

CHAPTER 12

Concluding Remarks



Rising temperatures, changes in rainfall patterns, and increased frequency of extreme weather events are expected to slow progress toward increased productivity of crop and livestock systems and improved food security, particularly in Africa south of the Sahara. These manifestations of climate change are already having serious impacts on crop yields, especially for African farmers who rely on rainfall. An integrated framework to address this multifaceted threat is urgently needed. Climate-smart agriculture (CSA), with its multi-pronged approach, offers an opportunity to address the challenges of meeting future food security demands under a changing climate.

Findings from this report provide a clear sense of the potential positive effects that CSA practices can have on productivity and on the number of people at risk of hunger, through a reduction in agricultural commodity prices. In addition, adoption of CSA practices has the potential to reduce soil degradation by increasing soil organic carbon content, or at least reducing soil organic carbon losses. Overall, these findings suggest that CSA practices can contribute to increasing resilience to climate change. The reduction of greenhouse gas (GHG) emissions is compatible with increasing productivity, but achieving significant abatement levels will depend on the feasibility of enforcing emission intensity reductions on the ground and also on the impact of CSA adoption on other carbon-rich environments such as forests. More research is needed to develop reliable and inexpensive methods to verify emission reductions and monitor land use change as well as on the trade-offs and synergies across different development outcomes.

African countries have committed themselves to achieving the aspirations of the Malabo Declaration, including ending hunger by 2025 and building resilience of vulnerable livelihoods and production systems to

climate variability and shocks. They have committed to scaling up investments for resilience-building initiatives and to mainstreaming resilience and risk management into their policies, strategies, and investment plans. CSA is an important approach for meeting Malabo goals, with potential for increasing agricultural productivity and meeting food security objectives while enhancing resilience. However, the effectiveness of CSA will largely depend on its widespread adoption and implementation. This will require key innovations and policy actions, including:

- **CSA-related training programs for extension agents:** A defining characteristic of CSA practices is their location-specificity, meaning that practices and technologies must be tailored to local conditions. The capacity of extension agents to provide advisory services on integrated soil fertility management (ISFM), organic soil fertility, and other new paradigms for sustainable soil fertility management practices is low. This capacity should be increased through short-term training and workshops for extension agents who are already in service.
- **Policies and strategies that treat smallholder farmers as entrepreneurs:** CSA does not by itself solve some of the long-standing problems that have limited the progress and development of agricultural producers. For too long, governments and even donors have treated smallholder farmers as subsistence farmers, and their policies and strategies have largely focused on provision of production-related rural services, rather than market potential. Public extension agents affiliated with the ministries of agriculture largely provide production-related advisory services; but marketing advisory services in most countries are relegated to the ministry of industries and trade, where they receive little attention. Smallholders have the potential to

generate profits and care for their land. They will benefit from being treated as commercially-oriented farmers if they are provided with appropriate advisory and information services to fully connect them with successful value chains.

- **Storage facilities and other market value-chain investments:**

Increased farm and nonfarm investments along agricultural value chains can create incentives for farmers to adopt CSA practices. These include the implementation of risk-coping mechanisms, namely ISFM, improved seeds, storage, processing equipment, and enhanced access to markets, crop insurance, and other mechanisms.

- **Payment for ecosystem services (PES):** A significant share of the benefits generated by CSA practices materializes off-farm and sometimes, as in the case of the reduction of GHG emissions, even at the global level. Programs such as PES should be used to reward farmers who adopt CSA practices. By internalizing positive externalities, PES would help farmers defray initial investments and take on additional risks associated with CSA practices.

- **Agriculture risk management including formal insurance mechanisms:** Farmers need a more sophisticated toolkit to cope with risks induced by changing climate conditions. Furthermore, farmers should be able to take advantage of the upside risk of investments without the danger of catastrophic consequences. Comprehensive risk management strategies, including several insurance pilot programs, show the potential positive impact of innovative approaches and of insurance mechanisms. However, additional work to understand the effectiveness and the potential for substantially scaling up these mechanisms is needed. Such efforts can go a long way in helping the continent meet the

Malabo Declaration commitment to enhancing resilience of farming livelihoods.

- **Improved adoption of CSA practices:** While adoption of CSA has the potential to increase agricultural productivity and trade and thus to mitigate climate-induced risks, it may be hindered by several factors, including the level of investment costs, limited access to CSA technologies and knowledge of how to implement the technologies, imperfect markets, and institutional barriers. And in some contexts, there are significant trade-offs between meeting shorter-term food security objectives and the longer-term objective of building resilience. Policies that allow for more public-private partnerships are needed to facilitate the required investments and the adoption of CSA practices and technologies. It is also critical for governments to improve vital institutions that facilitate access to CSA technologies.
- **Full inclusion of the interlinkages across gender, climate change, agriculture, and nutrition when designing CSA policies and programs:** The gender, climate change, and nutrition (GCAN) framework outlined in the report can be used to identify gender differences as they relate to capacities to address climate variability and shocks, preferences for climate change response options, and the effect of climate change responses on nutrition, health, and gender equality as well as other development outcomes. Thus, the GCAN framework can be used to categorize entry points for multisectoral actions that can achieve positive impacts across numerous outcomes. It can also be used to guide the design, implementation, and monitoring and evaluation of agricultural policies and programs to ensure that they account for the climate risk, gender, and nutrition implications.

Overall, the implementation of CSA practices for smallholder farmers is still limited for two main reasons: financial viability and understanding. To address the financial viability issue, we propose the creation of a special-purpose funding vehicle as a platform for the corporate sector to work in partnership with governments, multilateral development banks, development organizations, donor agencies, foundations, nongovernmental and civil society organizations, small farmers, and local community organizations. In addition to creating a platform for sustainable development, such a funding approach would not have the market-distorting effects associated with pure government subsidy programs. With respect to improving understanding, national education and research systems should be re-organized to upgrade smallholder farmers' skills to properly use CSA practices. This will require multisectoral and interministerial approaches involving all key stakeholders—including farmers' organizations and agro-industries—in planning, implementation, and monitoring and evaluation of CSA practices. Finally, the ongoing appraisal and formulation of new national agricultural programs and investment plans provides a good opportunity to incorporate CSA into these plans.