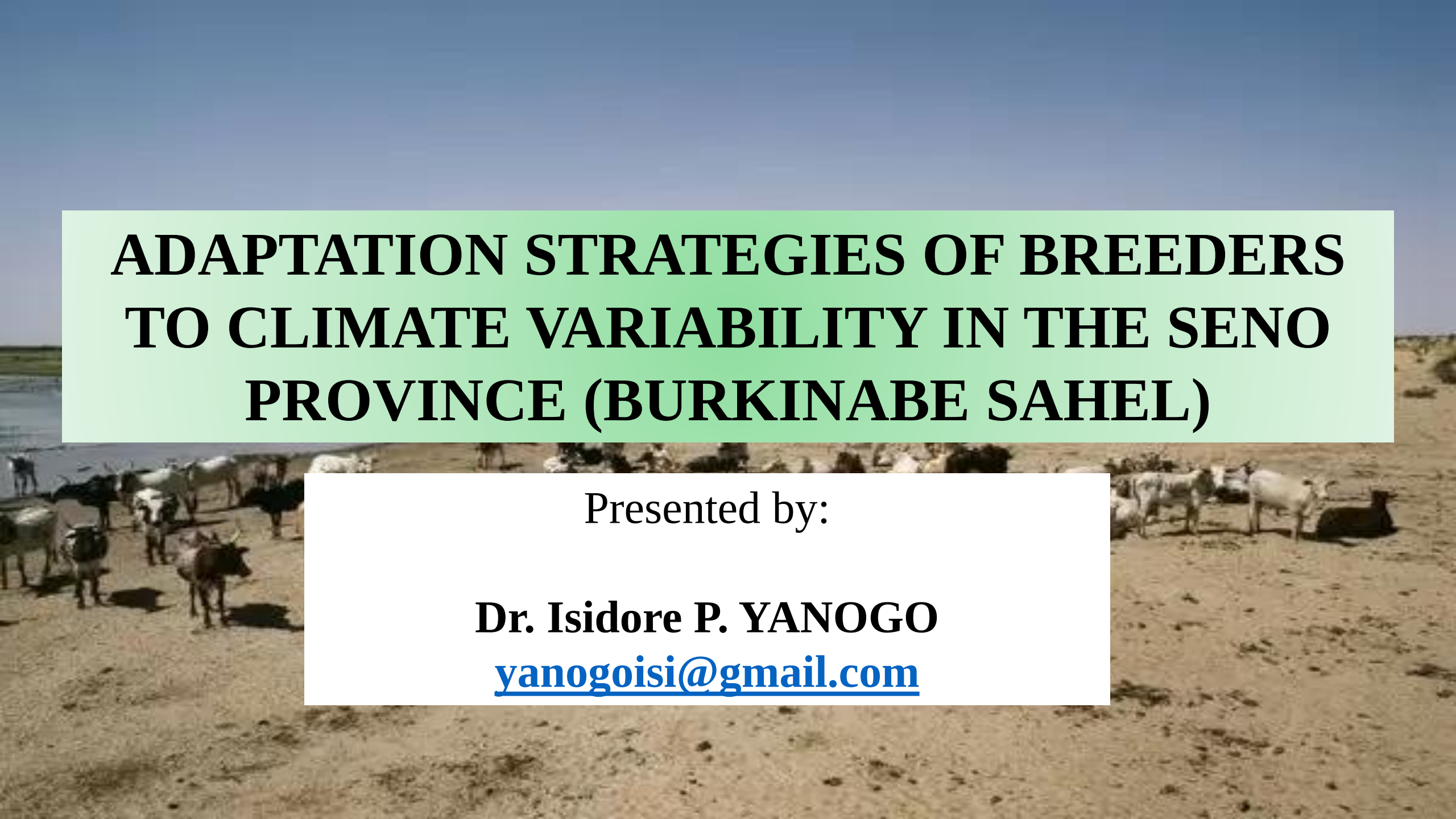

ADAPTATION STRATEGIES OF BREEDERS TO CLIMATE VARIABILITY IN THE SENO PROVINCE (BURKINABE SAHEL)

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PRESENTATION OUTLINE

- STATEMENT OF THE PROBLEM
- OBJECTIVES
- METHODOLOGICAL APPROACH
- RESULTS AND DISCUSSION
- CONCLUSION

STATEMENT OF THE PROBLEM (1/3)

- The issue of climate change is a global concern (DIEYE O.P. 2010);
- Institutions such as IPCC, CILSS, CRA and OECD are fighting global warming;
- IPCC (2007), OECD (2008) all argue that global temperatures (1.4°C to 5.8°C) have risen and predict that all climate events will only get worse;
- In 2010, the CILSS and the CRA confirm that adaptation is the only way to cope with the amplification in these climatic events.

STATEMENT OF THE PROBLEM (2/3)

- People and societies have always adapted to climate variability and coped with these extreme situations, with varying degrees of success throughout history (IPCC, 2014);

- In the Sahel, adaptative capacity is low due to limited financial resources and climatic conditions (low rainfall and high temperatures9 (IPCC, 2013);

- Considered vulnerable, **how do Sahelian populations adapt to remain vulnerable to the effects of climate variability?**

STATEMENT OF THE PROBLEM (3/3)

- **How do the people in the Sahel perceive the effects of climate variability?**
- **What adaptation strategies do they use to deal with these effects?**
- **How can their resilience to the effects of climate variability be improved?**

OBJECTIVES

The work consists of assessing the strategies implemented by breeders to adapt to the effects of climate variability in the Sahel.

- ❑ analyse the breeder's perception of the effects of climate variability;
- ❑ understand the different local adaptation strategies developed by the breeders;
- ❑ study other strategies used by the breeders and the contribution of geomatics tools to improving adaptation to the effects of climate variability.

METHODOLOGICAL APPROACH (1/2)

- Literary review;
- Definition of concepts;
- Sampling:
  - demographic (150 people), the size was reduced because of the absence of heads of household due to transhumance.
  - Spatial (commune of Dori) in order to better understand the evolution of land use/land cover units.
- Choice of study site (this was imposed because it is one of the PUAAB intervention zones);
- Fieldwork and data processing (Arc GIS 10.1, Excel 2010 and Sphinx V5, Word 2010)

METHODOLOGICAL APPROACH (2/2)

Table 1: Typology of data

STATISTICAL DATA	SPATIAL DATA
❑ A collection sheet for climatic data; ❑ A collection sheet for satellites data; ❑ An interview guide and a questionnaire.	❑ National topographic data Base (BNDT); ❑ Soil data, from the National Bureau of Soil (BUNASOLS

RESULTS AND DISCUSSION

LOCAL PERCEPTION OF CLIMATE VARIABILITY (1/3)

Breeders' perception of climate variability

- **98%** of breeders noted a **decrease** in rainfall,
  96% noted an increase in **temperature**,
  70% report an **increase** in wind speed.

- The number of water points is insufficient according to 98% of the local population, 46% also note a difficult access to water in dry periods.

- The grazing have **decreased in size** according to 80% of the population

LOCAL PERCEPTION OF CLIMATE VARIABILITY (2/3)

Consequences of changing weather parametres on pastoral resources according to stakeholders

- The decrease in the amount of rainfall leads to the **rapid drying up of water bodies and the regression of grazing**;

- The increase in temperature causes **animal mortality, the appearance of epizootics due to lack of water in the dry season, and the destruction of crops and herbaceous vegetation during the raining season;**

- The increase in wind speed is responsible for the **reduction in the area of water bodies and the appearance of epizootics in the dry season**

LOCAL PERCEPTION OF CLIMATE VARIABILITY (3/3)

Figure 1: Desiccation cracks in a waterhole in Dori in June 2015

Figure 2: State of degraded soil surface in July

SCIENTIFIC ASSESSMENT OF METEOROLOGICAL PARAMETRES (1/3)

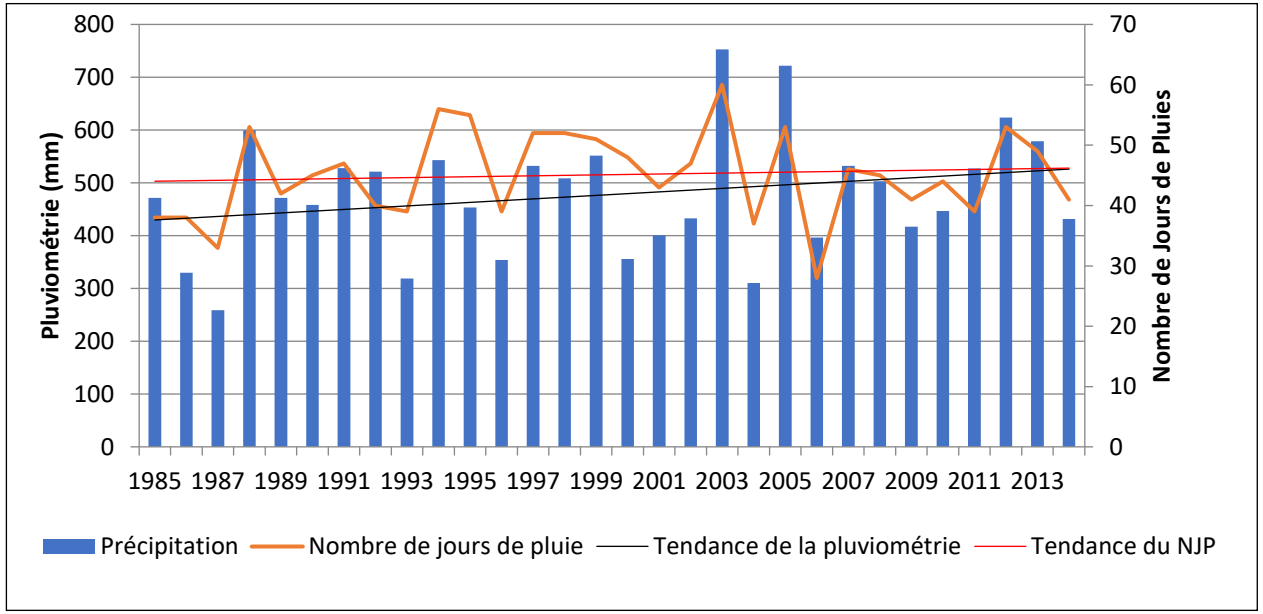

Figure 3: Amount of rainfall

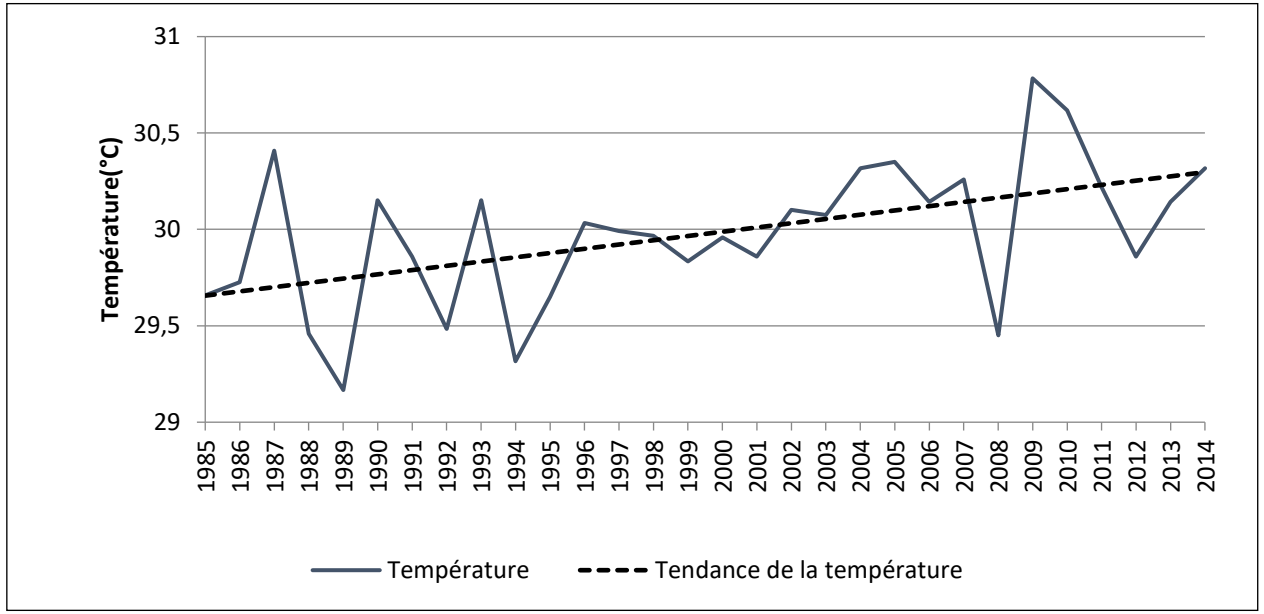

Figure 4: Temperature trend

SCIENTIFIC ASSESSMENT OF METEOROLOGICAL PARAMETRES (2/3)

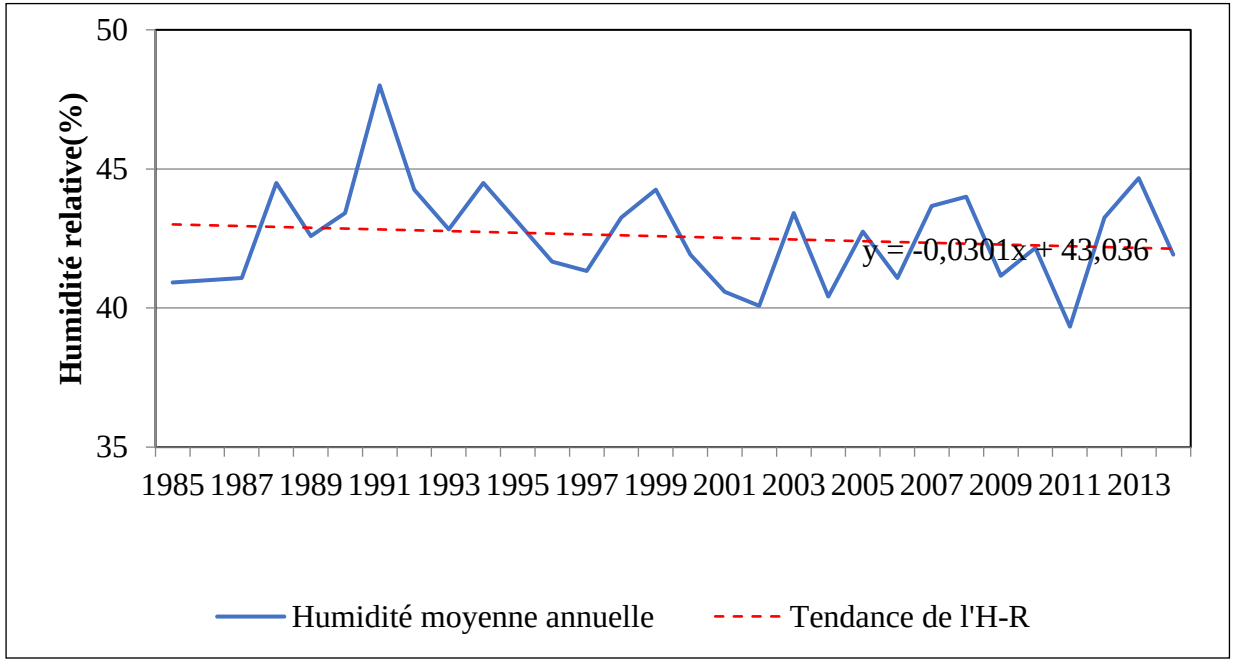

Figure 5: Relative humididy

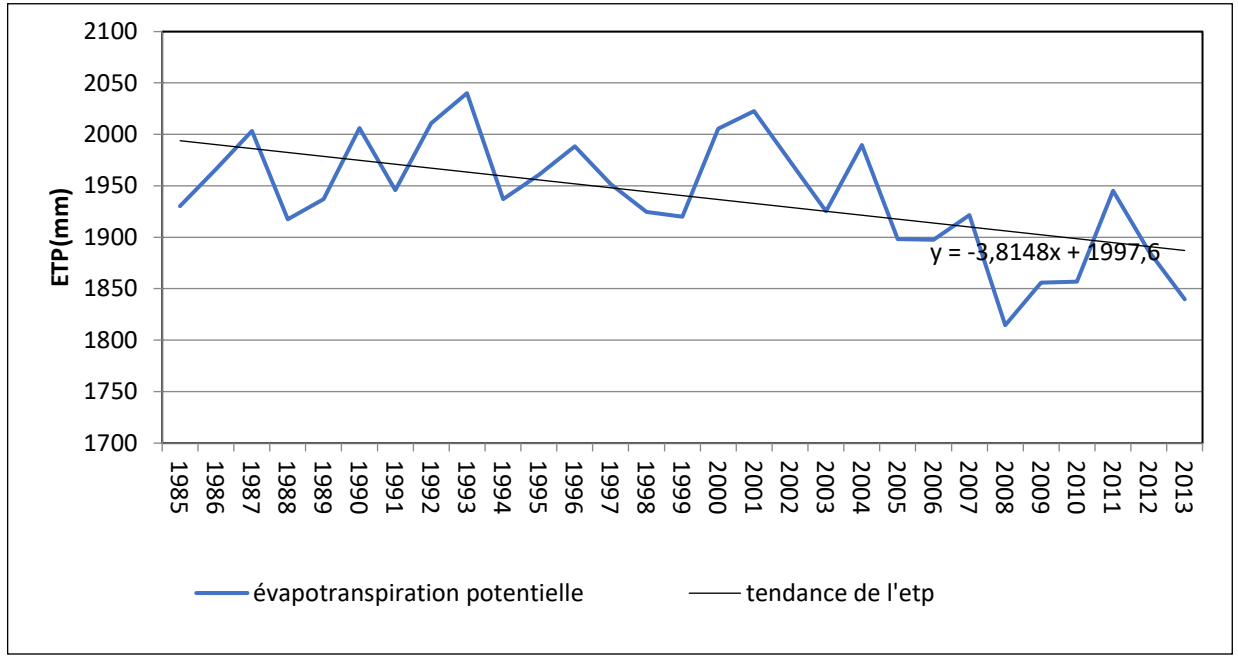

Figure 6: ETP

SCIENTIFIC ASSESSMENT OF METEOROLOGICAL PARAMETRES (3/3)

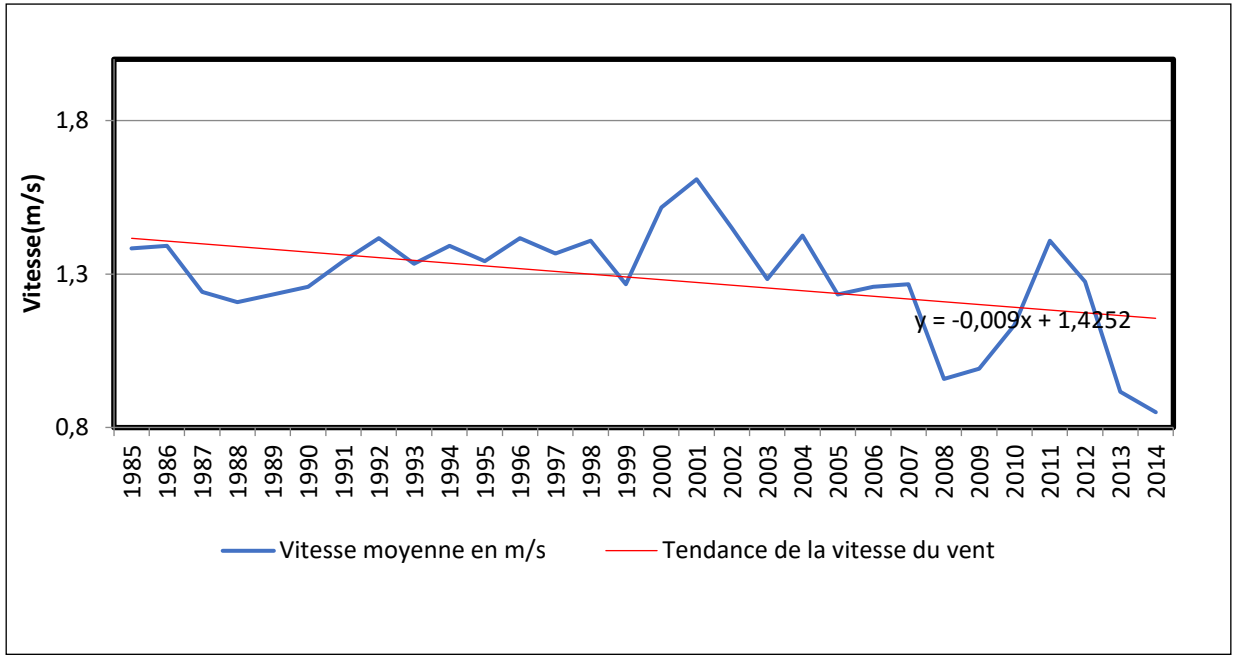

Figure 7: Wind speed

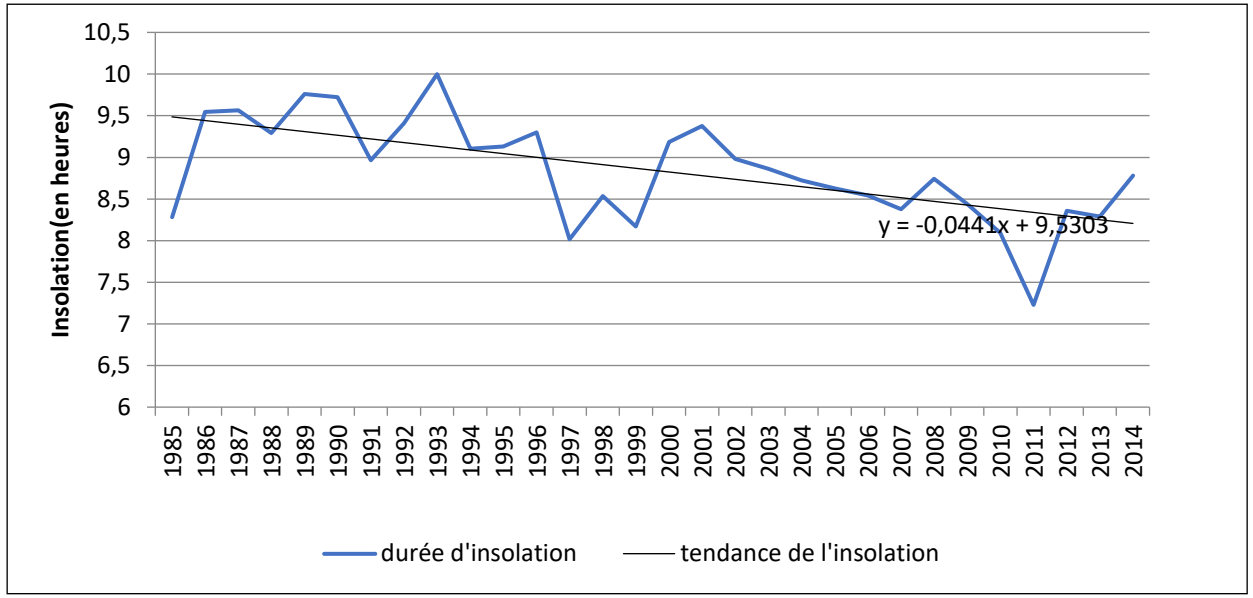

Figure 8: Insulation

COMPARISON BETWEEN PASTORAL PERCEPTION AND SCIENTIFIC FINDINGS

Table 2: Comparison matrix

METEOROLOGICAL PARAMETRES	RESULTS
Rainfall	No correspondence
Temperature	Concordance
Wind	No correspondence

ADAPTATION STRATEGIES TO THE EFFECTS OF CLIMATE VARIABILITY (1/2)

Table 3: Adaptation strategies

ADAPTATION STRATEGIES	FREQUENCY OF PRACTICE
Transhumance	38% (see Figure 9 below)
Building up food stocks	More practiced by sedentary people and often by transhumant people in the host areas (100%)
Sedentarisation	62%
Vaccination of animals	90%
Sale of animals	96%
Diversification of animal species	Very low
Searching for water points	100%
Fattening practice	98%

ADAPTATION STRATEGIES TO THE EFFECTS OF CLIMATE VARIABILITY (2/2)

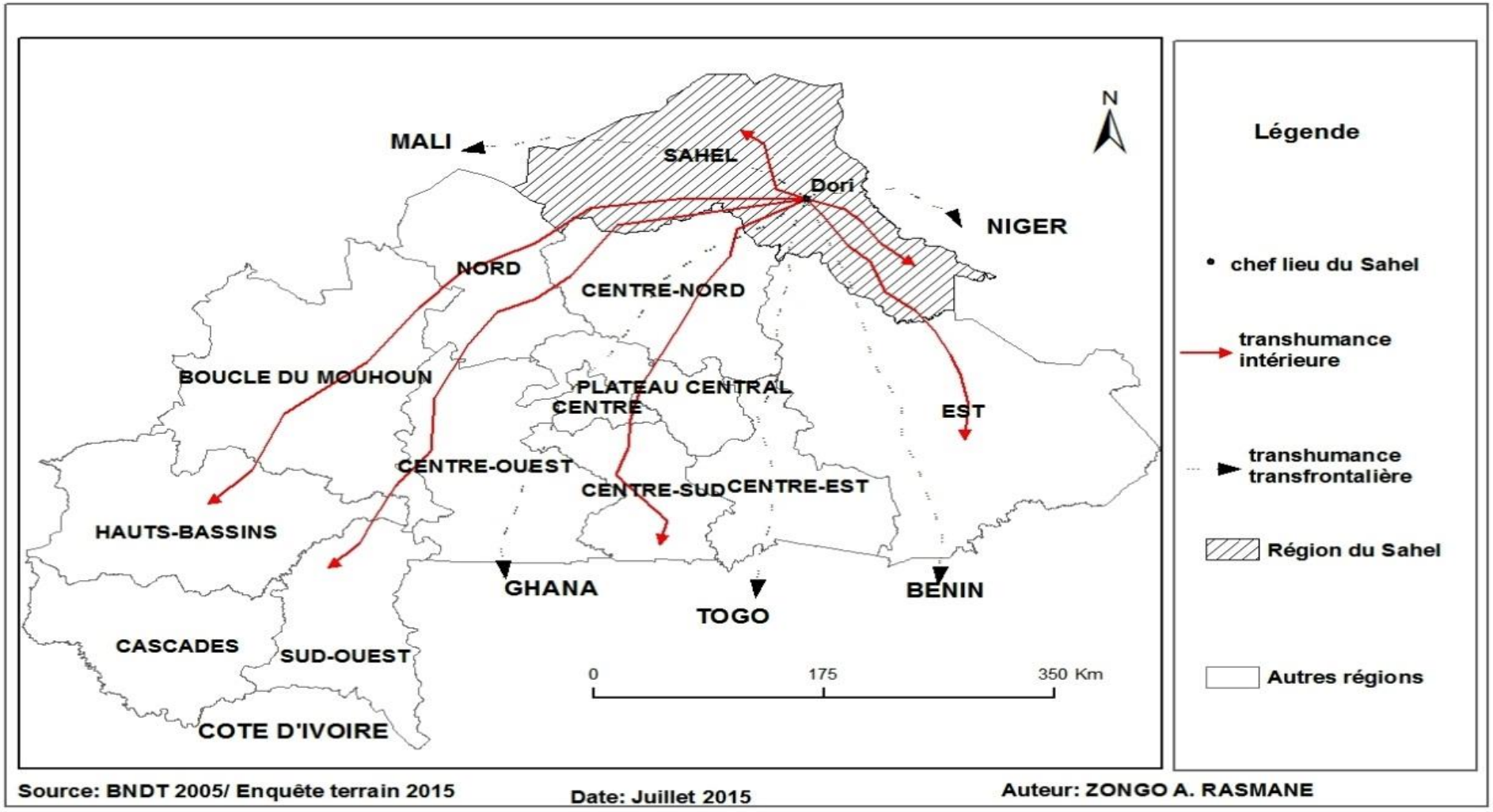

Figure 9: Host area for transhumants in Dori town

OTHER ADAPTATION STRATEGIES

Table 4: Other adaptation strategies

ADAPTATION STRATEGIES	FREQUENCY OF PRACTICE
Early sale of animals	98%
Access to information	42%
Use of SPAI	100%
Diversification of activities:	
Agriculture	94%
Trade	Very low
Handicrafts	16%

USE OF GEOMATICS TOOLS TO IMPROVE BREEDERS ADAPTATION

Table 5: Transition matrix

		2014					
1985		Champs	Plan d'eau	Steppe arborée	Steppe arbustive	Steppe herbeuse	Total
	Champs	39959,23	8,10	3947,07	8205,56	33052,30	85172,27
	Plan d'eau	208,44	376,20	1545,95	161,42	636,68	2928,69
	Steppe arborée	94,55	0,00	296,70	815,20	420,90	1627,35
	Steppe arbustive	365,42	0,00	272,31	2804,82	4156,38	7598,94
	Steppe herbeuse	31286,49	119,88	17573,25	18237,37	84530,74	151747,74
	Total	71914,14	504,18	23635,29	30224,37	122797,00	249074,98

USE OF GEOMATICS TOOLS TO IMPROVE BREEDERS ADAPTATION

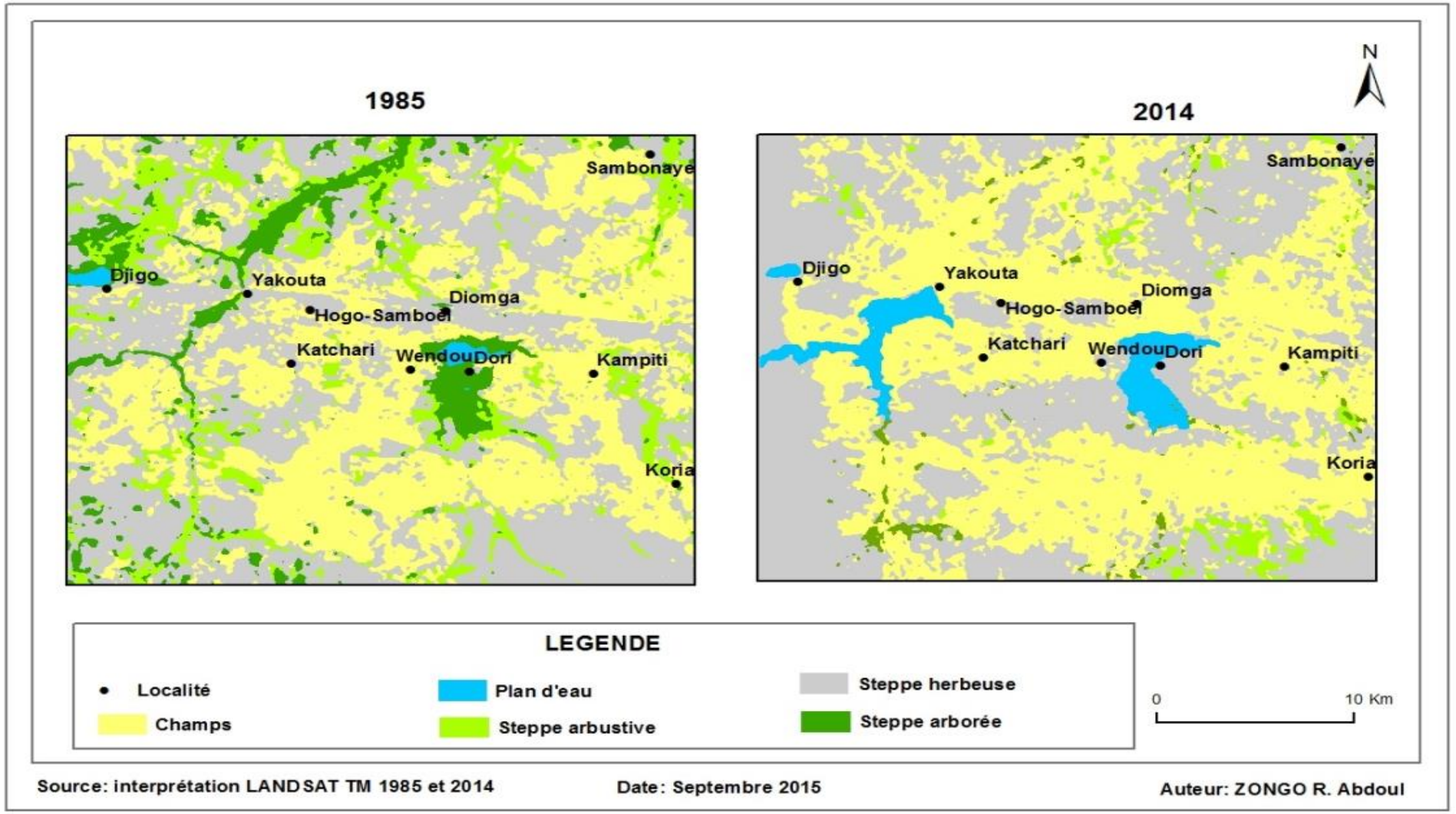

Figure 10: Land use/land cover of 1985 and 2014

PROPOSAL OF RESILIENCE STRATEGIES BASED ON GIS

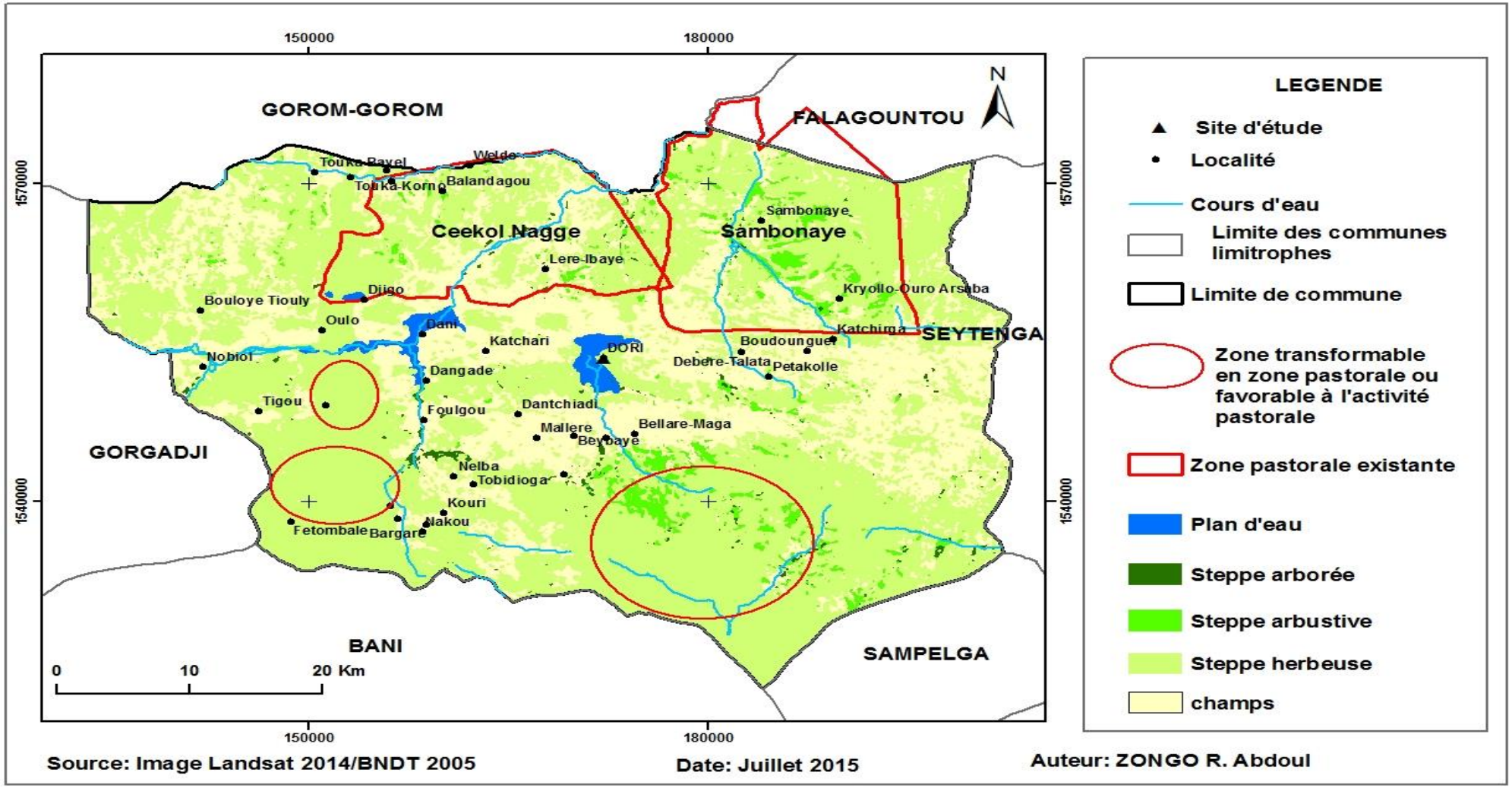

Figure 11: Identification of dry season grazing areas from Landsat 2014 images

CONCLUSION

- The herders are well aware of the effects of climate variability through the **decrease in rainfall, the increase, temperature and wind speed.** Therefore, the breeders develop local adaptation strategies to cope with the effects of climate variability.

- Geomatics tools are proving to be **very important for the management of pastoral resources, as they allow the choice of itineraries and help to reduce agro-breeders conflicts**. The only difficulty is the very high cost, the lack of knowledge and the lack of access by the agents of the technical services of livestock.

- The lack of financial means and cultural reasons on animal management limit the adaptation of the breeders.

- The disclosure of climatic information and the use of geomatic tools can improve the adaptation of breeders.

THANK YOU FOR YOUR ATTENTION