



United Nations  
Economic Commission for Africa



# Positioning African Public Development Banks for the Post COVID-19 Recovery



# POSITIONING AFRICAN PUBLIC DEVELOPMENT BANKS FOR THE POST COVID-19 RECOVERY



United Nations  
Economic Commission for Africa



To order copies of *Positioning African Public Development Banks for the Post COVID-19 Recovery* by the Economic Commission for Africa, please contact:

Publications and Conference Management Section  
Economic Commission for Africa  
P.O. Box 3001  
Addis Ababa, Ethiopia  
Tel: +251 11 544-9900  
Fax: +251 11 551-4416  
E-mail: [eca-info@un.org](mailto:eca-info@un.org)  
Web: [www.uneca.org](http://www.uneca.org)

© 2020 Economic Commission for Africa  
Addis Ababa, Ethiopia  
All rights reserved

First printing: November 2020

Material in this publication may be freely quoted or reprinted. Acknowledgement is requested, together with a copy of the publication.

The designations employed in this report and the material presented in it do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Economic Commission for Africa concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Designed and printed in Addis Ababa by the ECA Printing and Publishing Unit. ISO 14001:2015 certified.  
Printed on chlorine free paper.

Cover photos: Shutterstock

# Contents

<b>1.</b>	<b>Rationale for finance in common .....</b>	<b>1</b>
<b>2.</b>	<b>Public development banks: key features and landscape .....</b>	<b>2</b>
	2.1. International public development bank operations in Africa .....	2
	2.2. Key regional public development banks in Africa .....	4
<b>3.</b>	<b>Other public development banks in Africa .....</b>	<b>7</b>
<b>4.</b>	<b>Challenges and opportunities facing PDBs .....</b>	<b>12</b>
<b>5.</b>	<b>The nature and scale of support of PDBs in the context of the COVID-19 crisis .....</b>	<b>13</b>
<b>6.</b>	<b>Environmental, Social and Governance (ESG) Considerations of PDBs .....</b>	<b>16</b>
<b>7.</b>	<b>Towards a more impactful role of African PDBs in the post COVID-19 recovery .....</b>	<b>17</b>
	7.1. Addressing mandate and policy barriers.....	17
	7.2. Adopting a more counter-cyclical policy stance.....	17
	7.3. Managing environmental and social risks.....	18
	7.4. Inter-regional cooperation among PDBs.....	18
	7.5. Facilitating access to financing at competitive rates.....	18
	7.6. Deepening the pipeline of bankable projects .....	19
	7.7. Leveraging green investment opportunities including the ECA SDG7 initiative.....	20
	7.8. Contributing to a low-carbon and equitable recovery.....	21
	7.9. Scaling investments in health and digital solutions to the pandemic.....	21
<b>8.</b>	<b>Conclusion and policy perspectives .....</b>	<b>23</b>
	<b>References.....</b>	<b>24</b>



# 1. Rationale for finance in common

The Finance in Common Summit is an initiative of the World Federation of Development Finance Institutions and the International Development Finance Club. It is convened by the French Development Agency (AFD) and supported by Multilateral Development Banks, regional associations of Public Development Banks and international organisations (<https://financeincommon.org/who-we-are>). This year's Summit scheduled for 9-12 November 2020, will bring together Public Development Banks (PDBs) from across the globe, to discuss their roles, challenges and opportunities in the context of the COVID-19 pandemic and beyond. The event will also bring together the financial community at large, to design a financial system for Public Development banks that reorients and leverages financial flows in support of the climate and the SDGs. The summit is expected to contribute to supporting and reinventing multilateralism by promoting new forms of cooperation. Furthermore, the event will highlight the vital role of PDBs in reconciling short-term countercyclical responses with sustainable recovery measures that have a long-term impact on the planet and societies.

---

## 2. Public development banks: key features and landscape

Public Development Banks (PDBs) are largely state-owned financial institutions with the overarching mandate of delivering on public policy objectives aimed at supporting the economic development agenda of a country. PDBs direct investments towards sectoral priorities of government such as infrastructure and address market imperfections by investing in sectors that private investors consider unprofitable, despite their importance for economic growth and development. In this context, PDBs can be distinguished from Development Finance Institutions (DFIs) which constitute the subset of PDBs that is specifically devoted to supporting the private sector.

PDBs are largely a heterogeneous group of institutions, with varying ownership structures (private, public or a mixture of both), business models and mandates. Worldwide, there are 450 PDBs (2018) with holdings of approximately \$11.2 trillion in assets (AFD <https://www.afd.fr/en/actualites/six-things-know-about-public-development-banks>). They operate at local, national and international levels and are governed by a variety of ownership structures (i.e., private, public or a mixture of both), business modes and mandates. Multilateral PDBs can be global such as the World Bank Group with global membership, regional PDBs such as the African Development Bank, or sub-regional such as the East African Development Bank.

In contrast to PDBs, DFIs – such as International Financial Corporation (IFC), CDC Group and African Development Bank (AfDB) – provide finance (loans, equity, guarantees) and technical assistance to the private sector in low- and middle-income countries. While the majority of the shareholders of these DFIs are governments, their mandates usually include the provision of additional finance on commercial terms, to advance the achievement of the Sustainable Development Goals (SDGs).

This paper examines the role that PDBs in Africa play in supporting the continent's development priorities and its response to the pandemic. There are approximately 95 PDBs in Africa representing 21 percent of all PDBs. However, due to their relatively small size, African PDBs account for only 2% of total PDB assets. In contrast, China accounts for 32 percent.

### 2.1. International public development bank operations in Africa

Multilateral PDBs have played a key development financing role in Africa including supporting their response to the post-COVID-19 pandemic. Notable among these PDBs are the International Finance Corporation (IFC), the European Investment Bank (EIB), the OPEC Fund for International Development (OFID), the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). These are among the largest PDBs in terms of commitments to investment and total resources/assets.



IFC is the leading global development institution focusing on the private sector in developing markets with total resources of \$24.7 billion (2018), \$27.8 billion (2019) and \$28.2 billion (2020). IFC is the only multilateral source of debt and equity financing for the private sector with global coverage and has established a prominent position promoting private sector investment in Africa. Over six decades, IFC has invested more than \$25 billion in African businesses and financial institutions. Currently, IFC has been advancing funding and advisory support to aid African businesses withstand the effects of the COVID-19 pandemic. In Africa, IFC committed \$4.6 billion to private sector investments across the region between July 2019 and June 2020.

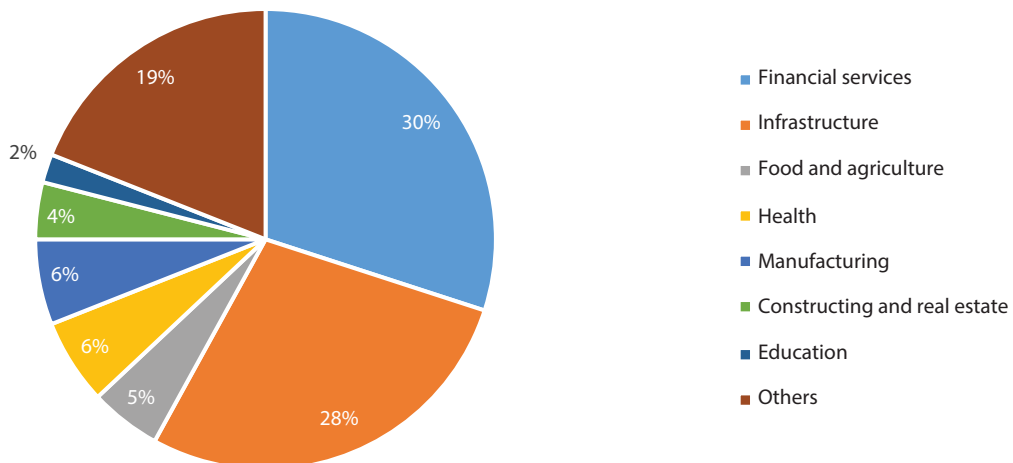
The European Investment Bank (EIB) is among the largest multilateral climate financier in the world with an AAA credit rating. EIB is financing sustainable projects in four areas: climate and the environment, infrastructure, small and medium-scaled enterprises and innovation. EIB's total resources available in 2019 stood at £50,332 million with commitment of £1,400 million in African, Overseas Countries and Territories (OCT), Caribbean and Pacific Countries (ACP).

The OPEC Fund for International Development (OFID) is present in 53 African countries and has total assets worth US\$7,604.1 million (2019). The Fund provides resources for projects on food, energy, clean water and sanitation, healthcare and education with the goal of boosting self-reliance and stirring hope for the future. It has dedicated US\$1 billion to fund COVID-19 impact and recovery efforts in developing countries.

The International Bank for Reconstruction and Development (IBRD) is a leading PDB with assets of \$296,80 million (2020). The IBRD has provided over \$30 billion to finance climate change activities in the world and has supported the least developed countries, small island States and other susceptible countries in climate change adaptation. The World Bank delivered \$17 billion through International Development Association (IDA) and International Bank of Reconstruction and Development (IBRD) for climate action through the platform of the World Bank's Africa Climate Business Plan (ACBP) to support adaptation and resilience to catastrophic events, while preparing countries for a low-carbon, climate resilient and sustainable development.

The International Development Association (IDA) is the world's largest multilateral source of concessional financing for the poorest nations. It provides financing in the form of development loans, grants, and guarantees to aid countries reduce poverty, improve living standards and increase economic growth. In fiscal year 2020, 76 countries were eligible for IDA aid, with Somalia becoming active during the fiscal year.

**Figure 1: CDC Group portfolio distribution across sectors**



As an international DFI, the CDC Group provides flexible long-term investment critical for the economic survival of businesses in developing countries. It has seven cluster sectors of priorities namely, financial services, education, infrastructure, health, food and agriculture, manufacturing, construction and real estate. The CDC Group uses different vehicle of instruments in their support to countries. Principally, their support comes in the form of direct equity, intermediated equity, debt and trade finance. In terms of their sectoral portfolio breakdown, Figure 1 shows financial sector as the key beneficiary of their activities closely followed by infrastructure. In 2019, while 53% of their interventions were in the financial sector, 23% of their projects were in the infrastructural sector, with health and agriculture each comprising 3%.

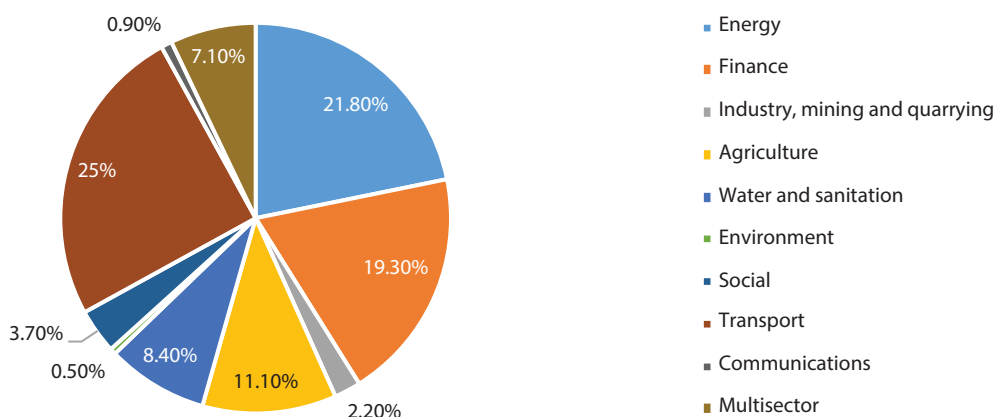
At the end of 2019, CDC had invested in 1,228 businesses of which 690 are from Africa. Overall, about 52% of CDC’s interventions are in Africa with Nigeria, Kenya and South Africa receiving the highest.

## 2.2. Key regional public development banks in Africa

The African Development Bank (AfDB) and African Export-Import Bank (Afreximbank) are the top regional PDBs in Africa with a multi-country presence across the continent. The AfDB is a multilateral DFI with the mission to fight poverty and improve living conditions the continent. It prioritizes national and multinational projects and programs (investment of public and private capital) that promote regional economic cooperation and integration in the region. The Bank’s capital base increased to US\$208 billion in 2019.<sup>1</sup> The AfDB Group, achieves its overarching objective in part by providing policy advice and technical assistance to support development efforts. The AfDB’s 2013-2022 strategy, focusses on improving inclusive growth and ensuring a transition to green growth.

In 2019, the majority of the Bank’s interventions were directed towards the transport sector; 3,919 km of feeder roads were built and rehabilitated as part of its Integrate Africa Initiative (Figure 2). The Bank’s operations are largely in transport (25 percent), energy supply (22 per cent), finance (19 per cent), agriculture (11 percent), and water supply and sanitation (8 percent). Financial sector loans benefited over 53,000 SMEs. The Bank targets fragile states, agriculture and food security, and gender. In 2019, about 20.3 million farmers comprising 9.6 million women

**Figure 2: AfDB portfolio distribution across sectors at end 2019**



Source: AfDB (2019)

<sup>1</sup> <https://www.afdb.org/en/news-and-events/today-day-joy-africa-african-development-bank-celebrates-historic-capital-increase-32349#:~:text=At%20an%20extraordinary%20shareholders'%20meeting,now%20stands%20at%20%24208%20billion.>

benefited from their interventions in the agricultural sector under the organisation’s Feed Africa project. Figure 1 shows the breakdown of the distribution of their interventions in 2019 alone.

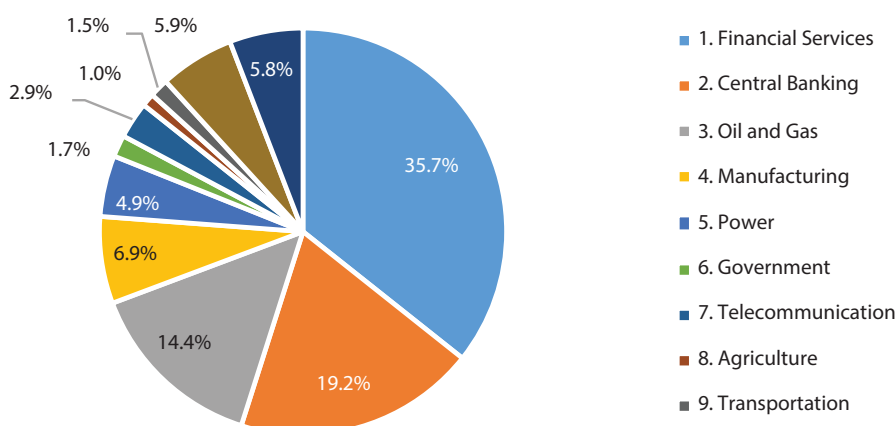
Similarly, the Afreximbank is a Pan-African multilateral trade finance institution that was established in 1993 by African Governments, African private and institutional investors as well as non-African financial institutions and private investors for the purpose of financing, promoting and expanding intra- and extra-African trade. It has 51 African member countries and as at June 30, 2020, its total assets were US\$19.4 billion<sup>2</sup>. Its vision is to be the trade finance bank for Africa. It aims to stimulate a consistent expansion, diversification and development of African trade, while operating as a profit-oriented, socially responsible financial institution and a center of excellence in African trade issues.

The Bank’s specific functions include: extending credit to eligible African exporters by providing pre- and post-shipment finance; extending indirect credit to African exporters and importers of African goods through the intermediary of banks and other African financial institutions; promoting and financing trade between African states and other developing states; acting as intermediary between African exporters and African and non-African importers through the issuance of letters of credit, guarantees and other trade documents in support of export-import transactions; promoting and providing insurance and guarantee services covering commercial and non-commercial risks associated with African exports; and carrying out market research and providing auxiliary services aimed at expanding the international trade of African countries and boosting African exports.

Under its Fifth Strategic Plan, Afreximbank is actively promoting intra-African trade which is fully aligned with the AfCFTA and the diversification of exports to reduce dependence of the region on commodity exports and exposure to volatility which have been the main channels to recurrent balance of payment crises over the years.

Trade finance in Africa continues to be affected by liquidity constraints that have been worsened by the withdrawal of foreign banks from Africa and low access to affordable financing for SMEs. Facilitating trade finance in Africa is one of the primary reasons for which Afreximbank was set up. Accordingly, since its inception, trade finance has been core to the Afreximbank’s operations.

**Figure 3: Afreximbank Exposure by Sector-Oct 2020\***



\* The percentage for the financial services sector is a reflection of the Bank’s approach to reach Small and Medium Enterprises through local financial institutions.

<sup>2</sup> <https://www.afreximbank.com/investor-relations/>

### **Box 1: Afreximbank - Driving Africa's Economic Integration**

Afreximbank has also been driving African economic integration and is a strong supporter of the AfCFTA. In this regard, Afreximbank has, among others:

- Disbursed more than US\$20 billion during the last four years in support of intra-African trade
- Onboarded 400 of the 600 African regulated commercial banks under its Afreximbank Trade Facilitation programme to benefit from LC Confirmation lines in support of intra-African trade, with target to grant US\$8 billion in limits.
- Been mandated by AU Heads of State to support the creation of a US\$5 billion AfCFTA Adjustment Facility. A US\$1 billion initial commitment already approved by the Bank.
- Under AU mandate, promoted the Pan-African Payment and Settlement System (PAPSS) in partnership with African Central Banks to facilitate payments for cross border trade in African currencies to boost intra-African trade and save the continent about US\$5 billion in transfer charges.
- In partnership with AU, launched a biennial Intra-African Trade Fair, backed by about US\$20 million investment per event from Afreximbank, to deepen connectivity among African businesses.
- Provided a grant of US\$3 million to support the operational set up of the AfCFTA Secretariat.
- Worked with the AUC to launch the African Collaborative Transit Guarantee Scheme backed by a US\$500 million limit to facilitate seamless flow of goods across transit corridors.
- Created the Funds for Export Development in Africa (FEDA) with Headquarters in Rwanda to leverage foreign direct investments into Africa's private sector. Initial fund size amount to US\$500 million

*Source:* Afreximbank

Over the years, Afreximbank's influence across the continent has grown. Its leadership in trade finance focuses on expanding its intervention in some of the critical trade finance products it already offers while creating new products and initiatives. Afreximbank has introduced and expanded its intervention under Correspondent Banking and Trade Services, Structured Trade Finance Facilities, Factoring and Forfeiting Facilities, and will continue to support the provision of liquidity.

In addition to trade finance products, Afreximbank also intervenes in other product areas that improve access to trade finance, including syndications, guarantees, and specialised financing programmes. In 2019, the Bank was the mandated lead arranger or co-mandated lead arranger for 21 syndicated transactions achieving a leverage ratio of 3.5. Reflecting this performance, the Bank was ranked first among bookrunners of Africa borrower loans and second among mandated lead arrangers of Africa borrower loans in the Bloomberg 2019 League Table.

To continue driving structural transformation and African economic integration, it is important to capitalise and capacitate African DFIs, such as Afreximbank to ensure that Africa's future development ambitions remain strong and successful initiatives are scaled up for a greater development impact. Increased capitalization will deepen and expand Afreximbank's effectiveness and intensify its interventions post COVID-19.

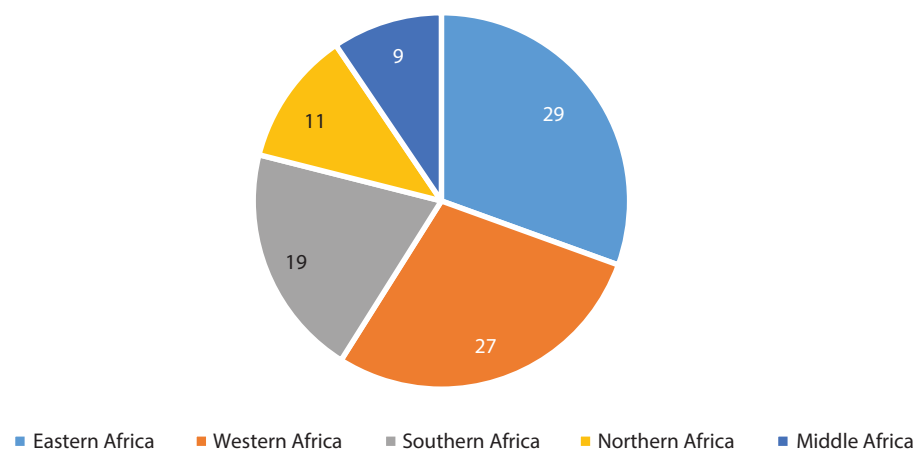
### 3. Other public development banks in Africa

In 2018, there were 95 PDBs in Africa with majority of them located in Eastern Africa (28) and Western Africa (27) (Figure 3).

The combined total assets of the African PDBs is estimated at US\$ 131 billion dollars in 2018. Indeed, the top 5 PDBs have total assets of US\$ 71 billion. And, with the exception of the Industrial Development Corporation (IDC) of South Africa, the other 4 are located in North Africa. These are National Investment Bank (NIB), Egypt, Caisse de Dépôts et de Gestion (CDG), Morocco, Tamwil El Fellah (TEF), Morocco and the African Export and Import Bank (Afreximbank), Egypt.

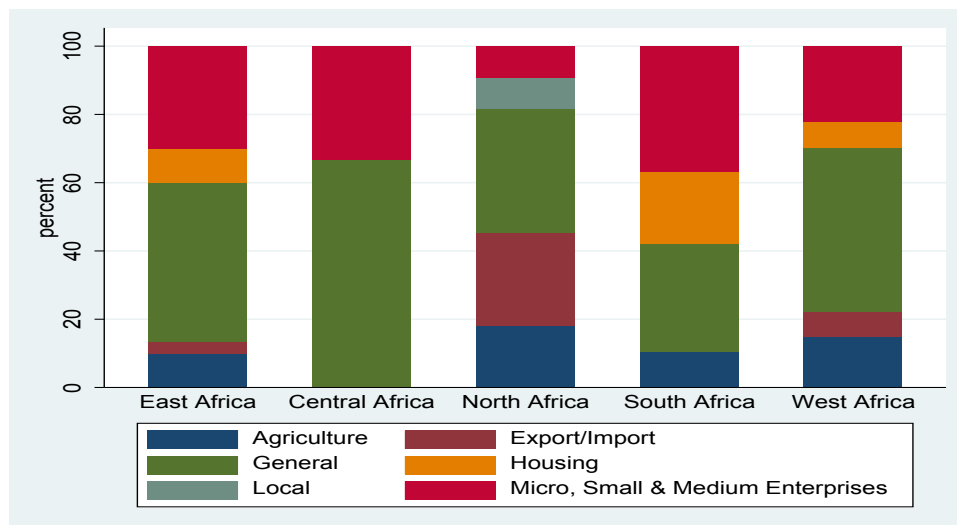
While the PDBs have different mandates, overall, about 62% of them are engaged in more general activities aimed at making impact (see Figure 5). The mandates of African PDBs are largely in the areas of SME development, agriculture, housing and exports and import financing. Except for North Africa, SME development constitutes the top mandate of African PDBs. Agricultural development represents the second highest priority for PDBs in East, Central, West and North Africa while, housing is the second highest priority in South Africa. PDBs in North Africa are more diversified by mandates covering General (36 per cent), export/import (27 per cent), agriculture (18 per cent), MSMEs (9 per cent) and local (9 per cent); while those in Central Africa are least diversified composed of PDBs with general and MSMEs.

**Figure 4: Number of PDBs in Africa**



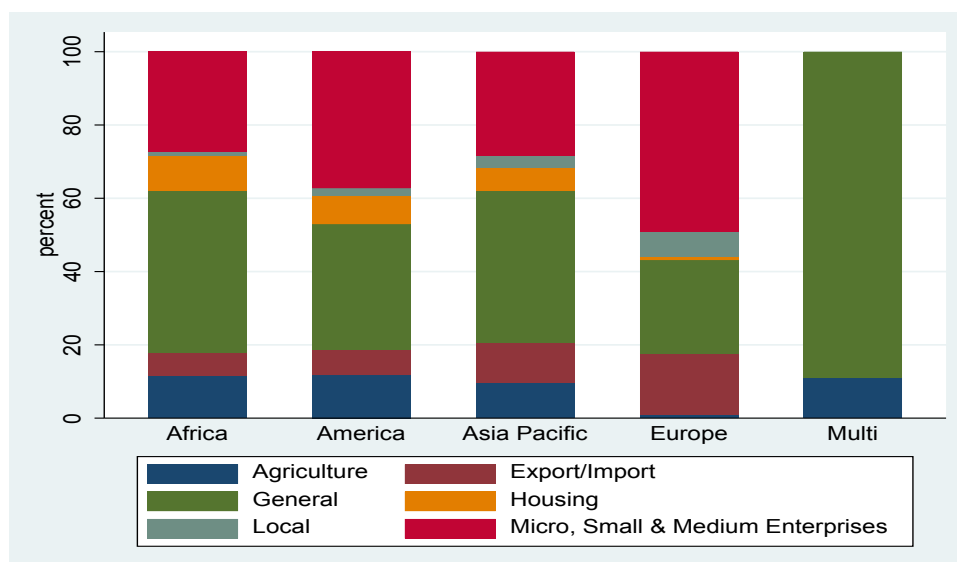
Source: Finance in Common, 2020

**Figure 5: PDBs by mandate type by region**



Source: ECA computations based on AFD PDBs Database, 2020

**Figure 6: PDBs by mandate type by region**



Source: ECA computations based on AFD PDBs Database, 2020

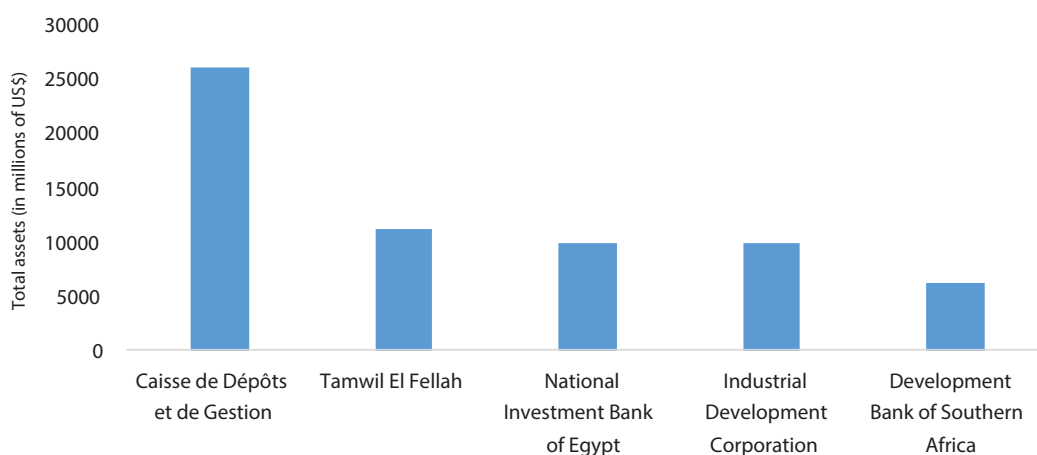
The distribution of African PDBs by mandate type resembles to those in the Asia Pacific.

Based on asset size, the top 5 state controlled PDBs in Africa include Caisse de Dépôts et de Gestion and Tamwil El Fellah (TEL) both from Morocco, National Investment Bank (NIB) of Egypt, Development Bank of Southern Africa (DBSA) and Industrial Development Corporation (IDC) both from South Africa (Figure 7).

**Table 1: PDBs with the mandate of supporting SMEs**

No.	Region	Country	Name of PDB	Total assets (Millions of US\$)
1	East Africa	Djibouti	Fonds de Développement Economique de Djibouti	100
2	East Africa	Kenya	Industrial and Commercial Development Corporation	220
3	East Africa	Kenya	Tourism Finance Corporation	47
4	East Africa	Kenya	Kenya Industrial Estates Fungua Viwanda	32
5	East Africa	Kenya	IDB Capital Ltd	8
6	East Africa	Mauritius	Development Bank of Mauritius	150
7	East Africa	Tanzania	National Development Corporation	300
8	East Africa	Zimbabwe	Small & Medium Enterprises Development Corporation	10
9	East Africa	Zimbabwe	Zimbabwe Women's Microfinance Bank	10
10	Central Africa	RDCongo	Société Financière de Développement	100
11	Central Africa	RDCongo	Fonds de Promotion de l'Industrie	261
12	Central Africa	Cameroon	Société Nationale d'Investissement	300
13	North Africa	Algeria	Fonds National d'Investissement	5,000
14	Southern Africa	Botswana	Botswana Development Corporation	386
15	Southern Africa	Botswana	Citizen Entrepreneurial Development Agency	110
16	Southern Africa	Eswatini	Eswatini National Industrial Development Company	300
17	Southern Africa	Eswatini	The Industrial Development Company of Eswatini	100
18	Southern Africa	Eswatini	Eswatini Development Finance Corporation	92
19	Southern Africa	South Africa	Ithala Development Finance Corporation	194
20	Southern Africa	South Africa	Small enterprise Finance Agency	150
21	West Africa	Multi	Fonds Africain de Garantie et de Coopération Economique	60
22	West Africa	Nigeria	New Nigeria Development Company	25
23	West Africa	Nigeria	National Economic Reconstruction Fund	200
24	West Africa	Nigeria	Development Bank of Nigeria	767
25	West Africa	Sierra Leone	National Development Bank	262
26	West Africa	Senegal	Banque Nationale pour le Développement Economique	306
<b>Total assets</b>				<b>9,491</b>

Source: Finance in Common, 2020

**Figure 7: Top 5 PDBs in Africa based on asset size**

Source: Finance in Common, 2020

**1. Caisse de Dépôts et de Gestion (CDG):** This is a state-owned financial institution managing long-term savings in Morocco. It is also a large investor in the country's tourism sector and has several subsidiaries operating in various sectors of the economy. The CDG is mandated to handle the savings of the Régime Collectif d'Allocations de Retraite (RCAR) and the Caisse Nationale de Retraites et d'Assurances (CNRA) pension funds which groups the retirement contributions of the employees of state-owned companies and agencies. The asset base of the CDG increased substantially over the period 2005 and 2008 when it acquired the management of the retirement savings of the OCP which is a leading phosphate producer and exporter. CDG is engaged in general activities and had an estimated total asset base of US\$ 26 billion by 2018.

**2. Tamwil El Fellah (TEL):** This is an agricultural development finance corporation which was established in 2010 by the Groupe Crédit Agricole (GCAM). It has an estimated total asset worth US\$ 11 billion. TEL is specialized in agricultural lending for smallholder farmers. By recognizing the challenges smallholder farmers often face with collateral in accessing credit from traditional financial institutions, TEL does not require collateral security. Given its mandate as PDB in the agricultural sector, the TEL provides extraordinary innovative response in improving access to financial services for smallholder farmers and small-scale agribusinesses in the country. It offers an integrated system of services insured by both the public and private actors. To complement its services, TEL also provides short-term consumption loans, payment services, life insurance and agricultural insurance given the challenges smallholder farmers and households face. Beyond providing financial resources, TEL also provides smallholder families with technical assistance, production training, financial literacy and management. Given the mandate of extending financial resources and advice to smallholder farmers who otherwise face difficulties in accessing such financial services from the traditional financial institutions, the Central Bank of Morocco varied the risk categorization criteria for TEL's credit portfolio by adapting them to the longer business cycles in agriculture, relative to those in the manufacturing, services and industrial sectors.

**3. National Investment Bank (NIB) of Egypt:** The bank was established in 1980 primarily to finance projects consistent with Egypt's National Plan for Economic and Social Development. It relies on either cost sharing or exclusive lending in order to finance and follow-up on projects as it is considered to be the country's main economic and investment financing tool. The Bank's mandate is not exclusively tied to one particular sector and as such, its projects form a national wealth of assets spreading across the whole country. However, for the most part, the bank has



invested in electricity generation capacities, water and sanitation, roads, agriculture, housing, mining and several other infrastructural projects. As of 2018, NIB's total assets were estimated at US\$ 10 billion.

**4. Industrial Development Corporation (IDC):** This is a PDB in South Africa with an overarching goal of promoting the country's economic growth and industrial development. It is fully owned by the South African government under the supervision of the Department of Trade Industry and Competition. The IDC drives the country's industrial policy with its activities directly aimed at contributing to the country's National Development Plan (NDP), the New Growth Path (NGP) and the Industrial Policy Action Plan (IPAP). It identifies sector development opportunities that align with the policy objectives and develop projects in its financing model. It has for the past decades aggressively pursued South Africa's industrial policy directions leading to the establishment of many industries in the petro-chemicals, minerals, textiles and agricultural sectors. IDC is therefore into general provision of services and has estimated total assets worth US\$ 9.8 billion as at 2018.

**5. Development Bank of Southern Africa (DBSA):** Established in the early 1980s, the DBSA plays an instrumental role in providing key developmental infrastructure in South Africa and beyond. It supports the activities of firms and industries in the entire development value chain from project inception, financing and delivering on the infrastructure. To support the infrastructural transformation journey, DBSA has three key strategic objectives: (i) sustaining economic growth through developmental impact; (ii) providing integrated infrastructure solutions across the value chain and (iii) ensuring financial stability by maintaining profitability and operational efficiency of their developmental activities. Overall, the DBSA supports the de-risking of infrastructure projects given that the planning and delivery of large infrastructure projects is complex and highly risky. With an estimated asset base of US\$ 6 billion, DBSA has over the past years invested in educational and health infrastructure, industrial parks, roads, and water and sanitation.

---

## 4. Challenges and opportunities facing PDBs

Public Development Banks can play an important role in channeling resources towards investments in public goods. Nevertheless, this usually requires substantial resource outlays in often risky ventures. Consequently, PDBs often have to walk a fine line between achieving their policy mandate without compromising their financial stability (Scott, 2007).

Well-functioning legal, policy and regulatory institutions are a prerequisite for Public Development Banks and the private sector (Thorne and du Toit 2009 and Bruck, 2005). An analysis by African Development Bank concluded that African PDB's need to: strengthen capacities for assessing the development impact of their operations; improve systems to manage environmental and social risks and impacts associated with their financing activities; enhance capacities for credit administration and monitoring and; improve their liquidity management frameworks (Calice P. 2013a).

Achieving these objectives will require strengthening the enabling environment, specifically the legal, institutional, regulatory and policy frameworks which are often undermined by high macroeconomic instability and political uncertainty.

Furthermore, the unprecedented impact of the COVID-19 crisis on the fiscal bottom-line of developing countries, makes PDBs even more vital to the recovery process by providing much needed concessional financing. Yet, most PDBs lack the financial muscle to adequately respond to the crisis.

---

## 5. The nature and scale of support of PDBs in the context of the COVID-19 crisis

The COVID-19 pandemic posed significant health and socio-economic problems across the globe with potentially damaging consequences in emerging and developing economies including Africa, given their weak health infrastructure and level of economic development. As countries contend with the huge financial resources required to fight COVID-19 in the face of limited liquidity and fiscal space, PDBs have stepped in to provide the needed resources to cushion the impact of the pandemic on critical sectors of the economy. With the challenge of a funding limitations, most PDBs are focusing on financing medical and pharmaceutical products. Indeed, the PDBs have incorporated the effect of COVID-19 into their short- and medium-term strategy, established a dedicated COVID-19 Fund to aid the financing interventions in the health sector, as well supporting with the procurement of essential medical supplies and other crucial goods aimed at reducing the impact of the COVID-19.

For instance, as part of their global response, the World Bank Group provided US\$160 billion in financial support to at least 100 countries to protect the poor and vulnerable people, support businesses and to ensure resilient economic recovery. In the case of Africa, the World Bank's response is principally focused on four areas: (i) saving lives (ii) protecting poor people (iii) protecting and creating jobs, and (iv) building back better. Since March 2020, the World Bank has released about US\$12 billion across Africa to help countries effectively respond to the COVID-19 crisis through a combination of new operations in health, social protection and economic stimulus among others.

IFC Africa also has provided a US\$50 million loan to the domestic banking sector to help expand lending to SMEs so that they can continue operating and sustain jobs, as part of ongoing efforts of building back better. The IFC in general has increased by US\$8 billion, the amount of financing for developing countries including those in Africa to help fight the outbreak. Their support is focused four areas: (i) to support firms in infrastructure, manufacturing, agriculture and services vulnerable to the pandemic through the Real Sector Crisis Response Facility; (ii) cover payment risks of financial institutions through the Global Trade Finance Programme (iii) through the Working Capital Solutions Programme, which will provide funding to banks to extend credit to businesses to increase their working capital; and (iv) through the Global Trade Liquidity Programme which is risk-sharing support to local banks so they can continue to finance companies in emerging market. The IFC is devoting US\$2 billion to each cluster.

Similarly, the AfDB has provided financial support to countries to help in their fight against the pandemic. The Bank launched a record-breaking \$3 billion Fight COVID-19 Social Bond – the world's largest US dollar-denominated social bond ever on the international capital market. It had earlier approved a \$2 million grant for the World Health Organization for its efforts on the continent, with other key areas of support to countries including:

- » \$10-million equity investment in Razorite Healthcare Africa Fund 1 (RHAF1) to help improve healthcare infrastructure delivery across the continent.

- » \$13.7 million grant to finance the COVID-19 response in Zimbabwe. The funds will provide an immediate lifeline for targeted frontline responders and health personnel and boost the country's Global Health Security Index.
- » €188 million loan to support the Government of Kenya's efforts to respond to the COVID-19 pandemic and mitigate the related economic, health and social impacts.
- » \$500,000 emergency assistance grant to Egypt to provide food relief, and to contribute to restoring the livelihoods of vulnerable populations severely affected by COVID-19.
- » €30 million loan facility to Cabo Verde to fund the country's health and social response in fight the COVID-19.
- » \$22.4 million emergency project in support of three, low-income ECOWAS nations – Gambia, Mali and Niger – to bolster their health systems in response to the COVID-19 pandemic.
- » \$288.5 million loan to help Nigeria tackle the COVID-19 pandemic and mitigate its impact on people and businesses.
- » \$4.16 million grant to South Sudan to support the emergency response to COVID-19 and strengthen the country's fragile health system.
- » €100.5 million loan to the government of Gabon as budget support to mitigate against the effects of the COVID-19 outbreak.
- » \$9.52 million grant to strengthen responses to the COVID-19 pandemic in East Africa and the Horn, and in the Comoros.

Afreximbank has also provided financial support to help economies in their fight against the pandemic, including the following:

- » Launched a US\$3 billion **Pandemic Trade Impact Mitigation Facility (PATIMFA)** in March 2020, to support African economies. As at 5 October, approvals under PATIMFA amounted to US\$6.7 billion, of which US\$5.9 billion had been disbursed. An additional US\$1.6 billion is expected to be disbursed by end of 2020. The current pipeline of transactions exceeds US\$22 billion and the facility has attracted support from the German Government KfW (EUR300m) and EIB (EUR200m).
- » Launched a US\$200 million **Afreximbank/UNECA Initiative** (US\$200 million) to drive local manufacturing of COVID-19 supplies (PPE, pharmaceuticals, test kits etc); food and fertilizer imports; and supporting tourism (airlines, hotels). As at 5 October 2020, Afreximbank had committed US\$184 million.
- » Supported the development of the **Africa Medical Supplies Platform (AMSP)**. The platform enables immediate access to an African and global base of pre-selected and vetted manufacturers and enables African Union Member States to purchase certified medical supplies such as diagnostic kits, PPE and clinical management devices. AMSP enables pooled procurement of medical supplies, ensuring that smaller countries benefit from reduced prices arising from aggregated volumes. 103 buyers have been engaged since launch with a significant operational progress as more than 100

shipments have departed. In just a few months, the AMSP pipeline or orders represent around US\$173 million. Afreximbank is supporting the platform as a Payment Services Provider; Trade Services Provider; Liquidity Services Provider (via US\$100 million Overdraft Facility for countries in need); and Operational Support funding

- » In collaboration with the International Islamic Trade Finance Corporation (ITFC), and the Arab Bank For Economic Development in Africa (BADEA), launched a US\$1.5 billion **Collaborative COVID-19 Pandemic Response Facility (“COPREFA”)** to support African economies with rapid financial assistance to reduce the impact of COVID-19. COPREFA is being accessed by eligible central banks, commercial banks and private organizations to finance the import of medical supplies, as well as agricultural equipment and fertilizers essential for addressing the pressing food production deficit
- » Afreximbank has approved and disbursed grants of US\$3 million to complement continental and national efforts in addressing immediate and short-term needs and as a result, limiting socio-economic impact of the pandemic in Africa.
- » Collaborating with the African Union and African Civil Aviation Commission on their strategy for the recovery of the airline sector and the High-Level Task Force proposal to establish a stimulus fund.
- » Working with AFFM, AFAP and AGRA to support Agriculture and Food Security Initiatives.

---

## 6. Environmental, Social and Governance (ESG) Considerations of PDBs

Through their operational activities, PDBs are exposed to a number of social and environmental risks linked to the activities of their clients. However, PDBs also promote practices that do not jeopardize the environment. For the most part, they do this by conducting an assessment of potential risks of their projects. The need to be environmentally-friendly has led to the development of sustainability standards in the financial industry which provide the blueprint governing the activities of the PDBs in a sustainable way.

The adoption of Performance Standards on Social and Environmental Sustainability by the IFC in 2006 and its subsequent revision in 2012 affirms IFC's strategic commitment to sustainable development and the incorporation of risk assessment and management in their development work. The standards are geared towards providing guidance on how to identify risks and impacts, and are intended to help circumvent, mitigate, adapt and manage environmental risks as a way of doing business. For each proposed investment with some expected social and environmental impacts, IFC produces a report, the Environmental and Social Review Summary (ESRS) which provides a description of the main social and environmental risks and impacts of the project; and the key measures identified to mitigate those risks and impacts. In this context, PDBs support countries' ability to transition to a low carbon trajectory by encouraging direct investment in energy efficiency. They also indirectly do this by promoting technological change and a renewal of the capital stock, which might exemplify energy efficiency (te Velde, 2011).

Consistent with their Integrated Safeguards System which was adopted in 2013, the AfDB mainstreams sustainability considerations into its operations. In 2019, the Bank conducted environmental and social due diligence for 530 public and private sector projects. They comprised 217 projects approved in 2019 and 313 projects under implementation. Furthermore, the Bank also publishes the Climate Change Profiles of countries and provides support to the African Financial Alliance on Climate Change to support their work around climate change mitigation and adaptation (AfDB, 2019). The AfDB have consistently financed climate resilient projects weighted towards mitigation. However, from 2020, the Bank aims at ensuring parity between climate mitigation and adaptation.

---

## 7. Towards a more impactful role of African PDBs in the post COVID-19 recovery

Over the past few decades, successive financial crises have generated renewed interest in Public Development Banks (PDBs). In the African context, PDBs are playing a useful complementary role to fill existing gaps in the provision of long-term and sustainable finance, especially in sectors such as infrastructure, housing, agriculture, health and education, and supporting Small and Medium Enterprises (SME). Historically, African PDBs have played an important development role, taking higher-than-average risks to perform their mandates and reducing credit pro-cyclicality (Calice, 2013b).

Some of the African governments have supported their private sector through economic stimulus packages aimed at assisting firms to maintain existing jobs and recruit new employees instead of furloughing employees (UNECA 2020b). Given the magnitude and scale of the pandemic, there is an urgent need to provide additional liquidity for African economies especially the countries' private sector to smoothly jumpstart the recovery process across the continent. Therefore, the contribution of the African PDBs is crucial to speed up the recovery process from the effects of COVID-19 pandemic. However, taking into consideration the magnitude of the effects of the COVID-19 pandemic, some of the following issues need to be taken into consideration by PDBs to effectively contribute to the continent's recovery process.

### 7.1. Addressing mandate and policy barriers

PDBs provide finance (loans, equity, guarantees) or liquidity and technical assistance to the private sector in African countries. The majority of shareholders are governments. The mandates of PDBs usually combine provision of finance on commercial terms, additional to the market, earning a financial return and contributing to socio-economic development (Griffith-Jones and te Velde, 2020).

### 7.2. Adopting a more counter-cyclical policy stance

In the current COVID-19 crisis, PDBs should adopt a more counter-cyclical financing posture. This may involve them abandoning conservative lending practices, if shareholders allow potential future losses on a portion of PDB portfolios. In fact, this is urgently needed, as businesses across the developing countries such as those of Africa are experiencing significant liquidity challenges. Thus, boosting access to subsidized financing will likely pre-empt insolvency and facilitate higher returns to PDBs in the long term if it leads to rapid economic growth (IFC, 2018).

However, PDBs are held back by several barriers such as lax credit standards and poor portfolio risk management (weaknesses in risk management systems), poor governance (corporate governance), political interference, and a tendency to stray from their mandate. To tackle these barriers and to better fulfill their policy mandates, there is a need for governments and shareholders of state-owned PDBs to create an appropriate environment that would enable the PDBs to operate in line with international best practices in the context of COVID-19 pandemic.

### **7.3. Managing environmental and social risks**

It would be useful for the African PDBs to adopt good corporate governance practices and appropriate managerial frameworks by strengthening the overall credit administration and monitoring process and establishing a proper Environmental and Social Management System to identify and manage environmental and social risks. Likewise, African PDBs' mandates need to be reviewed to assess the continued relevance of their strategic focus, their terms of engagement with commercial financial institutions and the sustainability of their efficiency in achieving their objectives.

### **7.4. Inter-regional cooperation among PDBs**

There is need for PDBs outside the continent such as those in Europe to strengthen their cooperation with local, national and regional development banks such as the New Development Bank (BRICS), AfDB, and private financial institutions including Afreximbank. Over the years Afreximbank has drawn on its convening power and partnership with PDBs in Asia and Europe to leverage more resources into the continent. That partnership has lowered the costs of fund and in the process created the conditions for a blended financing model. Assisting business finance facilities in developing countries, especially those with liquidity constraints will go a long way in restoring livelihoods and supporting communities cope with the pandemic. The overriding objective should center on supplementing the liquidity of local financial institutions, mobilizing additional resources to enhance the resilience of local economies and institutions, and strengthening capacities to recover from the crisis. Furthermore, given the unprecedented scale of the COVID-19 crisis, PDBs themselves need to be recapitalized to effectively intervene in supporting the private sector in developing countries.

### **7.5. Facilitating access to financing at competitive rates**

Private sector participation is imperative for global liquidity, and for financial stability. This notwithstanding, the COVID-19 crisis serves to remind us that with the existing structures, private sector participation in easing liquidity pressures, and debt management, has been a challenge. Thus, there is need to build in and strengthen private sector participation, through facilities that ensure shared risks between private and public/official sector such as the Liquidity and sustainability facility (LSF).

The LSF builds in private sector participation by channeling credit-enhanced financing to sovereigns. The risk of default is minimized as access these funds fully collateralized; private investors post sovereign bonds as collateral as a condition for accessing financing from the facility, essentially transferring the risk to the private sector. In addition, by creating a Repo market for emerging market sovereign bonds, the facility attracts a new class of investors in African sovereign bonds and lowers the high-risk premium paid by African sovereigns.

Indeed, economies that were good performers before the crisis are struggling to access liquidity, while financial markets have penalized emerging market economies. For instance, 10-year Bond yields for South Africa (8.24% in January vs 9.27% in September) and Egypt (14.14% in January and 15.15% in September) have risen by at least 100 basis points between January and September, while German 10-year bond yields declined by 23 basis points (from -0.25% in January to -0.48% in September), and the US by more than 100 basis points (1.83% in January to 0.67% in September) over the same period, despite worse fiscal conditions for the latter two



(Germany's economy is expected to contract by 7.8% with fiscal deficit of -10.7%, US economy is expected to contract by 8% with fiscal deficit of 23.3%).

In collaboration with OECD financial institutions, PDBs could support the financing of the LSF including through guarantees and capital injections. But for this to be effective, PDBs need to be recapitalized.

The unprecedented nature of the pandemic calls for unorthodox responses. This is the time to raise the level of ambition of the countries' policy responses. African Central banks holdings of foreign reserves are limited and already under pressure from commodity price shocks and contractions in global economic activity. Unlike developed countries Central Banks, African Central banks cannot print convertible currency, which is what is needed to finance their foreign currency denominated commercial debt. PDBs could also play an important role by injecting hard currency to the REPO facility, thereby providing much needed foreign currency liquidity.

## **7.6. Deepening the pipeline of bankable projects**

Reinforcing the pipeline of bankable projects is one of the critical measures that will be necessary in the recovery from COVID-19. Globally, there had been a challenge of delivering the critical infrastructure necessary to accelerate growth (World Economic Forum, 2019), and the pandemic is likely worsening the situation. The basis of the challenge is not the lack of capital, but rather, insufficient availability of investment-ready and bankable project pipelines (Wyman, 2017; Tyson, 2018). Deepening the pipeline of bankable projects will be essential as global institutional investors have global alternatives and are generally wary of infrastructure investment in emerging markets.

African PDBs must take deliberate actions to ensure that there are increasing investment-ready bankable projects that can speed up the recovery path from COVID-19. The pipeline of infrastructure projects that meets the bankability requirements of investors should be deepened. The bankability of projects should be determined at an earlier stage, typically at the project development stage, and the integrity of the bankability of the projects be enhanced through robust co-ordination of a variety of policy options and provision of institutional support.

Afreximbank has taken the lead in this area across the region, by establishing a Project Preparation Facility (APPF for Afreximbank Project Preparation Facility). The APPF is structured as reimbursable loan and has been deployed towards transactions that promote intra-African trade, stimulate industrialization, and expand export development capabilities and capacities across the continent. Such a strategic initiative with a proven track record should be supported and scaled up and its technical capacity strengthened for a greater development impact in the infrastructure space.

Project-preparation facilities that have a proven track record of success must also be scaled up and their technical capacity strengthened. These project-preparation funds can also help design bankable projects better aligned with Sustainable development goals for a low-carbon and equitable recovery (Riano et al, 2020). There is the need for a strong commitment of government to Public-Private-Partnership projects, while at the same time providing a conducive and enabling environment that could attract private sector participation in infrastructure financing,

in addition to other risk considerations. Government policies and the pipeline of bankable projects should be aligned and be consistent with the country's recovery objectives. This can make the projects dynamically adaptable and thus, more attractive for investment from private investors.

## **7.7. Leveraging green investment opportunities including the ECA SDG7 initiative**

About 900 million people still lack access to cooking facilities, while 500 million people will still lack access to electricity by 2030. Energy demand in Africa continues to grow, due to factors such as population growth, climate change and industrialization. This growth in demand offers an opportunity for Africa to rebuild its post COVID-19 economies and close its vast energy deficit with transformative and sustainable investment in green growth so as to increase energy access, improve health, make economies more resilient and competitive and advance the SDGs. At least 30 OECD and partner countries have included measures directed at supporting the transition to greener economies as part of their COVID-19 recovery strategies<sup>3</sup>.

Multilateral development banks and PDBs have played a key role in supporting governments' response to the pandemic. As the response shifts from providing emergency liquidity to financing the recovery, development finance providers should prioritize sustainability and seek to mobilize funds for a green recovery. As instruments of government financing policy, European PDBs have already invested €15 billion in Africa, with huge investment by the North American PDBs and IFC. To support the post-COVID-19 green recovery and address rising environmental challenges in Africa, PDBs must prioritize green investment. The European Investment Bank (EIB) directed £300 million towards the COVID-19 response and recovery in African countries. An additional £100 million was newly provided by the EIB and Afreximbank with at least 25% of the fund reserved for green projects, such as renewable energy, managing and transforming flared gas, waste and pollution reduction and climate change adaptation<sup>4</sup>. The PDBs should therefore strengthen partnerships with financial intermediaries and local banks to reinforce Africa's financial systems to support green investment.

The post COVID-19 recovery strategies present opportunities for economies to become greener and more resilient based on the SDG 7 targets. The current UNECA SDG7 Initiative for Africa aims to support the achievement of Sustainable Development Goals (SDGs) through long-term financing for clean energy solutions and environmental sustainability. Specifically, it aims to mobilize private-sector finance through bonds issued in capital markets and concessional financing from the PDBs, while putting in place risk-mitigation instruments to advance investments for a bundle of clean energy projects covering different countries and technologies. Furthermore, the SDG7 initiative plans to adhere to responsible investment principles such as those promoted by the UN-supported Principles for Responsible Investment covering social, governance and environmental factors.

## **7.8. Contributing to a low-carbon and equitable recovery**

The post COVID-19 recovery strategies also provide an opportunity to "bounce back better" as per the words of the UN Secretary General, Antonio Guterres. Africa's PDBs can play a

---

<sup>3</sup> According to preliminary analysis conducted by the OECD Secretariat in August 2020,

<sup>4</sup> <https://www.iisd.org/sustainable-recovery/news/eib-and-afreximbank-fund-green-recovery-projects-in-african-nations/>

transformational role in scaling up finance for a low-carbon and equitable recovery towards achieving the SDGs. They could take advantage of their positioning as a catalyzer for sustainable finance, as early as in the project preparation phase. Following Afreximbank and DBSA examples, PDBs could set up project preparation funds, to facilitate the structuring of SDGs bankable projects, or better align their strategies with SDGs (Riano et al., 2020).

## 7.9. Scaling investments in health and digital solutions to the pandemic

In an increasingly contactless world, the unprecedented health crisis has prompted for accelerated efforts towards investing in health and digital solutions. The outbreak of the novel COVID-19 led to the rethinking of the resilience of health care systems and countries' emergency preparedness and rapid-response. As a result, this has called for a renewed role of the private sector in a form of Public-Private Partnerships (PPPs) to scale up investments in health and digital solutions in order to curb further spread of the pandemic and expedite recovery.

Labrique et al. (2018) note that approximately 60 per cent of healthcare financing in Africa is derived from private sources. Countries across the globe that have invested in health and digital solutions include China, Iceland, Singapore and Taiwan (invested in thermal cameras, AI-enabled thermometers and web-based toolkits); South Korea and Germany invested in GPS, real-time mobile device monitoring; other countries like Australia, Canada, UK, USA, Ireland invested in machine learning virtual care or telehealth, smart response codes and automated recorders etc. (Whitelaw, et al., 2020). Generally, as part of the new normal, the absence of a vaccine or clinically-proven cure has prompted calls for alternative ways of containing the viral spread such as AI-enabled contact tracing, Internet of Medical Things (IoMT), telemedicine and point-of-care diagnostics in a bid to flatten-the-curve in the post COVID-19 period (Moss and Metcalf 2020, Naude 2020, Farrugia and Plutowski 2020).

Other COVID-19 health responses across Africa include Guinea-Bissau and Kenya that have created COVID dashboards to educate the general public about the pandemic. WHO has set up artificial intelligence chatbot known as WHO HEALTH Alert piloted in Egypt, Democratic Republic of Congo and Zimbabwe. GIZ and the European Commission's DEVCO set up an initiative called Smart Development Hack, specifically designed for providing digital solutions for overcoming the pandemic in LDCs. Ivory coast, Rwanda and Ghana use drones for transferring blood between health facilities in the rural settings and the designated laboratories. While Cameroon launched a Teachmepad to spread COVID information. Similarly, Sierra Leone launched an upgraded self-assessment solution known as the unstructured supplementary service data (USSD) government platform which enables people who have limited internet coverage and lack smartphones to self-assess their COVID symptoms and receive daily COVID-19's real-time situation.

From the policy point of view, country's policies and regulations need to be pragmatic and localized in order to create an enabling environment for digital health innovations. Policymakers should advocate for scaling up of the role of the private sector in improving the health care system in case of future crises. The private sector is able to leverage resources and expertise to ensure that digital health initiatives are scaled and sustained in the long-haul. However, gaps in existing policies will certainly hinder the scalability of digital health innovations, hence the need for deliberate efforts aimed at reforming these policies.

---

## 8. Conclusion and policy perspectives

PDBs are vital partners in providing development financing to support investments in sectors that would otherwise not attract private investment. These resources are even more important during periods of economic crises such as the 2008/2009 financial crisis and the current COVID-19 pandemic which has been shrunk te fiscal space of most developing countries. Despite their challenges most notably in the areas of financial resources and capital (Calice P., 2013) Africa's PDBs have provided some of the needed resources to mitigate the socio-economic effects of the pandemic.

To ensure their continued contribution to the recovery process in the short to medium-term, there is need for PDBs to be recapitalized and to have more flexible mandates that allow them to finance the transformation of African economies as promoted under Afreximbank's strategic plan to mitigate the exposure of the region to recurrent adverse commodity terms of trade shocks and global volatility. Recapitalization will also enable these PDBs to implement counter-cyclical measures especially in times of economic crisis like the current one.

In effect, there is need for PDBs to play a more assertive role in contributing to Africa's COVID-19 response by providing much needed liquidity for immediate as well as longer term strategic initiatives in Africa's energy sector and sustainable investments in green growth. Such interventions will increase energy access, improve health, and ultimately make economies more resilient to future shocks. The PDBs should also place greater emphasis on investing in digitalization and digital technologies as these would contribute significantly towards the sustaining of economic activities and job creation in areas such as e-commerce, e-health service delivery and e-learning.

---

## References

- AfDB (2019). Annual Report, African Development Bank Group, Abidjan: Cote d'Ivoire.
- Bruck, N. (2005). Future role of national development banks in the twenty-first century. Background paper for the Ad Hoc Expert Group Meeting on Rethinking the Role of National Development Banks, 1 – 2 December. New York: United Nations.
- Calice, P. (2013a). African Development Finance Institutions: Unlocking the Potential. Working Paper Series N° 174 African Development Bank, Tunis, Tunisia.
- Calice, P. (2013b). African Development Finance Institutions: Unlocking the Potential. Tunisia: AfDB.
- Dalberg Global Development Advisors (2010). The Growing Role of the Development Finance Institutions in International Development Policy. Copenhagen: Dalberg Global Development Advisors.
- Farrugia, G. & Plutowski, R., 2020. Innovation lessons from the COVID-19 pandemic. *Mayo Clinic Proceedings*, 95(8), pp. 1574-1577.
- Griffith-Jones, S., & te Velde, D. W. (2020). Development finance institutions and the coronavirus crisis. <https://set.odi.org/development-finance-institutions-and-the-coronavirus-crisis/>.
- International Finance Corporation (IFC, 2018). Understanding DFIs' Private Sector Engagement in African Fragile and Conflict-Affected Situations. Washington, D.C. [www.ifc.org](http://www.ifc.org).
- Kingombe, C., Massa, I., and te Velde, D. W., (2011). Comparing Development Finance Institutions Literature Review, Overseas Development Institute (ODI), London: UK.
- Labrique, A. et al., 2018. Best practices in scaling digital health in low and middle income countries. *Globalization and Health*, 103(14).
- Moss, E. & Metcalf, J., 2020. High tech, high risk: Tech ethics lessons for the COVID-19 pandemic response. *Patterns*, 1(7), p. 100102.
- Naude, W., 2020. Artificial intelligence vs COVID 19: limitations, constraints and pitfalls. *AI and Society*, Volume 35, pp. 761-765.
- Riano, M.J., Boutaybi, J., Barchiche D., Treyer S., (2020) Scaling up public Development Banks' transformative alignment with the 2030 Agenda, AFD Research papers
- Scott, D. (2007). Strengthening corporate governance in state-owned financial institutions. Policy Research Working Paper 4321. Washington, DC: World Bank.

te Velde, D.W., (2011). The role of development finance institutions in tackling global challenges, Overseas Development Institute (ODI), London: UK.

Thorne, J., & du Toit, C. (2009). A macro-framework for successful development. *Development Southern Africa*, 26(5), 677-694.

Tyson, J. E. (2018). Private Infrastructure Financing in Developing Countries. Overseas Development Institute, Working Paper 536

Whitelaw, S., Mamas, M., Topol, E. & VanSpall, H., 2020. Applications of digital technology in COVID-19 pandemic planning and response. *Lancet Digital Health*, Volume 2, pp. 435-440.

World Economic Forum (2019). Bridging the Infrastructure Gap: Tools for Creating Investable Infrastructure Pipelines. WEF Community Paper.

Wyman, O. (2017). Closing the Financing Gap: Infrastructure Project Bankability in Asia. A Report by Marsh and McLennan Companies, Asia Pacific Risk Center.