

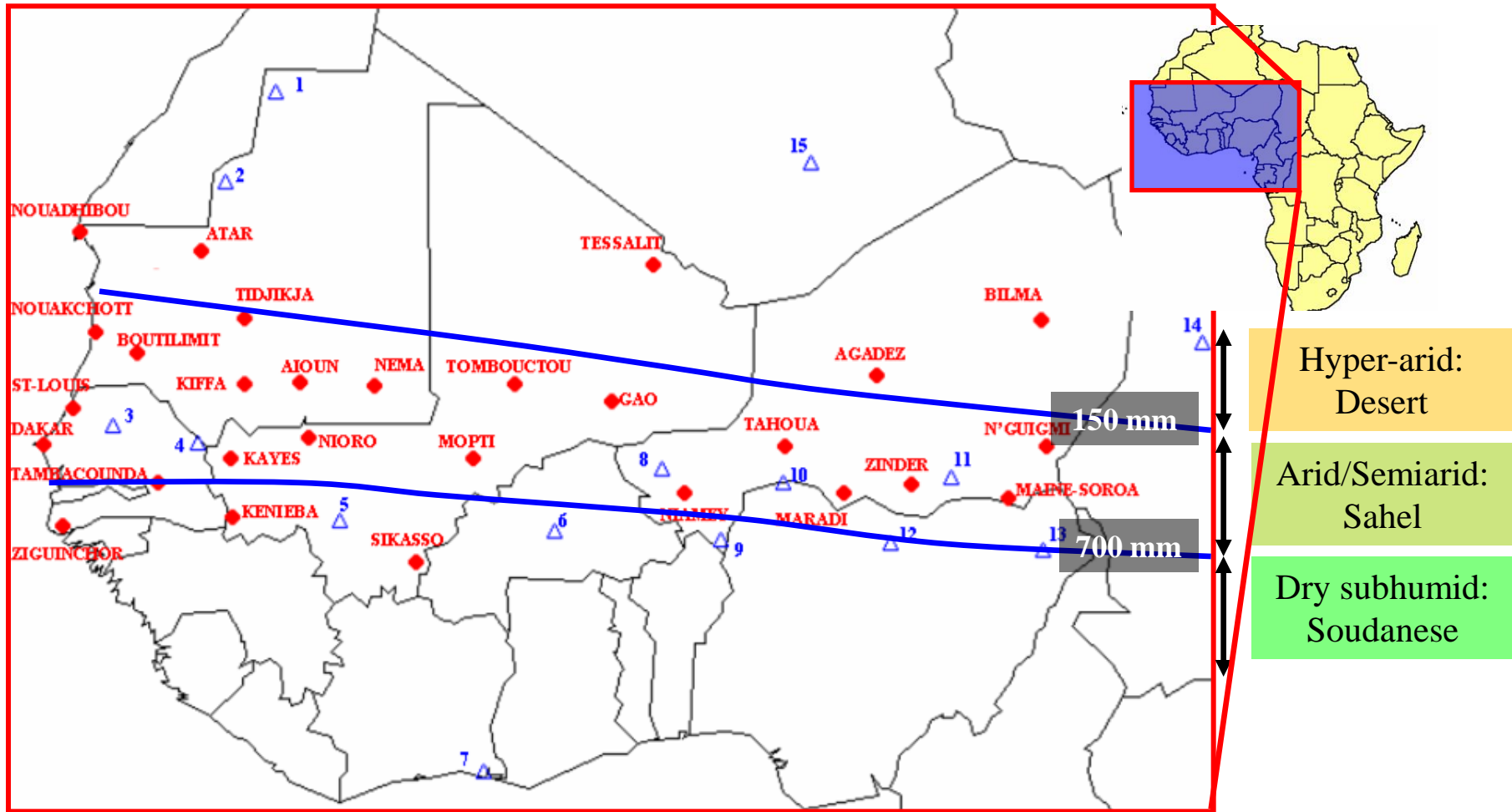
# **Do recent West African rainfall variations really impact the livestock in the Sahel?**

**Pierre OZER**

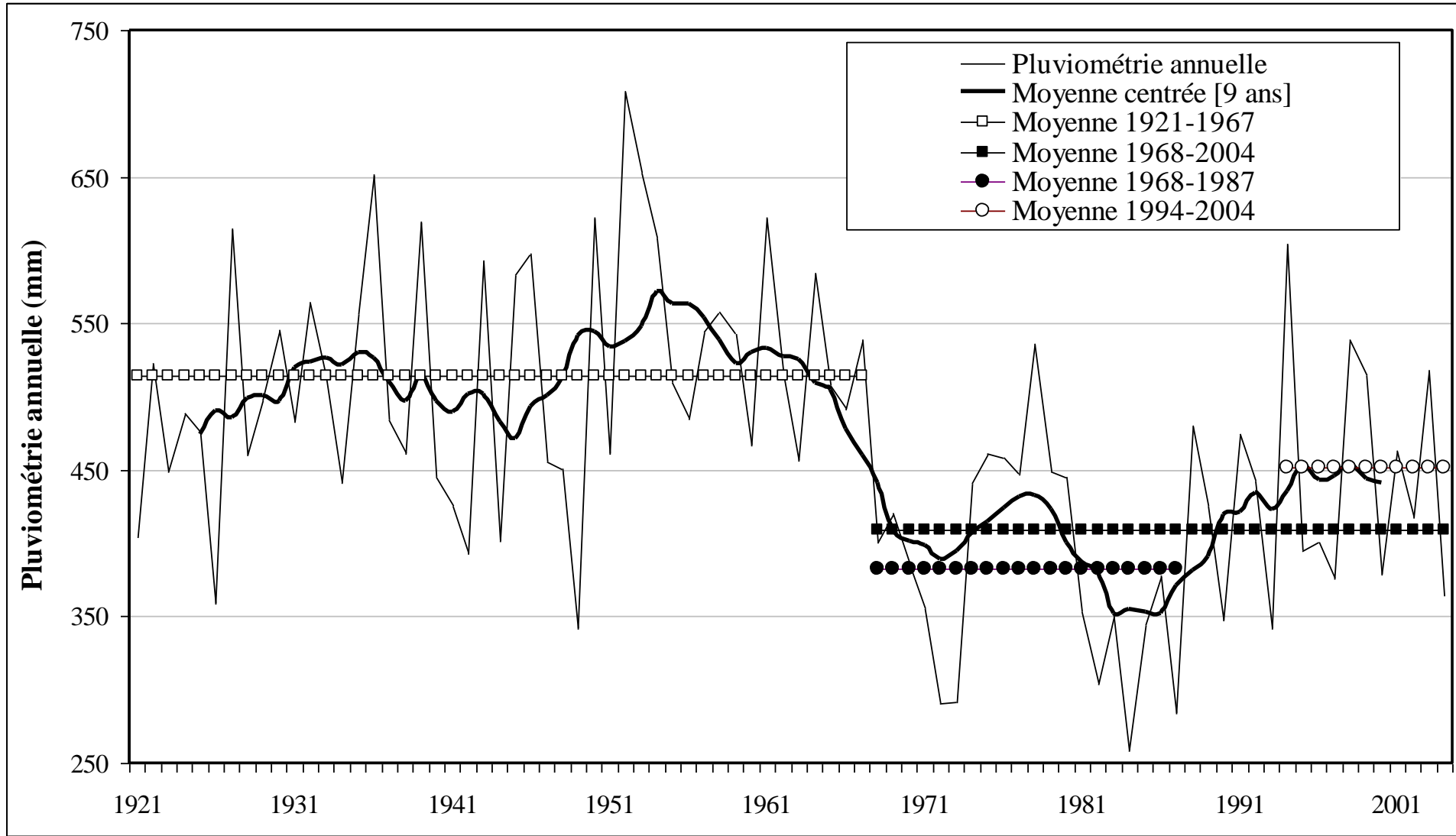
**Department of Environmental Sciences and Management  
University of Liege, Arlon, Belgium  
pozer@ulg.ac.be**

***be.troplive* Symposium, Brussels, 14 November 2013  
“*Pastoralism: where does it go in an ever changing context?*”**

# Sahel : Senegal, Mauritania, Mali, Burkina Faso, Niger



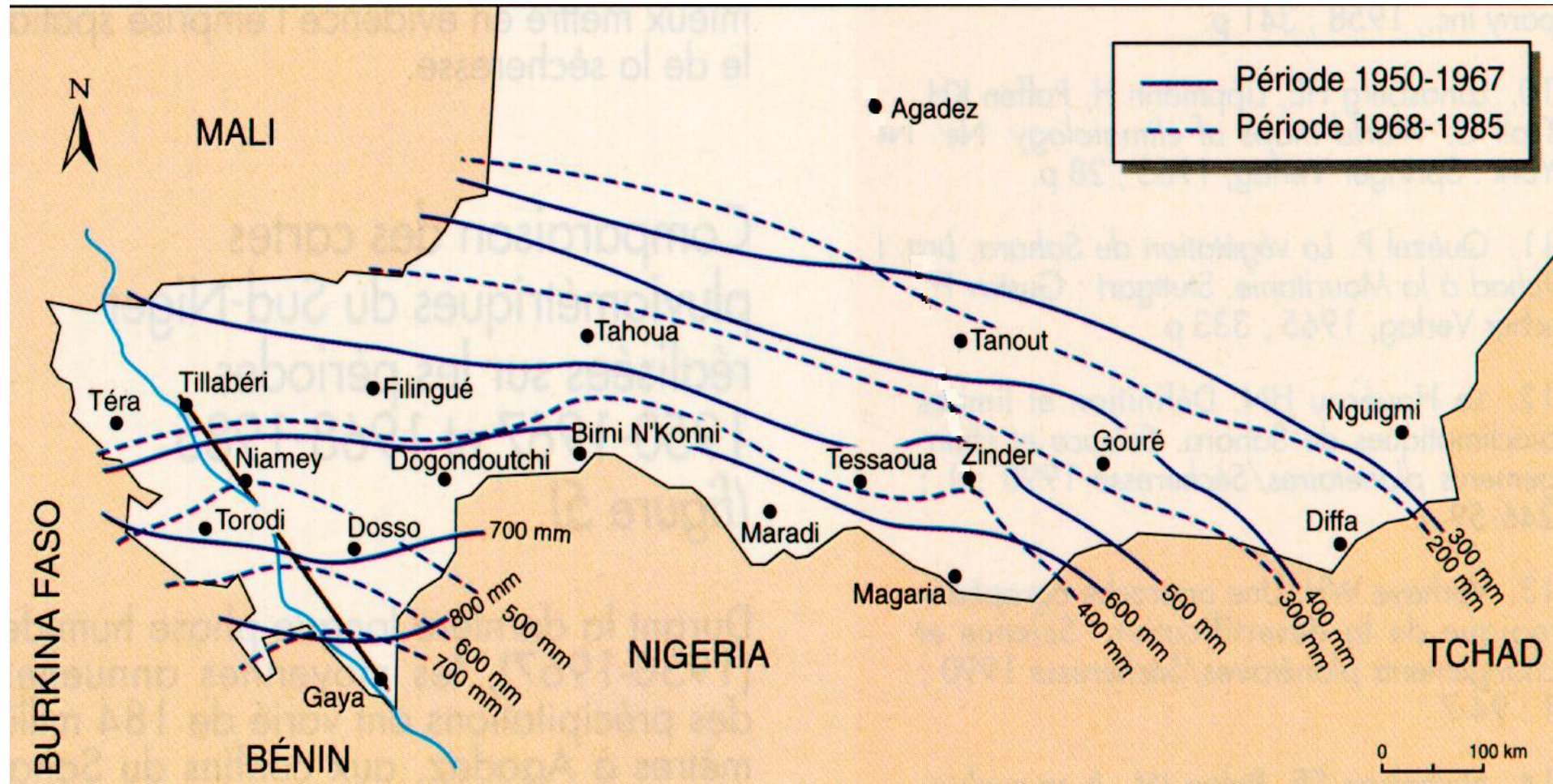
# Recent rainfall variations in the Sahel



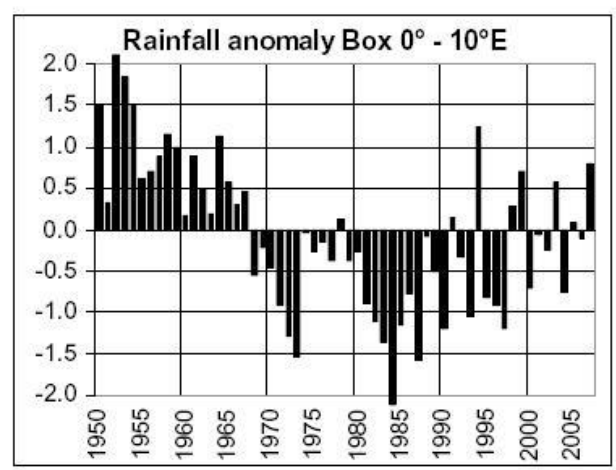
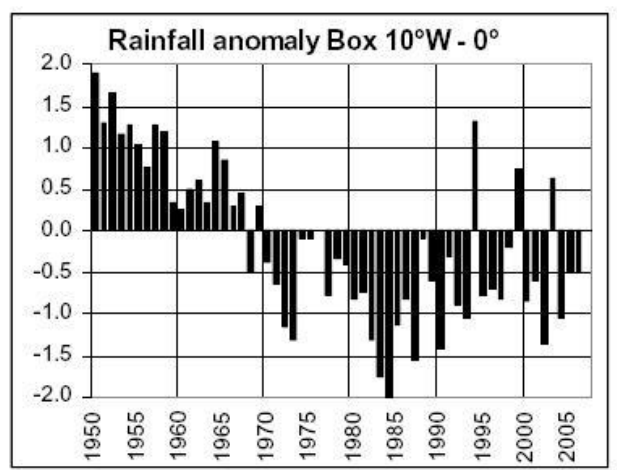
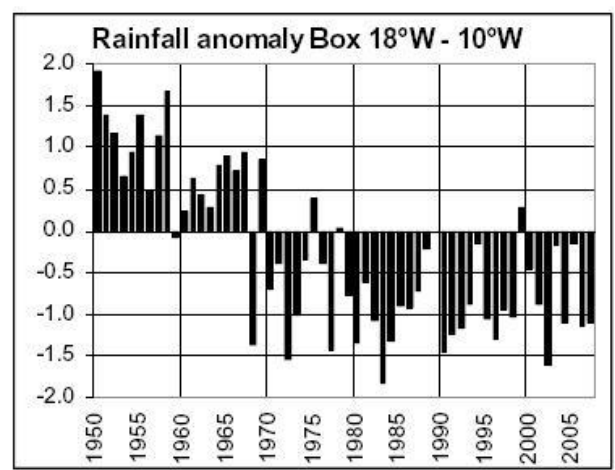
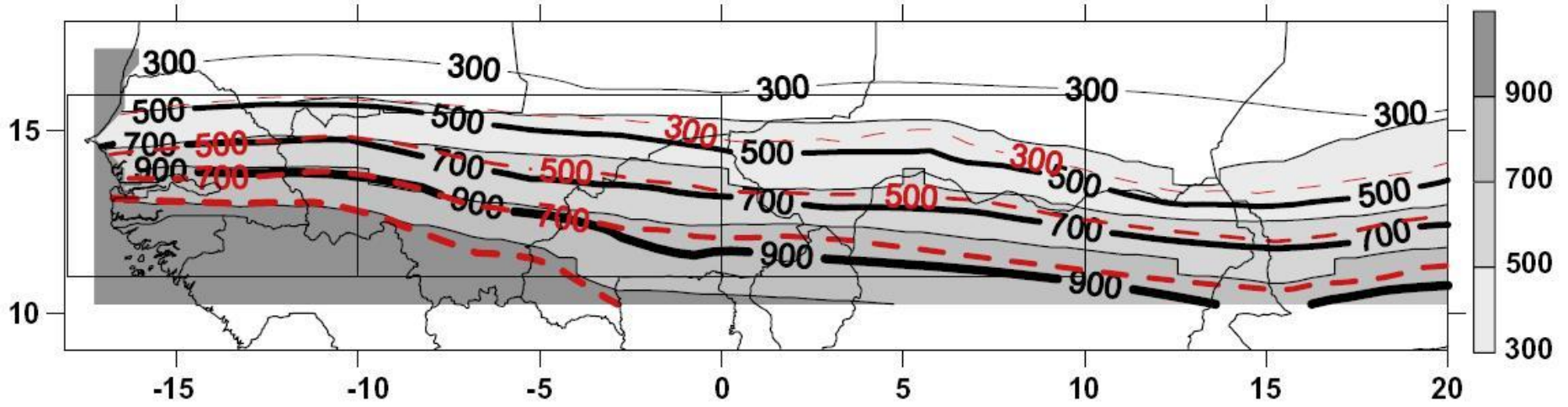
# Impacts of the drought of the early 1980's in the Sahel



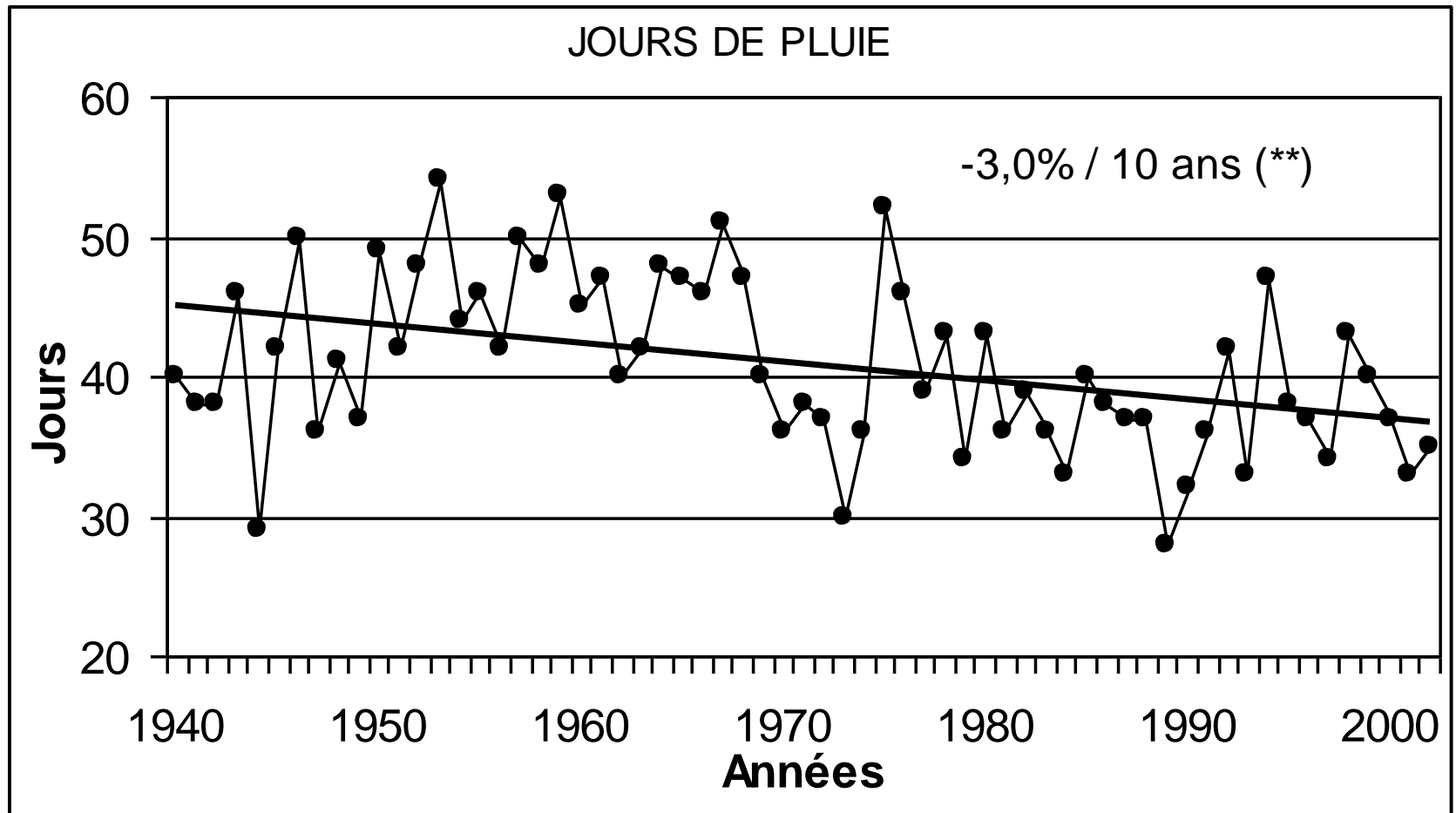
# Spatial extent of the rainfall shortages of the 1970's and 1980's in Niger



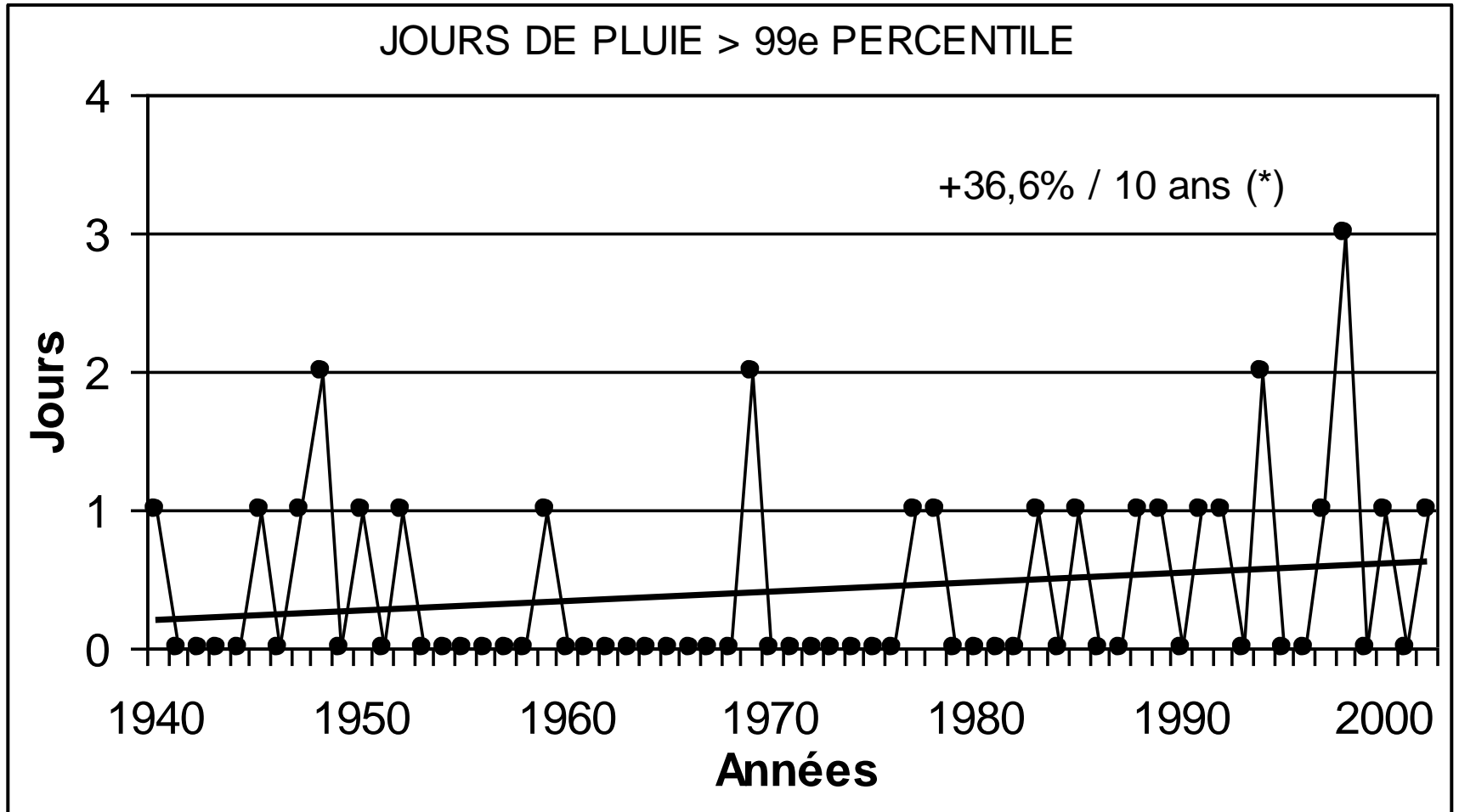
# Spatial extent of recent rainfall changes in the Sahel (1950-2007)



# BUT: Number of rainfall days in Niger (1940-2003)

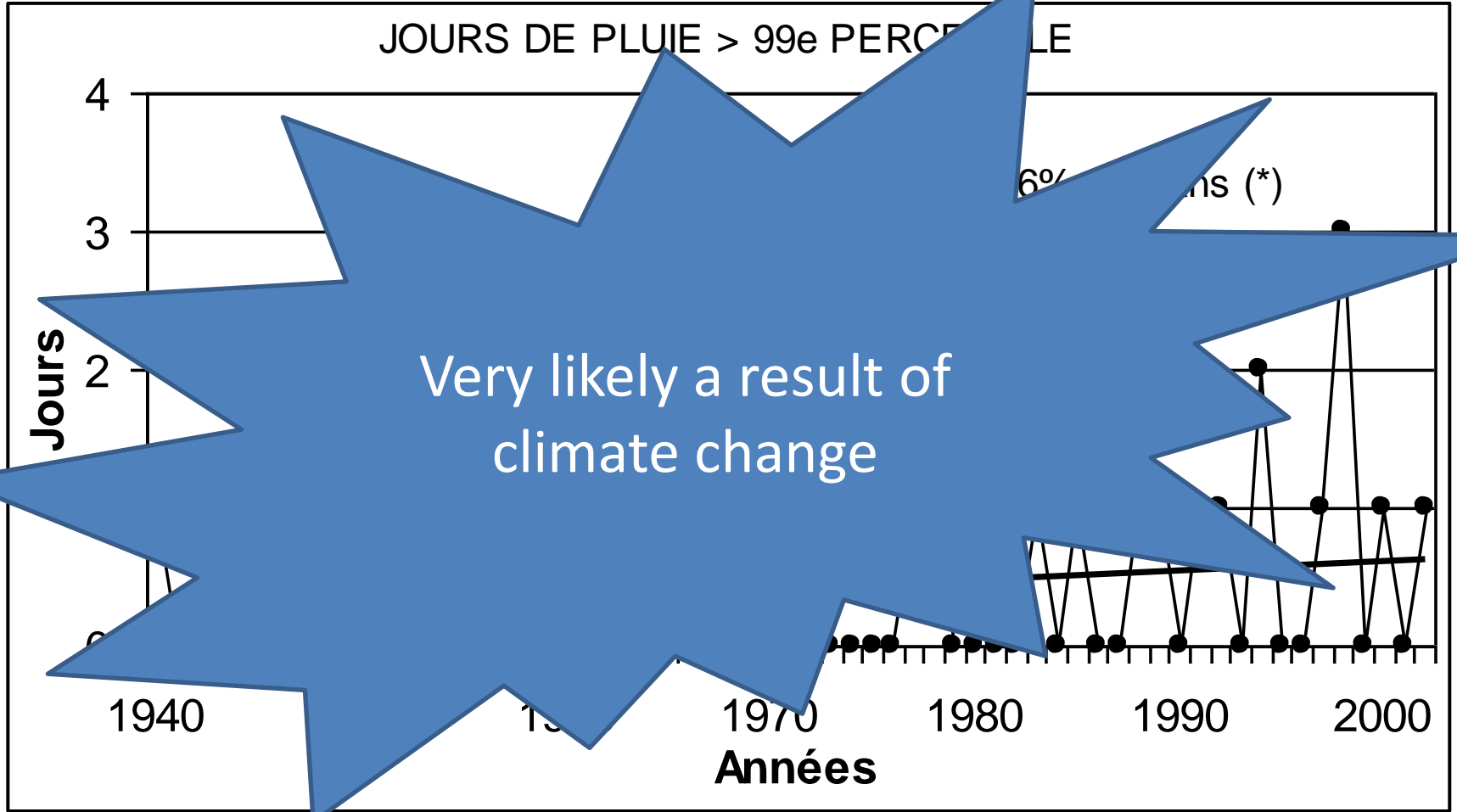


# BUT: Number of extreme rainfall days in Niamey (1940-2003)

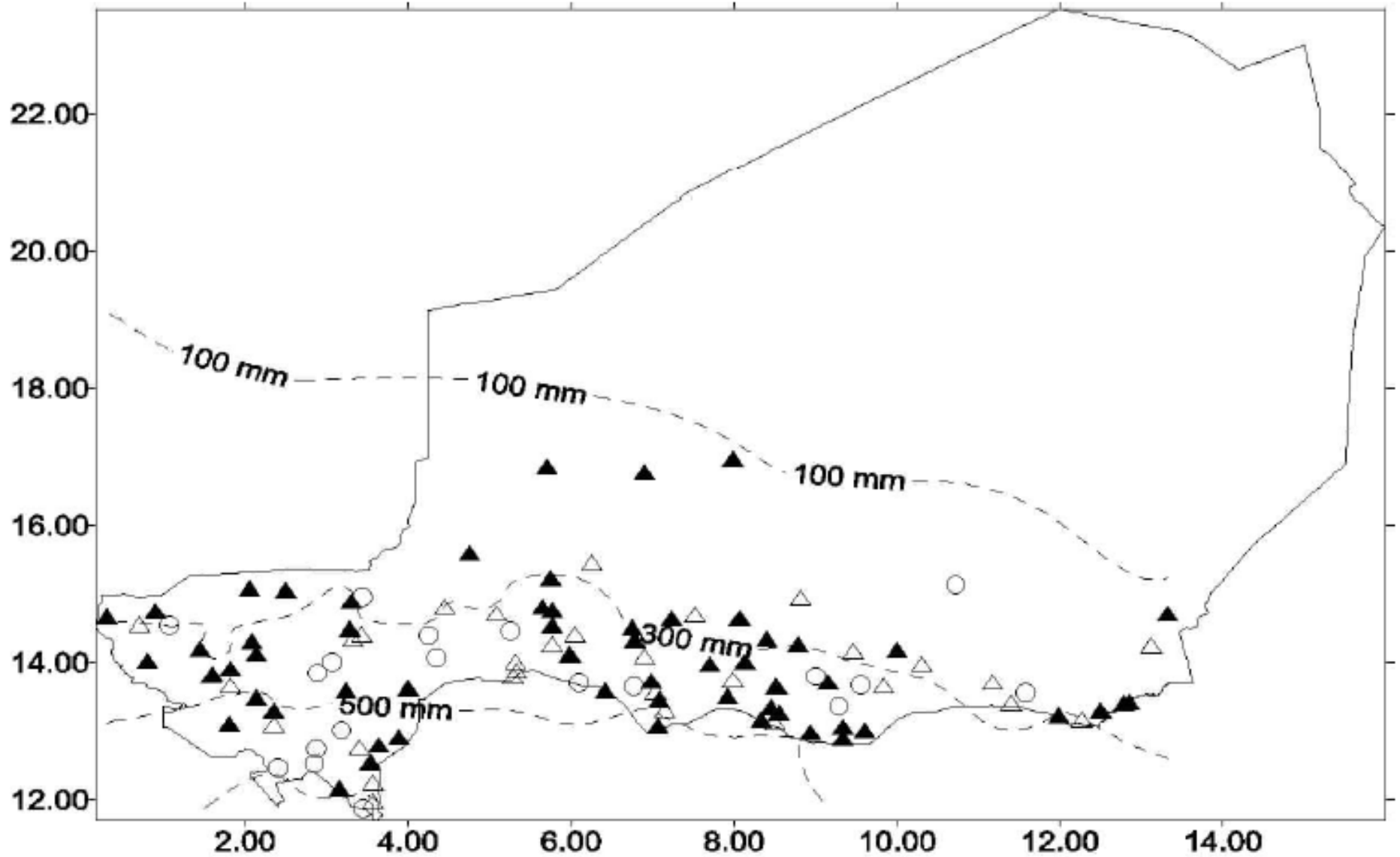




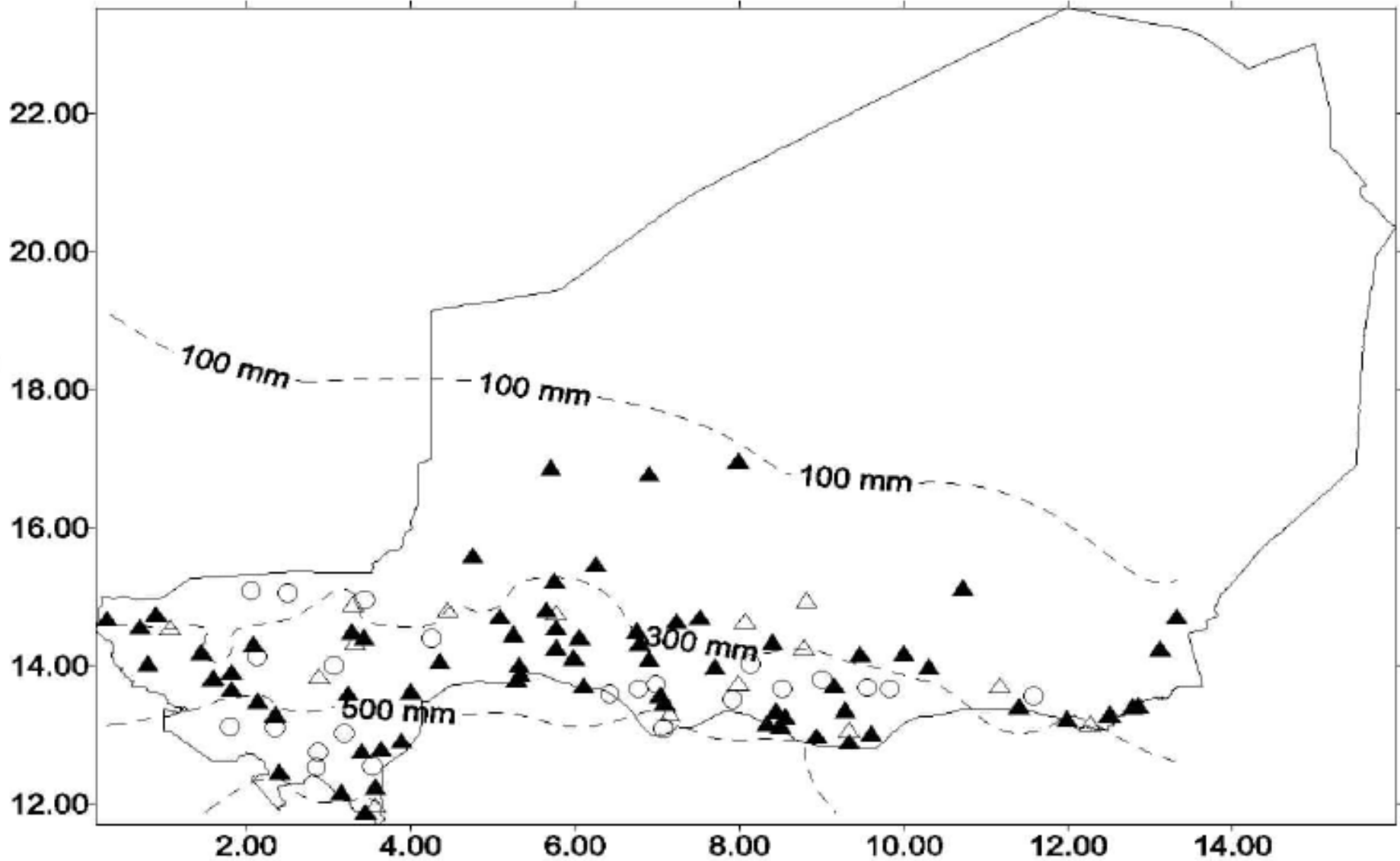
# BUT: Number of extreme rainfall days in Niamey (1940-2003)



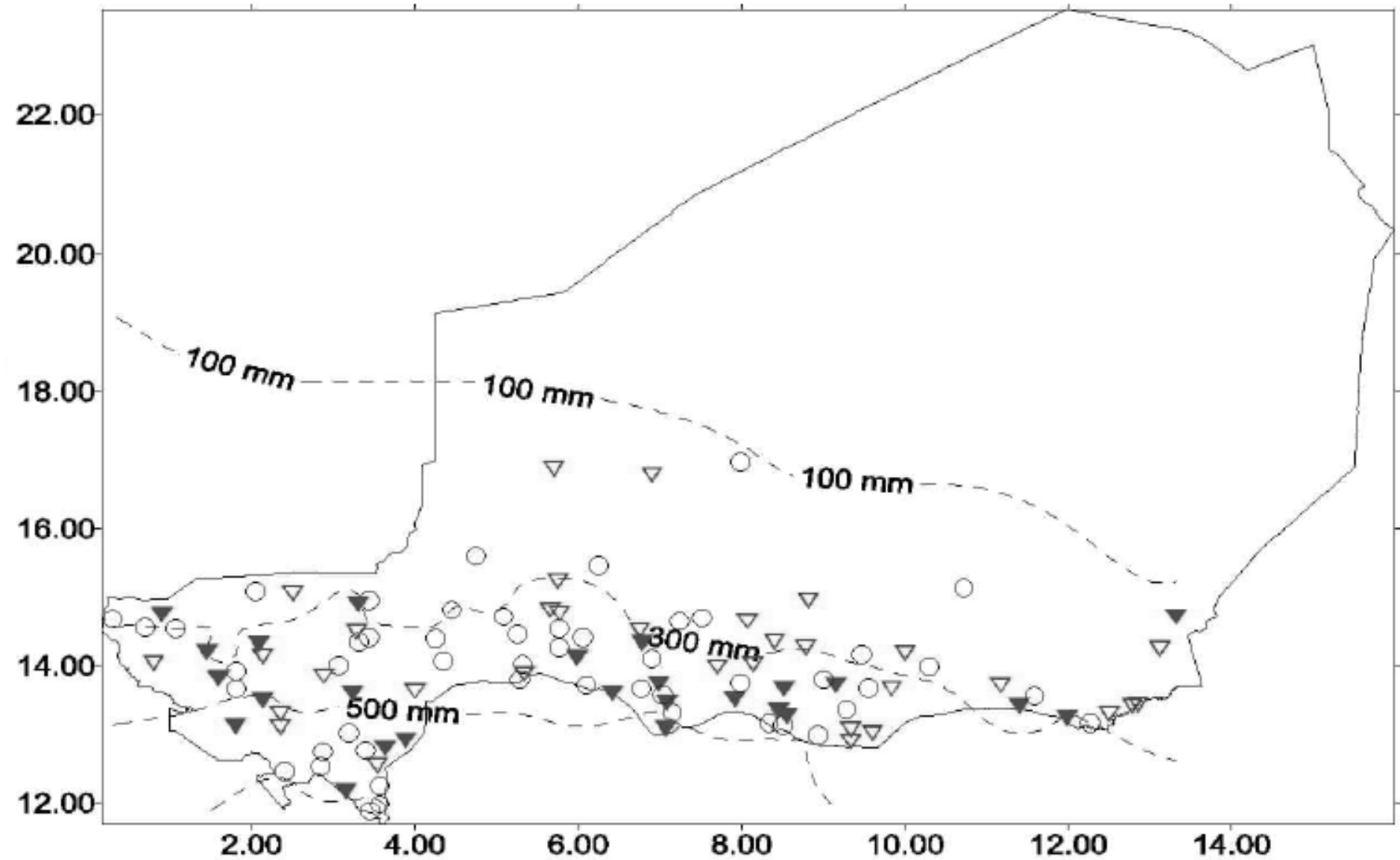
# BUT: Rainfall trends in Niger



# BUT: NDVI trends in Niger



# BUT: Rainfall Use Efficiency (RUE) trends in Niger



# BUT: Rainfall Use Efficiency (RUE) trends in Burkina Faso

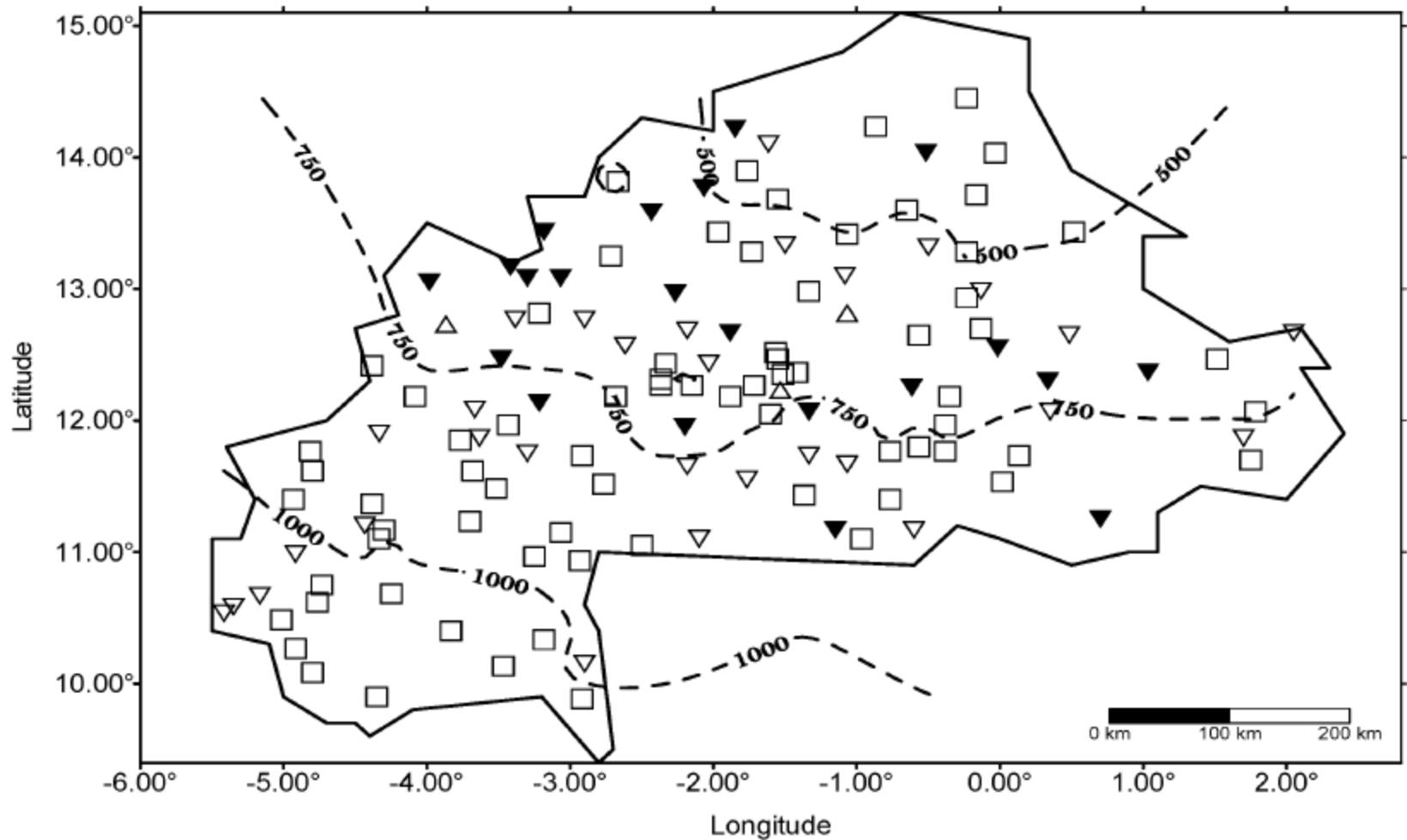
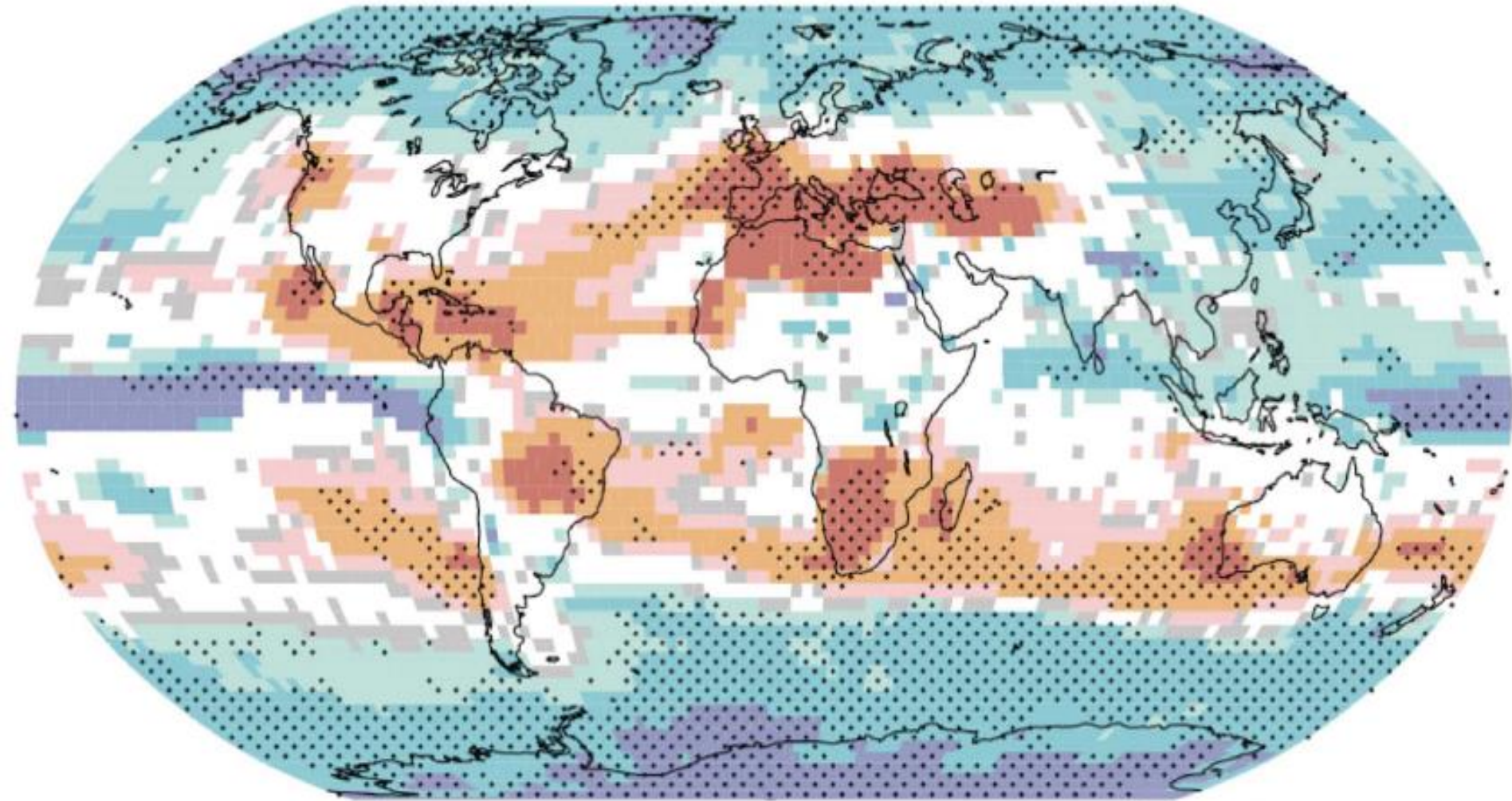
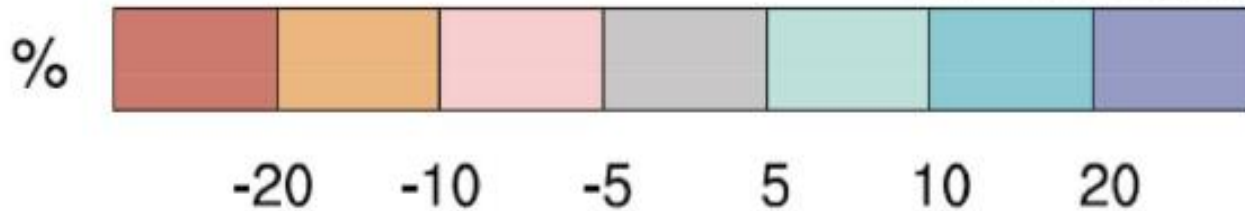


Figure 3. Trends in the  $iNDVI/RR$  ratio during the growing season (May–October) for 128 stations in Burkina Faso (1982–1999).  $\blacktriangledown$ , strong negative change;  $\triangledown$ , weak negative change;  $\square$ , stable;  $\triangle$ , weak positive change.

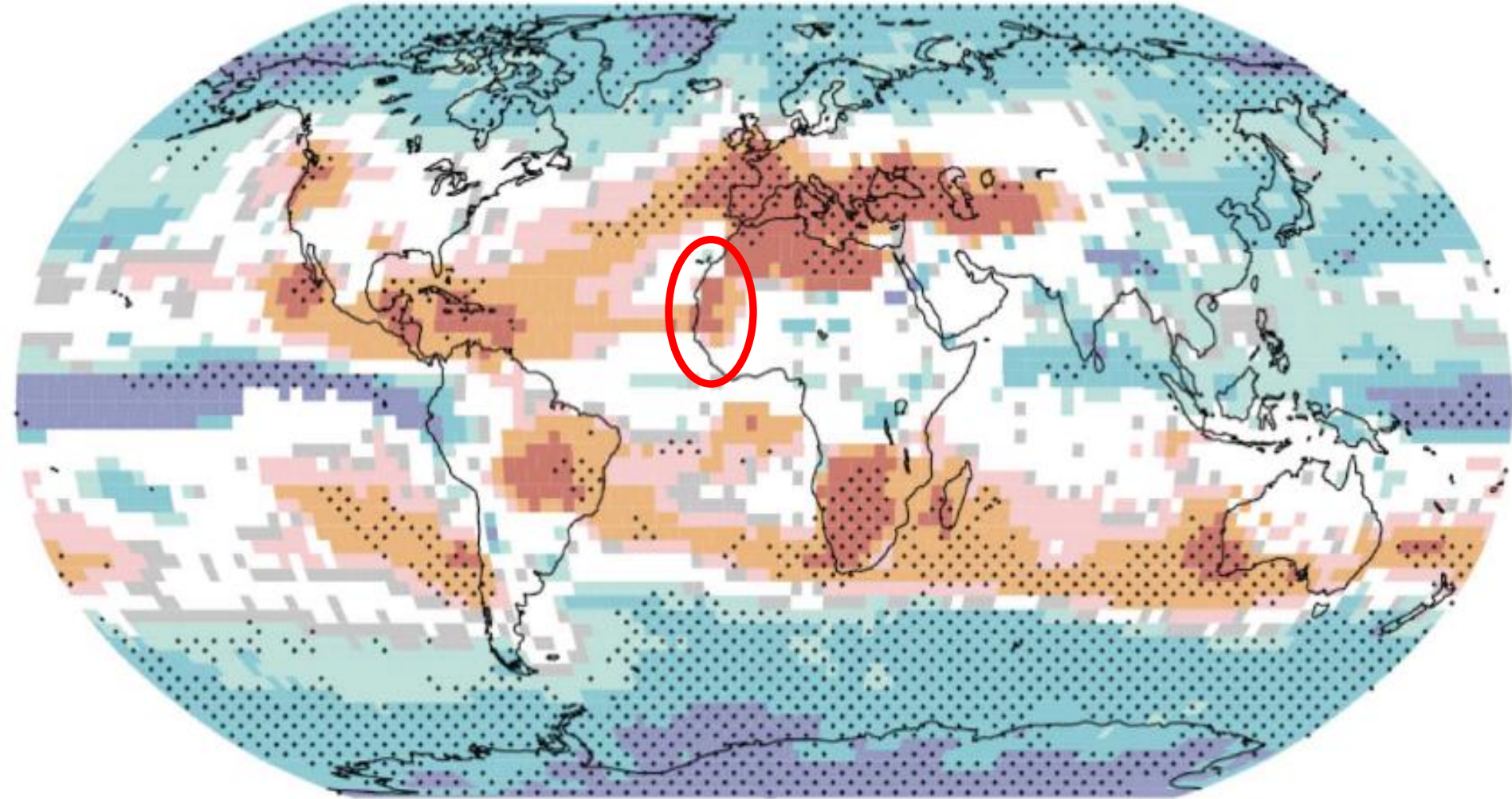
# What's next ? End of 21st century compared to 1980-1999



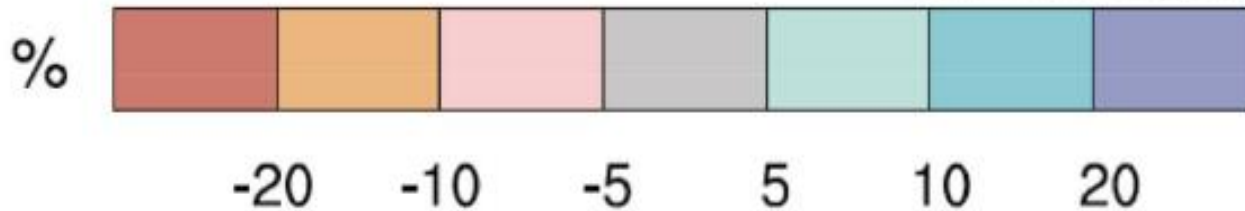
©IPCC 2007: WG1-AR4



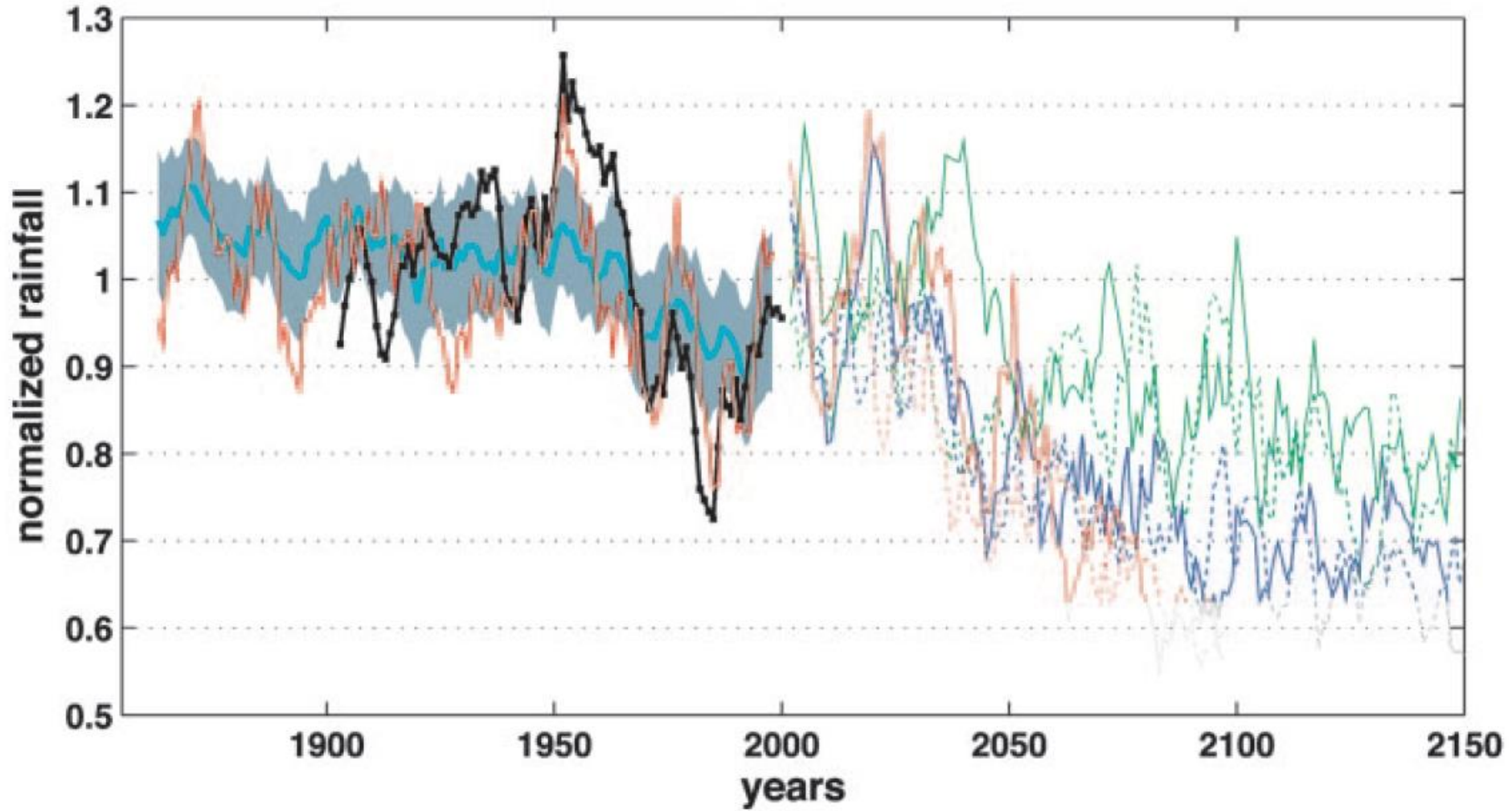
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©IPCC 2007: WG1-AR4

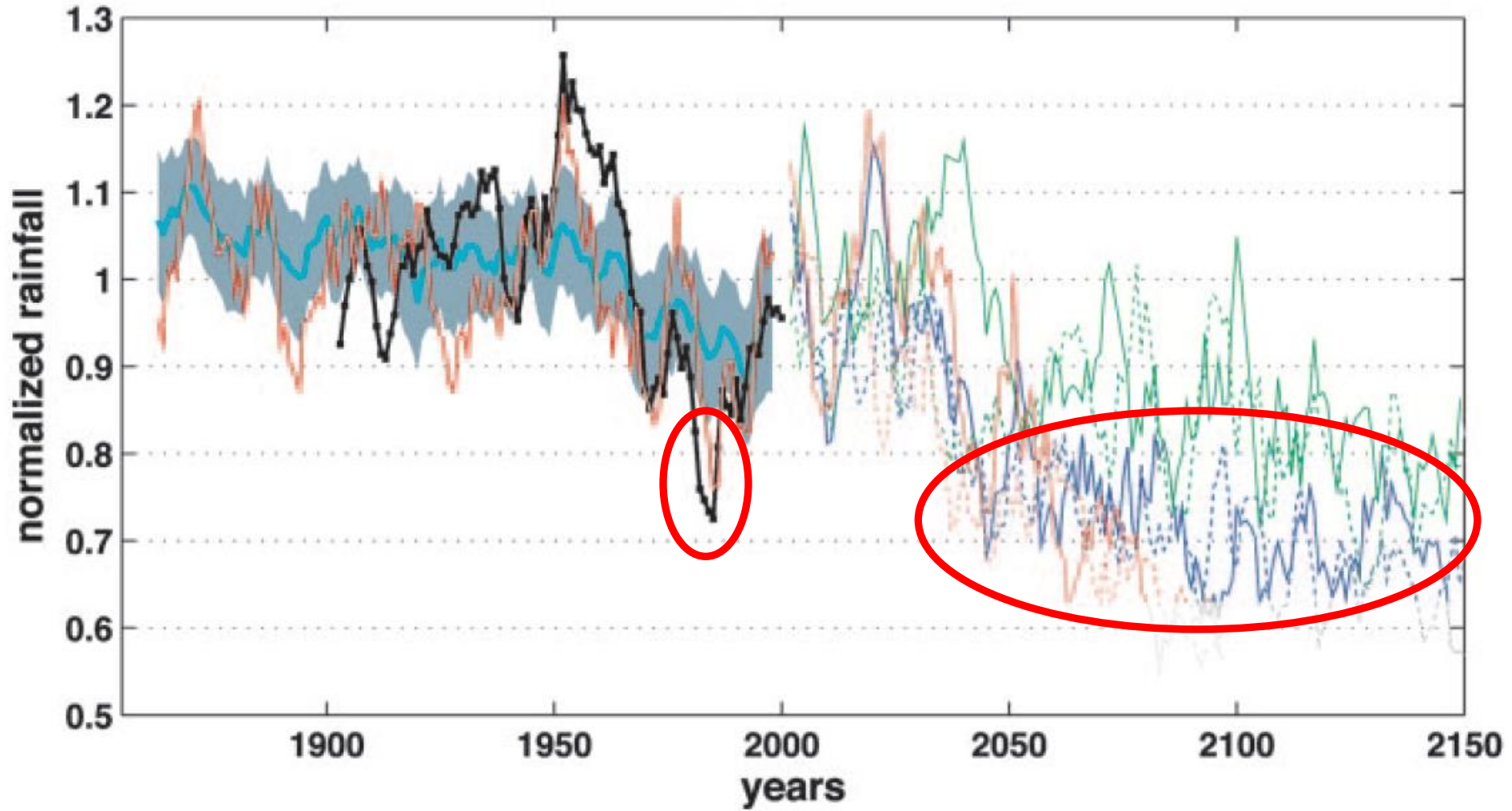


# What's next ?



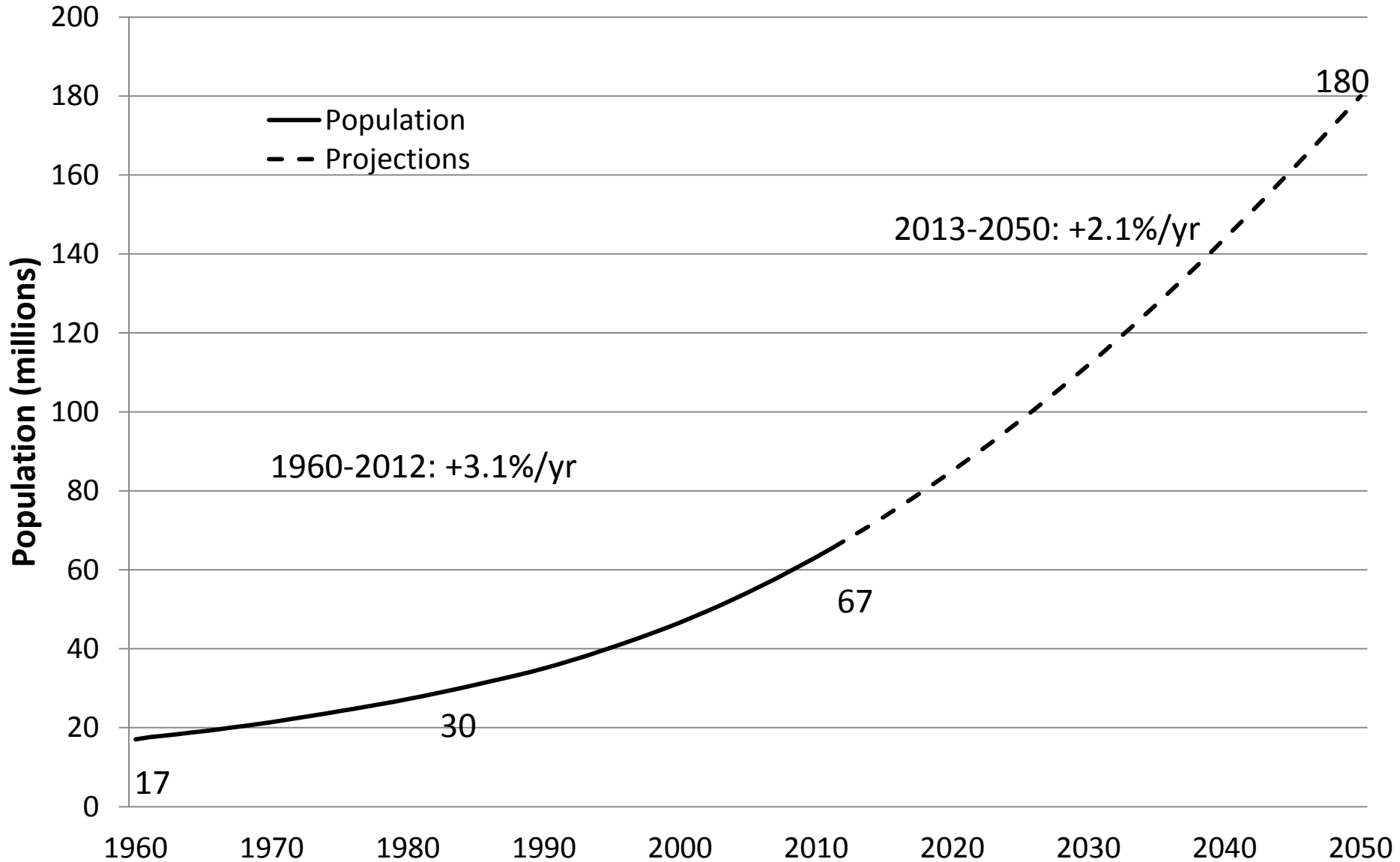


What's next ?



We have (likely, 66% to 90% of chance) a serious problem

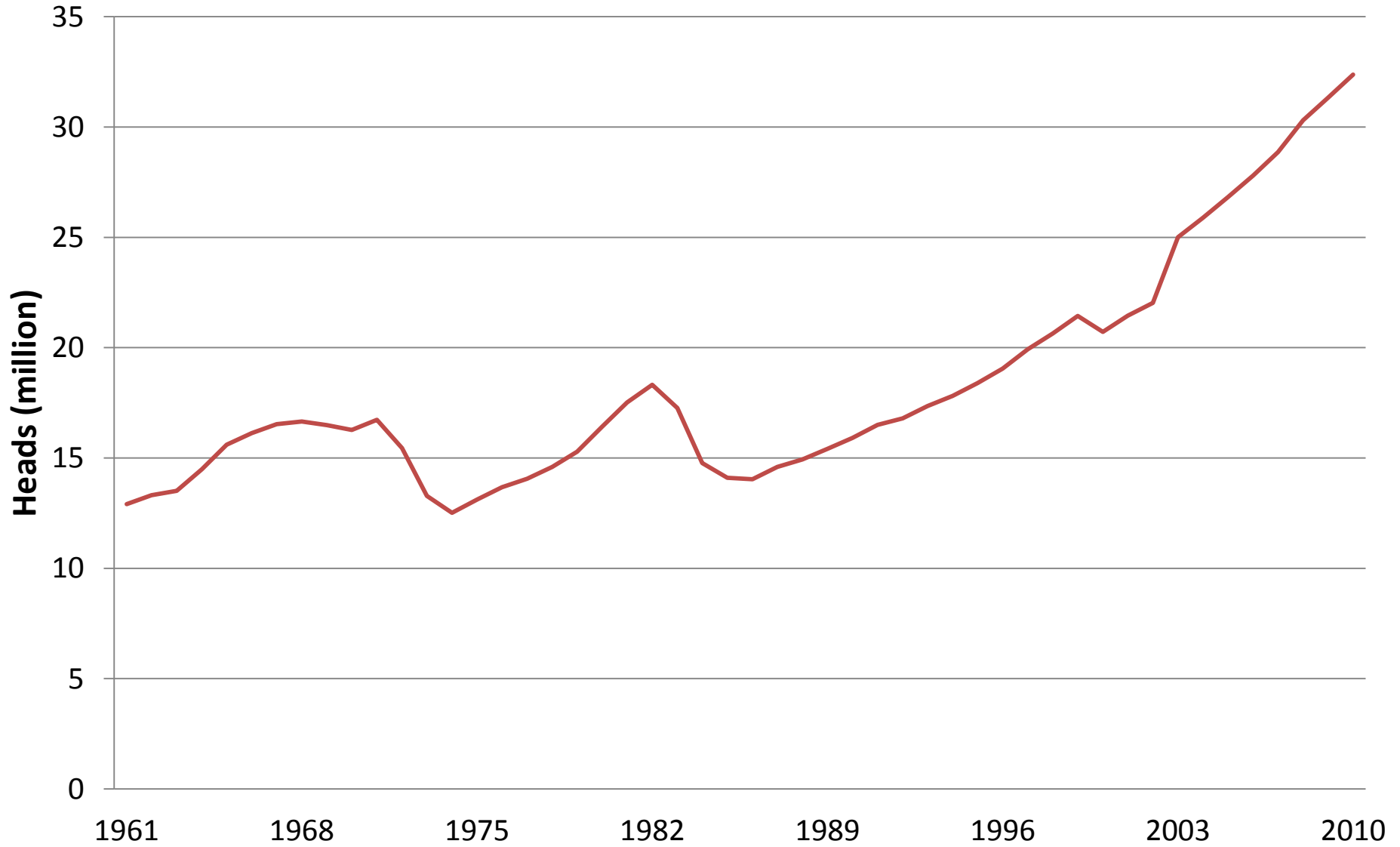
### Human population in the Sahel



Data: FAO, 2013

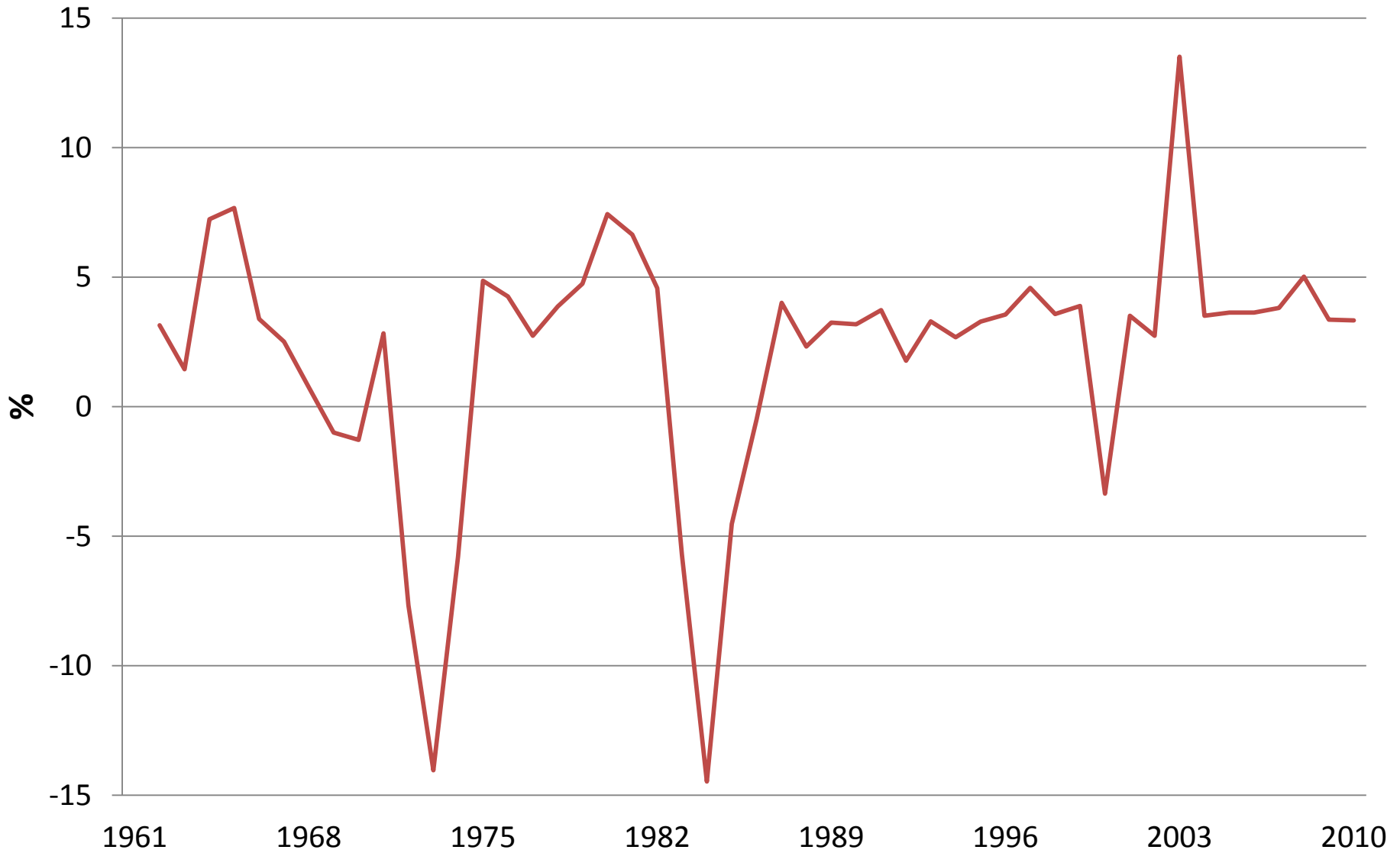
# The livestock in the Sahel ?

## Sahel - Cattle (heads)



# The livestock in the Sahel ?

## Cattle - year to year % evolution in the Sahel



# The livestock in the Sahel ?



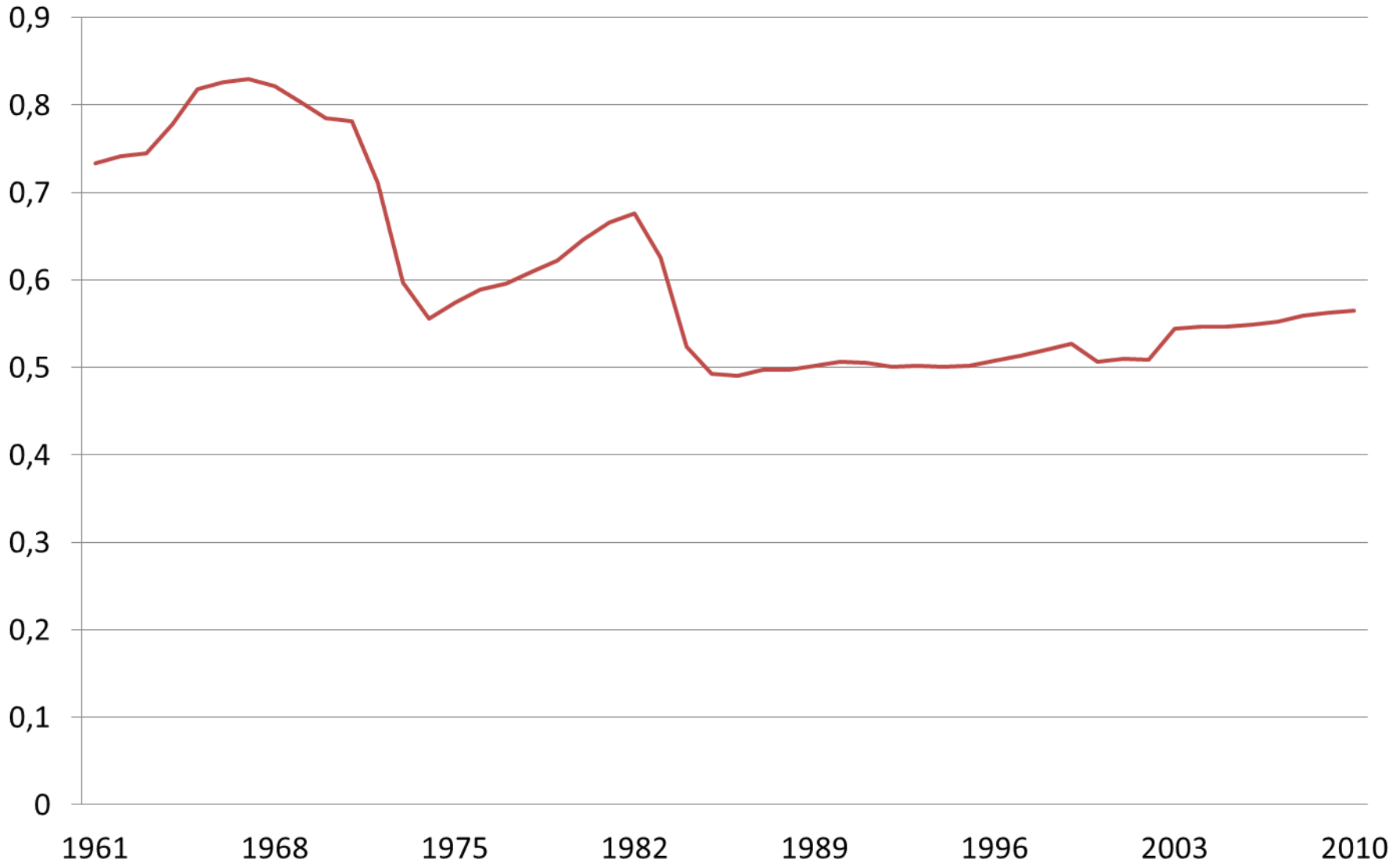
# The livestock in the Sahel ?



**Eastern Niger, ~300-400 mm**

# The livestock in the Sahel ?

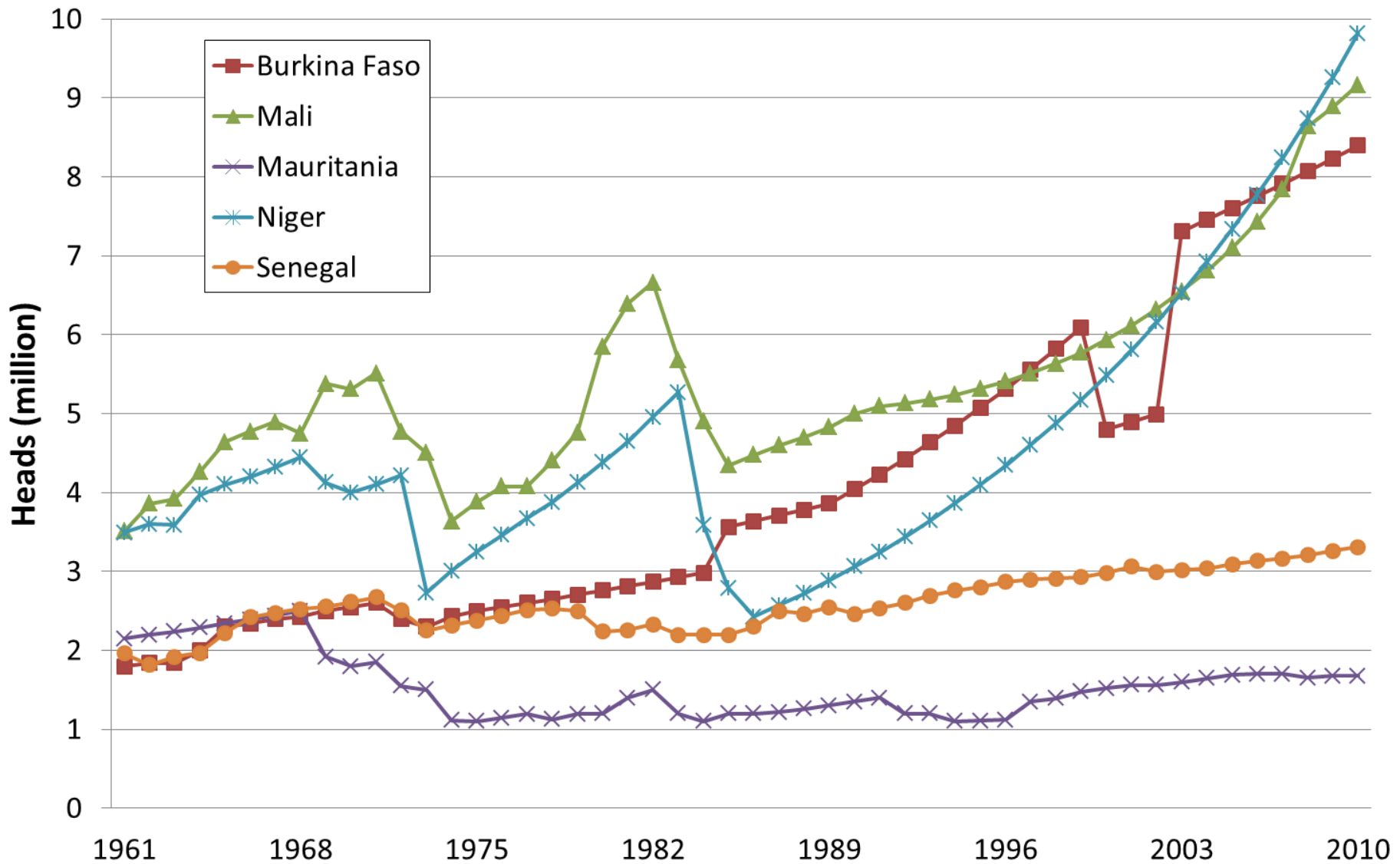
## Tropical Livestock Unit (TLU) per capita in the Sahel



Data: FAO, 2013

# Is this correct ?

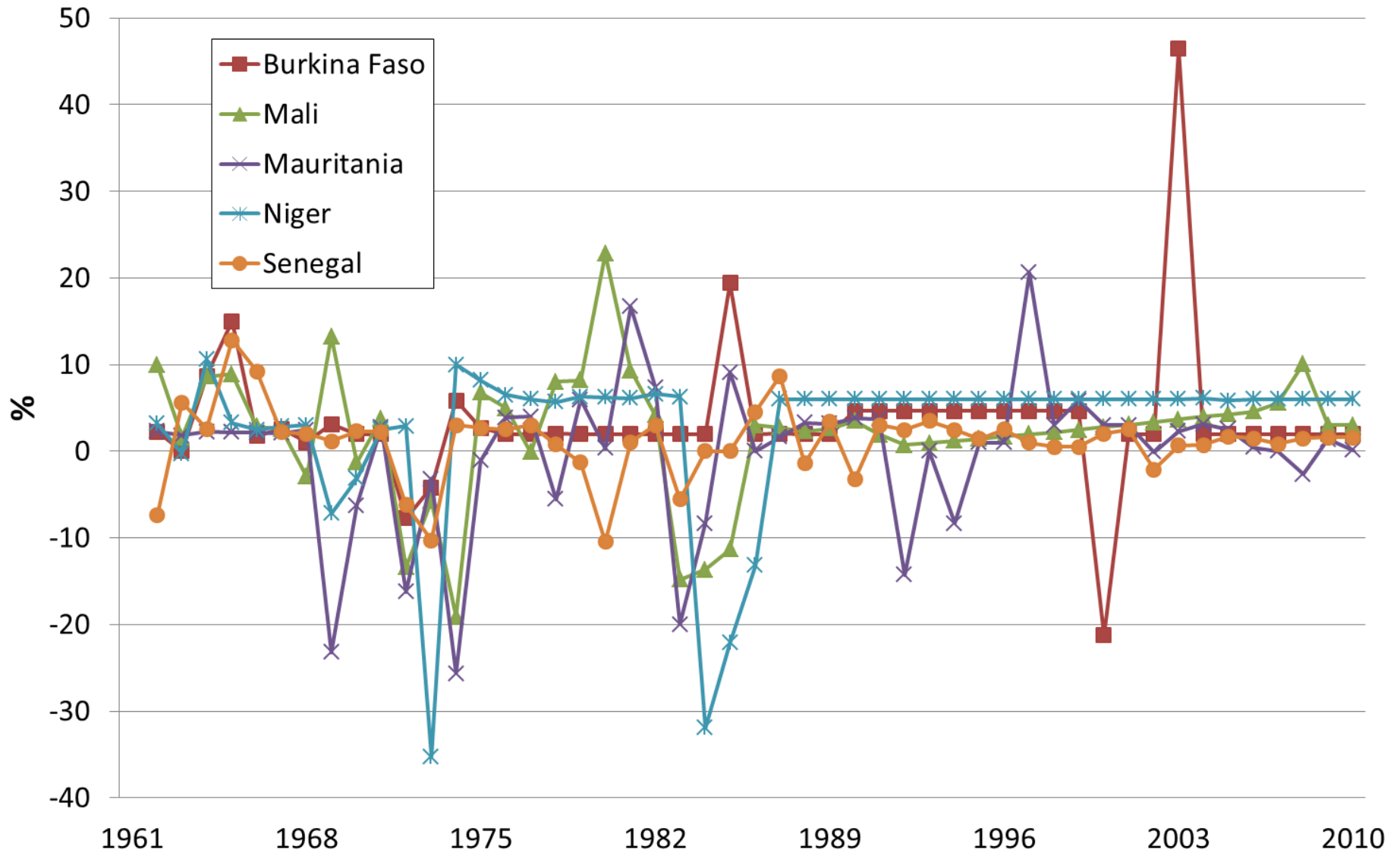
## Cattle (heads) per country





# Is this correct ?

## Cattle - year to year % evolution per country



# Niger: drought of 2005



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## Niger's Nomads Feeling Brunt of Drought, Famine

by [OFEIBE A QUIST-ARCTON](#)

August 10, 2005 12:00 AM



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Day to Day



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Famine in the western African nation of Niger is severely affecting the country's nomadic tribes. The nomads have lost fewer children to starvation than some villagers, but the effect of the severe drought on their livestock has been devastating.

# Niger: drought of 2005

« the effect of the severe drought on the livestock has been devastating »

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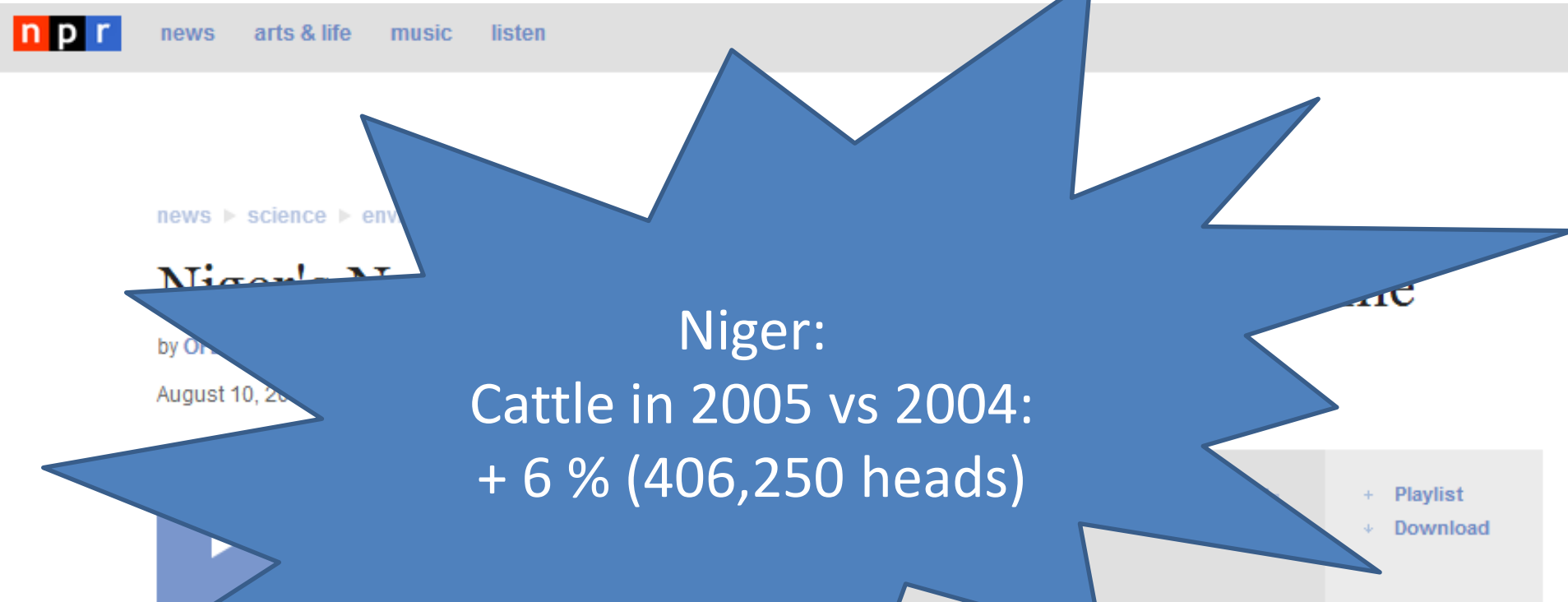
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Niger:  
Cattle in 2005 vs 2004:  
+ 6 % (406,250 heads)

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Niger:  
drought  
of 2010

theguardian

## Severe drought causes hunger for 10 million in west Africa

Eastern Sahel crisis is worst in Niger where 7.1 million are hungry as livestock and crops are lost and food prices surge

---

Xan Rice in Nairobi

The Guardian, Thursday 3 June 2010 17.50 BST

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In Niger 7.1 million are hungry as the drought affects livestock and crops. Photograph: Alamy

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In Niger 7.1 million are hungry as the drought affects livestock and crops. Photograph: Alamy

# Niger: drought of 2010

## NIGER: Forced to sell cattle for a handful of dollars



Photo: Anne Isabelle Leclercq/IRIN

Cattle in Zinder region, Southern Niger

DAKAR, 22 June 2010 (IRIN) - Nigeriens are likely to take years to recover from selling their weakened livestock at a fraction of its normal value due to drought in the Sahel region.

The drought threatens almost 70 percent of herds, according to rough estimates from the International Committee of the Red Cross (ICRC).

"It can take up to 10 years to rebuild a herd with no assistance," head of the Niger Association for the Revival of Breeding (AREN), Dodo Boureima, told IRIN. "Next year, people will not be able to survive off their livestock."

With good rains and government and international support, herders are expected to recover from their losses in two to three years, said the emergency programme officer at the Food and Agriculture Organization (FAO), Nourou Tall.

In a country where almost three quarters of the estimated 13.4 million inhabitants depend at least partly on livestock, animals represent economic security: providing milk and meat for the family; money for food, education and health care; and a dowry in marriage contracts.

Pastoralists experiencing the greatest losses may be forced to change livelihood, to guard others' animals, or to find work in towns and cities, said Boureima.

### Supporting the stockbreeders

The director of pastoral development in Niger's Ministry of Livestock and Animal Husbandry, Haido Abdul Malik, has been travelling across the country for the last two weeks to evaluate pasture conditions. He is alarmed by what he has seen: hardly any grazing land left; soaring prices of animal feed and weak or sick animals.

"We just met with a stockbreeder who had 50 animals that could no longer move. We saw several dead ones," Malik told IRIN. "We have seen cattle worth CFA 150,000 (USD\$300) sold to butchers for CFA 3,000 (USD\$6). That is not even enough to buy one bag of food for the animals."

To protect the poorest stockbreeders, organizations such as FAO, Veterinarians Without Borders (VSF) and the ICRC, have been buying some of the weakest cattle at higher than current market prices.

In the past two months ICRC purchased and slaughtered nearly 20,000 animals and treated another 60,000 against parasites, in northern Niger, paying the equivalent of two months worth of food, for three animals. The animal meat was redistributed to the most vulnerable community members.

Agencies are also selling animal feed at below market prices, distributing vitamins and vaccinating animals to protect them from disease.

# Niger: drought of 2010

« The drought threatens almost 70 % of herds (Red Cross) »

« It could take up to 10 years to rebuild the losses in livestock.

Next year, people will not be able to survive off their livestock

(Niger Association for the Revival of Breeding) »

 **IRIN** humanitarian news and analysis  
a service of the UN Office for the Coordination of Humanitarian Affairs

## NIGER: Forced to sell cattle

DAKA



Photo

Cattle in Zinder region, Southern

Niger:

Cattle in 2010 vs 2009:  
+ 6 % (555,698 heads)

The director of pastoral... travelling across the country... the last two weeks to evaluate pasture conditions. He is alarmed by what he has seen...

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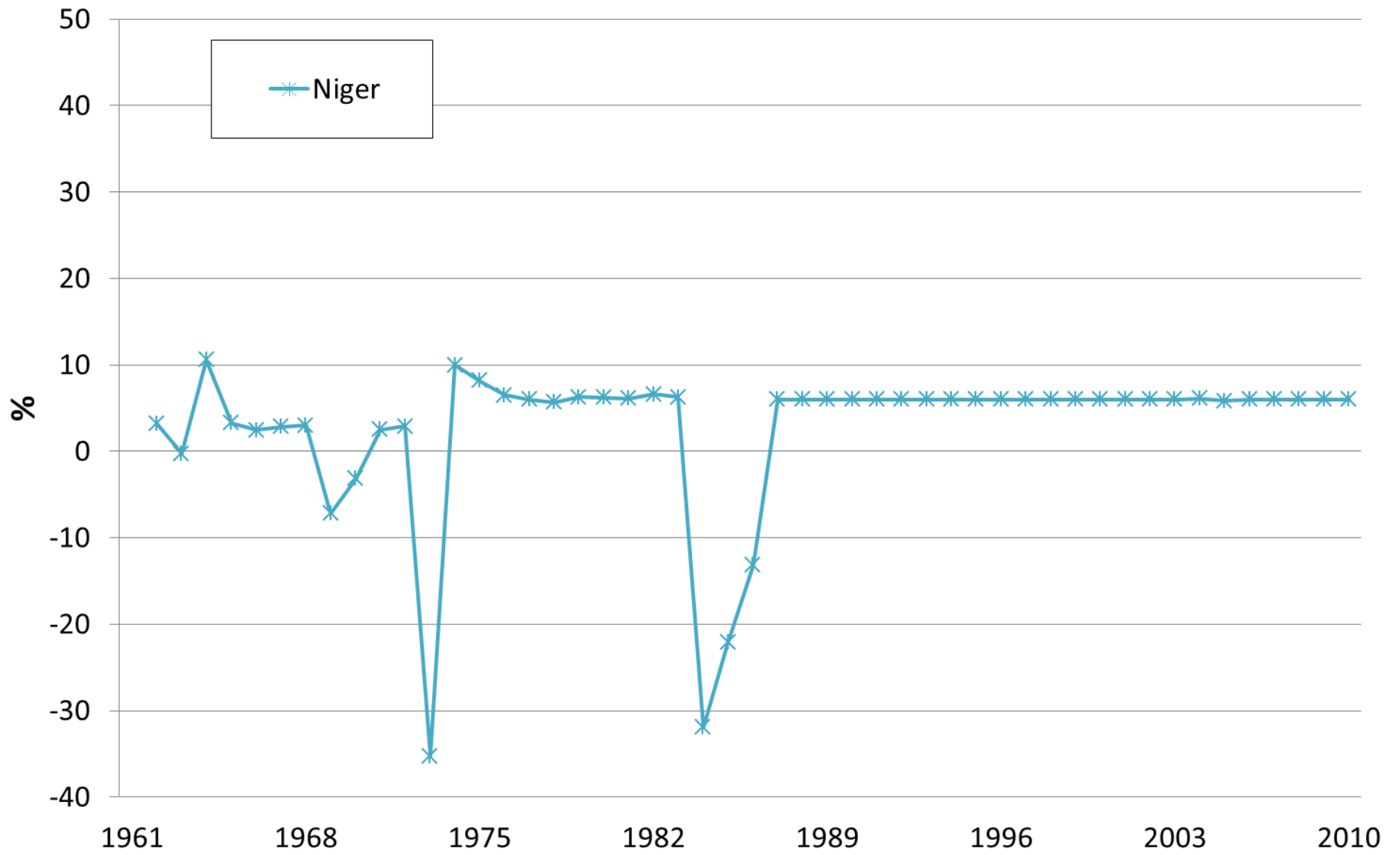
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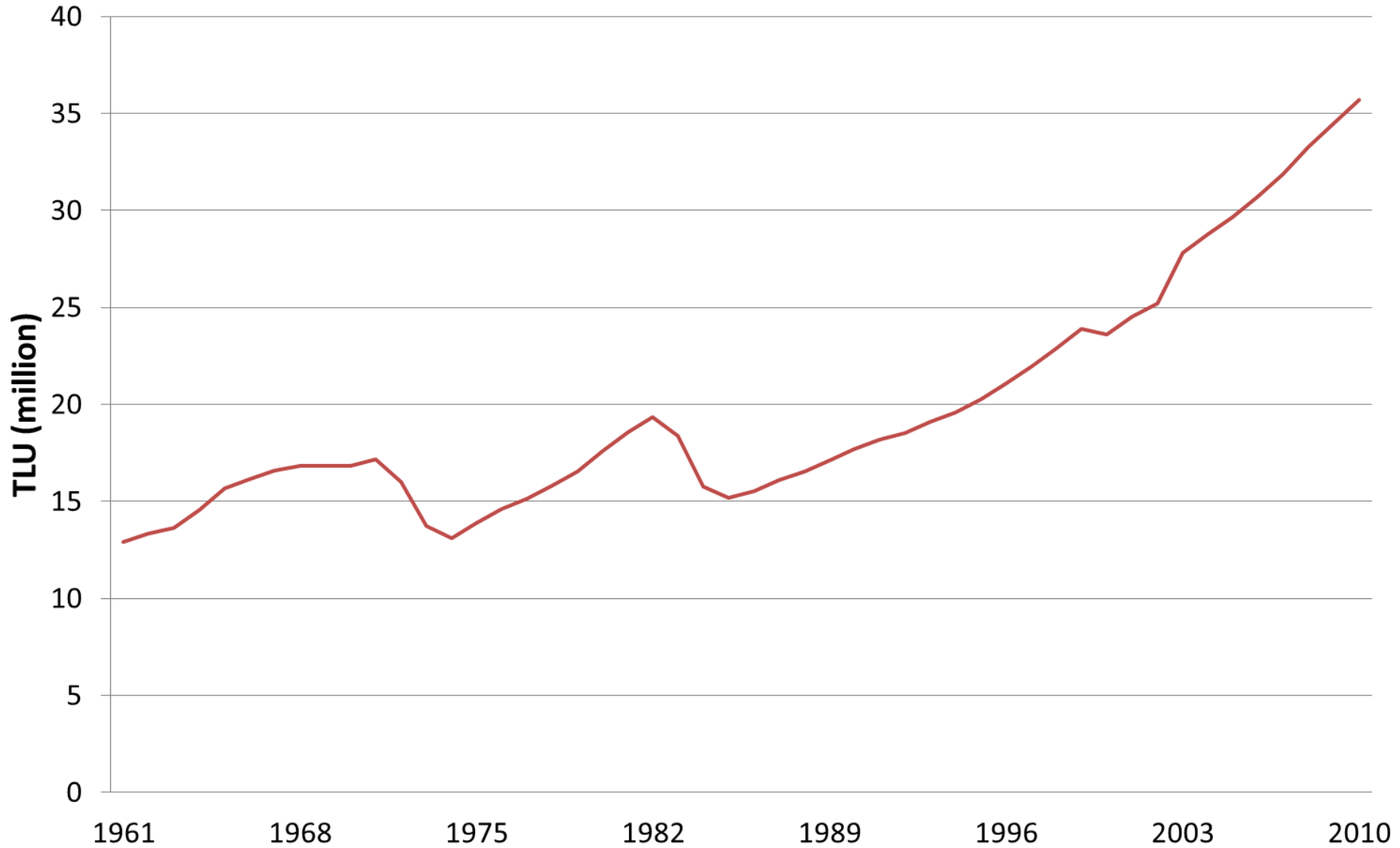
# Is this correct ?

## Cattle - year to year % evolution in Niger



# Is this correct ?

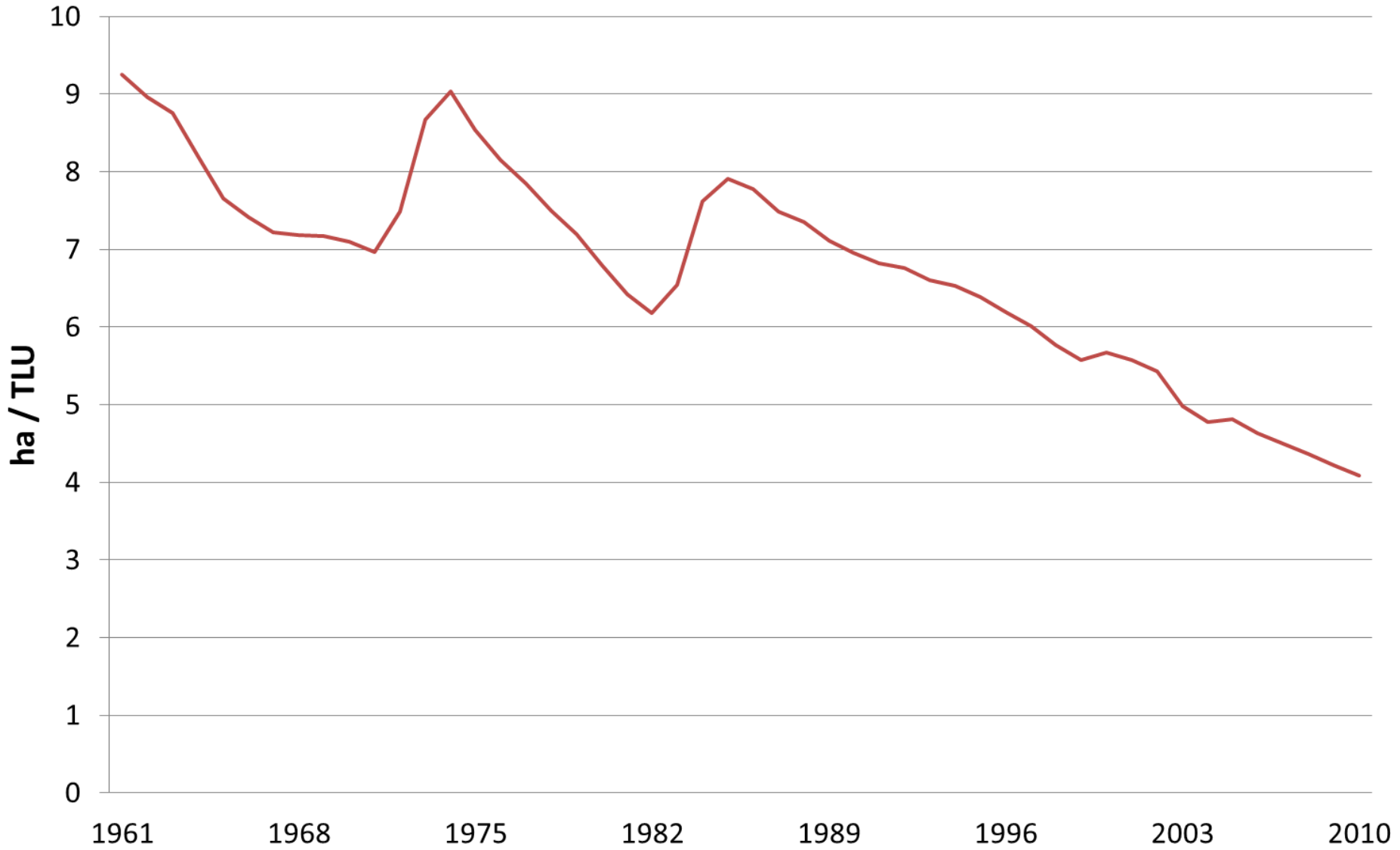
## Sahel - Livestock (cattle, sheep & goats) [TLU]



Data: FAO, 2013

# Is this correct ?

## Sahel - Hectares available per TLU



Data: FAO, 2013

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