

‘CSA-Plan’: strategies to put Climate-Smart Agriculture (CSA) into practice

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Abstract

Large-scale investment is needed to create climate-smart agriculture (CSA) systems. While many government and development agencies are integrating CSA into their policies, programmes, plans and projects, there is little guidance for operational planning and implementation on ways to be climate-smart. Here we present ‘CSA-Plan’. CSA-Plan frames actions needed to design and execute CSA programmes into four components – (i) situation analysis, (ii) targeting and prioritising, (iii) programme design, and (iv) monitoring and evaluation. Each component yields concrete information to operationalise CSA development, separating it from traditional agriculture development. Already, CSA-Plan has shown the capacity to change the discussion around CSA implementation. With iterative co-development, the approaches will become ever more useful, relevant and legitimate to governments, civil society and the private sector alike.

Introduction

Climate-smart agriculture (CSA) is an approach to agriculture

that promotes three objectives: sustainably increasing productivity; building the resilience of farming systems; and reducing greenhouse gas emissions, where possible (FAO, 2013). CSA does not prescribe interventions: instead, climate risks are addressed through tackling trade-offs and synergies between the three objectives (Rosenstock *et al*, 2016). This then separates CSA from other approaches to agricultural development that either specify practices or technologies, such as conservation agriculture or agroforestry. Thus, CSA requires identifying what is climate-smart for the biophysical, agricultural, and socio-economic context of a given place.

Major development investors are rallying behind CSA, with large investments being planned or made by the international financial institutions and aid organisations, including the *Green Climate Fund*, the International Fund for Agricultural Development (IFAD), and international aid agencies such as the United Kingdom Department for International Development (DFID) and the United States Agency for International Development (USAID). National governments and their development partners are looking to move forward with large-scale CSA implementation. The private sector is also recognising the importance of making their supply and value chains climate-smart, as evidenced by the engagement of the World Business Council for Sustainable Development in

CSA. New multi-sector CSA partnerships have formed, such as the Global Alliance for Climate Smart Agriculture (GACSA) and seven regional/national alliances, with goals of sharing knowledge, supporting investments, and scaling-up implementation.

Putting CSA into practice requires knowing what is climate-smart in different locations and designing projects to fit the context for implementation. What works for one type of farmer may not work for another (*eg* related to labour availability), and a CSA practice with desirable outcomes in one location does not necessarily deliver desirable outcomes under all agro-ecological conditions. There are often trade-offs amongst the three goals of CSA – sustainable productivity, resilience, and mitigation – so stakeholder priorities are important to consider when selecting which CSA practice to implement. There is a need for assessing value-for-money, climate-smartness, development impact, and scaling potential to establish effective CSA programmes. One major problem is that decision-makers do not have frameworks in place that link science and stakeholder engagement to plan, implement, and monitor CSA to achieve impact at the scale needed.

This paper presents an operational guide for putting CSA programming into practice – ‘CSA-Plan’ – which contains four main components for CSA planning and implementation (Figure 1): (i) situation analysis; (ii) prioritising interventions; (iii) programme design and implementation; and (iv) monitoring, evaluation, and learning. A suite of approaches are available for each component, and can be used to answer specific challenges that obstruct planning and progress. The components of CSA-Plan can be implemented sequentially or by themselves depending on stakeholder needs. Underlying CSA-Plan is a suite of CSA indicators to provide an evidence base to the decision-making, implementation, and monitoring components. Moreover, given the participatory nature of the approaches, capacity strengthening is critical for success and broad use.

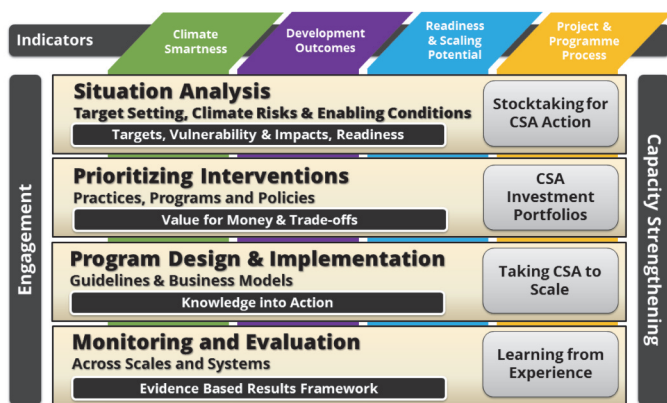


Figure 1. CSA-Plan Framework includes Situation Analysis, Prioritising Interventions, Programme Design and Implementation; Monitoring and Evaluation. Different types of Indicators are important to utilise across the CSA-Plan components to measure climate-smartness, development outcomes, readiness and scaling potential, and project/programme process. Engagement and capacity strengthening are needed for application of the CSA-Plan information and approaches within the context of agricultural development.

Situation Analysis

Before any decisions can be made on CSA programmes,

policies, and initiatives, a fundamental understanding is needed of the context where they will be implemented. This includes not only information on the farming activities, but on stakeholders’ goals, constraints, livelihood strategies, *etc.* A CSA situation analysis should provide information on the climate risks and impacts, but more widely the agricultural, political, social, and economic conditions for which CSA actions are being taken. The situation analysis specifically identifies the entry points for CSA actions by looking at: (i) the importance of agriculture in society; (ii) risks and vulnerabilities of the agricultural sector; (iii) existing and promising CSA practices and services; (iv) institutional and policy environment related to CSA – both barriers and enabling; and (v) finance opportunities and challenges for CSA initiatives. An engagement plan is needed to ensure key stakeholders are part of the process from the beginning, and that it is inclusive. At this stage, a long list of current and promising CSA practices and services relevant to specific agricultural systems and agro-ecological conditions can be identified for further analysis. Identification of finance mechanisms and institutional and policy entry points demonstrates current alignment with public and private sector policies and investment plans with CSA. A range of different specific CSA approaches that have been/can be used for situation analysis include the International Centre for Tropical Agriculture (CIAT)/CCAFS *CSA Profiles*, which summarise the CSA context at national or sub-national levels (World Bank & CIAT, 2015) and FAO’s *scoping studies for CSA East Africa* (FAO, 2015), among many others. The commonality being that they provide a foundation for CSA actions that can address climate risks, engage stakeholders, and enable further analyses and planning (Figure 2).



Figure 2. National stakeholder workshop in Nairobi on responding to climate shocks at community level. New climate-smart profiles offer Kenya a roadmap to implement climate-smart agriculture at country level. (Photo: Georgina Smit (CIAT))

Targeting and prioritising to identify CSA investment portfolios

A range of technological, institutional, and policy options for climate-smart interventions exist that have varying impacts on the CSA goals and economic costs and benefits. CSA-Plan’s targeting and prioritising component builds on this premise by using advanced analytical techniques, nested within participatory processes, to narrow down an extensive list of

possible practices, services, and policies to a range of best-fit options that provide value for money and can be scaled-out. The outcome of this step is a stakeholder-selected and evidence-based portfolio of high-interest CSA options.

CSA-Plan puts forward a general prioritisation approach based on the CIAT/CCAFS *CSA Prioritisation Framework* (Campbell *et al.*, 2016; Sain *et al.*, 2016; Corner-Dolloff *et al.*, 2017). Stakeholders first assess the context for the CSA intervention in question and set criteria for prioritisation. This includes a set of specific measurable indicators under each of the three CSA goals. A long list of potential CSA interventions – practices, services, and policies – is then established to provide a starting point for prioritisation. Next, through stakeholder and expert interrogation of indicator analyses of the potential outcomes of CSA interventions, the long list is narrowed down to a short list of high interest interventions for further analysis. Then, the selected practices are evaluated for their economic costs and benefits, implications for gender and social inclusiveness, adaptability, and scalability. And finally, through stakeholder and expert input, ensuring inclusivity, investment portfolios are developed either for different farmer types, different implementers, or different scales, aiming to maximise or minimise specific synergies and tradeoffs across the portfolio.

A range of specific CSA prioritisation tools and approaches have been developed that can be used (Shikuku *et al.*, 2017; Mwongera *et al.*, 2017; Notenbaert *et al.*, 2017). Different tools and processes can be used for different types of stakeholders and levels of decision-making (*eg* national *vs* community), allowing implementers to tailor their prioritisation approach and successfully engage target stakeholders.

Programme design and implementation

Programme design and implementation supports taking prioritised CSA actions to scale. It provides specific information that underlies the implementation of the interventions selected. It is important to have a 'theory of change' for how the intervention will lead to positive impact; a common pitfall is to simply come up with a list of interventions rather than strategically designed interventions that can be scaled-up to many beneficiaries. The diversity of products, users, and implementation conditions dictates equally diverse approaches and models. Principles of co-design can be useful to innovate in product design, iterate with end-users to field test, refine and improve materials, and share products on learning platforms to facilitate access by others.

There are a range of approaches and tools to use for programme design and implementation, including climate-smart value chain models, outgrower models, extension, farmer field schools, early-warning systems, financial mechanisms, weather-based insurance, and technical guides for technology implementation, among others. For example, the *Link 2.0 methodology* (Lundy *et al.*, 2014) is one such approach that has been used for designing innovative and inclusive climate-smart value chain business models. Financial savings approaches, such as village savings and loan associations (Allen & Staehle, 2007), provide simple savings and loan facilities in a community that can provide a

mechanism for facilitating uptake of CSA interventions. Innovative agricultural business models, such as outgrower or contract farming schemes, can be a mechanism for scaling of CSA interventions, such as has occurred in Kenyan tea outgrower schemes (Milder *et al.*, 2015). Climate services, warning systems, and agro-advisory services provide means for providing timely and site-specific information to farmers to help them respond to weather and climate (Hewitt *et al.*, 2012). Technical guides and manuals for implementation are needed for guiding development projects in how to implement interventions on the ground under different conditions (Rioux *et al.*, 2016). Climate risk can be offset using weather-based index insurance products for crops and livestock (Miranda & Mulangu, 2016). Depending on the social, environmental and economic context of the location, different programme models and tools will be useful or not. All in all, programme design is a wide area of work focused on engaging stakeholders in designing interventions that work for them.

Monitoring, evaluation, and learning

CSA-Plan's monitoring, evaluation, and learning (ME&L) component develops strategies and tools to track progress of implementation, evaluate impact, as well as facilitate iterative learning to improve CSA planning and implementation. CSA-Plan's ME&L delivers processes and products to support achieving and documenting programme goals and adaptively managing implementation. However, there are many challenges in measuring CSA. It has multi-objective complexity, given the multiple goals of CSA. The scale of impact can range from the farm to the national or international level. There are often multiple institutions involved in ME&L, each of whom might bring their own priorities and approaches.

The CSA-Plan approach considers various aspects of ME&L to address these challenges. The programme and stakeholder priorities are used to determine specifically what the ME&L is addressing. Then specific indicators must be selected and linked to priority outcomes using tools such as the *CSA Indicators Database* (Quinney *et al.*, 2016). There are *CSA outcome indicators* needed to measure medium/long-term impact on the three CSA objectives – sustainable productivity, adaptation/resilience, and greenhouse gas mitigation. There are indicators related to *broader development outcomes* (*eg* Sustainable Development Goals), such as incomes, nutrition, markets, *etc.* There are *readiness and scaling potential indicators* reflecting the capacity to plan, implement and monitor investments and activities related to CSA implementation that help measure the ability for the intervention to be scaled-up. Finally, there are *project and programme process indicators* to monitor programmes for meeting implementation process objectives. It is important to note that even though indicators clearly are important for the ME&L, these indicator sets are important across the different components of CSA-Plan.

Specific tools and instruments have been developed for monitoring sets of indicators. The CGIAR-CCAFS *Monitoring Instrument for Resilience* can be used for tracking changes in resilience in agricultural projects and programmes (Hills *et al.*, 2015). Operationalising the concept of resilience (*ie* the ability



to withstand change, stresses and shocks) is a challenge, and this tool demands tracking and reporting changes efficiently and using the information commonly available within development initiatives. Similarly, the *Toolkit for the indicators of resilience in socio-ecological production landscapes and seascapes* provides practical guidance for engaging local communities in adaptive management and can increase their capacity to respond to pressures and shocks. Monitoring CSA can also be done in a holistic, multi-objective way. For example, the *Rural Household Multi-Indicator Survey (RHoMIS)* provides a rapid and cost-effective instrument to track changes in poverty, gender equity, nutrition, climate and productivity outcomes – all measures of climate-smartness (van Wijk *et al*, 2016). *RHoMIS* is modular, so implementers can select or add indicators which fit their context and needs, and has been used in Africa, Latin America and Asia. Specific attention should be paid to gender, a critical cross-cutting part of CSA, and monitoring can also be done using approaches such as the *Woman's Empowerment in Agriculture Index* (Johnson & Diego-Rosell, 2015).

Engagement and capacity strengthening

Engagement and capacity strengthening are critical to help governments and others implementing agricultural development to integrate CSA into their policies, programmes, plans and projects (*eg* National Agriculture Investment Plans, Nationally Determined Contributions, and Climate Change Action Plans). CSA-Plan provides operational approaches that can be directly integrated into the planning processes, but the CSA-Plan process must be owned by the stakeholders and decision-makers involved.

Capacity strengthening is also critical for mainstreaming CSA, and the CSA-Plan approach, in institutions, policies and businesses across levels (community to national to global). This can be accomplished by working through the National Agriculture Research Systems (NARS), through academia, government, NGO, or the private sector. There are various alliances forming to provide formal engagement, knowledge, and training, for example GACSA and the Africa CSA Alliance. The bottom line is that without good engagement and capacity strengthening, CSA-Plan lacks purpose.

Conclusions

With the growing demand by governments, NGOs, and the private sector for integrating climate into agricultural development, there are many opportunities for CSA-Plan components to be applied from regional to sub-national levels. The CSA-Plan components – situation analysis, prioritising interventions, programme design and implementation, and monitoring, evaluation, and learning – have already been applied in many countries with partners including the World Bank, USAID and DFID, among others. For example, climate risk profiles are being developed for 24 Kenyan counties to provide technical support to the US\$ 250 million *World Bank*

Kenya CSA Project. Prioritisation of CSA intervention areas is then being developed within counties, and specific interventions being designed and implemented within the county Common Interest Groups and Public-Private Partnerships developing innovative implementation plans.

Responding to the needs of the stakeholders and decision-makers is critically important if evidence is to be translated into policies and programmes, but this is also a challenge to accomplish. Each set of stakeholders requires slightly different information and processes. For this reason, the CSA-Plan components are not static, but rather CSA-Plan provides a range of information, tools, and approaches that can be modified to address the needs of the specific stakeholders, with new tools and approaches added as they become available. Capacity strengthening of key institutions is also needed as evidence presented is only helpful if decision-makers are able to use it. Training manuals and workshops are useful starting points for capacity building interventions. Given that farmers and others at the local level are the ones actually taking decisions, there is a need for information, tools and approaches to be accessible across levels to operationalise mainstreaming of CSA into both on-farm business planning and larger-scale investments aimed at catalysing action. While the number of examples is growing, there is great opportunity for increased uptake of the CSA-Plan approach by governments, NGOs, and the private sector to mainstream CSA into agricultural development globally.

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News from the Field

Climate information use implications for climate risk mitigation in West Africa

The necessity for climate information services in West Africa

With projections of a 70 percent increase in demand for staple cereals by 2050 in order to feed the growing human population (FAO, 2010), combined with the current declining per capita food production and a dwindling natural resource base, 'feeding West Africa' and increasing the resilience of livelihood systems may be well beyond reach. This has been attributed to multiple factors such as land tenure challenges, declining soil fertility, poor markets, climate hazards and variability, inadequate funding and poor infrastructural development (Ouedraogo *et al*, 2016; Partey *et al*, 2016). The current state of food insecurity and poor rural livelihoods are expected to be further exacerbated by climate change and variability which has emerged as one of the major threats to development in West Africa (Zougmore *et al*, 2016).

While the Paris Agreement places great emphasis on reducing greenhouse gas emissions and creating carbon sinks, the impact on climate change mitigation will not be seen immediately even if the most effective mitigation measures are implemented.

As vulnerable farmers in West Africa experience greater climate variability (Cooper *et al*, 2008) it is important that climate-smart agricultural (CSA) technologies that reduce vulnerability to climate risks are prioritised. The establishment of the *Global Framework for Climate Services* (WMO, 2013) by the World Meteorological Organisation (WMO) clearly confirms climate information services (CIS) as one opportunity for managing climate change and variability risks. With increased drought, unpredictable rainfall patterns, destructive flooding and the growing evidence of climate change negatively impacting farm production systems, access and use of climate information should help farmers make crucial decisions that enable them