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Food and Agriculture Organization of the United Nations

World Agroforestry Centre

CGIAR

RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security

CCAFS

TRANSITIONING TOWARDS CLIMATE-SMART AGRICULTURE in KENYA

LINKING RESEARCH, PRACTICE AND POLICY

Key Messages

◇ Consider development priorities

Climate-smart agriculture (CSA) must contribute to building opportunities for employment, education and market opportunities. CSA is smart precisely because it addresses a range of key development issues.

◇ Connect interdisciplinary research, practice and policy

Research, agricultural activities and policy development should be integrated from the start of any CSA initiative. This improves decision making at all levels because the decisions are based on a broader base of scientific evidence and field experience.

◇ Integrate farm and landscape systems

Integrating the production of livestock, fish, crops and trees on farms or throughout the entire landscape can enhance productivity, strengthen the resilience of farming systems and reduce and remove greenhouse gas emissions.

◇ Include women and youth

Specific attention needs to be paid to building the capacity of women, men and youth who manage natural resources. Farming skills, as well as leadership and facilitation skills can be built with the support of local groups that can tailor climate information to community needs and make available necessary materials.

◇ Connect policy and regulation

Inconsistencies between policies and regulations can undermine CSA.

◇ Fill knowledge gaps

CSA still faces a number of knowledge gaps, including a lack of:

- baseline data for measuring, reporting and verifying the effectiveness of CSA practices;
- reliable, downscaled climate and weather forecasts;
- country-specific emission factors;
- an understanding of the change in the greenhouse gas balance and other impacts brought about by the integration of livestock and/or fish farming, conservation agriculture and planting trees on farms and in the landscape; and
- evidence of mitigation options offered by alternative energy sources.

AGRICULTURE IN CLIMATE CHANGE STRATEGIES IN KENYA

Within the Kenya Climate Change Action Plan (2013-2017), agriculture is recognized as a sector with great potential for contributing, in an integrated way, to the achievement of a range of development goals related to food security, nutrition, poverty reduction and climate change adaptation and mitigation. Examples of noteworthy farming practices mentioned in the Action Plan include agroforestry, conservation tillage, the limited use of fire in agricultural areas, the cultivation of drought tolerant crops, water harvesting and integrated soil fertility management. The Action plan also recognizes the critical role that climate change related information, index-based insurance schemes, agricultural advisory services and capacity development play in ensuring that options for addressing climate change are widely understood.

Kenya Agricultural and Livestock Research Organisation - KALRO, CGIAR and Egerton University researchers compare results on CSA.

ENSURING CSA IS ALIGNED WITH NATIONAL DEVELOPMENT PRIORITIES

CSA is generally considered as having three interconnected objectives: improving agricultural productivity and food security, increasing resilience and adaptive capacities in farming communities and enhancing climate change mitigation, leading to low-emission development. Practices that meet these three objectives must also be assessed to determine their capacity to meet other national development priorities, such as increasing incomes and employment opportunities; improving nutrition, dietary diversity and health; reducing social inequities; creating educational opportunities; and establishing functioning markets and incentive systems. CSA is not a single practice nor a single set of practices. It is a broad approach for addressing climate change and achieving development goals.

INTEGRATING CSA PRACTICES AT THE FARM AND LANDSCAPE LEVELS

In areas of Kenya that are not arid or semi-arid, the majority of smallholder producers manage farming systems that integrate crops, livestock, fish and trees. These integrated systems deliver a range of benefits, including nutritious food, feed, energy and income. Within these systems, farmers engage in an array of farming practices, such as agroforestry, conservation agriculture, integrated cropping, fish ponds, efficient grazing techniques, mixed feed production and biogas production. Energy saving cook stoves or briquettes are used to prepare food. All of these practices are compatible with CSA and can readily be integrated on farms or throughout the landscape.

CSA can be more easily achieved by following an integrated approach on farms, in the landscape and throughout the entire value chain. To have an impact, CSA must integrate activities designed to improve adaptation to climate change and bring about low-emission development with activities aimed at improving agriculture, protecting the environment and strengthening social welfare. CSA initiatives must also integrate research, production and policy making. Incorporating CSA into whole farm systems and landscapes (e.g. integrating conservation agriculture and trees, linking livestock management and biogas generation for energy use) builds synergies and addresses trade-offs by reducing the tensions associated with isolated development activities carried out independently within different sub-sectors.

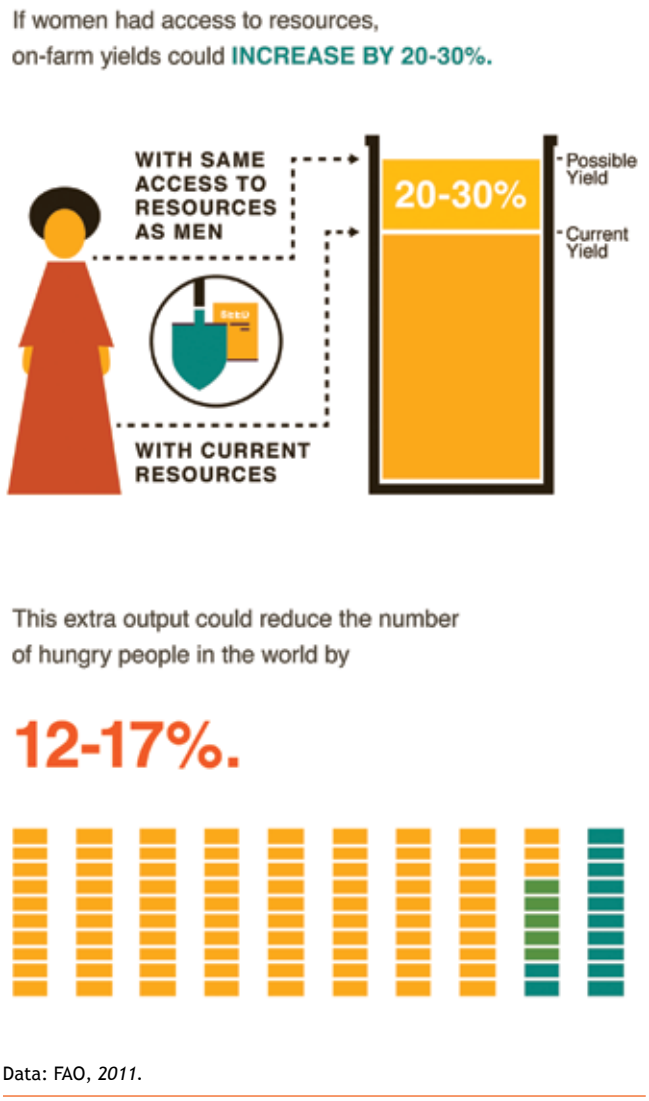
DECISION MAKING FOR TRANSITIONING TO CSA IN KENYA

In October 2014, the Climate Change Unit of Ministry of Agriculture, Livestock and Fisheries of Kenya along with

the Food and Agriculture Organization (FAO) of the United Nations, the World Agroforestry Centre (ICRAF), and the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) convened a workshop where researchers, development workers, representatives from farmers' associations and the private sector and local and national government officials shared and analysed scientific evidence and field experiences from over 40 projects. The participants summarized the current state of knowledge on CSA within smallholder integrated crop-livestock farming systems that were not located in arid or semi-arid areas. The technical dimension of the October workshop in Nairobi focused on the importance of integrated farm production within and across different boundaries (e.g. biophysical and administrative) and across different agriculture sectors (e.g. crop, livestock, fish, forest). The workshop gave participants an opportunity to draft messages and policy recommendations that can be incorporated into climate change policies. The suggestions listed below are intended to ensure that all stakeholders have a sense of ownership in CSA activities and can contribute to furthering their implementation.

FIGURE 1

Reducing inequities, particularly for women farmers, bolsters food security for all. Source: CCAFS Big Facts 2014.



Data: FAO, *2011*.

DESIGNING CSA INITIATIVES

Assume that context matter

CSA initiatives must respect the local economic, physical and social conditions and the cultural norms of the communities involved. Concerted efforts must be made to understand the broad range of factors that influence farmers' decision-making.

Make a difference through inclusiveness and ownership

The authentic engagement of all stakeholders is required to make progress in adapting to climate change, increasing resilience of farming systems and bringing about low-emission development. Ideas, know-how and opinions need to be shared and processed though a variety of communication channels depending on the setting and through a range of governance structures. To ensure full engagement, local stakeholder groups, which include women and youth, may need to be built and strengthened. A commitment to multilevel and multisectoral interactions and joint planning processes will bring positive results.

Promote integration at the farm and landscape levels

Effective management of land, water, biological diversity and energy are critical to safeguarding the resilience of farming systems and ensuring that these systems can adapt to changing conditions. Incorporating diverse practices and a diversity of species on farms and throughout the landscape will hasten the adoption of CSA and deliver other important benefits.

Representatives of research, development and national organizations develop policy messages in the joint national workshop, Nairobi 2014.

Engage women and youth to expand the impact of CSA

A greater emphasis needs to be placed on building the capacity of women as they make up the majority of farmers in Kenya. Women farmers' access to information and productive inputs are more limited than their male counterparts (See Figure 1). Delivering information, resources and technologies to women and informing them about appropriate practices is an important CSA strategy. Young people must also become knowledgeable about climate change and CSA. It is important to build their capacities so that the next generation of farmers and land managers can build on today's successes.

Raise awareness, share knowledge and provide productive inputs

Sharing experiences and scientific evidence vastly improves collective understanding and brings clarity about potential responses to climate change. Awareness raising activities and capacity development in farming, pastoral, fishing and forest communities is urgently needed to carry out climate-smart actions on the ground. Information about climate change and the options for dealing with its impacts should be built into core curricula for all age groups.

Build soft skills and hard skills

Capacity development is needed to build soft skills (e.g. facilitation, leadership, group dynamics) and for the continued enhancement of hard skills related to farming. Institutional capacity development is also a key component of CSA.

Tailor information and productive inputs to enhance farmers' decision making

The sharing of relevant, site-specific information and the delivery of advisory services can improve farmers' decision-making and build their adaptive capacity. Farmers are also in need of financial services and risk transfer mechanisms. Local leadership and capacity development initiatives targeting men and women farmers both young and old are critical in this regard.

INCLUDE RESEARCH, MEASUREMENT AND MONITORING

Start working and fill key knowledge gaps

Workshop participants noted that there are a number of activities that need to be done to address important knowledge gaps related to CSA implementation, including:

- defining the basic components of CSA in different agro-climatic zones and farming systems;
- obtaining reliable data to adequately measure the effectiveness of the practice of CSA;

- establishing country specific emission factors associated with livestock and aquaculture in integrated farming systems (e.g. greenhouse gases balance of livestock production and conservation agriculture with trees);
- determining the appropriate productive inputs to advance CSA;
- gathering solid evidence for the climate change mitigation potential of alternative energy sources through larger value chain analyses;
- researching incentives for manure management;
- producing reliable climate forecasts, which may also require investments in weather stations;
- gaining a better understanding of appropriate financing and insurance schemes; and
- finding ways of raising awareness about climate change and CSA among farmers.

However, there is already enough evidence of the value of existing practices, and their implementation should begin right away. The knowledge gaps should be addressed while CSA initiatives are being carried out.

Build synergies between CSA implementation and monitoring and evaluation and ensure its role in development

Emphasis needs to be put on creating incentives to put CSA practices into place. This will involve establishing standardized measurement and reporting methodologies that can assess climate change mitigation benefits, the degree to which the resilience of farming systems has increased and changes in food security. It will also be important to be able to demonstrate that CSA practices are adding value to overall national development by creating more opportunities for education, employment, income and market opportunities, improving nutrition levels and contributing to greater social equity.

BRIDGE KNOWLEDGE SYSTEMS AND ENSURE SUPPORTIVE POLICIES AND REGULATIONS

Integrate interdisciplinary research, practice and policy

Building and reinforcing the links that connect research, production and policy increases their effectiveness and delivers greater returns on investment. Activities related to research and the development of technology must be coordinated if progress is to be made in addressing climate change. The establishment of an effective institutional framework to mainstream climate change across multiple sectors and into processes related to planning, decision-making, implementation and budgeting, both at the national and county levels will reduce the inefficiencies associated with compartmentalized efforts.

Address inconsistences between policies and regulations

As greater knowledge about CSA becomes available analyses of inconsistencies within regulatory and policy frameworks need to be undertaken.

Photo: @ICRAF

Rose Koech integrated crops and trees into her dairy farm

Acknowledgements

The information provided in this brief is the result of a two-day consultation in Kenya that brought together researchers, development workers, producers and policy makers. The effort was supported by the Government of Kenya's Ministry of Agriculture, Livestock and Fisheries the Food and Agriculture Organization of the United Nations (FAO), the World Agroforestry Centre (ICRAF) and the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). The organizers would also like to acknowledge the Finnish Government whose funding through the FAO MICCA Programme was the catalyst for this effort. This brief was written by Constance Neely as senior consultant for FAO. The technical document that supports the information presented in this brief will be published in early 2015.

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MICCA Programme
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Kenyan Ministry of Agriculture, Livestock and Fisheries
www.kilimo.go.ke

CCAFS
http://ccafs.cgiar.org
Figure 1 Source: CCAFS
Big Facts 2014 http://ccafs.cgiar.org/bigfacts/

ICRAF
www.worldagroforestry.org

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