

Adaptation to Climate Change in the Lake Chad Basin

Agricultural Adaptation Measures



Context

The livelihoods of most people living in the Lake Chad Basin depend on agriculture, livestock and fisheries, making them extremely vulnerable to the effects of climate change.

In the basin, the effects of climate change on agriculture are already seriously felt. Communities are affected by irregular rains and the increase of extreme weather events such as droughts, with the lack of water being the main limiting factor for agricultural and livestock productivity. The impacts are visible and manifest themselves through decreasing crop yields and arable farmland. The increasing scarcity of food for both humans and animals intensifies food insecurity and tensions over scarce resources.

Approach

In this context, the project aims to improve local adaptation capacities to climate change in the Lake Chad Basin. For this, the project works closely with local NGOs and technical services of the government in the region. It promotes cross-border networks of actors to facilitate mutual exchange and learning and to develop and implement appropriate responses to the challenges of climate change.

In this regard, pilot measures for agricultural adaptation to climate change for the main production systems in the area have been developed and tested through a participatory approach in a defined pilot zone. This transboundary pilot zone extends over approximately 40,000 km² between N'Djamena, Bongor (Chad) and the Far North of Cameroon (Maroua).

Project name	Adaptation to Climate Change
Commissioned by	Federal Ministry for Economic Cooperation and Development (BMZ)
Implementing organisation	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Lead executing agency	Lake Chad Basin Commission (LCBC)
Duration	30.06.2014 – 30.06.2019
Financial volume	3 Mio EUR
Project region	Lake Chad Basin

During implementation of the adaptation measures, good practices for adaptation to climate change were identified and can serve as an example for replication of the adaptation measures.

The measures have been designed to facilitate such replication in the pilot zone and beyond in regions with similar climatic conditions.

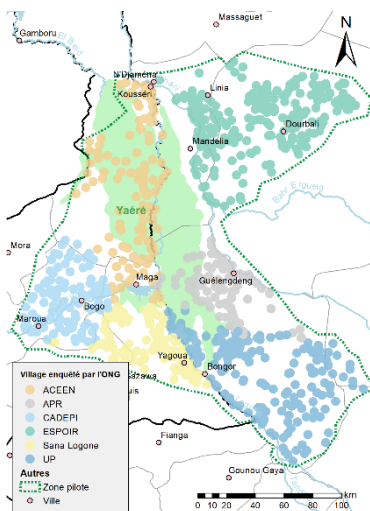


Photo left: Ploughing of test field (Sorghum)

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Photo right: Sowing (Cowpeas)

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Photo left: Sorghum (Early seed variety)

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Photo right: Selection of plants (Sorghum plant)

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The project is carried through the following three key processes:

1. Climate change study and inventory of production systems in the Lake Chad Basin

At the start of the project, a climate change study was carried out analyzing the potential impacts of climate change on the basin. In parallel, a socio-economic survey was conducted to characterise the main agricultural production systems in the pilot area and to study the vulnerability of systems and the perceptions and adaptive capacities of communities to climate change.

Adaptation hypothesis
 Participatory planning and implementation of adaptation measures contribute to improving the resilience of communities to climate change. Testing, evaluating and demonstrating the results of these measures enriches the overall knowledge of adaptation, and leads to a replication on a larger scale.

Concrete adaptation measures have been identified based on these results and by taking into account traditional adaptation practices and gender considerations.

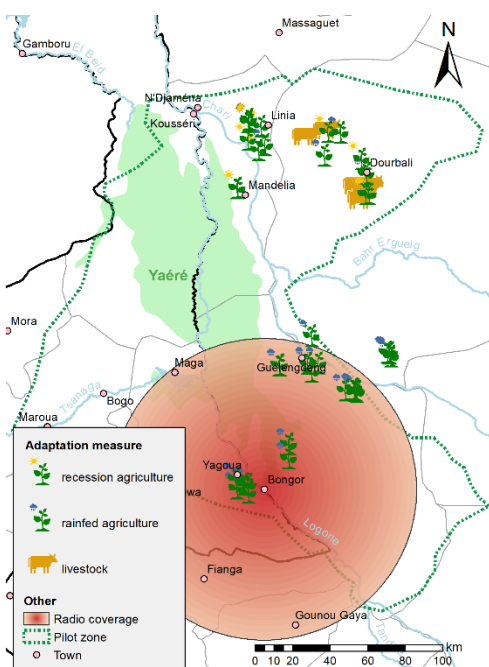
2. Planning and implementation of adaptation measures

The project supports the implementation of adaptation measures in three agricultural production systems, namely:

- Rainfed agriculture, practiced during the rainy season
- Recession agriculture practiced during the dry season
- Livestock farming, practiced by transhumant herders, agro-pastoralists and farmers
- In 2018, the project introduced an adaptation measure in off-season cropping.

The adaptation measures consist essentially of:

- The introduction of early seed varieties with a shorter maturation period in response to a shorter rainy season to reduce the vulnerability of communities to drought (all systems).
- Recession agriculture: Diversification of recession crops to generate additional income during the dry season and to reduce farmers' dependence on rainfed crops.
- Livestock farming systems: Fodder production for livestock feed or sale, aiming to improve the livelihoods of pastoralists and farmers
- Training and continuous support to pilot farmers regarding techniques and methods of crop production.
- The implementation of a farmer-to-trainer approach to promote the dissemination of knowledge and the replication of adaptation measures.



"My (test) field was located along the main road. Everyone stopped to admire the plants that were tall and beautiful "[pilot farmer]."

3. Dissemination of experiences

To support the replication of measures, the project promotes the dissemination of experiences during implementation. Activities include:

- Development and dissemination of communication materials and radio programmes regarding implementation of the adaptation measures
- The organization of cross-border exchange and farmer-to-farmer trainings.



Photo left: Storage of hay (Livestock)

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Photo right: Test field (Livestock)

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The results

During the first two years of implementation, the following positive effects were observed:

- Increase in yields (in some cases tripled) and secured harvest in all production systems, despite difficult weather conditions.
- Improved resilience of seeds and plants against droughts and insect attacks.
- Recession agriculture: crop diversification and generation of additional income opportunities through selling of crops and two harvests per year.
- Livestock farming: strengthening agricultural activities of livestock farmers' and generating additional income for farmers by promoting fodder production.
- Voluntary and autonomous continuation of implementation of the adaptation measures in several communities.
- The replication of the measures in the pilot zone and the participation of volunteers through farmer-to-farmer exchanges and the dissemination of best practices and experiences.

The best practices

- Introduction of early seed varieties with a shorter maturation cycle of 90 days compared to the 120 days of traditional seed varieties.
- Rainfed agriculture: postponing of sowing in response to a later start to the rainy season.
- Recession agriculture: Advancing transplantation of crops on water-saturated soils.
- Livestock farming: collection of stems for hay production for animal feed and selling, and selection of seeds with multifunctional use (hay production / human consumption)

- In line sowing which allows homogeneity and density of crops and facilitates weeding.
- Training and support to pilot farmers on their fields regarding improved crop production techniques as well as knowledge of a precise technical itinerary in relation to the different stages of the growing period in the different systems
- Self-training (farmer-to-farmer/farmer field school approach) promotes the replication of the adaptation measure.

Duration	2013 -2019
Project zone	Chad : Chari-Baguirmi, Mayo-Kebbi-Est Cameroon : Extrême-Nord
Production systems and crops tested	<ul style="list-style-type: none"> ◦ Rainfed agriculture (Sorghum, Cowpeas, Corn) ◦ Recession agriculture (Water Melon, Honey Melon, Sorghum) ◦ Livestock (Sorghum, Cowpeas)
Campagne aricole	<ul style="list-style-type: none"> ◦ Rainfed: 2015, 2016 ,2018 ◦ Recession: 2015, 2016, 2018 ◦ Livestock 2016 et 2018
Beneficiaries	More than 155 direct beneficiaries, thereof one third women

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