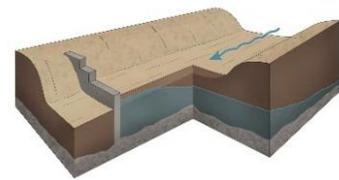


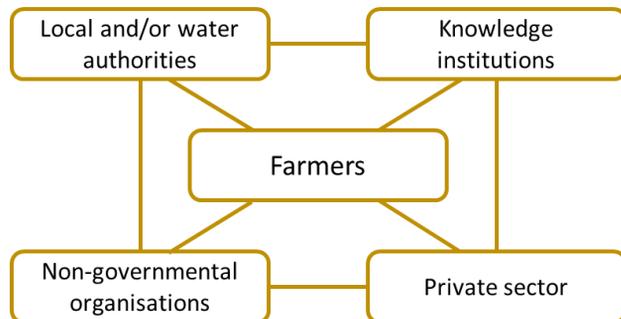
A4 Labs - Arid African Alluvial Aquifers

Securing water for development



WHAT

Farmers and project partners will test, share and compare methodologies to develop a reliable and sustainable source of water for agriculture in semi-arid to arid regions of Sub-Saharan Africa, using water from 'dry' river beds, so-called alluvial aquifers. A4Labs will seek ways for upscaling these methods for use at river basin scale while maintaining sustainable abstraction limits and minimising negative social and ecological consequences.



WHERE

- Tekeze, Tigray region, Ethiopia, Nile basin
- Mzingwane, Mtabeleland, Zimbabwe, Limpopo basin
- Limpopo, Gaza Province, Mozambique



WHY

Semi-arid to arid regions comprise 30% of the area of the African continent. These lands are often considered marginal and lost to socio-economic development due to water scarcity. The project will study alternative ways in which water from alluvial aquifers can best be accessed and used for productive purposes and thus promote socio-economic development.

HOW

At experimental sites ('living labs') smallholder farmers, practitioners, agricultural extension officers, water engineers, private sector and students co-develop new technological, agronomic, financial, market approaches of accessing and using water from alluvial aquifers for productive purposes, and evaluate the hydrological, social and economic effects and impacts. Co-learning is institutionalised within and between sites.

WHAT WILL CHANGE

Farmer-tested ways of using alluvial water more effectively, efficiently and sustainably in "living labs", will lead to:

1. Farmers adopting new practices and *improving their livelihoods*.
2. Fostering co-creation and innovation that will change *existing development practices* and encourage *more effective approaches and cross-sectoral collaboration*.
3. Promoting *South-South-North learning and improved methodologies for action-research*.



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PROJECT BACKGROUND

Agricultural yields in Sub-Sahara Africa have remained stagnant over the last decades. Dominant constraints are soil nutrients (large heterogeneities), water (highly variable and uncertain), energy (severely limited), markets (volatile and unreliable), and outdated agricultural extension. In semi-arid and arid areas insufficient and irregular access to water for crops stands out as a major challenge. This lack of water security explains persistent low fertilizer application and stagnant crop yields. This is compounded by climate change, which further increases rainfall variability (floods and droughts).



One key to unlocking Sub-Sahara Africa's agricultural potential is enhancing water security through increased ability of farming systems to cope with water variability through increased water storage, such as in alluvial aquifers. This can simultaneously increase the efficient use of limited water resources. The river beds of seasonal rivers provide opportunities for nature-based water storage. The sandy river beds contain significant amounts of water throughout the dry season and have the potential for intensifying irrigated agriculture. This action research therefore aims to co-create solutions that can transform alluvial aquifers from underutilised community water supply systems to commercially viable water supply systems for multiple uses with a focus on high-value agricultural products and (supplementary) irrigated food crops.



WHO

Coordinating project partners: UNESCO-IHE (project lead), Mekelle University, Oxfam Mozambique, Dabane Trust, ACACIA Water, Oxfam Novib

Tekeze Lab: Mekelle University (coordinator), Tigray Agricultural Research Institute, Tigray Water resources Bureau, Tigray Bureau of Agriculture and Rural Development, Relief Society of Tigray REST, Wukro Saint Mary College, Getachew Welamo General Construction & Trading

Mzingwange Lab: Dabane Trust (coordinator), University of Zimbabwe, National University of Science and Technology, Mzingwane Catchment Council/ZINWA, Department of Irrigation Development, WaterNet Trust

Limpopo Lab: Oxfam Mozambique (coordinator), Instituto Superior Politécnica de Gaza, Eduardo Mondlane University, ARA Sul, Instituto Nacional de Irrigação, Associação de Desenvolvimento de Comunidades Rurais, iDE



MORE INFORMATION

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