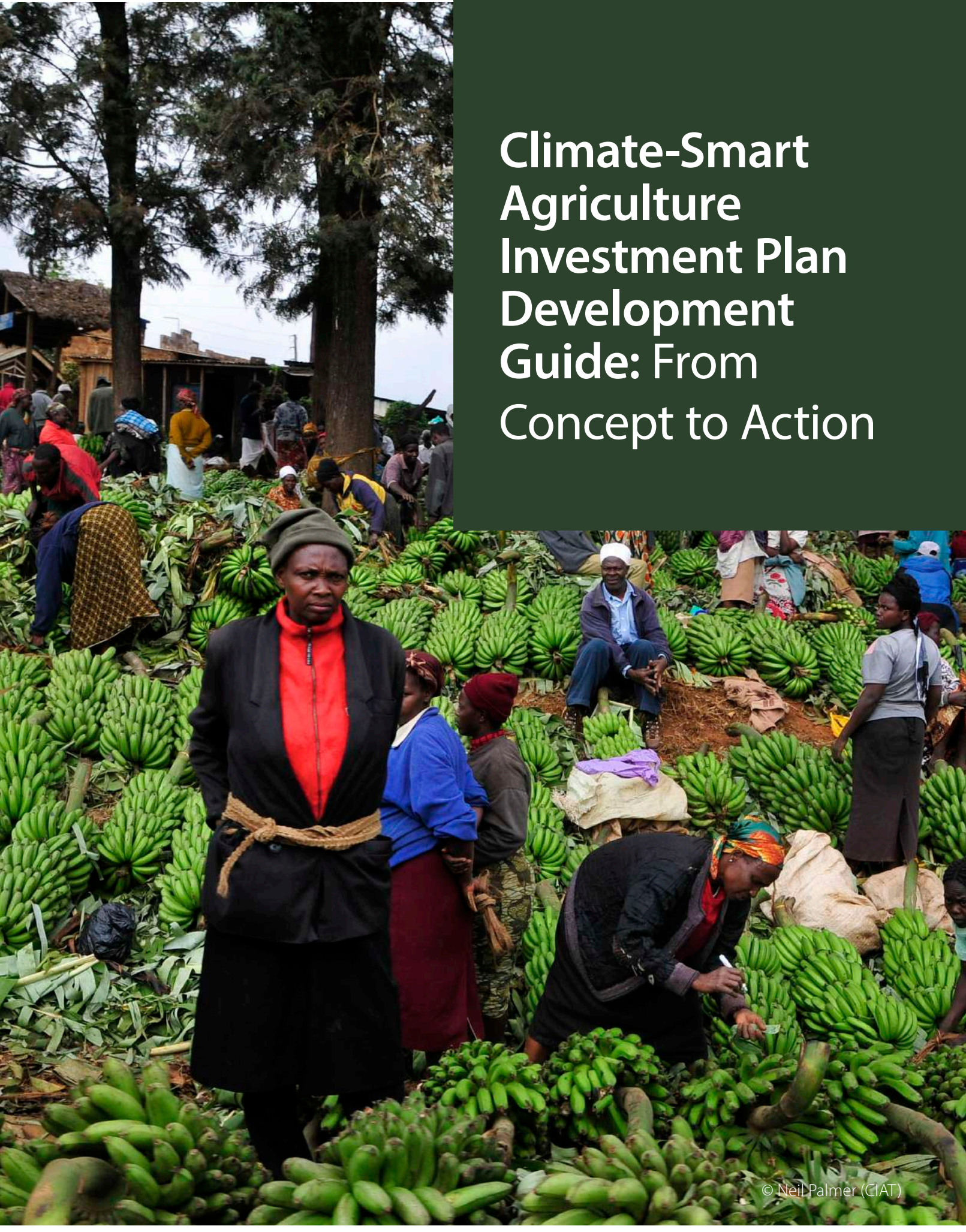
Climate-Smart Agriculture Investment Plan Development Guide: From Concept to Action



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The Paris Agreement defined at the United Nations Framework Convention on Climate Change (UNFCCC) 21nd Conference of Parties (COP21, 2015) in France, unified the global community toward the common cause of adapting to climate change, reducing greenhouse gas emissions and fostering sustainable development. The climate challenge to agriculture in Africa was recognized the following year at COP22 (2016) in Marrakech, Morocco, where the Moroccan government launched the Adaptation of African Agriculture (AAA) Initiative. This initiative aimed to highlight the investment needs for helping African countries cope with climate change risks to agriculture and best position themselves for a future of higher temperatures, uncertain precipitation and increased frequency of extreme events. The AAA Initiative builds on the Comprehensive African Agriculture Development Programme (CAADP), first launched in 2003 through the African Union, which promotes the development of national agricultural investment plans (NAIPs) for African countries. The development of climate-smart agriculture investment plans (CSAIPs) has been identified as important for identifying priority CSA projects and making the case for funding and financing.

January 2019

CLIMATE-SMART AGRICULTURE INVESTMENT PLAN DEVELOPMENT GUIDE

This guide offers a blueprint for developing a climate-smart agriculture investment plan (CSAIP). A CSAIP is a strategic and thorough planning document for proposing high-potential and high-suitability agricultural development projects. The process of creating a CSAIP leverages stakeholder engagement and capacity building by conducting a situation analysis, listing and prioritizing potential CSA investments, and developing preliminary designs and guidance for implementing and monitoring project investments. The result is a suite of country-supported and scientifically vetted investments ready to present to potential investors.

WHY DEVELOP A CSAIP?

Climate change is producing warmer temperatures, greater weather variability, erratic rainfall patterns and extreme weather events more frequently. Already, agricultural production in many parts of the world has been adversely affected, and this trend will continue. Developing countries, whose agricultural sectors tend to be subsistence-based and rainfed, are particularly vulnerable to climate change, variability and shocks. In these regions, climate directly affects food security and livelihoods for hundreds of millions of smallholder farmers, with knock-on effects of weakening rural communities and the entire economy.

Since 2009, climate-smart agriculture (CSA) has emerged as an approach to improving and safeguarding agriculture under climate change (box 1). In Africa alone, 45% of countries (24 of 54) have named CSA as a response to the challenges faced by climate change in their initial nationally determined contributions (NDCs)[1] to the Paris Agreement of United National Framework Convention on Climate Change (UNFCCC). With the impacts of climate change on agriculture being felt by farmers globally, the surge in national and global commitments to combatting climate change, and the resultant interest of investors and large funds to invest in climate-smart and climate-resilient agriculture, there has been a keen need to design large bankable investments and comprehensive CSA programs.

[1] FAO 2016

BOX 1 WHAT IS CLIMATE-SMART AGRICULTURE (CSA)?

CSA focuses on the three pillars of enhancing food security: (i) sustainably increasing production, (ii) enhancing resilience (adapting) to climate change, and (iii) mitigating greenhouse gas emissions, where possible and appropriate. CSA is not a set of practices; it is an approach to selecting and implementing agricultural practices, policies and services that are tailored to the context, in both space and time, and are integrated, so they work together to maximize synergy and minimize tradeoffs. What works for one group of farmers—given their location, culture and circumstances—may not work for another group. Effective CSAIP requires evaluating the impacts of an investment based on the biophysical, agricultural and the socioeconomic context of a given place.

WHAT IS A CSAIP?

A climate-smart agriculture investment plan is a strategic and comprehensive case for investing in agricultural development in the face of climate change and variability. The CSAIP development process includes an extensive analysis of the context and entry points for CSA development and implementation, the priority goals stakeholders aim to achieve by implementing the programs, and how the defined investments may be most successful at meeting those goals given the context. The result of the CSAIP is a suite of country-supported and scientifically vetted investments that are most likely to achieve national food security and climate targets. The tangible output of the CSAIP is a comprehensive document that summarizes (i) why CSA is important in the national situation; (ii) which project concepts would, if financially supported, best achieve the desired positive CSA impacts; and (iii) a general framework for monitoring and evaluation (M&E) for CSA that relates to other national monitoring frameworks.

The CSAIP development process addresses four key components based on the CSA Plan Approach: (i) situation analysis; (ii) prioritizing investments; (iii) project concepts; and (iv) identify monitoring & evaluation elements (figure 1).[2] CSAIPs build on this approach by deepening the situation analysis and applying participatory analytical tools to identify sets of CSA investment opportunities that support the countries' NDCs. The analytical tools include visioning exercises, expert input and quantitative modeling, all of which are deployed through multiple in-depth stakeholder consultations. The contents of the CSAIP are carefully considered and objectively analyzed via the process described in this guide.

The exact content of the final CSAIP document depends on the findings that emerge from the development process. The general outline, however, will remain largely the same (box 2). The document should explain the CSAIP process that was followed, the case for investment, investment concept notes, economic valuation of those concept notes, and an assessment of M&E elements. Below is an example of what a CSAIP table of contents might include. Note that the body of the document primarily contains explanations of the processes, limitations and results of the CSAIP, while relevant supplementary material, such as the full concept notes and description of the technical analyses, are in the appendices.

WHO IS INVOLVED IN A CSAIP?

The CSAIP development team may be selected from within the country, contracted internationally or a combination of the two. Regardless, all CSAIP teams need an in-country facilitator to engage stakeholders, a group that includes key individuals from multiple sectors specializing in agriculture, rural development, climate change and planning. For example, stakeholders could include high-

[2] Girvetz et al. 2018

level representatives of government agencies and ministries, the private sector, relevant NGOs, farmer organizations and potential implementers and donors. Technical experts, extension workers, researchers, farmers and academics are all crucial to ensure that the investments are practical and viable within the context. Such diverse representation helps ensure that investments are aligned with policy, organizational goals and national priorities, and also creates an authorizing environment for development of the CSAIP.

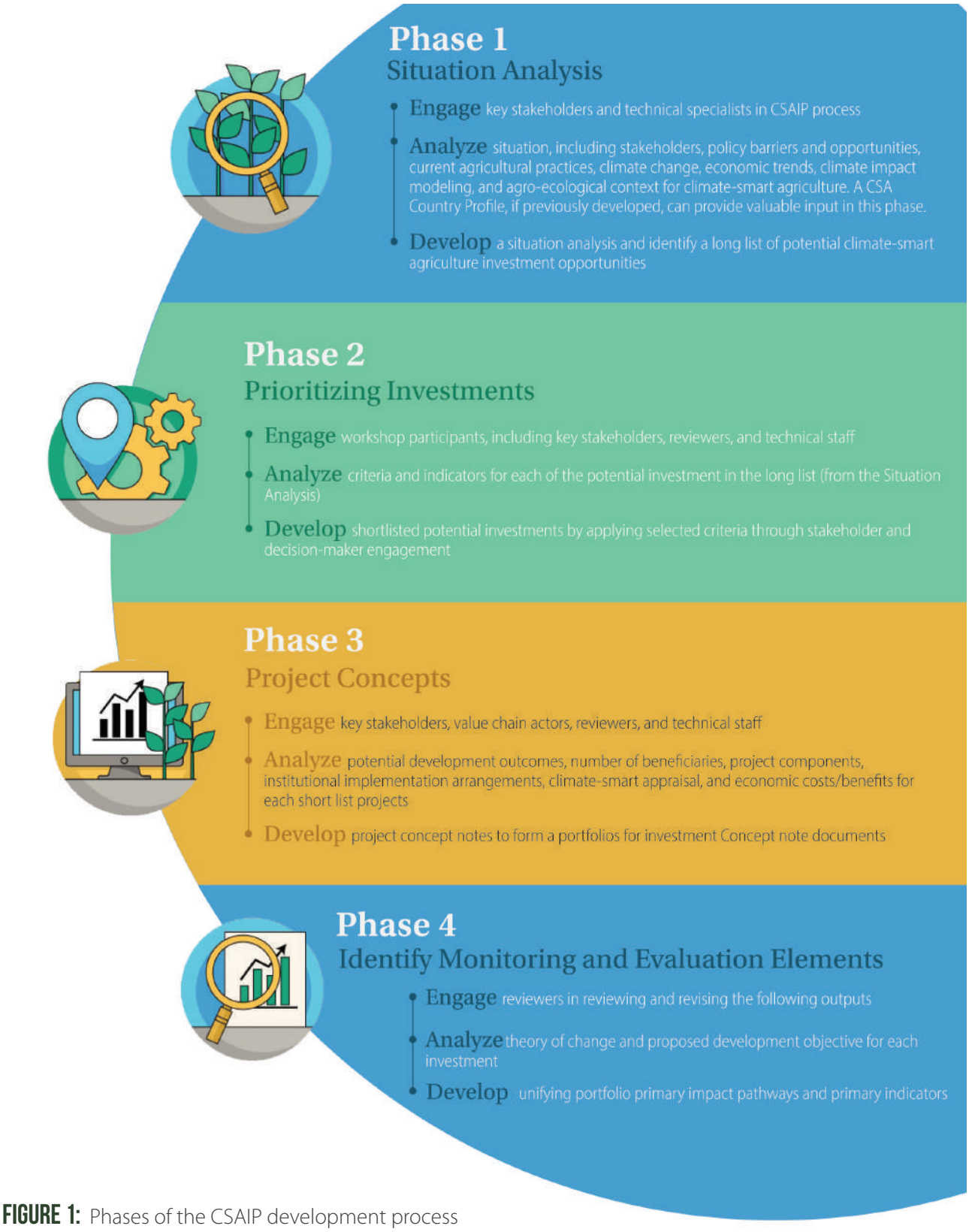

FIGURE 1: Phases of the CSAIP development process

BOX 2 SAMPLE TABLE OF CONTENTS OF A CSAIP

KEY TO SUCCESS:

It is important to have a well-engaged and well-respected point person in-country for the leading the CSAIP engagement process. This person could be a staff member in a government ministry or another strong partner with a good network of key actors for the process.

Several African countries have already developed CSAIPs, resulting in short-lists of highly promising investments that are ready to present to potential funders, as well as hypothetical designs for technical content, implementation, financing mechanisms and complementary policies. Combining participatory processes, qualitative assessment and quantitative analysis to inform investment prioritization has proven effective. Several critical factors for success have been identified through these first CSAIPs, and are highlighted throughout this document as Keys to Success or Pitfalls to Avoid.

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PHASE 1:
Situation Analysis

Situation analysis is the first step toward CSA action. It provides a foundation of information and analyses of climate risks, economic trends, agricultural impacts, policy context, institutional capacities and a long-list of potential CSA investments. This provides critical information for presenting the context for CSA in the country, as well as key evidence that feeds into the subsequent steps of prioritizing a short list of investments, designing CSA project concepts and developing the CSAIP monitoring and evaluation framework.

ENGAGE

A technical team of climate change, agricultural and economic modelers; institutional specialists; and CSA experts should be involved in assessing the country context for CSA. In parallel with technical analyses of these aspects, key stakeholders need to be involved in order to gain key insights into the many individual analyses that compose the overall situation analysis. This is also a good time to begin recruiting stakeholders for ongoing participation in the CSAIP process for prioritization, investment portfolio design and M&E framework development. It is particularly important to make stakeholders aware of the expectations and time investment that will be necessary during each phase of the process. Organizations should strategically select representatives who are authorized to make decisions on behalf of the organization, have good technical knowledge of relevant topics, and are able to dedicate the necessary time to fully engage in stakeholder-oriented processes and events.

ANALYZE

The analysis and review of information in the situation analysis is substantial, using a combination of literature and document review, quantitative modeling, qualitative assessment and stakeholder engagement. The areas addressed can be broadly categorized into analysis of: (i) policies/programs/strategies; (ii) agriculture, climate and economic context; and (iii) institutions and organizations. Specific topics and plans under these categories address are described below.

To begin, the analysis should assess the policy environment to understand where and how CSA investment can align with and reinforce existing nation goals. The analysis must include policy and legal frameworks (e.g., national climate change policy, irrigation and water policy, land tenure, etc.); relevant strategy documents such as the Reducing Emissions from Deforestation and Forest Degradation (REDD+) Strategy; national investment plans such as national agricultural investment plans (NAIPs), nationally appropriate mitigation actions (NAMAs), national development plans (NDPs); international conventions (NDCs, Bonn Challenge); and private-sector initiatives. Oftentimes it is useful to employ 'snowballing' techniques when analyzing policies, plans and programs, allowing interaction with key informants in government, NGOs, private-sector and development organizations to lead the review team to new documents that may not have been immediate available. This analysis helps to provide an indication of which pillars are of greatest political interest and where there might be synergies with CSA goals (Annex A). This comprehensive review and analysis of policies, strategies, plans and programs is needed to identify a long-list of potential investments that are in line with key government and other stakeholder priorities. Experts compile a long-list of potential CSA investments (about 25–30), barriers to CSA, opportunities for CSA, and potential stakeholders and expert reviewers (see Annex B for an example of a long-list of potential CSA investments for a country.)

Next, the analysis should evaluate and characterize the agriculture, climate and economic context of the country at national and subnational levels. In some cases, information may be readily available. When it is not, a suit of specialized tools permits detailed investigations on livelihood strategies, macro-economic trends such as trade, climate risks and future impacts, and crop and livestock performance under projected climate change (table 1). This quantitative modeling can be coupled with expert and household surveys to understand the business environment, current CSA activities and the like. The outputs provide a detailed picture of the way agriculture is currently being conducted and the risks to the sector in the future.

TABLE 1: Example of models, tools and approaches for understanding the climate, agricultural and economic context for the situation analysis

Model, tool or approach	Description
International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT)[3]	A network of linked economic (partial equilibrium), water and crop models providing information on macro-economic trends due to climate and socio-economic changes globally.
Climate Wizard[4]	A user-friendly, web-based tool for analyzing general circulation model (GCM) future climate change projections relevant to agriculture.
CCAFS Climate Data[5]	Raw downscaled climate data to be used in climate impact modeling
FAOSTAT	Database of key indicators and statistics useful for providing information on agricultural and socio-economic context.
Literature review	Many analyses of climate impact to agriculture have been published in both peer-reviewed and grey literature, which can provide context for climate impacts. CSA profiles provide good comprehensive information (see box 3 below).
Focus group discussions and key informant interviews	An approach to get information from key experts and stakeholders that cannot be found in other places.

[3] https://www.ifpri.org/program/impact-model

[4] http://climatewizard.ciat.cgiar.org/

[5] http://ccafs-climate.org/

Lastly, Institutions and organizations are assessed for their potential to provide the enabling structures and support for successful implementation of CSA investments. These include private, - public- and civil society sector institutions, such as government ministries and programs, private-sector service providers and value-chain actors, farmers' organizations and development institutions. It is important to understand this context when designing the implementation arrangements of the prioritized projects during the program design phase.

Taken together, the agricultural, climate, economic and institutional contexts provide an evidence base for prioritizing and designing investments. By combining the strengths of these different approaches, a comprehensive and robust assessment of the major trends in a country related to climate, agriculture and the economy can be analyzed and presented.

These analyses are framed in the context of different future scenarios of climate and socioeconomic pathways. Representative concentration pathways (RCPs) are used to analyze a range of greenhouse gas emissions, which result in different levels and types of climate changes across the globe (see annex C, figure C-1). Shared socioeconomic pathways (SSPs) are scenarios of global development and contain many elements representing a development path the world might take and how this path would affect society's ability to respond to climate change. Figure C-2 in annex C shows how the five SSPs were envisioned with respect to society's ability to deal with climate change.

DEVELOP

The information gathered during the situation analysis is useful throughout the program life cycle, including during CSAIP development, financing, implementation, reporting and M&E. As such, situation analysis outputs should be captured so as to be easily referenced by stakeholders throughout the CSAIP development process and beyond. The process, resulting information and conclusions are captured in a situation analysis document, which is submitted to key stakeholders for review. Based on their feedback, the document is revised and redistributed to stakeholders in anticipation of Phase 2: Targeting and Prioritizing.

KEY TO SUCCESS:

Climate and agricultural analyses can be very complicated and difficult for decision-makers to interpret. It is important to simplify and present the results in ways that are easy to understand and have clear implications.


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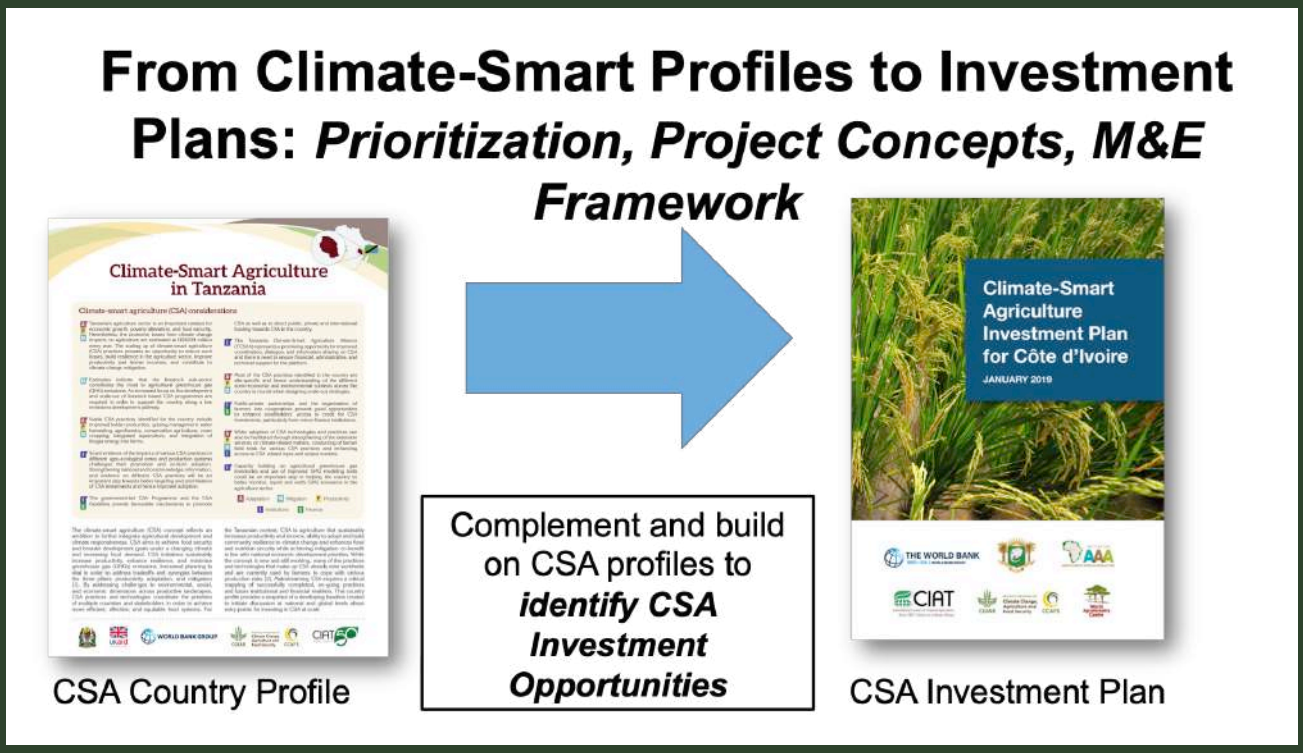
BOX 3: CSA PROFILES ARE A VALUABLE INPUT FOR DEVELOPING THE SITUATION ANALYSIS

The CSA Country Profiles are a series of publications containing a brief yet comprehensive overview of the status of CSA for a given place, system or value chain. Each CSA Profile gives an overview of the agricultural context and challenges in each place through a climate-smart agriculture lens, and provides a snapshot of the key issues, climate impacts, CSA options, relevant policies and financing opportunities for scaling up the adoption of CSA interventions along specific value chains. CSA Country Profiles have been published in 32 countries across Africa, Asia and Latin America; in addition, 31 subnational county-level Climate-Risk Profiles have been produced for Kenya. These profiles are developed with the intention of informing the design of large investments, such as CSAIPs. CSAIPs then build on this by deepening the situation analysis and applying participatory analytical tools to identify and design portfolios of CSA investment opportunities that support the countries' NDCs and other national priorities.



https://ccafs.cgiar.org/publications/csa-country-profiles

PHASE 2:

Targeting and Prioritizing

The outcome of the situation analysis is an understanding of the agricultural, economic, social, biophysical and climatic contexts for the CSAIP and a long-list of potential investments drawn from national policies, strategic documents and published research. These diverse investments will differ in their potential number and type of beneficiaries, target regions or value chains, and technological approaches. The purpose of the targeting and prioritizing phase is to go from this long-list of possible investments to a short-list of the highest-potential projects based on a participatory evaluation of projects against national and programmatic priorities.

ENGAGE

The first element of the prioritization phase is the identification and engagement of stakeholders to participate in the process. Prioritization exercises can be highly sensitive to who is in the room. Therefore, stakeholders should represent as broad a cross-section of local agricultural expertise as possible.

The participatory nature of the prioritization process also creates ownership over the final short-list of potential CSA Investments. Therefore, it is also critical to have key decision-makers in the room from the beginning of the process.

Once stakeholders have been identified and contacted, a two-day workshop can be convened to conduct the prioritization and targeting phase. Results of the situation analysis should be shared with participants before the workshop.

Stakeholder dimensions to consider	
Type	Government, technical experts, practitioners, ngo, private sector
Sector	Crops, livestock, horticulture, finance, planning, climate change.
Scale	National, regional, local
Regions	High- and low-productivity regions
Population	Women and men, youth, marginalized or vulnerable groups.

ANALYZE

The objective of the first day of the prioritization workshop is to analyze the situation analysis and other available evidence in order to determine criteria for selecting potential CSA investments for the country. These criteria may reflect the potential impact of the CSA investment, its likelihood of success or its alignment with national and donor priorities. Ideally, criteria should be specific and evaluable, and should enable differentiation among potential projects. Some example criteria are listed below (see table 2).

Some evaluation criteria may be predetermined by national or donor requirements, while others may be generated during the workshop by the stakeholders present. In either case, it may not be feasible to

KEY TO SUCCESS:

Local knowledge is key to understanding the contextual details that will significantly affect investment outcomes..

TABLE 2: Example criteria for prioritization in three categories: (i) potential impact; (ii) likelihood of success; and (iii) alignment.

Example criteria for prioritization
Potential impact:
Climate-smartnes
Number of beneficiaries
Co-benefits for GDP, environment, etc.
Likelihood of success:
Feasibility
CSA-readiness
Likelihood of attracting other funding
Alignment
Alignment with national policies/priorities
Alignment with donor objectives/priorities

evaluate many projects against many criteria during a workshop, so the partners should try to keep the number of criteria to a manageable number (3–5 is ideal).

If several criteria are chosen for evaluation, stakeholders may wish to prioritize or weight the criteria based on their importance. Otherwise, all selected criteria will be treated equally for the purpose of evaluating potential CSA investments.

DEVELOP

During the second day of the prioritization workshop, participants will evaluate the long-list of CSA investments against their prioritized criteria to develop a short-list of 10–12 projects for further analysis. The first step in this process is to refresh participants on the long-list of potential CSA investments as well as the chosen and ranked criteria produced during the first day.

Participants then need to evaluate the performance of investments across the chosen criteria. This is best accomplished by organizing participants into groups to collectively evaluate a group of investments. These groups could be arranged based on sectors (crops, livestock, agrometeorological information), geographic regions, or type of project (farm practices, information, capacity building). Groups should use all available evidence, including the situation analysis, available data and their personal expertise and experience to guide evaluation.

KEY TO SUCCESS:

Specific, evaluable investment criteria increase stakeholder engagement in the investment identification process and sharpen the analytical focus.

Projects may be evaluated using several methods. Once groups have completed their evaluation of their potential investments, the groups should present their findings back to all participants.

With the evaluation of all of the long-listed CSA investments, the final prioritization and development of the short-list of projects for further evaluation can begin. Participants can calculate a score for each potential investment by summing the numeric score across the criteria or summing the number of "yes" answers across criteria. The highest-scoring projects can become the short-list (figure 2). Alternatively, to increase participation and validate the rankings of the groups, participants can be invited to vote for their top projects, using the scores as evidence. Each participant can be given several stickers (4–8 depending on number of participants) and asked to place a sticker next to their preferred options. The goal is to identify a short-list of approximately 10 potential investments for further study. In addition, the top four investments should also be identified for a detailed analysis.

Evaluation method	Stakeholder dimensions to consider	Stakeholder dimensions to consider
Binary	Yes/No for whether criteria are met	Simple to implement. Need to define a threshold for meeting the criteria. May not be enough detail to distinguish projects.
Qualitative	Low, Medium, High rating to show degree of meeting criteria	Allows finer differentiation among projects.
Quantitative	Numeric score (e.g., 1–5) for degree of meeting criteria	Finest scale differentiation among projects. May be more detail than necessary.

FIGURE 2: Example prioritization process for CSAIP development. Projects from the long-list are ranked in a binary way across three criteria. Top-scoring projects are prioritized for detailed analysis (green), the next-highest-scoring projects are included in the short-list (yellow) and low-scoring projects are excluded (red).

DEVELOP

The outcome of the targeting and prioritizing phase is (i) a prioritized short-list of potential CSA investments and (ii) a set of project evaluation criteria and their relative importance. The short-listed investments are analyzed further in the program design phase.

PHASE 3:
Project Concepts

The CSAIP identifies investments highly likely to meet national goals and prioritizes them according to national interests. The 10–15 short-listed investment ideas developed in the targeting and prioritization phase need to be further elaborated to discover complementarities and gaps in geographic scope, activities, target populations, participation, or priority commodities and value chains. The objective of project concepts phase is therefore to develop detailed project concepts from the short-listed CSA investments to enable confident decision-making on priority investments.

Detailed project concepts include but are not limited to: in-depth descriptions of project activities; targets in terms of number of beneficiaries and target groups (if appropriate); implementation arrangements of institutions and partnerships including government agencies, civil society, research community, etc.; forecasted budgets and project costs; and an appraisal of economic performance such as expected return on investment subject to project risks. Project concepts are the nuts and bolts of specific investment opportunities.

Funded investments will eventually undergo a more detailed design process, at the individual investment or package level, depending on investor. However, CSAIP's project concept design phase generates the information necessary to evaluate the suitability of investment ideas, as well as an opportunity to form and clarify partnerships, assess ideas and assumptions of the investments, and ensure the rationality of the CSAIP.

ENGAGE

Given the scope of program design, diverse groups of stakeholders need to be involved in detailing the components of each investment. Depending on the scope, a plethora of government institutions such as ministries of agriculture and livestock (for crop- and livestock-based investments), ministries of finance (for financial services, communications or ICT-based investments) or ministries of statistics may be involved. In addition, NGOs and civil-society actors with significant networks of human and technological capacity in-country can provide a grounded view of potential investment success. Furthermore, representatives from the private sector, specifically for target value chains or financial services, can provide a litmus test of what might catalyze additional investments. The academic and research community would be a final group to engage given their role in strengthening capacity across sectors and providing opportunities for assessment.

Next, the analysis should evaluate and characterize the agriculture, climate and economic context of the country at national and subnational levels. In some cases, information may be readily available. When it is not, a suit of specialized tools permits detailed investigations on livelihood strategies, macro-economic trends such as trade, climate risks and future impacts, and crop and livestock performance under projected climate change (table 1). This quantitative modeling can be coupled with expert and household surveys to understand the business environment, current CSA activities and the like. The outputs provide a detailed picture of the way agriculture is currently being conducted and the risks to the sector in the future.

KEY TO SUCCESS:

Investment champions (key informants) who have technical expertise and respected places within communities provide critical information and help ensure that concepts match needs and are aligned with other ongoing opportunities.

Opportunities for co-development of project concepts and revisions need to be factored into the timeline and process of the design phase. This may include identifying key informants (investment champions) to collect detailed information on implementation arrangements and possible budgets, but also mechanisms to generate feedback from other members of the community. The goal is to use inclusive processes that foster feelings of ownership over the individual investments and the CSAIP.

KEY TO SUCCESS:

Ensure a clear theory of change is developed that shows how the investment leads to key identified targets. Project activities should be developed with a clear link to the investment objective and a scalable positive impact

ANALYZE

The design process compiles existing information and generates new knowledge on the CSAIP and the component investments. The project concept consists of five main analyses: (i) theory of change including the proposed development objective (PDO), (ii) defining of activities with a plausible investment design, (iii) identification of the number of target beneficiaries, (iv) estimation of project budgets and (v) appraisal of investments for potential to increase productivity, improve resilience and reduce emissions (i.e., climate-smart appraisal). The first four analyses are drafted in a two-to-three day participatory workshop with the engaged stakeholders. This workshop is distinct from the prioritization workshop that developed the short-list of CSA investments. After the workshop, the outputs are refined by the CSAIP development team to create the investment concepts. The fifth analysis, the climate-smart appraisal, is an in-depth technical analysis that is completed by the CSAIP development team using inputs generated during the project concepts workshop and external data sources.

Project concept development begins by identifying a theory of change that explains how the CSAIP will lead to positive impact. Embedded within the theory of change is the PDO, which describes the desired positive impact from implementing the CSAIP. The theory of change describes the pathway(s) from CSAIP activities, to tangible project outputs, through to desired outcomes (changes in behavior such as skills, knowledge or attitudes) that create impact. The theory of change sets out the assumptions embedded in the CSAIP and provides the framework on which to hang and align the activities in individual investments. With a theory of change at its core, the project concepts create a clear path from theoretical goals to practical activities and tangible outcomes.

Next, stakeholders develop investment designs, or project concept notes, including analyses ii-iv above, for each short-listed investment. Project activities (specific CSA interventions such as technologies, weather infrastructure, or insurance products that will take place in specific locations) are identified, as are the potential institutional arrangements and partners involved, and hypothesizes about key climatic, environmental and social risks that may affect investment implementation. During the workshop, participants will be organized into groups organized by expertise, geographic region or commodity, among other factors. Sufficient numbers of participants are needed to allow individuals to delve deep into each investment given the allotted time. Participants may also move between groups depending on their particular interests or expertise. The pieces of information (data) generated during the project concepts workshop become the building blocks of the final investment concepts and the input data for the performance appraisal.

KEY TO SUCCESS:

Participation of the appropriate stakeholders in the design process increases the relevance and specificity of the project concepts. Time should be taken to get the right set of stakeholders in the room.

Using the situation analysis and data from the project concepts workshop, the CSAIP development team conducts in-depth research on best practices, work to date, and challenges and opportunities for each potential investment. Based on this research, the team then produces a plausible investment design, including:

- Agricultural context
- Climate and food security issues addressed
- Policy alignment and barriers
- Related efforts, previous and ongoing
- Proposed development objective
- Expected number of beneficiaries
- Project components (3–6)
- Project subcomponents (if desired)
- Key stakeholders for each component

The above is captured in a concept note document and submitted to key stakeholders and expert reviewers (annex D). Garnering feedback at this stage increases ownership of the implementing community, helps build consensus and minimizes revisions to subsequent technical analyses on project performance.

The estimated number of beneficiaries is a critical piece of the information developed. The actual number of beneficiaries will ultimately be determined by the resources available to the investment implementers (see box 4)[6] . However, for the Concept Note analyses it is useful to estimate potential beneficiaries. The CSAIP team can use online resources, such as population data and demographics, to estimate the total number of potential beneficiaries in the region highlighted by the workshop participants. If the number is very large, the team may opt to narrow it down by age, gender, or region of particular need based on the situational analysis and concept note findings. What is considered a reasonable number of beneficiaries will vary significantly based on the proposed investment approach. Technology-based investments, such as climate information services, can reach millions of people cost-efficiently. On-farm investments offer more benefit per person, and consequently tend to be more cost intensive.

BOX 4 ESTIMATES OF BENEFICIARIES

There are no fixed rules for how many beneficiaries may be reached. However, it is reasonable to expect that projects cost in the range of US$50–US$500 per beneficiary, though more infrastructure-intensive projects may be significantly costlier. Assuming that individual investment ideas in the CSAIP are suggested to be designed to fall within the US$15–US$30 million range each, the number of target beneficiaries would be between 30,000 and 300,000 per concept. It should be noted that these values represent number of potential beneficiaries reached and not the expected change in outcomes for each beneficiary. There can often be trade-offs between the number of beneficiaries reached (scale) and the amount of change per beneficiary (magnitude). That is, it is possible to reach millions of people but they may only see a relatively small change, such as a 4% increase in income, while you may reach fewer people with other programs that may generate a 30% increase in income. Despite the nuances, the range US$50 – US$500 per beneficiary provides a rough guideline for number of target beneficiaries.

[6] Ranges of costs per beneficiary based on authors assessment of investment of similar size across a range of donors.

Based on the concept note, the team creates budgets of the costs of the proposed investments over the agreed time frame. Budgets are created in collaboration with the investment champion for each investment, outlining potential fixed and variable costs by year. Annual budgets are needed to produce estimates of project performance (e.g., net present value and return on investment). Budgets are then provided to the group that worked on the investment for feedback, revision and validation.

Finally, the CSAIP team conducts a climate-smart appraisal of the investments. The climate-smart appraisal is a detailed economic analysis of how the investments are expected to perform under social and climatic risks. At a minimum, the climate-smart appraisal includes technical analyses of:

- Productivity benefits quantified as return on investment, net present value and value for money
- Assessment of likelihood and impact of potential social and natural project risks
- Resilience of investment performance to prevailing risks
- Beneficiary adoption rates
- Qualitative analysis of inclusiveness of vulnerable groups
- Mixed quantitative and qualitative assessment of greenhouse gas emissions and sequestration potential (optional)

Estimates of changes in farmer income as a result of adopting CSA practices and participating in CSA interventions are at the core of these assessments. Potential changes in farmer income are derived from peer reviewed and grey literature including the CSA Compendium, which is a meta-dataset that includes information from more than 1600 studies about the impact of changing technology on indicators of productivity and resilience.[7]

Many approaches may be used to provide ex ante performance of investments.[8] Probabilistic modeling (i.e., with Bayesian belief networks) is most effective in producing assessment results that account for uncertainty in all the factors at play, and for the likelihood and impact of multiple risk scenarios (e.g., weather events, political crises, etc.).[9] Estimated financing needs and potential sources to cover these needs, such as the Maximizing Finance for Development approach,[10] can also be used.

These technical analyses become part of the concept note documents, which are resubmitted to stakeholders. Then, stakeholders once again meet to discuss and recommend changes to the short-list based on the designing project concepts outputs. Most often, changes to the short-list will consist of removing potential investments that are unlikely to perform well or no longer meet prioritizing criteria based on the climate-smart appraisal. In the rare event that new investments were suggested based on additional insights, the design process would be repeated for the newly added investments.

DEVELOP

Outputs of the project concepts process allow stakeholders and potential funders to quickly understand the who, what, where, why and how of each proposed investment, and to what degree it

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[7] Rosenstock, T, et al. 2015. "The Scientific Basis of Climate-Smart Agriculture: A systematic review protocol." Working Paper. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security Working Paper 138.

[8] Herrero et al. 2014. A framework for targeting and scaling-out interventions in agricultural systems. CCAFS Working Paper #62; Crouch et al. 2018. Developing Climate-Smart Agriculture Policies: the Role of Economic Modeling. RTI Press.

[9] Yet B et al. 2016. A Bayesian network framework for project cost, benefit and risk analysis with an agricultural development case study. Expert Systems with Applications; Riahi et al., "The Shared Socio–Economic Pathways (SSPs): An Overview"; Heavens, Ward, and Mahowald, "Studying and Projecting Climate Change with Earth System Models"; Intergovernmental Panel on Climate Change, "Representative Concentration Pathways"; CIAT, "Climate Smart Agriculture Investment Prioritization Framework"; Lundy et al., "LINK Methodology: A Participatory Guide to Business Models That Link Smallholders to Markets"; Lipper et al., "Climate-Smart Agriculture for Food Security"; International Food Policy Research Institute, "IMPACT Model."

[10] World Bank, "Maximizing Finance for Development (MFD)." World Bank.

aligns with their own investment goals and priorities. Tables and figures are useful in summarizing the extensive information found in the concept notes, and offer the reader objective indicators of the importance, expected impacts and economic analyses of each proposed investment. Of particular importance is the summary table so that the effects of the entire CSAIP can quickly be evaluated together (table 3).

TABLE 3: Summary of the outputs of situation analysis and climate-smart appraisal for example investments

Investment	On-farm importance	**National importance**	**Projected response to climate change**	**What could happen without Investment**	**Focus of investment**
Yam	Food security	35% of daily calories; grown by 85% of smallholders	Increased variability	Stable yield will not meet higher demand	**Growth** In yield and quality
Mango	High value -nutrition	Large exports; 50% consumed domestically	Small decline	Lower yield and small production	**Growth** expanding yield and value added
Vegetables	Nutrition, food security, economic	Reliably high and growing market demand	Poor	Decreased production, increased postharvest losses	**Resilience and Growth**
Rice	Food security	61% of daily cereal consumption; 45% of all cereal grown now	Small decline	Slight decline in production	**Resilience and Growth** toward self-sufficiency

PHASE 4:
Monitoring & Evaluation

Designing a monitoring and evaluation (M&E) strategy is an essential component of the CSAIP. The strategy reviews the assumptions of how change will occur (theory of change) and describes the evidence and information needed to implement results-based management, including, but not limited to, the following: development of a results framework, selection of indicators and definition of M&E systems.[11] Subsequent information derived from the implementation of M&E activities contributes to the collective knowledge of how investments are performing and how the actions are influencing processes of change. Taken together, M&E activities create a mechanism for tracking progress against targets, learning lessons, increasing accountability, raising flags when adaptive action may be necessary, and telling data-driven stories of success by government agencies, financial institutions, subnational agencies, communities and other decision-makers.

Planning for CSAIP M&E needs to account for purposes beyond CSA. Establishment of the M&E system—including deciding on indicators, assigning roles and responsibilities, and strengthening capacity—should ensure that it aligns with other policies and programs such as the national development plan, national agricultural investment plan, nationally determined contributions, African Union Scorecard and others. Such alignment increases the chances that investments in CSAIP M&E will build and make lasting contributions to the institutional and human capacity for collecting and using information and data for decision-making.

Full design of the M&E system needs to be developed following investment funding, as it needs to be sensitive to the specific investments, their activities and levels of effort and available funding. However, the CSAIP provides the first steps toward M&E system development and deployment and a road map for where to target M&E investments. The following describes who to engage in the development of M&E process for the CSAIP, what types of information is needed (including some tools readily available) and what the CSAIP M&E development process will produce.

ENGAGE

Every CSA initiative and investment involves different stakeholder groups in the country, each with unique targets and constraints. The users range across levels—from the community to national level—and across institutions, from government ministries to NGOs. Each brings valuable insights into what a useful M&E tool would look like (e.g., key topics to track), what data has been collected so far, and the various data collection methods available. Participatory design of the M&E system can also serve as a tool for collective learning, negotiation and empowerment; it allows planners to better understand the context and manage potential risks, as stakeholder groups would likely have different (sometimes competing) experiences and perspectives on the M&E thematic areas, thus enriching the design. In short, the CSAIP M&E needs to be designed based on extensive interactions with users of the information.

Stakeholder engagement requires clarity on two key aspects. First is understanding who the users of the M&E process will be. This is usually defined through a comprehensive stakeholder analysis, which diagnoses each actor's level of influence and interest in the implementation of the M&E plan (the influence-interest matrix). This will help decide who the most important stakeholders to engage will be; it will not oust the less influential actors from the process but rather would help design tailored engagement strategies. The second aspect to consider is the engagement process itself, with

[11] International Finance Corporation. 2018. Working with smallholders: A handbook for firms building sustainable supply chains. World Bank Group: Washington, DC, USA. 327 pg.

the goal of developing a strategy to ensure that the stakeholders have a voice in the design of the M&E plan. Strategies might include stakeholder workshops to collectively assess interest and capacity for M&E, fishbowl techniques (small-group discussions that allow dynamic participation and cover controversial topics), informal or formal one-on-one meetings, etc. Answering these two questions—who the users are and how they will be involved in the process—helps create a salient and legitimate product.

ANALYZE

The starting point for developing CSA M&E systems is to define the use of the information. Different users may take interest in different types of information. For example, community stakeholders may prioritize identifying effective CSA activities as the main purpose of M&E. Alternatively, the ministry of finance may be interested in tracking progress on implementing plans and policies and how much funding has been directed toward agriculture. Understanding the needs of these various groups, and the human and institutional resources available for M&E implementation, underscores both the purpose and functionality necessary for the results framework, the indicators and the M&E system.

Next, the theory of change and proposed development objectives (from the prioritization phase) are jointly considered in order to identify the desired changes and the pathways (change assumptions) through which the activities that will be implemented under the portfolio of investments will achieve their objectives. In other words, this involves explicitly laying out the expected chain of results that links activities; tangible outputs; changes in knowledge, skill or attitudes (outcomes); and impact (box 5).[12] By definition, CSA expects the impact to be some combination of sustainable productivity, resilience and reducing emissions, with national interest delineating relative emphasis. There are multiple mechanisms to obtain these impacts, and it is important to lay out the assumptions. Development of the impact pathways from the activities (outline in program design) through to impact becomes the foundation for monitoring.

Next, primary indicators are defined. The PDO, results framework, impact pathways and other reporting systems should all be considered when identifying primary indicators. Indicators are best selected in a participatory way, winnowing down a long-list to be sure that they are specific, measurable, relevant, useful, feasible, credible and distinctive (SMART+)[13] While some of the indicators, such as number of beneficiaries or changes in productivity, may be straightforward, CSAIP typical requires indicators of resilience, which is a challenge to monitor, though best practice is emerging (box 6).[14]

In many cases, relevant indicator data are already being gathered as part of existing M&E systems. For example, in Tanzania, more than 500 indicators are already being collected by national programs or

BOX 5 THE QUESTIONS THE COMPONENTS OF THE M&E SYSTEM ATTEMPT TO ANSWER

Results framework: What are we trying to achieve and how are we going to achieve it?

Indicators: How do we track and measure progress toward results?

Monitoring & reporting: How are we doing?

Evaluation: What outcomes and impact have been achieved? What worked well and did not and why? What lessons can be identified from implementation?

Reprinted from: World Bank. 2017. Operational Guidance for Monitoring and Evaluation (M&E) in Climate and Disaster Resilience-Building Operations.

BOX 6 MONITORING RESILIENCE UNDER THE KENYA CLIMATE-SMART AGRICULTURE PROGRAM

In 2017, the Government of Kenya and the World Bank finalized the first major CSA investment in Africa, the Kenya Climate-Smart Agriculture Program (KCSAP). The KCSAP aims to increase productivity and build resilience to climate change for 522,000 households though increased adoption of technologies, strengthening seed systems and making climate and market information readily available. In order to address the challenges of M&E of resilience, the design team implemented three approaches that can be considered good practice: (i) collaborate with resilience experts, in this case Unique Forestry and Landuse GmbH; (ii) consider M&E to inform the PDO, project components and activities; (iii) using a participatory approach with stakeholders; (iv) integrating multiple approaches in design to maximize learning; and (v) mobilizing resources to implement data collection. Together these factors help change how investments engage and learn from M&E systems.

projects, often with direct relevant to CSA (annex E). CSAIP primary indicators should not be limited to data that is already being collected. However, building coherence with existing systems wherever possible (rather than creating independent systems unlinked to other user needs) fosters stakeholder engagement and supports long-term sustainability. CSAIP M&E element identification may also offer the opportunity to support improvement in existing M&E systems. Thus, it is advisable to conduct an analysis of what information is being collected and where CSAIP M&E can complement and create mutually reinforcing structures and operations.

Finally, the CSAIP process should evaluate the steps toward functional M&E and establish a roadmap. This analysis can build on the 10 steps toward functional M&E (right). Analysis of which steps have already been achieved serves as the basis for the road map of sequential activities that needs to be implemented

DEVELOP

A full M&E system is not created during the CSAIP development process because it needs to be tailored to the investments funded. However, the CSAIP M&E outputs developed including identifying users and their needs, complementary systems, potential indicators, institutional alignments for implementation, and an assessment of the capacity of implementing partners lay the foundation to create a robust M&E system. These steps go a long way to developing an M&E system that can deliver the information needed.

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[12] World Bank Group. Xx. Operational guidance for monitoring and evaluation (M&E) in climate and disaster resilience-building operations.

[13] SMART+ indicators refer to characteristics defined as specific: addresses a single and sufficiently granular component; measurable: objective and replicable; relevant: has a clear relationship with an investment component; and timely. It is also important for indicators to be useful: captures information that help move investment implementation forward; feasible: data can be collected with reasonable and affordable effort; credible: upholds scientific standards and is trusted by stakeholders and distinctive: does not measure something already captured by other indicators.

[14] World Bank. 2017. World Bank Resilience M&E: Good Practice Guidance. Washington DC.

10 STEPS TOWARD COHERENT M&E SYSTEMS[15]

1. **CLARIFY PURPOSES OF M&E**
   Clarify the key uses and values of M&E data for different stakeholders

2. **DETERMINE INFORMATION NEEDS**
   List stakeholders' priority information needs and indicators in existing M&E systems

3. **PARTICIPATORY ALIGNMENT**
   Work with stakeholder to select indicators that meet priority information needs M&E data for different stakeholders

4. **DATA SYSTEMS ANALYSIS**
   Assess existing data collection and analysis systems for opportunities to build on existing data systems

5. **PROTOCOL DEVELOPMENT**
   Create clear data collection protocols

6. **INTEGRATED DATA SYSTEM**
   Develop integrated systems for flow of information

7. **CONFIRM ROLES**
   Assign roles and responsibilities for data collection and reporting

8. **CAPACITY NEEDS ASSESSMENT**
   Conduct a thorough evaluation of human and institutional capacities

9. **STRENGTHEN CAPACITY**
   Conduct training courses at multiple levels for M&E staff

10. **NATIONAL FINANCE**
    Integrate M&E across sectoral budgets to access national finance and budgets of donor-supported sector-wide approaches

[15] GIZ. 2018. Monitoring climate benefits of sustainable land management. Berlin.
Adapted from: Rosenstock et al. 2018. Monitoring, reporting and verification of climate-smart agriculture: Change of perspective, change of possibilities? CCAFS InfoNote. Kinshasa, DRC.

IN CONCLUSION: WHAT HAVE WE LEARNED SO FAR?

The CSAIP development process and CSA practices are highly context-specific. A wide range of tools and approaches exist, and have been shown to provide valuable evidence-based information for the situation analysis, investment portfolio evacuation, project concept design and M&E roadmap development. The optimal tools and approaches for involving stakeholders are iteratively developed and deepened as the CSAIP moves forward.

Success depends on input and enthusiasm from knowledgeable stakeholders and decision-makers. Engaging them throughout the process produces strong analyses grounded in local needs and realities that can identify winning investments. Different stakeholders may have different needs regarding how information is best elicited and presented, requiring that processes be adjusted to their context and concerns. Holding an inception workshop, information gathering and decision-making workshops, and a final validation workshop are key to ensure stakeholder involvement and input throughout the CSAIP development process. Transparency and information-sharing throughout the process ensures that stakeholders can continuously engage to jointly build a stronger CSAIP, which they have ownership of and the support to take the plan forward for financing and implementation.

KEY TO SUCCESS:

Ultimately key stakeholder validation of the document is important. Throughout the entire CSAIP development process, stakeholders should review drafts of the CSAIP and a validation workshop at the end should be held to ensure stakeholder approval and ownership of the final document.

ANNEX A

Example of assessment of policies relevant to CSA in Zambia
Source: Zambia MRV Profile.

Policy	Year	Are activities promoted in the plan / relevant to CSA pillars?			Does the policy promote CSA measures?	Is CSA mentioned in the policy?	Does the policy have an M&E system?
		Productivity	Resilience	Mitigation			
Climate-Smart Agriculture (CSA) Framework	2018						
Seventh National Development Plan (7NDP), 2017-2021	2017						
National Policy on Climate Change (NPCC)	2016						
Intended Nationally Determined Contributions (INDC), 2015-2030	2015						
National Agricultural Investment Plan (NAIP), 2014-2018)	2013						
First and Second National Agricultural Policy (NAP & SNAP)	2011, 2016						
Reducing Emissions from Deforestation and Degradation (REDD+) Strategy	2010						
National Climate Change Response Strategy (NCCRS)	2010						
National Adaptation Programme of Action (NAPA)	2007						

Note: Green: yes/fully; Yellow: partially/not always; Light yellow: no/not at all

ANNEX B

Example of a long-list of potential CSA investments
Note that some investments are specific to commodities or value chains, whereas others are more general CSA services that support and enable CSA.

Agricultural systems	
1	System of rice intensification promotion
2	Sustainable irrigated lowlands promotion
3	Climate-smart maize development
4	Climate-smart millet-sorghum system development
5	Climate-smart cotton development
6	Climate-smart development and postharvest management of legumes (peanut)
7	Climate-smart cassava development
8	Development of the mango and other fruits value chains
9	Climate-smart home gardening
10	Climate-smart development of flood recession agriculture (maize, sorghum, sweet potato)
11	Strengthening the wheat value chain through CSA practices and value-added processing
12	Dune development (cumin, anise, watermelon, shallot)
13	Oasis development (market gardening: potato, tomato, onion, sweet potato, date, camel watering)
Fish and livestock systems	
14	Climate-smart development and integration of livestock and agricultural systems
15	Climate-smart development of fishery and fish farming (communal fish farming and aquaculture)
Forest and sustainable management of water and soils	
16	Bio-char/green charcoal development
17	Restoration of degraded areas
18	Watershed management
19	Non-timber forest product value chains development (including shea, baobab and gum value chains)
CSA services	
20	Strengthening of an agroclimatic information system
21	Financial services and insurance for agriculture
22	CSA integration in the national extension system
23	Forest surface monitoring and GHG emissions development (MRV)
24	National soil fertility improvement
25	Monitoring and evaluating ecosystem dynamics and agricultural statistics through remote sensing and applied geomatics
26	Improving the nutritional status of women and children

ANNEX C

Figure C-1: IPCC representative concentration pathways (RCPs) emission scenarios (source: Global Carbon Project; Clapp et al. 2017) showing the NDC pledges by counties. The IPCC considers a range of scenarios from the extremes of approximately 2°C (RCP2.6) to 4–5°C (RCP8.5). A 3°C future, based on the current emission pledges under the Paris Agreement, falls somewhere in between the mid-range of the IPCC scenarios.

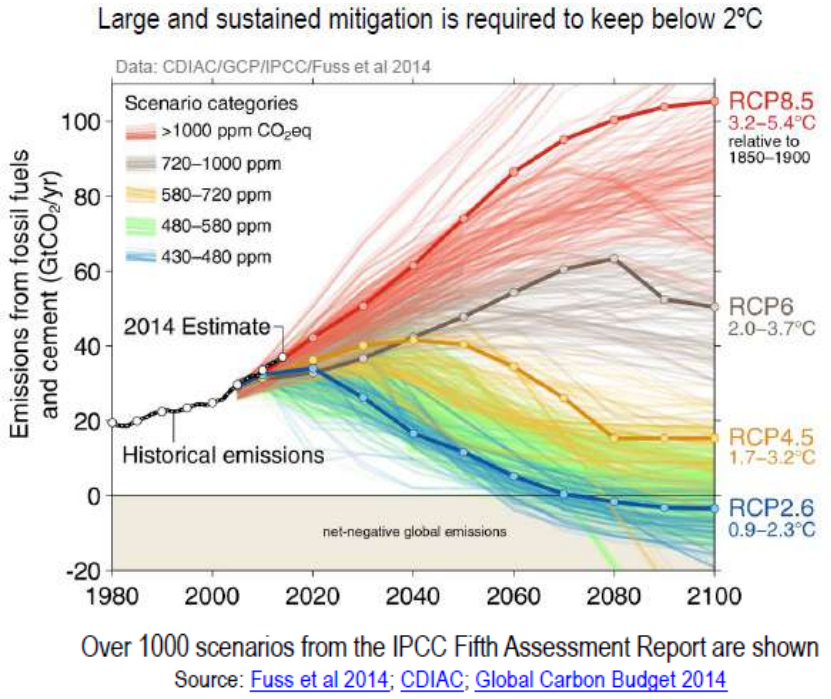
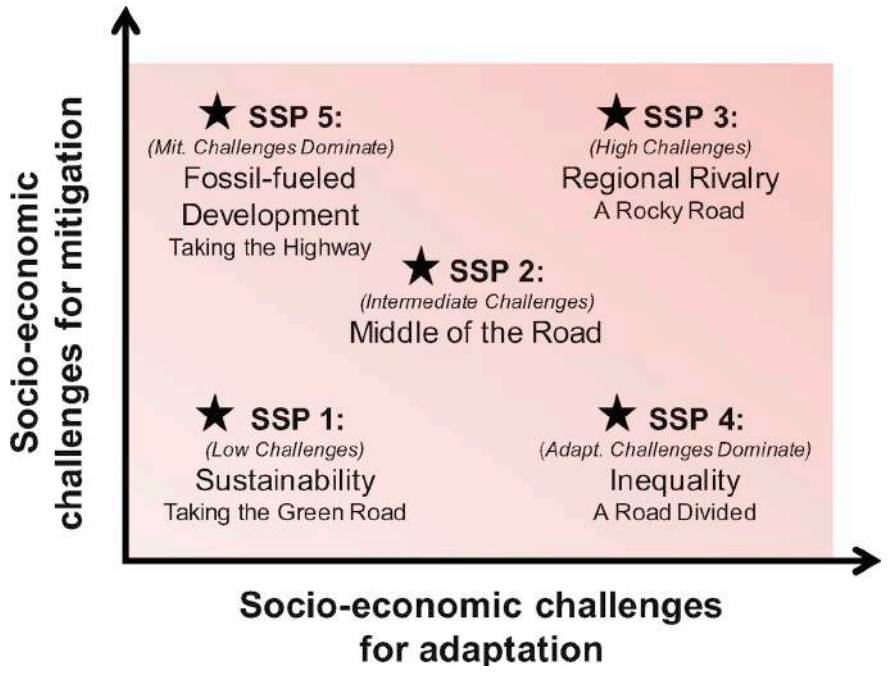


Figure C-2: Shared socioeconomic pathways (SSPs) considered in the CSAIP process[16]



[16] Graphic from: O'Neill, B.C., et al., The roads ahead: Narratives for shared socioeconomic pathways describing world futures in the 21st century. Global Environ. Change (2015), http://dx.doi.org/10.1016/j.gloenvcha.2015.01.004

Table C-1: Description of shared socioeconomic pathways (SSPs) considered in the CSAIP processs

SSP1 Sustainability – Taking the Green Road (Low challenges to mitigation and adaptation). The world shifts gradually, but pervasively, toward sustainability, emphasizing more inclusive development that respects perceived environmental boundaries. Management of the global commons slowly improves, educational and health investments accelerate the demographic transition, with the emphasis on economic growth shifting toward a broader emphasis on human well-being.

SSP2 Middle of the Road (Medium challenges to mitigation and adaptation). The world follows a path in which social, economic and technological trends do not shift markedly from historical patterns. Development and income growth proceed unevenly, with some countries making relatively good progress while others fall short of expectations. Global and national institutions work toward but make slow progress in achieving sustainable development goals. Environmental systems experience degradation, although there are some improvements and overall the intensity of resource and energy use declines. Global population growth is moderate, leveling off after 2050.

SSP3 Regional Rivalry – A Rocky Road (High challenges to mitigation and adaptation). A resurgent nationalism, concerns about competitiveness and security, and regional conflicts push countries to increasingly focus on domestic or, at most, regional issues. Policies shift over time to become increasingly oriented toward national and regional security issues. Countries focus on achieving energy and food security goals within their own regions at the expense of broader-based development. Investments in education and technological development decline. Economic development is slow, consumption is material-intensive, and inequalities persist or worsen over time. Population growth is low in industrialized and high in developing countries.

SSP4 Inequality – A Road Divided (Low challenges to mitigation, high challenges to adaptation). Highly unequal investments in human capital, and increasing disparities in economic opportunity and political power, lead to increasing inequalities and stratification both across and within countries. A widening gap exists between an internationally connected society that contributes to knowledge- and capital-intensive sectors of the global economy, and a fragmented collection of lower-income, poorly educated societies with labor-intensive, low-tech economies. In the high-tech economy and sector, technology development is high and the globally connected energy sector diversifies, with investments in both carbon-intensive fuels like coal and unconventional oil, and low-carbon energy sources. Environmental policies focus on local issues around middle- and high-income areas.

SSP5 Fossil-fueled Development – Taking the Highway (High challenges to mitigation, low challenges to adaptation). This world places increasing faith in competitive markets, innovation and participatory societies to produce rapid technological progress and development of human capital as the path to sustainable development. Global markets are increasingly integrated, with strong investments in health, education and institutions to enhance human and social capital. At the same time, the push for economic and social development is coupled with the exploitation of abundant fossil fuel resources and the adoption of resource- and energy-intensive lifestyles around the world. All these factors lead to rapid growth of the global economy, while global population peaks and declines in the 21st century. Local environmental problems like air pollution are successfully managed.

ANNEX D

The table below outlines the topics typically addressed in a concept note (left column) and an example topic sentence for each (right column).

Topics addressed	Example
INTRODUCTION AND STRATEGIC CONTEXT	
General context in terms of climate-smart agriculture	
The problem the investment will address	*Weather is a primary risk for agricultural production, and climate change makes weather more variable, extreme & difficult to predict.*
The most viable solution to the problem	*Timely, accurate, accessible agrometeorological information is foundational to CSA. Climate information services (CIS) support informed decision making on all levels.*
How the investment offers the viable solution	*Well-designed CIS translate data into practical advisories, transmit them through accessible channels, and invest in the capacity of the end user to leverage the information.*
Crucial components to investment success based on experiences to date	*Socioeconomically and culturally informed design of CIS helps ensure access for the most vulnerable potential beneficiaries.*
Country context in terms of climate-smart agriculture	
What circumstances make the investment relevant	*The country is experiencing extreme weather events due to climate change. Examples include…*
Why the investment is the most reasonable solution to the problem	*The National Meteorological Service faces significant obstacles in implementing an effective CIS. Previous efforts and barriers include…*
Why this investment has a high likelihood of success	*Smallholders are willing & able to leverage CIS, but they do not currently have good access. Studies indicate that providing farmers with basic CIS would increase yields by about 32% nationally.*
Institutional & sectoral alignment	
How the investment aligns with national government policies, plans & agreements	*Implementing CIS is a priority for the national government. For example…*
How the investment aligns with relevant international alliances, e.g. sustainable development goals	*This priority aligns with the goals of international agreements of which the country is a part. These include…*
Similar investments in the country, outcomes and lessons learned	*Multiple international organizations have collaborated with the government on this priority issue. Important examples to date include…*
PROPOSED DEVELOPMENT OBJECTIVE & RESULTS	
Proposed development objective	
Proposed development objective	*This project aims to increase farm productivity & mitigate climate change risks by providing producers, extension agents & agribusiness with timely, accurate agrometeorological information.*
Beneficiaries	
Focus demographic and estimated number of beneficiaries	*The initial 5-year project term will directly benefit about 226,000 women farmers over age 15 in the southern province.*
Results indicators	
About 5 project success statements to be objectively measured via M&E	*10 meteorological stations will gather weather information every 30 minutes in the southern province.*
Risks	
Barriers to success, their likelihood of occurrence, and their severity	*Mismanagement of agrometeorological equipment; medium likelihood; high severity*
PROJECT CONTEXT	
Project description	
Summary of the aim of the project & what major components it will address.	*The project will provide producers, advisors, agribusiness and policymakers with timely, accurate CIS by addressing (i) capacity to produce and process data, (ii)….*
Project components	
3-6 project components aligned with project description	*Component 1: Produce and process data*
Key implementers of each component	*Component 1 Key Implementers: Ministry of Agriculture, Extension Office, National Meteorology Institute, Weather-France*
3-6 subcomponents within each component	*(i) conduct a network optimization study (ii) acquire, install and maintain needed weather stations, (iii)….*

CLIMATE-SMART APPRAISAL	
Economic productivity	
Return on Investment analysis results	*The ROI is estimated to be 1600% (95% CrI: -3698% – 7622%) as a result of the potential large number….*
Net Present value analysis results	*The NPV of the project is estimated to be $718 million (95% CrI: -1655 – 3411 million $). The probability of a positive NPV is 73%. These findings are based on an expected 46 ± 121% (SD) increase….*
Carbon sequestration benefits	*The investment is likely to have a minor benefit, if any, in terms of carbon sequestration.*
Project benefits	
Scope and adoption	*The evolution of the target beneficiaries reached each year starts with a marginal amount in year one as there are needs for improving infrastructure, but then grows significantly.*
Productivity	*The total discounted productivity effect across all beneficiaries over five years is US$750,700,000 (SD: $1,765,510,000).*
Greenhouse gas mitigation	
Greenhouse gas emissions or sequestering as a result of the investment	*The investment's greenhouse gas (GHG) emissions are expected to be relatively neutral, between -1.5 and 3 t C02-eq/ha/yr.*
Project costs	
Breakdown of costs by component (e.g., staff, materials…) and year	*Total project costs are estimated at US$38,556,633 over the five years. About 75% of the funds are needed in the first three years….*
Risk analysis	
Barriers to success, their likelihood of occurrence, and their severity	*Droughts and floods are predicted to occur approximately 5% of the time and have the potential to reduce yields by up to 80%.*
BIBLIOGRAPHY	
Sources the reader may reference for more information	*West African Economic and Monetary Union. "The Amended Treaty." 2018. http://www.uemoa.int/en/amended-treaty*

*In general, each topic listed in this table represents about one paragraph of content in the concept note. The total concept note length is about eight pages.

ANNEX D

A selection from nearly 600 indicators being used in the M&E systems to which projects and national governments report. Examples were selected to illustrate the complementarities and divergences among project, subnational and international M&E systems. Source: x=indicator is mentioned in the protocol (implicitly or explicitly) Pillar: P=Productivity, R=Resilience, M=Mitigation; Results framework: A=Activity; I=Input; OP=Output; OC=Outcome

Indicator	Source (protocol)													Alignment to CSA Pillars	Results Frameworks
	National systems				Regional-level		International		Project-level						
	ARDS	ASDP II	ASDS II	CSA Guidelines	AU	CAADP	UNFCCC	SDG	WB	FAO	IFAD	US-AID	DFID		
Number of agricultural actors adopting CSA practices	X	X	X	X	X	X			X	X	X	X		P, R, M	OP
Land area where CSA practices are adopted	X		X	X					X					P, R, M	OP
Proportion of farm households with ownership or secure land rights					X			X						R	I
Household Dietary Diversity Score	X				X	X				X	X	X		P, R	OC
CSA Technology Index (performance of practices and technologies on CSA pillars)									X					P, R, M	OC
Public budget lines for CSA activities (existence and amounts)				X	X										I
Systems for promotion as well as coordination of CSA packages in agricultural plans and policies			X	X	X	X			X		X			P, R, M	I
No. and type of risk reduction actions or strategies introduced at local level	X		X					X					X	R	OP
Coping Strategy Index					X	X				X				R	OP
Social safety nets (type and beneficiaries)					X	X		X	X	X				R	I
Access to basic services								X		X				R	I
Availability and use of ICT tools	X							X						P, R	I
Diversification		X	X							X				P, R	OP
Availability and use of extension services and information	X	X	X		X				X		X		X	P, R, M	A
Capacity to generate and use statistical data and information		X	X		X	X		X							I

Fuente: x = el indicador se menciona en el protocolo (implícita o explícitamente); SDRA = Sistema de datos de rutina de la agricultura; ASDP = Programa de Desarrollo del Sector Agrícola; AU = Unión Africana; CAADP = Programa Integral de Desarrollo de la Agricultura en África; CMNUCC = Convención Marco de las Naciones Unidas sobre el Cambio Climático; ODS = Objetivos de Desarrollo Sostenible; WB = Banco Mundial; FAO = Organización de las Naciones Unidas para la Agricultura y la Alimentación; FIDA = Fondo Internacional para el Desarrollo Agrícola; USAID = Agencia de los Estados Unidos para el Desarrollo Internacional; DFID = Departamento de Desarrollo Internacional del Reino Unido; Pilar: P = Productividad; R = Resiliencia; M = Mitigación; Marco de resultados: A = Actividad; I = Entrada; OP = Salida; OC = Resultado.