

# Adaptation to Climate Change in the Lake Chad Basin

## Adaptation measures in flood recession agriculture

### Flood recession agriculture

The agricultural production systems in the Lake Chad Basin are already heavily affected by the effects of climate change. With the increasing occurrence of pockets of droughts, rainfed agriculture, the main production system and primary food source in this region, is becoming increasingly vulnerable.

In these changing climatic conditions and in order to increase food security, the importance of recession agriculture in addition to the cultivation of rainfed crops increases.

This production system helps farmers to buffer production deficits during the rainy season and to obtain a second harvest during the dry season. Hence, it provides an alternative source of livelihood and can improve food security.

To further promote this existing traditional adaptation practice, the project supports the implementation of adaptation measures in recession agriculture in a transboundary pilot zone.

### Inventory of production systems

A socio-economic survey was conducted to analyze the most important agricultural production systems in the pilot zone, their vulnerability as well as the existing adaptive capacities of the communities. The results served as a basis for planning and implementation of adaptation measures.

Recession agriculture is practiced during the dry season from October to January, on floodplains along rivers and streams on sandy loam soils.



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

Crops are usually planted in nurseries during the rainy season and transplanted to recession lands with the last rain. In recession agriculture, farmers in the pilot zone mainly cultivate sorghum as a subsistence crop. Transplanted sorghum is known as bérberé in Chad and muskuwaari and karal in Cameroon.

The adaptation measure is implemented in the departments of Chari and Baguirimi in Chad, among the driest areas of the pilot zone. During implementation, attention is given to strengthening value chains and testing of crops other than sorghum.

#### Adaptation hypothesis

The cultivation of cereals and horticultural crops on recession land during the dry season reduces farmers' vulnerability to rainfall variability and improves their livelihood base by providing additional sources of food and income during the dry season thus making them less dependent on rainfed production. In addition, the introduction of early maturing, more drought-resistant varieties with better yield characteristics reduces farmers' vulnerability to droughts and climatic variability.



Photo left: Nursery

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Photo right: Harvest of melon

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Photo left: Transport of melon

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Photo right: Sorghum

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## Characteristics of the adaptation measure

To respond to the challenges of a shortening rainy season, the adaptation measure aims to diversify the farmer's food base. It consists in particular of:

- The introduction of early seed varieties. Since the 2<sup>nd</sup> year of implementation, crops such as watermelon and melon are promoted to generate new and additional sources of income.
- The diversification of crops in recession agriculture other than sorghum.
- An analysis of the value chains of melon and watermelon and the identification of opportunities for their reinforcement.
- Training and supporting pilot farmers on the field regarding modalities and production techniques of the improved seed varieties
- Farmer-to-farmer training.

## The results

- Increase in crop yields and in crop size: Average yields of sorghum: 1,040 kg/ha against 884 kg/ ha with the traditional varieties (average: pilot zone).
- The generation of additional income through selling fruits (melon, watermelon) – approx. one third of the production – and two harvests per year.
- The diversification of crops (melon and watermelon) and the development of activities in recession agriculture, thus reducing the dependance on the rainy season.

Pilot zone	Sowing						Harvest			Average (days)
	07	08	09	10	11	12	01	02	03	
Cultivation period (month)										
Traditional seed varieties										127
Early seed varieties										103

Agricultural calendar (sorghum) in the pilot zone

- The replication of the adaptation measure through the integration of volunteers and farmer-to-farmer training.

## The best practices

- The introduction of early seed varieties (maturation cycle of approx. 103 days compared to 127 with traditional seed varieties).
- Use of humidity of the last rainfall and of water-saturated soils to obtain additional revenues at lower costs.
- Progress of transplantation of seeds on recession lands (sowing).
- Knowledge of a precise technical itinerary for recession farming.

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 operates in a transboundary pilot zone between N'Djaména, Bongor (Chad) and Maroua (Cameroon).

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

Published by: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH  
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 Layout: GIZ  
 As at: Juillet 2018  
 GIZ is responsible for the content of this publication

In cooperation with: Lake Chad Basin Commission (LCBC)  
 On behalf of: Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (BMZ)

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