



# Transforming Livelihoods

A Case Study on Innovative Insurance  
Solutions for Pastoralists in Sudan



## Agriculture and Livestock in Sudan

In Sudan, agriculture is not just an economic activity; but the nation's lifeblood, significantly contributing to household incomes and non-oil export earnings. The livestock sub-sector plays a crucial role in ensuring food security and sustaining livelihoods. It represents a whopping **60% of the agricultural GDP** and **21% of the overall GDP**. Most Sudanese rely on rain-fed agriculture, which produces about 45% of the country's needs but is highly vulnerable to natural disasters.

As of 2019, the livestock sector in Sudan boasted an estimated **109 million heads, including 31 million cattle, 40 million sheep, 32 million goats, and 4.9 million camels**. Like other herding groups in Africa, Sudanese pastoralists adapt their livelihoods through extensive mobility between wet and dry seasons. With **8.1 million pastoralists out of a population of 40.9 million** (about twice the population of New York), this way of life is essential for many.

Sudan's geographical landscape is polarized into three ecological zones: desert, semi-desert, and low rainfall savannah, spanning from north to south. This distribution significantly impacts the livelihoods of the rural population, most of whom depend on rain-fed agriculture for both crop cultivation and animal production. About **65% of the 42 million** Sudanese rely on rainfall for agricultural production.





## The Looming Threat: Impact of drought on Pastoralists

Climate change, with its resulting rainfall and temperature variability, poses a significant threat to agricultural production across Sudan. The Notre Dame Global Adaptation Initiative mentions Sudan is among the **ten countries most vulnerable to climate change worldwide**. Droughts are a persistent natural disaster causing climate in Sudan, with impacts varying by region. In the west, droughts are widespread; in the east, they are moderate, and in the center, less severe. Localized droughts occurred in 1989-90, 1997, 2000, 2003, 2008, 2009, 2011, and 2017. Between 1985 and 1993, consecutive drought years led to a famine in 1984/85, causing severe food shortages, population displacement, and tribal conflict.

The 2021-2022 drought in Sudan stands out as a particularly severe event, with the World Meteorological Organization (WMO) characterizing it as "**the worst in 40 years.**" This prolonged period of deficient rainfall resulted in critical water and forage scarcity, leading to high livestock mortality rates. Not just droughts, but when nature showers ineffectually it too affects livestock & agriculture, four back-to-back years of flooding have left much of the country submerged for years on end. Flooding has led to widespread livestock loss and has forced many pastoralists to trek their animals' long distances in search of pasture and functioning markets.

**Severe forage and water scarcity** leads to low agricultural productivity, high livestock mortality, and subsequent poverty. Traditional livestock insurance in Sudan livestock mortality, with very low penetration rates due to restrictive terms and conditions and the pastoralist lifestyle. This leaves herds vulnerable to climatic conditions without sufficient insurance coverage.



## A beacon of Hope: Innovative Insurance for Pastoralists

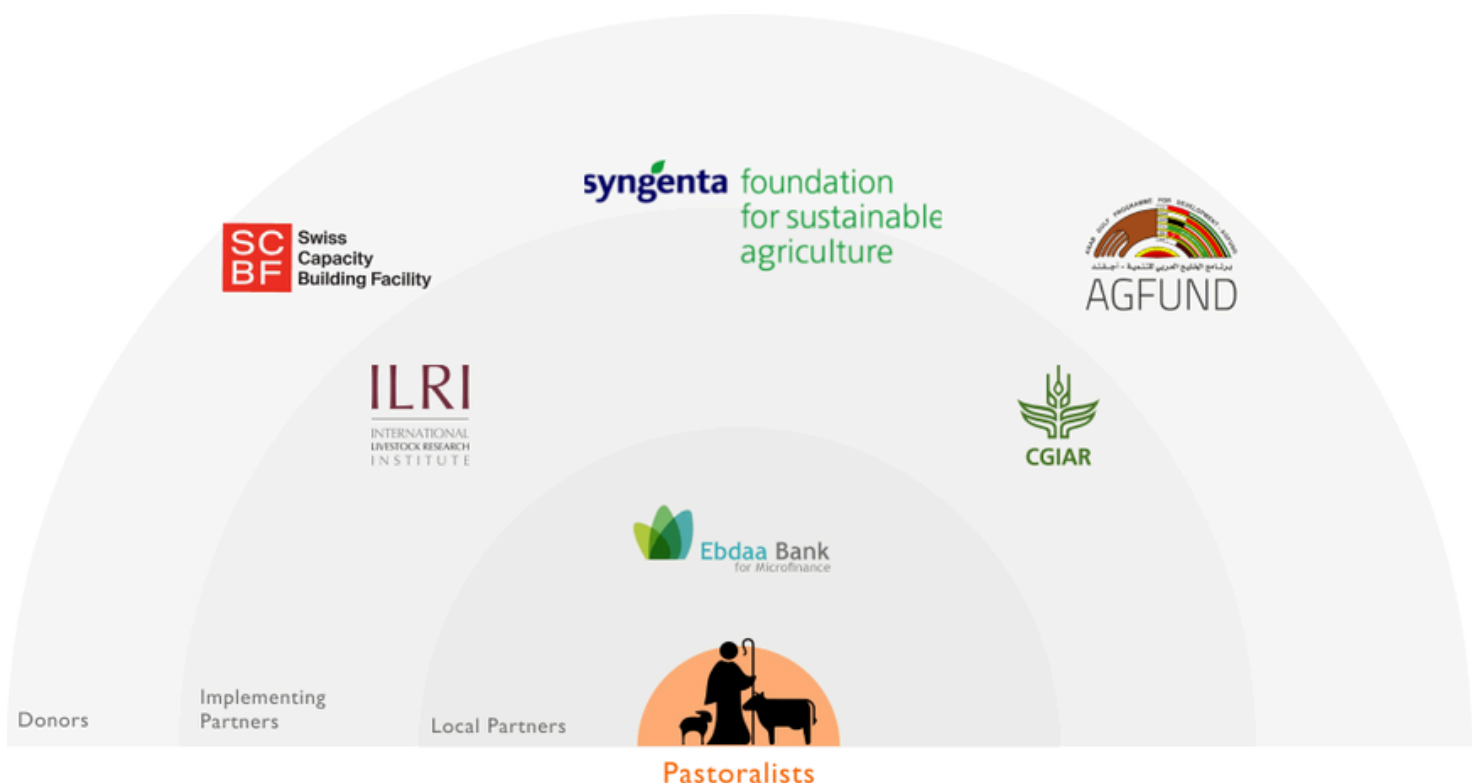
To address these challenges, our project aims to understand and quantify the climate risks faced by vulnerable pastoralists in Sudan. We are developing and testing innovative insurance solutions to prevent livestock mortality and support community resilience, by harnessing the power of **earth observation data to monitor forage scarcity and conditions**. To test the feasibility of livestock insurance, three main facets were chosen:

- 1. Technical Feasibility:** Evaluating the potential to design a low-basis risk index-insurance product focusing on rangelands in pastoral areas.
- 2. Social & Economic Feasibility:** Assessing the importance of livestock for livelihoods, pastoralists' vulnerability to drought shocks, and the impact of drought on livestock assets.
- 3. Institutional and Operational Feasibility:** Identifying strengths and limitations in the capacity of public and private institutions to deliver the insurance product.

## Collaborative Effort

This project is a true partnership with multiple agencies: Syngenta Foundation, International Livestock Research Institute (ILRI), Swiss Capability Building Facility (SCBF), Arab Gulf Programme for Development (AGfund), and Agtually. This collaborative effort is crucial for the long-term sustainability and resilience of pastoralist communities in Sudan, ensuring that they are better equipped to face the challenges of climate change and drought.

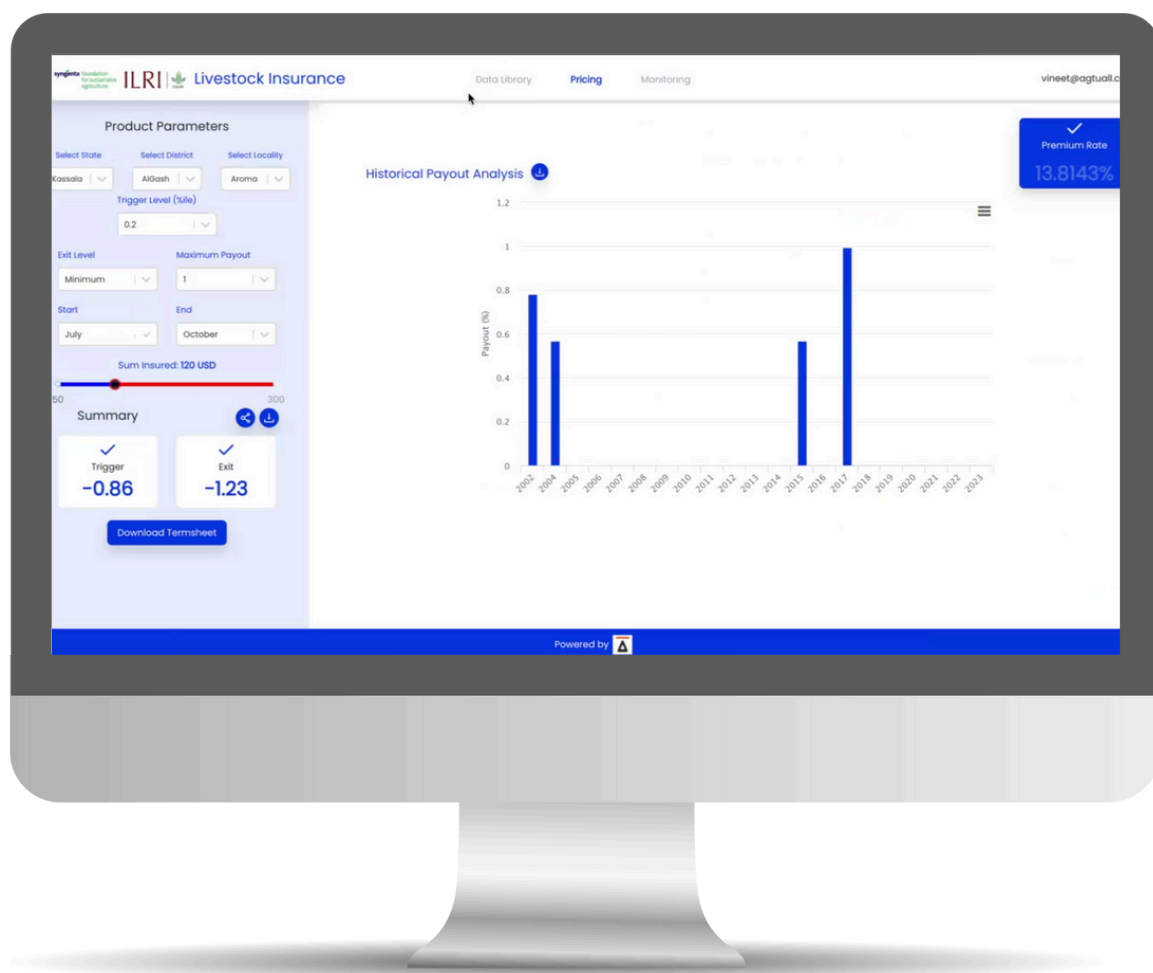
It aimed to understand the spread and dominance of extensive pastoral systems, seasonality, and satellite signal quality. We gained crucial insights that guided the development of index-based livestock insurance (IBLI) products for pastoralists by assessing drought history through available datasets (vegetation health, rainfall, land cover change, etc.)



## Current State & Moving Forward

We are currently implementing a pilot program aimed at insuring 500 pastoralists in Kassala State with our newly developed IBLI products. The coverage period for this pilot runs from July to October 2024.

The successful implementation of this pilot program will serve as a blueprint! We will use the learnings to expand this vital insurance coverage throughout Sudan, offering similar programs of hope and resilience to pastoral communities across the Horn of Africa region.



*Illustration of Carma tool being used for designing insurance product.*