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Scaling pathways for a climate smart cocoa sector

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Abstract

Climate change has been projected to change the geography of cocoa production unless production practices are adapted to novel conditions. Climate exposure mapping contributes to a better understanding of where, when and to what degree climate shifts will impact production and allows us to identify more resilient practices. However this information on its own does not lead to wide spread adoption. Scaling climate smart practices is therefore a priority to secure long term sustainability of the sector. Because cocoa production is a multi-decadal investment and many efficient measures to mitigate risk require a long lead time adaptive action should be taken now to avoid production losses from an incrementally changing climate. We argue that a multi-stakeholder approach will be required as no single technology or scaling pathway may account for the diversity of decision environments of the actors involved.

Prioritization of climate change adaptation is challenged by the heterogeneity of projected hazards across space, high uncertainty of data to guide ex-ante decision making and a lack of tried and tested off the shelf approaches to deliver relevant information to cocoa practitioners. Making the cocoa sector climate smart will therefore need to link climate science as it develops with stakeholders along the supply chain, develop novel approaches to incentivize innovative climate risk management strategies, and build capacity within the sector to confront climate change at scale.

We discuss the advantages and limits of four possible scaling pathways for climate smart cocoa. Voluntary certification, impact investing, private sector training, and policy guidance were considered. We classified these pathways by actors' incentives to prioritize long term viability over short term gains, flexibility to react to novel information, the number of farmers reached and the efficacy of action. Information was collected through a series of individual stakeholder interviews and workshops across the important cocoa origins of West Africa and Latin America and along the value chain. We find that no single pathway checks all preconditions for efficient scaling in isolation. Certifiers and incentive investors with their smaller constituencies were found to be more likely to base decisions on novel information and may act as catalysts to develop no-regret approaches that may be more acceptable for private and public actors. We therefore suggest a platform approach to scaling in which each actor embraces climate smart practices depending on their preferences and collaborates with other actors while incorporating novel information in an iterative fashion.

Introduction

Smallholder cocoa farmers in low-income countries increasingly face severe threats to their livelihoods from environmental degradation and weather shocks. Ivory Coast and Ghana make up the world's most important region for the supply of cocoa beans. The two leading producers contributed about half of global cocoa production by 2014 (FAO 2017a). The sector is of vital importance for the rural economy in both countries, adding an estimated 7% and 3% of total GDP in Ivory Coast and Ghana respectively (GSS 2015, FAO 2017). Some authors have specifically researched putative impacts of climate change in West Africa and concluded that negative impacts may be related to dry season precipitation (Schroth et al. 2016) and temperatures (Anim-Kwapong and Frimpong 2008; Schroth et al. 2016), or growing season evapotranspiration (Läderach et al. 2013). in these studies the extent of suitable climates for cocoa production (Läderach et al. 2013; Schroth et al. 2016) and yields (Anim-Kwapong and Frimpong 2008) were found to be reduced as a result of projected future conditions. Thus, there is no doubt that the cocoa sector recognizes the immediate and long-term threat of climate change to farmer livelihoods and a stable cocoa supply.

Climate-smart agriculture (CSA) is an approach to confront the new challenge of climate change (Lipper et al. 2014). It expands the concept of sustainability of agricultural production by adding adaptation to climate change and mitigation of GHG emissions from production as a new dimension. In CSA the sustainable intensification of production by efficiently using available resources is the priority. The second pillar is adaptation of production systems to climate changes. Third, the mitigation element emphasizes explicitly the reduction of GHG emissions from the production of cocoa by using alternative practices. The CSA concept accounts for synergies and trade-offs between the three objectives. For example, the sustainable improvement of cocoa productivity on existing land will be an important contributor to the reduced conversion of forest to cocoa production.

However, one of the challenges facing CSA is scale. There are many pilots of CSA practices that are effective locally but lack mechanisms allowing ready replication in other contexts. These pilots therefore remain limited in scope, unable to reach the millions of smallholders that need to adopt CSA practices to remain viable in the face of a changing climate. This impacts not only smallholder livelihoods but also the viability of global supply chains that provide consumers with chocolate. We therefore investigated how to leverage existing smallholder value chain interventions to translate climate science into actionable strategies for farmers and supporting actors, including agricultural businesses, voluntary certification schemes, and investors, across a number of geographies using smallholder cocoa systems in Africa and Latin America as model cases.

The adaptation challenge

Climatic change was projected to change both long term mean climate conditions, but also climate variability. In addition, climate change impacts differ spatially by the degree of impact relative to the coping range of the production system, and by the nature of the hazards. The forward looking prioritization of adaptation approaches depends foremost on the degree of impact (Vermeulen et al. 2013). Low degrees of impact only require incremental changes to the production system. High degrees of impact imply a transformation to alternative livelihood strategies. Within these high level strategies context-specific adaptive action and the efficient allocation of scarce resources requires an analysis of underlying climatic threats (Campbell et al. 2016). Climate change progresses over time, raising the question of timing of interventions. This is especially important for cocoa as plantations have a multi-decadal life span, and some adaptation measures such as breeding novel varieties have a long lead time.

On the other hand, farming households possess vast knowledge about coping strategies to manage climate risk. Depending on their subjective assessment of household assets and vulnerability adjustments to production decisions are taken. These adjustments are often taken ex-post based on past experiences. Adjustments therefore exhibit large variation between regions and households. However, climate change threatens to change the local context and risk management should take a forward looking perspective to avoid damage from expected risk. Coping strategies will have to change over time and across spatial scales. Adjustments developed by one household may be useful elsewhere with homologous climatic conditions in future periods.

The challenge to scale CSA is therefore to alter local decision processes that were traditionally grounded in local experience based on global models that show high uncertainty about relevant decision variables and continue to evolve. As a result adaptation to climatic changes is often perceived as a costly intervention, while inaction is assumed to be cost free. Stakeholders shirk investing in adaptive action even though this implicitly assumes that climate change will not have economic consequences.

Making the cocoa sector climate smart will therefore need to continuously link climate science as it develops with stakeholders along the supply chain, develop novel approaches to incentivize innovative climate risk management strategies, and build capacity within the sector to confront climate change at scale. We considered four possible scaling pathways for climate smart cocoa: Voluntary certification, impact investing, private sector training, and policy guidance.

Results

Certifiers may act across a range of scales through their multiple roles as verification body of sustainable practices and providers of training. The rationale for certification, and certifiers' interest in climate adaptation, is grounded on the premise that the final consumer is willing to pay a premium for certified products.

Certification is widespread in cocoa: Rainforest Alliance, Utz Certified, and Fairtrade International currently certify about 30% of global cocoa production. Certifiers thus cover large segments of the global market, but are also in direct interaction with smallholder producers.

Social investment funds seek to maximize positive social and environmental effects of investments by providing finance for rural small businesses for both short and long term investments. The rationale to engage in CSA is similar to that of certifiers. The main impact investment agencies annually loan about USD 400m to producer organizations. Impact investors are an emerging tool to provide direct incentives for sustainable investments but interaction is often limited to cooperatives and other producer organizations.

Most of the companies that were interviewed were engaged in sustainable agriculture activities. But companies that worked closely with farmers, tended to not separate efforts into climate or sustainability efforts, but rather focused on holistic programs to increase productivity and make farming a viable option for today's farmers and an attractive option for the next generation. We distinguished companies a) based on their business rationale to invest in climate related actions, and b) the scale of operations.

The "late majority" group of companies included large brands and retailers that perceived climate change action as costly. "Optimizers" were large brands that sourced from landscapes that invested in climate change activities out of a volumes based business case. "Front-runner" companies were driven by both concerns about supply volumes, but in addition generated value from reputation. Last, "Idealists" were smaller brands that generated value mostly based on social and environmental reputation.

Government organizations such as Ghana's COCOBOD or the Ivorian CCC provide services to farmers and in turn retain a margin between a guaranteed farm gate price and commodity market prices. They seek to improve revenue by focusing on volumes, but also host initiatives to add value by building reputation through environmental initiatives. While theoretically they could efficiently promote CSA, at times non-cocoa related competing interests result in adverse action.

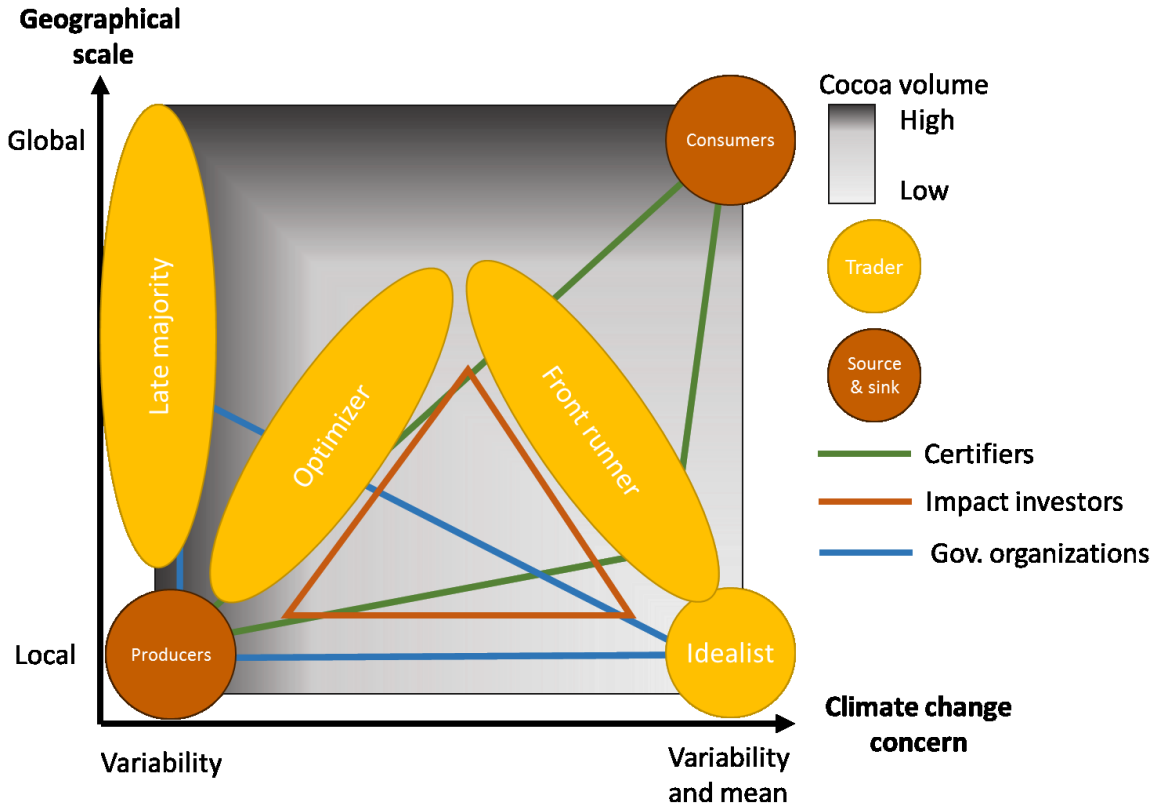

Figure 1 Schematic representation of actors at the nexus between geographical scale, and interest in climate change action.

The stated objectives related to CSA scaling were reflected in their demand for climate information services and their interest in novel information. Climate impact research is often focused on mean changes because such research is more robust when considering the uncertainties of climate modeling. Such information was considered useful by Certifiers, Idealists, Front-runners and to some extend Impact Investors, Optimizers and Government organizations. The latter group however, stated that in addition shorter-term climate variability related risks were of higher importance than long term changes. For the Late Majority group of companies uncertain information was not considered useful.

Discussion

We concluded that to achieve CSA adoption at scale no single pathway will be optimal. We suggest to differentiate between a standards focused approach and an enabling approach. For the standards approach we found that certifiers are uniquely positioned to take the lead on CSA adoption at scale. We believe that Impact investors may be key partners to pilot novel incentive programs that may be taken to scale by governmental organizations. However, we suggest to pursue a sequential multi-stakeholder approach that combines the strengths and weaknesses of the individual pathways.

As novel climate information emerges its value to result in efficient action needs to be evaluated. Certifiers were found to combine both the farmer's economical interest and social benefits. They therefore have an interest to improve their reputation by incorporating emerging information into their portfolio, but also consider pre-requisites for potential out scaling of CSA practices. Idealists and Front-Runners often had a more limited capacity to generate value from novel information and would be less considerate of marginal economic benefits for producers as they act on premium markets. They nevertheless may be important stakeholders to move CSA practices beyond local pilots. Front-Runners and Optimizers were more risk-adverse than Idealists and Certifiers. As such, they would be less able to react to novel information but with their larger constituencies better positioned to achieve CSA adoption at scale. In a last step the Late Majority may commence action towards CSA adoption once main controversies may be avoided.

Incentive investors in our study were interested to develop loan products to incentivize CSA adoption at intermediate scale with intermediate time horizons. While they were more able to act on novel information than governmental organizations some degree of certainty about the efficacy of the practices was required. Working with producer organizations rather than individual farmers excluded several potential CSA practices from support, but provided efficient incentives for adoption of financeable CSA. However, currently incentive investors are limited in their constituencies. To achieve CSA adoption at scale through impact finance Incentive Investors may rather be considered early adopters of innovative programs that should be turned into government programs at later stages. As such, Incentive Investors may be key stakeholders for scaling as continuous innovation will remain a key aspect.

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