

# Info Note

## Implementation, usage, and effectiveness of Ghana climate change policies: an assessment of the national CSA Action Plan and CSA Investment Framework

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### Key messages

- Due to low awareness of stakeholders, the implementation of the CSA Action Plan and CSA Investment Framework is low (19% of studied districts)
- The usage of the CSA Action Plan focuses more on crop value chain development followed by livestock and fish value chains.
- The CSA Investment Framework was used to mobilize resource to develop climate-resilient cropping systems, alternative livelihood systems, post-harvest management, market systems, and water conservation activities.
- The effectiveness of the CSA Action Plan and CSA Investment Framework depends on the number of target beneficiaries, budget allocation and funds mobilized.
- Multipurpose policy instruments are critical for bringing about a conducive environment to address climate change and related risks.
- Increasing awareness of the CSA Action Plan is a key pathway to enhance its usage, implementation and effectiveness across scales.
- To enable effective use of the CSA Investment Framework, there is a need to enhance the capacity of key stakeholders on the development of bankable proposals

### 1. Introduction

The latest Intergovernmental Panel on Climate Change (IPCC) Assessment Report highlights widespread, rapid, and intensifying changes in climate system across all regions and ecosystems on earth (IPCC, 2021). In Ghana, climate change is already being observed and its impacts are threatening food production systems and the livelihoods and food security of millions of Ghanaians (EPA, 2020; Essegbey and MacCarthy, 2020). The agriculture sector, a key contributor to Ghana's economy and highly vulnerable to climate change, is projected to be substantially affected by the expected changes in rainfall patterns, temperature rise and other climate-induced events (Essegbey and MacCarthy 2020). Climate change impacts could become alarming, jeopardising future development of Ghana, if concrete, substantial adaptation and mitigation actions are not taken to deal with its causes and consequences (EPA, 2020).

As a response to the threats posed by climate change on the livelihoods of its population, the Government of Ghana has recognized the development of appropriate policy instruments as critical components to help communities increase their adaptive capacity. The National Climate Change Policy (NCCP) is Ghana integrated responses to the challenges of climate change within its socio-economic context. NCCP provides a broad framework for formulating specific strategies to address local climate change challenges. The NCCP's main purpose is to help policymakers develop national policy actions and programs needed to contribute to the fight against climate

change and to articulate these needs to seek or leverage internal and external resources from public, private, and international organizations (MESTI, 2014). In the agriculture sector, policy actions and strategies that address climate change should focus, among others, on the promotion of climate-smart agriculture (CSA) to sustainably achieve the triple wins of increased productivity and incomes, enhanced resilience, and reduced greenhouse gas emissions.

To operationalize the Agriculture and Food Security section of the NCCP, the National Climate-Smart Agriculture and Food Security Action Plan 2016-2020 (CSA Action Plan hereafter) (Essegbey et al., 2015) and the Investment Framework for Mobilization of Resources into Climate Smart Agriculture (CSA) in Ghana (CSA Investment Framework hereafter) (FAO and MOFA, 2018) were developed. The CSA Action Plan was developed by the Ministry of Food and Agriculture (MoFA) in collaboration with the Ghana National Science-Policy dialogue Platform and supported by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). The CSA Investment Framework was developed by the Food and Agriculture Organization (FAO) in collaboration with the Ministry of Food and Agriculture of Ghana (MoFA), with technical support from the Ghana National Science-Policy dialogue Platform.

Together, these two policy documents provide a pathway for CSA implementation and up-scaling in all agro-ecological zones of Ghana. To strategically contribute to effectiveness of policy addressing climate challenges and ensure sustainable climate change governance, it is crucial to review the implementation of existing policy instruments and strategies to identify gaps, generating recommendations to inform future actions (Singh et al., 2021, Ulibarri et al., 2021). Five years after the adoption of CSA Action Plan, followed by a CSA Investment Framework, it was crucial to assess the level of implementation and usage and draw lessons on the effectiveness of these two policy documents. This study aims to provide a scientific-based assessment of the level of implementation, usage, and effectiveness of the above-mentioned two Ghana climate change policy documents. This assessment will (i) help-policy makers' understanding of the level of accountability and attribution of the Ghanaian Government policies related to climate change risk management, (ii) provide information on the current state, the choice and harmonization of policies across agroecological zones, and (iii) contribute to the discussion on some of the main barriers faced by district and national stakeholders in policy implementation and operationalization in Ghana.

## 2. Overview of the assessment methodologies

The study was designed by CCAFS and conducted by the Ghana Science-Policy Dialogue Platform. A mixed-

method approach combining both qualitative (a focus group discussion with experts and stakeholders) and quantitative (questionnaire) approaches was employed to collect information of awareness, use and effectiveness of the two policy documents. From the full list of 216 districts in Ghana, 26 districts were purposively sampled after expert interactions considering the inclusiveness of five agroecological zones and regional representations. The distribution of the number of district respondents by agroecological zones is shown in Figure 1.

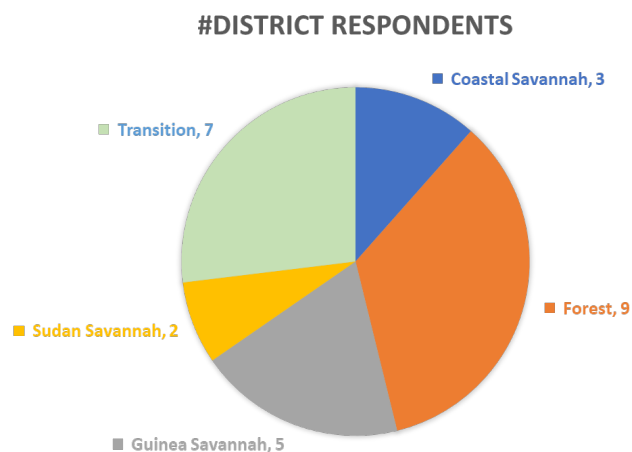


Figure 1. Number of district respondents by agroecological zone

The inception phase consisted of:

- Desk review of existing related policies by summarizing the information relevant to the assessment and identify existing gaps
- Consultation meetings for the formation of a multidisciplinary team to conduct the assessment. Ghana Platform's experts in the areas of policy, economics/agribusiness and agriculture value chains formed the multidisciplinary core team. For the mobilization of key actors at the district level, regional directors of agriculture provided support.
- Discussion of the boundaries and objectives of the study
- Identification and establishment of the list of stakeholders and institutions that could potentially use the policy documents
- Development of the theory of change and outcome mapping by describing how a particular policy option will make an impact, considering activities, outputs, and outcomes
- Development of indicators of measurement for the extent to which the two policy documents have been implemented, their usage, and effectiveness
- Design of the assessment method and implementation plan and drafting the survey instrument and sampling frame

- Data collection, interview, and discussion with relevant key stakeholders at district and national level. In each selected district, the budget and the planning officers as well as the Directors of the districts department of agriculture from were interviewed. Figure 2 illustrates a working day with major stakeholder institutions interviewed including MoFA, Ghana Meteorological Agency (GMet), Environmental Protection Agency (EPA), Fisheries Commission, Council for Scientific and Industrial Research (CSIR), and District Assemblies.



Figure 2. Illustrative Pictures of Stakeholders working groups

Figure 3 illustrates the assessment framework of the two policy documents to determine the current state of the extent to which the policies have been implemented, how they are used, and their effectiveness. First, the implementation of the policy documents was measured by whether the district has implemented a project or conducted an activity in relation to the documents. Second, the promotion of CSA along crop, fish, and livestock value chains was used as a composite proxy for the usage of the CSA Action Plan while the development of bankable proposals for resource mobilization was used as a proxy for the usage for the CSA Investment Framework. Last, effectiveness was measured by the number of beneficiaries reached and the amount of funds mobilized as a result of the two policy documents.

The determinants of the implementation of the documents were examined by controlling for several factors hypothesized to be highly important, including the agroecological zone, awareness of the existence of the two documents, perception about the relevance of the documents in promoting CSA, and provision of knowledge and information about CSA.

$$\text{Policy implementation} = f(\text{AEZ}, \text{Awareness}, \text{Relevance})$$

The responses of district respondents and choices made were then used as factors that could potentially explain the level of implementation of the policy documents.

Three regressions were estimated: (i) implementation of the CSA Action Plan, (ii) implementation of the CSA Investment Framework, and (iii) implementation of the CSA Action Plan and CSA Investment Framework.

Assessment criteria	IMPLEMENTATION	USAGE	EFFECTIVENESS	
	Measurement indicators	<b>Implementation of CSA AP</b> Districts have implemented a project or conducted an activity in relation to the CSA AP document.	<b>Promotion of CSA and value chains</b> Districts promoted CSA along crop, livestock, fish value chains.	<b>Number of beneficiaries</b> Number of Districts, communities, farmers, herders, fisherfolks that benefitted from the promotion of CSA.
	<b>Implementation of CSA IF</b> Districts have implemented a project or conducted an activity in relation to the CSA IF document.	<b>Resource mobilization to develop projects</b> District have developed a bankable project to mobilize resources for the promotion of CSA.	<b>Amount mobilized from proposals</b> Amount of money in Ghana Cedis that were mobilized as result of the project proposals.	CSA Investment Framework

Figure 3. The assessment scheme of the CSA Action Plan and CSA Investment Framework

### 3. Results and Discussion

#### 3.1. Level of implementation

Table 1 presents the descriptive statistics of level of implementation of the two documents. About 62% and 27% of districts indicated that they have implemented activities and/or developed projects based on the CSA Action Plan and CSA Investment Framework respectively. Furthermore, about 19% of the studied districts are implementing both the CSA Action Plan and CSA Investment Framework.

These results suggest that for CSA to become a reality at large scales across all ecological zones and districts of Ghana, boosting the level of implementation of national and public policies is required. Effective approaches to monitor and guide districts are essential to take advantage of the various pieces of evidence of impact from the adoption of CSA practices in-country, reduce the tradeoffs, capitalize on synergies, and improve living conditions of millions of Ghanaian farmers at risk of climate change and related risk.

Table 1. Implementation of the policy documents

		CSA IF Implementation		Total
		No	Yes	
CSA AP Implementation	No	31%	8%	38%
	Yes	42%	19%	62%
Total		73%	27%	100%



The regression results of the determinants of the implementation of the policy documents show some positive and significant associations between the implementation of the CSA Action Plan and the awareness and relevance of the document (Table 2). This indicates that districts with better awareness and that perceive the relevance of the document in promoting and providing knowledge about CSA tend to implement the CSA Action Plan in their activities and projects. In addition, the coefficients were not significant in the implementation of the CSA Investment Framework.

However, when the implementation of the two documents is estimated together, similar results as in the implementation of the CSA Action Plan are found. This might imply that the influencing factors – awareness and relevance- in the model appear to drive more the implementation of the CSA Action Plan than the implementation of the CSA Investment Framework.

Table 2. Determinants of the implementation of the policy documents

	CSA AP	CSA IF	CSA AP and CSA IF
	Est.	Est.	Est.
Transition	0.27	-0.04	0.42**
Savannah	0.26	0.31	0.34**
Awareness of CSA AP (Yes)	1.30***	0.18	1.25***
Awareness of CSA IF (Yes)	0.59**	0.25	0.59**
Relevance CSA promotion (Yes)	0.62*	0.26	0.64**
Relevance CSA information (Yes)	0.47	0.20	0.61**
Constant	-1.30**	-0.36	-1.34***
Observations	26	26	26

Note: \*, \*\* and \*\*\* indicate statistical differences at the 10%, 5% and 1% levels respectively. 'Est.' are parameter estimates.

### 3.2. Usage

How the two policy documents are being used at district level was explored from a value chain standpoint. The promotion of CSA along crop, fish, and livestock value chains was used as a proxy for the usage of the CSA Action Plan.

Figure 4 displays the Venn Diagram of the crop, livestock, and fish value chains across the studied districts. Over three-quarters of district respondents (77%) reported that the development of the crop value chains was the most important pathway for CSA promotion and hence the highest usage and utility of the CSA Action Plan. This is followed by livestock (65%) and fish (35%) value chains.

Figure 4 also shows that only a few districts are currently diversifying the promotion of value chains by combining crop, livestock, and fish value chains (31%), crop and livestock value chains (35%), and crop and fish value chains (4%).

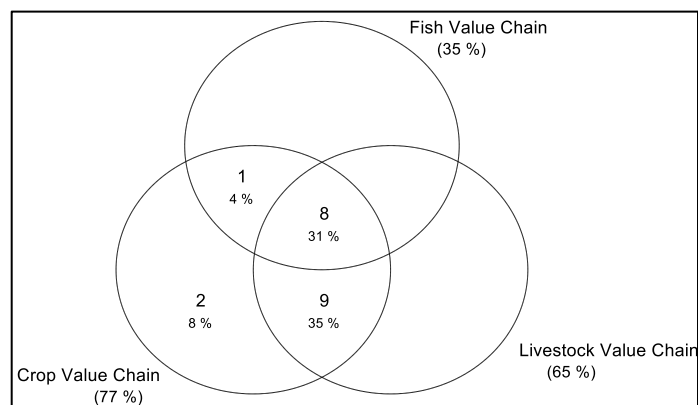


Figure 4. Usage of the CSA Action Plan (AP)

Figure 5 presents the different uses of the CSA Investment Framework, using the utilization of funds received from resources mobilized reported by the district respondents as a proxy.

Resources mobilized in marketing systems reported by 65% of districts are being used to promote marketing policies, effective pricing, access to credit, the establishment of community-level marketing committees, and the development of agribusiness enterprises.

Resources mobilized in post-harvest management reported by 77% of districts are being used to improve post-harvest capacity, build capacity for recycling and conversion of agricultural waste, and enhance investment in facilities for bulk storage of grains.

Resources mobilized in risk transfer and alternative livelihood systems reported by 81% of districts are being used to build and strengthen the capacity of extension officers, farmers, fisher-folk, and community-level weather data collection, analysis, and dissemination. Districts also reported the introduction of risk transfer schemes (e.g. insurance) against local supply changes, harvest failure, or weather risk, the formulation of agricultural plans for the district going down to the communities, and the creative partnership to protect and sustain biodiversity. Alternative livelihood strategies mainly focus on youth rural-urban migration.

Resources mobilized in water conservation and irrigation systems, reported by 54% of districts, are being used to promote appropriate technologies for small-scale irrigation, water re-use and water harvesting (e.g. waste/water recycling, rainwater harvesting systems), watershed management around major rivers, district-level maintenance, and expansion of irrigation systems, and afforestation along the banks of waterways. Additionally, some districts reported training local communities on buffer zones along the river banks on how to avoid farming in the banks of waterways, siltation and infill of rivers private sector in irrigation systems investments, and the involvement of the private sector in irrigation systems investments.

Resources mobilized in fisheries and aquaculture climate adaptation, reported by 31% of districts, are being used to

design and implement programs on fisheries and aquaculture management and disease control, build and strengthen the capacity of extension officers in CSA, and promote private sector investment in aquaculture.

Resources mobilized in the adaptation of livestock production systems, reported by 50% of districts, consist of preparing and enforcing spatial plans to address conflicts between crop and livestock farmers, and promoting and supporting agricultural diversification (livestock-crop integration as well as management practices).

Resources mobilized in climate-resilient cropping systems, reported by 85% of districts, are being used to promote climate-resilient cropping and livestock systems, diversified land-use practices (such as agroforestry, dry-land farming, urban vegetable production), agronomic soil and water conservation measures (such as agroforestry, crop rotation, tied ridging, mulching, contour earth mounds, vegetative barriers and improved fallow), good fertilizer use, and more effective linkages between input suppliers and farmers

Resources mobilized in institutional capacity development for research and development, reported by 31% of districts, consist of improving and harmonizing research activities, documenting and promoting appropriate indigenous knowledge and best practices, and generating meteorological data and disseminating appropriate information.

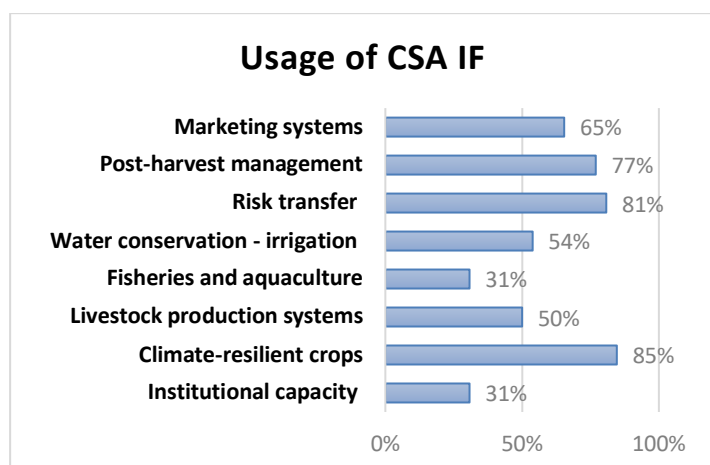


Figure 5. Use of the CSA Investment Framework (IF)

### 3.3. Effectiveness

Effectiveness was measured by a set of measurement indicators that capture successful resource mobilization, the amount of funds mobilized and the number of beneficiaries reached.

Table 3 presents the descriptive statistics for the number of beneficiaries and monetary resources mobilized by or allocated to the district in relation to the implementation of the CSA Action Plan and CSA Investment Framework. The number of beneficiaries reached by the CSA Action Plan tends to be higher than the CSA Investment

Framework. Similarly, the budget allocated to the districts to implement the CSA Action Plan is much larger than the funds mobilized as a result of the implementation of the CSA Investment Framework. Furthermore, T-test statistics of the differences between the number of targeted beneficiaries and the resources as a result of the implementation of the CSA Action Plan and CSA Investment Framework show the greater effectiveness of the CSA Action Plan.

Since the two policy documents aim to attenuate the impact of climate change through the promotion of CSA in Ghana, resources and beneficiaries could then be aggregated and analyzed. On average, districts that implement the documents (conditional means) reported reaching 26,109 beneficiaries using 1,118,731 Cedis. Government of Ghana budgetary allocations are the main source of the funds mobilized for CSA activities.

Table 3. Number of beneficiaries and funds mobilized through the implementation of the CSA Action Plan and CSA Investment Framework

		CSA AP	CSA IF	CSA AP and CSA IF
Number of Beneficiaries	Uncond. mean	16,371	700	17,071
	Cond. mean	28,377	2,600	26,109
Funds mobilized (Cedis)	Uncond. mean	589,467	55,955	645,422
	Cond. mean	1,094,724	290,966	1,118,731

Note: The unconditional mean is the simple expected value while the conditional mean refers to the expected value conditional on the implementation status of the CSA Action or/and the CSA Investment Framework

Table 4 reports the pairwise correlation coefficient matrix with the level of significance of their association. All the correlation coefficients are positive and close to unity, indicating some positive linear relationships between the measurement indicators. The findings report strong and statistically significant linear associations between the number of beneficiaries and the allocated budget to the CSA Action Plan at district level. Most of the districts that implement the CSA Action Plan have also received some Government funds to develop activities on fertilization using human waste (e.g. urine), promotion of the use of short duration and drought-tolerant varieties, conservation tillage, mulching, crop rotation, and water conservation. Some districts used the budget to develop and promote climate-resilient cropping systems, support water conservation, and irrigation, improve post-harvest management, and improve marketing systems. The type of beneficiaries of the projects consisted of selected schools in the districts, farmers, agricultural workers, and staff.

Similarly, the amount of funds mobilized from the implementation of the CSA Investment Framework was

positively related to the number of beneficiaries; the strength of the relationship is, however, less than that between the CSA Action Plan and the number of beneficiaries.

Table 4. Effectiveness of the CSA Action Plan and CSA Investment Framework

	Beneficiaries CSA AP*	Budget CSA AP	Beneficiaries CSA IF	Funds CSA IF
Beneficiaries CSA AP	1			
Budget CSA AP	0.945***	1		
Beneficiaries CSA IF	0.568***	0.602***	1	
Funds CSA IF	0.099	0.024	0.094	1

\* Values are pairwise correlation coefficients

## 4. Strengths, Weaknesses and Recommendations

Interactions with stakeholders revealed a number of strengths, weaknesses, and challenges related to the implementation, usage, and effectiveness of the policy documents. Some of the weaknesses are listed below:

- Over-dependence of district-level resource mobilization for funding CSA activities;
- Lack of adequate publicity and support for the documents;
- Top-down approach of the policy document to local implementation;
- No provision was made for enforcement of policy and how to address the overlap of mandates;
- Inadequate funding avenues or sources for their implementation;
- No M&E framework or indicators to track and assess performance;
- Weak emphasis on the livestock and fisheries components.

Interaction with stakeholders revealed several major strengths of the policy documents:

- Good instruments to guide CSA implementation to address climate change and food insecurity;
- Factors that increase stakeholders' interests in climate change issues;
- Factors that have the ability to bring change and development within districts;
- Strategies and alternatives for addressing climate change effects on food systems;

- Means to attain sustainable food security and poverty reduction;
- Awareness creation on CSA practices;
- Good investment direction for future development in the sector in the districts.

The challenges associated with the implementation of the documents were profiled to support future implementation strategies. Interaction with stakeholders revealed a number of challenges in the implementation of the policy documents:

- Lack of commitment from the District Assembly and improper coordination among platforms members;
- Lack of clearly stated climate-smart technologies outlined to address specific problems in each of the sectors (crops, livestock, and aquaculture);
- Inadequate logistics and late release of funds, and apathy on the part of the communities;
- Poor coordination among various departments in the assembly as well as poor capacity to implement climate change programs;
- Delay and inadequate fund allocation, logistics constraints, personnel inadequacy, weak institutional coordination.

Policy recommendations to improve the implementation, usage, and effectiveness of the policy documents within the district and community levels include:

- Increased commitment and budgetary allocation;
- Allocation of resources to back the implementation process and specific district allocation for activity implementation;
- Timely provision of logistics and funds;
- Enhanced training on investment frameworks for resource mobilization;
- Improved support to staff capacity building in climate change programs;
- Intensify public sensitization at all levels on the implementation of the documents;
- Intensify awareness of the policy documents at the national and sub-national levels;
- Improved coordination and consultation between platform members;
- Build institutional capacity for key actors on how to mainstream the content of the documents;
- Build strong partnerships with the private sector for effective implementation.

## 5. Conclusion

This assessment of the CSA Action Plan and the CSA Investment framework in Ghana highlighted the importance of developing and enhancing an effective mechanism to monitor and guide districts in the implementation of the two policy documents.

The study spotlighted the crucial role of raising awareness and the perception on the relevance of the policy documents in promoting climate-smart agriculture in order to improve living conditions of millions of Ghanaian farmers at risk of climate change adverse effects.

Policy makers at the forefront of climate change risk management in Ghana could focus on improving the capacity of staff in the development of bankable proposals and business models that can be self-sustained in the medium to long runs, as well as developing and implementing an effective monitoring system.

## Further reading

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*This info note summarizes findings of the assessment of two policy documents – the Climate-Smart Agriculture Action Plan and the Climate-Smart Agriculture Investment Framework – in Ghana.*

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