

From Concept to Action: Boosting Resilience in Africa

Lessons Learned
from the Resilience
Booster Tool

**Stronger
Design**

**Stronger
Monitoring**

**Stronger
Impact**

**Kanta Kumari Rigaud,
Anmol Arora, and
Anna Gayatri Singh**

May 2023



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Acknowledgments



This lessons note is a product of the Africa Climate Resilient Investment Facility (AFRI-RES). World Bank projects in the Africa region that had received catalytic grant financing from AFRI-RES were invited to apply the Resilience Booster Tool to enhance and embed climate resilience in the design projects. This note reflects lessons learned from these applications.

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Practitioner Reflections

“The Resilience Booster Tool helped articulate activities in terms of resilience attributes. It was a useful tool for identification of resilience indicators.”

–Yasmina Oodally (Environmental Specialist, World Bank), Ghana Landscape Restoration and Small-Scale Mining Project

“I had many questions about resilience. The Resilience Booster is helpful in unpacking the concept.”

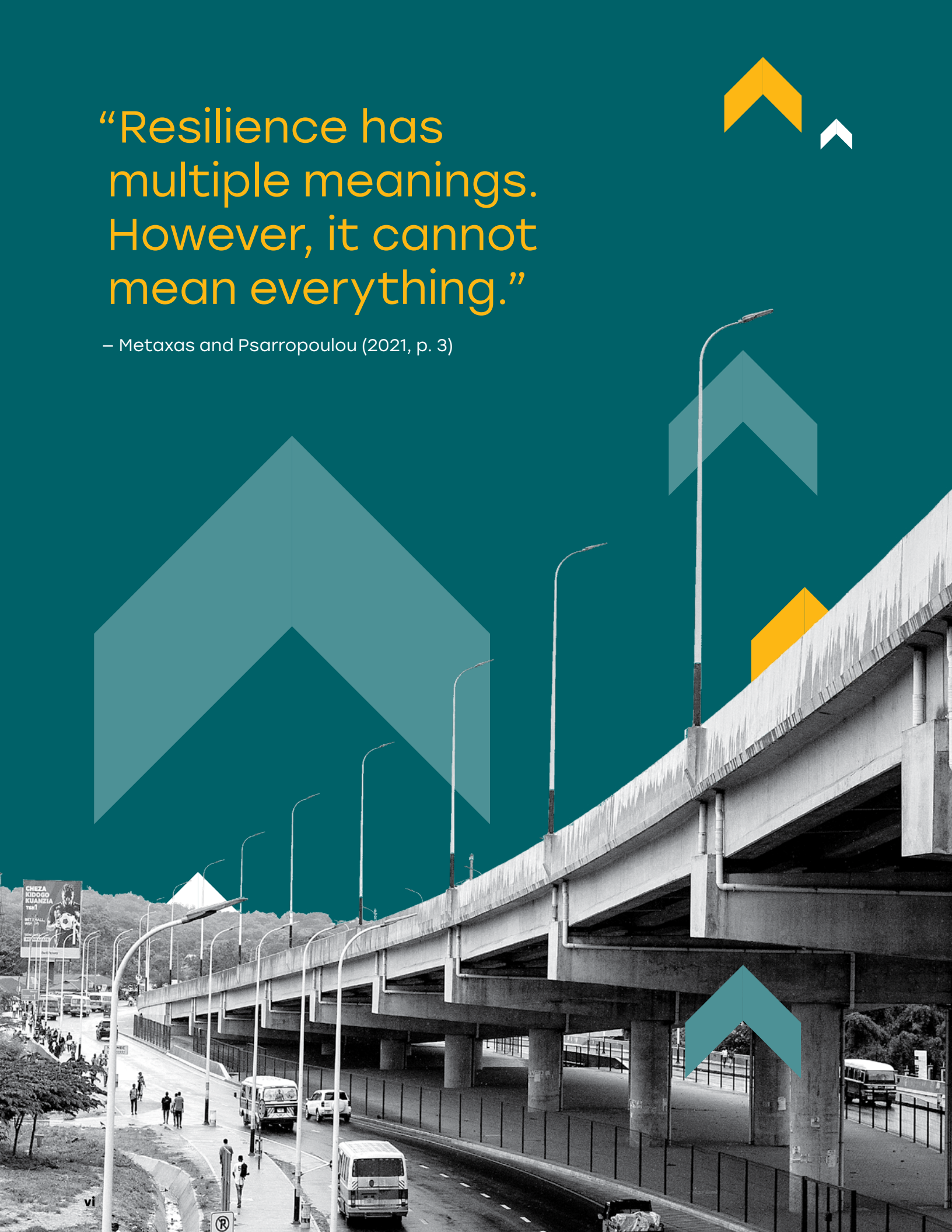
–Aifa Fatimata Niane Ndove (Senior Agricultural Economist, World Bank), Gambia Inclusive and Resilient Agricultural Value Chain Development Project

“The Resilience Tool is easy to apply once you get the learning curve. It presents a clear picture of the project. The fact that it is online also helps.”

–Thierno Bah (Senior Energy Specialist, World Bank) and Megan Meyer (Senior Energy Specialist, World Bank), Cabo Verde Renewable Energy and Improved Utility Performance Project

“Resilience has multiple meanings. However, it cannot mean everything.”

– Metaxas and Psarropoulou (2021, p. 3)



Executive Summary

Climate resilience is difficult to grasp, execute, monitor, and evaluate. It has become a catch- all phrase in international development and climate adaptation literature, with no easy way to understand if resilience is being built, nor a systematic way to measure progress. Generic references to resilience run the danger of glossing over social and political gaps, often leading to techno-managerial solutions (Garcia et al. 2022; Mikulewicz 2019). Metaxas and Psarropoulou (2021, p. 3) state, “Resilience has multiple meanings. However, it cannot mean everything.”

The World Bank developed the [Resilience Booster Tool](#) as a hands-on, user-friendly online tool to strengthen the integration of climate risks and opportunities into the design and delivery of investments. The Resilience Booster enhances the capacity of people, assets, institutions, and infrastructure to harness and respond to the impacts of shocks and stresses. This interactive, step-by-step tool for development practitioners helps embed resilience thinking into their project design, monitoring efforts, and, ultimately, the outcomes (Ospina and Rigaud 2021).¹

What We Learned

The Resilience Booster Tool allows nonexperts to exemplify, contextualize, and understand a broad range of climate risks, paving the way to prioritize climate resilience interventions.

Combining resilience attributes and core capacities (absorptive, adaptive, and transformative) allows development projects to address risks concretely.

The Resilience Booster Tool helped project teams make broader social and development linkages.

Robustness, learning, and inclusion were the top three resilience attributes leveraged in projects to build resilience.

Through use of the Resilience Booster, projects can improve their climate co-benefits score and contribute more effectively to World Bank’s overall target of 35 percent of its financing generating climate co-benefits.

¹ Integrating Resilience Attributes into Operations: A Note for Practitioners <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/321901597031973150/africa-enhancing-climate-resilience>

This work was conducted under the Africa Climate Resilient Investment Facility (AFRI-RES). AFRI-RES is a partnership between the African Union, the [United Nations Economic Commission for Africa \(UNECA\)](#), and the World Bank Group. It is funded with support from the [Nordic Development Fund \(NDF\)](#). AFRI-RES aims to assist development practitioners, governments, planners, and private developers in Africa in integrating climate change into project planning and design, thereby attracting funding from both development and climate finance sources. The AFRI-RES program provided catalytic grant funding to a suite of World Bank projects to embed climate resilience into design and delivery.² The goal was to generate and develop knowledge products to facilitate resilience-building efforts.

This Lessons Note analyzes project reports and outputs to identify the value addition of resilience efforts, with a special focus on the Resilience Booster Tool. The AFRI-RES grantee projects covered 20 projects spanning 21 countries in Africa³ and eight Global Practices (GPs), benefitting a wide cross-section of stakeholders. A streamlined set of recommendations provide lessons learned from the Resilience Booster's application to Round II AFRI-RES grantee projects and suggest approaches for improving its application going forward.

Task Teams applied the step-by-step process of the Resilience Booster Tool to their projects. First they identified how many of three core resilience capacities—absorptive, adaptive, and transformative—their project could likely address. Then teams identified and linked resilience attributes to project outcomes that were most relevant to their project's objective. Across the 20 projects, 226 intervention ideas were generated to address climate risks. The Resilience Booster allowed progress tracking over the project cycle. Task Teams noted that the Resilience Booster helped them break down resilience efforts into a guided, step-by-step process and clearly link resilience to the projects' objective and aims.



The AFRI-RES grant brought resilience to the forefront of project design, tracking, and planned implementation through the Resilience Booster Tool. Task Teams unpacked resilience into meaningful categories and attributes best suited to their respective contexts and project development outcomes. The Resilience Booster findings are included in project documents, most notably in Project Appraisal Documents, Project Information Documents, and Environment and Social Impact Studies. Projects have made broader linkages to social and development issues such as gender and have strengthened projects and operations in novel, innovative ways. The AFRI-RES grant has helped multiple projects enhance their contribution toward mandatory corporate climate commitments, such as climate co-benefits.

The Resilience Booster Tool has witnessed early success and presents opportunities for broader uptake. AFRI-RES can play a pivotal leadership role as a hub for cross-learning and knowledge sharing across its partners and stakeholders. The Resilience Booster's user interface, sophistication, and functionality demonstrated ease of use. It could benefit from enhancement building on learned experiences to enrich user experience. We also support building a community of practice for knowledge sharing between practitioners and task teams.

2 On average, projects received between \$33,000 to \$ 100,000 as part of the project preparation stage to support and inform the design and embed climate resilience.

3 Benin, Burkina Faso, Cabo Verde, Cameroon, Chad, the Democratic Republic of the Congo, Djibouti, Ethiopia (two), Gambia, Ghana (three), Kenya, Malawi, Mali, Niger, Nigeria, Senegal (two), Sierra Leone, Somalia, Sudan, Tanzania, and Togo.

1. Background

1.1 Resilience Imperative

The cascading, disruptive, and unpredictable nature of climate shocks and stressors raises questions on the adequacy of existing risk management systems and practices (Bahadur and Dodman 2021; Mishra 2021; Tyler 2012). In the climate crisis, resilience has become a tool whose positive attributes can reduce vulnerabilities (Bahadur and Dodman 2021; Tanner et al. 2015). Resilience theory draws from multiple fields and refers to integrated approaches to climate shocks and stressors (Alexander 2013; Bahadur and Tanner 2014). The use of *resilience* has spread from traditional applications in ecology and psychology to many scientific disciplines. Recently, it has appeared in global policy documents for sustainable development. For example, the need for building resilience is in the 2030 Agenda for Sustainable Development, the Addis Ababa Action Agenda, the Paris Agreement on climate change, the Sendai Framework for Disaster Risk Reduction, and the New Urban Agenda.

The Intergovernmental Panel on Climate Change (IPCC) defines resilience as “the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and the capacity for adaptation, learning and transformation”

There are many definitions of *resilience* and contestation around the concept (Leichenko 2011; Miller et al. 2010). Flexibility, learning and change, and adaptive capacity are attributes commonly associated with resilience (Parada and Rigaud 2022). Often used interchangeably with adaptation, resilience is understood as the return of the functions of an individual, household, community, or ecosystem to previous conditions after shocks and stresses, with as little damage and disruption as possible (Pörtner et al. 2022; Tanner et al. 2015). The Intergovernmental Panel on Climate Change (IPCC) defines *resilience* as “*the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and the capacity for adaptation, learning and transformation*” (Masson-Delmotte et al. 2018, p. 557).

Resilience is a central objective of climate policy in Article 2.1b of the 2015 Paris Agreement of the United Nations Framework Convention on Climate Change. According to the World Bank (2012, p. 9), “*In a resilient world, countries manage the risks of disaster more effectively—especially the more-frequent natural disasters and more-volatile weather patterns.*” The Global Center on Adaptation (GCA 2019, p. 46) states, “*Climate resilience needs to be integrated into all infrastructure assets and systems throughout their lifecycles.*”

1.2 Climate Resilient Development Proposition

Climate change threatens to derail fundamental development goals of poverty reduction, economic prosperity, education, health, and environmental sustainability (USAID 2014; World Bank 2012). Yet, development efforts can reduce greenhouse gas emissions and aid adaptation to climate change impacts (Thomalla et al. 2018; Werners et al. 2021). The IPCC Sixth Assessment Report emphasizes the linkages between climate change adaptation and mitigation with sustainable development, noting, “*Climate Resilient Development integrates adaptation measures and their enabling conditions with mitigation to advance sustainable development for all*” (Pörtner et al. 2022, p. 28).

Climate resilient development is an approach to minimize climate crisis impacts and ensure people, communities, and organizations can cope with the changes (USAID 2014; World Bank 2019). As the IPCC notes, it integrates gender, Indigenous knowledge, and local knowledge and practices (Trisos et al. 2022). The World Bank considers climate and disaster resilient development fundamental to eliminating extreme poverty and achieving shared prosperity by 2030 (2019; 2021). The Bank supports partner countries in climate resilient development by addressing gradual and extreme changes in the climate (2013).

The [Next Generation Africa Climate Business Plan \(NG-ACBP\)](#) (fiscal 2021–26) highlights the urgency to leapfrog into novel development pathways, and emphasizes resilience building and adaptation as foundational for a greener and more prosperous future. Under the NG-ACBP, knowledge generation plays a critical role in driving transformational climate action. Integrating the notion of resilience in development practice requires practitioners to unpack the meaning of resilience and what it implies for their project. Unpacking the concept is key to embedding resilience more systematically into the project’s design and monitoring, and, ultimately, for strengthening impact (Ospina and Rigaud 2021).

Bolstering resilience applies to all sectors due to the pervasiveness of climate change. The IPCC (Trisos et al. 2022) estimates with high confidence that between 1.5°C and 2°C of global warming, negative impacts are projected to become widespread and severe. Expected outcomes include reduced food production, reduced economic growth, increased inequality and poverty, biodiversity loss, and increased human morbidity and mortality. Investment in resilient infrastructure has the potential to deliver urban and rural development in power, sanitation, water supply, waste management, safe transport for access to health, and education facilities. Further, productive sectors, which form the backbone of the Africa economy, are being directly hit by natural disasters and changing climate patterns. Slow onset climate impacts are affecting agricultural yields and the viability of crops, disrupting food systems and affecting rural livelihoods.

1.3 Africa Climate Resilient Investment Facility (AFRI-RES)

Future climate change and variability are difficult to predict and quantify, making planning and project design challenging and costly. Specialized thematically focused trust funds, such as AFRI-RES, are important resources for creating robust analytics and building capacities. In its leadership role, AFRI-RES has focused on gaps and the need for tools, instruments, and data to integrate climate change in project planning and design, thereby attracting funding from both development and climate finance sources.

[AFRI-RES](#) is a partnership between the African Union, the African Development Bank, the [UNECA](#), and the World Bank Group. Established with support from the [NDF](#), AFRI-RES has four components (box 1.1), including a dedicated component that provides catalytic grants to World Bank projects during the project design phase to enhance climate resilience outcomes of these investments and generate knowledge and learning.

AFRI-RES provided financing for projects in two tranches. Round I financing totaled €932,958 across 15 projects, and Round II financing totaled €1.17 million across 20 projects. The Resilience Booster Tool was applied only to Round II AFRI-RES grantee projects because the tool was not yet developed during Round I financing disbursement.

This report represents the synthesis of learning from applying the Resilience Booster Tool to Round II AFRI-RES project grantees. Section two briefly introduces the Resilience Booster and sets out its methodology and key concepts. Section three dives into the results of the application, Task Team feedback, and opportunities for improvement. The Note concludes by outlining a set of lessons learned by Round II grantee projects and key recommendations to enhance the Resilience Booster for future use.

Box 1.1 Four Components of AFRI-RES

World Bank Led Components



Project Level Technical Assistance

The first project component provides catalytic grants to World Bank teams to further embed climate resilience in the design phase of their projects.



Guidelines, Standards and Good Practice Notes

The third project component focuses on developing an online toolkit that provides users with a systematic method to discuss and measure climate resilience in projects.

UNECA Led Components



Outreach, Dissemination and Training

The second project component includes a range of activities that will be undertaken to encourage behavioral change on climate-resilient investment planning.



Climate Knowledge and Data Portal

The fourth project component creates an online repository of knowledge for climate-resilient investment planning and design in Africa.

Source: World Bank.

The Reliance
Booster is
designed for
development
practitioners who
are planning or
working on climate
resilient projects.



2. Resilience Booster Tool

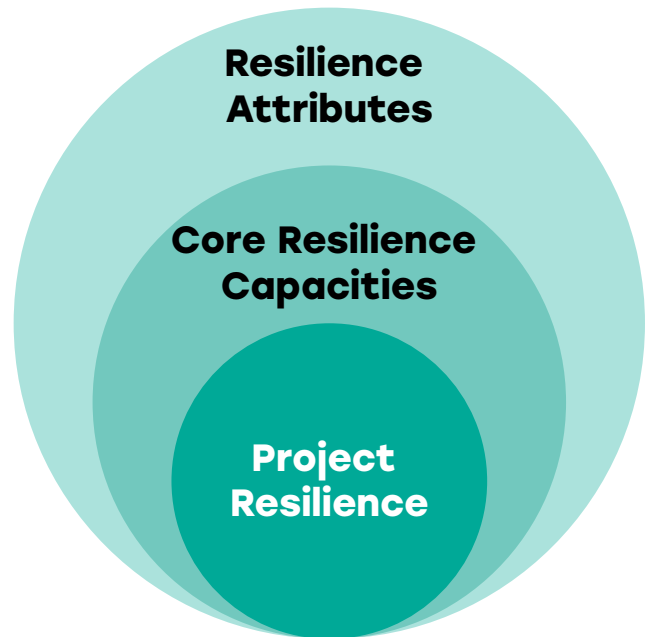
This section introduces the Resilience Booster Tool, outlines the steps and concepts integrated into it, and details the methodology applied to the data in this Note.

2.1 Introducing the Resilience Booster Tool: A Pragmatic Approach

The **Resilience Booster Tool** is a hands-on, user-friendly online tool. It applies a resilience lens to strengthen the integration of climate risks and opportunities into the design and delivery of investments. The Resilience Booster is designed for development practitioners who are planning or working on climate resilient projects. Development practitioners can use this interactive, step-by-step tool to embed resilience thinking into their project design, monitoring efforts, and, ultimately, the outcomes (Ospina and Rigaud 2021). It helps teams to think through, specify, and design project activities that build resilience by integrating resilience capacities and attributes (figure 2.1). The approach used for tracking resilience attributes can be adapted to the project.

To support systemwide resilience, the Resilience Booster Tool starts by focusing on the project resilience of people, assets, infrastructure, and services. Project resilience is achieved through a focus on three core resilience capacities: absorptive, adaptive, and transformative (table 2.1). A set of wider resilience attributes exemplifies these core resilience capacities (figure 2.2). The Resilience Booster supports this foundational framework of achieving resilience through a systematic and transparent five-step process.

Figure 2.1 Components for Developing Project Resilience



Source: World Bank.

Table 2.1 Core Resilience Capacities in the Resilience Booster Tool

Core Resilience Capacity	Definition	Examples
Absorptive	<p>The ability to prepare for, mitigate, and/or prevent negative impacts of shocks and hazards to preserve and restore essential basic structures and functions.</p> <p>Preparedness is key for absorptive capacity to better cope with climate impacts in the short term.</p>	<ul style="list-style-type: none"> • Establishing emergency protocols to increase preparedness for extreme events • Early warning systems • Strengthening the walls of grain storage sheds to enable them to withstand inclement weather (e.g., high winds and rain) • Reforestation to restore critical ecosystem services
Adaptive	<p>The ability to adjust, modify, or change characteristics and actions to moderate potential future impacts from shocks and stresses to continue to function without major qualitative changes.</p>	<ul style="list-style-type: none"> • Establishing an irrigation system for farmers previously dependent on variable rainfall to water their crops • Diversifying livelihoods • Using digital technologies to enhance climate information and knowledge sharing
Transformative	<p>The ability to create a fundamentally new system to avoid negative impacts from shocks and stresses. Transformation takes place over longer periods of time because it requires structural change.</p>	<ul style="list-style-type: none"> • Adoption of payment of ecosystem services to promote forests and landscape management that support flood regulation and watershed conservation • Shifting to promote value-added downstream agro-industries to diversify jobs and reduce vulnerability to climate shocks

Source: World Bank.

Figure 2.2 Resilience Attributes in the Resilience Booster Tool



Source: World Bank.

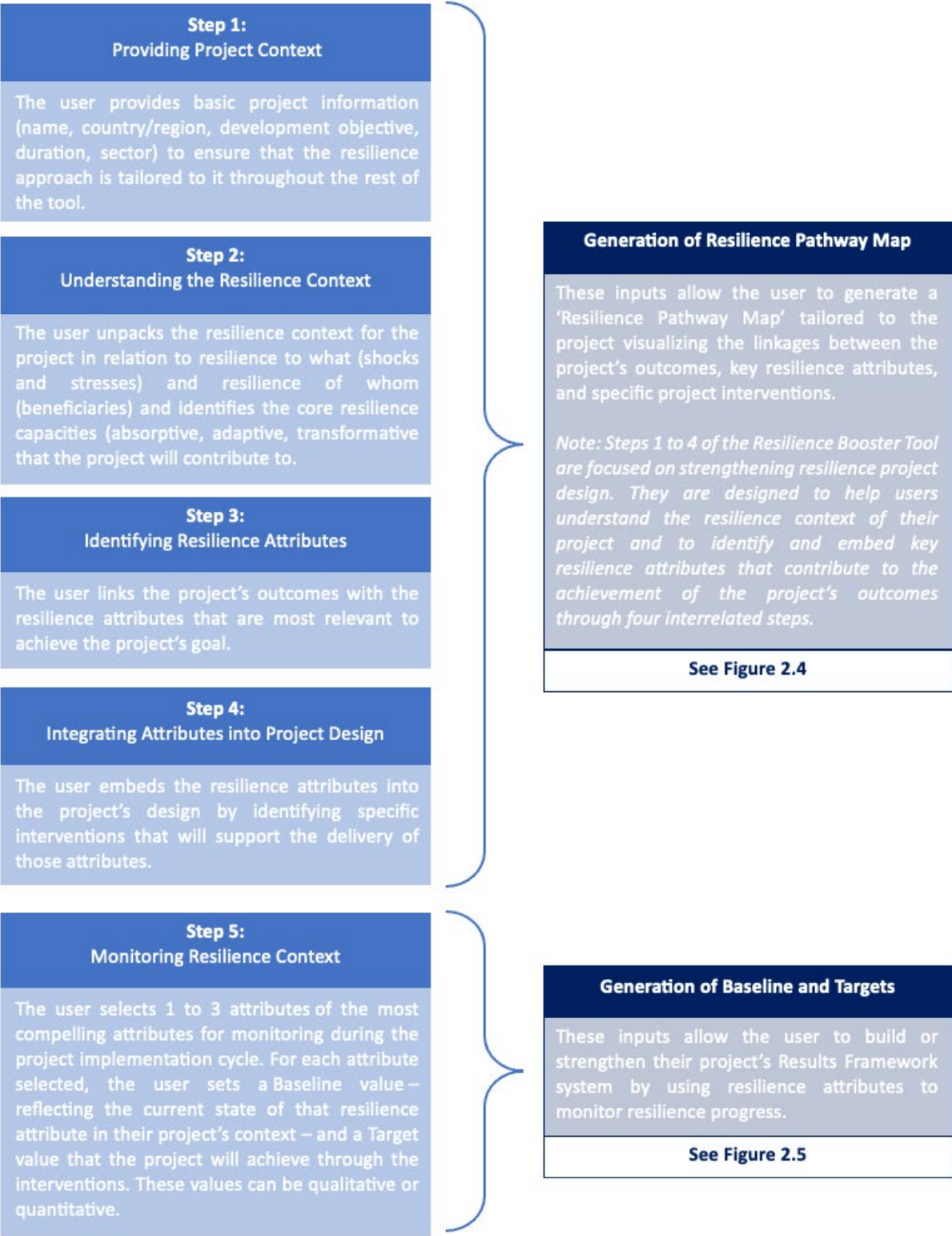
The Resilience Booster contains five steps (see figure 2.3 for further descriptions):

1. Providing project context
2. Understanding the resilience context
3. Identifying resilience attributes that can contribute to enhancing the core resilience capacities through the project

4. Integrating attributes into project design
5. Monitoring progress on resilience

Completing steps 1 through 4 generates a Resilience Booster pathway map (figures 2.3 and 2.4). Completing step 5 allows the means to develop baseline and targets (figures 2.3 and 2.5) for tracking progress.

Figure 2.3 Resilience Booster Tool Steps and Outcomes



Source: World Bank.

Figure 2.4 Resilience Booster Pathway Map

This Resilience Pathway Map has been generated using the World Bank's **Resilience Booster tool** to inform and considerations of resilience into the design of the project. The pathway map offers a 'snapshot' of the project's approach to resilience building.

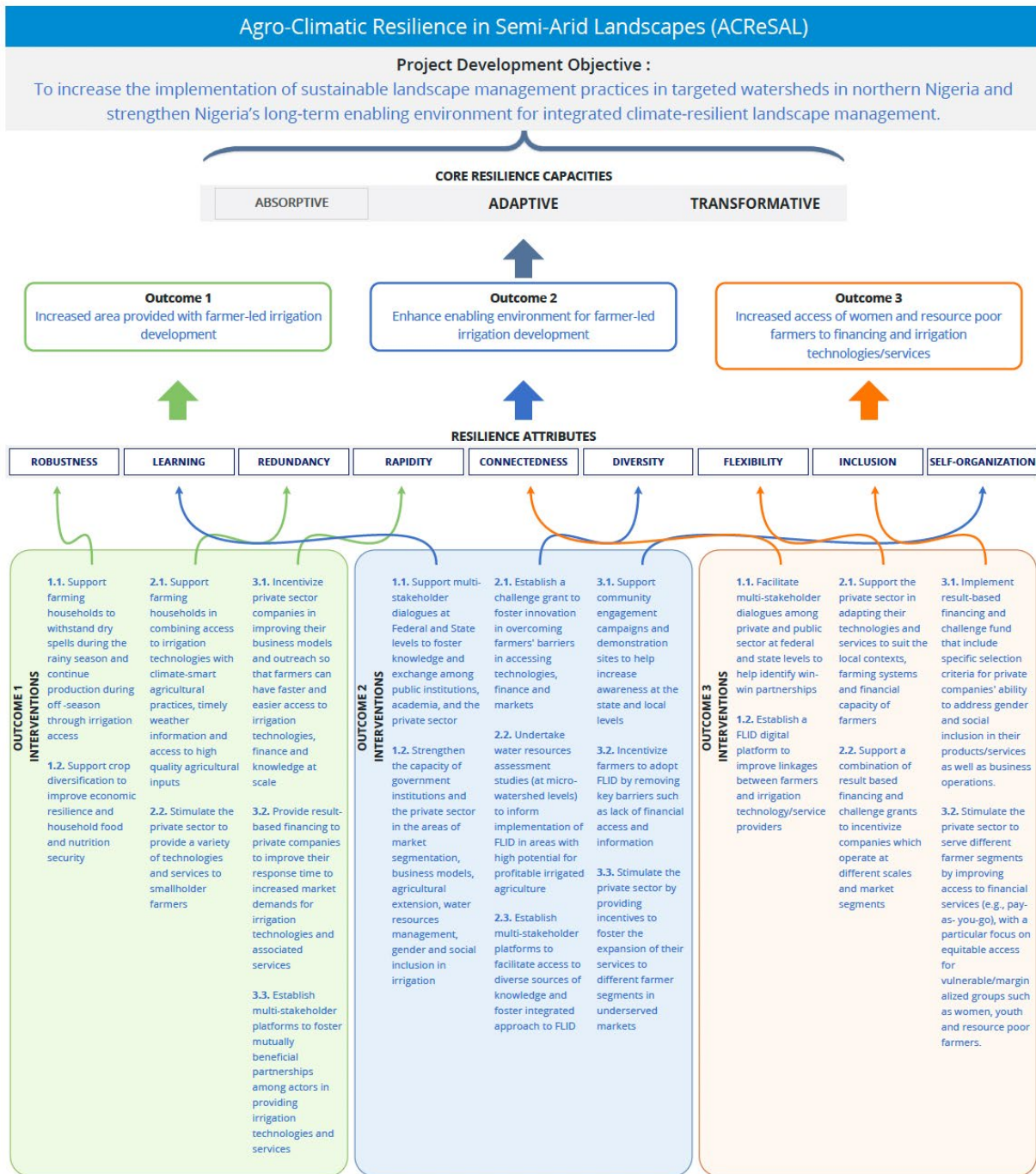


Figure 2.5 Resilience Attribute Baseline and Targets

Resilience Attributes Baseline and Targets

This is a visualization of the project’s resilience attributes baseline and targets. The scores (low from 0-1, medium 2-3, or high 4-5) can help inform or complement the project’s Results Framework, and can be used as a reference to track progress towards targets annually, at mid-point or at the end of the project.



Attribute	Baseline	Target
ROBUSTNESS	<p>Low (1)</p> <p>Seasonal variability in rainfall affects agricultural production, increases crop failure and reduces farmer income. Persistent water shortages, especially in the extreme north, will continue to exacerbate land degradation, desertification, and habitat loss.</p>	<p>High (4)</p> <p>Farmers’ increased access to irrigation technologies resulting in crop diversification, improved agricultural productivity and increased climate resilience</p>
LEARNING	<p>Low (1)</p> <p>The role of private sector actors in lowering barriers to farmers’ irrigation access has been mainly overlooked.</p>	<p>High (4)</p> <p>Governments gain capacity in rolling out public financing mechanisms to support market development for the irrigated agricultural sector resulting in increased FLID</p>
INCLUSION	<p>Low (0)</p> <p>Access to irrigation is often strongly linked to land rights and has a detrimental impact on women smallholder farmers’ productivity.</p>	<p>High (4)</p> <p>The project will ensure that women either in groups or individually have access to innovative end-user financing for quality inputs, post-production equipment, and/or small-scale solar irrigation.</p>

Source: World Bank.
 Note: Example is from Nigeria ACREsAL Project.

3. Methods

3.1 Introducing the Lessons Note Methodology

This Lessons Note used qualitative research design and descriptive statistics to achieve an in-depth understanding of the application and impact of the Resilience Booster Tool and its value addition under the AFRI-RES grant program. This approach allowed us to gauge and compare the subjective experiences of Task Teams that engaged with resilience during the project preparation stage. The study explores three main research questions:

- What was the experience of Task Teams in the application of resilience measures into development projects?
- How did the application of the Resilience Booster Tool add value to the project?
- What lessons and best practices can be distilled for future application?

The study collected data through an online survey and a focus group discussion with grantee projects. It focused on 20 World Bank projects that received a catalytic grant through the AFI-RES program to enhance resilience into their design (table 3.1). The survey drew on the conceptual framework to pose questions around dimensions of resilience and the application of the Resilience Booster Tool. The survey link was mailed to project team leaders in March 2022, and they assigned team members to complete the survey (appendix A).

The data set consists of Resilience Booster pathway maps, project appraisal documents, and other project preparation studies or reports. Documents were selected based on their alignment to the research questions and ability to offer contextual depth. The documents were collated on SharePoint. The quantitative breakdown of grantee projects into GPs, geography, and beneficiaries was extracted from the pathway maps.

We analyzed similarities, differences, and unique points across grantee projects and compared them with broader literature to identify patterns and emerging themes.

One pathway map sets out the theory of change of a project, which allowed us to quantify the number of climate stressors, resilience attributes, and outcome interventions that allow resilience to be embedded into the project design. We analyzed similarities, differences, and unique points across grantee projects and compared them with broader literature to identify patterns and emerging themes.

In qualitative analysis, we identified prominent themes around resilience across and in documents. In the first stage, the digitally recorded focus group discussions and survey results were transcribed verbatim to allow for accurate analysis. The project reports and deliverables were read to identify team experience and project impacts. The data helped identify how projects engaged and invested in resilience efforts and where they faced challenges. Using inductive and deductive reasoning, these aspects were collected into a framework to identify the challenges, pitfalls, and opportunities of addressing resilience in development projects.

Subsequently, the study developed themes, concepts, and patterns that drew on the conceptual frameworks, research questions, and data. The qualitative and quantitative analysis revealed how a diverse set of development projects engaged with resilience building and lessons we can learn from it. Finally, we developed explanatory accounts verified through consultations with Task Teams and other practitioners working on resilience at the World Bank.

Table 3.1 AFRI-RES Facility Round II Grantee Projects and Financing

no.	ROUND II AFRI-RES GRANTEE PROJECTS (US\$)	AFRI-RES GRANT FINANCING (€)
1	<u>Benin Electricity Scale-Up (BEAS) Project (200 M)</u>	53,000
2	<u>Cabo Verde Renewable Energy and Improved Utility Performance Project (16.5 M)</u>	28,600
3	<u>Cameroon Douala Urban Mobility Project (420 M)</u>	83,590
4	<u>Democratic Republic of Congo Access Governance and Reform for the Electricity and Water Sectors Project (634 M)</u>	82,192
5	<u>Ethiopia Resilient Landscapes and Livelihoods Project (178.24 M)</u>	85,222
6	<u>Ethiopia Program for Results (Hybrid) Strengthening Primary Health Care Services (445 M)</u>	40,000
7	<u>Gambia Inclusive and Resilient Agricultural Value Chain Development Project (40 M)</u>	27,000
8	<u>Ghana Landscape Restoration and Small-Scale Mining Project (90.6 M)</u>	52,000
9	<u>Ghana Cocoa Sector Development Project (200 M)</u>	76,000
10	<u>Ghana Energy Sector Recovery Program-for-Results (300 M)</u>	32,000
11	<u>Malawi Human Capital Project (100 M)</u>	41,200
12	<u>Mali Bamako Urban Resilience Project (250 M)</u>	81,400
13	<u>Nigeria Agro-Climatic Resilience in Semi-Arid Landscapes (ACReSAL) Project (700 M)</u>	80,000
14	<u>Senegal Stormwater Management and Climate Change Adaptation Project 2 (155 M)</u>	51,500
15	<u>Senegal Affordable Housing Program Development Project (100 M)</u>	30,000
16	<u>Sierra Leone Quality Essential Health Services and Systems Support Project (60 M)</u>	28,800
17	<u>Tanzania Reproductive Maternal Neonatal Child and Adolescent Health Investment Project (275 M)</u>	41,200
18	<u>West Africa Food System Resilience Program (FSRP) (354 M)</u>	92,000

Table 3.1 AFRI-RES Facility Round II Grantee Projects and Financing (continued)

no.	ROUND II AFRI-RES GRANTEE PROJECTS (US\$)	AFRI-RES GRANT FINANCING (€)
19	Horn of Africa Regional Integration for Sustainable Energy Supply Project (590 M) ^a	83,000
20	Kenya Financing Locally Led Climate Action Program (171.4 M) ^a	83,000

Source: World Bank.

Note: AFRI-RES = Africa Climate Resilient Investment Facility.

a. These AFRI-RES Round II grantee projects did not apply the Resilience Booster Tool because the projects were too advanced.

3.2 Conceptual Framework

As the AFRI-RES facility steps up climate resilience efforts, it must review tools and strategies. Many project team members are experts in specific sectors or thematic areas, but they are not fluent in resilience thinking and its application to development projects. In addition, there is no universally accepted definition of *resilience* and little clarity on how to operationalize it into the project cycle. Finally, the deep engagement with grantee projects presents AFRI-RES with a body of knowledge that can be used to develop a framework to guide and strengthen future resilience efforts across World Bank. This framework was built for use by technical and nontechnical experts, and it can be applied in a variety of contexts for cogent resilience building. The framework evaluates three key considerations with regard to resilience efforts as applied to grantee projects: (a) ease of application, (b) efficacy to unpack the resilience “concept,” and (c) value proposition and impact.

3.2.1 Ease of Application

Ease of application of the Resilience Booster Tool is based on quality, operations, and suitability of use. Its purpose is to allow projects to develop climate resilience in the most resource-efficient and user-friendly way possible. We evaluated how well the tool serves its purpose and if it reduced friction and lowered the resilience learning curve for grantee projects.

- **Customization.** This entails flexibility that enables teams to use and mold the Resilience Booster to their needs, providing room for collaboration, version

controls, visualization, and data-saving capabilities. Lack of customization would drastically limit the tool’s use.

- **Time.** Project teams need to build a Resilience Booster map in the minimum possible time without compromising on its integrity. If the tool takes more than an hour to complete, it will likely be negatively perceived by teams. If it takes up to an hour to complete, the tool will more likely be positively perceived and enjoy greater use.
- **Accessibility.** The Resilience Booster must be compatible with a desktop or laptop computer that has a standard, up-to-date operating system (OS) and browser, and reasonable internet connection speed. We consider mobile OS later in the Mobile Design category.

3.2.2 Efficacy to Unpack the Resilience “Concept”

We considered efficacy and capacity of the Resilience Booster Tool to provide upstream guidance to embed resilience into the design and delivery of projects and to track progress over the project’s life cycle, or implementation phase. We focused on how well the tool helped teams to think through resilience and link it to climate risks and project development objectives.

- **Climate stressors and shocks.** Conditions, events, or trends related to climate variability and change that can exacerbate hazards and have negative impacts on the project development objective. The

projects need to identify climate stressors and shocks across temporal and spatial scales and assess their potency to build resilience. Projects were encouraged to apply the [Climate and Disaster Risk Screening Tools](#) as a complementary part of resilience booster tool application.⁴

- **Outcome interventions.** Activities and interventions that help achieve resilience. The project teams need to identify a suite of interventions to strengthen resilience and link them to project priorities.
- **Resilience attributes.** Key characteristics that help build and secure resilience. The teams need to understand and distinguish between attributes and select ones for their project needs and priorities.
- **Core resilience capacities.** The ability to adjust, mitigate, and create fundamentally new systems to avoid negative impacts from shocks and stresses. The project should select one or more core resilience capacities.

3.2.3 Value Proposition and Impact

We considered the overall benefits accrued to the project and beyond through applying the Resilience Booster Tool. We analyzed its direct and ancillary

impacts on project personnel, design, and delivery, and overarching World Bank objectives related to climate change.

- **Baseline understanding.** The project teams need motivation and access to tools, knowledge, and support to build a baseline understanding of resilience. This is pivotal to define, execute, monitor, and evaluate resilience measures.
- **Project design and development.** The reflection of resilience into official project documents and formal and informal team reflections. The project documents include Project Appraisal Documents, Project Information Documents, Environment and Social Impact Studies, Implementation Status and Results reports, and Stakeholder Engagement Plans.
- **Core climate commitments.** The direct and indirect contribution of the resilience grant to the delivery of core climate commitments. These can be contributions to climate and disaster risk screening, the World Bank’s climate co-benefits mandate, and the resilience rating system.



⁴ These tools provide a systematic process that can help teams identify short- and long-term climate and disaster risks to build resilience. They can be useful precursors to the Resilience Booster, but they are not mandatory. See the World Bank Climate and Disaster Risk Screening Tools at <https://climatescreeningtools.worldbank.org/>

4. Results

This section details the quantitative and qualitative results of applying the Resilience Booster Tool to the Round II AFRI-RES grantee projects.

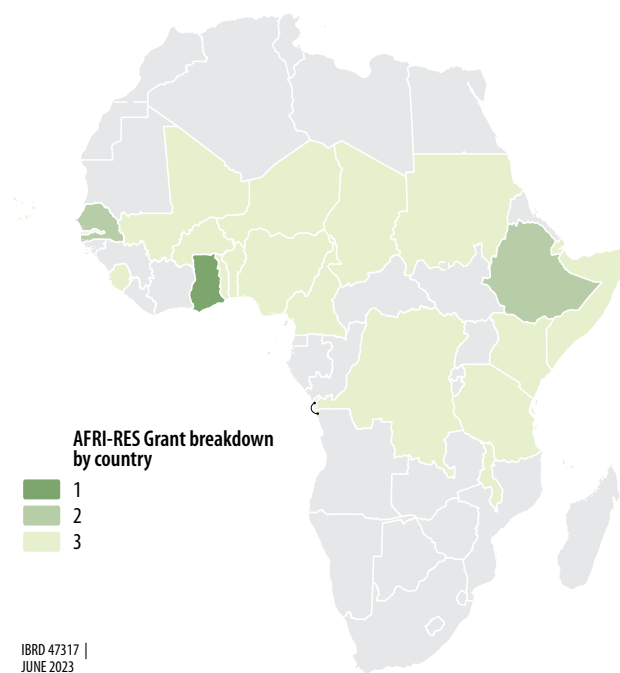
4.1 AFRI-RES Facility Grant Breakdown

Twenty projects from the AFRI-RES Round II grantee projects received just in time catalytic funds covering 21 countries,⁵ representing a total grant amount of €1.17 million and total International Bank for Reconstruction and Development (IBRD) and International Development Association (IDA) lending amount of US\$4.8 billion. The investments range from €27,000 to €92,000. Fourteen projects operate in a single country while two have regional components (West Africa Food System Resilience Program; Horn of Africa Regional Integration for Sustainable Energy Supply). Under Round II, Ghana has the highest number of operational projects (three) that received a resilience grant, and Ethiopia and Senegal have two projects each (figure 4.1). The AFRI-RES grants have wide coverage across the continent. With Round I, 23 countries were covered through the full set of 31 projects, totaling €1.9 million in AFRI-RES grants and US\$8.1 billion in total IDA/IBRD lending (appendix B).

Out of the 14 World Bank GPs,⁶ eight were covered under the second round of the AFRI-RES grant. Energy and Extractives received the highest number of grants (six), and Health received four. Finance, Social Sustainability, and Transportation received one resilience grant each (figure 4.2).

Resilience efforts were closely connected with communities and institutions among a cross-section of grantee projects, followed closely by targeted groups such as women and youth (figures 4.3 and 4.4). Fifteen projects list communities as target beneficiaries followed

Figure 4.1 Countries Participating in AFRI-RES (Round II) Grantee Projects



Source: World Bank.

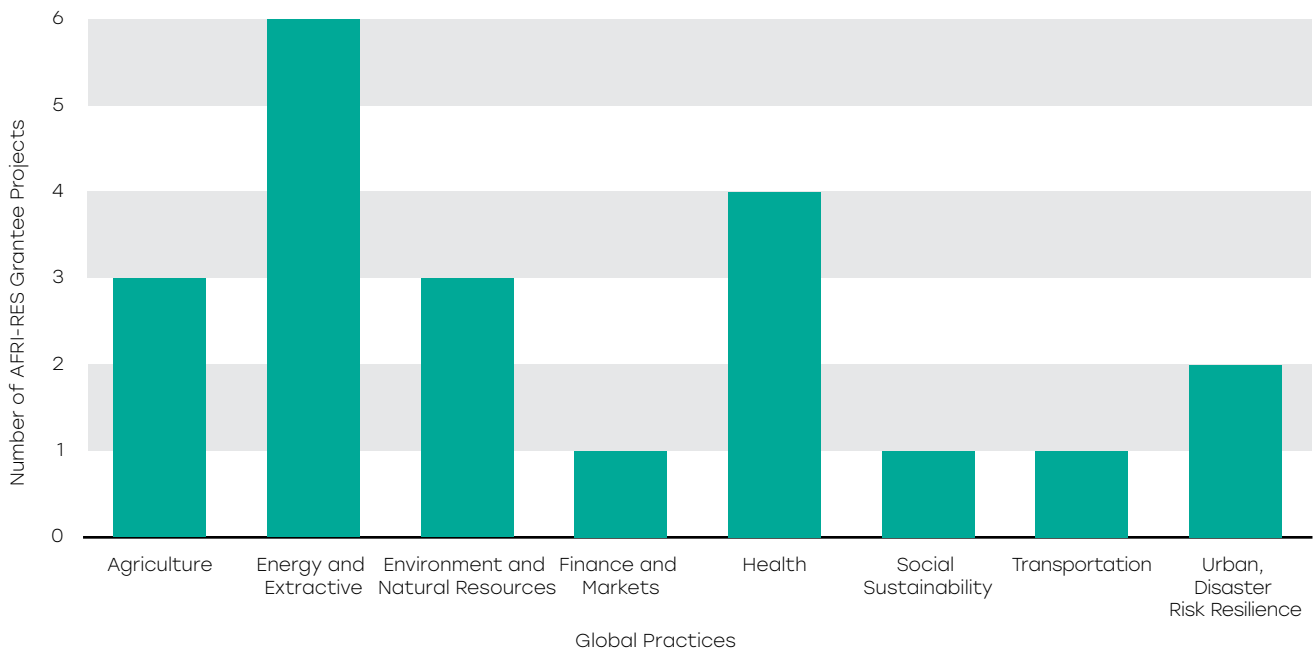
Note: AFRI-RES = Africa Climate Resilient Investment Facility.

by institutions (13) and women (11). For example, Sierra Leone's Quality Essential Health Services and Systems Support Project identifies communities, institutions, women and youth as the main beneficiaries, while the Ghana Energy Sector Recovery Program-for-Results Project identifies institutions and governments as its main beneficiary. The high coverage to communities, women, and youth as beneficiaries is likely a reflection of the disproportionate vulnerability of these groups to climate change in the African context.

⁵ Benin, Burkina Faso, Cabo Verde, Cameroon, Chad, the Democratic Republic of the Congo, Djibouti, Ethiopia (two), Gambia, Ghana (three), Kenya, Malawi, Mali, Niger, Nigeria, Senegal (two), Sierra Leone, Somalia, Sudan, Tanzania, and Togo.

⁶ (1) Agriculture; (2) Education; (3) Energy and Extractives; (4) Environment and Natural Resources; (5) Finance and Markets; (6) Governance; (7) Health, Nutrition, and Population; (8) Macroeconomics and Fiscal Management; (9) Poverty; (10) Social, Urban, Rural, and Resilience; (11) Social Protection and Labor; (12) Trade and Competitiveness; (13) Transport and Information and Communication Technology (ICT); and (14) Water.

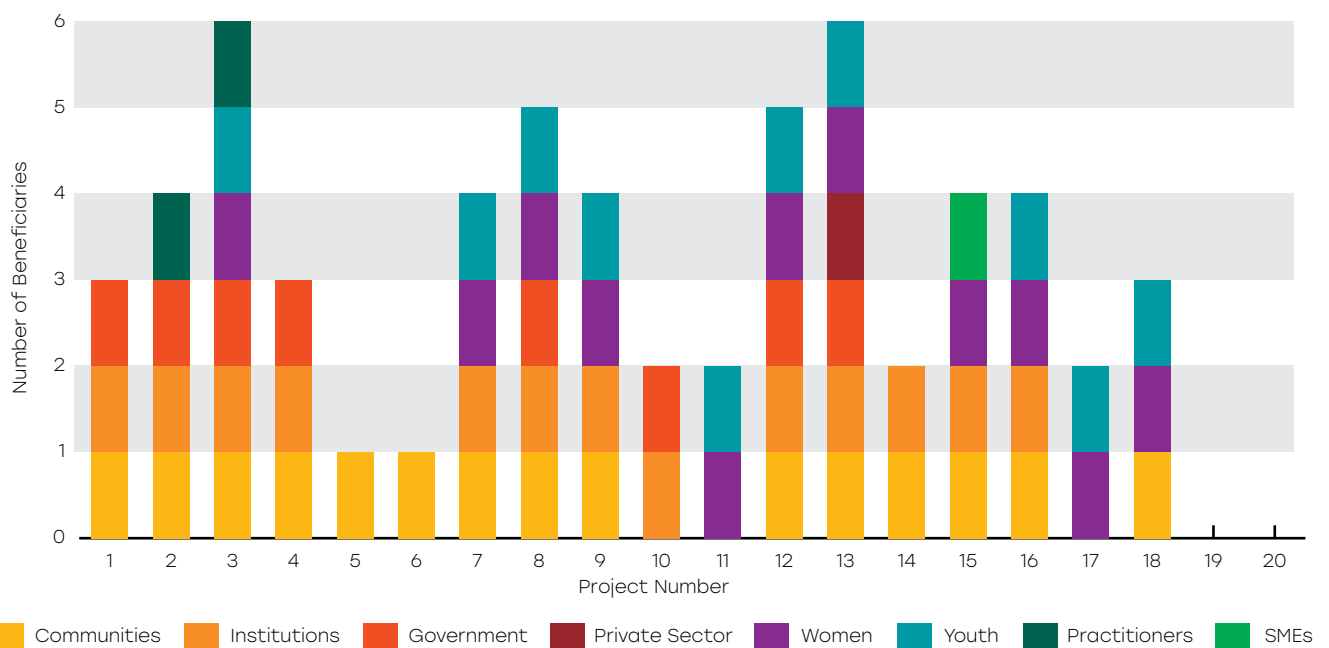
Figure 4.2 Breakdown of AFRI-RES Round II Grantee Projects by World Bank GPs



Source: World Bank.

Note: AFRI-RES = Africa Climate Resilient Investment Facility; GPs = Global Practices.

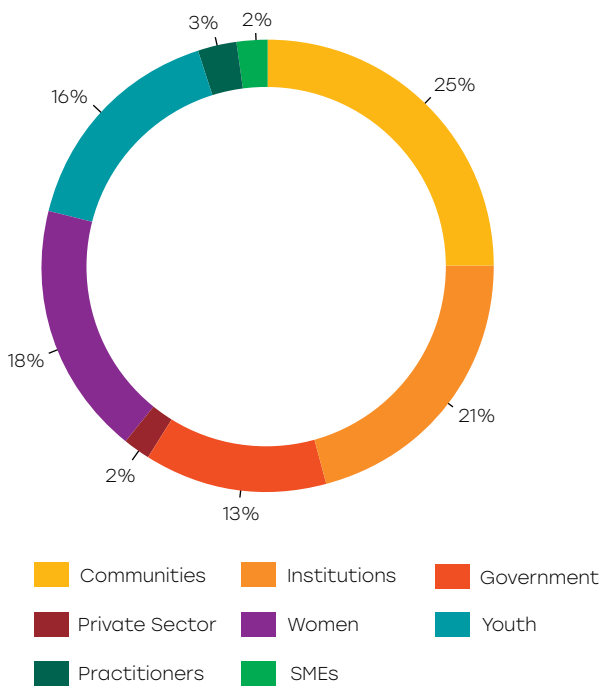
Figure 4.3 AFRI-RES Grant Beneficiaries per Project



Source: World Bank.

Note: The project numbers correlate to numbers in table 3.1. AFRI-RES = Africa Climate Resilient Investment Facility; SMEs = small and medium enterprises.

Figure 4.4 Share of AFRI-RES Grantee Projects by Beneficiaries



Source: World Bank.

Note: AFRI-RES = Africa Climate Resilient Investment Facility; SMEs = small and medium enterprises.

Private sector and practitioners were the least engaged beneficiaries among grantee projects. Practitioners were listed as beneficiaries only in two projects, and the private sector was listed as a beneficiary in one project. These are important stakeholders and enablers, and future efforts could strive to better engage them. The projects, on average, listed more than one beneficiary group (3.05). While one beneficiary group may be common to most projects, many projects are building the resilience of multiple stakeholder groups. Figure 4.3 shows that youth (16 percent) and women (18 percent) occupy an important space in resilience measures.

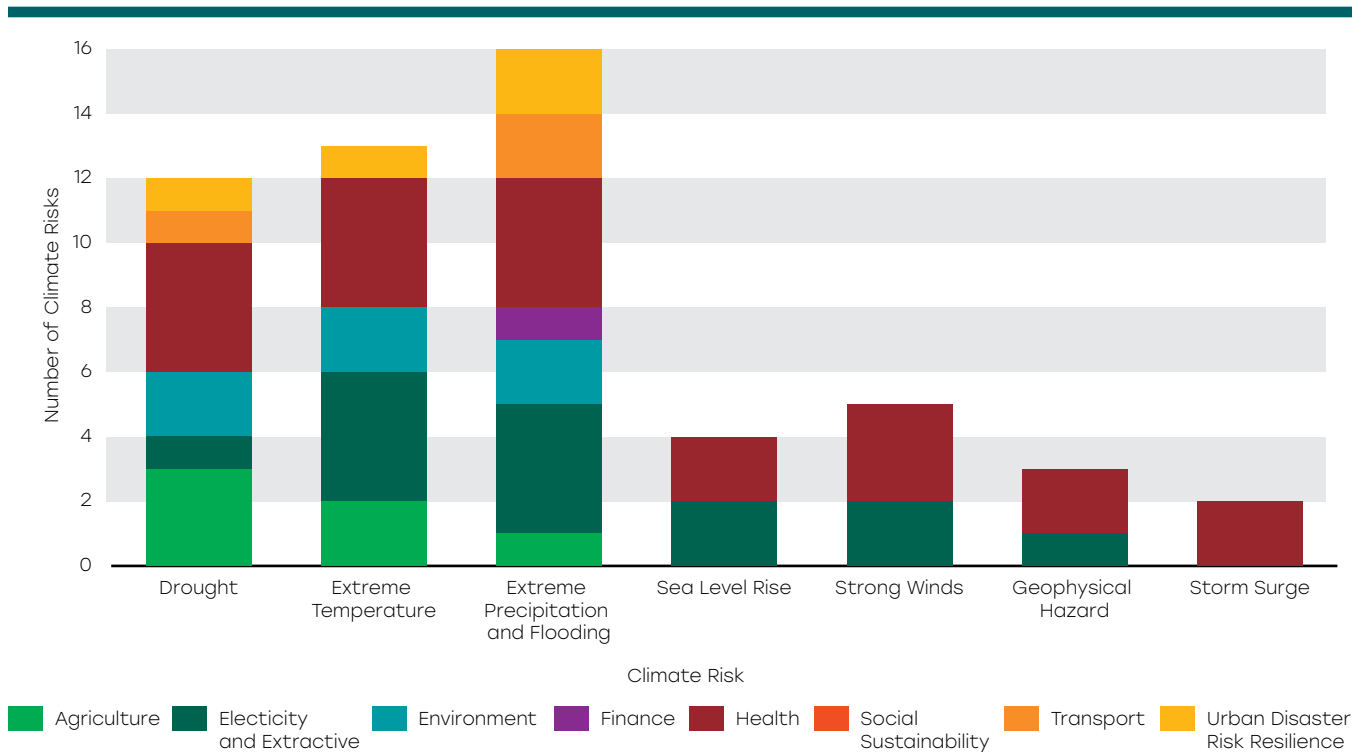
4.2 Embedding Resilience into Project Design through Resilience Attributes

4.2.1 Understanding the Resilience Context: Hazards and Exposure

Grantee projects frequently addressed more than one climate shock, suggesting the need for multiple points of intervention. Understanding the exposure to hazards is the first step in addressing resilience to counter these risks. The Resilience Booster Tool lists seven climate shocks or stressors: (a) extreme temperature; (b) extreme precipitation and flooding; (c) drought; (d) strong winds; (e) geophysical hazards; (f) sea level rise; and (g) storm surge. On average, grantee projects aimed to address 2.9 climate change shocks.⁷ This carries important implications on the resources and expertise required for resilience efforts. All three grantee projects in the Agriculture GP selected drought as a critical climate stressor, while projects in the Energy and Extractive GP selected extreme temperature and extreme precipitation and flooding. The most common stressor to projects were extreme precipitation and flooding (16), followed by extreme temperature (13) and drought (12) (figure 4.5). Storm surge (2) was the least common climate risk. Strong winds (5), geophysical hazards (4), and sea level rise (3) fell in the middle of the distribution. Health GP had the highest climate risk spread. Its four projects will potentially address all seven climate stressors in the Resilience Booster pathway map. Projects under the Energy and Extractives GP were vulnerable to six stressors, while Agriculture projects may be affected by three stressors.

⁷ Each climate risk was assigned the value of 1 to calculate average.

Figure 4.5 Climate Risks Identified across World Bank GPs



Source: World Bank.
 Note: GPs = Global Practices.

4.2.2 Identifying Resilience Attributes

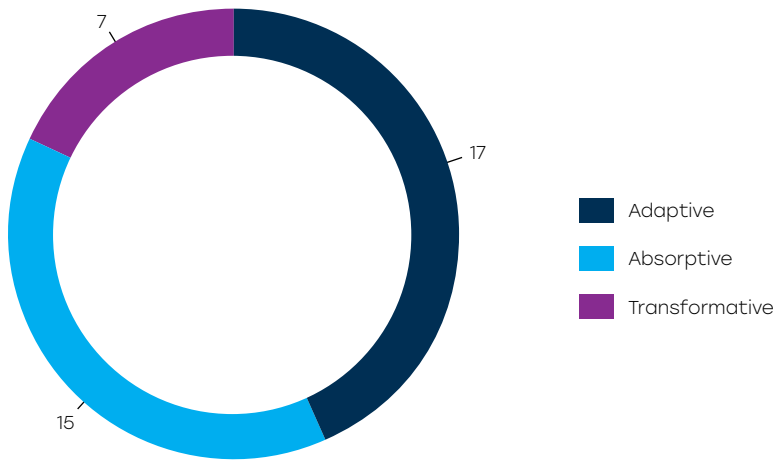
The project designs, on average, included at least two capacity types. The grantee projects identified the need to build 39 resilience capacities collectively, which implies that each project wanted an average of (2.17) resilience capacities (figure 4.6). For instance, the Stormwater Management and Climate Change Adaptation Project would contribute to absorptive and adaptive capacity, while the Nigeria ACRoSAL project would contribute to absorptive, adaptive, and transformative capacities. It is not enough to work exclusively on one capacity: a combination presents a better chance of resilience building. A clear preference emerged for adaptive capacities among 17 projects, which focuses on directly addressing the risks or exposure to hazards.

None of the projects aimed to build transformational capacity. Nine projects combined adaptive and absorptive capacities, and one project (Senegal Affordable Housing) combined absorptive and transformative (figure 4.7). Seven projects prioritized transformative capacity, most likely because it requires longer timelines, resources, and

stakeholder ownership. Therefore, other capacities were preferred by projects with limited time span, capacity, and budget. Given the scale of the climate crisis and vulnerability of Africa, more projects might be needed to build transformational capacities, which the AFRI-RES facility can encourage through special provisions.

It is not enough to work exclusively on one capacity: a combination presents a better chance of resilience building.

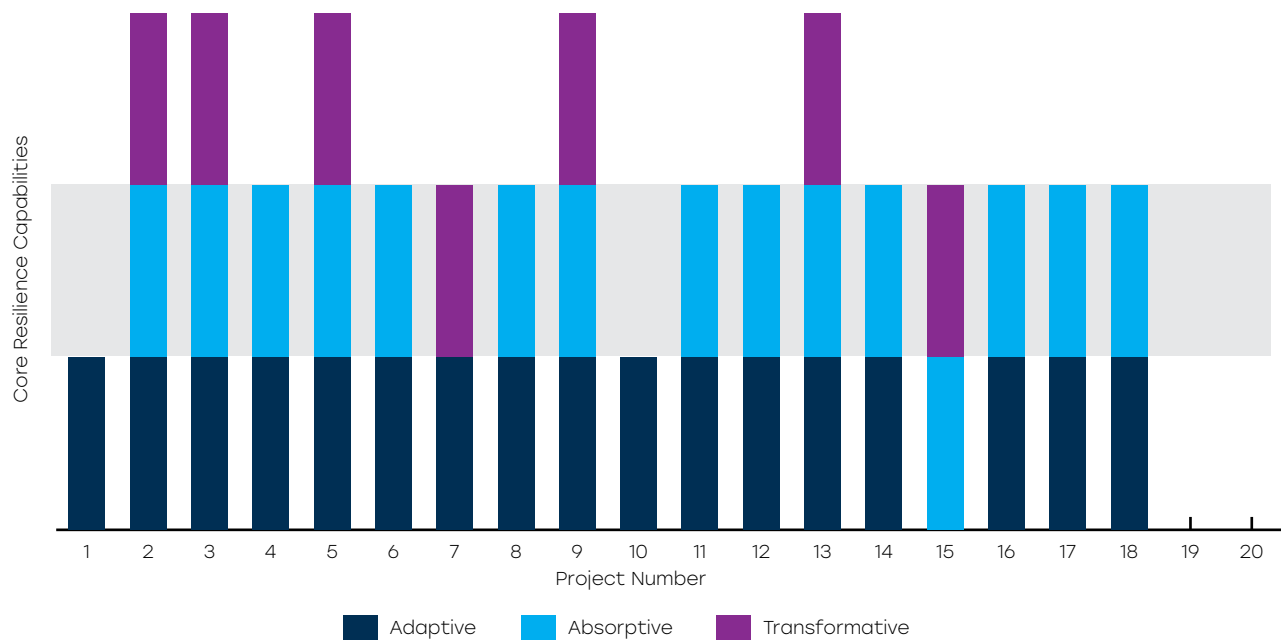
Figure 4.6 Core Resilience Capacities in AFRI-RES Grantee Projects



Source: World Bank.

Note: AFRI-RES = Africa Climate Resilient Investment Facility.

Figure 4.7 AFRI-RES Grantee Projects by Project-Wise Contribution to Core Resilience Capacities



Source: World Bank.

Note: The project numbers correlate to numbers in table 3.1. AFRI-RES = Africa Climate Resilient Investment Facility.

4.2.3 Integrating Resilience Attributes into Project Design: Resilience Booster Pathway

Task Teams applied the Resilience Booster Tool at different stages of the project cycle to generate a series of resilience intervention ideas linked to resilience attributes,⁸ which led to 226 outcome intervention ideas. Each idea is linked to resilience attributes and can contribute to strengthen climate resilience in project design (table 4.1). These include public policy dialogues, geo-scientific data, livelihoods, and urban drainage. Only some interventions will be executed in the lifespan of the program. However, they are essential building blocks and guide project thinking on resilience.

Only some interventions will be executed in the lifespan of the program. However, they are essential building blocks and guide project thinking on resilience.

Table 4.1 Resilience Attributes and Interventions to Strengthen Resilience in Project Design in AFRI-RES Round II Projects

Resilience attribute	AFRI-RES Round II Project	Resilience intervention
Robustness	Senegal Stormwater Management and Climate Change Adaptation Project 2	Construction of primary and secondary collectors, rainwater harvesting basins, and road and drainage network infrastructure in unprotected zones of peri-urban Dakar
	Nigeria Agro-Climatic Resilience in Semi-Arid Landscapes (ACReSAL) Project	Support crop diversification to withstand climate shocks
Learning	Ethiopia Program for Results (Hybrid) Strengthening Primary Health Care Services	Training for health workers on improving cold chain management for vaccines
	Mali Bamako Urban Resilience Project	Implement behavior change communication and awareness raising campaigns on hygiene practices
Redundancy	Ghana Energy Sector Recovery Program-for-Results	Implement cost-saving programs to enable the uptake of preventative investments
	Cabo Verde Renewable Energy and Improved Utility Performance Project	Reinforce photovoltaic module array mounting

⁸ Project outcome interventions refers to the activities that will help achieve resilience attributes.

Table 4.1 Resilience Attributes and Interventions to Strengthen Resilience in Project Design in AFRI-RES Round II Projects (continued)

Resilience attribute	AFRI-RES Round II Project	Resilience intervention
Rapidity	<u>West Africa Food System Resilience Program (FSRP)</u>	Leverage agro-hydrometeorological services and impact-based early warning systems to strengthen regional collaboration for food crisis prevention
	<u>Nigeria Agro-Climatic Resilience in Semi-Arid Landscapes (ACReSAL) Project</u>	Support private sector companies in improving their business models so farmers have faster and easier access to irrigation technologies
Connectedness	<u>Cameroon Douala Urban Mobility Project</u>	Creation of dedicated spaces for pedestrians and bicycles to expand accessibility
	<u>Senegal Affordable Housing Program Development Project</u>	Support construction of interconnected infrastructure systems, such as drainage and roads, connecting the new urban center to surrounding areas
Diversity	<u>Ethiopia Resilient Landscapes and Livelihoods Project</u>	Diversified livelihood generation
	<u>West Africa Food System Resilience Program (FSRP)</u>	Establish new centers of specialization for mechanization, bio-risk management, and integrated landscape management
Flexibility	<u>Democratic Republic of Congo Access Governance and Reform for the Electricity and Water Sectors Project</u>	Mobile payment of electricity bills from customers and digitalization of government bills
	<u>Ethiopia Resilient Landscapes and Livelihoods Project</u>	Development of watershed plans with multiple activities based on local needs
Inclusion	<u>Mali Bamako Urban Resilience Project</u>	Participatory planning workshops and consultations with women on gender-informed design
	<u>Cabo Verde Renewable Energy and Improved Utility Performance Project</u>	Provide women with training programs and subsequent long-term employment opportunities in rooftop photovoltaic system O&M services

Table 4.1 Resilience Attributes and Interventions to Strengthen Resilience in Project Design in AFRI-RES Round II Projects (continued)

Resilience attribute	AFRI-RES Round II Project	Resilience intervention
Self-Organization	Cameroon Douala Urban Mobility Project	Support institutional reform to set up appropriate regulatory institutions and strengthen capacity of central ministries and the formal bus operator SOCATUR
	Ghana Cocoa Sector Development Project	Support the formation of farmer-based organizations and cooperatives

Source: World Bank.

Note: For further examples of resilience attributes, see appendix A. AFRI-RES = Africa Climate Resilient Investment Facility; O&M = operations and maintenance; SOCATUR = Société Camerounaise de transports urbains.

The diverse interventions identified by the Task Teams can bolster overall project resilience. Robustness can enhance resilience by increasing the capacity of systems or communities to endure and recover from shocks and disruptions through redundancy, backup systems, and contingency planning. The [Senegal Stormwater Management and Climate Change Adaptation Project](#) and the [Agro-Climatic Resilience in Semi-Arid Landscapes \(ACReSAL\) Project](#) identified robustness, including constructing drainage network infrastructure and diversifying with crops that can better withstand climate shocks. These interventions support physical preparedness and protection that could enhance robustness and overall resilience in project areas.

Learning can strengthen resilience by promoting reflection, analysis, and the incorporation of lessons learned from past experiences, allowing individuals and organizations to improve their ability to anticipate, adapt, and respond to future challenges. The [Ethiopia Program for Results \(Hybrid\) Strengthening Primary Health Care Services](#) identified training for health workers to improve vaccine cold chain management as an intervention to support learning through a customized capacity building program. The [Mali Bamako Urban Resilience Project](#) identified the intervention of behavior change communication and awareness raising campaigns on hygiene practices, which would support learning through distributing traditional knowledge. If successful, this intervention could support resilience through

increased uptake of hygiene practices, which would reduce transmission of infectious diseases and reduce premature mortality in the region.

Redundancy can reinforce resilience by providing alternative or backup resources, systems, or processes to ensure that critical functions can continue despite disruptions or failures. The [Ghana Energy Sector Recovery Program-for-Results](#) identified the implementation of energy cost-saving programs to enable the uptake of preventative investments as an intervention to support redundancy. This intervention can create a financial surplus that can be used to either respond to climatic events or implement alternative sources of energy and backup systems that would allow operations in the face of climate shocks.

Rapidity can accelerate resilience by enabling quick and effective responses to emergent challenges through rapid decision-making, agile systems, and efficient communication networks. The [West Africa Food System Resilience Program \(FSRP\)](#) identified strengthening agro-hydrometeorological services and impact-based early warning systems as an intervention to support regional food crisis prevention and management. Scaling up early warning systems and agro-hydrometeorological services can enable communities to avoid loss of crops and food insecurity by more effectively anticipating and coordinating responses to climate shocks.

Connectedness can foster resilience through partnerships that promote information and resource sharing and expansion. The [Cameroon Douala Urban Mobility Project](#) supports connectedness through creating dedicated spaces for pedestrians and bicycles to expand accessibility. Access to formal networks throughout Douala can enhance resilience through cross-scale integration that enables mobility.

Diversity can strengthen resilience by fostering perspectives, knowledge, and skills that can help identify and address complex challenges, promote innovation, and improve decision-making. The [Ethiopia Resilient Landscapes and Livelihoods Project](#) selected leveraging diversified livelihood generation as an intervention to bolster resilience by helping smallholder farmers integrate in the supply chains of large firms and SMEs (small and midsize enterprises).

Flexibility can bolster resilience by enabling individuals, organizations, and communities to adapt and adjust to changing circumstances and challenges through agile systems, contingency planning, and the ability to pivot and change course as needed. The intervention of mobile payment of electricity bills from customers and digitalization of government bills supports adaptable decision-making in the [Democratic Republic of Congo Governance and Reform for the Electricity and Water Sectors Project](#).

Inclusion can promote resilience by ensuring that all voices and perspectives are represented and heard, leading to greater ownership, collaboration, and adaptability, which reduces the risk of exclusion, marginalization, or conflict. The [Mali Bamako Urban Resilience Project](#) identified participatory planning workshops and consultations with women on gender-informed design as an intervention to increase inclusion. Enhancing inclusion through participative processes at the community level can bolster resilience through identifying new ideas, solutions, and strategies to address community challenges and building trust in the community. The [Cabo Verde Renewable Energy and Improved Utility Performance Project](#) identified the intervention of providing women with training programs and long-term employment opportunities in the energy sector. This intervention can increase resilience through reduction gaps by expanding the availability of programs to improve the skills and competencies of vulnerable community members.

Self-organization can bolster resilience by empowering communities to take collective action, build social networks, and leverage local resources to adapt to and recover from challenges. The [Ghana Cocoa Sector Development Project](#) focuses on interventions that can strengthen local leadership and collaboration at the local level through creating farmer-led cooperatives.

Certain resilience attributes were applicable to a broad range of projects, and others addressed specific project objectives. The top three resilience attributes applied by the projects were robustness (14), learning (12), and inclusion (seven) (figure 4.8). The presence of robustness across 14 of the projects supports its ranking and relevance among all the resilience attributes. The bottom three attributes by use are rapidity (four), self-organization (four), and flexibility (four). On average, the projects use 1.51 resilience attributes, implying that resilience building should focus on multiple attributes. Thus, identifying key resilience attributes ensures they fit the project's purpose. The clear description and ability to distinguish between resilience attributes becomes important. The Affordable Housing Program Development Project team noted in the feedback survey that, *"The resilience attributes are a bit difficult to identify as there seems to be some overlap between the attributes."* Elaborating on resilience attributes beyond the definitions would enable future grantee projects to select them with more confidence and clarity.

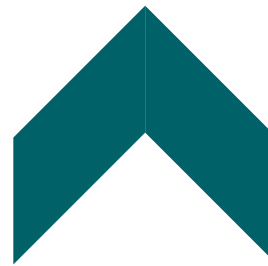
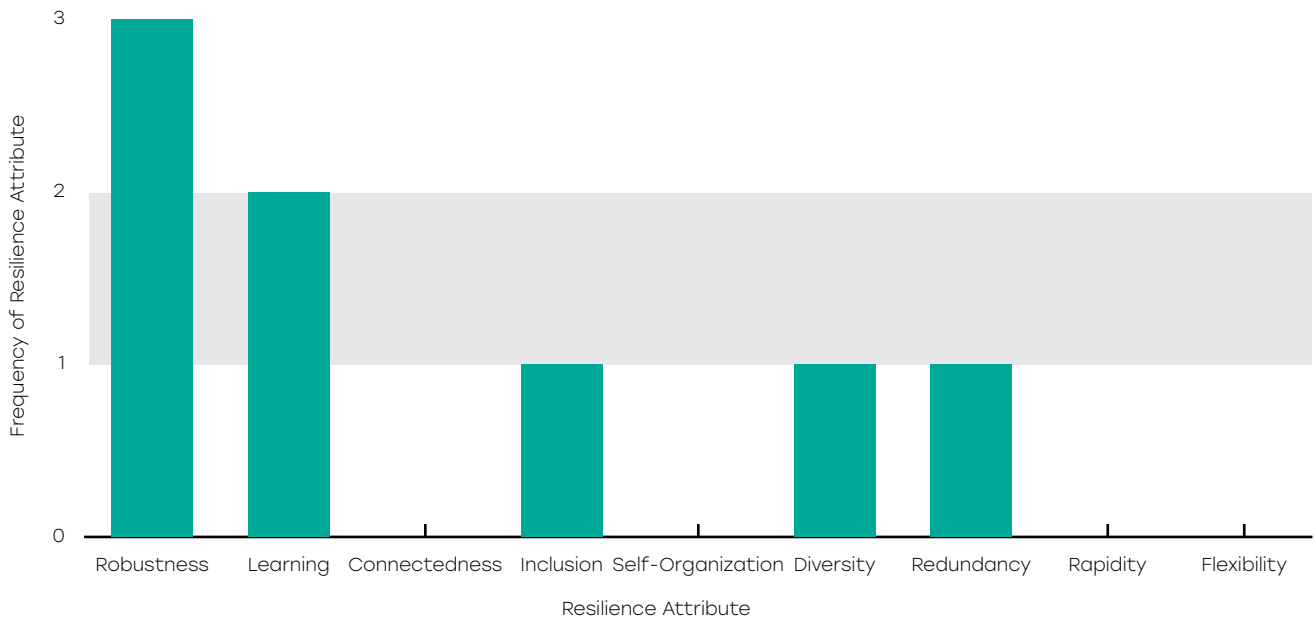


Figure 4.8 Resilience Attributes Linked with Top Three Project Outcomes in Resilience Booster Tool



Source: World Bank.

Figure 4.9 Frequency of Selection of Resilience Attributes for Monitoring in Resilience Booster Tool



Source: World Bank.



4.2.4 Results and Monitoring

Most Task Teams opted not to complete step 5 of the Reliance Booster, which creates a set of baselines and targets that the teams could use to monitor their projects' progress over time. Task Teams of three projects⁹ completed step 5 and generated baselines and targets. Of those, some teams selected one attribute to monitor, and other teams selected three. Robustness was the most frequently selected attribute to monitor, followed by learning, then redundancy, diversity, and inclusion (figure 4.9). The frequency of these attribute selections for long-term monitoring follows logically because they generally mirror the frequency of resilience attributes connected to project outcomes. Labeling step 5 as an option (requiring a further 10 minutes) may have led to its low uptake by Task Teams. In hindsight, this step is critically important for revisiting resilience throughout

Enhancing inclusion through participative processes at the community level can bolster resilience through identifying new ideas, solutions, and strategies to address community challenges and building trust in the community.

⁹ [Ethiopia Resilient Landscapes and Livelihoods Project](#), [Nigeria Agro-Climatic Resilience in Semi-Arid Landscapes \(ACRESAL\) Project](#), [Senegal Affordable Housing Program Development Project](#).

the project's lifespan and strengthening project resilience as the project unfolds. When updated, the tool should include this as a core part of the application.

4.3 Task Team Experience, Value Addition of the Resilience Booster Tool, and Areas for Enhancement

The Resilience Booster map and accompanying knowledge products have enhanced the conceptual understanding of resilience, as reflected in Task Team testimonials. Understanding resilience as a concept that can be embedded into development projects is nascent to many World Bank Task Teams. One team member from the Gambia Inclusive and Resilient Agricultural Value Chain Development Project reflected, *“I had many questions about resilience. The resilience workshop was helpful in unpacking resilience and the online tool.”* Another team member from the Cabo Verde Renewable Energy and Improved Utility Performance Project explained, *“Yes, the Resilience Tool is easy to apply once you get the learning curve. It presents a clear picture of the project (executive summary for someone that wants to strengthen the resiliency of a project). The fact that it is online also helps.”* These quotes speak directly and powerfully to the ease of application tenet of the conceptual framework.

Enhanced understanding and unpacking of resilience helped project teams go beyond technical, sometimes technocratic, targets and make broader social and development linkages that were hitherto missing. The use of the Resilience Booster made projects more effective and resilient, such as the gender linkages in the Benin Electricity Access Scale-Up (BEAS) Project. The BEAS project report states that *“the activity did not have an emphasis on diversity or inclusion as these elements are not directly integrated into power grid resilience but are included in the BEAS project as part of the Technical Assistance, which includes indicators for female headed households electrified and gender targets for technical staff in the utility.”* Once applying the Resilience Booster, the Team could identify and draw out gender linkages. Further, the Gambia Inclusive and Resilient Agricultural Value Chain Development Project Team reflected on unanticipated gender outcomes in their report, stating that *“the technical feasibility study will inform the right technical specification for the design of*



women-led agribusiness firms equipped with modern irrigation equipment powered with solar pumping and learning from the previous World-Bank financed project for the right dimension of the borehole and drip system. Doing so, the project will lead toward resilience outcomes with women no longer depending on weather conditions for their horticultural crops and with extended cropped areas, more production, and more income for better household welfare.”

The Resilience Booster Tool allowed overarching climate risks to be narrowed into small, actionable interventions. For instance, it helped identify flooding, extreme temperatures, and forest fires as the highest level of threat to the BEAS Project's infrastructure and the vulnerability level of the distribution grid to each risk. As a next step, the study conducted through the grant identified that the risk of heat and wildfire to distribution lines built through concrete or metal is lower than that of wooden poles. The AFRI-RES grant money was used by seven projects to deliver climate and vulnerability assessments, underscoring their value to resilience building efforts (table 4.2).

The Resilience Booster map has created a conducive space and argument for greater dialogue and inclusion in grantee projects. Four projects used the grant to hold extensive public consultations. The West FSRP held a four-day virtual stakeholder conference, “Under the Palaver Tree: Unpacking Food System Resilience in West Africa,” with 500 stakeholders, leading to critical project inputs. These examples demonstrate a clear and visible value addition of resilience and the Resilience Booster Tool to grantee projects.

Table 4.2 Projects That Contain Climate and Vulnerability Assessments as Grant Deliverables

Project	Deliverables
Ethiopia Resilient Landscapes and Livelihoods Project	Climate Vulnerability Analysis Report
Democratic Republic of Congo Access Governance and Reform for the Electricity and Water Sectors Project	Climate risk assessment and recommendations
Cabo Verde Renewable Energy and Improved Utility Performance Project	Diagnosis of importance of key risks and development of a risk matrix showing each risk and its potential impact on the proposed project
Senegal Stormwater Management and Climate Change Adaptation Project 2	Review of the technical rigor of vulnerability analysis and flood risk assessment for integration in urban planning and urban reforms
Sierra Leone Quality Essential Health Services and Systems Support Project	National-Level Climate and Health Country Assessment
Ghana Landscape Restoration and Small-Scale Mining Project	Climate Vulnerability Analysis Report
Ghana Energy Sector Recovery Program-for-Results	Disaster and Climate Risk Assessment
Mali Bamako Urban Resilience Project	Integration of digital climate risk and infrastructure data into a municipal web platform

Source: World Bank.



Akuapem Rural Bank, Mamfa, Ghana.
Credit: Jonathan Ernst/World Bank

4.4 Scope for Improvements

There is untapped potential for projects, personnel, and GPs to cross-learn and share knowledge on resilience efforts. Many projects have faced similar challenges in data gaps and low levels of capacity and understanding to operationalize resilience. Task Teams have developed a set of unique and innovative solutions to these challenges that can offer useful lessons and guides. As noted in the Gambia Inclusive and Resilient Agricultural Value Chain Development Project report, *“Planned studies will provide the project and others from Agriculture and Food GP and Water GP with good feasibility studies that could be used or updated for an efficient irrigation system to build smallholders’ and SMEs’ resilience to climate change and increase climate co-benefits.”*

Resilience efforts can link climate intervention projects to support climate co-benefits. Through resilience, projects can improve their climate co-benefits score and contribute more effectively to World Bank’s target for 35 percent of its financing to have climate co-benefits, on average, over the next five years. As one project team explained, *“The [Resilience Booster Tool] has also helped increase the climate co-benefits of the project, and it has reached 32.36 percent climate co-benefits (US\$64.71*

million). This is notable as energy access projects have traditionally not been recognized for their climate resilience benefits in the climate co-benefit methodology (this has changed beginning FY22). We can be reasonably confident through deduction that the activity can be attributed to US\$43.36 million in adaptation climate co-benefits, which is 67 percent of the project’s overall climate co-benefits (BEAS closing report).” Through its systematic approach, the Resilience Booster Tool can help countries meet the Bank’s Paris Agreement alignment commitment. As of July 1, 2023, 100 percent of new World Bank financing operations must align with the goals of the Paris Agreement to fight against and adapt to global warming.

The Resilience Booster Tool can allow teams to collaborate more effectively through user interface and functionality. One team member suggested to *“include other export formats to facilitate integration on project docs. It could also help if specific components could be exported separately. There should be also a way to save the work for revisions and comments.”*

5. Key Lessons and Recommendations

These recommendations summarize key lessons and takeaways from the AFRI-RES grant for maximizing the potential to embed resilience. They are drawn from the grantee project contexts but have widespread application for other projects in Africa and beyond.

- The Resilience Booster Tool provides a pathway for World Bank projects with specific technical targets and in diverse GPs to embed climate resilience into projects and strengthen their overall efficacy.
- Permutations and combinations of resilience attributes and core capacities allow projects to address local and contextualized climate shocks and stressors.
- Identification of key resilience attributes and their combination is key to climate resilience. The AFRI-RES team can further support this process through development of case studies and checklists.
- The ideal stage at which to apply the Resilience Booster Tool is before and during the Concept Note stage of World Bank projects. Retrofitting could provide a basis to track progress of resilience through a select set of attributes if these can be matched with baselines and targets.
- The online and open access of the Resilience Booster Tool can help Task Teams to leverage it and develop a theory of change for climate resilience. There were missed opportunities on the use of the tool to track progress. Tracking should be encouraged in the future.
- The Resilience Booster Tool significantly improves Task Teams' understanding of resilience as a concept, creating a fertile ground for scaling up climate resilience.
- The Resilience Booster Tool strengthens project linkages with climate co-benefits and corporate commitments. These linkages need to be developed and better communicated for wider application.
- The Resilience Booster Tool needs better user interface, sophistication, and functionality to help projects collaborate effectively.
- The Resilience Booster Tool allows a broad range of climate risks to be narrowed and understood, paving the way for climate resilience interventions.
- Climate resilience measures can differ considerably in project locations, and the Resilience Booster map allows projects to develop differentiated response mechanisms.
- Climate and vulnerability assessments are often the foundation of resilience efforts. These have been employed effectively to narrow down the main climate risks, which are the ones that need most attention.
- There is ample scope and opportunity for cross-learning and knowledge exchange on climate resilience, which is an area for deeper focus under AFIR-RES. The Resilience Booster Tool and other knowledge products offer a platform for the same and should be developed as such.



Appendix A: Resilience Booster Tool Feedback Survey Questions

1. During which phase of the program did you apply the resilience booster tool?
2. How difficult was the application of the resilience booster tool?
3. How much time did the application of resilience booster tool take?
4. Are the resilience attributes easy to understand?
5. Would you recommend other projects to apply the resilience booster tool? Yes or No. Please give reasons for your choice.
6. Please share one example of how resilience attributes benefit your project?
7. Which of these documents can benefit from the resilience booster tool: Project Appraisal Document, Environmental and Social Review Summary, Implementation Status and Results Report, Stakeholder Engagement Plan?
8. Has the resilience booster tool increased your understanding of resilience as a concept?
9. Did the resilience booster tool help to set out or improve the narrative of project components and activities?
10. Do you believe the resilience booster tool can help strengthen linkages with climate co-benefits corporate commitment?
11. Why did the project feel the need to embed resilience?
12. Please share any other reflections or thoughts concerning the resilience booster tool and attributes.



Appendix B:

Round I AFRI-RES Grantee Projects

no.	ROUND I AFRI-RES GRANTEE PROJECTS (US\$)	AFRI-RES GRANT FINANCING (€)
1	Cameroon Valorization of Investments in the Valley of the Benue Project (200 M)	84,182
2	Ethiopia Lowlands Livelihood Resilience Project (315 M)	84,000
3	Ghana Greater Accra Resilient and Integrated Development Project (200 M)	85,600
4	Ghana Secondary Cities Support Program (100 M)	83,300
5	Guinea Commercial Agribusiness Development Project (100M)	27,500
6	Malawi Mpatamanga Hydropower Project (300 M)	86,600
7	Nigeria Livestock Productivity and Resilience Support Project (500 M)	27,500
8	Tanzania Transport Integration Project (550 M)	42,000
9	Tanzania Roads to Inclusion and Socioeconomic Opportunities (RISE) Program (300 M)	42,400
10	Tanzania Productive Social Safety Net II (616.90 M)	84,000
11	Uganda Irrigation for Climate Resilience Project (169.20 M)	88,378

Source: World Bank.

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