Walker Institute for Climate System Research

University of Reading

CLIMATE SERVICES FOR SMALLHOLDER FARMERS

Walker Institute Research

Photo credit: C Schubert, CCAFS.

Selina Sellas, a farmer and mother from the village of Makoja, Tanzania, calculated that she could lose her maize harvest in 7 out of 10 years because of insufficient rainfall. She now plants less maize and has introduced more drought resistant pearl millet.

University of Reading researchers are putting smallholder farmers at the heart of a new sustainable approach to manage climate risks and increase resilience. Called PICSA (Participatory Integrated Climate Services for Agriculture), the approach couples climate, crop, livestock and livelihood information with tools that farmers can use to decide the best options for them.

SMALLHOLDER FARMERS IN AFRICA ARE VULNERABLE TO VARIABLE RAINS

Smallholder farmers are key to food security in sub-Saharan Africa where two thirds of the population depends on small-scale farming as their main source of food and income. Critical farming and household decisions depend upon how much rain falls, when the season starts, the length of the season and the likelihood and timing of dry spells; all of which vary considerably from year to year.

A NEW APPROACH TO REDUCE CLIMATE RISKS

Three elements are at the heart of the PICSA approach:

- Historical **climate data** are combined with location-specific **crop and livestock information** so farmers can assess risks
- **Farmers** use planning tools to consider **crop, livestock and livelihood options** and make decisions that are right for them
- **Farmers update their plans** based on seasonal and short term forecasts.

KEY INFORMATION

The work is led by the University of Reading supported by the CGIAR Research Programme on Climate Change, Agriculture and Food Security (CCAFS)

The University of Reading team:

Dr Peter Dorward
p.t.dorward@reading.ac.uk
and **Dr Graham Clarkson**
g.clarkson@reading.ac.uk from the School of Agriculture, Policy and Development

Professor Roger Stern
r.d.stern@reading.ac.uk
Statistical Services Centre

PICSA Training Manual can be downloaded at **www.walker-institute.ac.uk/research/PICSA**

'We have focussed on practical, hands-on methods that can easily be picked up and used by farmers.'

Dr Roger Stern,
Statistical Services Centre

'The national weather services are key players at all stages of PICSA.'

Dr Roger Stern,
Statistical Services Centre

'We should select crops that look like the climate.'

Farmer in Matumba village
in central Tanzania.

FIND OUT MORE

PICSA webpage and guidelines
www.walker-institute.ac.uk/research/PICSA

SEE ALSO

School of Agriculture, Policy and Development
www.reading.ac.uk/apd

Statistical Services Centre
www.reading.ac.uk/ssc

Centre for Food Security
www.reading.ac.uk/cfs

BRINGING CLIMATE DATA TO LOCAL FARMERS

Extension and NGO field staff are trained in the use of PICSA. Then, using material prepared by their National Meteorological Agency, work with groups of farmers to see how rainfall and temperature have varied in the past in their location. This happens well ahead of the growing season and always initiates a lively discussion about which were good and bad years and how that matches farmers' experiences. The farmers also look at how rainfall varies through a season. How often is there a false start to the rainfall season? How likely are dry spells at different points of the seasons? What are the chances of receiving enough rain for a specific crop?

FARMERS ASSESS LIVELIHOOD OPTIONS

Using the climate risk information with location-specific crop, livestock and livelihood information, together with their own experiences, farmers identify the best options for their local conditions. For example, are there crop varieties, livestock management options and / or livelihood choices that might be more suitable? Can farmers adjust planting times to reduce risk?

A set of participatory tools are used by farmers to explore the resource use, costs and returns of the different options they have identified. Farmers also use participatory tools to plan the implementation of options that they have selected for the next season.

Crucially in this approach, it is individual farmers who make the decisions about what to plant and how to manage their crops and livestock. What works for one farmer may not work for his/her neighbour who may, for example, be wealthier and prepared to plant a riskier, but more valuable crop.

UPDATING PLANS USING FORECASTS

As the growing season approaches and farmers are preparing to plant, they receive a seasonal forecast for the coming months. Armed with this information, farmers may adjust their plans. For example, if a favourable season is predicted, some farmers may choose to invest in riskier, but more productive crops. A forecast of below average rainfall might prompt some farmers to hedge for more drought resistant crops.

Throughout the season, farmers are provided with short-term forecasts and warnings via mobile phones and / or radio. The farmer training helps to put these forecasts into context and explain the terms used.

SCALING UP TO REACH MORE FARMERS

Scaling up to reach more smallholder farmers is a crucial part of the PICSA approach. The University of Reading team are working with National Meteorological Agencies, government extension and NGOs in several countries including Tanzania, Malawi, Kenya, Ghana, Lesotho and Mali to support the scaling up of climate services to thousands of farmers in a sustainable manner.

A set of resources has been developed for field staff and trainers, including a practical handbook (for staff in the field) and a training handbook (for managers and trainers of field staff).

For more information about the Walker Institute, please contact:

Walker Institute

University of Reading
Agriculture Building
Earley Gate
Whiteknights
Reading, RG6 6AR

k.maskell@reading.ac.uk
Tel +44(0118) 378 7380
www.walker-institute.ac.uk
@unirdg_walkerin

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