

# **CLIMATE-SMART AGRICULTURE IN AFRICA**

E-discussion summary report  
20th February – 4th March 2013

*The views expressed in this report reflect, in summary, the contributions of participants in the e-discussion and are not those of the United Nations Development Programme, the Government of Brazil or the UK Department for International Development.*

## Introduction

The e-discussion on 'Climate-Smart Agriculture in Africa' built on a seminar on the 'Role of South-South Cooperation in Agricultural Development in Africa'<sup>1</sup> held on 17 May 2012, and a follow-on roundtable on policy and research implications held on 18 May 2012. The e-discussion aimed to deepen the conversation with civil society and organizations that represent small farmers, as well as individuals researching small farmer issues. It also sought to focus attention on the threat posed by climate change, and how this threat can be managed through a 'climate-smart' approach to agriculture.

Over 60 participants registered for the e-discussion, including farmers, researchers and practitioners from around the world. Participants were encouraged to support their statements with real-life examples that would contribute to the debate and strengthen the evidence base on climate-smart agriculture (CSA). This primary source material has informed a separate evidence paper on CSA produced by the United Nations Development Programme's International Policy Centre for Inclusive Growth (IPC-IG) [[reference/link here](#)].

IPC-IG hosted the e-discussion with support from the United Kingdom Department for International Development (DfID). The e-discussion ran for 10 days, closing on 4 March 2013. The *Google Groups* platform was used as a closed but flexible platform for open debate.

The e-discussion set out to share and strengthen knowledge and understanding of CSA practice and to inform ongoing debates on CSA, while recognizing the particular relevance for Brazil-Africa agricultural cooperation. The discussion was structured around three objectives:

- *Objective 1: To understand the value of climate-smart agriculture for smallholder farming*
- *Objective 2: To serve as a platform for knowledge sharing on climate-smart agricultural innovations in the South*
- *Objective 3: To promote a gendered approach to climate-smart agriculture*

This report summarizes the key points of the discussion organized around these objectives. It highlights areas of consensus; identifies critical problems; summarizes participants' recommendations for policymakers, practitioners and researchers; and lists evidence cited during the course of the e-discussion. A significant amount of new literature and case studies emerged from the e-discussion, as did new findings from ongoing work that might not otherwise have been available.

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<sup>1</sup><http://www.ipc-undp.org/PageNewSiteb.do?id=268&active=2>

### Summary of key opinions

CSA is clearly considered an opportunity for smallholder farmers to become more resilient to climate change. CSA is viewed as offering farmers more security, stabilizing their means of subsistence and leading to improved living conditions. To achieve these benefits (which extend beyond environmental impacts), a new approach is required that can address the vulnerabilities of smallholders and reduce their risks. High-level support will be needed to reduce the risks that smallholder farmers face. Throughout the discussion, participants offered evidence that this reduction in risk can be achieved by ensuring that markets, resources, infrastructure and information networks are available to smallholders.

Participants noted that innovation should be viewed not only as the introduction of new technologies, but also as organizational and behavioural changes. These changes include new dissemination processes, efficient extension services and access to new forms of credit.

South-South cooperation has been hailed as an important mechanism for the transfer of skills and knowledge. Participants noted the importance of in-depth exploration and identification of similarities and differences in terrains and cultures. Given that similarities and differences between countries are not necessarily on the same level, solutions must be adjusted to account for the difference in factors, as small as they may seem.

To ensure that CSA is gender inclusive, contributors noted that men and women from different age groups, interest groups, and social and economic strata should participate in discussion and decision-making processes. These groups should be involved in planning processes and their specific societal roles should be understood and recognized. In addition, participants noted that for CSA to be effective, gender concerns should be accounted for and a gender-responsive budget mechanism, with a focussed monitoring and evaluation (M&E) system, should be created. Participants agreed that this would strengthen, in particular, the smaller and more vulnerable nations, such as the Small Island Developing States. A commitment to ensuring inclusive processes would further enhance a gender-inclusive approach in CSA by supporting women and the most vulnerable groups to access land, resources and markets.

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### *Objective 1: To understand the value of climate-smart agriculture for smallholder farming.*

- 1. Is climate-smart agriculture a significantly different pathway from the business-as-usual focus on productivity? If so, how? Does it offer real benefits and alternatives to smallholder farmers, for example?**

The majority of participants agreed that CSA is different from business-as-usual agriculture. CSA directly speaks to the need to reduce the vulnerability of smallholder farmers. Enhanced resilience to environmental challenges tends also to build resilience to broader economic and

social stresses, and to enable more equitable access to resources for CSA implementation (as demonstrated by examples from Brazil and Pakistan that are discussed below and in the Evidence Paper).

In general, responses to this first question indicated that like other climate change approaches, CSA is evolving. Understanding of CSA is unfolding amid a number of uncertainties, including our understanding of climate change itself. There is pressure for CSA to deliver across several climate change challenges and scales, and to meet the needs of different actors. But will it deliver? There are challenges, but the evidence presented in this e-discussion—based on experiences from across the globe—offers grounds for optimism. Participants provided insights drawn from South and Central America, the Pacific and sub-Saharan Africa (links to these case studies can be found at the end of this report). This range of experiences suggests that CSA has, to some extent, taken on a global shape. The evidence indicates that CSA is beginning to deliver results in increasing the resilience of farmers facing challenges as a result of climate variability and change.

The emerging consensus that CSA differs from business as usual reflects the fact that CSA attempts to be a holistic approach. While addressing environmental issues, it also responds to social and economic issues arising from environmental constraints. This holistic approach tends to strengthen the overall resilience of communities struggling with the livelihood impacts of climate change. Contributors did not view CSA as a completely new form of intervention; at times it can simply reinforce actions that farmers are already taking, the impact of which can be large or small (e.g., conservation agriculture, agro-forestry and water-harvesting techniques). It is therefore important to recognize the inherently climate-smart nature of many existing indigenous or traditional practices, and to support them by adding value to their produce and making them more competitive in available and emerging markets.

Contributors also suggested that partnerships can strengthen CSA and provide greater benefits to farmers. For example, partnerships with the World Food Programme (WFP) home-grown school feeding programmes have been known to shorten supply chains through local production/local consumption schemes and provide a stable or guaranteed market for the partner smallholders. This has reduced the risk for farmers and freed their resources to make further productive investments in CSA. In Brazil, WFP representatives indicate that this link has created multiple benefits, such as increased school attendance and enrolment, and improved learning capacity among students.

CSA can benefit all farmers, including commercial farmers. Commercial farmers have greater capacity to mobilize resources and advance projects, and can engage large networks to provide the necessary expertise for transitions to climate-smart practices. However, if left to their own means, smallholder farmers would be unable to compete with commercial farmers; smallholders may struggle to access networks for resources and expertise, have a more limited resource base, and need to prioritize immediate, short-term challenges.

Evidence therefore suggests that CSA should be embedded in the policy frameworks of higher level processes. The buy-in from national or regional bodies can lead to commitment and

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response at the policy level, which may translate into greater support to smallholder farmers, protecting them from the risks of investment when transitioning into CSA. For example, the Common Market for East and Southern Africa (COMESA) has supported farmers through investment strategies and frameworks targeting these smallholder farmers. Support at this level could also potentially include risk-reducing infrastructure and essential agricultural services, such as seed supply and extension services on CSA approaches. These specific CSA measures are needed alongside 'normal' priority support to enhance smallholders' access to resources, markets and opportunities.

The Brazilian federal government's Low Carbon Agriculture Plan demonstrates the importance of high-level support for climate-smart approaches. The plan integrates actions at the different government levels in Brazil with the objective of combining food and bioenergy production with the reduction of greenhouse gases (GHG). This encourages farmers to use technological processes that neutralize or minimize the effects of GHG, and to adopt best practices that promote increased carbon fixation in soils. It also aims to reduce expansion of planted area into forest. Resources are secured by a dedicated line of credit managed by Brazil's government-owned bank. Though the programme has been slow getting off the ground, the bank states that "almost 50 percent of the projects financed involve the recovery of pasture lands and degraded areas, with the aim of making them productive again, representing a considerable expansion in the farmland available for the production of foodstuffs and a reduction in encroachment on vulnerable native forests."

Further evidence was cited for the importance of policy support in enabling smallholders to take more risks, diversify production, enhance productivity, and, ultimately, be more resilient and independent. These improvements, in turn, have other spill-over effects: increased resilience of smallholder farmers in Pakistan reduced their dependence on the state after being hit by natural disasters. CSA activities trained farmers to cope with such situations and helped them protect their natural resources. More farmers passed through the disaster period independently, and contributions to poverty alleviation were recognised.

CSA can be an effective land-use planning mechanism for promoting sustainable farming and for mobilizing funding and research support for local activities, including clearing alien species, rehabilitating peat (to promote carbon capture) and securing land for conservation (see the Agulhas Biodiversity Initiative in South Africa). Though there may be regulatory challenges, the end result can be improved productivity for cattle farmers and benefits for local biodiversity. Other climate-smart adaptation and mitigation initiatives were presented. Participants working in South Africa and in the Consultative Group on International Agricultural Research (CGIAR) referred to rural energy, water harvesting, sustainable water management, diversification of the income base of local communities, bamboo farming, carbon sequestration, diversification of the nutritional base of communities through the introduction of resilient crops and species, and sustainable land management initiatives such as the construction of *Zai* pits, and ridging and terracing. Details on these initiatives are provided in the Evidence Paper.

As in any strategy and intervention—new or old—there is a need to measure results and control and understand variables. To this end, CGIAR’s ‘Climate Change, Agriculture and Food Security Research Program’ (CCAFS) for the East Africa Region is collecting data from representative sites so that results can be applied and adapted to other regions. CCAFS is also promoting action research through a regional research network that can test interventions with farmers for scale up elsewhere. The Tropical Agricultural Research and Higher Education Centre (CATIE) notes that evaluation processes should be territorial, to account for leakage effects; climate change adaptation or mitigation actions in one part of the landscape can simply displace unsustainable practices elsewhere, or be offset by interventions in other parts of the same landscape.

### *Issues and recommendations*

- i. Smallholder farmers own and have access to fewer resources, heightening their investment risks often past a point they can afford. This means that incentives and risk management for smallholders are needed if CSA is to be promoted effectively. Significant efforts are needed in the form of high-level policy support, partnership development, and investment in infrastructure, capacity building and access to information (such as the support from COMESA). However, these efforts must be sustainable. Experience in South Africa shows that smallholders may be ready to embrace changes when there are no associated costs, but when the changes entail a cost, smallholder farmers may quickly return to conventional methods.
- ii. Related to the above issue, participants noted that the holistic approach of CSA is a key point in its favour. Nevertheless, it is important to ensure that the focus on climate risks does not detract from social equity concerns. CSA needs to address the root causes of inequality and poverty, otherwise activities may continue to legitimize unequal forms of development and to promote dependency and structural disadvantages among smallholder farmers.
- iii. Policymakers must understand the needs of smallholders and be ready to support, protect and guide them. Decision makers must understand the needs of rural communities and be ready to supply them with policy instruments to support CSA activities. This includes moving away from a business-as-usual approach even for productivity-enhancing measures.
- iv. Access to information and education must go hand-in-hand with active participation of all stakeholders across cultural divides. A participatory approach will yield better results by building local ownership. A new approach such as that proposed by CSA is needed: many traditional farmers are wary of making changes to their cultural behaviours, which can make them more vulnerable to climate change. In the case of Somali pastoralists, for example, scarce resources and delicate ecosystems may be at risk for overexploitation if farmers remain closed to behavioural changes. Experience from Zimbabwe suggests that these kinds of changes should be carried out gradually, with interventions expanding to small parcels of land over a number of seasons. This approach would allow farmers to see the results of the new methods and technology over time.

- v. Smallholder farmers must be able to reach markets easily if they are to realise a return on any new CSA investments. The experience in South Africa indicates that by being grouped, smallholders have greater bargaining power to access markets and resources, and a greater ability to share knowledge. Furthermore, these groups have invested in diversification as a key to their success, which can be a CSA strategy.
- vi. Conflict and post-conflict countries find it difficult to respond to the challenge of climate change; in most of these countries, the importance of acting on longer term stresses feels remote. However, leaving smallholder farmers continuously vulnerable to climate change can cause further conflict, and addressing climate vulnerability may avert conflict.
- vii. Although climate change has moved up in the international development and donor agendas, it is important to ensure that aid is directed to smallholders so they can carry out CSA, instead of reinforcing the capacity and access of larger commercial farmers to resources and networks. However, it is important to ensure that a delicate balance between responsible and excessive oversight is maintained, as the latter may jeopardize CSA activities, as the costs of long-term delay of interventions can be high.

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*Objective: 2: To serve as a platform for knowledge sharing on climate-smart agriculture innovations in the South.*

### **2. What really defines 'innovation' in the context of CSA, and what role exists for South-South cooperation in sharing such innovations?**

Most contributors concurred that innovation for CSA must amount to more than technological changes and applications. Most participants focussed on innovation in CSA in the context of behavioural and structural changes, whereby people and organizations carry out activities in a different manner. South-South cooperation is considered an important mechanism for disseminating both practices and results, although experiences from one area must be suitably tailored to the context in which they will be applied.

CSA requires innovative approaches to dealing with communities and specifically, with smallholder farmers. These approaches must find constructive ways to encourage societies and organizations to change the way they address key issues and how they face the future. The United Nations Conference on Trade and Development (UNCTAD) has indicated that the widespread adaptation, acceptance and use of productivity-enhancing technologies rely on social and organizational innovations that promote horizontal linkages among actors. These innovations may include new dissemination processes, efficient extension services, access to new forms of credit, and other changes in the institutional context. Innovations should also be scaled to local realities and populations, and focus on ensuring adequate levels of agricultural production while minimizing or avoiding negative impacts and effects on climate. To strengthen these processes, CSA and its approaches should be integrated into wider development planning.

South-South and triangular cooperation are important channels not only to disseminate information and experiences on agricultural technologies, but also to transfer technical and policy measures that have informed previous experiences. South-South cooperation can have a strong role in capacity building, institutional reinforcement and in the sharing of experiences where challenges and contexts are similar. Participants working in Brazil-Africa agricultural cooperation noted the focus on technical and policy transfers, and stated that the foundation for the strategy was capacity building, institutional reinforcement and sharing experiences in a context of social, cultural and physical similarities.

Effective South-South knowledge sharing requires a sound understanding of different farming systems in order to facilitate comparison and understand the appropriateness of different options. Cooperation successes include land rehabilitation approaches developed in Burkina Faso and applied in Niger based on similarities among smallholder farmers and socio-ecological systems. The approach resulted in the recovery of soil quality, increased food supply and improved livelihoods.

Furthermore, learning about the experiences of other countries in the region with similar socio-economic and environmental characteristics may help countries explore new opportunities in the midst of environmental challenges. This was the case in Uruguay, Paraguay and Argentina, where farmers looked to diversify their economic base given increased soil temperatures. Farmers shifted from livestock to soya production to cope with new conditions, thus strengthening their resilience and increasing their income.

In Africa, a mechanism for South-South cooperation for CSA is being developed by the Food, Agriculture and Natural Resources Policy Analysis Network, in collaboration with UNDP/IPC-IG through its 'Evidence-based Policies for Climate Smart Agriculture' (EPCSA) programme. EPCSA is looking at supporting selected local farmer organizations and networks to contribute to developing and scaling up CSA programmes in Africa. This will support the dissemination of information, which in turn will reduce duplication of efforts, reinforce cooperation and tap synergies. Participants also noted that in Africa, business-focused partnerships are being developed through a new strategy of foreign policy, diversifying options and creating new opportunities in the agricultural sector.

### *Issues and recommendations:*

- i. South-South cooperation as a mechanism for transferring practices must not overestimate similarities between countries. The differences in on-the-ground realities should be fully identified to ensure that the practices are adequately tailored, thus ensuring that practice matches context for a successful outcome. Participants noted that importing experiences from Brazil's Cerrado region to Mozambique produced technological and economic returns, but also led to environmental and social problems.
- ii. An innovative CSA approach using South-South cooperation could also contribute to progress on addressing challenges of desertification and land degradation. As noted, approaches need to be tailored to specific contextual characteristics rather than the un-adapted import of practices.

- iii. In making organizational changes, institutional barriers must be addressed. These include lack of awareness, political commitment, information management and institutional continuity. If not addressed, these barriers will constrain the success of CSA implementation.
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### *Objective 3: To promote a gendered approach to climate-smart agriculture.*

#### **3. What measures are needed to ensure that CSA is gender inclusive and that it benefits both men and women farmers? How can we ensure inclusive decision-making as well as consultative processes?**

Responses to Question 1 highlight the importance of ensuring that all stakeholders in CSA—men and women—participate in discussions and decision-making processes. Promising CSA interventions may not be adopted if they are not understood or owned by all affected farmers. The existing disparities between men and women are often attributed to the socially constructed roles of women and men, whereby women are underrepresented at all levels of decision-making and have little access to participative processes. This situation is particularly problematic in the context of CSA given that women are the core labour force for agriculture. Women's exclusion from decision-making processes will compromise implementation and results, and prevent women from fully accessing the benefits arising from CSA activities.

In addressing this issue, e-discussion participants highlighted the importance of mainstreaming gender into CSA. This would mean that the concerns and experiences of men and women are integrated into the design, decision-making, implementation, monitoring and evaluation processes of policies and programmes. Mainstreaming gender issues into CSA would ensure that the central role played by both men and women in agriculture is acknowledged. Gender mainstreaming would also require capacity development actions at different levels to maximise the different roles played by men and women. Gender equality should be pursued and monitored in terms of participation, access to opportunities and resources. Furthermore, colleagues from UNDP noted that to achieve equitable and sustainable results in CSA, gender equality and empowerment need to be integrated across the three pillars of development—the economic, social and environmental.

Uganda's experience in promoting equality and participation of both genders in livelihoods programmes has been positive. A significant proportion of individuals involved in a livelihoods programme promoting food security, nutrition and health were women who participated as farm group members, leaders and trainers. Through this initiative women were exposed to new information and developed new livelihood skills, which enhanced their participative and implementation capacity for CSA-related activities.

A gender-sensitive initiative in Benin helped women cotton farmers move away from chemical fertilizers. The programme has contributed to increased agricultural outputs and household incomes without increasing GHG emissions. It has helped support families through periods of

fallowness and provided women with enough income self-sufficiency to buy the inputs they require to continue production.

Issues of equality across gender and age groups also arise in access to technology. The CCAFS project (with sites in Bangladesh, Ghana and Uganda) identified unequal access to weather information (essential in CSA planning). Young men had more access to technology such as radio information, whereas older men and women of all ages relied on indigenous knowledge of weather patterns. None of the groups had access to reliable monthly and seasonal weather information, which is needed for effective planning.

### *Issues and recommendations*

- i. While capacity development is essential for ensuring that gender is adequately mainstreamed, participants also called for gender responsive budgeting (GRB) in CSA activities. A strong M&E system with gender indicators is also needed, both to measure results and to ensure transparency in the channelling of funds. Contributors working on Small Island Developing States noted the need for support on GRB, mainstreaming and capacity development as they begin to pursue gender-inclusive activities in contexts where the ministries of agriculture and environment are usually better funded than the ministry responsible for women's affairs, and where communication between institutions is infrequent.
- ii. Gender and CSA are often centred in different institutional bodies, yet it is essential that those institutions work together to ensure gender-inclusive CSA. Communication and coordination among institutions should be strengthened.
- iii. CGIAR's CCAFS project found that promoting farmer-to-farmer visits can be important for CSA, but women and the elderly face greater travel challenges than men. Although it is important to promote the exchange of experiences, it is likewise important that social inequalities are not aggravated. Effective means of communicating and sharing information through telecommunication and multimedia should be explored.
- iv. Access to and information on technology must be equal for gender-inclusive CSA. Though access is becoming more equitable, it is essential that training on technological innovations is made equally available across age and gender groups. Participants also recommended that women be involved in the design and use of new technologies. This involvement empowers women and provides them with a sense of ownership that can transform them from technology users, to technology trainers and disseminators.
- v. Given that the roles of men and women, their vulnerabilities and their access to resources differ across cultures, imported mechanisms for participation and training must also be tailored for specific gender contexts.
- vi. In sub-Saharan Africa, women are often the main producers of basic crops and also run their households. Gender-sensitive agricultural initiatives should include in-depth analysis of the stakeholder contexts; ensure adequate representation and participation of women at all levels of decision-making; promote participation in project design activities; allocate resources for gender activities; and include adequate expertise and M&E processes for gender oversight.
- vii. Inclusiveness in CSA should go beyond the gender divide and include representation of different ethnicities, religions, livelihood strategies (and others, as relevant in the local contexts) to ensure inclusive planning and development. Participative processes should focus on the actual participation of the different groups and their interests in the discussions, as opposed to the mere quantification of their representatives.

### Evidence cited by participants during the discussion

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CATIE – Climate-smart territories in the tropics – conference programme

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CATIE – We Adapt Initiative

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CGIAR - Measuring the impact of CSA

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CGIAR-CCAFS – Farmer-to-farmer visits to analogue websites

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CGIAR-CCAFS/FAO - Training Guide on Gender and Climate Change Research

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### Nepal

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### Niger

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- [www.tradeplusaid.co.za](http://www.tradeplusaid.co.za)

### Africa

- <http://ccafs.cgiar.org/blog/new-working-paper-creates-foundation-climate-smart-agriculture-africa>

### South America

- <http://www.ecoadapt.eu/>

### Global

- <http://cgspace.cgiar.org/handle/10568/24863>

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