TRAINING REPORT IN CLIMATE SMART AHRICULTURE AND CLIMATE INFORMATION SERVICES PRIORITIZATION

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CGIAR | AICCRA Accelerating Impacts of CGIAR Climate Research for Africa

Activity report

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List of abbreviation

AfricaRice	Africa Rice Center
AICCRA	Accelerating Impacts of CGIAR Climate Research for Africa
CIS	Climate Information Services
CSA	Climate Smart Agriculture

Abstract

Agriculture, food and nutrition security, and the livelihoods of millions of people are affected by climate change. Given the scarce resources of most of the West African countries, there is a need to prioritize the technologies that need to be taken at scale to mitigate the climate change impacts. AICCRA-Mali developed a stakeholders prioritization framework to assess the locally suitable interventions in the diverse rice-based production systems in Mali. The prioritization is made in two steps. First, all interventions are evaluated by stakeholders based on their climate-smart performance indicator (ability to increase farm productivity, income, and resilience and reduce greenhouse gas emission). Second, the interventions are evaluated based on their implementation feasibility (technical feasibility, cost, gender inclusivity, demand by the market, and alignment with the social and cultural context). A training session was organized to capacitate stakeholders in the implementation of the prioritization framework for identifying locally relevant CSA and CIS interventions that can be taken to scale.

Keywords. CSA, CIS, climate change, prioritization, stakeholders

1. Introduction

Climate change has an impact on agriculture, food and nutrition security, and the livelihoods of millions of people. Climate change in West Africa is expected to result in changes in rainfall intensity, an increase in the frequency of extreme events such as droughts and floods, desertification, and changes in disease vectors, in addition to temperature increases. Climate-smart agriculture has been proposed as a means of adapting and reorienting agricultural systems in the face of climate change to promote food and nutrition security. Climate-smart agriculture (CSA) refers to technologies (innovations, practices, or services) that boost farmers' climate resilience and reduce greenhouse gas emissions over time. Despite the numerous benefits of CSA technologies, farmers are only slowly adopting them. Given the scarcity of resources in West African countries, it is necessary to prioritize the technologies that must be scaled up based on their potential.

Several tools and approaches were used to determine agricultural technology priorities. However, the stakeholders' inputs into the CSA prioritization framework have received little attention. AICCRA-Mali created a prioritization framework that takes stakeholder perceptions into account when creating a context-specific and locally viable portfolio of practices. A training section was organized to improve the capacity of 144 employees, including 58 women, in using the prioritization framework.

2. Participants

A total of 144 staff including 58 women from various institutions participated in the training. Twenty participants were from the Center for Mechanized Agriculture; 23 from the Institute for Rural Economy; 21 from seed production enterprises; 15 from Mali-Meteo; 15 from Economic Interest Group, and 8 from the Ministry of Agriculture. The participants were selected based on their knowledge of climate change adaptation and mitigation in the rice-based systems and their working experience with farming communities.

3. Presentation of the stakeholder's prioritization framework

The presentation of the prioritization framework was made by Elliott Dossou-Yovo and can be summarized below. Potential CSA technologies are compiled into a 'long list', and are assessed using CSA performance indicators: productivity, income, resilience, and emissions. Resilience was assessed through the ability of the technology to reduce yield loss due to climatic stresses such as drought, flooding, water scarcity, heat, cold, pest, and diseases outbreaks. Reduction in the amount of water and fertilizer use induced by the technology use was considered as proxy indicators for greenhouse gas emission mitigation. A scale of 0 to 5 is used for ranking where each unit represented an improvement in the productivity, income, resilience, and increase in greenhouse gas emission induced by using a given technology. The value of 0 was retained because a given technology may not contribute to all the four CSA indicators. An overall CSA performance index (CSA-PI) is constructed using a weighted sum of the four CSA indicators (Equation 1). Using the median of the CSA-PI for each production system, the technologies were categorized as having a low or high rank.

$$CSA - PI = 0.35 * Productivity\ score + 0.30 * Income\ \ score + 0.22 * Resilience\ \ score\ - 0.11 * Emission\ score \quad (1)$$

where, CSA-PI=CSA Performance Index, α1=0.35, α2=0.30, α3=0.22 and α4=0.11 are weights for each indicator of CSA estimated from the stakeholders' consultations used when developing the framework.

Besides, the proposed CSA technologies are assessed based on their implementation feasibility, which is based on their technical feasibility, cost, gender inclusivity, respect to the social and cultural environment, and demand by the market. Each indicator of implementation feasibility is evaluated by using a 0–5 Likert Scale, where 0=not important, 1=very low importance, 2=low importance, 3=medium importance, 4=high importance, and 5=very high importance. An overall CSA implementation feasibility (CSA-IF) was constructed using a weighted sum of the four indicators (Equation 2). Using the median of the CSA-IF for each production system, the technologies were categorized as having a low or high rank.

$$CSA - IF = 0.30 * technical\ feasibility\ score + 0.30 * cost\ of\ technology\ score + 0.15 * gender\ inclusivity\ score + 0.25 * demand\ in\ market\ score \quad (2)$$

A comparison of adaptation and mitigation benefits and implementation feasibility scores is conducted using a quadrant analysis. In the quadrant analysis, two categories of the score (CSA performance indicator vs. implementation feasibility) are mapped into the four quadrants: i) high CSA performance indicator – Low implementation feasibility, ii) high CSA performance indicator – high implementation feasibility, iii) low CSA performance indicator – high implementation feasibility, and iv) low CSA performance indicator – low implementation feasibility. The criteria of the quadrant are median values of implementation feasibility (CSA-IF) and performance indicator (CSA-PI).

Some results of the prioritization process were shown by the presenter and interpreted by the participants.

4. Conclusion

The training enabled the stakeholders to be aware of how their perspectives and knowledge can help prioritize CSA and CIS interventions. The stakeholders were also capacitated in the use of the prioritization framework for identifying context-specific and locally viable portfolio of practices that need to be taken to scale, and those for which enabling conditions are required for specific groups of beneficiaries before they can be taken to scale. Finally, the training helps stakeholders be capacitated on how the framework can be applied to identify the CSA and CIS interventions that should not be promoted because of their limited contribution to climate change adaptation, mitigation, and increase in farmers' yield and income.

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About AICCRA

Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) is a project that helps deliver a climate-smart African future driven by science and innovation in agriculture.

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