



Infrastructure Financing Trends in Africa – 2018



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ICA REPORT - 2018

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About the ICA

At the 2005 G8 Summit at Gleneagles (UK), the Commission for Africa made a compelling case for the critical need to focus attention to building and managing a sustainable infrastructure (transport, water, energy, and ICT) system in Africa, attention which had been, until then, mostly concentrated on issues such as the HIV pandemic. The Infrastructure Consortium for Africa (ICA) was established to address this need.

ICA's primary role is to help reduce poverty and increase economic growth throughout Africa by supporting and promoting increased investment in African infrastructure, from both public and private sources. ICA's vision is that all Africans have access to sustainable and reliable infrastructure services.

ICA members include: the governments and development agencies of all G7 countries (Canada, France, Germany, Italy, Japan, United Kingdom and United States), the Republic of South Africa (RSA), the African Development Bank Group, the European Commission, the European Investment Bank, and the World Bank Group. African membership is led by the African Development Bank and the African Union Commission, the NEPAD Planning and Coordinating Agency and the Regional Economic Communities participate as observers in ICA meetings.

ICA produces valuable data and analysis that can be extremely useful for project promoters and those seeking financing. It periodically hosts Donor Conferences whereby a specific set of project concepts are presented to international donors. ICA is not a financing agency, or a pooled financing facility and it does not purchase, finance or build projects. More specifically, ICA:

- Produces knowledge products that inform and educate a wide audience on the current status of infrastructure investments in Africa. For example, this Infrastructure Financing Trends report, prepared annually, gives the most comprehensive summary of infrastructure investments in Africa.
- Convenes productive meetings that generate tangible outcomes.
- Facilitates dialogue among stakeholders.
- Assists in mobilizing resources by facilitating donor conferences whereby regional projects can be reviewed or funding by potential donors.
- Offers hands on, practical training and capacity development services in areas such as negotiating power pool agreements and preparing concept notes.
- Communicates with a broad audience about the status of infrastructure investments in Africa.

Foreword

We have the pleasure of presenting to you the tenth edition of the ICA annual report, Infrastructure Financing Trends in Africa, 2018 (IFT 2018).

One of the key ICA objectives is to seek to increase the amount of public, private and public-private financing for sustainable infrastructure in the transport, water and sanitation, energy, and ICT sectors in Africa. Though not itself a financing agency, the ICA plays a facilitating role in African infrastructure financing and development by pooling its members' efforts in such areas as information sharing about prospective projects, creation and dissemination of relevant knowledge, and identification and removal of policy and technical challenges to resource mobilization for infrastructure development at the national and regional levels.

IFT 2018 offers a number of novel perspectives: it targets a broader readership; it includes an in-depth coverage of the role of the private sector; it carries out a wide analysis on the determinants of quality infrastructure; and it offers a set of policy recommendations which could result in efficiency gains and marked increases in the financing of infrastructure operations in Africa.

The report is designed to be of relevance to a broader readership. In addition to targeting top African government leaders and senior management of international and bilateral organizations, both ICA and non-ICA members, the report aims to reach potential investors, particularly institutional investors such as pension funds and insurance companies, who may not know of the opportunities in Africa infrastructure. For the first time, it includes self-standing private sector financing, particularly in the ICT sector. In previous years, private sector funding was essentially captured when it was part of PPP initiatives. The change in data gathering methodology explains the major increase in private sector participation in 2018. Finally, IFT 2018 offers a number of recommendations to African public decision makers to help them attract more financing for infrastructure projects, particularly from the private sector, manage the selection, design and execution of such projects more efficiently, and improve the quality of services these infrastructure assets are designed to offer Africans.

In addition to the main report, IFT 2018 includes two separate documents: the first report analyzes the role of the private sector both in terms of additional financing and in terms of specific expertise and skills. The second report addresses the theme of Sustainability and Quality of Infrastructure, with a particular focus on climate resilience of infrastructure, an

essential component of sustainability. Climate resilience is now routinely included in feasibility analyses for projects supported by MDBs, and MDBs are committed to monitoring and reporting their investments in climate resilience.

One of the key findings of the report is that the financing of infrastructure in Africa has never been as high as in 2018. It reached \$100.8bn, thus passing the \$100bn mark for the first time, significantly higher than in previous years. The large increase results from concerted efforts from all sources. ICA members continued to play a major role in financing as well as in supporting institutional and policy reform in Africa. African governments markedly increased their commitments, as did China. There has been continued, sustained financing by the Arab Coordination Group, EBRD, non-ICA European bilateral organizations, and India. In addition to self-standing private sector financing, this report captures for the first time commitments from Africa50, AIIB, and IFAD.

One of the most important issues addressed in this year's report is the persistence of the financing gap. Africa's infrastructure deficit varies considerably by sector. In mobile banking, Africa is ahead of most other regions with comparable per capita income. In water supply, in spite of improvements, the financing gap remains very high, three to four times the current total level of commitments to the sector. Approximately 340 million Africans do not have access to safe drinking water and one million lives are lost each year because of water-borne diseases. One of the main challenges is to make the sector attractive to the private sector, by improving financing sustainability. In the transport and electric power sectors, financing gaps are much smaller, but still significant. The very small gap in ICT is attributable to the fact that the sector is almost completely privatized.

We hope you will find this report informative, comprehensive in its analysis and engaging in its policy and operational recommendations. We also hope that it will help attract more funding for infrastructure throughout the African continent.

Pierre Guislain, Vice President, Private Sector, Industry and Infrastructure, AfDB

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Definitions

Budget Data

Budget allocations: Total approved government budget for the respective item.

Total infrastructure budget: Sum of energy, water and sanitation, transport, and ICT budget allocations. Where available, significant multisector or other infrastructure allocations are indicated separately.

ICA Members

AfDB, DBSA, EC, EIB, G7 countries and Russia, Republic of South Africa and the World Bank Group. In 2011 all G20 countries were invited to join the ICA. The AU Commission, NEPAD Secretariat and Regional Economic Communities participate as observers at ICA meetings.

Infrastructure

Total infrastructure budget: Sum of energy, water and sanitation, transport, ICT, and multi-sector infrastructure budget allocations.

Hard infrastructure: Physical infrastructure.

Soft infrastructure: Measures to support or accompany the production of physical infrastructure outputs, including research, enabling legislation, project preparation and capacity building.

Project preparation: The undertaking of all project preparation cycles or development activities necessary to take an infrastructure project from identification through concept design to financial close. This includes feasibility testing and financial and legal structuring, as well as raising capital.

Funding

Commitments: Direct funds approved in a given year to projects over their lifetime.

Disbursements: Money outflow going to infrastructure projects during a given year.

ODA – official development Assistance: Grant or loan with public concessional modalities administered by donor government agencies.

Non ODA: Non-concessional funding from public or private sources.

Regional project: Projects with direct beneficiaries in more than one country. These can either be

crossborder projects or other regional integration projects involving a minimum of two countries or national projects.

Location

North Africa: Algeria, Egypt, Libya, Mauritania, Morocco, Tunisia.

West Africa: Benin, Burkina Faso, Cape Verde, Gambia, Ghana, Guinea, Guinea Bissau, Côte d'Ivoire, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo.

Central Africa: Burundi, Cameroon, Central African Republic (CAR), Chad, Congo, Democratic Republic of Congo (DRC), Equatorial Guinea, Gabon, Rwanda, São Tomé and Príncipe (STP).

East Africa: Djibouti, Eritrea, Ethiopia, Kenya, Seychelles, Somalia, South Sudan, Sudan, Tanzania, Uganda.

Southern Africa: Angola, Botswana, Comoros, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Swaziland, Zambia, Zimbabwe.

RSA: Republic of South Africa.

Regional Development Banks

Central African States Development Bank (CASDB), DBSA (an ICA member), EBID, EADB, West African Development Bank (BOAD).

Sector

Transport: Airports, ports, rail, road.

Energy: Generation, transmission and distribution of electricity and gas (including pipelines, and associated infrastructure).

Water and sanitation: Sanitation, irrigation, (trans-boundary) water resource infrastructure, water supply, waste (solid & liquid) treatment and management.

ICT: Information and communication technology, including broadband, mobile network, satellite.

Multi-sector: Not sector-specific or cross-cutting projects. This could include implementation of a PPP unit or capacity building programmes.

Unallocated: Commitments which cover multiple ICA sectors but which are unable to be accurately allocated.

List of Acronyms

ACG	Arab Coordination Group	JICA	Japan International Co-operation Agency
ADFD	Abu Dhabi Fund for Development	KFAED	Kuwait Fund for Arab Economic Development
AfCFTA	Africa Continental Free Trade Area	KfW	Germany's development bank
AFD	Agence Française de Développement	LPG	liquefied petroleum gas
AfDB	African Development Bank	MENA	Middle East and North Africa
AFESD	Arab Fund for Economic and Social Development	MIGA	Multilateral Investment Guarantee Agency
AfIF	EU-Africa Investment Facility	NDB	New Development Bank
AU	African Union	NEPAD	New Partnership for Africa's Development
BADEA	Banque Arabe pour le Développement Economique en Afrique	NEPAD-IPPF	NEPAD Infrastructure Project Preparation Facility
BOAD	Banque Ouest Africaine de Développement	NIPP	National Integrated Power Project
BRI	China's Belt and Road Initiative	NPCA	NEPAD Planning and Coordinating Agency
CADFund	China-Africa Development Fund	ODA	official development assistance
COIDIC	China Overseas Infrastructure Development and Investment Corporation	OECD	Organization for Economic Cooperation and Development
COMESA	Common Market for Eastern and Southern Africa	OFID	OPEC Fund for International Development
CSP	concentrated solar power	PIDA	Programme for Infrastructure Development in Africa
DBSA	Development Bank of Southern Africa	PIDA/PAP	PIDA Priority Action Plan
DFI	Development finance institutions	PPA	power purchase agreement
DFID	United Kingdom's Department for International Development	PPDF	SADC Project Preparation and Development Facility
DRC	Democratic Republic of Congo	PPI	World Bank's Private Participation in Infrastructure
EAC	East African Community	PPP	public-private partnerships
EAIF	Emerging Africa Infrastructure Fund	PV	photovoltaic
EAPP	Eastern Africa Power Pool	rAREH	responsAbility Renewable Energy Holding
EBID	ECOWAS Bank for Investment and Development	RBD	regional development bank
EBRD	European Bank for Reconstruction and Development	REC	Regional Economic Community
EC	European Commission	REIPPP	Renewable Energy Independent Power Producer Procurement programme
ECOWAS	Economic Community of West African States	RIPDM	SADC Regional Infrastructure Development Master Plan
EDC	Canada's Export Development Corporation	RPP	regional Power Pool
EIB	European Investment Bank	RSA	Republic of South Africa
EU	European Union	SADC	Southern African Development Community
EU-AITF	EU-Africa Infrastructure Trust Fund	SFD	Saudi Fund for Development
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit	SGR	standard gauge railway
ICA	Infrastructure Consortium for Africa	SPV	special purpose vehicle
ICD	Islamic Corporation for the Development of the Private Sector	TDB	Trade and Development Bank
ICT	Information and Communications Technologies	TTA	DFID Tripartite Trust Account
IDA	International Development Association	UNECA	United Nations Economic Commission for Africa
IsDB	Islamic Development Bank	WBG	World Bank Group
IFC	International Finance Corporation	ZTK	Zambia-Tanzania-Kenya power transmission interconnector
IPP	independent power producer		

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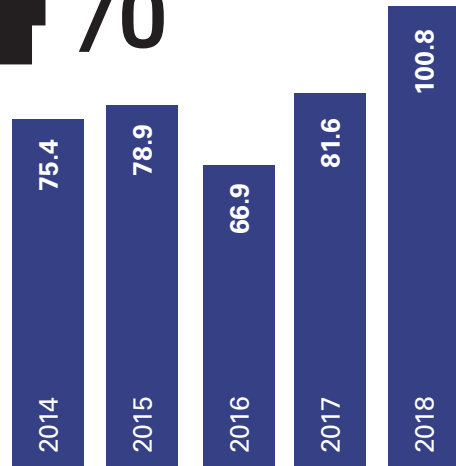
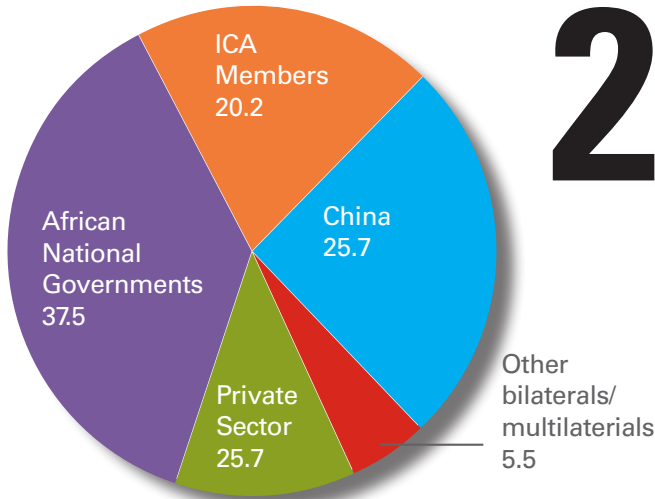
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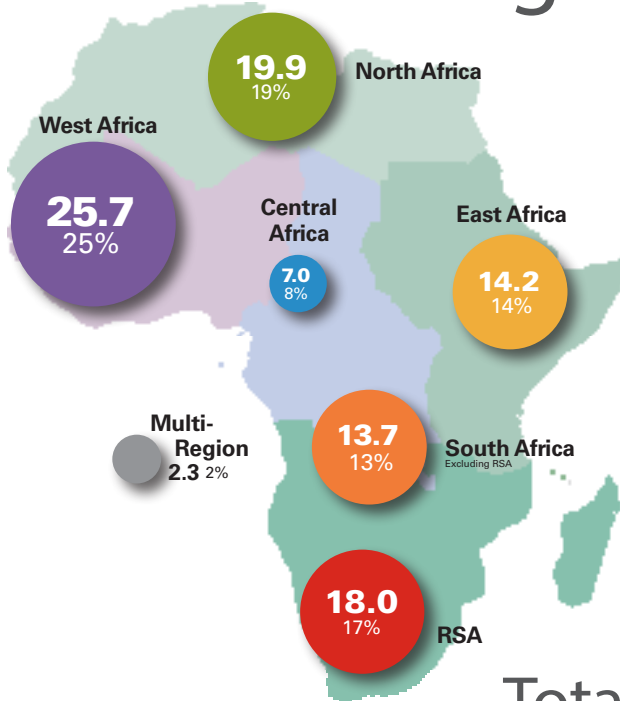
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Overall funding (\$bn)
increased by

24%



...and went to these
regions/sectors



Energy
43.8



Transport
32.5



Water
13.3



ICT
7.1



Multi-Sector
4.1

Total
funding
reached

100.8bn

1

Key Messages & Findings

In 2018, total commitments for African infrastructure amounted to \$100.8bn, an increase of 24% over the total commitments reported for 2017 and an increase of 33% over the 2015-2017 average. This is the first time that the level of commitments passes the \$100bn mark; an achievement that is the result of concerted efforts from all financing sources.

ICA members have continued to play a major role in financing Africa's infrastructure. Over the past 5 years their support has remained at the high level of about \$20bn per year (see Figure 1.1). ICA members have also played important roles in institutional and policy reform in Africa. The main sources of the large increase in the 2018 commitments are: African governments commitments rose to a level 33% higher than the three year average of 2015-2017; commitments by China increased by 65% over the previous 3-year average; and for the first time, commitments from Africa50, AIIB, IFAD, and self-standing private sector financing in ICT are included.

All sectors were the recipients of increased commitments, some more markedly than others:

- Transport sector 2018 commitments of \$32.5bn were 5% higher than the 3-year (2015-2017) average of almost \$31bn.

- Water and sanitation sector commitments, at \$13.3bn, were 21% above the previous 3-year average of \$11bn.
- Energy sector commitments in 2018 amounted to \$43.8bn, 67% higher than the 2015-2017 average. This is the largest level of commitments ever recorded in the sector.
- ICT also saw record commitments in 2018, \$7.1bn.¹

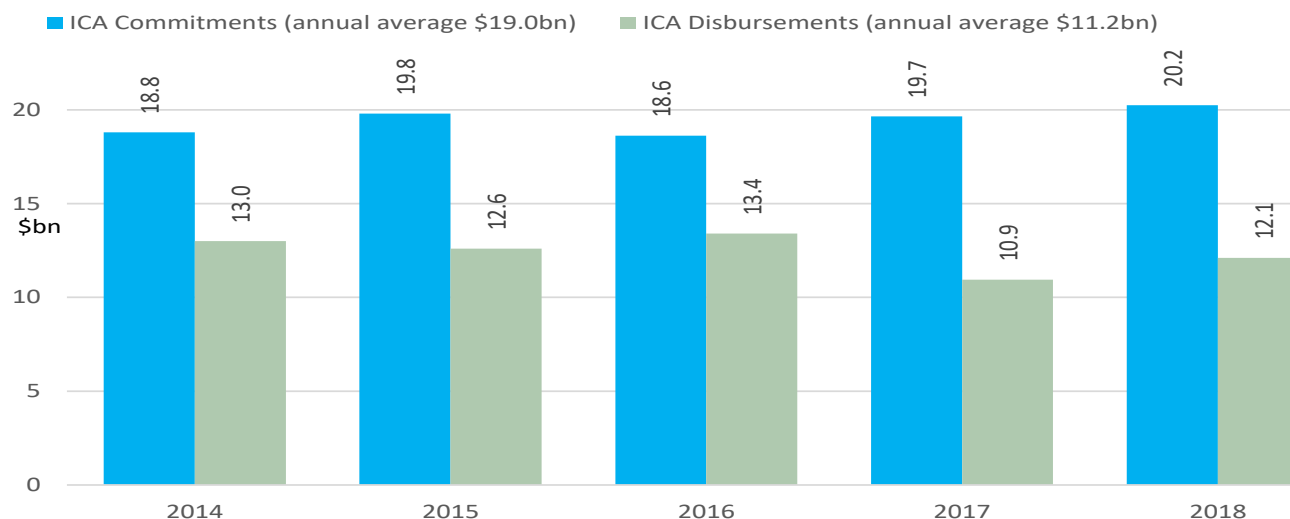
Estimates of Africa's financing requirements range from \$130bn to \$170bn.² Even with the significant increase in 2018, which results in an average level of commitments of slightly above \$83bn for the 2016-2018 period, there remains a financing gap of \$53bn to \$93bn per year.

¹ Total private plus public sector commitments prior to 2018 are not known, because of a change in methodology that now includes self-standing private sector financing.

² African Economic Outlook 2019

FIGURE 1.1 ICA Member commitments remained steady

ICA member Commitments and Disbursements, 2014-2018



The remainder of this chapter will discuss key messages, many of which were derived from interviews with ICA officials. These messages point to areas needing more attention in African countries in order to make faster progress in reducing the financing gap. Commitment trends by source and sector for 2018 are shown in Tables 1.1 and 1.2.

There are five key messages that address the three largest sectors with the widest financing gap – water and sanitation, transportation and energy and separate messages on the private sector and on quality of infrastructure.

1 First, reforms are needed in national planning and in sector ministries to improve project design and feasibility analysis. Water and sanitation, transport and energy assets are long lived, and the decisions made in the selection of projects will have long lasting effects on

the cost and quality of services. The planning and design of national strategic transport networks will affect the efficiency of national and international trade. In cities, urban transport and water and sanitation networks will affect the efficiency of land use and the productivity of the manufacturing, retail and service sectors of the economy. Project selection in design of power systems including renewables, energy efficiency and the ability to forego centralized power delivery networks are critical to overall efficiency and effectiveness. Better project design and better processes for feasibility studies and project selection can save African governments billions of dollars in these sectors.

2 Second, maintenance of infrastructure assets can be equal in importance to new investment. Failure to perform routine maintenance in the case of water can lead to increases in overall capital replacement costs by at least 60 percent. Failure to perform routine maintenance on roads will lead to rehabilitation expenditures that are a large multiple of what would have been spent on routine maintenance. Thus, more stringent routine maintenance regimes can free valuable resources for capital investment.

TABLE 1.1 Most sources have continued to increase funding

Commitment Trends by Source (\$bn), 2014-2018

Source	2014	2015	2016	2017	2018
ICA Members	18.8	19.8	18.6	19.7	20.2
China	3.1	20.9	6.4	19.4	25.7
Other Bilaterals/ Multilaterals	16.1	6.8	8.7	5.8	5.5
Private Sector	2.9	7.4	2.6	2.3	11.8
African National Governments	34.5	24	30.7	34.3	37.5
Total	75.4	78.9	66.9	81.6	100.8

TABLE 1.2 Energy saw the largest increase

Commitment Trends by Sector (\$bn), 2014-2018

Sector	2014	2015	2016	2017	2018
Transport	34.2	32.4	26.2	34.0	32.5
Water	9.4	7.5	12.2	13.2	13.3
Energy	24.1	33.5	20.6	24.8	43.8
ICT	2.4	2.4	1.7	2.3	7.1
Multi-Sector	5.3	3.1	6.2	7.3	4.1
Total	75.4	78.9	66.9	81.6	100.8

3 Third, even with reforms, given the large financing gaps, especially in electric power and water and sanitation sector, increases in both public sector and private sector funding will be required for African countries to continue to improve economic and social performance. The limits on government budget and ODA leave a large gap to be filled by the private sector.

Currently apart from ICT, full private sector involvement essentially through PPPs, where a private party provides significant financing in the form of equity and debt and is responsible for operations, is not widely used in Africa compared with other regions. As discussed below, good governance will be one of the more important underlying factors in changing this. Additional important factors are:

- Lack of involvement of institutional investors in comparison with other regions because of perceived risks, and the desirability of establishing African infrastructure projects as an asset class.
- Better understanding of risks and the application of risk mitigation in individual projects.
- Weak pipeline of feasible projects and the need for better project preparation.

Project preparation facilities are invaluable to help African governments address each of these three factors. There would be significant benefits from an expansion of these facilities, both in terms of size and breadth. More funding is required to bring more early stage ideas to the prefeasibility stage and to establish priorities among them. Equally important, these funds need to go well beyond the projects to be funded by MDBs, DFIs or other large international financiers. Quality feasibility studies are needed for the many thousands of smaller but priority projects that could be financed by domestic commercial financing sources, as well as those expected to be financed from domestic budgets. This suggests the project preparation facilities should consider involvement with program and project level assistance at both the national economic planning level and the ministry/sector level.

However, where full private sector involvement is not feasible, partial use of the private sector, through engagement of local private firms for specific tasks such as leak detection and billing and collecting in the case of water, is possible. In transport, there is increasing experience with using contractors not only to build or rehabilitate a road but also to include the cost of long-term maintenance in the construction contract as a means of reducing the total life-cycle cost. These measures are already proving successful in a number of countries.

4 Fourth, to close the financing gap especially in the water and sanitation and transport sectors, private finance where the public sector retains responsibility for ownership and operation of the asset needs to be considered more seriously. Around the world, publicly run water and sanitation utilities rely heavily on private finance from domestic commercial sources (either banks or domestic bonds). South African utilities have been successful in this regard. In many countries outside of Africa, utilities are supported by financial intermediaries that are typically public sector entities, but commercially-oriented in operations. These intermediaries typically borrow on behalf of groups of utilities, using economies of scale to obtain better terms than individual utilities could obtain on their own. The intermediaries also do their own due diligence on client utilities and often provide advice and technical assistance. In the transport sector, roads – especially toll roads – even if managed by a public institution, can be financed through commercial borrowing, sometimes through a special purpose vehicle (SPV). Other regions have capitalized toll road SPVs through the securitization of revenues from existing toll roads thus providing credit support to commercial borrowing by the new SPV. Supporting the financial and institutional strengthening of revenue earning public entities, (utilities, municipalities, SPVs public corporations) to access private finance can be helpful when full PPPs are not feasible.

5 Fifth, given the importance of efficient, quality infrastructure to Africa’s industrial transition, there would be benefits for African national governments to move more quickly with decentralization, giving local governments both more responsibility combined with more accountability. Today national governments are responsible for a far too large a percentage of sub-national investment. A small but increasing number of local governments in Africa would be ready to tap domestic capital markets if the national governments would clarify the rules for such borrowing, thus opening up the possibility of better self-government, and for some, the opportunity to better finance their infrastructure needs with reduced burden on the national government.

There is a strong link between good infrastructure and higher productivity that is often unappreciated. For example, an estimated 40 billion work hours are lost each year in Africa due to something as simple as a lack of fresh running water in the household.³ Africa may be at a tipping point in industrialization, and, with GDP growth at high levels in a number of countries, Africa is attracting increasing levels of manufacturing FDI. A recent review of Africa’s industrialization prospects, says, “Urbanization such as in Nigeria where eight cities already host populations over 1 million people, promises to increase competition for formal retail centers and the development of efficient production and distribution chains”⁴ Cities and the agglomeration economies that they engender are the source of increased worker learning and productivity and the source of business innovation. However, Africa’s cities have been neglected and are inefficient. The deficiencies in urban infrastructure are leading to areas outside of cities being developed without proper planning, without proper infrastructure, and at much higher cost than if the infrastructure was provided prior to habitation.

³ African Economic Outlook 2019

⁴ Landry Signe, *The potential of manufacturing and industrialization in Africa*, The Brookings Institution 2018

Role of private sector financing

Of the total commitments, private sector financing amounted to \$11.8bn, the largest private investment flow since the report's inception (see Table 1.1). The significant increase is due in part to a new methodology that captured private investment in ICT this year for the first time, and partly to 21 new renewable-energy projects in RSA, which had no private sector projects recorded in 2017. While this increase is positive, it is important to note that with the exception of ICT, the private sector provides a lower share of financing for African infrastructure than in other developing regions. This imbalance requires the continuous attention of Africa's policy makers.

To close the financing gap, policy makers must call to a much greater extent on the private sector, as has happened in other regions of the world. To do this, African nations need to address a range of policy and institutional issues discussed above as well as:

- Lack of involvement of institutional investors in comparison with other regions because of perceived risks, and the desirability of establishing African infrastructure projects as an asset class.
- Better understanding of risks and the application of risk mitigation in individual projects
- Weak pipeline of feasible projects and the need for better project preparation.

Project preparation facilities are invaluable in each of these areas. There would be significant benefits from an expansion of these facilities, both in terms of size and breadth. More funding is required to bring more early stage ideas to the prefeasibility stage and to establish priorities among them. Equally important, these funds need to go well beyond projects expected to be funded by MDBs, DFIs or other large international financiers. Quality feasibility studies are needed for the many thousands of smaller but priority projects that could be financed by domestic commercial financing sources, as well as those expected to be financed from domestic budgets. This suggests the project preparation facilities should consider involvement with program and project level assistance at both the national economic planning level and the ministry/sector level. Capacity building and quality control are

key areas for focus.

Most of the measures required to attract the private sector can be summed up in the need to improve governance. Private investors are attracted to institutions that have professional staff and good leadership, are effective in carrying out their responsibilities, efficient in the use of resources, and open and transparent in their operations and in their accounting. Such institutions are prudent in financial management and responsible and careful in the planning, design and conduct of feasibility studies and in the maintenance of systems. They are also inclusive in the involvement of diverse stakeholders and accountable for their overall performance. Rating agencies have found that companies with good governance are less risky and they consider good governance as a factor in credit ratings.

Improving the quality of infrastructure

To improve the quality of Africa's infrastructure services, systemic changes to the way infrastructure services are delivered will also be needed. Quality starts with the national planning process and continues through project selection, design, feasibility studies, implementation, operations, maintenance monitoring, and feedback. Quality infrastructure results from quality processes. The principles on Quality Infrastructure Investment recently adopted by the G20 provide a good start. African countries would do well to consider adopting these principles and could ask their development partners in the G20 to help them implement the principles through the projects they support in African countries.



Financing Trends

2.1 Who is Financing Africa's Infrastructure?

A total of \$100.8bn was committed to Africa's infrastructure operations in 2018. This is a substantial increase (24%) over the level committed in 2017 (81.6bn) and a 38% increase over the \$75.8bn average of the three previous years. Almost half (\$9.5bn) of the \$19.2bn increase observed in 2018 results from the inclusion, for the first time, of stand-alone commitments made by the private sector, particularly in the ICT and energy sectors. In previous years, commitments by the private sector were only gathered in the context of PPPs. The remainder of the increase comes mostly from higher commitments by China (\$6.3bn) and African governments (\$3.2bn). African governments committed \$37.5bn, the largest share (37%) of 2018 financing, followed by China (\$25.7bn, 26%), and ICA members (\$20.2bn, 20%). Table 2.1 compares the 2018 commitments, by source, to the average of the three preceding years.

TABLE 2.1 Funding by Non-ICA members increased by 35%
2018 and 2015-2017 Average Financing by Source (\$m)

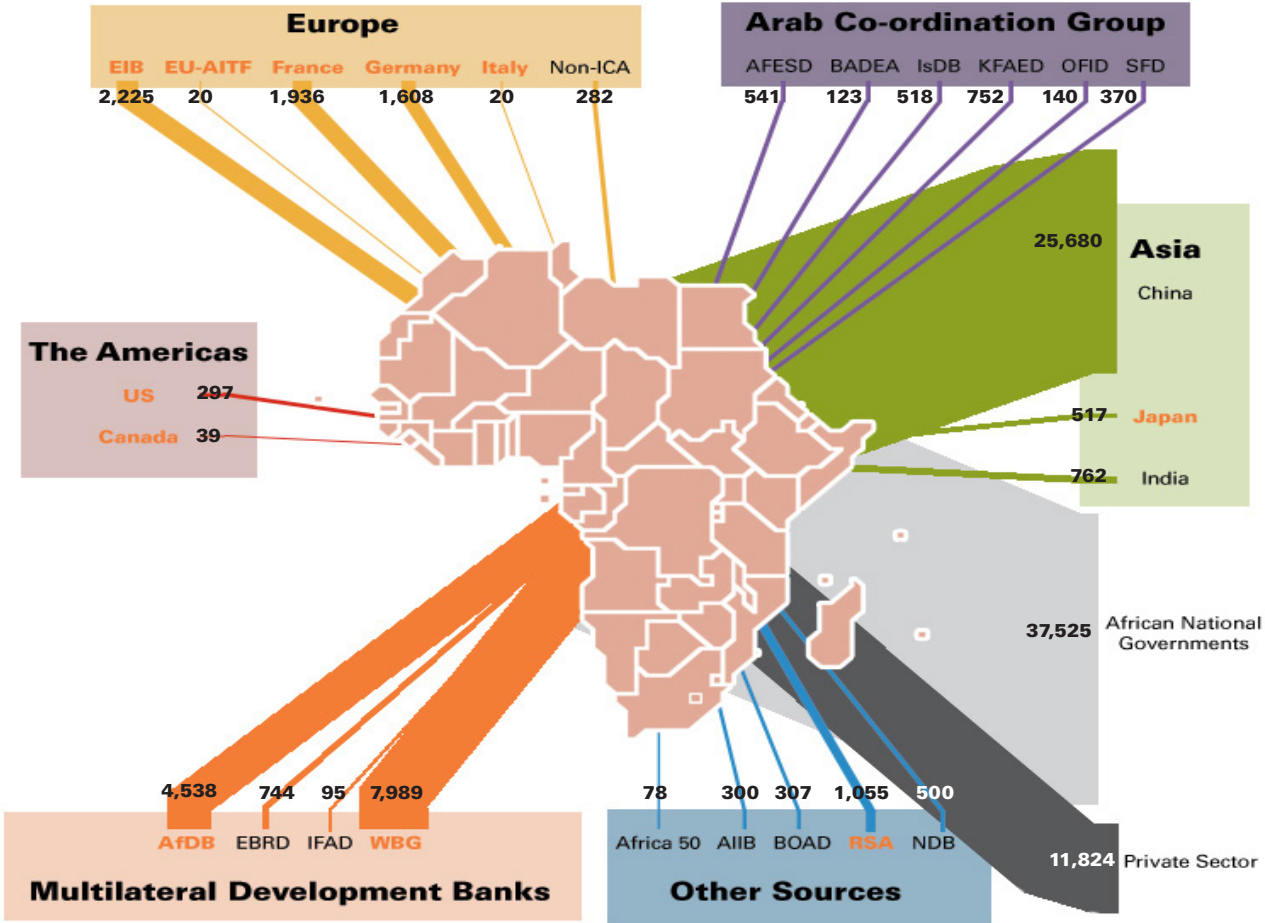
Source	2018	2015-2017 Average	Change		2017	2016	2015
			Amount	%			
ICA members	20,243	19,366	877	5%	19,650	18,615	19,832
Canada	39	118	(79)	-67%	19	140	195
France	1,936	2,485	(549)	-22%	2,123	2,887	2,445
Germany	1,608	1,035	573	55%	838	1,127	1,139
Italy	20	36	(16)	-45%	89	20	
Japan	517	2,023	(1,507)	-74%	2,361	1,941	1,768
UK ⁵	623	493	130	26%	623	569	287
US	297	200	97	49%	292		307
SouthAfrica	1,055	879	176	20%	497	1,211	929
AfDB	4,538	3,829	709	19%	3,364	3,956	4,166
EC ⁶	1,000	1,045	(45)	-4%	1,000	1,395	741
EIB	2,225	1,505	719	48%	1,852	1,250	1,414
EU	20	99	(79)	-80%	76	64	156
WBG	7,989	5,952	2,037	34%	7,516	4,055	6,285
Non-ICA members	68,736	50,866	17,870	35%	59,592	41,320	51,687
African Governments	37,525	28,200	9,325	33%	34,345	26,254	24,000
African RDBs	328	628	(300)	-48%	541	924	419
China	25,680	15,561	10,119	65%	19,403	6,413	20,868
ArabCG	2,442	4,308	(1,866)	-43%	2,985	5,528	4,412
EBRD	744	690	54	8%	1,327	105	638
IFAD	95		95				
Non-ICA European Bilaterals	282	268	14	5%	277	287	238
NDB	500	60	440	733%		180	
AIIB	300		300				
Africa50	78		78				
India	762	808	(46)	-6%	704	1,197	524
South Korea		177	(177)	-100%	10	432	88
Brazil		167	(167)	-100%			500
Private Sector	11,824	4,107	7,717	188%	2,320	2,600	7,400
Total 2018 Financing	100,803	74,339	27,669	36%	81,562	62,535	78,919

5 The 2018 amount is not included in the totals. It is an estimate based on the UK 2017 commitments

6 The amounts for 2018 and 2017 are not included in the totals. They are estimates based on the EC's 2012-2016

FIGURE 2.1 African governments committed more than any external region in 2018

2018 Commitments by Source (\$m)



2.2 Financing Trends by Sector

The transport sector, which had experienced an exceptional increase in commitments in 2017, 30% or \$7.8bn over 2016, only experienced a small decrease of less than 5%, reaching \$32.5bn, close to one-third of total commitments in 2018. An important decrease of 52% to transport from ICA members (\$4.2bn) and a smaller decrease from African governments (\$0.5bn) were partly offset by a significant increase by China (\$3.2bn). Commitments to the water and sanitation sector remained essentially at the same level as 2017, \$13.3bn in 2018 compared with \$13.2bn in 2017.

The energy sector received the largest allocation of commitments, \$43.8bn (44% of total), and the largest increase, \$19.1bn. the result of more than a doubling of commitments by China, which reached \$18.3bn in 2018 from \$9bn in 2017. The significant increase included some very large projects such as a hydropower project in Nigeria funded by a \$5.8bn loan from China, and a \$4.4bn loan to support a coal project in Egypt. Self-standing private sector commitments, which had not been counted in previous years, amounted to \$6.2bn.

Further, ICA members committed \$4.4bn more in 2018 than in 2017, and African governments added \$2.1bn to their energy commitments in 2018.

Commitments targeting the ICT sector increased significantly in 2018 to \$7.1bn.⁷ Private sector commitments accounted for half of total commitments. Commitments to multi-sector operations amounted to \$4.1bn, lower than the \$5.5bn average of the three preceding years.

2.3 Financing Trends by Region

Of the total \$100.8bn commitments in 2018, West Africa accounted for \$25.7bn (26%), North Africa \$19.9bn (20%), RSA \$18bn (18%), East Africa \$14.2bn (14%), Southern Africa \$13.7bn (14%), and Central Africa \$7bn (7%). Multi-region commitments totaled \$2.4bn (2.4%).⁸ Commitments to all regions increased in 2018, except for East Africa which saw its commitments decrease by 10% (\$1.6bn).

7 Refer to footnote 1

8 Total adds up to \$100.9bn due to rounding

FIGURE 2.2 Infrastructure funding has seen a steady increase in recent years

Commitment Trends by Sector (\$bn), 2014-2018

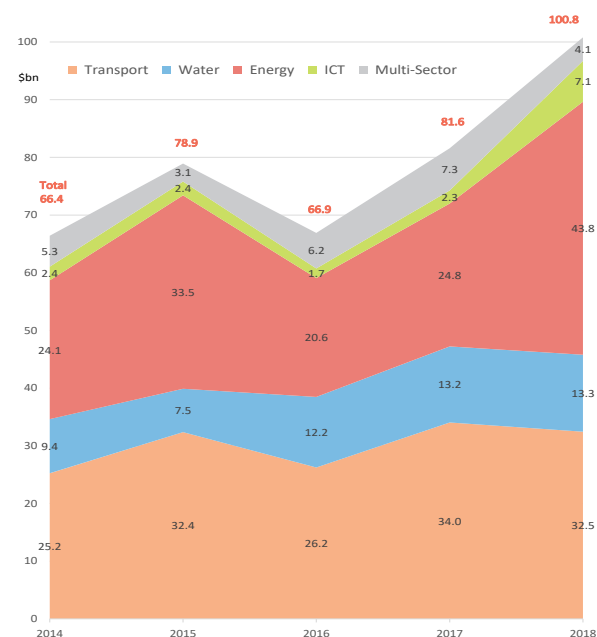
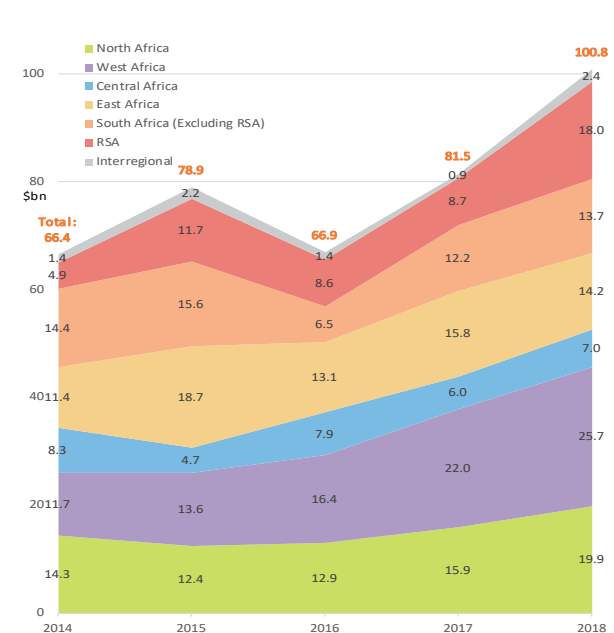


FIGURE 2.3 West Africa remained the largest beneficiary of investment

Commitment Trends by Region (\$bn), 2014-2018



Financing to operations in North Africa, close to \$20bn, increased by \$4bn over 2017 and is markedly higher than the \$13.7bn 2015-2017 average. Much of the increase comes from a \$3.1bn increase in China commitments. Additional state spending accounted for \$1.4bn of the increase, particularly Egypt and Morocco, both in the transport sector. ICA members committed \$200m less than they had in 2017.

The level of commitments to West Africa has more than doubled since 2014. This increase is mostly explained by the fact that West Africa, which accounts for 30% of the African population,⁹ had the lowest infrastructure investment per capita relative to other regions at the start of the period. Commitments to RSA have also increased greatly in the same time (Figure 2.3).

State spending in West Africa more than doubled over 2017, increasing by \$4.3bn. Every sector saw commitment increases. Half of the increase was in the energy sector, with Nigeria's commitments reaching \$1.6bn. The transport sector increased by over \$1bn, with Côte d'Ivoire commitments reaching \$1.3bn. Financing of multi-sector operations increased by over \$700m.

Central Africa, which had experienced a decline in commitments in 2017, resumed the upward trend it had been on since 2015, with a 16% increase (\$1bn) in 2018 over 2017, much of it coming from the private sector (\$600m), and from China (\$400m). Its 2018 level of commitments, at \$7bn, is noticeably higher than the \$6.2bn average of the three previous years.

Commitments to East Africa declined by \$1.6bn (10%) over 2017, and, at \$14.2bn are markedly lower than the \$15.9bn average of the three preceding years. The 2018 decline is the result of a sharp overall decrease in state spending (\$2.4bn) which affected every sector except multi-sector operations which increased by \$400m, but most notably affected transport which decreased by \$2.4bn. There were also smaller decreases in ICA and non-ICA member commitments. The only offset came from the private sector which committed \$1.1bn to the region, in transport, energy, and ICT.

Southern Africa saw an increase in overall commitments

of 16% (\$1.4bn) over 2017, and, at \$13.7bn, are 20% higher than the \$11.4bn 2015-2017 average, although that average hides wide year-to-year fluctuations with 2016 commitments only reaching \$6.5bn. The 2018 increase is the result of a substantial increase by China (\$4.2bn) and a small increase in state funding (\$238m), somewhat offset by a large decrease from ICA members (\$2.4bn) in every sector but particularly in transport (\$1.8bn) and a smaller decrease by non-ICA members (except China).

Commitments to RSA totaled \$18bn, almost twice the \$9.7bn average of the three previous years. Commitment increases to the region accounted for 48% (\$9.3bn) of total commitment increases of 2018 over 2017. Most of the increase (\$7.7bn) came from the private sector, exclusively in ICT and energy. ICA members increased their commitments by \$1.2bn. The New Development Bank, whose commitments had not been counted in 2017, committed \$500m. South Africa itself committed \$52m more to infrastructure from its own national budget than it did in 2017. There were no changes in China commitments.

9 IMF World Economic Outlook, 2019



3

Strategic Trends

The financing of infrastructure in Africa has never been as high as in 2018. Increasing the participation of the private sector and improving the quality infrastructure are key objectives.

3.1 Infrastructure Financing Gap

The African continent is by all measures the least endowed region of the developing world in infrastructure, even compared to low- and middle-income countries in other regions. This is partly due to low overall GDP and partly due to Africa's geographic and historical legacy. Africa's infrastructure deficit varies considerably by subsector. In mobile telecommunications Africa is ahead of most other regions with comparable per capita income, e.g. in mobile banking.¹⁰ In water supply, following strong efforts to collaborate in rural water supply and sanitation by the African Development Bank, the World Bank, and bilateral ICA members, improvements are being seen. However, population growth is outpacing

increases in coverage. Approximately 340 million Africans have no access to safe drinking water and one million lives are lost each year because of water-borne diseases. In the transport and electric power subsectors the financing gap is much smaller, but Africa still falls behind its comparators.

The African Economic Outlook report for 2018 presents a comprehensive estimate for Africa's infrastructure needs based on the cost of achieving specific service level targets for each sector. The estimate for energy is based on a target of 100% urban electrification and 95% rural electrification. The annual cost of achieving that service target is estimated to be between \$35bn and \$50bn per year. The target for sanitation is 100% access in urban and rural areas. The targets for ICT are universal mobile coverage, 50% of population within 25 km of a fiber backbone, and a fiber to home/premises internet penetration rate (10%). The target for transport is 80% maintenance and rehabilitation

¹⁰ For example, M-Pesa is a mobile phone-based money transfer, financing and microfinancing service, launched in 2007 by Vodafone for Safaricom and Vodacom, the largest mobile network operators in Kenya and Tanzania.

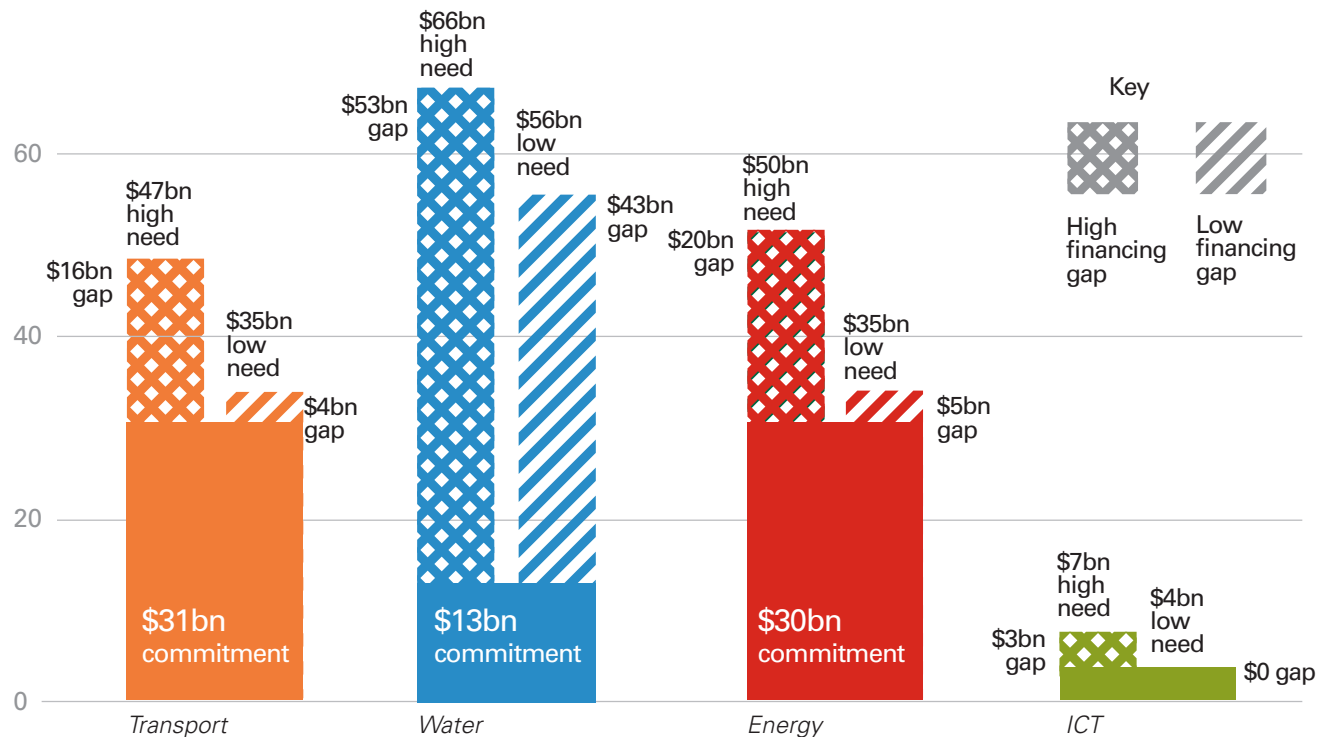
TABLE 3.1 The water sector has the greatest funding gap

Infrastructure Financing Gap (\$bn)

Sector	Target by 2025	Annual financing need	2016-2018 Commitment Average (rounded)	Gap
Transport	80% preservation; 20% development	35-47	31	4 - 16
Water	100% access in urban area 100% access in rural area	56-66	13	43 - 53
Energy	100% urban electrification 95% rural electrification	35-50	30	5 - 20
ICT	Universal mobile coverage 50% of population within 25 km of a fiber backbone Fiber to home/premises internet penetration rate (10%)	4-7	4	0 - 3
Total		130 -170	78¹¹	52 - 92

FIGURE 3.1 Financing Gap in ICT is almost closed. Progress is being made in transport and energy but much still needs to be done.

Infrastructure Financing Gap (\$bn)



11 This total does not include the \$5.9bn 2016-2018 average level of commitments made to multi-sector operations, which would bring the 2016-2018 average to \$83.1 and reduce the financing gap to a range close to \$47-87bn

and 20% upgrading and new construction. Based on these targets the annual cost of satisfying those needs is presented in Table 3.1 and illustrated in Figure 3.1.

The most significant financing gap, \$43bn to \$53bn, is in water and sanitation. Here, the low tariffs, the lack of local government financial capacity to support the sector and limited ODA, MDB and national government funds, lead to very serious gaps. As noted in Chapter 6, there are opportunities to improve operational efficiency in water utilities by reducing non-revenue water (mostly caused by leaks), improving billing and collection, and especially improving routine maintenance. These measures can significantly improve financial performance. However, even with these efforts, there will still be a large need for increases in government financing, as well as from the private sector. South Africa has gone farther than other governments in decentralization. As a result, the financial capabilities of its local governments and its water providers are ahead of most other African countries. Local capital markets are a major source of water infrastructure finance in RSA. For the financing of bankable megawater resource infrastructure projects, special purpose vehicles (SPVs) are raising funds from the financial markets, i.e. the Komati Basin Water Authority (KOBWA). There is significant commercial bank lending for water infrastructure finance in RSA. Local metropolitan municipalities or cities also issue municipal bonds to generate funds for infrastructure development.

In the transport sector the financing gap is also very significant, between \$4bn and \$16bn per year, despite increased commitments by China from \$3.4bn to \$6.6bn in 2018. Road funds in 27 African countries are funded by a user charge through a fuel tax that is dedicated to road maintenance. Some funds operate quite well, but most provide only a fraction of the resources needed to avoid deterioration of assets and high rehabilitation costs. There is an opportunity to consider higher levels of fuel tax to raise revenues in countries where they haven't been raised in a number of years. For strategic national roads, increased use of tolling may be inevitable, even where full PPPs are considered impractical.

The energy sector benefited from an even larger

boost in commitments from China. In this case China's commitments doubled from \$9.0bn in 2017 to \$18.3bn in 2018. The question for the gap analysis is whether this higher level of Chinese commitments will be sustained in the future. This level of investment would have a major beneficial result in reducing the energy financing gap and improving access to Africa's population. The private sector is more involved in the energy sector than other sectors, although ICT has a higher ratio of private sector to total commitments.

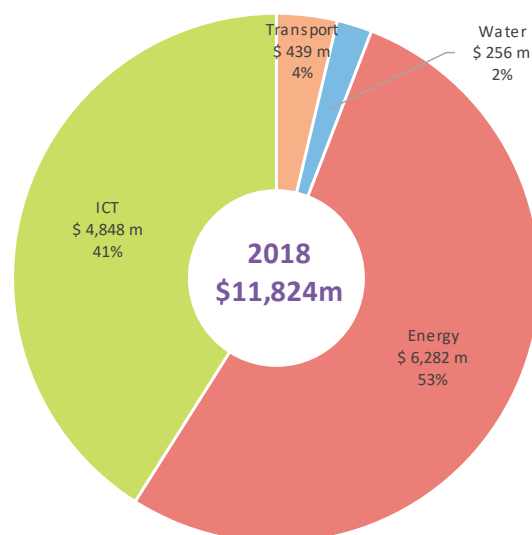
3.2 Role of the Private Sector

This section on the role of the private sector and the next section on quality infrastructure, are summaries of larger reports on these issues that are part of IFT 2018, but are being printed and bound separately. This is to facilitate access to a more in-depth treatment of these important issues.

During the year there were 21 new renewable-energy projects in RSA, which had had no projects recorded in 2017. Cameroon received a commitment for a \$1.4bn

FIGURE 3.2 Almost all private sector financing went to the energy and ICT sectors

Private Financing by Sector



hydropower plant,¹² the first major private sector financed infrastructure in Cameroon since 2012. Other countries with PPI transactions include Ghana, Guinea, Kenya, Mali, Namibia, Senegal, Sierra Leone, Somalia and Zambia.¹³ Sectoral and Regional breakdowns of financing are illustrated below in Figures 3.2 and 3.3.

However, with the exception of ICT, the private sector provides a lower share of financing for African infrastructure than in other developing regions. Private sector financing, for the most part, does not flow to African infrastructure projects unless heavily protected by guarantees from the host government or from multilaterals. Other areas of the world, in contrast, regularly call on private sector financing for a significant share of infrastructure investment. In the EU for example, the EIB estimated a decade ago that governments finance only one-fifth to one-third of electric power and transport infrastructure.¹⁴ In other regions of the world including developing

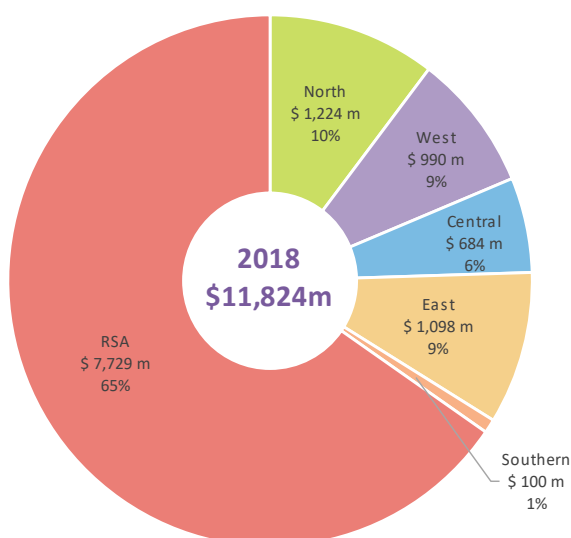
12 EIB: *Public and private financing of infrastructure: Evolution and economics of private infrastructure finance* (2010).

13 *ibid*

14 EIB: *Public and private financing of infrastructure: Evolution and economics of private infrastructure finance* (2010).

FIGURE 3.3 RSA received almost two thirds of private investment

Private Financing by Region



countries, ports, airports, toll roads and electric power obtain significant amounts of private financing, including without government support in the form of guarantees. And sectors which cannot easily attract significant private sector investment for new assets still involve the private sector in their management and maintenance. This is too often not the case for Africa.

Suitability of Infrastructure for Private Sector Financing

But not all infrastructure is suitable for private financing. In the main, the sectors that generate revenue through user fees are much more attractive to private investors and private debt providers, because a portion of this revenue can be directed toward servicing the debt and providing a return to investors. Revenue generating sectors include: ICT; electric power, especially generation; certain subsectors of transport (ports, airports, toll roads and bridges); and to a much lesser extent, provision of water. This is why the limited amount of private finance in African infrastructure is concentrated in ICT and the electric power and transport sectors (Table 3.2).

Constraints Preventing Greater Private Sector Participation

For those parts of infrastructure that are amenable to private investment (especially electric power and certain transport sub-sectors), investors and lenders are wary of doing business in Africa for four reasons: (i) poor creditworthiness of the sector; (ii) the perception of political and regulatory risk, which remains a perennial problem on much of the continent; (iii) bureaucracy, red tape, corruption, and (iv) the long timescale needed for project completion. To close the infrastructure-financing gap through greater participation of the private sector, these barriers will need to be addressed (Table 3.3).

It should be noted that while the above factors are real, they don't typically result in greater default risk. On the contrary, the rate of defaults on African infrastructure project debt is lower than similar debt in North America and a significantly lower default rate than other emerging market regions such as Latin

TABLE 3.2 The water sector has the least potential for private investment

Infrastructure Sub-Sectors: Appropriateness for Private Investment

Infrastructure Subsector	Segment	Economic Characteristics	Direct Investors	Institutional Investors
ICT	Mobile telecoms	Revenue-generating High economic and financial return Need for regulation	High potential (no reason for public financing)	High potential Securitization possible
	Fixed line	Revenue-generating Low economic and financial return Not competitive	Low potential due to low returns and incumbent telecoms SOEs	Low potential
	Internet	Revenue-generating High economic and financial return Need for regulation	High potential under concession agreements (no reason for public financing)	High potential
Energy	Electric Power Generation	Revenue-generating High economic and financial return Need for regulation	High potential as Independent Power Producers (IPPs)	High potential for take-out financing Securitization of IPP bundles possible
	Electric Power Transmission	Potentially revenue-generating Modest return Not competitive	Low potential due to combination of high risk and modest low return	Some potential for take-out financing Securitization difficult (modest return)
	Electric Power Distribution	Revenue-generating Modest to high return Some competition possible	Moderate potential due to private sector efficiencies in billing and collection	Low potential
Transport	Trunk roads, bridges	Not revenue-generating	No potential	No potential
	Toll roads/ bridges	Revenue-generating Moderate economic and financial return	Moderate to high potential under concession agreements	High potential Securitization of concession bundles possible
	Rail	Revenue-generating Moderate to low economic and financial return Not competitive	Moderate potential under concession agreement Probable need for government support (funding or guarantees)	Low to moderate potential due to high risk and moderate return
	Ports, airports	Revenue-generating High economic and financial return Significant ancillary revenue potential	Moderate to high potential under concession agreements Might need government support (guarantees)	Moderate to high potential Securitization of concession bundles possible
Water	Water resource management	Not revenue-generating	No potential	No potential
	Water supply and sanitation	Revenue-generating Low economic and financial return Not competitive	Moderate to low potential under concession or affermage agreements Need for government support (funding or guarantees)	Low potential

TABLE 3.3 There are still many challenges facing the private sector

Constraints Preventing Greater Private Sector Participation

Issue	Nature of issue	Possible policy responses
Poor creditworthiness of utility and sector	Utilities do not recover the full cost of the infrastructure service: ¹⁵ <ul style="list-style-type: none"> • Inadequate tariffs • Poor payment by governments for the services they receive • Weak operational and financial management 	<ul style="list-style-type: none"> • Tariff mechanisms that recover costs and adjust to changing circumstances • Government departments must pay utilities (e.g. using prepaid cards) • Increased private sector participation for operation and maintenance (management contracts)
Perception of political risk	Due to political uncertainty and unpredictability of decision makers. Typically classified as: <ul style="list-style-type: none"> • Expropriation • War and civil disturbance • Breach of contract • Currency-related issues • Changes to the regulatory framework 	<ul style="list-style-type: none"> • Contract design to minimize unpredictability • Political risk insurance • Public-private partnerships • Partial risk guarantees from an MDB • Government guarantees, backstopped by an MDB¹⁶
Bureaucracy, red tape, corruption and long preparation timescale	Lower administrative capacity in Africa results in higher transaction costs for private investors	<ul style="list-style-type: none"> • External legal counsel and financial advisors to provide state-of-the-art legal and financial advice • Transparent competitive bidding to control costs and reduce opportunities for corruption (but may lengthen project preparation times) • Public disclosure of bidding and award terms

America and the Caribbean.¹⁷

Investors in African infrastructure have noted that the pipeline of “shovel-ready” infrastructure projects in Africa is weak. Very few of these investment possibilities have been adequately prepared to “full bankability”. This would include, for example, a Project Information Memorandum (PIM) covering the Project concept, preliminary feasibility study, economic analysis, financial model, draft contractual or concession terms, elements of the environmental and

social impact assessment, and bidding documents. In addition, as indicated above, a preliminary term sheet should be prepared by the financial advisors.

Project preparation facilities are financial and technical support services financed generally by governments or donors, to support the preparation of projects. Typically, they finance preparation of concept notes and feasibility studies, and sometimes economic and financial analysis as well. Africa benefits from a large number of PPFs, most of which belong to the ICA-sponsored Project Preparation Facilities Network (PPFN), a network of funding facilities and institutions dedicated to developing sustainable infrastructure in Africa through improving project preparation. The main activity of the PPFN is to discuss co-financing opportunities for feasibility studies and to improve

15 Full amount of infrastructure service = Long Run Marginal Cost

16 Generally considered less attractive as an option because of the contingent liability created for the sovereign

17 Mercer, *Investment opportunities in African Infrastructure*, September 2018

BOX 3.1: PPFN Members

AFREXIMBANK (The African Export Import Bank)
Africa50
African Development Fund - PPF
African Water Facility
Climate Resilient Infrastructure Development Facility (CRIDF)
Development Bank of Southern Africa (DBSA)
ECOWAS Projects Preparation and Development Unit
eleQtra
EU-Africa Infrastructure Trust Fund
Fund for African Private Sector Assistance (FAPA)
NEPAD Infrastructure Project Preparation Facility (NEPAD-IPPF)
NEPAD Business Foundation
Private Infrastructure Development Group (PIDG)
Public-Private Infrastructure Advisory Facility (PPIAF)
Sustainable Energy Fund for Africa (SEFA)
SADC Project Preparation and Development Facility
Sustainable Infrastructure Foundation
US Trade & Development Agency

coordination among the facilities active in Africa. The PPFN was launched at a meeting hosted by the African Development Bank in Tunis in June 2014.

The PPFs have been found to be useful to investors. However, the size of the need for financing Project preparation is beyond the current reach of existing funds. The need exists for both early stage identification at the economic planning level and more detailed preparation to ready projects for consideration by private investors. But beyond that there is a need for financing of quality feasibility studies of smaller projects that could be of interest to local private sector developers, as well as projects being implemented as public sector projects.

Financial Instruments

A broad range of instruments has been developed over the decades for private sector financing of infrastructure. The three broad categories are:

- Equity financing is the ultimate risk-bearing financial instrument and is highly flexible as repayment terms are completely dependent upon project return. Typically, infrastructure projects cannot obtain debt financing unless they have obtained at least 25% to 35% equity financing or more, because debt on its own does not have the flexibility to withstand unforeseen shocks to cashflow.
- Debt financing instruments include senior loans and other instruments such as mezzanine financing and bonds. Debt instruments are not flexible because their repayment terms are fixed; but mezzanine financing and subordinated debt is somewhat more flexible than senior debt and bonds.
- Guarantees and other credit enhancement instruments provide partial risk mitigation, mostly to debt providers, which enables them to reduce their risk spread and hence reduce the overall cost of the debt. These instruments range from cover for narrowly defined risks (e.g. contractual closure) to much broader ranges (e.g. minimum revenue guarantees), with costs that are proportional. Political Risk Insurance (PRI) provides insurance risk against expropriation (including regulatory change and creep), breach of contract, war and civil disturbance, currency non-availability, and in some cases the non-honoring of a sovereign commitment.

African Infrastructure as an Asset Class: Attracting Institutional Investors

Excluding ICT, private sources represented 6% of the total in 2018. This private money comes largely from private sector investors, both direct and through PPPs, and from bank lending. Institutional investors, both domestic and international, contribute a vanishingly small fraction of the total, although these sources present a very significant amount of potential finance. Worldwide, institutional investors (pension funds, insurance companies, sovereign wealth funds)

TABLE 3.4 The largest pool of institutional assets under management are held by RSA institutions

Assets Under Management by African Institutional Investors (\$bn)

Pension Funds		Insurance Assets		Sovereign Wealth Funds	
RSA	309.8	RSA	312.5	Algeria	7.6
Morocco	25.7	Maghreb region	16.2	Botswana	5.7
Nigeria	18.9	Southern Africa excl. SA	14.7	Angola	4.6
Namibia	10.1	Egypt	11.3	Nigeria	2.9
Kenya	7.9	Other	7.2	Senegal	1.0
Egypt	6.8	East Africa	8.8	Ghana	0.5
Botswana	6.6	Nigeria	5.0	Gabon	0.4
Mauritius	3.5	Other West AFR	1.0	Mauritania	0.3
Ghana	2.2	Francophone West AFR	1.0	Equatorial Guinea	0.1
Algeria	1.9	Central Africa	0.9		
Angola	0.7				
TOTAL	394.1		378.5		23.0

manage approximately \$80tn in assets;¹⁸ and on the African continent they manage assets of the order of \$800bn.¹⁹ Clearly, there is scope for greater financial participation from institutional investors if it is possible to address the issues that currently prevent their participation.

The role of financial markets is to intermediate financial savings of various tenors with investments of differing returns, lifetime and riskiness, playing the matchmaker between savers and investors. There are generally six types of institutional investors: endowment funds, mutual funds, hedge funds, pension funds; insurance companies; and sovereign wealth funds. In Africa the bulk of assets under management (AUM) of institutional investors are held by pension funds (both public and private); insurance companies; and sovereign wealth funds. Estimates of the AUM of these three sources are provided in Table 3.4 below.

African institutional investors (especially pension funds, insurance companies, SWFs) would be a very attractive source of infrastructure funding because of their longer investment horizons and their general

need to diversify and spread risk. Infrastructure is a fixed asset with a long lifetime and once under operation, a well-defined stream of benefits. It would seem prima facie therefore that infrastructure would be attractive to institutional investors as an asset class. However, a certain number of constraints hold back financing from institutional investors.

Greenfield projects are not attractive for institutional investors. Institutional investors are by mandate often limited in the type of investments they can make. Restrictions include, inter alia, the need for a financial track record for the target investment; a minimum credit rating; a liquid security that can be traded on a market to provide an exit for the investor; and a circumscribed and at best modest amount of risk. This means that by their nature, direct investments in greenfield infrastructure projects in Africa are often not attractive for institutional investors: they do not yet have a financial track record or credit rating; they do not have a tradeable security as an exit; and they have large amounts of project risk.

While infrastructure bonds for new investments seek to alleviate some of the constraints institutional investors face (by creating a tradeable instrument), they do not address the other thorny issues of track record and perceived risk profile. For the most part they have therefore not had a significant impact on

¹⁸ Worldwide assets under management are estimated at \$120tn, of which \$80tn by institutional investors and \$40tn by banks (McKinsey Global Institute, 2016).

¹⁹ See Table 3.4

financing infrastructure in Africa. There would seem to be an opportunity for planning for and facilitating refinancing of infrastructure assets once they are up and running and risks are significantly lower. This can be done on an asset by asset basis or through securitization of multiple assets to enhance attractiveness to institutional investors.

Existing infrastructure assets generate user fees and have a reasonable track record and can be bundled into a tradeable instrument. They also have a lower risk level than greenfield projects because they no longer have the risks associated with the construction and commissioning phases. In order to create a tradeable instrument, a selection of existing well performing infrastructure projects could be securitized into a debt instrument which would be made available to institutional investors and others on securities markets. The instrument would obtain credit enhancement (such as political insurance cover) and would seek a rating by credit rating agencies. Money raised by issuing these debt instruments could then be directed into new infrastructure projects which by themselves would not be able to attract such financing. In order to provide enough credibility to markets and investors, the securitization process could be managed and underwritten by a major multilateral institution such as the African Development Bank. Costs of securitization will be lower if the assets to be included in a pool are identified prior to initial issuance of the security.

3.3 Sustainability and Quality of Infrastructure

Definition of quality infrastructure

The quality of infrastructure can be measured by the extent to which it achieves, on a sustained basis, a high standard of services provided to users, including its operation and maintenance, as measured against services provided by other systems. Quality infrastructure incorporates measures of: (i) overall availability of services; (ii) economic efficiency (value for money and economic return on investment); (iii) social inclusiveness; (iv) safety and resilience; (v) environmental sustainability; and (vi) convenience and comfort for users.

Determinants of Infrastructure Quality

The main dimensions of quality that need to be considered are provided below:

Economic efficiency, in its simplest sense, can be defined as achieving maximum economic and social benefit with a given use of resources, or alternately achieving a given economic and social benefit with minimum use of resources. Efficiency relates to how well the infrastructure asset is operated and maintained once it is commissioned and enters into service.

Inclusiveness of an infrastructure investment relates to the degree to which the infrastructure service leads to economic and social benefits reaching the broadest possible segment of the population.

Safety relates above all to the impact of infrastructure services on the health and well-being of its users and other members of the population. The most notable infrastructure sector where safety comes into play is transport, because of the high number of road traffic injuries and deaths worldwide (estimated at 1.24 million road traffic deaths per year).

Resilience is the ability to reduce the magnitude and/or duration of disruptive events. The effectiveness of a resilient infrastructure or enterprise depends upon its ability to anticipate, absorb, adapt to, or recover rapidly from a disruptive event. This concept has its roots in disaster risk management and therefore integrates questions of risk.

Sustainability encompasses two core themes: the degree to which the infrastructure asset minimizes its environmental and social impact; and the degree to which its financing, operation, and maintenance is affordable at scale and ensures its own prolongation and replacement at the end of its economic life.

Actions to improve quality

To improve the quality of infrastructure, it is necessary to include quality considerations in the entire project life cycle, from project identification through construction to operations and maintenance, and then in monitoring and evaluation. The most important

BOX 3.2: G20 Principles for Quality Infrastructure Investment

The G20 has long highlighted the importance of infrastructure quality. In June 2019, the G20 Finance Ministers and Central Bank Governors endorsed new G20 Principles for Quality Infrastructure Investment at their meeting in Fukuoka, Japan. These voluntary, non-binding principles “reflect the common strategic direction and aspiration for quality infrastructure investment” of the G20. The six principles are:

Principle 1:

Maximizing the positive impact of infrastructure to achieve sustainable growth and development.

Principle 2:

Raising Economic Efficiency in View of Life-Cycle Cost: Quality infrastructure investment should attain value for money and remain affordable with respect to life-cycle costs, by taking into account the total cost over the entire life cycle.

Principle 3:

Integrating Environmental Considerations in Infrastructure Investments: Both positive and negative impacts of infrastructure projects on ecosystems, biodiversity, climate, weather and the use of resources should be internalized by incorporating these environmental considerations over the entire life cycle.

Principle 4:

Building Resilience against Natural Disasters and Other Risks.

Principle 5:

Integrating Social Considerations in Infrastructure investment.

Principle 6:

Strengthening Infrastructure Governance: Sound infrastructure governance over the life cycle of the project is a key factor to ensure long-term cost-effectiveness, accountability, transparency, and integrity of infrastructure investment. Openness and transparency of procurement should be secured. Well-designed and well-functioning governance institutions should be in place to assess financial sustainability subject to available overall financing. Anti-corruption efforts combined with enhanced transparency should continue to safeguard the integrity of infrastructure investments. Access to adequate information and data is an enabling factor to recommendations for quality infrastructure.

elements during each step are given below:

Project Life-Cycle – Pre-investment phase

Identification: During project identification, economic efficiency comes to play in the choice of a strategic option that best responds to the infrastructure needs of the users. The option chosen will influence the quality of the service over the entire life of the asset, and in many cases influence the direction the sector takes subsequent to the investment. A flawed review of consumer needs may lead to the wrong choice of technology, sub-optimal design or misaligned dimensioning of the asset. Similarly, during the financial structuring of the project, the choices taken will influence the overall lifetime cost of the asset and ownership arrangements.

Demand studies during project identification must take into account the overall population served and consider how vulnerable populations are affected. Inclusiveness may present difficult trade-offs, e.g. a project with higher economic return but lower inclusiveness (such as a toll bridge under a PPP arrangement), against one with lower economic return and higher inclusiveness (such as a publicly funded but lower capacity bridge).

Feasibility study: This phase sets out the key design features of the project and includes an assessment of the environmental and social impact of the project. Inclusiveness predicates open and public disclosure of these key documents, or at least the environmental and social assessment (and proposed mitigation measures, if any). Affected populations must have recourse to decision-makers to express their point of view on elements of project design. The feasibility study must compare the project to alternatives and must consider design options that achieve the service standards and that will enhance reliability and reduce operations and maintenance costs in a cost-effective way.

Safety must be central to the analysis of options and project choice, as well as subsequent design of the technical solution. Resilience will require a close analysis of potential risks (e.g. from unexpected events such as earthquakes and climate-related

events) and the associated economic and social costs of each option. For sustainability, the environmental and social impact assessment (ESIA) must cover all expected impacts at the local, national and global level. Involuntary resettlement should be avoided to the extent possible, but if unavoidable, a Resettlement Action Plan (RAP) must be prepared to mitigate impacts on affected communities. At the global level, climate change impacts must be integrated into economic calculation based on the costs of expected lifetime GHG emissions.

Project Life-Cycle – Investment phase

Historically, infrastructure procurement has been a source of corruption in both industrial and developing countries. Global experience shows that better results can be achieved through the creation of an independent procurement panel and transparent competitive bidding processes, e.g., with public opening of sealed bids, and public disclosure of bid results including scoring.

Inclusiveness can be significantly enhanced by designing procurement processes to promote the use of local content. Not only does this provide labor opportunities for local workers, and contracting opportunities to supply inputs for local firms, but it also creates capacity within the local engineering and construction sector, which can be useful for future projects. It should be noted that a delicate balance must be sought to ensure that goods and services provided by local firms are commensurate with their capacity, to avoid degrading the overall quality of the investment.

Construction of major infrastructure works can present significant health and safety hazards both for workers and for the general population. Maintaining strict occupational health and safety standards during the construction phase is critical and should be included in procurement documents.

Project Life-Cycle – Operations and Maintenance

Good operating procedures and regular maintenance, including preventive maintenance, will maximize the useful life of the asset and the quality of the service

it provides. Inadequate maintenance is often due to the poor financial situation of the operating entity which result from tariffs that are below cost, as well as poor cost recovery by the utility itself (weak billing and collection). In the case of non-revenue generating activities (notably roads) inadequate funding may be due to weaknesses in government budgeting.

Worldwide experience shows that involving the private sector, if their remuneration is linked to the quality of operations over the long term, produces much better outcomes. In a number of African countries new contractual tools are beginning to be introduced through which maintenance of an infrastructure asset is included in the initial construction contract. In these cases, penalties are triggered if the quality of the infrastructure service falls below a pre-agreed level. This provides an incentive for the private sector operator to carry out preventive maintenance.

During the operations period, the most significant obstacle to inclusiveness is the level of tariffs that poor people must pay. For those services that are fee-based, (electricity, water, telecoms, etc.), the inclusiveness of infrastructure services can be significantly enhanced by careful tariff design. The dilemma and trade-off relate to the need to ensure that the infrastructure asset's long run marginal costs are covered, while at the same time, enabling the maximum number of low-income citizens to benefit from the service. This can be achieved by introducing lifeline tariffs (a price below cost) for low-income consumers. Lifeline tariffs have been successfully introduced in many African countries. Inclusiveness can be further enhanced when the infrastructure asset relies on local contractors during maintenance.

The quality of operations and maintenance has a very high impact on safety. For example, poorly maintained electric transmission and distribution networks pose significant risks to populations, and contaminated water supply and sanitation systems can have severe health consequences. Lack of maintenance can lead also to reduced resilience (e.g. to loss of operating margin or non-replacement of critical spare parts), as well as significant negative impacts on environmental and social sustainability.

The G20 has set forth a set of principles on Quality Infrastructure Investment (Box 3.2). These can be seen as guidelines to improving the quality of operations and maintenance in Africa.

3.4 Infrastructure for Regional Integration

A number of organizations, particularly ICA members, committed funding to support multi-regional (also referred to as Pan-African) infrastructure operations throughout Africa in 2018. These operations strengthen the regional integration of the continent which facilitates infrastructure connectivity, trade and investment, and financial integration. These commitments totaled \$2.3bn in 2018, of which \$2bn were committed by ICA members. This is substantially higher than the \$1.5bn average level of commitments in the three preceding years. These numbers do not include multi-country operations within the same region, which are included in all regional amounts presented in this report. However, these multi-country projects within a region often result in the same benefits of improved connectivity, trade and investment, and financial integration as the multi-regional projects.

Commitments to the energy sector (\$1.7bn) accounted for 64% of total commitments. Transport received 23% (\$592m), multi-sector operations 6% (\$152m), ICT 5% (\$118m), and water and sanitation 2% (\$55m).

The WBG committed over half (53%, \$1.4bn) of total commitments and AfDB 31% (\$797m). Other commitments came from Germany, EIB, the US, France, Canada, and South Africa.

ECOWAPP was the only non-ICA member organization to report multi-regional commitments, amounting to \$21m.

The Regional Economic Communities (RECs) of the African Union and their Power Pools

The Regional Economic Communities (RECs) are regional groupings of African states. Generally, the purpose of the RECs is to facilitate regional economic integration between members of the individual

regions and through the wider African Economic Community (AEC). The AU recognizes eight RECs: the Arab Maghreb Union (UMA) in the North; the Common Market for Eastern and Southern Africa (COMESA) in the South East; the Community of Sahel-Saharan States (CEN-SAD) in the North; The East African Community (EAC) in the East; the Economic Community of Central African States (ECCAS) in the center; the Economic Community of West African States (ECOWAS) in the West; the Intergovernmental Authority on Development (IGAD) in the East; and the Southern African Development Community (SADC) in the South. Three power pools are associated with three of the RECs presented below: the Eastern African Power Pool (EAPP, COMESA), the Southern African Power Pool (SAPP, SADC), and the West African Power Pool (WAPP, ECOWAS). Summaries of infrastructure agendas for RECs that are active in one or all of infrastructure sectors follow.

COMESA

COMESA is a free trade area with 21 Member States: Burundi, Comoros, Djibouti, D.R. Congo, Egypt, Eritrea, Ethiopia, Eswatini, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Somalia, Tunisia, Uganda, Zambia, Zimbabwe. COMESA's main focus is the formation of a large economic and trading unit that is capable of overcoming some of the barriers that are faced by individual states.

COMESA has recognized infrastructure development as a priority and strategic focus area that requires special attention. The Strategic Objective to be pursued is, therefore, to effectively address constraints related to the improvement of infrastructure and services in the region in order to reduce the cost of doing business and also and to enhance competitiveness, through fostering physical regional connectivity and deepening infrastructure integration.

A holistic and corridor based approach to infrastructure development has been adopted based on three key pillars: policy and regulatory harmonization, development of priority regional physical infrastructure covering transport, information communications technologies (ICT) and energy. A number of key strategies have been adopted in order to

achieve the infrastructure strategic objective indicated above. They include the following: (i) Development and revision of model policies and regulations (for Transport, ICT, and Energy); (ii) Development of aid for trade programs along the major regional corridors including the establishment of One Stop Border Posts (OSBPs); (iii) Development of legal and institutional frameworks for public private sector partnerships in order to increase the private sector participation in infrastructure development; and (iv) Implementation of a communication strategy for the dissemination of information on development of infrastructure projects to all stakeholders.

The Eastern Africa Power Pool (EAPP) is a specialized institution of COMESA created to foster power system interconnectivity. Its member countries are: Burundi, Democratic Republic of Congo (DRC), Egypt, Ethiopia, Kenya, Libya, Rwanda and Sudan, Tanzania, and Uganda. Its main objective is the optimum development of energy resources in the region and to ease the access to electricity power supply to all people in the Eastern Africa Region through the regional power interconnections. Its goals are:

- To be a framework for pooling energy resources, promoting power exchanges between utilities in Eastern Africa and reduce power supply costs based on an integrated master plan and pre-established rules (Grid code).
- Optimize the usage of energy resources available in the Region by working out regional investment schemes in Power Generation, Transmission and Distribution.
- Reduce electricity cost in the Region by using power systems interconnection and increasing power exchanges between countries.
- Provide efficient co-ordination between various initiatives taken in the fields of power production, transmission as well as exchanges in the Region.
- To be a framework for pooling energy resources, promoting power exchanges between utilities in Eastern Africa and reduce power supply costs based on an integrated master plan and pre-established rules (Grid code).
- Optimize the usage of energy resources available in the Region by working out regional investment

schemes in Power Generation, Transmission and Distribution.

- Reduce electricity cost in the Region by using power systems interconnection and increasing power exchanges between countries.
- Provide efficient co-ordination between various initiatives taken in the fields of power production, transmission as well as exchanges in the Region.

EAC

EAC includes the Republics of Burundi, Kenya, Rwanda, South Sudan, the United Republic of Tanzania, and the Republic of Uganda. At the 20th Ordinary Summit of the EAC Heads of State in February 2019, the following milestones achieved in the last two years in the EAC priority infrastructure projects were highlighted:

- The completion of the Arusha-Tengeru Dual Carriageway and the near completion of the Arusha Bypass Road. Both roads are part of the completed Multinational Arusha-Holili/Taveta-Voi Road, and the Arusha-Namanga-Athi River Road, both of which the EAC provided technical support.
- The EAC mobilized funds and coordinated the feasibility studies and design for two key links for the Republics of Rwanda and Burundi to the Central Corridor. One project is the 250km long Nyakanzi-Kasulu-Manyovu road in Tanzania linking to the 78km long Rumonge-Bujumbura road in Burundi. The other is the 92km long Lusahunga - Rusumo Road in Tanzania linking to the 70km long Kayonza-Kigali road in Rwanda.
- The EAC Lake Victoria Water and Sanitation Project (LVWATSAN II) has implemented various interventions aimed at developing and/or improving water supply and sanitation services for 15 secondary towns in Burundi, Kenya, Rwanda, Tanzania and Uganda. These projects, most of which were commissioned in 2018, were designed to provide reliable portable water to the populations until 2035.

In February 2018, EAC issued the report Heads of State Priority Infrastructure Projects – Implementation Progress and Status Updates. The theme of the report was the Development of Resilient Infrastructure to Accelerate Industrialization and Support Trade to

Foster Socio-Economic Transformation in the East African Community. The report identifies a number of priority, high-impact regional integration projects and programs.

ECOWAS

ECOWAS includes 15 member countries: Benin, Burkina Faso, Cape Verde, Côte d’Ivoire, the Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal and Togo. ECOWAS was set up to foster the ideal of collective self-sufficiency for its member states. As a trading union, it is also meant to create a single, large trading bloc through economic cooperation. All infrastructure sectors are included in ECOWAS’ integrated economic activities. Expectations of economic integration have always been high and a lot has been accomplished by the regional group. The vision of ECOWAS is the creation of a borderless region where the population has access to its abundant resources and is able to exploit same through the creation of opportunities under a sustainable environment. Considerable efforts have now been made in harmonizing macroeconomic policies and private sector promotion towards achieving economic integration.

The West African Power Pool (WAPP) is a Specialized Institution of ECOWAS. Its vision is to integrate the national power systems into a unified regional electricity market with the ultimate goal of providing in the medium and long term, a regular and reliable energy at competitive cost to the citizenry of the ECOWAS region. Its mission is to promote and develop power generation and transmission infrastructures as well as to coordination power exchange among the ECOWAS Member states.

IGAD

The IGAD Region comprises the countries of Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda. IGAD infrastructure interventions are based on the Horn of Africa Initiative (HOAI). The HOAI was designed to provide the IGAD Region with badly needed connectivity but guided by a broad regional policy that calls for a safe, secure and efficient integrated infrastructure system responsive to the needs of the people and the economy and to

strengthening of regional integration by unlocking small scattered markets along the region and creating a bigger regional market space that will enhance IGAD's economic competitiveness. The main thrust for the IGAD regional infrastructure is in line with the AU PIDA strategic framework for 2040. The IGAD Free Trade Area (FTA) aims to reduce travel restrictions persisting in the region and to facilitate movement, the right of establishment of business and employment, residence, the acquisition of work permits, and pastoral mobility.

SADC

SADC comprises 16 Member States: Angola, Botswana, Comoros, DRC, Eswanati, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Tanzania and Zimbabwe. It is committed to regional integration and poverty eradication within Southern Africa through economic development and ensuring peace and security. Its goal is to promote sustainable and equitable economic growth and socio-economic development through efficient productive systems, deeper cooperation and integration, good governance and durable peace and security among its member states.

SADC includes large countries with large economies, small, isolated economies and island states, and a mix of low- and middle-income countries. Regional infrastructure development creates a larger market and greater economic opportunities, and the development of infrastructure is critical for promoting and sustaining regional economic development, trade and investment, and will contribute to poverty eradication and improved social conditions.

SADC has made significant progress in regional infrastructure development. Infrastructure includes regional transport and communications systems, which are fundamental to cooperation in the SADC region. Energy, water and sanitation, and meteorology are also critical components of regional infrastructure. However, the SADC region recognizes that it faces a number of challenges, including:

- Insufficient energy supply to serve increased production and to extend access;
- Highly priced, unpredictable transport and logistics

services, especially for landlocked states;

- Lack of low-cost access to information and communications technologies;
- Inadequate meteorological services for effective and efficient planning and management of water resources, energy production, transport services and other climate-sensitive sectors;
- Unacceptably high number of citizens without access to safe drinking water, adequate sanitation and water for irrigation to improve systems for agricultural production which will contribute to food security; and
- Slow response to new tourism trends and opportunities.

The 2012 Regional Infrastructure Development Master Plan (RIDMP) guides development in key infrastructure such as road, rail and ports, and also acts as a framework for planning and cooperation with development partners and the private sector. Implemented over three five-year intervals from 2012 to 2027, (2012-2017), the RIDMP is in line with the SADC Vision 2027, a 15-year implementation horizon for forecasting infrastructure requirements in the region, and with the African Union's PIDA. The adoption of the RIDMP was informed by the member states' decision that infrastructure development and maintenance is a priority for accelerated regional integration, economic development and trade. Member states decided that the key barriers to trade and industrialization could be addressed through the provision of seamless trans-boundary infrastructure for transport, power generation and transmission systems, regional telecommunications infrastructure, as well as river basin organizations, water supply and sanitation.

The Southern African Power Pool (SAPP) is a cooperation of the national electricity companies in Southern Africa under SADC's auspices. Its members have created a common power grid between their countries and a common market for electricity in the SADC region. One of the main goals is to increase the accessibility of electricity to rural communities. Another goal is to improve the relationships between the member countries. There is a need to develop sustainable development priorities, and to co-ordinate the planning of electric power.



ICA Member Financing

In 2018, ICA members committed \$20.2bn to Africa’s infrastructure, an increase over the \$19.4bn average of the three previous years. Funding for energy operations amounted to \$10.2bn, close to half of total commitments, establishing the energy sector as the sector receiving the largest share of ICA member financing in the 2014-2018 period, with the exception of 2017, when the transport sector had received the largest share of financing. The level of financing for the transport sector, \$3.9bn was 40% lower than the \$6.6bn average for 2015-2017. The financing of \$5.1bn in the water and sanitation sector in 2018 represents around 25% of total commitments, in line with its representation in 2016 and 2017. The ICT sector accounted for \$503m in commitments and multi-sector operations for \$527m.²⁰

Commitments by region show that West Africa, at \$6bn, received the largest share of 2018 commitments (30%), with almost half of the commitments targeted the energy sector. East Africa accounted for 18% of total commitments at \$3.7bn. Commitments to projects in Central Africa at \$2.1bn were 10% of the total and reflected a sharp increase in the energy sector and a substantial decrease in the transport sector. The level of commitments for operations in North Africa, at \$3.5bn in 2018, was 17% of the total, in 2018. The overall decrease is the result of reductions in transport,

energy, and ICT. Only the water and sanitation sector saw an increase in commitments.

Commitments to the Southern Africa region (excluding RSA), at \$1.3bn were significantly lower than the \$2.3bn annual average reported for 2015-2017. Commitments

²⁰ This amount does not include commitments by the EC and the UK. For reference, the EC has historically committed over \$1bn on average per year in the 2012-2016 period. The UK had committed \$623m in 2017 and \$569m in 2016 and has indicated that they expected their 2018 commitments to be in line with their 2017 commitments.

TABLE 4.1 Energy sector received nearly half of ICA member commitments

ICA Member 2018 Commitments by Sector and Source (\$m)

Source	Transport	Water	Energy	ICT	Multi-sector	Total Commitments
AfDB	2,122	941	1,425	49	-	4,538
Canada	-	13	12	0	13	39
EIB	442	626	904	-	253	2,225
EU-AITF	-	-	20	-	-	20
France	510	359	1,048	18	-	1,936
Germany	-	413	1,047	-	147	1,608
Italy	-	20	-	-	-	20
Japan	186	76	255	-	-	517
South Africa	37	272	680	-	68	1,055
US	24	161	64	1	47	297
WBG	603	2,254	4,698	435	-	7,989
Total	3,923	5,136	10,154	503	527	20,243

to projects in RSA, at \$1.7bn, were much higher than the \$1.1bn average of the three preceding years and was driven by the \$1.1bn targeted to energy projects.

\$12.1bn were disbursed by ICA members in 2018, slightly higher than the \$10.9bn reported in 2017. In line with past years, the largest share of total disbursements, 38%, was directed at the energy sector. Disbursements were highest for West Africa at \$2.7bn, followed by \$2.5bn in East Africa and \$2.2bn in North Africa.

4.1 Trends in Commitments and Disbursements²¹

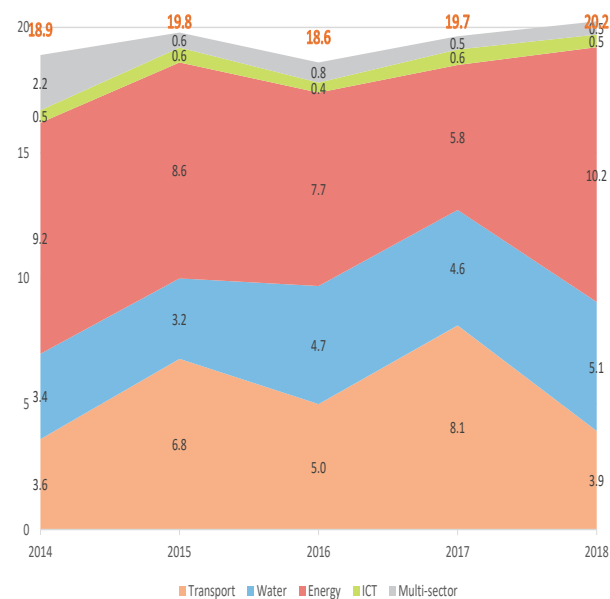
Commitments

Since 2014, the overall level of commitments by ICA members has remained fairly steady, ranging from \$18.6bn in 2016 to \$19.8bn in 2015, with a yearly 2014-2017 average of \$19.3bn. Infrastructure investments are lumpy thus resulting in significant year to year fluctuations in commitments at the sector level, particularly in energy and transport. But no sector

²¹ The main purpose of this report is to present data on investments in infrastructure in Africa in 2018, to identify trends in comparisons with previous years, to help identify the reasons for the trends and to discuss the future implications. The following trend analysis presents five years of data points going back to 2014.

FIGURE 4.1 Overall commitments were steady, averaging \$19.3bn

ICA Commitment Trends by Sector (\$bn), 2014-2018



shows a clear increasing or decreasing trend in financing (see Figure 4.1). The average annual level of commitments by sector for the 2015-2017 period is as follows: transport: \$6.6bn; water and sanitation: \$4.2bn; energy: \$7.4bn; ICT: \$0.5bn, and multi-sector: \$0.6bn.

At \$3.9bn, 2018 commitments to the transport sector were less than half their 2017 level, \$8.1bn, the highest level of commitments for transport operations ever recorded since ICA started gathering such data in 2010. Setting 2017 aside, they were also lower than the \$5.1bn average for the 2014-2016. The energy sector, at \$10.2bn, saw a substantial increase in commitments in 2018 over its \$5.8bn 2017 level. Commitments to the water and sanitation sector, at \$5.1bn, reflected an increase over the 2017 level of \$4.6bn and the 2016 level of \$4.7bn. Commitments in ICT, at \$503m in 2018, were slightly less than the \$618m reported in 2017. Commitments targeting multi-sector operations were small (\$527m), essentially the same level as in 2017 (\$528m).

Commitments by region in 2018 show wide variations over 2017 (see Figure 4.2 below): substantial increases were allocated to RSA (\$1.2bn), to the West Africa region (\$1.1bn), and to multi-regional operations (\$1.1bn), whereas the Southern Africa region received significantly less (\$2.4bn), and East and North Africa regions received lesser amounts, \$404m and \$188m respectively. The level of commitments to Central Africa increased slightly by \$200m.

The ICA member commitments by donor and region for 2018 are shown in Figure 4.3.



Infrastructure investments are lumpy thus resulting in significant year to year fluctuations in commitments at the sector level, particularly in energy and transport. But no sector shows a clear increasing or decreasing trend in financing.

FIGURE 4.2 Commitments showed a wide variation by region

ICA Commitment Trends by Region (\$bn), 2014-2018

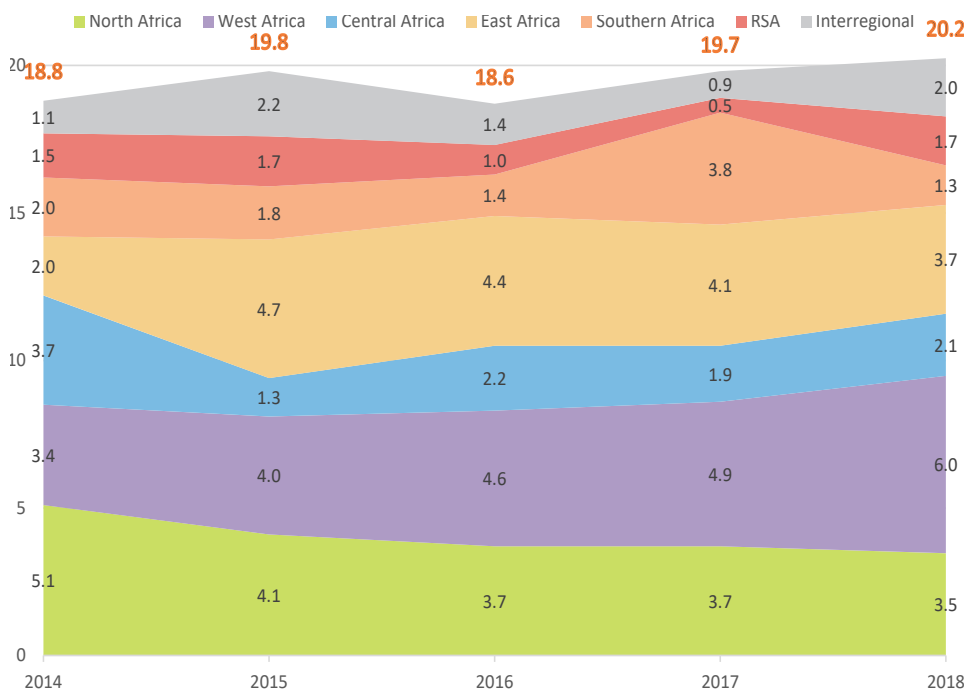
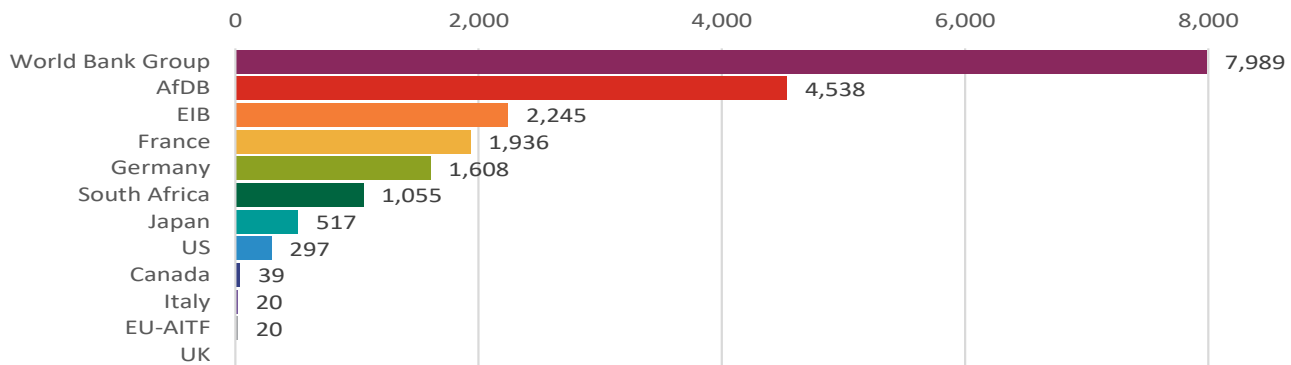


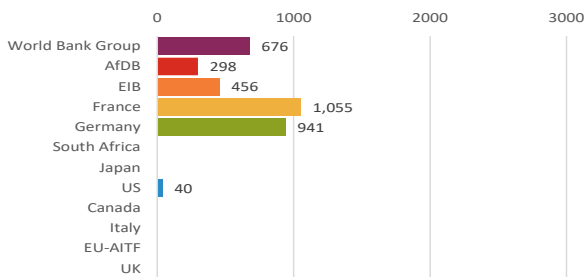
FIGURE 4.3 AfDB and WBG made up more than 60% of ICA member commitments

ICA Member Commitments by Donor and Region (\$m), 2018

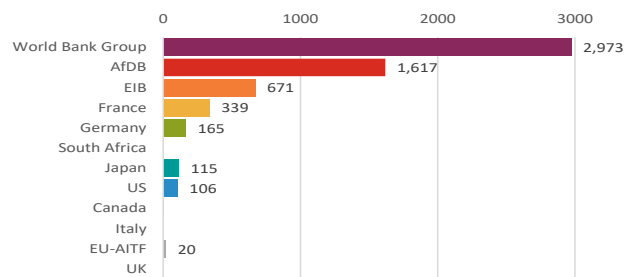
Total Commitments



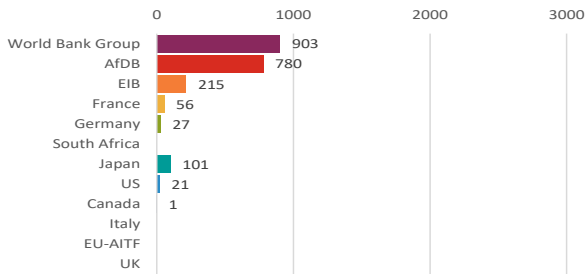
North Africa



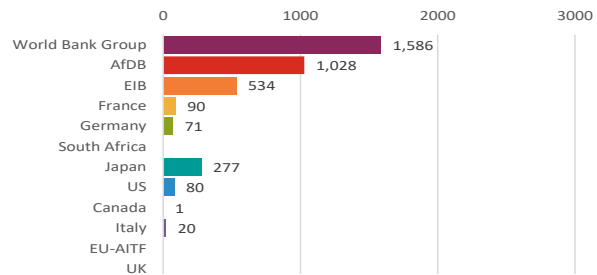
West Africa



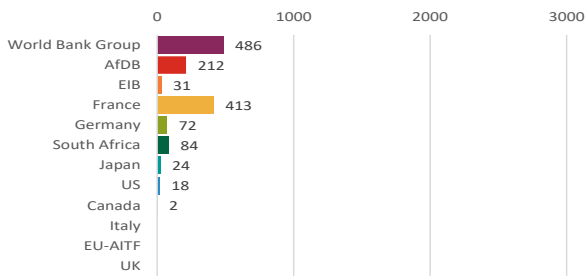
Central Africa



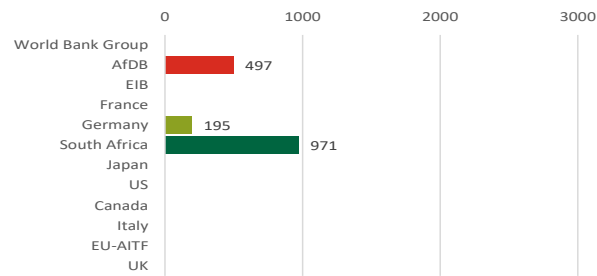
East Africa



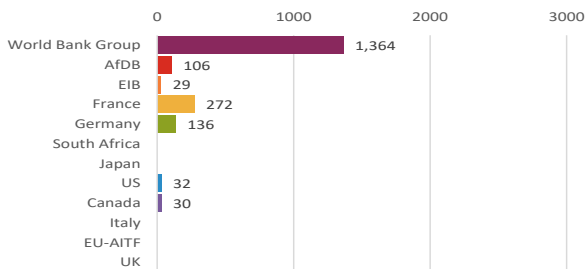
Southern Africa



RSA



Interregional



Disbursements

Disbursements by ICA members totaled \$12.1bn in 2018, 11% higher than the \$10.9bn reported in 2017, but slightly lower than the 2014-2017 average of \$12.5bn. As in previous years, the majority of 2018 disbursements were made by multilateral organizations for a total of \$8.4bn, or 70% of total disbursements. Disbursement by bilateral agencies accounted for the remaining \$3.7bn.

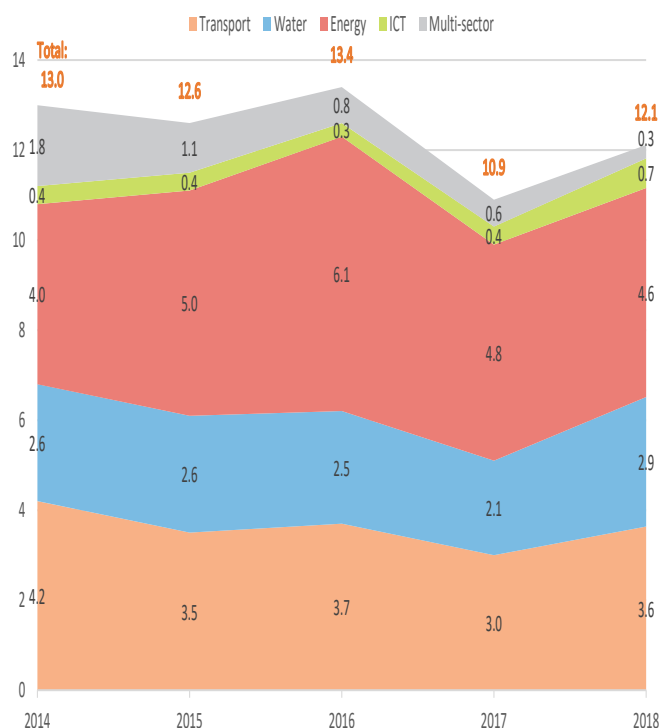
The largest share of total disbursements targeted the energy sector, as had been the case in previous years, accounting for 38% of total disbursements. The \$4.6bn disbursed were slightly lower than the \$4.8bn disbursed in 2017, which represented 44% of 2017 disbursements. Large increases in disbursements were reported over the previous year for water and sanitation operations, \$747m (24%), transport, \$597m (30%), and ICT, \$275 (71%). Disbursements for multi-sector operations went down by \$325m (53%) (Figure 4.4).

The regional breakdown of disbursements saw several significant changes: substantially larger amounts were disbursed for operations in Southern Africa (\$838m, more than double the 2017 disbursements), West Africa (\$550m, 25%), Central Africa (\$439m, 43%), multi-regional projects (\$415m, 140%), and East Africa (\$343m, 16%). Large reductions in disbursements affected North Africa (reduction of \$706m, or 24%), and RSA (\$711m, 45%).

The WBG disbursed \$5.5bn, the largest amount reported by any ICA member, and markedly higher than the \$4.3bn it disbursed in 2017 and the \$4.2bn it disbursed in 2016. Of the WBG's total disbursements, \$1.9bn (35%) targeted the energy sector, \$1.7bn (31%) the transport sector, and \$1.3bn (23%) the water and sanitation sector. The WBG disbursed over \$1bn for operations in each of three regions: \$1.4bn in East Africa, \$1.2bn in West Africa, and \$1.1bn in Southern Africa. Smaller amounts were disbursed for projects in North Africa (\$859m), and Central Africa (\$839m).

FIGURE 4.4 Disbursements increased 11% from 2017 but are still below the 2016 high

ICA Member Disbursement Trends by Sector (\$bn), 2014-2018



The AfDB reported disbursements of \$2.9bn, 11% more than the \$2.6bn it reported in 2017, and 21% more than the \$2.4bn it reported in 2016. Of the total amount disbursed, \$1.5bn (51%) was for operations in the transport sector, and \$920m to the energy sector. At the regional level, the largest share of disbursements went to West Africa (\$764m, 26% of total disbursements), followed by East Africa (\$639m, 22%), and disbursements for multi-regional operations (\$421m, 15%).

The bilateral agencies disbursed \$3.7bn in 2018, \$600m or 19% more than in 2017. Among them, France disbursed the largest amount, \$1.7bn or 46% of total disbursements by bilateral agency ICA members. This is a 41% increase over the \$1.1bn France disbursed in 2017, and a 17% increase over its 2016 disbursements. At \$780m, disbursements by Germany were the second largest and accounted for 21% of bilateral disbursements. South Africa disbursed \$707m (or

TABLE 4.2 Transport was the largest sector in NEPAD commitments

NEPAD IPPF Commitments, 2018

Sector	Project	Region	Commitment (\$'000)
Transport	EAC – Rehabilitation of selected Road - OSBP	East Africa	315
	Oubangui River Bridge and Bangui-Kisanga	Central Africa	2,000
	Deep Sea Port of North of Guinea Conakry	West Africa	2,000
	Deep Sea Port in Guinea-Bissau	West Africa	2,000
	Complementary technical studies and PPP structuring for the construction of SAOTOME Deep Sea Transshipment Port	West Africa	2,000
Energy	Hydroelectric Ruzizi IV	East Africa	980
Water/ Sanitation	Angololo Multipurpose Water Resources	East Africa	1,500
Totals			10,800

19% of bilateral disbursements), a lower level than the \$912m it reported in 2017. Disbursements by the other bilateral agencies were as follows: \$278m by the United States (no disbursement data had been reported in 2017); \$220m by Canada, substantially higher than the \$62m reported in 2017; \$3.8m by Italy, lower than the \$5m reported in 2017; and \$1.5m by Japan, lower than the \$4m reported in 2017. The UK did not report any data for 2018 but had reported \$294m of disbursements in 2017.

NEPAD Infrastructure Project Preparation Facility

The NEPAD Infrastructure Project Preparation Facility (NEPAD-IPPF), the multi-donor fund managed by the AfDB, supports regional infrastructure development projects through grants for prefeasibility and feasibility studies, project structuring, capacity building, and the facilitation and creation of an enabling environment for regional infrastructure development. It provided

\$10.8m in commitments in support of 7 operations (Table 4.2). This compares with commitments of \$4.8m in support of 4 operations in 2017. NEPAD disbursed \$10.6m in 2018, compared with \$5m in 2017.

The largest share of commitments, 77%, supported five transport sector operations for a total amount of \$8.3m. A single water and sanitation project received \$1.5m or 14% of commitments and a single energy operation received \$0.98m or 9% of commitments. There were no commitments for the ICT sector. The West Africa region received a total of \$6m (56%) in commitments for three projects. Commitments of \$2.8m (26%) targeted 3 projects in East Africa, and commitments of \$2m (18%) targeted one operation in Central Africa.

TABLE 4.3 Loans continued to make up the majority of funding

Amount and Share of Types of Funding

Type	Amount (\$bn)	Percent
Loan	14.3	70.8%
Grant	2.4	11.9%
Blended funds - grant	0.2	1.0%
Blended funds - loan	1.1	5.7%
Blended funds - other	0.0	0.0%
Guarantees	0.9	4.3%
Equity investment	0.2	1.1%
Other	1.1	5.3%
Total	20.2	100%

4.2 Types of Funding²²

As in previous years, the majority of operations in 2018 were financed through loans. But the proportion of loans has gone down in the last few years, representing only 70.8% of total commitments as compared to an average of 73.4% in the 2015-2017 period. Grants accounted for 11.9% of commitments, slightly lower than the 12.1percent annual average in the 2015-2017 period. The share of guarantees in total financing (4.3%) more than doubled from the 2.1% share it experienced in the three previous years (Table 4.3).

4.3 Hard vs. Soft Infrastructure

ICA members reported soft infrastructure commitments (e.g. sector studies, policy analyses, project preparation, capacity building) of \$1.7bn, slightly higher than the level of \$1.5bn reported in 2017. Soft infrastructure as a proportion of total commitments stood at 8.6%, slightly higher than the 7.8% reported in 2017. France, at 31%, had by far the highest proportion of commitments to soft infrastructure.

²² Only about one third of the information ICA members provided on their disbursements was identified by funding type. It is therefore not possible to present an adequate breakdown of disbursements by funding type.

Project preparation, which is part of soft infrastructure, had commitments of \$39m, or 0.2% of total commitments, much lower than the \$120m, for 0.6% of total commitments, reported in 2017.

4.4 Country Allocations

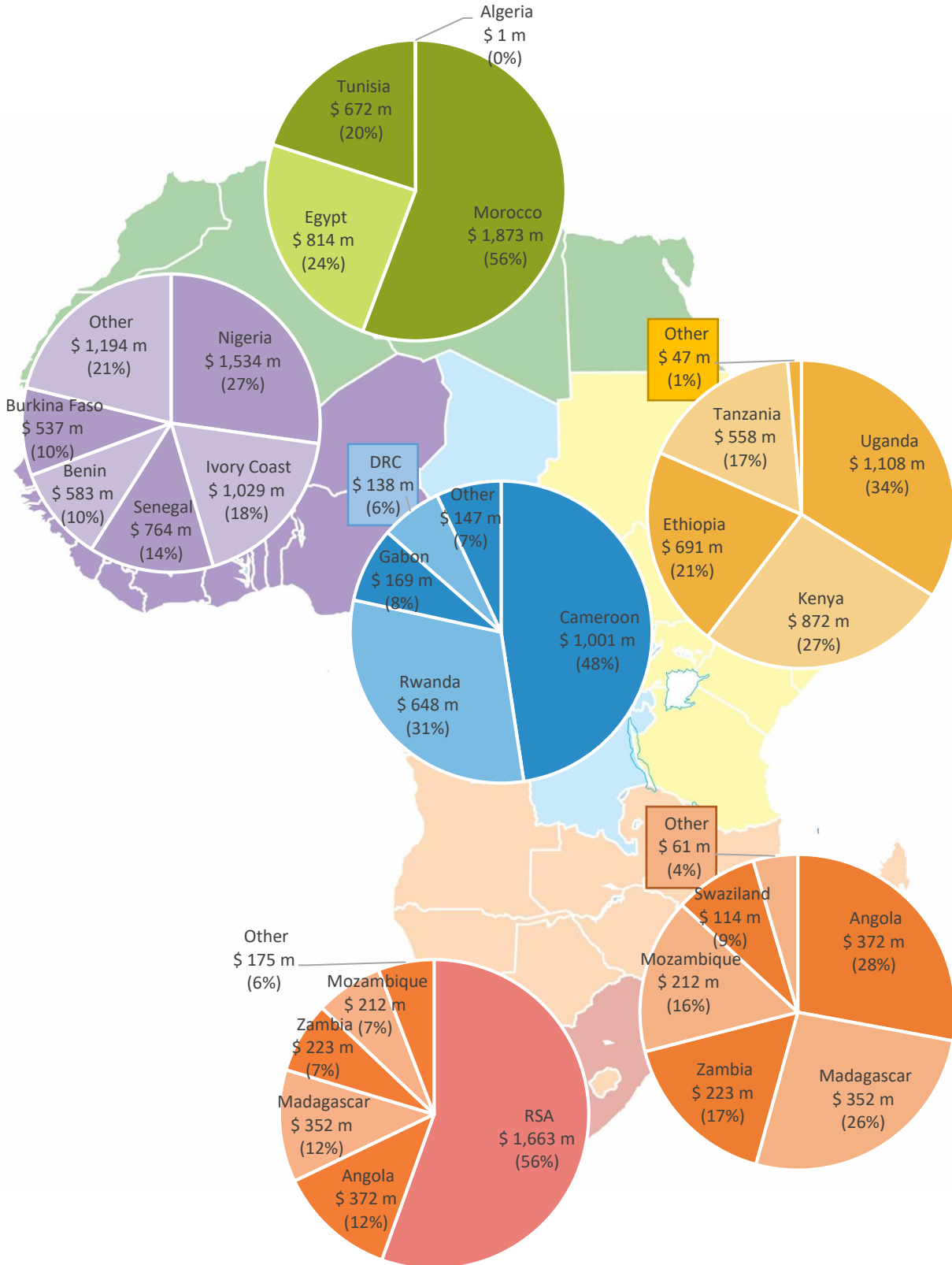
Out of the \$20.2bn ICA members committed to infrastructure projects in Africa in 2018, \$17.5bn were allocated to country-specific operations. The remainder, \$2bn, was committed to multi-regional projects and \$700m to multi-country operations within the same region.

Close to half (46%, close to \$7.8bn) of these commitments were targeted to six countries that received commitments of over \$1bn each: RSA (\$1.7bn), Nigeria (\$1.5bn), Morocco (\$1.4bn), Uganda (\$1.1bn), Côte d'Ivoire (\$1bn), and Cameroon (\$1bn). Commitments to Egypt in 2018, at \$824m, were less than half of the \$1.7bn level in 2017, the largest country allocation noted for that year. Most (87%) of commitments to Egypt supported the water and sanitation sector.

The largest commitments in the transport sector supported operations in Côte d'Ivoire (\$606m) and Uganda (\$426m). Recipients of significant financing in water and sanitation were Egypt (\$713m), Kenya (\$477m), and Tanzania (\$401m). The highest commitments in energy were for projects in Nigeria (\$1.3bn, which represented 89% of total ICA members' commitments to that country), RSA (\$1.1bn), Cameroon (\$963m, which represented 96% of total ICA members' commitments to that country), and Morocco (\$872m). The largest amount in support of the ICT sector went to Ethiopia (\$132m) and Senegal (\$90m).

FIGURE 4.5 RSA benefited from more commitments than the rest of Southern Africa

ICA Commitments to Countries (\$m), 2018



4.5 PIDA-PAP Commitments

The Programme for Infrastructure Development in Africa Priority Plan (PIDA-PAP) extends to 2020 and comprises over 400 projects covering transport, energy, ICT, and trans-boundary water sectors. In 2018, AfDB was the only ICA member to report commitments, for an amount of \$51m.

The PIDA Project Dashboard²³ shows that there were five operations which reached the financing approval stage in 2018²⁴:

Two of these projects, the Kasulu-Kibondo Nyakanazi Road Project and the Lushunga-Rusumo Road Project, both in Tanzania, are part of the Central Multimodal Transport Corridor Program which entails the upgrading and modernization of 176 kilometers of highway and upgrading of 890 kilometers of road comprising five road-related smart corridor modules, including the creation of seven one-stop border posts. A rail module will be implemented. This program has a strong regional integration perspective: the roads, between Tanzania, Uganda, Rwanda, Burundi and the Democratic Republic of Congo, will improve transport efficiency in the Central and East Africa regions. Both the Common Market for Eastern and Southern Africa and the East African Community will be involved in project implementation. With a more efficient transport system, people and goods will more easily cross borders, while transport capacities and regional trade will increase. This will lead to cost savings

²³ <https://www.au-pida.org/pida-projects/>

²⁴ Phase S3B - Transaction Support & Financial Close. Project Funding Approved; Credit Enhancing Mechanisms in place.

With a more efficient transport system, people and goods will more easily cross borders, while transport capacities and regional trade will increase. This will lead to cost savings and will speed up regional integration in East Africa.

TABLE 4.4 2018 PIDA operations supported regional intergration

2018 PIDA Operations

Sector	PIDA Program	Project	Country	Description	REC participation
Transport	Central Multimodal Transport Corridor	Kasulu-Kibondo Nyakanazi Road	Tanzania	Upgrading of 250 km of single carriageway road	EAC
		Lushunga-Rusumo Road	Tanzania	Rehabilitation of 91 km of single carriageway road	EAC
	Lamu Gateway Development	Garissa-Isiolo Highway	Kenya, South Sudan	Construction of heavy transportation route of 305 km	EAC
	Northern Multimodal Transport Corridor	Rusizi/Bukavu OSBP	Rwanda, DRC	Construction of OSBP	EAC
Energy	Ruzizi II Hydropower	Ruzizi III Hydropower	Rwanda, Burundi, DRC	Construction of a 147 MW Ruzizi III hydro-electric dam and distribution station between Rwanda and DRC on the Ruzizi river.	EAC

and will speed up regional integration in East Africa. The Kasulu-Kibondo Nyakanazi Road Project will involve the upgrading of 250 km of single carriageway from Kasulu to Kibondo to Nyakanazi. The Lusahunga-Rusumo Road Project will include the rehabilitation of 91km of single carriageway road between Lusahunga and Rusumo.

Another operation is the Garissa-Isiolo Highway Project which comprises the inter-regional highway network of the LAPSET (Lamu Port South Sudan Ethiopia Transport) Corridor, with road components connecting the Lamu Port (Kenya) through Garissa and Isiolo to Nadapal across the border in South Sudan. This project is part of the Lamu Gateway Development Program which includes the rollout of six smart corridor modules, including a new multimodal African Regional Transport Infrastructure Network gateway deep-water port. This program has a strong regional integration objective.

The increased port capacity will improve the handling of both the domestic and land-locked country demand and will increase regional trade and export proficiencies. A smart corridor in the area will not only increase the efficiency of the transport sector, but also transport capabilities, which will lead to cost savings. The AfDB funded the preparation. The Government of Kenya and the WB are financing the operation.

The fourth operation involves the construction of the Rusizi/Bukavu One Stop Border Post (OSBP) between Rwanda and DRC. This project is part of the Northern Multimodal Transport Corridor which entails the design and implementation of a smart corridor system for both road and rail on the multi-modal African Regional Transport Infrastructure Network (ARTIN) in Southern Africa. It has a solid regional integration goal. Such a development will allow easy border crossings for both passengers and goods between RSA, Botswana, Zimbabwe, Zambia, Malawi and the Democratic Republic of Congo. It will increase the efficiency and capacity of the transport sector. The more efficient transport system will speed up regional integration and will increase regional trade, while leading to cost savings. Railways will become more competitive with road transport. The project includes the modernization of ARTIN and includes 560 kilometers of highway and 900 kilometers of road. It also entails the construction of 180 kilometers of railway line and the modernization of the rail



The Ruzizi III Hydropower Project will develop a regional renewable energy source and allow for the supply of low-cost electricity in Rwanda, Burundi and the Kivu region of the Democratic Republic of Congo.



network. The construction of four one-stop border posts is also in the pipeline.

The fifth PIDA operation with financing approved in 2018 is the Ruzizi III Hydropower Project. The project will supply electricity in equal proportion to Rwanda, Burundi and the Kivu region of the Democratic Republic of Congo (DRC). It is located on the border between Rwanda and DRC and in the international trans-border Kivu-Ruzizi basin. The project is expected to supply low-cost electricity to the three countries in the East African Community (EAC) and the Common Market for Eastern and Southern Africa (COMESA). The Ruzizi III hydropower plant (145 MW capacity) will be constructed on the border between Rwanda and the DRC. It is of a run-of-the-river hydro-project type which will also allow for the control of the water level in the river basin. The Economic Community of the Great Lakes Countries (ECGLC) will be involved in the implementation of this renewable energy project. This sub-regional organization is aimed at ensuring the safety of member states and favoring the creation and development of public interest projects, among others. The project will develop a regional renewable energy source and allow for the supply of low-cost electricity to the countries involved and for the regulation of the water basin. AfDB and the European Development Fund are co-financing the operation.

4.6 ICA Member Activities

African Development Bank (AfDB)

Commitments of \$4.5bn were reported in 2018, substantially higher (32%) than the \$3.4bn level reported in 2017 and higher than the levels of the prior years, \$4bn in 2016, and \$4.2bn in 2015.

The AfDB committed \$2.1bn to transport operations, substantially higher than the amounts reported in 2016-2017. The largest commitment was a loan for the Abidjan Urban Transport Project in Côte d'Ivoire to build the fourth bridge over the Ebrié lagoon and 88 kilometers of expressways, linking the business and administrative centers to the country's most densely populated suburb, benefitting around 2

million commuters yearly. Another large operation, the Kampala-Jinja Expressway, will link land-locked Democratic Republic of Congo, Rwanda, and Uganda to sea trade. The AfDB is structuring its innovative financing through instruments such as viability gap funding, project finance, bonds, partial risk and partial credit guarantees.

Energy commitments in 2018 at \$1.4bn were at the same level as those reported in 2017, and markedly higher than the \$882m reported in 2016 and the \$1.1bn reported 2015. The three largest commitments supported a project in Rwanda and two projects in RSA. The Second Rwanda Scaling Up Energy Access project supports the country's energy targets of universal electricity access to Kigali city by 2019 and nationwide by 2024. The Redstone 100MW Concentrated Solar Power Project is expected to boost RSA's energy mix and hasten the transition to renewable energy. The Eskom Transmission Improvement Project, also in RSA, supports the upgrade and expansion of transmission facilities, crucial to power supply within the sub-region.

Water and sanitation commitments for 2018 amounted to \$941m. Over the years, this sector has experienced wide fluctuations in commitments: \$481m in 2017, 1.2bn in 2016, and \$519m in 2015. The largest commitment supported the Sustainable Development of Abu-Rawash Wastewater Treatment Plant Project in Egypt through two loans – one from AfDB and the other from the AfDB-managed Africa Growing Together Fund (AGTF)²⁵. The objectives of the project are to improve the quality of wastewater discharged into the drainage system in Cairo-west (Giza), and to increase the coverage of improved sanitation and clean environment for the nearly 8 million people living in the project area.

²⁵ China and AfDB created the AGTF in 2014 as a co-financed \$2bn fund to be used alongside the AfDB's own resources to finance eligible sovereign and non-sovereign guaranteed development projects in Africa.

Commitments of \$49m were reported for the ICT sector, a much smaller amount than the annual average of \$110m reported in previous years: \$100m in 2017, \$119m in 2016, and \$122m in 2015.

Canada

Canada reported commitments of \$39m, almost double the \$19m reported in 2017 and more than six times higher than the \$6m reported in 2016. All commitments were grants supporting project preparation – Water and sanitation (\$13m), multisector (\$13m), energy (\$12m), and ICT (\$51,000).

FinDev Canada, a subsidiary of Export Development Canada (EDC), Canada's export credit agency, opened for business in early 2018 with a mandate to support the growth and sustainability of businesses in developing markets by providing easier access to capital for entrepreneurs. Its goal is to help create jobs, promote women's economic empowerment, and contribute to a cleaner and greener environment. By filling the gap between commercial support and development assistance, through the delivery of innovative financial solutions, FinDev Canada brings financial strength to businesses in developing markets and supports local private sector activity where it contributes to sustainable development. FinDev Canada offers a wide range of financing and equity investments: direct loans, guarantees, structured and project financing.

European Investment Bank (EIB)

Total commitments of EIB in 2018 amounted to \$1.7bn. The largest portion, \$621m, targeted the water and sanitation sector. The Fayoum Wastewater Expansion Project in Egypt (\$140m)²⁶ will provide first-time sewerage infrastructure to over 800,000 unserved rural people. The objectives of the Priority Water Supply Investments in Angola (\$111m) are to strengthen the institutional capacity of selected water sector agencies and increase water service coverage in the nine provincial capitals, predominately in under-served, low-income, peri-urban areas. These interventions are expected to improve the public health and climate

change resilience in the targeted cities, in addition to saving time and increasing economic productivity.

EIB committed \$462m to operations in the energy sector. One of the most sizeable commitments was for the Electric Interconnection Project in Guinea (\$145m) to support the implementation of 225 kV power lines interconnecting Mali with the OMVG (the Gambia River Basin Development Organization) interconnector (in Middle Guinea) as well as the CLSG (Côte d'Ivoire, Liberia, Sierra Leone, Guinea) interconnector. The project also includes several substations and the associated distribution network supporting rural electrification along the line route. The project supports the development of hydropower potential of Guinea while fostering regional electricity trade to Mali as well as to enable the electrification of Forested Guinea and Upper Guinea.

Commitments of \$544m went to the transport sector, including \$128m for the Modernization of the Roads Network in Madagascar. The project concerns the rehabilitation of several priority road sub-sections in the northern and southern parts of Madagascar, allowing access to ports. The modernization of the road network will increase people's mobility and support the transportation of goods, help the business environment and strengthen and develop the private sector thereby unlocking growth potential in the project areas.

Commitments of \$122m support the Upgrade of the Great North Road in Zambia. The project is a joint COMESA/EAC/SADCAid for Trade Initiative, the primary aim of which is to lower transport cost along this key regional road corridor. It will contribute to transforming centrally located Zambia from a land-locked to a land-linked country, while fostering continental integration and promoting inclusive economic growth and poverty reduction. It will help diversify the Zambian economy and unlock the country's economic potential. The upgrade of the Great North Road will also make the road more resilient to climate change and safer for road users and local communities.

EIB committed \$57m to the ICT sector, of which \$18m will contribute to the East and Central Africa Optical Fiber Roll-out Project with an estimated total cost of \$46m. The project will lead to the deployment of five

²⁶ Additional information on this project is included in Chapter 9 – Regional Analysis



different fiber optics networks in Kenya, Rwanda Uganda, Zambia and the Democratic Republic of the Congo (DRC). In total, the networks deployed will have a total length of around 4,850 km, including 3,850 km of terrestrial fiber cable and around 1,000 km of submarine cable in Lake Tanganyika and Lake Albert.

EU-AITF

In 2018, EU-AITF, the European Union Africa Infrastructure Trust Fund reported commitments²⁷ of \$20m, substantially less than the levels of previous years: \$76m in 2017, \$64m in 2016, and \$156m in 2015. The \$20m grant supported the Niger Electricity Access II project, a multi-component investment program aimed at extending and reinforcing the electricity transmission and distribution network of Niger over the period 2019-2023. The project will improve access to electricity by providing new connections to 100,000 households. EU-AITF also reported disbursements of \$17m in 2018.

²⁷ <http://www.eu-africa-infrastructure-tf.net/attachments/Annual%20Reports/eu-africa-infrastructure-trust-fund-annual-report-2018.pdf>

France

France reported total commitments of \$1.9bn, from the AFD, Proparco (its subsidiary for private sector development), and the Fonds Français pour l'Environnement Mondial (French Fund for Global Environment).

Close to half of total commitments (\$1bn) targeted the energy sector. One of the largest operations, the Nachtigal Hydroelectric Project (420 MW), was allocated \$212m in commitments. The project includes roller compacted concrete dams, a headrace channel, a power plant with seven generating units, a generation substation and a transmission line to be constructed on the central course of Sanaga River, 65 km north east from Yaoundé. The project is developed by the, Nachtigal Hydro Power Company (NHPC) whose shareholders are the Republic of Cameroon, Electricité de France (EDF) and the WBG's International Finance Corporation (IFC).

The transport sector received \$510m in commitments, of which \$209m were committed to the Kampala-Jinja Expressway Project in Uganda, through a combination of grant and loan. The AfDB co-finances this project. Two urban transport projects, the Casablanca lines 3 and 4 Tramway Project in Morocco and the TER Dakar in Senegal, each received commitments of \$118m. The Casablanca Tramway project is a primary element of the Casablanca Urban Development Program, the result of a Morocco-France alliance. The program aims to enhance the living conditions of Casablanca, along with increasing its economic potential. The Dakar TER (regional express train) project includes the construction of a 55km rail line that will ultimately connect the Dakar city center with its international airport.

Commitments of \$359m targeted the water and sanitation sector, including \$38m to support the Ouahigouya Water Supply project in Burkina Faso which, at completion, will provide drinking water to 225,000 people, and will add 150,000 new connections to the distribution network.

France committed \$18m to the ICT sector, most of which (\$17m) was allocated to a regional project in East Africa for the expansion of the ETIX data center network. France also supported the AFD Digital Challenge – Digital Technology promoting Gender Equality through \$165,000 in grants which rewarded five start-ups that use innovative digital technologies for initiatives that promote women's economic, social, cultural, and political inclusion.

Germany

Germany reported total commitments of \$1.6bn, all from the KfW Group (KfW).²⁸ Germany's total commitments in 2018 are almost twice the level of commitments reported in 2017, \$838m, and significantly higher than the levels reported in 2016, \$1.1bn, and in 2015, \$1.1bn.

Commitments to the energy sector amounted to \$1bn. In addition, KfW committed \$413m to the water and sanitation sector. A \$93m loan supports the Clean Water for CapeTown Project in RSA, which finances the modernization of obsolete and overburdened sewage treatment plants. To this end, KfW granted, for the first time, a loan directly to a city. The aim of the project is to improve the climate efficiency of sewage treatment and increase the purification performance of existing sewage treatment plants. An additional objective is to increase water availability by processing treated sewage.

Italy

There was a single commitment of \$20m, a loan, to support a sanitation project in Ethiopia.

Japan

Japan reported total commitments of \$517m in 2018, substantially less than the reported level of \$2.4bn for each of 2017 and 2016. It is quite likely that commitment numbers will be higher in 2019, considering that Japan has committed to keep investing in infrastructure projects and to contribute to the promotion of quality

infrastructure investment in Africa, as stated at the Seventh Tokyo International Conference on African Development (TICAD 7). For example, Japan and the AfDB announced in August 2019 a new agreement of \$3.5bn joint (50% each) target under the Enhanced Private Sector Assistance for Africa initiative (EPSA4). Electricity, transport, and health were identified as key priorities.

Commitments of \$255m, close to 50% of total commitments, were directed at the energy sector. The most sizeable commitment, a \$122m loan, supports the Kampala Metropolitan Transmission System Improvement Project. In order to stabilize and improve the reliability of the power supply, the project will construct new 220kilovolt substations, upgrade 132 existing kilovolt substations, strengthen the urban electricity transmission grid and provide a mobile substation for emergency response.

Japan committed \$186m to the transport sector. A \$20m JICA grant to Zimbabwe supports the Project for Road Improvement of the Northern Part of the North-South Corridor Project. The project will improve transportation and logistics as well as traffic safety in the northern mountainous part of the North-South Corridor, which connects Zambia and RSA, by constructing climbing lanes and rehabilitating sharp curves.

JICA also committed a \$68m loan to support the Ngoma-Ramiro Road Upgrading Project. The project will pave and widen unimproved road along the Ngoma-Ramiro interval (approximately 53 kilometers) of National Road 6, which is a key part of the logistics network in Rwanda that connects Kigali to the Central Corridor and extends to the Port of Dar es Salaam via Tanzania. These measures will ensure an efficient transportation route and boost the transportation capacity in the project target area, contributing to stimulation of goods distribution in Rwanda and nearby countries.

Japan committed \$76m to the water and sanitation sector. Among these commitments, a \$25m grant will support the Project for the Development of Irrigation System in the Atari Basin Area in Uganda. Irrigation and

²⁸ Technical cooperation provided by GIZ, the German agency for international cooperation, were not quantified in this report.

incidental facilities will be constructed in the project area to provide a stable supply of irrigation water, contributing to higher incomes in rural areas through increased rice production. It is expected that, by three years from the completion of the project, the acreage of irrigated land in the target region will be at least tripled, the land under rice production will more than double, and rice yield per unit land area is expected to increase by 1.7 times. In addition to constructing irrigation facilities, the project will support the creation of an irrigation maintenance and management organization at the local farming organization, which is expected to make the Atari Basin a model irrigation district for the country.

South Africa

South Africa was the first African country and the first G20 country to become an ICA member in 2013. The mission of its Development Bank of Southern Africa (DBSA) is to advance the development impact in the region by expanding access to development finance and integrate and implement sustainable development solutions. In 2018, DBSA committed \$1.1bn, more than twice its 2017 commitments of \$497m. The highest commitments targeted the energy sector, \$680m. Commitments of \$90m in the form of two loans supported the 102 MW Copperton Wind Farm project in South Africa which will supply 375 GWh of clean green energy annually to the national grid for 20 years of operation. A loan commitment of \$80m supports the Lauca Hydropower Project in Angola, the largest such facility in Angola and among the biggest in the region, with a planned installed capacity of 2,070MW. Commitments to the water and sanitation sector amounted to \$272m, compared with commitments of \$5m in 2017. Multisector projects attracted \$68m of commitments, compared with \$81m the year before, and transport operations attracted \$36m, compared with \$381m in 2017.

Some of DBSA's infrastructure-related programs include the Project Preparation Funding (PPF), the Infrastructure Investment Programme for South Africa (IIPSA), the SADC Project Preparation & Development

Facility (SADC PPDF), the Green Fund, and the DBSA-USTDA (United States Trade and Development Agency) Infrastructure Cooperation Agreement.

The PPF makes funding available for project preparation in the all infrastructure sectors. IIPSA, jointly developed by the Government of South Africa and the European Union, is funded by the European Union for a total value of €100m to support South Africa's National Development Plan as well as the Regional Infrastructure Development Master Plan of SADC. DBSA has been selected to be the implementing agent for IIPSA and serve as the fund manager and Secretariat of the program. The PPDF facility was created to address the shortage in project preparation funding for infrastructure projects in the region, is funded by the European Union and Germany (through KfW), and administered, managed, and disbursed by DBSA on behalf of the SADC Secretariat.

The Green Fund, a unique national fund established in 2012, supports green initiatives that contribute towards the transition of South Africa to a low carbon economy, resource efficient and climate resilient development pathway, delivering high impact economic, environmental, and social benefits.

The DBSA-USTDA Infrastructure Cooperation Agreement allows for the acceleration of large-scale infrastructure projects in the power, transport and ICT sectors across Sub Saharan Africa through project preparation grants, capital funding and other funding mechanisms.

United Kingdom (UK)

The UK did not provide commitments or disbursement data for 2018. It estimates that its level of commitments in 2018 was similar to the level reported in 2017, \$623m. The UK reported disbursements of \$294m in 2017.

United States (US)

USAID, the US international development aid agency, committed \$297m in 2018, in line with the \$292m it committed in 2017. More than half (\$161m, 54%) targeted water and sanitation operations. Among these, a \$16m grant supports the Water Resources Integration Development Initiative (WARIDI) in Tanzania. Its goal is to help the country improve the management of its water resources, improve sanitation, create livelihoods in water and sanitation services, and promote resilient communities in the face of a changing climate. The project will: (i) increase access to sustainable multiple-use water, sanitation, and hygiene services; (ii) strengthen governance for sustainable and resilient management of water resources and services; (iii) improve livelihoods through supporting private sector opportunities in sustainable services, agriculture, and natural resource management; and (iv) advance gender equality and engage youth and women in the governance and management of multiple-use water resources and services.

Out of the \$64m committed to energy, \$3.5m were allocated to support the Ganta-Gbarnga Grid Extension Activity in Liberia, a 33kV medium voltage distribution line extension from the West Africa Power Pool grid in Ganta, Nimba County to Gbarnga and eh Suakoko area of Bong County. The activity will construct 78 km of 33 kV and 26 km 19 kV medium voltage distribution lines from Ganta to Gbarnga and 10 km of low voltage distribution lines within Gbarnga City. The goal is to provide electricity to 2,700 households and key institutions, such as the Central Agricultural Institute, Phebe Hospital and Cuttington University that have anchored the economies of this area for decades.

The World Bank Group (WBG)

This section focuses on two WBG organizations: the WB and the International Finance Corporation (IFC), its private sector arm.²⁹

The WB committed a total of \$7.7bn in 2018, 10% higher than the \$7bn commitments in 2017 and 88% higher than the \$4.1bn commitments in 2016. At \$4.4bn, commitments to the energy sector accounted for 58% of total commitments and were substantially higher than the \$2.4bn committed to that sector in 2017.

Among the most sizeable commitments in energy were two credits from IDA and the IDA Scale Up Facility for the Electricity Transmission Project in Nigeria to support the rehabilitation and upgrading of transmission substations and lines. The project will increase the power transfer capacity of the transmission network and enable distribution companies to supply consumers with additional power. Together with other investments and policy measures, the project will contribute to ensuring adequate and reliable electricity supply, and also support private sector participation, capacity development and better governance in Transmission Company of Nigeria and sector institutions.

Another significant commitment in energy was a \$465m loan with a strong regional integration objective to support the Transmission Interconnector Project in Tanzania to increase power transmission capacity to southern regions of Tanzania and strengthen institutional capacity in Tanzania and of the Eastern Africa Power Pool for regional power trade. The project includes the construction of double circuit transmission lines to link the Tanzanian North-West Grid to the interconnector with Zambia.

The WB committed \$2.3bn to the water and sanitation sector, including a \$300m credit to Burkina Faso for The Water Supply and Sanitation Program-for-Results, to increase access, sustainability, effectiveness, and

²⁹ The WBG includes five organizations: the WB, IDA (its concessionary window), IFC, MIGA (which provides political risk insurance and credit enhancement), and ICSID (the International Centre for Settlement of Investment Disputes). In this report, the WB includes IDA.

accountability for the delivery of water supply and sanitation services in urban and rural areas. This was the largest donor-financed operation in Burkina Faso's history. The program will benefit more than 1.1 million people with improved water supply and 1.3 million people with improved sanitation services in targeted areas.

Commitments of \$597m targeted the transport sector, of which \$315 supported the Greater Abidjan Port-City Integration Project in Côte d'Ivoire for the improvement of urban management, logistics efficiency, port accessibility, and urban mobility in the Greater Abidjan Agglomeration and to provide immediate and effective response to an eligible crisis or emergency.

Commitments of \$435m supported a number of operations in the ICT sector. \$90m was earmarked in the Senegal Second Multi-Sectoral Structural Reform Program to support Government's efforts in enhancing the legal and regulatory framework of the ICT sector to promote competition, investment and equitable access.

The IFC reported total 2018 commitments of \$328m, of which \$323m (98%) targeted the energy sector and \$5m supported a single operation in the transport sector. The largest commitment, \$204m, supported the Nachtigal Hydroelectric Project (420 MW), through a combination of loan, equity investment and other funding. The project is also supported by France and is described above.

Another large commitment of \$102m helped to refinance the existing debt of Bujagali Energy Ltd. The company owns and operates the 250 MW hydropower project, previously supported with IFC financing, that is an important source of power for Uganda. The refinancing will lengthen the tenor of the Company's existing loans and therefore reduce the amount of annual debt service and, in turn, help to lower the Project's tariff under the power purchase agreement with UETCL. This will make electricity in Uganda more affordable and is expected to support the government's agenda for providing increased access to electricity in the country.



5

Other Public Sources of Funding

Non-ICA members committed close to \$69bn in 2018, the largest share (68%) of total financing. African governments committed close to \$38bn and China close to \$26bn.

5.1 Spending by African Governments on Infrastructure

National expenditure allocations were gathered for 48 African national governments. Out of the 54 African countries, data could not be gathered for six: Djibouti, Eritrea, Guinea Bissau, Libya, Mauritania, and Sudan. With the exception of Mauritania, for which national budget information had been gathered in previous years, no national spending for these countries has ever been identified for inclusion in the annual IFT reports. For 47 of these countries, information on allocations to infrastructure operations and initiatives was taken from the financial laws or decrees posted online every year. Since such data could not be found for Egypt, its spending is estimated by increasing the budget presented in IFT 2017 by the GDP growth between 2017 and 2018. It is understood that it is an approximation. Further, only a few of the financial laws or decrees available online provided a breakdown between capital and recurrent allocations. It is therefore assumed that the data presented here

represents national commitments for both capital and recurrent expenditures.³⁰

In 2018, commitments made by 48 African national governments in support of their own infrastructure programs and projects amounted to \$37.5bn, 9% higher than the \$34.3bn for 47 countries presented in 2017, and 22% higher than the revised \$30.7bn for 49 countries presented in 2016 (Figure 5.1).

Two regions committed substantially more in 2018 than they had in 2017: West Africa allocated \$7.9bn, over twice the \$3.6bn it had allocated in 2017. North Africa allocated \$7.9bn, 22% more than the \$6.5bn it committed in 2017. East Africa committed 28% less in 2018 than it had in 2017. Allocations by the other three regions changed minimally: Southern Africa's went from \$6.2bn in 2017 to \$6.4bn in 2018. RSA's went from

³⁰ Every effort has been made to identify and remove any element of external financing that may have been included in national budgets. There remains, however, the possibility that some national budgets still include some external funding that could not be identified.

\$6.7bn in 2017 to \$6.8bn in 2018, and Central Africa's went from \$2.9bn in 2017 to \$2.5bn in 2018.

Transport

In 2018, as in previous years, the largest share (52%) of national infrastructure budgets supported operations in the transport sector. This compares with shares of 59% in 2017 and 53% in 2016. Commitments in transport have been increasing regularly in the last few years, going from \$12.9bn in 2015 to \$20.1bn in 2017. A slight decrease was observed in 2018, with commitments of \$19.6bn.

The small (\$521m) aggregate reduction in allocations to the transport sector hides substantial changes at the regional level: East Africa allocated \$2.4bn less in 2018 than it had in 2017; South Africa committed \$1.1bn more; and West Africa committed \$1bn more. Central Africa and Southern Africa reduced their commitments by smaller amounts, \$165m and \$161m respectively. At the country level, the largest national allocations to transport were in South Africa (\$4.8bn), Egypt (\$2.6bn), and Tanzania (\$2.5bn).

Water and Sanitation

At \$5.6bn, national budget allocations to the water and sanitation sector are only slightly less than the \$5.9bn allocated in 2017, and slightly above the 2014-2017 average of \$5.2bn. They accounted for 15% of the total national budget allocations. At the regional level, the largest change was a \$718m increase from Southern Africa. The allocation for South Africa was lower by \$1bn. Smaller changes were experienced in West Africa, with an increase of \$364m, and East Africa, with a decrease of \$334m).

At the country level, South Africa allocated the largest amount to water and sanitation, \$1.3bn, followed by Angola with \$1bn.

Energy

Allocations to the energy sector in national budgets amounted to \$7.7bn in 2018, \$2.1bn (38%) more than in 2017. The share of allocations to energy went from 16% in 2017 to 20% in 2018. Most of the increase (91%) is the result of a \$1.9bn increase in the allocation West

FIGURE 5.1 African government budgets reached a five year high

National Government Budget Allocations by Sector (\$bn), 2014-2018

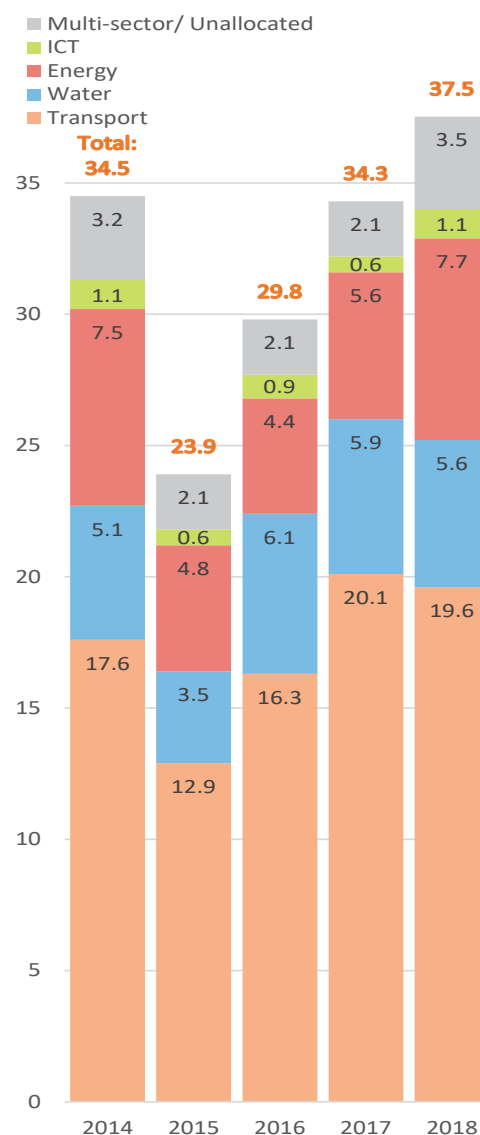
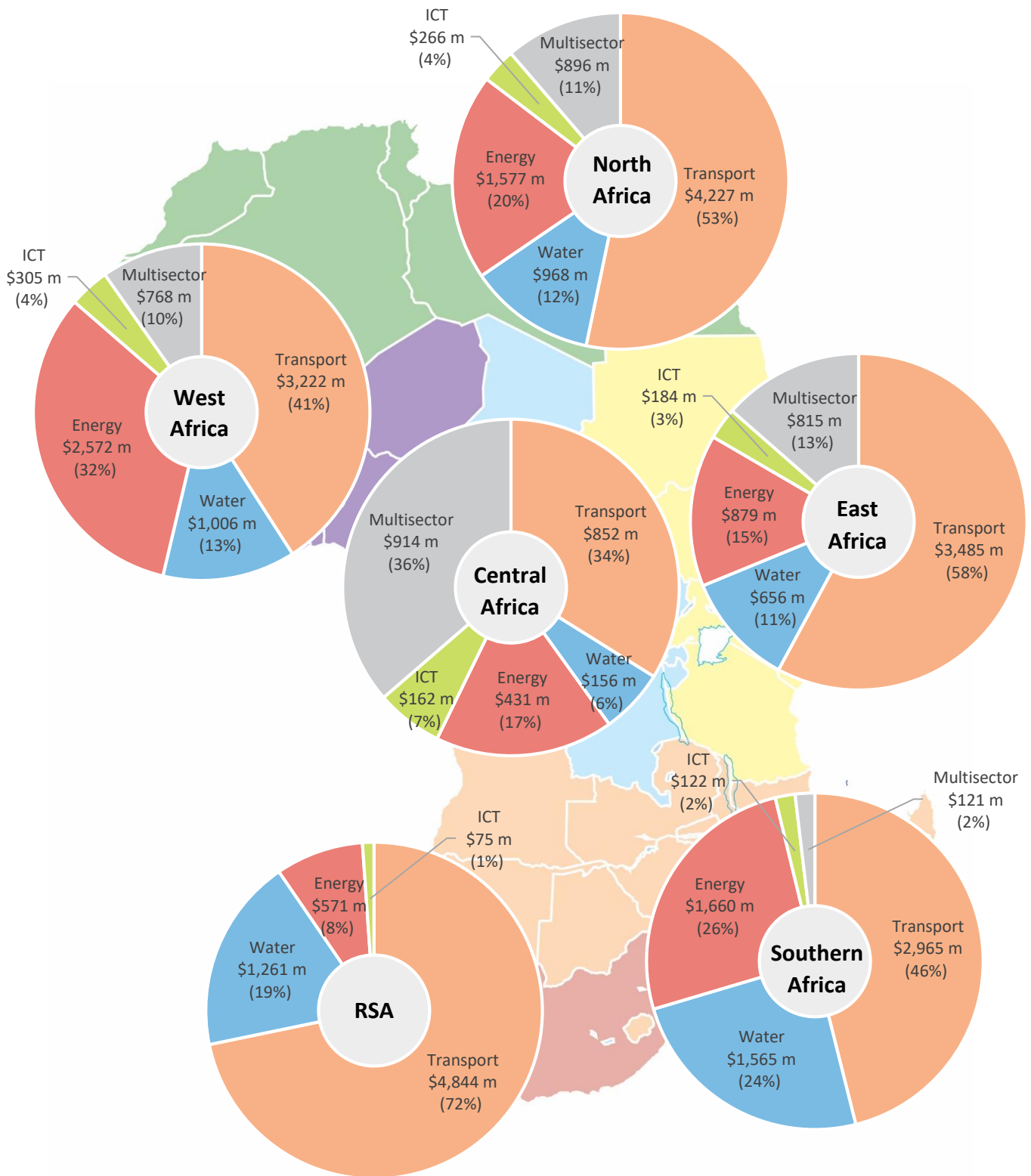


FIGURE 5.2 Transport was the largest sector in most regions

Regional National Government Budget Allocations by Sector (\$m), 2014-2018



OTHER PUBLIC SOURCES

African countries made to their energy sector. North Africa more than doubled its allocation, going from \$777m in 2017 to \$1.6bn in 2018. These large increases were somewhat offset by an allocation reduction in South Africa (\$513m).

Much of the large increase in West Africa allocation is explained by a sharp jump in Nigeria (\$1.4bn in 2018 compared with \$185m in 2017), which brought its national allocation to \$1.6bn. After Nigeria, Angola had the second largest national allocation to energy, \$1.4bn, although this amount was less than the 2017 allocation of \$1.7bn.

TABLE 5.2 Top 20 countries

Top 20 Ranking in infrastructure commitments by % of GDP

Country	Budget as % of GDP	Ranking
Equatorial Guinea	6.91%	1
Lesotho	6.23%	2
Tanzania	5.79%	3
Mali	5.35%	4
Togo	4.80%	5
Tunisia	4.01%	6
Zambia	3.96%	7
Botswana	3.78%	8
Uganda	3.70%	9
Burkina Faso	3.66%	10
Angola	3.34%	11
Senegal	3.23%	12
Guinea	3.14%	13
Seychelles	2.56%	14
Cameroon	2.51%	15
Côte d'Ivoire	2.28%	16
Namibia	2.04%	17
Cabo Verde	1.91%	18
South Africa	1.83%	19
Liberia	1.78%	20

ICT

National allocations to the ICT sector increased by 85%, reaching \$1.1bn in 2018, \$514m more than in 2017. The most noticeable changes were a \$193m increase in allocation in West Africa and a \$109m increase in Central Africa. At the country level, the largest allocations were in Kenya (\$160m), and Egypt (\$116m).

Multi-Sector

National infrastructure budgets allocated to multi-sector operations increased by 62% or \$1.3bn. Significant changes affected all the regions: large increases in West Africa (\$732m), North Africa (\$497m), East Africa (\$390m) and Southern Africa (\$117m), and a large decrease in Central Africa (\$393m). South Africa did not report any multi-sector operations in 2018 (or in 2017).

Table 5.2 shows the top 20 countries in terms of identifiable internal infrastructure spending as a percentage of GDP in 2018. Twelve of the top 20 countries were also in the top 20 list in 2017.

5.2 China

China's investments and construction in African infrastructure amounted to \$25.7bn in 2018.³¹ This is 32% higher than the \$19.4bn level reported in 2017, and the highest level of commitments recorded since ICA started collecting such data, which averaged \$13.1bn per year in the 2011-2017 period. The largest share of Chinese financing (71%) was for the energy sector, which amounted to \$18.3bn (Figure 5.2 and Figure 5.3).

China committed \$5.8bn to build a hydro-power plant in the eastern Mambila region of Nigeria, which will be the largest power plant in the country. The 3,050-megawatt Mambila hydroelectric power project in the state of Taraba will be delivered by a consortium of Chinese state-owned construction firms. The project will feature four dams between 50 and 150 meters tall and take six years to complete. The project will have considerable positive impact on electricity

³¹ Source: American Enterprise Institution – China Global Investment Tracker (AEI-CGIT: <http://www.aei.org/china-global-investment-tracker/>)

supply nationwide, and on productivity, employment, tourism, technology transfer, rural development, irrigation, agriculture, and food production.

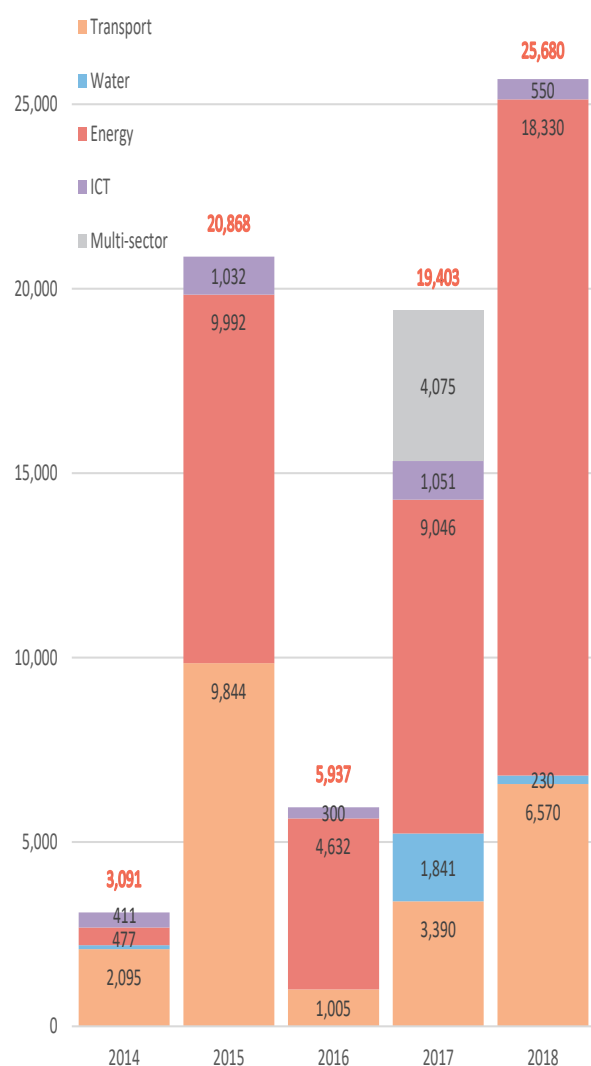
In the transport sector, Chinese commitments amounted to \$6.6bn in 2018, or 26% of total financing. Financing of \$2.3bn will support the construction of a 390 km railway line in Zambia. The line will connect the Zambian railway with the Malawian railway at Chipata, which is the terminus of a 1,067 km line from Malawi. The railway line will promote local and international trade after its completion in 4 years. The railway line has a designed passenger carrying speed of 120km/h

and a designed cargo transportation speed of 80km/h. China's financing also includes \$550m in the ICT sector and \$230m in the water and sanitation sector.

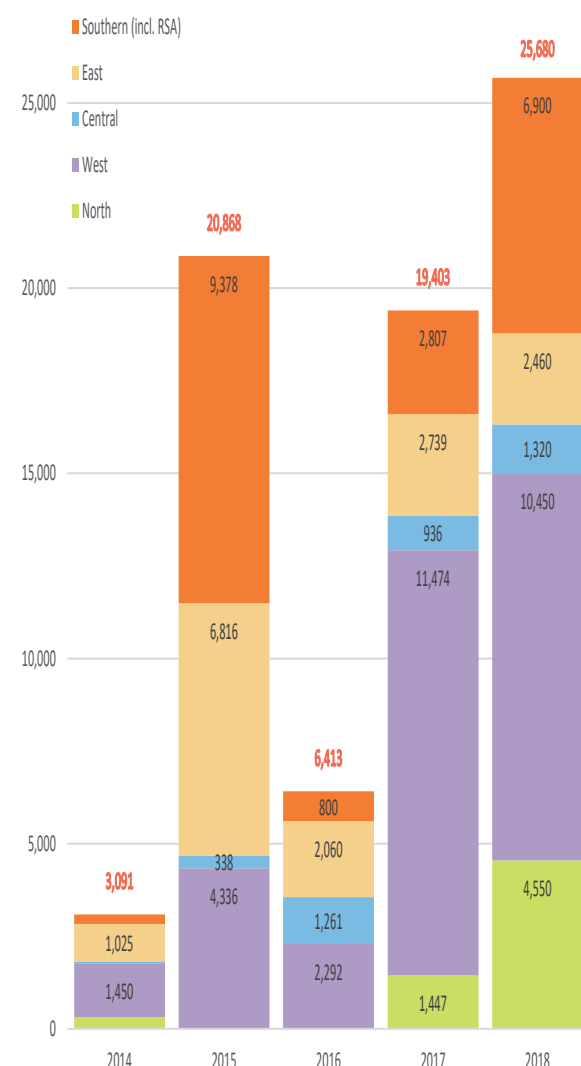
The China Overseas Infrastructure Development and Investment Corporation (COIDIC), the for-profit company China created in 2016, in cooperation with a number of Chinese corporations engaged in large-scale infrastructure building, investment, operation and design, was established by the China Development Bank-controlled China-Africa Development Fund (CADF) with an initial \$500m capitalization to invest in and manage projects from concept to feasibility studies,

FIGURE 5.3 AND 5.4 Chinese Investment in energy had doubled with West Africa benefiting most

5.3 Chinese Commitments by Sector (\$m), 2014-2018



5.4 Chinese Commitments by Region (\$m), 2014-2018



OTHER PUBLIC SOURCES

financial close and commercial operations. Its aim is to enhance China-Africa cooperation on infrastructure, improve Africa's sustainable development capabilities, and promote the transformation and upgrading of Chinese engineering enterprises, while encouraging the "Going Global" of Chinese technology, standards and equipment. As an incubation platform for overseas infrastructure projects, COIDIC will aim to transform a large number of infrastructure proposals into projects that can be financed. Its key focus will be on the infrastructure projects in the areas of energy, transportation, telecommunications, urban utilities and development of parks.

China's Belt and Road Initiative (BRI), a multi-billion dollar plan to link Asia, Europe and Africa, is providing large amounts of financing for infrastructure in many African countries. It is estimated that the value of loans from Chinese financing of energy and infrastructure projects in Africa almost tripled between 2016 and 2017, from \$3bn to \$8.8bn, and is expected to increase in 2018 and beyond, although data was not available at the time of publishing of this report.

Chinese banks have been active lenders to infrastructure projects in 19 different countries in Africa in the past four years. Infrastructure projects in Ethiopia have received \$1.8bn since 2014, Kenyan projects \$4.8bn, Mozambique infrastructure deals \$1.6bn and Nigerian projects \$5bn from Chinese lenders. RSA infrastructure projects have received \$2.2bn from Chinese lenders since 2014, Zambia has received \$1.5bn and Zimbabwe has seen \$1.3bn in loans from Chinese policy lenders since 2014. As one of South Africa's largest trading partners, China plays an important role in infrastructure investment in this country. At the BRICS Summit Energy in 2018, China pledged to invest \$14.7bn in RSA and to grant loans to state owned enterprises Eskom and Transnet.

Senegal became a BRI partner with China after the two countries signed bilateral deals during Chinese President Xi Jinping's West Africa trip in mid-2018. Major BRI projects in Zimbabwe committed in 2018 include a \$153m loan facility by China's Exim Bank for expansion of the Robert Mugabe International airport.

5.3 Arab Coordination Group (CG)

The Coordination Group's objectives are to optimize the resources provided by individual members to recipient Arab countries, and to achieve common objectives. The CG currently consists of ten institutions, four of which are national institutions including the Kuwait Fund for Arab Economic Development (KFAED), the Saudi Fund for Development (SFD), the Abu Dhabi Fund for Development (ADFD) the Qatar Development Fund (QDF), and five regional organizations consisting of the Arab Fund for Economic and Social Development (the Arab Fund, AFESD), Islamic Development Bank (IsDB), OPEC Fund for International Development (OFID), the Arab Bank for Economic Development in Africa (BADEA), the Arab Gulf Program for United Nations Development Organizations (AGFUND) as well as the Arab Monetary Fund (AMF). The CG committed \$2.4bn in 2018,³² markedly less (20%) than the \$3bn committed in 2017 (Figure 5.4).

The Kuwait Fund (KFAED) reported commitments of \$752m in 2018, 50% higher than its 2017 commitments (\$500m), and close to 50% higher than its 2016 commitments (\$509m). More than half (57%) of total commitments benefited the transport sector. A \$26m loan supported the construction of four interchanges in Conakry, Guinea. The project aims to address the capital's severe traffic congestion in peak hours between its center and its urban areas, thus reducing travel time, and fuel consumption, pollution, and pedestrian accidents. A single \$26m commitment in the energy sector, in the form of a loan, supports the financing of the Power Station Geothermal Project in Djibouti, with a power generation capacity of 15 MW. The new generation station will be connected to the central network by a 230-kV transmission line and a length of about 2 km.

The Arab Fund (AFESD) committed \$541m in 2018, approximately half the \$1bn committed in 2017. \$331m, or 61%, were directed at the water and sanitation sector. Commitments of \$162m targeted the energy sector, and \$48m supported transport projects.

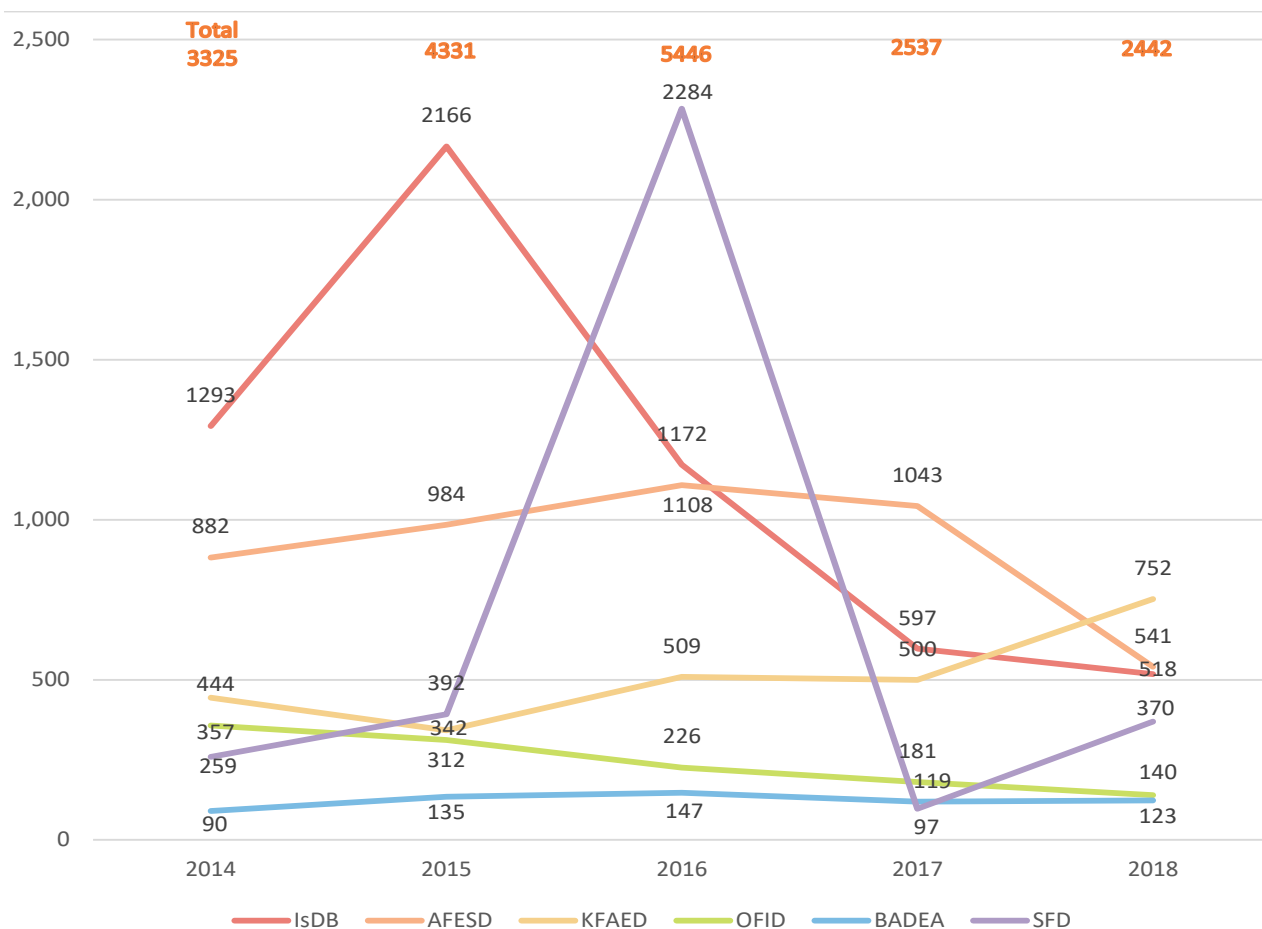
32 Four of the ten CG members reported commitment data for 2018: the Arab Fund, KFAED, IsDB, and OFID. Commitment data for SFD and BADEA was gathered from these organizations' 2018 Annual Reports. No commitment data could be gathered for the remaining four CG members

Two operations were in Egypt: a \$231m loan will assist in the construction of the Bahr El-Baqar Water Drainage System Project. The new treatment plant facility will be constructed east of the Suez Canal and consist of civil and mechanical facilities to divert about 5 million cubic meters per day of drainage water. The project will contribute to the environmental protection of the Manzala Lake and create about 100,000 jobs, while reclaiming 330,000 acres of agricultural lands, in addition to the 70,000 acres that are currently cultivated. Another loan of \$132m will contribute to the construction of the second stage of the electrical power grid. The project will meet the electricity needs of areas with growing power loads by expanding and upgrading the electricity transmission network and constructing new transmission stations.

The Islamic Development Bank (IsDB) committed \$518m in 2018, 13% less than the \$597m committed in 2017. \$284m (55%) of 2018 commitments supported one energy operation in Tunisia, Supporting the Electricity Transmission System Project which, at completion, will augment the transformation capacity of the network by 1680 MVA, increase the transmission lines length by 210 km, and reduce the power losses to less than 2%. The transport sector received \$137m in commitments, of which \$118m supported Benin with the rehabilitation of the Cotonou-Niamey Road Corridor. This project promotes the integration of the West African Region and trade between Benin, Niger and Burkina Faso, by improving the infrastructure and road transport conditions. In terms of trade and regional integration, the extended area of the project stretches up to Nigeria and Chad. The IsDB committed

FIGURE 5.5 Continued strong support from the CG

Arab Coordination Group Commitments by Member (\$m), 2014-2018



\$97m to the water and sanitation sector, of which \$43m for the Conakry Sanitation Project in Guinea. The improvement of the living conditions for the 1.4 million inhabitants of Ratoma and Matoto, will have significant social, environmental and financial impacts on those populations.

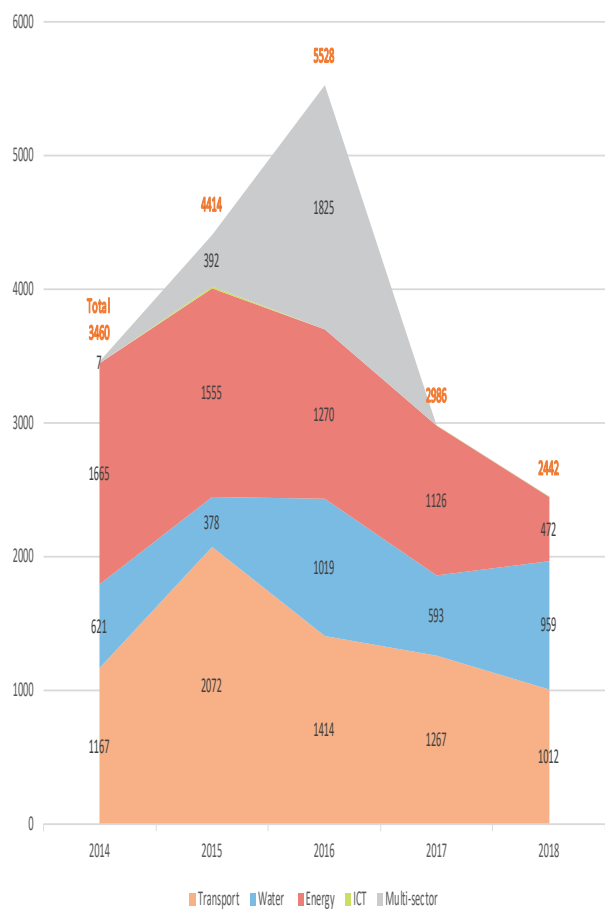
The Saudi Fund for Development (SFD) committed close to \$370m in 2018. Commitments from SFD have experienced significant fluctuations over the last few years: they amounted to \$97m in 2017 and \$2.3bn in 2016. In 2018, commitments targeted two sectors, in very similar amounts: water and sanitation received \$187m and the transport sector received \$182m. The most sizeable commitment, a \$122m loan, supports the Djibouti-Galafi Road Project in Djibouti. The construction of the regional Road via Galafi, the official border crossing from Djibouti into Ethiopia,

will Ease Djibouti and Ethiopia busy traffic. A \$86m loan supports a water and sanitation project in Tunisia to improve the supply of potable water in the rural area of the Bizerte region.

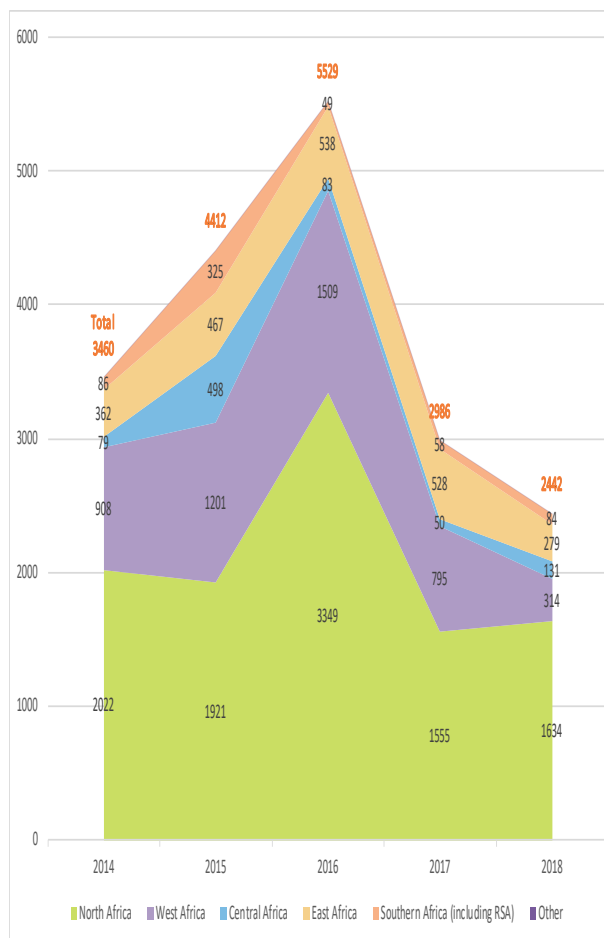
The OPEC Fund for International Development (OFID) committed \$140m in 2018, compared with \$181m in 2017 and \$226 in 2016. 81% (\$113m) of total commitments targeted the transport sector for the support of six operations. The remaining commitments (\$27m) supported two water and sanitation projects. The six transport projects are supported by OFID commitments ranging from \$12m to \$25m for each project. One such commitment is a \$20m loan to Burundi to help fund the Rumonge-Nyanza Lac Road Rehabilitation Project. Improvements to the 52 km stretch of road will promote development in Burundi's southwest region and strengthen regional integration

FIGURES 5.6 AND 5.7 Arab CG members continued their strong support

5.6 Arab CG Commitments by Sector (\$m), 2014-2018



5.7 Arab CG Commitments by Region (\$m), 2014-2018



with Tanzania. Some 340,000 people will benefit. AREDA, KFAED, and SFD are also supporting this project. OFID also extended a \$12m loan to Uganda to co-finance the Luwero-Butalangu Road Project. The road, when completed, will improve access to markets, social and health services, and employment opportunities. Primary beneficiaries - estimated to be about 677,000 people – will be farmers and businesses in Luwero, Butalangu and other communities in central Uganda. OFID has also committed \$15m to support the Drinking Water Supply Project in Karonga city in Malawi, which will increase the delivery of clean water capacity from 1,450 m3 of potable water/day to nearly 20,000m3, thus improving the health and living standards of about 125,000 people BADEA is co-financing the project.

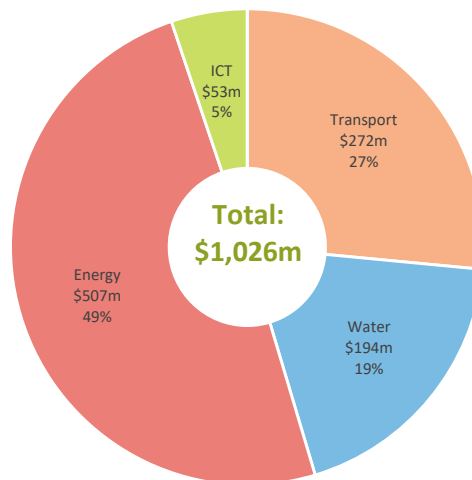
The Arab Bank for Economic Development in Africa (BADEA) committed \$123m in 2018 to support 8 infrastructure projects: 6 in transport and 2 in the water and sanitation sector. A \$20m loan supports the expansion of the highway from the international airport to Niamey City Center (Phase I). The project includes the preparation of a highway of 10 kilometers and 8 horizontal intersections. Its objective is to improve the living conditions of the population of the capital through improving the quality of public spaces, developing the transport and infrastructure facilities and the urban and economic fabric, streamlining traffic and facilitating it when entering and exiting the capital and enhancing the capacity of intersections, in addition to reducing the transport time and protecting the road users. OFID and the Niger Government are co-financing the operation, contributing \$15m and \$5m, respectively. In 2018 BADEA raised the ceiling of funding from \$20m to \$40m dollars in response to the varying needs of African countries.

5.4 Non-ICA European Sources

Commitments to African infrastructure by European development organizations that are not members of ICA amounted to \$1.1bn in 2018, 31% lower than the \$1.6bn committed in 2017, but significantly higher than the \$392m committed in 2016. At \$509m, energy accounted for 45% of total commitments, a lower share than the 56% experienced in 2017. \$336m were committed to transport, \$199m to water and sanitation.

FIGURE 5.8 Almost half of all commitments were in energy

Non-ICA European Commitments by Sector, (\$m) 2018



Commitments in ICT were \$16m and in multi-sector operations, \$12m.

European Bank for Reconstruction and Development (EBRD)

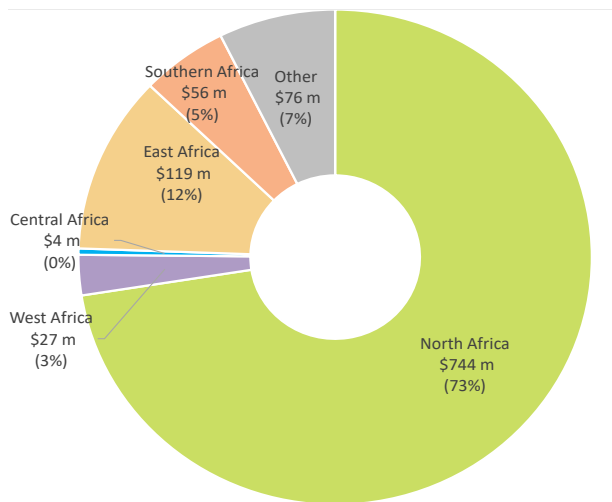
EBRD committed \$744m (66% of its total commitments) to nine infrastructure projects in North Africa in 2018, the only African region in which EBRD operates: seven in Egypt and two in Morocco. \$325m (44%) targeted the energy sector, \$242m went to transport, \$175m to water and sanitation, and \$3m to ICT. The 2018 commitments are substantially lower than the \$1.3bn committed in 2017.

A \$242m loan will help finance the Modernization of the Cairo Metro Project in Egypt. The project will make urgently needed improvements to Line 1, which is the backbone of the Cairo Metro and serves 500 million passengers a year. As well as increasing capacity and cutting congestion, the project will help create valuable on-the-job training opportunities for young people.

A \$206m energy loan to Egypt was committed to support the Suez Oil Processing Company (SOPC) to finance a package of energy efficiency investments and other refurbishments and installations.

FIGURE 5.9 Most commitments were to North Africa

Non-ICA European Commitments by Region (\$m), 2018



A \$93m loan will support the Kitchener Drain Depollution Project in Egypt to fight pollution in the Nile Delta. The project will also rehabilitate the infrastructure of the Kitchener drain in order to improve public health. The EU is co-financing the operation.

International Fund for Agriculture Development (IFAD)

This is the first year that data on IFAD’s support to African infrastructure is presented. IFAD, an international financial institution and a specialized agency of the United Nations, was created in 1977 in response to the food crises of the early 1970s, when global food shortages were causing widespread famine and malnutrition, primarily in the Sahelian countries of Africa. Its focus is to eradicate poverty and hunger in rural areas of developing countries through financial support to agricultural development projects and the strengthening of policies and institutions. In 2018, IFAD committed \$95m to infrastructure operations in Africa, of which \$64m (67%) supported the transport sector, the rest going to ICT (\$12.3m), multi-sector projects (\$11.5m), water and sanitation (\$6m) and energy (\$1.6m).

One of the transport operations, the Family Farming, Resilience and Market Project in Upper and Middle Guinea, received a commitment of \$31m from IFAD:

a \$15.5m loan and a \$15.5m debt sustainability framework grant. The project will be co-financed by OFID, the Belgian Fund for Food Security, the Government of Guinea, and by the beneficiaries themselves. The project will rehabilitate 600 km of rural roads to improve access to markets, which is crucial for to sell their production surpluses.

Financing by Bilateral Agencies

Commitments totaling \$290m were made in 2018 by the Netherlands (\$198m), Norway (\$47m), Belgium (\$24m), and Austria (\$13m).³³ This compares to the \$265m of commitments made in 2017 by the Netherlands, Norway, Finland, Austria, and Denmark. Of these commitments, \$183m (65%) targeted the energy sector. The Netherlands was the only country to target the transport sector, for a total of \$30m. The regional breakdown shows that \$119m (42%) supported operations in East Africa and \$56m (20%) went to Southern Africa. There were no commitments to North Africa.

5.5 Other Sources

New Development Bank (NDB)

The main purpose of the New Development Bank (NDB), a multilateral development bank established by Brazil, Russia, India, China and South Africa (“BRICS”), is to mobilize resources for infrastructure and sustainable development projects in BRICS and other emerging economies and developing countries. To fulfill its purpose, the NDB can support public or private projects through loans, guarantees, equity participation and other financial instruments. According to the NDB’s General Strategy, sustainable infrastructure development is at the core of the Bank’s operational strategy till 2021. In 2018, the NDB committed \$500m in support of two African infrastructure projects, both in RSA, one in the energy sector and the other in transport.

³³ Dutch data gathered from FMO Entrepreneurial Development Bank, Norway from the Norwegian Agency for Development Cooperation, Belgium from Open.Enabel, and Austria from the Austrian Development Agency. Data for other European non-ICA member bilateral financing was not available.



The first loan for the total amount of \$300m to the Development Bank of Southern Africa aims to facilitate investments in renewable energy that will contribute to power generation and reduction in CO2 emissions in RSA, in line with the South African Government's Integrated Resource Plan 2010 and its target of reducing greenhouse gas emissions.

The second loan for the total amount of \$200m aims to support the development and rehabilitation of maritime and onshore infrastructure of the Durban Container Terminal. This project seeks to expand and modernize existing facilities to permit an improved mode of operation and to develop an infrastructure that fits the trends in the global shipping industry.

Asian Infrastructure Investment Bank (AIIB)

The Asian Infrastructure Investment Bank (AIIB), a multilateral development bank with a mission to improve social and economic outcomes in Asia and beyond started operations in 2016. It invests in sustainable infrastructure and other productive sectors to better connect people, services and markets that over time will impact the lives of billions and build a better future. At end 2018, four African countries were members of the AIIB: Egypt, Ethiopia, Madagascar, and Sudan.³⁴ Several more African countries are being considered for membership.

³⁴ Guinea became a member in mid-2019.

In 2018, the AIIB committed \$300m for a water and sanitation operation in Egypt, the Sustainable Rural Sanitation Services Program, which the WB is co-financing with an additional commitment of \$300m. The program will provide sanitation services to about 175,000 households in 133 villages of five governorates through the rehabilitation and construction of integrated infrastructure for collection, treatment, and disposal of household sewage. It will also support the strengthening of institutions and policies involved in the provision of sanitation services.

Africa50

Africa50 is an infrastructure investment platform, established by the AfDB, that contributes to Africa's growth by developing and investing in bankable projects, catalyzing public sector capital, and mobilizing private sector funding, with differentiated financial returns and impact.

In 2018, Africa50 committed \$78m of project finance for two projects: for \$48m, it acquired 15% of the equity stake in the Nachtigal Hydro Power Company (NHPC) from the Government of Cameroon. It also invested \$30m in the Room2Run, a Pan-African and multi-sector, AfDB and partners' innovative \$1bn synthetic securitization of a portfolio of seasoned African Development Bank private sector loans.

Africa50 signed a Joint Development Agreement Term

Sheet with the Rwanda Development Board (“RDB”), pursuant to which Africa50 is to have exclusive rights to work with RDB to design, develop, finance, construct and operate certain components of the Kigali Innovation City (KIC), which will have a number of ICT elements. KIC is expected to house international universities, technology companies, biotech firms, and commercial and retail real estate in an area of 70 hectares. Africa50 reported \$62m of disbursements in 2018.

India

India committed \$762m in 2018, slightly higher than the \$700m committed in 2017. These commitments targeted two sectors: \$600 for water and sanitation and \$162m for transport.

West African Development Bank (Banque Ouest Africaine de Développement, BOAD)

BOAD is the development finance institution of the member countries of the West African Monetary Union (WAMU). Member countries include Benin, Burkina, Côte d’Ivoire, Guinea Bissau, Mali, Niger, Senegal, and Togo. Its purpose is to promote the balanced development of its member countries and foster economic integration within West Africa by financing priority development projects.

BOAD committed a total of \$307m targeting infrastructure operations in Africa. Of these, \$222m were directed to the transport sector, \$62m in support of three rural operations in Mali, Niger and Burkina Faso. The Mali project includes the construction of an interchange, an overpass and urban roads in Sikasso. The project in Niger includes the paving of the Zinder road, a link of the Trans-Sahara road connecting Algiers in Algeria to Lagos in Nigeria. In Burkina Faso, the \$6m financing will contribute to the extension of the dry port in Bobo Dioulasso, which will support the trade growth between neighboring countries and seaports. Six urban transport operations, which will add 152 km of roads, were supported with commitments totaling \$160m, including the upgrading of the Kédougou-Fouladou road in Senegal, paving of the urban portion of the Zinder road in Niger, paving of the Boucle du

Blouf in Senegal, improvement of the Cotonou storm water collection system in Benin, draining of Bangr Wéogo Park in Burkina Faso, and the development program of the Gourou Bassin in Côte d’Ivoire.

A total of \$37m were committed to the energy sector, in support of urban and rural electrification projects, which will include the construction of a 15 MW diesel thermal facility in Bor, in Guinea Bissau, and the rehabilitation of power distribution systems in Burkina Faso. These projects aim at improving access to power and will create about 7600 direct and indirect jobs. BOAD committed \$48m in support of two projects to improve access to potable water in several Abidjan neighborhoods in Côte d’Ivoire, and a number of peri-urban neighborhoods throughout Togo.

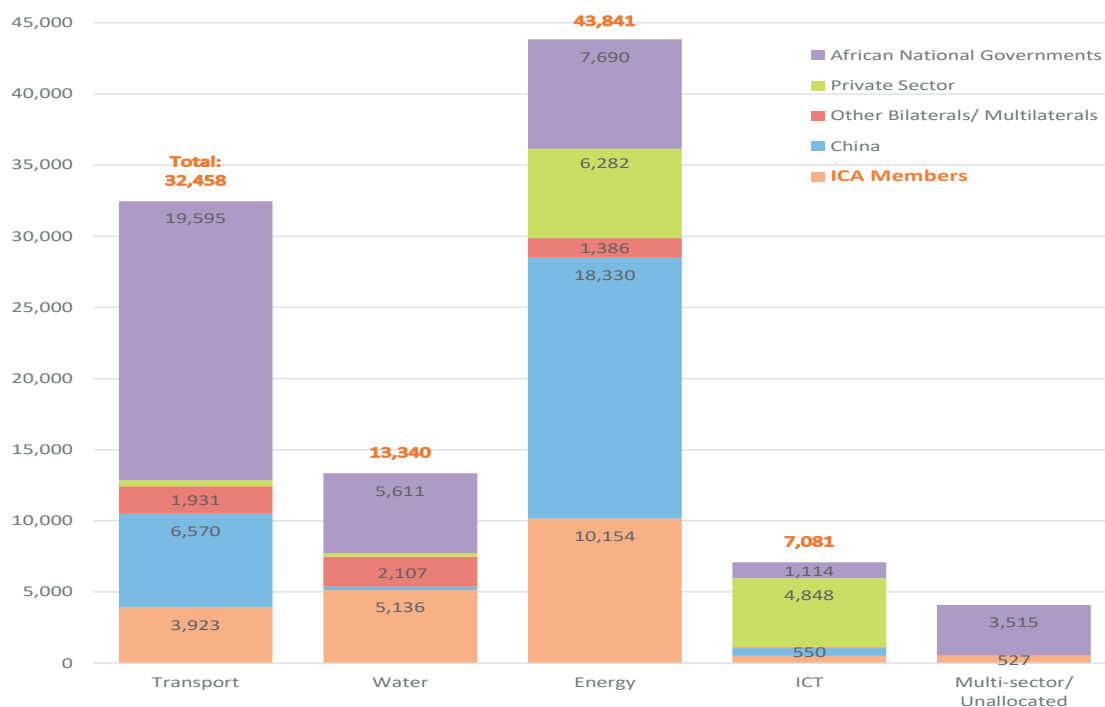


Sectoral Analysis

The energy sector was the largest recipient of commitments (43%), followed by transport (32%), water and sanitation (13%), and ICT (7%). Multi-sector operations represented 4% of total commitments.

FIGURE 6.1 Energy and Transport remained the largest sectors for investment

Total Commitments by Sector and Source (\$m), 2018



6.1 Transport

Efficient transport can improve supply chains, reduce production and distribution costs, and increase economic output. In both urban and rural communities, roads can expand access to jobs, markets, schools, hospitals and access to services. Increasing trade between neighboring countries, which is essential for continental prosperity, depends on ports, airports and cross-border road and rail links. These are greatly enhanced by “soft” infrastructure of one-stop border crossings, trade facilitation and logistics improvements that still require more attention.

Over the past ten years considerable progress has been made in Africa. Strategic road corridors and border crossings have expanded. Access by rural areas to all weather roads is improving, albeit at a slow pace. Large ports are mostly run on a commercial basis. The strategic role of urban transport in structuring land use cities is gaining attention (although not much financing) and bus rapid transit (BRT) systems are being implemented. Modern airports are being constructed in capital cities throughout Africa.

Despite this progress, the unfinished agenda is daunting. The gap in transport sector investments has been estimated at \$4bn to \$16bn per year. Currently, only 1/3 of rural inhabitants live within two kilometers of an all-season road. Accessibility is the main development goal and is a high priority since the majority of poor live in rural areas. Maintenance of rural roads is number one issue. Because of difficulties of maintenance, many bi-lateral organizations have moved away from rural accessibility – except through projects led by the World Bank or the African Development Bank. Large gaps still exist in the strategic trunk road network that need to be filled if rural Africa is to connect with markets and if African nations are to reap the benefits of increased intra-African trade.

After a big change in port management that started some 20 years ago, most large ports are operated through concessions. Some of these are now being renegotiated. There have been real productivity gains, but only a few international operators dominate, and prices remain high. Several new rail projects

have gotten increased attention, but project selection criteria and financial affordability remain issues. In air transport several countries are reviving national airlines and/or investing in state-of-the-art airports. There is an issue of national pride vs. economic justification.

It should be noted that high transportation costs in Africa may not be completely explained by insufficient infrastructure. Non-physical determinants, including customs formalities, corruption, and the prevalence of transport cartels, are still highly influential in affecting transport prices.³⁵

Measures for governments to consider

Reform National Planning and Project Selection:

Perhaps the greatest challenge is for African governments to establish better national planning frameworks as well as more rigorous ministerial processes for program and project selection, implementation, and maintenance. These frameworks and processes should reflect coordination with regional and continental institutions and should be based on best practice in project prioritization across sectors, balancing strategic networks with and rural and urban needs. A number of countries in Africa are

35 Teravaninthorn, S., & Raballand, G. (2009). *Transport prices and costs in Africa: a review of the main international corridors*. Washington DC: World Bank

FIGURE 6.2 Transport commitments were evenly split between most regions

Total Transport Sector Financing by Region, 2018

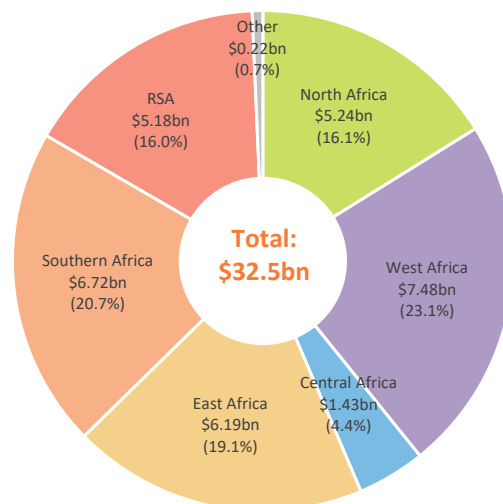
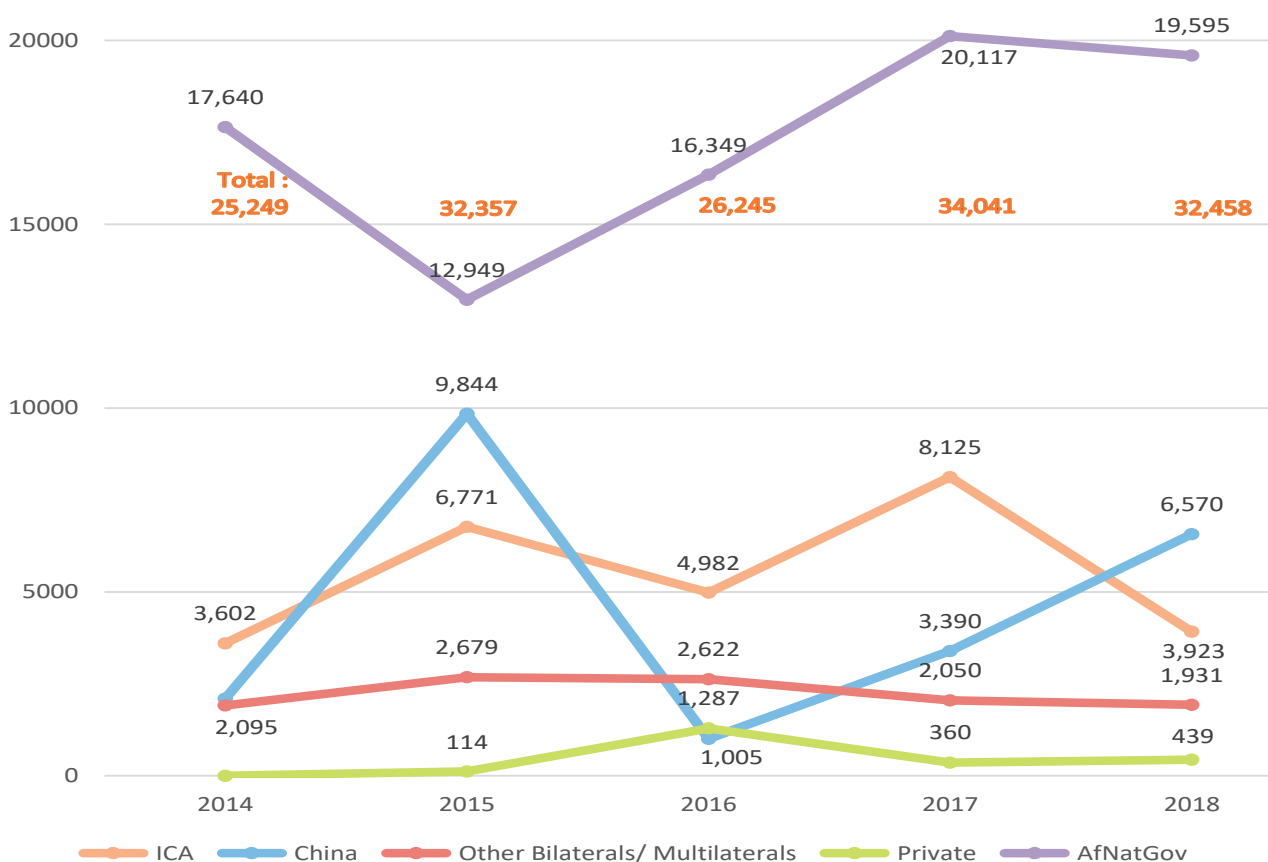


FIGURE 6.3 African governments remained the largest contributors to transport

Total Transport Sector Financing by Source 2014-2018



facing issues of debt sustainability raising the importance of considering the long-term financial sustainability of large projects as part of evaluations.

Give priority to funding maintenance: As the capital stock of roads and other transport assets increases, maintenance and operations costs increase in direct proportion. Some 27 countries in Africa have established national road maintenance funds that are supported by a tax on fuel and play an important role in funding maintenance. The funds in RSA, Namibia, Ethiopia, Ghana, Kenya, Mozambique, Nigeria, and Tanzania have been operating well. But in many countries the road funds provide only a fraction of the resources needed to avoid deterioration of assets, putting pressure on government budgets to fund maintenance. Overall there has been a slippage in performance leading to experimentation in 3rd generation road funds where revenue streams are used as leverage to attract capital funding for rehabilitation as well as routine maintenance. Insufficient funding of routine maintenance accelerates the deterioration of the network, leaving many roads in poor condition and leading to rehabilitation costs that can be a large multiple of the cumulative cost of routine maintenance.

One-stop border posts, logistics and trade facilitation: Improving trade and regional integration is a continental priority that is enhanced by improving the efficiency of border crossings. One-Stop Border Posts (OSBPs) at land border crossings can reduce current lengthy delays and cumbersome procedures. Unified controls at borders enable goods, people, and vehicles to stop in a single facility when passing from one country to the neighboring country. This is receiving attention by most external financiers, and the ICA has published a valuable sourcebook

(the 2nd edition One Stop Border Post (OSBP)). More needs to be done with the implementation, including measures for reducing custom formalities, logistics and trade facilitation.

Climate change: Climate change will lead to significantly higher costs for Africa's transport systems, especially the road system. It is critical that investment plans take into account the consequences of a changing climate, as road assets are vulnerable to climate caused higher temperatures, heavy rains and flooding. Aside from higher maintenance and rehabilitation costs, climate-related damage to the road infrastructure will also cause more frequent disruptions to the movement of people and goods, with direct consequences on economic productivity.

2018 Transport Sector Financing trends

Total commitments from all sources to the transport sector in Africa amount to \$32.5bn in 2018. This is a 5.3% decrease from 2017 when the total was \$34bn. ICA members made commitments of \$4bn in comparison with \$8.1bn in 2017. The overall trends in commitments can be seen in Figure 6.2. China, with commitments of \$6.6bn is by far the largest individual financier of transport investments in Africa for the second year in a row. The next largest after China is the African Development Bank with \$2.1bn followed by the World Bank at \$597m. The EU made commitments of \$544m and France \$510m.

China: China's transport sector commitments have been particularly prominent in East Africa. In 2018 China supported projects in ports, airports, railways, roads, and urban roads in a number of countries including Ethiopia, Tanzania, Kenya, Zambia, Nigeria and Guinea.

African Development Bank: The AfDB made commitments for 12 road projects. One of these, in Uganda, is a PPP where the AfDB provided a loan to cover a viability gap payment. Five other projects involve border crossings that connect the Côte d'Ivoire and Liberia; Guinea and Guinea Bissau; Mali and Algeria; Côte d'Ivoire and Ghana; and Burundi and Tanzania. 11% of financing was for air transport projects, with infrastructure upgrades and an Air Safety

Priority Project in Central Africa. There were two port capacity expansion projects in Gabon (also a PPP) and Cabo Verde. The AfDB also provided support to equity participation in the African Infrastructure Investment Fund 3, which is an equity vehicle designed to improve the bankability of infrastructure projects.

World Bank: Commitments from the WB in transport have been at a low level in spite of high demand. Safeguard concerns of road projects have been factors, particularly the negative social impact of some past projects such as increased number of fatalities during construction, and gender-based violence (e.g. Boko Haram). Considerable attention is being given to mitigation measures in new projects, including occupational health and safety measures. New projects are also aiming to professionalize the transport industry. Projects are supporting twinning/ other arrangements with local universities to develop schools for rail and air transport, as well as transport policy curricula.

6.2 Water and Sanitation

Approximately 340 million Africans have no access to safe drinking water and one million lives are lost each year because of water-borne diseases. Poor sanitation is linked with childhood malnutrition and stunting in African children.³⁶ Between 2000 and 2015, access to piped water in Africa increased, but the population grew even faster. This resulted in a decline of the percentage of dwellings with piped water connections from 40% in 2000 to 33% in 2015.³⁷ With the African population scheduled to pass 1.6 billion by 2030, this situation could get even worse.

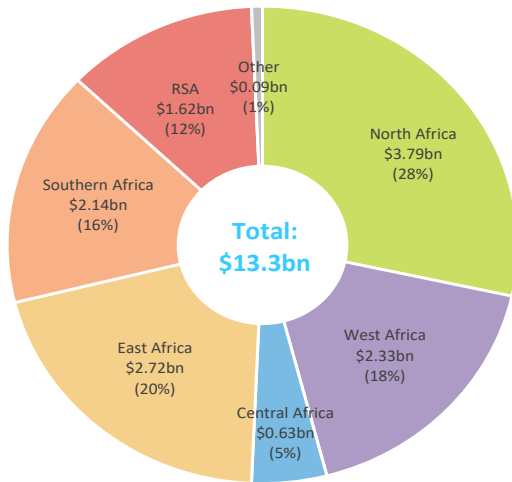
With the funding gap for Water and Sanitation estimated at between \$43bn and \$53bn in 2018 it is not realistic to expect that national governments or multilateral development banks will be able to increase funding to levels that would close this gap. More reliance will need to be placed on the private sector, especially private finance, and on improving the operational efficiency of water utilities and other

36 From AfDB, Water for a Better Life, 2016

37 van den Berg, Caroline, and Alexander Danilenko. 2017. "Performance of Water Utilities in Africa." World Bank, Washington, DC.

FIGURE 6.4 A quarter of all water commitments benefited North Africa

Total Water Sector Financing by Region, 2018



water sector providers.

Financial Sustainability

Tariff levels: A key issue holding back the participation of the private sector is that most African water systems are not financially sustainable. Tariffs are almost always insufficient to cover capital and operations costs. One study estimated that in 2013, only about half the water utilities in Africa cover operations and maintenance with their revenues.³⁸

The low level of incomes of African families presents regulators with difficult tradeoffs in setting tariffs. However, it is clear that when financial constraints prevent system expansion from covering the entire population, it is the poor who suffer because they inevitably live in areas not covered by the water network. In these circumstances the poor will pay more for poorer quality water purchased from vendors than if they had been connected to a system with higher tariffs.

Operational efficiency: Perhaps even more important to financial sustainability than tariffs is the low level of operational efficiency of water providers in comparison to international norms. Many utilities

38 *ibid*

suffer large incremental costs from very high levels of non-revenue water (mostly from leaking underground pipes), poor billing, poor collection and lack of sufficient maintenance. Lack of maintenance is an especially significant factor because it leads to low levels of functionality and high replacement costs. A recent review of African water utilities³⁹ indicated that failure to perform routine maintenance increases overall capital replacement costs by at least 60 percent. It highlights the need for more stringent criteria for investment selection, priority setting, and project designs, as these decisions will determine the operation and maintenance costs for decades after. Solving these operational efficiency problems can lead to very high financial returns on the maintenance budget. Increasing the efficiency of water systems would thus free up substantial resources for investment (or moderating necessary tariff increases) without increases in budget allocations.

Private sector participation in water and sanitation

Potential private sector investment in the water sector is sensitive to the risks discussed in chapter 3. Interviews conducted for this report with officials of ICA member institutions have suggested a number of risk factors that particularly affect private sector involvement in the water sector:

- Historical perceptions of popular opposition to privatization of water.
- Lack of clear governance structures with many levels of government involved.
- Lack of project preparation funds for the many small and medium sized water and sanitation systems.

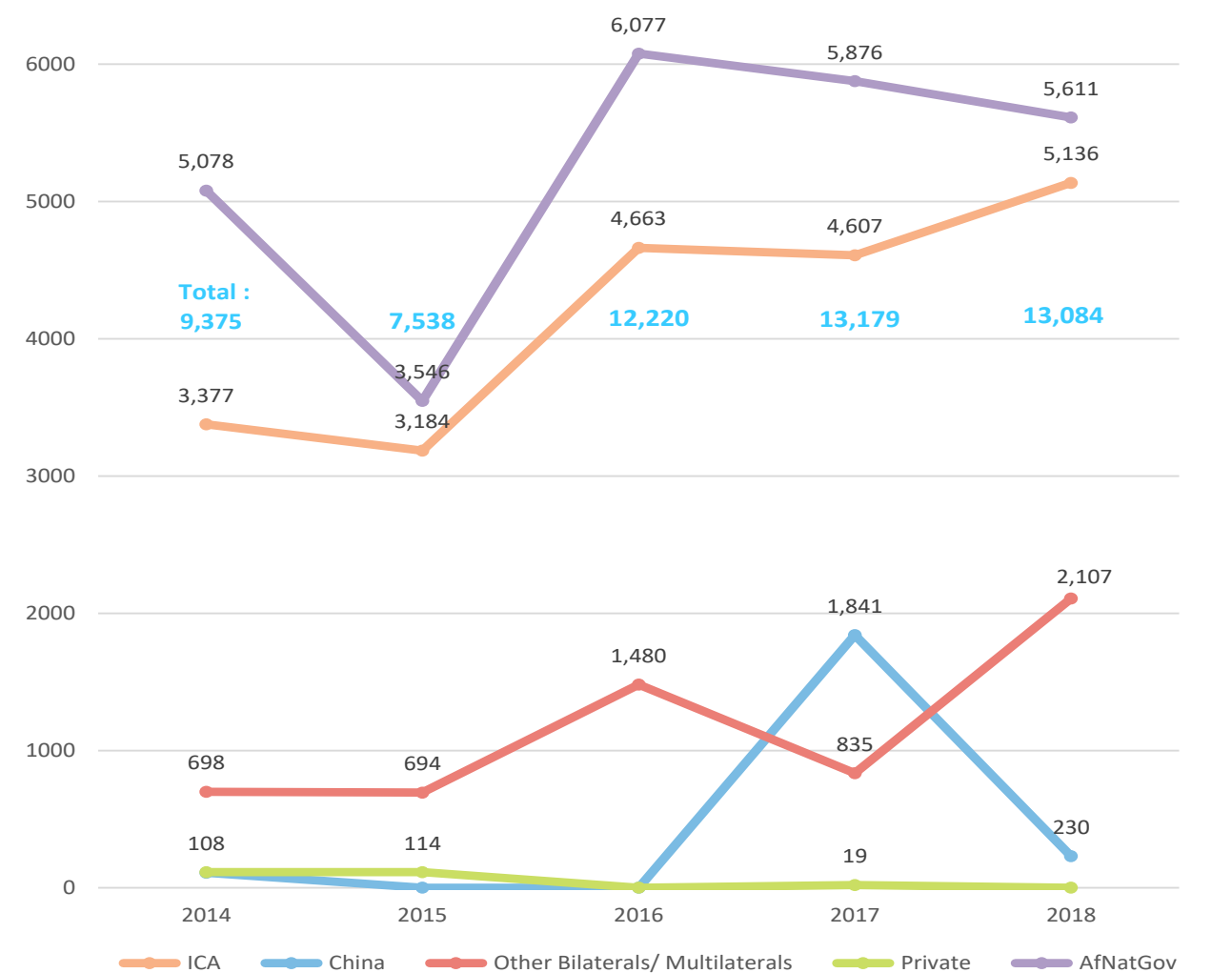
Private sector finance

Private sector finance can help reduce the financing gap even for public service providers. Well run publicly owned utilities can in principle, tap the domestic debt markets for private finance. This can take many forms. In countries with a developed financial system, like Kenya, a small number of local water service providers

39 van den Berg, Caroline, and Alexander Danilenko. 2017. "Performance of Water Utilities in Africa." World Bank, Washington, DC.

FIGURE 6.5 ICA had significantly increased its support to the water sector.

Total Water Sector Financing by Source 2014-2018



have taken out commercial loans. Kenya has in fact, set up a system to help municipalities borrow from local banks. The Kenya Ministry of Finance will provide a letter of support⁴⁰ for those municipalities that demonstrate improving performance. Angola negotiated a World Bank \$500m guarantee that allows the government to borrow \$1.0bn from commercial sources for use in the water and sanitation sector. Many countries around the world, including Morocco⁴¹ have set up specialized financial intermediaries, often capitalized with concessional finance to lend to local municipalities and water utilities or other providers. These intermediaries take advantage of economies of scale and tap domestic debt markets especially on behalf of smaller, well performing water systems that would have difficulty tapping the market on their own.

Financing Trends

African Development Bank: The AfDB has defined three strategic pillars for the next decade: developing sustainable infrastructure and services for water security; promoting sector governance and, enhancing water sector collaboration and co-ordination to achieve integrated water resources management. These focus areas apply to both urban

⁴⁰ Less than a guarantee, the letter states that the MoF has looked at the borrowing entity and believes it can meet repayment obligations.

⁴¹ Fonds d'Équipement Communal (FEC), a specialized financial intermediary converted to a specialized bank for local governments

and rural programs. The AfDB has identified several factors that influence the performance of their water and sanitation projects and that form the framework for their assessment of projects (1) insecurity, fragility, politics and policy; (2) technical information, knowledge and skills; (3) institutional arrangements and efficacy; (4) financing capability; (5) missing complementary infrastructure; and (6) environmental factors. The AfDB commitments for 2018 in water and sanitation amounted to \$941m.

World Bank: The WB financed 8 water and sanitation projects for a total financing of \$2.3bn, an increase of 79% from \$1.2bn lent in 2017. In most urban areas of Sub-Saharan Africa, traditional sewerage and treatment is unattainable on a wide scale because of high cost, so there is more of a focus on on-site sanitation and systems for regular cleaning and disposal of waste. The additional financing for the Second Angola Water Sector Institutional Development project is piloting this approach in the peri urban areas of nine provincial capitals. There has also been a shift toward rural water and sanitation in the World Bank program because of the large un-served populations. In 2018 five of the eight projects financed by the World Bank serve rural areas.

A significant trend is the extent to which climate adaptation has been integrated into the programs of the top three financiers, the WB, AfDB and the EU. Flood protection and resiliency projects are increasing - mostly in urban areas - but also sometimes in rural areas (e.g. Cameroon). Projects are benefiting from better data through hydro meteorological instrumentation.

6.3 Energy

Electric power has consistently been the infrastructure sector that attracts the largest (or in some years, second largest) amount of fresh capital in Africa. Access to electric power on the African continent as a whole has been significantly below that of other emerging regions, although some signs are emerging that this is changing, and access in different regions of the continent varies very considerably. At the continental level Africa's electrification rate is just over half, around 53%, a significant increase in percentage

terms from the 2000 level of 34%.⁴² But across the continent the figure varies, from total access (near 100%) in North Africa to only 25% in Central Africa (see Table 6.1 below). Sub-Saharan Africa has a current access rate of 43%, only half of the global access rate of 87%. Moreover, despite increasing access, more people today are without electricity in Sub-Saharan Africa than in 2000, because population growth has until very recently outpaced the growth in new connections. More than half the world's population without electricity is located in Sub-Saharan Africa.

Access to electricity in Africa

On the bright side, every year 20 to 30 million people gain access to electricity on the African continent, a tripling of the electrification rate experienced between 2000 and 2012. In Sub-Saharan Africa electrification at last now outpaces population growth, which will lead to a decline in the number of people without access. But progress overall has been uneven.

In Sub-Saharan Africa, West Africa as a region currently has highest access, with 52 percent. Within West Africa, Gabon with 90 percent access and Ghana with access

42 Access figures in this and subsequent chapters are drawn from: International Energy Agency: Energy Access Outlook Special Report: Energy Access (2017)

FIGURE 6.6 West Africa received a third of all energy commitments

Total Energy Sector Financing by Region, 2018

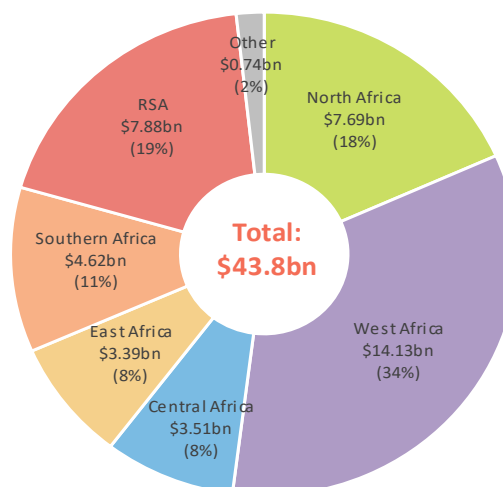


TABLE 6.1 Africa is making progress in increasing electricity access

Electrification Rate in Africa

	Electrification Rate						Population without Access (2016) (million)
	2000	2005	2010	2016	Urban 2016	Rural 2016	
WORLD	73%	76%	82%	86%	96%	73%	1060
Developing countries	64%	69%	76%	86%	94%	70%	1060
Africa	34%	39%	43%	52%	77%	32%	588
North Africa	90%	96%	99%	100%	100%	99%	<1
Sub-Saharan Africa	23%	27%	32%	43%	71%	23%	588
Central Africa	10%	15%	21%	25%	50%	5%	98
East Africa	10%	17%	21%	39%	66%	31%	172
West Africa	33%	37%	42%	52%	80%	28%	175
RSA	66%	81%	83%	86%	87%	83%	8
Other Southern Africa	14%	16%	22%	31%	65%	13%	135

at 84 percent are the high performers; and Cap Verde, a small island economy, has reached 94 percent access. Official statistics for Nigeria provide a figure for electricity access of 61 percent. But in practical terms the formal network is so unreliable that most people who can afford it purchase backup generators, and the effective access rate is much lower. Nigeria launched an ambitious reform program to unbundle its former monopoly utility and create a national power market, so far with limited success. Following the passage of the Electric Power Sector Reform Act (2005), the sector was unbundled into generation, distribution and a Transmission company. The privatization of the first two was completed in 2013. However, the transition from a publicly owned to largely privately-owned power sector did not bring the expected outcomes, notably because of chronically poor collection rates, and the sector is under severe stress.

East Africa has made good progress, with some high performers like Kenya reaching 65 percent. Kenya implemented a well-executed energy sector reform program a decade ago, which has dramatically improved sector performance and increased access. Ethiopia has a lower access rate at 45 percent but has made outstanding progress from a level of only 5 percent in 2000. Ethiopia has been making a very significant effort to increase availability of electric power, by harnessing its very considerable water resources, most notably the 6,450 MW Great Ethiopian Renaissance Dam (GERD) on the Blue Nile. The total investment cost of the project is close to \$5bn US dollars, about 7 percent of the Ethiopian GDP, a significant portion of which was provided by Chinese financing. Other countries in the region have far lower access rates: electricity hardly reaches 1 percent of the population in South Sudan, and even Uganda only reaches 19 percent.

Southern Africa (with the exception of RSA) and Central Africa have had much more disappointing progress, with countries like DRC at 15 percent access, Malawi at 11 percent, and Central African Republic at 3 percent. The bright spots in these two regions are the two small island economies Mauritius and Seychelles at close to 100 percent access; and Namibia has a well performing utility that provides 56 percent access in this very sparsely populated country. But broadly, the public sector regulated utility model for supplying power has had least success in Central and Southern Africa. Most of the public sector utilities are plagued by insufficient investment, lack of maintenance, and lackluster management, due in no small part to inadequate tariffs that do not cover the long-run marginal cost of the electric power delivered, and low billing and collection rates (notably from government) leading to unacceptably large non-technical losses.

RSA is a special case. The South African utility Eskom had for many years a sterling reputation in the developing world for the quality of its electricity supply and project management. Following the end of Apartheid Eskom made a significant and highly successful push to electrify rural areas and extend access, especially to formerly disadvantaged groups. In recent years however, following a highly publicized corruption scandal under the previous administration, the quality of Eskom's operations declined significantly. Electrification rates have stagnated, and the country has suffered a string of highly damaging electricity blackouts. There is currently some concern about the

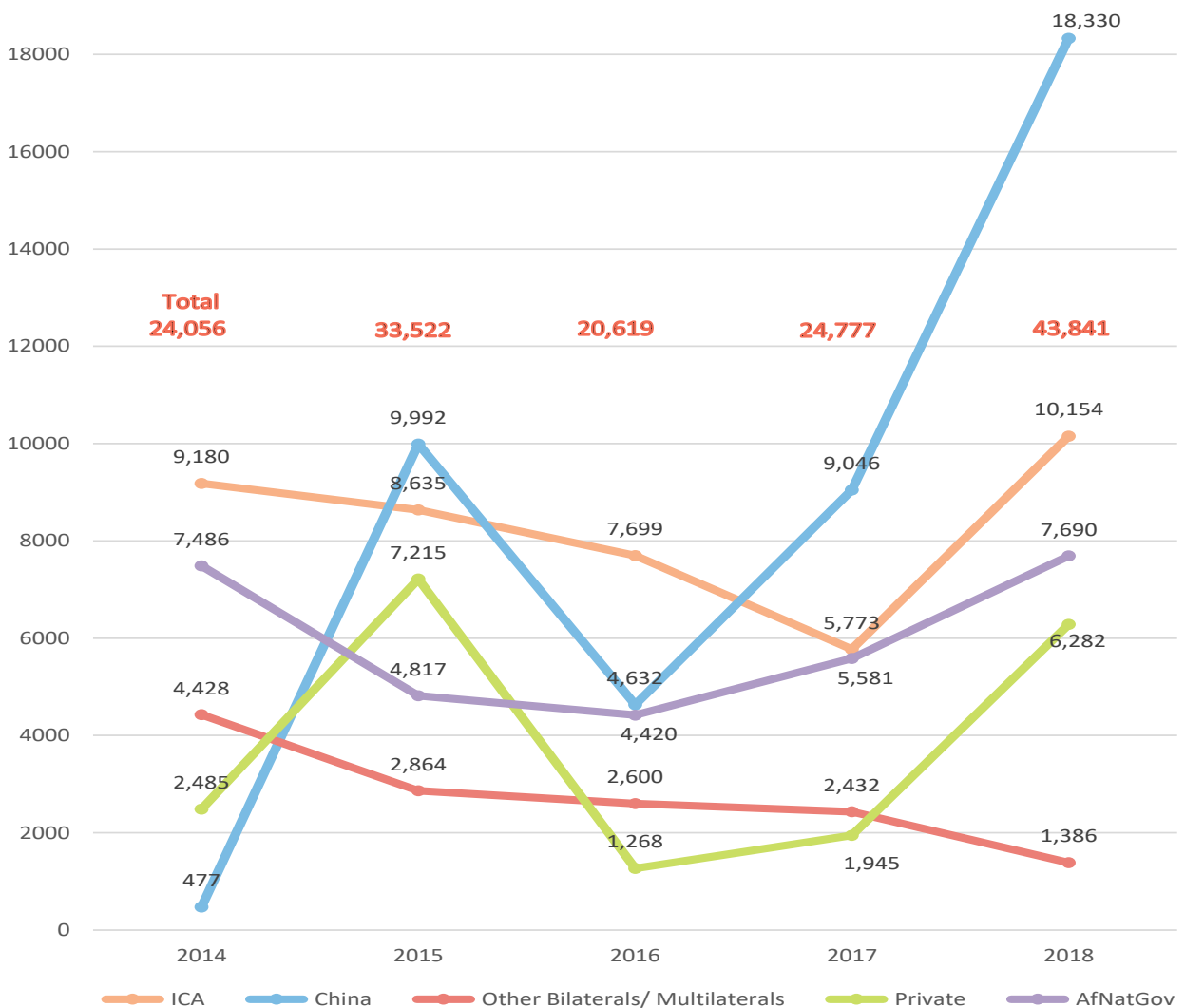
poor overall financial health of the utility.

Possible reason for low access rates

There is a general view among development economists focusing on Africa that the poor performance of the Sub-Saharan African power sector in achieving access rates equivalent to those of the rest of the world lies in two main factors. The first relates to the continent's low population density and lower degree of urbanization. The traditional means of supplying electric power to consumers, via centralized generation facilities connected through transmission lines to distribution companies, is often

FIGURE 6.7 Chinese investment in energy had soared

Total Energy Sector Financing by Source 2014-2018



simply not economic for the rural population, given the higher cost of supply in rural areas and the lower ability of rural inhabitants to pay. Second, the public sector regulated monopoly model that most countries adopted following independence has simply turned out not to be appropriate for Sub-Saharan Africa. The model seems to have worked quite effectively in North Africa, as well as in other developing regions of the world, but it has been much less successful in Sub-Saharan Africa.

Starting two decades ago many countries in Sub-Saharan Africa, with encouragement from the IFIs, attempted to unbundle all or part of their energy sectors to try to attract private financing, notably into generation investments. While there were some success stories (Kenya, Côte d'Ivoire), the high risks for the private sector involved in investing in the continent, coupled with reluctance of many governments concerning private investment and privatization, meant that this general reform model did not have the successes achieved in other regions. And the economic efficiency of public investment in public sector power utilities in many countries in Sub-Saharan Africa has been poor, because of poor investment choice, inadequate operation and maintenance of existing assets, and higher investment costs, due to opaque bidding procedures and in cases to corruption.

Of course, some countries in Sub-Saharan Africa have bucked the trend. Ghana, Kenya, and Namibia all have well performing power sectors, and progress is being made in countries like Cameroon and Ethiopia. The small island states have almost all managed to achieve reasonable access rates. But these bright spots, while allowing the continent at last to decrease the overall number of unserved citizens, have not been enough to make a radical difference in terms of the overall rate of access.

New technologies are creating greater opportunities for energy access

Over the last decade, the rapidly declining costs of renewables, improvements in energy efficiency and the ability to forego centralized power delivery network have led to a new way of thinking about energy

access and development. The new business models, which seek to take advantage of improvements in technologies combined with existing reform efforts, could help accelerate progress with the potential to transform electricity access in Sub-Saharan Africa in the coming years.

Most importantly, there are now a wide range of cost-effective technologies and system designs: off-grid, mini-grid, and on-grid solutions, that offer new pathways to attain electricity access. (See Box 6.1) Off-grid technologies (such as stand-alone solar home systems), mini-grids and energy efficient appliances are complementing traditional reform efforts to provide electricity access from grid expansion. Such decentralized systems can help fill the energy access gap in remote areas to provide electricity at a level of access that is currently too expensive to be met via conventional grid connection, and in urban areas by providing back-up for an unreliable grid supply.

While the dominant solution will depend on a range of factors including relative costs, reliability, service levels, policies (such as subsidies), population density and household budgets, it is clear that the wider range of technical solutions and the ability to provide electricity access bypassing the traditional underperforming public sector utility creates an entirely new paradigm. The use of more efficient appliances with these decentralized systems may allow consumers to access higher levels of energy services at lower cost, while needing less power for a given task. This is likely to be a game-changer for electricity access in Sub-Saharan Africa in the very near future.

The total financing for the Energy sector, from 2014 to 2018 by source follows below in Figure 6.4.

6.4 ICT

Information and Communications Technologies include a range of infrastructure assets that include fixed-line and mobile voice communications, texts (SMS), mobile data transmission and internet (fixed data transmission). Before the technological revolution in mobile communications a quarter of century ago the sector had a structure very similar to electric power and to water supply, operating through a

BOX 6.1: Different solutions for electricity access

The most common model for providing electricity access to a household in Africa is through on-grid systems, through a connection to a local distribution network linked to a transmission network. Grids typically draw their power from large, centralized power plants (e.g. coal, natural gas, hydro), and now also from distributed generation such as solar photovoltaic (PV) or biogas units connected at low voltage. New power generation capacity may be needed to meet additional demand to support the reliability of electricity supply.

Investment in developing centralized transmission and distribution (T&D) grids generally is most cost effective when built to serve an area with a high density of demand (e.g. concentrated services and residential load and/or energy-intensive consumers). The proximity of households to the distribution system reduces the costs of extending the grid relative to other alternatives. But sparse populations, complex terrain and regulatory and institutional hurdles can make investment and maintenance of grid extensions less attractive than other solutions. Grid extension generally offers the lowest cost pathway to households for electricity access, where the option of connection is available. This is the model which has had such disappointing success in many Sub-Saharan countries.

Mini-grids are an option in areas not served by main grids. They are localized power networks, usually without infrastructure to transmit electricity beyond their service area. Generally, mini-grids provide electricity at a higher levelized cost than a main T&D network system. Mini-grids tend to rely on modular generation technologies like solar PV, wind turbines, small-scale hydropower and diesel generators. Like any grid, mini-grids need a stable flow of power to function properly and they often use either a small diesel generator or (increasingly) battery systems for back-up. Mini-grids can be scaled up in line with rising demand, and eventually be connected to a main T&D network.

Electricity access can also be provided through **off-grid systems**. These are stand-alone systems that are not connected to a grid and typically power single households. Today this market is dominated by diesel generators and solar PV systems (solar home systems). Off-grid systems may be the most cost-effective option (from a system cost perspective) in sparsely populated and remote areas. Both solar PV systems and batteries can be built at any scale to match the end-use service provided, which has led to innovative products coupling stand-alone generation with appliances. These products can often be scaled up as power demand grows, and can power a range of needs, from lighting and mobile phone charging to televisions and refrigerators. The upfront cost of stand-alone systems can be a critical barrier, making the availability of financing an important factor in their deployment. The levelized costs of electricity from stand-alone systems currently is the highest of the available pathways to electricity access, but rapidly falling costs for

largely public sector utility run network. And like other network infrastructure sectors at that time, Africa was very poorly served. However, since then the explosion of new technologies, new players and innovative services has introduced competition into the sector, leading to very significant private investment in a wide range of different assets and services. In this report, we have therefore carried out a review of the financial statements provided by the most important telecommunications and data operators on the African continent.

General trends for 2019

Africa is a global success story in the deployment of mobile telecommunications. The number of mobile subscriptions in Africa reached 1 billion toward the end of 2017.⁴³

Nigeria, the continent's most populous country, is also Africa's biggest mobile market in terms of subscriptions, with 150 million mobile subscriptions (end-June 2018). It is followed by RSA with 99 million mobile subscriptions, Egypt with 98.8 million, Ethiopia with 64 million, and Algeria with 46.2 million.

Africa thus has mobile penetration of 82.3 percent, close to international levels. However, only 43.5 percent of mobile subscriptions on the continent are based on mobile broadband connections (3G or more advanced devices and networks), considerably below the global average of 70.7 percent. Mobile handsets in Africa are also mostly from previous generations of technology, with more expensive smart phones still in the minority, now representing just over one-quarter of the total.⁴⁴ This reliance on older technology has spurred the development of Africa-specific technologies in areas such as mobile banking and financial services which can be reliably deployed on 2G technology, using mobile handsets from previous generations.

As concerns fixed broadband development, Africa remains substantially behind most of the rest of the

world. Fixed broadband household penetration on the continent was just 7.3 percent at end-June 2018, the lowest rate of all the major world regions. But despite the low penetration at the household level Africans have access to the internet. Use by individuals, including through public access points (government offices, internet cafes, etc.) ranges between a maximum of 64 percent in Tunisia (close to international levels) to 1.3 percent in Eritrea.

BOX 6.2: The origins of mobile banking in Kenya

Kenya's M-Pesa brought banking-by-phone to Africa. Since its introduction the service has grown into a bona fide payment network. Launched in 2007 by carriers Safaricom and Vodacom, M-Pesa's success is based on its simplicity. Customers buy credit on their mobile phone accounts to pay bills or buy products. To transfer money to a person, merchant, or government agency, all they need is the creditor's related phone number. The debits are deducted directly from the mobile phone account, with no need for a bank account. Customers give debtors their mobile number to use in settling up; when a debt payment comes in, their mobile phone account is credited.

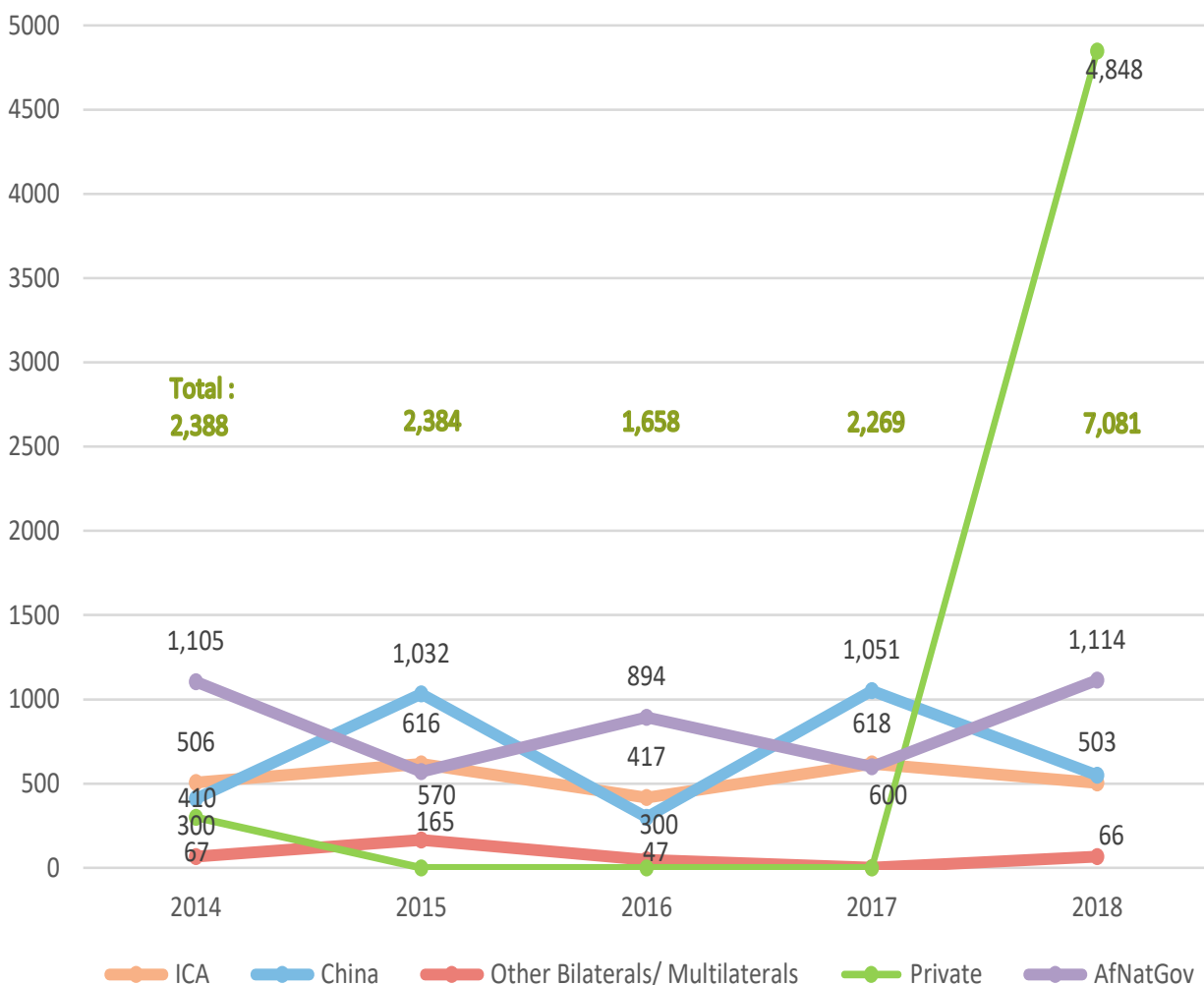
Mobile phones have spread faster than bank branches. These systems have obvious appeal for people without bank accounts, or what the financial services industry calls the "unbanked." In Kenya, this represents more than 80 percent of the market. For many Kenyans, their first mobile phone contract served to introduce them to the world of debit and credit. With minimal banking regulations in the region, African mobile companies were able to add various retail banking services (insurance, microfinance, remittances) to the traditional pay-as-you-go contract.

43 Sources: OVUM: Africa Digital Outlook (2019); International Telecommunications Union statistics (2019)

44 AfDB, 2017; GSMA, 2017

FIGURE 6.8 ICT was mostly funded by the private sector⁴²

Total ICT Sector Financing by Source 2014-2018



Financing trends

Financing for ICT infrastructure amounted to \$7bn in 2018.⁴⁵The private sector finances 80 percent of ICT infrastructure investment. The significant increase is explained by the fact that self-standing private sector investments were reported this year for the first time.

The most notable distinguishing feature of investment in ICT infrastructure in Africa is that, unlike the other sectors reviewed in this report, it requires little support, financial or otherwise, from national governments or IFIs. The main support required is in the maintenance of a functioning regulatory environment that provides effective frequency management and interconnection obligations and ensures there is adequate competition among providers. Almost all ICT infrastructure is financed by the private sector. Within the ICT sector there is government support for offshore cables (notably in the form of guarantees) as well as fiber-optic data backbones. The amounts involved are overshadowed by the mobile telecommunications expenditure by the private sector.

⁴⁵ Refer to footnote 1

Use of ICT for delivery of financial services

In Africa the ICT sector has become the springboard for new and innovative services for consumers. Most notable among these are Mobile Financial Services (MFS), which represent a well-established category of digital services for many African service providers.

Mobile financial services cover the full range of financial services, from payments and current accounts, to savings, loans, investments, and insurance. A subset of MFS is Mobile money, which enables customers to send, receive, and store money using their mobile phone, and is provided mainly by telecommunications operators. Of the global total of 282 mobile money services operating worldwide, over half are located in Sub-Saharan Africa, according to the GSMA. In Africa today, there are 100 million active mobile money accounts (used by one in ten African adults). This far exceeds customer adoption in South Asia, the second-biggest region for mobile money in terms of market share, which has only 40 million active mobile money accounts (used by 2.6 percent of adults).

The strong uptake of MFS, and mobile money in particular (see Figure 6.5 above), speaks to the low penetration of commercial banking in Africa. MFS

provides an effective means for low income persons to overcome their financial exclusion and participate in the modern economy.

Use of ICT for delivery of energy services⁴⁷

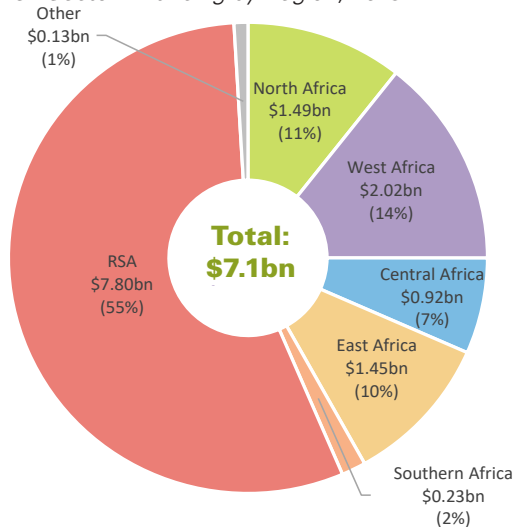
In addition to mobile financial services, ICT is beginning to be used to support the delivery of other forms of infrastructure service. The most notable is the ability for customers of electric power to be billed and to settle their bills remotely. Specialized companies⁴⁸ are bringing new business models to Africa that target areas covered by mobile networks but not electricity grids. These companies utilize mobile networks through pay-as-you-go (PAYG) financing and payment schemes for off-grid and mini-grid energy services.

The most common combination is the pairing of PAYG with solar home systems (consisting of a solar module with a battery and small appliances like LED bulbs and mobile phone chargers). Some governments are entering into partnerships with companies to distribute solar home systems, such as the partnership recently forged between the Republic of Togo and BBOXX, where the goal is to distribute over 300 000 solar home systems in Togo over the next five years.⁴⁹

46 Sharp jump in private sector investment in 2018 due to methodological change (see text)

FIGURE 6.9 RSA benefited from more than half of ICT commitments

Total ICT Sector Financing by Region, 2018



6.5 Urban Infrastructure Financing

The topic of subnational infrastructure financing was introduced for the first time in IFT 2017. That report noted that comprehensive data on subnational infrastructure investments in Africa are not generally available. Nevertheless IFT 2017 did report on subnational data from two countries, Nigeria and RSA, for which some data was found. This year the IFT focuses on the issues of deficient infrastructure in Africa's towns and cities and the responses should be considered by African countries to improve the prospects for infrastructure finance. It discusses the subnational financing programs of the World Bank and the AfDB, the two major ICA members supporting urban development.

47 This section is adapted from International Energy Agency: Energy Access Outlook Special Report: Energy Access (2017)

48 For example: BBOXX, M-Kopa, Off-Grid Electric and Mobisol.

49 ESI Africa (2017), BBOXX: solar innovation to light up Togo, ESI Africa, www.esi-africa.com/news/bboxx-solar-innovation-to-light-up-togo/.

Africa is urbanizing at a fast rate. Current projections are that Africa's urban population will double within 25 years.⁵⁰ The rate of urbanization is much faster in some countries. For example, the 2015 Ethiopia Urbanization Review of the World Bank indicates that the rate of urbanization will be about 5.4 percent a year.⁵¹ That would mean that on current trends, the urban population of Ethiopia will triple by 2034.

African cities already face daunting challenges. Investments in urban infrastructure (roads, water, sewerage, drainage, power and ICT) have not kept pace with population growth and are at lower levels than in other regions of the world. About 60 percent of Sub-Saharan Africa's urban population lives in areas classified as slums by the United Nations Human Settlements Program,⁵² often without minimum standards of basic water and sanitation services. Formal land markets are not working efficiently in these areas and in other parts of African cities. These infrastructure deficiencies not only affect the health and well-being of city residents, but they also adversely affect the cost structure of African businesses and the competitiveness of Africa's products in the world.

The leaders of African cities are limited in their ability to address these problems. A recent IMF working paper suggests that African countries are the least decentralized among all country groupings of the world and that African local governments have the least fiscal autonomy.⁵³

Yet urbanization when managed properly can lead to both economic gains and social gains. Higher levels of urbanization are well known to be associated with higher levels of GDP per capita (Figure 6.10) as

urbanization fosters enhanced exchange of knowledge among both businesses and workers and fosters innovation. Interviews conducted with some ICA members noted that Africa is urbanizing at a lower average GDP than other regions when they began the urbanization process and may face a relative lag. Research points to health and social benefits from urbanization. Infant mortality rates in countries that are more than 50% urbanized are less than a third of those with urbanization rates less than 50%. The differences in indicators within the same country between more urbanized and less urbanized areas are similar to those across countries.⁵⁴

There are no reliable estimates of Africa's urban infrastructure needs because there is little information available on infrastructure stocks. However recent research⁵⁵ indicates that investment at a level of about \$92bn per year may be required. Actual urban expenditures in Africa may be on the order of \$45bn,⁵⁶ leaving a gap of about \$47bn. This suggests that cities need to double their annual capital expenditures on infrastructure to keep up with growing demand.

Possible policy responses

Reducing the urban infrastructure gap requires action on multiple fronts. These include:

Accelerate decentralization with clear fiscal federalism rules between levels of government:

National governments need to advance local accountability and responsibility for managing and financing urban infrastructure. Ministries of Finance should ensure the establishment of prudential rules that define the conditions under which sub-national entities can borrow prudentially for infrastructure investments. They should consider the establishment

50 Lall, Somik Vinay, J. Vernon Henderson, and Anthony J. Venables. 2017. "Africa's Cities: Opening Doors to the World." World Bank, Washington, DC.

51 World Bank Group. 2015. Ethiopia Urbanization Review: Urban Institutions for a Middle-Income Ethiopia. World Bank

52 Hommann, Kirsten, and Somik V. Lall. 2019. Which Way to Liveable and Productive Cities?: A Road Map for Sub-Saharan Africa. International Development in Focus. Washington, DC: World Bank.

53 IMF Working Paper, Measuring Fiscal Decentralization – Exploring the IMF's Databases Prepared by Claudia Dziobek, Carlos Gutierrez Mangas, and Pheby Kufa June 2011

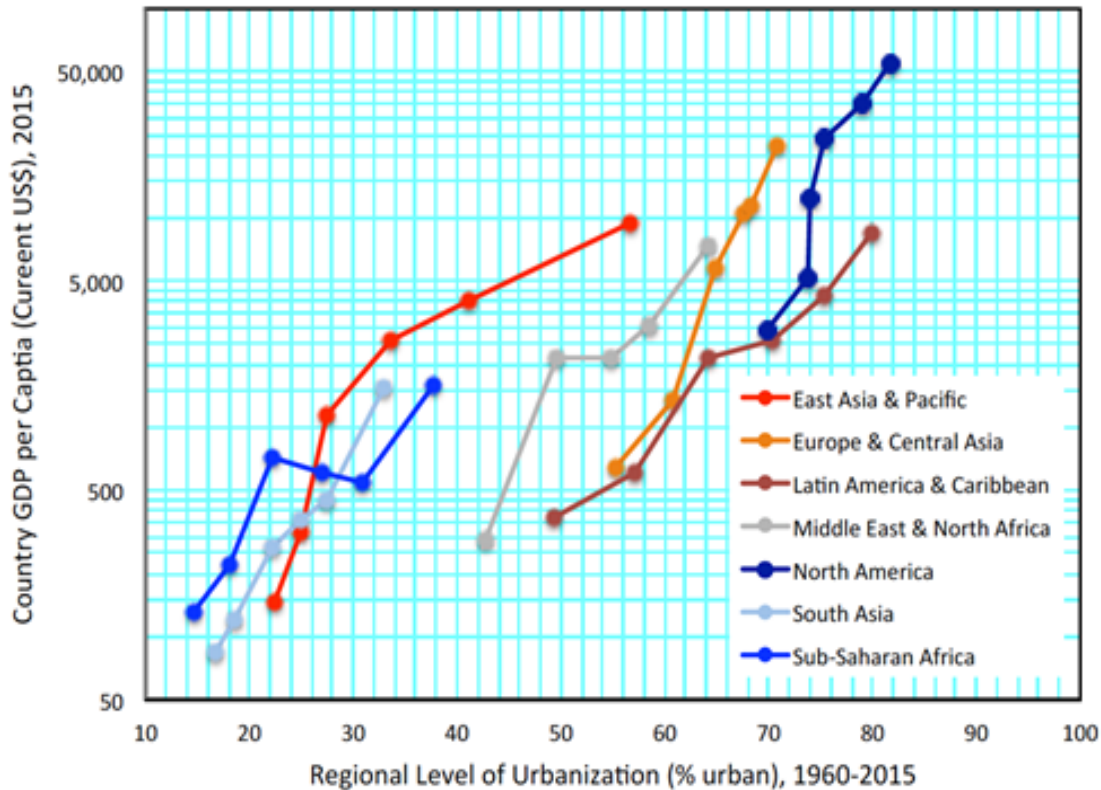
54 Counsel on Foreign Relations, Poor World Cities: A Conversation with Edward Glaeser; October 21, 2016

55 Methodology for urban infrastructure financing needs from Ingram, Urbanization and Demographics: Planning Cities that Work, in Ahlers, Kohli, editors, Africa Reset, A New Way Forward, 2017. National infrastructure needs from Julie, and Marianne Fay, eds. 2019. Beyond the Gap: How Countries Can Afford the Infrastructure they Need while Protecting the Planet. Washington, DC: World Bank.

56 African subnational expenditures as a % of GDP from: Measuring Fiscal Decentralization, Decentralization & Sub-National Regional Economics Thematic Group 2004, World Bank

FIGURE 6.10 Higher urbanization rates are strongly correlated with higher per capita GDP growth

The level of urbanization and the level of economic development in 7 world regions over time



of specialized financial intermediaries, as exist in Morocco and Tunisia, to reduce the cost and improve terms of subnational borrowing for infrastructure and other capital needs.

Improve city management and financial performance: Cities need to professionalize staff, improve management of services and develop sustainable fiscal policies to allow them to begin tapping domestic debt markets.

Manage spatial growth and reduce infrastructure costs by better planning of infrastructure: Urban planning and regulation need to be simplified and more market oriented. Infrastructure, especially roads, can be established in advance of residential and commercial development to guide spatial growth into corridors where development can take place more efficiently. Higher density can reduce infrastructure

costs and improve connectivity among communities.

Develop more efficient land markets: In Sub Saharan Africa, 90% of land rights are unclear.⁵⁷ Governments need to modernize property records, reduce title disputes, and simplify building codes and planning standards. Regularization of slums and informal settlements can have large social and economic benefits.

Encourage private investment and private sector jobs: Adopt reforms to improve standing in the “Doing Business” league tables. Adopt transparent legal frameworks and model documents for PPPs applicable at the local government level. Work with private sector and local universities to develop

⁵⁷ The Brookings Institution, Why Land Tenure Matters for IDPs: Lessons from Sub-Saharan Africa, Jacquie Kiggundu 2008

strategies for measures to stimulate the local economy and to promote local entrepreneurship.

Undertake measures to improve resiliency and adopt green growth strategies:

Increasing urbanization is expected to lead to a fivefold increase in climate change-related risk to assets and people living in coastal cities in the coming 20 years. An estimated 70 million Africans are likely to become internal climate migrants by 2050 due to coastal erosion, sea level rise and climate change induced drought.⁵⁸ Planning new infrastructure for climate resiliency and adapting existing infrastructure to reduce risks should thus be a priority.

Financing Trends

The World Bank and the African Development Bank are two of the most important financiers of urban infrastructure and the most important sources of policy advice in Africa.

The World Bank: The World Bank is the largest external financier of urban infrastructure in Africa. In 2018 the World Bank approved 14 projects with finance totaling \$1.7bn. This was less than the \$2.4bn committed in 2017. The World Bank urban development program in Africa focused on four themes in 2018.

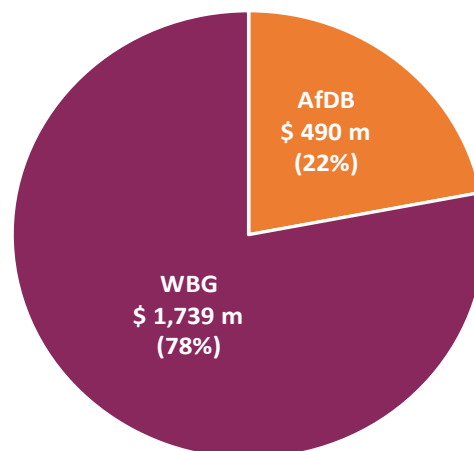
- Improving governance, financial and institutional performance and strengthening decentralization.
- Improving resilience.
- Improving urban planning and land markets.
- Improving Service delivery and urban mobility.

African Development Bank: The African Development Bank has had an urban development strategy since 2011, and long before that had been active in financing urban water and sanitation projects and urban transport projects. However, because of staffing constraints, the AfDB has had to narrowly focus its support. Its aim is to use urban transport projects not only to improve urban mobility, but also as a mechanism for influencing the location and efficiency

58 Kumari Rigaud, Kanta, Alex de Sherbinin, Bryan Jones, Jonas Bergmann, Viviane Clement, Kayly Ober, Jacob Schewe, Susana Adamo, Brent McCusker, Silke Heuser, and Amelia Midgley. 2018. Groundswell: Preparing for Internal Climate Migration. Washington, DC: The World Bank.

FIGURE 6.11 AfDB and WBG commit over \$2bn to urban Infrastructure

Urban Infrastructure Commitments by Source, 2018



of land use. AfDB urban transport projects typically also support small development schemes related to the improvement of urban transport. A new multi-donor municipal development fund has been agreed that may facilitate a future measured expansion of AfDB’s financing for towns and cities. The fund will support technical assistance and project preparation in the areas of urban planning, mobility and municipal governance and finance. AfDB’s successful experience in working with small and medium sized local governments in bringing private sector operators to water supply and sanitation operations should also carry over helping bring private operators to provide services in larger local governments.

In 2018 AfDB made commitments totaling \$482m for two urban development operations. The first was the Abidjan Urban Transport Project in Côte d’Ivoire (\$382m). This project will build the fourth bridge over the Ebrié lagoon connecting the city’s business and centers to the country’s most densely populated suburb. It will also rebuild 89 intersections and 88 kilometers of expressways.

The second project approved was a non-sovereign loan of over \$100m in RSA to a financial services company that provides loans for the purchase of mini-van taxis to support small-scale entrepreneurs.

BOX 6.3: Implications of New Technologies

Physical infrastructure has a long life. Current planning for infrastructure should consider how advances in technology might affect the future functionality of existing and planned infrastructure.

Possible Future Technology Innovations in Transport

Autonomous vehicles: This technology could mean that in less than ten years Africa will begin to see freight carried on highways in autonomous trucks. The saving in the cost of drivers will significantly reduce trucking costs and may make trucking more competitive versus rail. In cities, autonomous vehicles and ride sharing may lead to a reduction in car ownership and a reduction in the need for parking. This will free valuable land space for alternative uses. Drones are already in use. Doctors in rural Rwanda are able to order blood and medical supplies by text message and then have them delivered by a drone.

Predictive analytics and sensor technology: Traffic flow in cities is likely to be managed by predictive algorithms that rely on sensors and that will not only control traffic lights but will feed data to cars and buses on optimal routing. Light rail in cities, which relies on fixed tracks, and is less flexible, may be placed at a competitive disadvantage. Road safety may be enhanced by reducing human error in driving and by systems to autonomously alert emergency responders to public safety events.

Possible Future Technology Innovations in Water and Sanitation

Technology for the safe treatment and disposal of human excrement Sewer systems are prohibitively expensive for African cities. It is possible that over the next 15 years, bacterial or chemical processes will be developed for onsite safe treatment of human waste without the necessity of being transported by water. Such a system would need to be matched with safe and efficient household sludge removal, perhaps in association with solid waste disposal.

Small inexpensive sensors. Leak detection sensors

may be deployed within micro grids laid out throughout cities, towns and other sensitive areas. The sensors can provide detailed localized measurement of rainfall and winds to allow precise modeling of flooding, mudslides, and other risks. Emergency services can be alerted in advance. This can lower costs and lower insurance premiums. Small Sensors may be deployed on a routine basis within water and sewerage pipes to autonomously determine the soundness of pipes and the source of leaks and report them for repairs.

Technology Innovations through a combination of ICT and Energy

Providing electricity to rural areas under the conventional centralized grid arrangement is prohibitively costly, because of low population densities and the difficulty in billing and collecting remote customers. Now there is a move to alternative mini-grid and off-grid systems that, although more costly than traditional grid systems at the urban level, are able to supply remote customers cost-effectively.

In Africa, ICT provides financial services to the financially excluded. It is now also being deployed as a tool to enhance energy access. Mobile phone networks allow customers of electric power systems to be billed and to settle their bills remotely. Mobile networks significantly simplify billing and collection by allowing the company to remotely monitor products and collect usage data, disable a device when a customer misses a payment and turn the device back on when the payment has been made. Mobile phones thus help facilitate access to a large array of energy services, especially in rural areas where the need is increasingly concentrated and where electric power delivery systems are most diverse. Penetration is greatest in Kenya, Tanzania, Rwanda and Uganda, where electricity penetration rates are low and there exist well-established telecoms and mobile money systems, and relatively business friendly markets. Other markets in Africa are also opening, especially in Ethiopia, Ghana and Nigeria.

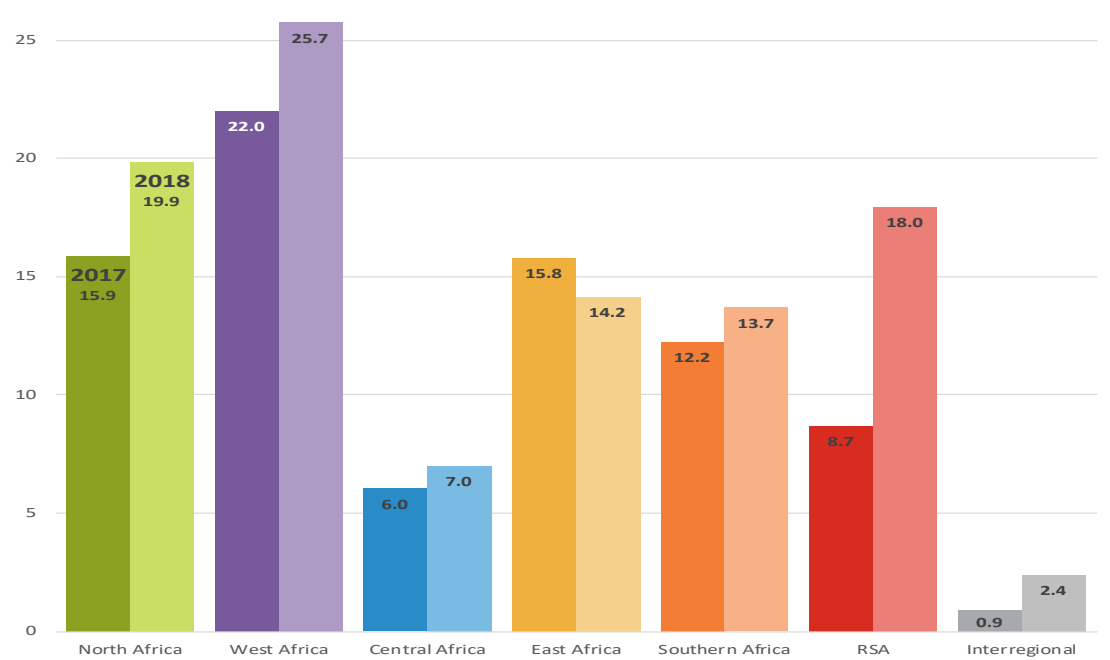
7

Regional Analysis

As in previous years, West Africa received the largest share of total commitments, 26% or \$25.7bn. Financing to all regions increased over 2017, except for East Africa which received \$1.6bn less (10%) than in 2017. Boxes 7.1 to 7.5 detail example projects in each region

FIGURE 7.1 Most regions saw a growth in commitments

Total Commitments by Region (\$bn), 2017 and 2018



7.1 North Africa

In 2018, total investments to operations in North Africa amounted to close to \$20bn, the highest amount committed to that region for the past few years and significantly above the \$13.7bn average of the three previous years. State budgets⁵⁹ contributed the largest amount, close to \$8bn, following by China with \$4.6bn, ICA members with \$3.5bn, members of the Arab Coordination Group with \$1.6bn, the private sector with \$1.2bn, EBRD with 800m, and the AIIB with \$300m. Figure 7.2 shows the breakdown of all commitments by sector.

59 State budgets are the largest commitment contributors in some regions. National finance laws or other documents found online with national budget data do not provide project-specific information needed to showcase projects in boxes.

FIGURE 7.2 North Africa saw more water financing than other regions

Total Financing to North Africa by Sector, 2018

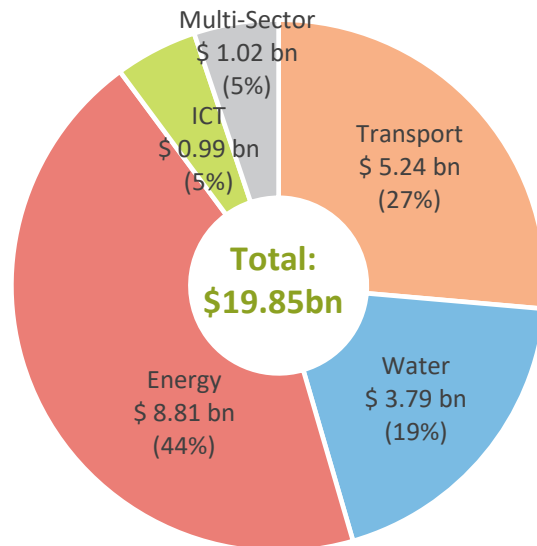
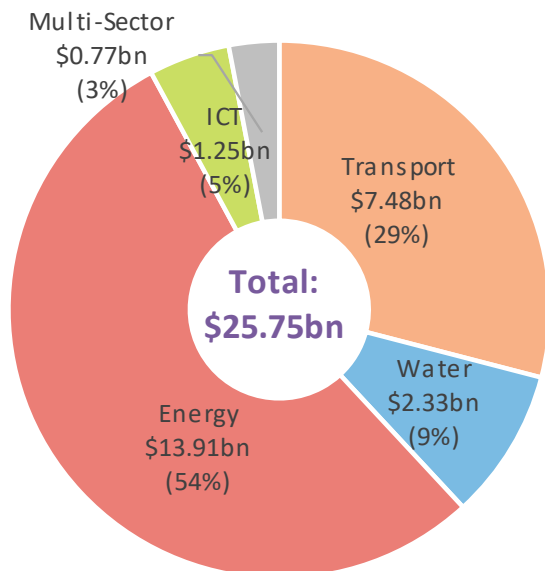


FIGURE 7.3 More than half of financing in West Africa was to energy

Total Financing to West Africa by Sector, 2018



7.2 West Africa

In 2018, West Africa continued to receive the largest share of total commitments, \$25.7bn, or 26% of total commitments, almost 50% higher than the 2015-2017 average of \$17.3bn. Contributors of these commitments were: China (\$10.5bn), state budgets (\$7.9bn), ICA members (\$6bn), the private sector (\$1bn), and the Arab Coordination Group (\$314mm). Figure 7.3 shows the breakdown of all commitments by sector.

BOX 7.1: Examples of Projects Committed to in 2018 for North Africa

Egypt - Fayoum Wastewater Expansion Project – EIB (\$139m loan).

The project will support the construction and expansion of wastewater collection and treatment facilities in the vicinity of Lake Qarun. It will provide first-time sewerage infrastructure to over 800,000 unserved rural people, thus improving their living standards and health by reducing the wastewater supply/demand gap and limiting their exposure to water borne diseases. The project is expected to have substantial environmental and social benefits as it addresses the lack of adequate sanitary infrastructure in the rural areas of Fayoum that significantly contributes to the pollution of Lake Qarun, one of Egypt's important natural landmarks with significant historical, natural and scientific importance. In addition, the project will provide much needed employment for skilled and unskilled workers in the region.

Tunisia: Smart grid STEG – France (AFD) (\$132m loan)

The project will improve the national electricity grid and is part of the Tunisian government's efforts to implement an energy transition strategy aimed at reducing costs and improving operational efficiency. Tunisia plans to increase its power generation capacity to 8,300 MW by 2023 and to guarantee universal access to energy by that date. The loan will support the implementation of the first phase of the project, which will involve the development of control and communication stations and the improvement of infrastructure. It includes the installation of 430,000 smart meters over three years in houses and businesses in the governorate of Sfax. They will then be deployed throughout the country.

BOX 7.2: Examples of Projects Committed to in 2018 for West Africa

Nigeria – ICT – China (\$328m loan)

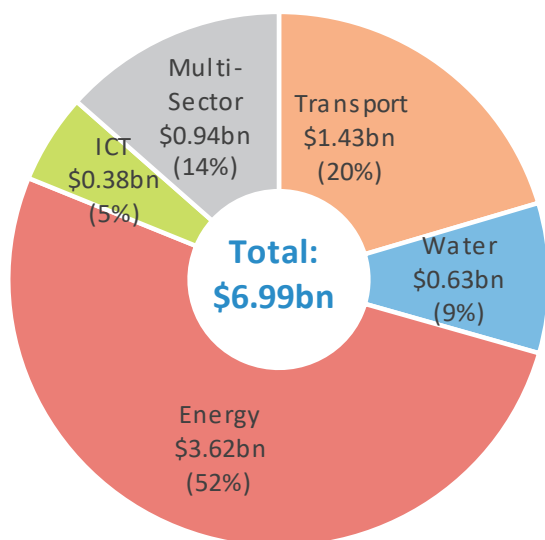
China's Exim Bank will lend Nigeria \$328 million toward improving its telecoms infrastructure. Poor telecoms are a major challenge for businesses operating in Nigeria. This loan will support the country's commitment to incorporating the development of information and communications technology into national strategic planning. The objective of improving the country's technology infrastructure is to boost growth and create jobs as it seeks to reduce reliance on oil sales.

Multinational - Mano River Union Road Development and Transport Facilitation Programme, Phase II -Transport – AfDB (\$40m loan)

The Road Development and Transport Facilitation Programme – Phase 2, is a regional programme between Liberia and Côte d'Ivoire to develop and pave a total of 67km of road linking the South-eastern Liberia and western part of Côte D'Ivoire. These road sections are still dirt roads, barely 6 meters wide and impassable for most of the year. The bridges spanning the numerous rivers in the area are built of makeshift timber, have numerous road checkpoints and ill-adapted border posts that render journeys long and fastidious. The lack of road infrastructure is one binding constraint to economic development and activities of the areas, including the movement of goods and services. The project will include the development and paving of the roads, construction of 37-meter span bridge on the Nuon River connecting Liberia and Côte d'Ivoire at the Loguatuo/Gbeunta Border and the construction of joint border control posts.

FIGURE 7.4 Central Africa had the most multi-sector financing

Total Financing in Central Africa by Sector, 2018

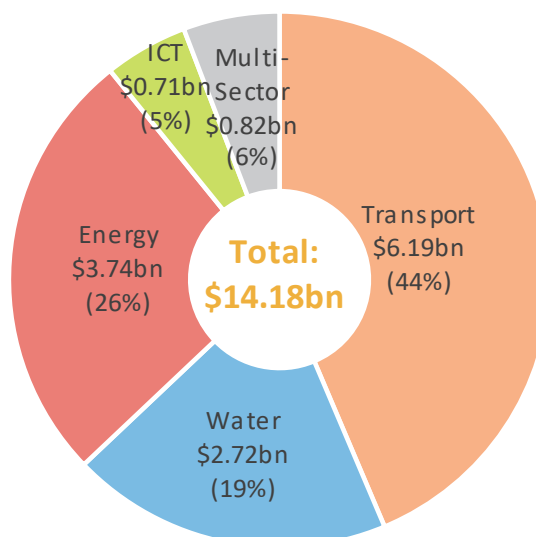


7.3 Central Africa

Commitments to support operations in Central Africa amounted to \$7bn in 2018, 13% higher than the average of the three preceding years, \$6.2bn. Most of the financing came from state budgets (\$2.5bn), ICA members (\$2.1bn), China (\$1.3bn), the private sector (\$684m), and the Arab CG (\$131m). Figure 7.4 shows the breakdown of all commitments by sector.

FIGURE 7.5 Over two thirds of financing went to transport and energy

Total Financing in East Africa by Sector, 2018



7.4 East Africa

East Africa received a total of \$14.2bn in commitments, markedly lower than the average of the three previous years, \$15.9bn. These commitments came from state budgets (\$6bn), ICA members (\$3.7bn), China (\$2.5bn), the private sector (\$1.1bn), the Arab CG (\$279m), and non-ICA European countries (Austria, Belgium, the Netherlands, and Norway) (\$119m). Figure 7.5 shows the breakdown of all commitments by sector.

BOX 7.3: Example of Projects Committed to in 2018 for Central Africa

Chad Rural Mobility and Connectivity Project - WB (\$30m grant)

In December 2018, the WB approved a \$30 million grant to fully finance the Rural Mobility and Connectivity project for Chad to improve and sustain access by rural populations to markets and basic social services in the project area. The project includes the rehabilitation and maintenance of rural roads, institutional capacity building and facilities improvements (including the operationalization of the national rural transport strategy), operational support (including compensation for involuntary resettlement), and an immediate response mechanism. The largest share of the project (82%) will be devoted to rural and inter-urban roads. The remaining financing will be allocated to public administration (transportation) and social protection (road safety, prevention of gender-based violence). The project is expected to benefit around 365,000 people (30% of the population of the project area), whose living conditions will be improved by better access to markets, essential to food security and basic services such as health centers and schools. Farmers and producers in the project area will also benefit from an improved all-season road to transport their products to the markets just after the harvest. A particular focus on female beneficiaries is part of project design.

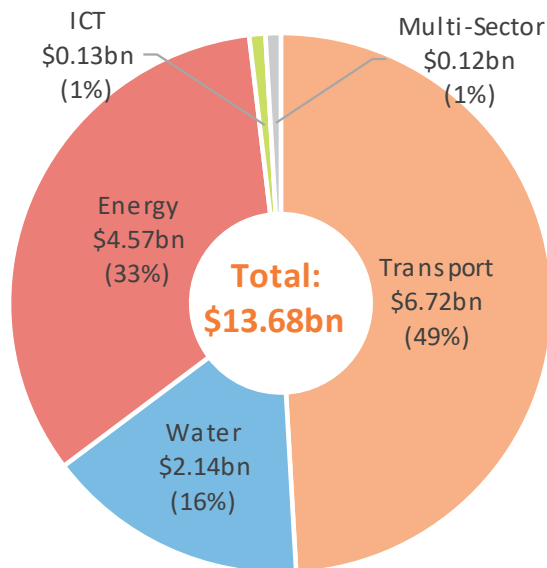
BOX 7.4: Example of projects approved in 2018 for East Africa

Quantum Power – Menengai 35-Megawatt Geothermal Project in Kenya - AfDB (\$49.5m loan)

The AfDB approved a loan of \$29.5m and a concessional loan of \$20m to support the design, construction, and operation of a 35-megawatt geothermal power plant with an annual output of around 291 gigawatt hours. The project company signed a 25 year take-or-pay power purchase agreement with the national power utility, the Kenya Power and Lighting Company, and a project implementation and steam supply agreement with the state-owned Geothermal Development Company. The plant will increase Kenya's installed baseload capacity while addressing growing demand for reliable and affordable electricity. Geothermal, among the cheapest sources of energy in Kenya, will diversify the country's energy mix, reduce its dependence on fossil fuels, and lower end-user electricity tariffs. Total greenhouse gas savings are estimated at about 95,000 tons of carbon dioxide equivalent per year. The project will create roughly 300 jobs during construction and 30 during operation, of which 30 percent are expected to be for women.

FIGURE 7.6 Close to half of commitments went to transport

Total Financing in Southern Africa by Sector, 2018



7.5 Southern Africa

Commitments to Southern Africa totaled \$13.7bn, almost 20% higher than the 2015-2017 average of \$11.5bn, although that average hides wide year-to-year fluctuations, going from \$6.5bn in 2016 to \$15.6bn in 2015. The main commitment contributors were state budgets (\$6.4bn), China (\$5.6bn), ICA members (\$1.3bn), the private sector (\$100m), the Arab CG (\$84m), and non-ICA European countries (\$56m). Figure 7.6 shows the breakdown of all commitments by sector.

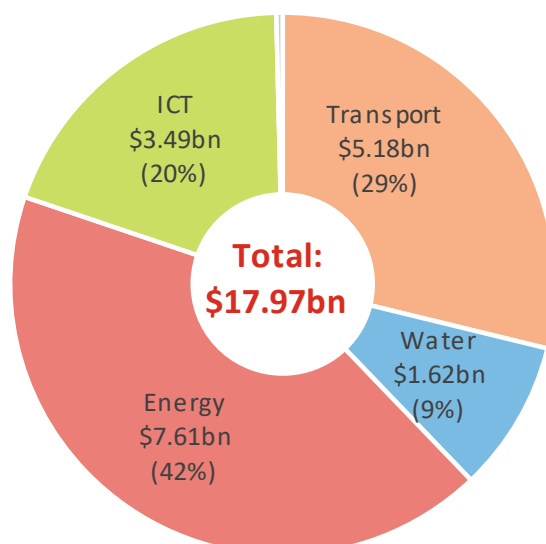
BOX 7.5: Example of projects approved in 2018 for Southern Africa

Integrated Urban Development and Resilience Project for Greater Antananarivo Project –WB (\$75m loan)

The objective of the project is to enhance urban living conditions and flood resilience in selected low-income neighborhoods of Greater Antananarivo, and to improve the country's capacity to respond promptly and effectively to crises or emergencies. Among others, the project includes the improvement of urban drainage, services and resilience in targeted areas, and the strengthening of institutional capacity for resilient urban governance.

FIGURE 7.7 RSA benefited from a larger share of ICT than other regions

Total Financing in RSA by Sector, 2018



7.6 RSA

RSA received total commitments of \$18bn, over twice the average of \$8.8bn for the three preceding years. This significant increase is mostly attributable to the inclusion in 2018 of commitments by the private sector, the largest contributor (\$7.7bn), followed with state financing (\$6.8bn), ICA members (\$1.7bn), China (\$1.3bn), and the NDB (\$500m). Figure 7.7 shows the breakdown of all commitments by sector.



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