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## INNOVATION FOR AGRICULTURAL ADAPTATION ENSURING AIM4C DELIVERS FOR AFRICA

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For the first time since 2016, the UNFCCC COP will be hosted by an African country, Egypt, giving world leaders an opportunity to place centre stage the priorities of the continent likely to endure the worst impacts of climate, not least in its agriculture sector.

Traditionally, international climate change processes and fora - such as the UNFCCC Conference of the Parties (COP) - have given considerably less attention to adaptation than to mitigation, and substantially less consideration to food systems, agriculture and land-use change than, for example, the energy transition. This must change if these processes are to be relevant to the needs of African and other vulnerable and low- and middle-income countries (LMICs) and to adequately address the challenges of adaptation to the climate crisis.

“When we talk about innovation, we’re talking about the need for us to be able to innovate on behalf of all farmers, everywhere in the world, large or small.” - Thomas J. Vilsack, US Secretary of Agriculture

At COP26, the United States and United Arab Emirates jointly launched the Agricultural Innovation Mission for Climate (AIM4C). The initiative, that has already mobilised \$4 billion USD, aims to create a “quantum leap in agricultural innovation” to reduce agriculture’s impact on the climate.<sup>1</sup> AIM4C also aims to help the sector adapt to climate impacts on agricultural and food systems - impacts that many farmers around the world are already experiencing.

<sup>1</sup> AIM for Climate, *Working to Enable Solutions at the Intersection of Agriculture and Climate*, <https://www.aimforclimate.org/>



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To achieve this, AIM4C needs to focus on how innovation can help farmers and agricultural sectors that are set to experience the worst impact of climate change: those in Africa. That means engaging African governments and farmers' organisations, ensuring sufficient support is targeted to agricultural adaptation in Africa and that research addresses the needs and constraints of smallholders.

This briefing outlines how AIM4C can make the most of this opportunity by using the AIM4C Ministerial on the 21<sup>st</sup> of February to agree to:

- > Review its membership and make plans for expanding to include more African governments, regional organisations, and non-governmental members including farmers organisations.
- > Select and promote innovation sprints that prioritise breakthrough innovations that radically advance the climate resilience of agricultural systems, particularly those of African smallholder farmers. Selected topics should demonstrate best practice and strong engagement with farmers, local communities and, where relevant, Indigenous Peoples in developing research.
- > Ensure that measurements of impact provide sufficient focus on utilisation of innovation by farmers, particularly the most vulnerable.
- > Instigate strong mechanisms for lesson learning and sharing that promotes equal knowledge exchange between members.
- > Increase transparency around the contributions made by members and its plans for allocating those resources.

## Agriculture and climate change

Agriculture is responsible for approximately 1/3 of greenhouse gas emissions, as well as impacting biodiversity loss and degradation of natural resources.<sup>2</sup> Agriculture in Africa is responsible for a small proportion of those emissions yet growing populations and the associated increase in demand for food production mean that African agricultural sector emissions are amongst the fastest growing in the world.<sup>3</sup> African agriculture - and, with it, the continent's food security, livelihoods, development, and economies – are, however, among the most vulnerable to climate change and often lack the resources or support to adapt.

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<sup>2</sup> Gautam, Madhur; Laborde, David; Mamun, Abdullah; Martin, Will; Pineiro, Valeria; Vos, Rob. 2022. *Repurposing Agricultural Policies and Support: Options to Transform Agriculture and Food Systems to Better Serve the Health of People, Economies, and the Planet*. World Bank, Washington, DC. © World Bank.

<sup>3</sup> Mphethe, I.T. and Mokhele, E.M. *A Review of Greenhouse Gas Emissions from the Agricultural Sector in Africa*. *Agricultural Systems*, Vol. 166, pp. 124-134.



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In 2017 and 2018, the OECD tracked \$6bn USD in international public adaptation finance to Africa. This is far short of the \$331bn USD that the Global Centre for Adaptation estimates the continent will require through to 2030.<sup>4</sup> While almost 40% of this adaptation finance went to agriculture, with every African region citing agriculture as a priority sector, finance flows must be scaled up to meet the clear challenge and risks to African and global food systems<sup>5</sup>.

Failure to support African farmers – an estimated 33 million of whom are smallholder farmers<sup>6</sup>, many of whom are women – will have implications for Africa and for the world. In Africa, more than 50% of the population are food insecure.<sup>7</sup> Without scaled up adaptation finance targeted at African regions, the speed and intensity of climate change and its impacts will continue to outpace the capacity of smallholder farmers to adapt.

This is a global problem. The conversion of land for agriculture is driving emissions linked to land use change. Increases in demand for food due to growing populations, coupled with international demand for products such as cocoa and palm oil, are threatening Africa's forests, as well as driving knock-on negative impacts such as soil erosion and unsustainable water use. Africa's forests are a vital resource in the global effort to limit temperature rises. Ensuring sufficient support for agricultural innovation will be key to optimising resource use, whilst meeting people's needs and protecting critical biodiversity and ecosystems. The impact of climate change on African agriculture will have implications for the continent's food systems, economies, and security which, in turn, will have an impact across the globe.

## The role of innovation and how it can have greater impact

Innovation has a role to play in all aspects of achieving more climate-smart agricultural systems which support increases in both productivity and resilience, whilst simultaneously lowering emissions. This can mean identifying traits that promote resilience and support for drought- and pest-tolerant seeds, as well as innovation in how farmers are provided with vital information on, for example, weather patterns, which are becoming increasingly unpredictable due to climate

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<sup>4</sup> Dr. Ede Jorge Ijjasz-Vasquez, Prof. Jamal Saghir, and Dr. Ian Noble. 2021. *How Adaptation Can Make Africa Safer, Greener and More Prosperous in a Warming World*. Global Centre for Adaptation, Rotterdam.

<sup>5</sup> Global Centre for Adaptation, *State and Trends in Adaptation Report 2021: Africa, Finance*

<sup>6</sup> IFAD, *Adaptation for Smallholder Agriculture Programme*

<sup>7</sup> Global Centre for Adaptation, *State and Trends in Adaptation Report 2021: Africa, Finance*



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change. It can also involve innovation in the very systems and approaches farmers use to farm - moving from less to more sustainable practices, such as improved soil, water, and pasture management.

An important tool to advance agricultural innovation – and by extension, agricultural adaptation to climate change – are the AIM4C innovation sprints. The innovation sprints present the rare opportunity for the donor community to coalesce around the most pressing research needs which can deliver breakthrough discoveries needed for agricultural systems globally, and smallholder agriculture specifically, to adapt and thrive in a rapidly changing climate. Areas of highest priority include biotic and abiotic stress tolerance, input efficiencies and productivity, and photosynthetic efficiency.<sup>8</sup>

Funding for research is only a small part of the picture. Research and development into agricultural innovation often misses the mark because it is conceived and delivered without sufficient participation from the intended beneficiaries, be those smallholder farmers, Indigenous Peoples, or local communities. As a result, it often fails to account for their needs and constraints – such as limits to their time, access to financial resources and, as is often the case with the poorest farmers, their ability to tolerate risk. Ensuring the AIM4C innovation sprints consider the needs and constraints of smallholders, in particular those most affected by climate change, is critical to the success of the initiative.

Research funding also often fails to take account of Indigenous peoples' unique knowledge. Indigenous territories, for example, are frequently associated with lower rates of deforestation, as well as improved biodiversity and ecosystem protection and lower overall emissions.<sup>9</sup> Harnessing and pairing traditional knowledge and practices with new technologies and improved access to finance offers the potential to foster new and innovative partnerships and ways of thinking for agricultural adaptation. Some programmes, including the EU's DeSIRA-LIFT programme, seek to close this gap<sup>10</sup>.

AIM4C aims to mobilise vital funding, but it can deepen its contribution by ensuring that farmers' organisations are fully involved in the design of its innovation sprints and future programmes and that investments are evaluated on

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<sup>8</sup> Supporters of Agricultural Research (SoAR) Foundation, 2022. *Developing Global Priorities for Plant Research: Adapting Agriculture to Climate Variability*

<sup>9</sup> Craig, M-K., Moola, F. & Townsend, J., 2020. *Indigenous Peoples are critical to the success of nature-based solutions to climate change*, Facets Journal, Vol 5., No.1.

<sup>10</sup> EU Capacity4dev, *Development of Smart Innovation through Research in Agriculture* (DeSIRA)



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their impact. In doing so, AIM4C can improve the long-term sustainability of innovations supported, as well as ensuring investments are delivered effectively, efficiently and deliver good value for money for both donors and farmers alike.

## Improving the impact of AIM4C for Africa

AIM4C's focus on innovation in agriculture, the amount of money that is attached to it (currently \$4 billion USD<sup>11</sup> with an aim to increase this to \$8 billion USD by COP27), and its practical application through the innovation sprints make it significant. However, there is need for further transparency regarding contributions to AIM4C, how the contributions mobilized will be allocated, and who will benefit from the innovations selected, promoted, and deployed.

AIM4C brings together a wide array of governments and multilateral, regional, private sector, and philanthropic organisations critical to tackling the impact agriculture has on climate change and vice versa. By drawing contributions from a wide array of countries AIM4C recognises that agricultural innovation is a global public good. However, AIM4C currently draws relatively few of its governmental members from the African continent - only 6 African countries are currently members (Burkina Faso, Egypt, Ghana, Kenya, Morocco, Mozambique) - less than those from Europe; and very few of its non-governmental members hail from Africa or represent researchers or farmers from LMICs. While higher income members are key to mitigating emissions from their own agricultural sectors, greater membership from the LMICs in general and African countries in particular are vital to ensuring that the initiative is focusing on the innovation needs of those countries. The absence of sufficient countries providing this perspective - and the input of their scientists' and farmers' expertise - means a vital element of the discussion around agriculture and climate change is missing from the table.

Greater inclusion of African farmer, researcher, community and Indigenous knowledge and expertise also has the potential to leverage benefits on a global scale. The impact of climate change on agriculture will be felt by all countries, both directly through changes to local agriculture, but also through food and economic insecurity if Africa fails to adapt sufficiently to feed its population and sustain agricultural livelihoods. The sharing of innovation and knowledge is a two-way process - treating agricultural innovation as a global public good means there is equal opportunity for European or American farmers to benefit as much from innovations conceived and proven in Africa, as farmers in African countries and other LMICs do from European or American innovations.

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<sup>11</sup> AIM for Climate, *Working to Enable Solutions at the Intersection of Agriculture and Climate*



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The AIM4C ministerial on February 21<sup>st</sup> is a vital opportunity for its co-chairs and existing governmental members to draw breath, review progress and plan next steps. This must include a much greater focus on ensuring it is relevant to African needs and challenges ahead of COP27 which, with an African country as its host, will be a crucial opportunity for adaptation in general, and food systems and agriculture, in particular, to secure more attention on the international stage.

AIM4C can play a significant role in this if the forthcoming ministerial:

- > Reviews its membership and makes plans for expanding to include more African governments, regional organisations, and non-governmental members including farmers organisations.
- > Selects and promotes innovation sprints that prioritise breakthrough innovations that radically advance the climate resilience of agricultural systems, particularly those of African smallholder farmers. Selected topics should demonstrate best practice and seek strong engagement with farmers, local communities and, where relevant, Indigenous Peoples in developing their research.
- > Ensures that measurements of impact provide sufficient focus on utilisation of innovation by farmers, particularly the most vulnerable.
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## 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](http://www.e3g.org)

## 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.

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