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Adaptation to Climate Change in the Lake Chad Basin

Adaptation measures in livestock production systems

Livestock production system

In the Lake Chad Basin, livestock farming is one of the main agricultural production systems. The availabilty of water and pasture for lifestock farming is a major concern in the region. In recent years, rains have become increasingly irregular and the rainy season shorter.

Due to climatic conditions and overgrazing, grazing areas are highly degraded. This leads to a shortage of livestock feed and an increasing vulnerability for pastoralists.

At the end of the rainy season, transhumant herders move to lowlands and wetlands to seek pasture and water for their livestock.

Conflicts between (semi)nomadic herders and settled farmers are increasing as a result of the increased competition for resources and land,. Livestock migrations increasingly coincide with the farming season, and grazing can invade farmers' fields with plants that are still maturing. At the same time in some regions, transhumance corridors are increasingly being used for agricultural practice.

In this context, the project supports the development of farmers' and herders' capacities to adapt to the changing conditions.

Inventory of production systems

The results of the inventory characterising different production systems in the region and their vulnerabilities served as a basis for the identification of adaptation measures.

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zone, the pastoral systems practiced are transhumant, semi-transhumant and sedentary lifestock farming. The livestock in the pilot area consists mainly of cattle and a small number of goats and sheep. Many herders are agro-pastoralists, practicing crop cultivation during the rainy season. However, in the northern part of the pilot zone in Chad where the potential for agricultural production is generally lower, the concentration of livestock during the rainy season is particularly high. Livestock production is the main livelihood source in these areas.

The project aims to broaden the livelihood base of pastoralists and farmers through the production of fodder crops, which is still rarely practiced. The aim is to improve animal feed and generate additional income for farmers to help reduce conflicts between farmers and herders. The adaptation measure for livestock farming is carried out in the departments of Baguirmi and Chari.

Adaptation hypothesis

Fodder production increases forage availability during the rainy and dry seasons, thus reducing vulnerability to climate variability, and improving the livelihoods of pastoralists and farmers. It can therefore help to reduce the risk of conflicts between herders and farmers.

Photo left: Livestock
© Dr. Anja Stache, GIZ
Photo right: Training on the test field
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Photo left: Test field (livestock)
© Dr. Anja Stache, GIZ
Photo right: Storage of hay
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Characterstics of the adaptation measure

Due to the vulnerability of the system and the conflict potential between herders and farmers, the adaptation measure consists of:

- The introduction of early seed varieties. For cultivation, sorghum and cowpea varieties with multifunctional use (hay production and human consumption) were chosen.
- The development of agricultural activities among livestock farmers' and income generation for farmers by promoting the practice of fodder production.
- Technical training and support to pilot farmers on their fields regarding improved techniques and methods for crop production. Specific attention is given to harvesting, storage and hay preparation.
- Farmer-to-farmer training.

The results

The results of the adaptation measure and first experiences are very positive. The first results show:

- A double benefit of crops tested: cash benefit from production and selling of hay and the use of grains for human consumption.
- An increase in crop yields:

	Yield (average kg/ha)	
Crop	**Traditional seed variety**	**Early seed variety**
Sorghum	670	1,040
Cowpeas	714	1,300

Yields in the pilot zone

« Even if the rain stops early, the early seed varieties still generate good yields » [ONDR]

- Broadening of the livelihood base by promoting fodder production and the generation of new income opportunities.
- Improvement in the resilience of livestock farmers through the strengthening of agricultural practices, including the self-production of animal feed.

The best practices

- The introduction of early seed varieties with a shorter maturation cycle (85-90 days compared to 125 days for traditional seed).
- Postponement of sowing to respond to a shorter rainy seasion.
- The harvesting, processing and storage of stems and leafs for fodder production.
- The selection of crop varieties, beneficial to hay production.
- Knowledge of a precise technical itinerary.
- Self-training (farmer-to-farmer/ farmer field school approach) promotes the replication of the adaptation measure.

The project **Adaptation to Climate Change** is implemented by GIZ in cooperation with the Lake Chad Basin Commission (LCBC) with the aim of improving local adaptation capacities to climate change. The project is part of the program « Organizational advisory services to the LCBC », financed by the Federal Ministry for Economic Cooperation and Development (BMZ). The project intervenes in a transboundary pilot zone between N'Djamena, Bongor (Chad) and Maroua (Cameroon).

The project is implemented in cooperation with local the NGOs, **ESPOIR, APR**, (Chad) and **Sana Logone** (Cameroon).

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