



CALESA

ADAPTING AGRICULTURE TO CLIMATE CHANGE

Developing promising strategies using Analogue Locations in Eastern and Southern Africa (CALESA)

IMPROVING FARMING PRACTICES IN EASTERN AND SOUTHERN AFRICA

Agriculture experts forecast that global agricultural production will have to increase by 70%, and should double in developing countries, in order to feed the 9 billion people estimated to be on this planet in 2050. To achieve food security in sub-Saharan Africa in particular, rain-fed smallholder agriculture will remain vital as it is today.

Nearly 90% of the staple food production will continue to come from rain-fed smallholder farming systems. The households living on these farms are among the world's poorest and most vulnerable rural people. Often living within a degraded environment and without supportive development policies to improve their situation, these families are already struggling to cope effectively with highly variable climate and rainfall. So the challenge to boost and stabilize harvests on these small farms is not an easy one. Climate change will further complicate agriculture, making it harsher for rural communities that rely on rain-fed agriculture for their livelihoods. In some Sub Saharan African countries crop yields are predicted to fall by 50% by 2050.

As climate change begins to have noticeable impacts, farmers will have to progressively adapt their farming practices. They will need to use the most appropriate technologies and farm management practices to alleviate the effects of the predicted temperature rise. But how can farmers imagine what the situation will be in 2050?

From 2011 to 2013, the CALESA project will help farmers find some answers by evaluating various agricultural adaptation strategies, with comparative testing in pilot sites in Kenya and Zimbabwe and their corresponding »analogue« locations – sites with similar rainfall characteristics but 3 degrees warmer. CALESA, funded by the Federal Ministry for Economic Cooperation and Development (BMZ Germany), is implemented by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in cooperation with the Kenya Agricultural Research Institute (KARI), Kenya Meteorological Department (KMD), Zimbabwe Meteorological Department (ZMD), Midlands State University (MSU), Zimbabwe, and Hamburg University of Applied Sciences (HUAS), Germany.



WORKING WITH FARMERS

CALESA's analogue locations will be studied in a participatory way with farming communities close to the pilot sites, with regard to crops and crop diversity, soils, climate, current farming practices and livestock management, and the roles of male and female farmers. The farmers' perceptions of current climate-induced risks and climate change will be studied including a gender perspective. CALESA will verify if there are significant differences in adaptation strategies between men and women, such as choice of crop and variety, livelihood diversification and resource allocation. In Kenya and Zimbabwe, women usually have fewer options available to them, so what will this mean for them in terms of climate change adaptation? Involved in

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DEAR READER

Welcome to CALESA's newsletter!

In this first issue, we introduce you to our project »Adapting Agriculture to Climate Change – developing promising strategies using analogue locations in Eastern and Southern Africa«, in short: CALESA. Learn more how the project is approaching one of the key challenges for the African continent, namely finding practical answers to the question how smallholders can progressively adapt to cope with the negative impacts of climate change on their farming practices. CALESA's research teams in Kenya and Zimbabwe work not only on-station but involve farming communities in various ways.

CALESA will provide scientifically sound input for decision-makers in two aspects:

- its practice-oriented applied research visualizes what risks the rural populations in Kenya and Zimbabwe are exposed to by means of so-called analogue locations (i.e. sites with similar rainfall totals and patterns but that differ by 3°C in their annual mean temperature), and
- the local teams explore the cost-effectiveness of different adaptation initiatives with a view to the specific local situations in which adjacent communities farm.

For more information, visit our project website at www.calesa-project.net and join our CALESA network!

Enjoy the reading!



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LIVING LABS FOR DECISION-MAKERS

Governments need climate change research in order to predict what the risks and opportunities could be for their country in the coming decades.

This is particularly relevant for developing countries in Sub-Saharan Africa where over three quarters of their population rely on smallholder rain-fed agriculture, and therefore are most vulnerable to climate variability and climate change.

Analogue locations could be the »living« laboratories for decision-makers to visualize what risks the rural population is exposed to, such as food insecurity, but also what is the cost-effectiveness of different adaptation initiatives. This is valuable information when countries such as Kenya are currently writing their National Adaptation Plans of Action (NAPA).

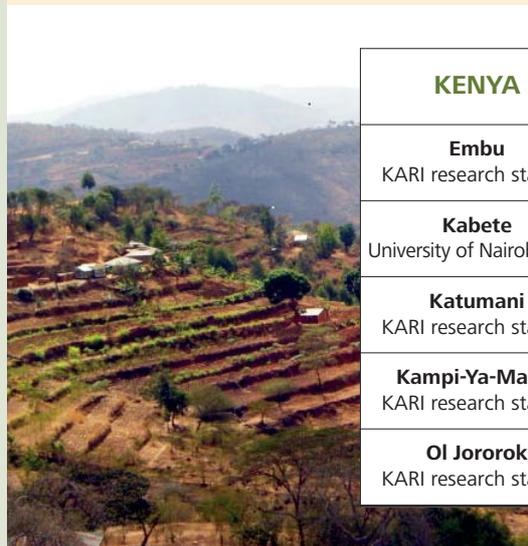
Thus, CALESA's research will help identify what the agricultural development and research priorities will be in the future, increase the understanding of what type of technology to promote and what are the most likely livelihood scenarios.

WORKING WITH FARMERS (CONT.)

surveying the perceptions of current climate variability and future climate change among adjacent farming communities are two doctoral students, Jokastah Wanzuu Kalungu, in Kenya, and Kumbirai Musiyiwa, in Zimbabwe. Both pursue a PhD programme in the frame of CALESA and are based at the respective ICRISAT offices in the two African countries.

Parallel to on-station research at the participating research institutes, two community level surveys have been conducted to understand the farmer's perceptions of current climate variability and future climate change and their impacts on agricultural systems in each of the selected four analogue locations in Kenya and in Zimbabwe, respectively (see figure). The results of the surveys will then feed into the development of the most promising adaptation strategies for the respective locations.

The photo shows the KARI-Katumani area, one of the analogue locations in Kenya. Katumani is highly populated as shown by the settlements as compared to the surrounding area. In this semi arid area, farmers use terraces and grass strips as a way of conserving water as well as reducing soil erosion on sloping lands under rain-fed agriculture. Despite all this, the aridity of the place is apparent and it may become worse with more erratic rainfall due to effects of climate change.



KENYA	°C *	ZIMBABWE	°C *
Embu KARI research station	19,5°	Sanyati Cotton research inst., Kadoma	21,8°
Kabete University of Nairobi farm	18,2°	Chiweshe Henderson research station	18,2°
Katumani KARI research station	19,2°	Chiredzi Chiredzi research station	21,3°
Kampi-Ya-Mawe KARI research station	20,8°	Matobo Matopos research station	18,4°
Oi Jororok KARI research station	14,9°	* Avg annual temperature	

CONTACT US

CALESA's international team is eager to exchange experiences with other climate change adaptation practitioners in the region and beyond. Discuss the relevance of this new methodology of analogue locations or simply stay informed about the project's activities and outputs.

For more information on the project, please visit the CALESA website at www.calesa-project.net and join the CALESA network to share your thoughts on climate change adaptation and get frequent news on the findings from the analogue locations research by subscribing to the project e-news.

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