



Accelerating Climate-Resilient and Low-Carbon Development

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

October 2016



THE WORLD BANK
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AFRICA REGION

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FOREWORD

At COP21, Africa took center stage, for the first time in the history of climate change negotiations. With unprecedented international support, the Paris Agreement on climate change entered into force in a record time of less than a year from its adoption in December 2015 at COP21. This reflects the consensus of governments for robust global cooperation with a strong call for urgency for action that effectively addresses the impacts of climate change.

African nations have joined this global momentum in full force. As of mid-Oct 2016, 15 countries in Sub-Saharan Africa have ratified the Paris Agreement already, and others are in the process of doing so. African countries have submitted their Nationally Determined Contributions laying out their national frameworks for climate action and priority areas for implementation. For us, the development finance practitioners at the World Bank, this represents a strong beginning, but we have a long way to go for ambitious action on the ground in African countries to mitigate and adapt to the adverse impacts of climate change. In Marrakesh where COP22 will take place, we should be able to show to the global community how we have progressed on the implementation agenda since COP21.

For Africa, the key area of climate action is adaptation. The reason is that climate variability and change are jeopardizing Africa's hard-won development achievements and its aspirations for further growth and poverty reduction. Droughts, floods, and cyclones precipitate Africans into poverty and create long-lasting poverty traps. We launched the Africa Climate Business Plan (ACBP) at COP21. It is our blueprint for supporting climate action in sub-Saharan Africa from 2016 to 2020. The ACBP focuses on a dozen or so priority areas for accelerating climate-resilient and low-carbon development, where the World Bank, in support of African governments and in collaboration with a variety of regional and international partners, expects to help achieve results in the near future. The priority areas are clustered in three groups, namely strengthening resilience, powering resilience, and enabling resilience. The ACBP aims to raise US\$19 billion by 2020, half of which will be from the International Development Association (IDA). As we move to COP22 in Marrakesh, we wish to report on the operationalization of the ACBP, specifically on the mobilization of the technical and financial resources needed for generating results on the ground. Through this update, we provide a summary of progress in implementing the ACBP.

Since Paris, one of the important engagements has been with the African Group of Negotiators (AGN), helping them sharpen Africa's negotiating positions and spur climate action on the ground. The partnership has resulted in strengthened capacity of the AGN to advocate for climate action in Africa, and to operationalize the Africa Adaptation Initiative, particularly in the areas of focus of the ACBP, and in securing stronger country ownership of the ACBP.

For the climate finance needs identified in the ACBP, the World Bank has continued to facilitate country access to a menu of internal and external concessional and climate finance sources. The results of these efforts are already apparent and remain on target. So far, US\$3.6 billion has been mobilized from IDA to implement the ACBP, including projects already approved by the Bank's Board of Executive Directors since COP21, and projects to be approved by the end of 2016. In addition, an extra sector has been added to the ACBP, namely climate-smart transport.

Progress has been made in many key areas of the ACBP, including the ocean economy, coastal protection, forests, landscapes, agriculture, migration, transport, water, and energy. On the ocean economy, the African Ministerial Conference on Ocean Economies and Climate Change, organized by

the Government of Mauritius and the World Bank Group, brought in renewed political push for a stronger and faster implementation drive. A US\$150 million program is being prepared to reduce coastal vulnerability in West Africa. The World Bank has approved 11 projects supporting climate-smart agriculture, targeting more than 1.6 million farmers, totaling US\$1.4 billion in International Development Association (IDA) commitments.

Access to energy is of utmost importance to people in Africa. In the ACBP, we have committed to installing 1 gigawatt of solar capacity by 2020. To progress toward that goal, a regional project worth US\$200 million is being prepared to expand electricity access to households and communities through modern off-grid electricity services in nine target countries. We are also registering progress toward the ACBP's targets on hydropower and geothermal energy.

One of the key measures for adaptation in Africa is hydro-meteorological services. With US\$23 million from the Green Climate Fund, a hydro-meteorological services and warning services project is being implemented in Mali, a country that is highly vulnerable to climate change. On forests and landscapes, the World Bank is supporting several countries (such as Burundi, the Democratic Republic of Congo, Ethiopia, and others) in achieving, as part of their Nationally Determined Contributions, the goal of the African Landscape Restoration Initiative to bring 100 million hectares of degraded and deforested land under restoration by 2030.

It was fortunate that we launched the ACBP at COP21, where Africa was front and center. Morocco is now taking the baton from France to ensure continuity and renewed attention to the African continent at COP22. This is the time to scale up efforts to accelerate Africa's climate-resilient, low-carbon development. We have made important strides in implementing the ACBP, but there is a lot of work ahead of us. We reiterate our commitment to working with governments and other stakeholders on the ground in African countries, mobilizing international financing for investments for effective and efficient implementation of the ACBP.

Makhtar Diop

Vice President, Africa Region, World Bank

OVERVIEW

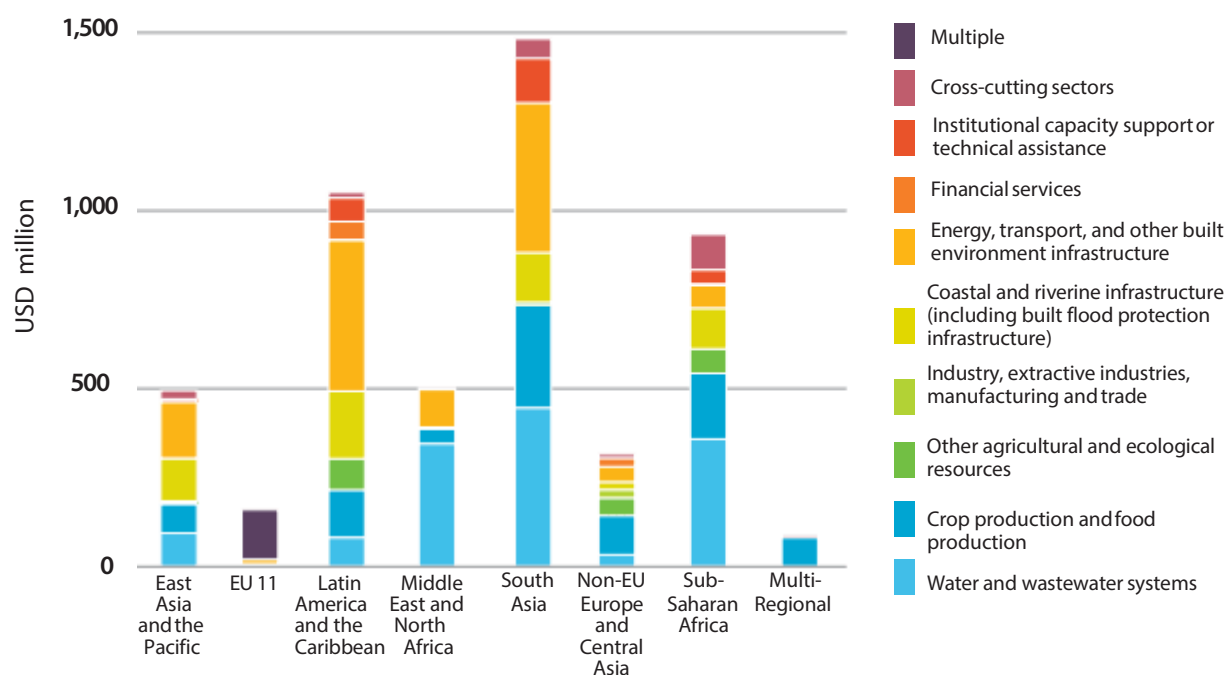
This report provides an overview of the progress made in 2016 in implementing the Africa Climate Business Plan (ACBP), a blueprint for climate action in Africa that the World Bank launched during the 21st meeting of the Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change in Paris in November 2015 (World Bank 2015a).

Context: Climate Challenges in Africa

In Sub-Saharan Africa, resilience to climate variability and future change is vital to the region's ability to overcome poverty and protect the hard-earned development progress made in recent decades. Climate drivers are involved in most of the shocks that keep or push African households into poverty. The drivers include natural disasters (such as loss of assets and disability after floods), health shocks (such as health expenditures and lost labor income as a result of malaria), crop losses (as a result of drought or crop disease), and food price shocks. At the same time, Africa needs rapid improvement of its access to modern energy, tapping as much as possible its vast repository of low-carbon sources.

The funding needs to address climate change effectively, in particular for adaptation, are high in the region, and will increase as climate change unfolds in the coming years. The World Bank and United Nations Environment Programme estimate that the annual funding needs for Africa's adaptation are about US\$5 billion to US\$10 billion for a warming of 2°C, but this may increase to US\$20 billion to US\$100 billion by mid-century, if warming approaches 4°C. The importance of adaptation financing in the region is exemplified by the relatively high percentage of countries that have estimated their financing needs for adaptation in their Nationally Determined Contributions: 63 percent of the countries in the region have an estimate, compared with 27 percent in the rest of the world. And yet, adaptation financing for Africa remains grossly inadequate. This was documented recently by the joint Multilateral Development Banks' Climate Finance report 2015, which finds that in 2015 multilateral financing for adaptation for the region (figure 0.1) was only US\$0.9 billion (African Development Bank et al. 2016).

FIGURE O.1. Multilateral Development Banks' Adaptation Finance by Region and Sector, 2016



Source: <http://pubdocs.worldbank.org/en/740431470757468260/MDB-joint-report-climate-finance-2015.pdf>.

The ACBP aims to contribute to filling the climate financing gap in the region. Including the transport component added after the Paris launch, the plan’s goal is to raise US\$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, where the World Bank expects to help achieve results in the near future (Table O.1).

The first cluster of the plan (“strengthening resilience”) includes selected initiatives aimed at boosting the resilience of the continent’s assets, including its natural capital (landscapes, forests, agricultural land, inland bodies of water, and oceans), physical capital (roads, cities, and physical assets in coastal areas), as well as human and social capital.

The second cluster (“powering resilience”) relates to opportunities for scaling up low-carbon energy sources in Africa, thereby contributing at the same time to improving 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. Africa Climate Business Plan: fund raising targets (US\$ Million)

Component	IDA	Climate finance (GCF, GEF, CIF, and other sources)	Other development finance (bilateral, multilaterals)	Private sector	Domestic sources	To be determined	Total
I. Strengthening resilience	7,040	1,792	1,497	665	616	1,930	13,540
<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		251		126		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
II. Powering resilience	1,335	300	700	2,850	213	0	5,398
Solar	750	300	100	2,020	70		3,240
Hydropower	85	0	450	605	68	0	1,208
Geothermal	500	0	150	225	75	0	950
III. Enabling resilience	108	135	33	0	0	44	320
Africa hydro-met program	108	135	27	0	0	0	270
Africa Climate Resilient Investment facility	0	0	6	0	0	44	50
Total	8,483	2,227	2,230	3,515	829	1,974	19,258

Objective and Scope of the ACBP Update

If 2015 was the year of commitments, 2016 has been the year of action, transformation, and implementation. Since the launch of the ACBP in Paris last year, the World Bank has worked with clients, development partners, and the private sector to flesh out the ACBP's program of work. An extra area of focus was added to the plan, namely climate-smart development of the transport sector, with investment on the order of US\$3.2 billion, of which US\$2.8 billion is expected from the International Development Association (IDA). One particularly important engagement has been with the African Group of Negotiators (AGN), supporting the group to sharpen Africa's negotiating position toward the next stages of implementation of the Paris Agreement, and working together to spur climate action on the ground. The partnership resulted in stronger country ownership of the ACBP's individual lines of activities, and strengthened the capacity of the AGN to advocate support for climate action in Africa, particularly in the areas of focus of the business plan.

The ACBP is an ambitious and comprehensive plan. Although the ACBP’s full-scale rollout and implementation will take a few years to complete, some achievements are already manifest in resource mobilization and action on the ground.

Overall Progress in Resource Mobilization

A key area of focus in the first year of the ACBP’s implementation was resource mobilization. This report assesses progress only in terms of World Bank financing—the International Bank for Reconstruction and Development (IBRD), IDA, Global Environment Facility (GEF), and other trust funds implemented by the World Bank. It is therefore a conservative estimate of the full amount of financial resources being mobilized. Future ACBP progress reports will provide estimates of co-financing from non–World Bank Group sources as well.

In 2016 the World Bank Board of Executive Directors has already approved (or is expected to do so by the end of the year) some 60 projects contributing to ACBP implementation. These projects are worth US\$3.6 billion and account for 28 percent of the total value (US\$13 billion) of projects approved for Sub-Saharan Africa (SSA) in the same period. The absolute amount of ACBP financing and its share in total commitments for SSA are expected to grow considerably in the coming months (see table 0.2).

TABLE 0.2. World Bank Projects Contributing to ACBP Implementation

Projects approved from ACBP launch until	Projects contributing to ACBP implementation		Other projects		Total
	Cumulative number of projects	Cumulative commitments US\$ millions	Share in total	Cumulative commitments (US\$ millions)	Cumulative commitments (US\$ millions)
Final figures					
June 30, 2016	29	1,990	27%	5,329	7,319
Preliminary projections					
December 31, 2016	61	3,676	28%	9,383	13,058
June 30, 2017	118	8,147	34%	15,632	23,779
December 31, 2017	136	11,259	33%	22,506	33,765
June 30, 2018	147	13,304	36%	23,181	36,486

Note: The figures related to projects approved by the World Bank Board of Directors up to June 30, 2016 are final. Figures related to later approvals dates are provisional estimates and are subject to change.

Financing with Climate Co-Benefits

The World Bank Group tracks the climate mitigation and adaptation co-benefits of all its financing, in response to commitments made by Management to the Board of Executive Directors (World Bank 2012, 2014). A development activity provides climate co-benefits if it promotes mitigation through efforts to reduce or limit greenhouse gas (GHG) emissions or enhance GHG 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 maintaining or increasing adaptive capacity and resilience.

The ACBP is on track to deliver on its climate finance targets, considering the acceleration of the plan’s implementation that is expected in the coming couple of years. Estimates of funding with climate co-benefits were completed only for FY16 projects (approved by June 30, 2016). For ACBP

projects approved until then, funding with climate co-benefits was US\$0.48 billion, or 24 percent of the total (table O.3). Although this is below the target of US\$0.5 billion (prorated back from the FY17 target in the ACBP), by the end of FY17, funding with climate co-benefits is expected to be on the order of US\$2.2 billion, exceeding the plan’s target of US\$2.15 billion (25 percent of US\$8.5 billion, the total amount of IDA/IBRD funding planned to be mobilized by the end of FY20).

TABLE O.3. Funding with Climate Co-Benefits in ACBP Projects

Projects approved from ACBP launch until	Cumulative commitments (US\$ millions)	Cumulative commitments with climate co-benefits (US\$ millions)	ACBP 2020 targets (b)	Cumulative share of funding with climate co-benefits
Projects assessed for climate co-benefits (a)				
June 30, 2016	1,990	475	524	24%
December 31, 2016	3,584	796	1,198	22%
June 30, 2017	7,188	2,186	2,146	30%
Other projects				
June 30, 2017	959	NA		N

Notes:

(a): Only the estimates of financing with climate co-benefits for projects approved by the World Bank Board of Directors up to June 30, 2016 are final. All other figures are provisional estimates and are subject to change.

(b): After the launch of the ACBP at COP21, a transport component was added to the Plan. The original fundraising targets for 2020 have been adjusted accordingly, to reflect the larger financial envelope, as well as the later start-up time of the transport component.

Progress by Cluster of the ACBP

Since the launch of the ACBP in December 2015, considerable progress has been made across all three clusters of the plan, namely, strengthening, powering, and enabling resilience (table O.4). Of the total value of projects to be approved by December 2016, the largest share is for activities contributing to the “strengthening resilience” cluster, which is consistent with the corresponding relative weight in the ACBP’s total financing plan. The pace of the powering resilience cluster is projected to pick up by the middle of 2017.

TABLE O.4. World Bank Projects Contributing to ACBP Implementation by Plan Cluster
(cumulative commitments, US\$ millions)

Projects approved from ACBP launch until	I. Strengthening resilience	II. Powering resilience	III. Enabling resilience	Total
June 30, 2016	1,920	70	-	1,990
December 31, 2016	3,565	70	40	3,676
June 30, 2017	6,776	1,305	66	8,147

Note: The figures related to projects approved by the World Bank Board of Directors up to June 30, 2016 are final. Figures related to later approvals date are provisional estimates and are subject to change.

Tables O.5 and O.6 further highlight the key progress made by various components under each cluster. From the analysis of progress made under each cluster, it is clear that the plan is reaching out to most countries in the continent (maps O.1 and O.2).

TABLE 0.5. World Bank Projects Included in the ACBP Strengthening Resilience Cluster (cumulative commitments, US\$ millions)

Projects approved from ACBP launch until	A. Natural capital	B. Physical capital	C. Human and social capital	Total
June 30, 2016	1,158	300	463	1,920
December 31, 2016	1,769	1,154	643	3,565
June 30, 2017	3,775	2,179	823	6,776

Note: The figures related to projects approved by the World Bank Board of Directors up to June 30, 2016 are final. Figures related to later approval dates are provisional estimates and are subject to change.

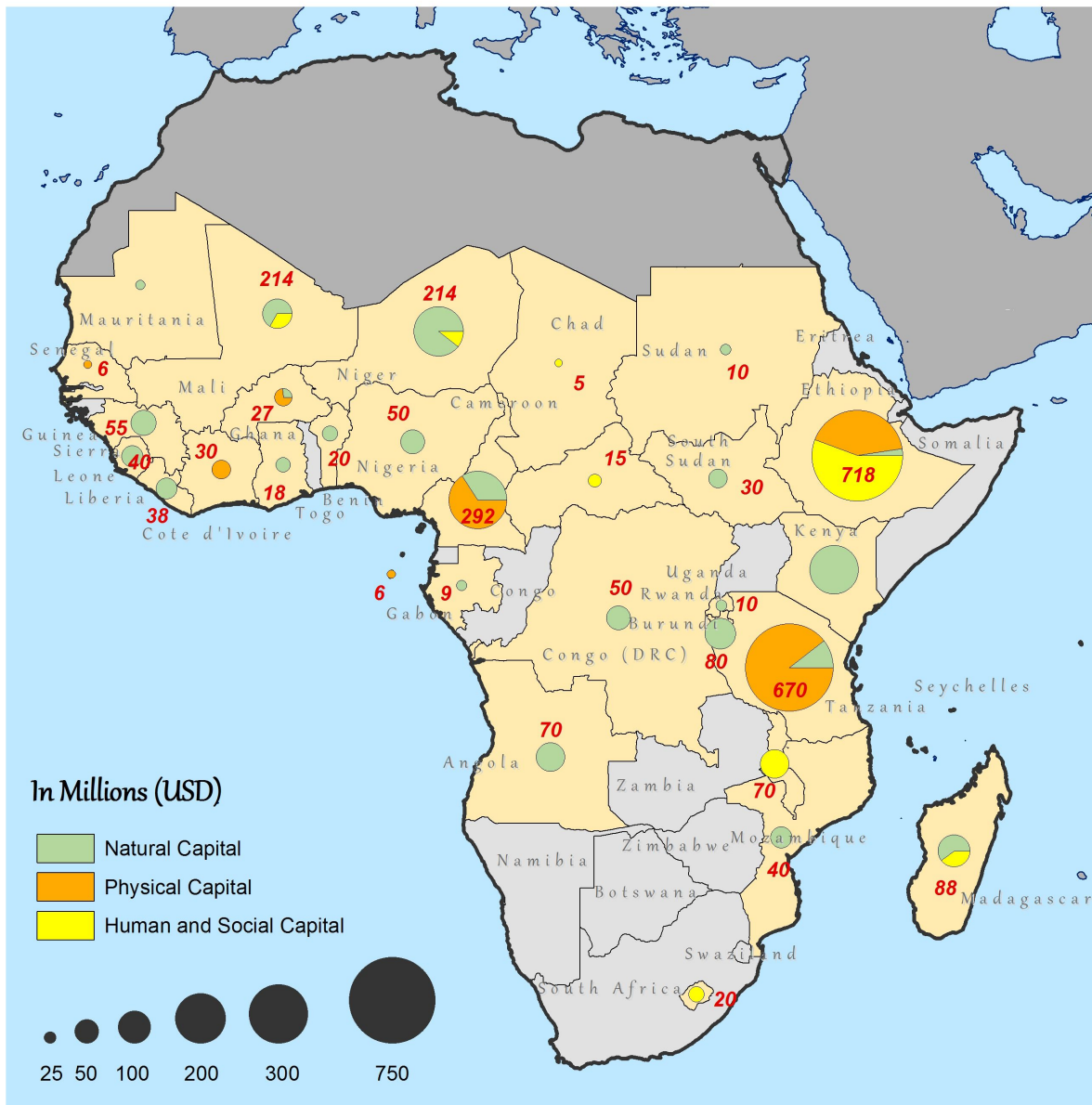
TABLE 0.6. World Bank Projects Included in the ACBP Powering and Enabling Resilience Clusters

(cumulative commitments, US\$ millions)

Projects approved from ACBP launch until	Powering resilience			Enabling resilience	Total
	Geothermal	Hydropower	Solar		
June 30, 2016	68	2	-	-	70
December 31, 2016	68	2	-	40	110
June 30, 2017	68	514	723	66	1,371

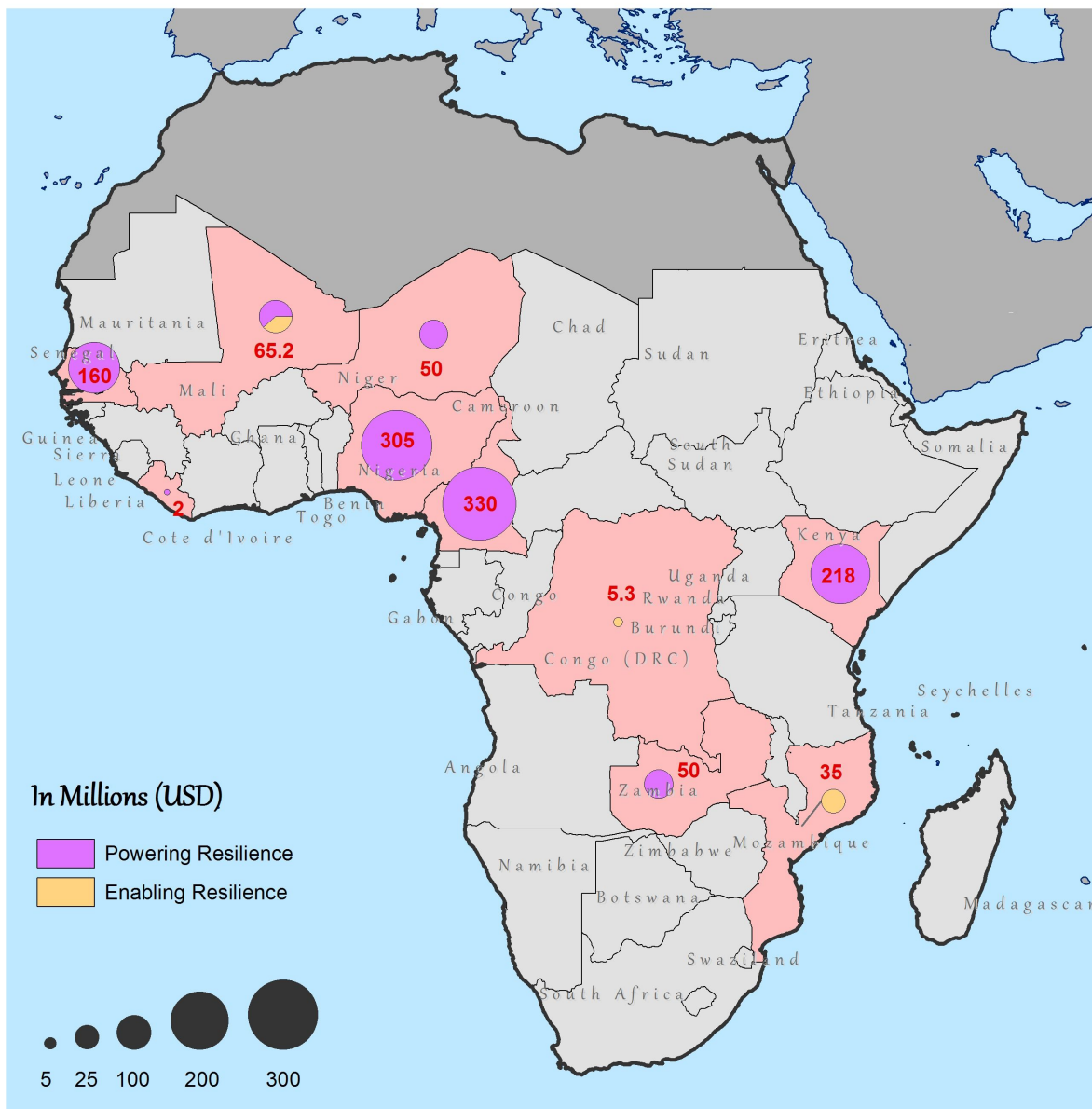
Note: The figures related to projects approved by the World Bank Board of Directors up to June 30, 2016 are final. Figures related to later approval dates are provisional estimates and are subject to change.

MAP 0.1. Group Commitments by Country and Type of Capital Support, December 2015–December 2016
(US\$ millions)



Note: The figures are provisional estimates and do not include projects with a subregional or regional scope.

MAP 0.2. Powering and Enabling Resilience: World Bank Group Commitments by Country, FY16–FY17
(US\$ millions)



Note: The figures are provisional estimates and do not include projects with a subregional or regional scope.

Selected Highlights of Implementation

Table 0.7 highlights the progress made under various programs and projects for the implementation of the ACBP. The table presents progress in resource mobilization, approved funding by the World Bank Board of Executive Directors, and other efforts made toward full-scale implementation of the plan’s activities.

TABLE 0.7. Highlights of Implementation Progress by ACBP Component

Activity	Summary of progress (January – October 2016)
I. Strengthening resilience	
<i>Natural capital</i>	
Climate-smart agriculture	<ul style="list-style-type: none"> • The World Bank’s Board approved 11 projects supporting climate-smart agriculture (CSA), totaling US\$1.4 billion in International Development Association (IDA) commitments. These projects aim to improve the livelihoods of more than 1.6 million farmers, and about 725,000 hectares of land is targeted with CSA practices. • The World Bank continued to support advocacy in favor of CSA, including through a regional conference on “Accelerating Transformation in Africa through Climate Smart Agriculture” (Nairobi, Kenya). Further progress was made in the establishment of a Center of Excellence for Climate Smart Agriculture in Africa, through a joint World Bank Group–Germany initiative.
Forested landscapes	<ul style="list-style-type: none"> • The World Bank adopted the Forest Action Plan, which will spur the World Bank’s overall engagement in sustainable forestry, forest-smart interventions (in non-forest sectors), climate change and resilience, rights and participation, and institutions and governance. • The Africa Forest Landscapes Program is scaling up efforts in several countries to improve forest sector planning and governance, piloting forest investments to address deforestation and forest degradation, and promoting sustainable forest management. For example, the World Bank is supporting the Democratic Republic of Congo’s plans to reduce deforestation and forest degradation on 12.3 million hectares in the Mai Ndombe Province.
Climate-resilient landscapes	<ul style="list-style-type: none"> • In the context of the Climate-Resilient Landscapes Program, the World Bank is supporting the Landscape Restoration Project in Burundi to meet its commitment of 1 million hectares of restored land by 2030. • To promote food security, resilience, carbon sequestration, biodiversity, and national and regional stability, the World Bank is working to mobilize financial and technical resources to design and implement country- and region-specific integrated landscape-level strategies in support of land management, water, and forest resources.
Niger Basin	<ul style="list-style-type: none"> • Nine countries in West Africa’s Niger Basin, led by the Niger Basin Authority, continue to make progress in preparing, mobilizing resources for, and implementing the prioritized investments in the Niger Basin Climate Resilience Investment Plan (US\$3.1 billion, of which more than US\$500 million has already been mobilized). • A team of experts provided training for regional and national officials on investment preparation and securing financing for climate-related investments planned along the 4,200-kilometer Niger River.
Lake Chad Basin	<ul style="list-style-type: none"> • The Lake Chad Basin Commission and its six Member States developed an action plan to turn Lake Chad into a pole of regional rural development. The plan comprises 173 activities for an estimated cost of US\$1 billion. • The World Bank initiated the identification of a regional Lake Chad Development Project, covering the lake area and its hinterlands in Cameroon, Chad, Niger, and Nigeria. The project will benefit from IDA18 financing.
Zambezi Basin	<ul style="list-style-type: none"> • Building on recent analytical work, the Zambezi River Basin Program developed a portfolio of investments worth more than US\$1 billion. • This includes advancement of cooperative instruments such as the Strategic Plan for the Basin, which is being developed by the Zambezi Watercourse Commission, along with specific investment projects, such as the Batoka Gorge Hydropower Project.
Lake Victoria Basin	<ul style="list-style-type: none"> • The existing Lake Victoria Environment Program continues to implement a range of investments in sustainable land management, green livelihoods, and ecological infrastructure.

Activity	Summary of progress (January – October 2016)
	<ul style="list-style-type: none"> • A new grant to expand resource-efficient and cleaner production activities with private industries is in the final stages of approval by the Nordic Development Fund, and funding was secured for a basin-wide climate vulnerability analysis and other diagnostics, as a basis for the design of a future phase of major investment.
Climate-smart ocean economies	<ul style="list-style-type: none"> • Three countries are preparing national climate-smart Blue Economy development plans, nearing the 2023 target of four countries. Altogether, direct investments in climate-smart ocean economy reached US\$20 million in 2016, representing 9 percent of the US\$220 million target set for 2023. • The Government of Mauritius and the World Bank delivered an African Ministerial Conference and Investment Forum, where 20 countries attended and endorsed the Mauritius Communique, leading to a financial and technical package with the African Development Bank and Food and Agriculture Organization to be submitted to the United Nations Conference on Climate Change (COP22) in Marrakesh.
Physical capital	
Climate-smart cities	<ul style="list-style-type: none"> • Local resilience planning and capacity-building activities are being completed in 14 African cities, including Antananarivo, Accra, Dar es Salaam, and 11 Ethiopian regional capitals. • Large urban resilience operations, ranging from US\$60 million to US\$200 million, are ongoing in five African countries—Senegal (Dakar), Tanzania (Dar es Salaam), Nigeria (Ibadan), Mozambique (several cities), and Niger (several cities).
Coastal resilience (West Africa)	<ul style="list-style-type: none"> • Work is underway to mobilize funding for a US\$150 million investment program, including consultations with the Government of France, Nordic Development Fund, West African Economic and Monetary Union, Global Environment Facility (GEF), and IDA. • In parallel, technical and stakeholder consultation work is underway on political economy analysis, assessment of the cost of coastal degradation, communication and outreach strategies, and a sediment transport study.
Climate-resilient transport	<ul style="list-style-type: none"> • Two climate-smart transport projects were approved by the World Bank’s Board between January and September 2016, and two more are expected to be approved by December 2016. • These four projects represent a total of US\$573.7 million in financing, including US\$542.0 million in World Bank funds.
Human and social capital	
Social protection	<ul style="list-style-type: none"> • The social protection portfolio in Africa is increasingly developing adaptive elements that will address the challenges of adaptation, resilience building, and disaster and climate risk management for the poor and vulnerable. • From December 2015 to October 2017, 10 projects that will directly contribute to the ACBP were approved or are in the process of being approved by the World Bank’s Board, at a total value of close to US\$350 million.
Migration drivers	<ul style="list-style-type: none"> • The World Bank is promoting an inclusive approach to addressing the drivers and impacts of migration, with a focus on improving access to services and economic opportunities, in addition to environmental restoration that ensures that local host communities are supported along with migrants, refugees, and internally displaced persons. • More than US\$200 million in new support was approved to promote developmental approaches to displacement, including projects in Djibouti, Ethiopia, São Tomé and Príncipe, Somalia, Uganda, and Zambia.
II. Powering resilience	

Activity	Summary of progress (January – October 2016)
Solar power	<ul style="list-style-type: none"> • Work is on track to mobilize (by June 2017) US\$1.8 billion for the installation of 600 megawatts (MW) of on-grid solar power capacity in various countries, including Nigeria, Senegal, and Zambia. IDA's expected contribution is estimated at US\$350 million. • It is expected that US\$200 million will be mobilized by FY18 to deliver off-grid services to households and communities in nine targeted countries in the Sahel.
Hydropower	<ul style="list-style-type: none"> • The Nachtigal project is expected to install 420 MW of hydropower capacity in the Sanaga Basin (Cameroon) and, for this purpose, the approval of US\$1,150 million is planned in FY17 through different financing instruments (including an International Bank for Reconstruction and Development (IBRD) loan for US\$30 million, IBRD Guarantee for US\$300 million, and International Finance Corporation financing of US\$320 million). • A hydropower Atlas for Guinea will be finalized in FY17 and plans are underway to commission the Lom Pangar Dam project, which will increase all-season hydropower capacity by about 40 percent.
Geothermal power	<ul style="list-style-type: none"> • In FY16, funding for US\$71 million was approved to complete the development of two units at the Olkaria I & IV plants in Kenya, with total capacity of 280 MW and potential to reduce 20.9 million tons of carbon dioxide emissions. • To develop geothermal power plants and intensify technical assistance for downstream development, US\$950 million will be mobilized by FY18. IDA's contribution is estimated at US\$500 million.
III. Enabling resilience	
Africa Hydromet Program	<ul style="list-style-type: none"> • Over FY16, the program (implemented jointly by the World Meteorological Organization, African Development Bank, and World Bank Group) mobilized grant financing through the World Bank for the Democratic Republic of Congo (US\$8 million, GEF–Global Facility for Disaster Reduction and Recover (GFDRR)) and Mali (US\$25.25 million, Green Climate Fund–GFDRR). • Between COP21 and COP22, the World Bank mobilized a total of US\$45 million in innovative grant financing for the Democratic Republic of Congo, Mali, and Niger, on top of existing activities that are ongoing in Ethiopia and Mozambique.
Africa Climate Resilient Investment Facility	<ul style="list-style-type: none"> • A detailed, survey-based assessment is being completed across the region on the knowledge and capacity needs to be addressed to strengthen the integration of climate change in project planning and design, focusing on the energy, water, and transport sectors. • Detailed design is underway to define the priority activities and target recipients of the facility. Seed funding in the order of US\$5 million was mobilized to support a first set of activities in early 2017. Consultations are under way with the GCF to secure additional funding

Prospects for the Future

The World Bank Group is making great efforts to facilitate country access to a menu of internal and external concessional and climate finance sources for the implementation of the ACBP in the near and medium terms. This is a historic opportunity for IDA18 to bring an unprecedented scale of resources for supporting climate investments in Africa, and push for further integration of adaptation and low-carbon development in IDA project planning and design. A strong IDA18 replenishment with an ambitious climate theme will be critical to allowing the World Bank Group to meet the objectives set out in the ACBP.

To mobilize co-financing for ACBP implementation, the World Bank Group is working with various external global climate funds and entities. The World Bank is working strategically with the Green Climate Fund, and sees possibilities for strong collaboration. However, uncertainties exist around

how much concessional climate finance might be available from this source in the near to medium term. Recapitalization of the Climate Investment Funds (CIFs) could bring quick financing for Africa, as many countries in the region are preparing investment plans and projects for potential financing from the CIFs. The World Bank Group will also continue to work with the GEF to identify funding opportunities for implementing the ACBP, particularly through the resources of the GEF's latest replenishment cycle.

Work is continuing with other development finance (bilateral and multilateral) institutions. Technical consultations are ongoing with a variety of development finance partners of the World Bank, including the African Development Bank, West African Development Bank, and bilateral partners (including the French Development Agency, United Kingdom's Department for International Development, *Deutsche Gesellschaft für Internationale Zusammenarbeit*, and Nordic Development Fund). There is a reasonable expectation that a portion of the funding could be mobilized from other development partners to implement activities identified under the ACBP.

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ABBREVIATIONS

3N	Nigériens Nourish Nigériens
ACBP	Africa Climate Business Plan
AFD	<i>Agence Française de Développement</i> (French Development Agency)
AfDB	African Development Bank
Afri-Res	Africa Climate-Resilient Investment Facility
AMCOMET	African Union Conference of Ministers Responsible for Meteorology
ARLI	African Resilient Landscapes Initiative
ARRA	Administration for Refugees and Returnee Affairs
ASP	adaptive social protection
ASPP	Sahel Adaptive Social Protection Program
BRT	Bus rapid transit
CAFI	Central African Forest Initiative
CCAP	Climate Change Action Plan
CEA	Country Environmental Analysis
CECSAA	Center of Excellence for Climate-Smart Agriculture in Africa
CIFs	Climate Investment Funds
CIWA	Cooperation for International Waters in Africa
COP21	21st Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change
CPF	Country Partnership Framework
CRIP	Climate Resilient Investment Plan for the Niger River Basin
CSA	climate-smart agriculture
CURB	Climate Actions for Urban Sustainability
DfID	Department for International Development (United Kingdom)
DRDIP	Development Response to Displacement Impacts Project
EAC	East African Community
EASE	Economic and Social Empowerment
FAP	Forest Action Plan
FCPF	Forest Carbon Partnership Facility
FFEM	<i>Fond Français pour l'Environnement Mondial</i> (French Global Environment Facility)
FIP	Forest Investment Program
FY	fiscal year
GAMA	Greater Accra Metropolitan Area
GCF	Green Climate Fund
GDP	gross domestic product
GEF	Global Environment Facility
GGWSSI	Great Green Wall for the Sahara and Sahel Initiatives
GHG	greenhouse gas
GIZ	<i>Deutsche Gesellschaft für Internationale Zusammenarbeit</i> (German Agency for International Cooperation)
ha	hectare
hydro-met	hydro-meteorological
IBRD	International Bank for Reconstruction and Development
ICT	information and communication technology
IDA	International Development Association

IDPs	internally displaced persons
IFC	International Finance Corporation
INDC	Intended Nationally Determined Contribution
IRC	International Rescue Committee
IUCN	International Union for Conservation of Nature
KDRDIP	Kenya Development Response to Displacement Impacts Project
LCBC	Lake Chad Basin Committee
LCDAP	Lake Chad Development and Climate Resilience Action Plan for 2016-25
LOI	letter of intent
LVEMP	Lake Victoria Environmental Management Program
MDTF	multi-donor trust fund
MTR	medium-term review
MW	megawatt
NBA	Niger Basin Authority
NDC	Nationally Determined Contribution
NDF	Nordic Development Fund
NGO	nongovernmental organization
NMHS	national meteorological and hydrological services
NORAD	Norwegian Agency for Development Cooperation
PPCR	Pilot Program for Climate Resilience
PRESIBALT	Programme to Rehabilitate and Strengthen the Resilience of Socio-ecological Systems in the Lake Chad Basin
PROFOR	Program on Forests
PSNP	Productive Safety Net Program
PV	photovoltaic
R-Package	Readiness Package
RECP	resource-efficient and cleaner production
REDD+	Reduced Emissions from Deforestation and Forest Degradation
SCD	Systematic Country Diagnostics
SCPZ	staple crop processing zone
SDG	Sustainable Development Goal
SLWM	sustainable land and water management
SMS	short message service (text messaging)
SWIO	South West Indian Ocean
SWIOFish	South West Indian Ocean Fisheries Program
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UN-REDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
VSLA	village savings and loan association
WACA	West Africa Coastal Areas
WAEMU	West African Economic and Monetary Union
WARFP	West Africa Regional Fisheries Program
WFP	World Food Programme
WMO	World Meteorological Organization
ZAMCOM	Zambezi Rivercourse Commission
ZAMWIS	Zambezi Water Information Management System

PART A: STRENGTHENING THE RESILIENCE OF AFRICA'S ASSETS



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CHAPTER 1 PROMOTING CLIMATE-SMART AGRICULTURE

Implementation Progress: Overview

Agriculture is a major economic driver in Africa, representing 30–40 percent of gross domestic product, and employing up to 65 percent of the labor force. Increases in agricultural productivity dwarf other sources of productivity gains in their impact on poverty alleviation and food security. The impacts of climate change are already reducing yields, and are projected to become increasingly severe. Cereal yields between 1981 and 2002 would have been 2–3 percent higher in the absence of current climate change, leading to an annual production loss of 40 million tons of grain (Lobell and Field 2007). If unaddressed, climate change will erode Africa’s hard-won development achievements and jeopardize the prospects for further growth and poverty reduction.

Agriculture is a contributor to the climate problem, producing significant greenhouse gas (GHG) emissions, but the sector has the potential to become a key part of the solution. Agriculture and agriculture-driven land use change contribute 24 percent of global GHG emissions. Climate-smart agriculture (CSA) practices, such as agroforestry or livestock and pasture management, can reduce

the emissions intensity of agricultural production as well as remove carbon from the atmosphere and store it in trees and soils.

To ensure regional food and nutrition security, build farmers' livelihoods, and contribute to the global food security agenda through exports and value-added processing, African agriculture must strive to attain the three integrated goals of dramatically increasing productivity, enhancing the resilience of people and incomes, and as a result achieving the co-benefits of lower emissions.

The agriculture component of the Africa Climate Business Plan (ACBP) aims to raise awareness and mobilize resources for CSA initiatives in Africa, support the adoption of evidence-based policies for CSA, and provide financial and technical support for national and regional investment programs to scale up CSA technologies. CSA policies and practices can help African countries increase productivity while also enhancing the resilience of farming systems, and achieving lower emissions. Progress has been made in several areas of engagement, as summarized in table 1.1 and described in this chapter.

TABLE 1.1. Support to Climate-Smart Agriculture: Implementation Progress at a Glance

Activity	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> • Support adoption of evidence-based policies and institutional strengthening for climate-smart agriculture (CSA). • Engage in advocacy, awareness raising, and resource mobilization in support of key initiatives in the region: <ul style="list-style-type: none"> • Vision 25x25 in support of the Malabo Declaration on accelerated agricultural transformation • Africa Climate Smart Agriculture Alliance • West African CSA Alliance. • Provide financial and technical support for national and regional investment programs to scale up adoption of CSA technologies and management options. 	<ul style="list-style-type: none"> • The World Bank Board approved 11 projects, totaling US\$1.4 billion in International Development Association commitments, reaching more than 1.6 million farmers, and improving about 725,000 hectares of land with CSA practices. • The World Bank continued to support advocacy in favor of CSA, including through a regional conference on “Accelerating Transformation in Africa through Climate Smart Agriculture” (Nairobi, Kenya). • Further progress was made in the establishment of a Center of Excellence for Climate Smart Agriculture in Africa, through a joint World Bank Group–Germany initiative. • May 2016. Training workshop in Dar es Salaam to develop project implementers’ capacity to integrate gender in CSA interventions. • September 2016. Side event at the Sixth African Green Revolution Forum brought together key stakeholders to showcase how CSA has already enabled agricultural transformation in Africa. • Discussions with Germany have advanced on setting up a trust fund for a center of excellence in CSA.

Implementation Progress: Discussion

The ACBP launched at the United Nations Conference on Climate Change (COP21) in Paris includes a focus on CSA and supports the vision for accelerated agricultural transformation of the Malabo Declaration. The World Bank stands with African governments in making CSA a priority. As a major financier of sustainable agriculture projects across Africa, the World Bank is committed to supporting CSA for ending poverty and boosting shared prosperity in the region. The World Bank supports CSA in Africa by advocating for regional CSA initiatives, fostering the adoption of CSA policies, and

financing national and regional investment programs to scale up implementation of CSA technologies. See box 1.1 on CSA in Niger.

In collaboration with partners, the World Bank is working toward achieving the following targets in Africa by 2026: adoption of CSA by 25 million farmers, establishment of CSA on 3 million hectares of farmland, creation of improved pastoral systems in at least 15 countries, and improved capacity to implement CSA policies in at least 20 countries.

Since the launch of the ACBP, the World Bank has approved 11 projects supporting CSA, totaling US\$1.4 billion in International Development Association (IDA) commitments. These projects aim to improve the livelihoods of 1.6 million farmers. In addition, 725,000 hectares of land is targeted with CSA practices.

The multiple ecosystem services and financial benefits that CSA can deliver are increasingly recognized by African decision makers. At the 2014 Malabo Summit, which was convened by the African Union within the context of the renewal of the Comprehensive Africa Agriculture Development Programme, African heads of state endorsed the Vision 25x25, which aims to have 25 million farmers in Africa using CSA practices by 2025 (World Bank 2015c). The Africa Climate-Smart Agriculture Alliance aims to reach six million farming families with CSA by 2022. In June 2015, the West African CSA Alliance was launched during a high-level forum hosted by the West African Economic and Monetary Union (WAEMU), and the Permanent Interstate Committee for Drought Control in the Sahel (CILSS). The Food, Agriculture and Natural Resources Policy Analysis Network operates a series of CSA initiatives in East and Southern Africa, focusing on evidence-based policy making and strengthened institutional capacity. And 63 percent of the African countries that submitted their Intended Nationally Determined Contributions to COP21 in Paris included financing needs for adaptation in the agriculture sector (as of October 2015).

The World Bank team held a training workshop on “Gender in Climate-Smart Agriculture for Development Practitioners” on May 4-5, 2016, in Dar es Salaam, Tanzania. This workshop was co-organized by the Food and Agriculture Organization and the Africa CSA Alliance. The objective of the workshop was to develop project implementers’ capacity to integrate gender in CSA interventions. Participants included representatives from multiple nongovernmental organizations, international organizations, and the Tanzanian government.

The workshop emphasized that the analysis of agro-ecological aspects and climate change scenarios should be complemented by an in-depth assessment of gender and social issues for adequate planning of CSA interventions. Both male and female beneficiaries need to be adequately represented and consulted when designing and testing CSA interventions. Participants were provided with information and tools that were highly relevant and applicable for their work.

On September 6, 2016, the World Bank hosted a side event on “Accelerating Transformation in Africa through Climate Smart Agriculture” at the Sixth African Green Revolution Forum held in Nairobi, Kenya. The objective of the event was to create awareness of the World Bank’s support for CSA, as it also aligns with the vision for the accelerated agricultural transformation of the Malabo Declaration. The event attracted the participation of key stakeholders from the private sector, government agencies, farmers, researchers, international development partners, and civil society organizations.

The event participants concurred that farming is a business and has to be approached with business principles coupled with better technological practices for resilience. To achieve agricultural transformation in Africa, more public-private partnerships must exist along with enabling policies.

The participants agreed that there is need for a change in how agriculture is currently perceived. During the event, the ACBP was introduced and stakeholders expressed enthusiasm for collaboration.

The joint World Bank Group–Germany initiative to set up the Center of Excellence for Climate Smart Agriculture in Africa (CECSAA) thus comes at a time of high regional interest and demand for CSA. The CECSAA can serve as a regional hub for CSA knowledge and investment. By creating synergies between existing CSA-related initiatives, donors (public and private), farmer organizations, and research centers, the center has the potential to link CSA supply and demand, and scale up CSA adoption across Africa. The objectives of the proposed CECSAA are the following:

1. Link existing CSA knowledge and expertise with context-specific client demand in Africa.
2. Foster collaborative links across ministries and between stakeholders.
3. Scale up the adoption of CSA across the continent through policy advice, training, and increased flow of climate finance into the agriculture sector.

The proposed CECSAA contributes to achieving the World Bank Group’s Climate Change Action Plan (World Bank 2016), in which the World Bank committed to 100 percent of agriculture operations being climate smart by 2019. With CSA considered as one of six high-impact areas, the World Bank aims to develop CSA profiles and investment plans for at least 40 countries by 2020, and to establish at least 10 initiatives that link smallholders with food supply chains through leveraging private capital. In the Africa region, 100 million hectares of degraded land shall be restored. In addition, Africa is considered to be one of three regions where low-energy-use irrigation programs shall be implemented.

BOX 1.1. Success Story: Niger Climate-Smart Agriculture Support Project

The Niger Climate-Smart Agriculture (CSA) Support project, which is the first World Bank project in Africa designed specifically to deliver CSA—namely, increased productivity, enhanced resilience, and reduced greenhouse gas emissions—is aligned with the Government of Niger’s “Nigériens Nourish Nigériens” (3N) initiative. The 3N is Niger’s national strategy to spur sustainable agricultural development and increase food and nutritional security.

The Niger CSA project will directly benefit around 500,000 farmers and agropastoralists in 44 communes. The project will increase the distribution and use of improved, drought-tolerant seeds, and increase the number of farmers using irrigation. The project is also expected to expand the use of agroforestry and conservation agriculture techniques. It will promote the reclamation of degraded agropastoral land, livestock, and other high-potential value chains while improving smallholders’ access to markets.

Climate change has already affected Niger’s food security situation, as well as the more than 80 percent of Nigériens who depend on agriculture for their livelihood. Without action, Niger’s agriculture sector will continue to be extremely vulnerable to climatic shocks, especially droughts. This new project advances CSA in Niger, and helps address the constraints that inhibit the productivity and resilience of the country’s crop and -livestock sectors.

Opportunities for Further Progress in 2017

As of September 2016, 21 agriculture projects were in the pipeline for 2017, totaling US\$1,223 million in IDA commitments. These projects will cover a wide variety of agricultural issues, from agriculture sector support, to livestock development, to value-chain competitiveness. Below are a few examples of these projects along with their development objectives.

- *The Nigeria Staple Crops Processing Zones Support Project (US\$200 million IDA commitment)* aims to increase market links for farmers and strengthen the institutional framework for inclusive public and private investment in selected agribusiness clusters. The project will contribute to the broader objectives of the Staple Crop Processing Zones (SCPZ) project, consisting of “increasing food production and reducing the demand for imports, adding value through processing, reducing cost of doing business for processors, and attracting new investment to create jobs, especially in rural areas, and to drive the economy.” The expansion of the agribusiness-farmer linkage models under the SCPZ program, through the right mix of public and private investments, will ultimately improve agricultural productivity, generate shared growth, and substantially reduce poverty in rural areas.
- *The Malawi Agricultural Commercialization Project (US\$120 million IDA commitment)* aims to increase the commercialization of diversified, high-value commodities for domestic and export markets through a private sector and market-led approach. The project will establish inclusive ventures between agribusiness and emerging commercial smallholder farmers, and provide vertical integration through support to business-oriented farmers’ organizations, around targeted value chains. To address the underlying causes of low agricultural productivity in the targeted value chains, the project will provide support for farmer organizations to improve the adoption of productivity-enhancing technologies and practices.
- *The Cameroon Livestock Development Project (US\$100 million IDA commitment)* aims to improve the productivity of selected livestock production systems and the commercialization of their products for the targeted beneficiaries, and provide immediate and effective response in the event of an eligible livestock crisis or emergency.



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CHAPTER 2 CREATING CLIMATE-RESILIENT LANDSCAPES

2.1 Forested Landscapes

Implementation Progress: Overview

The World Bank's work on forests in Africa has made important progress since January 2016 (table 2.1.1). Enhanced engagements toward sustainable management of forests were improved through the different countries involved. New countries are preparing proposals for national Reducing Emissions from Deforestation and Forest Degradation and Enhancing Carbon Stocks (REDD+) strategies, and new grants were awarded. For countries implementing investments on the ground, actions were promoted to involve other sectors and address the drivers of deforestation, trade-offs, and competing incentives for land use and conversion.

TABLE 2.1.1. Support to Forests and Reduced Emissions from Deforestation and Forest Degradation (REDD+): Implementation Progress at a Glance

Activity	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> • Support the development of national REDD+ strategies and implementation arrangements (legal framework, capacity building, governance structures, monitoring and verification systems, stakeholder engagement platforms, feedback and grievance redress mechanisms, and so forth). • Fund early investments in demonstration activities in forest landscapes. • Fund performance-based payments for REDD+ and enhanced carbon stocks. 	<ul style="list-style-type: none"> • The World Bank adopted the Forest Action Plan, which will spur the World Bank’s overall engagement in sustainable forestry, forest-smart interventions (in non-forest sectors), climate change and resilience, rights and participation, and institutions and governance. • The Africa Forest Landscapes Program is scaling up efforts in several countries to improve forest sector planning and governance, piloting forest investments to address deforestation and forest degradation, and promoting sustainable forest management. For example, the World Bank is supporting the Democratic Republic of Congo’s plans to reduce deforestation and forest degradation on 12.3 million hectares in the Mai Ndombe Province. • 15 countries have active programs. This includes funding approved by the Forest Carbon Partnership Facility REDD+ Readiness Fund and other bilateral programs. <ol style="list-style-type: none"> 1. 6 new countries received additional funding: Côte d’Ivoire, Liberia, Madagascar, Mozambique, the Republic of Congo, and Uganda. 2. The Readiness Package (R-Package) was approved in the Democratic Republic of Congo and Ghana. • Projects were approved in Liberia for US\$37 million. • The Forest Investment Program projects under preparation are US\$25 million in Côte d’Ivoire, US\$25 million in Mozambique, and US\$25 million in the Republic of Congo. • A new trust fund was established for Central Africa (Central African Forest Initiative - CAFI). • The Emission Reductions Program Document (ERPD) for the Mai Ndombe province in the Democratic Republic of Congo was provisionally adopted in the FCPF Carbon Fund in June 2016. • Letters of intent (LOIs) were signed for the Carbon Fund with Côte d’Ivoire, Ghana, Madagascar, Mozambique, and the Republic of Congo. • Ethiopia and Liberia signed LOIs directly with Norway.

Implementation Progress: Discussion

The World Bank’s Africa Forest Landscapes Program addresses deforestation and forest degradation, the second leading man-made cause of global warming. A rapid decrease in greenhouse gas emissions from deforestation and the conversion of forestland to other uses is needed as part of the arsenal of policies and measures to limit global temperature increase to two degrees Celsius. In Africa, 400 million people’s livelihoods depend on forest resources, highlighting forest loss’s importance as a development issue.

Since the launch of the Africa Climate Business Plan (ACBP), the Forest Landscapes Program has continued to promote sustainable forest management, mitigate climate change, transform the livelihoods of forest-dependent people, and support vital ecosystem services. An integrated approach is being used to allow stakeholders across sectors to plan together for sustainable development and address the drivers of deforestation and forest degradation.

Africa is the region with the most active forest program in the World Bank, and includes a substantial group of countries that are working on REDD+ programs. REDD+ covers 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 agroforestry landscapes of Ghana, to the highland forests of Ethiopia and Kenya; and from the Miombo woodlands of Mozambique, to the island tropical forests of Madagascar, which are rich with endemic species.

The World Bank is helping client countries access climate finance opportunities that can act as incentives to shift toward more sustainable practices. As part of the national forest programs, the World Bank is investing and improving in three phases. First, it is supporting forest sector planning, governance, and consultation to put REDD+ programs in place in 15 countries. Second, the World Bank is supporting the development of national REDD+ strategies and implementation arrangements in the following countries: Burkina Faso, Cameroon, the Central African Republic, Côte d'Ivoire, the Democratic Republic of Congo (box 2.1.1), Ethiopia, Ghana, Liberia, Madagascar, Mozambique, Nigeria, the Republic of Congo, Sudan, Togo, and Uganda. Third, the World Bank is helping to implement an integrated portfolio of well-funded engagements on forests, landscapes, and biodiversity. The World Bank is continuing to build on the TerrAfrica program, which has created a platform for forging a common vision to address Africa's most daunting land management issues. Most of the countries 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 World Bank is supporting these countries' efforts to improve governance systems, address drivers of deforestation, and engage communities in improving practices with better benefit sharing.

Success in addressing deforestation issues and accessing climate finance is also 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. Investment programs such as the Forest Investment Program (FIP) are increasing the number of programs piloting forest investments. A new forest project was approved for Liberia (US\$37 million). Projects to be financed by the FIP are under preparation for US\$25 million in Côte d'Ivoire, US\$25 million in Mozambique, and US\$25 million in the Republic of Congo. The FIP projects are complemented by measures to enhance the capacity of indigenous peoples and local communities to participate in REDD+ through the FIP Dedicated Grant Mechanism for Indigenous Peoples and Local Communities. New streams of funding are being made available. One is the Central African Forest Initiative, which is being created to increase investments in the Congo Basin. It is 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, BioCarbon Fund, and bilateral arrangements). The Democratic Republic of Congo is finalizing an emissions reduction purchase agreement with the Carbon Fund, and Côte d'Ivoire, Ghana, Madagascar, Mozambique, and the Republic of Congo have signed letters of intent (LOIs) with the Carbon Fund and are working on the proposal details. Ethiopia and Liberia have already signed LOIs with Norway, to develop performance-based payment in addition to the upfront investment.

BOX 2.1.1. Success Stories: Forest Programs in the Democratic Republic of Congo and Liberia

The Democratic Republic of Congo

The Democratic Republic of Congo continues to play a leading role worldwide in taking action on forests in the context of climate change and sustainable development. The Democratic Republic of Congo is one of the priority countries to implement the World Bank Group's Forest Action Plan, and has seen major developments in the past year.

The Democratic Republic of Congo was the first country to get approval for its large-scale program to reduce deforestation and forest degradation on 12.3 million hectares in the Mai Ndombe Province. The World Bank is working with the country to prepare a payment agreement under the Forest Carbon Partnership Facility's Carbon Fund (a trust fund managed by the World Bank).

A programmatic approach on forests is already operational in the Mai Ndombe Province, where the World Bank combined several finance sources to make sustainable forest landscape management happen. This effort includes the forest and climate trust funds (Forest Carbon Partnership Facility and Forest Investment Program), Global Environment Facility, and Central African Forest Initiative (CAFI). There is also dedicated support to indigenous peoples and local communities through the Forest Investment Program's Dedicated Grant Mechanism.

The country signed its letter of intent with CAFI, which will support the implementation of important policy reforms, such as land use planning and land tenure, as well as investment projects at the provincial level. The Democratic Republic of Congo put the national structure in place to coordinate this process through its National REDD+ Fund.

Furthermore, CAFI is helping the World Bank to increase cross-sector alignment with projects in other sectors that have an influence on forests, such as agriculture, demography (family planning), and governance (public administration), that have an influence on forests.

Finally, the Democratic Republic of Congo is also a priority for enhanced collaboration on forests in the World Bank's partnerships with Germany, Norway, and the United Kingdom, the key donors to the forest and climate trust funds.

Liberia

Liberia decided to move away from pure commercial forestry toward sustainable forest management, involving community management and through the increase of protected forest areas. The forest sector reform, initiated with the World Bank's support, follows a "Three C's" approach that balances and integrates community, commercial, and conservation objectives. More recently, forest carbon became part of this approach.

The World Bank has been engaged in the forest sector reform through technical assistance for over 10 years. The program is now heavily focused on the REDD+ and multisector drivers of deforestation. As part of this process, a latest development was approval of the Liberia Forest Sector Project, with US\$37.5 million from the Norwegian government. Recent accomplishments in the country made for a positive start of the project, namely, passage into law of the Liberia Land Authority Act, and declaration of the Gola Forest National Park (the second national park in Liberia), which protects part of the Guinean Forest of West Africa.

box continues on next page

BOX 2.1.1. Success Stories: Forest Programs in the Democratic Republic of Congo and Liberia *(continued)*

Providing positive results and impacts from the Liberia Forest Sector Program, a potential US\$80 million could be allocated in 2020 for payments for emissions reductions. Securing financing from the Government of Norway is a major boost to the sector and supports Liberia's commitment to manage its forests sustainably. In parallel, the World Bank is working closely with the private sector and the International Finance Corporation on making palm oil and rubber more forest-smart.

Opportunities for Further Progress in 2017

In the Democratic Republic of Congo, a forest country note is being prepared to review opportunities for further progress in the sector. The expansion of the Mai-Ndombe project using CAFE funding is expected to be approved by the World Bank Board.



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2.2 African Resilient Landscape Initiative

Implementation Progress: Overview

The World Bank continues to support the African Resilient Landscape Initiative (ARLI) through country- and region-level projects. The initiative is working to mobilize financial and technical resources from multiple sources, to help design and implement country- and region-specific integrated landscape-level strategies. Through the ARLI, the World Bank is supporting resilient landscapes in the Sahel, Horn of Africa, and East 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 agriculture, woodlands, agro-silvopastoral lands, croplands, and irrigated agricultural lands) will promote productivity, resilience, carbon sequestration, biodiversity, water regulation and quality, national security, and regional stability. Progress was made in several areas of engagement, as summarized in table 2.2.1 and described in this chapter.

TABLE 2.2.1. Support to Climate-Resilient Landscapes: Implementation Progress at a Glance

Activity	Progress made (Jan – Sep 2016)
<p>Launch, operationalize, and support the African Resilient Landscape Initiative, including through the following activities:</p> <ul style="list-style-type: none"> • 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) • Preparation and implementation of sustainable landscape management in Ghana • Preparation and implementation of the Sustainable Agricultural Land Program in Madagascar • Preparation and implementation of the Agriculture and Natural Resources Landscape Management Program in Mozambique • Preparation and implementation of the Resilient Natural resources management for Growth Program in Tanzania 	<ul style="list-style-type: none"> • The World Bank is supporting the Landscape Restoration Project in Burundi to meet its commitment of 1 million hectares of restored land by 2030. • To promote food security, resilience, carbon sequestration, biodiversity, and national and regional stability, the World Bank is working to mobilize financial and technical resources to design and implement country- and region-specific integrated landscape-level strategies in support of land management, water, and forest resources. • The Resilient Landscapes for Development Program was expanded into a broader proposal to include new countries under the Resilient Landscapes for Development Program in African Drylands. The proposal is ready to seek Green Climate Fund (GCF) and Global Environment Facility (GEF) approval. • A proposal for a project in Sudan is seeking approval from GEF (US\$7.31 million). • The project in Ghana secured funding from GEF for US\$12.77 million, was Board approved in May 2016, and is under implementation. • The Madagascar project is under preparation for delivery to the World Bank Board, with funding (US\$106.6 million) to be provided by the International Development Association (IDA), GEF, and Trust Funds. • The Mozambique project was approved in June 2016 (IDA US\$40 million). • The Tanzania project is in an advanced stage of preparation toward appraisal (IDA US\$100 million). • In addition to the proposed portfolio, new activities were initiated to contribute to the larger goals of the Resilient Landscapes for Development Program in African Drylands. • A forest and landscape restoration project in Zambia is being prepared (GEF/BioCarbon/IDA US\$30 million). • A landscape restoration project is being prepared in Burundi (IDA US\$50 million, Least Developed Countries Fund US\$13.5 million), and an additional supplement to seek GCF resources is also under preparation (US\$75 million).

Implementation Progress: Discussion

The Resilient Landscape Initiative, following a programmatic approach, continues to develop and secure funding to implement country-level and regional projects. For instance, at the national level, the Sudan Sustainable Natural Resources Management Project is preparing a proposal for Global Environment Facility (GEF) approval. The project will address several aspects of the landscape mosaic, including management of agricultural areas, as well biodiversity conservation and sustainable forest management in adjacent areas. This will ensure a host of benefits, such as increasing productivity, food security, livelihood resilience, provision of local energy sources, and clean water.

The Second Additional Financing for the Ghana Sustainable Land and Water Management (SLWM) Project was approved by the Board of Directors for US\$12.77 million. This GEF grant will help the project scale up ongoing SLWM interventions from an original 6,000 to 15,000 hectares, expanding the coverage of the project from an original 10 to 12 districts in the Northern Savannah Zone of Ghana. Farmers in the Northern Savannah Zone will benefit from SLWM interventions in selected watersheds and forest fringe communities located in the agricultural landscape and corridor areas.

For Ghana, this second Additional Financing grant to SLWMP brings the total GEF grants to US\$29.7 million, with in-kind contributions by the Government of Ghana equivalent to US\$12.3 million. This project, through its programmatic series of interventions over three GEF replenishments, is proving to be a showcase for strategic planning, government commitment, and long-term engagement in natural resources management in the country.

In Mozambique, a number of projects will contribute to the ARLI. These include: (i) Mozambique Forest Investment Project, (ii) Dedicated Grant Mechanism for Forest-Dependent People Project, (iii) REDD+ Readiness Preparation Support, (iv) Zambezia Emissions Reductions Payment Program, (v) Agriculture and Landscape Natural Resources Management Project, and (vi) Technical Assistance Program on Integrated Forests and Landscape Management.

The Madagascar Sustainable Landscape Management Project is under preparation and will begin implementation in mid-2017. The Tanzania Resilient Natural Resources Management for Growth Project is in the advanced stage of preparation toward appraisal (International Development Association (IDA) US\$100 million). Potential projects in Burundi (box 2.2.1) and Zambia are being prepared to secure funding from multiple sources. The project in Burundi will aim to build on the extensive baseline to generate local, national, and global environmental benefits by promoting the uptake of sustainable land use management practices through a landscape program to support sustainable development and enhanced livelihoods resilience. Activities will support institutional and technical capacity building for implementation of sustainable and resilient management practices in productive landscapes.

The Forest and Landscape Restoration Project in Zambia is being prepared (GEF/BioCarbon/IDA US\$30 million). The project will build on the successful Pilot Program for Climate Resilience already under implementation, upscaling it and extending it to all rural areas of Zambia in all provinces. The focus will be on ensuring the sustainability of poor rural community livelihoods in an environment already highly stressed by climate change and expected to undergo further important changes in the next decades. By improving agricultural and forestry practices, the project will simultaneously yield climate mitigation benefits and complement the Zambia Integrated Forest Landscape Project, which is helping to create an enabling environment for emissions reductions purchases in the Eastern Province.

Activities will also support sustainable land, water, and forest management practices, including the use of terracing, crop rotation systems, agroforestry, and shade-grown coffee cultivation. Other activities to provide diversification of livelihoods and enhance the resilience of small-scale agriculture to the effects of climate change will also be supported. This component addresses key priority issues, including the National Action Plan for Adaptation, such as promotion of energy-wood-saving techniques, education for climate change adaptation, erosion control, and promotion of dryness-resistant food crops.

As part of the Resilient Landscape Initiatives, the European Union held a conference in Dakar to showcase the results and key strategic directions of the Great Green Wall for the Sahara and Sahel

Initiatives (GGWSSI). The GGWSSI is an African initiative to transform the Sahel into a stable, sustainable, resilient region through improved management of natural resources, land, water, and climate risks. Led by the African Union, in 2013 the heads of state of more than 20 countries in the region endorsed development of the initiative, recognizing that natural resources, climate change, water, agriculture, jobs, and security are interconnected challenges that need to be addressed to eradicate poverty. The conference, with the participation of the World Bank, Food and Agriculture Organization, United Nations Convention to Combat Desertification, and others, confirmed the overall commitment at the regional level for the initiative, set national targets, and consolidated the interest in preparing a second phase.

BOX 2.2.1. Success Story: Resilient Landscape Program in Burundi

Burundi is one of the countries that committed last year in Paris to the Africa Resilience Landscape Initiative and Bonn Challenge targets in alignment with its Intended Nationally Determined Contribution. The World Bank is helping the Government of Burundi to meet its commitment of one million hectares of restored land by 2030, through the development of the Burundi Landscape Restoration Program. This program consists of three coordinated activities.

- Country Environmental Analysis (CEA), whose objective was to analyze environmental factors that affect growth, shared prosperity, and poverty reduction; and prepare an action plan for climate change adaptation and disaster risk management. This analysis, which is almost complete, identifies land degradation as one of the main environmental problems in Burundi.
- Sustainable Coffee Landscape Project (US\$4.2 million, Global Environment Fund (GEF)), which is currently piloting sustainable land management practices, including shade-grown coffee, to address land degradation and improvement of the livelihoods of the country's coffee growers.
- Landscape Restoration Project (US\$50 million, International Development Association; US\$13.5 million, Least Developed Countries Fund; and US\$75 million, Green Climate Fund), currently under preparation, which will build on the results of the pilot GEF project and contribute to implementation of the action plan proposed under the CEA. The project aims to restore degraded landscapes by community members in two priority regions of the country.

The project takes an integrated approach to enable restoration and enhance resilience, particularly given the recent country context. The project will support ecosystem-based adaptation by conserving intact habitats that provide a natural buffer for vulnerable communities against disaster, intensified by climate change. The project also aims to increase awareness of climate change impacts and measures for adaptation, reducing vulnerabilities. In addition, the project will work with communities around protected areas, providing livelihood opportunities and diversified sources of income. Components of the project will be implemented through a results-based, cash-for-work scheme in which participants will be paid for their restoration activities, and based on agreed environmental results. The scheme will be a good opportunity to work on local capacity and provide short-term employment.

Opportunities for Further Progress in 2017

The World Bank is preparing Landscape Investment Plans in various other countries in Africa, with financing expected from IDA, the Green Climate Fund, and other sources. It is expected that in 2017 some of these projects will be approved and start implementation, thereby contributing to fulfilling

the national commitments and pledges defined under the AFR100 initiative and the Bonn Challenge.¹ The preparation of the second phase of the GGWSSI will be a focus of work for 2017, in addition to the emphasis on work toward resilience in the continent’s dryland areas.

¹ AFR100 (the African Forest Landscape Restoration Initiative) is a country-led effort to bring 100 million hectares of land in Africa into restoration by 2030. The initiative—launched formally at COP21 in Paris— will support the Bonn Challenge, a global commitment to restore 150 million hectares of land around the world by 2020, as well as the New York Declaration on Forests, that builds on and extends, the Bonn Challenge to 350 million hectares by 2030.



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CHAPTER 3 PROMOTING INTEGRATED WATERSHED MANAGEMENT

3.1 Niger River Basin

Implementation Progress: Overview

Climate change imposes stark challenges for the food-insecure Sahel and particularly for the Niger Basin's already highly vulnerable population of 112 million. Six of the nine basin countries are among the world's least developed, with high poverty and weak social and economic safety nets. Water is a fundamental pathway through which climate change is impacting people and the environment, making water-related resilience-building interventions a top priority. Because the basin countries share surface and groundwater, a coordinated approach presents significant opportunities to build resilience and avoid maladaptation more effectively.

Recognizing this, 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 African Development Bank (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 US\$3.1 billion. Prioritized within existing regional and national development plans, the resilience-building investments are diverse—ranging from climate insurance for farmers, to adapting gender policies to free more productive time, to enacting anti-erosion and anti-silting measures to protect lands, to rehabilitating water storage structures to preserve supplies and improve flood protection. These interventions at the transboundary, national, and community levels will allow the region to improve its ability to reduce risks and develop amid a changing climate. Progress has been made in several areas of engagement, as summarized in table 3.1.1 and described in the rest of this chapter.

TABLE 3.1.1. Support to the Niger River Basin: Implementation Progress at a Glance

Activity	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> • Engage in a consultative process to prepare a Climate Resilience Investment Plan (CRIP). • Hold donor roundtables. • Perform technical activities related to investment preparation. 	<ul style="list-style-type: none"> • Nine countries in West Africa’s Niger Basin, led by the Niger Basin Authority, continue to make progress in preparing, mobilizing resources for, and implementing the prioritized investments in the Niger Basin Climate Resilience Investment Plan (US\$3.1 billion, of which more than US\$500 million has already been mobilized). • A team of experts provided training for regional and national officials on investment preparation and securing financing for investment planned along the 4,200-kilometer Niger River. • The Niger Basin CRIP was launched at the United Nations Conference on Climate Change (COP21) following a thorough consultative process. • A donor roundtable was held in June 2016 (led by the NBA, African Development Bank, and Infrastructure Consortium for Africa). • A donor roundtable is planned for December 2016 (hosted by the NBA, supported by the World Bank and the Cooperation in International Waters in Africa program). • World Bank–initiated preparation of lending operations on activities was identified in the investment plan. • The World Bank advanced preparation for lending operations implementing important aspects of the CRIP, including the Sahel Irrigation Initiative and the Economic and Environmental Rehabilitation of the Niger River (Mali) project. • Capacity building and technical assistance supported countries’ efforts to mobilize resources for implementation of the CRIP.

Implementation Progress: Discussion

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 to be best practice in the field, but not a technique that is easily or widely implemented. The CRIP consists of a careful selection of resilience-building investments from key existing regional and national planning documents, and totals 246 investments amounting to an estimated US\$3.1 billion in financing needed. The selected investments bolster resilience through a wide variety of ways, for instance:

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

- rehabilitating water storage structures in Nigeria.

Each investment that is included in the plan was examined and vetted by the NBA Member States 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. A follow-on donor conference planned for November 2016 will feature investment projects not included in the AfDB event. The World Bank is working closely with the clients to prepare an investment project to address some of the needs identified in the investment plan, with a notional US\$425 million funding envelope, expected to be funded through International Development Association credits.

In support of countries' efforts to mobilize resources for the investment plan, the World 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. This year, the team organized an array of workshops, consultations, and technical assistance requested by the countries and the NBA. These activities served to support the effective preparation and implementation of investments to be included in the Niger Basin CRIP, as well as assist in the mobilization of resources and investments for climate resilience throughout the basin. More than 100 representatives from relevant line ministries (water, energy, agriculture/livestock, and environment), ministries of finance and foreign affairs, as well as national and subregional river basin authorities participated. The activities addressed specific capacity needs, including the ability to identify the additional challenges posed by climate change, new opportunities available to mitigate climate risk, and the benefits of cooperative approaches to avoiding the effects of maladaptation. The training also helped participants to improve their understanding of the climate financing landscape and the policies and mechanisms specific to different entities. The NBA and its members worked with actual projects and proposals to package investments targeted at specific funding sources, including the private sector. They thus advanced critical actions for the CRIP that will further serve them as they advance other programs and priorities for the basin. A specific example of this work is elaborated in box 3.1.1. The next steps include a resource mobilization conference, where the countries and the NBA will showcase their climate-resilience investment needs under the CRIP to targeted donor partners and financiers.

BOX 3.1.1. Success Story: The Climate Resilience Investment Plan for the Niger Basin

The Climate Resilience Investment Plan (CRIP) for the Niger Basin is a nine-country initiative that endeavors to help the countries of this highly vulnerable region prepare for the impending impacts of climate change. The CRIP builds on national adaptation programs and plans, as well as the regional operational plan and a variety of other climate change-related proposals, which, as a package, extend benefits beyond just adaptation to include economic and social development.

For example, in Niger climate change threatens to impact water resources, arable land, ecosystems, and food security, among many other issues. Elevated levels of poverty and political challenges are such that the country is unprepared and unable to face these climate impacts adequately. In response, Niger has progressively advanced the identification and preparation of a collection of projects that address land degradation, desertification, ecosystem degradation, improved water quality, and reduced vulnerability to water stress.

box continues on next page

BOX 3.1.1. Success Story: The Climate Resilience Investment Plan for the Niger Basin (continued)

As part of this effort, Niger joined the other basin countries in a series of workshops to help the countries review, revise, and advance their project list into detailed profiles to present for funding. The workshop in Niamey involved approximately 13 key people from the water, climate, planning, and finance ministries, and a key selection of people from the Niger Basin Authority. Focus was placed on clear presentation of how each project directly addresses the climate change challenges and builds resilience to future climate impacts in each country. The cross-ministerial teamwork and inclusion of key players from sub-basins throughout the region served to involve implementing players early on. In Niger, alongside representatives from the water, planning, and finance ministries, there were two directors of separate river basins from the country. Niger presented a total of 31 projects in the CRIP, 16 of which it has further elaborated in the months following the Paris United Nations Conference on Climate Change, as part of a resource mobilization effort. The 16 project profiles that Niger will present at the donor roundtable are ready for support and immediate implementation, requiring US\$326.5 million.

Opportunities for Further Progress in 2017

In the coming year, the countries and the NBA will advance implementation of the CRIP investments. The World Bank is preparing investment support options that will finance many of the actions identified in the CRIP to achieve development and climate resilience outcomes. The AfDB is also implementing a subset of actions identified in the CRIP with resources mobilized during the June 2016 donor conference. Finally, a larger donor roundtable featuring CRIP investment profiles will take place in November 2016, to mobilize additional donor resources in support of the Niger Basin countries' climate resilience objectives.



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3.2 Lake Chad Basin

Implementation Progress: Overview

The engagement of the World Bank in support of the development of Lake Chad started before the United Nations Conference on Climate Change (COP21), in the form of technical assistance to the riparian countries and the Lake Chad Basin Committee (LCBC), funded through Cooperation for International Waters in Africa (CIWA) catalytic funds. This technical assistance was instrumental in providing help for better understanding the future of the lake, and defining a framework for future engagement based on broad consensus. This shared vision provides the strategic foundation for long-term engagement in the Lake Chad Basin, and will guide preparation of a long-term, multiyear, multicountry program. Since Paris, progress toward this objective was made in several areas, as summarized in table 3.2.1 and described in this chapter.

TABLE 3.2.1. Support to the Lake Chad Basin: Implementation Progress at a Glance

Activity	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> Assess priority development and climate resilience issues in Lake Chad. Prepare a priority action plan, to be endorsed by the Lake Chad Basin Commission. Implement selected priority actions included in the plan. 	<ul style="list-style-type: none"> The Lake Chad Basin Commission and its six Member States developed an action plan to turn Lake Chad into a pole of regional rural development. The plan comprises 173 activities for an estimated cost of US\$1 billion. The World Bank initiated identification of a regional Lake Chad Development Project, covering the lake area and its hinterlands in Cameroon, Chad, Niger, and Nigeria. It will also benefit from International Development Association 18 financing.

Implementation Progress: Discussion

The ongoing technical assistance and CIWA catalytic funds have been critical in supporting the World Bank’s reengagement in Lake Chad and progress made since COP21. The Lake Chad Development and Climate Resilience Action Plan for 2016–25 (LCDAP) was prepared with the support of the World Bank in coordination with the French Development Agency (AFD). Consultations with the lake’s riparian countries were held in fall 2015 to get country buy-in. The plan was then endorsed by the Council of Ministers of the LCBC on November 13, 2015, and presented at COP21 by the LCBC and its Member States on December 2, 2016. This event was facilitated by the World Bank, which also funded related brochures and a documentary on Lake Chad for further dissemination, with a view to inform the partners and support resource mobilization efforts.

The LCDAP (i) includes an assessment of priority development and climate resilience issues in Lake Chad and, (ii) proposes a total of 173 activities under seven priority areas, intended to address the region’s development challenges (box 3.2.1). Its total cost is about US\$1 billion.

BOX 3.2.1. Lake Chad: Development Challenges and Opportunities

The value of Lake Chad resides in its contributions to water, food, and job security, which are particularly precious in a Sahel-Saharan regional environment characterized by aridity and erratic availability of water resources. The lake area is the direct source of livelihood for a rural population of 2.2 million inhabitants making a living from its rich natural resources (fishing, livestock farming, and flood-recession agriculture). A net exporter of food and provider of seasonal jobs, the area also contributes to the food and job security of about 13 million people in its hinterlands, including Ndjama, the Chadian capital city, and Maiduguri, the capital city of the Nigerian state of Borno, as well as the impoverished regions surrounding the lake in the four riparian countries. The lake area is a very productive ecosystem and food production hub that relies on annual floods and flood recessions to provide water, fodder, and fertile land, enabling agricultural activities all year long. Moreover, the mostly family-based fishing and farming systems are labor intensive and generate significant indirect employment (processing, trade, crafts, and transport).

Although the ecological value of Lake Chad has been recognized by the Ramsar Convention and the lake is being classified as a World Natural Heritage Site by the United Nations Educational, Scientific, and Cultural Organization, the lake is also a fragile and vulnerable ecosystem facing many risks. Demographic pressure exacerbates the vulnerability of a poor population, which already has low access to basic services and infrastructure. Moreover, the lake is exposed to potential modifications of its hydrological conditions that a changing climate could trigger. The lake is highly vulnerable to significant changes in water inflows from its tributary rivers.

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BOX 3.2.1. Lake Chad: Development Challenges and Opportunities (*continued*)

If climate change models do not converge on the impact of rainfall variability in the lake area, an increase in water withdrawals from the rivers feeding the lake, mainly the Chari-Logone River, would directly affect current agricultural practices, especially in the northern basin of the lake. These impacts could result in migrations to the southern shores and intensified pressure on lake resources. The very shallow lake and its wetland ecosystem are also threatened by pollution and insecurity. Since 2014 and the territorial expansion of the Boko Haram group from its original basis in Borno, Nigeria, insecurity has seriously affected Lake Chad and its hinterlands. The lake channels and many commercial routes have been cut or restricted, destabilizing trade and the regional economy, and generating an influx of displaced people.

These challenges have strengthened the integrative dynamics developed in recent years between the states bordering the lake: border agreements, joint mobilization and solidarity to restore security, and joint projects. These activities are expected to become more concrete and effective in the field of economic development.

The LCDAP is in line with strategic planning documents developed by the LCBC during the past years (Vision 2025, Strategic Action Plan, and Water Charter). Part of the projects and measures included in the present Action Plan come from LCBC's five-year investment plan (2013–17) and its Emergency Program for Youth and Vulnerable Groups in the Region of Lake Chad for 2015–16, as well as recent national planning documents for at least part of Lake Chad. Additional proposals were included to be able to meet the vision proposed in a 10-year planning horizon.

The core idea of the LCDAP is that, in parallel to the restoration of peace and security, there is a need to turn Lake Chad into a rural hub for regional development. The plan intends to contribute significantly to food security, employment, and social inclusion of youth, by improving, in a sustainable way, the living conditions of populations settled on the lake's banks and islands. In addition, the plan aims to help improve the resilience of a system characterized by strong demographic growth, high hydrological variability, and climate uncertainty. To achieve these ends, the plan proposes a total of 173 activities in seven priority themes:

- *Supporting producers and their value chains* to increase food production and employment, thereby allowing the lake area to increase its contribution to food security and regional stability.
- *Securing access to natural resources and managing conflicts*, thereby helping the socio-ecosystem of the lake (which has been effective so far in absorbing the pressure exerted by population growth) to strengthen resilience and increase its contribution to regional development.
- *Improving living conditions through public investments*, because people in the lake area in the four countries have limited access to basic services that are well below the already low national averages. Progress in this area will be necessary for developing the potential of the lake and strengthening the resilience of riparian societies.
- *Facilitating transport and trade*, because Lake Chad remains handicapped by poor access, which slows down the value of its agricultural production and improvement in the living conditions of its inhabitants.
- *Preserving the environmental capital of the lake* itself, which is the foundation of the system's efficiency, including contributing to reducing one of the highest rates of population growth in the world.

- *Improving the management of the water resources of the basin*, since the regional management has so far remained largely ineffective, and given that the projected increase in water demand requires concerted management of the resource. The increase in demand also suggests a regional response to the risks of pollution (agricultural, urban, industrial, and oil sectors) that threaten Lake Chad.
- *Disseminating information, improving knowledge, and monitoring the environment*, as implementation of more effective development, based on clearly identified options, assumes the availability of more precise knowledge about the ecological and socioeconomic functioning of the lake and basin. This theme also requires the LCBC to better mobilize and share available information, and facilitate participatory processes involving stakeholders.

Riparian countries, local governments (or customary authorities), the LCBC, and civil society will be responsible for implementing the proposed actions. The LCDAP includes enhancing the capacity of the LCBC in collecting data, sharing information, and carrying out analyses that are useful for the governance of the basin's shared natural resources.

Partnerships and Resource Mobilization

The estimated cost of the Lake Chad Development and Climate Resilience Action Plan is €916 million, or approximately US\$1 billion. The World Bank has engaged with partners of Lake Chad, including the LCBC and its members and technical and financial partners, to promote implementation of the LCDAP.

The African Development Bank (AfDB) has been the lead development partner to the LCBC and in the Lake Chad Basin. To follow on its support to the Lake Chad Sustainable Development Support Program, which started in 2008 and will close at the end of 2016, the AfDB approved a US\$80 million support for implementation of the Program to Rehabilitate and Strengthen the Resilience of Socio-ecological Systems in the Lake Chad Basin (PRESIBALT), as part of the LCBC's five-year investment plan (2013–17).

The goal of PRESIBALT is to improve the resilience of vulnerable populations who depend on the natural resources of the Lake Chad Basin in Cameroon, the Central African Republic, Chad, Niger, and Nigeria. PRESIBALT was formally launched in January 2016. Its activities will contribute to the implementation of the LCBC LCDAP. The AFD developed a regional initiative for populations affected by the Boko Haram conflict in the lake area. The AFD will work with a consortium of international nongovernmental organizations (NGOs) that was selected in July 2016 after a consultation under a new instrument enabling the AFD to work in post-conflict environments. The initiative is being funded by an AFD grant of €5 million and funds from the European Union Emergency Trust Fund (amount to be confirmed in fall 2016). The Global Environment Facility approved two grants of approximately US\$6 million and US\$10 million to support the LCBC in connection with the AfDB project and another existing United Nations Environment Programme project focused on water resources management. The Islamic Development Bank expressed interest in providing parallel financing for agricultural activities pertaining to Lake Chad. The Chadian government also secured Arab funds for the development of the road linking Ndjamena to the border of Nigeria along the northern shore of the lake, an activity identified in the Action Plan. Under the CIWA-funded technical assistance, the World Bank further engaged with the LCBC at the technical level to discuss needs pertaining to water management resources and information system strengthening, in coordination

with the *Deutsche Gesellschaft für Internationale Zusammenarbeit* (resident technical assistance) and AFD.

The second Security Summit in Abuja in May 2016 urged partners to implement the LCBC LCDAP as one of the many actions to promote peace and the foundation for stable development in the Lake Chad region. A joint World Bank–United Nations High Commissioner for Refugees workshop, organized later in May in Dakar, confirmed the need for a fundamental paradigm shift in dealing with conflict-induced forced displacement in the Lake Chad area, and working along the principles of the security-humanitarian-development nexus in this insecure environment. The World Bank confirmed its willingness to contribute to implementation of the LCBC plan through a regional project. A pre-identification mission in Ndjamena, Chad, was conducted in June–July 2016. Meetings were held with many central and line ministries, regional authorities, technical agencies (*Société de Développement du Lac Tchad*, SODELAC), the LCBC, security actors, and the humanitarian platform coordinated by the United Nations. The meetings were attended by many of the NGOs active in the Lake Region, as well as the committee of technical and financial partners, led by the AfDB and involving major donors in Chad. This mission: (i) helped prioritize potential areas of interventions consistent with the LCDAP, particularly livelihood activities and links from the lake production areas to regional markets, as well as integrated water resources management; and (ii) identified key principles to work along the security-humanitarian-development nexus, with a view to design a programmatic and flexible approach that takes into account short- and longer-term needs and ensures a consistent approach within a regional framework. Similar missions will be conducted in Cameroon, Niger, and Nigeria, as well as consultations with the four riparian countries to get their buy-in and active involvement in the design and preparation of the Lake Chad Development Project.

Opportunities for Further Progress in 2017

Preparation of the Lake Chad Development Project will span 2017, with an approval date planned for the end of the year. The total International Development Association (IDA) allocation for the project is in the order of US\$250 million, including regional and national contributions. The next steps and the specific timeframe are subject to the security situation in the region.



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3.3 Zambezi River Basin

Implementation Progress: Overview

As part of the collective efforts to support climate-resilient, cooperative development in the Zambezi River Basin, the World Bank Group has been working to provide institutional and information management systems to support a range of infrastructure investments. Guided by the Integrated Water Resources Management strategy for the Zambezi River Basin, and financed through a series of projects under the multi-donor trust fund for Cooperation in International Waters in Africa (CIWA), the Zambezi River Basin Program made progress in several key engagement areas, as summarized in table 3.3.1 and described in this chapter.

TABLE 3.3.1. Support to the Zambezi River Basin Program: Implementation Progress at a Glance

Activity	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> • Develop an Integrated Flow and Information Management System. • Enhance catchment management and livelihood support. • Provide technical and financial support to the implementation of the strategic plan, including to hydropower, irrigation, water transfer, and other strategic infrastructure. 	<ul style="list-style-type: none"> • Building on recent analytical work, the Zambezi River Basin Program developed a portfolio of investments worth more than US\$1 billion. • Cooperative instruments advanced, such as the Strategic Plan for the Basin being developed by the Zambezi Watercourse Commission, along with consultations on specific investment projects, such as the Batoka Gorge Hydropower Project. • The first phase of the Zambezi Water Resources Information System was completed, with an online database providing the platform for collating and sharing information, and the Council of Ministers endorsed the Rules and Procedures for Sharing of Data and Information Related to the Management and Development of the Zambezi Watercourse. • The partnership concept for the development of an Integrated Flow and Information Management System was agreed between the Zambezi Watercourse Commission Secretariat, World Bank Group, World Wildlife Fund, and other key stakeholders. • Engineering, environmental, and social assessments are nearing completion for a range of infrastructure investments aimed at improving resilience to climate variability and change, including hydropower development as one in the first of a series of investment projects. • Analytical work supporting capacity around the water-energy nexus and the sustainability of hydropower in the Zambezi River Basin is being implemented to increase the foundation for advancing climate-resilient investments.

Implementation Progress: Discussion

The Zambezi River Basin Program is supporting a range of investments to help strengthen overall resilience to hydro-climatic variability through technical assistance, investment financing, policy dialogue, and resource mobilization (box 3.1.1). The Zambezi River Basin is one of the most diverse and valuable natural resources in Africa. The basin’s waters are critical to sustainable economic growth and poverty reduction across Southern Africa. In addition to meeting the basic needs of more than 30 million people and sustaining a rich and diverse natural environment, the river plays a central role in the economies of the eight riparian countries (Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia, and Zimbabwe). The Zambezi River Basin provides important environmental goods and services to the region and is essential to regional food security and hydropower production. However, the basin’s water resources are subject to strong seasonal variation in the hydrological regime, and the recurrent cycle of floods and droughts has devastating effects on the people and economies of the region, especially the poorest members of the population.

As part of the efforts of the riparian states to improve resilience within the basin, the program has supported a range of institutional initiatives, including direct financial support as well as capacity-related measures to enhance cooperation among the riparian states. Through analytical undertakings related to an assessment of the impacts of climate change on the energy-water nexus and the application of the Hydropower Sustainability Assessment Protocol, the program has not only

enhanced capacity, but also helped to foster cooperative initiatives within a complex transboundary context.

The information base for informing decision-making processes within the basin is evolving with the operationalization of the Zambezi Water Information Management System (ZAMWIS). The first phase of this multi-donor initiative was completed, providing a platform for the geolocation of hydrologic and economic data. Rules and procedures for sharing data and information related to the management and development of the Zambezi Watercourse were subsequently endorsed by the Council of Ministers in February 2016. The second phase was launched and will support development of an effective decision support system for the Zambezi River Basin. This improved ZAMWIS will facilitate timely and informed water management decisions in the short term—through forecasting and early warning systems—and in the long term—through application of integrated basin models and information management systems in the planning and management of the basin’s water resources.

Amid increasing climate variability, decreasing resource predictability, and increasing demand from competing water users, these decisions will be a critical input for formulation of the strategic plan. The process for formulation of the strategic plan was launched, with completion of the procurement and consultative processes to ensure a robust framework for preparation of a plan that is embedded in the Member States and owned by the stakeholders. The Zambezi Watercourse Commission (ZAMCOM) will employ forecasting and analysis from ZAMWIS, informed by national data and development plans, in laying out its basin-wide strategic plan for countries to manage and develop their shared water resources cooperatively.

More than US\$16 billion in investments were identified through the Multi-Sector Investment Opportunity Analysis, and the World Bank Group assisted in overcoming some of the impasses in further realization of investments in the basin. This assistance includes support to the further development of the Batoka Gorge Hydropower Project. Detailed engineering, environmental, and social assessments are currently being carried out with support from the CIWA Multi-Donor Trust Fund. These assessments are expected to provide the foundation for an investment lending program to improve energy security and resilience within the basin and the Southern Africa region.

Reflecting the dual nature of the regional economy, new investments in large infrastructure coexist alongside a parallel subsistence economy that is reliant on environmental services provided by the river. The program has also supported mobilization of resources toward an integrated flows program. This program would improve the integration of environmental flows into the equitable and reasonable use of shared water resources in the Zambezi River Basin, and guide stakeholders in the implementation of development scenarios.

BOX 3.3.1. Success Story. Development of the Zambezi River Basin Program

Sustained support to the riparian states in the Zambezi River Basin helped to formulate a comprehensive program of investments built on solid, just-in-time analytical work. Over the past decade, the program grew from its initial analytical underpinnings to provide for a portfolio of projects at the national, subregional, and regional levels. More than US\$1 billion of this blended portfolio of projects is under implementation or in the pipeline. The portfolio includes grants and concessional coupling of World Bank-executed analytical work with recipient-executed activities to provide a balance of investments, institutional development, and information. Together these provide a robust framework for addressing the long-term challenges posed by hydro-climatic variability and predicted future changes. The long-term, predictable financing framework provides confidence and a commitment to the process embarked upon by the Member States to help realize the ambitions articulated through the Integrated Water Resources Management Plan and the strategy formulation process.

Opportunities for Further Progress in 2017

Substantial opportunities exist for further developments in 2017. The launch of the Strategic Plan for the Zambezi River Basin provides a clear road map toward an agreed investment framework for the basin. This framework will address the long-term development challenges in a climate-resilient and climate-smart framework. The parallel process of finalizing studies for the development of large-scale investment projects in the coming year provides the opportunity to invest in specific projects, such as the Batoka Gorge Hydropower Project, which can transform the development trajectory in the basin and among the riparian states. Partnership programs, such as those with the ZAMCOM Secretariat, World Wildlife Fund, and Global Environment Facility, provide opportunities to inform a long-term, environmentally sustainable framework for these developments.



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3.4 Lake Victoria Basin

Implementation Progress: Overview

The Lake Victoria Environmental Management Program (LVEMP) works in all five countries in the basin (Burundi, Kenya, Rwanda, Tanzania, and Uganda) to reduce a range of environmental pressures on the basin and improve the welfare of its inhabitants. Activities are implemented across three main components: (i) strengthening institutional capacity for managing shared water and fisheries resources, (ii) point source pollution control and prevention, and (iii) watershed management. Under the Africa Climate Business Plan (ACBP), the objective is to expand investments in the basin and address a range of climate challenges more explicitly. This will include preparation of a new phase of

the LVEMP, and a Lake Victoria Basin Climate Resilience Strategy. Steady progress has been made along these lines, as summarized in table 3.4.1 and described in this chapter.

TABLE 3.4.1. Support to the Lake Victoria Basin Program: Implementation Progress at a Glance

Activities	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> • Develop the Lake Victoria Basin climate-resilient development strategy. • Support sustainable land and water management, including climate-smart agriculture and sustainable rural energy systems. • Protect the ecological infrastructure, including riparian buffer zones, wetlands, forests, water towers, national parks, and fish nursery grounds, and monitor climate-related processes affecting the lake’s ecology (for example, water hyacinths and water quality). • Promote resource-efficient production systems and green and resilient livelihoods with the private sector. • Improve hydro-meteorological services and strengthen infrastructure resilience, including maritime safety, lake transport infrastructure, and urban storm water management. 	<ul style="list-style-type: none"> • The Lake Victoria Environmental Management Program (LVEMP) continues to implement a range of investments in sustainable land management, green livelihoods, and ecological infrastructure. • An additional US\$4 million grant is in the last stages of approval by the Nordic Development Fund to extend the Resource-Efficient and Cleaner Production program to more than 300 companies and develop green supply chain pilots. • Funding was secured for a climate vulnerability study and other basin diagnostics that will lay the foundation for the next investment phase of the LVEMP. • The current phase of the LVEMP includes more than 600 community-based watershed management subprojects, which have restored 1,500 hectares (ha) of wetlands and 2,000 ha of forest, and 10,000 farmers are adopting soil and water conservation measures on agricultural land. • The Lake Victoria Transport Program, which will support maritime safety and climate-resilient port infrastructure, is under development.

Implementation Progress: Discussion

The LVEMP is currently piloting investments that help to address a range of the environment and climate vulnerabilities faced by the region (box 3.4.1). The program includes more than 600 community-based watershed subprojects, which are diversifying sustainable livelihoods, introducing soil and water conservation practices in agriculture, and protecting key ecological infrastructure through the restoration of forests, wetlands, and riverbanks. Complementary activities are typically implemented together, for instance, reforestation of riverbanks with bee-keeping to generate income and protect areas from livestock, and promotion of stall-fed cattle alongside biodigesters.

BOX 3.4.1. Lake Victoria: Development and Environmental Challenges

The Lake Victoria Basin is a major population hub and a transboundary natural asset of global importance. The basin covers about a ninth of the land area of the East African Community (EAC), 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 three million people. Large rural populations are also dependent 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 Virunga.

The Lake Victoria Basin is also globally renowned for environmental degradation. The introduction of the Nile perch was associated with the mass extinction of endemic native fish species, and the perch stocks have

box continues on next page

BOX 3.4.1. Lake Victoria: Development and Environmental Challenges (*continued*)

now declined to probably less than half their peak levels as a result of increased fishing and other environmental stresses.

Loss of forest cover and erosion of soils have chronic impacts on agricultural productivity. 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 the 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 upstream (through reduced retention of soil moisture and nutrients) and downstream (through siltation, flooding, and gully formation). The impacts of climate change 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.

The point-source pollution management component of the project is largely focused on improving wastewater management, including rehabilitation of six water treatment works. The component also includes a provision on public sanitation facilities, including eco-toilets with biodigesters, and dredging and maintenance of stormwater drains in the Ugandan capital, Kampala. This component also includes a resource-efficient and cleaner production (RECP) program that is assisting private industries to reduce resource use (particularly water and energy) and waste production (box 3.4.2).

A new grant of roughly US\$4 million for expansion of the RECP program is in the final stages of approval by the Nordic Development Fund. This will not only allow the successful activities to continue, working with additional companies and ahead of a new phase of major program investments, but will also lay the groundwork for expanding the scope of engagement with the private sector in strategic directions. RECP activities will be extended to small and medium enterprises, and the grant will look into issues around access to finance for RECPs that might limit their participation. Strengthening of environmental regulation and disclosure systems will also enhance incentives for businesses to engage with the RECP program. Finally, the grant will 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 and mobilize the private sector (much of which is involved in agriprocessing or other natural-resource-dependent sectors) in support of sustainable and climate-smart land management, applying the same logic that such measures are frequently profitable for business (enhancing the productivity and reliability of suppliers) as well as the environment.

The Lake Victoria Transport Program is also under preparation by the World Bank and will continue and expand LVEMP initial investments in navigation safety, through more extensive bathymetric surveys and installation of navigation markers. The two programs will coordinate with and complement each other to manage climate and environmental risks to and from transport development, and support resilient rural livelihood development through sustainable natural resources management and improved market access. Funding was obtained from the United Kingdom's Department for International Development (DfID) to support development of the regional transport program, part of which will be used to assess climate risks to the lake, including: (i) the probability of rapid changes in lake levels (and their impacts on coastal infrastructure, navigation

safety, and key aquatic ecosystems); (ii) additional climate impacts on aquatic ecosystems, including risks from invasive species; and (iii) climate vulnerabilities within the basin more broadly, particularly in terms of impacts on rural livelihoods and flood risk.

Analytical work to be supported by DfID and other funds will provide the platform for the design of much larger basin rehabilitation and resilience investments, as envisaged under the ACBP. The development of this program will include the following:

- Preparation of a Lake Victoria Basin climate-resilient development strategy for eventual adoption by the Sectoral Counsel of Ministers for the Lake Victoria Basin of the EAC.
- Expansion and development of more systematic programs of sustainable land and water management, based on erosion and sediment transport models and watershed monitoring and evaluation systems. In addition to climate-smart agriculture, potential interventions would 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-meteorological knowledge and forecasting services for improved disaster response and infrastructure resilience (including flood risk management and navigation safety).

BOX 3.4.2. Success Story: Improved Environmental Management in Lake Victoria

Resource Efficient and Cleaner Production (RECP) is a small but very successful component of the existing Lake Victoria Environment Management Program. Some US\$ 2 million spent on awareness and training of industries and in-factory assessments directly leveraged more than US\$80 million in private sector investments in improved environmental practices. A survey of 30 of the leading partner firms revealed that each was typically investing around US\$1 million in RECP technologies as a direct result of the technical assistance provided, and that these investments had typical payback periods of around two years (equivalent to an internal rate of return of around 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.

The Nordic Development Fund provisionally approved a grant for expansion of the RECP program, including identifying ways to engage small and medium enterprises and leverage RECP partnerships for greening supply chains. Many of the businesses with which the RECP program already engages are involved in agriprocessing and fish, and active private sector support for sustainable natural resources management would be highly beneficial for the third phase of the LVEMP.

Protection of ecological infrastructure (forests, riparian buffers, and wetlands) under the existing program generated notable success stories and local appreciation of the benefits of environmental rehabilitation within the Lake Victoria Basin. For instance, lakeshore restoration efforts took place around the Burundian and Rwandan shores of Lake Rweru. The revegetated buffer zones provide a range of direct benefits to local communities (for example, fodder and honey production), but are also credited with large increases in fish production. Lakeshore communities in Burundi recently explained that despite being initially opposed to the project because they thought it meant giving up land, they are now very happy with it because (in addition to diversified agricultural production) their fish catches reportedly increased eight-fold. When political tensions between Burundi and Rwanda subside, it is hoped that more scope will arise for direct cooperation in the management of this transboundary lake.

Opportunities for Further Progress in 2017

By the end of 2017, the investments under the existing phase of the LVEMP will be complete, including more than 700 community subprojects covering 23,000 hectares of land under more sustainable management and rehabilitated ecosystems, and 25,000 farmers trained in improved and more resilient production techniques.

The RECP program will be under active expansion, including a total of at least 150 companies as active participants and more than US\$100 million of private investment leveraged. The following analytical work will have been completed:

1. Lake Victoria Basin climate risk assessment
2. Basin profile to map key ecological infrastructure, land use and management data, industrial and municipal pollution sources, and the measures already in place for their management
3. Basin pollution generation and transport model
4. Value chain studies for selected agricultural commodities and fisheries to identify win-win opportunities to enhance production and sustainability
5. Fisheries and water resources policy reviews
6. Design of basin monitoring systems
7. Review of the effectiveness of investments under the current phase of the LVEMP and economic evaluation of potential basin rehabilitation investments.

As a result of this work, there will be agreement with the EAC and national governments on the broad parameters for the new investment phase of the LVEMP, and approaches will have been made to donors to gauge the potential for additional support.



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CHAPTER 4 FOSTERING CLIMATE-SMART OCEAN ECONOMIES

Implementation Progress: Overview

The Africa Climate Business Plan (ACBP) activities in the area of ocean economies that are expected to be delivered by 2023 include: (i) regional commissions monitoring two fisheries, incorporating climate variations in the scientific evidence governing fishery management; (ii) five coastal fishery communities developing alternative livelihood/jobs streams; and (iii) four countries presenting national climate-smart Blue Economy development plans to parliament. In all three areas, progress is ahead of schedule, as summarized in table 4.1 and discussed in this chapter.

TABLE 4.1. Support to Climate-Smart Ocean Economies: Implementation Progress at a Glance

Activities	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> • Provide technical assistance and reimbursable advisory services, including the following: <ul style="list-style-type: none"> • National investment plans for climate-resilient fisheries and coastal livelihoods for the poor. Expected fast-track outcome (by 2023): regional commissions monitor two fisheries, incorporating climate variations into the scientific evidence governing fishery management. • A flagship report on Climate Change and the Blue Economy in Africa. • National climate-smart Blue Economy investment plans. Expected fast-track outcome (by 2023): four countries present national climate-smart Blue Economy development plans to parliament. • Knowledge exchange among practitioners. • Provide investment project finance, including program-for-results operations in support of pilot fisheries, and climate-resilient livelihood projects. • Expected fast-track outcome (by 2023): five coastal fishery communities develop alternative livelihood/jobs streams. 	<p>For the 2023 targets, progress on provision of technical assistance is ahead of schedule:</p> <ul style="list-style-type: none"> • Regional commissions are monitoring fisheries and incorporating climate variations into the scientific evidence governing fishery management to inform national investment plans. • The Government of Mauritius and the World Bank delivered the African Ministerial Conference on Ocean Economies and Climate Change, where 20 countries attended and endorsed the Mauritius Communiqué, leading to a financial and technical package with the African Development Bank and Food and Agriculture Organization, to be submitted to the United Nations Framework Convention on Climate Change (at COP22 in Marrakesh). • Mauritius, the Seychelles, and Togo are preparing climate-smart Blue Economy development plans. • Several knowledge exchange events have taken place, including ministerial conferences in Kenya and Mauritius. Knowledge exchanges were formed between the Comoros, Madagascar, and Mozambique, and between São Tomé and Príncipe and South West Indian Ocean countries, as well as between West African countries. <p>Similarly, progress in project finance is substantial.</p> <ul style="list-style-type: none"> • Altogether, direct investments in climate-smart ocean economy reached US\$20 million in 2016, representing 9 percent of the US\$220 million target set for 2020. • Coastal fishery communities are developing alternative livelihood/jobs streams: <ul style="list-style-type: none"> ○ Eight coastal communities in Senegal developed alternative livelihood/jobs streams in 2016 (box 4.1). ○ A pilot project was launched in Mozambique to improve fishing communities’ resilience to climate change. • Preparation was initiated to explore an innovative aquaculture out-grower scheme in Mozambique (AquaCC, funded by the Nordic Development Fund).

Implementation Progress: Discussion

Technical Assistance

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

Early results of the flagship report “Mauritius’ Ocean Economy: Assessing the Potential for Sustainable Expansion” were presented at the African Ministerial Conference on Ocean Economies and Climate Change in September 2016.

Mauritius, the Seychelles, and Togo are currently developing Blue Economy development plans that take climate change into account. More plans will be developed in the near future, thanks to the increasing awareness of the strategic importance of the Blue Economy, and several knowledge exchange events.

Knowledge exchange events took place in 2016 at the technical level between the Comoros, Madagascar, and Mozambique; between São Tomé and Príncipe and SWIO countries; and between West African countries. At the ministerial level, a series of high-level conferences were held in Kenya, Mauritius, and the United States. In Nairobi, Kenya, on August 25, 2016, a side event on “Embracing Blue Economy for Africa’s Accelerated Development” took place at the Tokyo International Conference on Africa’s Development.

Mauritius Communiqué

The World Bank and the Government of Mauritius co-organized the “Toward COP22: African Ministerial Conference on Ocean Economies and Climate Change” in September 2016. The conference brought together and provided a platform of engagement among countries, development partners, the private sector, scientists, civil society, and academia to discuss what it means to develop the ocean economy in a changing climate. The discussion focused on action for climate-smart ocean economies to build resilience to climate change through science, finance, knowledge, and policy interventions. The conference was attended by 300 participants, and was seen as a key milestone ahead of the United Nations Conference on Climate Change (COP22) to be held in Marrakesh, Morocco. The communiqué was approved by 20 countries and 24 organizations from the private and public sectors. It consists of 10 operational recommendations, some of which are directed at development partners, in particular the World Bank Group, African Development Bank, and Food and Agriculture Organization.

Progress on Investment

The World Bank is already mobilizing funding for implementing this agenda. Table 4.1 and box 4.1 summarize the progress made so far.

BOX 4.1 Success Stories: The Comoros and Senegal

The Comoros

In the Comoros, a South-West Indian Ocean Fisheries Program (SWIOFish1) project contributed to revive the national fisheries statistical system and test new technology, using electronic tablets for collecting and transmitting fisheries statistical data. Subsequently, the Comoros was able to generate its first full annual dataset in decades, which will inform the policy and management decision-making process at the regional and national levels. This technology is currently being tested in Madagascar and soon will be tested in Mauritius. Under SWIOFish1, the first-ever national fisheries surveillance patrol took place in the Comorian waters, resulting in identification of an illegal foreign fishing vessel.

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BOX 4.1 Success Stories: The Comoros and Senegal (*continued*)

Senegal

Community-led fisheries management initiatives were piloted in Senegal through the West Africa Regional Fisheries Program in Bargny, Bétenty, Fimela-Foundiougne, Ndangane, Ngaparou, Ouakam, Soumbédioune, and Yenne, with the following results:

- Demersal species that had previously disappeared, such as sea bream and leer fish, returned.
- Catch per unit of effort (a proxy to measure the health of the stock) of grouper increased from 17.5 to 27.5 kilograms/trip.

Because of the success of these pilots, neighboring communities have already started to organize to replicate the same approach without support from the project.

West Africa Regional Fisheries Program (WARFP), US\$174 million in investment since 2010. The WARFP supports sustainable contributions of fisheries to wider economic growth in eight West African nations. With the proactive support of the Sub-Regional Fisheries Commission, the program's achievements include a drastic reduction in illegal fishing, improved livelihoods at pilot community-led fisheries management sites, and a modernized governance framework. The program is funded by International Development Association grants or credits, with co-finance or parallel finance from the Global Environment Facility and other donors.

SWIOFish, US\$105 million in investment since 2013. The program currently operates in 11 countries with three national-specific investments, in coordination with the Indian Ocean Commission, South West Indian Ocean Fisheries Commission, and Indian Ocean Tuna Commission. The objective of the program is to increase the economic, social, and environmental benefits to SWIO countries from sustainable marine fisheries. Specifically, the program aims at reducing the degradation of fish stocks, increasing the fisheries-related gross domestic product in participating countries, and increasing local fisheries-related value addition benefitting households.

Opportunities for Further Progress in 2017

Governance and Climate Change

Broad agreement exists that good governance of fisheries and aquaculture is the overarching condition required in fisheries to address climate change. Good governance, in turn, requires a solid knowledge platform supported by effective human resources and political commitment. Many of the key instruments and codes of best practice already exist. The problem is in the implementation, in securing the financial resources, and in accessing the knowledge and skills to interpret and apply best practices for specific fisheries at national and regional levels.

Climate change is seen as an additional overarching stressor on the suite of existing challenges to sustainable fisheries. The COP22 and ACBP offer an opportunity to address Africa's chronic fisheries challenges in the context of climate change, particularly through the adaptation agenda.

The WARFP and SWIOFish are geared toward improving governance. Investment must continue in these two major areas to improve countries' resilience to the foreseen impacts of climate change.

The WARFP is seeking to secure US\$123 million for Cabo Verde and Côte d'Ivoire. Small-scale fishers from West Africa are reporting that the rainy season, during which fishers cannot go fishing, is

shifting and longer; geographical shift of major fish stock disturbs fishing operations; and accidents and loss of material and life occur during extreme weather events.

SWIOFish is seeking to secure more than US\$100 million to scale up the successful approaches and expand on the positive lessons learned in the Comoros, Mozambique, and Tanzania, and in the framework of the regional platform (Indian Ocean Commission) to new SWIO countries.

The new *Gulf of Guinea Regional Fisheries Program* would cover the regional fisheries body area of the Regional Fisheries Committee for the Gulf of Guinea, and would build on the West Africa and SWIO Regional Fisheries Programs.

African Fisheries and Climate Change Platform

In direct response to the Mauritius conference statement, the group supported the proposal that a specific African fisheries and climate change platform be created through or in association with the COP22 process. The platform would facilitate knowledge-driven sustainable fisheries initiatives and support the capacity development required. It would identify and tune best practice to the specific requirements of the region and African countries. Most importantly, the platform would be backed by a funding mechanism to co-finance implementation of these best practices at national and regional levels, and generate the required knowledge and capacity. The ACBP would participate in this funding mechanism.

Climate Resilience for Livelihoods Dependent on Living Marine Resources in Africa, US\$2 million in technical assistance planned, of which US\$0.2 million is secured. The World Bank started preparation of a series of papers on marine living resources and climate change, hoping to demonstrate the cost of inaction on livelihoods and poverty. Building on existing work, and generating new analyses, this work encompasses mapping of vulnerability across Africa's coastal zones, climate change-driven risks, cost-effective adaptation and mitigation measures, and estimation of the net gains and limits of implementing such measures.

Engagement of Media and Civil Society, US\$1.5 million in technical assistance planned, of which US\$0.3 million is secured. Continued and more accurate news reporting on fisheries governance and sustainable fisheries could accelerate the effective implementation of fisheries reforms and improvement in the management of fisheries and coastal resources. This is why the African Union, World Bank, and U.S. Agency for International Development supported training for more than 100 African journalists from 44 countries in 2016. It is a first step toward relying on a network of journalists who are aware of fisheries and Blue Economy issues, to help convey the message that a healthy ocean is needed to ensure food provision, income, jobs, community resilience, and contribute to national economies.

Fisheries Transparency, US\$0.1 million in technical assistance since 2016. The World Bank is committed to transparency in general, and in the fisheries sector specifically. The World Bank has piloted transparency in the fisheries sector in various operations, starting in Madagascar in 1998. The World Bank presently supports transparency in the fisheries sector by helping countries build policy and regulatory capacity, and improve the quality of data, processing, and analysis. It supports countries in implementing mechanisms that allow stakeholders' access to key information, including license agreements and fish catch data. Building on this experience, the World Bank is engaged in the Fisheries Transparency Initiative, spearheaded by the Humboldt-Viadrina Governance Platform in collaboration with Mauritania, among others.

A2: PHYSICAL CAPITAL



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CHAPTER 5 DEVELOPING CLIMATE-SMART CITIES

Implementation Progress: Overview

The World Bank is supporting climate- and disaster-resilient development in selected Sub-Saharan African cities through policy dialogue, technical work, and investment financing. The overall outcome will be strengthened capacity for integrated risk management in a target group of some 30 cities in Sub-Saharan Africa, accounting for approximately 62 million citizens (2012 population estimate). Major adaptation benefits include integrated and risk-sensitive planning, better disaster preparedness, long-term cost savings, adoption of climate-resilient technology, infrastructure, and health systems. Climate change mitigation benefits include energy efficient technologies, improved air quality, improved solid and liquid waste management systems, and improved social inclusion through creation of more comprehensive and accessible public transportation networks. Currently these efforts are grounded in technical assistance to develop local climate- and disaster-resilience action plans, and financing for: (i) capacity building; (ii) resilient infrastructure, buildings, and services; and (iii) partnerships and city networking for knowledge sharing.

Remarkable progress has been made in several areas of engagement, especially on raising awareness, resilience planning, and better preparedness for disasters, as summarized in table 5.1 and described in this chapter. Additional funding will be needed to implement resilience plans in some cities.

TABLE 5.1. Support to Climate-Smart Cities: Implementation Progress at a Glance

Activities	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> Capacity building and planning for climate resilience and low-carbon development completed in 14 cities by 2017, and 20 cities by 2022. Investment in resilience-building activities ongoing in five large cities by 2017, and in nine cities by 2022. 	<ul style="list-style-type: none"> Local resilience planning and capacity-building activities are being completed in 14 African cities, including Antananarivo, Accra, Dar es Salaam, and 11 Ethiopian regional capitals. Large urban resilience operations, ranging from US\$60 million to US\$200 million are ongoing in Mozambique (several cities), Niger (several cities), Nigeria (Ibadan), Senegal (Dakar), and Tanzania (Dar es Salaam). US\$560 million is being invested to support climate- and disaster-resilient development in more than 140 urban local governments.

Implementation Progress: Discussion

The World Bank is providing support in three major areas:

1. Strengthening planning and capacity building

For the target of developing resilience plans in 20 African cities by 2022, local resilience planning and capacity-building activities are being completed in 14 African cities—Antananarivo, Accra, Dar es Salaam, and 11 Ethiopian cities—through the following technical assistance:

- Urban Resilience Planning and Implantation of City Strength Diagnostic in Regional Capitals of Ethiopia (box 5.1)
- Urban Poverty and Resilience Studies in Antananarivo
- Urban resilience planning through City Strength Diagnostics in the greater Accra region, and the Climate Actions for Urban Sustainability (CURB) tool being applied in Accra to improve low-carbon development in the city
- Dar es Salaam Resilience Planning Support—emergency preparedness and response.

In addition, the Creditworthiness Academy engaged with many municipalities in Ethiopia and Tanzania.

City Strength and CURB tools are being used, along with the City Creditworthiness Initiative:

- The City Strength tool is being used in Ethiopia and Ghana to plan for urban resilience, which focuses on a consultative approach of convening multiple line ministries, departments, and agencies with academic institutions to (i) identify opportunities to increase social, financial, and physical resilience to disaster and climate risk through hard (infrastructure) and soft (policy) measures, and (ii) integrate systems-oriented solutions into national and local development planning.
- The CURB tool is being applied in Accra. It includes a new scenario-planning tool that supports low-carbon planning in cities for more compact and energy efficient development and reduced sprawl.

- The City Creditworthiness Initiative helps train city officials on comprehensive, hands-on, and long-term support to: (i) achieve higher creditworthiness by strengthening financial performance; (ii) develop an enabling legal and regulatory, institutional, and policy framework for responsible subnational borrowing, through reforms at the national level; (iii) improve the “demand” side of financing by developing sound, climate-smart projects that foster green growth; and (iv) improve the “supply” side of financing by engaging with private sector investors.

Overall, African cities have shown keen interest in resilience planning. In Ethiopian regional capital cities—as well as Accra, Ghana; Antananarivo, Madagascar; and Dar es Salaam, Tanzania—resilience plans are ready for investment. In Antananarivo and Dar es Salaam, World Bank and Department for International Development (United Kingdom) funds were mobilized to implement the plans. International Development Association (IDA) resources are likely to be deployed for the Accra Urban Resilience Program. Funding for the Ethiopian Urban Resilience Program needs to be leveraged. More funding is needed to sustain and expand resilience planning in African cities.

2. Investments in resilient infrastructure, buildings, and services

Of the target investment in resilience-building activities for nine large cities, operations are ongoing through the following projects:

- Dakar, Senegal: Storm Water Management and Climate Change Adaptation (US\$61 million) for flood prevention and preparedness
- Dar es Salaam, Tanzania: Metropolitan Development Project (US\$75 million) for institutional and urban management systems
- Ibadan, Nigeria: Ibadan Urban Flood Mitigation Project (US\$200 million) for flood risk mitigation
- Several cities in Mozambique: Cities and Climate Change (US\$85 million) for flood risk mitigation preparedness
- Niger Disaster Risk Management and Urban Development Project (US\$106 million) for flood risk mitigation preparedness.

Considerable progress was made on the Senegal project; work is in earlier stages in Ibadan and Niger, as well as Dar es Salaam.

3. Partnerships and city networking for knowledge sharing

The World Bank is part of the Medellin Collaboration on urban resilience, and has worked closely with several international partners, including the Cities Alliance, United Nations Habitat, Global Facility for Disaster Reduction and Recovery, Global Environment Facility, Rockefeller Foundation and its 100 Resilient Cities initiative, International Council for Local Environmental Initiatives, C40 Cities Climate Leadership Group, *Gesellschaft für Internationale Zusammenarbeit*, and French Development Agency.

BOX 5.1. Success Story: Resilience Planning in Regional Capitals of Ethiopia

Ethiopia has made remarkable economic progress in the past decade. Urban areas played a key role in this progress. Currently home to only 17 percent of the country's population, urban areas already contribute more than 38 percent of Ethiopia's gross domestic product (GDP) and generate about 80 percent of GDP growth (Geiger and Goh 2012). Ethiopian cities are projected to triple in population in the coming 20 years, and will house more than 43 million people by 2037. The rapid urbanization presents an enormous opportunity to foster economic growth by shifting from a rural agricultural base to the larger and more diversified urban industrial and service sectors. At the same time, urbanization presents challenges related to greater concentration of people, assets, and infrastructure, increasing exposure to shocks and stresses.

A technical assistance supported by the World Bank and Global Facility for Disaster Reduction and Recovery raised national awareness on the need to focus on multi-hazards, climate change impacts, as well as urban stresses, following a consultative, inclusive, and multisector approach. The outcome is a comprehensive, multisector framework to aid investments in strengthening resilience in Ethiopian regional capitals. The technical assistance followed the City Strength methodology, which, on the one hand, allowed strong engagement with federal ministries, regional bureaus, and city officials, as well as civil society organizations, universities, and nongovernmental organizations. On the other hand, the methodology facilitated the technical assessments carried out by World Bank sector specialists.

More than 100 officials from 10 regional capitals worked with the World Bank's sector experts (from different Global Practices) to identify priorities for the regional capitals. Three clusters of regional capitals were formed to ensure that regional considerations were included in the overall assessment process. This allowed for consideration of national-regional-local economy links, rural-urban migration, and location of national and regional infrastructure (such as location of national highways and large rivers), apart from local risk assessment. Four robust technical assessments were carried out to support the work of the World Bank and the government's sector experts: (i) a pre-diagnostic report on 10 regional capitals, providing an assessment for each of the 10 sectors; (ii) hazard maps for the cluster of cities, based on global data; (iii) a building regulatory framework review; and (iv) an assessment of the cities' emergency management and response capacities.

The assessment found that all the regional capitals are facing increased exposure to flooding and fire. A majority of them are exposed to earthquakes but are not taking any actions to prepare for an earthquake event. They all face various urban stresses, primarily acute water shortages, housing shortages, a growing number of traffic accidents, and unemployment. The cities need urgent support and investment to manage the already severe shocks and stresses, which are likely to increase with increase in exposure and climate impacts. Four areas were identified for prioritized action and investment: systematic risk assessment and information system, urban resilience planning and implementation, strengthened building regulatory framework, and enhanced urban disaster risk management and emergency preparedness.

Opportunities for Further Progress in 2017

Resilience planning for the Greater Accra Metropolitan Area (GAMA) in Ghana is likely to be completed by the next calendar year, and will provide a sound basis for investment, potentially under the next replenishment of the International Development Association (IDA 18). Several initiatives are converging in the GAMA, including 100 Resilient Cities, which is supporting a Chief Resilience Officer in the Area; Cities Alliance, which is supporting slum profiling; and efforts of the African Development Bank to support land use planning. Apart from looking into physical investments to make infrastructure and services more resilient, the World Bank's technical assistance is supporting a poverty and disaster risk management pilot that includes a survey of randomly selected households in the most vulnerable settlements (near waterways) and established informal settlements (not prone to flooding), to assess how the poor cope with shocks. The World Bank's Social, Urban, Rural, and Resilience Global Practice team is working with the Poverty Global Practice team to undertake

the survey, which will capture changes in key information measures in expenditure levels or poverty rates as a result of a future disaster or shock, and identify priorities for improvement.

Two urban resilience operations are being planned in Antananarivo and various Senegalese cities.

New and improved technical assistance is being planned to support the following:

- *Vulnerability awareness building.* Technical assistance in this area includes ways to improve understanding of disaster and climate risk by measurement of financial risk and fiscal implications, physical risk assessment, and governance and systems assessment.
- *Emergency management and response planning.* Technical assistance in this area will help to improve channels, facilities, equipment, and protocol to ensure smooth deployment under high-risk circumstances. A web-based open data-sharing platform will capture post-disaster decisions, interactions, and changes over time.
- *Identification of resilience-building investments that include resilient fiscal health and land use, services, and infrastructure planning.* Technical assistance in this area will address potential risk reduction measures, including resilient public infrastructure; permitting and construction enforcement; risk-informed infrastructure investments; and risk transfer and management strategies, such as climate and disaster reserve funds, disaster- and climate-linked social protection facilities, public asset catastrophe risk pools, and private property catastrophe risk pools.



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CHAPTER 6 **STRENGTHENING THE CLIMATE RESILIENCE OF COASTAL ZONES IN WEST AFRICA**

Implementation Progress: Overview

The West Africa Coastal Areas Management Program (WACA) is a direct response to West African countries' requests to tackle the increasing perils of coastal erosion and flooding while at the same time better tapping into the Blue Economy potential (box 6.1 exemplifies for the case of Togo). The heart of the program is to define how to develop the coastal space in a sustainable and climate-resilient manner. WACA 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.

The WACA program is designed to support preservation and rehabilitation of the natural coastal resources, which are essential for livelihoods, spur economic development, and increase social

welfare, and the sustainable development of key growth sectors, such as fisheries, tourism, and waste management.

The program is coordinated nationally via steering committees, and it cooperates regionally with the West African Economic and Monetary Union (WAEMU) and the International Union for Conservation of Nature (IUCN). It builds on existing analysis, most prominently the West Africa Coastal Management Scheme (IUCN, UMEAO2010; MOLOA 2015). This knowledge base is being complemented in 2016 by the additional analysis of stakeholders, risks, economics, communications, and sediment transport, sponsored by the Nordic Development Fund (NDF) and the World Bank's Water Sector Program.

The World Bank is so far leveraging or coordinating resources from development partners, including the French government, U.S. Agency for International Development (USAID), and European Space Agency. Outreach is ongoing with other development partners, including the African Development Bank, the European Union, and the Global Environment Facility (table 6.1).

TABLE 6.1. Support to Addressing Coastal Erosion in West Africa: Implementation Progress at a Glance

Activity	Progress made (Jan - Sep 2016)
<ul style="list-style-type: none"> • Provision of technical assistance 	<ul style="list-style-type: none"> • Technical and stakeholder consultation work is underway to underpin the preparation of the program, including: <ul style="list-style-type: none"> ○ Regional dialogue and client engagement ○ Stakeholder and political economy analysis ○ Assessment of cost of coastal degradation ○ Communication and outreach ○ Sediment Transport Study ○ Training of African journalists on coastal erosion and flooding development challenges
<ul style="list-style-type: none"> • Mobilization of investment finance 	<ul style="list-style-type: none"> • Work is underway to mobilize funding for a US\$150 million investment program, including consultations with the Government of France, the Nordic Development Fund, the West African Economic and Monetary Union, the Global Environment Facility, and the International Development Association. This included: <ul style="list-style-type: none"> ○ Signing of a memorandum of understanding between the World Bank and the West African Economic and Monetary Union. ○ Signing of an Administrative Arrangement between the World Bank and France in support of a West Africa regional coastal observatory and site interventions, and seconded staff to the World Bank for promoting the Blue Economy concept. ○ The Nordic Development Fund expressed interest in financing West Africa Coastal Areas Management investments in Benin. ○ Multisector investment plans for climate-resilient coastal development in Benin, Côte d'Ivoire, Mauritania, São Tomé and Príncipe, and Togo. ○ Request for assistance received from Nigeria. ○ Mobilized World Bank Group preparation funds for the design of future project series for International Development Association 18. ○ Engagement with the Global Environment Facility. ○ Engagement with the Green Climate Fund.

BOX 6.1. Success Story: Togo's Blue Economy

The Blue Economy concept has become a vital part of the African Union's Agenda 2063. To address barriers to Blue Economy growth, the Government of Togo developed a National Strategy for the Sea and Coastal Areas. The strategy, adopted in February 2016, aims to enhance maritime governance, develop a Blue Economy, manage the coastal and marine environments sustainably, promote research and raise awareness on maritime knowledge, and develop a dynamic and diversified international cooperation scheme.

With the support of the World Bank, the Government of Togo will prepare a study to achieve a strategic framework ("Toward a Sustainable Blue Economy in Togo"), the first step toward a comprehensive development and investment plan for the coastal and maritime spatial area. Seeking co-benefits and understanding trade-offs and externalities as part of coastal and marine spatial planning will be critical for Togo, given its small size coast and exclusive economic zone, as well as the transboundary/regional dimensions faced by the country.

The objective of the Blue Economy study is to enable Togo to optimize the potential socioeconomic benefits while sustainably managing its coastal and marine areas. The study will consist of four main parts: a rapid analysis of key issues affecting marine and coastal areas (diagnosis); a review of the existing socioeconomic data, as part of a series of sector analyses; lessons learned from other countries; and specific recommendations for operationalization of the proposed strategic framework.

A draft strategic framework paper for presentation at the African Union's Summit is expected in October 2016, followed by validation of the preliminary findings around February 2017 and delivery of the final study in April 2017.

Implementation Progress: Discussion

The WACA program gained momentum following the Paris meeting of the Conference of the Parties (COP21) to the United Nations Conference on Climate Change and the launch of the Africa Climate Business Plan (ACBP).

A memorandum of understanding between the World Bank and the WAEMU, the first of its kind, was signed in February 2016. A delegation agreement between the WAEMU and IUCN was signed in July 2016. These agreements serve to enhance coordination among the regional agencies to leverage resources and provide better services to the client.

An Administrative Arrangement was signed between the World Bank and the French Ministry of Environment, Energy, and the Sea in April 2016, in support of a West Africa regional coastal observatory, and provision of seconded staff for promoting the Blue Economy concept. A proposal was submitted by the French Ministry of Environment, Energy, and the Sea to the French Global Environment Facility (*Fonds Français pour l'Environnement Mondial*, FFEM) for a total of €4.68 million, for which FFEM would co-finance €1.56 million.

Progress has been made toward WACA programmatic technical assistance to countries (see box 6.2 for a summary), which was designed to support countries in determining the key factors contributing to the vulnerability of people, ecosystems, and assets. Stakeholder consultations and preparation of the multisector investment plan are underway in Benin, Côte d'Ivoire, Mauritania, São Tomé and Príncipe, and Togo. This work will form the foundation for planned investment projects. A study on the budget for coastal sediment transportation from Côte d'Ivoire to Benin commenced in February 2016. A set of outreach and communications products was developed, including a website (www.worldbank.org/waca), knowledge sheets, two films, two blogs, and info-graphics.

At the Structured Dialogue between the GCF and Africa held in Cape Town in October 2016, many African countries, in particular those from West Africa, expressed their wish to see the GCF fund coastal resilience measures to tackle erosion, floods, and other coastal pressures. The WACA program was deemed a promising and transformative initiative. The GCF Secretariat requested more information about it with a view to briefing the GCF Board and will convene a meeting of the GCF National Designated Authorities from West Africa to discuss how to federate all interested countries in one or more GCF programs. The Bank will work with countries and other GCF Accredited Entities, including the African Development Bank and IUCN, to shape such (a) program(s).

BOX 6.2. Highlights by Country

Benin. Three governmental thematic groups were established to accompany the multisector climate change investment plan. Stakeholder and political economy analysis was drafted.

Côte d'Ivoire. Preparation of an integrated coastal plan is ongoing, including a risk profile, a spatial planning model, and a coastal resilience development plan for Grand-Lahou.

Ghana. The identification mission and stakeholder consultation were completed. The draft Stakeholder and Political Economy report was completed.

Guinea. Initial country dialogue was delayed by the Ebola crisis, with the first mission planned for FY17 Q2.

Mauritania. Data collection was completed for the cost of a coastal zone degradation study and procurement is underway to review the legal framework and update the 2007 national coastal plan.

Nigeria. The request for participation in the West Africa Coastal Areas Management was received.

São Tomé and Príncipe. Analyses of the legal framework for coastal area management and consultation on the preparation of a multisector plan for resilience to climate change is underway.

Senegal. Dialogue was initiated via the French partner.

Togo. The climate-resilient integrated coastal management development and investment plan is in preparation. The Togo Blue Economy study, supporting the National Strategy for the Sea and Coastal Areas, is underway.

Regional. Regional dialogue that was engaged at the United Nations Conference on Climate Change 21, World Bank Group–International Monetary Fund spring meetings, and the Mauritius Ministerial Conference led to greater awareness and confirmed the urgency and need for a regional approach, supported by country-led investments. The implementation plan was prepared for the Regional Coastal Erosion Observatory.

Opportunities for Further Progress in 2017

At the regional level, building on a high-level workshop planned for October 2016, and involving WAEMU, IUCN, USAID and the French government, additional regional multi-stakeholder dialogues are scheduled as part of the NDF/WAEMU project studies related to communications, stakeholder engagement, and political economy analysis. WACA is also included as a possible United Nations Conference on Climate Change (COP22) Showcase Program, developed in conjunction with the Paris-Mauritius-Marrakesh Ocean Action Agenda.

The multisector investment plans in preparation in five countries will serve as a strategic priority-setting tool (low-regret immediate action, combined with long-term resilience actions), and at the same time as a country-led partner harmonization tool to manage the many offers of technical assistance and investment.

Several projects were identified or are in preparation, including by France/FFEM, IUCN, the African Development Bank, Economic Community of West African States, United Nations Development Programme (UNDP), NDF, European Union, and European Space Agency. As for the World Bank, the intended commitment of US\$150 million in International Development Association assistance, as foreseen in the ACBP, is expected to be approved by the Bank's Board of Executive Directors in the first half of 2018. Based on the interest of these new and existing donors, a donor meeting may take place in 2017 to allow the partners to pledge and coordinate investments.



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CHAPTER 7 PROMOTING CLIMATE-RESILIENT TRANSPORT

Implementation Progress: Overview

Shortly after the launch of the original Africa Climate Business Plan (ACBP), the World Bank prepared an additional component of the Plan dedicated to the transport sector, which will be presented at COP22 in Marrakech. Building on the African countries' Nationally Determined Contributions (NDCs), this new component of the ACBP aims at mainstreaming climate benefits into the World Bank's transport program for Sub-Saharan Africa, through up to US\$3.2 billion in investments and technical assistance over 2016–20, including US\$2.8 billion in World Bank funds. Those investments will help to make progress on two strategic objectives: (i) improving the resilience to climate change of transport infrastructure; and (ii) improving the carbon efficiency of transport systems.

Implementation of the ACBP's transport component is well underway, including important progress on the analytic, strategic, and investment financing fronts, as summarized in table 7.1 and further discussed in the rest of this chapter.

TABLE 7.1. Support to Climate-Resilient Transport: Implementation Progress at a Glance

Activity	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> • Analytical support, strategic engagement • Financial support 	<ul style="list-style-type: none"> • Completion of the regional report on “Enhancing the Climate Resilience of Africa’s Infrastructure: The Roads and Bridges Sectors.” • Preparation of the Climate-Resilient Transport component of the Africa Climate Business Plan to be launched at COP22. • Approval of four climate-smart transport projects expected in January to December 2016 (with total commitments in the amount of US\$573.7 million, of which US\$542.0 million in World Bank funds): Burkina Faso, Cameroon, Côte d’Ivoire, and Ethiopia. • Preparation is underway for projects in: Côte d’Ivoire, Eastern Africa, Ethiopia, Ghana, Kenya, Lesotho, Liberia, Madagascar, Mali, Mozambique, Nigeria, Rwanda, Senegal, Sierra Leone, Tanzania, and Zambia, and the Lake Victoria Transport program.

Implementation Progress: Discussion

Progress on implementation of the Climate-Resilient Transport component of the ACBP was substantial, with two projects approved by the World Bank’s Board between January and September 2016, and two more expected by December. The four projects represent a total of US\$573.7 million in financing, including US\$542.0 million in World Bank funds.

The projects approved in January–September 2016 include two different approaches to minimizing the carbon footprint of transport in Africa. The first is a substantial technical assistance project for better management of the heavy truck fleet on the Abidjan-Ouagadougou corridor (the Côte d’Ivoire Transport Sector Reform Project), which is to be followed by a sister operation in Burkina Faso with approval scheduled for December 2016. The second is an innovative approach to urban transport planning in Ethiopia, and was approved in June with US\$300 million in World Bank funding. The project will help to improve carbon efficiency in part by examining the spatial aspects of transportation, infrastructure, and urban growth in Addis Ababa. On the resilience side, a new project in Cameroon will aim to improve transportation planning to help make the national network and supporting institutions more resilient in the future.

The road transport study included in the program of analytics “Enhancing Climate Resilience of African Infrastructure” was also completed this year (Cervigni, Losos, et al. 2016). The study was led by the World Bank’s Environment and Natural Resources Global Practice, with support from the Transport and ICT Global Practice and financed by several bilateral donors. This innovative study estimates the impacts of climate change (including through changes in precipitation, temperature, and flooding patterns) on the lifecycle costs (construction, maintenance, repairs, and rehabilitation) of more than 2.8 million kilometers of road and bridge infrastructure across Sub-Saharan Africa, as well as the effects of climate change on network down time. The study also assesses the relative merits of proactive adaptation versus reactive response, and links the findings to policy-relevant conclusions.

Other efforts to be supported under the ACBP transport component include investment projects in climate resilience for the Port of Dar es Salaam, Tanzania, as well as rural and intercity roads. On the low-carbon agenda, bus rapid transit projects in Dakar and Dar es Salaam are under preparation, which will help those cities to achieve new levels of transportation sustainability (box 7.1).

As is the case in other sectors, work continues in the World Bank's Transport and Information and ICT Global Practice to standardize the approach to accounting for climate finance in World Bank projects. This will lead to more uniform reporting of the climate mitigation and adaptation co-benefits associated with investment projects over time, particularly as explicit inclusion of climate resilience and low-carbon measures becomes more common practice in World Bank-financed operations.

BOX 7.1. Success Stories: Tanzania and Côte d'Ivoire

Dar es Salaam Urban Transport Improvement Project

The Dar es Salaam Urban Transport Improvement project would support the third phase of Dar es Salaam's bus rapid transit (BRT) system. Green Climate Fund (GCF) financing is sought to optimize the climate benefits of this system.

Dar es Salaam is the first African city (outside South Africa) to implement a mass public transport system such as a BRT at scale. Success in Dar es Salaam could help set the stage for replication across Africa, helping cities build climate-informed infrastructure that allows them to remain competitive and economically successful.

The BRT investments are designed to transform urban mobility in Dar es Salaam, significantly expanding the accessibility of the city's citizens, especially the urban poor, to jobs and economic activity. Even the baseline system will have significant greenhouse gas (GHG) benefits (estimated to be in the range of 90,000 tons annually in the early years, but expected to grow as incomes grow relative to a baseline of increased reliance on private automobiles). However, with GCF financing, additional GHG benefits would be locked in by ensuring that the fleet of existing, old, polluting and fuel-inefficient minibuses would be scrapped. In addition, GCF financing will help to increase the climate resilience of the system by reducing disruption of BRT services during flooding and in the face of landslide events (which often follow extreme climatic events).

The poor will particularly benefit, because the BRT will significantly upgrade the transport options available to those who currently have to rely on old, polluting minibuses. In addition, the system will have significant environmental benefits: decreasing the number of crashes and amount of pollution related to private automobiles by providing a high-quality transport alternative to those who have the choice of a private vehicle. This dimension of benefit—like the GHG benefits—is expected to increase over the medium term with increasing incomes. The expectation is that having a high-quality public transport system will lower the attraction of private automobiles for the residents of Dar es Salaam.

Mass transport is specifically targeted in Tanzania's Intended Nationally Determined Contribution, and the Dar es Salaam BRT system (a proposal for 137 kilometers (km) in total) is a central element of the government's mobility and GHG mitigation plan for the Dar es Salaam metropolitan region. All the proposed interventions will be implemented by the government program as part of broader support financed by the International Development Association (IDA) for the BRT system. The World Bank is supporting the government's implementation of this vision through a series of IDA credits. The government formally asked the World Bank to finance the Dar es Salaam Urban Transport Improvement Project to support implementation of the third phase of the BRT system.

Transport Sector Modernization and Corridor Trade Facilitation Project in Côte d'Ivoire

This transport project in Côte d'Ivoire includes, among other activities, a component for development of a long-haul, heavy cargo truck renewal scheme to ensure the replacement of old, unsafe trucks with modern ones on the Abidjan-Ouagadougou corridor.

box continues on next page

BOX 7.1. Success Stories: Tanzania and Côte d'Ivoire (continued)

Currently, large, heavy-duty trucks (34 tons) with an average age of 21 years are estimated to operate on a fuel efficiency of 52.5 liters/100 km and annual truck mileage of 100,000 km. Under the project, 300 of these trucks will be scrapped and replaced by newer models at an efficient average fuel consumption of 32 liters/100 km. The resultant savings in GHG emissions are estimated at 16,421 tons of carbon dioxide/year, representing 39 percent savings from the baseline emissions levels. In addition to these environmental impacts, there will be economic impacts of the reduction in GHG emissions, as a consequence of the avoidance of damage caused to the environment. The savings in the social value of carbon as a result of the reduction in GHG emissions will amount to US\$492,615 in reference year 2015, increasing in value at 2.8 percent yearly during the first 10 years of purchase, and then decreasing to zero when the procured trucks reach 20 years' age.

Opportunities for Further Progress in 2017

Opportunities for further progress in 2017 exist in several countries, on the knowledge and analytical advisory service side, as well as expanded investment lending operations.

For example, an initiative is underway to modernize and expand port operations and develop a green ports policy for the Dar es Salaam Port. The client is drawing on a World Bank loan and United Kingdom Department for International Development (DfID) grant-funding mechanisms. Several improvements can be made to climate-smart and green port operations. The port is not under direct risk from sea level rise brought about by global warming; however, it is currently not climate smart. Because of the shallowness of its entrance channel and berths, the port cannot accommodate large vessels. Second- and third-generation vessels can carry up to twice the amount of cargo as the ships currently able to enter the port, for the same fuel cost. Deepening the channel and berths could therefore save up to 40 percent of carbon emissions from client shipping. Other simple climate-smart and green practices are also not applied. For instance, the time spent at the outer anchorage as well as the speed of approach to berths could be reduced, which would reduce the fuel bill and carbon and other particulate emissions. Standards and practices relating to air pollution and energy, waste, and water management of port operations and client shipping can also be improved significantly to increase environmental resilience. More broadly, climate-proofing measures should be assessed in terms of value for money.



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CHAPTER 8 BOOSTING SOCIAL PROTECTION

Implementation Progress: Overview

The World Bank supports the expansion and strengthening of social protection systems and programs that increase the resilience of vulnerable and poor groups to climate variability and climate change. The World Bank also provides mechanisms for scaling up support to respond to climate-related shocks and events when they hit.

It is well established that the impacts of climate change and natural disasters disproportionately affect the poor. Vulnerabilities among the poor to the impacts of climate change are especially high in many parts of Africa. The poor often live in locations that are more exposed and vulnerable to the impacts of disasters and climate change. And forecasted climate change impacts highlight sharp reductions in agricultural yields in the face of erratic precipitation and increases in the number and severity of extreme weather events, including floods and droughts.

Social protection can significantly increase the resilience of poor and vulnerable households, by responding to disasters and building resilience at the household level, so that households are better

equipped for risk and better able to respond to disaster and adapt to climate change. In the face of climate change and the increased incidences of climate-related shocks in Africa, the World Bank is supporting adaptive social protection (ASP). ASP 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 that 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 (ACBP) is an increase in the number of people covered by ASP programs across Sub-Saharan Africa. This will be done by supporting the development of government policies and strategies; supporting increased client capacity; deepening knowledge creation, exchange, and dissemination; and investing in innovative approaches and solutions for ASP. Progress toward this outcome was made in several areas of engagement, as summarized in table 8.1 and described in this chapter.

TABLE 8.1. Support to Social Protection Programs: Implementation Progress at a Glance

Activity	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> • Support 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, and rainwater capture). • Create registry systems and target people who are at risk because of climate-related events • Put early warning systems in place • Implement green public works (soil conservation, watershed management, development of irrigation channels, water conservation, better cropping, enclosures, better food storage facilities, and rainwater capture). • Provide 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. • Provide training on climate-friendly livelihood activities and disaster risk management and risk insurance. 	<ul style="list-style-type: none"> • From December 2015 to October 2017, 10 projects that directly contribute to the ACBP were approved or are in the process of being approved by the World Bank’s Board, at a total value of close to US\$350 million. • Registry systems are being developed to target ex ante those most at risk of being hit by climatic shocks. In Senegal, for example, a social registry is being developed to preregister the poorest and most vulnerable in the country. • Programs in the Sahel and Ethiopia support and link to early warning and climate information systems. • Several investments support climate-smart public works interventions, including in Ethiopia and Madagascar. • Various projects under preparation or implementation include innovative solutions for livelihoods and productive employment, accompanied by rigorous impact evaluation efforts.

Implementation Progress: Discussion

The social protection portfolio in Africa is increasingly developing adaptive elements that will address the challenges of adaptation, resilience building, and disaster and climate risk management for the poor and vulnerable. From January to September 2016, 10 projects that will directly contribute to the ACBP were approved or are in the process of being approved by the World Bank’s Board, at a total value of close to US\$350 million. These projects include trust fund and International

Development Association (IDA) allocations for Burkina Faso, Chad, Ethiopia, Lesotho, Madagascar, Malawi, Mali, Mozambique, Niger, and Senegal.

The World Bank-supported investments in ASP are designed to achieve the objectives through financing activities that will develop social protection systems and programs to help individuals, households, communities, and societies build resilience, equity, and opportunities to address the impacts and challenges of climate change. The US\$350 million mobilized since January 2016 complements and supports larger IDA and technical assistance portfolios for social protection in most countries, and will contribute to significant expansion of the number of ASP program beneficiaries across the continent.

On the technical assistance side, efforts are aimed at improving the design, effectiveness, and sustainability of social protection policies and programs with adaptive elements. For example, in Ethiopia, the World Bank is providing technical assistance to the Ministry of Finance and Economic Cooperation on the possible role of macro-insurance to scale up safety nets in response to drought. And the Sahel Adaptive Social Protection Program dedicated regional and country-level resources to carry out operationally relevant research and knowledge work.

Significant financing of country-level projects and programs is aimed at introducing and implementing ASP systems. In Ethiopia, for example, the Productive Safety Net Programme (PSNP 4) is embedded in social protection and disaster risk management policies, and recognizes the central role of a scalable safety net system. With World Bank support, many countries are adjusting their programs and strategies to ensure that they support longer-term resilience building and shock response that will enable better mitigation of and adaptation to climate vulnerabilities. These activities are expected to contribute toward achieving the long-term impact of helping poor and vulnerable people to anticipate, absorb, and recover from climatic shocks and stresses.

The design of safety net programs that integrate disaster risk reduction and climate change adaptation in the basic program design goes beyond a purely ex post, responsive role to include activities that build the resilience and adaptive capacity of beneficiaries. Social protection systems can be adapted in several ways to respond to climate shocks and other extreme events. These forms of adaptation include establishing institutional coordination of social protection agencies with relevant climate change and disaster risk management actors; ensuring the scalability of programs in the face of an extreme event, to reach more beneficiaries and/or provide additional grant money during the crisis before scaling down when the need subsides; targeting households that are most vulnerable to natural hazards and climate change-related risks; and designing programs that increase the adaptive capacity of households and communities.

For example, in Mauritania, the World Bank supported an in-depth analysis of existing early warning systems, and is supporting the design of a contingency response plan. In Ethiopia, the PSNP 4 includes a component focused on building the systems required to ensure that programs can scale up in response to drought, including by strengthening early warning systems. Another important element is the targeting mechanisms that help to identify those who are most vulnerable to natural hazards and climate change-related risks. This element involves using climate/hazard information to target ex ante those who are most at risk of being hit by these types of shocks, and scaling up a program quickly when needed. In Senegal, for example, the Unique Social Registry (*Registre National Unique*) is being developed to preregister the poorest and most vulnerable in the country. This work is being done under the leadership of the Government of Senegal, in collaboration with a consortium of nongovernmental organizations operating in the field of humanitarian interventions. In Mali, a

program is developing an information system to consolidate in one place local statistics on poverty, vulnerability, climate change, disaster, and human capital.

Many of the investments in ASP support public works interventions that seek to generate public goods and community assets with environmental benefits that can contribute to improve natural resources management and community resilience. Such public works activities are implemented during the lean season in vulnerable communities, providing income support to people affected by temporary food insecurity in exchange for their work on micro-projects. The public projects include land restoration interventions, natural resource management, and environmental protection, and seek to protect the environment and local livelihoods. The activities include creating firebreaks and half-moons, desilting ponds, stabilizing dunes, and protecting pastures against invasive weeds. The public works interventions are being designed to maximize community ownership and lead to the production of community assets that can have sustainable benefits. For instance, in Niger, a new set of accompanying measures is being developed and tested with the objective to strengthen community participation and the upkeep of community assets beyond the life of the project, with a focus on resilience in the medium term. And in Ethiopia, public works investments have evolved significantly over the past 10 years, showing impressive impacts in natural resources management as well as emerging potential for carbon sequestration.

These programs are expected to improve the resilience of poor and vulnerable households by helping them diversify their livelihoods, and thus decrease the need for adverse coping mechanisms such as debt or asset depletion. Livelihood diversification is expected to be further enhanced through productive interventions and training accompanying regular cash transfers. In Burkina Faso, Mali, and Niger, for example, accompanying measures focus on nutrition and early childhood development, with the objective of building human capital. In Mauritania, innovative methods are being used to complement transfers and traditional social promotion sessions, including radio; use of other technology, including SMS (text messaging); as well as games and commitment tools to keep households engaged between sessions.

Overall, these investments are expected to result in national governments that are able to design, implement, monitor, and evaluate ASP programs and systems (box 8.1). Knowledge activities will help to create evidence and learning on how social protection programs can be most effectively designed to enable poor and vulnerable households to anticipate, absorb, and recover from shocks.

BOX 8.1. Success Story: Sahel Adaptive Social Protection Program

The Sahel Adaptive Social Protection Program (ASPP) was launched in March 2014 to support the design and implementation of adaptive social protection (ASP) programs and systems in the Sahel. The ASPP is funded by a multi-donor trust fund (MDTF) managed by the World Bank's Social Protection and Labor team in collaboration with other Bank Global Practices/Cross Cutting Solution Areas. The United Kingdom's Department for International Development committed to provide funding of £43 million over four years (2014–18). More donors are expected to come on board during implementation.

The objective of the ASPP is to increase access to effective ASP systems for poor and vulnerable populations in six countries in the Sahel (Burkina Faso, Chad, Mali, Mauritania, Niger, and Senegal). The MDTF aims to contribute through financing activities that will help develop ASP systems and programs, to help individuals, households, communities, and societies to build resilience, equity, and opportunities. The Sahel ASPP MDTF complements and supports a large International Development Association portfolio (approximately US\$270

box continues on next page

BOX 8.1. Success Story: Sahel Adaptive Social Protection Program (*continued*)

million) for social protection, and is an integral part of the larger Sahel initiative. In addition, the ASPP provides technical assistance and financing to operationalize the design and implementation of ASP through a regional World Bank-executed programmatic activity that provides research and analytical support to the overall program; World Bank-executed technical assistance in each country; and recipient-executed grants to participating country governments to build and implement ASP systems and programs. An innovation fund further supports innovation, learning, and knowledge generation through the provision of grants.

Overall, ASPP investments are expected to result in three outputs: (i) national governments that are able to design, implement, monitor, and evaluate ASP programs and systems; (ii) evidence and learning from pilots and feasibility studies to inform ASP programs; and (iii) strengthened multilateral and regional approaches to building resilience in the Sahel.

Opportunities for Further Progress in 2017

Progress on social protection was significant in the ACBP reporting period. A large amount of work went into designing and securing financing for technical assistance and operations that will support climate resilience and capacity to respond to shocks. As many of these operations are just about to start implementation on the ground, the impacts and lessons learned are expected to emerge more clearly in the coming year(s). Additional pipeline operations and financial commitments will also pursue this agenda and further support the ACBP, including a US\$600 million program-for-results operation for the PSNP in Ethiopia.

As the World Bank's client countries continue to set up more and more shock-responsive systems, these will increasingly be able to absorb resources in future shocks. Therefore, the World Bank team will continue to explore ways to meet such demands, including exploring alternative ways to secure contingency financing.



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CHAPTER 9 ADDRESSING DRIVERS OF MIGRATION

Implementation Progress: Overview

Environmental change has always been a driver of human mobility. However, there is growing evidence that climate change, climate-induced events, and environmental factors are likely to play an increasingly important role in influencing migration, within developing regions and from developing to developed regions. Climate change is expected to affect all forms of human mobility in Africa—internal and cross-border, short and long distance, temporary and permanent, voluntary and forced—with negative impacts on millions of poor people in the region.

The Africa Climate Business Plan (ACBP) is an important entry point for the World Bank Group, as experience from the Horn of Africa and other subregions shows that a thin line separates forced displacement and migration. People move for a combination of reasons, and climate is increasingly a factor in that decision. The rapidly increasing level of risk to people cannot be overlooked, even if the main factor motivating their movement is economic well-being. Although predicting future migration trends is challenging, the growing numbers of people on the move, and the long-term impact on host countries, are putting pressure on policy makers and straining current systems. In affected areas, migration could undermine and reverse much of the development progress achieved in the past two decades. Thus, there is a need to understand and address the multiple drivers of migration and their complex, interactive effects with other risk drivers and sources of vulnerability that exacerbate fragility in states and societies, and conditions leading to conflict and large-scale migration. In this connection, the ACBP includes a focus on addressing the drivers and impacts of migration.

This component of the ACBP comprises a program led by the World Bank’s Social, Urban, Rural, and Resilience Global Practice team, working with internal and external partners to deliver key knowledge products, innovative joint operations, and knowledge exchanges. The aim is to strengthen social and economic resilience in rural and urban spaces, to address the drivers and impacts of migration and to provide durable solutions. Progress was made in key areas of engagement, in particular in addressing urgent needs on the ground related to displaced populations (table 9.1).

TABLE 9.1. Support to Addressing the Drivers of Migration: Implementation Progress at a Glance

Activity	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> • Develop strategic operations or components in ongoing operations in the Lake Chad Basin and the Horn of Africa. • Build the evidence base and establish a knowledge partnership. • Pilot and promote innovation on mixed migration (complex population movements, including refugees, asylum seekers, economic migrants, and people displaced by natural disasters or climate change). 	<ul style="list-style-type: none"> • The World Bank is promoting an inclusive approach to addressing the drivers and impacts of migration, with a focus on improving access to services and economic opportunities, and environmental restoration that ensures that local host communities are supported along with migrants, refugees, and internally displaced persons. • Funding for over US\$ 200 million was mobilized from the International Development Association, Global Environment Facility, and Global Facility for Disaster Reduction and Recovery for projects in Djibouti, Ethiopia, São Tomé and Príncipe, Somalia, Uganda, and Zambia.

Implementation Progress: Discussion

The World Bank’s support to migration issues in this initial period was necessarily focused on addressing the impacts of migration and forced displacement currently facing several African countries (box 9.1). Although each situation is unique, areas hosting refugees and Internally Displaced Persons (IDPs) are often underdeveloped and underserved. The World Bank is therefore taking an inclusive approach to improve access to services and economic opportunities, and to environmental restoration that ensures that local host communities are supported along with migrants, refugees, and IDPs. The projects include a strong focus on enhancing job opportunities, and supporting sustainable environmental and ecosystem services, to overcome: environmental degradation; depletion of natural resources, including water; and loss of vegetation cover that can result from an inflow of large numbers of people.

For example, the Development Response to Displacement Impacts Project (DRDIP), covering Djibouti, Ethiopia, and Uganda, was approved in May 2016 for a total of US\$175 million. Targeted areas under the DRDIP are highly vulnerable to the impacts of climate change and environmental degradation, which is exacerbated by the protracted presence of refugees. Through an area-based and progressive-solutions approach, the project focuses on improved natural resource management, including afforestation, water conservation, and access to energy-conserving and alternate energy sources. These activities aim to reduce the impacts of climate extremes while at the same time providing livelihood opportunities, particularly for youth and women. The DRDIP adopted the Community Driven Development (CDD) operational approach. This approach seeks to build community grassroots institutions, ensuring the voice of all communities, including refugees, in decision making, and importantly strengthening decentralized government administrative functions for project implementation.

Similarly, the Zambia Displaced Persons and Border Communities Project, also approved in May 2016, aims to improve access to livelihoods and socioeconomic infrastructure for displaced people and host communities in 14 wards in the Western and Northwestern Provinces. In Zambia, floods and droughts increased in frequency over the past three decades. Income in the Zambian host communities and refugee settlements is reliant on subsistence farming, non-timber forest products, and casual labor, often paid in food, making beneficiaries increasingly vulnerable to climate change resulting in crop failures. This again leaves fewer resources to deal with other climate change-induced impacts, like water safety, lack of reliability of energy resources, and human and animal health issues. The project is bringing a CDD approach to support relatively small-scale investments that can easily react to climatic trends (for example, in road rehabilitation or support to agricultural activities), and that possess an inherent flexibility to react to changing climatic conditions. Adaptation will be promoted as one of the key design principles for the scope of planned activities.

Other projects are piloting innovative approaches to dealing with the complex situations of forced displacement. In Somalia, the Global Facility for Disaster Reduction and Recovery is supporting the Inclusive Community Resilience and Gender-Based Violence project (US\$1.2 million); working with the International Rescue Committee (IRC) to help IDP communities increase their resilience to multiple risks through improved livelihoods and economic opportunities with targeted support, particularly to women; and helping to improve gender-based violence prevention and response services. Displaced women and girls are among the most vulnerable populations—to extreme poverty, marginalization, conflict, and climate-related shocks. IDPs in Somalia are also particularly vulnerable to violence; several reports estimate that 80 percent of survivors of sexual violence are female IDPs. Women and girls traveling en route to or from IDP settlements, often in search of economic and other support services, also confront serious risk of violence, highlighting the extent to which climate and disaster shocks can exacerbate gender inequalities and exposure to violence.

The project will test the implementation of an innovative model called EASE (Economic and Social Empowerment), which gives women more access to financial stability and provides opportunities to women and men to create more equitable and safe gender dynamics within their households. Key activities include: (i) improved access to financial services through village savings and loan associations (VSLAs); (ii) a discussion group series engaging with VSLA members and male partners to reflect on financial decisions and goals, women's value in the household, and alternatives to violence; and (iii) business skills development training, including basic literacy and numeracy. This model, implemented by the IRC, has been tested with rigorous impact evaluation in a range of countries, including Côte d'Ivoire and the Democratic Republic of Congo, and is being adapted to the unique social and religious context in Somalia.

Another innovative project, in São Tomé & Príncipe, is using Global Environment Facility support to pilot the preventive voluntary resettlement of vulnerable coastal communities, to adapt to rising sea levels and increasing coastal erosion. The pilot will be scaled up in the project's next phase. The emerging lessons were recently documented in a Knowledge Note for the Small Island States Resilience Initiative, entitled "Managing Population Retreat from At-Risk Areas." The lessons learned will be used in the development of analytical work under the West Africa Coastal Areas (WACA) initiative, to inform a WACA Climate Resilience Action Plan covering Benin, Cabo Verde, Cameroon, Côte d'Ivoire, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mauritania, Nigeria, São Tomé and Príncipe, Senegal, Sierra Leone, and Togo.

BOX 9.1. Early Insights from Addressing Displacement in the Horn of Africa

The Development Response to Displacement Impacts Project is just getting underway in Djibouti, Ethiopia, and Uganda, but the project team has already gained valuable insights on coordinating the humanitarian development response.

In Ethiopia, information has been gained from interactions with local host communities, refugees, *woreda* and *kebele* officials, the Administration for Refugee and Returnee Affairs (ARRA, the Government of Ethiopia's refugee agency), the United Nations High Commissioner for Refugees (UNHCR) field staff, and local nongovernmental organizations. These interactions have shown that the host and refugee communities wanted accessible secondary and high school education for their children; had to travel long distances, as much as 60 kilometers, if they needed a surgical intervention; and spent more time each day traveling to meet their fuelwood needs because of the receding tree cover. However, the discussions also revealed that the planning processes for the multi-agency refugee response (often led by ARRA and UNHCR in Ethiopia) and the development planning led by national and local government entities were essentially two separate processes. The former focuses primarily on refugees, and the latter on host communities. Both were functioning under a budget and capacity constraint.

The reality was that refugee children in Asaiyta who did not have access to high school in the camp attended the high school run by the government, and refugee women sought medical care at the local government hospital when the primary health center was ill-equipped to address their problems. For Sherkole, UNHCR was planning to establish a high school that could potentially support refugees and host communities, as the existing high school was oversubscribed. But the conversation had not happened yet on how best to complement an existing high school so that host and refugee children would be able to save time currently spent on walking to school and avoid the discomfort of sitting in congested classrooms.

In this context, the project team realized that promoting an area-based approach that involves refugee and host communities could increase the efficiency, effectiveness, and sustainability of development investments. Specifically, the following elements are critical:

- Involve hosts and refugees actively in the planning process, so they can share their priorities, challenges, and proposals.
- Break the silos of planning and consider the needs of the host and refugee communities while planning an intervention irrespective of who is initiating the intervention.
- Given that the government will be the long-term custodian of the infrastructure and services, it is critical that all facilities that are created in an administrative area are recorded on government books, and budgetary provisions are made by local governments for operations and maintenance, with contributions also coming from the UNHCR.
- Adhere to service delivery norms for basic social services in terms of population served, irrespective of how many are local and refugees, in deciding the level of service provision (health clinic, primary health center, or hospital) based on what is already available.

Translating these concepts into practice on the ground is a challenge, given the individual mandates and narrow beneficiary focus of the stakeholders. However, a commitment to stay focused on the beneficiaries and their needs has provided an encouraging beginning to the long journey ahead.

Opportunities for Further Progress in 2017

Additional operations are under preparation to continue to apply development responses to the impacts of displacement in the region. The Kenya Development Response to Displacement Impacts Project (KDRDIP) is being prepared to be presented for approval in March 2017, to deal with the impacts of the protracted refugee presence in that country. Like the projects in the Horn of Africa and Zambia, the KDRDIP will have a similar focus on addressing livelihoods and environmental degradation in host and refugee communities. The project will support labor-intensive public works while at the same time supporting greater soil and water conservation and afforestation measures.

The activities also aim to reduce the risk of gender-based violence that women and girls face while gathering fuelwood and water for human and livestock consumption, and to reduce community-level conflict caused by dependence on scarce natural resources. Given that country authorities will be key to implementing the KDRDIP, the project team is also linking with the Kenya Accountable Devolution Project to build on synergies and leverage. This US\$800 million investment will strengthen country systems for environmental and climate change-related capacities.

As the World Bank works to expand its support for the displaced and migrants, as well as their host communities, these operations and others will provide insight on approaches that work. Analytics have informed the development of these innovative projects, and as the projects are implemented, they will inform deeper analytics in an iterative process of learning.

One study in particular, the flagship “Climate Change, Migration and Securing Resilience” (tentative title) got underway in June 2016. This global study aims to characterize and predict the likelihood of migration outcomes under a range of climate change scenarios, to enable constructive dialogue on migration in the discourse of planning for climate-resilient development. The research will bring together the science-based biophysical impacts of climate change with quantitative and qualitative social, economic, demographic, and development data. The report aims to provide an evidence base to policy makers as the basis to address the potential adverse consequences of migration while capitalizing on the opportunities migration can bring. Just as the solutions and learning being generated in the projects described in this chapter will inform the study, the research will identify migration trends and policy options to address the drivers of migration in a more proactive way.

PART B: POWERING RESILIENCE



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CHAPTER 10 INCREASING THE USE OF SOLAR POWER

Implementation Progress: Overview

The objective of this component of the Africa Climate Business Plan (ACBP) is to deploy solar power in Sub-Saharan Africa through technical assistance, policy dialogue, financing, and resource mobilization. These efforts are directed to utility-scale solar photovoltaic (PV) projects and modern off-grid solutions, such as solar home systems and solar portable lanterns. Ultimately, it is expected that this will increase the contribution of solar PV to the electricity generated across Sub-Saharan Africa, which currently accounts for less than 0.5 percent and is mostly concentrated in South Africa. The ACBP will contribute to expanding utilization of solar resources in a wider geographical area.

The fast-track target of this initiative aims at raising US\$3.24 billion by 2020. The International Development Association's (IDA's) contribution to this resource is estimated at US\$750 million in loans and guarantees. This resource mobilization is expected to enable implementation of 1 gigawatt of solar capacity by 2023, and access to modern energy services for five million off-grid consumers.

Progress is being made implementing this component (table 10.1), broadly in line with the targets defined in the ACBP, through active engagement with governments and other partners. Efforts to date have focused on pipeline development, and the first approvals of projects are expected during 2017.

TABLE 10.1. Support to Solar Power: Implementation Progress at a Glance

Activity	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> Engage in sector dialogue and policy support, including of regulation, taxation, and subsidies. Provide technical assistance, including planning, resource mapping, transaction structuring, and grid integration. Provide guarantee packages and lending for public investment, public-private partnerships, and debt facilities. 	<ul style="list-style-type: none"> Work is on track to mobilize (by June 2017) US\$1.8 billion for the installation of 600 megawatts (MW) of on-grid solar power capacity in various countries, including Nigeria, Senegal, and Zambia. The International Development Association’s expected contribution is estimated at US\$350 million. It is expected that US\$200 million will be mobilized by FY18 to deliver off-grid services to households and communities in nine targeted countries in the Sahel. A technical assistance facility was set up to support widespread development of utility-scale solar power.

Implementation Progress: Discussion

The current pipeline includes US\$1,840 million planned in FY17 to finance 600 megawatts (MW) of on-grid solar power with installed capacity in various countries, including Nigeria, Senegal, and Zambia (box 10.1). In Zambia, a 100 MW solar guarantee is under preparation for FY17. The expected IDA contribution is projected at US\$350 million.

A US\$200 million regional off-grid solar project aimed at enabling electricity access is planned and pending for approval in FY18. This project is expected to deliver off-grid services to households and communities in nine targeted countries in the Sahel. In addition, in this region, a technical assistance facility is being established to support upstream development of grid-connected solar projects. An initial fund of US\$1.5 million is addressed to this facility, which is expected to be operational this year.

BOX 10.1. Success Story: Technical Assistance Facility for Solar Power Development

The solar energy pipeline is developing, with various World Bank initiatives, including the technical assistance facility, which aims to catalyze investments rapidly in utility-scale solar photovoltaic projects. This facility integrates due diligence, standardized documentation, and stapled financing to support competitive and transparent tender processes, expand the pool of qualified workers, and diminish costs. This initiative aims at delivering technical assistance and advisory services to help governments in the identification of priority projects and to overcome technical gaps.

Opportunities for Further Progress in 2017

Opportunities for further progress exist in the identification of priority countries for further deployment of solar PV in the region. This identification can be supported by intensified efforts on resource mapping and analysis of power demand and supply trends. Other opportunities to support countries in the region include the revision and optimization of legislative and regulatory frameworks, which can catalyze the uptake of solar PV. In addition, further progress can be made in facilitating working capital to the private sector and solar PV project developers in the region.



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CHAPTER 11 INCREASING THE USE OF HYDROPOWER

Implementation Progress: Overview

The objective of this component of the Africa Climate Business Plan (ACBP) is to deploy hydropower in Sub-Saharan Africa through technical assistance, policy dialogue, financing, and resource mobilization. The efforts will concentrate on the development of large hydropower capacity, as well as water regulation. The initiative aims to increase the share of hydropower in the electricity mix in Sub-Saharan Africa, which currently accounts for 24 percent. Exploiting the region's untapped potential could raise this share to 40 percent.

The initiative's fast-track target aims at raising US\$1,208 million by 2020. This resource mobilization is expected to enable implementation of 420 megawatts (MW) of low-cost hydropower in West Africa by 2023. The progress so far is summarized in table 11.1 and further described in this chapter.

TABLE 11.1. Support to Hydropower: Implementation Progress at a Glance

Activity	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> Develop Lom Pangar (30 megawatts (MW) and regulating dam), Nachtigal (420 MW), and Souapiti (515 MW and regulating dam), which are under preparation or implementation. Provide technical assistance and financing for feasibility studies on downstream projects. 	<ul style="list-style-type: none"> The Nachtigal project is at an advanced stage of preparation, with approval of US\$1,150 million expected in early FY17. The financing instruments include an International Bank for Reconstruction and Development Guarantee for US\$300 million, and International Finance Corporation financing of US\$320 million. In the area of technical assistance, the hydropower Atlas for Guinea will be finalized in 2017. Plans are underway to commission the Lom Pangar Dam Project, which will increase all-season hydropower capacity by about 40 percent.

Implementation Progress: Discussion

Progress has been made in several areas of engagement, and the current pipeline shows US\$1,150 million planned in FY17 to finance the Nachtigal project. The World Bank will contribute through different financing instruments, including an International Bank for Reconstruction and Development (IBRD) loan for US\$30 million, IBRD guarantee for US\$300 million, and International Finance Corporation financing of US\$320 million. This project is designed to install 420 MW of hydropower capacity in the Sanaga Basin (Cameroon). The Nachtigal project builds on the successful results of the Lom Pangar project, which is briefly summarized in box 11.1.

BOX 11.1. Success Story: Lom Pangar Hydropower Project

In the Lom Pangar hydropower project, the World Bank financed the commissioning of a regulating dam in the Sanaga River by 2017. This dam is expected to increase all-season hydropower capacity by about 40 percent by adding 120 megawatts (MW) to existing downstream hydropower plants. This will enable electricity generation during the dry season and ensure all-season water flows. The Lom Pangar project will generate 30 MW. The International Development Association’s financing is US\$132 million, and an additional US\$362 million was leveraged from the Government of Cameroon and partners, including the African Development Bank, French Development Agency, European Investment Bank, and Development Bank of the Central African States.

Opportunities for Further Progress in 2017

It is expected that the Nachtigal hydropower project will be approved by the end of FY17. Opportunities for further progress exist in the identification of more hydropower projects that are strategic for regional power integration, and exploit untapped resources in countries like Cameroon and Guinea. Other opportunities to support countries in the region include the revision of water regulation to ensure year-round production, which can catalyze the deployment of hydropower in the region. In addition, further progress can be made in facilitating access to working capital for the private sector and hydropower project developers in the region.



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CHAPTER 12 INCREASING THE USE OF GEOTHERMAL POWER

Implementation Progress: Overview

The objective of this component of the Africa Climate Business Plan (ACBP) is to deploy geothermal power in Sub-Saharan Africa through technical assistance, policy dialogue, financing, and resource mobilization. The efforts will be addressed to reinforce upstream development of geothermal sites, to motivate private investments and capital in downstream development. As a result, it is expected that these efforts will open up the sector in the East Africa region, where the geothermal potential is estimated to be 14,000 megawatts (MW) and only 1.5 percent (209 MW) has been harnessed.

The fast-track target of this initiative aims at raising US\$950 million by 2020. The International Development Association's contribution to these resources is estimated at US\$500 million. This resource mobilization is expected to enable implementation of 150 MW of geothermal generation capacity. Progress has been made in several areas of engagement. The progress is summarized in table 12.1 and further described in this chapter.

TABLE 12.1. Support to Geothermal Energy: Implementation Progress at a Glance

Activity	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> • Develop the Aluto geothermal site (70 megawatts), which is underway; other sites are under exploration. • Provide technical assistance for sector development. • Provide lending for public investment in exploration and development, and public-private partnerships for downstream development. 	<ul style="list-style-type: none"> • In FY16, US\$71 million was approved to complete the development of two units at the Olkaria I & IV plants in Kenya, with total capacity of 280 megawatts and potential to reduce 20.9 million tons of carbon dioxide emissions. • To develop geothermal power plants and intensify technical assistance for downstream development, US\$950 million will be mobilized by FY18. The International Development Association’s contribution is estimated at US\$500 million.

Implementation Progress: Discussion

The ACBP fast-track resource mobilization target is US\$950 million. It is expected that this will be achieved by FY18. The World Bank will provide and intensify technical assistance for downstream development of geothermal power in resource-rich countries. Box 12.1 describes progress being made in Kenya.

BOX 12.1. Success Story: Geothermal Power Development in Kenya

In FY16, the World Bank approved US\$71 million in additional financing to complete the development of two units at the Olkaria I&IV plants in Kenya, with total capacity of 280 megawatts. This is equivalent to avoiding the release of 20.9 million tons equivalent of carbon dioxide into the atmosphere. Further development of geothermal power plants will build on this experience.

Opportunities for Further Progress in 2017

Further progress is expected in FY17 in the identification of potential for drilling through surface exploration, development of new project sites, and engagement with governments and partner donors. The World Bank will continue to support countries in the region through technical assistance in the design and institutional strengthening of the regulatory frameworks and electricity pricing. In addition, further progress can be made in mitigating drilling risk and further engaging the International Finance Corporation and Multilateral Investment Guarantee Agency to stimulate private sector investments in the sector.

PART C: ENABLING RESILIENCE



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CHAPTER 13 **STRENGTHENING AFRICA'S HYDRO-METEOROLOGICAL PROGRAM**

Implementation Progress: Overview

The World Bank is supporting the enhancement of climate- and disaster-resilience capacity in targeted countries in Sub-Saharan Africa by strengthening their hydro-meteorological (hydro-met), end-user (including early warning), and knowledge and advisory services, and linking national systems with regional and global counterparts. The hydro-met program aims to strengthen national meteorological and hydrological services (NMHS) by providing the investment, technical assistance,

and capacity building needed for integrated modernization (table 13.1). The program is designed as a framework to modernize NMHS and their regional affiliates for improved, reliable, and relevant service delivery to end users. The program will reduce vulnerability by focusing on the transformation of “last-mile” community early warning systems, helping to ensure that these systems have the absorptive capacity, communication means, and dissemination outreach for efficient relay of actionable and reliable information, products, forecasts, and warnings to user groups in the public and private sectors.

Phase I of the hydro-met program would benefit more than 100 million people in 15 Sub-Saharan African countries and four regional organizations, by building the technical, human, and financial capacity for providing forecasts and warnings. This capacity building will enhance resilience to climate and disaster risks and augment the capacity to adapt to climate variability and change. Major climate resilience benefits would include the reduction of climate and disaster risks and impacts, improved disaster preparedness, and enhanced resilience of social and productive infrastructure. The result would be improved public health, food security, nutrition, water management, energy security, transport and communications, trade and competitiveness, employment generation, governance, and state-building. Progress was made in several areas of engagement, as summarized in table 13.1 and described in this chapter.

TABLE 13.1. Support to the Hydro-Met Program: Implementation Progress at a Glance

Activity	Expected outcomes
<ul style="list-style-type: none"> • Strengthen national meteorological and hydrological services (NMHS) by improving their ability to deliver services, building their capacity, and supporting policy and institutional reforms. • Modernize regional NMHS centers, including by fostering cooperation with national institutions. • Integrate national, regional, and global systems and knowledge and advisory services. 	<ul style="list-style-type: none"> • Over FY16, the program (implemented jointly by the World Meteorological Organization, African Development Bank, and World Bank Group) mobilized grant financing through the World Bank for the Democratic Republic of Congo (US\$8 million, Global Facility for Disaster Reduction and Recovery (GFDRR)) and Mali (US\$25.25 million, Green Climate Fund–GFDRR). • Between COP21 and COP22, the World Bank mobilized a total of US\$45 million in innovative grant financing for the Democratic Republic of Congo, Mali, and Niger, on top of existing activities that are ongoing in Ethiopia and Mozambique.

Implementation Progress: Discussion

Hydro-met services are helping to achieve the goals of the World Bank’s regional strategy for Africa, and lay the foundation for improving governance and capacity. The strategy emphasizes building resilience to climate variability, natural hazards, and extreme weather events. Hydro-met services contribute to poverty reduction, since the poorest are often the most dependent on weather- and climate-based activities, such as agriculture and fishing. Hydro-met services are a key public good, enabling citizens and planners to improve decisions across sectors. Modernized hydro-met, at the regional and country levels, coupled with strengthened service delivery and system integration for optimizing the benefits of hydro-met products and services, has cross-cutting benefits across sectors.

Hydro-met services enhance productivity across a range of sectors. Agriculture, mostly rainfed, accounts for 60 percent of employment and 40 percent of exports in Africa. Hydro-met helps farmers to plan better for normal and extreme weather events. The African Union’s strategy for agriculture includes pillars for improved land and water management and climate-smart agriculture. Water

resource planning and allocation depend on sound hydro-met information. Aviation requires good weather forecasting, and transport infrastructure needs climate information for cost-effective, resilient investments. Energy sector planning, including hydropower, wind, and solar energy, requires accurate hydro-met information. The tourism industry benefits from better weather and climate services.

Hydro-met services help to reduce vulnerability and enhance resilience to extreme weather events. Hydro-met services can mitigate the impacts of droughts, and identify weather patterns favoring locust infestation, facilitating early action and reducing crop loss. Improved knowledge can help health services plan for weather-related diseases, including meningitis and malaria, as well as the health risks imposed by extreme heat and dust storms. The services can help protect Africa's fishermen. Better hydro-met services can contribute to improved urban and coastal planning decisions, encouraging settlement away from flood- or erosion-prone land.

Climate change underlines the need for hydro-met services to facilitate adaptation planning. The intensity and frequency of droughts, floods, and periods of extreme heat are likely to increase, and climate patterns may become more difficult to predict. Storm surges and sea level rise affect densely populated, economically dynamic coastal areas; and adaptation in agriculture is essential.

Hydro-met services are a key public good that supports improved governance and accountable decisions. Dependable global, regional, and national weather and climate monitoring, forecasting, and warning systems mean that, with relatively modest investment, African countries can substantially improve their services. Socioeconomic studies have indicated that the benefit-to-cost ratios of investing in hydro-met services are high, with returns of 1:3 to 1:15 (World Bank 2009b). Regional cooperation also yields high dividends, as a regional approach to hydro-met modernization leads to cost savings as great as 30 percent, thereby adding to the sustainability of the networks and infrastructure.

Current Status of Hydro-Met Services in the Africa Region

In Sub-Saharan Africa, hydro-met services are unable to satisfy users' needs for weather and climate information. Observational systems have deteriorated during the past 30–40 years. A World Meteorological Organization (WMO) survey illustrated that 54 percent of the surface weather stations and 71 percent of the upper air weather stations in Africa do not report data. An additional challenge is that the institutional placement of hydro-met agencies is different in different countries. Lack of investment in human resources has depleted capacity.

In-depth studies of investment needs have been carried out in only a few countries. For example, the estimated cost of basic modernization for the Uganda Meteorological Department is about US\$32 million (MDA Information Systems LLC 2013). An estimate of the priority hydro-met investment needs in Sub-Saharan Africa is US\$1 billion (Rogers and Tsirkunov 2013).

Regional and cross-country cooperation is essential, and an Africa strategy exists. The African Union Conference of Ministers Responsible for Meteorology (AMCOMET) developed a strategy for 2013–17 that seeks to lessen the impact of weather events on economic activities while enhancing the capacity to adapt to climate variability and change. The AMCOMET strategy recognizes the need for regional cooperation. It recommends upgrading observation networks and improving forecasts and decision support tools. The strategy is not costed.

Regional support centers have been established, but coordination, capacity, and funding can be improved. The regional economic communities and WMO support the regional centers in Botswana, Mali, Nairobi, Niger, and Pretoria with the mandate to help national hydro-met services use global information. The national services would benefit from more stable funding, better human resource development, and modernization of information and communications technology infrastructure.

The current programs to strengthen hydro-met in Africa are underfunded. Moreover, hydrological services have been relatively more neglected compared with their meteorological counterparts. The nature of support has to be substantial to be effective, but most support is sporadic and subscale. ClimDev-Africa, a joint initiative of the African Development Bank, African Union, and United Nations Economic Commission for Africa, aims to improve the information and analytical base for informing weather and climate policies. However, its investments have been relatively small compared with its needs.

Africa Hydro-Met Program

The World Bank has developed a framework partnership program for modernizing hydro-met services in the region. The program follows a programmatic approach, and leverages the capacities and resources of all program partners according to their competencies, mandates, financing, and technical assistance. The program envisages implementation through technical assistance, capacity building, and investment operations, which would be stand-alone operations or embedded in operations on disaster and climate preparedness and resilience, water resource management, or agriculture and land management. For example, the watershed management programs in Kenya and Malawi are providing support for hydrological services. The Pilot Program for Climate Resilience under the Climate Investment Fund supports investments “to scale,” but only in the three countries supported by the Pilot Program for Climate Resilience—Mozambique, Niger, and Zambia.

The coming together of the World Bank, WMO, African Development Bank, United Nations Development Programme (UNDP), World Food Programme (WFP), and French Development Agency (AFD) in the program has brought it new leverage. The support of the Green Climate Fund and the Global Environment Facility for hydro-met modernization projects under the programs for the Democratic Republic of Congo and Mali, which were both approved in 2016, has had a transformational impact on the momentum of the program. Cumulatively, the World Bank’s investments in the Africa Hydro-Met Program, in technical assistance and investment operations (and components), stand at US\$180.09 million at present. These operations are spread over Angola, Botswana, Burkina Faso, Cameroon, Chad, the Democratic Republic of Congo, Ethiopia, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, Tanzania, Togo, Uganda, and Zambia, in addition to the River Basin Authorities.

The World Bank is preparing hydro-met modernization projects for Burkina Faso and Zambia; the countries have expressed strong ownership of the program. These projects will be followed by similar project development in other vulnerable countries, such as Chad, Côte d’Ivoire, Niger, Senegal, and Uganda. The programmatic framework will build simultaneous actions to strengthen the policy matrix, institutional capacity, human resource base, and technical capability of hydro-met services in a manner as to harness their best value for the economies and communities of Sub-Saharan Africa.

Opportunities for Further Progress in 2017

Phase I of the Africa Hydro-Met Program is being developed as a programmatic proposal for the consideration of the Green Climate Fund. The proposal includes concrete modernization programs for 15 climate-vulnerable countries and four regional climate centers in Sub-Saharan Africa. Based on their comparative advantages on the ground, the program partners will develop, implement, and supervise the programs in some of the countries. This programmatic proposal is expected to be presented to the Green Climate Fund in FY17, and is expected to bring transformational change in the manner in which hydro-met services, jointly and individually, operate in Sub-Saharan Africa. The program will affect how hydro-met products and services are mainstreamed in the growth, development, and poverty reduction sectors of the respective governments. In addition, the program will improve the information and data base of the climate information repositories of the countries and the region, to enable more robust, scientific, and evidence-based adaptation planning.

First, the program will focus on the policy improvement, institutional strengthening, capacity-building, instrument modernization, infrastructure development, and service delivery aspects of hydro-met services. Second, the program will lay equal emphasis on the same for the regional climate centers. Third, the program will facilitate and foster horizontal integration of national hydro-met services, and vertical integration of national hydro-met services with the regional climate centers and global centers of excellence in a manner compliant with the Global Framework of Climate Services. With the WMO, African Development Bank, UNDP, WFP, and AFD as program partners, the World Bank is confident that the program's development objectives will be met successfully, through sustained effort and program management support to the governments, enhancing countries' resilience to the deleterious impacts of climate variability.



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CHAPTER 14 ESTABLISHING AN AFRICA CLIMATE-RESILIENT INVESTMENT FACILITY

Implementation Progress: Overview

The Africa Climate-Resilient Investment Facility (Afri-Res) aims 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. An Africa-based center of technical competence and excellence will help governments, planners, and developers in Africa integrate climate change in project planning and design. The facility is being established in collaboration with the African Union Commission and the United Nations Economic Commission for Africa (UNECA); the African Development Bank recently joined the initiative, too (box 14.1).

Expected outcomes include: 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.

The progress is summarized in table 14.1 and further described in this chapter.

TABLE 14.1. Support to the Africa Climate-Resilient Investment Facility: Implementation Progress at a Glance

Activity	Progress made (Jan – Sep 2016)
<ul style="list-style-type: none"> • Create an open data and knowledge platform. • Develop guidelines for climate-resilient investment planning. • Compile good practices in the operation of climate-vulnerable infrastructure. • Plan and implement awareness-raising activities. • Provide on-demand advisory services to project developers. 	<ul style="list-style-type: none"> • Resource mobilization is progressing with the inclusion of the facility in the Nordic Development Fund pipeline for a grant allocation of €4 million and discussion of possible additional support from other donors. • Analysis and consultations are being carried out to define the priority activities of the facility and the recipients targeted for facility support. • In particular, a detailed, survey-based assessment is being completed across the region on the knowledge and capacity needs to be addressed to strengthen the integration of climate change in project planning and design, focusing on the energy, water, and transport sectors.

Implementation Progress: Discussion

The start-up phase of the facility is well underway, with several activities being carried out to advance its design. Start-up activities, which are expected to conclude by December 2016, include the following:

- *Resource mobilization.* An estimated US\$20 million is required for full implementation of the facility through 2020. Consultations with potential donors are underway, with several donors indicating willingness to support the facility. The Nordic Development Fund (NDF) included the facility in its funding pipeline in June 2016 for an indicative allocation of €4 million in grant funding. Final approval by the NDF Board is expected by December 2016. The French Development Agency included the facility in its pipeline for 2017. The Public Private Infrastructure Advisory Facility housed at the World Bank indicated its interest in supporting the facility in FY18–FY20, consistent with its forthcoming climate change strategy. In parallel, discussions were initiated with donors to provide complementary financing to cover the incremental cost of including climate resilience in the design of projects.
- *Demand and supply analysis.* A demand and supply analysis was initiated in July 2016 to define the potential demand for including climate change considerations in the planning and design of long-lived investments in Africa, and to assess how the Afri-Res facility design may be optimized to ensure synergy and complementarity with other related initiatives. Activities under this stream of work include a survey of potential users (circulated to more than 800 stakeholders), in-depth interviews with practitioners from key stakeholder groups (national governments, project preparation facilities, regional organizations, transport corridors, and river basin organizations), and a validation workshop involving potential users. This analysis

will serve to define the priority activities of the facility and the recipients targeted for facility support.

- *Business plan preparation.* A detailed business plan is being prepared to identify specific outputs under each of the facility's key areas of support, and to define implementation arrangements between the World Bank and other partner organizations, including UNECA.
- *Outreach and awareness raising.* Since announcing the establishment of Afri-Res at the United Nations Conference on Climate Change in Paris, the project team has pursued opportunities to raise awareness about and build momentum behind the facility among key stakeholders in Africa, including presentations, consultations, and several regional meetings, bringing together potential users (such as the Africa Climate Resilient Investment Summit in April 2016 and the forthcoming Infrastructure Consortium for Africa annual meeting in Abidjan in November 2016). The project team is working closely with the African Development Bank in raising awareness among African stakeholders (box 14.1).
- *Early support to PPCR countries.* Six countries in Africa (Ethiopia, The Gambia, Madagascar, Malawi, Rwanda, and Uganda) each received US\$1.5 million technical assistance grants as new entrants into the Pilot Program for Climate Resilience (PPCR). The grants will help the countries to prepare strategic plans for incorporating climate resilience into development planning and investment in priority sectors. The facility is prioritizing early support to these countries to help them incorporate climate change considerations into upstream planning and subsequent design of critical infrastructure assets in the water, power, and transport sectors. Initial actions with the PPCR countries have commenced and will continue beyond the start-up phase.

BOX 14.1. Success Story: World Bank Group and African Development Bank: Working Together to Enhance the Resilience of Africa's Infrastructure

Financial institutions, as key enablers of infrastructure development, are increasingly directing more attention and resources toward managing the risks and uncertainties posed by climate change to the projects that they finance. As the largest multilateral development institutions in Africa, the World Bank Group and the African Development Bank (AfDB) are critical partners in ensuring that Africa's infrastructure is resilient to the impacts of climate change.

The World Bank and the AfDB now apply climate and disaster risk screening tools at the project level to assess vulnerabilities and identify climate risks. Beyond screening, however, the question of what to do about climate and disaster risks is complex. The World Bank is carrying out work on "decision making under uncertainty" to help standardize sectoral approaches to integrating resilience that would guide decision making at the project level. The AfDB is working in a similar direction through sector-focused analyses aimed at informing the design of specific projects in the energy, agriculture, transport, water and sanitation sectors, in line with its Adaptation Review and Evaluation Procedure.

The two development banks are working together to move the resilience agenda forward in Africa, not only through screening and improving the application of resilience measures in projects they finance, but also by looking beyond their portfolios to integrate resilience into the project preparation facilities of the infrastructure finance community at large; e.g., through outreach and awareness raising with the Infrastructure Consortium of Africa, and ultimately through partnership in operationalizing Afri-Res.

Opportunities for Further Progress in 2017

The pilot phase of the facility will commence in early 2017 and is expected to last 18 months. During this phase, the first round of interventions to be supported by Afri-Res will be delivered. These include establishment of an open access climate data portal with vetted climate change projections for Africa, and tools, models, and analytics to support climate-resilient infrastructure investment; preparation of technical guidelines; and delivery of training on tools and methods for climate-resilient infrastructure investments to practitioners and decision makers.

In the subsequent stages of its activity, the facility will focus on provision of technical assistance to development planners and project developers on integration of climate resilience in critical stages of the planning and project design process; and scaled-up delivery of training on tools and methods for climate-resilient infrastructure investments to practitioners and decision makers.

CHAPTER 15 OPPORTUNITIES FOR FURTHER PROGRESS IN 2017

Many countries have committed to step up mitigation and adaptation efforts under recent international agreements, such as the Sendai Framework, the Sustainable Development Goals (SDGs), and the Paris Agreement on climate change. These efforts will require a corresponding increase in resource mobilization. Forty-five African countries have committed to implement their Intended Nationally Determined Contributions (INDCs) as part of the Paris Agreement. The Africa Climate Business Plan (ACBP), presented at COP21 in November 2015, identified various sources of potential financing for implementation of activities aligned with the INDCs.

As discussed in previous chapters of this report, considerable progress was made in the first year of ACBP implementation. But more work remains to be done, both to achieve the financial targets of the ACBP and to leverage the additional resources needed to close Africa's climate finance gap.

This chapter discusses opportunities, in 2017 and beyond, for advancement at a more general, strategic level. These include the World Bank's global engagement on the climate change and sustainable development agendas; ongoing discussions on support for implementation of the INDCs; and leveraging climate finance as well as concessional development finance, particularly in the context of the 18th replenishment of the International Development Association (IDA).

World Bank Group Corporate Commitment to Support Countries

Responding to global agreements and to strengthen its support to client countries, in 2016 the World Bank Group adopted a corporate-level Climate Change Action Plan (CCAP) and a Forest Action Plan (FAP), exploring ways to increase its lending to climate investments. These resources include concessional financing under IDA and non-IDA climate finance and others sources.

Climate Change Action Plan

The World Bank Group's CCAP was approved by the Board in April 2016. The CCAP reconfirms the World Bank Group's commitment to increase the climate-related share of its portfolio from 21 percent to 28 percent by 2020 in response to client demand, with total financing, including leveraged co-financing, of potentially US\$29 billion per year by 2020. The CCAP and the ACBP are mutually reinforcing instruments. On the one hand, the CCAP demonstrates how the World Bank Group intends to scale up climate action, integrate climate change across its operations, and work more closely with others, creating further spaces for making progress at the level of individual regions. On the other hand, the ACBP – and other regional climate business plans currently under development – will support achievement of the corporate commitments made under the CCAP.

Forest Action Plan

The World Bank Group launched a five-year FAP in April 2016, laying out a vision for boosting the potential of forests to lift people out of poverty and generate lasting social, economic, and environmental returns. Through the FAP, the World Bank Group committed to use a programmatic approach to support forest management and address climate change. The World Bank Group already deploys a range of financial instruments for strengthening forest management. These include: (i) upstream support through the Program on Forests, Wealth Accounting and the Valuation of

Ecosystem Services, and Forest Carbon Partnership Facility (FCPF) Readiness Fund; (ii) investments through the IDA/International Bank for Reconstruction and Development, Global Environment Facility (GEF), Forest Investment Program (FIP), and BioCarbon Fund; and (iii) results-based payments through the FCPF Carbon Fund, BioCarbon Fund, and Central African Forest Initiative. For IDA countries, there is an increased possibility of getting funding allocated to forests in the IDA18 allocation. The corporate commitment and programmatic approach to funding forests under the FAP provide the necessary thrust for implementing the forest-related activities identified under the ACBP.

Technical Assistance and Policy Advisory for ACBP Implementation

Forty-five African countries have submitted their INDCs, outlining priority mitigation or adaptation sectors where policy engagement and/or investments are needed. These include INDCs from fragile and conflict-affected states in the Africa region. The countries are addressing climate challenges from different starting points in terms of capacity, resources, emissions levels, and vulnerability profiles, and therefore need differentiated actions and support, which the World Bank Group can provide.

At COP22, the World Bank Group, along with a coalition of partners, will launch the Nationally Determined Contributions (NDC) Partnership. The objective of the partnership is to achieve enhanced cooperation among parties to support developing country partners in successfully implementing their INDCs and related SDG commitments, with the goal of supporting climate-resilient and low-carbon development. The work of the partnership with targeted in-country programs, aligned with activities identified in the INDCs, will support implementation of the ACBP.

Mobilization of Concessional Finance for ACBP Implementation

Countries in the Africa region will need the appropriate combination of concessional development finance, climate finance, and other forms of financial and technical support to implement activities identified under the ACBP. Concessional climate finance will fund incremental costs of climate action, redirecting investment flows and maximizing impact.

Concessional Funds under IDA

The ACBP identifies resource mobilization for the fast-track part of the plan, which spans two IDA cycles: IDA17 (which ends June 30, 2017) and IDA18 (which will run from July 1, 2017, to June 30, 2020). IDA has a strong record of supporting climate change activities, and it is expected that climate change will continue as an important theme in IDA18. Key elements of the climate theme currently under discussion by the IDA deputies are as follows:

- Deepening the mainstreaming of climate change and disaster risk management into Systematic Country Diagnostics (SCDs), Country Partnership Frameworks (CPFs), and lending and support for the development of planning and investment capacity:
 - All IDA SCDs and CPFs are to incorporate climate and disaster risk considerations and opportunities and reflect INDCs, based on a review of experience before the start of IDA18, and to be reported at the medium-term review (MTR).
 - All IDA operations continue to be screened for climate change and disaster risks, and integrate resilience measures, based on a review of experience before the start of IDA18, and to be reported at the MTR.
 - Support will include at least 10 countries (on demand) to translate their INDCs into specific policies and investment plans, and start to integrate these into national budget and planning processes.

- At least 10 climate-smart agriculture investment plans and 10 programmatic forest policy notes will be developed.
- The use of development policy operations that support climate co-benefits will be increased.
- Greenhouse gas accounting and shadow carbon prices will be applied for all operations in significant sectors, and a revised guidance note on discount rates will be prepared.
- Supporting efforts to achieve the objectives of the “Sustainable Energy for All” initiative:
 - Support the addition of 5 gigawatts in renewable energy generation.
 - Develop investment prospectuses in seven additional countries with low electricity access.

A strong IDA replenishment with an ambitious climate theme will be critical to allowing the World Bank Group to meet the objectives set out in this ACBP, which is based on an IDA18 replenishment comparable to that of IDA17.

Climate Finance

The World Bank Group has a strong record of using climate finance to support other resources used for mitigating and adapting to the impact of climate change. Moving forward, it will be important to seize opportunities for stepping up the use of climate finance in support of activities identified under the ACBP in the critical period from Paris through 2020.

- Climate Investment Funds (CIFs). Between 2010 and 2015, the CIFs provided US\$1.040 billion to support mitigation, forestry, and adaptation activities in the Africa region. Thirteen countries in the region are currently preparing investment plans for the Scaling Up Renewable Energy Program, FIP, and Pilot Program for Climate Resilience funding windows under the CIF, which may require potential funding of up to US\$890 million for implementation of the activities identified under these plans. However, the CIFs are already fully committed, and if they are to continue to play this catalytic role and support the World Bank Group and other multilateral development banks to deliver on their climate mandate, the CIFs would need to be recapitalized in the near future.
- Green Climate Fund (GCF). Although the World Bank Group is working strategically with the GCF and sees possibilities for strong collaboration, uncertainties exist around how much concessional climate finance might be available from this source in the near to medium term. In recent months, some progress was made in approval of project funding by the GCF Board. As an accredited entity of the GCF, the World Bank received GCF Board approval of the Africa Hydromet Program—Strengthening Climate Resilience in Sub-Saharan Africa: Mali Country Project—of US\$22.75 million. Other project and program proposals from the World Bank Group are in the GCF funding pipeline. Many activities identified under the ACBP are being considered for potential GCF funding. The World Bank Group also participated in the GCF Structured Dialogue in Africa (October 24–26, 2016, in Cape Town, South Africa) to engage proactively with country representatives from the Africa region to prioritize proposals for potential GCF funding in the coming months and years.
- Global Environment Facility (GEF). The World Bank Group will continue to work with the GEF to identify funding for implementing the ACBP. The World Bank Group would explore funding available through the country allocations under the System for Transparent Allocation of Resources and global programs under the GEF, in particular under the GEF 7 replenishment cycle, to support investment opportunities identified in the ACBP. Under the Paris Agreement, the GEF was given a renewed mandate on capacity building and support for the

NDC process. The World Bank Group will explore opportunities under this program to support NDC work in the Africa region.

- Private sector investments. The International Finance Corporation (IFC) has built a solid track record in blending concessional funds alongside its investments in renewable energy and energy efficiency. The IFC currently has an unfunded concept-approved blended finance pipeline of at least US\$300 million, mostly in infrastructure projects in Africa and the Middle East and North Africa, which cannot proceed because of the lack of (geographical and sector) flexible concessional finance. If that financing were available, it could leverage at least US\$500 million of IFC funds and US\$1.7 billion from other investors.
- Other development finance (bilateral and multilateral institutions). Technical consultations are ongoing with a variety of development finance partners of the World Bank, including the African Development Bank, West African Development Bank, and bilateral partners (including the French Development Agency, United Kingdom's Department for International Development, *Gesellschaft für Internationale Zusammenarbeit*, and Nordic Development Fund). These consultations range from preliminary to advanced. There is a reasonable expectation that a portion of the funding could be mobilized from other development partners to implement activities identified under the ACBP.

Tapping into the opportunities listed above will alleviate the constraints currently faced by African countries with respect to the investment needs identified in the ACBP. More generally, the World Bank Group will continue to facilitate country access to a wider menu of internal and external concessional and climate finance sources. The World Bank Group will also work with development finance partners and donors to harmonize, simplify, and rationalize access to concessional and climate finance for implementation of the ACBP.

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