

Submission on indicators of adaptation and resilience at the national and/or local level or for specific sectors¹

from the International Center for Tropical Agriculture (CIAT) on behalf of the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS):

The Climate Smart Agriculture Programing and Indicator Tool

We thank you in advance for filling out this template with concise, evidence-based information and for referencing all relevant sources. As you will see on the last page of the document, more detailed information on case studies, tools/methods and other knowledge resources for dissemination through the [Adaptation Knowledge Portal](#) is welcome, but optional.

Name of the organization or entity:

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) led by the International Center for Tropical Agriculture (CIAT)

Type of organization/entity:

Please choose as appropriate:

- | | |
|--|---|
| <input type="checkbox"/> Local government/ municipal authority | <input type="checkbox"/> Regional center/network/initiative |
| <input type="checkbox"/> Intergovernmental organization (IGO) | <input checked="" type="checkbox"/> Research institution |
| <input type="checkbox"/> National/public entity | <input type="checkbox"/> UN and affiliated organization |
| <input type="checkbox"/> Non-governmental organization (NGO) | <input type="checkbox"/> University/education/training organization |
| <input type="checkbox"/> Private sector | |

Scale of operation:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Local | <input checked="" type="checkbox"/> National |
|---|--|

Specific sectors addressed:

- | | |
|---|---|
| <input type="checkbox"/> Adaptation finance | <input type="checkbox"/> Gender |
| <input checked="" type="checkbox"/> Agriculture | <input type="checkbox"/> Health |
| <input type="checkbox"/> Biodiversity | <input type="checkbox"/> Heavy industry |
| <input type="checkbox"/> Community-based adaptation | <input type="checkbox"/> Human settlements |
| <input type="checkbox"/> Disaster risk reduction | <input type="checkbox"/> Indigenous and traditional knowledge |
| <input type="checkbox"/> Ecosystem-based adaptation | <input type="checkbox"/> Infrastructure |
| <input type="checkbox"/> Ecosystems | <input type="checkbox"/> Services |
| <input type="checkbox"/> Energy | <input type="checkbox"/> Tourism |
| <input checked="" type="checkbox"/> Food security | <input type="checkbox"/> Urban resilience |
| <input type="checkbox"/> Water resources | <input type="checkbox"/> Other (Please specify below) |

¹ FCCC/SBSTA/2016/2, paragraph 18.

City(ies)/Country(ies)/Region(s) of operation (if appropriate):

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) operates from farm to global levels covering 5 priority regions and focal 22 countries:

- East Africa: Kenya, Uganda, Tanzania, Ethiopia, Rwanda
- West Africa: Senegal, Mali, Burkina Faso, Niger, Ghana
- South Asia: Bangladesh, Nepal, India
- South East Asia: Vietnam, Laos, Cambodia, Philippines
- Latin America: Colombia, Guatemala, Salvador, Nicaragua, Honduras

It also carries out Participatory Action Research and [climate-smart agricultural options evaluations](#) across [36 Climate-Smart AR4D sites](#) located in 20 of these countries.

Description of relevant activities/processes or research:

Please describe the activities/processes that your entity has implemented in relation to indicators of adaptation and resilience. In case your organization carried out research, please describe it.

Proposed as a solution to transform and reorient agricultural systems to support food security under the new realities of climate change, the concept of climate-smart agriculture (CSA) has reached sustained traction and it's getting more and more integrated in the policy and development agendas worldwide. As part of the work program of the Global Alliance for Climate Smart Agriculture (GACSA) CCAFS has been leading a collaborative effort to develop effective metrics to monitor and measure the outcomes of climate-smart interventions. These improved metrics aim to better understand how climate-smart agriculture (CSA) can deliver economic, adaptation/resilience and mitigation outcomes and any trade-offs between them.

A series of activities undertaken since 2015 led to the development of the CSA Programming and Indicator Tool, designed to contribute to address both the need **of good instruments for programming, and better metrics for tracking outcomes and impact**. Its main objective been to allow multiple development agencies and agricultural focused programs to share a common framework on how they are currently addressing climate-smart agriculture (CSA), and how they can make their future programming process more climate-smart. This activities included:

- A **high level workshop** organized in collaboration with 7 major agencies (such as the Food and Agriculture Organization of the United Nations (FAO), the United Kingdom Department for International Development (DFID), the Adaptation for Smallholder Agriculture Programme of the International Fund for Agricultural Development (IFAD), the World Bank and the United States Agency for International Development (USAID)) to share approaches and develop a common overall CSA metrics framework (Paris, March 2015)
- **Scoping study** of USAID-Feed the Future portfolio across the 19 focus countries analyzed for further promising CSA opportunities and entry points (2015-2016).
- **Experts visits** to five USAID missions and development of Deep Dive Assessment of CSA in FTF portfolios in [Honduras](#), [Zambia](#), [Rwanda](#), [Senegal](#) and [Bangladesh](#) (2015-2016). Each resulted in guidance back to Mission directors on promising opportunities and entry points to bolster CSA outcomes through different systems and agro-ecologies.

- **Stocktaking exercise that led to the development** of a **database of over 378 indicators** gathered from international development agencies.
- **And finally, the development** of the Excel-based [CSA Programming and Indicator Tool](#) which built on the global indicator database.
Beyond reviewing these indicators through a CSA lens to identify their relevance to the three CSA pillars (Productivity/Income, Adaptation/Resilience, Mitigation) the following characteristics were also included in the classification exercise that structured the database:
 - **Indicator Type** (Readiness/Enabling environment; Process/Output; Outcome/Impact) and related area
 - **CSA type of Intervention** (Technologies and Practices, Services, Tools, Incentive mechanisms, Empowerment, Capacity building, Planning)
 - **Scale** of changes intended to be measured (Household/farm, Subnational, national)**Specific relevance rating** was also (subjectively) assessed to help users identify most appropriate indicators from a long list.

Existing indicators relating to income and poverty were classified under the productivity pillar. 82%, of agency indicators were used in the tool and a further 85 indicators were added, either as completely new or edits of current agency indicators to be more in line with CSA outcomes.

Description of relevant tools/methods:

Please describe the tools and/or methods that have been developed and/or used.

Over the last two years, the CCAFS program has led a multi-agency effort on metrics and developed [a Public access Climate-Smart Agriculture \(CSA\) Programing and Indicator Tool](#) to address good instruments that support investors and implementers such as governments, multi-and bilateral donors, development agencies, NGOs and the private sector, in **programming and in identifying common metrics** for tracking the CSA related outcomes and impacts of their interventions.

This tool is supported by a **database of over 378 indicators** gathered from major international development agencies² and revisited through a CSA lens or three dimensional pillars: Productivity/Food Security, Adaptation/Resilience and Mitigation.

The tool proposes a shared framework for agricultural programs_to:

- examine to what extent current or planned intervention(s) address each CSA pillar
- compare the scope and CSA intentionality among different project designs to make future programming more climate-smart, and
- support the identification and selection of an appropriate set of indicators to measure and track CSA-related outcomes, relative to the different phases of the project/program cycle (Planning/targeting; Implementation monitoring or Outcomes evaluation).

This step-by-step tool should serve as a guide tailored to the needs and capacity of each agency/practitioner:

² (such as the Food and Agriculture Organization of the United Nations (FAO), the United Kingdom Department for International Development (DFID), the Adaptation for Smallholder Agriculture Program of the International Fund for Agricultural Development (IFAD), the World Bank and the United States Agency for International Development (USAID))

1 Step 1: Questions to be addressed & intentionality of desired outcomes

• Directly: if the interventions' main goal is to specifically address the related question/outcome.
 • Indirectly: if, despite not having been designed for that purpose, the intervention results may cause an unintentional but positive collateral effect or co-benefit on the related question/outcome.

Productivity
 To what extent do your project/intervention aim to:

- increase food availability and access by rural and urban poor? Directly
- increase yield and productivity? Directly
- improve access to inputs that increase productivity? Directly
- apply management schemes geared at raising the profitability of smallholders agricultural production? Indirectly
- improve livelihood security and/or decrease poverty? Directly
- support policy and legal framework to improve food security? Directly
- improve institutional capacities and services to promote agricultural production and marketing? Not at all
- develop financial mechanisms to promote adoption of practices or technologies that increase productivity and livelihoods ? Directly

Adaptation
 Land, water, Ag Practices & technologies

- reduce likelihood and/or impact of climate shocks to cropping and livestock systems? Not at all
- promote improved technologies with proven resistance to climate-related constraints (e.g. drought, waterlogging, high temperatures etc.)? Directly
- increase availability of water and efficiency of water use for smallholder agriculture production and processing, especially during dry seasons? Directly

Step 2: Selection of intended scale of action (Household/farm, subnational, national) and indicator's type based on the current stage of the intervention

2 Step 2: Indicator's type

Based on the current stage of your intervention, please select the desired type of Indicators: Please select an option

Outcome



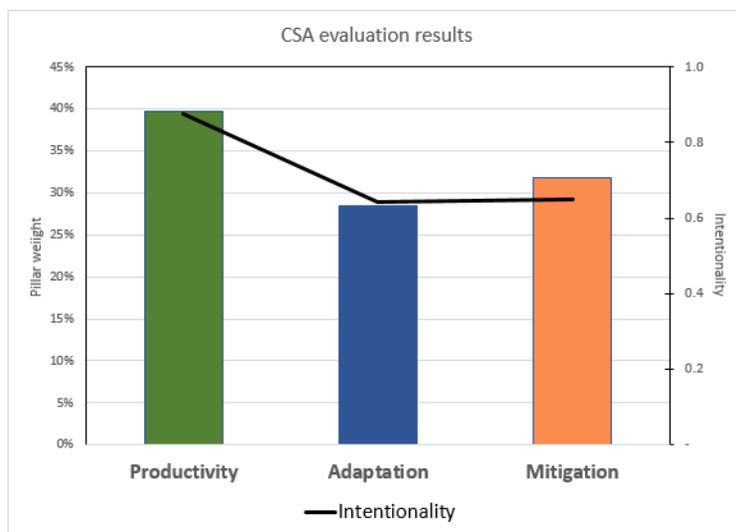
Step 2: Intended scale of changes to be measured

Scale at which do you intend to measure changes: Please select an option

Subnational

Step 3a: Results summary. This step leads to a proposed set of relevant indicators that can be used and their closeness of fit to inform the design and M&E plan of future interventions.

Step 3b: Visualization. This step includes the intervention's evaluation through CSA lens and degree of intentionality.



This step-by-step tool should serve as a guide tailored to the needs and capacity of each agency/practitioner.

The indicators are currently being used to work with key partners in the public sector (such as USAID) and private sector (including the World Business Council for Sustainable Development) to support [their CSA measurement and monitoring approaches](#).

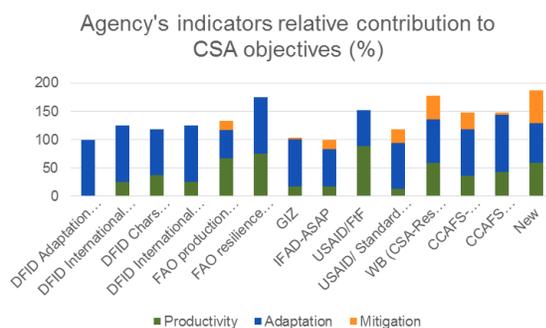
Key outcomes of the activities/processes undertaken:

Please provide information regarding the outcomes of the activities/processes described above, and do not hesitate to add qualitative assessment and/or quantitative data to substantiate the information.

The new CSA programming and Indicator Tool provides the very **first common framework for agricultural development agencies/stakeholders to examine their current and future interventions through the triple lenses of Climate-Smart Agriculture**.

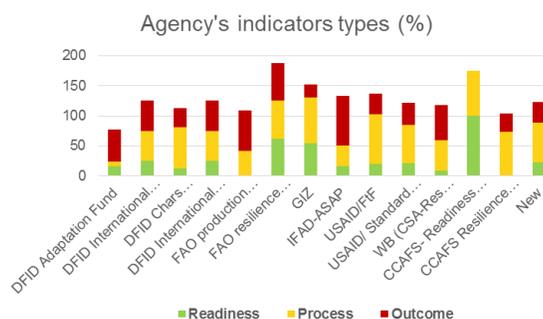
- Beyond the fact that this tool provides specific supports on the identification and selection of an appropriate set of indicators to measure and track Climate-Smart Agriculture related outcomes, a crucial value-addition lies in that by going through this CSA programming process, donors and public/private implementers can:
 - Self-reflect and provide visibility to CSA scoping areas not originally targeted or unintended by the intervention (e.g. intervention designed to focus on Productivity/Income but also improving Adaptation/Resilience)
 - Strengthen the planning phase of interventions to ensure that all potential CSA related outcomes (beyond productivity/income pillar) are properly included in the monitoring and evaluation (M&E) design; and
 - Increase awareness on how to 'make' their future interventions' planning process more climate-smart.

Major agricultural development agencies informed on the extent to which their current Monitoring and Evaluation systems addresses the three CSA pillars :



| | Productivity | Adaptation | Mitigation |
|---|--------------|------------|------------|
| DFID Adaptation Fund | 0 | 100 | 0 |
| DFID International Climate Fund | 25 | 100 | 0 |
| DFID Chars Livelihood Programme | 38 | 81 | 0 |
| DFID International Climate Fund | 25 | 100 | 0 |
| FAO production strategic objective | 67 | 50 | 17 |
| FAO resilience indicators | 75 | 100 | 0 |
| GIZ | 17 | 84 | 2 |
| IFAD-ASAP | 17 | 67 | 17 |
| USAID/FIF | 89 | 63 | 0 |
| USAID/ Standard Foreign Assistance Indicators | 13 | 81 | 25 |
| WB (CSA-Res indicator) | 59 | 77 | 41 |
| CCAFS- Readiness (Wollemberg et al. 2015) | 36 | 82 | 31 |
| CCAFS Resilience (Hills et al 2015) | 43 | 100 | 4 |
| New | 59 | 71 | 58 |

| | Readiness | Process | Outcome |
|---|-----------|---------|---------|
| DFID Adaptation Fund | 16.7 | 6.7 | 53.3 |
| DFID International Climate Fund | 25 | 50 | 50 |
| DFID Chars Livelihood Programme | 12.5 | 68.8 | 31.3 |
| DFID International Climate Fund | 25 | 50 | 50 |
| FAO production strategic objective | 0.0 | 41.7 | 66.7 |
| FAO resilience indicators | 62.5 | 62.5 | 62.5 |
| GIZ | 54.4 | 75.6 | 22.2 |
| IFAD-ASAP | 16.7 | 33.3 | 83.3 |
| USAID/FIF | 20.0 | 82.9 | 34.3 |
| USAID/ Standard Foreign Assistance Indicators | 21.9 | 62.5 | 37.5 |
| WB (CSA-Res indicator) | 9.1 | 50.0 | 59.1 |
| CCAFS- Readiness (Wollemberg et al. 2015) | 100.0 | 75.0 | 0.0 |
| CCAFS Resilience (Hills et al 2015) | 0.0 | 73.9 | 30.4 |
| New | 22.4 | 65.9 | 34.1 |



and key findings on major gaps and opportunities for improvement (Quinney et al 2016)

which included:

- **Productivity:** indicators had an emphasis on yields, income and livelihood security. Gaps included: indicators on support policy and legal framework to improve food security and food availability and access.
- **Adaptation/Resilience:** Indicators are largely geared towards risk management, technologies, information and enabling environment. Gaps:
 - They measure potential adaptation (uptake) over actual adaptation (outcome).
 - Generally, lacked the ability to show a change over time, or to measure specific changes in on-farm production and/or livelihoods during lean season (this temporal element is key to bring stability in environmentally unstable times).
 - Multidimensional nature of resilience (economic, financial, and social) often not factored into the measurements.
 - Lack of perception indicators
 - Very few indicators specifically addressing seed varieties, crop insurance and financial indicators geared towards the adoption of CSA technologies and practices
- **Mitigation:** Only 42 Indicators from which only 9 focused on mitigation outcomes. Uptake indicators with the assumption that if the technologies are in place, then mitigation is happening and at sufficient levels. Gaps: promotion of the use of renewable energy (may be an artefact of the food security focus of the indicators incorporated into the database), use of crop residues for energy generation, reduction

of residues burning or reincorporation to increase soil organic carbon, use of improved feed to livestock which will increase production efficiency, reduction of post-harvest losses and food waste, promotion of information services to foster climate change mitigation actions.

Following this analysis and recommendations, USAID [Feed the Future Indicator Handbook](#) was updated (July 2016) including resilience aspects.

The activities and processes involved in the development and dissemination of this Tool have provided support to a wide range of development partners and to the Global Alliance on Climate Smart Agricultural community to improve their programming and metrics. 927 Downloads and more than 2000 visits to the Tools webpage have been registered to date coming from the United States of America, India, Colombia, Ghana, The united Kingdom among others.

- Specifically, they have oriented and supported CSA mainstreaming into ongoing and new USAID Feed the Future investments in alignment with 2014 President Obama's Executive Order #13677 on Climate-Resilient International Development which requires the integration of climate-resilience and adaptation considerations into decision-making regarding all United States' international development programming. As recently stated, "On an annual basis, [USAID'] Bureau of Food Security will lead an effort to prepare an Agency-wide update on CSA implementation to present to the Board on International Food and Agricultural Development (BIFAD) and for sharing with other interested partners" ([Climate Smart Agriculture in FtF programs, February 2016](#))
- Training sessions to the USAID staff were held during the two 2016 Global Learning and Evidence Exchange (GLEE) events held in [Zambia](#) and [Cambodia](#) (March, June 2016). This strategic capacity building exercise aimed at providing participants:
 - A deeper understanding of key entry points and necessary processes for CSA in the project cycle
 - Be able to identify the resources needed to address climate resilience in food security programming
 - Be able to identify relevant indicators to measure changes in specific outcomes
 - Ground this knowledge and the lessons learned throughout the GLEE in a Climate Smart Agriculture Integration Framework thereafter
- Knowledge sharing and dissemination through high level fora namely through:
 - [Concept Note "Developing Metrics for Climate Smart Agriculture"](#) prepared by members of the Investment Action Group as background to the Climate Finance session of the Annual Forum of the Global Alliance for Climate Smart Agriculture in Rome (June 2016)
 - Webinar to Latin America research, governmental and development partners: [CCAFS-EUROCLIMA-IITA "Agricultura sostenible adaptada al clima: experiencias en América Latina y herramientas para impulsarla"](#) (May 2017)
 - The Joined Workshop "[Metrics for Climate-Smart Agriculture](#)" organized by the GACSA Knowledge and Investment Action Groups (Rome, June 2017)
 - The World Bank- CCAFS Online Platform [CSA guide](#) /"Monitoring, evaluation and learning" section.

Description of lessons learned and good practices identified:

Please consider the following points when describing lessons learned and good practices: (a) effectiveness/impacts of the activities/processes (including measurability of the impacts), (b) efficiency in the use of resources, (c) replicability (e.g. in different locations, at different scales), (d) sustainability (i.e. meeting the current economic, social and environmental needs without compromising the ability to address future needs).

The review, “through the CSA lenses”, of the indicators used (by 2015) of the main agricultural development agencies showed that though some are CSA-related, there is a focus on quantitative measurements as proxies for environmental outcomes.

Most common indicators used pertain to: Adaptation/Resilience (81%) and Productivity (40%) with significant lack of indicators relating to mitigation outcomes. On Adaptation, however, indicators focused on potential adaptation (uptake) over actual adaptation (outcome), lacked to address the multidimensional nature of resilience (economic, financial, social) and the ability to show a change over time, or to measure specific changes in on-farm production and/or livelihoods during lean season.

Feedback received on this first Beta version highlighted the need to restrict the suggested indicators at the final step of the tool. Indeed, given the multi-agency context in which this initial version was developed, the current database of indicators is very wide and includes some redundancies, but this can be easily restricted according to a new users ‘demand. A current strength is its capacity to address multiple scales: from national to household/farm level expected changes.

The Framework provided by the CSA programming and Indicator tool is robust (and at the same time flexible enough) so that a specific user can adjust its inputs questions to make it more tailored to a more narrow scope. This tailoring could include e.g for Private sector/ value chain related stakeholders interested in performance and sustainability aspects, editing/adding pillars to be addressed, entry point questions and the indicators of the supporting database.

Description of key challenges identified:

Please describe the key challenges associated with those activities/processes or the use of those tools/methods, that policy-makers, practitioners and other relevant stakeholders should know about.

The main challenge identify was maybe to envisage, the possibility to address “landscape level” as an additional scale of expected changes, and other potential users (beyond the agencies involved in the development of this beta version) to add their indicators to the main database and/or tailor the scope e.g adding an additional pillar (e.g private sector). The current version of the tool did not include sound gender and perception related CSA indicators.

Finally, although not in the original scope of this development, the Results of the CSA Programming and Indicator Tool could also provide recommendations on methods/tools to measure specific indicators.

Planned next steps (as appropriate):

Based on this experience or research, have next steps been planned to address/study some of the identified challenges, scale up or scale out such activities/processes?

Next steps include: to further promote this CSA programming and Indicator tool broadly, explore and approach other interested users that could benefit from the use of this common frameworks by tailoring it to specific scopes and needs (incl. Green Climate Finance actors).

Relevant hyperlinks:

Please provide hyperlinks to sources of information.

- [CSA Programming and Indicator Tool: 3 Steps for increasing programming effectiveness and outcome tracking of CSA interventions](#)
- [Beta Version of the CSA Programming and Indicator Tool](#)
- Vermeulen SJ, Frid-Nielsen SS. 2017. [Measuring Progress Towards the WBCSD Statement of Ambition on Climate-Smart Agriculture: Improving Businesses' Ability to Trace, Measure and Monitor CSA](#). CCAFS Working Paper no. 199. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CAAFS).
- [CSA guide](#)
- [Metrics to measure progress towards climate-smart agriculture \(CSA\) goals](#)

Further information:

Please do not hesitate to submit more detailed information on case study (ies), tool(s)/method(s) and/or other relevant knowledge resource(s) that are relevant to economic diversification. The latter will be shared through the [Adaptation Knowledge Portal](#):

- [Case study\(ies\)](#)
- [Tool\(s\)/method\(s\)](#)
- [Other knowledge resource\(s\)](#) (online portals, policy briefs, training material, multimedia material, technical reports and scientific publications)
- Hills T, Pramova E, Neufeldt H, Ericksen P, Thornton P, Noble A, Weight E, Campbell B, McCartney M. 2015. [A Monitoring Instrument for Resilience](#). CCAFS Working Paper no. 96. CGIAR Research Program on Climate Change, Agriculture and Food Security (CAAFS). Copenhagen, Denmark. Available online at: www.ccafs.cgiar.org
- [Climate Change & Food Security Vulnerability Assessment: Toolkit for assessing community-level potential for adaptation to climate change](#)