

Outcome validation report: CCAFS engagement in the Global Commission on Adaptation

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CCAFS engagement in the Global Commission on Adaptation

Outcome validation report

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)

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Abstract

The Global Commission on Adaptation (GCA) was launched in October 2018 to accelerate

adaptation action and support by elevating the political visibility of adaptation and focusing

on concrete solutions to the climate crisis. It is led by Ban Ki-moon, 8th Secretary-General of

the United Nations, Kristalina Georgieva, Managing Director of the International Monetary

Fund, and Bill Gates, Co-Chair of the Bill & Melinda Gates Foundation. It is convened by 17

countries and guided by 30 Commissioners, and co-managed by the Global Center on

Adaptation and World Resources Institute.

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)

has been heavily involved in the work of the GCA. This outcome validation report focuses on

how CCAFS has been involved in the GCA processes, focusing on contributions made in

2019.

Keywords

Climate change; adaptation; food security; agriculture.

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About the authors

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The author would like to thank the external interviewees (Arame Tall, Cristina Rumbaitis del Rio, Stanley Wood and Katiuscia Fara) and CCAFS interviewees who provided additional inputs to the report (Philip Thornton, Steve Zebiak, Alison Rose, Jim Hansen and Ana Maria Loboguerrero).

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Introduction

The Global Commission on Adaptation (GCA) was launched in October 2018 to accelerate adaptation action and support by elevating the political visibility of adaptation and focusing on concrete solutions to the climate crisis (GCA 2019a). It works to address major roadblocks to adaptation action, including the failure to incorporate climate change risks into development plans and, more broadly, the lack of global leadership on adaptation (GCA 2019a).

It is led by Ban Ki-moon, 8th Secretary-General of the United Nations, Kristalina Georgieva, Managing Director of the International Monetary Fund, and Bill Gates, Co-Chair of the Bill & Melinda Gates Foundation. It is convened by 17 countries and guided by 30 Commissioners, and co-managed by the Global Center on Adaptation and World Resources Institute (GCA 2019a).

In 2019, the GCA released its Flagship Report that puts forward a bold vision for how to transform key systems to be more resilient and productive. At the same time, the GCA launched eight Action Tracks to accelerate adaptation under a changing climate, including one on food security and agriculture.

2020 is the Year of Action, focusing on (i) advancing recommendations from Flagship Report and Action Tracks, (ii) helping to accelerate adaptation around the world, and (iii) improving human well-being and resulting in more sustainable economic development and security.

The Commission's efforts will culminate in a Global Adaptation Action Summit, convened by the Netherlands, in October 2020. This concentrated effort will help accelerate adaptation action, which will improve human well-being and result in better, more sustainable economic development and resilience for all (GCA 2019a).

CCAFS involvement in the GCA processes

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) has been heavily involved in the work of the GCA. Interviews with key actors in the GCA as well as CCAFS scientists (Annex 1) were conducted to find out how CCAFS contributed to the GCA processes, specifically to the Food Security and Agriculture Action Track¹. There are already a lot of investments committed in 2019 in relation to this Action Track. Contribution of CCAFS to these investments are not clear at this point. At the end of 2020, CCAFS linkages will be revisited.

One of the interviewees, Stanley Wood, Senior Program Officer at the Bill and Melinda Gates Foundation highlighted that in all the process, from early consultations with Bill Gates, through the background papers to the actual formulation that's in the GCA report, there was a very heavy CCAFS engagement.

The main contributions include:

- CCAFS input in the GCA Flagship Report, including one of the chapters in the report based on which commitments were made in the Food Security and Agriculture Action Track. (2019)
- Three background papers led by CCAFS scientists. (2019)
- Major role of Bruce Campbell, Director of CCAFS: Senior Advisor to the GCA and Co-Lead of the Food Security and Agriculture Action Track. (2019-2020)
- Development of an investment blueprint for climate informed digital advisory services led by IRI/CCAFS² that became one of the three initiatives³ of the Food Security and Agriculture Action Track. (2019-2020)

¹ The official name of the Action Track is unclear, most commonly it is referred to as Food Security and Agriculture, Food Security and Rural Livelihoods, and Agriculture and Food Security. We use Food Security and Agriculture Action Track throughout this report.

² The International Research Institute for Climate and Society (IRI) at Columbia University hosts the Climate Services and Safety Nets Flagship (Flagship 4) of CCAFS, and several IRI scientists or staff have affiliation or a role in CCAFS projects as well through the leadership of the Flagship. In this document, the IRI team working in CCAFS is denoted as IRI/CCAFS.

³ In 2019, three initiatives were announced. In 2020, a fourth one was added.

Contribution to the GCA Flagship Report

On September 10, 2019, the Global Commission on Adaptation released its Flagship Report, Adapt Now: A Global Call for Leadership on Climate Resilience (GCA 2019b). The report puts forward a bold vision for how to transform key systems to be more resilient and productive. It is designed to inspire action among decision-makers, including heads of state and government officials, mayors, business executives, investors and community leaders (WRI 2020a).

Background papers

The Global Commission on Adaptation commissioned a series of background papers to inform the Commission's Flagship Report. These papers were intended to produce a concise yet comprehensive assessment of adaptation in a key system or cross-cutting issue (GCA 2019c).

The GCA also commissioned discussion papers to summarize the current state of play of adaptation and outline possible solutions. These papers aim to stimulate discussion and lay some of the groundwork for the Commission's Flagship Report (GCA 2019c).

In 2018, senior scientists from CCAFS co-authored a discussion paper titled Feeding the World in a Changing Climate: An Adaptation Roadmap for Agriculture (Loboguerrero et al. 2018). In 2019, CCAFS scientists led on two of the 20 background papers commissioned by the GCA:

- Rural livelihoods, food security and rural transformation under climate change (Thornton et al. 2019)
- Scaling Climate Services to Enable Effective Adaptation Action co-led with IRI (Hansen et al. 2019)

Food security chapter in the GCA Flagship Report

The GCA Flagship Report consists of eight chapters, each focusing on adaptation in a key system such as water, cities, infrastructure, disaster risk management, and others. CCAFS was involved in writing the chapter on Food Security and Livelihoods of Small-Scale Producers (Chapter 2) in a number of ways:

- The background paper on rural transformation under climate change informed Chapter 2. Philip Thornton, lead author on the background paper, is acknowledged as an author of Chapter 2. Bruce Campbell, Co-Lead of the Food Security Action Track, is acknowledged as an author of Chapter 2.
- Figure 2.1 on Areas of High Agricultural Risk for Different Climate Hazards in Vulnerable Areas, prepared by Philip Thornton for the GCA, was included in Chapter 2 (GCA 2019b p. 24). Table 2.1 on Recommendations Categorized for Different Actions, Climate Risks Addressed, Type and Potential Breadth of Impact, and Justification (GCA 2019b p. 28-29) was prepared by Philip Thornton based on the three background papers written for Chapter 2.

According to Arame Tall, Senior Climate Change Specialist at the World Bank, and one of the interviewees in this study, as part of the GCA Flagship Report, the CGIAR helped to elevate the message that adaptation is urgent and the best way to adapt is through rural communities.

CCAFS visibility in the Flagship Report

In addition to Chapter 2, there are other sections in the GCA Flagship Report with reference to CCAFS:

- The report introduces the eight Action Tracks, one of which focuses on food security and agriculture. This section of the Flagship Report links the Food Security & Smallholder Livelihoods chapter to the Food security Action Track, it describes the Action Track, including its goals and initiatives.
- The report notes that individuals and organizations developed background papers that informed the report, listing the two background papers led by CCAFS and IRI (GCA 2019b p. 66-67).
- The report lists the Action Track partners, including the CGIAR and IRI. (GCA 2019b p.
 68)
- The report acknowledges the Global Commission's staff, including Bruce Campbell,
 Director of CCAFS, who serves as a Senior Advisor to the GCA. (GCA 2019b p. 70)

• More than 10 CCAFS publications are referenced in the report (Annex 2).

Food Security and Agriculture Action Track

In parallel with the Flagship Report, the GCA has convened stakeholders and has built coalitions in support of several Action Tracks, which focus on identifying areas of greatest need and catalyze new and additional action to address these issues (GCA 2019a). In September 2019, the Global Commission on Adaptation announced these, including an Action Track on Food Security and Agriculture. This Action Track is led by Cristina Rumbaitis del Rio (WRI) and Bruce Campbell (CCAFS) (WRI 2020b).

This Action Track aims to increase funding and support to build the resilience of 300 million small-scale farmers around the world. To achieve this goal, the Commission and its partners will increase investment in agricultural research, expanding access to crucial farmer advisory services and information, as well as access to improved risk management and financial services that farmers need to adapt to climate change (GCA 2019d).

During the interview, Arame Tall said that CCAFS and the CGIAR have been at the heart of this Action Track, not only in designing what goes into this Action Track but also in implementing this action so that it truly translates into meaningful impact for rural communities. Also, CCAFS and CGIAR science is driving the intellectual content of the Action Track.

In 2019, three specific initiatives were introduced under this Action Track with CCAFS and IRI playing a major role in all three of them.

1. Double investment in the CGIAR system to support 300 million small-scale producers to adapt their farming systems, livelihoods and landscapes to be more climate resilient by 2030.

At the UN Climate Action Summit, partners of the Commission announced over \$790 million in financial commitments and support to the Food and Agriculture Action Track's goals, including from the Bill & Melinda Gates Foundation, the World Bank, the Netherlands, the World Bank, the European Commission, Germany, Switzerland, Sweden, and the UK. Of

this, around \$650 million will go to the CGIAR. CGIAR has committed to collaborate with the Commission to integrate climate change across its new 10-year strategy (GCA 2019d).

Cristina Rumbaitis del Rio, Action Track Co-Manager for the Global Commission on Adaptation, World Resources Institute, and one of the interviewees for this study, said that Bruce Campbell helped build a liaison to the CGIAR that was identified as a key institution for building resilience in agricultural systems particularly for smallholder farmers. He has been an important linkage point to the 2-Degree Initiative which the Commission and the Action Track hope to support the development of over the course of the Year of Action.

2. Expand access to climate-informed digital advisory services for at least 100 million small-scale producers by 2030.

The World Food Programme (WFP) and Columbia University's International Research Institute for Climate and Society (IRI) announced a commitment to develop a blueprint to scale-up sustainable and equitable climate advisory services, including digital advisories, to strengthen the resilience of vulnerable smallholders in remote communities (GCA 2019d).

CCAFS Climate Services and Safety Nets Flagship (Flagship 4), hosted by IRI, has been heavily involved in this initiative. In the early consultations about the proposed Action Track some initial text was written about digital technologies and the opportunity to scale. In the interview, Steve Zebiak, CCAFS Flagship 4 Leader explained that first, IRI/CCAFS together with WFP suggested this to be framed in a way that it addresses the needs of the most vulnerable who might or might not be in a good position to take up new technology.

IRI/CCAFS brought in many years of experience working in developing countries on climate services where some of the same issues were also recognized. For example, the need to work with National Meteorological Services, agricultural extension and the private sector in order to embed new technology into services can actually reach the full scale for those in need.

Second, IRI/CCAFS noted that this is such an ambitious target that this will not be achieved with a few organizations, even the biggest ones. IRI/CCAFS initiated this to be a process in which the actors/organizations come together and cooperate and coordinate in ways that they have not done before. The need for this cooperation resulted in the blueprint initiative, led by IRI and WFP.

Steve Zebiak took the lead on writing the concept note for the Blueprint, which specifies principles that aim to ensure that investments result in positive, equitable, sustainable impact for smallholder farmers.

Katiuscia Fara, Senior Climate Services and DRR Advisor at the World Food Programme, said during the interview that she brought in IRI/CCAFS to the discussions, and she acknowledged that the expertise of people like Steve Zebiak and Jim Hansen is extremely valuable in this initiative.

3. Expand access for at least 100 million small-scale producers to insurance, markets, finance and productive safety nets, as well as agro-ecological practices.

The German Federal Ministry for Economic Cooperation and Development (BMZ) committed to support 60 million people in smallholder farming families to build climate-resilience by 2030 by improving access to agro-ecological practices, expanding access to insurance, markets, finance, and productive safety nets. In addition, BMZ together with partners of the InsuResilience Global Partnership commit to scale-up access to micro-insurance for 150 million beneficiaries by 2025 (GCA 2019d).

CCAFS has been engaged in this component too. Flagship 4, under the leadership of Jim Hansen, produced a 2-pager for Bruce Campbell intended to inform this activity.

CCAFS, through Flagship 4, is a partner of InsuResilience; and under the leadership of Jim Hansen, Berber Kramer (IFPRI) and Dan Osgood (IRI), through a Flagship 4 project, provided text to Bruce Campbell intended to inform this activity.

Cristina Rumbaitis del Rio explained in the interview that there is a component under this initiative on mobilizing greater private sector investment in smallholder agriculture, involving key CCAFS scientists such as Alberto Millan and Evan Girvetz. Alberto Millan, Senior Climate Finance Specialist at CCAFS, has been key in brokering relationships and identifying opportunities where the Action Track can build partnerships to scale up funding and investment in climate resilience in smallholder agriculture. In addition, the work on climate-smart investment plans developed by CIAT together with the Adaptation of African Agriculture (AAA) and the World Bank, is key in this work.

Investments related to the Food Security and Agriculture Action Track

On the sidelines of the UN Climate Summit in October 2019, the GCA announced the Action Tracks as well as commitments by the Commission and partners (Table 1). USD 790 million in financial commitments and support to the Food Security and Agriculture Action Track's goals was announced, including from the Bill & Melinda Gates Foundation, the World Bank, the Netherlands, the World Bank, the European Commission, Germany, Switzerland, Sweden, and the UK. Of this, around USD 650 million is going to the CGIAR (WRI 2019). This commitment will allow CGIAR to scale up actions for smallholder farmer adaptation, including crop breeding, seed systems, development, improving gender equity in agriculture, livestock management, and efforts to create an enabling environment (Dinesh 2019).

Table 1. Breakdown of the major commitments to date that followed the release of the GCA Flagship Report

Donor	Recipient	Amount
Bill and Melinda Gates Foundation	CGIAR (2020-2022)	USD 310 million
Netherlands	Supporting the Food Security and Agriculture Action Track	USD 110 million
Netherlands	CGIAR (2020-2022)	USD 55 million
World Bank	CGIAR (2020-2023)	USD 150 million
European Commission	CGIAR (2020-2021)	USD 35 million
Switzerland	CGIAR (2020-2021)	USD 33 million
Sweden	CGIAR (2019)	USD 16 million
DFID	CGIAR (2020)	USD 56 million
DFID	Supporting the Food Security and Agriculture Action Track	USD 34 million

Source: GCA 2019e

According to Cristina Rumbaitis del Rio, for the investment blueprints, the GCA is very much relying on analysis done by CCAFS, for example by Alberto Millan on identifying investment mechanisms and ways that blended finance can be leveraged to support small-scale producers. The GCA is relying on the climate-smart investment plans that Evan Girvetz and CIAT have developed as sort of bankable proposals to put forward. So there is very much analytical work, relationship work, partnership building work that CCAFS has done that will be part of the package of deals that we hope will go forward.

Other CCAFS involvement in the GCA process

Stanley Wood from BMGF emphasized the role of Bruce Campbell, director of CCAFS, in the GCA process and also highlighted that many other CCAFS scientists have been involved in different ways:

- Robert Zougmore, CCAFS West Africa Program Leader, attended a workshop in Seattle with Bruce Campbell and Philip Thornton for a 5-hour learning session on adaptation and climate change with Bill Gates in April of 2019. They made presentations around the work of CCAFS and the challenges of adaptation and some of the challenges to watch out for.
- Andy Jarvis, CCAFS Climate-Smart Technologies and Practices Flagship Leader, who is leading on generating an atlas of adaptation, both the hazards and the exposure, and the adaptation options that are available. This work received USD 700,000 from the BMGF and this project is directly related to the GCA.
- The Evidence for Resilience in Agriculture, led by Todd Rosenstock under CCAFS, is an extensive review on the published evidence of the advocacy of CSA, and it will be used in the adaptation atlas.

According to Arame Tall from the World Bank, through the Food Security and Agriculture Action Track, we will finally get the information in the hands of farmers so that they can use the information to improve their resilience and adapt to rising climate variability. The investments committed as part of the Action Track will enable this to happen. Overall, the finance will be used for the actual vulnerable communities.

Next steps

Consultations and discussions about the blueprint are going on in 2020. For example, at the 6th International Conference on Climate Services (ICCS 6) in Pune, India, a side event was dedicated to introducing the Action Track and solicit input on the Blueprint design, content, potential partners. It is expected that the Blueprint will be announced at the Climate Adaptation Summit in October 2020, co-developed and endorsed by countries and major development agencies. The aim is to announce a coalition of actors intending to take it forward, and significant funding for climate services development.

We will be tracking CCAFS influence further during 2020 and will update this summary for 2020 reporting in 2021.

Appendices

Appendix 1. List of interviewees

- Arame Tall, Senior Climate Change Specialist, World Bank
- Cristina Rumbaitis del Rio, Action Track Co-Manager for the Global Commission on Adaptation, World Resources Institute
- Stanley Wood, Senior Program Officer, Bill and Melinda Gates Foundation
- Katiuscia Fara, Senior Climate Services and DRR Advisor, World Food Programme
- Jim Hansen, Senior Research Scientist, International Research Institute for Climate and Society and former Flagship Leader for Climate Services and Safety Nets (Flagship 4), CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)
- Bruce Campbell, Program Director, CGIAR Research Program on Climate Change,
 Agriculture and Food Security (CCAFS)
- Ana Maria Loboguerrero, Head of Global Policy Research, Program Director, CGIAR
 Research Program on Climate Change, Agriculture and Food Security (CCAFS)
- Philip Thornton, Flagship Leader for Priorities and Policies for CSA (Flagship 1),
 CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)
- Steve Zebiak, Flagship Leader for Climate Services and Safety Nets (Flagship 4),
 CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)

Appendix 2. CCAFS publications referenced in the GCA Flagship Report

- Thornton, P.K., Jones, P.G., Ericksen, P.J., and Challinor, A.J. 2011. "Agriculture and Food Systems in Sub-Saharan Africa in a 4°C+ World." Philosophical Transactions of the Royal Society of London A: Mathematical, Physical and Engineering Sciences 369 (1934): 117–136. https://doi.org/10.1098/rsta.2010.0246.
- Methods as in Jones, P.G., and Thornton, P.K., "Generating Downscaled Weather Data from a Suite of Climate Models for Agricultural Modelling Applications," Agricultural Systems 114 (2013): 1–5; and Jones, P.G.,
- Thornton, P.K., "Representative Soil Profiles for the Harmonized World Soil Database at Different Spatial Resolutions for Agricultural Modelling Applications," Agricultural

- Systems 139 (2015): 93–99, ensemble mean of 17 climate models from the Coupled-Model Intercomparison Project 5 (CMIP5) of the IPCC.
- Perez, C., Jones, E. M., Kristjanson, P., Cramer, L., Thornton, P.K., Förch, W., and Barahona, C. 2015. "How Resilient Are Farming Households and Communities to a Changing Climate in Africa? A Gender-Based Perspective." Global Environmental Change 34: 95–107. https://doi.org/http://dx.doi.org/10.1016.
- Hansen, J.W., Baethgen, W.E., Osgood, D.E., Ceccato, P.N., and Ngugi, R.K. 2007.
 "Innovations in Climate Risk Management: Protecting and Building Rural Livelihoods in a Variable and Changing Climate." SAT eJournal 4(1). http://www.fao.org/fileadmin/user_upload/rome2007/docs/Innovations_in_Climate_
 Risk_Management_2007.pdf.
- Waha, K., et al. 2018. "Agricultural Diversification as an Important Strategy for Achieving Food Security in Africa." Global Change Biology 24: 3390–3400.
- Rufino, M.C., Thornton, P.K., Ng'ang'a, S.K., Mutie, I., Jones, P.G., van Wijk, M.T., and Herrero, M. 2013. "Transitions in Agro-pastoralist Systems of East Africa: Impacts on Food Security and Poverty." Agriculture, Ecosystems & Environment 179: 215–223.
- Vermeulen, S., Dinesh, D., Howden, S.M., Cramer, L., and Thornton, P.K.
 "Transformation in Practice: A Review of Empirical Cases of Transformational
 Adaptation in Agriculture under Climate Change." Frontiers in Sustainable Food Systems
 2:65.
- Thornton, P.K., Loboguerrero, A.M., Campbell, B.M., Kavikumar, K.S., Mercado, L., and Shackleton, S. 2019. "Rural Livelihoods, Food Security and Rural Transformation under Climate Change." Background paper for the Global Commission on Adaptation.
- Herrero, M., Addison, J., Bedelian, C., Carabine, E., Havlík, P., Henderson, B., van de Steeg, J., and Thornton, P.K. 2016. "Climate Change and Pastoralism: Impacts, Consequences and Adaptation." Revue Scientifique et Technique, Office International des Epizooties 35(2): 417–433.
- Challinor, A.J., Watson, J., Lobell, D.B., Howden, S.M., Smith, D.R., and Chhetri, N.
 2014. "A Meta-analysis of Crop Yield under Climate Change and Adaptation." Nature Climate Change 4: 287–291.

Challinor, A.J., Koehler, A.K., Ramirez- Villegas, J., Whitfield, S., and Das, B. 2016.
 "Current Warming Will Reduce Yields unless Maize Breeding and Seed Systems Adapt Immediately." Nature Climate Change 6(10): 954.

References

- Dinesh D. 2019. <u>A tipping point for climate action in food systems? Reflections from the UN</u> <u>Climate Action Summit and Climate Week NYC</u>. Blog. [Last accessed: 10 March 2020]
- GCA. 2019a. Global Leaders Call to Accelerate Adaptation in Response to Mounting Climate Impacts. Press release. [Last accessed: 10 March 2020]
- GCA. 2019b. <u>Adapt Now: A Global Call for Leadership on Climate Resilience</u>. Available online at www.gca.org.
- GCA. 2019c. Background papers. Webpage. [Last accessed: 10 March 2020]
- GCA. 2019d. Global Commission on Adaptation Launches "Year of Action" to Accelerate Climate Adaptation. Press release. [Last accessed: 10 March 2020]
- GCA. 2019e. <u>At UN Summit, New Commitments of Over \$790 Million to Support Climate</u>
 <u>Adaptation for Over 300 Million Small-Scale Food Producers</u>. Press release. [Last accessed: 10 March 2020]
- Hansen J, Furlow J, Goddard L et al. 2019. <u>Scaling Climate Services to Enable Effective</u>

 <u>Adaptation Action</u>. The Global Commission on Adaptation. Rotterdam and Washington,
 DC.
- Loboguerrero AM, Birch J, Thornton P, Meza L, Sunga I, Bong BB, Rabbinge R, Reddy M, Dinesh D, Korner J, Martinez-Baron D, Millan A, Hansen J, Huyer S, Campbell B. 2018. Feeding the World in a Changing Climate: An Adaptation Roadmap for Agriculture. The Global Commission on Adaptation. Rotterdam and Washington, DC.
- Thornton PK, Loboguerrero AM, Campbell B, Kavikumar KS, Mercado L, Shackleton S. 2019. <u>Rural livelihoods, food security and rural transformation under climate change</u>. The Global Commission on Adaptation. Rotterdam and Washington, DC.
- WRI. 2019. RELEASE: Global Commission on Adaptation Launches "Year of Action" to Accelerate Climate Adaptation. Press release. [Last accessed: 10 March 2020]
- WRI. 2020a. Global Commission on Adaptation. Webpage. [Last accessed: 10 March 2020]
- WRI. 2020b. <u>Agriculture and Food Security Action Track</u>. Webpage. [Last accessed: 10 March 2020]