Powering Agriculture for Sustainable and Inclusive Economic Development

Climate-resilient agriculture as an engine of inclusive economic development

Agriculture supports the livelihoods of the majority of Africans - predominantly smallholder farmers. GDP growth from agriculture is estimated to be up to 11 times more effective in reducing poverty than any other sector, and smallholder farmers (50% of whom are women) produce 80% of sub-Saharan Africa’s food.

Yet smallholder farming suffers from chronic under-investment. African governments are far from meeting their commitments to spend 10% of national budgets on agriculture. The quality of investment is also poor. It is heavy on subsidies and light on support for extension services, enterprise development and sustainable land and water management, all key for building resilient smallholder farming.

As agriculture in Africa is predominantly rain-fed, the sector is also the most vulnerable to climate change, suffering 80% of all economic losses caused by drought. A major transformation is needed to protect smallholder farming yields and build farmers’ resilience to a changing climate.

Women in Kenya celebrate installing solar panels, supplied by CAFOD partner Caritas Isiolo, which will provide power for schools, clinics and irrigation systems and will help tackle climate change.
Access to affordable, reliable and sustainable energy for agriculture

In sub-Saharan Africa two out of every three people live without modern energy. Most live in rural areas, far from the centralised electricity grid, yet most investment still goes into the grid. It also goes mostly into power generation, rather than to connecting poor households, including smallholder farmers.

When combined with supporting services to boost farmers’ productivity and move up agricultural value chains, access to affordable and reliable energy services for milling, grinding, pumping and refrigeration and other productive uses can be a powerful tool to help transform smallholder farming. It can help increase farmers’ incomes or to diversify them away from a reliance on farming alone (see case studies on Kenya and Zimbabwe).

To power smallholder farms in remote areas, much greater and targeted investment is needed in distributed electricity. Yet in many countries in Africa, the costs of connection are not affordable for poor consumers, including for those who live close to the centralised grid.

In addition, when compared to the cost of solar lamps or household solar systems, irrigation or agro-processing requires larger power systems (such as micro or mini-grids). The up-front costs of these are higher - usually far beyond the means of most poor households.

Credit and equity may be available for energy access markets in some Sub-Saharan African countries where technology costs have fallen and business models are maturing (household solar lighting products for peri-urban or ‘middle’ poor consumers using pay-as-you-go). This is less the case for the market for productive uses, which is nascent in most countries. Public finance has a key role to play in supporting its development.

Finance to power smallholder farming - necessary but not sufficient

Finance is not the only barrier. A more inclusive and integrated approach to planning and delivering energy for smallholder farming is needed to produce the productivity gains and increased/diversified incomes needed to lift farmers out of poverty.

What kind of support can MDBs offer?

- Greater investment in powering smallholder farming: MDBs like the AfDB could provide far greater amounts for energy access programmes than

Sinteyo Legei. Member of women’s cooperative group Leparua, Isiolo County, Kenya.
at present, particularly to provide energy for productive uses. Currently, MDBs channel less than 10% of their overall energy support to access and an even smaller amount on distributed solutions. Most of this investment goes to power generation rather than connecting poor consumers.

- **De-risking private finance.** MDBs can use public money to catalyse private investments that would otherwise not happen, especially in distributed energy projects that are less likely to be profitable (eg by providing guarantees or patient capital).

- **Building the enabling environment.** MDBs could support governments to put in place clear legal frameworks, financial incentives, quality and standards (eg to support mini-grid developers; to ensure the provision of productive services in electrification plans; to make connections affordable for poor consumers; to ensure service quality and so on).

- **Support for more inclusive and integrated approaches to designing and delivering energy services for smallholder farmers at national level.** MDBs could help governments to develop more ‘bottom-up’ and less siloed planning approaches so that services are tailored to the needs of smallholder farmers living in different contexts, provide sufficient affordable and reliable power, and are complemented with provision of other supporting services.

### CASE STUDY 1: KENYA

In Kenya, fertile land is scarce and competition for resources can lead to conflict and environmental damage as land is overused. Such competition is increasing in areas where a changing climate is causing increased impacts such as prolonged or more intense drought.

CAFOD, in partnership with the EU and local partners Dupoto-E-Maa in Kajiado, the Catholic Dioceses of Isiolo and Kitui and Solar Works East Africa Limited, installed customised solar powered irrigation for greenhouse farming by 48 womens groups.

Along with the irrigation systems, agricultural extension services, enterprise development and other supporting services were provided.

The project resulted in improved food security for the women and their families through adding tomatoes to their diet, and additional income generation from selling the crops. In Isiolo, farmers in the region have experienced prolonged periods of drought and famine due to a changing climate.

By using solar power for water pumping and lighting, and adopting greenhouse farming methods, the women farmers have built their families’ resilience to the ongoing impacts of climate change by diversifying their livelihoods.
CASE STUDY 2: ZIMBABWE

In Zimbabwe, irrigation can help face the challenges presented by wildly fluctuating and extreme weather. Communities have worked with Oxfam and the EU to harness solar power, resulting in a virtuous circle of increased production, better health and increased incomes.

The Ruti Dam irrigation scheme enables smallholders to obtain three harvests a year, and rotate between food and cash crops on the same land. While recurring drought has plagued the scheme, even during the El-Nino driven drought in 2015 villagers still obtained a harvest.

The scheme combines gravity-fed irrigation with solar pumping into canals – for watering and cultivating fields. An energy kiosk powered by rooftop solar panels is providing cold storage (used by fish businesses) and solar charging.

There is a thriving local market for solar lanterns, plus clinics and schools are now connected. The community is now sustaining the project, self-financing in part through community funds that are raised through revenues from the solar kiosk.

For further information:
www.access-coalition.org
http://cafod.org.uk/About-us/Policy-and-research/Climate-change-and-energy
www.oxfam.org