

# Project fact sheet CoExist



*Monitoring environmental-  
related transhumance patterns  
and assessing  
the risk for population  
displacement*

---

Funded by:



Federal Ministry  
for Economic Affairs  
and Energy



**DLR** Raumfahrtmanagement

Contact person: [Jens.Danzeglocke@dlr.de](mailto:Jens.Danzeglocke@dlr.de)

---

Project start: October 2019

Project duration: 2 years

Realized by: RSS - Remote Sensing Solutions GmbH (RSS)  
Dingolfinger Str. 9, 81673 München, Germany  
Contact person: [franke@rssgmbh.de](mailto:franke@rssgmbh.de)  
Tel: +49 (0)89-48954766



In cooperation with: International Organization for Migration (IOM)  
The UN Migration Agency



## Background

Conflicts between farmers and semi-nomadic livestock herders (transhumance) have increased over the past two decades and continue to be a major challenge in sub-Saharan Africa. Especially farmer-herder conflicts in relation to drought and water tensions have become widespread in the Sahel and East Africa. Transhumance often occurs across different agro-ecological regions and country boundaries, can flexibly and quickly adapt to major seasonal and interannual variations of natural resources and thus provides resilience to climatic events such as droughts. With increasing number of extreme weather events and increasing cropland expansion, local subsistence farmers and seasonally migrating pastoralists are more and more competing for the same natural resources such as water and grazing land. Such conflicts have increased in both number and severity, often result in violent clashes and with the effect of forced displacement of communities or some populations groups.

The International Organization for Migration (IOM) provides stakeholders in the conflict areas with technical and operational support on migration issues, analyzes the root causes of migration and proposes development-oriented solutions. IOM has an information demand on spatial patterns of transhumance and causes of population displacement. Currently, there is limited information on migratory routes, grazing locations, overlay areas or home ranges and nomadic herding practices adopted by pastoralists. This inevitably limits our understanding of the drivers of transhumance patterns and possible sources of conflicts and associated displacement patterns (Motta et al. 2018).

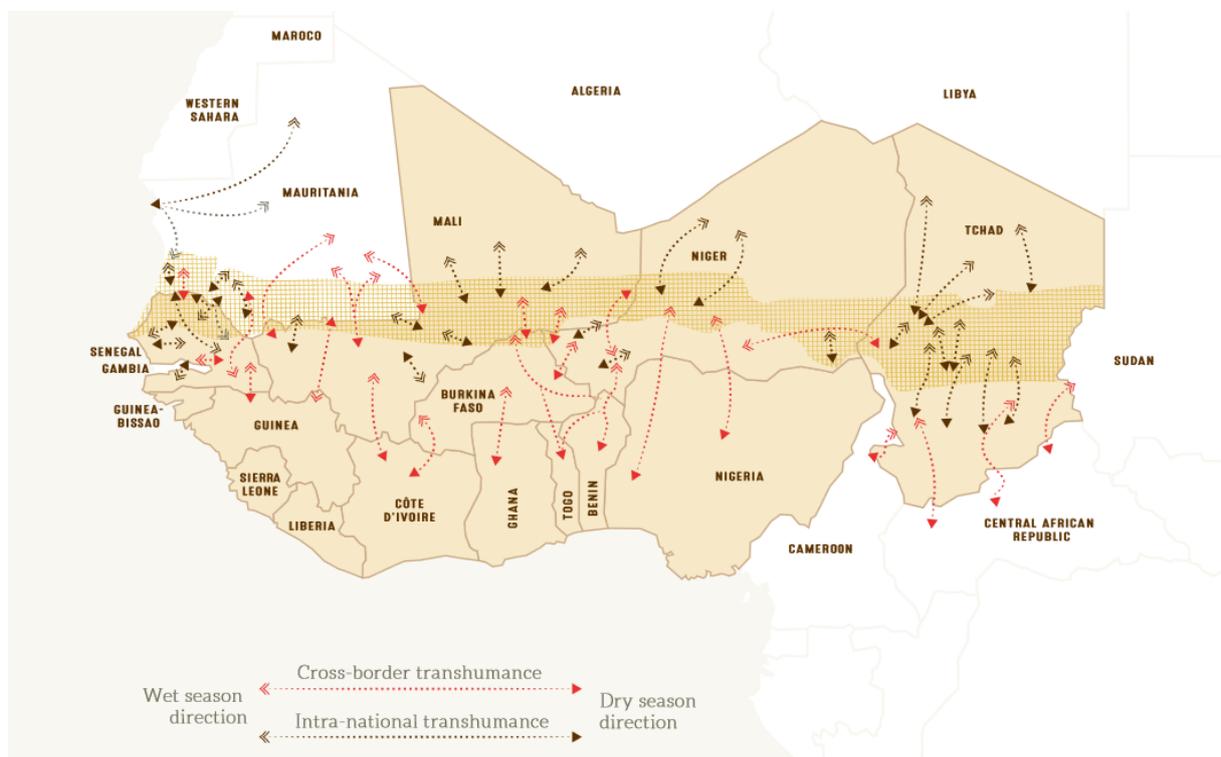


Figure 1: Intra-national und cross-border transhumance in the Sahel in 2013 (Inter-Réseaux, 2017)

## Goals of the project CoExist

CoExist analyzes the spatio-temporal dynamics of transhumance and the associated risks of conflicts and population displacement. Relevant parameters such as the availability of surface water and its temporal dynamics, productivity of pasture, extent of various agricultural systems, drought indicators and fire frequency are derived from EO data. These data are then analyzed together with data from the "Transhumance Tracking Tool" and the "Displacement Tracking Matrix" of IOM as well as the Armed Conflict Location and Events Data (ACLED). The aim is to provide a better understanding of the patterns of transhumance and identify potential areas of conflict, to help plan effective, conflict-sensitive solutions by governmental and civil actors. IOM contributes to the economic and social development of states through development-oriented solutions, and the project outcomes should directly support these activities in the target region. The demand-oriented information products should support timely crisis prevention or intervention at the local level and aim at contributing to the establishment of an early-warning system.

## Project region

New space-based monitoring capacities, particularly those of the European Copernicus Programme, allow to derive timely, continuous and thematically diverse information feeds about environmental parameters over larger areas at high level of spatial detail. These are the basis for the new conceptual EO framework developed by CoExist in direct support of IOM's activities in the Sahel, more specifically in the border area between Chad and the Central African Republic. The approach is also transferred to other countries in which IOM is active such as Cameroon, Burkina Faso or Mauritania.

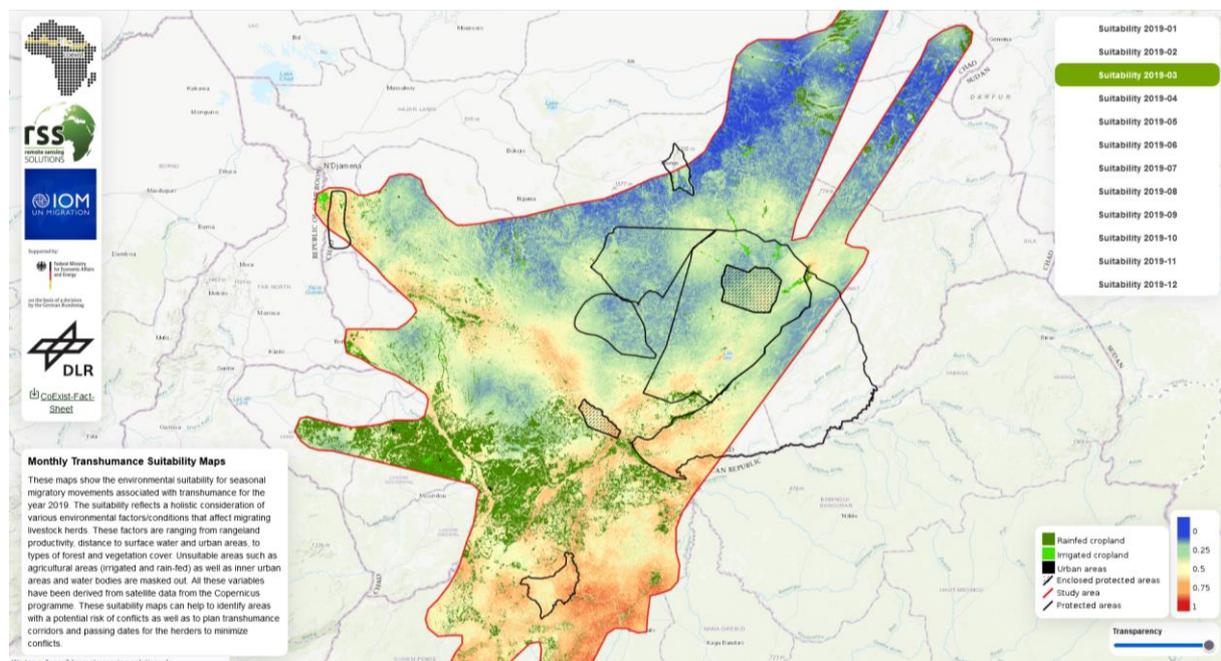


Figure 2: Screenshot of the interactive web map that shows the monthly environmental suitability maps for transhumance in the border area between Chad and CAR.