

# **Accelerating Climate-Resilient and Low-Carbon Development**

## **Second Progress Report on the Implementation of the Africa Climate Business Plan**

**May 2018**



**THE WORLD BANK**  
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## Overview

### Context and Scope of This Update

The Paris Agreement entered into force on November 4, 2016. As of October 31, 2017, 169 parties had ratified it, marking the first time governments agreed to an overarching framework to combat climate change. Countries and observers around the world hailed the passage of the accord—the fruit of more than two decades of often tortuous international negotiations on combating climate change.

Forty-eight countries in Sub-Saharan Africa communicated their post-2020 climate commitments and priority areas through their NDCs, demonstrating their resolve to address climate change. Their commitment is critical, because resilience to climate variability and change is vital to the region's ability to reduce poverty and protect the hard-earned development progress made in recent decades.

Indeed, climate drivers are involved in most of the shocks that keep or push African households into poverty. The funding needed to address climate change, particularly adaptation, in the region is massive, and it will increase as climate change unfolds in the coming years. According to the World Bank Group Climate Change Action Plan (CCAP), more than 60 percent of countries in Africa have estimated and reported adaptation financing—more than twice the share in other regions—suggesting national policy makers' recognition of the urgency of adaptation action.

The ACBP aims to build a pipeline of innovative and transformational projects to tackle climate change across sectors and establish a platform to mobilize investments, thereby contributing to filling the climate financing gap in the region. Including the transport component, which was added after the Paris launch, the Plan's goal is to raise \$19.3 billion by 2020, for investments that will strengthen, power, and enable resilience in the region.

The Plan focuses on more than a dozen priority areas, clustered in three groups (table O.1). The first cluster (strengthening resilience) includes selected initiatives aimed at boosting the resilience of the region's assets, including its natural capital (agricultural land, landscapes, forests, inland bodies of water, and oceans); physical capital (cities, physical assets in coastal areas, and roads); and human and social capital. The second cluster (powering resilience) relates to opportunities for scaling up low-carbon energy sources in Sub-Saharan Africa, thereby contributing to increasing access to energy (a key ingredient for resilience) and mitigating climate change. The third cluster (enabling resilience) provides data, information, and decision-making tools for promoting climate-resilient development across sectors, by strengthening the region's hydro-meteorological systems at the regional and country levels and building the capacity to plan and design climate-resilient investments.

**Table O.1 Fundraising targets of ACBP, by activity and source (millions of dollars)**

Cluster/type of capital/activity	IDA	Climate finance (GCF, GEF, CIF, and other sources)	Other development finance (bilateral, multilaterals)	Private sector	Domestic sources	To be determined	Total
<b>Strengthening resilience</b>	<b>7,040</b>	<b>1,792</b>	<b>1,497</b>	<b>665</b>	<b>616</b>	<b>1,930</b>	<b>13,540</b>
<i>Natural capital</i>							
Climate-smart agriculture	1,300	100	320	240	240	800	3,000
Climate-resilient landscapes	355	830	0	0	0	420	1,605
Integrated watershed management (Niger, Chad, Zambezi, Lake Victoria)	890	692	670	425	150	140	2,967
Climate-smart ocean economies	30	35	20	0	20	115	220
<i>Physical capital</i>							
Climate-smart cities	550	0	0	0	20	455	1,025
Coastal resilience (West Africa)	150	90	150	0	60	0	450
Climate-resilient transport	2,800	0	251	0	126	0	3,177
<i>Human and social capital</i>							
Social protection	365	45	70	0	0	0	480
Migration drivers	600	0	16	0	0	0	616
<b>Powering resilience</b>	<b>1,335</b>	<b>300</b>	<b>700</b>	<b>2,850</b>	<b>213</b>	<b>0</b>	<b>5,398</b>
Solar	750	300	100	2,020	70	0	3,240
Hydropower	85	0	450	605	68	0	1,208
Geothermal	500	0	150	225	75	0	950
<b>Enabling resilience</b>	<b>108</b>	<b>135</b>	<b>33</b>	<b>0</b>	<b>0</b>	<b>44</b>	<b>320</b>
Africa Hydromet Program	108	135	27	0	0	0	270
Africa Climate Resilient Investment Facility	0	0	6	0	0	44	50
<b>Total</b>	<b>8,483</b>	<b>2,227</b>	<b>2,230</b>	<b>3,515</b>	<b>829</b>	<b>1,974</b>	<b>19,258</b>

Note: IDA = International Development Association; GCF = Global Climate Fund; GEF = Global Environmental Facility; CIF = Climate Investment Fund.

Following the first ACBP implementation progress report presented at COP22 in 2016, this document assesses further progress made in 2017 in implementing the Africa Climate Business Plan (ACBP). This report provides an update on resource mobilization, evaluates the financing with climate co-benefits provided by the ACBP portfolio, and details implementation progress by ACBP component. In addition, to better measure and monitor results and inform future project design, it reports on two new pieces of analysis undertaken this year: a review of the ACBP contribution to implementation of the Nationally Determined Contributions (NDCs) of Sub-Saharan Africa’s countries; and a review of the ACBP portfolio from the perspective of its contribution to resilience building (following the resilience pathways approach).

### Progress in Mobilizing Resources

Significant progress was made in implementing the ACBP in 2017 (Table O.1):

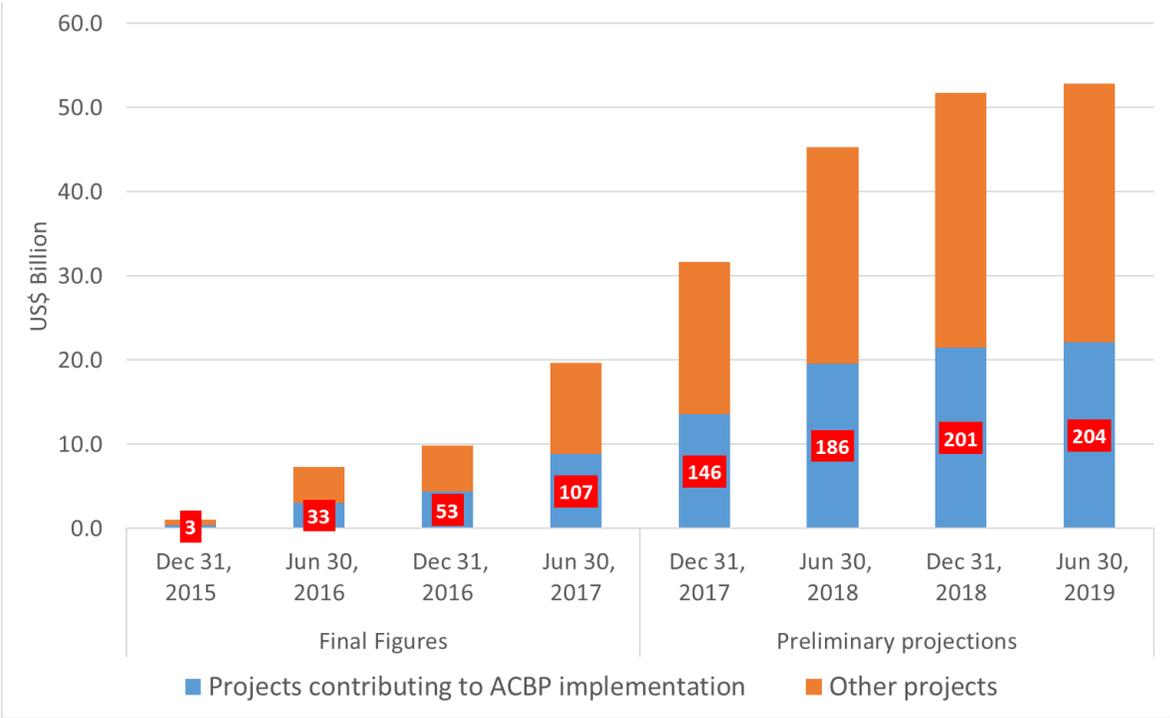
- In the first semester of 2017, the World Bank’s Board approved 54 new investment operations contributing to ACBP implementation, with total commitments of \$4.46 billion. This raised the cumulative number of approved operations under the ACBP to 107, totaling \$8.8 billion in commitments.
- Considering projects currently in the pipeline, the total number of projects contributing to ACBP implementation is now estimated to be 204 (Figure O.1) a net increase of 57 (39 percent) over the figure estimated in the 2016 progress report
- Cumulative commitments of projects contributing to ACBP (including projects already approved and pipeline) are now estimated to be \$22 billion, a 69 percent increase compared to the previous estimate of \$13 billion contained in the 2016 progress report

**Table O.1 World Bank projects contributing to ACBP implementation**

Projects approved from ACBP launch until	Cumulative number of projects	Cumulative commitments (millions of dollars)	Percent of total World Bank commitments in the Africa Region
<i>Final figures</i>			
December 31, 2015	3	430.0	41
June 30, 2016	33	3,074.6	42
December 31, 2016	53	4,360.7	44
June 30, 2017	107	8,825.8	45
<i>Preliminary projections</i>			
December 31, 2017	146	13,556.6	43
June 30, 2018	186	19,598.8	43
December 31, 2018	201	21,453.8	41
June 30, 2019	204	22,088.8	42

*Note:* Figures related to projects approved by the World Bank Board of Directors up to June 30, 2017 are final. Figures related to later approval dates are provisional estimates and subject to change. The volume of World Bank financing mobilized for ACBP projects is not directly comparable with the fund-raising targets indicated in Table O.1. See the discussion of financing with climate co-benefits below.

**Figure O.1 Cumulative number of projects and volume of World Bank commitments for projects in the Africa Region**



Note: Figures related to projects approved by the World Bank Board of Directors up to June 30, 2017 are final. Figures related to later approval dates are provisional estimates and subject to change. Figures in red boxes show the number of projects contributing to ACBP implementation.

**Financing with Climate Co-Benefits**

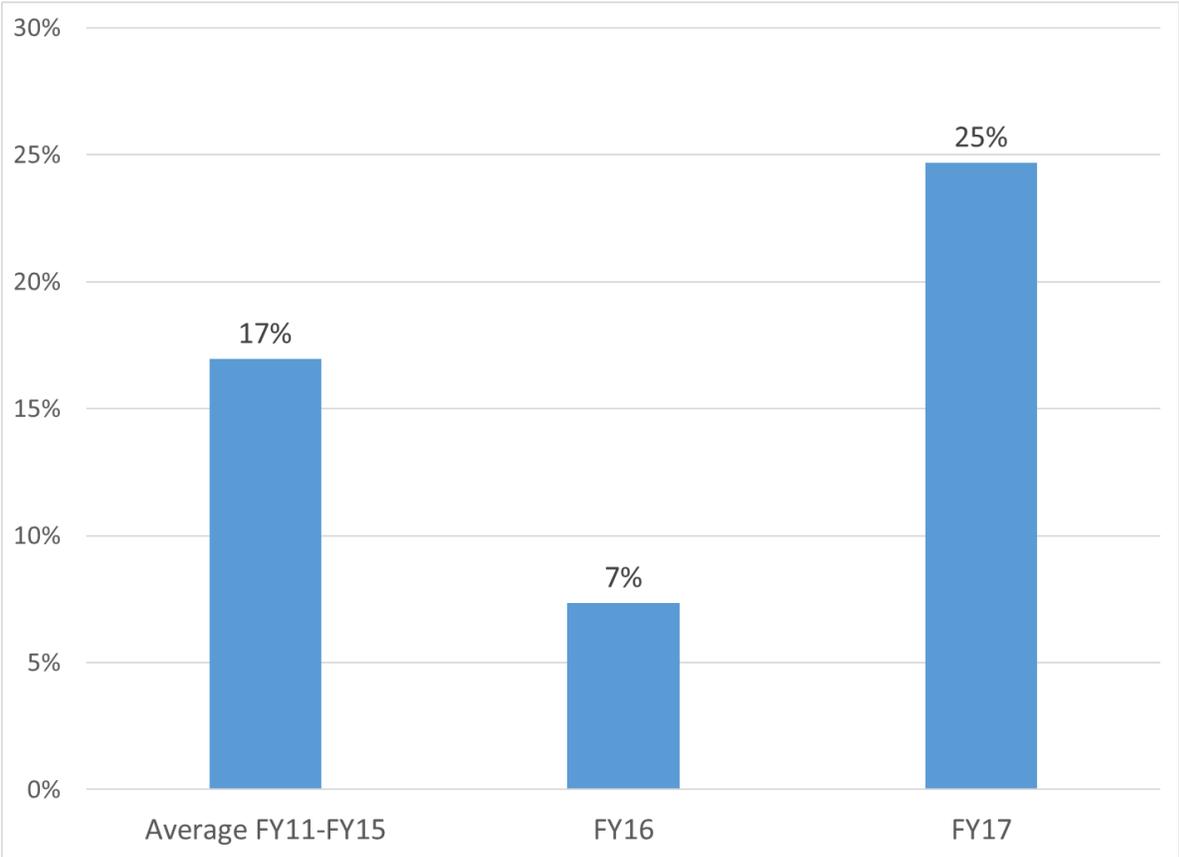
A development activity provides climate co-benefits if it promotes mitigation or adaptation. It fosters mitigation through efforts to reduce or limit greenhouse gas emissions or enhance greenhouse gas sequestration. It promotes adaptation if it reduces the vulnerability of people or natural systems to the impacts of climate change and risks related to climate variability, by enhancing resilience capacities.

The World Bank tracks the climate mitigation and adaptation co-benefits of all the projects it finances through the International Development Association (IDA) and International Bank for Reconstruction and Development (IBRD). It is committed to increasing the share of total IDA and IBRD financing (i.e. all regions) with climate co-benefits to 28 percent by 2020

The ACBP contributes to deliver climate co-benefits both directly, through projects included in the Plan; and indirectly, through catalytic spill-over or imitation effects on the rest of Bank-supported projects in Africa.

In FY17, the share of climate co-benefits in total IDA and IBRD lending for Sub-Saharan Africa was 25%. While the year-to-year behavior of the share of financing with climate co-benefits is variable (Figure O.2), there are good indications that the ACBP is creating a favorable momentum to boost the climate co-benefits of World Bank’s financing to Africa, so that the region will be able to contribute to the achievement of the corporate 2020 target. Since the Plan’s inception, ACBP projects accounted for about 40% of total Bank financing, but for over 80% of financing with climate co-benefits. So decisive action on ACBP implementation is likely to make a key contribution towards generating large climate co-benefits.

**Figure O.2 Annual share of financing with climate co-benefits in World Bank financing to Sub-Saharan Africa (FY11 to FY17)**



## Progress by Cluster of the ACBP

Since the launch of the ACBP, in December 2015, progress has been made across all three clusters of the Plan (strengthening, powering, and enabling resilience; table O.4). The bulk of the effort is the strengthening resilience cluster, in particular projects that help build the resilience of natural and physical capital. Projects in this cluster contribute more than 70 percent (\$3.6 billion out of \$5 billion) of the total climate co-benefits generated by the ACBP portfolio.

**Table O.2 Data on ACBP implementation by cluster**

ACBP cluster	All projects		Projects for which data on climate co-benefits were available			
	Number of projects	Funding (millions of dollars)	Number of projects	Funding (millions of dollars)	Funding with climate co-benefits (millions of dollars)	Percent of funding with climate co-benefits
Strengthening resilience	169	18,929.1	136	14,355.1	3,615.9	25
Natural capital	98	7,903.3	81	5,417.3	1,678.0	31
Physical capital	45	8,242.1	32	6,350.1	1,630.6	26
Human and social capital	27	2,783.7	24	2,587.7	307.3	12
Powering resilience	32	3,089.7	26	2,630.7	1,423.4	54
Enabling resilience	3	70.0	1	8.0	0	0
<b>Grand total</b>	<b>204</b>	<b>22,088.8</b>	<b>163</b>	<b>16,993.8</b>	<b>5,039.2</b>	<b>30</b>

*Note:* Figures are for projects to be approved January 2016–June 2019. Figures related to the 107 projects approved by the World Bank Board of Directors up to June 30, 2017 are final. Figures related to projects scheduled for later approval date are provisional estimates and subject to change.

Within the strengthening resilience cluster, the climate-smart agriculture and transport components account for the bulk of the resources (\$1.37 billion and \$1.21 billion, respectively) (table O.5). The shares of projects with climate co-benefits are largest for the components on building coastal resilience (83 percent), the Niger Basin (82 percent), and climate-resilient landscape (73 percent).

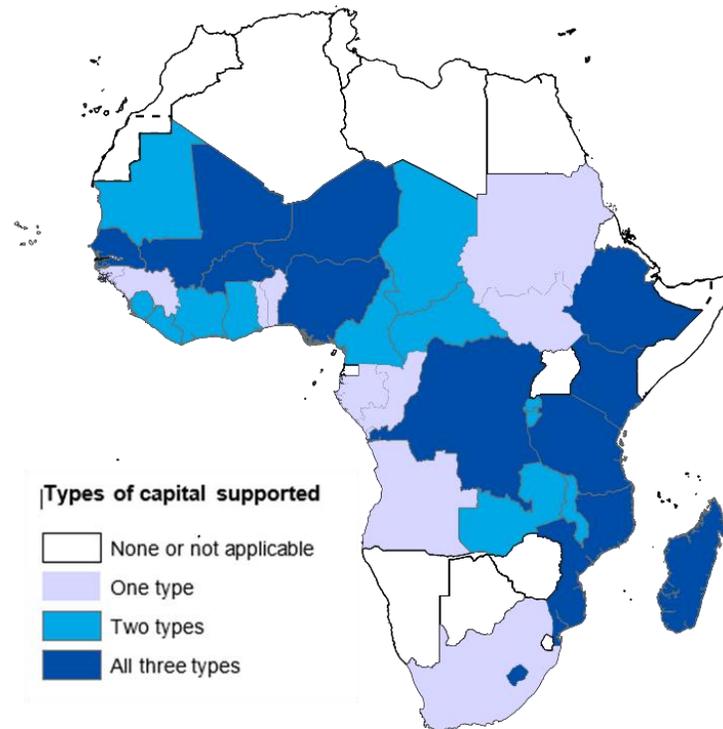
**Table O.3 Data on implementation of the strengthening resilience cluster of the ACBP**

<i>Component</i>	<i>All projects</i>		<i>Projects for which data on climate co-benefits data were available</i>			
	<i>Number of projects</i>	<i>Funding (millions of dollars)</i>	<i>Number of projects</i>	<i>Funding (millions of dollars)</i>	<i>Funding with climate co-benefits (millions of dollars)</i>	<i>Percent of funding with climate co-benefits</i>
Natural capital	96	7,893.1	79	5,407.1	1,675.4	31
Climate-smart agriculture	69	6,214.0	58	4,739.0	1,370.3	29
Africa climate-resilient landscapes	6	195.0	5	95.0	69.1	73
Forested landscapes	6	99.4	6	99.4	13.4	14
Niger Basin	2	220.0	2	220.0	180.2	82
Lake Chad	2	590.0				
Climate-smart Africa Ocean Economies	11	574.7	8	253.7	42.4	17
Physical capital	45	8,242.1	32	6,350.1	1,630.6	26
Building coastal resilience	2	169.6	2	169.6	141.0	83
Transport	33	6,329.0	24	4,865.0	1,214.6	25
Climate smart cities	10	1,743.5	6	1,315.5	274.9	21
Human and social capital	27	2,783.7	24	2,587.7	307.3	12
Addressing migration drivers	9	633.1	6	437.1	120.9	28
Social protection	18	2,150.6	18	2,150.6	186.4	9
<b>Total</b>	<b>168</b>	<b>18,918.9</b>	<b>135</b>	<b>14,344.9</b>	<b>3,613.2</b>	<b>25</b>

Note: Figures are for projects implemented January 2016–June 2019. Figures related to the 107 projects approved by the World Bank Board of Directors up to June 30, 2017 are final. Figures related to projects scheduled for later approvals date are provisional estimates and subject to change.

The ACBP finances projects in the strengthening resilience cluster in 36 countries. In 24 of them, the Plan supports interventions in support of more than one form of capital (natural, physical, and human/social) (Map O.1).

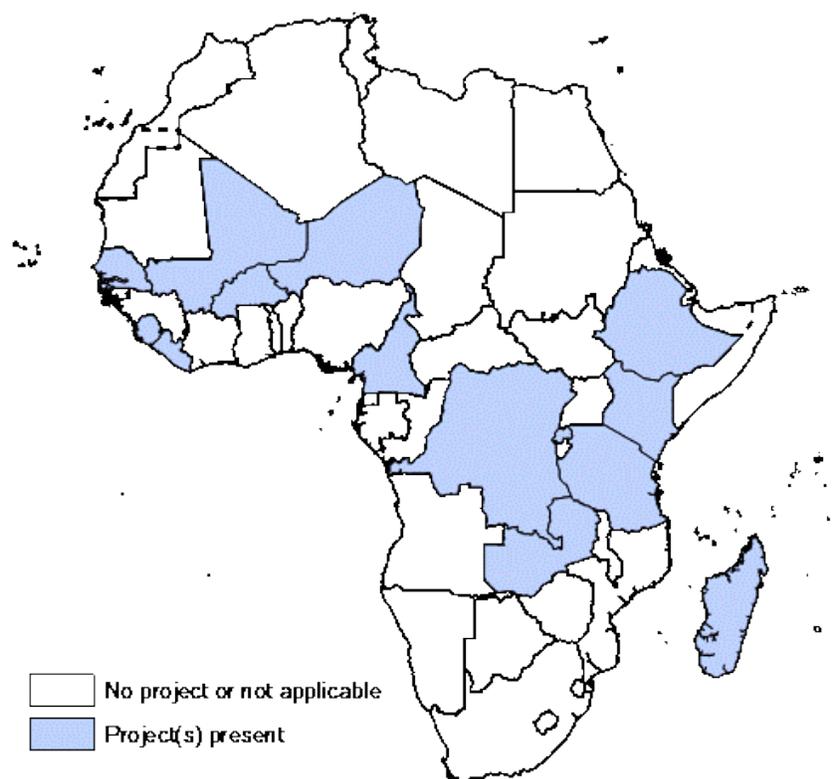
**Map O.1 Implementation of the strengthening resilience cluster of the ACBP, by country**



*Note:* Figures are for projects approved (or to be approved) January 2016 - December 2018. Figures related to the 107 projects approved by the World Bank Board of Directors up to June 30, 2017 are final; figures related to later approval dates are provisional estimates and subject to change. Figures do not include projects with a regional or sub-regional scope.

The powering and enabling resilience clusters are currently being implemented in seventeen countries in the region (Map O.2).

**Map O.2. Implementation of the powering and enabling resilience clusters of the ACBP, by country**



Note: The map does not include projects with a regional or sub-regional scope.

The renewable energy components account for about \$3 billion in total commitments (Table O.4). The share of financing with climate co-benefit ratios is 81 percent for geothermal, 61 percent for solar, and 49 percent for hydropower—above the average for the ACBP as a whole.

**Table O.4 Data on implementation of the powering and enabling resilience clusters of the ACBP**

Component	All projects		Projects for which data on climate co-benefits were available			
	Number of projects	Funding (millions of dollars)	Number of projects	Funding (millions of dollars)	Funding with climate co-benefits (millions of dollars)	Percent of funding with climate co-benefits
<i>Powering resilience</i>						
Solar	18	1,640.4	15	1,491.4	907.1	61
Hydropower	13	1,381.3	10	1,071.3	528.9	49
Geothermal	1	68.0	1	68.0	55.1	81
Subtotal	32	3,089.7	26	2,630.7	1,423.4	54
<i>Enabling resilience</i>						

<i>Component</i>	<i>All projects</i>		<i>Projects for which data on climate co-benefits were available</i>			
	<i>Number of projects</i>	<i>Funding (millions of dollars)</i>	<i>Number of projects</i>	<i>Funding (millions of dollars)</i>	<i>Funding with climate co-benefits (millions of dollars)</i>	<i>Percent of funding with climate co-benefits</i>
Africa Hydromet program <sup>a</sup>	3	70.0	0	—	—	—
Africa Climate Resilient Investment Facility <sup>b</sup>	1	6.0	0	—	—	—
Subtotal	5	76.0	0	—	—	—

Note: Figures are for projects implemented January 2016–June 2019. Figures related to the 170 projects approved by the World Bank Board of Directors up to June 30, 2017 are final. Figures related to projects scheduled for later approval date are provisional estimates and subject to change

- a. Climate co-benefits data for projects included in this component are not yet available
- b. This component is not funded by the World Bank. Co-benefits are therefore not counted.
- Not applicable.

## **ACBP Contribution to NDC Implementation**

As of October 30<sup>th</sup>, 2017, 169 parties to the United Nations Framework Convention on Climate Change had ratified the Paris Agreement, thereby formalizing their commitment to pursue the goal of the Agreement through Nationally Determined Contributions (NDCs). In Sub-Saharan Africa (SSA), 48 countries communicated their post-2020 climate commitments and priority areas through NDCs. As one of the most vulnerable regions to climate change impacts, SSA is remarkably ambitious at setting up its NDC commitments, particularly in adaptation.

To assess the extent to which the ACBP contributes and support the implementation of SSA's NDCs and to identify opportunities for further engagement, all ABCP projects were assessed to determine the alignment of development objectives and project components with NDCs goals and targets, as well as NDC sectoral and sub-sectoral commitments (e.g. policies, targets, plans, and actions). ACBP projects with target sectors -or subsectors- articulated as priority areas in country NDCs are considered as contributing to the implementation of NDCs. The analysis was done both at the country and the regional level, and focused on countries where ACBP projects are present, i.e., 40 countries in total. Botswana, Eritrea, Equatorial Guinea, Mauritius, Namibia, Somalia, Swaziland, and Zimbabwe do not yet have ACBP projects and are thus not included in the exercise.

As shown in Figure O.3, 163 out of 204 (80%) of ACBP projects contribute towards the implementation of NDC targets and actions, accounting for 83% of the total financial commitment (\$18.3 billion out of \$22.1 billion). The focus on NDC implementation has increased by 61% (from 101 to 163 projects) since October 2016. The related finance contributing to NDC implementation represented 68% of the total financing in 2016. The increase in projects in 2017 resulted in a financial surge from US\$ 9.1 billion to US\$ 18.3 billion in 2017 contributing to NDC implementation in SSA.

**Figure O.3. ACBP Contributions to NDCs, 2016 and 2017**

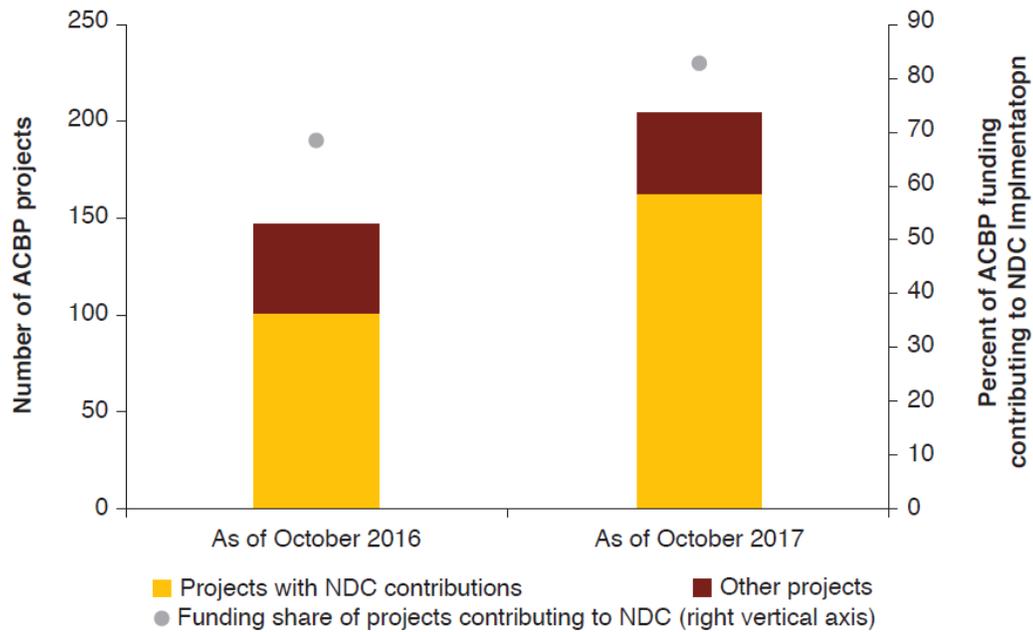
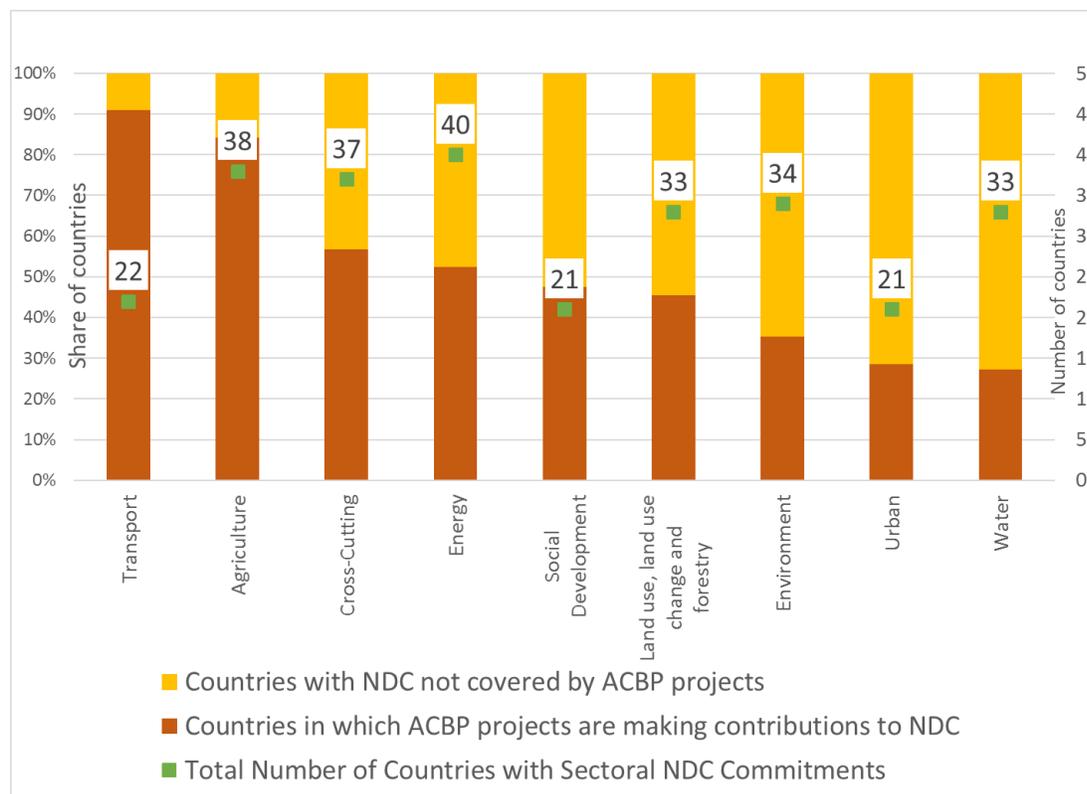


Figure O.4 below presents a summary of all ACBP projects contributing to the implementation of NDCs of SSA countries. Contributions are categorized under the following sectors: Agriculture, Energy, Environment, Land use change and Forestry (LULUCF), Social Development, Transport, Urban, Water and Cross-cutting areas (including capacity building and knowledge transfer, disaster risk management, and climate services.)

**Figure O.4. ACBP Contributions to NDCs, by sector, 2017**



*Note:* For each sector, the figures in the white boxes refer to the total number of countries that have NDC priorities associated to that sector (measured on the right vertical axis). The left vertical axis measures the share of countries where ACBP is contributing to NDC implementation (red boxes). Share of countries with NDC priorities and actions not covered by ACBP projects are represented as well (orange boxes).

Based on a preliminary assessment of current NDCs, the ACBP portfolio is expected to contribute to a significant number of African countries for their NDC implementation efforts, particularly under Transport, Agriculture, Cross-cutting areas, Energy, Social Development, LULUCF and Environment sectors. In the Transport sector alone, ACBP projects are expected to contribute to the implementation of NDC commitments for climate-resilient infrastructure and roads in over 90% of the countries. In addition, more than 80% of Sub-Saharan African countries' NDC commitments are supported by the current ACBP portfolio in the Agriculture sectors, including over 80% of countries committed to climate smart agriculture actions. The engagement of the ACBP in SSA also shows a support to NDC's commitments in Cross-cutting and Energy sectors in more than 50% of its countries (i.e., 57% and 53%, respectively). This assessment also finds a support to over 50% of ABCP countries to enhance the use of solar energy.

The analysis also finds considerable ACBP support to NDCs at the level of subsectors. More specifically, Table O.5 below summarizes the matches between ABCP projects and NDCs priorities at the subsector level. Examples include: Infrastructure and Roads, Climate Smart Agriculture,

development of Social Safety Nets, enhanced Capacity Building and Knowledge Transfer on climate related issues, Sustainable land management, and Solar Power.

**Table O.5. Projects with NDC Contribution by Subsectors**

<b>Sector</b>	<b>Subsector</b>	<b># of ACBP Projects with NDC Linkage</b>	<b># of ACBP Countries Covered</b>
<b>Agriculture</b>	Climate Smart Agriculture	35	22
	Crops	6	5
	Fisheries and Aquaculture	6	4
	Food Security	20	10
	Irrigation	4	5
	Livestock	3	2
<b>Cross-Cutting</b>	Capacity Building	13	16
	Climate Services	1	1
	Disaster Risk Management	4	7
<b>Energy</b>	Geothermal Power	1	1
	Hydropower	8	7
	Power System Planning	1	1
	Solar Power	18	18
<b>Environment</b>	Coastal Management	2	5
	Ecosystem and Biodiversity	4	4
	Watershed Management	3	3
<b>LULUCF</b>	Sustainable Forest Management	8	8
	Sustainable Land Management	10	10
<b>Social Development</b>	Safety Net	18	9
	Tourism	1	1
<b>Transport</b>	Infrastructure and Roads	28	20
<b>Urban</b>	Sustainable Urban Planning	5	4
<b>Water</b>	Wastewater Treatment	1	1
	Water Infrastructure	3	3
	Water Management	5	6

Finally, it should be noted that ACBP projects are supporting NDC implementation actions at many different levels, including support to upstream policy design, enhancement of capacity building, and technical assistance. Examples include:

- West Africa Regional Fisheries Program (Phase 2): this project is assisting Western Africa in improving the sustainable management of its fisheries, through regional cooperation, and support to the design and implementation of national fisheries policies reform

- Mozambique Smallholder Irrigated Agriculture and Market Access Project: with support from this project, Mozambique will be able to achieve commitments in adaptation to climate change with the improvement of agriculture productivity through enhanced technical capacity to develop and operate irrigated agricultural production systems and the access to crop production enhancing technologies

### **Opportunities for Future Engagement**

ABCP’s current portfolio provides a significant contribution towards the implementation of SSA’s NDC commitments, both with respect to geographic distribution and sectoral/sub-sectoral alignment. The ongoing process of NDC review offers further opportunities for additional support.

By 2020, countries will need to report on their NDC progress and increase the ambition of their commitments to meet the goal of a 2°C world under the Paris Accord. The next stages of ABCP implementation could further assist African countries in scaling up their NDC efforts, particularly in areas less supported in the early stages of the Business Plan’s implementation, such as water resources management and infrastructure, sustainable forest management, disaster risk management, and development of country-wide climate services. In addition to engagement through project planning and design process, there will be scope for assisting African countries in various “soft component” areas needed for the implementation of their NDCs, including the establishment of robust institutional framework and coordination mechanisms; development of Measuring, Reporting, and Verification (MRV) systems for emission reductions targets; development of NDC implementation and investment plans; and mobilization of climate finance for adaptation and mitigation actions.

The support to SSA’s NDCs can be further enhanced through global initiatives that the World Bank Group (WBG) is contributing to. As an implementing partner of the NDC Partnership<sup>1</sup>, WBG continues to support countries access technical assistance and financial support for climate related commitments set out in their NDCs. As contributions of the WBG to the NDC Partnership, two initiatives, NDC Support Facility (NDC SF) and Climate Action Peer Exchange (CAPE), have been established to support NDC implementation (Box O. 1). In addition, the WBG is part of the Invest4Climate platform which aims to accelerate transformative climate action.

#### **Box O. 1. World Bank involvement in initiatives supporting NDCs**

The **NDC Support Facility (NDC SF)** was established as a Bank-executed trust fund in 2016 with a contribution from the German government in the amount of €10 million. Initially established as a two-year pilot program, the trust fund has supported technical assistance, capacity development, and coordination in support of NDC implementation. The NDC SF has allowed the Bank to promote rapid

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<sup>1</sup> The NDC Partnership is a coalition of countries and institutions working to mobilize support and achieve ambitious climate goals while enhancing sustainable development. More information at <http://ndcpartnership.org>

progress to build NDC implementation momentum in client countries, and to support improved cooperation with development partners.

The **Climate Action Peer Exchange (CAPE)** initiative is a forum for peer-to-peer learning, knowledge sharing, and mutual advisory support. The CAPE initiative will facilitate the efforts of finance ministries to design effective climate change adaptation and mitigation strategies consistent with the achievement of the NDCs. Its focus areas include, but not limited to, fiscal instruments for low-carbon growth, macro-economic modeling, fiscal risk assessments, public investment planning, and climate budgeting. A first meeting with several Ministers of Finance from SSA is scheduled to take place in Tanzania early 2018.

Complementary to existing climate financing mechanisms, the **Invest4Climate Platform (I4C)** provides an opportunity to further mobilize, coordinate, and deliver the finance needed to help developing countries make the transition to a low-carbon resilient future, while creating jobs and building prosperity. Three work streams are under development as part of an emerging work plan: (i) Building partnerships, (ii) Deal Structuring, and (iii) Knowledge and Sharing. With the support of a group of climate leaders, Invest4Climate aims to build high-level support from among key transaction partners. The platform would act as a broker to develop deals, based on climate impact, country demand and sectors. I4C would also create and share knowledge to promote replication. Potential engagements where I4C seeks to add value include coastal resilience investment in West Africa and scaling solar in Ethiopia.

The NDC SF has already funded 5 technical assistance (TA) projects totaling \$1.95 million in SSA, covering Côte d'Ivoire, Mozambique, Sao Tome and Principe, and Mali.

- Côte d'Ivoire and Mali are part of a regional project, under the Adaptation of African Agriculture to Climate Change (AAA) Initiative, designed to support African countries in the operationalization of their agriculture-related NDCs, while building their capacity for NDC implementation and developing a network of expertise and knowledge exchange across the continent.
- An IFC project in Côte d'Ivoire, co-funded by PPIAF, supports the Ministry of Petroleum and Energy in helping to achieve the 42% renewable energy target through a two-phased approach that unlocks private investment via targeted policies, investment climate improvements, and strategic use of innovative financing mechanisms
- Another project in Côte d'Ivoire, part of the West Africa Coastal Areas Resilience (WACA) Investment Project, supports adaptation actions to develop resilience of coastal areas against hydro-meteorological risks. It will facilitate the multi-sectoral dialogue between authorities and key stakeholders to plan and implement investments contributing to coastal resilience
- The Mozambique project will be able to strengthen cooperation and collaboration mechanisms as well as develop roadmaps for actions to implement priority NDC adaptation strategies and targets. The project will also enable the operationalization of the National GHG Inventory to improve mitigation target setting, tracking and reporting to UNFCCC and other international partners, which can also be basis for results-based financing. This can enable the development of bankable actions to attract climate investments from private, international and domestic public sources.

- The STP project will provide foundational support to enable decision-makers in the country to better understand climate risks, facilitate the integration of resilience measures into policies and investment plans, and build targeted capacity to improve coordination across national institutions, government and international partners.

### **Resilience Outcomes: Insights after Two Years of Implementation**

To determine how well the ACBP is contributing to resilience building, the report examined the integration of resilience considerations in the results frameworks of its projects. The analysis used the framework developed through the World Bank Resilience Monitoring & Evaluation (ReM&E) project to assess how these projects contribute to developing three types of capacities, as defined by the Organization for Economic Co-operation and Development (OECD): absorptive capacity (the ability to survive climate shocks), adaptive capacity (the ability to adjust in anticipation of climate shocks, without radically changing livelihood systems), and transformative capacity (the ability to prevent the impact of climate shocks through major transformation of livelihood systems).

#### **Box O.2 Three types of capacities assessed for developing resilience (OECD)**

Absorptive capacity: The ability of people, assets, and systems to prepare for, mitigate, or prevent negative impacts of hazards so as to preserve and restore essential basic structures and functions, e.g., strengthening the walls of grain storage sheds, to enable them to withstand inclement weather, such as high winds and rain.

Adaptive capacity: The ability of people, assets, and systems to adjust, modify or change characteristics and actions to moderate potential future impacts from hazards so as to continue to function without major qualitative changes, e.g., establishing an irrigation system for farmers previously dependent on invariable rainfall to water their crops.

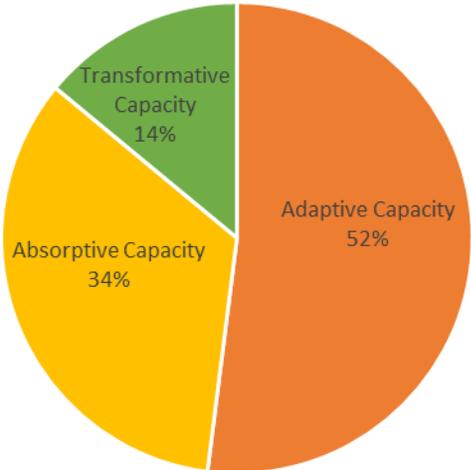
Transformative capacity: The ability to create a fundamentally new system so as to avoid negative impacts from hazards, e.g., shifting from agriculture to another means of income such as livestock herding, given the chronic climate and disaster risk and stress the current agricultural system is facing.

For each ACBP component, the analysis identified and reviewed World Bank board-approved projects providing the top 70 percent of climate change co-benefits for that component. The resulting sample of 27 projects account for 44 percent of the ACBP portfolio’s co-benefits, and is 13 percent of its total financing.

Following the new World Bank methodology (Box O.3) for Monitoring and Evaluating (M&E) of resilience at the project level, the analysis finds that about two-thirds of the results indicators of these projects intend to augment resilience to climate and disaster risks. The remaining third intend to deliver economic, social, and environmental benefits that are not directly linked to climate resilience, although they may be contributing to strengthening it indirectly. About half (52 percent) of the resilience-relevant indicators aim to capture results that build adaptive capacity, 34 percent capture the building of absorptive capacity, and 14 percent correspond to building transformative capacity (Figure O.5).

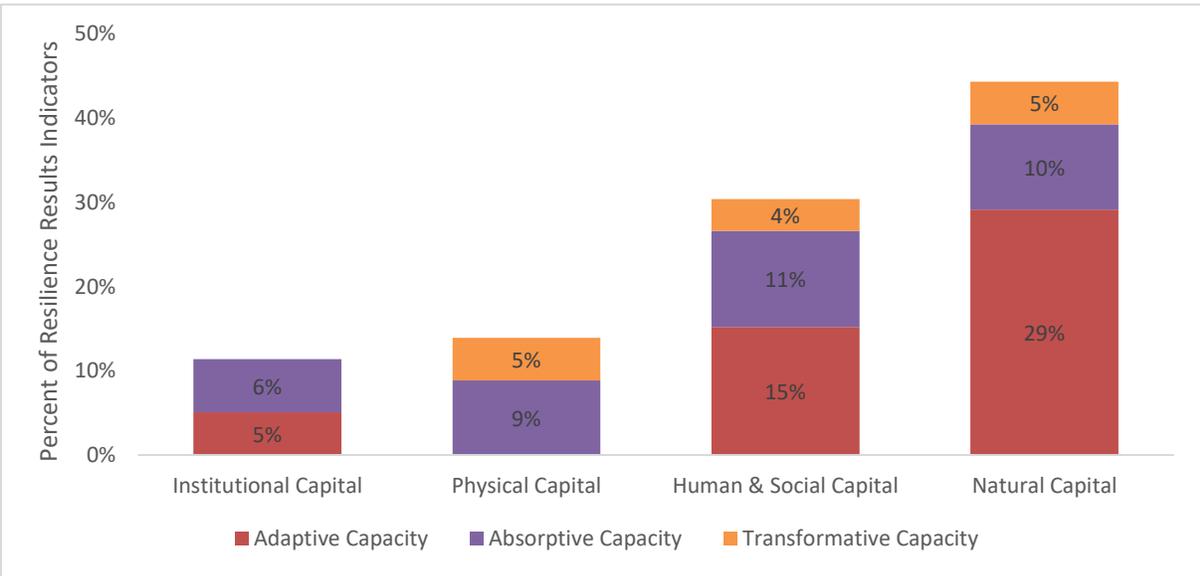
This is done in various ways, for example through diversification of livelihood opportunities, enhancement of agricultural productivity, and increased access to/ sustainable management of productive resources.

**Figure O.5. Resilience results indicators contributing to absorptive, adaptive and transformative capacities**



The fact that developing adaptive capacity accounts for more than half of the resilient development outcomes suggests that projects are incorporating changes in their systems to adjust to, better manage, anticipate, and/or mitigate potential future impacts of climate and disaster risks. The ACBP portfolio focuses on building natural capital (44 percent of resilience-relevant results indicators) and human and social capital (30 percent), which together account for three-fourths of all resilience-relevant results indicators in the ACBP portfolio (Figure O.6).

**Figure O.6. Distribution of resilience results indicators across types of capital and of capacity strengthened**

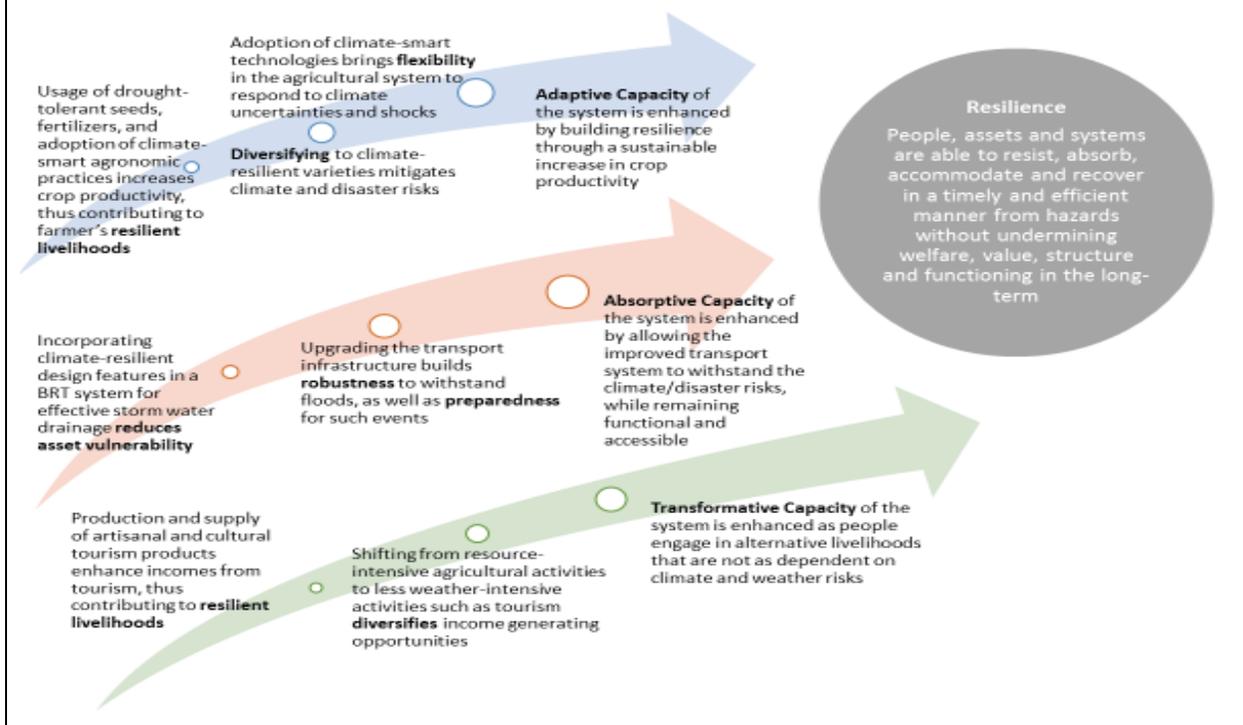


Activities that build these forms of capital mainly contribute to developing adaptive capacity and absorptive capacity. Box O.3 introduces the World Bank’s approach to resilience M&E and illustrates resilience building pathways that projects may take. Box O.4 elaborates on how three ACBP projects are increasing the stocks of various forms of capital to build resilience to climate change.

### Box O.3 World Bank Resilience M&E framework

The World Bank has been developing a novel approach for M&E of resilience in projects, which is being published in the World Bank’s Operational Guidance for Monitoring and Evaluation (M&E) in Climate and Disaster Resilience-Building Operations<sup>2</sup>.

The overarching results framework developed through this approach is flexible, cross-sectoral, can be used for a variety of operations, and can be applied at any point in time in the project cycle. It operationalizes resilience by translating resilience definitions and concepts to the specific context of an operation. It uses definitions specific to each operation that build on the main elements of: (i) the type of hazards through shocks and stresses, (ii) people, economic assets and bio-physical systems exposed to hazards, and (iii) their ability to anticipate, respond, and recover from hazards. It also embraces resilience concepts related to absorptive, adaptive and transformative capacities and help focus on those that are most relevant for resilience-building in the context of the operation by identifying the pathways that are being pursued to build or strengthen resilience. Examples of three pathways that ACBP-supported projects may take in order to build resilience are illustrated below.



<sup>2</sup> World Bank. 2017. Operational guidance for monitoring and evaluation (M&E) in climate and disaster resilience-building operations (English). World Bank Group. <http://documents.worldbank.org/curated/en/692091513937457908/Operational-guidance-for-monitoring-and-evaluation-M-E-in-climate-and-disaster-resilience-building-operations>

## Box O.4. Examples of projects contributing to building resilience

### 1. Absorptive Capacity

#### Dakar Bus Rapid Transit (BRT) Pilot Project

Flooding is one of the most severe hazards threatening Senegal, and in recent decades, it has become a frequent and enduring reality. The Dakar Plateau is threatened by flood risks, notably because of the insufficient evacuation capability of storm water. The BRT project in Senegal strengthens infrastructure and physical resilience, and aims to improve urban resilience and mobility by alleviating flood impacts.

The BRT project improves the transportation network to increase people's access through the building of physical capital. It allows urban roads to be resilient to flooding by employing specialized climate-resilient designs, such as underground cisterns, rain gardens, and use of porous materials and pavers for effective storm water management. It also reduces asset vulnerability of the public transport infrastructure, increasing its robustness against floods. This strengthens absorptive capacity of the flood-vulnerable system, while improving urban mobility and allowing the affected population to continue accessing their employment hubs, and carrying on with their business as usual.

#### Resilience pathway:



### 2. Adaptive Capacity

#### Niger Climate Smart Agriculture Support Project

Niger is extremely vulnerable to severe climate shocks, with drought being the most important risk in terms of frequency and its impacts. Climate change is likely to exacerbate Niger's food security situation by plaguing Niger's agriculture sector. The Climate Smart Agriculture Support Project in Niger builds natural capital and strengthens agriculture, livelihoods and social resilience. It aims to increase agricultural productivity and build resilience to climate shocks by sustainably increasing crop productivity and incomes.

The project finances a range of agricultural management solutions, including but not limited to, rolling out technologies in various value chains that include drought-tolerant seeds, fertilizers, planting materials, animal husbandry and agronomic and conservation practices. The adoption of these technologies augments adaptive capacity of farmers and brings about flexibility in the system and diversity in their practices, thus allowing them to respond to climate uncertainties and shocks.

#### Resilience pathway:



### 3. Transformative Capacity

#### Tanzania: Resilient Natural Resource Management for Tourism and Growth

The climate in Tanzania is characterized by erratic precipitation. As extreme events, such as droughts, become more intense, the competition for land and water resources will exacerbate, threatening the ecosystem. This project strengthens social and livelihoods resilience, as well as financial resilience, by providing access to

improved economic opportunities that reduce vulnerability to climate shocks. It also implements natural resources management and conservation strategies to reduce pressure on the terrestrial ecosystem.

The project builds human and social capital by creating job opportunities and providing tourism-related livelihoods, such as production and supply of artisanal and cultural tourism products, to deviate from the current resource-intensive agricultural activities. Transformative capacity is built as the project promotes conservation-friendly alternative livelihoods in local communities. Additionally, the project also shifts agricultural production to higher value and less water-demanding crops. The project diversifies the sources of resilient livelihood by supporting new, less weather-sensitive income generating activities.

**Resilience pathway:**



A mix of all three capacities and the four capitals is often needed to deliver resilient development outcomes. The weights in the mix depend on the system’s needs and the climate change impacts it faces which require increased resilience. Absorptive capacity plays an important role when maintaining the current system structures is desirable but those structures need to be strengthened in order to improve the system’s ability to bounce back in the face of risk. Adaptive capacity builds flexibility and enhances the system’s ability to change in order to prepare for the future. Transformative capacity is often needed when the current situation is untenable and a significant shift in the system is required to decrease vulnerability in a lasting manner.

Interventions to increase absorptive and adaptive capacity are often the first and quickest ways to increase the climate resilience of individuals, communities, and countries. Over the longer term, transformative capacity needs to be built, in order to ensure lasting resilience to the more frequent or severe climate shocks of the future.

This points to a possible area of focus for the final years of ACBP implementation, i.e. identifying opportunities to build more transformative capacity. Future projects may combine support to adaptive and absorptive capacity–building activities (through, for example, expansion of alternative livelihood opportunities and innovation in climate-resilient tools and technologies) with support that helps build transformative capacity (through, for example, promotion of system shifts that help increase food security). No single project can transform a system, but many can come together to contribute to transformation.

To summarize, the current ACBP portfolio contributes to strengthening resilience, in particular, through building adaptive and absorptive capacities, by enhancing the region’s natural capital, physical capital, and human and social capital.

## Highlights of Implementation Progress by ACBP Component

Table O.7 highlights selected areas of progress made in implementing the ACBP in 2017. It covers projects approved by the World Bank’s Board of Executive Directors, preparation of projects to be approved in the near future, analytical work, advocacy, and other efforts that implement the Plan.

**Table O.7 Highlights of ACBP implementation progress October 2016–September 2017**

Component	Progress
<i>Strengthening resilience</i>	
<i>Natural capital</i>	
Climate-smart agriculture	<ul style="list-style-type: none"> <li>• In 2017 the Board approved \$1.27 billion (including \$8 million from the Global Environment Facility) in commitments for 25 projects supporting climate-smart agriculture. These projects aim to improve the livelihoods of about 1.28 million farmers and increase the climate resilience and productivity of about 3.4 million hectares of land.</li> <li>• The Bank continued to support advocacy of climate-smart agriculture and to disseminate knowledge and best practices in Sub-Saharan Africa. In the past year, it hosted an event on CSA Success Stories at COP22, supported the development of the initiative “Adaptation of African Agriculture to Climate Change” (AAA), built country capacity to implement Nationally Determined Contributions (NDCs), and developed country-led Climate Smart Strategies and Investment Plans (CSIPs). It also made progress in establishing a Climate-Smart Livestock (CSL) Center in Africa, through a joint World Bank Group–German initiative.</li> </ul>
Forested landscapes	<ul style="list-style-type: none"> <li>• As part of the implementation of its Forest Action Plan, the Bank allocated more than \$128 million to 15 countries in Sub-Saharan Africa for upstream technical assistance to forest development efforts, including support to relevant aspects of their NDCs.</li> <li>• Nine countries in Sub-Saharan Africa are preparing large-scale programs that aim to enhance the contribution of forest landscapes to growth and poverty alleviation. The Forest Trust Funds are providing up to \$450 million in results-based payments while leveraging funds from other sources, such as the Global Environment Facility, IDA, governments, and the private sector.</li> <li>• As of September 2017, the Bank had allocated more than \$200 million from the Central African Forest Initiative (CAFI) to four countries (Cameroon, the Central African Republic, the Democratic Republic of Congo and the Republic of Congo), for</li> </ul>

Component	Progress
	<p>the development and implementation of national investment frameworks for REDD+, with the World Bank as an implementing partner.</p>
Climate-resilient landscapes	<ul style="list-style-type: none"> <li>● Most of the projects originally identified under this ACBP component are either under implementation or at the advanced preparation stage. Projects are being, or will be implemented in Burundi, Ghana, Madagascar, and Mozambique.</li> <li>● New operations are at an early preparation stage in eight countries, with support from the TerrAfrica program.</li> </ul>
Niger Basin	<ul style="list-style-type: none"> <li>● The Bank, the riparian countries, and the Niger Basin Authority identified a priority set of 123 interventions based on the initial Climate Resilience Investment Plan (CRIP) for the Niger Basin presented at COP21. Of an estimated total cost of the CRIP of \$3.1 billion, \$1.9 billion is being mobilized to support priority interventions.</li> <li>● The World Bank and the African Development Bank are finalizing preparation of investment projects that will support key components of the CRIP.</li> </ul>
Lake Victoria Basin	<ul style="list-style-type: none"> <li>● The Nordic Development Fund has provisionally approved a grant for expansion of the Resource Efficient and Cleaner Production program (RECP), a small but very successful component of the Lake Victoria Environment Management Program that has leveraged more than \$80 million in private sector investments in improved environmental practices.</li> <li>● Protection of ecological infrastructure (forests, riparian buffers, wetlands) under the existing program has generated success stories and local appreciation of the benefits of environmental rehabilitation. Nearly 950 of a target of 1,450 hectares had been rehabilitated for protection by mid-2017.</li> </ul>
Climate-smart ocean economies	<ul style="list-style-type: none"> <li>● The Board approved four projects with regional or national scope in FY17, allocating funding of more than \$67 million. Nine more projects are expected to be approved in FY18 and FY19, for an additional \$517 million, including additional support at the regional level and to countries such as Côte d'Ivoire, Kenya, and Tanzania.</li> <li>● These projects build on technical assistance provided by the Bank to regional commissions in charge of fisheries, to develop regionally coordinated investment plans for climate-resilient fisheries and coastal livelihoods.</li> </ul>
<i>Physical capital</i>	
Climate-smart cities	<ul style="list-style-type: none"> <li>● The Bank supported the completion of resilience planning in 20 cities: 11 regional capitals of Ethiopia; Accra, Ghana; Antananarivo, Madagascar; Dakar, Senegal; Dar Es Salaam, Tanzania; Ibadan, Nigeria; Maputo, Mozambique; and cities in the Democratic Republic of Congo, Niger, and Sierra Leone.</li> <li>● A total of \$1.4 billion investment is expected to be mobilized during FY18/19. Funding includes \$560 million to support climate- and disaster-resilient development in 5 large Sub-Saharan African cities and \$900 million for 2 large</li> </ul>

Component	Progress
	metropolitan areas of the Democratic Republic of Congo Ghana and 117 secondary and tertiary cities in Ethiopia.
Coastal resilience (West Africa)	<ul style="list-style-type: none"> <li>• The Bank is finalizing a \$200 million investment project that responds to multisector investment plans prepared over the past year in five countries (Benin, Côte d'Ivoire, Mauritania, São Tomé and Príncipe, and Togo) to combat coastal erosion and flooding.</li> <li>• The Bank developed a framework for the voluntary relocation of people whose lives and livelihoods are in danger as a result of climate change.</li> </ul>
Climate-resilient transport	<ul style="list-style-type: none"> <li>• The Board approved three projects with total financing of \$112 million. Preparation is under way for additional projects in 11 countries and projects with regional scope.</li> <li>• The Bank is scaling up efforts to further define and implement methodologies for integrating climate resilience into transport projects. It published a regional report (<i>Enhancing the Climate Resilience of Africa's Infrastructure: The Road and Bridges Sectors</i>) and mobilized grant funding from the Global Facility for Disaster Reduction and Recovery (GFDRR) to operationalize the methodology described in the report as a second phase of the Africa Road Resilience Study, which will begin to roll out climate vulnerability assessments at the country level.</li> </ul>
<i>Human and social capital</i>	
Social protection	<ul style="list-style-type: none"> <li>• The Board approved or is in the process of approving 16 social protection projects that directly contribute to the ACBP. The value of these projects is about \$1.83 billion.</li> <li>• Six countries in Sub-Saharan Africa channeled funding from the World Bank's Crisis Response Window through national safety net programs to respond to the effects of the 2015–16 El Niño drought.</li> </ul>
Migration drivers	<ul style="list-style-type: none"> <li>• The Bank increased its support to address the impacts of forced displacement and migration. In April 2017, it approved the Development Response to Displacement Impacts Project (DRDIP) for Kenya (\$103 million). In July it approved the Great Lakes Region Displaced Persons and Border Communities Project Additional Financing (\$3 million).</li> <li>• The ongoing efforts on planned voluntary relocation being undertaken in São Tomé and Príncipe are providing critical lessons for other communities and countries. These lessons are informing the development of a framework—being developed as part of the West Africa and Coastal Areas (WACA) Resilience Investment Project—to ensure that voluntary relocation is a pro-poor, people-centered process in which communities drive the decision making.</li> </ul>

Component	Progress
<i>Powering resilience</i>	
Solar power	<ul style="list-style-type: none"> <li>As of September 2017, the Bank had approved projects that spur the use of solar power in the region for a total \$620 million of IDA resources.</li> <li>The Bank's engagement includes 10 projects to scale solar energy supply through off-grid and mini-grid solutions in the Democratic Republic of Congo, Liberia, Niger, Rwanda, Tanzania, and Zambia; 2 guarantee packages to leverage private investments in solar generation in Mali and Zambia; and investment in utility-scale solar plant and network strengthening in Burkina Faso.</li> </ul>
Hydropower	<ul style="list-style-type: none"> <li>The Bank approved nine projects that help increase the use of hydropower in the region in FY16 and FY17, for a total \$776 million of IDA resources.</li> <li>The Bank supported the commissioning of the Lom Pangar dam in Cameroon in mid-2017. It will add 30 MW of power and unlock the hydropower potential of the Sanaga River; the Rusumo Fall hydropower scheme (80 MW), shared by Burundi, Rwanda, and Tanzania; and the Jiji and Mulembwe schemes (48 MW), in Burundi.</li> </ul>
Geothermal power	<ul style="list-style-type: none"> <li>The Bank approved \$71 million of additional financing to complete the development of the Olkaria I &amp; IV plants in Kenya, with total capacity of 280 MW.</li> <li>The Bank is providing technical assistance to help develop the geothermal sector in Kenya.</li> </ul>
<i>Enabling resilience</i>	
Africa Hydromet Program	<ul style="list-style-type: none"> <li>The Bank mobilized \$17 million in IDA funding in FY17 to support the strengthening of hydromet systems in Burkina Faso, the Democratic Republic of Congo, Mali, and Niger. The IDA funds will complement \$60 million from other sources, including the Green Climate Fund, the Climate Risk Early Warning Systems (CREWS), the Global Environment Facility, and the Global Facility for Disaster Reduction and Recovery (GFDRR).</li> <li>Additional hydromet modernization operations are under preparation in Chad, Ethiopia, and Togo.</li> </ul>
Africa Climate Resilient Investment Facility (AFRI-RES)	<ul style="list-style-type: none"> <li>The Bank mobilized €5 million from the Nordic Development Fund as seed funds to kick-start the facility, which will support upstream integration of climate resilience in the planning and design of projects in Sub-Saharan Africa. In cooperation with the UN Economic Commission for Africa and the Africa Union, the facility will promote the dissemination of tools, data, and good practice.</li> <li>Pilot initiatives supported by AFRI-RES in 2017 included training of hydropower practitioners and a workshop on insurance instruments that can mitigate hydrological risks</li> </ul>

## Prospects for the future

Two years into its implementation, the Africa Climate Business Plan is showing significant progress on a variety of fronts. As summarized in this overview, and further discussed in the rest of this report, a considerable amount of resources has been mobilized; a large share of the funding committed is expected to deliver large climate co-benefits, including important contributions to boosting the resilience of African countries; and many of the Plan's activities are supporting the implementation of the region's Nationally Determined Contributions (NDCs), developed as part of the Paris Climate Agreement. As the Plan approaches the mid-term of its implementation, a number of opportunities and challenges are emerging, as outlined in the examples below.

- From strategy to projects: ACBP is supporting the drafting of of planning and strategy document (e.g. country forest notes, river basin investment plans), which are important to anchor individual interventions to a bigger picture strategic framework. The challenge is often to turn those insights into specific projects, particularly in context of resource limitations that impose clear setting of priorities among competing investments
- The role of global platforms: The work of the ACBP takes place in a number of cases under the umbrella of regional or global platforms (e.g. the Bonn challenge on land and forest restoration; the Malabo declaration on Agriculture development, etc). It is important to seize the momentum created by those high-visibility global initiatives to mobilize efforts and muster political consensus at the national and local level
- Mobilizing the private sector: The role of the private sector remains crucial to the overall success of the ACBP. It is important to promote strategic public-sector interventions (in terms of investments but also regulation, incentives, etc) that could encourage the private sector to invest in activities more conducive to climate resilient development. Several of the Plan's components are identifying possible specific solutions. For example, under the Ocean Economy component, the Bank is looking at fishery supply chains to enable fishermen to capture larges shares of value added in good harvest times, as a buffer against poorer harvests in bad years. In the Lake Vitoria basin, the Bank team is looking at green infrastructure as a protection against an adverse climate, to reduce risk to the private sector and increase its incentives to invest
- Synergies among ACBP components: There are important opportunities for tapping into synergies across components of the ACBP, thereby increasing development and resilience impacts. There is already good practice emerging in this area, as in the case of the Plan's components on Cities and Coastal resilience in West Africa (WACA), where coordinated action on coastal management and urban development is proving effective in boosting resource mobilization (for example, under the CityCORE Africa Program);

- Integrating resilience into project design: the thinking on integrating climate resilience into the design of projects is developing in the community of practice; in the ACBP this is being picked up for example in the transport component, which is being implemented, taking into account the result of recent World Bank analytical work on decision making for infrastructure planning under climate uncertainty. Operationalizing further these insights will become increasingly important as ACBP implementation progresses.
- Renewables: the rapidly declining costs of renewables is creating favorable conditions for the energy related components of the ACBP. The Bank is working to seize such opportunity in a logic of energy system planning. That is, pooling different sources of generation (e.g. solar, hydro, wind, etc.) and trading them across countries to reduce intermittency risks, smooth swings in supply costs and reduce prices to consumers.

In addition, there are two cross-cutting areas which might be important to address systematically in future editions of this progress report, drawing from the additional information and experience that will be building up in the meantime.

The first area concerns the monitoring of resource mobilization. Solid data is readily available from the World Bank's reporting system, concerning financial flows directly handled by the Bank (i.e. funding from IBRD and IDA; and Trust Funds administered by the World Bank, such as GEF, GFDRR, carbon finance). Yet, an important role of the ACBP is to mobilize resources from other financiers (including multilateral sources, such as AFDB, Islamic Development Bank, etc; bilateral partners, the private sector, etc.). As documented in several chapters of this report, there is encouraging evidence that the resource mobilization is working at the level of individual components of the Plan, or of specific projects. A systematic assessment of co-financing for the Plan as a whole will require additional, dedicated efforts. These would be needed to track all sources and forms of financing (including both full-blown co-financing of World bank projects, as well as parallel financing), while avoiding double counting or over-counting. An additional challenge is that different financiers are likely to adopt different criteria and definitions for tracking climate co-benefits; this implies that at least initially, the analysis of co-financing may need to focus on the assessment of gross financial flows in support of the ACBP (i.e. total co-financing including the portion of funding with limited or no significance in terms of adaptation or mitigation).

On the positive side, a more systematic assessment of the broader range of financing can not only provide a better sense of the Plan's impact; but also provide insights on the variety of approaches that the different teams working on ACBP are pursuing to attract resources towards the Plan objective. This in turn can provide positive imitation spill-overs, consistent with the overall approach of Maximizing Finance for Development that the World Bank Group is promoting at the corporate level.

A second important area concerns the detailed monitoring of results being achieved by the Plan. The original version of the Plan launched in Paris at COP21 in 2015 contained a detailed set of expected outcomes for each of the Plan's component over a shorter-term horizon (by 2023) and over a longer term one (2026). There is already evidence of progress towards those objectives (as summarized in Table O.7 of this overview) for each of the Plan's component. There is an opportunity to further organize the information on the results being delivered by the Plan, by analyzing the result frameworks of the individual projects contributing to ACBP implementation. This would help assess with further granularity the results being delivered in terms of outputs and outcomes, which could both strengthen the communication on progress, but also help identify challenges encountered during implementation and inform mid-course corrections.

## Abbreviations

All currency is in United States dollars (\$) unless otherwise indicated.

AAA	Adaptation of African Agriculture to Climate Change
AfDB	African Development Bank
AFRI-RES	Africa Climate-Resilient Investment Facility
CIWA	Cooperation for International Waters in Africa
CO <sub>2e</sub>	carbon dioxide equivalents
COP	Conference of Parties
CRIP	Climate Resilience Investment Plan
CSIP	Climate-Smart Strategies and Investment Plan
DRDIP	Development Response to Displacement Impacts Project
ECRAI	Enhancing the Climate Resilience of Africa's Infrastructure
FY	fiscal year
GEF	Global Environment Facility
GEF LDCF	Global Environment Facility Least Developed Countries' Fund
GFDRR	Global Facility for Disaster Reduction and Recovery
GSURR	Global Practice for Social, Urban and Rural Development, and Resilience
IDA	International Development Association
LVEMP	Lake Victoria Environment Management Program
MWp	megawatt-peak
NDC	Nationally Determined Contribution
PV	photo-voltaic
RECP	Resource-Efficient and Cleaner Production
REDD+	reduced emissions from deforestation and forest degradation
SDG	Sustainable Development Goal
WACA	West Africa Coastal Areas Management Program

## **PART A: STRENGTHENING THE RESILIENCE OF AFRICA’S ASSETS**

### **A1: Natural Capital**

#### **Chapter 1 Promoting Climate-Smart Agriculture**

##### **Implementation Progress This Year**

Agriculture is the driving engine for inclusive and economic development in Africa, absorbing up to two-thirds of the labor force and accounting on average for a third of GDP (World Bank 2015a). Africa is home to more than 225 million undernourished people, with smallholder farming households constituting the majority of the poor (FAO, IFA, and WFP 2015).

Agriculture is the most susceptible sector to the effects of climate change. It has been reducing yields and causing more frequent extreme weather events (World Bank 2013). In 2016 the food security situation deteriorated sharply in Africa, especially in East and Southern Africa, as a result of droughts and floods linked in part to El Niño/La Niña–related phenomena. If unaddressed, climate change will erode Africa’s hard-earned development gains, endangering food security and poverty reduction.

Agriculture also contributes to climate change, accounting for a quarter of global anthropogenic greenhouse gas emissions. In their current business-as-usual forms, agricultural practices are projected to account for up to 70 percent of total emissions by 2050 (WRI and others 2015).

Adoption of climate-smart agriculture (CSA) policies, technologies, and practices—such as agroforestry, intercropping, improved nutrient management, and conservation agriculture— can reduce greenhouse gas emissions, increase yields, and build agro-ecosystem resilience. Improved agricultural practices also have the potential to generate multiplier effects that expand job opportunities in the downstream stages of the agri-food system and in the broader nonfarm economy. To improve the livelihoods of smallholder farmers and increase food security under a sustainable economic development framework, African agriculture must strive to achieve the three integrated goals of increasing productivity, strengthening farmers’ resilience, and reducing greenhouse gas emissions from agricultural production.

The agriculture component of the Africa Climate Business Plan (ACBP) aims to raise awareness and mobilize resources in support of CSA initiatives in Africa, promote adoption of evidence-based policies and institutional reinforcement for CSA, and support national and regional investment programs financially and technically to scale up CSA technologies. CSA policies and practices can benefit African countries by increasing productivity, enhancing resilience of farming systems, and lowering greenhouse gas emissions from the agricultural sector. Progress was made in several areas, as summarized in table 1.1.

**Table 1.1 World Bank support for climate-smart agriculture: Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"> <li>• Advocacy, awareness raising, and resource mobilization in support of three initiatives in the region: Vision 25 x 25, in support of the Malabo Declaration on accelerated agricultural transformation; the Africa Climate-Smart Agriculture Alliance; and the West African Climate-Smart Agriculture Alliance</li> <li>• Support of adoption of evidence-based policies and institutional strengthening for CSA</li> <li>• Provision of financial and technical support for national and regional investment programs to scale up adoption of CSA technologies and management options</li> </ul>	<ul style="list-style-type: none"> <li>• The Bank’s Board approved 24 projects supporting climate-smart agriculture (CSA). The projects aim to improve the livelihoods of about 3.37 million farmers and about 3.4 million hectares of land with CSA practices.</li> <li>• The Bank published a new report, <i>Climate Funding and Constraints for Adaptation in African Agriculture</i>, which maps climate finance sources suitable for financing African adaptation activities and identifies constraints and challenges associated with accessing them. It published a booklet of CSA success stories in Africa and produced video documentaries to disseminate best practices to policy makers and practitioners across Africa and beyond.</li> <li>• The Bank hosted a regional workshop in Nairobi to establish the technical and institutional capacity of an early warning system to support food security in East and Southern Africa, the sub-regions of Africa most affected by El Niño.</li> <li>• The Bank participated in a panel discussion on “Technologies for Agricultural Development and Climate-Smart Agriculture” at the Africa Caucus Meetings of Ministers of Finance. The meetings issued a communique that emphasizes support for a coordinated regional initiative to strengthen agricultural education, skills, science, and technology as a critical element of the agriculture</li> <li>• The Bank and the German government made progress on a joint initiative that will establish a climate-smart livestock center in Africa.</li> </ul>

The Africa Climate Business Plan launched at the UN Conference on Climate Change (COP21) in Paris focuses on CSA and supports the Malabo Declaration on accelerated agricultural transformation. The Bank supports CSA in Africa by advocating for regional CSA initiatives, nurturing the adoption of CSA policies, and providing financial and technical support for national and regional investment programs to scale up the adoption of CSA technologies.

Collaborating with partners, the Bank seeks to facilitate the adoption of CSA by 25 million farmers, the establishment of CSA on 3 million hectares of farmland, the creation of improved pastoral systems in at least 15 countries, and improved capacity to implement CSA policies in at least 20 countries in Africa by 2026. To achieve these goals, between October 2016 and September 2017, the World Bank Board approved 24 projects to be funded by \$1.26 billion from IDA and 1 project to be funded by \$8.05 million from the Global Environmental Facility Trust Fund. The projects aim to improve the livelihoods of about 3.37 million farmers and about 3.4

million hectares of land with CSA practices.. All projects were screened for climate and disaster risks, and appropriate resilience measures were incorporated in their design. The projected greenhouse gas consequences of all projects were also evaluated.

African decision makers are increasingly aware of the economic, financial, and environmental benefits of CSA. At the 2014 Malabo Summit, African heads of state endorsed Vision 25x25, which aims to have 25 million farmers in Africa using CSA practices by 2025. The Africa Climate-Smart Agriculture Alliance aims to reach 6 million farming families with CSA by 2022.

Following a side meeting at COP22, the German government, the World Bank, and the International Livestock Research Institute (ILRI) continued discussions on the establishment of a center for climate-smart livestock development in Africa. The goal of the center is to bring CSA practices to livestock-raising and provide knowledge and technical support to investors in the subsector. The center will provide analytical support and advisory services to countries; develop and test an action-research approach for field interventions; and develop tools, build partnerships, and strengthen capacities to scale up innovations.

The Bank's Agriculture Global Practice made progress on the IDA18 commitment of delivering at least 10 country-led Climate-Smart Strategies and Investment Plans (CSIPs). The proposed multiyear analytical studies provide a pathway for mainstreaming climate change requirements in agriculture and a framework for investments for both IDA and other financiers. CSIPs build on and support the operationalization of existing country policies and commitments (such as Nationally Determined Contributions [NDCs] for reducing emissions) and feed into relevant processes such as the Comprehensive Africa Agriculture Development Program (CAADP) National Agriculture Investment Plans. A pilot CSIP study for Zambia is underway, and plans are afoot to add more African countries.

The Bank issued a new report, *Climate Funding and Constraints for Adaptation in African Agriculture*. It maps climate finance sources suitable for financing African adaptation activities and identifies constraints and challenges associated with accessing these sources.

In collaboration with the NDC Partnership Support Facility (NDCP-SF), the Bank developed a coordinated approach for operationalizing NDCs related to agriculture in Sub-Saharan Africa. The NDCP-SF also supported the development of technical assistance projects in Côte d'Ivoire and Mali to translate their NDCs into on-the-ground results.

### **Box 1.1 Success story: The Zambia Integrated Forest Landscape Project**

The Zambia Integrated Forest Landscape Project (ZIFLP) provides support to rural communities in the Eastern Province to allow them to better manage their landscape resources. It is projected to benefit some 215,0000 people and to build the CSA capacity of 293 extension staff and 107,550 farmers using the lead-farmer approach. CSA interventions will enhance incomes and livelihoods of beneficiary communities and farmers through sustainable, climate-smart income-generating and value-added activities both off-farm and on-farm. The project is financed by an IDA credit of \$17.0 million, a Global Environment Facility grant of \$8.05 million, and a BioCarbon Fund grant of \$7.75 million.

To sustainably increase productivity, the project promotes CSA technologies, including conservation agriculture, integrated soil fertility management and agroforestry, on 59,000 hectares of agricultural land. A 30 percent average yield increase is expected for major crops. Enhanced resilience and increased monetary and nonmonetary benefits are expected for 40,000 project beneficiaries (30 percent of them women) through assets and services provided by the project, which include extension services and training on sustainable landscape management practices. Ex ante analyses reveal that climate-smart interventions constitute a carbon sink of 17.8 million carbon dioxide equivalents (CO<sub>2</sub>e) over a 20-year period, or about 9.2 tons CO<sub>2</sub>e per hectares a year. The project will also prepare the groundwork for about \$30 million of emissions reduction payments from the BioCarbon Fund, to be processed as a Bank operation within the next two years.

### **Opportunities for Progress in the Future**

As of September 2017, 24 agriculture projects totaling \$2.67 billion were in the pipeline, including 19 projects funded by \$2.15 billion in IDA commitments, 2 projects funded by \$416.1 million in International Bank for Reconstruction and Development (IBRD) commitments, and three projects funded by \$100.3 million in trust fund commitments. These projects will cover several aspects of CSA, ranging from improved crop management and livestock development to value-chain competitiveness. Examples include the following:

- The Eastern and Central Africa Agricultural Transformation Project (\$485 million IDA commitment) aims to enhance regional collaboration to improve the productivity, resilience, and competitiveness of selected agricultural commodity value chains and increase smallholder farmer access to the regional market for food commodities and products.
- The Nigeria Livestock Productivity and Resilience Support Project (\$200 million IDA commitment) aims to increase the productivity, resilience, and commercialization of selected livestock value chains.
- The Democratic Republic of Congo Agriculture Productivity and Commercialization Project (\$150 million IDA commitment) aims to increase the productivity and improve market access of small farmers and small and medium-size agri-businesses in selected regions.
- The Tanzania Catalyzing the Future Agri-food Systems Project (\$100 million IDA commitment) aims to pursue the transformation of selected agri-food systems to yield higher revenues to farm households while becoming more resilient to climate change.

## Chapter 2 Creating Climate-Resilient Landscapes

### 2.1 Forested Landscapes

#### *Implementation Progress This Year*

The World Bank’s Africa Forest Landscapes Program addresses deforestation and forest degradation, the second-leading anthropogenic cause of global warming. The livelihoods of 400 million people in Africa depend on forest resources, highlighting the importance of forest loss as a development issue.

The Forest Landscapes Program promotes sustainable forest management in order to mitigate climate change, transform the livelihoods of forest-dependent people, and support vital ecosystem services. Its integrated approach allows stakeholders across sectors to plan together for sustainable development. Progress was made in several areas, as summarized in table 2.1.

**Table 2.1 World Bank support for forests and reducing emissions from deforestation and forest degradation (REDD+): Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"> <li>• Support for the development of national REDD+ strategies and implementation arrangements (legal framework, capacity building, governance structures, monitoring and verification systems, stakeholder engagements platforms, feedback and grievance redress mechanisms, and so forth)</li> <li>• Funding of early investments in demonstration activities in forest landscapes</li> <li>• Funding of performance-based payments for REDD+ and enhanced carbon stocks</li> </ul>	<ul style="list-style-type: none"> <li>• The Africa Forest Landscapes Program is scaling up efforts to improve forest sector planning and governance, piloting forest investments to address deforestation and forest degradation, and promoting sustainable forest management. Seventeen countries have active programs.</li> <li>• The Forest Carbon Partnership Facility has allocated more than \$128 million to 15 countries to support development of national REDD+ strategies and implementation arrangements. Seven countries are well advanced and have received endorsement from the Forest Carbon Partnership Facility on implementation arrangements.</li> <li>• The Central African Forest Initiative has allocated more than \$200 million to four countries for the development and implementation of national investment frameworks for REDD+, with the Bank as an implementing partner.</li> <li>• Ten African countries are benefitting from support from the Forest Investment Program.</li> <li>• Ten countries are preparing large-scale programs for performance-based payments for REDD+ and enhanced carbon stocks.</li> </ul>

Africa’s forest program is the most active at the Bank. It includes many countries that are working on REDD+ programs. These programs cover many of the diverse forest landscapes of the continent, from the dry woodlands of Burkina Faso to the lush tropical forests of the Congo

Basin; from the mixed-use agro-forestry landscapes of Ghana to the highland forests of Ethiopia; from the Miombo woodlands of Mozambique and Zambia to the island tropical forests of Madagascar, which are rich with endemic species. Most of the countries supported have large tracts of forest and recognize the importance of improving forest management as part of spurring economic development and mitigating the effects of climate change. The Bank is supporting their efforts to improve governance systems, address drivers of deforestation, and engage communities in improving practices with better benefit sharing.

The Bank is also helping countries access climate finance that can help them shift toward more sustainable practices. This finance supports three phases of activities:

- forest sector planning, governance, and consultation for REDD+ in 15 countries (Burkina Faso, Cameroon, the Central African Republic, the Republic of Congo, Côte d'Ivoire, the Democratic Republic of Congo, Ethiopia, Ghana, Liberia, Madagascar, Mozambique, Nigeria, Sudan, Togo, and Uganda)
- development of national REDD+ strategies and implementation arrangements in those countries
- implementation of an integrated portfolio of well-funded engagements on forests, landscapes, and biodiversity, notably in the Democratic Republic of Congo, the Republic of Congo, Ethiopia, Ghana, Liberia, Madagascar, Mozambique, and Zambia.

Success in addressing deforestation issues and accessing climate finance is sending a signal to other development partners and the private sector, which helps mobilize or leverage other forms of financing that can scale up good practices and sustain sector transformation. In 2016 the Initiative for Sustainable Forest Landscapes, together with the International Finance Corporation, Nespresso, and the nonprofit TechnoServe, launched a landmark collaboration project to support coffee farmers in Ethiopia in their efforts to combat the effects of climate change. The initiative aims to train 20,000 farmers on sustainability standards and bring 9,540 hectares of land into compliance with these standards over a three-year period. Efforts are also underway to engage multinational commodity traders and corporations in promoting zero-deforestation productions of various commodities, including cocoa, cotton, rubber, and shea butter.

The Forest Investment Program provides up-front bridge financing for readiness reforms and public and private investments to help countries adapt to the impacts of climate change and contribute to biodiversity conservation, protection of the rights of indigenous peoples and local communities, poverty reduction, and the enhancement of rural livelihoods. Three projects (in the Republic of Congo, Côte d'Ivoire, and Mozambique), valued at \$24 million each, are in preparation. Each country will also receive \$4.5 million to enhance the capacity of indigenous peoples and local communities to participate in REDD+. No resources are currently available to fund the investment plans of the remaining four countries (Cameroon, Rwanda, Uganda, and Zambia).

New streams of funding are being made available. One is the Central African Forest Initiative (CAFI), created to increase investments in the Congo Basin. The Democratic Republic of Congo has already accessed \$200 million for implementation of a national investment framework for REDD+. Cameroon, the Central African Republic, and the Republic of Congo received \$1 million each to develop such frameworks and potentially access funding to implement them. These investments are expected to substantially reduce greenhouse gases from deforestation and forest degradation, improve local livelihoods, enhance the functioning of ecosystems, and increase access to performance-based payments to reinvest in sustainable forest landscapes. These endeavors are putting clients in a position to access larger sources of financing through payment for performance, under the Forest Carbon Partnership Facility's Carbon Fund, the BioCarbon Fund's Initiative for Sustainable Forest Landscapes, and bilateral arrangements.

### ***Opportunities for Progress in the Future***

Several African countries are preparing country forest notes as part of the Bank's Forest Action Plan to help promote a programmatic approach to forests and enhance forest-smart development. Progress is expected in the development of national REDD+ strategies and implementation arrangements, with more countries expected to receive endorsement from the Forest Carbon Partnership Facility on their progress and others possibly receiving additional funding to boost this process. The Forest Investment Program is expected to approve investment plans under development. Further progress is expected in the development of large-scale performance-based REDD+ as more African countries are accepted into the Carbon Fund portfolio and others start implementation.

## 2.2 African Resilient Landscape Initiative

### *Implementation Progress This Year*

The Bank continues to support the African Resilient Landscape Initiative through country- and region-level projects. It is mobilizing financial and technical resources from multiple sources to help design and implement country- and region-specific integrated landscape-level strategies. Through the initiative, the Bank is supporting resilient landscapes in the Sahel, the Horn of Africa, and East and Southern Africa by combining geographical and socioeconomic approaches to managing land, water, and forest resources in support of food security and inclusive green growth. Connecting various types of land uses (including woodlands, agro-silvo-pastoral lands, croplands, rangelands, and irrigated agricultural lands) promotes productivity, resilience, carbon sequestration, biodiversity, water regulation and quality, national security, and regional stability. Progress was made in several areas, as summarized in table 2.2.

**Table 2.2 World Bank support for climate-resilient landscapes: Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"> <li>• Preparation and implementation of the Resilient Landscapes for Development Program in Eastern Africa and the Horn of Africa (Ethiopia, Kenya, Somalia, South Sudan, Sudan, and Uganda)</li> <li>• Preparation and implementation of sustainable landscape management in Ghana</li> <li>• Preparation and implementation of the Sustainable Agricultural Land Program in Madagascar</li> <li>• Preparation and implementation of the Agriculture and Natural Resources Landscape Management Program in Mozambique</li> <li>• Preparation and implementation of the Resilient Natural Resource Management for Growth Program in Tanzania</li> </ul>	<ul style="list-style-type: none"> <li>• The Bank submitted a programmatic framework for the Resilient Landscapes for Development Program in African drylands for consideration by the Green Climate Fund. It is preparing bilateral operations with Ethiopia, Kenya, Sudan, and Uganda:               <ul style="list-style-type: none"> <li>○ In Ethiopia a project to improve livelihoods, climate resilience, carbon storage, and land productivity in vulnerable rural major watersheds is under preparation, funded by \$100 million from IDA and other sources.</li> <li>○ In Kenya and northern Uganda, operations to address increased pressure on land resource from refugee influxes are in the early preparation stage.</li> <li>○ In Sudan a \$7.31 million proposal is awaiting approval from the Global Environment Facility (GEF).</li> </ul> </li> <li>• A \$12.8 million project in Ghana, funded by the GEF, is under implementation, with a potential for further scale-up.</li> <li>• A project in Madagascar is under implementation, funded by \$78.6 million from IDA and the GEF and €25 million in joint co-financing from the AfDB.</li> <li>• A \$40 million project in Mozambique is under implementation, funded by IDA.</li> <li>• A \$150 million IDA funded project in Tanzania has been approved by the World Bank board in September 2017</li> <li>• The Board approved an integrated forest landscape project for Zambia, with \$25 million in funding from IDA and the GEF.</li> </ul>

The Bank is in the process of implementing all but one of the projects originally envisaged for this component. The project in Zambia is in the advanced preparation stage and will be under implementation in early 2018.

### **Box 2.1 Success stories: Supporting integrated landscapes in Madagascar and Mozambique**

#### **Madagascar's Sustainable Landscape Program**

Deforestation is one of the main causes of land use change in Madagascar. Reduction of the forest cover and degradation of the remaining forests threaten development and are a significant source of greenhouse gases. They also jeopardize the resilience of the majority of the population, whose livelihoods rely on soils, forests, and the services they provide.

In March 2017, the Bank approved a \$107 million Sustainable Landscape Management Project, co-financed by the French Development Agency and the Global Environment Facility. The project seeks to promote integrated planning and management of natural resources in a large territory to address the interrelated causes and effects of land degradation in a more holistic manner.

In parallel, Madagascar is preparing its REDD+ program as a means of financing and expanding this landscape approach. It is preparing an Emissions Reductions Program Document (ERPD) for consideration by the Forest Carbon Partnership Facility Carbon Fund. The program will include potential payment for emissions reductions of up to \$50 million by 2022. It is closely linked with the Sustainable Landscape Management Project, which will invest in the same geographic area.

#### **Integrated Landscape and Forest Management Portfolio in Mozambique**

To promote sustainable rural development in Mozambique, the Bank is supporting the Integrated Landscape and Forest Management (ILFM) Portfolio, with funding of more than \$200 million. The approach brings stakeholders together around a common vision for managing trade-offs across land use sectors in an area.

### ***Opportunities for Progress in the Future***

Several new operations should be ready for approval in 2018. Preparation of a landscape restoration project in Burundi is at an advanced stage; it will be funded by \$50 million from IDA and \$13.5 million from the Least Developed Countries Fund. In Malawi an operation for transforming the Shire Valley (building on an earlier operation in the Shire basin) is ready for Board approval. Operations at earlier stages of preparation include projects in Burkina Faso, The Gambia, Guinea Bissau, Nigeria, and Senegal.

Two opportunities are at the exploratory stage. The first is the scale-up of the Sahel and West Africa Program in support of the Great Green Wall Initiative (SAWAP), which is at the advanced implementation stage in 12 countries. Ethiopia is already considering or preparing follow-up activities. The second is the crafting of investment plans by countries based on their commitments under the Africa Forest Landscape Initiative (AFR100) and the Bonn Challenge.

## Chapter 3 Promoting Integrated Watershed Management

### 3.1 The Niger River Basin

#### *Implementation Progress This Year*

The Niger basin is one of the most important transboundary basins in Africa. Its active hydrographic basin is 1.3 million square kilometers, spanning the territory of nine countries (Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Guinea, Mali, Niger, and Nigeria). Its rapidly growing population of 130 million is expected to reach 180 million by 2025. Mali, Niger, and Nigeria account for almost 90 percent of the basin's population and 70 percent of its territory. Although the area is urbanizing, 55 percent of the population in the basin is rural, except in Cameroon and Nigeria. The basin includes the capitals of Mali, Niger, and Nigeria.

Two critical development challenges are closely tied to the Niger River. The first is water scarcity, which impedes the expansion of irrigation, hydropower, and navigation and requires collective action to optimize resource use. The second is the highly variable rainfall and flow levels, which threaten lives and livelihoods and create conflict during times of drought.

Climate change is expected to compound the challenges the basin's economic and social systems face. Temperatures may rise by at least 2°C, likely more, and the range of future precipitation conditions is wide (from a 40 percent decrease to a 40 percent increase). Most models agree that climate change will affect water resources by changing precipitation patterns in unpredictable ways, including shifting the onset of the rainy season and shortening the length of the rainy season, significantly increasing interannual precipitation variability and possibly increasing the intensity and frequency of extreme events, such as floods and droughts. All changes in how and when rainfalls occur will significantly modify the dynamics of the river itself and increase water-related hazards, both of which will pose challenges for the population in the basin. Existing coping mechanisms and livelihoods strategies will most likely be insufficient to deal with these changes.

Climate change pressure increases the chance of political instability and local conflict emerging from heightened competition over scarcer natural resources. Tension over resources has already ignited deeply rooted ethnic conflicts, which escalate local problems into widespread violence and state conflict. Migration of pastoralists, for example, will change as the climate changes, exacerbating fragility and conflict in the region. Seasonal and circular migration have emerged as adaptation strategies to the highly variable climatic conditions in the basin. Herders typically graze their livestock in the north during the wet season and move south during the dry months. Some farmers and herders also move in search of short-term employment to supplement incomes and diversify their skills. Seasonal labor migration occurs, for example, from the arid parts of Mali and Niger to plantations and mines on the coast of Côte d'Ivoire, Ghana, and Nigeria. In the inner delta region of Mali, it is estimated that a third of the rural workforce migrates from rural areas to cities each season in search of jobs. As population grows and climate changes, the pressure for circular migration will increase and scarce resources will

become increasingly overtaxed. Conflict between pastoralists and farmers is expected to rise, and access to village water supplies is expected to decline.

Building climate resilience is integral to securing livelihoods and advancing development goals. Without new coping mechanisms and resilience strategies, the goals of reducing poverty and boosting shared prosperity are threatened. The lack of adequate information, knowledge, governance, infrastructure, and financial resources, combined with existing fragility, extreme poverty, open conflict, and the Ebola crisis undermine countries’ abilities to prepare for and respond to climate-related shocks and long-term risks.

Recognizing the benefits of a coordinated approach, the Niger Basin countries—led by the Niger Basin Authority (NBA) and supported by the Cooperation for International Waters in Africa (CIWA) program, the World Bank, and the AfDB—joined forces in 2015 to develop a Climate Resilience Investment Plan (CRIP). The Plan consists of 246 resilience-building investments, with an estimated cost of \$3.1 billion. Prioritized within existing regional and national development plans, the investments include climate insurance for farmers, gender policies to free up more productive time, anti-erosion and anti-silting measures to protect lands, rehabilitation of water storage structures to preserve supplies, and improved flood protection. These interventions at the transboundary, national, and community levels will help the region improve its ability to reduce risks and develop amid a changing climate. Progress was made in several areas, as summarized in table 3.1.

**Table 3.1 World Bank support for the Niger River Basin: Progress at a glance**

Activity	Progress made by September 2017
<ul style="list-style-type: none"> <li>• Engagement in a consultative process to prepare a Climate Resilience Investment Plan (CRIP)</li> <li>• Hosting of donor roundtables</li> <li>• Technical activities related to investment preparation</li> </ul>	<ul style="list-style-type: none"> <li>• The Bank and nine country counterparts identified a priority set of interventions based on the CRIP for the Niger basin presented at COP21. The bottom-up exercise identified 122 projects, at an estimated cost of \$1.9 billion.</li> <li>• The Bank is finalizing preparation for lending operations that will implement important aspects of the CRIP, including the Sahel Irrigation Initiative Support Project, scheduled for Board approval in December 2017, and the Economic and Environmental Rehabilitation of the Niger River (Mali) project, focusing on the Inner Delta. The Regional Niger Basin Resilience Project is still at the identification stage.</li> </ul>

The Niger basin CRIP was launched at COP21 to highlight climate change adaptation investment needs in the basin and to gather support for securing investment finance. Taking a basin-wide approach to climate-resilience planning is considered the best practice, but it is not easily or

widely implemented. The projects included in the CRIP seek to bolster resilience in a wide variety of ways:

- adapting farming calendars and crop types to a new climate context in Benin
- providing climate insurance for farmers in Burkina Faso
- adopting anti-erosion and anti-silting measures to protect cultivable lands in Mali
- restoring fallow land and promoting agroforestry in Niger

The Niger Basin Authority member states vetted each investment in the plan, through a comprehensive consultative process with multisector participation, strategically coupled with exercises to build local capacity. In June 2016, the AfDB held a donor roundtable to marshal donor support for a subset of the CRIP.

The World Bank is working closely with clients to prepare an investment project to address some of the needs identified in the investment plan, with a notional \$425 million funding envelope, expected to be funded through IDA credits. In support of countries' efforts to mobilize resources for the investment plan, the Bank and the CIWA program supported a series of technical assistance workshops and exchanges with the nine Niger Basin countries to improve technical capacity for climate resilience and adaptation.

In 2017 the Niger Basin Authority and its members continued to work with projects and proposals to package investments targeted at specific funding sources, including the private sector. The priority set of interventions includes 123 projects for a total of \$1.9 billion. These projects include rehabilitation of hydraulic infrastructure, improvement of monitoring and early-warning systems, restoration of watersheds, development of agro-forestry, and institutional support.

### ***Opportunities for Progress in the Future***

The World Bank is preparing investment support options that will finance many of the actions identified in the CRIP. The AfDB project, which will finance a further subset of the CRIP actions, will be finalized.

## 3.2 The Lake Victoria Basin

### *Implementation Progress This Year*

The Lake Victoria basin is a major population hub and a natural asset of global importance. It covers about a ninth of the land area of the East African Community but is home to about a third of its population below the poverty line. The lake supports the world's largest freshwater fishery, providing livelihoods for 3 million people. Large rural populations also depend on fragile lands in the upper catchment, particularly in Burundi, Rwanda, and the Kenya highlands. Protected areas cover 25 percent of the basin's land area and include some of the most iconic parks in Africa, such as Serengeti and Virungas.

The Lake Victoria basin is also globally renowned for environmental degradation. Introduction of the Nile perch in the 1950s was associated with the mass extinction of endemic native fish species; perch stocks themselves have now declined to less than half their peak levels, as a result of increased fishing and other environmental stresses. Loss of forest cover and erosion of soils has had chronic impacts on agricultural productivity, and the flow of sediments and other pollutants into the basin's rivers and ultimately the lake reduces access to potable water and causes algal blooms that are noxious to lakeshore communities and limit tourism potential. Periodic infestations of water hyacinth block access to kilometers of lakeshore, preventing its use for transport and fishing and posing serious health and safety risks to local inhabitants.

Climate change and environmental stresses are mutually reinforcing. Land degradation and loss of natural habitats exacerbate the impacts of rainfall extremes both upstream (through reduced retention of soil moisture and nutrients) and downstream (through siltation, flooding, and gully formation). Climate change effects on fisheries are likely to exacerbate the impacts of overfishing and pollution through stresses on key nursery grounds and changes in the thermocline and nutrient cycles. Inadequate urban waste management increases the risks of, and from, flooding through blockage of storm drainage channels and polluted floodwaters.

To reduce a range of environmental pressures and improve the welfare of its inhabitants, the Lake Victoria Environment Management Program (LVEMP) works in all five countries in the basin. Activities are being implemented across three main components: (a) strengthening institutional capacity for managing shared water and fisheries resources, (b) reducing point source pollution control and prevention, and (c) improving watershed management. The objective is to expand investments in the basin and more explicitly address a range of climate challenges. Doing so will involve preparation of a new phase of the LVEMP and a Lake Victoria Basin Climate Resilience Strategy. Progress was made in several areas, as summarized in table 3.2.

**Table 3.2 World Bank support for the Lake Victoria basin: Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"> <li>• Assessment of climate risk of the Lake Victoria basin</li> <li>• Provision of support to sustainable land and water management, including climate-smart agriculture and sustainable rural energy systems</li> <li>• Protection of the ecological infrastructure, including riparian buffer zones, wetlands, forests, water towers, national parks, and fish nursery grounds, and monitoring of climate-related processes affecting the lake's ecology (for example, water hyacinths and water quality)</li> <li>• Promotion of resource-efficient production systems and green and resilient livelihoods with the private sector</li> <li>• Improvement of hydro-met services and strengthening of infrastructure resilience, including maritime safety, lake transport infrastructure, and urban storm water management</li> </ul>	<ul style="list-style-type: none"> <li>• Climate-resilience assessment studies and other basin diagnostics are under preparation that will lay the foundation for the next investment phase of the Lake Victoria Environment Management Program (LVEMP).</li> <li>• More than 600 community-based watershed management subprojects have already restored nearly 950 hectares of wetlands and 2,000 of forest, and 8,750 farmers have adopted soil and water conservation measures under climate-smart agriculture practices.</li> <li>• The Bank approved the first phase of the Lake Victoria Transport Program in Rwanda. Subsequent phases in Tanzania and Uganda are under preparation. The program will support maritime safety on the lake, climate-resilient port infrastructure, and access to ports and lakeside communities.</li> </ul>

The LVEMP is piloting investments that help address a range of climate vulnerabilities. The program covers more than 600 community-based watershed subprojects, and others are under development. They are diversifying sustainable livelihoods; introducing soil and water conservation/climate-smart practices in agriculture; and protecting key ecological infrastructure through the restoration of forests, wetlands (including lakeshores), and riverbanks. Complementary activities are typically implemented together. Reforestation of riverbanks, for instance, is being implemented together with promotion of beekeeping, to generate income and provide protection from livestock, and promotion of stall-fed cattle is being promoted alongside bio-digesters.

The point-source pollution management component of the project focuses on improving wastewater management, including through the rehabilitation of six water treatment works. It is also providing public sanitation facilities, including construction of about 70 toilets, and dredging and maintaining stormwater drains in Kampala. The Resource-Efficient and Cleaner Production (RECP) program component of the effort is helping private companies reduce resource use (particularly of water and energy) and waste production.

The Bank approved the first phase of the Lake Victoria Transport Program in Rwanda; phases in Tanzania and Uganda are under preparation. The program will support maritime safety on the lake; climate-resilient port infrastructure; and improved access to ports, lakeside communities, and islands.

**Box 3.1 Success story: The Resource Efficient and Cleaner Production (RECP) Program in Lake Victoria**

Resource Efficient and Cleaner Production (RECP) is a small but very successful component of the Lake Victoria Environment Management Program. The \$4 million allocated to awareness and training of industries and in-factory assessments has directly leveraged more than \$80 million in private sector investments in improved environmental practices. A survey of 30 of the leading partner firms revealed that each was investing about \$1 million in RECP technologies as a direct result of the technical assistance provided and that these investments had typical payback periods of about two years (equivalent to an internal rate of return of about 35 percent). Major cost savings to industries have come from reduced water and energy expenditures, but significant reductions in waste and effluent have also been achieved.

Protection of ecological infrastructure (forests, riparian buffers, wetlands) under the program has increased local appreciation of the benefits of environmental rehabilitation within the Lake Victoria basin. Lakeshore restoration efforts have taken place around both the Rwandan and Burundian shores of Lake Rweru. The revegetated buffer zones provide a range of direct benefits to local communities (such as fodder and honey production) and are credited with large increases in fish production.

Lakeshore communities in Burundi initially opposed the project, because they thought it meant giving up land. They are now very happy with it, because their fish catches have reportedly increased eightfold and their agriculture become more diversified. Easing of political tensions between Burundi and Rwanda could increase the scope for direct cooperation in the management of this transboundary lake.

***Opportunities for Progress in the Future***

The transport project and the LVEMP are coordinating with and complementing each other to manage climate and environmental risks to and from transport development and to support resilient rural livelihood development through both sustainable natural resources management and improved market access. Funding from UKAID (via the Corridors for Growth Trust Fund, administered by the World Bank) will support and inform the preparation of the regional transport program. Some of the funds will be used to assess climate risks to the lake, including (a) the probability of rapid changes in lake levels (and their impacts on coastal infrastructure,

navigation safety, and key aquatic ecosystems); (b) the effect on water quality; (c) the effect on fish trade infrastructure and value chains; (d) additional climate impacts on aquatic ecosystems, including risks from invasive species; and (e) climate vulnerabilities within the basin more broadly, particularly impacts on rural livelihoods and flood risk.

Analytical work to be partially supported by the Corridors for Growth Trust Fund and/or other funds will provide the platform for the design of much larger basin rehabilitation and resilience investments. Development of this program will include the following components:

- preparation of a climate-resilient development strategy for the Lake Victoria basin
- expansion and development of more systematic programs of sustainable land and water management (in addition to climate-smart agriculture, interventions could include sustainable rural energy systems to reduce pressure on forests from unsustainable wood fuels)
- protection of ecological infrastructure, including riparian buffer zones, wetlands, forests, water towers, national parks, and fish nursery grounds
- partnering with the private sector to promote green industries
- enhancement of hydro-met knowledge and forecasting services for improved disaster response and infrastructure resilience (including flood risk management and navigation safety).

A \$3.2 million grant from the Nordic Development Fund to expand the RECP program to at least 50 companies (including small and medium-size enterprises) is in the final stages of approval. The Bank expects it to leverage more than \$30 million of private investment. In addition to supporting ongoing activities, the program will lay the groundwork for expanding the scope of engagement with the private sector. Strengthening environmental regulation and disclosure systems will also enhance incentives for businesses to engage with the RECP program. The grant will also analyze opportunities and initiate pilots to work with industries in the basin on greening their supply chains. The intention is to move beyond in-factory measures to mobilize the private sector in support of sustainable and climate-smart land management.

## Chapter 4 Fostering Climate-Smart Ocean Economies in Africa

### Implementation Progress This Year

The Bank is supporting ocean economies in Africa centers through provision of:

- technical assistance and reimbursable advisory services
- investment project finance and fund program-for-results (PforR) operations in support of pilot fisheries, and climate-resilient livelihood projects

Progress made these areas is summarized in table 4.1.

**Table 4.1 World Bank support for climate-smart ocean economies: Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"> <li>• Provision of technical assistance and reimbursable advisory services</li> <li>• Provision of investment project finance and fund program-for-results (PforR) operations in support of pilot fisheries, and climate-resilient livelihood projects</li> </ul>	<ul style="list-style-type: none"> <li>• The Bank provided technical assistance in a variety of areas, including helping regional commissions monitor fisheries and incorporate climate variations into the scientific evidence governing fishery management to inform national investment plans.</li> <li>• The Bank supported the preparation of climate-smart Blue Economy development plans for Mauritius, the Seychelles, and Togo. Seychelles is planning to publish its Blue Economy Roadmap by the end of FY18.</li> <li>• The Bank published <i>Investment Prioritization for Climate-Resilient Livelihoods and Ecosystems in the Coastal Zones of Tanzania</i>, the recommendations of which are being implemented by various investment projects.</li> <li>• The Bank made \$94.25 million in direct investments in the climate-smart ocean economy in 2017, 42 percent of the \$220 million target set for 2020.</li> </ul>

Regional commissions in charge of fisheries started supporting regionally coordinated investment plans for climate-resilient fisheries and coastal livelihoods. In West Africa, the Sub-Regional Fisheries Commission adopted a regional dashboard to facilitate the exchange of information and the monitoring of climate change on fisheries. In East Africa, a Working Party on Collaboration and Cooperation in Tuna Fisheries is in place, managed by the South West Indian Ocean (SWIO) regional fisheries body.

The Bank is providing technical assistance to the fisheries sector in Somalia. This assistance will help the government enhance the development impact of domestic policies and development partner interventions, by improving the understanding of socioeconomic realities and political economy constraints; promote basic accountability, by providing better information on the availability and use of public resources (including from development partners); and revitalize the strategic planning process, through tailored support to federal and federal member state governments as well as engagement with a broader set of stakeholders.

In the short term, the Bank's technical assistance will help the government identify revenue streams from fisheries and establish a clear, comprehensive, and robust fisheries management regime at both the federal and state levels. Longer-term activities will focus on developing national fisheries, including offshore and coastal artisanal fisheries, and coastal livelihoods, by improving landing facilities, transportation systems, and value-added processing.

#### **Box 4.1 Success story: Recording fish landings in Liberia and Sierra Leone**

Liberia and Sierra Leone have piloted an innovative, cost-effective, customized monitoring control and surveillance technology tool to enhance national capacities to curtail illegal, unregulated, and unreported fishing. The West Africa Regional Fisheries Program (WARFP) introduced a smartphone application that allows users to record data on fish landings from vessels using the Automatic Identification System (AIS) as well as other vessels. The application was developed in coordination with the selected communities and tailored to the species and landing systems used.

The data collected are transferred to and stored on a cloud server available to fisheries administrations and research scientists for analysis. Members of community management association have been trained to use the application and carry out the data logging from their landing beaches. The application allows fisheries planners to create heat maps of activity by species and volume in order to identify the most used and valuable areas of the ecosystem and craft plans for future management.

Since 2010, the Bank's West Africa Regional Fisheries Program (WARFP) has invested \$174 million in sustainable contributions of fisheries to wider economic growth in eight West African countries, with the proactive support of the Sub-Regional Fisheries Commission. The program's achievements include a drastic reduction in illegal fishing by foreigners, improved livelihoods at pilot community-led fisheries management sites, and a modernized governance framework.

During 2017 WARFP completed construction of the Mesurado Pier at the free port of Monrovia, Liberia and built a landing site at Robertsport. It also supported renovation of the Bureau of National Fisheries and community centers in King Gray, Banjur, and Kru Town.

The World Bank-funded South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish) has invested \$105 since its inception. It operates in 11 countries, in coordination with the Indian Ocean Commission, the West Indian Ocean Fisheries Commission,

and the Indian Ocean Tuna Commission. The objective of the program is to increase the economic, social, and environmental benefits of sustainable marine fisheries to countries in the South West Indian Ocean.

Tanzania has started the research component of the project, which focuses on understanding fish stocks, connectivity, the status of the fishery, and its social implications for coastal communities. It has completed coral reef monitoring at several sites and is reviewing laws, legislations, and acts. Both the Mainland and Zanzibar conducted their surveys, updating information about fishing fleets, the number and types of gear, and other information that can help improve the management of fisheries. The working groups for each of the priority fisheries have been regularly meeting and identifying priority activities. Consultancies to support the government in the value addition (mari-culture scoping, value chain addition of several key fisheries, private sector development, and fisheries enterprise surveys) have all been launched. The Deep Sea Fishing Authority (DSFA) purchased and installed a state-of-the-art vessel monitoring system. It monitors, controls, and surveils Tanzania's economic exclusion zone. DSFA has also trained scientific observers, who will be placed on vessels to monitor catch.

Tanzania completed the study *Investment Prioritization for Climate-Resilient Livelihoods and Ecosystems in the Coastal Zones of Tanzania*, which describes current and future challenges to coastal areas and prioritizes actions to promote sustainable coastal livelihoods and ecosystems. Recommendations from the study are being implemented by various investment projects, such as SWIOFish.

The \$35 million Kenya Coastal Development Project, approved in 2010, closed in June 2017. The project increased revenue generation of the fisheries sector; improved governance, through the installation of a vessel monitoring system, the development of fisheries management plans, improved fisheries infrastructure, and enhanced community livelihoods.

In September 2017, the Bank approved the SWIOFish3 project in Seychelles. The objective of the project is to improve the management of marine areas and fisheries in targeted zones and strengthen fisheries value chains in the Seychelles. The country and its partners are making strong progress toward issuing the world's first "Blue Bond," the proceeds of which will help finance improvements to fisheries and marine environment management as well as the resilient development of the country's Blue Economy.

The Bank and the government of Mauritius launched the report *The Ocean Economy in Mauritius: Making it Happen, Making It Last* in October 2017. The report assesses the potential of fisheries and aquaculture, marine information and communications technology, renewable energy, and ports; and outlines a three- to five-year action plan that identifies possible investment scenarios for the future in priority sectors.

## **Opportunities for Progress in the Future**

Substantial opportunities exist for further development in 2018. SWIOFish1 will provide on-the-ground support to local fishing communities in Mozambique, as well as climate-resilient fishing infrastructure in line with the Fisheries Infrastructure Master Plan, which will also be developed in early 2018.

In Tanzania, SWIOFish envisages the development of a value chain for fish captures, in order to allow fishers to depend less on the direct sales of fish and more on elaborated products, which can be handled, stored, and sold when the conditions are right. The project is also exploring mari-culture options, which could be more resilient to the impacts of climate change.

In Mozambique the First Artisanal Fisheries and Climate Change Project (FishCC1) will support the development of site-specific fisheries management plans, including no-take zones, at selected sites in 2018. These actions, accompanied by sustainable income-generation projects, are expected to improve the overall socioeconomic and environmental resilience of targeted communities, including resilience to climate change-related risks.

The experience in FishCC is being used to mobilize additional resources for similar initiatives in Mozambique, such as the Coastal Resilience to Climate Change Nature-Based Solutions for Building Resilience in Vulnerable and Poor Coastal Communities in Mozambique Project, funded by Sweden. The project, expected to cost about \$8 million and to become effective by December 2017, will be implemented by the International Union for Conservation of Nature (IUCN), RARE, and the National Institute for Fisheries and Aquaculture Development (IDEPA). It is expected to complement FishCC activities at two project sites and expand a similar approach to one additional district.

The Bank is preparing the Kenya Marine Fisheries and Socioeconomic Development Project, which will support the government of Kenya in implementing its Blue Economy agenda. By building on the outcomes achieved under the recently closed Kenya Coastal Development Project, the project is expected to (a) strengthen governance and management of marine fisheries and aquatic resources. (b) promote investment in marine fisheries and coastal aquaculture. and (c) strengthen marine fisheries and aquaculture-based livelihoods in coastal communities. The \$100 million project is expected to be approved in FY19.

## A2: Physical Capital

### Chapter 5 Developing Climate-Smart Cities

#### Implementation Progress This Year

The World Bank is supporting climate and disaster-resilient development in selected Sub-Saharan African cities through policy dialogue, technical assistance, and investment financing. Stronger capacity for integrated risk management is expected to benefit 30 cities and about 62 million people.

Efforts have moved beyond technical assistance toward dedicated financing in three areas: (a) capacity building; (b) resilient infrastructure, buildings, and services; and (c) partnerships and city networking for knowledge sharing. Current urban resilience efforts in Africa include raising awareness, resilience planning, and better preparedness to disasters, as summarized in table 5.1. Additional funding will be needed to prepare and implement resilience plans in many other cities of Sub-Saharan Africa.

**Table 5.1 Support to climate-smart cities: Implementation progress at-a-glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"><li>• Provision of \$50 million in technical assistance for 30 cities</li></ul>	The Bank supported the completion of local resilience planning and capacity-building activities in 14 African cities. Planning activities are ongoing in more than 100 Ethiopian cities, and Kinshasa, Democratic Republic of Congo.
<ul style="list-style-type: none"><li>• Investment of \$2 billion to support climate- and disaster-resilient development in 30 cities</li></ul>	The Bank invested (or will invest in FY18/19) \$1.4 billion in support of climate- and disaster-resilient development in cities in five countries, including \$900 million in two large metropolitan areas in the Democratic Republic of Congo and Ghana.

Bank technical assistance took many forms:

- In the Greater Accra region and Ethiopian cities, it helped increase urban resilience planning through city strength diagnostics, urban disaster risk management, and poverty studies. The Climate Actions for Urban Sustainability CURB tool was used to improve low-carbon development.
- In Antananarivo the Bank conducted urban poverty and resilience studies.
- In Dar es Salaam it provided support for emergency preparedness and response.
- In 11 regional capitals of Ethiopia, it supported urban resilience planning and implemented city strength diagnostics.

- In the Democratic Republic of Congo, Kenya, Sierra Leone, Tanzania, and Uganda, it conducted resilience planning activities.

Out of the target of investment in resilience-building activities in nine large cities, operations are ongoing in five countries and planned in two others (in the Democratic Republic of Congo and Ghana). Table 5.2 describes ongoing investments.

**Table 5.2 Ongoing World Bank investments in smart cities in Africa**

City	Project name	Purpose	Size of investment (millions)
Dakar, Senegal	Storm Water Management and Climate Change Adaptation	Flood prevention and preparedness	\$61
Dar es Salaam, Tanzania	Metropolitan Development	Institutional and urban management systems	\$75
Ibadan, Nigeria	Ibadan Urban Flood Mitigation	Flood risk mitigation preparedness	\$200
Several cities in Mozambique	Cities and Climate Change	Flood risk mitigation preparedness	\$85
Several cities in Niger	Niger Disaster Risk Management and Urban Development	Flood risk mitigation preparedness	\$106

The Bank is a part of the Medellin Collaboration on urban resilience and has been working closely with international partners, including the Cities Alliance, UN Habitat, the Global Facility for Disaster Reduction and Recovery (GFDRR), the Global Environment Facility (GEF), the Rockefeller Foundation and its 100 Resilient Cities initiative, the International Council for Local Environmental Initiatives (ICLEI), the C40 Cities Climate Leadership Group, German Corporation for International Cooperation (GIZ), and the French International Development Agency (AFD).

**Box 5.1 Success story: Strengthening resilience in Greater Accra**

The World Bank first supported resilience planning in the Greater Accra Region after the devastating floods of June 2015, which affected 52,622 people and caused leakage at a filling station that resulted in an explosion that left 150 casualties. Beyond the toll on human life, damage to housing, transport, water, and sanitation totaled \$55 million, and rebuilding costs were estimated at \$105 million.

The Greater Accra Region is one of the fastest-growing city regions in West Africa. Because expansion was mostly unplanned, the rate of growth has exceeded the availability of housing and basic services, and traffic congestion has led to long commuting times. These

challenges make the city susceptible to disasters, including floods, sea-level rise, and fire, and building collapse. The effects of climate change will exacerbate these vulnerabilities, increasing the frequency and intensity of floods and driving rural–urban migration because of droughts in the northern parts of Ghana.

Following the 2015 floods, the government of Ghana requested support from the World Bank to better understand the risks facing the Greater Accra Region and to develop a strategic action plan for resilience. Using the City Strength methodology, the Bank and the government jointly undertook resilience planning activities to understand exposure to risks, the level of resilience, and ways of improving the performance of urban systems. The methodology focused on dialogue among key stakeholders—such as different levels of government, civil society, residents, and the private sector—to evaluate the level of resilience of Greater Accra Region. It first identified the main shocks and stresses, including their spatial distribution patterns, and evaluates their impact to key sectors. Then, taking a holistic approach, it brought the findings together and identified cross-sectoral linkages to assess the resilience of the city. The end result of the process was a prioritized list of structural and nonstructural actions to enhance the overall resilience of the city and increase the resilience-building potential of planned and aspirational projects.

The Greater Accra Resilient and Integrated Development (GARID) project is now being prepared. It will serve as a catalytic intervention for a broader set of investments. IDA plans to provide \$150 million for this project; the role of other donors and potential private investors is being explored. Given the magnitude of the challenges, the project will follow a phased approach to gradual improvement of drainage and solid waste management in one watershed basin. The focus will be on improving the resilience and living conditions of low-income urban dwellers.

### **Opportunities for Progress in the Future**

The Bank plans to support various urban resilience projects with technical and financial assistance from the new City Resilience Program, established by the Bank’s Global Practice for Social, Urban and Rural Development, and Resilience (GSURR) and the GFDRR.

In FY18 GSURR teams, in collaboration with the Bank’s Poverty Global Practice and a GFDRR-led economist group, will seek GFDRR financing for studies to better understand the poverty impact of disaster and climate risk on the urban poor. GSURR teams will support cross-sectoral engagements with city leadership on long-term resilience planning and investment, with a focus on crowding in resilience financing from development partners, the private sector, and the World Bank Group.

Many coastal cities in Africa are experiencing rapid erosion and increasing exposure of populations to natural hazards and the effects of climate change. With support from GFDRR, in

FY18 GSURR will launch the CityCORE Africa Project, under the umbrella of the West Africa Coastal Adaptation (WACA) program. Through this initiative, the GSURR team will work closely with the Environment Global Practice to improve the capacity of coastal cities to make their people and economies less vulnerable and more resilient to the natural hazards they will experience. The CityCORE Project will seek support from and contribute to the GFDRR and the World Bank's City Resilience Program, working on city resilience in the context of the specific needs of Africa coastal cities. With support from the GFDRR, the Bank will seek to deepen resilience in coastal cities in Kenya, Mauritania, Mozambique, Nigeria, Senegal, Sierra Leone, and Tanzania by leveraging an additional \$100 million a year in investments from IDA and bilateral development partners starting in FY19. Planned efforts include a \$150 million project on resilient infrastructure, upgrading, and safety nets in informal settlements and support for urban governance in Kinshasa; a \$150 million program that will support drainage and flood management, informal settlement upgrading, and solid waste management in Greater Accra; and \$600 million performance for results operation to improve resilience for all 117 urban areas in Ethiopia.

## Chapter 6 Strengthening the Climate Resilience of Coastal Zones in West Africa

### Implementation Progress This Year

The West Africa Coastal Areas Management Program (WACA) was created in direct response to West African countries' requests to tackle the increasing perils of coastal erosion and flooding while better tapping the potential of the Blue Economy. The program uses a mix of technical assistance and investments to strengthen the capacity of countries to increase the resilience of their coastal assets against climate and other natural hazards. It is designed to support the preservation and rehabilitation of natural coastal resources.

The program cooperates with the West African Economic and Monetary Union (WAEMU), the Secretariat of the Abidjan Convention, the Ecological Monitoring Center (CSE), and the International Union for Conservation of Nature (IUCN). It builds on existing analysis, particularly the West Africa Coastal Management Scheme (IUCN and WAEMU 2010; MOLOA 2015). This knowledge base has been complemented by analysis of stakeholders, risks, economics, communications, and sediment transport sponsored by the Nordic Development Fund and the World Bank's Water Sector Program.

The Bank is leveraging or coordinating resources from development partners, including the Nordic Development Fund (NDF); GIZ (under the Climate Investment Readiness Partnership for Africa [CIRPA] program); the Global Facility for Disaster Reduction and Recovery (GFDRR); the French Ministry for the Ecological and Inclusive Transition; the U.S. Agency for International Development (USAID); and the European Space Agency ESA). Outreach is ongoing with other development partners, including the African Development Bank, the European Union, the Global Environment Facility, and the Green Climate Fund. Progress was made in several areas, as summarized in table 6.1.

**Table 6.1 World Bank support for addressing coastal erosion in West Africa: Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"> <li>• Provision of technical assistance for national and regional policy dialogue, stakeholder engagement, assessment of the cost of coastal degradation, generation of data and knowledge for adaptive coastal management, development of decision-making tools, and the preparation of climate-resilient coastal development and investment plans.</li> <li>• Investment in hard and green infrastructure, including constructing of transportation networks,</li> </ul>	<ul style="list-style-type: none"> <li>• The Bank worked with four countries on completion of their WACA multisector investment plans.</li> <li>• The Bank is developing a framework for community-driven resilience planning for people whose lives and livelihoods are in danger as a result of climate change.</li> <li>• The Bank completed pre-appraisal of investment needs in hard and green</li> </ul>

Activity	Progress made in year ending September 2017
<p>piers, artificial reefs, groins, and other erosion and flooding management infrastructure and transportation networks (hard infrastructure) and the preservation and expansion of green or natural infrastructure (mangroves, sand dunes, vegetation, coastal aggregates, coastal forest, lagoons and coastal swamps, water plants, and so forth) that provide services that manage coastal erosion and flooding (green infrastructure).</p>	<p>infrastructure in Benin, Côte d'Ivoire, Mauritania, São Tomé and Príncipe, Senegal, and Togo.</p>

### Box 6.1 Promoting community-led resilience planning in Africa

One-third of West Africa's population lives in coastal zones where they are vulnerable to the high risks of climate change impacts and natural hazards. Unplanned settlement patterns, over-exploitation of coastal resources and degradation of coastal and watershed ecosystems are among the factors adding to vulnerability. Climate change, sea-level rise, and damage from storm surges compound these risks. For vulnerable communities living along the coast of West Africa, the impacts of climate change are not only unavoidable, but are already happening. Coastal erosion and flooding have affected the lives of about 13 million people in cities and villages in the coastal areas between Mauritania and Gabon in the past 17 years. During this period, 109 flood-related events in these countries killed more than 2,000 people. The Bank is developing a community-led planning and decision-making framework in partnership with the WACA West Africa countries to ensure that any risk management or adaptation options, including potential planned voluntary relocation resilience planning, is a pro-poor, people-centered process in which communities drive the decision making.

Rather than provide prescriptive instructions, the community-led resilience planning framework will walk stakeholders through the inputs needed to make decisions, the questions to consider regarding who needs to be involved, and how to assess and identify the resources needed. From there, it will develop guidance around different potential pathways. The framework includes such activities as:

- awareness raising on climate risk with highly vulnerable communities;
- participatory risk assessments and scenario development;
- socio-environmental monitoring for decision making and risk management;
- organizational and preparedness activities for disaster risk management;
- workshops on adaptation options;

- visioning/planning on safe and resilient communities, etc.

Where coastal retreat, or planned relocation is identified by communities as a viable option, WACA would support a participatory process for relocation planning and decision-making. Past experiences have demonstrated the substantial challenges of moving people from vulnerable areas. It is a complex process fraught with social risk. There is much information to consider, and complex, deeply rooted issues related to people's livelihoods, culture, and identity. To have the best chance of success, communities and governments need to work in partnership. It is the goal of the framework to promote transparent processes and plans that are anchored in a long-term vision of inclusive, climate-resilience development.

### **Opportunities for Progress in the Future**

The WACA Resilience Investment Project is now in the pipeline for Board approval in 2018. It is expected to be financed by about \$200 million in IDA grants or credits.

Overall, the needs for financing—on the order of \$2 billion—vastly surpass available funding. Therefore, Bank management has committed to identifying new ways of leveraging Bank financing. The Bank will explore the establishment of a WACA High-Level Platform to attract existing and develop new financing instruments. Initially, the platform would be hosted by the Bank, to provide technical assistance and link donors to countries. Over time, when capacity is built, trust established, and a coordinating mechanism formalized among the WACA countries, this facility would be moved to a suitable institution in West Africa.

# Chapter 7 Promoting Climate-Resilient Transport

## Implementation Progress This Year

Shortly after the launch of the first Africa Climate Business Plan, in 2015, the World Bank prepared an additional component of the plan on the transport sector, which was presented at COP22, in Marrakech. Building on the African countries’ Nationally Determined Contributions (NDCs), this component aims at mainstreaming climate benefits into the Bank’s transport program for Sub-Saharan Africa through \$5 billion in investments and technical assistance for 2016–20.

In 2017 the Bank added another \$1.9 billion to that amount, bringing the total to \$6.9 billion in projects with climate co-benefits. These investments will help improve the resilience of transport infrastructure to climate change and improve the carbon efficiency of transport systems.

Implementation of the transport component is well under way. Progress was made on the analytic, strategic, and investment financing fronts, as summarized in table 7.1.

**Table 7.1 World Bank support for climate-resilient transport: Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"> <li>● Provision of financial support</li> </ul>	<ul style="list-style-type: none"> <li>● The Bank approved a Global Facility for Disaster Reduction and Recovery (GFDRR) grant for the operationalization of the methodology developed in ECRAI-T and initiated the second phase of the Africa Road Resilience Study, which will roll out climate vulnerability assessments at the country level.</li> <li>● The Bank approved three projects with total financing of \$112 million.</li> <li>● The Bank is preparing projects in the Africa region and in 11 countries in the region.</li> </ul>
<ul style="list-style-type: none"> <li>● Provision of analytical support and strategic engagement</li> </ul>	<ul style="list-style-type: none"> <li>● The Bank completed the regional report <i>Enhancing the Climate Resilience of Africa’s Infrastructure: The Road and Bridges Sectors</i>.</li> </ul>

Three new projects were approved by the Bank’s Board since the last Africa Climate Business Plan update. All of the \$112 million in financing for the three projects comes from Bank funds.

One of those projects, the Rural Connectivity Project in the Central African Republic, considers climate-resilience aspects as part of road works, infrastructure design, and maintenance arrangements to improve the durability of road improvements. The project considers these

climate risks through the technical design of the infrastructure interventions planned and by implementing institutional resilience measures to improve local response to road damage caused by extreme weather, particularly heavy precipitation and flooding. A community-based maintenance system will make a particularly important contribution to the climate resilience of the targeted roads.

Funding from the Global Facility for Disaster Reduction and Recovery (GFDRR) was secured for a first country-level pilot application of the innovative climate vulnerability assessment methodology used in *Enhancing the Climate Resilience of Africa's Infrastructure: The Road and Bridges Sectors*. The country pilot assessment will constitute the second phase of the Africa Road Resilience Study and represent the first application of the continental analysis at a level directly relevant for infrastructure policy in a particular country.

Several new projects were added to the climate-resilient transport business plan for Africa, increasing the climate finance portfolio to \$6.9 billion, more than twice the size of the original portfolio (\$3.2 billion). Projects include investments in climate resilience for the Port of Dar es Salaam as well as rural and intercity roads.

The Bank is continuing to standardize the approach to accounting for climate finance in its projects. The move will lead to more uniform reporting of mitigation and adaptation co-benefits, particularly as explicit inclusion of climate resilience and low-carbon measures becomes more common in Bank-financed operations.

The \$30 million Côte d'Ivoire Transport Sector Reform Project, approved in July 2016, was joined by a \$20 million sister operation in Burkina Faso, approved in January 2017. The projects will help the two countries better manage the heavy truck fleet on the Abidjan-Ouagadougou corridor, contributing to greater emissions efficiency in freight movements.

The Bank approved additional financing for the Cape Verde Transport Sector Reform Project. It will finance the rehabilitation and the climate adaptation of about 50 kilometers of additional roads. To support the preservation and investment of transport infrastructure, several technical assistance activities are planned under the project, including a study to assess the vulnerability of the road network.

The \$40 million Rural Mobility and Connectivity Project in Niger, approved in 2017, seeks to improve of farming communities' road access to markets and essential services by improving about 600 kilometers of rural roads and supporting the creation of a road maintenance execution agency. Proposed project components that will foster climate resilience include a component on resilient infrastructure and one on sectoral and strategic spatial planning, which will integrate disaster risk into the lifecycle management of the road network. The objective would be to strengthen the capacity of the road maintenance execution agency.

The Bank also approved a bus rapid transit (BRT) project in Dakar, the first BRT public-private partnership project in West Africa to be co-financed by the Green Climate Fund. The project will help Dakar achieve new levels of transportation sustainability.

### **Box 7.1 Success story: Bringing bus rapid transit system to Dakar**

The \$300 million Dakar Bus Rapid Transit (BRT) pilot project, approved by the Bank in 2017, includes the construction of 18.3 kilometers of fully segregated BRT in Dakar. It will build or provide terminals, stations, bus fleets, and intelligent transportation systems (ITS); improve access for pedestrians; better integrate the system into the urban environment; and restructure the public transit network.

The project is projected to reduce long-term greenhouse gas emission by 1.5 metric tons of carbon dioxide equivalent, by shifting riders from older buses to new, efficient, high-quality buses and by adopting a holistic, integrated land use and transport planning policy. For the people of Dakar, the project will increase access to public transit services, reduce travel time, and improve comfort and safety. For public transit users within a one-hour radius, it will increase access to employment opportunities by 7 percentage points. By 2020, two-thirds of the population will have access to at least 8,000 more job opportunities than they do today. The increase will disproportionately benefit poorer areas in the northern suburbs, where access to more than 120,000 employment opportunities will be made possible.

This pilot project is included in Senegal's Nationally Determined Contribution and has a strong potential for scalability as well as replication across African cities that are facing the same challenges as Dakar. The project is the backbone of an ambitious and comprehensive strategy for sustainable urban mobility and low-emission transport modes. It is included in the Emerging Senegal Plan, the government's plan to make Senegal an emerging economy by 2035

### **Opportunities for Progress in the Future**

Many projects that include climate-resilience components will go before the Board for approval in FY18:

- Rural Access and Agricultural Marketing in Nigeria (\$200 million)
- Greater Abidjan/Port Development Project (\$400 million)
- Connecting Ethiopia (\$375 million)
- Lake Victoria Transport Program SOP3 (\$205 million)
- Climate Resilient Transport Infrastructure in São Tomé and Príncipe (\$30 million)
- Transport Infrastructure and Connectivity Project in Lesotho (\$30 million)
- Pro Routes 2 Project in the Democratic Republic of Congo (\$300 million)
- Rural Transport Project in Guinea Bissau (\$30 million)
- Bus rapid transit projects in Cameroon, the Democratic Republic of Congo, and Côte d'Ivoire (exploratory stages)
- Railway project in Cameroon (exploratory stage)

## A3: Human and Social Capital

### Chapter 8 Boosting Social Protection

#### Implementation Progress This Year

The World Bank is supporting the expansion and strengthening of social protection systems to increase the resilience of poor and vulnerable groups to climate variability and change. It is also helping governments put in place mechanisms to scale up safety net programs to respond to climate-related shocks when they occur. It has allocated financing in response to shocks, particularly droughts, to allow governments to provide support to affected households through national safety net programs.

Climate change and natural disasters disproportionately affect poor and vulnerable populations, because poor people often live in areas that are more exposed and vulnerable to shocks. Negative effects can be significant, as poor households withdraw their children from school and sell productive assets, helping perpetuate a vicious cycle of poverty.

Social protection can significantly increase the resilience of poor and vulnerable households by providing support that helps them weather the negative effects of a shock and by extending a regular stream of support households can use to improve the productivity of their economic activities or diversify their livelihoods, thereby building their resilience. Across Africa, the Bank is helping governments consolidate and strengthen the delivery of social protection systems, including by promoting an approach (called adaptive social protection) that seeks to anticipate and respond to climate change. Adaptive social protection comprises flexible instruments that can protect poor households from climate and other shocks before they occur (through predictable transfers, community asset building, livelihood support, and other programs) and can scale up to respond to shocks and extreme events when they hit.

The expected outcome of this component of the Africa Climate Business Plan is an increase in the number of people covered by adaptive social protection programs across Sub-Saharan Africa. Progress was made in several areas, as summarized in table 8.1.

**Table 8.1 World Bank support for social protection programs: Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"><li>Support of activities that reduce sensitivity to climate-related shocks (soil conservation, watershed management, development of irrigation channels, water conservation, better cropping, enclosures, better food storage facilities, rain water capture)</li></ul>	<ul style="list-style-type: none"><li>The Bank approved or is in the process of approving 16 projects that directly contribute to the Africa Climate Business Plan. The value of these projects is about \$1.83 billion.</li></ul>

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"> <li>• Creation of registry systems for identification of people who are at risk because of climate-related events</li> <li>• Establishment of early warning systems</li> <li>• Implementation of green public works (soil conservation, watershed management, development of irrigation channels, water conservation, better cropping, enclosures, better food storage facilities, rain water capture)</li> <li>• Provision of livelihood support, including by encouraging savings and disaster risk insurance, building household assets, preventing asset erosion as a result of drought through alternative sources of income, supplementing savings and income with grants to support investments in livelihoods, and reducing risk exposure</li> </ul>	<ul style="list-style-type: none"> <li>• The Bank is continuing to build and strengthen registries that aggregate information on households that can facilitate the quick identification and enrollment of households affected by climate change into safety net programs.</li> <li>• The Bank is investing in safety net programs that scale up in response to shocks linked to early warning systems.</li> <li>• Public works programs funded by the Bank (in Niger, Madagascar, Tanzania, and elsewhere) are increasingly focusing on investments in soil conservation and watershed management.</li> <li>• Bank investments are promoting the livelihoods of the poorest to complement safety net programs. In the Sahel, an experiment is underway that seeks to identify promising means to raise earnings and productivity and diversify livelihoods.</li> </ul>

The social protection portfolio in Africa increasingly includes adaptive elements. Between October 2016 and September 2017, 16 projects that directly contribute to the Africa Climate Business Plan were approved or were in the process of being approved by the Bank's Board. The value of these projects is estimated at \$1.83 billion, financed by IDA and trust fund resources.

Across Africa countries are putting in place and strengthening social protection systems that include adaptive elements that respond to the challenges of climate change. The Bank is supporting these efforts by deepening knowledge of adaptive social protection programs and approaches, strengthening partnerships, and financing national social protection systems to provide direct benefits to poor and vulnerable households.

Bank support is helping countries build the administrative systems that will enable national social protection systems to identify and enroll households that are vulnerable to climate change and shocks and, when shocks hit, respond quickly to help them cope. Investments include building social registries that include information on households that are eligible for safety net support and expanding them to include information on households that may be

eligible for support after a shock occurs. In Senegal, for example, the Bank is considering expanding the social registry to include people who are vulnerable to shocks.

Strengthening the use of early warning data can also help social protection systems better respond to climate change. In Ethiopia, Kenya, Mauritania, Niger, Senegal, and Uganda, safety net programs have been scaled up to respond to shocks, based on early warning information ranging from the use of seasonal assessment and humanitarian appeals to the creation of new triggers based on data from satellites.

The role of safety net programs in responding to shocks is increasingly recognized in Africa. During this reporting period, the Bank channeled funds from its Crisis Response Window through national safety net programs in Ethiopia, Kenya, Lesotho, Malawi, Madagascar, and Mozambique to respond to drought, delivering them through national safety net programs. Technical assistance is ongoing in the region to help governments identify and secure financing to scale up safety nets. It includes work on macro-insurance, such as that offered to countries through the Africa Risk Capacity, contingency budgets, and instruments including Development Policy Loans with Catastrophe Deferred Draw-Down Option (CAT-DDOs) and more traditional humanitarian financing.

Social protection can also help individuals, households, and communities build resilience to climate change. In Malawi, Madagascar, Niger, and Tanzania, beneficiaries of public works programs plant trees, create soil bunds, terrace land, and create area enclosures. These countries are seeking ways to involve the community in managing the newly constructed sites. Such investments can increase agricultural productivity, improving the livelihoods of the poor.

Efforts are underway in six countries in the Sahel to design, test, and pilot productive interventions that promote livelihood diversification, in order to both raise household earnings and facilitate income-smoothing and resilience. A multi-country impact evaluation will generate rigorous results.

### **Box 8.1 Success story: Providing social protection after the 2015–16 drought**

The El Niño drought of 2015–16 severely affected countries in East and Southern Africa. In 2017, a food crisis struck in parts of Africa and Yemen. In response to these two crises, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mozambique, and Somalia provided support to drought-affected households through their national safety net programs. The response was funded by IDA's Crisis Response Window (CRW), except for Somalia, which was supported through the State and Peace Building Fund.

The experience shows that national safety net programs can effectively channel cash or food transfers to households hurt by drought. When systems are in place, these programs can quickly identify households that are eligible for support and deliver benefits to them. In responding to these dual crises, the CRW funds proved to be critical.

Some public works in these countries were designed to improve access to water, by building waterpoints and ponds, for example. When drought conditions were severe, the programs waived or softened their work requirements

### **Opportunities for Progress in the Future**

There is growing appreciation of the role social protection can play in responding to climate-related shocks, particularly drought. Further innovations in crafting mechanisms that can scale up these systems and develop innovative means of financing responses beyond the current reliance on humanitarian funding are expected.

Countries are also increasingly concerned about the lack access of poor and vulnerable groups to jobs. Growing interest in the region is expected in developing ways to promote productive inclusion of these groups in urban and rural areas in a manner that enables people and communities to adapt to climate change.

## Chapter 9 Addressing the Drivers of Migration

### Implementation Progress This Year

Climate change is expected to affect all forms of mobility in Africa—internal and cross-border, short and long distance, temporary and permanent, voluntary and forced. Negative impacts could affect millions of poor people. Africa is home to more than 18 million forcibly displaced people—more than a quarter of the global total. The steady increase in conflicts that spill over borders and the increasing impacts of climate extremes are increasing these numbers. The growing number of people on the move is straining current systems and will have long-term impacts on host countries. Influxes of migrants could undermine and reverse much of the development progress that has been achieved in the past two decades.

The World Bank works with internal and external partners to deliver key knowledge products, innovative joint operations, and knowledge exchanges to strengthen social and economic resilience in rural and urban spaces. A critical aspect of social resilience is understanding and addressing the multiple drivers of migration and their interactive effects with other sources of vulnerability. This includes developing a better understanding of the conditions that lead to migration, and how mobility can be a positive adaptation strategy. Progress was made in several areas, as summarized in table 9.1.

**Table 9.1 World Bank support for addressing the drivers of migration: Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"> <li>• Development of strategic operations or components in ongoing operations in the Lake Chad basin and the Horn of Africa</li> <li>• Building of the evidence base and establishment of a knowledge partnership</li> <li>• Piloting and promotion of innovation on mixed migration (complex population movements, including refugees, asylum seekers, economic migrants, and people displaced by natural disasters or climate change)</li> </ul>	<p>The Bank approved the following projects since October 2016:</p> <ul style="list-style-type: none"> <li>• Development Response to Displacement Impacts Project for Kenya (\$103 million from IDA)</li> <li>• Development Response to Displacement Impacts Project, covering Djibouti, Ethiopia, and Uganda (\$175 million from IDA, including a \$5 million grant to the Intergovernmental Authority on Development, an eight-country trade bloc in Africa, to set up the Regional Secretariat on Forced Displacement and Mixed Migration)</li> <li>• Zambia Displaced Persons and Border Communities (\$20 million from IDA)</li> <li>• Great Lakes Region Displaced Persons and Border Communities Project Additional Financing (\$3 million from IDA)</li> <li>• São Tomé and Príncipe Adaptation to Climate Change (\$4.15 million through the Global Environment Facility Somalia Inclusive Community Resilience and Gender-Based Violence (\$1.2 million through the Global Facility for Disaster Reduction and Recovery)</li> </ul>

The Bank approved several new operations to address the impacts of forced displacement and migration, including the Development Response to Displacement Impacts Project (DRDIP) for Kenya (\$103 million) and the Great Lakes Region Displaced Persons and Border Communities Project Additional Financing (\$3 million). The DRDIP builds on its companion project approved in 2016 covering Djibouti, Ethiopia, and Uganda. Its innovative approach focuses on the communities hosting refugees. Host communities in the affected countries are already underdeveloped and underserved; they are in areas that are environmentally fragile and highly prone to climate change impacts. The projects therefore focus on enhancing job opportunities and supporting sustainable environmental and ecosystem services to overcome the environmental degradation, depletion of natural resources, and loss of vegetation cover that can result from an inflow of large numbers of people. They also promote social cohesion between host communities and the displaced populations and provide opportunities to make joint decisions on development priorities through community-driven approaches.

Another innovation is a focus on regional learning. The DRDIP projects help partner countries share experiences and best practices through a grant to the Intergovernmental Authority on Development (IGAD), which hosts the Regional Secretariat on Forced Displacement and Mixed Migration.

In 2017 the Great Lakes Region Displaced Persons and Border Communities Project Additional Financing added a component to the Zambia project. It will extend regional capacity-building and learning activities on development responses to forced displacement to government representatives of the International Conference of Great Lakes Region (ICGLR) member states.

The Bank is also supporting planned voluntary resettlement of vulnerable coastal communities as an adaptation measure. In São Tomé & Príncipe, communities asked for assistance in relocating after recurrent storm surges washed away homes and assets and claimed lives. A program to pilot voluntary relocation is working with four communities and will be scaled up to include others. The pilots start with participatory risk and vulnerability mapping to identify who is most at risk and would benefit from moving. Land has been identified and plots are being allocated, with communities driving the process. To prevent people from returning to the vulnerable areas—and ensure that the new, safer location attracts more people—the government is planning to invest in the new areas to make them growth poles for the future.

**Box 9.1 Success story: Understanding the social impact of Kakuma refugees on their Turkana hosts in Kenya**

A study undertaken by the World Bank, the United Nations High Commissioner for Refugees (UNHCR) and the University of Notre Dame (Vemuru and others 2016) sheds light on the complex dynamics of the coexistence between refugees and their hosts in northwestern Kenya's Turkana

County. Overall, it finds that Turkana living in close proximity to the refugees view their presence as beneficial.

The study looks at the Kakuma refugee camp, which hosts more than 150,000 refugees. Established in 1992 in one of Kenya's most remote areas, it is one of the oldest refugee camps in the world. Refugees have become an integral part of the area's social, cultural, and economic fabric.

The study reveals that the overall economic and social impact of refugees in Kakuma has been positive, not just in the immediate vicinity but also in the surrounding county. Positive impacts include enhanced social interactions and networks, better access to markets, and better indicators of health and physical well-being. Negative impacts include violence. Climatic and environmental changes—particularly droughts and famine, which exacerbate the vulnerability of host communities—also affect the relationship between refugees and hosts.

Key findings from the study include the following:

- The Turkana who interact with the refugees have (mostly) positive perceptions of them. Their perceptions are significantly different from the perceptions of people living elsewhere.
- The refugee presence seems to benefit women more than men. Women benefit by providing labor (performing housework, fetching water/food) and goods (charcoal, firewood, agricultural crops such as sorghum) to refugees in return for food and cash. They also forge lasting friendships and support networks with refugees. However, they sometimes experience violence, both in the camp and outside, especially when they forage for firewood.
- The Turkana in the host community have better nutritional access/status than Turkana in most other areas of Turkana County.

### **Opportunities for Progress in the Future**

Flows of forcibly displaced people continue to increase in the Horn of Africa, the Great Lakes Region, the Lake Chad region, the Sahel, and other countries on the continent. The approach of providing longer-term development solutions and transitioning from emergency assistance is proving to have transformative impact. Experience has shown that when communities see that refugees have the opportunity to contribute to development—and host communities are also supported—long-term benefits for all can ensue. As Bank operations in this area continue to grow, it will be important to monitor impacts and share learning as it emerges.

An additional challenge for the long term is to get ahead of the curve in addressing the need for mobility as an adaptation strategy. The Bank is undertaking groundbreaking analytical work on climate-related migration which will inform the Bank's dialogue with developing countries on how migration can be a positive adaptation mechanism and a contributor to social and economic development.

Efforts on planned voluntary relocation in São Tomé and Príncipe are providing lessons for other communities and countries. They are informing the development of a framework to guide the decision-making and implementation process to support communities with resilience planning and potential relocation if they make that decision. The community-led resilience

planning framework is being developed as part of the West Africa and Coastal Areas (WACA) Resilience Investment Project, which covers Benin, Cape Verde, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mauritania, São Tomé and Príncipe, Senegal, Sierra Leone, and Togo. The framework is being developed in partnership with the WACA countries to ensure that relocation is a pro-poor, people-centered process in which communities drive the decision making (Box 6.1).

The impacts of climate change are local; action to address it must engage those most affected. Beyond migration and mobility, therefore, the Bank is working with governments and communities in Kenya, Madagascar, and other places to understand and promote scalable models that empower poor communities to manage a climate risk management agenda in support of their development goals and to identify practical ways of getting climate financing directly to the ground level where impacts are felt. Community-driven development approaches, for example, provide a potentially powerful vehicle to tap into local knowledge and capacity for risk management, while at the same time connecting communities to higher-level policy, technical assistance and information for effective adaptation support. Moving forward, the Bank is looking to develop ways to bridge the gap between the local, subnational, and national levels in support of local resilience strengthening.

## PART B: POWERING RESILIENCE

### Chapter 10 Increasing the Use of Solar Power

#### Implementation Progress This Year

To help deploy solar power in Sub-Saharan Africa, the World Bank is working to improve utility-scale solar PV projects, mini-grids, and modern off-grid solutions, such as solar home systems and portable lanterns. Its efforts will help expand the use of solar power (which currently accounts for less than 0.5 percent of the electricity generated in Sub-Saharan Africa), mitigate dependency on liquid fuel-based generation, and reduce the cost of electricity.

The fast-track target of this initiative aims to raise \$3.24 billion by 2020, \$750 million of which will come from IDA. Resource mobilization is expected to enable the commissioning of 1 GW of solar capacity by 2023, including 400 MW for off-grid capacity, which would bring modern energy services to 5 million off-grid consumers.

The Bank approved 10 projects that spur the use of solar power in the region in the year ending September 2017, for a total \$620 million of IDA resources. Progress was made in several areas, as summarized in table 10.1.

**Table 10.1 World Bank support for solar power: Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"><li>• Engagement in sector dialogue and policy support, including of regulation, taxation, and subsidies</li><li>• Provision of technical assistance, including for planning, solar resource mapping, transaction structuring, and electricity grid integration</li><li>• Provision of guarantee packages and lending for public investment, public-private partnerships, and debt facilities</li></ul>	<ul style="list-style-type: none"><li>• The Bank approved development policy operations in Burkina Faso, Côte d'Ivoire, Mauritania, and Senegal to support reforms that will help scale up solar power.</li><li>• The Bank approved 10 technical assistance projects aimed at scaling solar energy supply through off-grid and mini-grid solutions in the Democratic Republic of Congo, Liberia, Niger, Rwanda, Tanzania, and Zambia.</li><li>• The Bank approved two guarantee packages to leverage private investments in solar generation in Mali and Zambia.</li><li>• The Bank approved an \$80 million lending operation that includes financing of utility-scale PV plants in Burkina Faso.</li></ul>

IDA-approved operations in the past year will contribute to the commissioning of more than 90 MWp of utility-scale solar PV plants and leverage \$90 million of private investments, including in fragile environments like Mali. They will increase access to electricity through off-grid and mini-grid solutions in the Democratic Republic of Congo, Liberia, Niger, Rwanda, Tanzania, and Zambia.

The Bank approved technical assistance and lending in Burkina Faso, Côte d'Ivoire, Mauritania, and Senegal.

**Box 10.1 Success story: Leveraging World Bank financing to attract private investments in solar power in Zambia**

Scaling Solar in Zambia is creating viable markets and enabling governments and utilities to procure solar power transparently and at the lowest possible cost. The first round of financing attracted top-tier developers and resulted in the lowest tariff for solar energy in Sub-Saharan Africa. The \$3.5 million in IDA financing leveraged \$15 million of private capital for the development of a first solar plant of 47.5 MWp. Zambia launched a second round of financing in May 2017.

Several other Sub-Saharan African countries have replicated Scaling Solar's standard processes and documents. Its mandates have been signed in Ethiopia, Madagascar, and Senegal, and other countries are in negotiation. The initiative has a pipeline of 500 MW of investments to be procured from private sponsors. Tenders are under preparation and will be conducted in the next two years. The Bank is also exploring options to facilitate the development of a pipeline of investments in wind electricity

**Opportunities for Progress in the Future**

Ten projects, for a total of \$1.15 billion, are in the IDA pipeline for FY18 and FY19. Planned IDA guarantees are expected to leverage private investments for a total of 600 MW of on-grid solar generation in Burkina Faso, Ethiopia, Senegal, and Zambia.

Under the regional utility-scale solar program (Solar Development in Sub-Saharan Africa - Phase 1 (Sahel) (P162580)), the Bank is planning a \$165 million regional solar project for FY19. The project seeks to foster regional energy cooperation in countries in the West African Power Pool through technical assistance and support of the development of utility-scale solar electricity generation facilities, with potential to export solar electricity to neighboring countries. Initial investments in Burkina Faso, and Mali are currently being explored. The Bank has also initiated analytical work to support solar investments using the existing hydropower facilities to evacuate power in the grids in several countries (Mali, Ghana, Ivory coast, Liberia). A \$200 million regional off-grid solar project aimed at enabling electricity access is planned for approval in FY19. It will deliver off-grid services to households and communities in nine countries.

## Chapter 11 Increasing the Use of Hydropower

### Implementation Progress This Year

The World Bank is seeking to help increase the share of hydropower in Sub-Saharan Africa's electricity mix from 24 percent to 40 percent. To do so, it is focusing on developing midsize and large hydropower capacity and on regulating water.

The fast-track target of this initiative aims to raise \$1.208 billion by 2020. This resource mobilization is expected to enable the implementation of 420 MW of low-cost hydropower in West Africa by 2023. Nine projects that help increase the use of hydropower in the region were approved in FY16 and FY17, for a total \$776 million of IDA resources. Progress was made in several areas, as summarized in table 11.1.

**Table 11.1 World Bank support for hydropower: Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"> <li>Development of the Lom Pangar (30 MW) power station and regulation of the dam (Cameroon)</li> </ul>	<ul style="list-style-type: none"> <li>The Lom Pangar dam was commissioned in mid-2017. The 30 MW power station is under construction.</li> </ul>
<ul style="list-style-type: none"> <li>Development of the Nachtigal (420 MW) power station (Cameroon)</li> </ul>	<ul style="list-style-type: none"> <li>The Nachtigal project is at an advanced stage of preparation, with approval of an IDA \$300 million guarantee scheduled by the end of 2017.</li> </ul>
<ul style="list-style-type: none"> <li>Development the Souapiti power station and regulation of the dam (515 MW)</li> </ul>	<ul style="list-style-type: none"> <li>The Bank financed a feasibility study for the Souapiti hydropower scheme. Construction is under way, with Chinese financing.</li> </ul>
<ul style="list-style-type: none"> <li>Development of the Rusumo Fall hydropower scheme (80 MW) shared by Burundi, Rwanda, and Tanzania</li> </ul>	<ul style="list-style-type: none"> <li>The Bank is supporting the construction of the plant, which began in March 2017.</li> </ul>
<ul style="list-style-type: none"> <li>Development of the Jiji and Mulembwe schemes (48 MW) (Burundi)</li> </ul>	<ul style="list-style-type: none"> <li>The Bank is supporting the construction of the plant. Procurement for construction contracts is being finalized.</li> </ul>
<ul style="list-style-type: none"> <li>Provision of technical assistance and the financing of feasibility studies on downstream projects</li> </ul>	<ul style="list-style-type: none"> <li>The Bank finalized a hydropower atlas for Madagascar. It is preparing a hydropower atlas for Guinea.</li> <li>The Bank is working with the government of Zambia to appraise the Batoka hydropower project, on the Zambezi River basin.</li> </ul>

By the end of 2017, the Bank plans to provide Cameroon with a \$300 million guarantee for the development of 420 MW of hydropower at the Nachtigal dam, downstream of Lom Pangar in the Sanaga basin. It approved \$26.3 million in technical assistance in support of hydropower

development on the Sanaga River. Construction of the Rusumo Fall hydropower scheme (80 MW shared by Burundi, Rwanda, and Tanzania) began in March 2017. Procurement for construction of the Jiji and Mulembwe schemes (48 MW) in Burundi is being finalized.

The Bank also supported the development of hydropower through technical assistance to the West African Power Pool (including studies for the Souapiti project). It is working with the government of Zambia to appraise the Batoka hydropower project, on the Zambezi River basin.

#### **Box 11.1 Success story: Harnessing private investment in hydropower plants in Cameroon**

The Lom Pangar regulating dam will increase the production capacity of the two hydropower plants downstream (Song Loulou and Edéa) and unlock the hydropower potential of the Sanaga River (estimated at up to 6,000 MW) by reducing seasonal variability flow. Without Lom Pangar, the cost of generating electricity would have been too high to attract interest from developers. Development of the dam enabled the mobilization of developers (Electricité de France and the International Finance Corporation) for the Nachtigal hydropower plant (420 MW), for which the Bank plans to provide a \$300 million guarantee.

The World Bank Group has built close working relationships with energy sector stakeholders over the years. These relationships have helped it become a trusted partner of the government of Cameroon on policy, institutional development, and investment in the hydropower sector. Cooperation with the government illustrates how policy and institutional dialogue at the whole energy sector level can facilitate the integrated and holistic development of hydropower.

#### **Opportunities for Progress in the Future**

The Bank will implement several ongoing hydropower initiatives and identify new schemes in the coming year. Opportunities include projects that:

- support regional power integration
- reform water regulation, in order to ensure year-round production, which can catalyze the deployment of hydropower in the region
- increase private sector access to working capital for hydropower project developers
- investigate the complementary development of hydropower with solar to maximize the synergies between the two technologies (hydropower provides flexible regulation and ancillary services needed to increase the use of solar power)
- explore complementarity with other water uses and purposes (flood protection, water supply, irrigation), in order to integrate the development of dams and hydropower
- look for ways to enhance agile practices and programmatic and risk-based approaches in the sector.

The IDA pipeline includes six projects for a total of \$738 million. One of them, the Ruzizi III project, is a public-private partnership that will develop a 147 MW plant that will benefit Burundi, the Democratic Republic of Congo, and Rwanda.

## Chapter 12 Increasing the Use of Geothermal Power

### Implementation Progress This Year

The World Bank seeks to help deploy thermal power in Sub-Saharan Africa by reinforcing the upstream development of geothermal sites, in order to attract private investment in downstream development. These efforts will open up the sector in East Africa, where just 1.5 percent (209 MW) of the estimated 14,000 MW of geothermal potential is being harnessed.

The fast-track target of this initiative aims at raising \$950 million by 2020, \$500 million of it from IDA. This resource mobilization is expected to enable implementation of 150 MW of geothermal generation capacity. Progress was made in several areas, as summarized in table 12.1.

**Table 12.1 World Bank support for geothermal energy: Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"> <li>• Provision of technical assistance</li> </ul>	<ul style="list-style-type: none"> <li>• The Bank is providing technical assistance to help develop the geothermal sector in Kenya, where it is recommending that public investments focus on derisking geothermal fields. It also providing technical assistance in Malawi, Tanzania, and Uganda.</li> </ul>
<ul style="list-style-type: none"> <li>• Provision of lending for public investment in exploration and development and public-private partnerships for downstream development</li> </ul>	<ul style="list-style-type: none"> <li>• The Bank approved \$71 million in additional financing to complete the Olkaria I &amp; IV plants (in Kenya), with total capacity of 280 MW.</li> </ul>
<ul style="list-style-type: none"> <li>• Development of the Aluto geothermal site (70 MW) and exploration of other sites</li> </ul>	<ul style="list-style-type: none"> <li>• The Bank is addressing challenges to the development of the Aluto geothermal site (in Ethiopia); the project will be restructured in the first quarter of FY18.</li> </ul>

The Bank is providing technical assistance to help develop the geothermal sector in Kenya. It is also providing technical assistance in Malawi, Tanzania, and Uganda. It approved \$71 million in additional financing to complete the Olkaria I & IV plants, in Kenya, with total capacity of 280 MW. The Bank is recommending focusing public investments on de-risking geothermal fields. In Ethiopia the development of the Aluto geothermal site has been very slow. The project will be restructured in early FY18.

## PART C: ENABLING RESILIENCE

### Chapter 13 Strengthening Africa's Hydrometeorological Program

#### Implementation Progress This Year

The World Bank is supporting the enhancement of climate- and disaster-resilience capacity in Sub-Saharan Africa by strengthening countries' weather, water, and climate (hydromet) services, including early warning, knowledge, and advisory services, and linking national systems with regional and global counterparts. Its program aims to strengthen national meteorological and hydrological services by providing the infrastructure, technical assistance, and capacity-building operations needed for integrated modernization. It facilitates horizontal integration of national hydromet services with users and vertical integration of national hydromet services with regional climate centers and global centers of excellence in a manner compliant with the Global Framework of Climate Services and the Cascading Forecasting Process.

Phase I of the Africa hydromet program will benefit more than 100 million people in 15 Sub-Saharan African countries and 4 regional organizations, by building the technical, human, and financial capacity to provide forecasts, warnings, and value-added climate information services and products. It will enhance resilience to climate and disaster risks and augment the capacity to adapt to climate variability and change. Major climate-resilience benefits include reduction of climate and disaster risks and impacts, improved disaster preparedness, and enhanced resilience of social and productive infrastructure. By the end of FY17, the Bank's active commitments in the Africa hydromet program stood at \$196.1 million, a \$16.1 million increase over the previous year. Investment and technical assistance operations were being implemented in 16 countries (Botswana, Ethiopia, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mozambique, Niger, Nigeria, Rwanda, Senegal, Tanzania, Togo, Uganda, in Zambia). Progress was made in several areas, as summarized in table 13.1.

**Table 13.1 World Bank support for the hydromet program: Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"><li>• Strengthening of national meteorological and hydrological services (NMHS), by improving their ability to deliver services, building their capacity, and supporting policy-institutional reforms</li><li>• Modernization of regional NMHS centers, including through the fostering of cooperation with national institutions</li><li>• Integration of national, regional, and global systems and knowledge and advisory services</li></ul>	<ul style="list-style-type: none"><li>• The Green Climate Fund is considering \$22.5 million in financing for Burkina Faso, on top of \$8.5 million IDA co-financing.</li><li>• The Democratic Republic of Congo received \$2.5 million under the Climate Risk Early Warning Systems (CREWS), \$5.3 million from the Global Environment Facility (GEF) and \$2.7 million from the Global Facility for Disaster Reduction and Recovery (GFDRR).</li><li>• Mali received \$2.95 million under the Climate Risk Early Warning Systems (CREWS) initiative.</li></ul>

Activity	Progress made in year ending September 2017
	<ul style="list-style-type: none"> <li data-bbox="781 275 1386 380">Niger received \$2.5 million under the CREWS initiative, on top of about \$30 million from IDA under implementation.</li> </ul>

IDA funding is leveraging contributions from the Green Climate Fund, the Global Environment Facility Least Developed Countries’ Fund (GEF LDCF), the Global Facility for Disaster Reduction and Recovery Africa Caribbean Pacific–European Union Natural Disaster Reduction (GFDRR ACP-EU NDRR) Program, the Climate Investment Fund Pilot Program for Climate Resilience (CIF PPCR), and the Climate Risks Early Warning Systems Initiative (CREWS).

The GFDRR provided a grant to support coordination of the Africa hydromet program partnership convened by the Bank. It was instrumental in organizing “deep-dive” meetings of program partners (the World Bank, the World Meteorological Organization, the African Development Bank, the United Nations Development Programme, the French Development Agency, and the World Food Programme) in Tokyo in September 2016; in Washington, DC in December 2016; and in Saly, Senegal in May 2017 and in organizing the consultative Africa Hydromet Forum in Addis Ababa, co-hosted by the African Union Commission and the Federal Government of Ethiopia, in September 2017.

The CREWS Initiative allocated \$2.5 million to the Democratic Republic of Congo, \$2.75 million to Mali, and \$2.5 million to Niger for technical assistance. The resources are to be used to guide the countries in optimally using Global Environment Facility, Green Climate Fund, and IDA resources during implementation; developing cross-cutting decision support tools based on hydromet information; and making decisions about food security, agrometeorology, civil protection and early warning, and institutional strengthening.

In Burkina Faso, a funding proposal was prepared for consideration by the Green Climate Fund. The \$31 million project would be co-financed by the Green Climate Fund (\$22.5 million) and IDA (\$8.5 million). It would support key producers and users of hydromet services, including the meteorological service, the hydrological service, the food security early warning system, the Directorate General for Civil Protection, and the national disaster risk-reduction institution.

The Bank prepared a similar feasibility study for hydromet and early warning services modernization for Chad. It will support the preparation of a funding proposal to the Green Climate Fund in FY18.

The Bank approved a hydromet project for the Democratic Republic of Congo. The \$8.03 million project is co-financed by the GEF LDCF (\$5.3 million) and the GFDRR (\$2.7 million). It will support key producers and users of hydromet services, including the meteorological service, the air navigation service, the river and maritime navigation services, the civil protection directorate, and selected municipalities.

### **Box 13.1 Success story: The Africa Hydromet Forum**

The Africa Hydromet Forum was held September 12–15, 2017, as a partnership between the African Union Commission (AUC), the World Meteorological Organization, the African Ministerial Conference on Meteorology (AMCOMET), the Africa Development Bank, the French Development Agency, the United Nations Development Programme, and the World Bank. It brought together some 600 representatives of development partners, producers and users of hydromet services, the private sector, civil society, academia, and technical institutions from all over Africa. Partners coordinated a pipeline of projects and agreed on a harmonized approach to hydromet modernization focused on service delivery and end-user relevance.

The forum ended with a ministerial declaration from the African Ministerial Conference on Meteorology (AMCOMET) calling for greater investment and support for hydromet services by governments and by their development partners.

*Source:* See <http://www.worldbank.org/en/events/2017/09/12/amcomet-africa-hydromet-forum-2017>.

### **Opportunities for Progress in the Future**

Phase I of the hydromet program will continue to be presented for the consideration of the Green Climate Fund on a country-by-country basis. Each proposal will include concrete modernization programs for about five additional climate-vulnerable countries. The program will also seek funding for regional climate centers.

The program expects to receive funding from the Green Climate Fund for Burkina Faso and Chad; appraise and bring to the World Bank Board projects for Burkina Faso and Mali; seek funding for regional organizations in the Sahel; and prepare feasibility studies for Chad, Ethiopia, and Togo.

The Mali hydromet project is expected to be submitted for the Board's consideration in FY18. The \$31 million project, which would be co-financed by the Green Climate Fund (\$22.75 million) and IDA (\$8.25 million), would support key producers and users of hydromet services, including the meteorological service, the National Directorate for Water Resources, the food security early warning system, and the Directorate General for Civil Protection.

**Chapter 14 Establishing an Africa Climate Resilient Investment Facility**

**Implementation Progress This Year**

The purpose of the Africa Climate Resilient Investment Facility (AFRI-RES) is to strengthen the capacity of African institutions (including national governments, river basin organizations, regional economic communities, and power pools) to plan, design, and implement investments in selected sectors to increase their resilience to climate change. The facility is a collaborative effort between the World Bank, the African Union Commission, the United Nations Economic Commission for Africa (UNECA), and other partners in Africa.

Expected outcomes include the development and application of robust technical guidelines for investment planning and design under climate uncertainty, establishment of an open data and knowledge platform for use in climate-resilient project design, strengthened capacity of project developers in the use of methodologies for managing climate risks in the planning and design of projects in key sectors, and delivery of technical advisory services to project developers at critical junctures in the project design process. Progress was made in several areas, as summarized in table 14.1.

**Table 14.1 World Bank support for the Africa Climate Resilient Investment Facility: Progress at a glance**

Activity	Progress made in year ending September 2017
<ul style="list-style-type: none"> <li>• Creation of an open data and knowledge platform</li> <li>• Development of guidelines for climate-resilient investment planning</li> <li>• Compilation of good practices in the operation of climate vulnerable infrastructure</li> <li>• Planning and implementation of awareness-raising activities</li> <li>• Provision of on-demand advisory services to project developers</li> </ul>	<ul style="list-style-type: none"> <li>• Several stakeholder workshops and outreach activities were conducted to define the priority activities of the Africa Climate Resilient Investment Facility (AFRI-RES) and initiate technical training.</li> <li>• The Nordic Development Fund approved €5 million in grant funding to launch the AFRI-RES.</li> <li>• More than 50 projects co-financed by the World Bank have been identified for possible access to AFRI-RES support for designing and implementing projects in a more climate-resilient way.</li> </ul>

The Bank conducted extensive analysis, consultation, and outreach to define the scope and priority activities of the AFRI-RES and hone in on the needs of potential users. Workshops and consultations were held during COP22, and multiple events were hosted in connection with the Infrastructure Consortium for Africa (ICA) annual meeting and Project Preparation Facilities Network meeting in November 2016. Several hundred people in Africa participated in these

events, including decision makers from African institutions that are expected to be the primary users of the facility.

A comprehensive consultation was carried out to assess demand for AFRI-RES services. It included a survey sent to about 600 potential users in Africa (of which about 120 responded) followed by a number of in-depth interviews. The consultations revealed strong demand for support for a variety of services that would help users integrate climate change considerations into infrastructure project planning and design.

The demand assessment also provided insights on the political economy driving stakeholders' incentives and constraints to integrating climate change into project planning and design. Many stakeholders expressed concerns that climate-proofing investment will entail higher preparation costs and potentially higher construction/implementation costs, for which additional financing is not readily available.

The team working on AFRI-RES is collaborating closely with other teams within the Bank working on climate-resilience initiatives—from climate finance readiness to resilience metrics to standards and guidelines for resilient infrastructure—to ensure that global knowledge and best practices are applicable to data- and capacity-constrained contexts like those typically observed in Africa and that sufficient capacity is built in Africa to fully own and apply new guidelines and knowledge.

A milestone was achieved in March 2017, when the Nordic Development Fund approved €5 million in grant funding to launch AFRI-RES. Efforts to mobilize additional resources continue, with a target of raising another €10 million. The commitment from the Nordic Development Fund will enable the facility to establish results, which will help demonstrate its value to other potential donors.

In the summer of 2017, the facility launched an initial call for proposals to gauge demand within the Bank. More than 50 projects across a range of sectors (agriculture, environment, energy, transport, urban development, social protection) expressed interest in receiving support. The AFRI-RES team is now working to prioritize support an initial tranche of 10–15 projects, including projects that contribute to the Africa Climate Business Plan. All projects receiving support will document approaches taken to incorporating resilience measures and contribute lessons learned, which will feed into a library of experiences that will be shared through the facility's online data portal (to be established) and a variety of outreach and dissemination activities.

### **Opportunities for Progress in the Future**

All components of AFRI-RES are expected to be fully operational in 2018. They include the delivery of project-level technical assistance; outreach, dissemination, and training; development of an initial set of guidelines, standards, and good practice notes for climate-resilient infrastructure investment; and the launching of an online climate knowledge and data portal.

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