



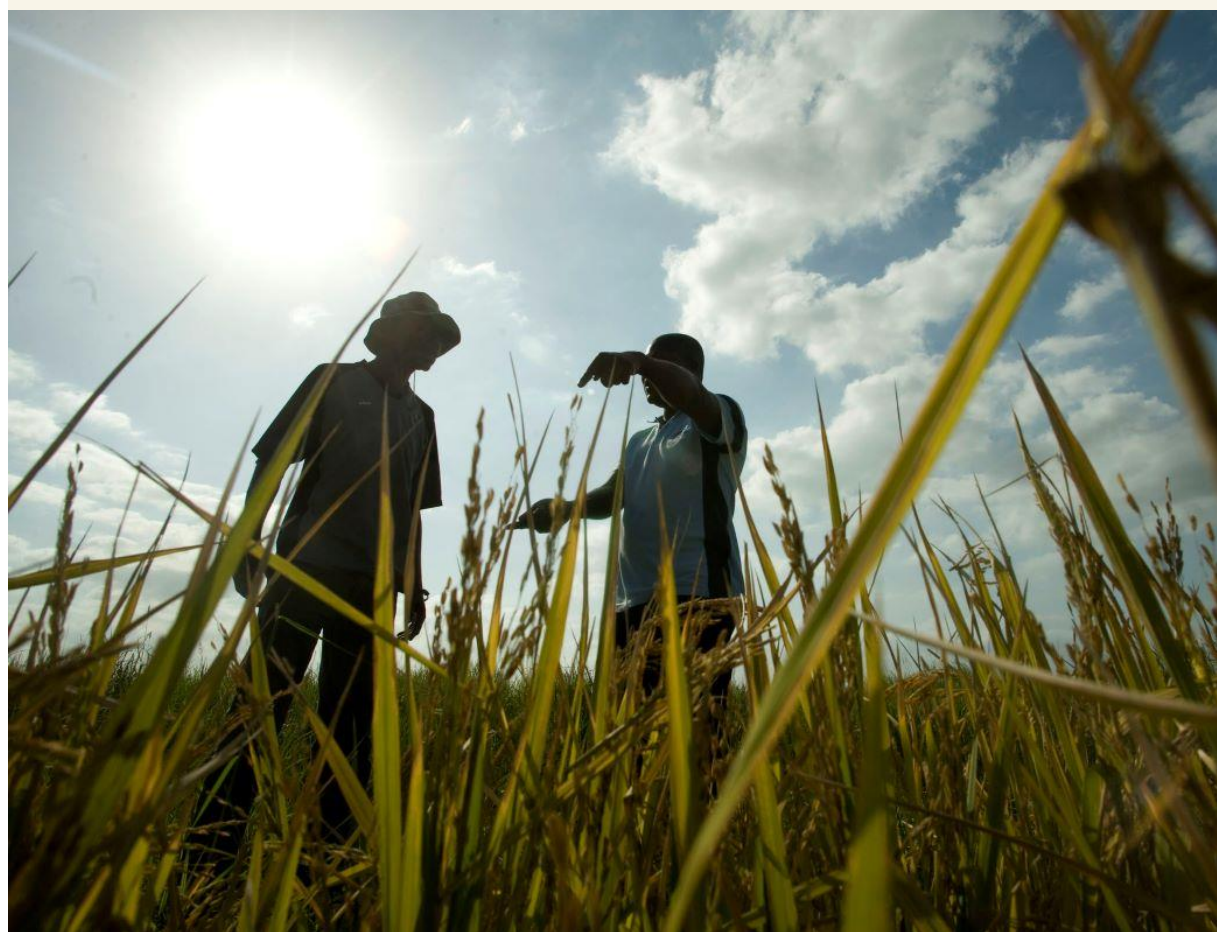
E3G

**REPORT** MAY 2022

# SUPPORTING AGRICULTURAL ADAPTATION IN AFRICA

## QUALITY INVESTMENT IN INNOVATION

**LARISSA GROSS, NJAVWA SANGA, DAVID NIELSON**





# E3G

## About E3G

E3G is an independent European climate change think tank with a global outlook. We work on the frontier of the climate landscape, tackling the barriers and advancing the solutions to a safe climate. Our goal is to translate climate politics, economics and policies into action.

E3G builds broad-based coalitions to deliver a safe climate, working closely with like-minded partners in government, politics, civil society, science, the media, public interest foundations and elsewhere to leverage change.

[www.e3g.org](http://www.e3g.org)

### Berlin

Neue Promenade 6  
Berlin, 10178  
Germany  
+49 (0)30 2887 3405

### Brussels

Rue du Commerce 124  
Brussels, 1000  
Belgium  
+32 (0)2 5800 737

### London

4 Valentine Place  
London SE1 8QH  
United Kingdom  
+44 (0)20 7038 7370

### Washington

2101 L St NW  
Suite 400  
Washington DC, 20037  
United States  
+1 202 466 0573

© E3G 2022

## Copyright

This work is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 2.0 License.

You are free to:

- > Copy, distribute, display, and perform the work.
- > Make derivative works.

Under the following conditions:

- > You must attribute the work in the manner specified by the author or licensor.
- > You may not use this work for commercial purposes.
- > If you alter, transform, or build upon this work, you may distribute the resulting work only under a license identical to this one.
- > For any reuse or distribution, you must make clear to others the license terms of this work.
- > Any of these conditions can be waived if you get permission from the copyright holder.

Your fair use and other rights are in no way affected by the above.



### Cover image

Mozambique farmer Miguel Francisco Gonca talks to agriculture supervisor Sebastian Ferro about his rice plot that is almost ready to harvest. Photo by Jeffrey Barbee via CIFF Action on Flickr.



E3G

---

## CONTENTS

About E3G .....	2
Copyright .....	2
CONTENTS.....	3
QUALITY INVESTING IN AFRICAN AGRICULTURAL ADAPTATION .....	4
The Climate Front: Adapting Food Systems in Africa .....	6
<i>Agricultural adaptation in Africa: challenges and innovations</i> .....	7
An African Agenda in Progress: RDD for Agricultural Adaptation and Resilience...9	
<i>Tracking progress on RDD and agricultural resilience in Africa</i> .....	10
<i>Gaps in finance for RDD in agricultural adaptation in Africa</i> .....	12
Improving impact and aligning RDD investments with African priorities .....	13
<i>Improving finance for RDD in agricultural adaptation</i> .....	14
<i>Aligning with priorities of African governments and institutions</i> .....	15
Conclusion: Making Quality Investments in RDD for Agricultural Adaptation in Africa .....	18
Annex .....	20



E3G

---

## QUALITY INVESTMENTS IN AFRICAN AGRICULTURAL ADAPTATION

COP26 raised the profile of food and agricultural systems in the climate agenda. However, it did not go far enough in mobilising resources on the specific and urgent needs of low- and middle-income countries, particularly those in Africa. COP27 in Sharm el-Sheikh offers an opportunity to marshal resources and equip Africa's farmers in adapting to and overcoming the otherwise devastating effects of climate change.

Africa contributes the least to global emissions yet is burdened with severe vulnerabilities to the threats of climate change. Extreme heat will increase stress on labourers, crops, and livestock. More unpredictable rainfall and other weather events in areas dependent on rainfed agriculture will result in lower yields and crop failure. The Global Centre for Adaptation (GCA) estimates a 3-degree increase in global temperature by 2030 could reduce incomes by 8% for the poorest 40% of Africa's people.<sup>1</sup> If temperatures continue to rise on this trajectory, IFAD estimates staple crop yields in some African countries will decrease by as much as 80% by 2050. While this estimate only accounts for 8 countries, the cost of replacing the yields is projected to top \$400 million a year.<sup>2</sup>

Many of the solutions that African farmers need to adapt to climate change — including weather information platforms, resilient seed varieties and water management technologies — already exist, yet are not accessible to or widely deployed among smallholders. In the short term, scaling up the use of these technologies and practices could have significant impact.

However, as climate impacts worsen, relevant and responsive new research, development, and deployment (RDD) will become increasingly important to manage emerging risks and deliver adaptation and resilience outcomes. Estimates project that Africa and the Middle East will require \$1.7 billion more in

---

<sup>1</sup> GCA, State and Trends in Adaptation, 2021, <https://gca.org/reports/state-and-trends-in-adaptation-report-2021/>

<sup>2</sup> IFAD, 2021, <https://www.ifad.org/en/web/latest/-/ifad-report-predicts-steep-drop-in-african-staple-crops-by-2050%C2%A0prompting-urgent-call-for-adaptation-funding-at-cop26>



E3G

---

international funding per year for innovation up to 2050 to adapt to climate change and achieve zero hunger; a 50% increase on the reference scenario.<sup>3</sup>

Scaling up quality investment in RDD for agricultural adaptation in Africa is critical for climate safety and food security in Africa and beyond. To support this agenda, development agencies and High-Income Countries (HICs) finance providers should:

- > **Support African RDD institutions and networks nationally and regionally to expand and strengthen an ecosystem of actors that can tackle emergent climate change challenges through innovation in the agricultural sector.** Investing in local, national, regional, and continental institutional capacity is key to short- and long-term impact for smallholders, research communities, and governments in Africa.
- > **Foster co-creation of adaptation technologies and practices to ensure increased alignment and relevance of innovation solutions.** Co-creation of adaptation solutions ensures the needs and constraints of all end-users, particularly women and other marginalised groups, are understood and embedded into the RDD process and leverages the knowledge of those closest to the climate impacts, the farmers themselves.
- > **Address deployment and adoption of existing technology and practices among smallholder farmers.** In addition to investing in co-creation to ensure the relevance and usefulness of innovations, institutional capacity building for agricultural extension programs, as well as expansion in the operational budgets, will be essential to help small-holder farmers successfully adopt and adapt climate-smart techniques and practices.

This report concludes with four recommendations for action at COP27 including (1) a dedicated Agriculture and Food Systems Day, (2) concrete follow-up to the initiatives launched at COP26 such as the Glasgow Breakthrough in Agriculture, (3) investment in innovation sprints for agricultural adaptation in Africa under the umbrella of AIM4C, and (4) alignment of any new initiatives with the priorities of the African Union, its institutions, and membership including increasing resilience to climate change, improving food security and nutrition, supporting livelihoods, and reducing poverty.

---

<sup>3</sup> IFPRI, 2021 <https://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/134423/filename/134634.pdf>



E3G

---

## The Climate Front: Adapting Food Systems in Africa

Among the continents, Africa contributes the least to global emissions - less than 3% of the global total<sup>4</sup> - yet Africa, and especially African agriculture, are burdened with severe impacts of climate change. This is due, in part, to the projected intensity of exposure to climate change across the continent and the limited adaptive capacity of African agriculture. Given the importance of agriculture in African economies, its vulnerability is ominous. Agriculture accounts for over a third of total African GDP<sup>5</sup> and employs 50% of Africa's labour force<sup>6</sup> making it a critical sector to economies across the continent.

**“Agriculture accounts for over a third of total African GDP and employs 50% of Africa's labour force.”**

In a 3-degree increase in globe temperature by 2100 scenario, which is likely under current policies<sup>7</sup>, African agricultural systems will be hit hard in the coming decades. The GCA estimates that in this scenario, by 2030, climate change, with significant implications for agricultural production, could reduce incomes by 8% for the poorest 40% of Africa's people. Climate change will contribute to more frequent droughts and extreme heat lowering yields and increasing stress on livestock and labourers. Unpredictable rainfall in areas dependent on rainfed agriculture will result in lower yields and crop failure<sup>8</sup>. Beyond immediate on-farm impacts, this exposure has knock-on effects for prosperity and security.

For example, in April 2022, North Africa's grain belt suffered its worst drought in 30 years<sup>9</sup> while the Horn of Africa experienced the driest conditions recorded since 1981, leaving 13 million people in North-East Africa facing severe hunger<sup>10</sup>. This has led to increased reliance on imports of staple foods at a time of increasing inflation as the Russia-Ukraine conflict persists. Egypt, which imports more than 80% of its wheat from Russia and Ukraine, is struggling to maintain its bread subsidy program on which 70 million Egyptians rely<sup>11</sup>. With this pressure

---

<sup>4</sup> UNEP, <https://www.unep.org/regions/africa/regional-initiatives/responding-climate-change>

<sup>5</sup> World Bank, Development Indicators, 2020, <https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS>

<sup>6</sup> ILOSTAT, Africa's Employment Landscape, 2019, <https://ilostat.ilo.org/africas-changing-employment-landscape>

<sup>7</sup> Climate Action Tracker, Temperatures, 2021, <https://climateactiontracker.org/global/temperatures/>

<sup>8</sup> GCA, State and Trends in Adaptation, 2021, <https://gca.org/reports/state-and-trends-in-adaptation-report-2021/>

<sup>9</sup> USDA, Weekly Weather Crop Bulletin, Vol109, No13, <https://www.usda.gov/sites/default/files/documents/wwcb.pdf>

<sup>10</sup> UNWFP, (2022) <https://www.wfp.org/news/13-million-people-facing-severe-hunger-drought-grips-horn-africa>

<sup>11</sup> Bloomberg, The \$120 Billion Global Grain Trade, 2022, <https://www.bloomberg.com/news/features/2022-04-05/will-russia-s-war-in-ukraine-cause-wheat-shortages-raise-food-prices-more>

---





E3G

---

on food security, Egypt will need to adapt their food system to manage water shortages and other climate threats, increasing resilience.<sup>12</sup>

### **Agricultural adaptation in Africa: challenges and innovations**

The World Meteorological Organisation<sup>13</sup> and World Bank<sup>14</sup> report that sustainable agriculture offers Africa the shortest route to build intrinsic resilience. Through value addition and increased productivity, the agriculture sector can reduce poverty 2-4 times faster than growth in any other sector. Investing in the sustainability and resilience of agricultural systems in Africa is imperative if the continent is to take advantage of agriculture as an engine of growth – and more generally is critical for maintaining and improving food security, nutrition, economic prosperity on the continent and beyond.

Climate change presents multi-faceted challenges for the productivity and resilience of agricultural systems in Africa including water scarcity and drought, unreliable weather, new and migrating pests, and degraded soil health<sup>15</sup>. While not a silver bullet, innovation, through new methods, varieties, and ways of gathering and sharing information with farmers, can play a critical role in helping farmers to adapt to climate change.

For example, new seed varieties tested locally can both improve yields and/or reduce risk of loss from changing weather conditions.<sup>16</sup> GIZ research found that improved seed varieties had enabled Ethiopian wheat farmers to maintain and improve yields in the context of a changing climate; and in some cases, farmers in Togo achieved yields ten times higher than from traditional seeds. Improved seed varieties have also helped improve harvest quality.<sup>17</sup> Solutions and innovations, summarized in an illustrative list in Table 1 below, range from on-farm technologies to investing in research and extension<sup>18</sup>.

---

<sup>12</sup> IFPRI, The Russia-Ukraine crisis poses a serious food security threat for Egypt, 2022, <https://www.ifpri.org/blog/russia-ukraine-crisis-poses-serious-food-security-threat-egypt>

<sup>13</sup> WMO, State of the Climate in Africa 2019, 2020 [https://library.wmo.int/doc\\_num.php?explnum\\_id=10421](https://library.wmo.int/doc_num.php?explnum_id=10421)

<sup>14</sup> World Bank, 2008, World Development Report

<sup>15</sup> GCA, State & Trends in Adaptation, 2021, <https://gca.org/reports/state-and-trends-in-adaptation-report-2021/>

<sup>16</sup> GIZ, Agricultural Adaptation: Six categories of good practices and technologies in Africa, 2017, <https://reliefweb.int/sites/reliefweb.int/files/resources/Agricultural-Adaptation-Report-Digital-low-res.pdf>, page 22

<sup>17</sup> Ibid.

<sup>18</sup> Brookings Institution, The Urgency and Benefits of Climate Adaptation for Africa's Agriculture and Food Security, 2022, <https://www.brookings.edu/blog/africa-in-focus/2022/03/24/the-urgency-and-benefits-of-climate-adaptation-for-africas-agriculture-and-food-security/>

Figure 1: Climate change adaptation solutions for African food, land and water systems

Category	Examples of adaptation solutions and innovations
Public policy and incentive solutions	<ul style="list-style-type: none"> <li>- Ramp up support to research and extension services</li> <li>- Strengthen inclusive climate information and risk management services</li> <li>- Deploy mitigation policy, finance to support adaptation</li> </ul>
Food value chain and livelihood solutions	<ul style="list-style-type: none"> <li>- Provide and maintain adaptive climate-resilient infrastructure</li> <li>- Create demand for affordable healthy low-carbon diets</li> <li>- Link small-scale producers to value chains</li> </ul>
On farm and productive landscapes solutions	<ul style="list-style-type: none"> <li>- Restore land and practice sustainable land management</li> <li>- Scale up context-specific climate-smart soil management</li> <li>- Monitor and manage new trends in pests and diseases</li> <li>- Promote diversification of crops and livestock; use climate-ready species, cultivars and breeds; incorporate perennial crops, including agroforestry</li> </ul>

Source: Global Center on Adaptation, *State & Trends in Adaptation, 2021*

The innovations in Table 1, particularly those in the on-farm category, have the most valuable impact when developed in close partnership with farmers. This can, in part, be achieved by investing in local research capacity and patents, where relevant. Impact can be further improved if new technologies and other innovations are developed with farmers and focus on farmers’ real needs and capacity to use them. For example, with many smallholder farmers being women, innovations will only succeed if agricultural extension and training targets women, as well as men, and recognises the particular constraints women farmers may face – whether financial, physical or legal.

New technologies and techniques with the potential to improve African agriculture’s resilience to climate change are essential, but not sufficient on their own. Deployment of new technologies and techniques in most smallholder farm operations will depend on agricultural extension and advisory services to help farmers to become aware of, and understand how best to employ, the new technologies and techniques. Substantial and systematic training for extensions and advisory agents will be crucial in successfully bridging the gap between RDD and farmers’ fields, and in improving the adaptability and resilience of smallholder farm operations.



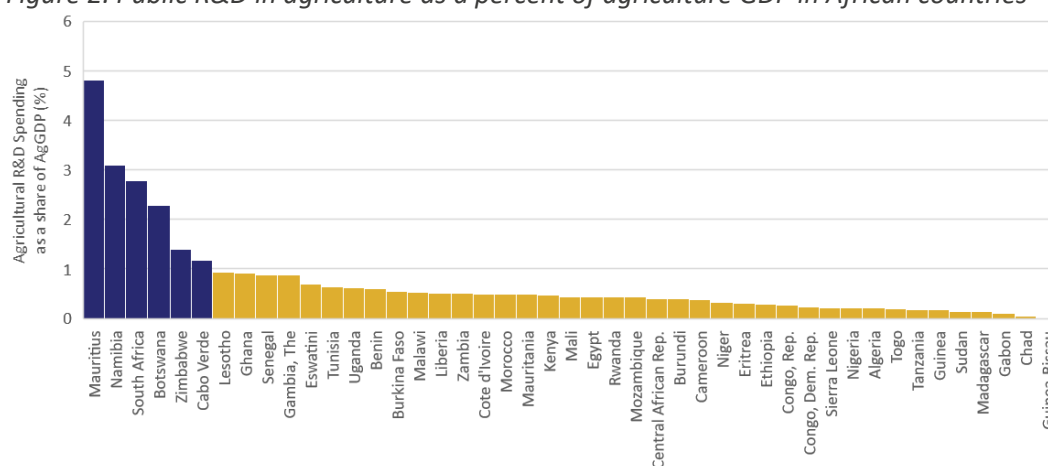


E3G

## An African Agenda in Progress: RDD for Agricultural Adaptation and Resilience

Underinvestment in agricultural research is prevalent in low and middle-income countries (LMICs)<sup>19</sup>. Both the UN and the African Union recommend that agricultural research intensity ratios<sup>20</sup>, a common metric for comparing investment across geographies, should be above 1%. However, the agricultural research intensity ratios for most LMICs, including those in Africa, are well below this threshold<sup>21</sup>. As seen in Figure 1, using data from 2012 to 2016, in Africa, only six (6) countries – Mauritius, Namibia, South Africa, Botswana, Zimbabwe, and Cabo Verde – exceed a 1% agricultural research intensity ratio

Figure 2: Public R&D in agriculture as a percent of agriculture GDP in African countries



Source: E3G figure based on ASTI Global Update, 2020

There are several reasons for underinvestment including<sup>22</sup>:

- > Agricultural research often requires ten or more years before attributable results can be demonstrated. This lag time leads policy makers to steer investments towards areas in which they can show constituents concrete outcomes within their terms of office.
- > Africa's development partners have, in recent years, shown priority to investments with more tangible shorter-term impact and external financial support for agricultural research has declined.

<sup>19</sup> ASTI, A Comprehensive Overview of Investments and Human Resource Capacity in African Agricultural Research, 2017, <https://asti.cgiar.org/sites/default/files/pdf/SSA-Synthesis-Report-2017.pdf>

<sup>20</sup> Calculated by the agricultural research spending relative to a country's agricultural gross domestic product.

<sup>21</sup> ASTI Global Update, 2020, <https://ebrary.ifpri.org/digital/api/collection/p15738coll2/id/134029/download>

<sup>22</sup> ASTI, A Comprehensive Overview of Investments and Human Resource Capacity in African Agricultural Research, 2017, <https://asti.cgiar.org/sites/default/files/pdf/SSA-Synthesis-Report-2017.pdf>



E3G

- 
- > In many African countries, tight national government budgets are barely sufficient to fund the salaries of researchers and support staff, leaving limited funding to cover the variable costs of carrying out research programs. Government research budgets also tend to allocate funds on a fixed, incremental schedule rather than with an assessment of long-term need.
  - > In addition to limited funding, public agriculture RDD expenditure is volatile, globally, with the highest levels of volatility in LMICs. A disproportionately low share and a high level of RDD volatility in LMICs constrains the effectiveness of agricultural RDD efforts which, in turn, presents significant adverse long term<sup>23</sup>.

These compounding issues lead to underinvestment in agricultural topics of critical importance. Further, budgets of the sub-regional agricultural research agencies are tight, limiting regional capacity for collective action to support RDD on agricultural issues that cut across borders. This is a particularly important limitation to regional efforts to address the challenges of climate change.

### **Tracking progress on RDD and agricultural resilience in Africa**

This lack of investment in RDD for agriculture is high on the agenda of African governments. The Comprehensive Africa Agriculture Development Programme (CAADP), launched in 2003, is Africa's policy framework for agricultural transformation, wealth creation, food security, nutrition, and economic growth.<sup>24</sup> Under CAADP, the Biennial Review is a fundamental instrument that enables countries to track and report progress including for resilience targets.

In 2021, the AU Biennial Review reported that overall, Africa is not 'on track' meaning the continent is not moving at pace to meet the goals set out in the 2014 Malabo Declaration which reaffirmed Member States' commitment to agricultural advancement under CAADP. However, progress has indeed been made by many countries including enhancing resilience to climate variability. Under the Biennial Review, 'Resilience' is measured by the (1) share of agricultural land under sustainable land management practices, (2) existence of government budget lines to respond to spending needs on resilience-building

---

<sup>23</sup> NCBI, Global Volatility of public agricultural R&D expenditure, 2020, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7550097/#bb0300>

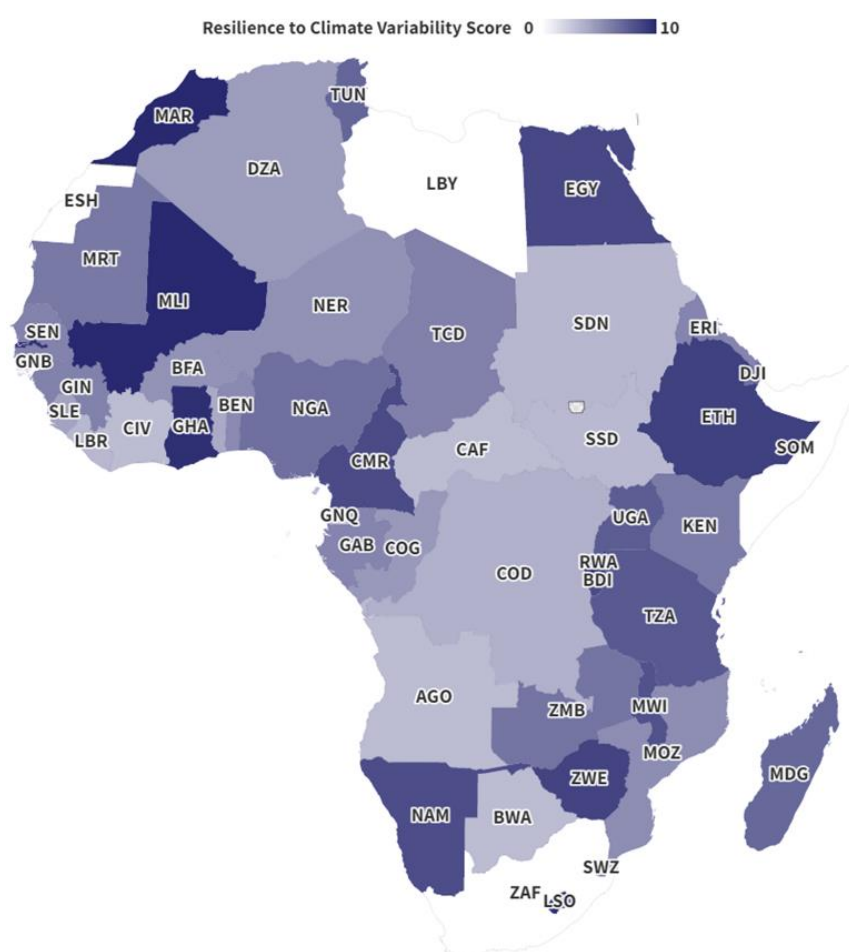
<sup>24</sup> AUDA-NEPAD, CAADP, <https://www.nepad.org/caadp/overview>



E3G

initiatives, and (3) percentage of farm, pastoral, and fisher households that have improved their resilience capacity to climate and weather-related shocks.<sup>25</sup> As seen in Figure 2 below, 15 countries out of a reported 48<sup>26</sup> achieved a score of 8 or above for 'Enhanced Resilience to Climate Variability' indicating these countries are 'on track' to achieve their goals by 2025. However, additional investment both from domestic and international sources - aligned with African priorities - will be needed to support the other 30+ countries in their efforts to get 'on track' and ensure continent-wide progress on all indicators.

Figure 3: Country progress against 'enhanced resilience to climate variability', 2021.



Source: E3G figure based on data from African Union, Biennial Review, 2021

Increasing domestic and international finance for RDD in agricultural adaptation is critically important for climate-resilient agricultural and food systems in Africa.

<sup>25</sup> AU, Biennial Review, 2021, [https://au.int/sites/default/files/documents/41573-doc-ENGLISH\\_3rd\\_CAADP\\_Biennial\\_Review\\_Report\\_final.pdf](https://au.int/sites/default/files/documents/41573-doc-ENGLISH_3rd_CAADP_Biennial_Review_Report_final.pdf); indicator 3 is not measured due to limited available data.

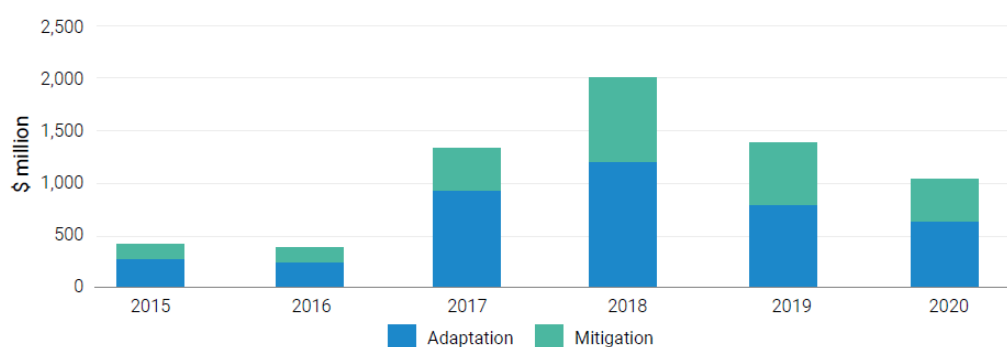
<sup>26</sup> No data was recorded for six countries: Libya, Somalia, Sao Tome and Principe, Mauritius, Guinea-Bissau, Comoros

## Gaps in finance for RDD in agricultural adaptation in Africa

The gap in finance for RDD in agricultural adaptation in Africa is defined by a lack of finance for adaptation, for agricultural adaptation, and for agricultural RDD. On finance for adaptation, the GCA<sup>27</sup> estimates that African countries will require, at least, \$331 billion through 2030, of which African countries expect to contribute ~\$66 billion from national budgets. The remaining gap of \$265 billion will need to be met by international public finance, domestic and international financiers. However, only \$6 billion was tracked in adaptation finance to Africa in 2017 and 2018, far off the pace to meet finance needs set out in African NDCs.

On agricultural adaptation, climate finance from multilateral banks for the agricultural sector in Sub-Saharan Africa increased from \$433 million in 2015 to \$2 billion in 2018 before declining to \$1 billion in 2020.<sup>28</sup> Consistently, as seen in Figure 3 below, most of this finance was for adaptation activities. However, in comparison to the projected need in NDCs, this falls short.

Figure 4: MDBs' climate finance flow to agriculture and land use in Sub-Saharan Africa from 2015 to 2020 (\$ million), GCA State and Trends in Adaptation Report 2021, Africa



Source: Global Center on Adaptation, State and Trends in Adaptation Report, 2021

On finance for agricultural RDD, a recent study from the Commission on Sustainable Agriculture Intensification (CoSAI) modelled the need for public and private investment in agriculture relevant to the Global South. The study found that the current gap in funding sits at \$15 billion per year, with almost \$4 billion investment required per year for international public research institutions, national agricultural research, and extension systems in the Global South.<sup>29</sup>

<sup>27</sup> GCA, State and Trends in Adaptation, 2021, <https://gca.org/reports/state-and-trends-in-adaptation-report-2021/>

<sup>28</sup> Ibid.

<sup>29</sup> The Global Investment Gap in Innovation for SAI, 2021, <https://wle.cgiar.org/cosai/investment-gap>



E3G

---

The highest need is projected in Sub-Saharan Africa (SSA) at \$2.2 billion per year for research and extension from both domestic and international sources. Adding projected need for the Middle East and North Africa (MENA) – almost \$0.5 billion – the gap in funding for agricultural RDD in SSA and MENA to offset climate change’s impact on achieving zero hunger is almost \$3 billion per year.<sup>30</sup> In international finance alone, the study estimates \$1.7 billion more – a 50% increase on the reference investment scenario - is required per year, up to 2050, for agricultural R&D in SSA and MENA to adapt to the impacts of climate change and achieve the goal of zero hunger.<sup>31</sup>

“Agricultural innovation in Africa will require 1.7 billion more in international finance per year to adapt to climate change.”

Overcoming this gap in funding is an opportunity to align finance with African priorities ensuring relevant impacts. The CoSAI study found that investment in RDD of an additional \$4 billion each year could increase productivity gains, reduced food prices, lower need for food imports, and significantly increase annual economic activity in the Global South by \$US 1.7 trillion by 2030.<sup>32</sup>

## Improving impact and aligning RDD investments with African priorities

It is not only the level of investment in agricultural research that is inadequate – the effectiveness of the investment falls short of what could be achieved. High quality finance for agricultural adaptation RDD is predictable, long-term funding. Grants from the public sector and international funders will be a key source of this high-quality finance for agricultural adaptation innovation.

Ensuring finance fosters and supports Africa agendas and frameworks enables African institutions to plan strategically and achieve national, regional, and continental goals. In addition, RDD must engage with and ensure the needs and constraints of all end-users are understood and embedded into all stages of the innovation process. The following section explores how finance can be improved to ensure investments in RDD deliver for Africa.

---

<sup>30</sup> CoSAI, 2021, [https://wle.cgiar.org/cosai/sites/default/files/CoSAI\\_Investment%20Gap%20Study.pdf](https://wle.cgiar.org/cosai/sites/default/files/CoSAI_Investment%20Gap%20Study.pdf)

<sup>31</sup> IFPRI, 2021, <https://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/134423/filename/134634.pdf>

<sup>32</sup> IFPRI, FCDO, COSAI, Closing a modest investment gap, 2021, [https://wle.cgiar.org/cosai/sites/default/files/P4336\\_CoSAI\\_Brief%20%20IGS\\_v1.pdf](https://wle.cgiar.org/cosai/sites/default/files/P4336_CoSAI_Brief%20%20IGS_v1.pdf)



---

## Improving finance for RDD in agricultural adaptation

In 2021, the Africa Research and Impact Network and UK Research and Innovation co-hosted a series of workshops with African researchers, organizations, and policymakers to highlight ongoing adaptation and resilience research based in Africa. These sessions served to identify priority areas for improvement in terms of how research funding can be more impactful for and relevant to African institutions, researchers, and smallholder farmers.

Key areas identified for attention included the need:<sup>33</sup>

- > For further investment in human capital in national agricultural research institutes (NARIs) and academic research centres to ensure sufficient research budgets and expanded capacity. These investments can foster closer links between NARIs and academic centres, supporting an ecosystem of students, researchers, and policymakers nationally.
- > To support networks of research producers and users, further developing knowledge exchange systems and practices. This development of networks could be accomplished through expansion of the funding available to the sub-regional agricultural research organizations (the SROs – CORAF, ASARECA, CCARDESA, and NASRO).<sup>34</sup>
- > For international finance to foster and support agendas set and owned by African institutions, governments, communities, and farmers. In particular, the need for research funding that develops ‘equitable relationships’, and co-designs research and communication agendas.

These issues can be targeted for support by national governments and their external partners<sup>35</sup> by:

- > Supporting African RDD institutions and networks nationally and regionally to expand and strengthen an ecosystem of actors that can tackle emergent climate change challenges through innovation in the agricultural sector. Investing in local, national, regional, and continental institutional capacity is key to short- and long-term impact for smallholders, research communities,

---

<sup>33</sup> UKRI, Tackling climate change: adaptation and resilience opportunities, 2021, <https://www.ukri.org/wp-content/uploads/2022/03/NERC-160322-TacklingClimateChange-AdaptationAndResilienceOpportunities-GlobalEventsReport.pdf>

<sup>34</sup> Strengthening Research Institutions in Africa: A Synthesis Report, 2019, [https://assets.publishing.service.gov.uk/media/5ef4ac4986650c12a0c778a7/Synthesis\\_report\\_Final\\_revised\\_v3\\_clean\\_.pdf](https://assets.publishing.service.gov.uk/media/5ef4ac4986650c12a0c778a7/Synthesis_report_Final_revised_v3_clean_.pdf)

<sup>35</sup> Ibid.



E3G

---

and governments in Africa. In particular, expanding operational funding for the NARIs and SROs to support and further develop their RDD activity around climate smart and resilient agriculture is essential.

- > **Fostering co-creation of adaptation technologies and practices to ensure increased alignment and relevance of innovation solutions.** A range of stakeholders, including sub-regional organizations coordinating extension and research activities, identify a need for co-creation of adaptation solutions with users (farmers) to ensure relevance and effectiveness of innovations. Co-creation of adaptation solutions ensures the needs and constraints of all end-users, particularly women and other marginalised groups, are understood and embedded into all stages of the RDD process and leverages the knowledge of those closest to the climate impacts, the farmers themselves.
- > **Addressing deployment and adoption of existing technology and practices among smallholder farmers.** Technology that could significantly improve farmers' yields, as well as their resources to withstand and prepare for shocks, are available yet deployment is a perennial challenge. In addition to investing in co-creation to ensure the relevance and usefulness of innovations, institutional capacity building for agricultural extension programs, as well as expansion in the operational budgets, will be essential to help small-holder farmers successfully adopt and adapt climate-smart techniques and practices.

### **Aligning with priorities of African governments and institutions**

To support an ecosystem of actors and institutions, foster co-creation of adaptation solutions with end users, and further deployment and adoption of innovations, investments must support achievement of continental priorities set out by the AU Commission and other African institutions. This includes, but is not limited to, the AU Commissions' Climate Strategy, Green Recovery Action Plan, Science Agenda for African Agriculture, and continental goals for food security and resilience within the CAADP and Malabo Declaration frameworks. Table 2 below highlights these key agendas initiated by the AU and member states.



Figure 5: Goals and strategies set out by the AU Commission and member states relevant to finance for agricultural adaptation research, development, and deployment

Framework	Objectives	Timeframe
AU Commission Climate Strategy	<p>Achieve AU 2063 Agenda ‘by building resilience of African continent to the negative impacts of climate change’. Five results to be achieved through the strategy include:</p> <ul style="list-style-type: none"> <li>- Effective institutional capacities to implement climate change strategies</li> <li>- Harmonise regional and international climate strategies</li> <li>- Africa speaks with one voice on climate strategy</li> <li>- Build resilience and reduce vulnerability</li> <li>- Increased access to finance</li> </ul>	2020 - 2030
Green Recovery Action Plan	<p>Strengthen collaboration in support of the AU’s objectives for the continent’s sustainable recovery from COVID-19 and support the realisation of a shared vision for a prosperous, secure, inclusive, and innovative future for Africa. Calls for:</p> <ul style="list-style-type: none"> <li>- Scaling up of finance for climate change adaptation in agriculture including support for institutional, policy, and investment environments</li> <li>- Mainstreaming of adaptation and resilience in CAADP processes and promotion of the Adaptation of African Agriculture (AAA) Initiative, and the African Climate Resilient Agriculture Development Programme (ACRADP)</li> <li>- Engaging in investment and/or policy to strengthen public support to climate resilient, sustainable agriculture e.g., building on Just Rural Transition (JRT)</li> </ul>	Launched 2021 with 5-year view to 2027.
CAADP and the Malabo Declaration	<p>CAADP (2003) is the AU Commission and AU Development Agency’s (formerly NEPAD) long-term plan to achieve food and nutrition security, increase incomes, and improve agriculture research, technology dissemination and adoption. The Malabo Declaration (2014) reaffirms AU member states’ commitment to CAADP and further aims to accelerate agricultural growth; halve poverty through this agricultural growth; and enhance resilience of livelihoods and agriculture production systems to climate variability and other related risks.</p>	2025 Target Year



E3G

Science Agenda for African Agriculture (SAAA)	The Science Agenda aims for transformation of national science and technology institutions to achieve social and economic transformation of Africa. A high priority is to support a more productive and efficient food and agricultural sector that guarantees food and nutrition security. The Science Agenda sits within CAADP and underpins food and nutritional security roadmap under the African Europe partnership on research and innovation. An updated SAAA could include a chapter laying out a 10-to-25-year agenda for science on agricultural adaptation to climate change and a corresponding plan (the SAAA Plan) to finance and implement the chapter recommendations.	Launched 2014. Target year 2025.
AU Commission Year of Nutrition	Under the Agenda 2063 framework, the AU highlights commons goals to draw attention to key challenges and areas for progress. 2022 is the Year of Nutrition, informed by the findings of the continental Accountability Scorecard launched by the AU And Africa Leaders for Nutrition, with a focus on: <ul style="list-style-type: none"> <li>- Strengthening resilience in nutrition and food security on the continent.</li> <li>- Secure greater political commitment and increased investment in nutrition to address the continent’s ongoing multi-pronged nutrition challenges</li> </ul>	2022

Source: AUC, *Draft Africa Climate Change Strategy, 2020* [https://archive.uneca.org/sites/default/files/uploaded-documents/ACPC/2020/africa\\_climate\\_change\\_strategy\\_-\\_revised\\_draft\\_16.10.2020.pdf](https://archive.uneca.org/sites/default/files/uploaded-documents/ACPC/2020/africa_climate_change_strategy_-_revised_draft_16.10.2020.pdf); AU, *Green Recovery Action Plan, 2021*, [https://wwfint.awsassets.panda.org/downloads/african\\_union\\_green\\_recovery\\_action\\_plan\\_\\_2021.pdf](https://wwfint.awsassets.panda.org/downloads/african_union_green_recovery_action_plan__2021.pdf); AU, *Malabo Declaration, 2014*; [https://www.resakss.org/sites/default/files/Malabo%20Declaration%20on%20Agriculture\\_2014\\_11%2026-.pdf](https://www.resakss.org/sites/default/files/Malabo%20Declaration%20on%20Agriculture_2014_11%2026-.pdf); FARA, *Science Agenda for Agriculture in Africa, 2014* <https://www.asti.cgiar.org/sites/default/files/pdf/s-t-partnerships/S3A.pdf>; AU, *Draft Concept Note on the AU Theme of 2022: As the Year of Nutrition, 2021* [https://au.int/sites/default/files/documents/41426-doc-EX\\_CL\\_1288\\_XXXIX\\_E.pdf](https://au.int/sites/default/files/documents/41426-doc-EX_CL_1288_XXXIX_E.pdf)

Investing in RDD in agricultural adaptation will be critical to achieving these continental goals including to build resilience and reduce vulnerability to climate impacts, strengthen agriculture, health, and urban systems as outlined in country NDCs,<sup>36</sup> further develop a science-based agenda, and support the Green Recovery Action Plan, platforming African priorities.

<sup>36</sup> AfDB, *Analysis of Adaptation Components in African NDCs, 2019*, [https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Analysis\\_of\\_Adaptation\\_Components\\_in\\_African\\_NDCs\\_2019.pdf](https://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/Analysis_of_Adaptation_Components_in_African_NDCs_2019.pdf)



E3G

---

The Forum for Agricultural Research in Africa (FARA), an apex organization for African SROs and a technical agency of the AU Commission, has already set out steps for upscaling climate-smart agriculture (CSA) in Africa<sup>37</sup> and launched consultation on an African Climate Smart Agricultural Framework (ACSAF) which envisions the future of CSA in Africa. ACSAF presents an opportunity to align investments in agricultural adaptation innovation with core priorities of the AU including transforming the agricultural system for prosperity, ensuring food and nutrition security, and building resilience to the climate crisis.

## Conclusion: Making Quality Investments in RDD for Agricultural Adaptation in Africa

Action to support African agricultural systems to adapt to climate change and global food system disruptions is urgent, requiring both immediate action and long-term plans and investment. COP27 in Sharm el-Sheikh offers a chance to marshal resources to equip Africa's farmers to adapt to and overcome the otherwise devastating effects of climate change.

All commitments made, reviewed, or updated at COP27 should:

- > **Ensure a strong focus on the quality of investment in RDD for innovation** for agricultural adaptation to climate change while filling the gap in investment. This includes prioritizing long-term, predictable financing, mainly in the form of grants.
- > **Align with African priorities and frameworks** including the CAADP processes, the Science Agenda for African Agriculture Plan, Malabo Declaration, and the SDGs; and the needs and priorities identified by individual countries.
- > **Recognise and take steps to ensure best practice in engaging end-users in the conception, design, execution, and testing of innovations is prioritized and iterated on.** This includes ensuring that the needs and constraints of *all* end-users, particularly women and other marginalised groups, are understood and embedded into all stages of the RDD process.

With these guiding principles for quality investment in agricultural adaptation innovation, COP27 offers an opportunity for:

---

<sup>37</sup> FARA, Upscaling CSA adoption in Africa, 2021, <https://library.faraafrica.org/2021/10/01/upscaling-climate-smart-agriculture-csa-adoption-in-africa/>

---



E3G

- 
1. **The Egyptian COP Presidency to place agricultural adaptation on the main stage with a dedicated Agriculture and Food Systems Day.** This highlights the critical importance of building sustainable and resilient agricultural systems for a climate-safe world and mobilising the quantity and quality of investment required for RDD for adaptation in Africa. For example, under the banner of the Agriculture and Food Systems Day, the Egyptian Presidency can provide a platform to launch and coalesce around the African Climate Smart Agriculture Framework as put forward by the African Union and the Forum for Agricultural Research in Africa.
  2. **The outgoing UK COP26 Presidency and incoming Egyptian Presidency to follow up on the initiatives launched at COP26, such as the Glasgow Breakthrough on Agriculture, the Policy Action Agenda and Global Action Agenda.** In particular, this stock take can focus on how these efforts pursue and prioritise the relevance and accessibility of investment in RDD for innovation, and promote the uptake, sharing and evolution of best practice.
  3. **The UAE and USA as co-Chairs of AIM4C to encourage finance providers to invest in and promote innovation sprints that demonstrate best practice and strong engagement with farmers, local communities and, where relevant, Indigenous Peoples in developing research.** As a prominent agricultural innovation initiative, AIM4C is well positioned to mobilize resources from public and private sources to support critical innovation sprints that meet the needs of smallholders facing climate impacts.
  4. **Any new initiatives in this field, such as COP27 Presidency initiatives or new declarations RDD in agricultural adaptation in Africa** - such as the one proposed in our recent briefing on a **political declaration for agricultural innovation in Africa** - **to be aligned with African frameworks and include reference to principles on engaging end-users.**

Beyond COP27, national governments and international funders must maintain or expand funding for RDD through traditional financing mechanisms and instruments - supporting existing institutions including NARIs, SROs, FARA, university and the CGIAR networks - and within these programs seek to expand the focus on climate-resilient agriculture financial support and mechanisms to support longer term RDD. This may include establishing a financing mechanism to support RDD for agricultural adaptation in the launch and implementation of the SAAA Plan and providing significant new funding through the financing mechanism established to finance the SAAA Plan.



E3G

## Annex

Figure 6: Biennial Review Indicators - Country progress scores for implementing the Malabo Declaration for Agriculture Transformation in Africa as assessed by the African Union Commission

Country code	Countries	Resilience to Climate Variability Score (8 = on-track)	Ending Hunger Score (6.32 = on-track)	Investment Finance in Agriculture Score (7.5 = on-track)	Commitment to CAADP Process Score (10 = on-track)	Eradicating Poverty Through Agriculture Score (5.81 = on-track)	Intra-African Trade in Agriculture Score (5 = on-track)	Overall Score (7.28 = on-track)
DZA	Algeria	4.73	0.66	0.11	0.95	0	2.87	1.47
AGO	Angola	3.35	4.46	0.98	6.22	1.01	2.98	3.77
BEN	Benin	5.57	2.54	4.2	8.21	4.14	2.25	4.78
BWA	Botswana	3.37	2.8	6.67	7.42	0.67	5.06	4.95
BFA	Burkina Faso	5.23	2.23	4.36	8.6	5.9	2.9	5.2
BDI	Burundi	8.44	3.81	2.24	9.2	4.38	3.18	5.63
CPV	Cabo Verde	9.47	1.59	4.84	8.64	0.2	2.4	4.55
CMR	Cameroon	8.43	1.75	2.41	9.24	2.05	1.93	4.58
CAF	Central African Republic	3.34	0.8	0.67	6.98	0	0.22	2.61
TCD	Chad	6.02	3.08	0.99	6.43	3.66	0.88	3.88



E3G

COM	Comoros	0.00	0	0.68	6.19	0	1.25	1.5
DRC	Democratic Republic of Congo	3.85	5.75	5.4	5.49	5.75	2.14	4.46
COG	Congo, Republic	4.93	1.23	2.53	9.01	0.44	1.58	3.32
CIV	Cote d'Ivoire	3.34	3.91	3.07	8.39	4.59	2.49	4.62
DJI	Djibouti	6.72	1.56	4.56	7.02	1.46	1.69	4
EGY	Egypt	8.60	3.96	8.56	8.74	6.2	3.17	6.52
GNQ	Equatorial Guinea	3.34	0.51	0.13	8.1	0	2.75	2.82
ERI	Eritrea	5.84	0.55	1.06	9.05	0.03	0	3.17
SWZ	Eswatini	5.85	3.97	8.54	5.58	5.02	2.96	5.73
ETH	Ethiopia	8.90	4.62	2.86	9.62	3.6	2.69	6.03
GAB	Gabon	5.84	3.97	5.82	8.23	3.96	2.15	4.98
GMB	Gambia	9.65	4.9	1.9	9.59	2.86	3.33	5.56
GHA	Ghana	9.70	3.66	4.02	8.65	8.24	2.94	6.61
GIN	Guinea	5.94	2.49	0.96	8.4	0.66	2.29	4.02
GNB	Guinea-Bissau	0.00	1.29	0.87	6.96	0.63	1.25	2.18
KEN	Kenya	6.26	6.4	4.48	8.3	5	2.79	5.62
LSO	Lesotho	9.62	1.72	2.36	5.63	1.38	2.14	3.98
LBR	Liberia	3.53	1.76	5.54	8.6	0.63	1.25	3.93
LBY	Libya	0.00	0	0	4.75	0	0	1.14
MDG	Madagascar	7.12	2.65	4.05	7.49	1	2.53	4.37
MWI	Malawi	8.10	3.38	4.82	8.7	3.74	0.96	5.33



E3G

MLI	Mali	10.00	4.19	5.24	8.9	6.11	2.23	6.66
MRT	Mauritania	6.41	3.82	1.86	8.17	5.76	2.36	5.4
MUS	Mauritius	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAR	Morocco	10.00	3.72	4.67	9.07	7.52	3.44	6.89
MOZ	Mozambique	5.42	1.93	1.96	9.25	2.79	2.14	4.14
NAM	Namibia	8.34	2.9	2.47	6.43	0.47	3	4.08
NER	Niger	5.28	2.77	1.78	7.89	0.63	1.25	3.64
NGA	Nigeria	6.81	1.42	1.99	9.08	5.96	6.52	5.42
RWA	Rwanda	9.70	5.43	6.86	10	6.95	3.18	7.43
STP	Sao Tome and Principe	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SEN	Senegal	5.93	3.21	1.48	7.21	0.72	7.7	5.07
SYC	Seychelles	8.34	3.43	8.87	2.89	1.05	1.83	4.92
SLE	Sierra Leone	4.43	4.11	1.58	3.24	4.19	6.13	4.33
SOM	Somalia	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ZAF	South Africa	0.34	3.94	3.32	6.02	0.36	2.94	4.05
SSD	South Sudan	3.48	0.83	1.54	6.68	0	1.25	2.88
SDN	Sudan	3.59	2.35	1.41	7.14	1.72	1.68	3.32
TZA	Tanzania	7.80	3.6	1.65	10	6.31	4.21	6.14
TGO	Togo	4.13	2.95	3.51	8.1	3.57	4.1	4.67
TUN	Tunisia	7.25	3.93	5.91	8.96	5.88	2.67	6.28
UGA	Uganda	7.66	4.99	3.99	9.8	5.51	2.7	5.89





E3G

---

ZMB	Zambia	6.57	2.88	8.07	9.85	1.51	3.56	5.55
ZWE	Zimbabwe	8.76	4.97	2.45	10	0.97	1.59	5.17

Source: African Union, (2022) 3rd CAADP Biennial Review Report 2021, [https://au.int/sites/default/files/documents/41573-doc-ENGLISH\\_3rd\\_CAADP\\_Biennial\\_Review\\_Report\\_final.pdf](https://au.int/sites/default/files/documents/41573-doc-ENGLISH_3rd_CAADP_Biennial_Review_Report_final.pdf)