

Ensuring climate-smart agriculture ‘leaves no one behind’

Climate-smart agriculture (CSA) approaches will be necessary to secure food production across Africa as the effects of climate change are increasingly felt. Can these approaches also help lift the poorest farmers out of poverty?

Key messages

- CSA has the potential to contribute to environmental sustainability. But it does not necessarily bring improvements in wellbeing.
- For CSA to work for poor farmers and the environment, it should be harmonised and coordinated with policies and measures that contribute to poverty reduction and influence wellbeing.
- Scaling up CSA with poverty alleviation at its core demands a holistic perspective. Collaborative partnerships that keep farmers central to decision-making and are inclusive of women and marginalised groups are important.
- Better and more information about CSA is needed at all levels, from communities to ministries, to inform policy-making and interventions.
- There is no one-size-fits-all way of adapting to climate change. Flexible alternatives should be the subject of a dynamic decision-making process in which the benefits of CSA strategies for *all* community members, including the poorest, are considered.
- CSA metrics must go beyond agricultural production. They need to embrace all aspects of poverty and wellbeing, such as markets, health, education and living standards.

Introduction

People in Africa are increasingly suffering the impacts of climate change. Unpredictable weather patterns and resulting droughts, floods and crop diseases are lowering crop yields – and, in turn, lowering household resilience, food security and income, and people’s wellbeing.

Climate-smart agriculture (CSA) is an approach to ensure countries can produce enough food to feed their populations in the face of climate change. It embraces many farming technologies and practices, and is endorsed by, among others, the Food and Agriculture Organization of the United Nations (FAO).

However, its potential to lift the poorest farmers out of poverty in line with the Sustainable Development Goals’ (SDGs) commitment to ‘leave no one behind’ is not assured.



An annual farmer learning event in Nyondo, Kenya, where community-based organisations are promoting uptake of CSA among local farmers.

Photo credit: V. Atakos, *Climate Change, Agriculture and Food Security (CCAFS)*

Box 1: CSA objectives

- Secure sustainable food security
- Help farmers adapt and build resilience to climate change
- Where possible reduce or remove greenhouse gas emissions



Simply raising agricultural productivity is not enough ... We need to think out of the box and foster a practical implementation framework that brings everyone together



Richard Munang, United Nations Environment Programme

The Ecosystem Services for Poverty Alleviation (ESPA) programme commissioned a synthesis of ten ESPA agriculture research projects to consider CSA's pro-poor potential.¹ The subsequent report suggests:

- Cash crops such as cocoa and sugarcane are most likely to attract private-sector interest and, therefore, support scaling-up of CSA.
- The benefits from producing such crops remain beyond the reach of the very poor unless special measures are taken.
- CSA may improve some aspects of wellbeing such as farmers' incomes and food security, but further interventions are required to address other aspects such as health, education and overall living standards.

The synthesis report provided the basis for discussions at specially convened workshops in Kenya and Malawi. The workshops were organised by ESPA in partnership with the Ecosystem Based Adaptation for Food Security Assembly (EBAFOSA).² This briefing highlights the insights offered at those workshops, with a view to next steps for scaling up pro-poor CSA.

Making CSA pro-poor

Policy

CSA on its own is not fully effective as a poverty-reduction measure. For example, in Ghana the ESPA ECOLIMITS project³ found improved cocoa production through CSA approaches had positive effects on people's access to education and assets, and for their food security and overall satisfaction with life. However, it had no effect on metrics for health and access to electricity, water and sanitation. This suggests that policies addressing these aspects, e.g. community infrastructure development, are needed *in addition* to policies improving yields.

Policy is a major driver of change. CSA initiatives must aim to contribute to poverty reduction and wellbeing across multiple dimensions, including food security, education, health and living standards. Harmonisation and coordination of all policies and measures that influence these areas with CSA is therefore essential, including the indicators of success. This more holistic approach will involve working across governmental departments and ministries at different levels.

Partnerships

For CSA to be effective for poverty alleviation it needs to be coordinated with interventions throughout the value chain, from seed purchasing, to market access, to food processing. It needs to consider non-agricultural aspects of household resilience, such as access to fuel for cooking, and even broader considerations such as family planning and literacy.

CSA also needs to be managed in landscape terms. The impacts of interventions on neighbouring or downstream areas need to feed into CSA decisions if unintended consequences that impact the poorest, e.g. soil depletion or decreased river flow and water quality, are to be avoided (or, at least, trade-offs agreed).

Such a comprehensive and landscape-level approach requires collaboration between many actors, from policy-makers to the private sector to development agencies, community-based organisations and more. For CSA to be successfully implemented, farmers need to be central to this network. In particular, pro-poor CSA needs to include women and other marginalised or vulnerable members of the community. In Malawi, for instance, literacy levels are 38%, and the majority of illiterate people are women, who do the vast proportion of farming. It is difficult for them to acquire new skills and concepts: illiteracy is contributing to inequalities. ESPA research found that a more integrated approach is needed that empowers households – men and women – first through adult literacy, and later through basic economic skills and planning for livelihood diversification.⁴

Knowledge and technology

Many technologies and practices are making a difference at individual farm level where they are being trialled. For example, in Malawi, drip irrigation and solar pumps have been identified as essential for bridging dry spells; in Kenya, bee-keeping is proving both profitable and beneficial for crop pollination.

There are successful examples of initiatives for knowledge- and information-sharing, such as the *Maarifa* Centre concept, which sets up information-resource centres staffed by Arid Lands Information Network field officers in East Africa,⁵ and the EdenSys Agribusiness Platform,⁶ a cloud-based CSA information system targeted at farmers in Kenya.

However, knowledge does not necessarily reach all the intended audiences, including the poorest. Both improved agricultural extension at farmer level and better access to information at policy level is needed. Making extension pro-poor also requires different things in different settings to identify the best means of raising the poorest households' food security. This may mean offering help or information on alternative livelihood activities, e.g. off-farm income-generating work.

Box 2: Conservation agriculture in Kapire, Malawi

George Sande stands in front of his maize farm, which is thriving despite a recent dry spell. His crop is taller and stronger than that of his neighbour – a success he attributes to conservation agriculture (CA) practices, including zero tillage, mulching with maize crop residue after harvest and crop rotation, rather than traditional ridging techniques.

Mr Sande is the village headman at Kapire, in Songani Section, near Zomba, Malawi, and he has been practising CA, a CSA system, since 2010. He grows four types of maize, including the giant *mkango* (lion) and fast-maturing *Kanyani* (small monkey) varieties. He also grows pumpkin between maize plants, pigeon peas and cassava, and has planted nitrogen-fixing acacia trees in his field.

Mr Sande points out that he no longer does back-breaking hoeing work, and implementing CA has brought tangible benefits. He has replaced his grass-roofed house with a metal-roofed one and built a similar house for his wife. He now holds meetings to persuade others in his village to take up CA.



George Sande has been practising CA to strengthen his maize crops.
Photo credit: Andrew Bell

Box 3: Country priorities for scaling up CSA

The Kenyan workshop proposed action on several key fronts: capacity-building (universities, government), financing (government, international system), technology (government, private sector) and information (schools, media, etc.), recognising that the individual farmers are part and parcel of this framework.

In Malawi, coordination was identified as the biggest leadership gap. This was summed up to include such aspects as targeting, awareness-creation, identifying utility and relevance of indigenous knowledge and engaging in longer-term programming and not ‘quick-fix’ activities.

Flexibility

CSA interventions must be adapted to local circumstances. In general, the lead-farmer approach - in which a farmer demonstrates new practices to influence her/his peers, is alone likely to be insufficient.

Targeted incentives, for example loans, improved tenure rights, favourable access to resources etc., can help the poorest farmers adopt and continue to practise CSA. ‘Agglomeration payments’, which reward farmers when their neighbours take up CSA, can be important too.

The Smart Subsidies for Catchment Conservation in Malawi⁷ project, encouraging land conservation in the Shire Valley basin, found variable results for subsidies for different practices but an overall positive impact for take-up of CSA over several seasons. Packages of interventions are more likely to ensure resilient households and communities, and will benefit the poorest. If one intervention fails, another can succeed. Two or more interventions can reinforce each another.

Next steps

Climate change is real and will significantly influence agricultural practices over the next decades. There are no quick fixes and adaptation will be a long-term process to ensure results are both sustainable and *equitable*.

There are examples of successful CSA in small areas, but large-scale adoption to ensure it leaves no one behind demands new policies, partnerships, practices, technologies, knowledge-building and capacities.

Multi-sector working

In Kenya, considerable progress in CSA policy has been made as the country works towards delivery of its national Climate Change Act and meeting its Paris Agreement contribution.⁸ First steps towards multi-sector working has begun with EBAFOSA Kenya reaching out to key ministries to convene an inter-ministerial taskforce. This work in breaking down silos at national level needs to continue and extend down to county level.

In the early days for CSA in Malawi, cross-sector initiatives should be considered as policy is formulated. In particular, metrics for evaluating progress in pro-poor CSA need to go beyond the agricultural sector and include education, health and living standards.



CSA will not be pro-poor unless careful attention is paid to make it so, both in technical implementation and the financing processes



Marije Schaafsma, ESPA researcher

Credit

This briefing was written by Marije Schaafsma (University of Southampton) and Andrew R. Bell (New York University) with Naomi Marks. It builds on the findings of Schaafsma and Bell's ESPA working paper *Scaling up climate-smart agriculture: Lessons from ESPA research* (www.espa.ac.uk/publications/scaling-climate-smart-agriculture-lessons-espa-research).

About the ESPA Programme

ESPA is an eight-year global development research programme established in 2009 with funding from the Department for International Development (DFID), the Natural Environment Research Council (NERC) and the Economic and Social Research Council (ESRC). ESPA is one of the most comprehensive research programmes on linkages between ecosystem services and human wellbeing, aiming to provide world-class research evidence on how ecosystem services can reduce poverty and enhance wellbeing for the world's poor.

Programme enquiries:
support@espa.ac.uk

Endnotes

1. Schaafsma, M. and A. Bell (2018) *Scaling up climate-smart agriculture: Lessons from ESPA research*. ESPA Working Paper. Edinburgh: ESPA.
2. www.ebafosa.org
3. www.ecolimits.org/project-impact.html
4. M. Schaafsma, ESPA Fellowship (www.espa.ac.uk/projects/fell-2014-104).
5. www.alin.or.ke/Introduction
6. www.edensys.co.ke
7. www.ifpri.org/project/smart-subsidies-catchment-conservation-malawi
8. CSA is being seen as a major component of Kenya's Nationally Determined Contribution as well as a milestone in its climate change adaptation strategy. There are related components such as the Green Economy Development strategy (see www.environment.go.ke/wp-content/uploads/2017/07/GESIP-SAG-Networking_Press-Release-.pdf) which also aspires for inclusivity.

Evidence base

Feasibility studies on promising technologies should be undertaken to identify successes and challenges before farm-level implementation or scaling up. Experimenting with carefully designed incentives, considering the risks and costs of each, can help to identify the ones that work best in particular communities or settings.

A database of CSA technologies, practices and processes would be a valuable resource for advising on what works and what doesn't work in different settings for scaling up CSA, as well as for formulating evidence-based policy.

Climate mainstreaming

At present, both countries have extension services (information, communication and technology-based knowledge diffusion increasingly takes the place of personal or staffed extension services in Kenya). But agricultural extension is not 'pro-poor' in either country: generally, agricultural extension services are information services for mainstream agricultural practices. Elements of CSA exist but can be enhanced to include a wider selection of climate-smart options. In both countries, there is significant potential for improvements in the efficient delivery of extension. In addition, CSA – and considering its potential for alleviating poverty – needs to be on the curriculum at all levels in schools and colleges.

Conclusion

Above all, new mindsets are required to transform business-as-usual agricultural practices to CSA and to ensure CSA fosters equitable outcomes. The evidence is growing that CSA does not of itself necessarily promote poverty alleviation.

In Malawi, EBAFOSA partners focus on value-chain approaches to ensure that the poorest and most marginalised farmers are not left behind. ESPA research in Malawi has also highlighted the importance of legal reform to improve access to land, economic empowerment (i.e. training in business skills) and gender-mainstreaming, in order to tackle poverty and climate change in tandem. An ESPA project in Ghana focused on secure land and resource rights. Multiple financial, legal rights-based and technological interventions, together with participatory strategies to reach the voiceless, will be needed to get it right.

Disclaimer

The views expressed here are those of the authors and do not necessarily represent those of the ESPA programme, Research into Results, The University of Edinburgh, other partners in the ESPA Directorate, NERC, ESRC or DFID. © Research into Results, a wholly owned subsidiary of the University of Edinburgh (2018).

www.espa.ac.uk



A research programme co-funded by DFID, NERC & ESRC

