

Adaptation to Climate Change in the Lake Chad Basin

Adaptation measures in the rainfed agricultural production system

Rainfed agriculture and the need for adaptation

In the Lake Chad Basin, rainfed agriculture is the main and often the only livelihood source for the population. It is also the most widespread agricultural production system. The manifestations of climate change and its impacts on this system are numerous and already highly visible.

Rainfed agriculture is practiced during the rainy season from May to October. However, along with rising temperatures, the rainy season starts later and is getting shorter and rains less reliable. Drought periods, inter- and inter-annual, occur more frequently. In recent years, this has resulted in a decrease in crop production and a shorter growing season. Additionally, points of conflict have worsened as a result of land degradation and earlier migration for transhumance, which leads to an increased competition for resources with farmer's fields damaged by grazing herds, or transhumant corridors being converted to farmland.

The project responds to this context by supporting the implementation of concrete adaptation measures in the rainfed agricultural system in a transboundary pilot zone in Chad and in Cameroon.

Inventory of production systems

In 2013 and 2014, a participatory survey was conducted to characterize the main agricultural production systems in the pilot zone, and to study their vulnerability as well as the perceptions of the local



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In rainfed farming systems, farmers in the pilot zone mainly grow sorghum, cowpeas, corn and millet, mainly as subsistence crops and only sold in small quantities. Crop yields are low throughout the pilot zone, although there are some regional differences. Yields are generally higher in the south on the Cameroonian side of the pilot zone, and lower in the north of the area in Chad. The adaptation measure has been developed under consideration of these results by taking traditional adaptation practices and gender aspects into account.

In this production system, the adaptation measure is implemented since 2015 in five departments in the north (Chad) as well as in the south (Cameroon) of the pilot zone.

Adaptation hypothesis

The introduction of early-maturing, more drought-resistant varieties with better yield characteristics reduces farmers' vulnerability to droughts and climatic variability while improving their livelihood base.



Photo left: Ploughing of field (Sorghum)

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Photo right: Sowing in lines (Cowpeas)

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Photo left: Rainfed sorghum (early seed varieties)

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Photo right: Selection of seeds (Sorghum plant)

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Characteristics of the adaptation measure

In view of the challenges posed by a shorter and more irregular rainy season, the adaptation measure essentially consists of:

- The introduction of early seed varieties. In the north of the pilot zone, seed varieties producing a lot of stems were chosen to promote the production of hay.
- Training and support to pilot farmers in the field regarding modalities and production techniques of the improved seed varieties, hence of the technical itinerary.
- Farmer-to-farmer training to promote the dissemination of knowledge and the replication of the adaptation measure in the communities.

The results

After two years of testing and two growing seasons, the first results show the following positive effects of the measure:

- An increase in crop yields and a higher security of the harvest, due to a greater resistance of crops to droughts and to the attacks of insects, despite the occurrence of periods of drought

“The seeds [early seed variety] lead to good results. I harvested 9 bags ... with the traditional seeds, it has been 5 bags” [pilot farmer]

- A replication and the voluntary and autonomous continuation of implementation of the adaptation measure in the communities

Crop	Yields (average kg/ha)	
	Traditional seed variety	Early seed variety
Sorghum	833	976
Cowpeas	777	1,754
Corn	714	1,400

Yields obtained in the pilot zone

The best practices

- The introduction of early seed varieties (maturation cycle of 90 days in comparison to 125 days of traditional seed varieties).
- Postponement of sowing in view of a later rainy season.

Pilot zone	Sowing				Harvest			Average (days)
	05	06	07	08	09	10	11	
Cultivation period (Month)								
Traditional seed varieties								125
Early seed varieties								85–90

Agricultural calendar (sorghum) in the pilot zone

- In line sowing, which allows homogeneity and density of crops and facilitates weeding
- Knowledge of a precise technical itinerary for the agricultural growing season.

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

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