



3.6 Transforming agricultural innovation for climate, nature and people

a. Background

The World Bank estimates that around USD 56 billion is spent every year on agricultural research and development (Fuglie et al., 2020). While this investment is crucial for food security, it is not necessarily delivering benefits for nature and climate. Agriculture has been a major driver of nature loss, and a contributor to greenhouse gas emissions, even while both men and women small-scale farmers are at the frontline of facing impacts of climate change and nature loss. It is widely recognized that a major transformation of food systems is needed (Steiner et al., 2020, Pharo et al., 2019, Loboguerrero et al., 2020). However, for a successful transformation requires a transformation in the underpinning innovation systems (Steiner et al., 2020, Fanzo et al., 2020, Herrero et al., 2020, Barrett et al., 2020). We build upon recommendations of the global initiative to Transform Food Systems Under Climate Change, which engaged over 100 organizations to develop its flagship report, 'Actions to Transform Food Systems Under Climate Change', and further elaborate the solution based on ideas received under ACAI2.

b. What, in brief, is the solution?

The solution envisages shifting the dial on agricultural innovation, with greater investment into innovation, efforts to address fragmentation among institutions, and to scale and evidence-based dialogue. The solution also proposes investing into initiatives that have demonstrated the ability to provide end-to-end solutions working across the innovation ecosystem for food systems (from early stage development to product development to large scale deployment), where research efforts are targeted towards end user needs underpinned by robust partnerships to ensure adoption and societal outcomes at scale. Some examples of these initiatives are constituted by the Local Technical Agroclimatic Committees in Latin America, the use of big data to scale Climate-Smart Agriculture, the Climate-Smart Villages, the Global Lighthouse Farm and the newly emerging multi-stakeholder initiative to decarbonize food systems by the World Economic Forum and partners. Likewise, this solution will promote diverse mechanisms to achieve transformation in innovation systems by incentivizing the use of approaches such as (i) participatory scenario building with policy actors, donors and stakeholders, including gender characterized producers and consumers (participatory scenario building has been used successfully to build legitimacy, ownership and trust for policy agendas that tackle bottlenecks, enhance opportunities and stimulate action) and (ii) Climate-Smart Agriculture Investment Planning and Financing as a way to leverage stakeholder engagement and capacity building for proposing high potential and high-suitability Climate-Smart Agriculture investment projects.

c. What was/were the source(s) from which this solution emerged?

This solution is proposed in the 'Actions to Transform Food Systems Under Climate Change' report (Steiner et al., 2020), which was developed in collaboration with over 100 organizations and was proposed through the Google form.

d. What problem is it trying to address within food systems?

Business as usual in agricultural innovation will not catalyze the transformation in food systems that is needed for nature-positive production at scale, and this solution seeks to unlock this 'lock in' to a system of innovation which does not always deliver benefits for nature and climate, and is often fragmented, and not focused on outcomes for society.

e. Why is addressing that problem important for achieving the goal of your ACAI?

This solution can have transformational impact and help achieve the aspirational outcome of sustainably managing existing food production systems to the benefit of nature and people, helping develop an innovation system that provides context specific solutions to increase input efficiencies, minimize



externalities, improve yields, maximize biodiversity and ecosystem functions, improve livelihoods and enhance resilience to climate change.

f. How can this solution address that problem?

Our theory of change envisages four key inputs to make this solution successful:

- **Inclusive dialogue to identify and prioritize evidence-based approaches**, as well as to ensure addressing **gender and social inclusion** explicitly as part of this transformation. The gender gap in innovation needs to be overcome as women often do not have access to the same level of resources as men.
- **Increase investment in R&D, technology, knowledge sharing**, which enable climate-positive, nature-positive and people-positive pathways for development. This does not mean only the development of new technologies and practices, but a focus on taking these to scale to realise multiple objectives.
- **Realign agricultural innovation systems to address climate change**. National and international institutions responsible for agricultural innovation needs to become fit for purpose to achieve multiple outcomes. This solution will focus on realigning institutions to address fragmentation and streamlining efforts for greater impact. This will involve changing incentive structures, management and governance for researchers and the public sector in agricultural research and development systems to value the generation of societal outcomes, thus ensuring greater uptake of research results by food systems stakeholders.
- **Identify and scale best practices of taking innovation to scale**. These best practices connect capital providers, researchers, and end-users to provide a research-for-development “ecosystem for innovation” that enables stakeholders to accelerate the transformation needed in food systems. Examples of such best practices are provided in section 1.1.

g. Why does this solution align to the definition and criteria for a ‘game changing solution’ developed by the Summit?

The innovation system underpins activities across the entire food system, and unless this innovation system is transformed, we will not be able to transform food systems. The investments in innovation are significant and shifting the dial on these can have huge impacts. Such a shift is actionable at the Summit, as there is strong support for this under the UK’s COP26 Presidency¹. Together these two summits can change how we innovate in the face of climate change and nature loss. Once a shift has been achieved it is possible to sustain this beyond 2030 as this becomes the new era of innovation, characterized by ‘end to end’ approaches to innovation.

h. What is the existing evidence supporting the argument that this solution will work, or at least that it will achieve the initial outcomes described above?

The initial theoretical background comes from the ‘Action to Transform Food Systems Under Climate Change’ report (Steiner et al., 2020), which has seen input from over 100 organizations. Taking these theoretical foundations forward, five evidence reviews are currently underway as part of the COP26 campaign to transform agricultural innovation for people, nature and climate.

i. What is the current and/or likely political support for this idea?

This idea has been subject to stakeholder input and consultations since September 2020, and over 20 member states have now been engaged in this idea. Strong support from member states is crucial as agricultural innovation continues to be funded predominantly with public funds. However, we are also engaging the private sector to shift the dial on private investment in innovation. So far, we have not seen

¹ Transforming Agricultural Innovation for People, Nature and Climate campaign, part of the UK’s Nature campaign for COP26 <https://ccafs.cgiar.org/news/Transforming-Agricultural-Innovation-Climate-Nature-People>



opposition to the idea as it is acknowledged that business as usual is not an option. The UK Government has expressed support for this idea in particular and this solution was launched by the Rt Hon Lord Goldsmith, UK Minister for Pacific and the Environment at FCDO and the Department for Environment, Food and Rural Affairs (Defra) at the 2021 Climate Adaptation Summit.

j. Are there certain contexts for which this solution is particularly well suited, or, conversely, contexts for which it is not well-suited at all?

This solution needs to occur across contexts as all countries invest in innovation, however low- and middle-income countries with a dependence on agriculture as a sector are a priority, as this solution can enable them to leapfrog the agricultural development curve, delivering benefits for people, nature and climate.

k. Who are the key stakeholders to be further involved in the process of developing and refining the solution idea?

Member states who are key funders and beneficiaries of agricultural research, private companies that invest in innovation, and regional and international innovation organizations.

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