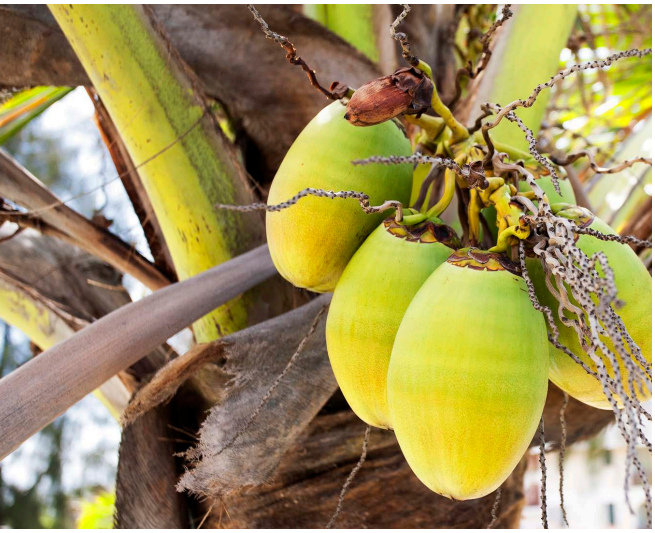
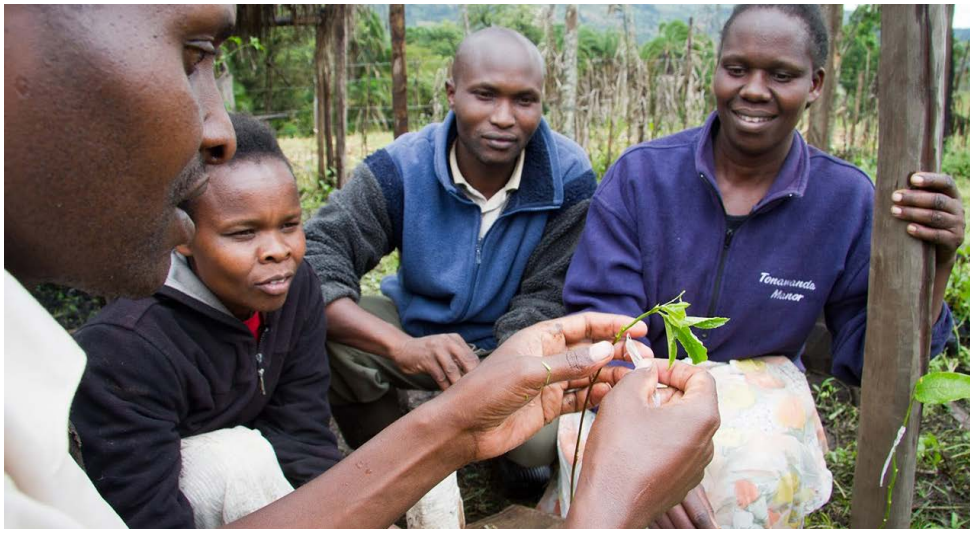
HARVARD Kennedy School
Corporate Responsibility Initiative

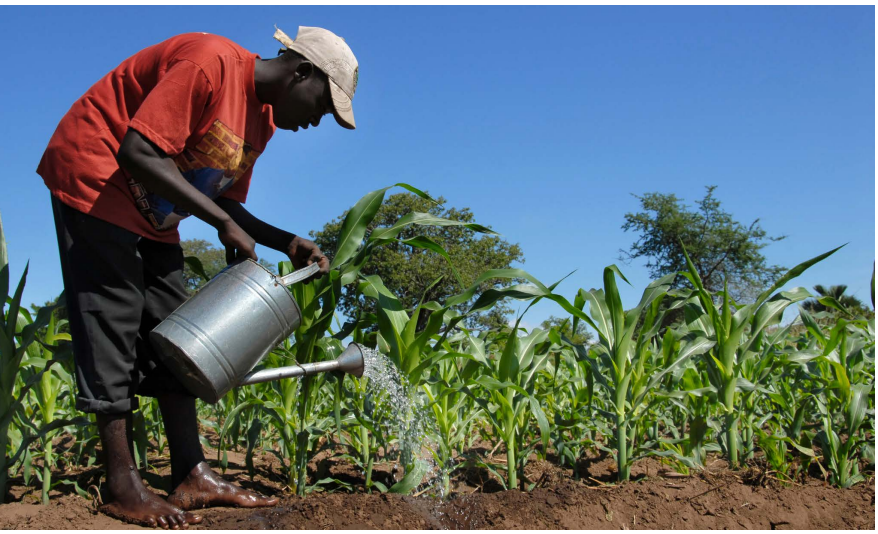
Dalberg Research

The MasterCard Foundation

TECHNOSERVE







The role of Multi-stakeholder Initiatives in promoting the resilience of smallholder agriculture to climate change in Africa

Simon Winter, Maaike Bijker, Melissa Carson

The role of Multi-stakeholder Initiatives in promoting the resilience of smallholder agriculture to climate change in Africa

Written by Simon Winter, Maaike Bijker, Melissa Carson

Designed by Alison Beanland

Cover photographs: Nile Sprague/TechnoServe and iStock

The role of Multi-stakeholder Initiatives in promoting the resilience of smallholder agriculture to climate change in Africa

Preface	**5**
Introduction	**6**
Smallholder Farming and Climate Change	6
The role of Multi-stakeholder Initiatives (MSIs)	7
About the Study	7
1. Agricultural Planning	**10**
Existing Activity	10
Stakeholder Perspectives	12
Big Opportunities	13
2. Crop Management and Soil Health	**14**
Existing Activity	14
Stakeholder Perspectives	14
Big Opportunities	16
3. Financial and Market Chain Resilience	**17**
Existing Activity	17
Stakeholder Perspectives	17
Big Opportunities	19
4. Next Generation of Farmers	**20**
Existing Activity	20
Stakeholder Perspectives	20
Big Opportunities	22
Insights, Recommendations and Conclusion	**23**
Leveraging existing MSIs	24
Establishing a new MSI	25
Endnotes	26
Annex I: List of example MSIs	27

Acknowledgements

The authors are grateful to our expert review panel who reviewed and provided valuable comments on our manuscript in the final stages of writing. In particular, thanks to the following individuals:

- Sean De Cleene, Chief of Strategy and Partnerships, Alliance for a Green Revolution in Africa
- Hal Hamilton, Co-Director of the Sustainable Food Lab
- Mark Lundy, Theme Leader, Linking Farmers to Markets, CIAT/CGIAR
- Marc Sadler, Adviser on Risk and Markets of the World Bank's Agriculture Global Practice
- Andrew Stern, Founder and Executive Director, Global Development Incubator
- Elizabeth Wilson, Senior Executive at Small Foundation

The authors are also grateful for all the input and support provided by the MasterCard Foundation; in particular, Alemayehu Konde Koira, Meredith Lee, and Samir Khan.

Finally, thank you to the 70+ people who took the time to speak with us and share their insights around multi-stakeholder initiatives and the future of smallholder farming in a time of climate change. We hope that this publication will help them, and others, in the important work they are doing to tackle the complex, system-wide development problems the world is facing.

List of abbreviations

ACSAA	African Climate Smart Agriculture Alliance
AFSIS	The Africa Soil Information Service
AGMIP	The Agricultural Model Intercomparison and Improvement Project
AGRA	Alliance for a Green Revolution in Africa
ASAP	The Adaptation for Smallholder Agriculture Program
BMGF	Bill and Melinda Gates Foundation
CCAFS	Climate Change, Agriculture and Food Security
CGAP	Consultative Group to Assist the Poor
CGIAR	Consortium of International Agricultural Research Centers
CIAT	International Center for Tropical Agriculture
CSA	Climate Smart Agriculture
CSR	Corporate Social Responsibility
DFID	UK Department for International Development
FAO	Food and Agricultural Organization
GACSA	Global Alliance for Climate Smart Agriculture
GDI	Global Development Incubator
IFAD	International Fund for Agricultural Development
IFC	International Finance Corporation
IITA	International Institute of Tropical Agriculture
ISF	Initiative for Smallholder Finance
MSI	Multi-stakeholder initiative
NAMA	Nationally Appropriate Mitigation Action
NGO	Non-governmental Organisation
PPP	Patient Procurement Platform
RAFLL	Rural and Agricultural Finance Learning Lab
SDG	Sustainable Development Goals
SGB	Small growing business
SHF	Smallholder farmers
SSA	Sub-Saharan Africa
UK	United Kingdom
USAID	United States Agency for International Development
WBCSD	World Business Council for Sustainable Development
WCF	World Cocoa Foundation
WFP	World Food Program

Preface

One of the most complex set of challenges we face at a global, national and local level is to find viable solutions at the nexus of achieving food security, tackling climate change and ensuring livelihoods and resilience for smallholder farmers, their families and rural communities. And nowhere is this more urgent and challenging than in sub-Saharan African. Over the next 35years:

- half of the world's additional two billion people will be born in this region, close to doubling its population;
- it is the region of the world with the lowest agricultural yields and at least 50 million smallholders who have the least access to inputs and services;
- these farmers are among the world's most exposed to risks from the changing climate and weather which will increase volatility and likelihood of shocks; and
- many of them lack access to effective social and economic institutions and to formal markets and value chains.

Since the 2007-2008 food price crisis much attention has been devoted to improving enabling environments, markets and yields through policy change, development projects and technical assistance interventions—and yet volatility is increasing and vulnerability to shocks and long-term shifts in crop suitability is not reducing.

As a result, there is a growing focus on efforts to strengthen the resilience of farmers and rural households. Resilience is not an end in itself, but it is an important attribute of achieving other social and development goals—such as reducing poverty or food and nutrition insecurity—but doing so in a way that reduces the risks to farmers and increases the prospects for achieving those goals, and does so with less disruption and more smoothly. It involves not only putting better safety nets in place to ensure that shocks do not cause famines and other crises, but also trying to reduce the likelihood of such shocks occurring. Linked to this, is the growing focus on the concept of climate smart agriculture, which addresses the need to increase farmer productivity and resilience while tackling the challenges of adaptation and emissions reduction.

In order to effectively develop and deliver comprehensive solutions there is a growing need to identify, convene and mobilize stakeholders that have relevant interests and resources to tackle these issues. And, where appropriate, there is a need to structure collective action platforms or multi-stakeholder initiatives (MSIs) that can achieve greater scale and systemic impact than any one actor or sector can deliver on its own. This begs the question, what types of MSIs are needed to promote the resilience of smallholder agriculture in Africa and in what areas are they likely to be most effective?

These are the core questions addressed in this report. It does not aim to provide high level strategic or policy recommendations, or to explore how to deliver climate smart agriculture projects, of which there are already many, but rather focuses on understanding how to facilitate system level change by examining how different stakeholders understand these challenges and what they are already doing and how they are being incentivized to tackle the challenge. The authors then highlight areas where collaboration can be strengthened and deepened by system leaders, either through existing multi-stakeholder initiatives or launching new ones.

They draw on examples and lessons from twelve existing MSIs that are active in the interrelated areas of youth, climate resilience and agriculture, financial inclusion and agriculture, and agriculture more generally. The authors identify three key sets of factors that drive or influence the engagement of different stakeholder groups in the crucial areas of agricultural planning, crop management and soil health, financial and market chain resilience, and support for next generation farming, before summarizing some of the key opportunities for leveraging existing MSIs and establishing a new one. This paper is one of two, with its sister paper providing a framework on the role of MSIs in agriculture more broadly.

It has been a pleasure to work with the authors and their colleagues from Dalberg Research and TechnoServe, who have provided a valuable combination of analytical rigor grounded in solid practitioner experience. Our thanks also to the Mastercard Foundation for its commitment to support research and dialogue on new models of partnership, and to the MSIs and other colleagues who have provided us with useful feedback and insights. We hope this paper and its sister paper will make a useful contribution to the on-going debate and experimentation on how to make MSIs an effective tool for driving more inclusive and sustainable agriculture.

Jane Nelson
Director
Corporate Responsibility Initiative
Harvard Kennedy School

Introduction

Smallholder farming is vital to the global food system. An estimated 450 million smallholder farmers provide over 80 percent of the food consumed in a large part of the developing world

Smallholder Farming and Climate Change

Efficiency gains alone, by reducing food loss, increasing productivity and optimizing markets, have the potential to feed many of the additional two billion people expected worldwide between now and 2050. One billion of those will be in Africa, and feeding them properly will contribute significantly to poverty reduction and food security.[1] The food price crisis of 2007-08 powerfully illustrated the vulnerability of the global food and agricultural systems.[2] It raised major concerns about the future stability of food supply, quality and safety, and price volatility. It highlighted how smallholder producers are key to both their own and regional food security.

Yet these smallholders are still incredibly vulnerable. They face a myriad of challenges, notably environmental risks, financial insecurity and market volatility. These immediate pressures often eclipse long term climate change risks. Climate change increases the likelihood of extreme weather events, such as floods, drought, high winds and storms, and outbreaks of plant and animal pests and diseases. Such events have devastating impacts on yields; they can even cause outright crop failure. There is an immediate impact on individual farmers' income and food security, as well as consequences for agribusiness and markets that were anticipating the produce. A poor harvest is an issue too for lenders, governments and other intermediaries that provide support and services. More broadly, a single season of crop failure can even ruin the farmer and disrupt market ecosystems.

Over time, the impact of climate change will manifest not just as weather shocks. There may be warmer temperatures, wetter or dryer conditions. Other non-traditional weather patterns will change the timing and length of growing seasons, change which crops are suitable in particular local areas, and shift disease and pest patterns.

In the longer term, climate change can also alter the nutritional value of crop plants themselves. Smallholders' lack of resilience to climatic and other risks jeopardises recent efforts to improve agricultural production and food security.

The important link between climate change and smallholder agriculture has already gained recognition. The concept of 'climate-smart agriculture' (CSA), first coined by the FAO in 2010, embraces the need for increasing productivity, while accommodating adaptation, resilience and emissions reduction. More recently, Sustainable Development Goal (SDG) 18 declared the need to—*Take urgent action to combat climate change and its impacts*. Climate change is embedded across a number of other SDGs.[3] Private sector actors are also getting involved in addressing agricultural climate vulnerabilities, primarily through risk management associated with their own value chains. Yet the broader interplay of factors needed to drive resilience at scale remains under-addressed. Climate change itself is a hugely 'wicked' problem—extremely complex, multi-dimensional and highly changeable [Box 1].

1 'WICKED' PROBLEMS

First coined in 1973, the term *'wicked problem'* is used to denote a problem that is extremely complex and difficult to solve. Wicked problems are multi-dimensional; they have multiple stakeholders, multiple causes, symptoms and solutions, and are constantly evolving.[4] They need solutions that embrace the perceptions and complex interactions of relevant actors across society, as each stakeholder is likely to only hold one element of the overall understanding of the problem.[5] Examples of wicked problems include climate change, natural hazards, the AIDS epidemic, international drug trafficking and nuclear weapons.

The role of Multi-Stakeholder Initiatives (MSIs)

Addressing *'wicked'* problems like climate change require actions by multiple stakeholders and some form of collaboration, since more than one group faces risks and benefits. The ability to deliver and improve impact does not sit with any one actor and understanding the core issues needs the perspectives of multiple actors. While there are many types of collaborative action, this study primarily concerns the potential role of the multi-stakeholder initiative (MSI) [Box 2], which is particularly suited to addressing complex socio-economic and environmental challenges and other wicked problems.

Over the past decade multi-stakeholder initiatives (MSIs) have proliferated. However, there is still limited agreement on how to define the elements of these instruments. Guidance by the World Bank,[6] the Global Development Incubator[7] and many other organizations and experts[8] provides useful frameworks for grouping the types of aims and governance structures MSIs take on, and principles for effective implementation. MSIs can be difficult, hard work and messy and those embarking on MSIs are strongly encouraged to refer to these sources. Less clear among the existing guidance is whether an MSI is the best approach to tackle the resilience issues facing smallholder farmers in Africa as they adapt to climate change.

2 MULTI-STAKEHOLDER INITIATIVES

Multi-stakeholder initiatives (MSIs) are a tool of collective action. They allow for structured collaboration between multiple actors from different sectors or who often otherwise may have inherently different interests. Stakeholders come together to address an issue that is common to all, typically delivering 'collective good.' MSIs generally emerge out of the realisation that no one actor can tackle the issue alone. They require a systems-level effort, drawing on different actors' strengths. Over the past two decades there has been an upsurge of interest in MSIs as ways of convening broad swathes of different stakeholders to tackle complex societal problems.

About this Study

This study asks: 'What is the role of MSIs today, in building stronger smallholder farmer resilience to climate change impacts in Africa?' It forms part of a broader study, commissioned by the MasterCard Foundation, looking at this question and more generally at the use of MSIs as a tool. A sister report examines the conditions for launching an MSI and different functional types.[9]

We used an evidence-based approach to identify the key areas where pushing forward through collective action, and multi-stakeholder initiatives in particular, will be critical to build smallholder resilience to climate change. Although climate change risks are the key priority in this study, it is impossible to look at the question of smallholder climate resilience in isolation. As such, we assessed four broad areas:

1 **Agricultural planning.** Climate, land and environmental modelling and forecasting to support research and development of new climate resilient inputs, alongside planning for changing land use and crop suitability.

2 **Crop management and soil health.** Adoption of climate and environment-smart inputs and practices for the near and longer term.

3 **Financial and market chain resilience.** Access to financial services, financial capacity building and broader restructuring of market relationships.

4 **Next generation in farming.** Planning for, supporting and incentivizing youth to play an active role in agriculture. Note, in this case we did not look at gender separately.[10]

The pages that follow present an overview of the analysis. First, we identified the existing solutions and mitigation activities within each of the four issue areas. Second, we identified the most under-addressed gaps within each area. Finally, we went beyond the traditional gap analysis to conduct an assessment from a multi-stakeholder perspective.

The multi-stakeholder analysis examined three stakeholder factors: awareness and importance, existing ownership/leadership, and momentum and alignment. These factors, as identified in the sister report, are definitive when it comes to assessing if the context is appropriate to launch an MSI. Furthermore, our analysis considered the presence of any triggers or catalysts for collective action, which is also a key consideration for MSIs. We define these factors as follows:

Awareness and Importance

The level of awareness and sense of importance of the issue across the full set of relevant stakeholder groups impacted by the issue. (High/Medium/Low)

Ownership/Leadership

The breadth of obvious/natural or existing ownership/responsibility to solve the issue, usually reflected in the number of organizations already actively engaged in addressing the issue in some way. (Broad/Mixed/Narrow)

Momentum and Alignment

The level of momentum or interest in and alignment across the full set of relevant stakeholder groups around the need for and willingness to contribute to multi-stakeholder collaboration to address the issue and advance solutions. (High/Medium/Low)

Trigger/Catalyst

What ultimately catalyzed the launch of the MSI. This almost always involves a leader, an entity, or a person who takes initial action, but the trigger is often something that enables the leader to drive the launch. (Critical Mass, Call to Action, Issue/Systems Leader).

We considered seven groups of stakeholders in all. Each have an important role to play assisting smallholder farmers to become more resilient in the face of climate risks. These groups were:

- **Smallholders.** These are the more than 50 million food producing families across sub-Saharan Africa. They include a span of operations, from sub-one acre subsistence farmers to emerging commercial producers running small agribusinesses.
- **National governments.** Agriculture and food departments at national and local levels, as well as national treasuries that control the public purse strings to invest.
- **Local private sector.** Those which both supply to and purchase from smallholders, as well as supplying services.
- **Transnational corporations.** Those who control international inputs and crop value chains and markets, often with local representation.
- **Development intermediaries.** Consultants and non-profits both global and local that run time-bound projects and programs to catalyse smallholder agricultural transformation. They are often funded by international donors and companies.
- **Financiers (public/private).** A wide range of private investors and lenders, as well as international donors, all looking to boost agriculture and food development for a mix of private and public benefits.
- **Researchers (academics/institutions).** Ranging from international agricultural research organizations to universities and local government food and agricultural research institutions that conduct inquiries, publish and educate.

To stay rooted in the evidence, we made specific references to the cocoa and maize sectors as archetypal representatives of export tree crops and local food staples respectively. Smallholders grow both types widely, yet they have very different market characteristics. Export tree crops need long periods to become productive and are governed by global market forces and price-setting. Local food staples are produced annually and typically are driven by local market dynamics where producers, governments and other local actors have much greater influence over market forces. Due to their importance, climate risks facing both crops have received a reasonable amount of attention from climate researchers and other stakeholders.

By taking a systems-level perspective on a critically important issue, this report provides a much-needed overview of the great efforts already being made in this space. It also highlights where more can be done. Furthermore, by taking a specifically multi-stakeholder lens, we draws out insights around whether MSIs can be appropriate tools to address the most pressing gaps in smallholder farmer resilience to climate change. Where the complexity justifies an MSI, the report suggests whether action can be explored under an existing MSI or whether there is a need and opportunity, with the right landscape and conditions, to initiate a new MSI. This report aims to provide a useful guide for system leaders turning their attention to climate change and its impact on smallholders. It will help them take effective action on this complex but urgent issue.

I Agricultural Planning

As temperatures rise, precipitation patterns evolve and moisture availability changes in a given region the local suitability of crops and their yields will also evolve. Agricultural planning for climate change includes, in the short term, adopting climate resilient varieties and practices. In the long run there is a need to shift crop varieties, preserve and renovate landscapes, and build new infrastructure. This work requires a detailed and robust understanding of the specific climate impacts in any cropping zone, achieved through climate modelling and forecasting.

Existing Activity

Efforts to develop reliable projections of climate impacts on crop yields began some time ago but are not yet sufficiently accurate, granular or reliable to be effective tools for decision-making. While some of the more advanced climate models are able to indicate high level risks, most are still not sufficient to guide local decision-making or action, despite efforts to calibrate such models against actual changes in the field. Cocoa suitability maps in West Africa, for example, developed by researchers associated with the International Institute of Tropical Agriculture (IITA/CIAT), suggest significant areas of the current cocoa cropping zones will become unsuitable (hotter and drier) for cocoa as soon as 2030.[11] Considering that 60% of the world's cocoa currently comes from this region, modelling is clearly vital to longer term planning. While leading corporations may undertake scenario planning in cash crop sectors on a proprietary basis, they are not making their projections available in the public domain.

A number of collaborative efforts to pave the way for smarter planning are underway. USAID's learning community with IITA/CIAT, the Sustainable Food Lab and Root Capital initially focused on mapping to identify suitable locations for cocoa and coffee, business cases for alternative investment approaches at each site and an outcome measurement system. In 2016 the World Cocoa Foundation launched a sister research initiative.[12] CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) and the World Bank have developed some country-level climate smart agriculture profiles.[13] GACSA, AACSA and GFAR[14] are platforms for the exchange of research insights, including impacts on crop suitability and climate resilient varieties.

Efforts are also underway to improve weather data collection and forecasting capacities across Sub-Saharan Africa. One such initiative is the Climate Science Research Partnership funded by DFID and the UK Met Office.

Inputs into improved agricultural planning, such as climate models and the development of new crop varieties that are suitable for smallholders, are mostly carried out by researchers, funded by public and philanthropic sources. This work is highly technical and resource-intensive. Yet, given the limited capacity for smallholders to pay, the private sector is unwilling to invest. A further critical planning issue relates to efforts now underway by governments and development intermediaries to take a geographic or landscape approach to planning and business interests in crop-based supply chains. Business models for landscape planning are not yet proven. Finally, countries are also developing Nationally Appropriate Mitigation Actions (NAMAs), which are often sector specific plans.[15]

Stakeholder Perspectives

Table 1 shows the stakeholder map of (a) awareness and perceived issue importance, (b) existing ownership/ leadership and activities, and (c) momentum towards and alignment behind taking collective action by stakeholder type.

Table 1 **Stakeholder Landscape of Agricultural Planning**

	AWARENESS and PERCEIVED ISSUE IMPORTANCE	EXISTING OWNERSHIP/ LEADERSHIP ACTIVITIES	MOMENTUM and ALIGNMENT BEHIND COLLECTIVE ACTION
Smallholders	Despite their awareness of climate change and its negative impacts on their farms, most smallholders lack knowledge about the long-term changing suitability of crops. They rely on their governments for guidance and information. 🍃🍃	There is little evidence that smallholders are changing production plans, beyond simply adopting climate resilience seed (where it is promoted and supported by government, local suppliers and NGOs). 🍃	Smallholders should be motivated to change behaviour with support from other stakeholders. However, low incomes, limited assets and incentives that focus on short-term fixes mean limited engagement of producers on longer-term planning and collective action. 🍃🍃
National governments	Many governments are aware of and concerned about the impact of climate change on their smallholders' futures. Yet, they face a lack of good information about specific climate change implications and a lack of regional strategic planning capabilities. 🍃🍃	Most governments are not engaging in activities to support detailed long-term agricultural planning, due to lack of resources. They have not demonstrated significant action to include risk assessments and research in strategic and regional planning to date. 🍃	Governments are motivated, but lack capacity, to improve agricultural and spatial planning and have better coordination utilizing improved climate models. National public research organizations are starting to engage in a number of the collaborative initiatives. 🍃🍃🍃
Local Private Sector	Local inputs suppliers and off-takers are very aware of the impact of weather shocks on their marketing and sourcing. However, they typically have limited access to the scientific research and thus limited awareness of how to change their sourcing and distribution plans in the future. 🍃🍃🍃🍃	Many local market players are trying to tighten up their sourcing through, for example, out-grower schemes which encourage farmer investment to reduce supply risks. However, they are not active contributors to climate modelling or planning despite their strong local knowledge. 🍃🍃	Local market players should have a strong incentive for supporting better planning, but like smallholders, they are more inclined to maintain existing crop use through promoting adoption of new varieties and helping smallholder to reduce their production risks. 🍃🍃🍃
Trans-National Corporations	Corporations are aware that climate change will shift crop suitability with implications for their future supply but generally not where, nor by how much. Those without producers as tier one suppliers are not as concerned about current suppliers as they can shift sourcing to other origins as crop suitabilities change. 🍃🍃🍃	Leading corporations are likely to be undertaking scenario planning around crop suitability in cash crop sectors on a proprietary basis. In addition, some corporates are developing climate resilient varieties. For example, in cocoa through grafting (Mars) and seedlings (Nestle), and in maize developing and distributing more climate resilient seed varieties. 🍃🍃🍃	The incentive for companies to focus on climate change, where it exists, is linked to productivity far more than long term planning for adaptation. Many struggle to make the business case internally to take action around climate modelling and associated planning work beyond their own business interests. 🍃🍃
Development Intermediaries	Many international NGOs are starting to look beyond traditional value chain programs, recognizing that risks of single commodity approaches are increasing as increasing climatic vulnerabilities face those crops. Embracing landscape approaches, they are not typically looking at longer term crop suitability issues, nor accessing or using available scientific research. 🍃🍃🍃	Activities by international NGOs are behind where awareness is, due to the relatively limited amount of development funding deployed to date. Few development intermediaries are engaged in longer term planning activities, though some are supporting soil mapping and landscape planning. 🍃🍃🍃	Development intermediaries are, in theory, highly motivated but there is a tension between value-chain-led and landscape-led approaches that needs to be resolved. While markets are for specific crops, producers need healthy landscapes. Growing momentum around inter-cropping/diversification, may prove a valuable transition approach to changing crop suitabilities. 🍃🍃🍃
Financiers: Public/Private	Few funders are aware of and looking at climate-based agricultural planning, with USAID leading the way in the public domain. Social finance organizations like Root Capital are interested in understanding co-op level crop suitability risks. 🍃🍃	USAID is developing a learning community with CIAT/IITA, the Sustainable Food Lab and Root Capital and making other small investments to improve planning in cocoa and coffee. Other notable activities include IDH's support of renovation and restoration investments and landscape planning improvements. 🍃🍃🍃🍃	Public funders and private investors are eager to address the issue collaboratively. However, for adaptation financing to be deployed to support further models and new varieties, other supportive interventions, such as making insurance available, are required to reduce risk. 🍃🍃🍃🍃
Researchers: Academics/Institutions	Researchers are highly aware of, and interested in, understanding changing crop suitabilities and breeding for climate resilience. However, for many crops (e.g. cocoa), scientists do not agree on what stresses the crop most, and how to plan a response. 🍃🍃🍃🍃	Much work by researchers has focussed on crop response models. Some, like AGMIP, are integrating models and maps. Early stage work is underway in a few crops to downscale climate models to specific locales. Localized crop suitability mapping efforts now occur under AFSIS. 🍃🍃🍃🍃🍃	Researchers are highly motivated to provide input into agricultural planning. MSIs such as GACSA and AACSA provide vehicles to exchange research insights. 🍃🍃🍃🍃🍃

🍃🍃🍃🍃🍃 HIGH 🍃🍃🍃🍃 MODERATE/HIGH 🍃🍃🍃 MODERATE 🍃🍃 MODERATE/LOW 🍃 LOW

Stakeholder awareness/importance

Awareness and understanding of specific climate risks and the need for agricultural planning to deal with them is highly variable, high for some stakeholders and low to very low for others. Those who have high awareness, such as local input suppliers/off-takers and researchers, are often confined to their own institutional silos—the typical theory versus practice divide. Those who are starting to become more aware, such as transnational corporations and international NGOs, struggle to understand the implications in practice. Typically they do not look at the longer-term crop suitability and spatial planning issues from the smallholders' perspective. Lowest awareness is in the fields, where smallholders themselves and regional planners lack access to information about expected climatic changes and their impact on crop suitability thresholds.

Range of existing ownership/leadership and activities

As noted above, public research organizations supported by funding from donors such as USAID, the Bill & Melinda Gates Foundation and the World Bank have led much of the current input activity. In addition, host governments in a number of countries are using their National Agricultural Research systems to promote research, but are also dependent on donor funding. The development of climate resilient varieties of some cash crops and primary food staples, such as cocoa and maize, has received support from both public and private sectors.[16] Climate modelling, sustainable landscape and other area-based planning initiatives rely more on funding support from host governments and donors.

Momentum and alignment behind collective action

Across stakeholder groups, there is low momentum for collective action around agricultural planning, with the biggest barrier a lack of incentives to change practice in response to research. With the exception of the research and funding communities themselves, many stakeholders do not yet agree on the need for new varieties and crop shifts in specific geographies. A short-term focus on productivity tends to eclipse the need for longer term planning to address climate risks. In cocoa, for example, most attention at the moment is on boosting yields, where possible using more risk (disease and climate) tolerant varieties. The aim is to improve the livelihoods of existing producers and allow them to become the commercial suppliers of the future.
In maize, established large seed companies are not motivated to promote unproven seed varieties developed by public research agencies. Efforts by governments have been weak/limited when it comes to supporting small and medium seed companies. They quickly erode pure foundation seed lines and quality (and yields) diminishes.

Big Opportunities

Without clear consensus around how to deliver better longer term agricultural planning to take account of climate risks, attention will continue to focus on the more immediate tactics around improving yields, resilient varieties and the inputs and practices to support them. While these tactics will support longer term adaptation, this focus misses more complex planning questions, such as what to do when corporates no longer want to source from particular geographies as crop suitabilities and water availability change.

Further advancement in longer-term planning is likely best catalysed by a small group of systems leaders, including public donors and host governments. The key actions include the development of strategic/long-term agricultural plans for specific areas integrating value chain and landscape approaches, a reduction in the 'silo' division between researchers and practitioners, and dissemination of research and lessons from practical efforts to execute such plans.

As noted above, there is growing recognition of the need for more 'bridging' between research and planning by public authorities and the private sector. With a growing interest in sustainable landscapes, and nascent activity to integrate modelling and planning across different stakeholder groups, we believe greater collective action could be galvanized by a catalyst before a new crisis becomes a trigger for rescue actions. If so, a new MSI could be the way forward. With several MSIs already assembled to improve food security,

funders should invest in examining how to build on existing leadership and structures and/or launch new MSIs.

For example, in cocoa, there are MSIs that are already active in looking at sectoral challenges, such as WCF and its CocoaAction initiative. It is not clear that these can take on integrating climate modelling, research and planning for climate adaptation at a large scale. Prospective cocoa system leaders need to build on existing momentum to engage industry leaders, investors and host governments to galvanize broader collective attention around specific risks.

In maize, across Sub-Saharan Africa there are few large scale corporate off-takers nor specific sectoral platforms. Their issues are tackled, for now, through information sharing MSIs such as GACSA and Grow Africa, and action to integrate solutions in the local crop sectors under MSIs such as WFP's PPP. Information about diversification options can be integrated into knowledge sharing MSIs. However, actually getting smallholders to diversify their production and grow alternative crops will require the development of new forms of action-focussed partnerships.

2 Crop Management and Soil Health

Poor soil fertility and crop management is a major constraint on productivity and on smallholder livelihood improvements across Sub-Saharan Africa. With good information, farmers can increase the likelihood that crops will thrive even as the climate and weather varies. Particularly important are the adoption of good agricultural practices and, where suitable, conservation agriculture and improved water management. Ultimately, soil health is one of the key under-addressed elements to build resilience generally and specifically to climate change.

Existing Activity

Much effort, both in the domain of corporate, public and foundation funded research, has gone into developing seed multiplication models and distribution chains for the new 'climate resilient' crop varieties. Many governments have responded to the challenges of limited larger-scale adoption with (largely unsuccessful) subsidies for inputs, seedlings and fertilizers. Making planting material and fertilizers available is only part of improving farmers' resilience. Without other efforts crop protection, advice around improving soil health and crop rotation and the use of the improved seeds and fertilizers will still produce sub-optimal results. With limited resources, it is beyond the current extension capabilities of most governments to offer such support. Equally, in the private sector, activities to promote better smallholder crop management have depended on support from donor funds. They have often also been at a very modest scale, in the form of demonstration plots and 'transformative' training to introduce producers to new inputs practices.[17]

On the issue of soil health, it is predominantly scientists across the CGIAR[18] and national agricultural research agencies that are building evidence that healthier soils, in terms of organic matter content, pH levels, and water retention capacity, will improve crop resilience.[19] They are applying this research to recommend alternative agronomic practices to improve soil and plant health and water use and to develop more nutritious foods such as bio-fortified crops. They also aim to develop improved tools for planting, irrigation, harvest and post-harvest practices.

Importantly, an area that seems to be receiving relatively little attention is the promotion of smart irrigation solutions that can work economically for small-holders.

Stakeholder Perspectives

Table 2 shows the stakeholder map of (a) awareness and perceived issue importance, (b) existing ownership/ leadership and activities, and (c) momentum towards and alignment behind collective action by stakeholder type.

Stakeholder awareness/importance

There is growing awareness across different stakeholder groups of the importance of getting improved inputs and practices widely adopted to increase resilient production. Highest awareness exists within the public funding domain, including donors and publicly-funded researchers and development intermediaries. Corporates are also relatively aware, but struggle to translate this into practice given the extensive costs of transformative action. At the local level, value chain actors have limited interest, and smallholders are almost entirely unaware of the business and economic benefits of shifting to alternative varieties and inputs. Apart from a handful of researchers and international development intermediaries, there is little focus on the broader issues around improving soil health and water access.

Table 2 **Stakeholder Landscape of Crop Management and Soil Health**

	AWARENESS and PERCEIVED ISSUE IMPORTANCE	EXISTING OWNERSHIP/ LEADERSHIP ACTIVITIES	MOMENTUM and ALIGNMENT BEHIND COLLECTIVE ACTION
Smallholders	Most smallholders lack access to knowledge about new varieties and practices to improve production resilience, particularly around soil health. They also lack knowledge of the business case and how to assess whether investments are worth the risk.	Adoption of climate resilient varieties, even where subsidized by other stakeholders, is slow. Even fewer producers are adopting CSA practices such as mulching, composting, crop diversification and irrigation, and only if supported by NGOs or input suppliers through localised projects.	Smallholders are inherently conservative and risk averse, and have little incentive to change their crop management practices. This is confounded by a lack of evidence that practices/inputs work, limited financial resources, and high opportunity costs (e.g. off-farm work or business opportunities may give higher returns).
National governments	Many governments have for some time been aware of and indeed provided farmers with tools for crop management. However, this is typically based on traditional knowledge and practices, and is not geared toward climate adaptation. In some countries, such as Tanzania, governments are starting to pay attention to climate risks in developing new strategies.	Government extension services are widespread in Sub-Saharan Africa, but are typically very resource-constrained. Many governments have resorted to heavily subsidizing inputs (e.g. hybrid seeds and fertilizers) to promote their adoption. However, they struggle to afford them as demand increases, leaving farmers waiting for inputs or payments and not making the desired changes.	Governments are incentivized to see better crop management practices and healthier soils, given the social and economic implications. Their own resource constraints mean they are motivated to work closely with others, like international researcher, donors and corporations, to find the best way to support farmers.
Local Private Sector	Some degree of awareness exists among local private sector actors around better inputs and practices, although this is limited to their direct interests. Local seed companies and input suppliers are interested only to the extent that farmers demand improved products, and local buyers only consider it to the extent that it affects quantity or quality of supply.	Activities at the moment are typically limited to development projects, where local suppliers work in partnership with NGOs to promote new inputs, or local buyers participate in initiatives around improved out-grower practices to tighten buyer linkages (e.g. WFP's Patient Procurement Platform). Limited adaptation measures are promoted in either case.	In theory, local market players have a strong incentive for their customers and/or suppliers to improve their resilience. However, they lack the capacity and/or incentive to support this themselves. Local seed companies often have trouble accessing improved varieties, and inputs suppliers do not have the resources to facilitate adoption at a larger scale. Other incentives are needed to encourage them to become more active.
Trans-National Corporations	Corporations are aware that climate change will shift crop suitability with implications for their future supply but generally not where, nor by how much. Those without producers as tier one suppliers are not as concerned about current suppliers as they can shift sourcing to other origins as crop suitabilities change.	Leading corporations are likely to be undertaking scenario planning around crop suitability in cash crop sectors on a proprietary basis. In addition, some corporates are developing climate resilient varieties. For example, in cocoa through grafting (Mars) and seedlings (Nestle), and in maize developing and distributing more climate resilient seed varieties.	The incentive for companies to focus on climate change, where it exists, is linked to productivity far more than long term planning for adaptation. Many struggle to make the business case internally to take action around climate modelling and associated planning work beyond their own business interests.
Development Intermediaries	International NGOs and technical organisations are increasingly aware of the need to adjust traditional farming approaches to be more climate resilient, with a focus on food security. Their attention tends to follow the funders, while seeking to shine light on under-attended issues.	International organizations (e.g. IFAD, FAO) have driven the development and promotion of CSA. A reasonable amount of knowledge sharing on perspectives is taking place under auspices of USAID, GACSA and other platforms. Yet the evidence base on adoption proof points remains thin.	To the extent that development intermediaries are guided by funders' increasing focus on CSA, so they are increasingly motivated to address the issues. This is a natural complement to existing interests in improving food security and farmer livelihoods.
Financiers: Public/Private	International development funders are very aware of the need to support better inputs and practices, with a particular focus on CSA. Private investors are much less aware of the need to invest more given the paucity of evidence.	Public funders such as the Gates Foundation and USAID have been funding varietal development and strengthening of seed systems, but putting less money into adoption related activities.	Funders and investors readily recognize this is an area that needs more financing, but, like large corporates, are limited by not knowing well what to invest in. Thus, their motivation is not always translated into action.
Researchers: Academics/Institutions	Scientists in the academic and CG world are very aware of the need to investigate and improve crop and soil management. Yet there is disagreement between those pursuing 'agro-ecology' versus more traditional and commercially engaged perspectives.	Work is ongoing to test and recommend agronomic practices that can improve crop and soil health, and improve planting, irrigation harvest and post-harvest practices. Such research is typically technical in nature and may have limited attention to business models and market implications.	Researchers are highly motivated, not least to showcase their activities and findings in academic journals and forums. They are increasingly active in emerging multi-stakeholder knowledge sharing platforms such as GACSA and AACSA to exchange insights. They are much less incentivized to engage in behaviour change agendas.

HIGH MODERATE/HIGH MODERATE MODERATE/LOW LOW

Range of existing ownership/leadership and activities

International public and foundation funders and national governments have supported most of the innovative work on making existing applied research, extension and associated activities more attentive to tackling climate risks. The Bill & Melinda Gates Foundation (BMGF), for example, has focused on supporting the dissemination of climate resilient seed varieties and associated agronomic practices for staple crops (including those related to water use and soil health). It is now considering how to achieve adoption at scale. Other international public sector organizations such as IFAD, USAID and DFID have programs with components aimed at improving the adoption of CSA practices alongside more resilient inputs. Innovation in this area emerges as a result of interactions and efforts between local extension organizations, international development intermediaries and other civil society organizations, alongside these funders.

Momentum and alignment behind collective action

Many stakeholders recognise the importance of linking use of more resilient crop varieties with CSA practices and soil health. Yet, the resources going into more holistic and systemic solutions are as yet modest. Where they are increasing, the money generally comes from the public purse or foundations. Given the high level of awareness and the shared interests of corporates, relevant governments and producers in the specific crops they handle, systems leaders should be able to galvanize a collective sense of ownership for the issue, rather than leaving it to donors. It is still unclear how to draw in the private sector more effectively in order to share the burden of required investment (both financial and otherwise). Likewise it is uncertain how to ensure investments and initiatives reach farmers in meaningful and appropriate ways. While there is no immediate trigger to change the status quo, a sense is growing that more partnership-level field-based programs will need to complement existing collective action. That is currently limited to knowledge exchange under the auspices of MSIs like GACSA in order to incentivise farmers to change their practices. A lead catalyst for further collective action will need to come from funders and research organizations.

Big Opportunities

A critical challenge that needs to be overcome is to convince private sector players to pay for behaviour change interventions in combination with improved inputs. Building such a business case will require assembly of a more robust evidence base on how to offer SHFs and SGBs easy and relevant access to innovative technologies and research, and how to incentivize and encourage adoption of improved practices. Experimental approaches that weave together many partners demonstrate what is possible. This could be developed, as an example for other sectors, through the CSA initiatives on coffee and cocoa supported by USAID.

Against the current stakeholder map, a core group of funders who have high convening power across the public and private sectors need to cataylse a shift. Some advancement can be made through existing initiatives. Existing crop-focussed MSIs (e.g. CocoaAction) can be leveraged to catalyse resources from corporates where they are active and have business interests that are at risk (either on the supply side, e.g. for coffee and cocoa, or the demand side). MSIs, such as GACSA or AACSA, in addition to established initiatives such as the African Conservation Tillage Network, can then be used to share compelling case studies and motivate other actors to engage. There is potential to add interested stakeholders to non-MSI initiatives such as the Technologies for African Agricultural Transformation, launched by IITA in 2016.[20]

Donors can incentivize a broader multi-stakeholder focus on these issues through the way they deploy relevant funds. For example, IFAD's ASAP program makes additional funding available to IFAD program officers that make an explicit commitment to pursuing CSA components within programs they are designing. Funders could use such an incentive approach to strengthen the field-focus on improving adoption of climate smart innovations under existing and new MSIs.

3 Financial and Market Chain Resilience

Financial and market chain resilience are vital to both smallholders and their market partners (suppliers and customers). With climate change increasing the volatility of prices and markets, farmers need access to appropriate financial services, in particular savings and insurance.[21] They need to achieve access to stable markets by becoming more reliably integrated into value chains. The latter is particularly important for farmers in food crops, such as maize. These are typically loose value chains, with markets that risk becoming increasingly volatile as climate impacts worsen.

Savings are essential to help smallholder families through failed harvests, and as a reserve to invest in new crops and inputs as crop suitability changes. Savings also help farmers become attractive customers to financial service providers. Insurance is essential as it provides counter-cyclical income transfers in the face of increasing weather impacts, and associated farm and business revenue volatility. Savings can quickly erode; insurance does not. Since the risk is highly correlated amongst a large group of producers in a given area, insurance needs to be supplied from outside the affected area and backed with a supportive policy framework. For yield improvements and renovation, SHFs may also need to access longer-term credit. Nonetheless, credit increases risk exposure for farmers and itself needs mitigation through cash transfers, insurance or guarantees.

Existing Activity

Activities in this space are numerous, varied and as of early 2017 almost all still in the early/piloting phase. This reflects both the inherent hesitation to take on the necessary risks by stakeholders ranging from farmers themselves through to local buyers, international corporates and leading public funders. The flow of climate financing into initiatives that support smallholder resilience is also limited.

On the market risk side, an emerging example of market risk reduction efforts is WFP's Patient Procurement Platform,[22] which brings supply chain actors together through demand aggregation and committing to purchases from smallholders. Linked to this, forward-thinking anchor buyers are creating tighter value chains for maize, such as the Raphael Group in Southern Tanzania. Corporates are starting to assess value at risk but, apparently struggling to develop a strong investment case, they are typically hesitant to invest their own money and look to leverage external funding.

Savings products for smallholders have received attention for some time. Recent efforts have focussed on increasing farmers' access to mobile savings. However, the challenge is to convince smallholders to invest those savings, where it makes sense, in resilience enhancing inputs and activities.

Insurance is a more challenging product. Insurers and re-insurers are testing and developing innovative approaches, for example, transferring weather and crop-related risks away from supply chain companies. However, most solutions developed to date have been small-scale pilots subsidized by donors and have struggled to transition to commercially viable offerings by the private sector. In part this is due to low level of farmer uptake. Studies estimate uptake is between 6-30%.[23] Farmers hedge only a small proportion of their potential risk due in part to poorly estimated basis risk, leading to highly priced products offered at limited scale.[24] Imperial College and others linked to the WFP's PPP initiative are looking to downscale the areas where risk assessments are conducted through sophisticated modelling to develop affordable products that pay out when needed.

Stakeholder Perspectives

Table 3 shows the stakeholder map of (a) awareness and perceived issue importance, (b) existing ownership/ leadership and activities, and (c) momentum towards and alignment behind collective action by stakeholder type.

Table 3 **Stakeholder Landscape of Financial and Market Chain Resilience**

	AWARENESS and PERCEIVED ISSUE IMPORTANCE	EXISTING OWNERSHIP/ LEADERSHIP ACTIVITIES	MOMENTUM and ALIGNMENT BEHIND COLLECTIVE ACTION
Smallholders	As smallholders face increasing risks, individual and group savings quickly erode. Farmers are acutely aware of their lack of financial resilience, and often recognise the need for new tools beyond loans, but have little awareness or access to savings and crop/ weather index insurance products. 🍃🍃🍃	Village savings and loans associations are still common, often introduced by NGOs. Credit is also generally available, but may increase risk. Efforts are growing to increase access to digital and mobile savings in a few countries. Even less is happening beyond pilot testing in the insurance space. 🍃🍃	Smallholders are inherently conservative and risk averse. Often bad loan experiences make them hesitant to trust new financial products. This creates a chicken-and-egg problem; until farmers see financial products being used by people who look like them they are reluctant to try, so visible demand is low. 🍃🍃
National governments	Governments are aware of the need to enhance financial services and market access for farmers. They typically do not play an active role (deferring to the private sector), with the exception of being buyers of last resort for strategic grains, such as maize and rice. 🍃🍃	In their limited role as buyers of last resort, governments sometimes over-stretch and intervene by setting prices ahead of market trends, which distort behaviour and ultimately increase risk to producers. 🍃🍃	Few governments seem incentivized to act. However, evidence for insurance in particular shows that governments need to play an important policy and regulatory role and likely need to subsidize efforts until a critical mass of users is achieved. Advocacy is likely required. 🍃🍃
Local Private Sector	Local private sector players are very aware of increasing financial and market risks, and are very interested in gaining access to new tools to manage the risk. They are also wiling to explore closer ties to customers and producers/ suppliers to secure markets. 🍃🍃🍃🍃	Some local buyers and input suppliers are involved in testing buyer credit and out-grower schemes as secure and cost-effective ways to tie financing to supply chain with market security (some with external support e.g. WFP's PPP, others independently). In a few markets, local insurance companies are starting to offer index-insurance products. 🍃🍃🍃	Entrepreneurial local market players have a strong incentive for reducing their market risks on sell and buy side, as well as finding new ways to utilize financial services and innovative risk reduction schemes like performance bonds, which align incentives through the chain. The main challenge is to create the transition from piloting to market system change. 🍃🍃🍃🍃
Trans-National Corporations	Corporates, international banks and insurance companies are very aware of and interested in contributing to systemic risk reduction, as well as to secure future markets on both the distribution and supply side. 🍃🍃🍃🍃	RaboBank, SwissRe, Willis and others are active on the financing side, whilst Syngenta, Kellogg, Olam and others are active on the market side. Mobile network operators such as Vodafone are also involved, working on mobile and digital solutions. However, as with local private sector efforts, most work to date has been a pilot or prototype. 🍃🍃🍃	While leading and innovative corporations are eager to continue to explore and test solutions, there are many that have not seen the potential returns in engaging smallholders. Efforts to crowd in others are taking place through business organized platforms such as the WBCSD CSA group. Yet these are still nascent and there is much room for enhancement. 🍃🍃🍃
Development Intermediaries	Corporates, international banks and insurance companies are very aware of and interested in contributing to systemic risk reduction, as well as to secure future markets on both the distribution and supply side. 🍃🍃🍃🍃	RaboBank, SwissRe, Willis and others are active on the financing side, whilst Syngenta, Kellogg, Olam and others are active on the market side. Mobile network operators such as Vodafone are also involved, working on mobile and digital solutions. However, as with local private sector efforts, most work to date has been a pilot or prototype. 🍃🍃🍃	While leading and innovative corporations are eager to continue to explore and test solutions, there are many that have not seen the potential returns in engaging smallholders. Efforts to crowd in others are taking place through business organized platforms such as the WBCSD CSA group. Yet these are still nascent and there is much room for enhancement. 🍃🍃🍃
Financiers: Public/Private	Leading public funders have for a long time been focusing on financial resilience of smallholder farmers. Some show growing awareness of the overlay of climate risks, including MasterCard Foundation, USAID and the World Bank/IFC. 🍃🍃🍃🍃	With the work of CGAP, ISF and MasterCard Foundation's RAFLL, there is much underway, from the learning perspective, to improve financial service access. However, few of these initiatives explicitly tackle climate risks. Donors have supported insurance products, but are growing weary of taking on the risk alone. 🍃🍃🍃	Funders are eager to invest more time and effort into testing better market and financing risk reduction efforts. However, they recognize they need to engage a broad range of other stakeholders to achieve this. They are in a strong position to include addressing climate risks in future MSI funding support. 🍃🍃🍃🍃
Researchers: Academics/Institutions	While smallholder finance has received much research attention, there seems to be less awareness of and interest in bridging the gap between climate risk research, and financing and market chain issues. 🍃🍃	Some interesting work by Imperial College looking at understanding climate risks at a localized level to build better weather indices for insurance. Other researchers are looking at how to increase producer adoption. 🍃🍃	Researchers do not have much incentive, given that the issue spans domains from climate modelling to marketing and therefore does not neatly fall into a specific discipline. Nonetheless, if more funding was made available, many researchers would likely step forward. 🍃🍃

🍃🍃🍃🍃🍃 HIGH 🍃🍃🍃🍃 MODERATE/HIGH 🍃🍃🍃 MODERATE 🍃🍃 MODERATE/LOW 🍃 LOW

Stakeholder awareness/importance

Most stakeholders are aware that there is a substantial gap in smallholder farmer access to financial services and structured markets. Due to their own business interests both international corporations and local private sector players have little interest in catering to financially risky producers. In fact, corporations are starting to recognise the need to address supply chain risks beyond solely trying to boost productivity and providing value chain finance. This reflects their increasingly system-wide perspective of their business ecosystem. Farmers themselves are acutely aware of the barriers they face due to a lack of savings and reliable buyers. They have often been burnt by unsuccessful credit schemes. Indeed, compared to credit and loans, savings receive less attention from stakeholders. There is even less awareness exists of potentially successful crop and weather insurance models. While savings build on existing behaviours and can be promoted by individual financial institutions enhanced by digital technologies, insurance is a very complex issue requiring inputs from many stakeholders.

Range of existing ownership/leadership and activities

A broad array of initiatives are being developed across the stakeholder spectrum. They include agribusiness companies, both transnational and local, seeking to make their smallholder-facing supply chains more resilient. Financiers of many stripes are also undertaking early steps to link innovative financing models to risk-reducing adaptation and resilience agendas.

Momentum and alignment behind collective action

There is high momentum for collective action amongst a select group of stakeholders, including local private sector, select corporations, development intermediaries and public funders. An increasing number of collaborative initiatives are emerging, especially to promote increased smallholder access to financial services. Examples include knowledge generating multi-stakeholder platforms, such as CGAP and MasterCard's RAFLL. There are also action-orientated, solutions-driving platforms such as WFP's PPP, ISF and AGRA, although few of these are specifically adding a climate risk overlay to their initiatives.[25]

Looking at the wider stakeholder landscape, the passivity of key actors around incorporating climate risks is perhaps related to the absence of a trigger for further collective action. More corporations and domestic financial institutions need to be encouraged to invest in financing solutions. It is possible that combining the interests of such stakeholders would share the risks of so doing and reduce their individual exposure. Rather than wait for the private and development sectors to find solutions, governments, through policy and subsidy, should explore playing a stronger role in supporting and scaling up insurance products.[26] More crucially, however, small holders themselves need to be incentivised. It is ultimately their behaviour, i.e. their use of financial products and adherence to supply contracts, that will enhance their resilience. This is arguably the most difficult area to influence, not least because increasing risk and volatility due to climate change makes farmers themselves even more risk averse. While a clear need exists for greater collective action, potentially catalysed through existing or new MSIs, system leaders need to step forward for more action to take place.

Big Opportunities

Taking financial and market chain resilience forward will require advocacy to engage key stakeholders currently on the side-lines. Investment is needed to prove impact from existing pilots and to scale up those that are successful. Take crop and weather insurance as an example; to ensure it can be accessible, affordable and effective, researchers need to provide sophisticated climate-based risk and business models. Public and private investors need to underwrite the models. Corporates and intermediaries need to deliver and test them with local agri-actors, who themselves need to use them. Governments need to provide a regulatory framework to govern them and ensure they are both effective and affordable to customers.

There are strong platforms offered by existing MSIs that could take on this function: CGAP, ISF and WFP's PPP, as well as others not profiled here, such as the country-level platforms of Grow Africa and/or IDH. They can be used to draw in stakeholders and investment by highlighting the urgency of financial and market resilience in the face of climate change. They could test and demonstrate successful risk-sharing products that convince stakeholders across the board to increase their investment in smallholder resilience.

4 Next Generation of Farmers

Youth from farming families have been leaving rural areas for decades due to unattractive economic conditions and hard-working lifestyles. This will only worsen as climate change impacts become more visible, and the volatility of farming incomes is exacerbated. At the same time, agricultural value chains have great potential to provide youth with employment.

Youth need to see farming and agribusiness not as occupations of last resort, but rather prospects for opportunity and building skills. Keeping youth on the farm is crucial, not only in terms of employment benefit, but also to increase farming families' resilience to climate change. If there are no farmers in the future, there will be no supply chain to make resilient. In addition, enterprising youth are more likely to be adopters of new technology and other innovations that can improve resilience.

Existing Activity

Governments, foundation funders and civil society organizations dominate current activities. A number of rural youth empowerment and 'agri-preneur' programs, as well as support for entrepreneurial farming families, have launched in recent years, led by NGOs and/or governments. They run in partnership with organizations such as Farm Capital Africa, the MasterCard Foundation, ONE and the International Institute of Tropical Agriculture (IITA).[27]

Increasingly, however, such initiatives are set up to draw in private sector value chain actors. For example, MasterCard Foundation's 'Youth Forward Initiative' in Uganda seeks to establish public-private consortia connecting young people to employment and entrepreneurship opportunities in the agricultural sector.[28] Similarly, in Ghana, MasterCard Foundation recently launched a program in partnership with Solidaridad and two leading financial institutions to focus on youth education and training via a 'Cocoa Academy', as well as offering them access to financial sources and business advisory services.[29]

Many such initiatives place a strong focus not only on producers, but also on youth business opportunities that are off the farm within the agricultural sector. These include breeding seedlings (cocoa), selling agri-inputs, spraying crops, harvesting and training. Indeed, this is where local private sector actors, independently from the above-mentioned initiatives, are also supporting youth involvement in agriculture.

Existing efforts remain small-scale at the moment. They also pay little or no attention to helping youth become more resilient to climate risks, or indeed leveraging youth to promote resilient farming.

Stakeholder Perspectives

Table 4 shows the stakeholder map of (a) awareness and perceived issue importance, (b) existing ownership/leadership and activities, and (c) momentum and alignment behind taking collective action by stakeholder type.

Stakeholder awareness/importance

Awareness of the issue is highly fragmented across different stakeholders. On the one hand, the governments, development intermediaries and public funders are acutely aware of the challenge posed by youth fleeing farms, and the need not just to attract them into agriculture, but also to improve their resilience to future challenges. On the other hand, the private sector seems to be largely uninterested in addressing the future fate of young smallholder farmers. Their focus is on existing suppliers and customers, and looking to promote more commercial smallholders in the future. They respond mostly when there is substantial external pressure to act (e.g. child labour in the cocoa supply chain). Some buyers and input suppliers are starting to focus on women smallholders. This is driven be a perception that women are more compliant to delivering on contracts and re-paying loans, as well as responding to external rights-based advocacy.

Table 4 **Stakeholder Landscape of Next Generation of Farmers**

	AWARENESS and PERCEIVED ISSUE IMPORTANCE	EXISTING OWNERSHIP/ LEADERSHIP ACTIVITIES	MOMENTUM and ALIGNMENT BEHIND COLLECTIVE ACTION
Smallholders	Youth in rural areas are aware of climate change and anxious about their futures. However, a lack of detailed understanding means this awareness adds to already negative perceptions of life as a smallholder producer. 🍃🍃🍃🍃	Many youth are leaving farms, either to move to urban areas or engage in non-agricultural activities (e.g. motorbike taxis). Parents try to convince their children to farm, and some stay to honor their family heritage. Yet, they do not know how to address climate risks. 🍃🍃	Youth are motivated mainly by higher incomes, faster revolving cash, less labour-intensive jobs and the use of new technologies. In theory, if the conditions of traditional farming changed, youth would be incentivized to stay and would be motivated to modernize farming practices. 🍃🍃🍃🍃
National governments	Governments are very concerned about the future of their youth, given the associated risks of socio-economic instability. They recognize the need for the agricultural sector to absorb the pressing unemployment challenge. Increasingly, governments also recognize the link of young farmers to climate change. 🍃🍃🍃🍃	A number of governments (e.g. Nigeria, Rwanda, Kenya) have launched initiatives to foster a new class of young farmers, or 'agri-preneurs.' Less is being done in main value chains to specifically strengthen youth to face the climate risks. Current land-titling rules and social norms often offer limited opportunities for youth. 🍃🍃🍃	Governments are highly motivated to arrest the flood of youth from rural areas, and are looking for solutions that can build resilient future producers. However, they need help from other stakeholders to develop and test such solutions. 🍃🍃🍃🍃🍃
Local Private Sector	Local private sector actors are focused on existing customers and suppliers, and do not identify young producers as a meaningful category within the latter. When pressed, they may acknowledge future challenges, but do not see these as priorities vs current productivity challenges. 🍃	Some local companies are engaging with rural youth for specific jobs/tasks, including distribution of inputs as well as mobile and digital financial and training services, or as procurement agents. Yet this is ad hoc and clear role models have not been established that can be replicated. 🍃🍃	In theory, local market players should have a strong incentive for investing in their future supply and customer base. However, given thin margins and the fact that it concerns long-term impacts, they are not willing to invest their own resources into building the resilience of young farmers. 🍃🍃
Trans-National Corporations	Corporations, like local private sector actors, are not specifically focussed on youth. However, in sectors like cocoa, which has a history of advocacy focus on child labour, corporations are more aware of the need to address youth resilience than their local market counterparts. 🍃🍃	Few corporations have launched specific youth oriented initiatives, aside from the odd CSR activity (e.g. Syngenta's Young Innovators in Agribusiness Competition). There is no evidence that corporates are linking youth to climate risks in their supply or distribution chains. 🍃	Most corporations want a more commercial future farming sector. As such, they do not have an incentive to safeguard future smallholder farming. Those who recognise the challenge see it as one for the future. They lack incentive to act on it now, also given that there are few business models for short-term action. 🍃
Development Intermediaries	Development intermediaries have been at the forefront of raising the issue that youth are leaving farms, and the implications for the future of smallholder farming. They are also increasingly aware of the link between youth motivations and climate risks. 🍃🍃🍃	In recent years, several international NGOs have launched rural and agricultural youth empowerment initiatives. However, few of these have a specific focus on helping youth become more resilient to climate risks, or indeed leveraging youth to promote resilient farming. 🍃🍃🍃	Development intermediaries are motivated by key themes such as youth, employment and empowerment, as per their funders. Given they often work at the intersection of these issues, intermediaries are likely to push the knowledge agenda on climate change and youth resilience as increased funding becomes available. 🍃🍃🍃
Financiers: Public/Private	Public funders are very aware of the need to improve youth resilience in rural communities, purposefully choosing it as an under-lit issue to fund and draw attention to. Private investors are less so, taking similar perspectives to corporations. 🍃🍃🍃	The youth empowerment and 'agri-preneur' initiatives that are being led by other stakeholders are generally supported by public/private funders. MasterCard Foundation has been a leader and pioneer in this space, but is yet to make a major push linking youth and agri-development to climate risks. 🍃🍃🍃	There is growing momentum within the donor community to address the future of young farmers; it is becoming a 'key development issue.' A few social investors are starting to look at co-investing in linking youth empowerment and agricultural development. 🍃🍃🍃🍃
Researchers: Academics/Institutions	Whilst awareness for youth employment is relatively high, focus on the long-term resilience of young farmers specifically is largely missing in the research arena (or so specialised it has not translated into the mainstream). 🍃	Research has been limited to studies characterising youth as a specific demographic, including their lack of access to financial services and their propensity to adopt new technologies. Little research has looked at the long-term fate of youth and the risk of climate change on their livelihoods. 🍃🍃	As the funding community turns its attention more toward understanding risks related to youth development and future life trajectories, researchers will be motivated to engage more in this space. 🍃🍃

🍃🍃🍃🍃🍃 HIGH 🍃🍃🍃🍃 MODERATE/HIGH 🍃🍃🍃 MODERATE 🍃🍃 MODERATE/LOW 🍃 LOW

Youth themselves are obviously very anxious about their own futures. Just like their parents, they worry about what will happen to the future of their family farms. With generally higher levels of education than their parents, and faced with significant challenges of land titling and limited access to finance, the younger generation have different priorities and opportunities. They also have a much better awareness of climate change, but have limited access to specific local knowledge and flexibility to act upon this.

Across stakeholders more generally, there is still little awareness of how climate risks are affecting youth on farms, and how to galvanize youth to create a resilient agricultural future for themselves and their communities.

Range of existing ownership/leadership and activities

Leadership in this area primarily comes from host governments demanding better solutions for the future challenges facing their youth. An array of public and foundation funders working with civil society organizations support them in this quest. Many of these organisations have a broader focus around youth development than agriculture and food systems alone.

Momentum and alignment behind collective action

Theoretically, there should be high alignment of incentives across stakeholders. The youth are the next generation of smallholder farmers, and investing in their resilience is investing in the resilience of the agricultural sector as a whole. However, improving youth resilience in the face of climate risks is a challenge that is difficult for any one set of stakeholders to resolve on their own. It lends itself to multiple actors engaging together.

Youth need incentives and opportunities to become the successful farmers and agri-preneurs of the future, supported with the right knowledge, tools and resources. Efforts to promote agricultural planning, crop management and soil health, financial and market chain resilience (as described in the sections above) need to specifically gear towards youth.

Incentives in this direction are lacking, and there is no evident shared need for collective action. The main challenge is the apparent limited interest of the private sector in dealing with this issue at a systemic level, beyond selective one-off partnerships with public sector and development actors. Corporations and local businesses have jobs to offer, skills to impart and mentoring capacity to deploy. For now, such actors typically see such contributions as philanthropy. Yet long term resilience will improve as businesses develop business models that specifically create opportunities for youth.

With the average age of smallholders increasing, at some point a tipping point will be reached in many countries where the dearth of future producers becomes more of a crisis. That will trigger more collective action. In the meantime, there is an opportunity awaiting interested system leaders to catalyse preventative actions that can avoid such a crisis materializing.

Big Opportunities

To make progress, two critical gaps need to be addressed. First, awareness of the issue needs to increase—not just keeping youth in the agricultural sector, but also the urgent need to build the resilience of rural youth to climate change. Second, the private sector needs to be more broadly engaged to build the agri-business sector as a potential absorber of youth labour. Young people who stay on the farm need to become more productive, while also becoming more climate-aware. Those that leave need to have more options to work in value chains embracing climate-smart agricultural practices. Given the complexity of the issue and breadth of needed stakeholders, multi-stakeholder engagement has a critical role to play.

Very few existing youth-oriented MSIs address the issue of youth in agriculture. None to our knowledge have a specific climate change focus. Considering the urgency of the issue, a new multi-stakeholder initiative may raise awareness and crowd in private sector involvement. In order to build on and push beyond that which already exists, a knowledge and convening MSI would be an appropriate next step. Key funders and development intermediaries could facilitate the logistical set-up of the MSI.

5 Insights and Recommendations

Over the past few years, there has been increasing interest in addressing some aspects of climate risk in smallholder agriculture. Rising interest in climate smart agriculture has led to investments in weather and crop suitability modelling and climate-resilient seed research.

Other areas of focus include improving access to credit and savings services and to markets. However, there are still notable gaps within the broader areas of crop management and financial and market chain resilience. These include pursuing holistic improvements in soil health and developing successful and scalable models for weather/crop insurance, which require additional multi-stakeholder attention.

Climate smart agriculture, while important, is not the only area where action is needed to strengthen smallholder and rural resilience. In this report we have posited four areas where further action is needed. In Figure 1 below we summarize the range of current engagement across each of the four, as laid out in the previous sections. For example, agricultural planning is still receiving limited attention, particularly shifting crop suitability and integrating value chain and sustainable landscape development efforts. This is even more true for improving the attraction to youth to their possible agricultural futures. That faces fragmented stakeholder awareness and limited incentives for stakeholder action (let alone collective action). In theory, improved planning should lead to further improvements in crop management and soil health. Nonetheless, we cannot assume that it will, especially given the disagreements about how to improve soil health. If it does not happen, the risk is that efforts towards increasing yields and other investments on land will not be well suited to future climatic conditions. Moving forward will require multi-stakeholder efforts at a more systemic level.

Figure1 **Summary of analysis of key climate elements for future smallholder farming**

	Crop management and soil health	Financial and market chain resilience	Agricultural planning	Next generation of farmers
Stakeholder awareness	Medium-High	Medium-High	Medium-Low Fragmented	Medium Fragmented
Landscape of activities	Medium Public funders	Medium Public-private partnerships	Low Reseachers/ public funders	Low Public funders
Incentives for collective action	Medium-High	Medium	Medium	Medium-Low
Going forward	Draw in private sector investment – willingness to pay for SHF behaviour change	Draw in private sector investment and focus on specific gaps i.e. insurance	Increase awareness of long-term planning and establish models to change SHF behaviour	Increase awareness of youth and climate resilience; incentivise private sector

Leveraging existing MSIs

Looking at the current landscape of stakeholders and activities, there are numerous MSIs that are already addressing smallholder agriculture, food security, and related issues. These include those that are focused on convening and knowledge sharing such as GACSA, ACSAA, and CGAP. Others are facilitating change by driving point solutions, whether in product and service areas or value chains, such as ISF, CocoaAction and WCF. Finally there are those that have very specific systems integration roles at market/country level, like WFP's PPP and Rockefeller's YieldWise.

Many of these MSIs hold promise to expand their focus to address the specific climate risk gaps identified in this report. Working with and through existing initiatives is vital, particularly where there is leadership, motivation to engage and capacity to deliver on an expanded mandate. Over-saturating the sector with even more initiatives can spread resources too thinly and lead to competition. Stakeholders participating in or considering engaging with existing MSIs to address identified critical climate change risks and challenges should first engage with the relevant MSI to explore re-orienting its priorities. If appropriate they should develop new, focused and action-orientated partnerships under the MSI. In the following paragraphs we suggest a number of agendas around which the existing MSIs that we have examined[30] might be usefully enhanced, leveraged and/or redirected to move toward increasing smallholder resilience to climate change.

For the gaps identified in **agricultural planning**, MSIs such as GACSA and Grow Africa can serve to drive the use of improved research projections of shifting crop suitabilities to drive diversification options and land use planning. Action to integrate climate modelling with strategic planning in key crop sectors can be achieved under MSIs such as WFP's PPP or WCF's CocoaAction (whether part of the MSI or as smaller action-orientated partnerships underneath them). Importantly, this will require a small group of system leaders to catalyse such actions. Integrating value chain initiatives with strategic spatial planning and sustainable landscape approaches will require increased engagement by and capacity within governments. It will also need participation by transnationals and the local private sector. While Grow Africa is a good starting point for this conversation, it is less clear how other existing MSIs might comprehensively address this need.

For the gaps identified in **crop management and soil health** existing crop-focussed MSIs (e.g. CocoaAction) could catalyse additional investments by corporates where they are active and have business interests that face quantifiable risks (either on the supply side, e.g. for coffee and cocoa or the demand side). To date, few corporates have developed a solid business model for such investments. MSIs, such as GACSA or AACSA, in addition to established initiatives such as the African Conservation Tillage Network, can share compelling case studies of the benefits of improving practices that could motivate other actors. This is best driven by the core existing stakeholders within and across these MSIs. They have an overview of the current landscape and needs, and can make compelling pitches to engage less aware and willing, yet critical, stakeholders.

For the gaps identified for **financial and market chain resilience**, CGAP, ISF and WFP's PPP offer established platforms to draw in stakeholders and investment into as yet unproven complex solutions, such as weather-index insurance. They could highlight the urgency of financial resilience in the face of climate change and demonstrate successful risk-sharing solutions. This will best be driven by the core set of stakeholders within and across these MSIs, who have the thought-leadership and convening power, as well as an overview of the current landscape and needs.

Establishing a new MSI

One of the key climate risks elements stands out as likely to benefit from the launch of a new MSI: creating young resilient farmers and agribusinesses for the future.
The current fragmented awareness, limited activities and misaligned incentives indicate the need for a platform that introduces and advocates for an entirely different way of thinking, convenes stakeholders (particularly the private sector) around this realisation and highlights the urgency of taking action at a system level. We are not suggesting that the future of smallholder family farming continues on the current trajectory, where large segments live subsistence livelihoods. Rather we want to see future farming families become commercially viable. They could aggregate land over time, and enterprising rural youth could move to quality jobs on farms and establish or work in off-farm agribusinesses. Out of all the elements discussed, motivating and supporting the next generation of resilient farmers and agribusinesses is arguably the highest priority. None of the other resilience measures will have a lasting effect if there are no empowered, incentivized and capable family farmers in the future. Not only that, the youth themselves are the key to making future farming resilient with their propensity for behaviour change and adoption of innovations.

Whether establishing a new 'resilient young farmers and agribusinesses of the future' MSI is practically possible, can be of interest to potential system leaders, and is advisable (versus expanding the mandate of an existing MSI) will need to be thoroughly examined against criteria outlined in existing guidance (such as the GDI's recent report '*Making MSIs Work*').[31] However, we believe there is an opportunity for a group of forward-thinking stakeholders to come together and create a new initiative to address an issue that many do not yet realise is perhaps the most important one for the future of smallholder farming.

Endnotes

1 Source: Smallholders, food security, and the environment. IFAD, UNEP. 2013.

2 "The initial causes of the late-2006 price spikes included droughts in grain-producing nations and rising oil prices.[6] Oil price increases also caused general escalations in the costs of fertilizers, food transportation, and industrial agriculture. Root causes may be the increasing use of biofuels in developed countries (see also food vs fuel),[7] and an increasing demand for a more varied diet across the expanding middle-class populations of Asia.[8][9] The Food and Agriculture Organization also raised concerns about the role of hedge funds speculating on prices leading to major shifts in prices.[10] These factors, coupled with falling world-food stockpiles, all contributed to the worldwide rise in food prices.[11]" Source: Wikipedia, 2007–08 world food price crisis.

3 Examples include: SDG 2 that includes 'promote sustainable agriculture,' SDG 6 that includes 'sustainable management of water' and SDG 15 that includes 'promote sustainable use of terrestrial ecosystems.'

4 Rittel, Horst W. J.; Melvin M. Webber (1973). "Dilemmas in a General Theory of Planning" *Policy Sciences*. 4: 155–169. doi:10.1007/bf01405730.

5 Watkins A and Wilbur K, 2015, *Wicked and Wise*, Urbane Publications

6 World Bank Institute. 2013. *Designing a Multi-Stakeholder Results Framework : A Toolkit to Guide Participatory Diagnostics and Planning for Stronger Results and Effectiveness.* World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/17582 License: CC BY 3.0 IGO.

7 *'More than the sum of its parts: Making Multi-stakeholder Initiatives Work.'* Global Development Incubator, November 2015

8 See, for example, blog post: 'How can you tell whether a Multi-stakeholder Initiative is a total waste of time?', Miller-Dawkins, 2014. https://oxfamblogs.org/fp2p/how-can-you-tell-whether-a-multi-stakeholder-initiative-is-a-total-waste-of-time/

9 *Multi-Stakeholder Initiatives: Lessons From Agriculture*. Harvard Corporate Responsibility Initiative, 2017

10 Attention to gender challenges was not included in this study for two reasons: 1. Women, while heavily disadvantaged as agricultural producers and workers, already receive significant attention in other initiatives, and 2. While climate risks will fall hardest on women, research respondents (including farmers themselves) did not feel that climate risks fundamentally worsened their position versus men.

11 Läderach, P., Martinez-Valle, A., Schroth, G. et al. "Predicting the future climatic suitability for cocoa farming of the world's leading producer countries, Ghana and Côte d'Ivoire" Climatic Change (2013) 119: 841. doi:10.1007/s10584-013-0774-8

12 http://www.worldcocoafoundation.org/wp-content/uploads/FINAL-CSC-program-announcement-5-31.pdf

13 http://sdwebx.worldbank.org/climateportal/index.cfm?page=climate_agriculture_profiles

14 See http://www.gfar.net/ – Global Forum on Agricultural Research, a multi-stakeholder platform that was not profiled or analyzed in the research underlying this paper

15 see http://www.nama-database.org/index.php/Main_Page for access to the full list being developed

16 See for example: http://www.cimmyt.org/project-profile/drought-tolerant-maize-for-africa-dtma/ and http://wema.aatf-africa.org/

17 This was a frequent refrain during field interviews and raised by both multinationals as well as local distributors like Weinco and off-takers like the Raphael Group in Tanzania

18 Consortium of International Agricultural Research Centers, supported by multiple donors

19 See Module 4: Soils and their management for Climate-smart Agriculture pp 118-131 from: FAO's "Climate-smart agriculture, Sourcebook." 2013. Download at: http://www.fao.org/docrep/018/i3325e/i3325e00.htm

20 http://www.iita.org/taat

21 We focus less on credit for two reasons. First, use of credit creates risks. With harvests becoming increasingly unpredictable, credit alone will only ameliorate the situation if it is used to finance products or services that can reduce overall risk, such as investment in irrigation. Secondly, access to credit, while challenging, has already garnered significant attention from initiatives such as the Initiative for Smallholder Finance.

22 Being renamed Farm to Market Alliance at time of writing

23 "Make it Rain," J-PAL, February 2016

24 Giné, 2009 Cole et al., 2013

25 ISF released their first note on climate finance and smallholders in 2016: Briefing 13 The Climate Conundrum

26 For example, in Mexico's CADENA program the government insures a food crop basket against rainfall in a given territory. If the rains fail, money flows to the local government quickly to offset social unrest and potentially hunger. See De Janvry, A. et al., 2016, "Weather Index Insurance and Shock Coping Evidence from Mexico's CADENA Program," World Bank Policy Research Working Paper 7715

27 https://www.theventure.com/global/en/ideas/the-rise-of-the-agripreneur

28 http://www.mastercardfdn.org/the-mastercard-foundation-launches-innovative-us74-million-youth-employment-initiative-in-ghana-and-uganda/

29 Interview with Isaac Gyamfi, Solidaridad, April 2016

30 We recognize there are MSIs that are potentially relevant to the topics and issues described that we did not examine, as we chose these for illustrative purposes rather than to produce a comprehensive list.

31 http://globaldevincubator.org/wp-content/uploads/2016/02/Making-MSIs-Work.pdf

Annex I: List of example MSIs

FOCUS	MSI NAME	BRIEF DESCRIPTION	LEVEL
CLIMATE RESILIENCE AND AGRICULTURE	AFRICA CSA Alliance	**African Climate Smart Agriculture Alliance (ACSAA)** is a collaboration between international non-governmental organizations, research institutions, and governments, with the aim of scaling up climate smart agriculture (CSA) practices to improve food and livelihood security of smallholder farmers. ACSAA was launched in 2014 and is hosted by the New Partnership for Africa's Development (NEPAD). Its key role is knowledge dissemination and facilitating the establishment of national CSA chapters.	Regional
	GACSA GLOBAL ALLIANCE FOR CLIMATE-SMART AGRICULTURE	**Global Alliance for Climate Smart Agriculture (GACSA)** is a voluntary alliance of partners aiming to scale up climate smart agricultural practices to address the challenges facing food security and agriculture under a changing climate. GACSA was launched in 2014 and is currently hosted by the FAO. Its main activities are driven by three action groups (knowledge, investment and enabling environment) which primarily put out guidance and knowledge.	Global
FINANCIAL INCLUSION AND AGRICULTURE	CGAP	**The Consultative Group to Assist the Poor (CGAP)** is a global partnership of 34 leading donor and funding organizations that seek to improve the lives of poor people by spurring innovations and advancing knowledge and solutions that promote financial inclusion. CGAP was established in 1995 and is housed at the World Bank. Its main activities are practical research and active engagement with financial service providers, policy makers, and funders to enable approaches at scale.	Global
	SMALLHOLDER FINANCE	**Initiative for Smallholder Finance (ISF)** is a multi-donor and investor platform for the development of financial services for the smallholder farmer market. The ISF was launched in 2013 and is housed at the Global Development Incubator. Its main activities include catalyzing specific transactions with partners, conducting targeted research and facilitating partnerships.	Global
	WFP World Food Programme wfp.org	The **Patient Procurement Platform (PPP)** is a pre-competitive consortium of public and private sector actors that aims to create efficient value chains to enhance farmer incomes. It is a holistic market-led initiative, that pulls together partners across the value chain, and focuses primarily on providing farmers with access to knowledge and access to credit. Whilst piloting of the model started in 2015, the PPP was officially launched in January 2016 and is driven by the United Nations World Food Programme.	National
YOUTH	Child&Youth Finance International	**Child and Youth Finance International (CYFI)** is an international network of government representatives, financial services providers, non-governmental organizations, private sector companies, academics, and educators who are committed to advancing the financial capabilities of children and youth. CYFI was established in April 2012 and is facilitated by its own organizational unit in Amsterdam, Netherlands. It focuses on raising awareness, convening stakeholders to share knowledge and collaborate, and coordinating research and intervention/solution design.	Global
	S4YE SOLUTIONS FOR YOUTH EMPLOYMENT	**Solutions for Youth Employment (S4YE)** is a global coalition of public and private sector stakeholders working on youth employment that aims to mobilize efforts to engage 150 million youth in productive work by 2030. The S4YE was launched in October 2014 and is housed at the World Bank. The core activities of the S4YE include linking actors together, managing knowledge and generating lessons, and, in specific regions, leveraging resources for youth employment interventions at scale.	Global
	international youth foundation	**Via: Pathway to Work** (also known as VIA) is a five-year multi-stakeholder program that aims to improve economic opportunities for underserved youth in Tanzania and Mozambique by driving sustainable changes in the technical and vocational education and training (TVET) and entrepreneurship systems. VIA is led by the International Youth Foundation, in partnership with The MasterCard Foundation, and will be implemented in 2016.	

FOCUS	MSI NAME	BRIEF DESCRIPTION	LEVEL
GENERAL AGRICULTURE	CocoaAction	**CocoaAction** is a voluntary industry-led initiative that brings together the world's leading cocoa and chocolate companies to address regional priority issues hindering the sustainability of cocoa production. CocoaAction develops partnerships between governments, cocoa farmers, and the cocoa industry to boost productivity and strengthen community development in Côte d'Ivoire and Ghana. Launched in May 2014, CocoaAction is the flagship initiative of the World Cocoa Foundation and is both housed in and governed by the World Cocoa Foundation.	Regional
	GROWAFRICA	**Grow Africa** is an African-owned multi-stakeholder platform that aims to increase inclusive and responsible investment in African agriculture by eliciting private sector investment in agriculture, and accelerating the execution and impact of investment commitments. The Grow Africa Partnership was founded jointly by the African Union, NEPAD and the World Economic Forum in 2011. As of 2016, Grow Africa is being hosted by NEPAD.	Regional
	World Cocoa Foundation	**The World Cocoa Foundation** is an international membership organization with 110 members (including the world's leading cocoa companies) that promotes sustainability in the cocoa sector by providing cocoa farmers with the support they need to grow more quality cocoa and strengthen their communities. World Cocoa Foundation was founded in 2000 and is facilitated by its own organizational unit in Washington, D.C.	Global
	YieldWise The Rockefeller Foundation	**YieldWise** is an initiative led by the Rockefeller Foundation which aims to demonstrate how the world can halve food loss by 2030 by integrating action from multiple stakeholders in the value chain and using cutting edge technology. Launched in 2016, the initiative will initially focus on fruits, vegetables, and staple crops in Kenya, Nigeria, and Tanzania.	National

About the Corporate Responsibility Initiative (CRI)

The Corporate Responsibility Initiative (CRI) at the Harvard Kennedy School's Mossavar-Rahmani Center for Business and Government (M-RCBG) is a multi-disciplinary and multi-stakeholder program that seeks to study and enhance the public contributions of private enterprise. The initiative explores the intersection of corporate responsibility, corporate governance, and public policy, with a focus on analyzing institutional innovations that help to implement the corporate responsibility to respect human rights, enhance governance and accountability and achieve key international development goals. It bridges theory and practice, builds leadership skills, and supports constructive dialogue and collaboration among business, government, civil society and academics. Founded in 2004, the CR Initiative works with a small Corporate Leadership Group consisting of global companies that are leaders in the fields of corporate responsibility, sustainability or creating shared value. The Initiative also works with other leading corporate responsibility and sustainability organizations, government bodies, non-governmental organizations, foundations and companies to leverage innovative policy research and examples of good practice in this field.

CRInitiative.org
www.hks.harvard.edu/centers/mrcbg/programs/cri

About Dalberg Research

Dalberg Research provides intelligence and insights for global development. Our mission is to be instrumental in moving the dial on complex global issues, social impact and investing through access to reliable, independent intelligence and insights. Our expertise is in bringing together vast, disaggregated and disjointed information, and extracting key trends and insights through expert analysis to support stakeholders in developing a stronger understanding of the relevant context and dynamics in which they work, around a wide range of issues and sectors. We are objective, independent, rigorous and committed to inclusive global development.

www.dalbergresearch.com

About TechnoServe

TechnoServe works with enterprising men and women in the developing world to build competitive farms, businesses and industries. A nonprofit organization operating in 29 countries, TechnoServe is a leader in harnessing the power of the private sector to help people lift themselves out of poverty. By linking people to information, capital and markets, it has helped millions to create lasting prosperity for their families and communities. With nearly 50 years of proven results, TechnoServe believes in the power of private enterprise to transform lives.

www.technoserve.org

About MasterCard Foundation

The MasterCard Foundation seeks a world where everyone has the opportunity to learn and prosper. All people, no matter their starting point in life, should have an equal chance to succeed. We believe that with access to education, financial services, and skills training, people can have that chance. Our focus is helping economically disadvantaged young people in Africa find opportunities to move themselves, their families and their communities out of poverty to a better life. Our mission is to advance education and financial inclusion to catalyse prosperity in developing countries.

www.mastercardfdn.org

HARVARD Kennedy School

Corporate Responsibility Initiative

Corporate Responsibility Initiative
Harvard Kennedy School
79 John F. Kennedy Street
Cambridge, MA 02138 USA

CRInitiative.org
www.hks.harvard.edu/centers/mrcbg/programs/cri