



E3G

BRIEFING PAPER April 2022

INNOVATION FOR AGRICULTURAL ADAPTATION IN AFRICA

THE CASE FOR A POLITICAL DECLARATION AT COP27

CLAIRE HICKSON, TRIO POLICY

Despite the global benefits, agricultural research and development in low-income countries suffer from a severe lack of investment compared to high-income and leading middle-income economies. A political declaration at COP27, focused on mobilising the necessary domestic and international resources for innovation for agricultural adaptation in Africa, would ensure this issue receives the critical attention and resources it deserves.

COP26 went some way to increasing the focus on the nexus between agriculture and climate change and how innovation can play a part in reducing both the impact agriculture has on the climate and the impact climate change will have on agriculture.

It did not, however, go far enough in mobilising resources and attention around the specific, and most urgent, needs of low- and middle-income countries (LMICs), particularly those in Africa - the very countries that will suffer the most substantial impact on their agricultural sectors and food systems - whilst contributing the least to emissions.

Action in this area is urgent. African agricultural systems are already experiencing the impact of climate change, and this is accelerating, intensifying food insecurity



E3G

on the continent with more than one in five experiencing hunger in 2020¹. Without action to improve African agricultural productivity and resilience, demand for agricultural land will continue to grow, leading to increased emissions through land use change and deforestation, as well as the loss of biodiversity and natural habitats. This will have climate, development, and security implications within and beyond Africa.

Global action on climate change, such as COP meetings, have tended to neglect food and agriculture as an issue in the past, and to marginalise the needs of LMICs. A political declaration dedicated to mobilising more investment in and policy attention to innovation that will help agriculture and food systems in African countries adapt to climate change is therefore urgently needed to shift attention and resources to this crucial issue. Such an initiative would be an opportunity to use COP27, hosted by an African country, to build on the leadership the UK Presidency, US, UAE governments and others already demonstrated on innovation in agriculture at COP26 – this time by concentrating on how to fill the gap in resources in Africa.

The case for focusing on Africa

While the agricultural sectors of African countries currently contribute very little to emissions, African countries are particularly vulnerable to the impact of climate change on their agricultural sectors and food systems. The recent Sixth Assessment Report from the Intergovernmental Panel on Climate Change notes the disastrous consequences of climate change globally, but the negative impact is particularly strong in Africa, which, unlike many parts of the world, will only encounter negative impacts on food production from climate change – no positives.²

Several factors contribute to the vulnerability of Africa's agriculture and food systems. A much higher proportion of African agriculture is rainfed, (i.e. without other forms of irrigation) compared to other regions – making it particularly exposed to the less predictable rainfall resulting from climate change. Many

¹ FAO, IFAD, UNICEF, WFP and WHO. 2021. The State of Food Security and Nutrition in the World 2021. Transforming food systems for food security, improved nutrition and affordable healthy diets for all. Rome, FAO. <https://doi.org/10.4060/cb4474en>

² IPCC, 2022. *Climate Change 2022: Mitigation of Climate Change*. Available at: https://report.ipcc.ch/ar6wg3/pdf/IPCC_AR6_WGIII_FinalDraft_FullReport.pdf



E3G

African economies rely heavily on agriculture for revenue and employment - over 50% of Africa's population employed in agriculture.³

Many parts of Africa are already experiencing the impact of climate change on their agricultural sectors - for example, models indicate that temperature rises have already resulted in regional average yield reductions of 10–20% for millet and 5–15% for sorghum in West Africa.⁴ Farmers across the continent struggle to synchronise planting and other field operations with weather conditions (moisture, temperature, etc.) that no longer follow familiar patterns – often with severely negative consequences on farm productivity and income. Research suggests that these impacts are going to accelerate rapidly. For example, in Zimbabwe, in the next 10-20 years, maize crops may fail more often than they succeed.⁵

This promises to deepen an already dire food security situation in many parts of Africa, exacerbated by the impact of the pandemic and Russia's ongoing war in Ukraine.

This means that failing to adapt to climate change in agriculture in Africa will have – and is already having - a severe negative impact on Africa's economies, food security and livelihoods.

The role of innovation

Action to support African agriculture to adapt is urgent and requires both immediate action as well as a long-term plan and investment.

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.⁶ GIZ research found that improved seed varieties had enabled

³ The World Bank, 'World Development Indicators', 2020, <https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS>

⁴ Nature, Evidence of crop production losses in West Africa due to historical global warming in two crop models, 2019, <https://www.nature.com/articles/s41598-019-49167-0>

⁵ Global Center on Adaptation, Webinar: Adapting agriculture in Africa to build resilience to climate change, 2022, <https://www.youtube.com/watch?v=8pT5XVdgPJ0&t=160s>

⁶ 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>



E3G

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.⁷

Such innovation has the most valuable impact when it is 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 (e.g. through lack of access to land tenure).

The case for a dedicated political declaration

Despite the potential global benefits, agricultural research and development in poorer countries suffers from a severe lack of investment compared to levels of investment in high income countries and leading middle-income economies, such as India, China and Brazil⁸. African countries are particularly reliant on both international and domestic public investment in innovation as it mobilises and attracts much lower levels of private investment⁹, which is concentrated in the Global North¹⁰. Investment in agricultural RDD is also much more volatile in Sub-Saharan Africa than elsewhere¹¹, and often too short term¹². Such low investment has a negative impact on Africa's research capacity despite the vital role that local institutions need to play in ensuring research is relevant¹³.

⁷ 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

⁸ Pardey et al (2014): *Long-run and Global R&D Funding Trajectories: The U.S. Farm Bill in a Changing Context*

⁹ IFPRI, Why agricultural research investment lags in Africa south of the Sahara, 2017, <https://www.ifpri.org/blog/why-agricultural-research-investment-lags-africa-south-sahara>

¹⁰ Fuglie, K., The growing role of the private sector in agricultural research and development worldwide, 2016, <https://www.mssoy.org/uploads/files/fuglie-gfs-2016.pdf>

¹¹ Rawat, S. Advances in Food Security and Sustainability, 2020, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7550097/#bb0300>

¹² IFPRI, Why agricultural research investment lags in Africa south of the Sahara, 2017, <https://www.ifpri.org/blog/why-agricultural-research-investment-lags-africa-south-sahara>

¹³ IFPRI, Why agricultural research investment lags in Africa south of the Sahara, 2017, <https://www.ifpri.org/blog/why-agricultural-research-investment-lags-africa-south-sahara>



E3G

Traditionally, COP meetings have paid relatively little attention to both the role of agriculture in climate change, and the impact that climate change will have on agriculture and food systems. COP26 made considerable progress in increasing the focus on food and agriculture, and the role of innovation in that. Significant new initiatives were launched, including the Agriculture Innovation Mission for Climate (AIM4C - co-chaired by the UAE and US); the Policy Action Agenda for Transition to Sustainable Food and Agriculture; the Global Action Agenda for Innovation in Agriculture (or #climateshot campaign); and the Glasgow Innovation Breakthrough in Agriculture.

However, while some African and LMIC countries signed up to them, these global initiatives did not recognise both the urgency and relative severity of the risks in low- and middle-income countries – nor did they mobilise substantial new resources for research to support agricultural adaptation in LMIC countries in Africa, Asia and other regions that are most vulnerable to the impact of climate change. While it is vital to mobilise more domestic resources towards innovation for adaptation in agriculture, a financing gap will remain if additional public financing resources from external partners are not secured.

As international initiatives, financing and action around climate change have amply demonstrated in the past, the needs of African and other low- and middle-income countries tend to be marginalised in global discussions. For example, while climate negotiations and agreements, including the Paris Agreement, recognise the importance of adaptation – a much more pressing issue for many lower-income countries than for high-emitting, high income ones – the bulk of money allocated goes towards mitigation, even when it is allocated to low-income countries that emit very little.

COP27, hosted by Egypt, is a crucial opportunity to focus on African priorities. A political declaration at COP27 focused on innovation for agricultural adaptation in Africa, with key shared policy commitments and new, dedicated funding attached to it, building on and referencing existing mechanisms and initiatives would ensure that these issues would secure the attention they deserve and would increase the resources allocated to addressing them.

We are therefore calling on:

- > The UK as the current COP President, Egypt as the incoming Presidency, and other key countries, including Germany as this year's G7 president, to promote the idea of a political declaration focused on innovation for



E3G

agricultural adaptation in Africa, built around the priorities and needs identified by those leading RDD for innovation in Africa.

- > A broad range of donors to sign up as supporters to the declaration and to pledge financial support, primarily in the form of multilateral and bilateral grants.
- > All partners to sign up to the principles and policy commitments outlined in the declaration.

Key elements of a declaration

To ensure the declaration is a meaningful contribution to the effort to improve adaptive capacity in Africa, the content of the declaration should be co-crafted by African regional organisations, governments and networks leading on agricultural research on the continent in partnership with potential donors.

Key areas it may cover:

- > Acknowledging the particular vulnerability of African agriculture and food systems to climate change and the case for focusing increased attention and resources on the issue in both the immediate and long-term;
- > Recognising the role that innovation can play in increasing African agriculture's capacity to adapt to climate change;
- > Recognising the urgent need to step up the development and deployment of innovation to enable African agriculture to adapt to the near and long-term impacts of climate change;
- > Acknowledging that addressing this need requires increased financial resources devoted to this area by:
 - Donors committing to a certain level of funding with scope to expand this in future years¹⁴
 - African governments committing to increase their spending on RDD to support innovation for agricultural adaptation
- > Detailing what steps will be taken to ensure that the financing provided has an impact - for example, *inter alia*, by:

¹⁴ According to estimates by COSAI, **at least USD\$1.7 billion** more in international finance for agricultural R&D for SSA and MENA is required per year up to 2050 to offset / adapt to the impacts of climate change on achieving the goal of zero hunger.



E3G

-
- Promoting research that works closely with farmers and other end users to identify priorities for, and to conduct and deliver research and innovation;
 - Committing to funding African-led institutions and African-led research at the same time as promoting global partnerships that promote the exchange and transfer of knowledge, technology and innovation;
- > Acknowledging the progress made at COP26¹⁵ and where appropriate integrate/list steps that will be taken to further the agriculture innovation agenda in Africa under each initiative;
 - > Referencing key African regional agreements (such as the Malabo Declaration) and key African mechanisms (such as CAADP) that provide the foundation for agreed and effective initiatives to raise the performance and sustainability of African agriculture.

Conclusion

Urgent action is required to address the already accelerating impact of climate change on Africa. Innovation will be crucial to this. To ensure that innovation to help African agriculture adapt to climate change gets the attention and investment it requires, we urge governments – particularly the UK and Egypt, as COP26 and COP27 presidents respectively – to champion the creation of a dedicated political declaration at COP27 along the lines outlined above.

Claire Hickson is Director of Trio Policy, which is partnering with E3G in its work on mobilising finance for innovation for agricultural adaptation in Africa

¹⁵ For a summary of progress at COP26 see <https://www.e3g.org/news/cop26-agriculture-and-land-takeaways/>

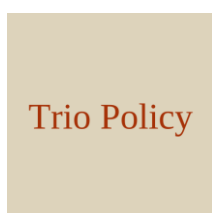


E3G

About Trio Policy

Trio Policy works with international organisations in the public, private and voluntary sectors to develop strategies to create and respond to change, specialising in international development, human rights, foreign policy, sustainability and corporate social responsibility.

More information is available at www.triopolicy.com



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.

More information is available at www.e3g.org

Copyright

This work is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 2.0 License. © E3G 2022