



# SDG Investment Trends **M**onitor



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## ACKNOWLEDGMENTS

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This SDG Investment Trends Monitor was prepared by UNCTAD's Investment and Enterprise Division. The research team, working under the overall guidance of James X. Zhan, was led by Richard Bolwijn and included Arslan Chaudhary, Josh Drake, Kumi Endo and Amelia U. Santos Paulino. Pablo Cortizo designed the charts, tables, and infographics, and typeset the Monitor.

Extensive advice and reviews were provided by officials and experts from various UN agencies and international organizations. In particular, the team received comments and inputs from the following experts: Eric Jesper Karlsson and Yannick Fiedler (Food and Agriculture Organization); Manos Antoninis and Friedrich Huebler (United Nations Educational, Scientific and Cultural Organization); Philippa Biggs and Martin Schaaper (International Telecommunication Union); Matias Herrera Dappe (World Bank); Elizabeth Engebretson, Fiona Gore, and Andrew Siroka (World Health Organization); Michael Waldron (International Energy Agency); Markus Lehmann and William Speller (United Nations Environment Programme); Marenglen Gjonaj and Padraig Oliver (United Nations Framework Convention on Climate Change); and Angela Falconer and Federico Mazza (Climate Policy Initiative).

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# SDG Investment Trends Monitor

## EXECUTIVE SUMMARY

### Investment trends highlights

- Overall, the data paints a mixed picture of both investment trends and monitoring capacities across the 10 SDG-relevant sectors for which investment gaps were first estimated in the World Investment Report 2014 (*WIR14*) – adding up to a total gap of \$2.5 trillion annually.
- Signs of progress are evident across several sectors, including in climate change mitigation, food and agriculture, and health. However, growth falls short of the requirements projected in *WIR14*. Even in areas where new investment initiatives and innovative financing mechanisms appear to be taking off, the order of magnitude is not yet in the range that would make a significant dent in estimated investment gaps.
- Limited data availability and poor data quality significantly constrain the ability to assess investment trends across all SDG sectors. While some sectors such as power and telecommunications have comparatively strong datasets, all sectors would benefit from more high-quality, disaggregated and robust investment monitoring.
- Despite the monitoring limitations, it is clear that the transition towards sustainable-development-oriented investment is so far not happening at the necessary scale or pace. This calls for transformative initiatives to mobilize and channel investment towards the SDGs. UNCTAD's Action Plan for Investment in the SDGs puts forward six sets of ideas aimed at creating a Big Push for investment in sustainable development.

### Sector highlights:



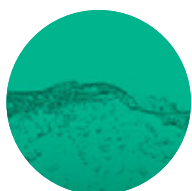
**Power.** Investment in developing economies has only marginally risen, despite increases in FDI and domestic private flows. Although investment in renewables has been flat in absolute terms, when adjusted for lower costs, it has grown significantly. However, current investment levels are significantly below the estimated investment required to meet SDG 7.



**Transport infrastructure.** Data availability for investment in the transportation sector is weak, especially in developing economies. Available data suggests that there is a steady increase in investment in this sector. However, considering the high estimated annual investment gap, growth is currently not sufficient for achieving the relevant SDG targets.



**Telecommunications.** Investment in the telecommunications sector has been relatively stable in the last few years. A gradual transition is observed, with more investment going to developing economies. The imminent rollout of 5G technologies will provide impetus to investment levels in this sector. Moreover, investment in disruptive technologies has significant potential in terms of the realization of the target of universal connectivity.



**Water and sanitation.** Available data suggests a significant shortfall in spending levels with respect to the requirements to achieve the SDGs, as well as a diminishing, or at best stagnant, trend in recent years.



**Food and agriculture.** Despite the lack of data on domestic private investment and large-scale foreign investment in agriculture, overall investment trends are positive. Gross fixed capital formation (GFCF) in developing economies has risen, led by China and India. The observed increase in capital investment remains below the additional investment needed to achieve SDG 2.



**Climate change mitigation.** Global climate change mitigation investment has risen on the back of growing private investment in renewable energy, in both developed and developing economies. However, the figures still represent a small share of the investment required to address climate change.



**Climate change adaptation.** Globally, public sector investment in the sector has remained flat, however, public flows to developing economies are increasing. Investment in this sector remains short of the estimated annual investment gap. Data gaps make it difficult to quantify overall investment levels, especially private sector participation.



**Ecosystems and biodiversity.** The limited data available suggests that most governments are either increasing their biodiversity-related expenditure or keeping it stable. Private investment is expanding rapidly, although from a very low starting point. A major investment gap to achieve the relevant SDG targets remains in this sector.



































**Health.** Globally, public and private spending in this sector continues to grow. Capital investment in developing economies has risen, but mostly driven by growth in China. In LDCs, despite increased development assistance flows, investment has remained weak.



**Education.** Both domestic and international public finance have decreased, while ODA disbursements in this sector have hit a plateau. Private philanthropy and impact investment have risen sharply, but they constitute a small part of the sector's overall investment needs.

# Summary of gaps, directional trends and data availability

Main investment requirements	Most relevant SDGs	WIR14 estimated annual investment gaps <sup>1</sup> (Billion of dollars)	Investment trend assessment	Data availability assessment
<b>POWER</b> Investment in generation, transmission and distribution of electricity		370–690		
<b>TRANSPORT INFRASTRUCTURE</b> Investment in roads, airports, ports and rail	 	50–470		
<b>TELECOMMUNICATIONS</b> Investment in infrastructure (fixed lines, mobile and internet)		70–240		
<b>WATER, SANITATION AND HYGIENE (WASH)</b> Provision of water and sanitation to industry and households		260		
<b>FOOD AND AGRICULTURE</b> Investment in agriculture, research, rural development, etc.		260		
<b>CLIMATE CHANGE MITIGATION</b> Investment in relevant infrastructure, renewable energy generation, research and deployment of climate-friendly technologies, etc.		380–680		
<b>CLIMATE CHANGE ADAPTATION</b> Investment to cope with impact of climate change in agriculture, infrastructure, water management, coastal zones, etc.		60–100		
<b>ECOSYSTEMS AND BIODIVERSITY</b> Investment in conservation and safeguarding ecosystems, marine resource management, sustainable forestry, etc.	 	N.D.		
<b>HEALTH</b> Investment in infrastructure, e.g. new hospitals, and R&D on vaccines and medicines		140		
<b>EDUCATION</b> Infrastructural investment, e.g. new schools		250		

Sources: SDG investment areas based on World Investment Report 2014. For sources on gaps and trends, see detailed sections for each area.

<sup>1</sup> Investment gaps estimated in World Investment Report 2014 were calculated using an eclectic approach that entailed analysing a variety of studies from different countries and regions. Based on data availability and the scope of these studies, some sectors have a large range to capture the diversity of methodologies.

N.D. = No data.

# INTRODUCTION

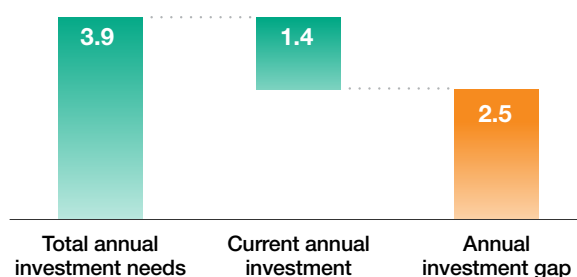
## Background and objectives

UNCTAD first estimated the investment requirements associated with the Sustainable Development Goals (SDGs) in its 2014 World Investment Report (*WIR14*), on the eve of the adoption of the SDGs. The report assessed total investment needs and investment gaps across 10 sectors cutting across the 17 SDGs. The SDG investment sectors covered basic infrastructure (roads, rail and ports; power stations; telecommunications; water and sanitation); food security (agriculture and rural development); climate change mitigation and adaptation; health and education. The report highlighted:

- An annual gap of \$2.5 trillion in developing economies alone, between “business as usual” levels of investment and SDG investment needs.
- The need for private investment, including international investment flows, to complement public investment in order to bridge the gap.
- A series of initiatives to mobilize and channel private investment towards the SDGs.

Figure 1.

**Estimated annual investment needs and potential private sector contribution** (Trillions of dollars)



Source: UNCTAD, *WIR14*.

### Progress has been made in mapping investment needs, time to look at trends

Since 2015, many agencies and think tanks have done further work to assess needs for specific SDGs or targets, and to refine estimates for overall SDG financing requirements. A recent IMF study on SDG financing, although different in scope from *WIR14*, still found an overall gap of \$2.6 trillion for developing economies. Other significant studies include UN ESCAP, with a regional focus, and World Bank, WHO, FAO, ITU, UNESCO, UNEP, and IEA with a focus on specific SDG areas.

Most of these efforts largely focus on mapping investment *needs*. With the first data now becoming available covering several years since the adoption of the SDGs, it is time to start assessing directional *trends* in financing and investment flows.

### Double objective: monitor trends and assess monitoring capacity

This inaugural SDG Investment Trends Monitor aims:

- To provide a broad overview of trends in financing and investment in SDG-relevant sectors.
- To identify weaknesses and gaps in data availability, data quality and monitoring capacity on investment performance in each SDG sector.

These objectives respond to the Addis Ababa Action Agenda, which calls for high-quality disaggregated data, monitoring and follow up as an essential input for decision making to support the SDGs.

## Scope and approach

UNCTAD normally provides investment data and analysis through its annual World Investment Reports and through quarterly Global Investment Trends Monitors. These reports primarily focus on foreign direct investment (FDI) – the largest source of external finance for developing economies.

### Diverse sources and multi-dimensional data

The scope of this SDG Investment Trends Monitor is broader and the approach is “eclectic”, combining many different types and sources of data in order to illustrate the most relevant trends. Some key dimensions:

- *Domestic and foreign.* The Monitor prioritizes international (cross-border) flows, UNCTAD’s primary focus, but complements the picture with domestic or total investment trends where possible.
- *Public and private.* *WIR14* stressed the need for increased private investment, albeit with varying roles for private operators in different SDG sectors. The Monitor includes total and public investment, including international public flows (e.g. Official Development Assistance, ODA) where available.
- *Financing and investment.* *WIR14* estimated actual investment needs. But it also highlighted the need for action at every stage along the “investment chain” from sources of funds to investments on the ground. This Monitor includes trends in raising finance for the SDGs upstream, to complement often scarce real investment data.
- *Capex and opex.* The approach in *WIR14*, in keeping with the nature of the annual report, was to focus on capital expenditures (capex). Total SDG financing requirements also include annual running costs (dubbed operating expenditures or opex). The relative importance of these varies by sector, with capex accounting for the bulk in infrastructure sectors and for much less in health or education. The Monitor focuses on capex but resorts to a total cost picture where breakdowns are not feasible.

The presentation of the data across the 10 SDG sectors is not consistent along these dimensions because of the different nature of the sectors and because of wildly varying degrees of data quality and availability. However, the data used has been verified and validated with sources, specialized agencies and institutions covering relevant SDG areas.

### Point of caution: SDG-relevant investment vs investment in the SDGs

This Monitor follows the original 10 SDG sectors as defined in *WIR14*. Since then, progressive insights and new trends have emerged potentially necessitating an expanded scope. A forward-looking section has been included to provide initial insights on trends in investment in gender equality, smart cities and housing.

In its broad coverage of trends across 10 investment sectors, each relevant for several SDGs, it should be recognized that such investments can have both direct and indirect impacts on progress towards the SDGs. Direct impacts might include investment in schools, hospitals or potable water. Indirect impacts could occur through investment in infrastructure that addresses a bottleneck in the productive capacity of a developing economy. Moreover, not all investment will contribute to the SDGs to the same degree and some investments, while benefiting some targets, may be counterproductive for others. These considerations cannot easily be addressed with currently available data in a Monitor that seeks to provide a broad overview of trends, but should be part of the scope of further efforts to assess financial flows to individual SDG areas.

### Just a starting point, and a call to action

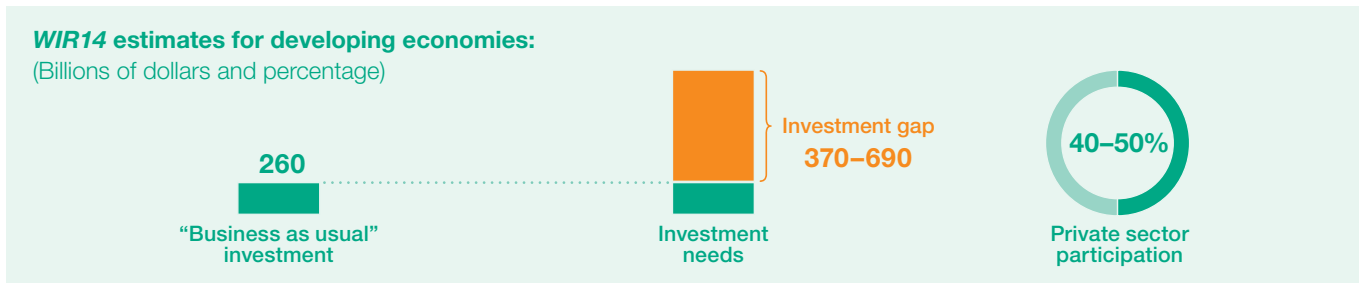
In preparing this first version of the Monitor UNCTAD has benefited from the generous contributions of staff in many different agencies of the UN family. As such, the Monitor is a first attempt at a coordinated effort to track investment trends across the different SDG sectors. However, the assessment in this Monitor of current data and monitoring capacity shows that much more can be done. Timely and harmonized data for investment levels in relevant SDG sectors should be considered a matter of urgency for better planning and cooperation among all stakeholders. UNCTAD will continue to work with all relevant agencies to improve reporting on investment trends.



# POWER

## Capital investment requirements to meet the SDGs

- Investment in the generation, transmission and distribution of clean and affordable electricity



### Overview

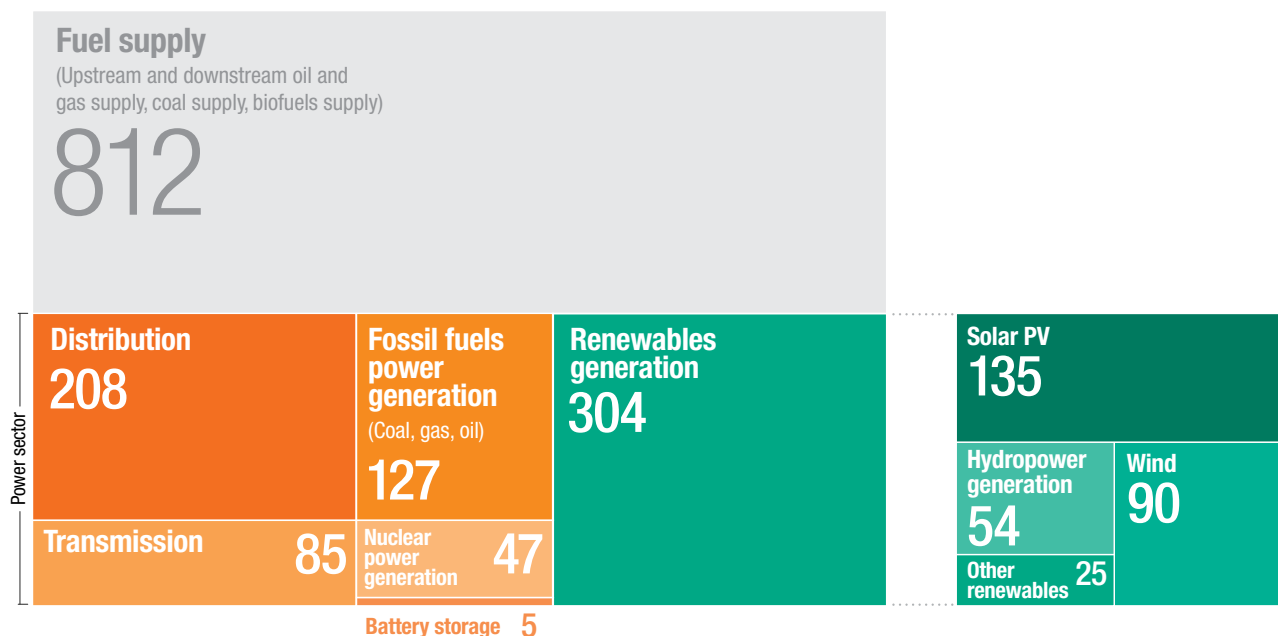
The most relevant SDG for the power sector is SDG 7 (Affordable and clean energy), which seeks to ensure affordable energy access for all in developing economies, and particularly in least developed countries. SDG 7 also targets increasing the share of renewable energy in the global energy mix. The power sector has cross-sectoral links with SDG 9 (Industry, innovation and infrastructure) and SDG 11 (Sustainable cities and communities).

The global energy sector comprises the two sub-sectors of “fuel supply” and the “power sector” (i.e. the generation, transmission and distribution of electricity). In this monitor, the focus is on tracking the power sector, which received \$776 billion globally in 2018, \$133 billion of which was in low and lower-middle income economies, \$331 billion in upper-middle income economies and the remaining \$312 billion in high-income economies<sup>1</sup>. In *WIR14* the estimated investment required was \$630 – \$950 billion, excluding renewable energy, which was accounted for under climate change mitigation. However, in this monitor the approach has been modified to include renewable energy trends and data within the power sector. This is based on a growing understanding that achieving universal access to electricity and supporting increased clean energy supply are inextricably linked, as reported by IEA and SEforALL, among other organizations.

### Global financing and investment trends

Figure 1.1

Global energy sector investment in 2018, by component (Billions of dollars)

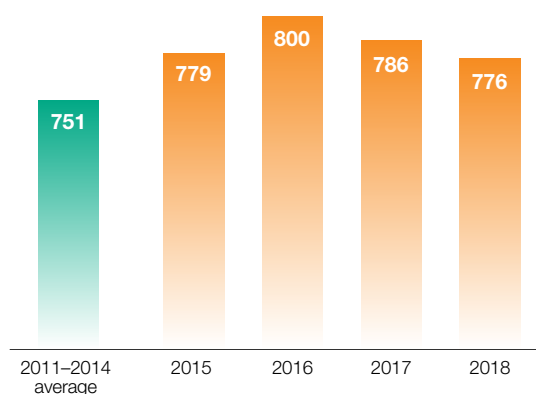


Data source: International Energy Agency (2019).



Figure 1.2

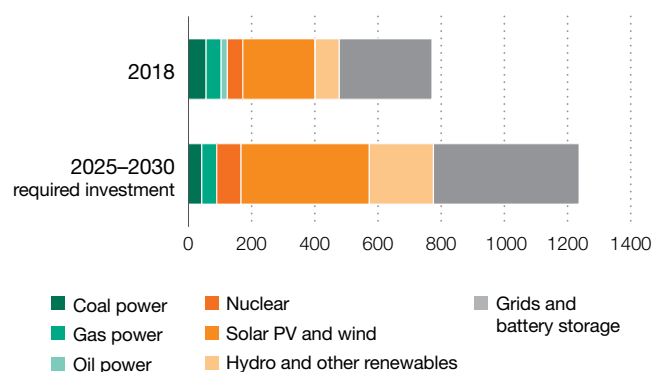
**Global power sector investment has remained flat**  
(Billions of dollars)



Data source: International Energy Agency (2019).

Figure 1.3

**Global power investment in 2018 remains well short of annual spending required for the IEA Sustainable Development Scenario<sup>2</sup>** (Billions of dollars)



Data source: International Energy Agency (2019).

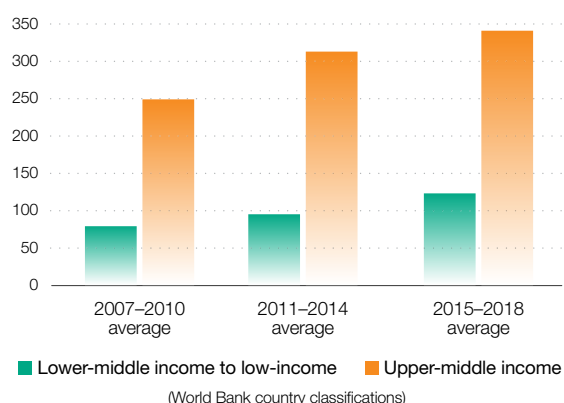
## Developing country trends

FDI trends	Measurement <sup>3</sup>	Number of economies	Pre-2015	Post-2015
			(2011–2014 average)	(2015–2018 average)
Billions of dollars				
Developing economies	FDI inflows	39	13.9	20.1
	Value of announced greenfield FDI projects	130	66.6	123.8
Of which: Least developed countries (LDCs)	FDI inflows	9	2.2	1.3
	Value of announced greenfield FDI projects	45	9.7	11.1

Data source: UNCTAD (for FDI inflows) and Financial Times Ltd, fDi Markets (for greenfield FDI projects).

Figure 1.4

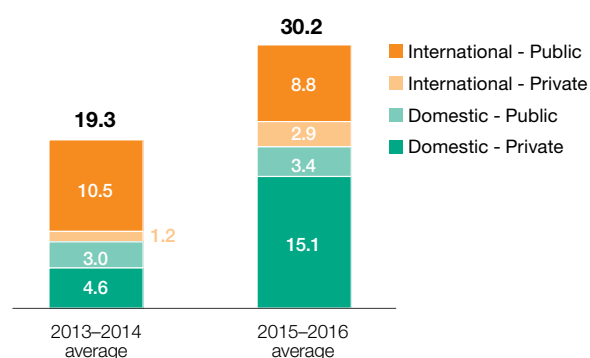
**Investment in power generation, transmission and distribution in low, lower-middle and upper-middle income economies has risen marginally** (Billions of dollars)



Data source: International Energy Agency (2019).

Figure 1.5

**Sources of finance for investment in electricity have increased across 20 ‘high impact’ developing economies<sup>4</sup>** (Billions of dollars)

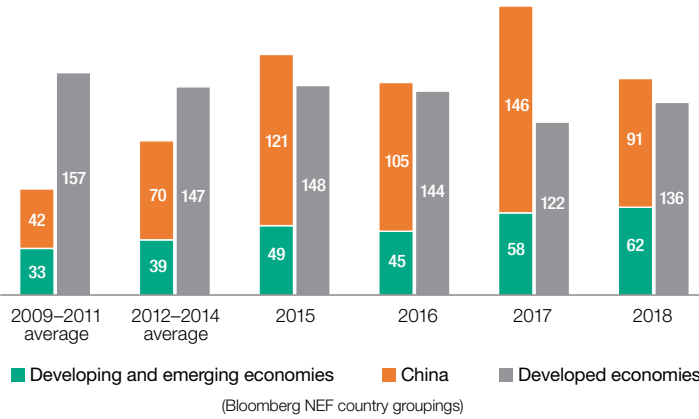


Data source: Sustainable Energy for All (2018).



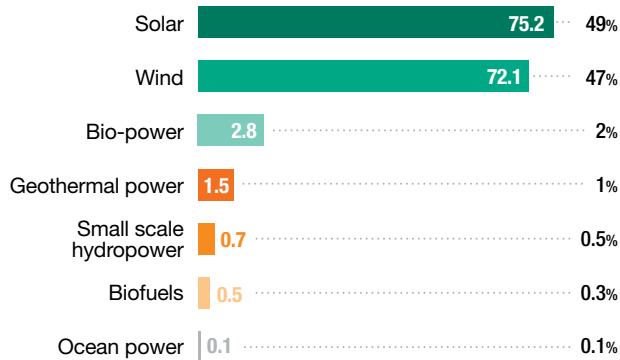
# POWER

**Figure 1.6**  
Investment in renewable power has risen slightly in recent years for developing and emerging economies (Billions of dollars)



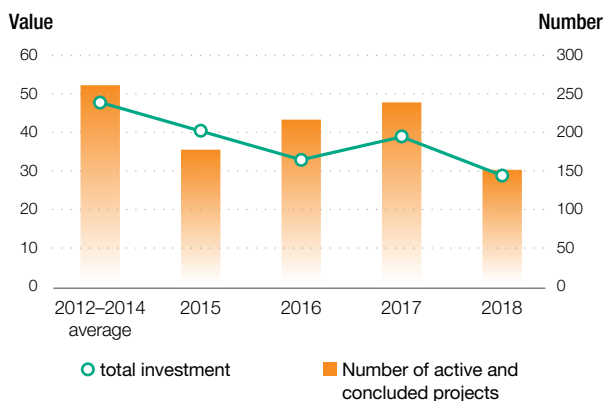
Data source: REN21 (2019), based on Bloomberg NEF data.

**Figure 1.7**  
Solar and wind power are the dominant renewable technologies  
Investment in developing economies, 2018 (Billions of dollars)



Data source: REN21(2019).

**Figure 1.9**  
The value and number of active and concluded energy sector PPI projects in developing economies has declined<sup>5</sup> (Billions of dollars)

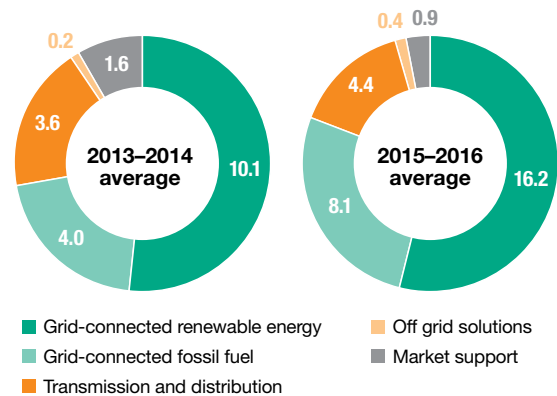


Data source: World Bank PPI database, accessed 2019.

**Box 1.1**  
When adjusted for lower costs, renewables investment is up 55% since 2010

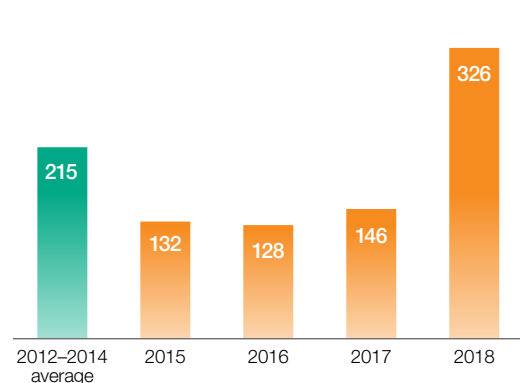
Most growth has occurred in the solar and wind power industries, which have benefitted from cheaper technologies, allowing every dollar of investment to buy more generating capacity. Furthermore, since 2012, the share of renewables in net annual additions to power generating capacity has been higher than for non-renewables.

**Figure 1.8**  
Renewable energy is the largest sub-sector of finance for electricity in 20 ‘high impact’ developing economies<sup>4</sup> (Billions of dollars)



Data source: Sustainable Energy for All (2018).

**Figure 1.10**  
The value of announced, implemented and financed energy sector projects in developing economies has risen (Billions of dollars)



Data source: Refinitiv (2019).

## Key takeaways

- Power sector investment globally has remained flat, while investment to developing economies has marginally risen. Current investment levels are significantly below the estimated investment required for developing economies to meet SDG 7.
- Investment in the power sector is not going to economies with the biggest needs, as nearly 90% of investment in 2018 was concentrated in higher and upper-middle income economies. Investment declined in several key regions, including sub-Saharan Africa.
- Although investment in renewables has been flat in absolute terms, when adjusted for lower costs it has grown significantly, rising around 55% globally since 2010. Most growth has occurred in the solar and wind power industries. Overall, low-carbon power generation (renewables and nuclear) comprised nearly three-quarters of power sector spending in 2018.
- Significant investment growth in renewables is evident in the 20 “high impact economies”. However, in order to meet the SDGs, as well as the IEA’s Sustainable Development Scenario, substantially more renewables growth is needed, in the order of 250% by 2030<sup>6</sup>.
- According to the IEA, investment levels in fossil fuels need to decline in order to meet the Sustainable Development Scenario. Although this is being achieved in some economies, most notably China, fossil fuels investment is still growing in many developing economies.

### SUMMARY ASSESSMENT OF INVESTMENT TREND:



## Monitoring and data availability

### Key sources:

- International Energy Agency & OECD
- Sustainable Energy For All
- REN21
- World Bank, PPI database

### Knowledge gaps:

- FDI data - only 39 developing economies reporting partial or full data.
- Tracking data on domestic public finance in developing economies is challenging due to a lack of consistent methodologies and guidelines, data gaps, and insufficient institutional capacities.

### SUMMARY ASSESSMENT OF MONITORING AND DATA AVAILABILITY:



## Notes

<sup>1</sup> Source: International Energy Agency (2019). *World Energy Investment 2019*.

<sup>2</sup> The Sustainable Development Scenario is the required scenario for the transformation of the global energy landscape to meet to SDGs and Paris Agreement, as forecast by IEA.

<sup>3</sup> Aggregate FDI inflows for electricity, gas, steam and air conditioning supply (or, when unavailable, “electricity, gas and water”). Economies reporting either partial or full data. For the greenfield FDI projects, estimated capital spending of announced projects in; nuclear electric power generation; fossil fuel electric power; other electric power generation in coal, oil and natural gas and power transmission equipment. Excluding Caribbean “financial centres”.

<sup>4</sup> “High-impact economies” are the 20 economies with the highest absolute gaps in access to electricity and/or clean fuels and technologies for cooking, measured by population. Source: Sustainable Energy for All (2018). *Energizing Finance: Understanding the Landscape 2018*.

<sup>5</sup> Includes gas, electricity and renewables projects, with domestic and foreign investors in MICs and LICs, excluding transition economies.

<sup>6</sup> See note 4.

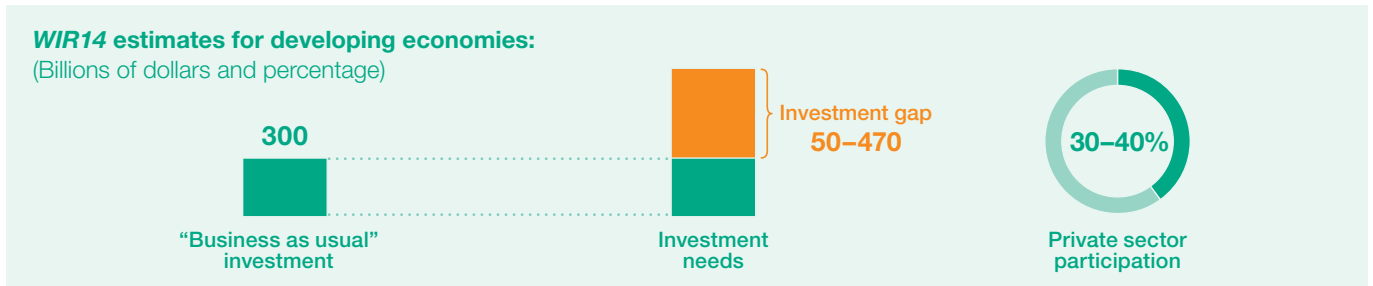
Other sources: REN21 (2019). *Renewables 2019, Global Status Report*; Sustainable Energy for All (2018). *Energizing Finance: Understanding the Landscape*.



# TRANSPORT INFRASTRUCTURE

## Capital investment requirements to meet the SDGs

- Investment in roads, airports, ports, rail and public transport facilities
- Transborder infrastructure



## Overview

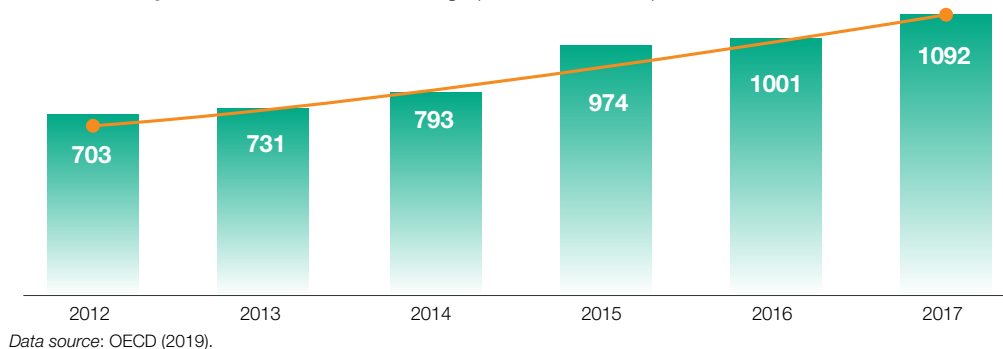
Investment in transport infrastructure corresponds directly to SDG 9 (Industry, innovation and infrastructure) and SDG 11 (Sustainable cities and communities). Tangentially, investment in transport infrastructure affects nearly all other dimensions of development. For example, education and health are directly impacted by how accessible facilities are for people in terms of transportation links.

Investment in this sector encompasses spending for new transport infrastructure construction and maintenance of existing infrastructure. This includes mainly roads, bridges, railroads, seaports, airports and other public transportation facilities. There are considerable data availability limitations with regard to tracking investment in the sector, especially in developing economies.

## Global financing and investment trends

Figure 2.1

**Global investment in transport infrastructure is rising<sup>1</sup>** (Billions of dollars)



## Developing country trends

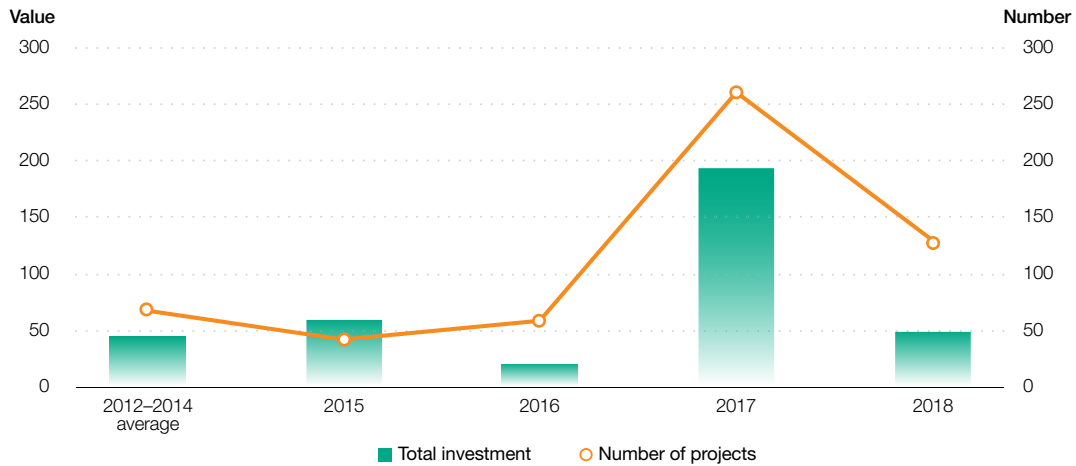
FDI trends	Measurement <sup>2</sup>	Number of economies	Pre-2015	Post-2015
			(2012–2014 average)	(2015–2018 average)
Billions of dollars				
Developing economies	FDI inflows	41	11.0	10.0
	Value of announced greenfield FDI projects	130	14.0	11.0
Of which: Least developed countries (LDCs)	FDI inflows	N.D.	N.D.	N.D.
	Value of announced greenfield FDI projects	45	1.4	1.0

Data source: UNCTAD (for FDI inflows) and Financial Times Ltd, fDi Markets (for greenfield FDI projects).  
N.D. = No data.



Figure 2.2

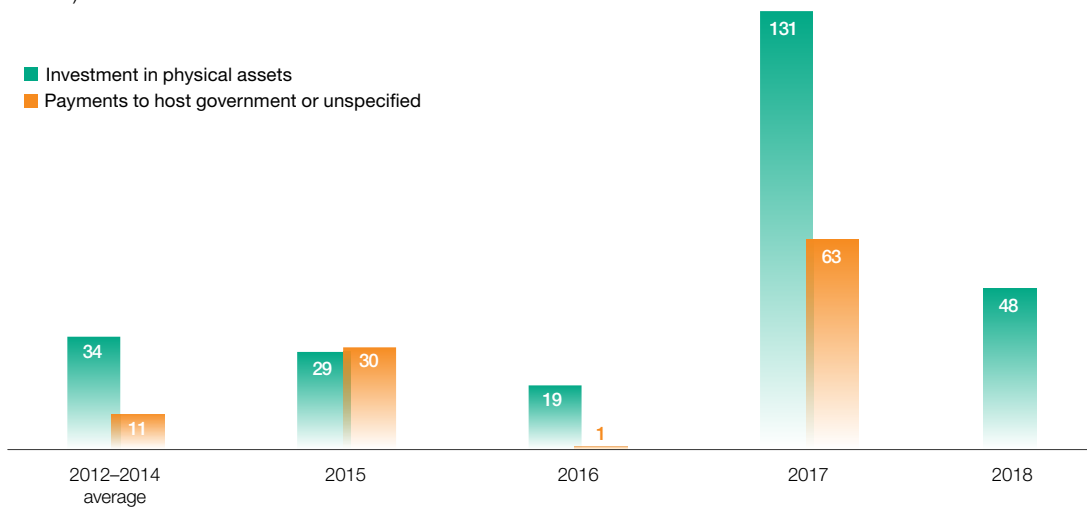
**Active and concluded PPI projects in transport infrastructure in developing economies peaked in 2017<sup>3</sup>**  
 (Billions of dollars and number of projects)



Data source: World Bank PPI Database, accessed 2019.

Figure 2.3

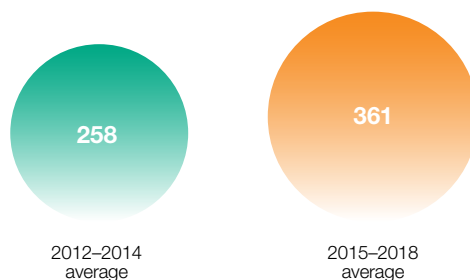
**Investment in physical assets is the largest component of PPI projects in transport infrastructure**  
 (Billions of dollars)



Data source: World Bank PPI Database, accessed 2019.

Figure 2.4

**The value of announced, under construction and completed transport infrastructure projects in developing and transition economies is rising** (Billions of dollars)



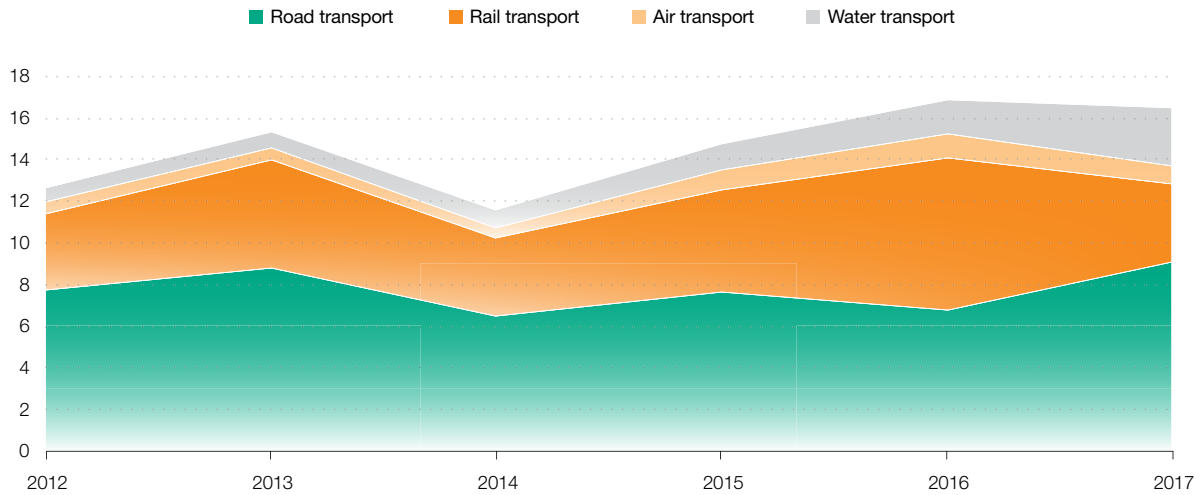
Data source: Refinitiv, accessed 2019.



# TRANSPORT INFRASTRUCTURE

Figure 2.5

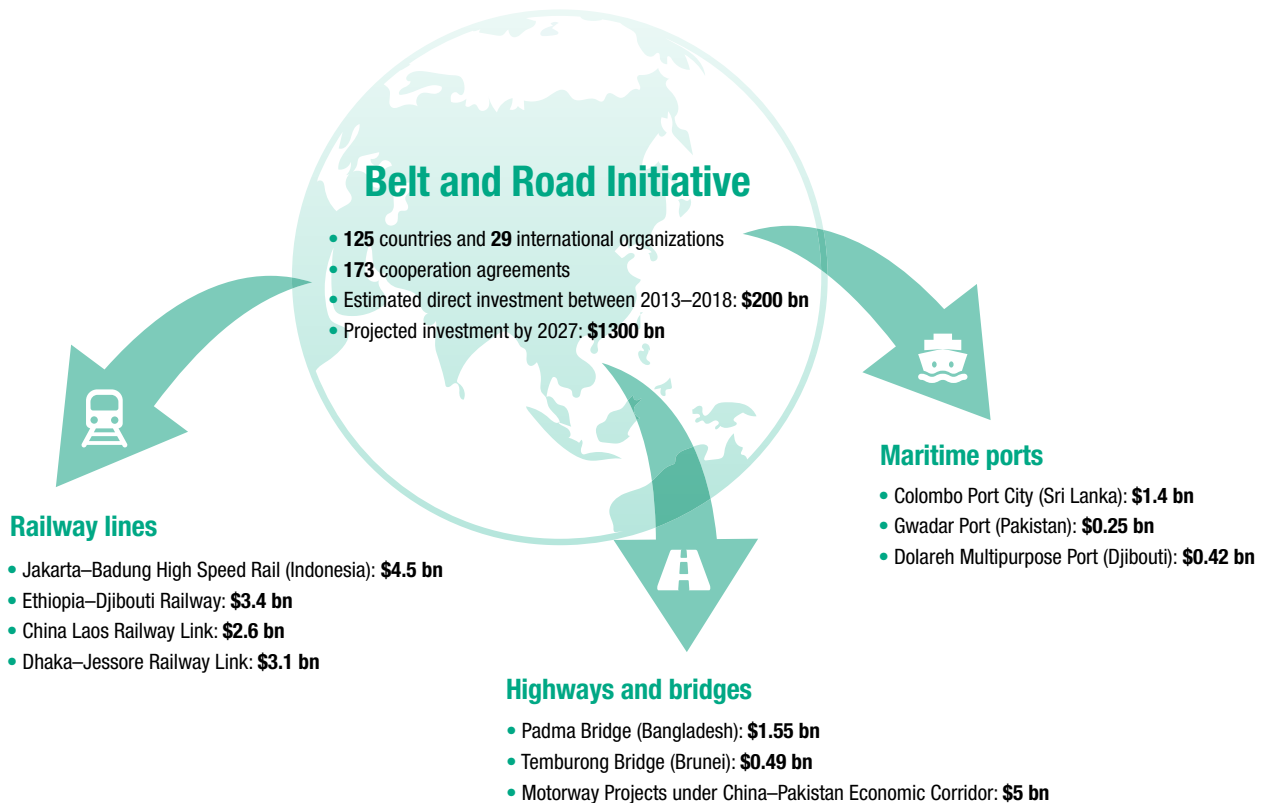
Official development assistance in transport infrastructure is rising<sup>4</sup> (Billions of dollars)



Data source: OECD CRS database, accessed 2019.

Figure 2.6

Major Belt and Road Initiative transport infrastructure projects



Data source: UNCTAD research.

## Key takeaways

- Despite the data limitation issues, there is a clear pattern emerging of a continuous increase in investment levels for transport infrastructure both globally and in developing economies. However, this increase is not sufficient to bridge the estimated annual investment gap in developing regions in order to meet the relevant SDG targets. This is in line with reports from various developing regions of inadequate transport infrastructure, which can be detrimental not only for the pursuit of SDGs but also for national economic growth targets<sup>5</sup>.
- Private sources of investment are increasingly prevalent in the sector. However, less attractive risk profiles in developing economies are a hindrance and make public investment there relatively more important.
- Increasing urbanization in developing economies will add to transport investment requirements in the coming years but also presents an opportunity to mobilize additional avenues of financing.
- Official Development Assistance in transport infrastructure is increasing. However, due to the high overall investment requirements in this sector, current ODA levels are not sufficient to make a significant impact in bridging the investment gap in developing economies.
- Non-traditional sources of finance are becoming increasingly important for transport infrastructure. The foremost being China's Belt and Road Initiative, which is steadily assuming a salient role in financing mega transport infrastructure projects in a growing number of developing economies. However, detailed information on financing terms and conditions is difficult to obtain, and the sustainable development impact is hard to assess.
- PPI projects in this sector are significantly high in value in developing economies and peaked in 2017. However, according to available information, public financing is still dominant for this sector in developing economies. PPI projects include projects of specific contractual arrangements between public and private sectors as defined by the World Bank. They should thus should not be seen as reflective of overall investment levels but as an ancillary indicator.

## SUMMARY ASSESSMENT OF INVESTMENT TREND:



## Monitoring and data availability

### Key sources:

- World Bank PPI database
- Global Infrastructure Hub – G20 Initiative
- OECD

### Knowledge gaps:

- The International Transport Forum collects data on investment in transport infrastructure directly from

government sources. However, data is not available from all economies and there are significant data availability issues in developing economies especially.

- FDI inflows data – only 41 developing economies reporting.
- In many cases, a breakdown of opex and capex is unavailable and/or treatment of opex is not clearly stated.
- Analysing available infrastructure investment in developing economies is a challenging task due to the lack of systematic and comparable data.

## SUMMARY ASSESSMENT OF MONITORING AND DATA AVAILABILITY:



## Notes

<sup>1</sup> Includes some provisional data. Projections for economies with data unavailable for some years. Based on data from 47 economies accounting for approximately 80% of global GDP.

<sup>2</sup> Aggregate FDI inflows in "transport and storage" in 41 developing economies, reporting partial or full data in 2015–2018. For greenfield, estimated capital spending of announced projects in; air, water and land transport (excluding pipelines); freight and distribution services; transit and ground passenger transportation services; other transportation support activities; postal service; couriers and messengers. Excluding Caribbean "financial centres".

<sup>3</sup> 2018 data is limited to first half of year. PPI is private participation in infrastructure. Includes public and private investment commitments by domestic and foreign investors to projects in; airports, ports, railways and roads. Includes MICs and LICs. For more details on projects included PPI, see: <https://ppi.worldbank.org/en/methodology/ppi-methodology>.

<sup>4</sup> Transport Sector ODA includes both transport infrastructure and airplanes, vessels, rail systems etc. For detailed classification, see methodology notes at <https://stats.oecd.org/index.aspx?DataSetCode=CRS1>.

<sup>5</sup> See for example, AfDB (2018) African Economic Outlook. Abidjan: African Development Bank.

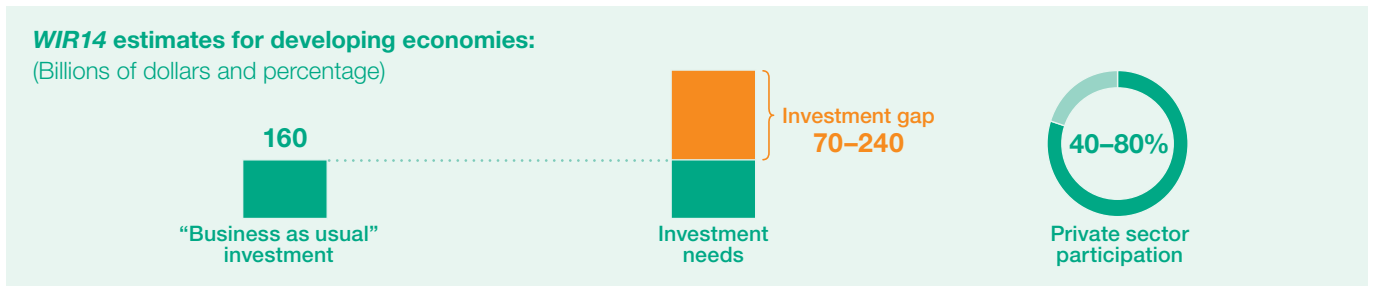
Other source: OECD (2019). *Transport Infrastructure Investment and Maintenance Spending*.



# TELECOMMUNICATIONS

## Capital investment requirements to meet the SDGs

- Investment in fixed lines, mobile and internet infrastructure



## Overview

The telecommunications sector relates to SDG 9 (Industry, innovation and infrastructure), which seeks to significantly increase access to ICT and provide universal and affordable access in developing economies, in particular least developed countries. Other SDGs with a secondary relevance include SDG 4 (Quality education), SDG 5 (Gender equality), SDG 8 (Decent work and economic growth) and SDG 17 (Partnerships for the goals).

Calculations for investment in the sector are based on "investment during the financial year made by entities providing telecommunication networks and/or services (including fixed, mobile and Internet services, as well as the transmission of TV signals) for acquiring or upgrading fixed assets (usually referred to as capex), less disinvestment owing to disposals of fixed assets"<sup>1</sup>.

The investment costs listed in this monitor do not include the opex associated with running networks, which can be significant, especially if rolled out in areas that lack connections to power grids.

## Global financing and investment trends

Figure 3.1

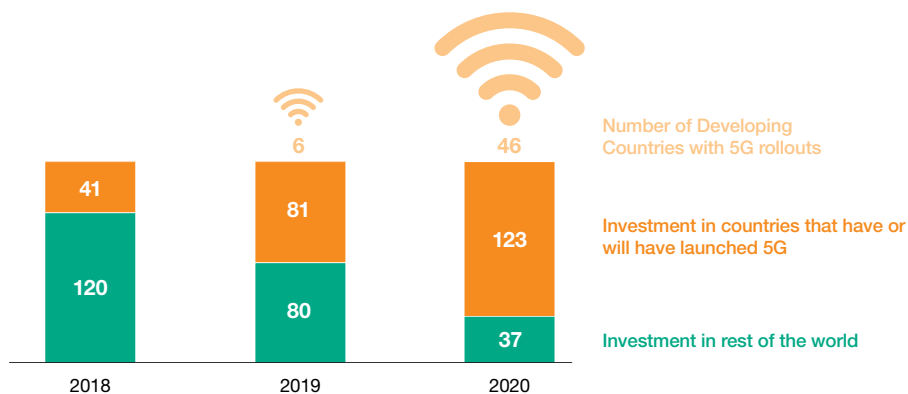
**Global telecommunications investment has remained flat** (Billions of dollars)



Data source: ITU World Telecommunication/ICT Indicators Database, accessed 2019.

Figure 3.2

**Investment in mobile business (including new rollout of 3G, 4G and 5G networks as well as network optimization and other functions) to become concentrated in economies launching 5G** (Billions of dollars)



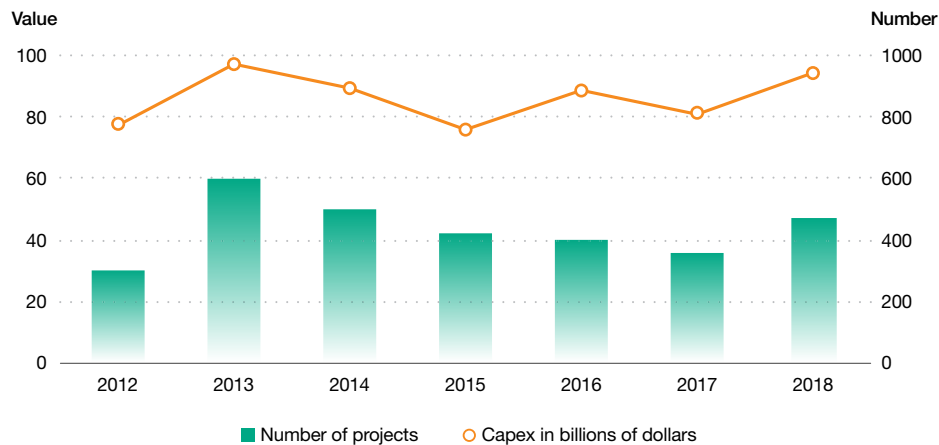
Data source: GSMA, The Mobile Economy and UNCTAD research.





Figure 3.3

**Global FDI greenfield announcements in the telecommunications sector have remained largely flat** (Billions of dollars and number of projects)



Data source: FDI Markets Intelligence (Financial Times).

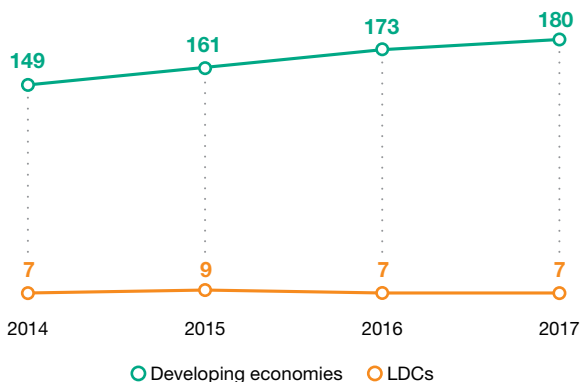
## Developing country trends

FDI trends	Measurement <sup>2</sup>	Number of economies	Pre-2015	Post-2015
			(2012–2014 average)	(2015–2018 average)
			Billions of dollars	
Developing economies	FDI inflows	33	7.0	19
	Value of announced greenfield FDI projects	130	25	18
Of which: Least developed countries (LDCs)	FDI inflows	7	N.D.	N.D.
	Value of announced greenfield FDI projects	45	2.4	1.9

Data source: UNCTAD (for FDI inflows) and Financial Times Ltd, fDi Markets (for greenfield FDI projects).  
N.D. = No data.

Figure 3.4

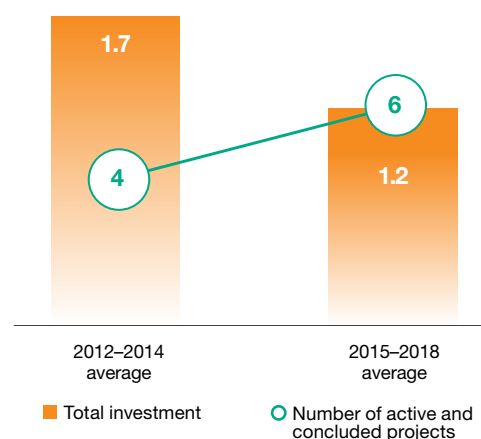
**Telecommunications investment is rising in developing economies** (Billions of dollars)



Data source: ITU World Telecommunication/ICT Indicators Database, accessed 2019.

Figure 3.5

**PPI Projects in the telecommunications sector in developing countries have declined in value** (Billions of dollars)



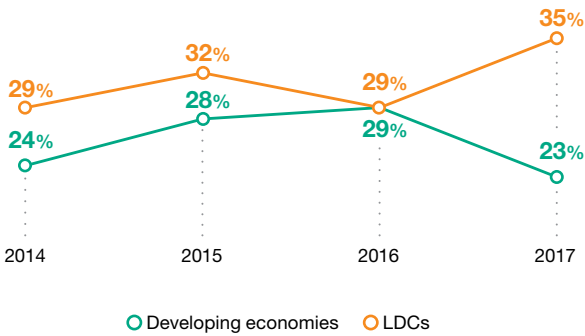
Data source: World Bank, PPI database, accessed 2019.



# TELECOMMUNICATIONS

Figure 3.6

Telecommunications investment as a percentage of revenues is in decline in developing economies but up in LDCs (Percentage)

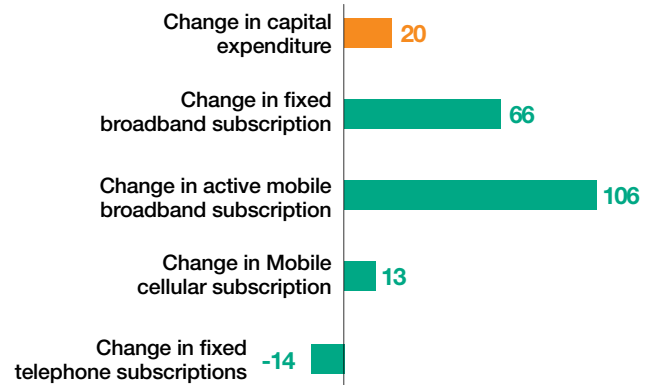


Data source: ITU World Telecommunication/ICT Indicators Database, accessed 2019.

Figure 3.7

Increase in capex has led to rapid growth in broadband subscription in developing countries

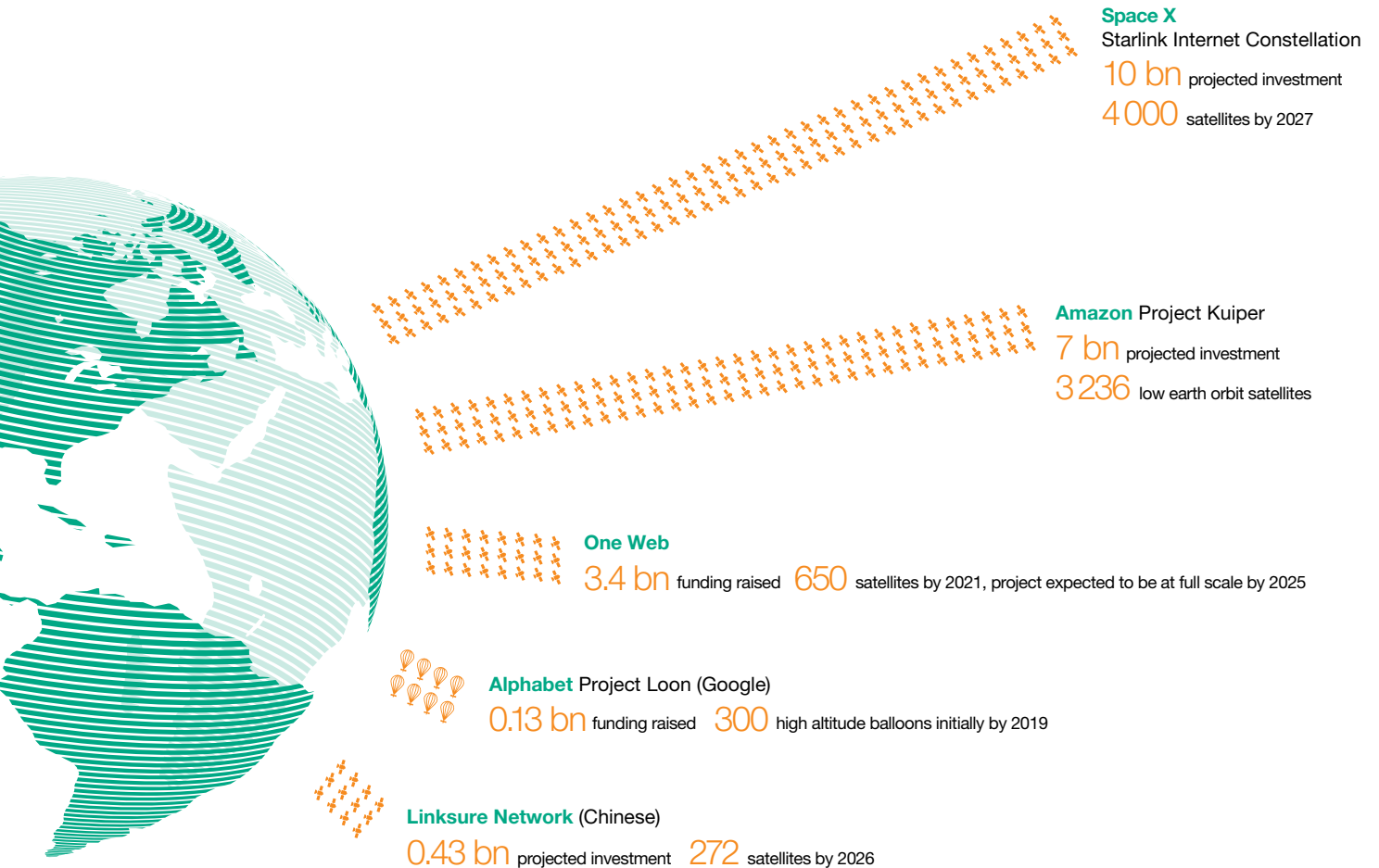
Change in capex compared to change in connectivity indicators between 2014 and 2017 (Percentage)



Data source: ITU World Telecommunication/ICT Indicators Database, accessed 2019.

Figure 3.8

Initiatives for global internet connectivity based on innovative technologies are expanding



Data source: UNCTAD research.



## Key takeaways

- Global telecommunication sector investment in 2017 amounted to \$332 billion, including both public and private sectors investment, down from \$354 billion in 2016 and \$344 billion in 2015. In developing economies, investment in the telecommunication sector is increasing moderately (\$180 billion in 2017). Significant investment gaps remain for achieving the connectivity related SDG target. However, innovative technologies and ambitious global scale projects by major technology companies can play a significant role in universal internet connectivity.
- Investment in developing economies exceeded that in developed economies for the first time in 2017. Although the annual investment in the telecommunication sector in developing economies exceeds significantly the total investment required to achieve universal 3G signal as estimated in *WIR14*, universal 3G connectivity still appears a distant target.<sup>3</sup> Current investment is not being targeted to a sufficient degree to enhancing access in remote and poor areas due to profitability concerns.
- Investment in the telecommunication sector is driven to a large degree by private investors and commercial viability. Capex as a percentage of revenues is in decline in developing economies which indicates that investment levels are sustainable. This is not the case in LDCs, however, which is a cause of concern for future investment trends in LDCs.
- Investments in PPI (Private Participation in Infrastructure) projects in the ICT sector in low and middle income economies declined significantly in 2018 from a high of \$3 billion in 2017.
- 5G technology is set to drive investment in the mobile telecommunication industry with a larger share of overall investment projected to take place in economies that will be rolling out 5G in the next few years. However, the effects of investment in 5G for the relevant connectivity SDG targets are uncertain.
- On the other hand, major investments in innovative technologies such as satellites and stratospheric balloons for fast and universal internet access by large technology firms are likely to have a significant impact on the connectivity related SDG target. These technologies have the potential to make universal connectivity commercially viable in a way that has not been possible for mobile telecommunication corporations.

### SUMMARY ASSESSMENT OF INVESTMENT TREND:



## Monitoring and data availability

### Key sources:

- International Telecommunications Union (ITU)
- Global Infrastructure Hub – G20 Initiative
- GSMA
- World Economic Forum
- World Bank, PPI database

### Knowledge gaps:

- FDI inflows data limited to 33 developing economies.
- It is difficult to estimate how much of the total investment in developing economies is being targeted to the most remote and impoverished areas in a way that could lead to the achievement of universal connectivity targets.
- Lack of demand-side data to inform investment decisions, particularly in LDCs. The ITU observes that there is a necessity for more and better data on internet use and barriers to use in LDCs.

### SUMMARY ASSESSMENT OF MONITORING AND DATA AVAILABILITY:



### Notes

<sup>1</sup> Definition agreed during the 11<sup>th</sup> World Telecommunication/ ICT Indicators Symposium (WTIS).

<sup>2</sup> Aggregate FDI inflows in “information and communication” (or, when available “telecommunications”) in 33 developing economies, reporting partial or full data in 2015-2018. For greenfield, estimated capital spending of announced projects in wired and wireless telecommunications carriers, data processing, hosting and related services, and satellite telecommunications. Excluding Caribbean “financial centres”.

<sup>3</sup> UNCTAD (2017). *World Investment Report 2017: Investment and the Digital Economy*.

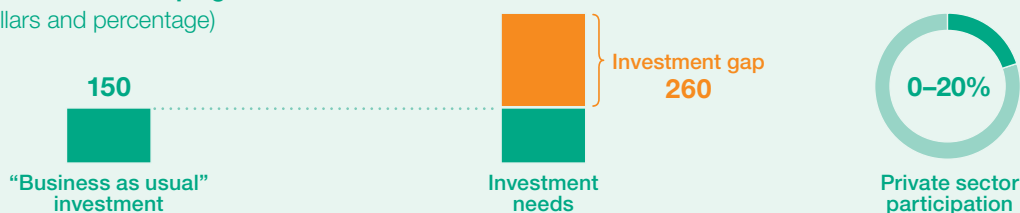
Other source: ITU (2018). *Measuring the Information Society Report 2018- Volume 1*.

## Capital investment requirements to meet the SDGs

- Provision of water and sanitation facilities for households as well as industry
- Improved water quality

### WIR14 estimates for developing economies:

(Billions of dollars and percentage)



## Overview

Financing in the WASH sector (Water, Sanitation and Hygiene) relates directly to SDG 6 (Clean water and sanitation), which seeks to ensure availability and sustainable management of water and sanitation for all. In addition, it has secondary relevance to SDG 3 (Good health and well-being for people) and SDG 11 (Sustainable cities and communities), particularly the indicators on inadequate housing and urban waste disposal.

WASH is increasingly recognized as a distinct sector because it conflates three interdependent core sub-sectors; drinking water, sanitation facilities, and water quality & pollution. Calculations for WASH investment in this monitor encompass these three sub-sectors.

Levels of investment and the annual investment gap in UNCTAD's *WIR14* were based on capex, albeit with an expanded scope, including investment in water resources for irrigation and energy generation. However, data for investment in this sector is often reported in net terms without a clear indication of capex and opex, which is why data is not disaggregated in this monitor.

## Global financing and investment trends

Indicator	2013/2014 (Expenditure year range 2012–2014)	2016/2017 (Expenditure year range 2013–2017)	2018/2019 (Expenditure year range 2015–2018)
Number of respondent economies	34	48	54
Population represented (Billions)	1.1	1.6	1.9
Total reported expenditure (Billions of dollars)	39.8	51.6	59.9
Annual WASH expenditure per capita (US\$)	36	32	31
Annual WASH expenditure (as a percentage of GDP)	0.86%	0.73%	0.76%

Data source: UN-Water and WHO (2019).

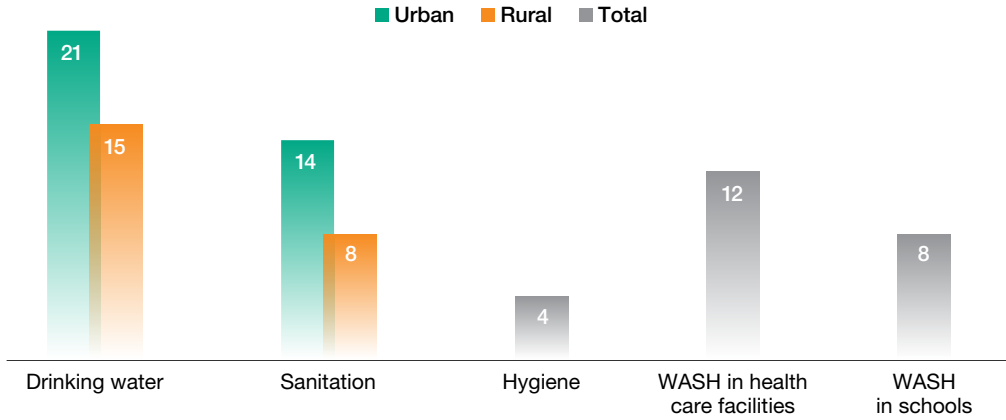
## Developing country trends

FDI trends	Measurement <sup>1</sup>	Number of economies	Pre-2015 (2012–2014 average)	Post-2015 (2015–2017 average)
			Billions of dollars	
Developing economies	FDI inflows	10	0.40	0.42
	Value of announced greenfield FDI projects	130	2.98	1.96
Of which: Least developed countries (LDCs)	FDI inflows	N.D.	N.D.	N.D.
	Value of announced greenfield FDI projects	45	0.02	0.0

Data source: UNCTAD (for FDI inflows) and Financial Times Ltd, fDi Markets (for greenfield FDI projects).  
N.D. = No data.

Figure 4.1

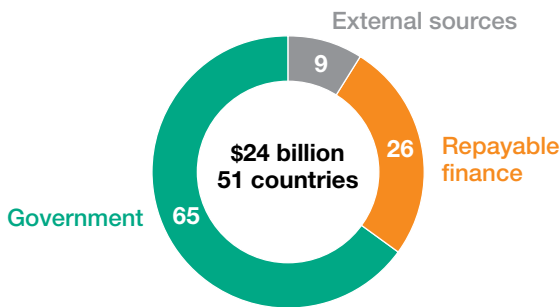
Proportion of surveyed countries that reported sufficient finance to meet national targets for the different components of WASH is fairly low (Percentage)



Data source: UN-Water and WHO (2019).

Figure 4.2

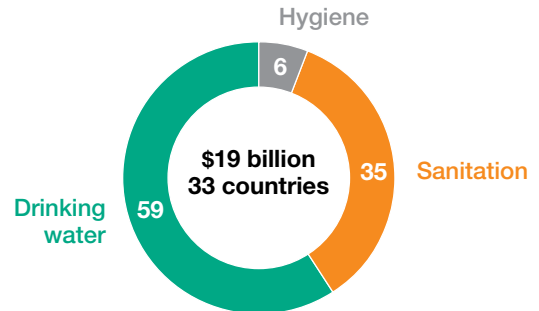
Governments are the largest source of non-household WASH expenditure (Percentage)



Data source: UN-Water and WHO (2019).

Figure 4.3

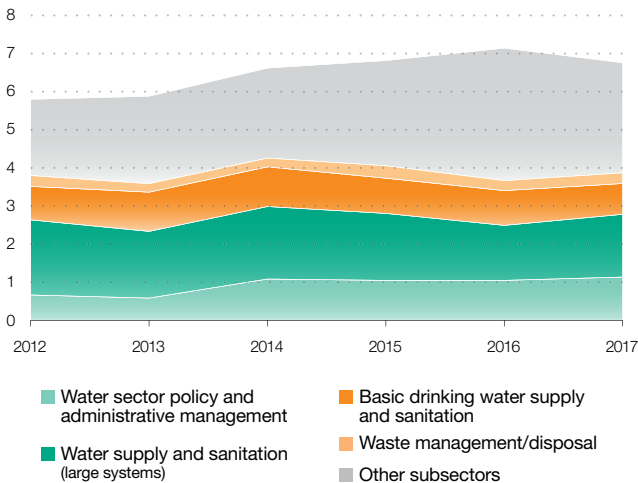
Drinking water is the largest sub-sector for non-household WASH expenditure (Percentage)



Data source: UN-Water and WHO (2019).

Figure 4.4

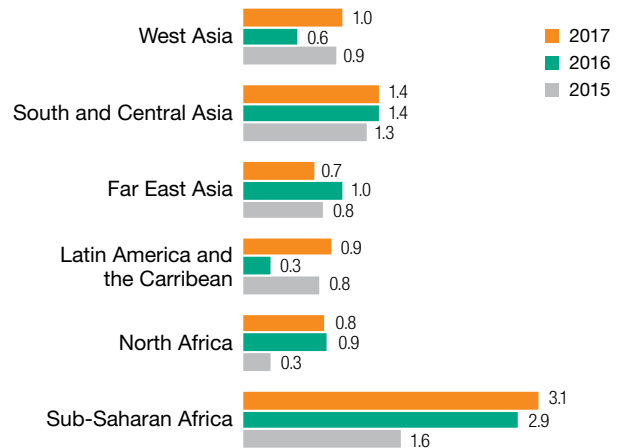
ODA disbursements have remained flat across all sub-sectors (Billions of dollars)



Data source: OECD CRS Database, accessed 2019.

Figure 4.5

WASH ODA Commitments have risen significantly in some developing regions (Billions of dollars)



Data source: OECD CRS Database, accessed 2019.

Figure 4.6

**Investment in desalination is on the rise** (Billions of dollars)



**Largest Investing Countries**

- Kingdom of Saudi Arabia
- United States of America
- United Arab Emirates
- Australia
- China

**Key Trends**

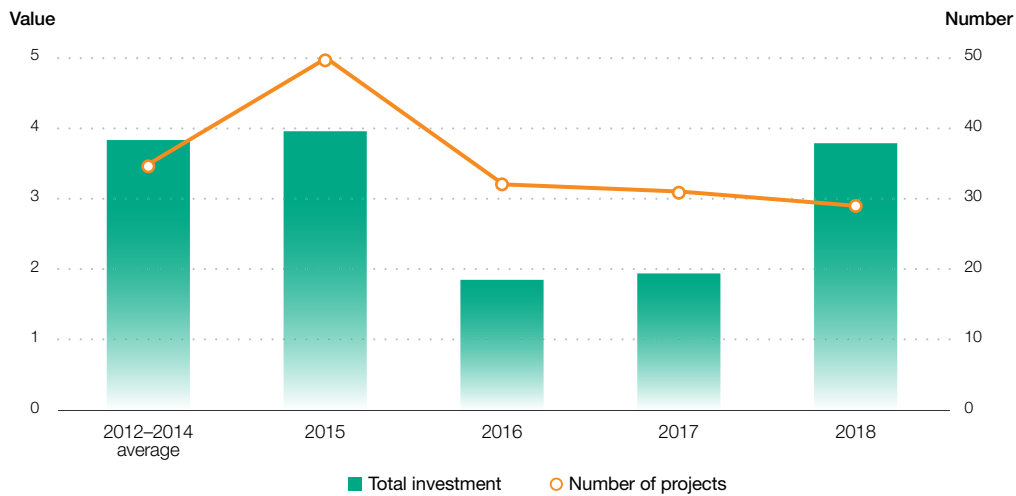
- Water produced daily by desalination: **100 mn m<sup>3</sup>**
- Total number of desalination plants: **15,000**
- Cost per cubic metre of water: **\$0.5-\$1.5**

Data source: UNCTAD research.

Figure 4.7

**Water and Sewerage: PPI Projects in developing economies remain below pre-2015 levels**

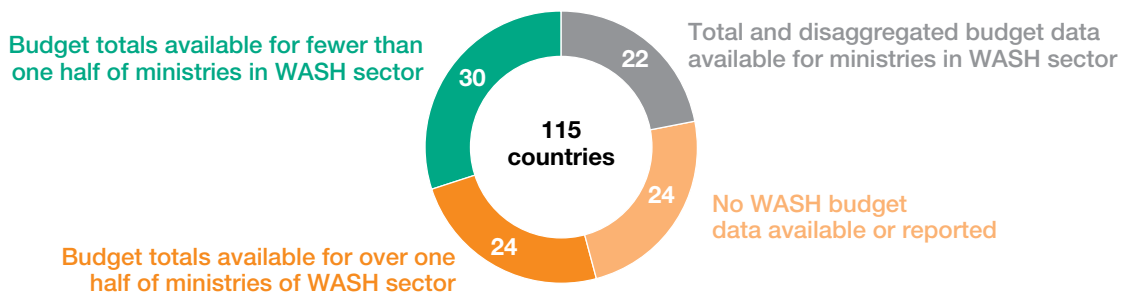
(Billions of dollars and number of projects)



Data source: World Bank PPI Database, accessed 2019.

Figure 4.8

**There are significant gaps in the availability of WASH budget data** (Percentage)



Data source: UN-Water and WHO (2019).

## Key takeaways

- Despite gaps in data, there is tangible evidence of significant shortfalls in spending levels required to meet SDG 6 at the global level. Moreover, although a few economies have reported scaling up spending in this sector, the overall trend suggests that levels are either stagnant or diminishing.
- The investment needs estimated in *WIR14* were based solely on capex, however there is an especially important role for opex to meet SDG 6. Despite this, many developing economies have reported shortfalls in financing to meet opex.
- Public sources of finance account overwhelmingly for spending in this sector. Considering the shortfall in financing to meet SDG 6, there might be scope for economies to explore non traditional sources of resources, such as blended finance.
- The limited data on FDI flows (only 10 developing economies) can be attributed to many water infrastructure projects taking non-equity modes (NEMs), rather than FDI and a comparatively peripheral involvement of the private sector.
- Advancement in technology and the continued reductions of renewable energy costs are making more economies view seawater desalination as a viable method to address water scarcity. Investment in desalination plants is projected to rise significantly in the next few years. However, for this technology to assume a more central role in meeting the requirements of SDG 6, a cost effective and environmentally sustainable solution to dispose the brine waste produced needs to be developed.
- ODA in this sector has been relatively flat over the last few years but commitments to Africa have increased significantly. This indicates that official donors are prioritizing SDG 6 for aid in at least some regions.

### SUMMARY ASSESSMENT OF INVESTMENT TREND:



## Monitoring and data availability

### Key sources:

- UN-Water & WHO (GLAAS project)
- World Bank, PPI database
- OECD
- The 2030 Water Resources Group
- Global Infrastructure Hub

### Knowledge gaps:

- There are significant gaps in terms of data availability for both capex and opex in the WASH sector. At national levels, out of the 115 economies surveyed for the UN-Water Global Analysis and Assessment of Sanitation and Drinking Water (GLAAS 2019) Report, only 22% of economies reported that total and disaggregated budget data was available for ministries dealing with WASH. It is apparent that to improve investment tracking in this sector, a coordinated approach is required that involves intensive involvement of national governments.

- WHO is leading the TrackFin initiative under the UN-Water GLAAS project. Its objectives are to define and test a globally accepted methodology to track financing to WASH at the national level. However, at the moment the number of economies covered under this remains small.
- Less than a quarter of economies surveyed reported the availability of complete and disaggregated data on WASH, according to GLAAS.
- Difficult to estimate private sector investment in developing economies because this sector is reliant mainly on the public sector and private sector involvement is often indirect.
- Limited data breakdown of capex and opex.
- Lack of data that disaggregates investment by SDG sub-sector, i.e. drinking water, sanitation facilities, and water quality & pollution. Difficult to determine investment's impact on SDGs objectives.

### SUMMARY ASSESSMENT OF MONITORING AND DATA AVAILABILITY:



### Notes

<sup>1</sup> Aggregate annual flows in water supply, sewerage, waste management and remedial activities in 10 developing economies, reporting partial or full data in 2015–2017. For greenfield, estimated capital spending of announced projects in water, sewage and other systems, waste management and remediation services. Excluding Caribbean "financial centres".

Other source: World Health Organization and UN-Water (2019). *UN-Water global analysis and assessment of sanitation and drinking-water (GLAAS) 2019 report: National systems to support drinking-water, sanitation and hygiene: global status report 2019*.

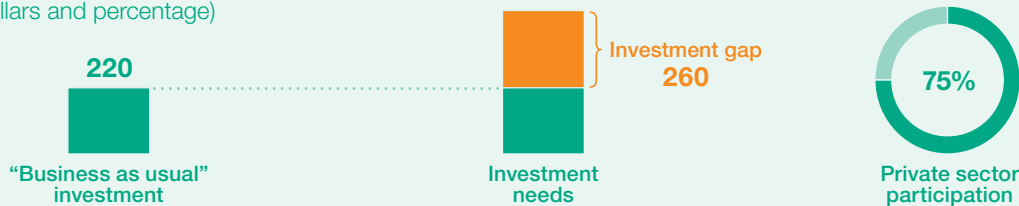
# FOOD AND AGRICULTURE

## Capital investment requirements to meet the SDGs

- Investment in agriculture and natural resources (e.g. soil and water conservation), research and development, processing facilities and transport infrastructure (e.g. rural roads and electrification)

### WIR14 estimates for developing economies:

(Billions of dollars and percentage)



## Overview

Investment in this sector contributes primarily towards SDG 2 (Zero hunger). The achievement of SDG 2 has many cross-cutting links with other SDGs, most notably SDG 1 (No poverty), SDG 3 (Good health and wellbeing for people) and SDG 10 (Reducing inequalities).<sup>1</sup> The relationship with SDG13 (Climate action), is complex. While climate change adversely impacts on crop yields and food security, production activities in this sector have been a major source of greenhouse gas emissions. Furthermore, food security involves not only ensuring the supply of food and related projects, but also making them economically and physically accessible to the population.

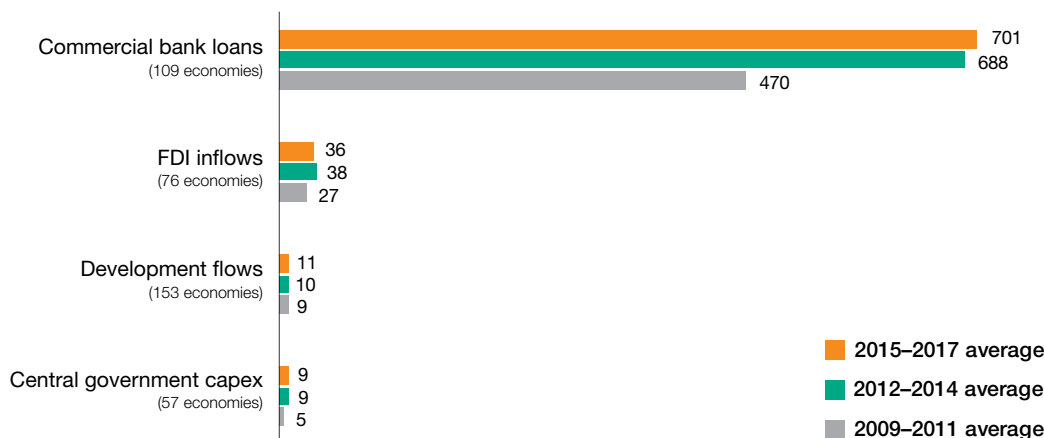
Based on the assumption that eradication of hunger and poverty are interlinked, one study estimates the additional annual average investment needs (including opex) at \$265 billion (in 2013 prices) or 0.3% of GDP for achieving the zero hunger target, in which nearly \$140 billion is attributed to rural development (including electrification and roads to improve infrastructure for production and transportation) in developing and transition economies with lower and middle income.<sup>2</sup>

Wide variations in data coverage and availability make a comparative analysis in this sector difficult. Domestic private investment in this sector is the largest source of finance.<sup>3</sup> Gross fixed capital formation (GFCF) in developing economies accounts for more than 55% of global GFCF in agriculture.

## Global financing and investment trends

Figure 5.1

Commercial bank loans are the largest source of finance for investment in agriculture<sup>4</sup> (Billions of dollars)



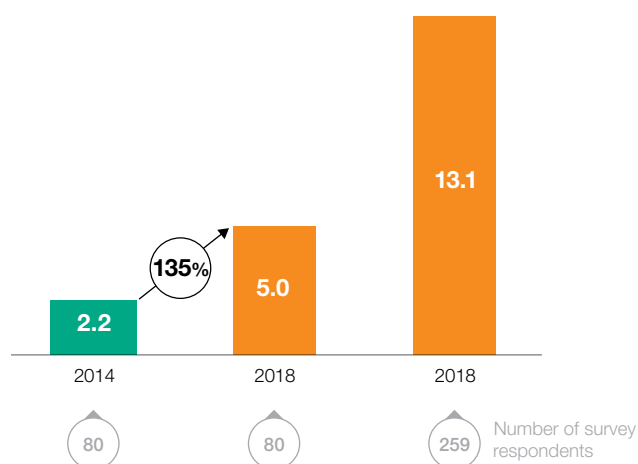
Data source: Food and Agriculture Organization of the UN (FAO), FAOSTAT, accessed 2019.



# FOOD AND AGRICULTURE

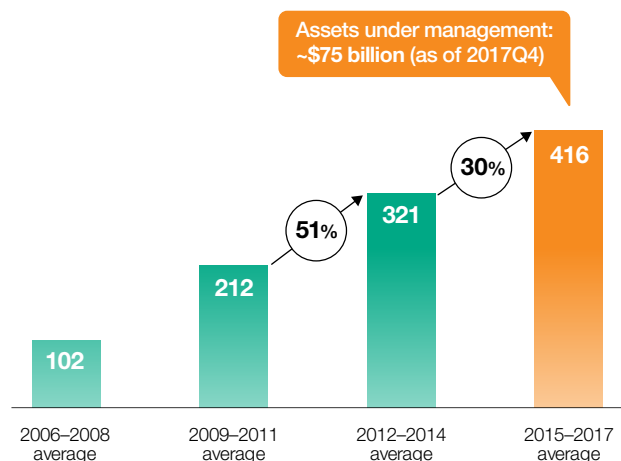


**Figure 5.2**  
Impact investment focused on food and agriculture is growing fast<sup>5</sup> (Billions of dollars)



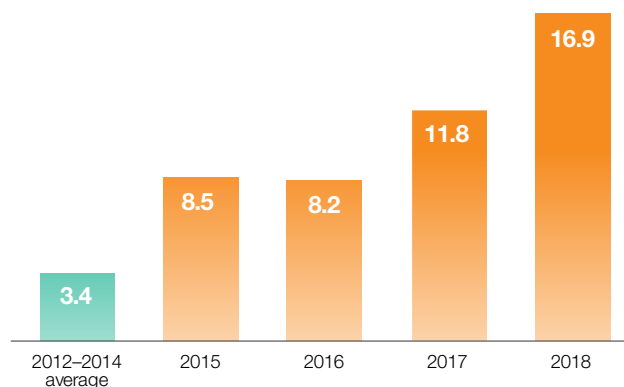
Data source: Global Impact Investment Network (GIIN) (2019).

**Figure 5.3**  
The number of investment funds specialized in food and agricultural assets has increased (Number)



Data source: Valoral Advisors (2018).

**Figure 5.4**  
Investment in agrifood venture capital has accelerated<sup>6</sup> (Billions of dollars)



Data source: AgFunder (2018).

## Developing country trends

FDI trends	Measurement <sup>7</sup>	Number of economies	Pre-2015	Post-2015
			(2011–2014 average)	(2015–2018 average)
Billions of dollars				
Developing economies	FDI inflows	38	19.4	15.4
	Value of announced greenfield FDI projects	130	21.5	22.8
Of which: Least developed countries (LDCs)	FDI inflows	8	0.6	0.9
	Value of announced greenfield FDI projects	45	1.6	3.4

Data source: UNCTAD (for FDI inflows) and Financial Times Ltd, fDi Markets (for greenfield projects).



# FOOD AND AGRICULTURE

Figure 5.5

**FDI inflows in 38 developing economies shrank because of a sharp contraction in manufacturing** (Billions of dollars)



Figure 5.6

**Gross fixed capital formation (GFCF) in agriculture, forestry and fishing has increased but plateaued** (Billions of dollars)

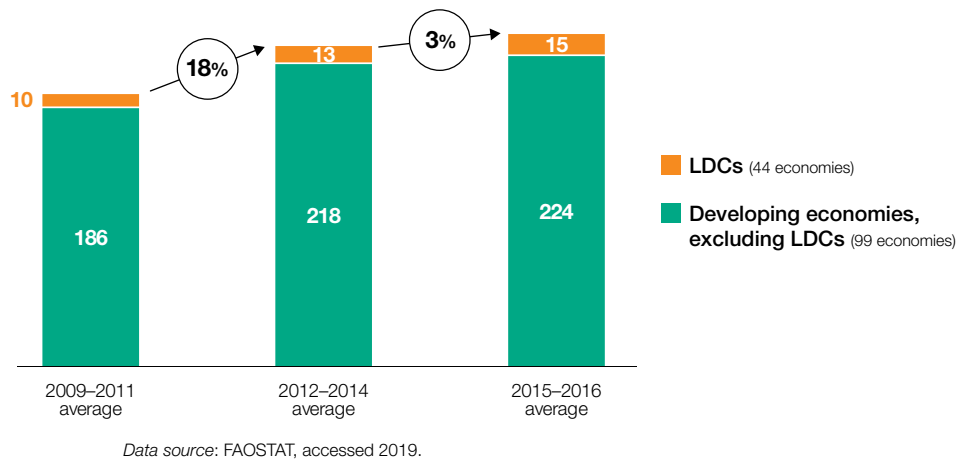


Figure 5.7

**ODA disbursements for agriculture and fishing have increased** (Billions of dollars)

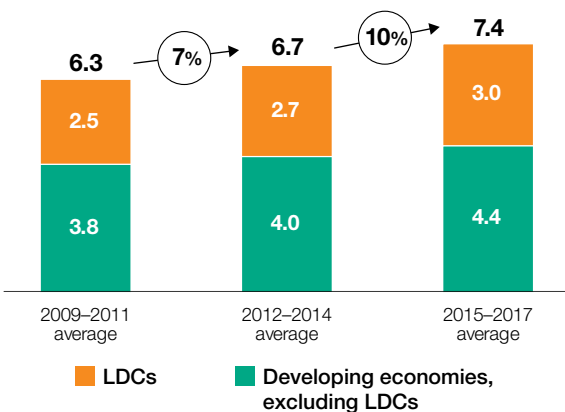
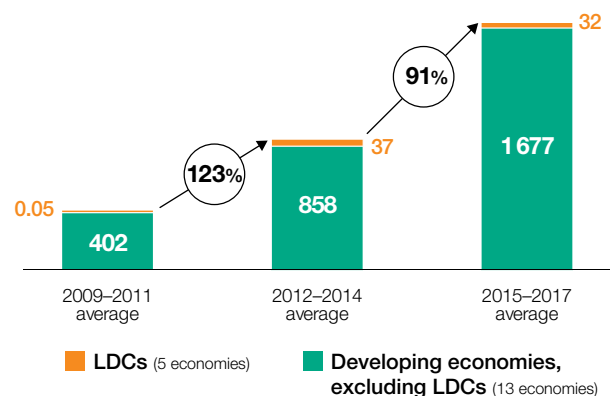


Figure 5.8

**Public R&D spending in agriculture, forestry and fishing has increased<sup>8</sup>** (Millions of dollars)





## Key takeaways

- The observed increase in capital investment remains below the additional investment required to achieve the SDG 2. The growth in investment often reflects major gains in a handful of larger economies.
- While FDI in developing economies remains flat, global investment assets relating to the food and agriculture sector are growing rapidly. Within the \$75 billion of assets managed by global investment funds, farmland represents the largest asset type (\$32 billion in 145 funds), followed by private equity (\$23 billion in 105 funds). However, much of these funds target developed markets. By geography, North America has attracted the majority of investment assets.<sup>9</sup>
- Domestic private investment is the critical element for boosting productive capacity and sustainable development. The major source of investment in this sector is small holders' investments in their own farms. Anecdotal evidence suggests a rise in domestic medium- and large-scale investments.

## SUMMARY ASSESSMENT OF INVESTMENT TREND:



## Monitoring and data availability

### Key sources:

- FAO
- OECD
- World Bank<sup>10</sup>

### Knowledge gaps:

- Country-level data are missing for the most recent years. Despite the lack of timeliness, the GFCF data, available for more than 140 developing economies, allow for better monitoring of capital investment in this sector.
- Data on private sector capital investment are limited. There are no comprehensive data on the involvement of large international investors, whether MNEs or sovereign funds, in land purchases. The greenfield FDI project database does not capture any projects announced in the primary agriculture and fishery activities in 2011-2018. This may reflect a data reporting issue related to the sectoral and/or industry classification.
- Assessing the presence of international investors along the full value chain is challenging, especially in the contract farming and processing, due to the lack of consistent methods of data collection to ensure cross-country comparability.

## SUMMARY ASSESSMENT OF MONITORING AND DATA AVAILABILITY:



## Notes

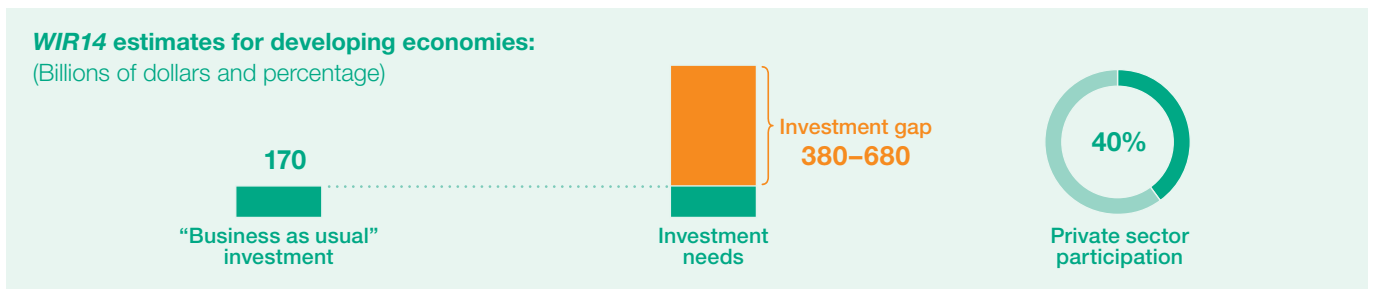
- <sup>1</sup> Source: FAO, International fund for Agricultural Development (IFAD), United Nations Children's Fund (UNICEF), World Food Programme (WFP) and World Health Organization (WHO) (2018). *The State of Food Security and Nutrition in the World 2018: Building Climate Resilience for Food Security and Nutrition*; FAO, IFAD, UNICEF, WFP and WHO (2019). *The State of Food Security and Nutrition in the World 2019: Safeguarding Against Economic Slowdowns and Downturns*.
- <sup>2</sup> Source: FAO, (IFAD) and WFP (2015). *Achieving Zero Hunger: The Critical Role of Investments in Social Protection and Agriculture*. Under a different scenario, the same study projects that low-income countries and middle-income countries should bridge a gap of \$116 billion (in 2013 prices) annually in their investment in agriculture.
- <sup>3</sup> In low- and middle-income economies, the scale of on-farm investments is three times greater than all other sources of public and private financial flows combined (Source: World Bank (2018). *Future of Food: Maximizing Finance for Development in Agriculture Value Chains*).
- <sup>4</sup> The number of economies reporting partial or full data for 2015–2017 and at least one of two other periods. For GFCF, Belarus was excluded because of extraordinary higher values. For FDI, the most recent year available is 2016.
- <sup>5</sup> Estimated assets under management (AUM) of survey respondents representing impact investing organizations. The first two bars represent AUM of 80 survey respondents from the same organizations in 2014 and 2018. The third bar represents AUM of the total number of survey respondents (n=259). Source: GIIN (2019). *2019 Annual Impact Investor Survey*.
- <sup>6</sup> Funding to agrifood technology startups operating upstream (from the farm before the retailer) and downstream. Source: AgFunder (2018). *Agrifood Tech Funding Report: Year Review 2018*.
- <sup>7</sup> FDI inflows reflect the number of economies with partial or full data for both periods, including four economies (Lao People's Democratic Republic, Myanmar, Taiwan Province of China and Vanuatu) whose data are based on approved projects. FDI in forestry was included when disaggregated data are unavailable. For the greenfield FDI, projects announced in the following industries were considered: "food products and beverages"; "tobacco products"; "pesticides, fertilizers and other agricultural chemicals"; "food product machinery"; "wholesale and distributive trade in agriculture and beverage". The number of economies for the announced greenfield projects represents the maximum number of economies covered in the database, excluding the Caribbean financial centers.
- <sup>8</sup> This refers to R&D expenditure of central government in agriculture, forestry and fishing in 18 economies reporting at partial or full data, at least for the last two periods (2012–2014 and 2015–2017).
- <sup>9</sup> Source: Valoral Advisors (2018). *2018 Global Food & Agriculture Investment Outlook*.
- <sup>10</sup> See also UNCTAD-World Bank (2018). "Responsible Agricultural Investment (RAI): Knowledge into Action Notes" series.



# CLIMATE CHANGE MITIGATION

## Capital investment requirements to meet the SDGs

- Investment in relevant infrastructure, renewable energy generation, research and deployment of climate-friendly technologies in energy, transport and land use (e.g. windmills, solar panels, connections to grids and storage, electric vehicles and energy efficiency).



## Overview

The most relevant SDG for the climate change mitigation sector is SDG 13 (Climate action). The sector also has important inter-linkages with numerous other SDGs (6, 7, 9, 11, 12, 14, 15).

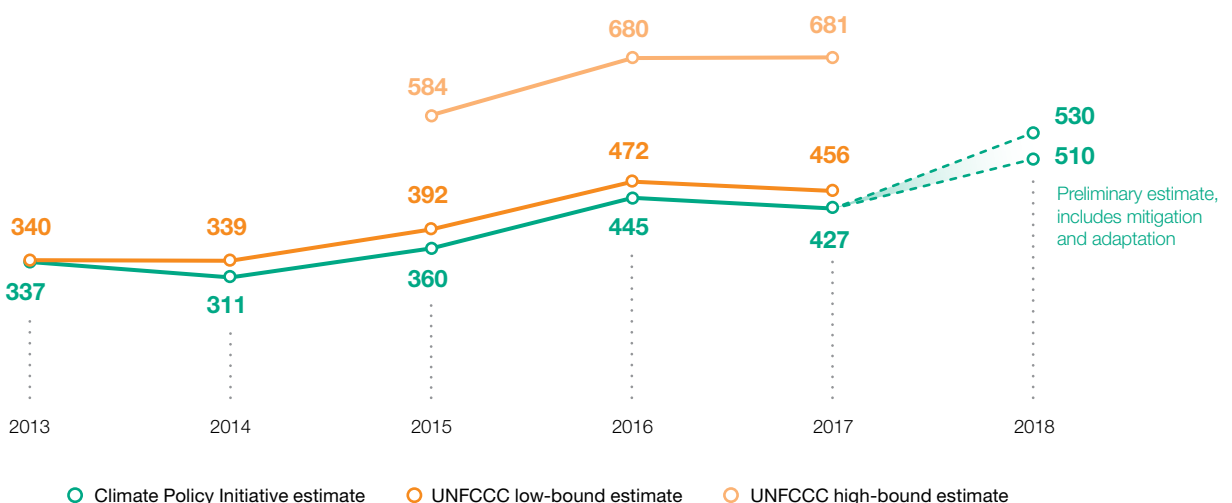
The majority of climate change mitigation investment is directed towards renewable energy generation, energy efficiency and sustainable transport. Renewable energy generation investment includes assets and activities in grid-connected wind, solar, hydro, geothermal and biomass energy. Energy efficiency investment typically involves activities or components at the project-level, such as building design, installation of efficient lighting or heating systems or fuel efficiency in vehicles and freight. Investment in sustainable transport mostly includes electric vehicles.

Climate mitigation investment sources comprise public providers, such as donor governments, multilateral climate funds, and development finance institutions (DFIs). Private sources include corporations and project developers implementing renewable energy projects, commercial bank project lending, institutional investors' direct infrastructure investment and households investing savings.

## Global financing and investment trends

Figure 6.1

**Global climate change mitigation investment has risen** (Billions of dollars)



Data source: Climate Policy Initiative (2018) and UNFCCC (2018).

Table 6.1

**Renewable energy, energy efficiency and sustainable transport are the major climate mitigation finance sub-sectors<sup>1</sup>** (Billions of dollars)

	2015–2016 average	
	Private finance	International public finance
Renewable energy generation	238	57
Sustainable transport	11	81
Energy efficiency <sup>2</sup>	231	29
Land management (agriculture, forestry, natural resources etc)	N.D.	4
Other	N.D.	21
<i>Total</i>	<i>N.D.</i>	<i>192</i>

Data source: Climate Policy Initiative (2018).

N.D. = No data.

Table 6.2

**More climate finance is received by non-OECD economies than OECD economies**

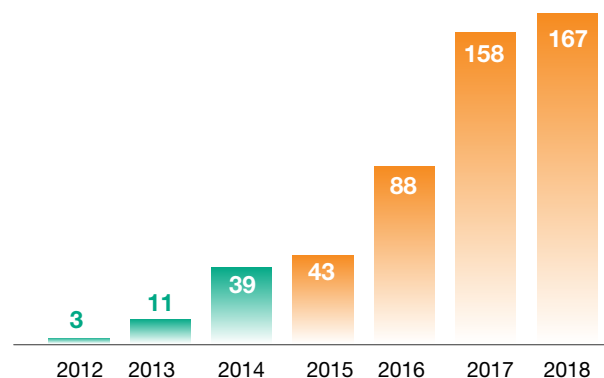
Includes mitigation and adaptation finance (Billions of dollars)

Region	2015–2016 average
<b>Non-OECD</b>	<b>270</b>
Central Asia and Eastern Europe	10
East Asia and Pacific	180
Latin America and the Caribbean	26
Middle East and North Africa	8
South Asia	22
Sub-Saharan Africa	12
Transregional	13
<b>OECD</b>	<b>194</b>
America	56
Japan, Korea and Israel	26
Other Oceania	4
Western Europe	107
<b>Total</b>	<b>464</b>

Data source: Climate Policy Initiative (2018).

Figure 6.2

**The global green bond market has grown significantly<sup>3</sup>** (Billions of dollars)

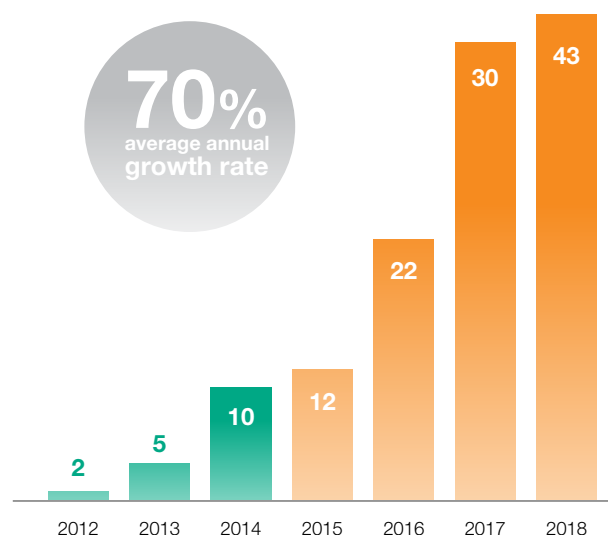


Data source: Climate Bonds Initiative (2018).

Figure 6.3

**Investment in electric vehicles is growing rapidly**

Includes private expenditure<sup>4</sup> and public subsidies (Billions of dollars)



Data source: Climate Policy Initiative (2018).



# CLIMATE CHANGE MITIGATION

## Developing country trends

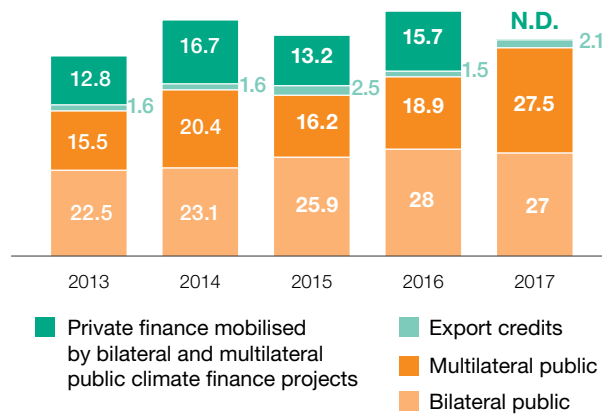
FDI trends	Measurement <sup>5</sup>	Number of economies	Pre-2015	Post-2015
			(2011–2014 average)	(2015–2018 average)
Billions of dollars				
Developing economies	Value of announced greenfield FDI projects	130	23.1	41.4
Of which: Least developed countries (LDCs)	Value of announced greenfield FDI projects	45	2.1	2.4

Data source: UNCTAD (for FDI inflows) and Financial Times Ltd, fDi Markets (for greenfield projects).

Figure 6.4

### Public finance flows from developed to developing economies are rising

Includes finance for mitigation and adaptation (Billions of dollars)

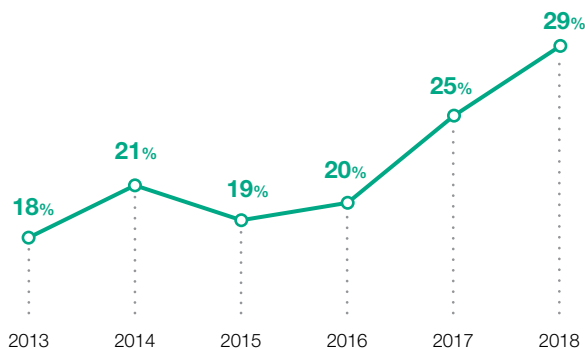


Data source: OECD (2018).

Figure 6.5

### Multilateral development banks' climate finance as a percentage of their total operations is rising

Includes finance for mitigation and adaptation (Percentage)



Data source: IDB joint report (2018).

## Key takeaways

- Global climate change mitigation investment has risen as a result of rising private investment in renewable energy. There is optimism that this increase will continue, particularly given the continued drop in the cost of producing clean energy and the effect of the Paris Agreement. However, the figures still represent a small share of the overall investment required to address climate change.
- Private investment continues to account for the major share of climate investments, at 54% annually for 2015–2016, according to CPI.
- Climate finance is distributed almost evenly across OECD and non OECD economies: 58% and 42%, respectively.
- Multilateral development banks are devoting more of their financial resources to climate finance and the total public flows from developed to developing economies is increasing.
- The green bonds market has grown rapidly. According to Climate Bonds Initiative, this growth is expected to continue in 2019, fueled by financial institutions and climate-aligned issuers.

### SUMMARY ASSESSMENT OF INVESTMENT TREND:



## Monitoring and data availability

### Key sources:

- Climate Policy Initiative
- UNFCCC
- OECD
- Climate Bonds Initiative
- International Energy Agency
- International Renewable Energy Agency

### Knowledge gaps:

- There is a lack of public domestic investment data.
- Data on cross-border private sector investment flows is limited. No FDI data is available, as the industries to be included in this sector cannot be disaggregated.
- Current levels of investment do not capture potentially significant flows from private-sector investment in agriculture and sustainable transport projects.
- Energy efficiency investment has been captured on an incremental cost basis, however overall it remains difficult to measure and assess.

### SUMMARY ASSESSMENT OF MONITORING AND DATA AVAILABILITY:



## Notes

<sup>1</sup> There is no data available for domestic public finance and private finance for land management and energy efficiency. As such, it is difficult to accurately rank the relative importance of each sub-sector.

<sup>2</sup> IEA (*World Energy Investment*, 2017) estimates \$231 billion in energy efficiency investments in 2016 through sales of appliances and building investments. However, this is not comparable to project level investment and there are a number of challenges in understanding the relevance of these investments to overall climate finance needs, as explained by UNFCCC (2018) in *Global Climate Finance: An Updated View, 2018 and 2018 Biennial Assessment and Overview of Climate Finance Flows*.

<sup>3</sup> Green bonds are issued in order to raise finance and drive down the overall costs for climate change solutions and assets. Issuers include commercial banks and other private sector entities, as well as governments and development banks.

<sup>4</sup> Private expenditure comprises retail sales of electric vehicles.

<sup>5</sup> Greenfield FDI projects includes the following forms of renewable energy; biomass power; geothermal electric power; hydroelectric power; marine electric power; solar electric power; wind electric power; and "other". renewable electric power generation. Excluding Caribbean "financial centres".

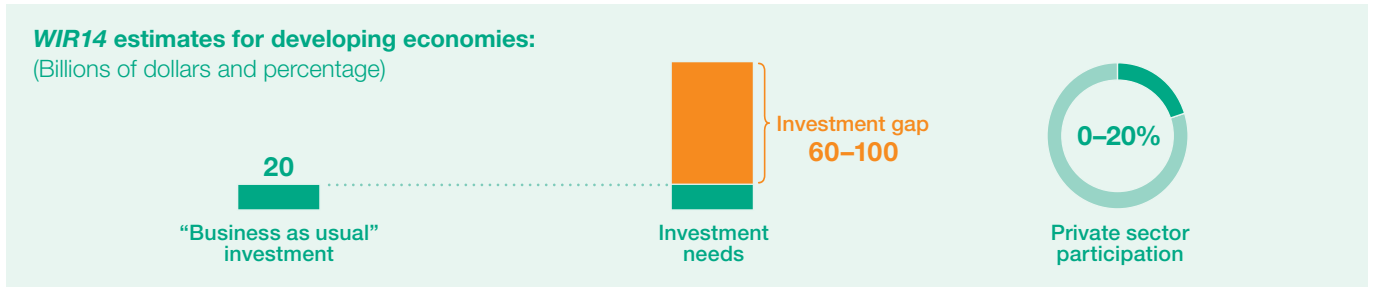
*Other sources:* Climate Policy Initiative (2018). *Global Climate Finance: An Updated View 2018*; Climate Bonds Initiative (2018). *Green Bonds*, The State of the Market; OECD (2018). *Climate finance from developed to developing countries – Public flows in 2013–17*; IDB (2018). *Joint Report on Multilateral Development Banks' Climate Finance*.



# CLIMATE CHANGE ADAPTATION

## Capital investment requirements to meet the SDGs

- Investment in facilities to cope with the impact of climate change in agriculture, infrastructure, water management, coastal zones etc. For example, irrigation systems, changing crops, dams and sea level barriers.



## Overview

SDG 13 (Climate action) is the most relevant SDG for the climate change adaptation sector. Other SDGs with linkages with climate change adaptation include SDG 1 (No poverty), SDG 9 (Industry, innovation and infrastructure) and SDG 11 (Sustainable cities and communities).

The adaptation investment that can be tracked is primarily by the public sector, with key investment sources including:

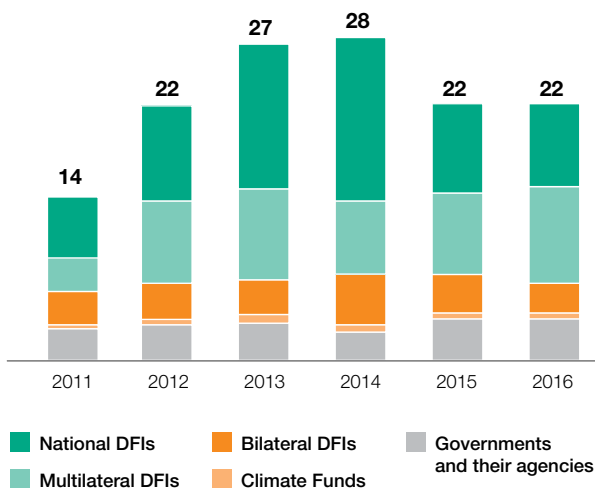
- Development Finance Institutions, including; multilateral, bilateral, national and sub-national development banks.
- Government aid and bilateral aid agencies, as reported by the OECD's DAC.
- Dedicated climate change funds.

Private sector contributions in the sector are difficult to identify. Despite this, there are indications of growing private sector engagement via climate bonds, remittances and domestic private enterprises<sup>1</sup>.

## Global financing and investment trends

Figure 7.1

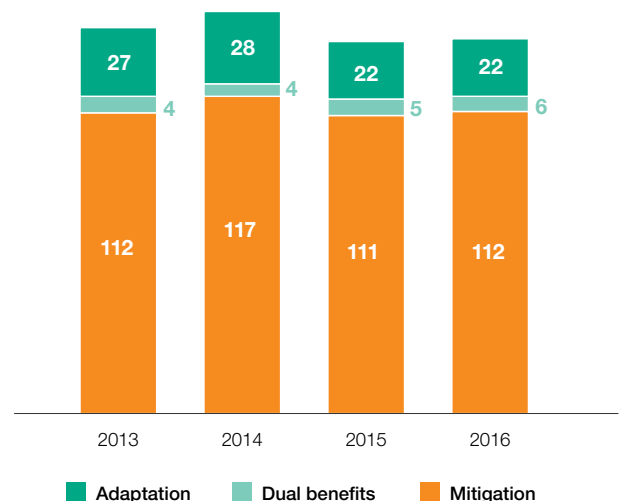
**Public finance for climate change adaptation is slow to take off** (Billions of dollars)



Data source: Climate Policy Initiative (2018).

Figure 7.2

**Public finance is directed more to climate change mitigation than adaptation** (Billions of dollars)



Data source: Climate Policy Initiative (2017).



# CLIMATE CHANGE ADAPTATION

Table 7.1

## Dedicated adaptation funds are important investment sources

Adaptation is the main focus of the following climate change funds (Billions of dollars)

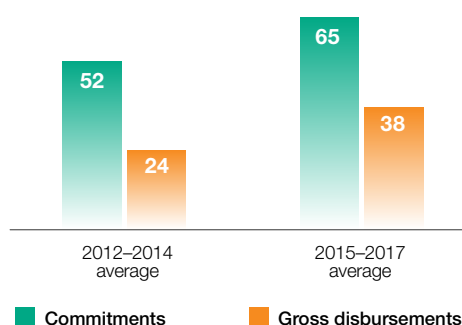
Fund	Pledged	Disbursed
Pilot Program for Climate Resilience	1.2	0.39
Least Developed Countries Fund	1.4	0.53
The Adaptation Fund	0.8	0.31
The Green Climate Fund <sup>2</sup>	2.4	0.57
Adaptation for Smallholder Agriculture Programme	0.38	0.06
Special Climate Change Fund		0.35
MDG Achievement Fund	0.09	0.08

Data source: Climate Funds Update (2019) and Green Climate Fund (2019).

Figure 7.3

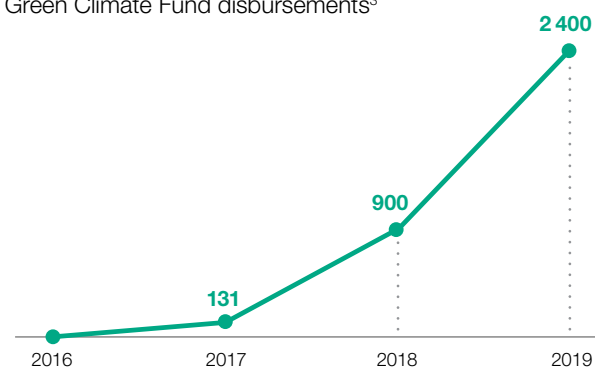
## Climate adaptation funds are growing, including The Adaptation Fund and the Green Climate Fund (Millions of dollars)

The Adaptation Fund



Data source: OECD CRS database, accessed 2019.

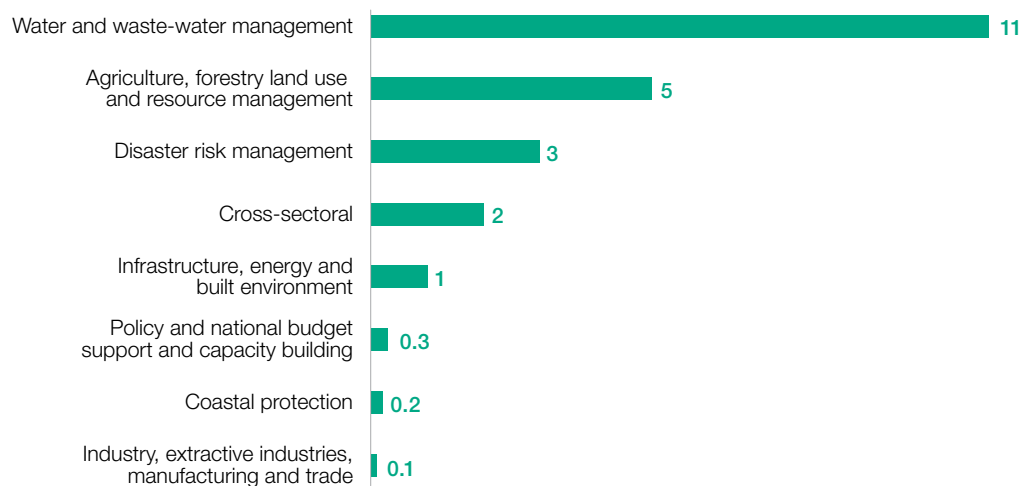
Green Climate Fund disbursements<sup>3</sup>



Data source: Green Climate Fund (2019).

Figure 7.4

## Water and waste-water management captures half of adaptation finance (Billions of dollars)



Data source: Climate Policy Initiative (2018).



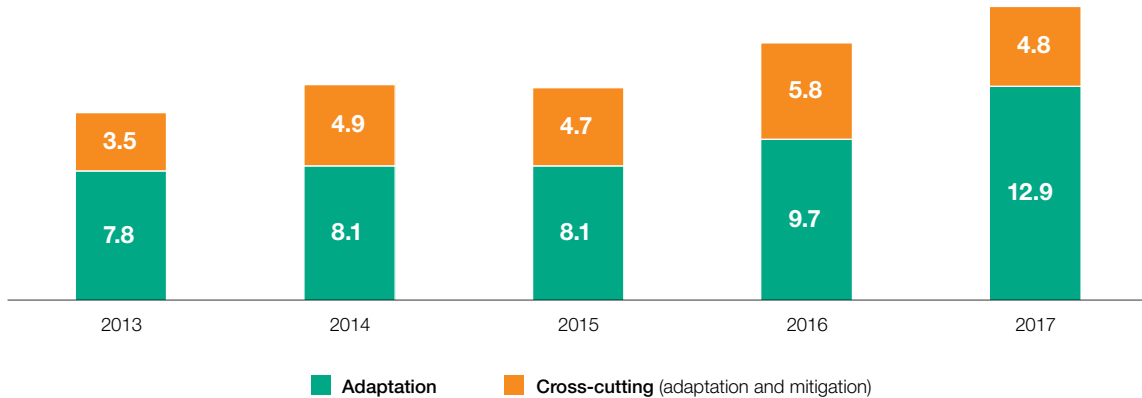
# CLIMATE CHANGE ADAPTATION

## Developing country trends

Figure 7.5

### Climate adaptation finance to developing economies has increased

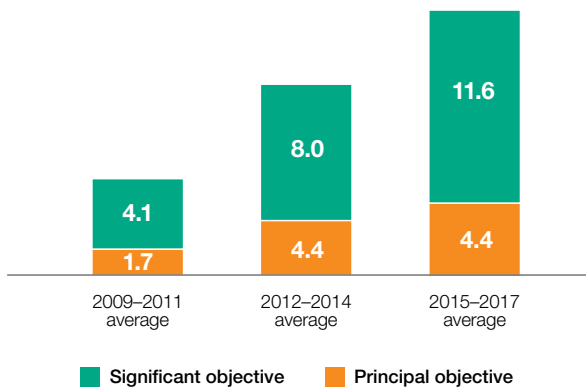
Includes bilateral, multilateral and export credits (Billions of dollars)



Data source: OECD (2018).

Figure 7.6

### Bilateral aid commitments towards climate change adaptation have increased<sup>4</sup> (Billions of dollars)

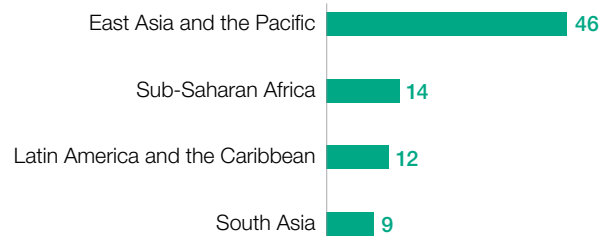


Data source: OECD CRS database, accessed 2019.

Figure 7.7

### Approximately 90% of international public adaptation investment is allocated to non-OECD economies

Largest recipient regions (Percentage)



Data source: OECD CRS database, accessed 2019.

#### Box 7.1

### The World Bank will ramp up climate adaptation finance

The World Bank's Action Plan on Climate Adaptation Finance, 2019, includes commitment to achieve an average financing level of \$10 billion per year between 2021 and 2025, which is over double the annual level achieved from 2015 to 2018. The Bank has also significantly increased its share of climate projects that include adaptation finance, from 16% in 2015 to 50% in 2018.

## Key takeaways

- Public climate adaptation finance to developing economies is increasing, including via bilateral and multilateral development finance institutions, bilateral aid and climate funds. However, the amount of investment remains well short of the *WIR14* estimated annual investment gap in the sector.
- Globally, the data shows that total public sector investment in adaptation has remained flat. However, it is difficult to elicit an overall trend, given data gaps and differences in reporting methods over the years.
- Almost half of all public adaptation investment is directed towards the East Asia and Pacific region.
- Dedicated climate adaptation funds are an important and emerging source of investment in the sector.
- Data gaps make it difficult to assess overall investment levels. Notably, it is not possible to quantify private sector participation in the sector. Furthermore, the Climate Policy Initiative reports that numerous constraints affect private sector adaptation investment, particularly: high upfront costs, benefits accruing in longer term, rather than shorter term and additional costs of evaluating climate risks in environmental impact statements.

## SUMMARY ASSESSMENT OF INVESTMENT TREND:



## Monitoring and data availability

### Key sources:

- UNEP
- Climate Policy Initiative
- UNFCCC
- OECD

### Knowledge gaps:

- There is still little agreement on what qualifies as adaptation finance and how to measure it. Better metrics and a more harmonized understanding are needed across reporting institutions to enable more accuracy in tracking adaptation finance.
- Lack of private sector investment data. Few private investors or companies currently report on adaptation actions and expenditure.
- Private sector cross-border investment flows are not measurable. No data on FDI inflows or FDI greenfield projects (data is not disaggregated for climate change adaptation activities).
- Lack of domestic public expenditure or budget allocation data for adaptation action.
- While households and corporations do engage in adaptation activities, they do not typically label their actions as adaptation, because they tend to consider climate risk as part of their broader risk management.

## SUMMARY ASSESSMENT OF MONITORING AND DATA AVAILABILITY:



## Notes

<sup>1</sup> Source: UNEP (2016). *The Adaptation Finance Gap Report 2016*.

<sup>2</sup> In addition to the estimated \$570 million implemented in adaptation, the fund has also implemented approximately \$820 billion in cross-cutting activities (i.e. mitigation and adaptation).

<sup>3</sup> This data applies to mitigation and adaptation. The funding has been allocated as follows: 44% for mitigation; 23% for adaptation; and 33% cross-cutting.

<sup>4</sup> Donors are requested to indicate for each financial activity whether or not it targets aspects of the environment and the Rio Conventions (includes biodiversity, climate change mitigation, climate change adaptation and desertification). The same activity can be marked for several objectives.

Other sources: Climate Policy Initiative (2018). *Global Climate Finance: An Updated View 2018*; Climate Policy Initiative (2017). *Global Landscape of Climate Finance 2017*; Green Climate Fund (2019). <https://www.greenclimate.fund/>; Climate Funds Update (2019). <https://climatefundsupdate.org/>; OECD (2018). *Climate finance from developed to developing countries – Public flows in 2013–17*.



# ECOSYSTEMS AND BIODIVERSITY

## Capital investment requirements to meet the SDGs

- Investment in infrastructure and measures for the conservation of ecosystems, including marine resource management, sustainable forestry, reversing land degradation etc.

Investment requirements in ecosystems and biodiversity were excluded from gap calculations in WIR14 due to overlaps with other investment sectors.

## Overview

Investment in ecosystems and biodiversity is most relevant for SDG 14 (Life below water) and SDG 15 (Life on land). The SDGs with relevant cross-sectoral linkages include SDG 11 (Sustainable cities and communities), SDG 12 (Responsible consumption and production) and SDG 13 (Climate action). In addition, a Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets were agreed on by The Convention on Biological Diversity. The targets include doubling biodiversity-related aid to developing economies between 2014 and 2020.

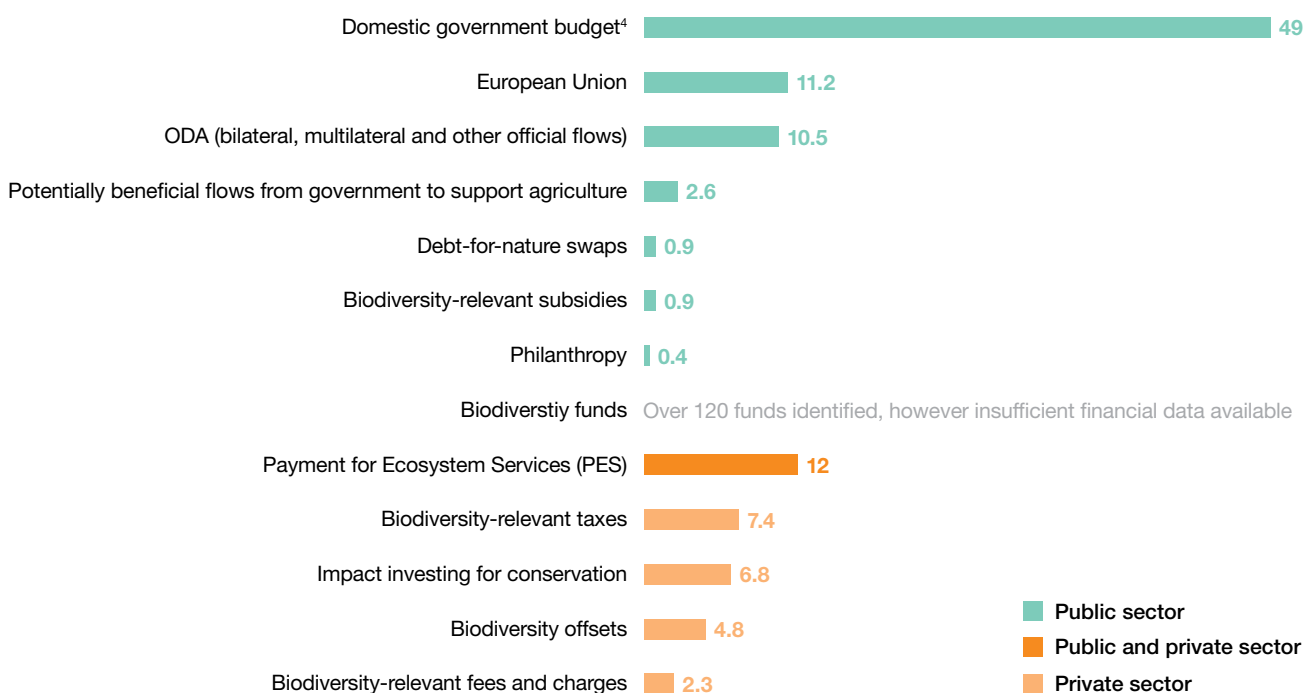
Ecosystems conservation has traditionally been funded by the public sector, ODA and philanthropy. The role of private sector investment continues to be limited. However, there are diverse investment sources emerging, including innovative new market-based financing mechanisms.

The data available in the sector is insufficient to allow for meaningful overall investment calculations. For this reason, a calculation of current global investment flows for biodiversity has not been made since it was estimated at around \$52 billion in 2010<sup>1</sup>. Nevertheless, it is clear that a major investment gap exists. In 2014 an annual financing need of \$150 – \$440 billion per year was estimated<sup>2</sup>, posing a major challenge for meeting the SDGs and the Convention on Biological Diversity’s Strategic Plan.

## Global financing and investment trends

Figure 8.1

The largest sources of investment in the sector are domestic government budgets<sup>3</sup> (Billions of dollars)



Data source: OECD (2019).



Figure 8.2

## Detailing some of the emerging investment mechanisms



**Debt-for-nature swaps** involve cancelling debt owed by low and middle-income nations in exchange for conservation initiatives. Global debt-for-nature swaps have cancelled ~\$2.8 billion owed and generated ~\$900 million for conservation.



**PES** schemes involve incentives to landowners or farmers in exchange for a conservation management service. The source of finance can be public or private. The figures above include 10 large PES programmes, however it is estimated that more than 300 are in place globally.



**Biodiversity-relevant fees and charges** can include entrance fees to national parks, fees on hunting licenses, charges on land-based sewage discharge, charges for groundwater abstraction and non-compliance fines. They generate revenue, the majority of which is channeled towards biodiversity initiatives, while also providing incentives for conservation. The OECD reports that there are 169 fees and charges across 42 economies, with these numbers steadily increasing<sup>5</sup>.



**Biodiversity-relevant taxes** include taxes on pesticides, fertilisers, forest products and timber harvests. They provide incentives for both producers and consumers. OECD reports that 49 economies have biodiversity-relevant taxes in place, with this number steadily increasing over time. The total number of such taxes reported is 150<sup>4</sup>.



**Biodiversity offsets** are investments to compensate for adverse impacts and achieve either a “no net loss”, or “net gain” in terms of a project’s biodiversity impact.

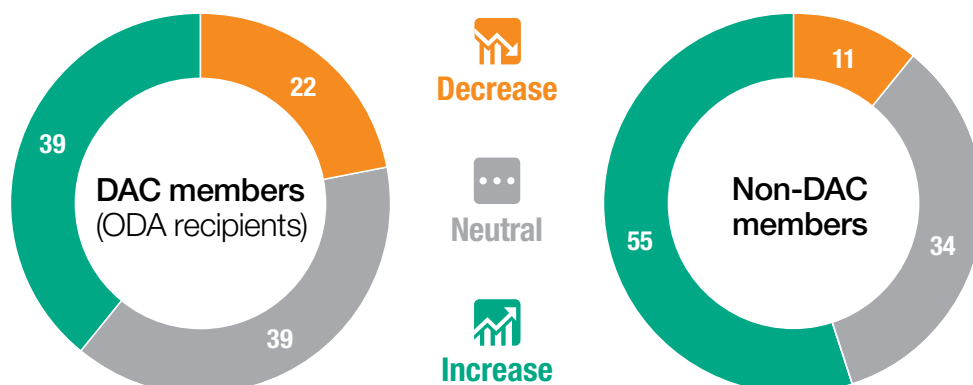


**Biodiversity funds** - more than 120 funds have been identified by the OECD, however the available data is not sufficient to provide an estimate of investment flows.

Data source: UNCTAD research.

Figure 8.3

## The majority of economies demonstrate increasing or at least neutral domestic expenditure trends over time<sup>6</sup> (Percentage)



Data source: Convention on Biological Diversity (2018).



# ECOSYSTEMS AND BIODIVERSITY

Figure 8.4

## Private-sector engagement is emerging through various forms of impact investing



**Conservation investing** is a component of socially and environmentally conscious “impact investing”. It involves deployment of private capital that seeks measurable environmental benefits, in addition to financial returns. Leading sub-sectors include sustainable food and fiber production, habitat protection and clean water.

Forest Trends reported significant growth in conservation investing, with private capital commitments increasing from \$0.2 billion to \$8.2 billion between 2004 and 2015. Although the The Annual Impact Investor Survey 2018 identified a figure of \$6.9 billion.



**Blue finance** is also a sub-sector of impact investing, directing investment towards conserving and sustainably using the oceans. The blue finance industry incorporates innovative new finance mechanisms, such as “blue bonds”.

The sector is in its infancy and lacks comprehensive data on aggregate investment levels or needs. However, there is sufficient evidence to suggest it is a growing investment sector, with diverse actors including multilateral institutions, banks, NGOs and governments stepping up their engagement. Notably, The Nature Conservancy announced plans to put \$1.6 billion towards marine conservation through the delivery of blue bonds during the next five years.

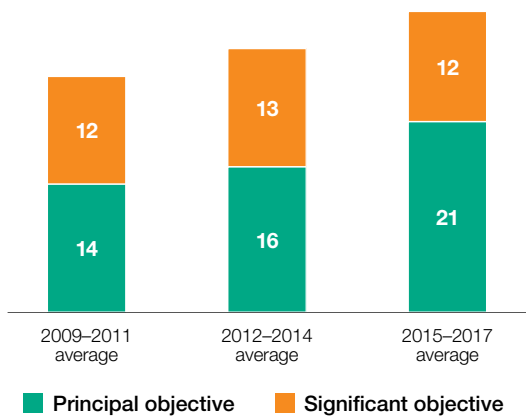
Data source: UNCTAD research.

## Developing country trends

Figure 8.5

### Bilateral aid commitments by DAC donors towards ‘the environment’ have increased<sup>7</sup>

(Billions of dollars)

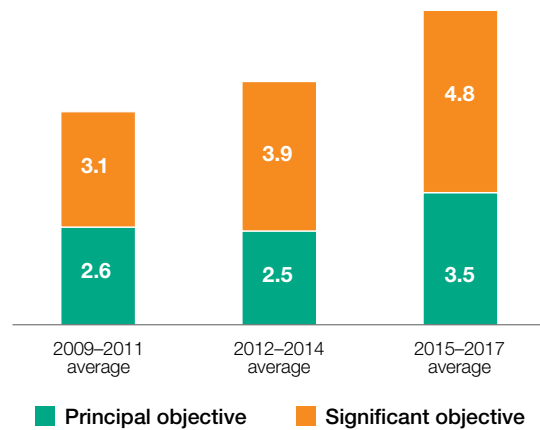


Data source: OECD CRS database, accessed 2019.

Figure 8.6

### Bilateral aid commitments by DAC donors towards ‘biodiversity’ have increased<sup>8</sup>

(Billions of dollars)



Data source: OECD CRS database, accessed 2019.



## Key takeaways

- The data available is insufficient to determine the extent of the investment gap and it is difficult to assess investment trends over time. It appears that investment is increasing in the sector, however from a low starting point and with a major investment gap remaining.
- The largest investment source in the sector are domestic governments. The limited evidence suggests most governments are either increasing their biodiversity-related expenditure or keeping it stable.
- Bilateral aid to developing economies in the sector has increased. However, collectively donors are still falling short, as many of the Parties to the Convention for Biodiversity failed to reach the targets set in 2014, where it was decided to double biodiversity-related financial aid to developing economies through 2020.
- Private capital commitments in the field of conservation investing increased significantly between 2004 and 2015 (latest available year), although from a low starting point. Although opportunities to increase private finance are expanding, private sector investment will remain limited overall.

### SUMMARY ASSESSMENT OF INVESTMENT TREND:



## Monitoring and data availability

### Key sources:

- OECD
- UN Convention on Biological Diversity
- Forest Trends

### Knowledge gaps:

- Estimating investment needs and current investment levels is highly challenging. Global baseline data is limited and there is no established methodology for aggregating the investment of the various submarkets that make up the entire conservation finance market.

- Relatively little is known about private finance contributions. Corporations have no obligation to publicly disclose financial information and the studies available are highly fragmented.
- Data on domestic public expenditures on biodiversity are not reported in a consistent or harmonized way. There is a diversity of reporting methodologies and a lack of commonly understood definitions.
- Only 40% of Parties to the Conference on Biodiversity report on their annual financial support to domestic biodiversity-related activities.

### SUMMARY ASSESSMENT OF MONITORING AND DATA AVAILABILITY:



## Notes

- <sup>1</sup> Source: Huwylar et al. (2016). *Conservation Finance: Moving beyond donor funding toward an investor-driven*.
  - <sup>2</sup> Source: Huwylar et al. (2016). *Conservation Finance: Moving beyond donor funding toward an investor-driven*.
  - <sup>3</sup> Source: OECD (2019). *Biodiversity: Finance and the Economic and Business Case for Action*. Note – adding these numbers would likely lead to significant double counting in some cases.
  - <sup>4</sup> Based on reporting from 74 central governments, 2015. Includes ODA in some cases, and with note that methods across economies are not harmonized.
  - <sup>5</sup> Source: OECD (2018). *Tracking Economic Instruments and Finance for Biodiversity 2018*.
  - <sup>6</sup> Domestic expenditure data does not allow comparisons among economies or a meaningful aggregate figure of domestic expenditures for biodiversity. However, it sometimes enables a trend analysis of how biodiversity-related expenditures develop over time. These pie charts synthesize this analysis.
  - <sup>7</sup> “The environment” includes: environmental policy and management, biosphere and biodiversity protection, site preservation, food prevention, education, training and research. Donors are requested to indicate for each aid activity whether or not it targets the environment and the Rio Conventions (markers include biodiversity, climate change mitigation, climate change adaptation and desertification). The same activity can be marked for several objectives.
  - <sup>8</sup> Donors are requested to indicate for each aid activity whether or not it targets the environment and the Rio Conventions (markers include biodiversity, climate change mitigation, climate change adaptation and desertification). The same activity can be marked for several objectives.
- Other source: Convention on Biological Diversity (2018). Conference of the Parties/14/6 – Note by the Executive Secretary.

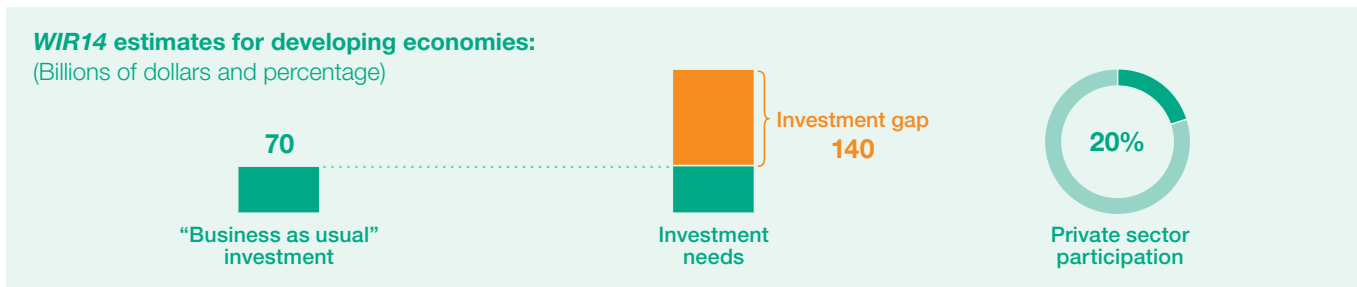


# HEALTH

## Capital investment requirements to meet the SDGs

- Infrastructure investment, including new hospitals and health care centers
- Research and development (R&D) on vaccines and medicines for diseases

Note: Capital expenditure accounts for a third of total financing needs for developing countries with lower and middle income to reach the health-related targets of the SDGs.<sup>1</sup> Operating expenditures are indispensable to ensure delivery of quality healthcare services. All financial needs for health can be considered as a future investment; however, the focus of this monitor is placed on capital expenditures.



## Overview

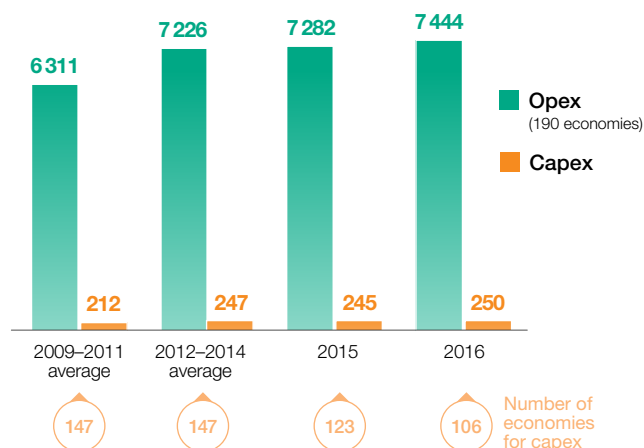
The most relevant goal for this sector is SDG 3 (Good health and well-being for people). Progress towards this goal is monitored across four areas: (i) reproductive, maternal, newborn and child health; (ii) Infectious diseases; (iii) non-communicable diseases, mental health and environmental risks; and (iv) health systems and funding.<sup>2</sup> The investment needs in this sector were estimated by taking into account additional goals and targets, such as SDG 2.1 (malnutrition), 6.1 (universal and equitable access to safe and affordable drinking water) and 7.1 (universal access to affordable, reliable and modern energy services), as well as the interlinkages with SDGs 1 (No poverty), 4 (Quality education), 5 (Gender equality), 8 (Decent work and economic growth) and 16 (Peaceful inclusive societies).<sup>3</sup>

Available country-level data on healthcare expenditures cover mostly public expenditures and patient costs but do not account for capital expenditures of healthcare providers and investments in R&D. While multiple indicators show the predominance of domestic finance (both private and public) in current health spending, the quantification of private-sector contributions as health services providers or financing capital investment for achieving the health-related SDGs in developing economies remains a challenge.

## Global financing and investment trends

Figure 9.1

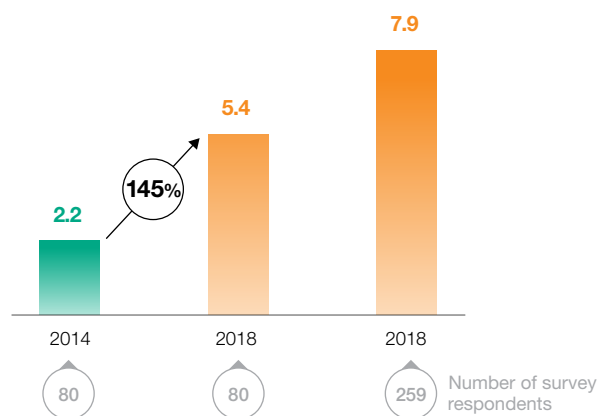
**Capex represents less than 5% of the scale of current health expenditure<sup>4</sup>** (Billions of dollars)



Data source: WHO Global Health Expenditure Database, accessed 2019.

Figure 9.2

**Impact investment funds for healthcare have multiplied<sup>5</sup>** (Billions of dollars)

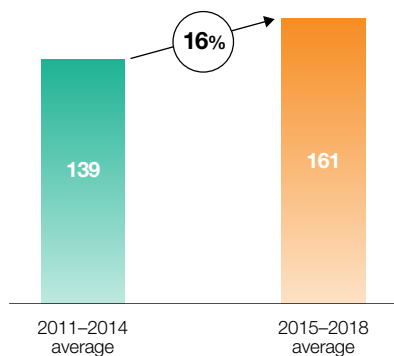


Data source: Global Impact Investing Network (2019).



Figure 9.3

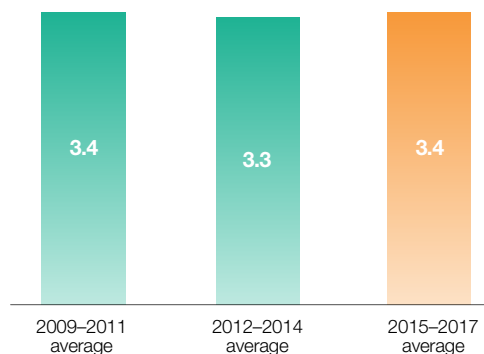
**R&D spending by global pharmaceutical and biotechnology companies has increased<sup>6</sup>**  
(Billions of dollars)



Data source: Evaluate (2018).

Figure 9.4

**Donor support for global R&D in neglected diseases has remained flat** (Billions of dollars)



Data source: Policy Cures Research (2019).

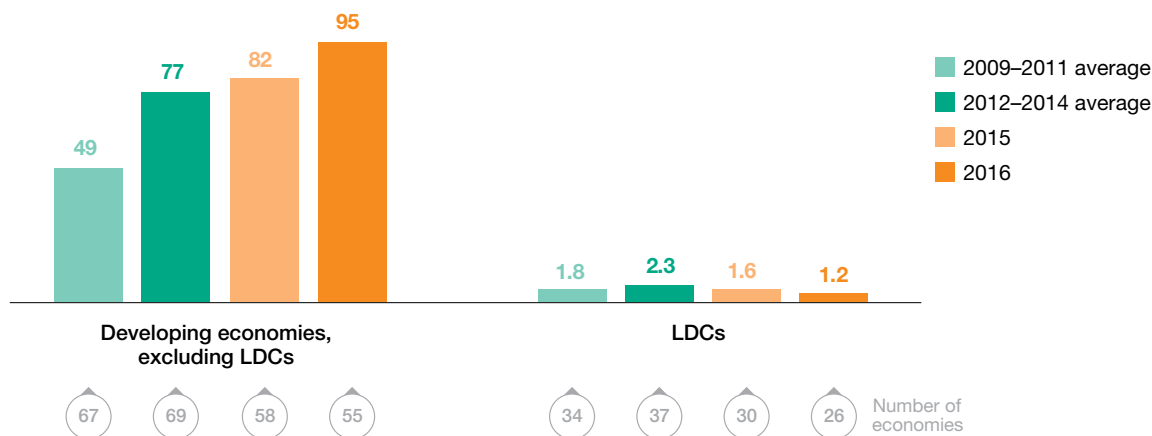
## Developing country trends

FDI trends	Measurement <sup>7</sup>	Number of economies	Pre-2015	Post-2015
			(2011–2014 average)	(2015–2018 average)
Billions of dollars				
Developing economies	FDI inflows	23	1.9	1.4
	Value of announced greenfield FDI projects	130	6.5	5.7
Of which: Least developed countries (LDCs)	FDI inflows	6	0.03	0.01
	Value of announced greenfield FDI projects	45	0.40	0.37

Data source: UNCTAD (for FDI inflows) and Financial Times Ltd, fDi Markets (for greenfield FDI projects).

Figure 9.5

**Health capex in developing economies has risen** (Billions of dollars)



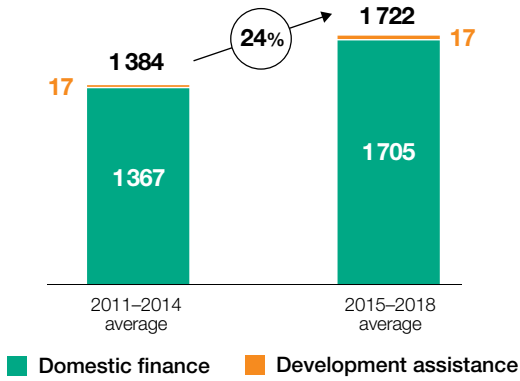
Data source: WHO Global Health Expenditure Database, accessed 2019.



# HEALTH

Figure 9.6

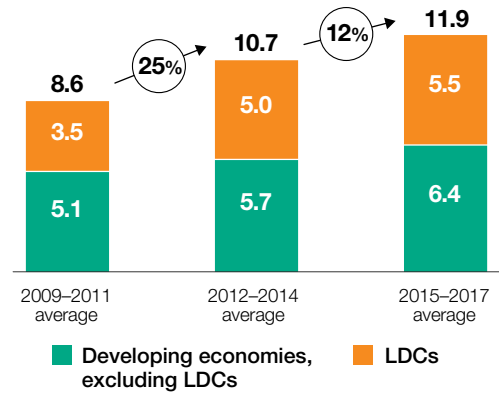
**Domestic finance remains the dominant source of growing health spending<sup>8</sup>** (Billions of dollars)



Data source: Institute for Health Metrics and Evaluation (IHME), accessed 2019.

Figure 9.7

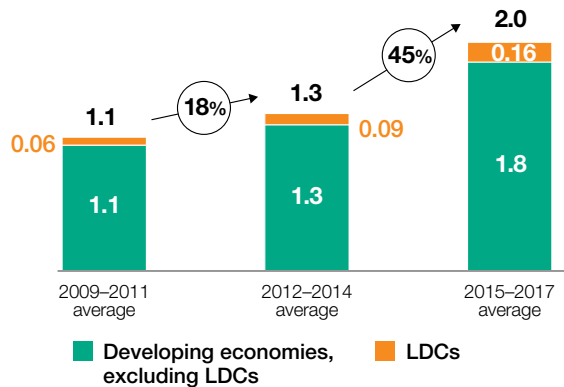
**ODA for the healthcare sector in developing economies has increased** (Billions of dollars)



Data source: OECD Creditor Reporting System (CRS) database, accessed 2019.

Figure 9.8

**Private philanthropy has increased strongly but remains a relatively minor source of development finance** (Billions of dollars)



Data source: OECD CRS database, accessed 2019.

## Key takeaways

- Health spending has been predominantly financed by domestic public sectors. The pace of growth in ODA falls behind the expansion of health expenditure in developing economies.
- Capex in developing economies has increased, but not in LDCs. The level of capital investment remains insufficient to bridge current investment gap. The growth in capex was driven mostly by growth in China, which accounts for more than half of the capex in developing economies for the pre-2015 period and more than 70% in 2015–2016.
- The increases in private R&D spending and funding support in the world are encouraging, even though it is estimated that less than 5% of global R&D has been spent on neglected diseases which are more prevalent in developing countries.<sup>9</sup>
- There is a growing role for private foundations, such as the Gates Foundation, and hybrid institutions that bring together public and private partnerships, such as the Global Alliance for Vaccines. Philanthropy, however, remains a small part of total finance.
- FDI in this sector also remains small. FDI flows in healthcare services are concentrated in Brazil (47% of the total in both periods) and China (18% of the total for the post-2015 period, compared with only 4% for the pre-2015 period). In announced greenfield FDI projects, the projects in pharmaceuticals account for the majority of the total value.

### SUMMARY ASSESSMENT OF INVESTMENT TREND:



## Monitoring and data availability

### Key sources:

- WHO
- OECD
- Policy Cures Research

### Knowledge gaps:

- The data coverage on capex in this sector is fair. Capex data are unavailable for about a quarter of developing economies reporting current spending. Also, given that not all economies report capex in the private sector, the actual scale of capex in developing economies may be understated in the available datasets.
- There is a lack of data to quantify private sector participation as health care or services providers in developing economies.

### SUMMARY ASSESSMENT OF MONITORING AND DATA AVAILABILITY:



## Notes

<sup>1</sup> Source: WHO (2017). "SDG Health Price Tag: We have the numbers. Now how do we split the bill?", [https://sdgresources.relx.com/sites/default/files/infographics\\_pdf.pdf](https://sdgresources.relx.com/sites/default/files/infographics_pdf.pdf)

<sup>2</sup> See <https://sustainabledevelopment.un.org/sdg3>.

<sup>3</sup> Stenberg, Karin, Odd Hanssen, Tessa Tan-Torres Edejer, Melanie Bertram, Callum Brindley, Andreia Meshreky, James E. Rosen, John Stover, Paul Verboom, Rachel Sanders, Agnès Soucat (2017). "Financing transformative health systems toward achievement of the health Sustainable Development Goals: a model for project resource needs in 67 low-income and middle-income economies", *Lancet Global Health*, vol. 5, September, pp. 875-887.

<sup>4</sup> Both current and capital expenditures in the United States account for over 40% of the global total.

<sup>5</sup> Estimated assets under management (AUM) of survey respondents representing impact investing organizations. The first two bars represent AUM of 80 survey respondents from the same organizations in 2014 and 2018. The third bar represents AUM of the total number of survey respondents (n=259). Source: GIIN (2019). *2019 Annual Impact Investor Survey*.

<sup>6</sup> For 2018, the data are projections. Source: Evaluate (2018). *EvaluatePharma World Preview 2018, Outlook to 2024*.

<sup>7</sup> For FDI inflows, a sum of FDI mostly in "manufacturing of pharmaceuticals, medicinal chemical and botanical products" and "unspecified human health activities" reported by 23 economies – including four economies (Lao People's Democratic Republic, Myanmar, Taiwan Province of China and Vanuatu) with approved projects data – whose partial or full data were available for both periods. When disaggregated data were unavailable, FDI in social work activities and education was included. For the greenfield FDI, the projects considered were those announced in "pharmaceuticals", "medical devices" and "healthcare". The number of economies for the announced greenfield projects represents the maximum number of economies covered in the database, excluding the Caribbean financial centers.

<sup>8</sup> A sum of estimated country-level mean values by year and source of finance available from the two data files contributed by Global Burden of Disease Health Financing Collaborator Network: "Global Health Spending 1995–2016"; and "Global Expected Health Spending 2017–2050" (<http://ghdx.healthdata.org>).

<sup>9</sup> Source: West, Darrell M., John Villasenor and Jake Schneider (2017). "Private sector investment in global health R&D: Spending levels, barriers and opportunities", The Brookings Private Sector Global Health R&D Project, No. 2, September, Center for Technology Innovation.

Other source: Policy Cures Research (2019). *Neglected Disease Research and Development: Reaching New Heights*.

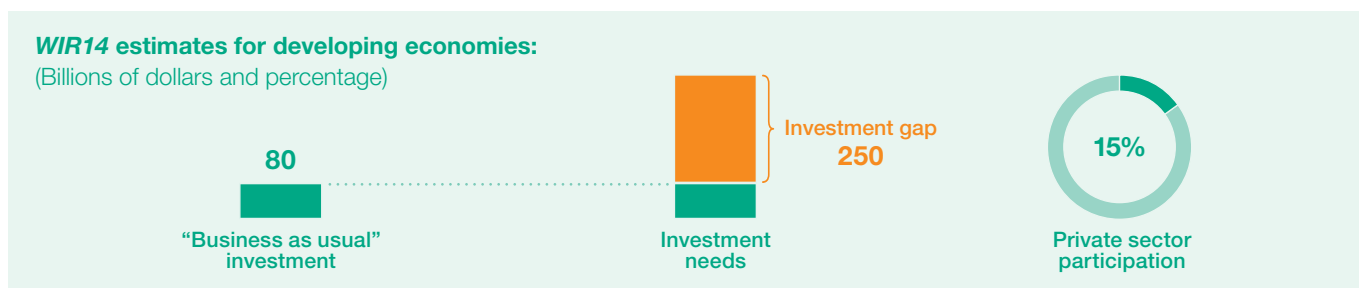


# EDUCATION

## Capital investment requirements to meet the SDGs

- Infrastructure investment, including new schools and basic facilities for pre-primary, primary, secondary and post-secondary education, and technical and vocational training

Note: Capital expenditure requirements account for only about 10% of total financing needs to reach the education-related targets of the SDGs. Although all financial requirements for education can be considered an investment in the future, annual operating expenditures are not the focus of this monitor.



## Overview

SDG4 (ensure inclusive and equitable quality education and promote lifelong learning opportunities for all) is the most relevant goal in this sector. Given the synergetic role of education, the achievement of this SDG will contribute to meeting other SDGs, notably gender equality (SDG5) and reduced inequalities (SDG10).

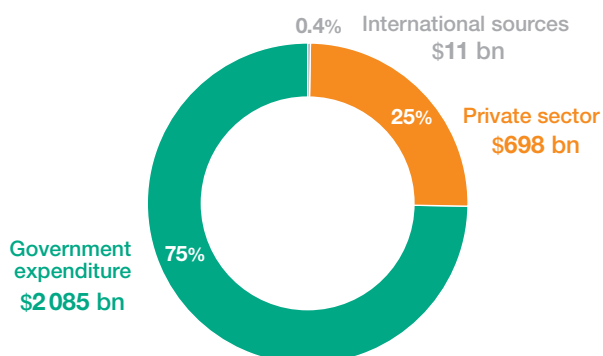
Almost 90% of estimated SDG investment needs in this sector is recurrent costs (opex), which are a critical component for delivering equitable quality education.<sup>1</sup> Yet, the provision of basic infrastructure and facilities for effective learning environments – including access to electricity, the Internet, computers and basic drinking water, measured by SDG indicator “4.a.1” – remains a challenge for many developing economies, especially in sub-Saharan Africa.

The role of the private sector in investment in education is limited. The public sector is the major source of finance to meet the SDG investment needs. The current level of government expenditure in developing economies stands at 3–4% of GDP.<sup>2</sup>

## Global financing and investment trends

Figure 10.1

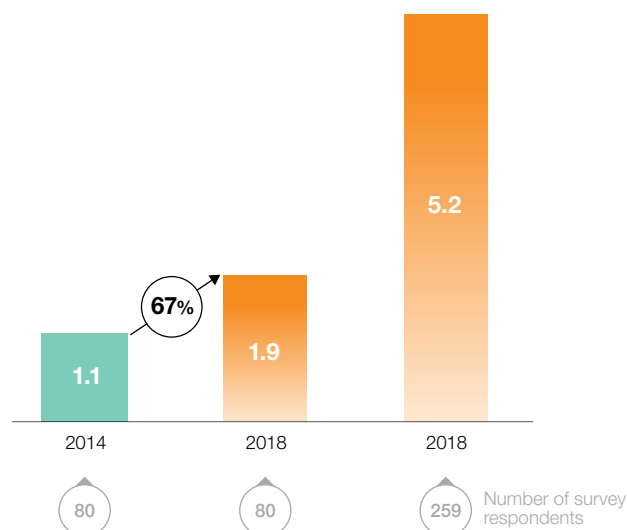
**In OECD economies, the public sector finances three-quarters of education expenditure (nearly \$3 trillion or 5% of GDP)<sup>3</sup>**



Data source: OECD Education Statistics, accessed 2019.

Figure 10.2

**Impact investment funds for education have expanded rapidly<sup>4</sup> (Billions of dollars)**



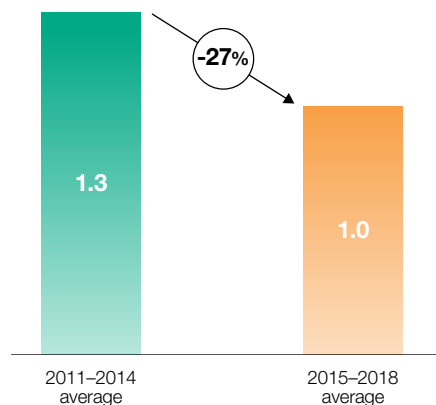
Data source: GIIN (2019).



Figure 10.3

### Cross-border private sector investment flows are relatively small

Announced value of greenfield projects in education (Billions of dollars)



Data source: Financial Times Ltd, fDi Markets.

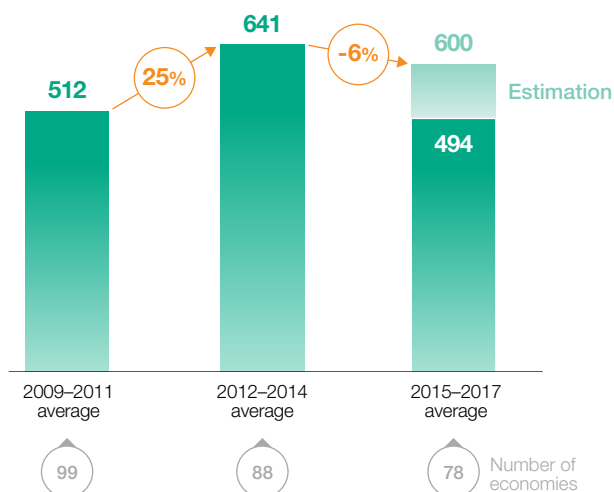
## Developing country trends

FDI trends	Measurement <sup>5</sup>	Number of economies	Pre-2015	Post-2015
			(2011–2014 average)	(2015–2018 average)
Millions of dollars				
Developing economies	FDI inflows	19	501	298
	Value of announced greenfield FDI projects	130	947	646
Of which: Least developed countries (LDCs)	FDI inflows	5	72	-4
	Value of announced greenfield FDI projects	45	31	41

Data source: UNCTAD (for FDI inflows) and Financial Times Ltd, fDi Markets (for greenfield FDI projects).

Figure 10.4

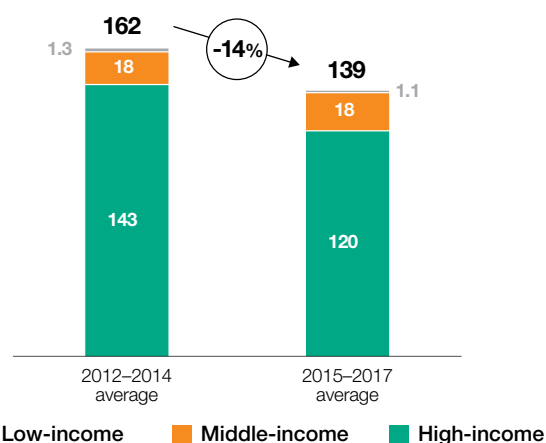
### Government expenditure has declined<sup>6</sup> (Billions of dollars)



Data source: UNESCO Institute for Statistics (UIS.Stat), accessed 2019.

Figure 10.5

### Estimated capex in developing economies has decreased<sup>7</sup> (Billions of dollars)



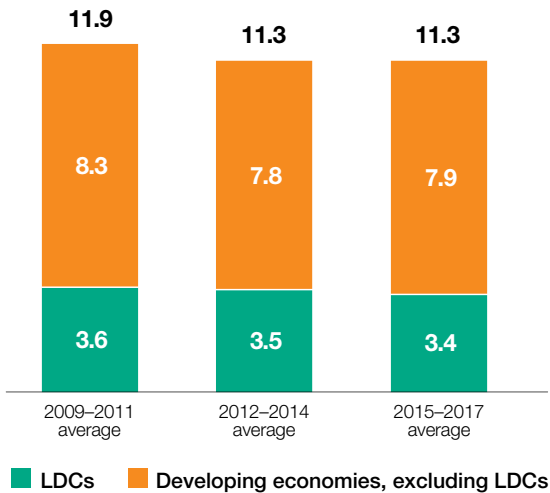
Data source: Gasper et al. (2019) and UIS.Stat, accessed 2019.



# EDUCATION

Figure 10.6

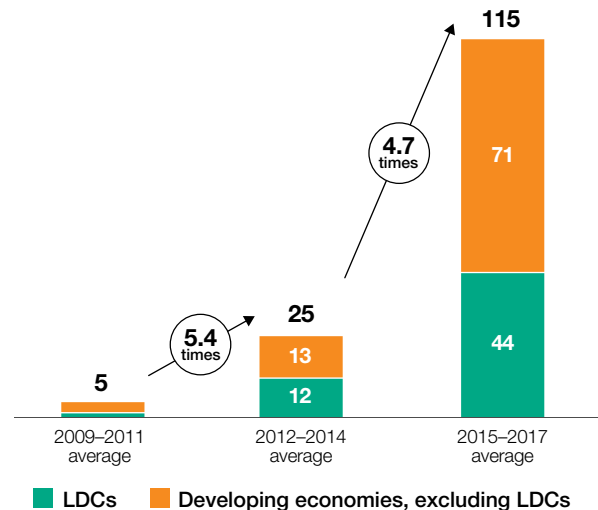
**ODA disbursements for education have remained flat**  
(Billions of dollars)



Data source: OECD CRS Database, accessed 2019.

Figure 10.7

**Private philanthropy funding education has risen, however, remains relatively small**  
(Millions of dollars)



Data source: OECD CRS Database, accessed 2019.

## Key takeaways

- The role of the private sector remains limited. Domestic public finance is by far the largest source of funding for education, but government expenditure in developing economies is stagnant.
- Relative shares of capex have increased in middle-income developing economies, but not in other developing economies. In nominal terms, estimated capex in high-income developing economies accounts for 85% of total, and an estimated 17% contraction in their capex led to a 13% fall in aggregate capex in all developing economies.
- The contribution of FDI to overall education investment in developing economies is negligible. FDI flows in 2015–2018 are highly concentrated in two economies: Brazil (51%) and China (32%).
- Education has become a relatively less important component of donor spending over the past decade, with the share of education falling from 8.4% of total ODA commitments in 2009–2011 to 6.6% in 2015–2017. Furthermore, annual average disbursements to LDCs declined marginally.
- While private philanthropy and impact investment have risen, they remain a small part of the overall investment landscape in developing economies.





## Monitoring and data availability

### Key sources:

- UNESCO
- OECD

### Knowledge gaps:

- There is a time lag of at least 3-4 years for publication of key education financing statistics, even among OECD member economies.

- There is limited information on capex and private-sector investments as education services providers is available. Nominal values of total expenditure by public and private educational institutions or services providers in recent years is unavailable, making estimations of aggregate capex in developing economies challenging.
- The extent of contributions by impact investment and FDI in financing the SDG capital investment needs in developing economies remains unclear.

## SUMMARY ASSESSMENT OF MONITORING AND DATA AVAILABILITY:



### Notes

<sup>1</sup> Source: International Commission on Financing Global Education Opportunity (2016). *The Learning Generation: Investing in Education for a Changing World*; UNESCO (2015). "Pricing the right to education: The cost of reaching new targets by 2030". Education for All (EFA) Global Monitoring Report (GMR) Policy Paper 18, July, Update.

<sup>2</sup> Based on the World Bank Development Indicators database and UNESCO (2018). *Global Education Monitoring Report 2019: Migration, Displacement and Education – Building Bridges, not Walls*.

<sup>3</sup> Total expenditure of all public and private educational institutions in 35 OECD economies (excluding Denmark). The average for the OECD was unavailable in the dataset. To derive aggregate education expenditure in US dollar terms in 2015 (the latest year available), each country's share to GDP was applied to its nominal GDP.

<sup>4</sup> Estimated assets under management (AUM) of survey respondents representing impact investing organizations. The first two bars represent AUM of 80 survey respondents from the same organizations in 2014 and 2018. The third bar represents AUM of the total number of survey respondents (n=259). Source: GIIN (2019). *2019 Annual Impact Investor Survey*.

<sup>5</sup> FDI inflows mostly in "unspecified education" in 19 economies (including three economies with approved projects data) reporting partial or full data for both periods. Where disaggregate data are unavailable, FDI in human health and social work was included. In the greenfield FDI, projects announced in "educational services" were considered. The number of economies for the announced greenfield projects represents the maximum number of economies covered in the database, excluding the Caribbean financial centers.

<sup>6</sup> For the period of 2015–2017, the annual average expenditure totaled \$494 billion in 78 developing economies. Based on the relative share of aggregate expenditure to the total for the two previous periods in 65 economies whose partial or full data were available for the three consecutive periods, the Monitor estimated an annual average expenditure at \$600 billion for the period of 2015–2017.

<sup>7</sup> The 2016 baseline for public spending share to GDP by country groups – "LIDEs [low-income developing economies]" (2.3%), "emerging economies" (3.2%) and "advanced economies" (5.2%) (Source: Gaspar, Vitor, David Amaglobeli, Mercedes Garcia-Escribano, Delphine Prady and Mauricio Soto (2019). "Fiscal Policy and Development: Human, Social, and Physical Investment for the SDGs", IMF Staff Discussion Note, SDN/19/03) – was applied to the aggregate GDP by country group ("low-income developing economies", "middle-income developing economies" and "high-income developing economies") from UNCTAD.Stat for the annual average of the three periods to estimate the US dollar value of each group's public spending on education. Then, the average capex share by income group was applied, based on the annual average capex shares in "total expenditure of public educational institutions" in 38 economies, which report the relevant data at least in one of the three years for both periods available from UIS.Stat.

A large green arrow pointing right, containing a cityscape and a network diagram. The text "LOOKING AHEAD" is centered within the arrow.

# LOOKING AHEAD



## Investment in other priority sectors

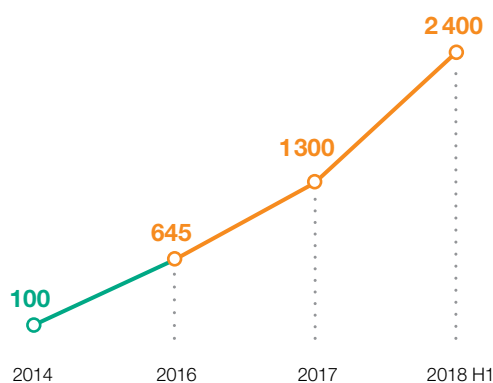
Since the publication of UNCTAD's original action plan on investing in SDGs, new investment trends have been observed across various SDG sectors. Also, awareness has been raised on emerging challenges for the global development agenda, particularly in relation to inclusion and sustainability. Some goals, although policy-relevant, were not included in the original assessment of 10 SDG-investment sectors. For example, gender equality (SDG 5) was regarded as a policy matter, and although the financial requirements were acknowledged, there was no formal assessment of capital expenditure needs. Similarly, smart cities and housing were not assessed separately from infrastructure needs. These themes are now emerging as new SDG priority sectors that require targeted fund raising and investment promotion efforts.

### Gender equality

Finance for gender equality (SDG 5) and for gender-related goals is growing in importance. Since 2012, on average, OECD economies have attributed about 6% of bilateral ODA disbursements to gender equality as their principal financing target. For ODA projects that principally targeted gender, disbursements totalled \$4.7 billion in 2015–2017. Support programmes having gender equality and women's equality both as principal (primary) and significant (secondary) targets increased by 15%, from an annual average of \$31 billion in 2012–2014 to \$35 billion in 2015–2017. This represents about one-third of donor's bilateral allocable aid. Impact investors are also addressing gender equality. For example, under the Gender Lens Investing Initiative, launched by the Global Impact Investing Network (GIIN) in October 2017,<sup>1</sup> assets under management (AUM) of relevant investment funds have grown from \$100 million in 2014 to over \$2 billion in 2018.<sup>2</sup> However, the investment assets remain highly concentrated in developed economies<sup>3</sup>.

Figure 2.

### Assets under management of investment products under the Gender Lens Initiative (Millions of dollars)



Source: Veris Wealth Partners (2018).

Despite its importance and the growing interest of impact investors, there are no recent studies estimating investment needs for gender equality per se.

## Smart cities and housing

Another important trend is urbanization with cities now accounting for 55% of the global population. By 2050, about 2.5 billion people will join the global urban population, with 90% of this growth projected to occur in Asia and Africa<sup>4</sup>. Cities will thus play a vital role in determining the degree to which the SDGs will be achieved. This is encapsulated in SDG 11 “making cities inclusive, safe, resilient and sustainable”.

Tracking investment in urban development globally is complex due to limited availability of disaggregated data. Spending in urban development is multifaceted and overlaps with almost all other development sectors, particularly power, telecommunication, education, health, WASH and climate change mitigation. There is scope, however, for better tracking of investment in certain sub-sectors which will have profound developmental repercussions. One example is “smart cities”, which will become increasingly important due to the proliferation of technology and internet connectivity.

Available data confirms the growing magnitude of spending in this sector. For example, the estimated investment in smart city initiatives amounted to \$81 billion in 2018, and this is set to grow to \$158 billion in 2022. The largest share of spending in this sector was for fixed visual surveillance, advanced public transit, and smart outdoor lighting. The Asia-Pacific region, including China and Japan, were responsible for 42% of global spending in 2018, followed by the Americas (33%). The United States was the largest spender (over \$23 billion in 2018), followed by China.

Decent and affordable housing is also crucial to improve standards of living and has a cross-cutting impact on other SDGs. There is a lack of data on levels of investment required to bring house prices down sufficiently to bridge the affordable housing gap. This gap, measured by the difference between house prices and income, reached \$740 billion globally in 2018. Moreover, based on median affordability (median price-to-income ratio), cities in less developed economies are about 28% less affordable than cities in more developed economies. Considering the importance of decent housing for poverty alleviation and other aspects of development, a better understanding of investment trends in this sector is crucial, especially for developing economies.

## The way forward

The investment trends observed in this monitor show progress, but they also make it clear that much more needs to be done to mobilize funds and channel investment to key SDG sectors, especially in the Least Developed Countries (LDCs) where investment needs are most persistent and financing capacity is the lowest. As pointed out in *WIR14*, an important challenge is increasing private sector investment in the key SDG investment sectors analysed in this Monitor, as well as in other sectors, such as gender equality and housing, which are critical for promoting inclusive and sustainable growth.

Meeting that challenge requires transformative actions for investment promotion and facilitation, as well as concrete policy initiatives to ensure lasting impact on the ground. UNCTAD’s Action Plan for Investment in the SDGs, contains six sets of initiatives aimed at making a Big Push for investment in sustainable development.

Setting policy priorities and taking effective action to boost investment in the SDGs depends on reliable information on financing and investment trends. UNCTAD will continue to monitor new developments and work with partners to improve data collection to support informed policymaking.

<sup>1</sup> The initiative aims to support “impact investors, who are actively integrating, or interested in integrating, a gender lens strategy into their investment portfolio” (Source: <https://thegiin.org/gender-lens-investing-initiative>).

<sup>2</sup> Source: Veris Wealth Partners (2018). *Gender Lens Investing: Bending the Arc of Finance for Women and Girls*.

<sup>3</sup> Source: Biegel, Suzanne, Sandra M. Hunt, Sherryl Kuhlman (2017). “Project Sage: Tracking venture capital with a gender lens”, Version 1.0, October, The Wharton Social Impact Initiative, University of Pennsylvania (for distributions up to 2017); and Veris Wealth Partners (2018) (for a list of investment product profiles).

<sup>4</sup> Source: UN (2018). *World Urbanization Prospects 2018*.

Figure 3.

## A big push for action: policy packages

### Action Packages

#### 1 New generation of investment promotion and facilitation

- At national level:
  - ✓ New investment promotion strategies
  - ✓ New investment promotion institutions: SDG investment development agencies
- New generation of IIAs:
  - ✓ Pro-active SDG investment promotion
  - ✓ Safeguarding policy space

#### 2 Reorientation of investment incentives

- SDG-oriented investment incentives:
  - ✓ Targeting SDG sectors
  - ✓ Conditional on sustainability performance
- SDG investment guarantees and insurance schemes

#### 3 Regional SDG Investment Compacts

- Regional cross-border SDG infrastructure
- Regional SDG industrial clusters, including for regional value chains
- Regional industrial collaboration agreements

#### 4 New forms of partnerships for SDG investment

- Home-host country IPA networks
- Online pools of bankable projects
- SDG-oriented linkages programmes
- MDB-TNC-SVE partnerships

#### 5 Enabling a re-orientation of financial markets

- SDG investment impact indicators and INDEX
- Integrated reporting and multi-stakeholder monitoring
- Sustainable Stock Exchanges (SSEs)

#### 6 Changing the global business mindset

- Global Impact MBAs
- Training programmes for SDG investment (e.g. fund management/ financial market certifications)
- Entrepreneurship programmes in schools

### Guiding Principles

Balancing liberalization and regulation

Balancing the need for attractive risk-return rates with the need for accessible and affordable services

Balancing the push for private funds with the continued fundamental role of public investment

Balancing the global scope of the SDGs with the need to make a special effort in LDCs

Source: UNCTAD, *WIR14* and the Investment Policy Framework for Sustainable Development (second edition).

# SDG Investment Trends **M**onitor



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