‘Creating best-fit climate adaptation strategies through joint learning at the interface of science, policy and practice’

Experiences from research for policy support in evaluating good practices in climate adaptation in rural Africa

Promising agricultural practices for climate change adaptation in Africa are numerous and include such strategies as crop diversification, conservation agriculture, agroforestry development and improved water harvesting. But how do we gain an insight into the conditions under which these practices work best? In order for policy makers to effectively build on the potential of these adaptation strategies, is required careful identification and assessment of good agricultural practices. This policy brief introduces four collaborative research projects that assess the ability of adaptation strategies to contribute to sustainable development and meet the aspirations and local realities of farmers and other land users.

Adaptation to climate change calls for joint learning embedded in policy, science and practice

The challenge of a climate resilient agriculture requires a change ranging from global policies to daily agricultural practices. Farmers simply do not adopt strategies that 'experts' think are good for them. There needs to be a clear link with their practices and aspirations. Planning at the national level should be linked to tailor-made solutions at the local level, and promising local innovative practices need to be inserted into national policies. Therefore, an approach is needed that is embedded in a social learning process in which farmers, scientists, development practitioners and policy makers try to find innovative and socially equitable solutions. Creating climate resilience in agricultural practices implies not only finding solutions to overcome the challenges of a changing climate, but also ensuring that those solutions contribute to sustainable development.

Science provides useful information on complex biophysical and social systems and their dynamic interactions that influence local vulnerability to climatic change. However, next to the provision of such knowledge, research for policy support should also involve the engagement of researchers and policy makers in processes of societal and institutional change and in the implementation of concrete actions to adapt and become resilient to climate change. Here, the focus of science switches from mere knowledge generation towards problem-action oriented approaches. Creating synergies between policies, science and agricultural practices is enhanced by collaborative research approaches in which various societal stakeholders learn across scales, from local specific knowledge and experimentation to national consequences for ecology, economy and society. Presented in this policy brief are four collaborative research projects of Wageningen UR (University & Research centre) in order to contribute to social learning and institutional change processes at the interface of science, policy and practice.

WAGENINGEN UR
For quality of life

Linking training, research and policy advice: capacity building for adaptation to climate change in east Africa

The aim of the Climate and Adaptation project is to develop capacities of scientists, policy makers and practitioners in East Africa to address the issue of climate adaptation and to enhance the integration of the issue of climate change into policy-making processes. The project uses a multi-track approach that combines research, policy and training activities.

The project started with two participatory sessions during which policy makers, NGOs and scientists identified the capacities that need to be developed on the topic of adaptation to climate change. As a result, a two-week capacity building course was developed in which participants created a shared understanding of adaptation to climate change. This led to the building of a framework that conceptualises climate change adaptation as a change process towards sustainable development. The course participants combined presentations on core concepts with assignments and discussions, which allowed them not only to apply the concepts to their local circumstances, but also – as they were interacting with scientists, policy makers and local farmers – to increase their ability to deal with uncertainty and complexity.

During the course, a participatory analysis was also done on the vulnerability of hot spots to climate change in Eastern Africa. These hot spots were the start of a case study approach in which the vulnerability of various agricultural systems was analysed and current national/regional policies for sustainable development were assessed by means of a multi-criteria analysis on their potential to increase the resilience of the land users who are most vulnerable to climate change. One of the next steps in the project will be a collaborative assessment of smallholders' innovativeness in agricultural practices in Ethiopia to see how these can be strengthened and linked effectively to local and national policies that enhance local resilience and increase agricultural production.

The Climate and Adaptation project was commissioned by the Netherlands Ministry of Agriculture, Nature and Food Quality. It is being implemented in close consultation with the Netherlands Agricultural Council in Addis Ababa. It is a collaboration between Wageningen UR (PRI, LEI, CDI, Alterra), ASARECA, IUCN, RUFORUM and the Horn of Africa Regional Environment Centre (HoA-REC). For more information, visit http://portals.wi.wur.nl/climatechange.

Identifying policy options for climate adaptation in the perspective of sustainable development

The key objective of the Land Use Policies and Sustainable Development in Developing Countries (LUPIS) project is to use various modelling tools to improve the knowledge of the research community and policy makers about the impacts that different land use related policies will have on sustainable development in developing countries. The involvement of stakeholders plays an important role in the LUPIS methodological framework. National policy forums that involve various stakeholders are held to assess institutional constraints on implementing specific policy options. These options are evaluated on their impact on sustainability indicators in the modelling phase. Interactions with farmers are organised during the data collection and FoPIA workshops (Framework for Participatory Impact Assessment), which are used as a participatory-based sustainability impact assessment tool. The involvement of stakeholders in the impact assessment procedure provides unique opportunities for researchers, policy makers and farmers to communicate and learn, which is important not only to improve the empirical and analytical basis for policy making, but also to ensure the effectiveness and efficiency of the policy implementation.

LUPIS is an EC-funded project run by 16 institutes in 13 EU and non-EU countries. For more information, visit www.lupis.eu.

Participatory learning and action for agroforestry development in the Sahel

The Sahelian Fruit Trees (SAFRUIT) project was an interdisciplinary research project set up to strengthen the potential of indigenous fruit trees to provide rural people in Burkina Faso, Mali and Niger with food security and sustainable livelihoods.

The project employed a participatory learning and action approach for joint learning and planning with local communities and other stakeholders, such as policy makers, NGOs, private businesses and farmers' organisations. It entailed a set of participatory tools, such as mapping, time lines, diagrams, classification and matrix ranking. An important component of the overall methodology was the combination of participatory methods and tools with questionnaires, surveys and document review to sustain the scientific adequacy of data and arguments.

SAFRUIT participatory learning and action experiences confirm the importance of integrating scientific and local knowledge in developing best practices in climate adaptation. Researchers are strategic knowledge brokers because they act at different scales of intervention and operate in different networks. Analysis of the research process revealed the following success factors:

1 Adaptive research approach;
2 Linking to existing institutions and processes in relevant domains;
3 Identification of key networks, organisations and actors in an early stage of the research process and their active involvement;
4 Building strategic partnership;
5 Coordination between different scales.

SAFRUIT was an EC-funded project that consisted of a collaboration between Forest & Landscape Denmark, LEI, University of Bangor in Europe and Centre National de Semences Forestières (CNSF) and Institut de l'Environnement et de Recherche Agricoles (INERA) in Burkina Faso, Institut d'Economie Rurale (IER) in Mali, Institut National de la Recherche Agronomique du Niger (INRAN) and ICRAF Sahel and ICRISAT. For more information, visit www.safruit.org.

Joint learning in innovation systems in African Agriculture

The aim of the Joint Learning in Innovation Systems in African Agriculture (JOLISAA) research project is to increase the understanding of agricultural innovations processes. Lessons learnt about past and ongoing experiences with agricultural innovation in small-scale farming in sub-Saharan Africa will be synthesised by combining joint case-study assessment with capacity strengthening and networking. Joint learning will be fostered by engaging diverse stakeholders – for example, researchers, development practitioners and policy makers – in comparing and analysing these cases. Together these parties will look at the factors that push and pull the out-scaling of innovations and at the role of both scientific and local knowledge in this process. The project will deliver recommendations to the European Commission and African decision makers on how to stimulate the innovativeness of African agriculture and thereby increase its ability to adapt to climatic changes.

JOLISAA is an EC-funded project that consists of a collaboration between CIRAD, LEI/Wageningen UR, ETC, ICRA in Europe and decentralized networks coordinated by University of Abomey-Calavi (UAC) in Benin, Kenya Agricultural Research Institute (KARI) and University of Pretoria (UP)/Institute of Natural Resources (INR) in South Africa.

Recommendations

The shift towards the climate-resilient sustainable development of African agriculture calls for:

- Joint evaluation of 'best adaptation' agricultural practices in order to gain an insight into the conditions under which these practices can be scaled up. This entails the challenge to deal with uncertainty and complexity through long-term and flexible planning and the creation of a sharing of perspectives for capacity building and institutional change.

- Strategic knowledge generation and information provision to enrich the policy discussions on climate adaptation and to stimulate more inclusive solutions. This learning effort on adaptation practices needs to be demand driven, building on the innovativeness of farmers.

- Climate change adaptation has to be considered in the framework of sustainable development and social learning and institutional change processes, including integrating different types of knowledge, at different levels policy levels. National climate adaptation policies should be assessed on their contribution to sustainable development through participatory evaluations of best agricultural practices. Both the LUPIS and the Climate and Adaptation project entail such evaluations.

- Development of adaptation strategies that fit with local realities and aspirations. Both the JOLISAA and the SAFRUIT project assess different adaptation options with farmers so that they, as well as policy makers, learn to deal with climatic changes in an innovative way.

Further reading

Paassen A. van, J. van den Berg, E. Steingrover, R. Werkman and B. Pedroli *Knowledge in action. The search for collaborative research for sustainable landscape development.* Wageningen Academic Publishers, Mansholt Series, Volume 11, Wageningen (forthcoming)

Geene J. van, C.T.H.M. Terwisscha van Scheltinga, F. Gordijn, A. M.J. Jaspers and M. Argaw, 2010. *Trainers' manual on climate change adaptation and development : integrating climate change in policy making for sustainable development in agriculture and natural resources management.* Alterra Report 1991, Alterra, Wageningen. Avialable online for free at: http://library.wur.nl/edepot/133717.

Verburg, R. W., E.J.M.M Arets, J. Verhagen., C.T.H.M. Terwisscha van Scheltinga, F. Ludwig, R. Schils, J. van Geene, 2009. *Climate change in East Africa; Towards a methodological framework on adaptation and mitigation strategies of natural resources.* Wageningen UR, Alterra

Verburg, R.W. L. Chen, Y. Cissé, S.R. Filho, B. Keita, D. Lindoso, M. Demba, C. Gucciardi, A.T. Diarra, N.Debortoli. (2009) *Climate change in Mali and Brazil: towards an evaluation method of climate change and land use policies.* The Hague: LEI Wageningen UR, (Report 2009-060)

Published by Wageningen UR. For more information on the contents of this policy brief please contact Bette Harms, bette.harms@wur.nl.

For further information on the projects please contact:
Catharien Terwisscha Scheltinga, Coordinator of the BO Climate and Adaptation projects, catharien.terwisscha@wur.nl.
Floor Brouwer, Coordinator of the LUPIS project, floor.brouwer@wur.nl.
Jolanda van den Berg, Coordinator of the SAFRUIT and JOLISAA projects, jolanda.vandenberg@wur.nl.