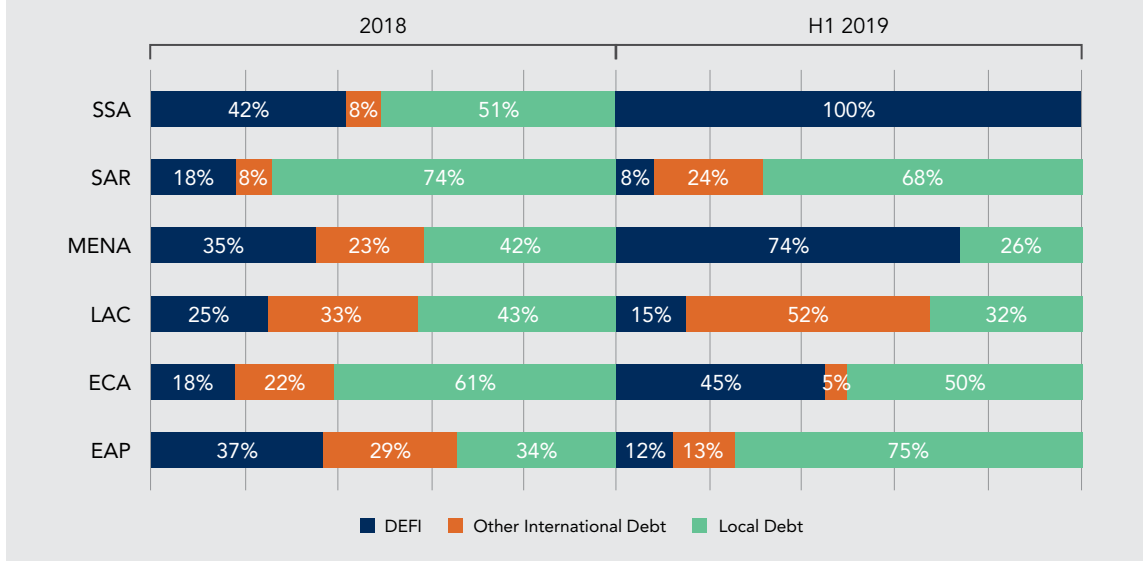
In H1 2019, detailed financing information was available for 73 projects, amounting to approximately 70 percent of all PPI projects by investment value (US\$23.2 billion of US\$33.0 billion). All information in this section is based on these projects. Financing information was not available for China's 60 projects.

With respect to the financing provided, of the total US\$23.2 billion mentioned above, approximately 11 percent (US\$ 2.7 billion) came from public sources, 76 percent (US\$ 17.6 billion) came from private sources, and 13 percent (US\$ 3.0 billion) came from DEFI sources. Figure 13 provides a detailed breakdown of the sources for this investment.

Of the US\$7.8 billion in total equity provided in H1 2019 for 73 projects, financing largely came from private sources. These accounted for nearly 99.9 percent of total equity, with the remaining 0.01 percent of equity, or US\$2.7 million, financed by state-owned enterprises or governments that participated in joint-venture projects. Fourteen projects recorded direct government support via capital subsidies.

FIGURE 14

Share of International and Local Debt by Region for Infrastructure Projects with Private Participation in EMDEs, 2018 and H1 2019



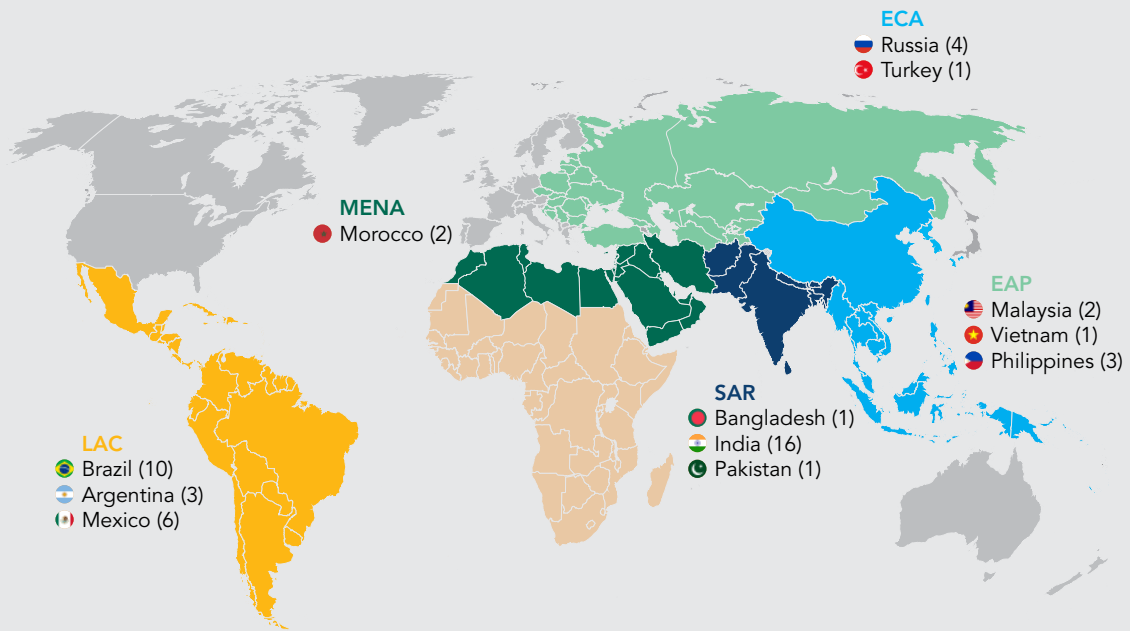
A total debt of US\$14.6 billion was raised in H1 2019, of which international debt providers played a more active role, accounting for more than 60 percent, up from 46 percent in 2018 (Figure 14). The high levels of international debt involved in the Petrobras divestiture in Brazil (US\$4.2 billion) increased the level of international funding, and accounted for nearly a third of total international debt. Local debt continued to play a large role in EAP, ECA and SAR, with local banks dominating lending in the Philippines, Vietnam, Russia and India. DEFI played a significant role in MENA, ECA and SSA as well. Only one institutional debt provider was recorded in H1 2019, with a sole investment of US\$63 million.

In H1 2019, there was an even higher reliance on commercial debt¹⁴ (compared to 2018, when commercial debt made up 54 percent of total debt), with commercial debt in H1 2019 accounting for 67 percent of total debt funding. Commercial debt was three times the level of DEFI debt. The commercial debt financing in LAC (US\$7.1 billion) was most significant, accounting for 73 percent of the total commercial debt raised globally, and 48 percent of total debt in the region. This was due to the high levels of commercial debt in the Petrobras divestiture megaproject in Brazil (US\$5.9 billion). In fact, this project accounted for 37 percent of total financing in H1 2019 and is the reason why Brazil accounted for 62 percent of global commercial debt. Russia had the second-highest commercial debt (US\$889 million), which made up 97 percent of its total debt. Malaysia, Vietnam, and Morocco raised all of their debt from commercial sources; there were also countries whose debt from commercial sources accounted for more than half of their total debt (Figure 15).

¹⁴ Commercial debt is only the debt raised from commercial banks, and not necessarily all debt raised on commercial terms. Multilateral and bilateral agencies such as IFC and the Asian Development Bank, and export credit agencies or state-owned banks lending overseas, may also in some cases extend debt on commercial terms, but they are classified here as multilaterals, bilaterals or public, reflecting their government ownership (and development mandates, in the case of multilaterals and bilaterals).

FIGURE 15

Countries That Received a Significant Share of Commercial Financing for Infrastructure Projects with Private Participation in Each Region, from Highest to Lowest, H1 2019



Note: The number in brackets () indicates the number of projects with commercial debt financing

Appendix A: DEFI Agencies That Supported Projects in H1 2019

MULTILATERAL	BILATERAL	
	<i>Development Institutions</i>	<i>Export Credit Agencies</i>
<ul style="list-style-type: none"> • Asian Development Bank • Black Sea Trade and Development Bank • Caribbean Development Bank • CAF (Development Bank of Latin America) • East African Development Bank • EDB • European Investment Bank • European Bank for Reconstruction and Development • Inter-American Development Bank • International Finance Corporation • Green Climate Fund • Green for Growth Fund • MIGA • Nordic Environment Finance Corporation (NEFCO) • Interact Climate Change Facility • World Bank 	<ul style="list-style-type: none"> • Commonwealth Development Corporation • FinnFund • FMO • KfW (DEG) • Overseas Private Investment Corporation • Swedfund International AB • Canadian Climate Fund • Saudi-Bangladesh Industrial & Agricultural Investment (SABINCO) • International Cooperation and Development Fund (TaiwanICDF) 	<ul style="list-style-type: none"> • Euler Hermes • Bpifrance Assurance Export (BPIAE) • KfW IPEX-Bank • Compania Espanola de Seguros de Credito a la Exportacion



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 & 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 offers information on more than 8,000 infrastructure projects, dating from 1984 to H1 2019, and provides more than 50 fields per project record. These include 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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The World Bank Group plays a key role in the global effort to end extreme poverty and boost shared prosperity. It consists of five institutions: The World Bank, including the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA); the International Finance Corporation (IFC); the Multilateral Investment Guarantee Agency (MIGA); and the International Centre for Settlement of Investment Disputes (ICSID). Working together in more than 100 countries, these institutions provide financing, advice, and other solutions that enable countries to address the most urgent challenges of development.



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