



RAIZ: Resilience building through agroecological intensification in Zimbabwe



Purpose of the project

RAIZ seeks to develop and implement scientifically tested agroecological approaches in Zimbabwe to improve agricultural production and resilience to climate change, while protecting the environment and reducing greenhouse gas (GHG) emissions. In that context, we will provide scientific evidence and support innovation for the design of climate-smart agriculture (CSA) at the plot, farm and landscape levels, taking into account the context of mixed farming in sub-humid to semi-arid environments.

Background

In Zimbabwe, the agricultural sector accounts for about 17% to GDP and provides employment and income to 60-70% of the population. It is mainly subsistence-oriented, with maize as the main staple crop and limited use of external inputs. The prevailing cropping and livestock systems are inefficient in terms of resource use and generally have negative impacts on the environment. In these systems, yield gaps are wide and poverty is very high.

The Intergovernmental panel on climate change (IPCC) predicts that southern Africa will suffer from climate change. This makes the adaptation of the agricultural sector a national priority, requiring responsive policy formulation at the highest level. Zimbabwe developed a ten-year framework (2018-2028) to facilitate the promotion of CSA. However, adoption of CSA remains limited. Agroecological practices, and the systemic perspective embedded in agroecological approaches, could help address climate change challenges and improve the sustainable intensification of agriculture in Zimbabwe.

The project was conceived as the research component of the Team Europe Initiative (TEI) on "Climate-smart agriculture for resilience building", formulated by the delegation of the EU Delegation in Zimbabwe with interested Member States.

The theory behind the change

Key assumptions underlying our project are that (i) there are trade-offs at household level between short-term increases in farm income and long-term environmental sustainability, and (ii) multi-stakeholder, multi-scale and multi-disciplinary approaches are needed to assess and solve these trade-offs.

The first outcome is that the stakeholder community involved in agricultural development in Zimbabwe will gain contextual knowledge of agroecological approaches, their potential and constraints, enabling them to contribute to a greener and more resilient country. Thus, the project will improve scientific understanding of the biophysical and social factors and processes that underpin the functioning and impacts of agroecological practices for climate-resilient and productive agriculture in a context where low-income family farms predominate. For knowledge generation, we will employ a range of complementary methods at the project sites, including socioeconomic characterisation of households, sustainability assessments at field, farm and territorial levels, and field experiments.

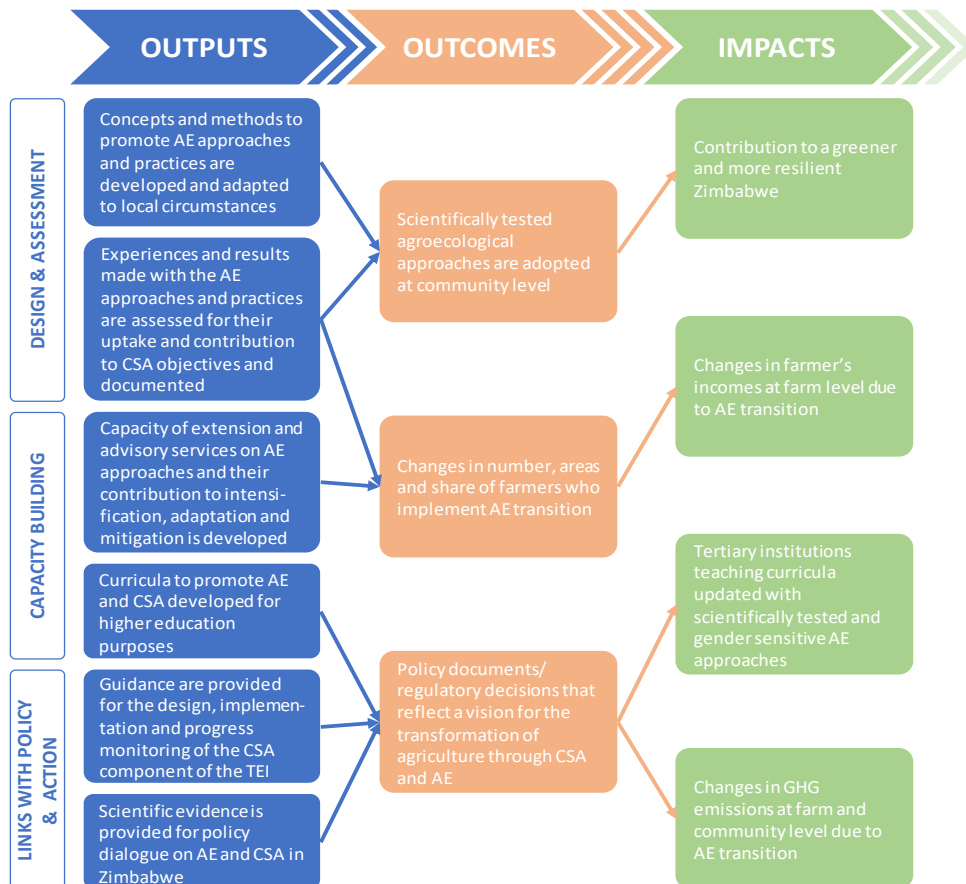
We assume that designing solutions is a creative and iterative process that mobilises and questions the general knowledge about agroecological principles, contextualised knowledge generated through the assessments listed above, and practitioners' knowledge and expertise about the system they manage. The action will take place within "living labs" considered as the combination of physical infrastructure, research, and technical staff, and stakeholders involved in the action. These living labs will facilitate the constant and, at times, more formal and more intensive animation through specific workshops, the flow of information between stakeholders and the iterative loop of the design and evaluation process.

The second outcome is the formulation of policies needed to achieve a greener and more resilient Zimbabwe. One key original feature of this project is that it will mobilise methods from experimental and behavioural economics to assess *ex ante* the impact of farmers' decisions and farm sustainability of agricultural policy instruments such as insurance, credit, and input subsidies for agroecological intensification, as well as payments for environmental services and contracts with farmers. A workshop with stakeholders, including policymakers with responsibilities at district to national levels, will be held to specifically share and discuss the results of these analyses and draw lessons for design appropriate policy design.

The project's long-term impact will be enhanced by its strong capacity building component. Training modules will be developed, along with digital application tools and materials, for extension workers to guide farmers and communities in adopting agroecological approaches and adaptation measures to weather variability and climate change. New courses will also be developed including supporting curricula and technical materials, to improve knowledge of agroecology and CSA in universities.

The project may fail to achieve these results if political instability and the non-participation of some stakeholders are not addressed. Particular attention will be paid to developing good working relationships within the project team and between the team and our partners. A significant amount of time will be devoted to building a shared and dynamic commitment to the project's ambition within the community of stakeholders this project concerns.

RAIZ IMPACT PATHWAY



Main activities

Main project activities will be as follows:

- documenting current experiences and success stories in agroecology and CSA and formulating lessons learned for resilience building;
- developing concepts and methodologies for use in all research sites;
- conducting farm surveys for socio-economic characterisation and niche identification;
- carrying out agroecological diagnoses on all project sites;
- creating, supporting, and monitoring innovation platforms;
- conducting participatory evaluation and multi-criteria analysis;
- designing the implementation and monitoring of multi-localised experimental and demonstration systems, on station, in the community and on the farm;
- developing and adapting crop, farm/household and landscape models of biophysical flows and socio-economic decisions to the local context;
- discussing the scientific findings with relevant stakeholders to jointly identify relevant adaptations and changes in practices by farms, communities, extension services, as well as donors and TEI implementing partners;
- developing a user-friendly decision support framework for farming systems and associated training materials to advise and train farmers on the best allocation of agricultural and community resources;
- preparing a manual containing guidelines for intensifying agroecological farming practices and climate change adaptation/mitigation techniques at the farm level;
- organising targeted training sessions/modules and field visits to exchange experiences on the results and lessons learned from research and demonstration activities;
- designing and implementing training of trainers for extension workers;

- reviewing and evaluating current higher agricultural education programmes;
- organising workshops for structured discussions with decision-makers and a wide range of other key stakeholders to develop guidance notes considering technical and political aspects.

Organisation

The project will have a steering committee chaired by the Permanent Secretary in the Ministry of Lands, Agriculture, Water, Climate and Rural Resettlement. A core management team of scientists from CIRAD, the University of Zimbabwe and CIMMYT will oversee the project on an ongoing basis. A specific group of scientists representing all project disciplines will be responsible for ensuring that interdisciplinary issues are well identified and addressed.

In addition to a work package dedicated to coordination and another to communication and dissemination, the work packages will include the creation of a "living laboratory" to mobilise, engage and coordinate interactions between project researchers and other stakeholders (led by UZ); co-design and testing of agroecological concepts and methods (led by UZ); impact assessment (CIRAD); capacity building development of advisory and extension services (CIMMYT); and curriculum development for higher education (UZ).

Implementing organisations

- CIRAD

Project partners

- CIRAD, University of Zimbabwe and CIMMYT

Other main stakeholders

Stakeholders who are not included in the contract but who interact/work with the project:

- National University of Science and Technology
- Chinhoyi University of Technology
- Bindura University of Science and Technology
- Africa University
- Farmer associations and groups
- Ministry of Lands, Agriculture, Water, Climate, and Rural Resettlement, and line agriculture extension service (AGRITEX) as well as the Department of Research Specialist Services (DRSS)
- Ministry of Higher and Tertiary Education, Science, Innovation and Technology Development
- European Union donors
- Agro dealers
- Women and youth entrepreneurs
- Non-governmental organisations

Location

Zimbabwe

Funding and co-funding

European Commission: EUR 3 320 000

Co-funding from CIRAD: EUR 900 000 including EUR 150 000 in PhD thesis scholarships.

Duration

January 2022 - December 2025

