

THE PARTNERSHIP

The CALESA project is implemented by ICRISAT in cooperation with the partners mentioned below.

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Eastern and Southern Africa (Lead Partner) <http://www.icrisat.org>



Kenya Agricultural Research Institute (KARI) <http://www.kari.org>



Kenya Meteorological Department (KMD) <http://www.meteo.go.ke/>



Zimbabwe Meteorological Department (ZMD) <http://www.weather.co.zw>



Midlands State University (MSU), Zimbabwe <http://www.msu.ac.zw/>



Hamburg University of Applied Sciences (HUAS), Germany <http://www.haw-hamburg.de/ftz-als.html>



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ADAPTING AGRICULTURE TO CLIMATE CHANGE

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

WWW.CALESA-PROJECT.NET



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ADAPTING AGRICULTURE

Rain-fed agriculture will remain vital for food security in sub-Saharan Africa (SSA). Nearly 90% of the staple food production will continue to come from rain-fed smallholder farming systems. However, it is here that some of the world's poorest and most vulnerable rural communities live. Moreover, rain-fed agriculture has stagnated.

Added to the constraints imposed by poor supportive policies, extreme poverty and often a degrading resource base is the inherent climate-induced production risk associated with the current season-to-season variability of rainfall. This situation is likely to be worsened by global warming and its predicted impacts on seasonal rainfall amounts and distribution patterns, increasing the climate-induced problems faced by rain-fed farmers who already today struggle to cope effectively with current rainfall variability.

The information gained through CALESA is potentially of great value not only in Kenya and Zimbabwe, but in all countries where rainfed agriculture is important. Ultimately, it will be the smallholder farmers who will make use of the results of climate change adaptation research to ensure their future livelihoods in a warming world.

Dr Dave Harris, Principal Scientist (Agro-ecosystems / Climate Change), ICRISAT -Nairobi



In the medium to longer term, and as climate change begins to have noticeable impacts, farmers will have to progressively adapt their farming practices to a new set of climate-induced risks and opportunities. The CALESA project addresses in particular adaptation to progressive climate change with special emphasis on predicted increases in temperature to enable farmers to adapt their farming practice to these new climate risks as they evolve.



APPROACH AND MAIN ACTIVITIES

The project will evaluate strategies for agricultural adaptation to climate change through the use of "analogue locations", with special reference to predicted temperature increases. In each country, we have identified two pairs of these analogue locations – sites with similar rainfall totals and patterns but that differ by 3 degrees Celsius in their annual mean temperature. These are:

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	

CALESA's main activities are:



ANALYSES

By means of detailed on-station agronomic- and physiological research, the weather-driven Agricultural Production Systems Simulator (APSIM) will be field-calibrated. Spatial and temporal aspects of climate change will be interpolated through the use of GIS, downscaled global climate model predictions and other innovative tools. Based on the results of the analyses, recommendations for appropriate adaptation strategies will be derived.



FIELD TRIALS

The potential of improved soil, water and crop management strategies together will be iteratively tested through field research on station and as simulation based research. This will be contrasted by crops genotypes to mitigate the impacts of increased temperature. Crops to be tested include maize, sorghum, groundnut, pigeonpea and cowpea.



PARTICIPATORY RESEARCH

Through participatory research with farming communities undertaken by two PhD students, the pairs of analogue locations will be fully characterized with regard to crops, soils, climate, current farming practices, roles of male and female farmers, crop diversity, livestock management, farmers' perceptions of current climate-induced risk and climate change (including gender perspective), and possible adaptation strategies.



KEY INFORMATION

Key activities and project outputs will be disseminated widely among stakeholders, an interactive website with linkages to social networks provides key information about CALESA and serves as platform to share latest research results.