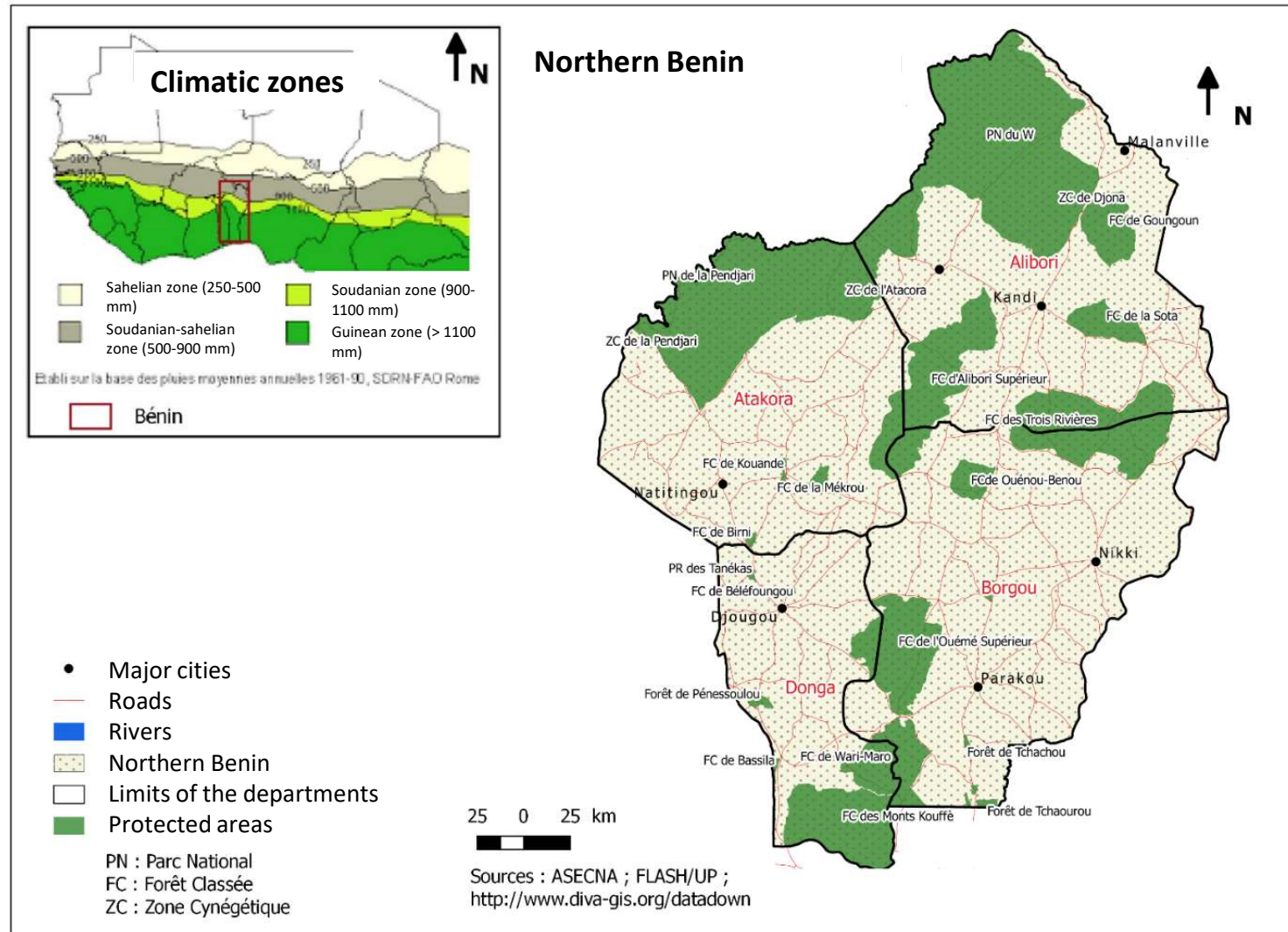


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New trends in deforestation in northern Benin

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# Region under study : the Northern part of Benin



## Set of data used

- Satellite imagery : Landsat 1979, 1992, 2002 and 2018
- demographic data: 1979, 1992, 2002 and 2013
- Crop production at municipal scale from 1995 to 2016

# Between 1979 and 2018 : the loss of forest cover

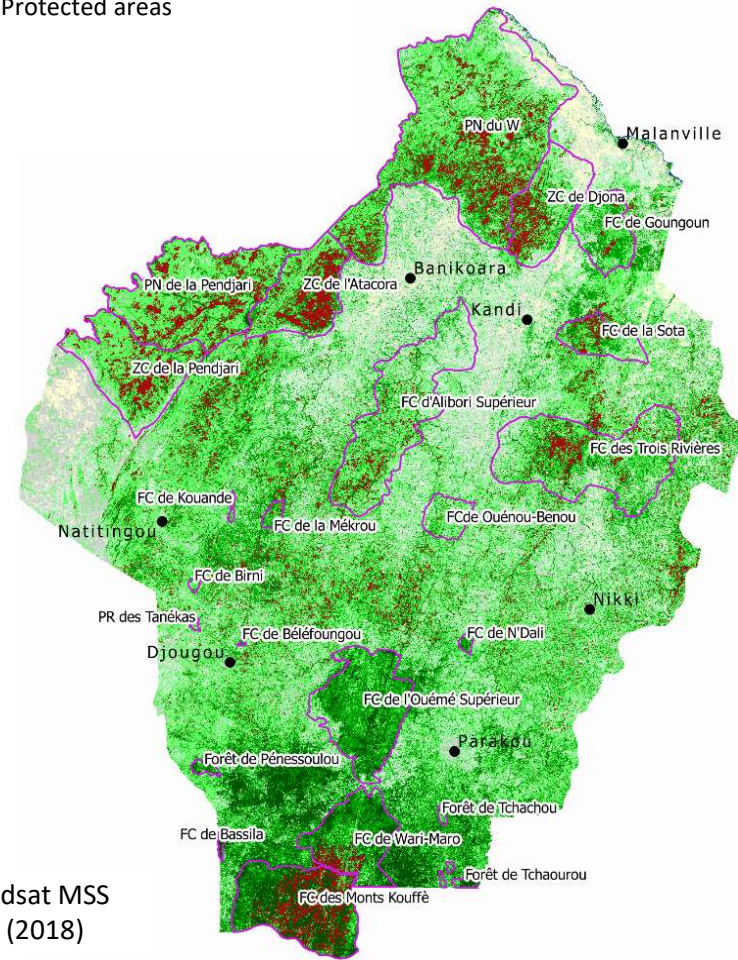
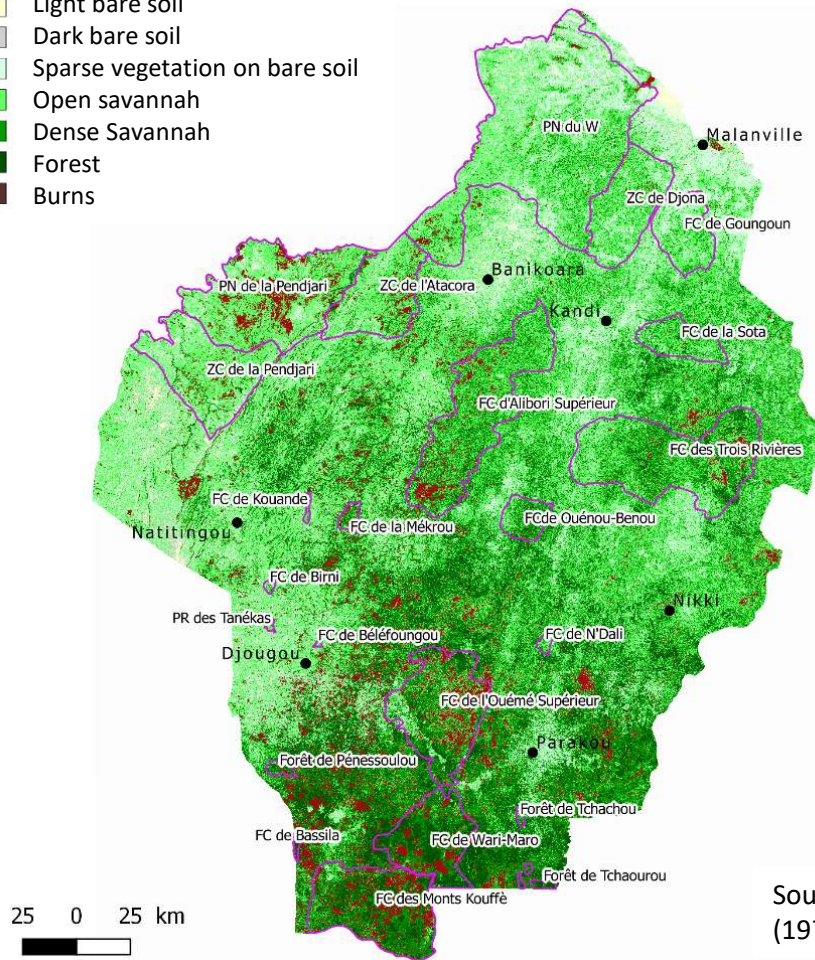
1979

2018

## Lands cover types

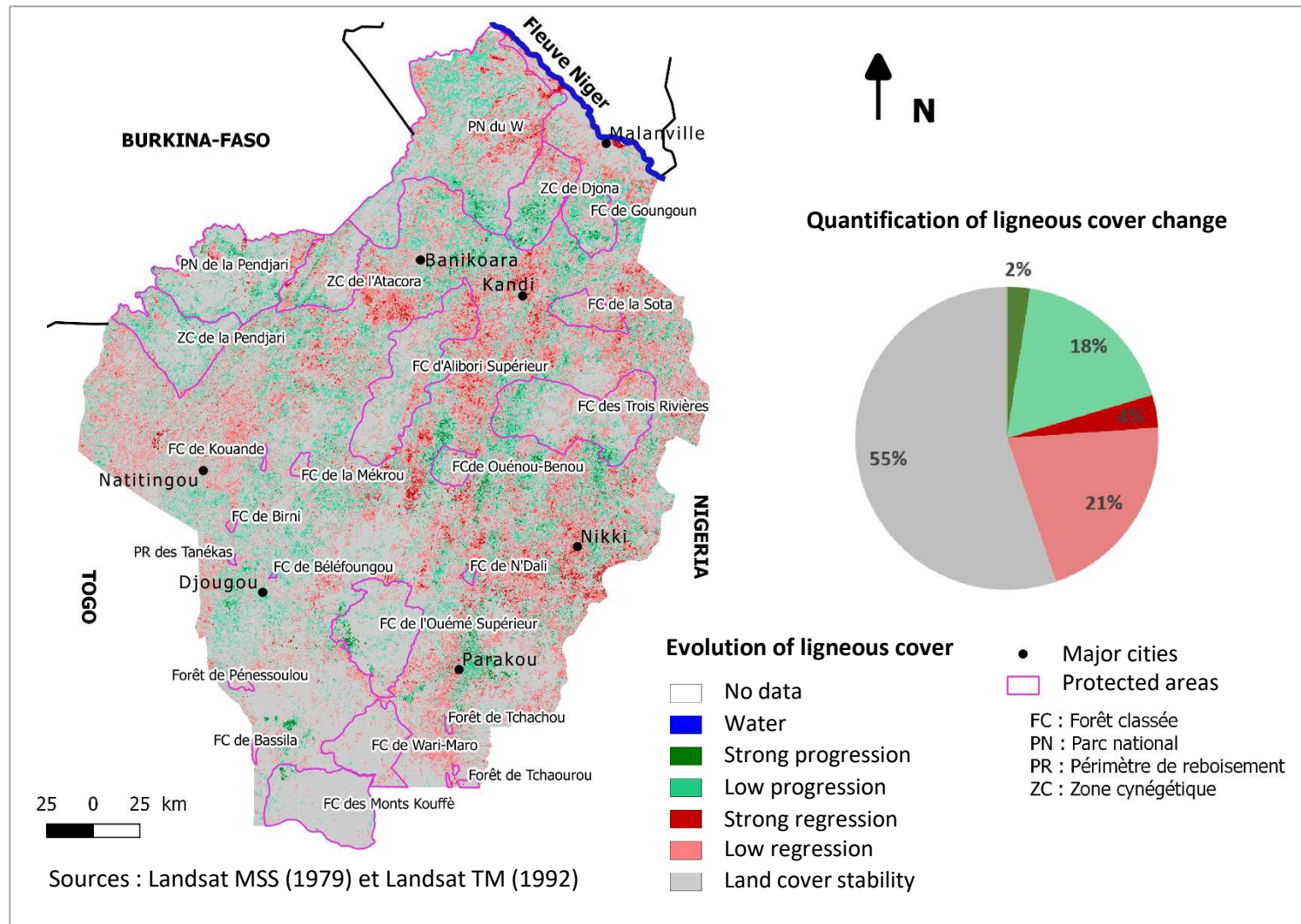
- Water
- Light bare soil
- Dark bare soil
- Sparse vegetation on bare soil
- Open savannah
- Dense Savannah
- Forest
- Burns

- Major cities
- Protected areas

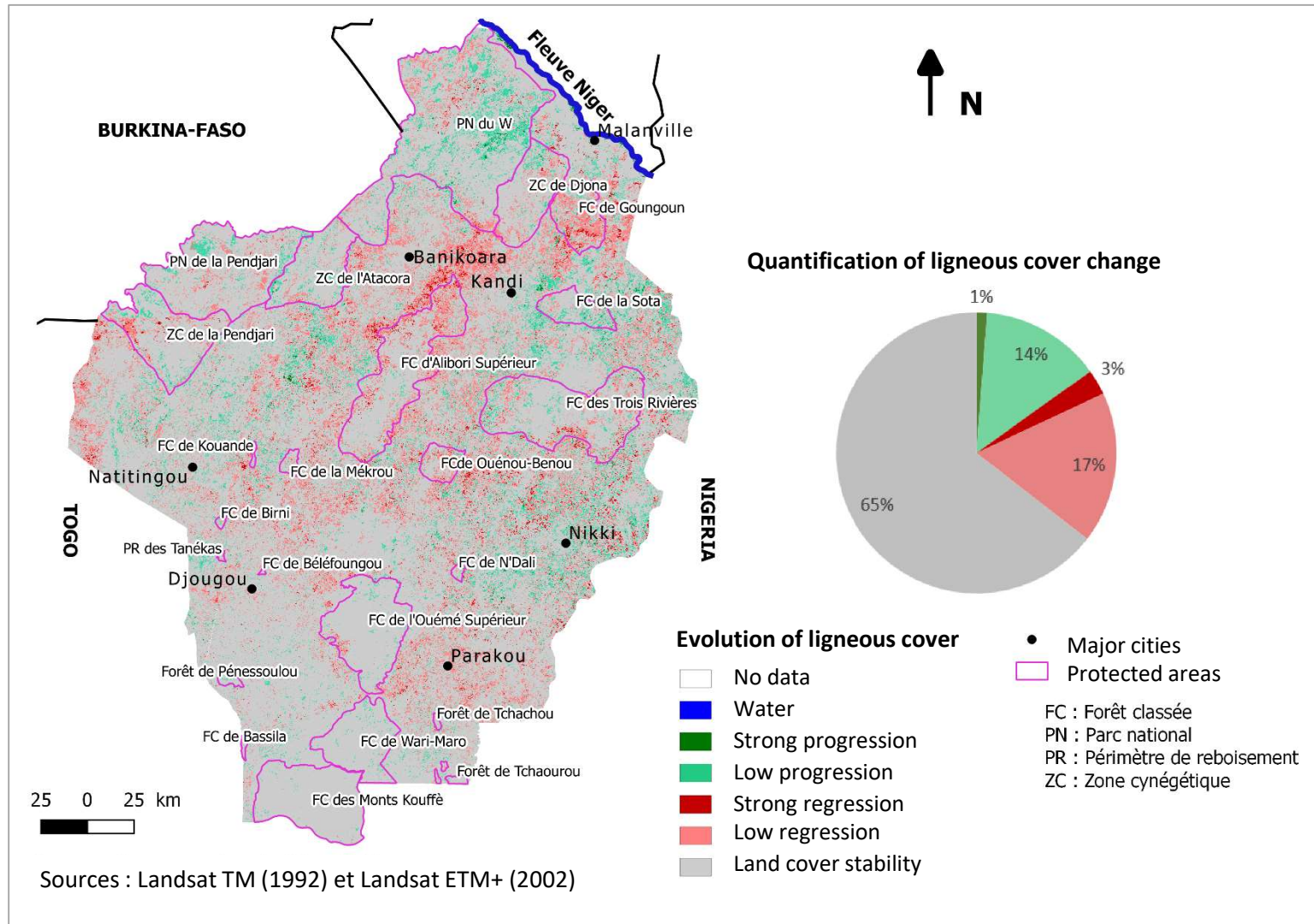


Sources : Landsat MSS (1979) et OLI (2018)

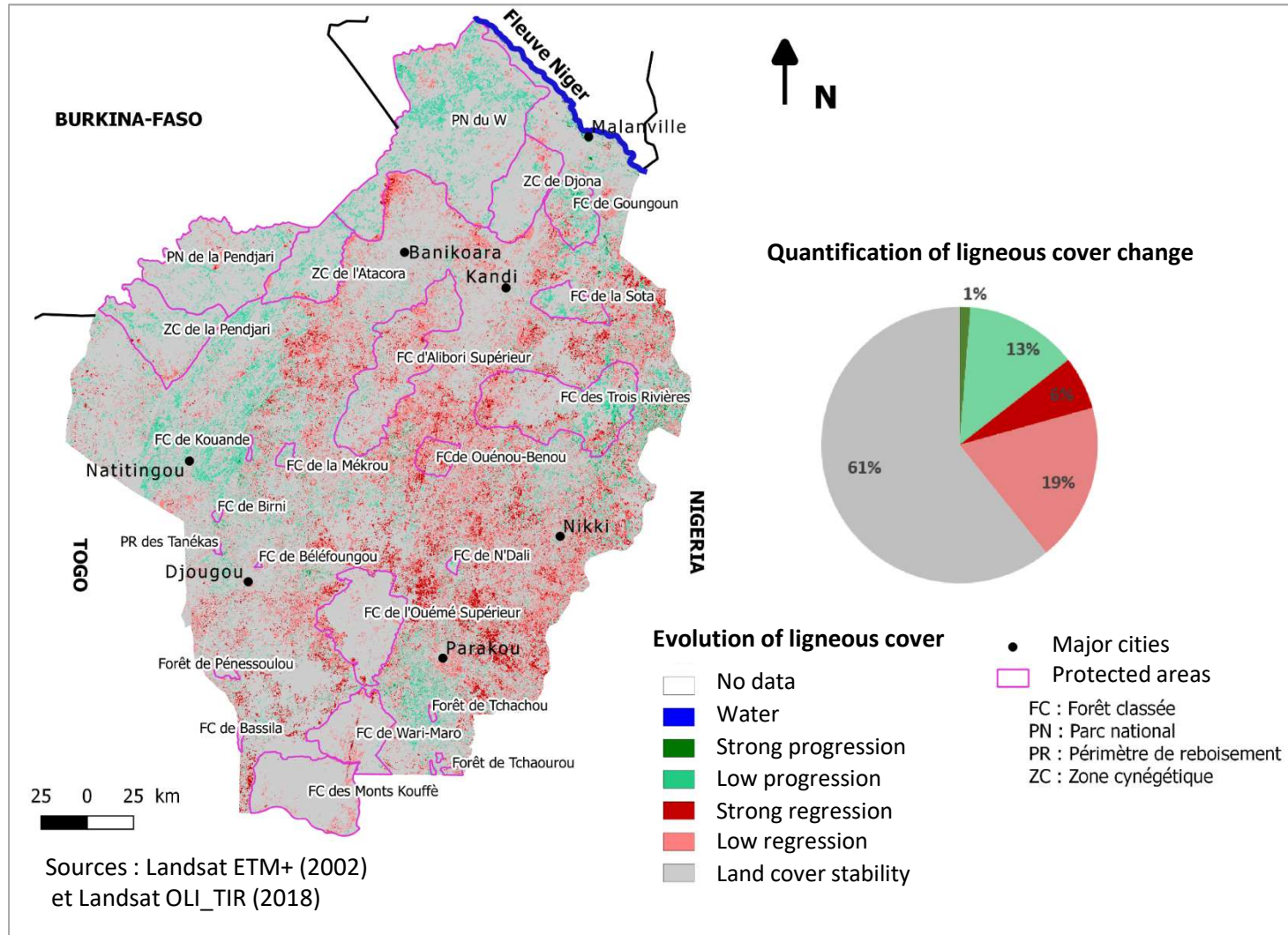
# Land cover change from 1979 to 1992 (period of drought)



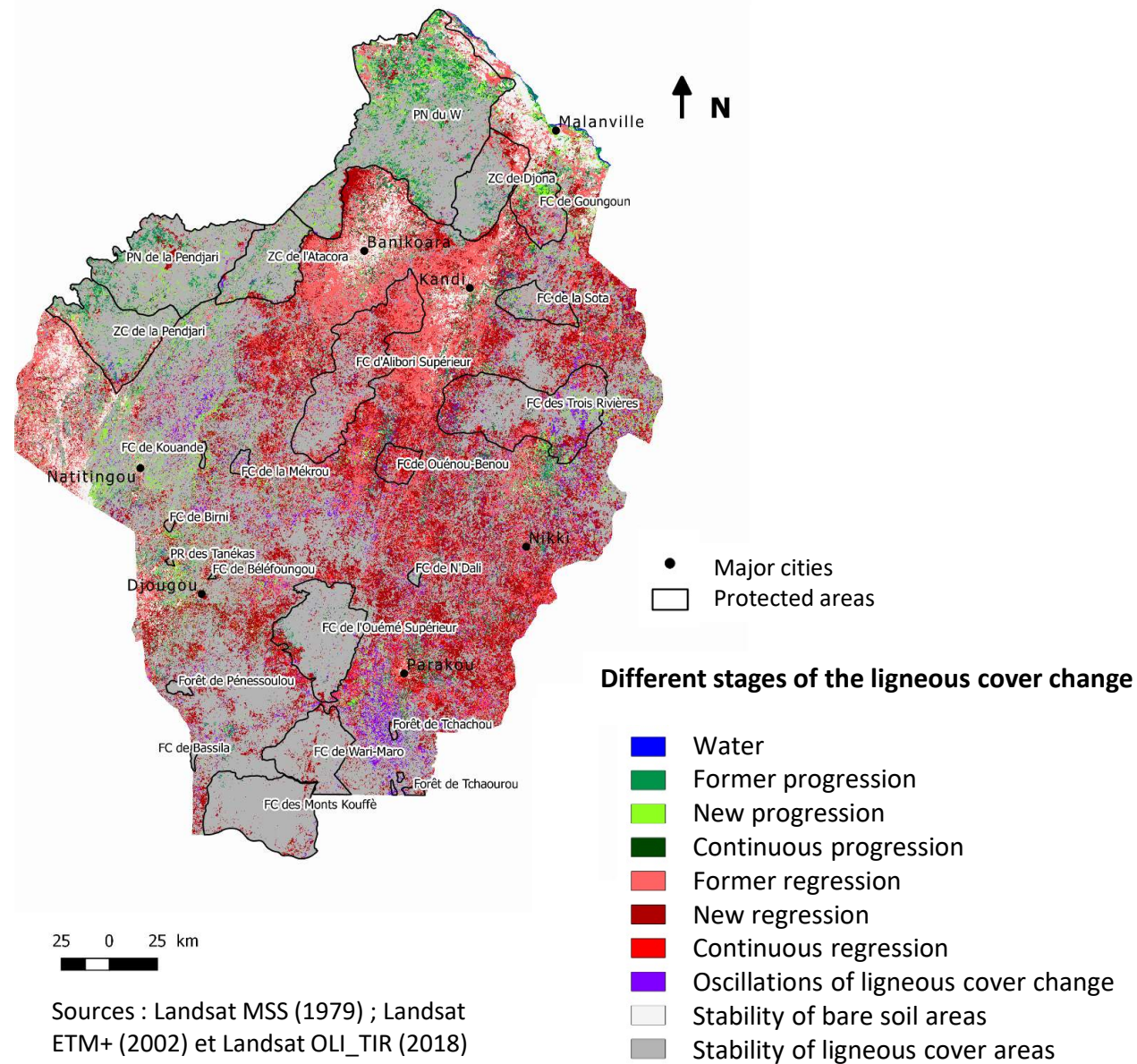
# From 1992 to 2002 : after the dry period, deforestation is continuing



# From 2002 to 2018 : deforestation is continuing.....



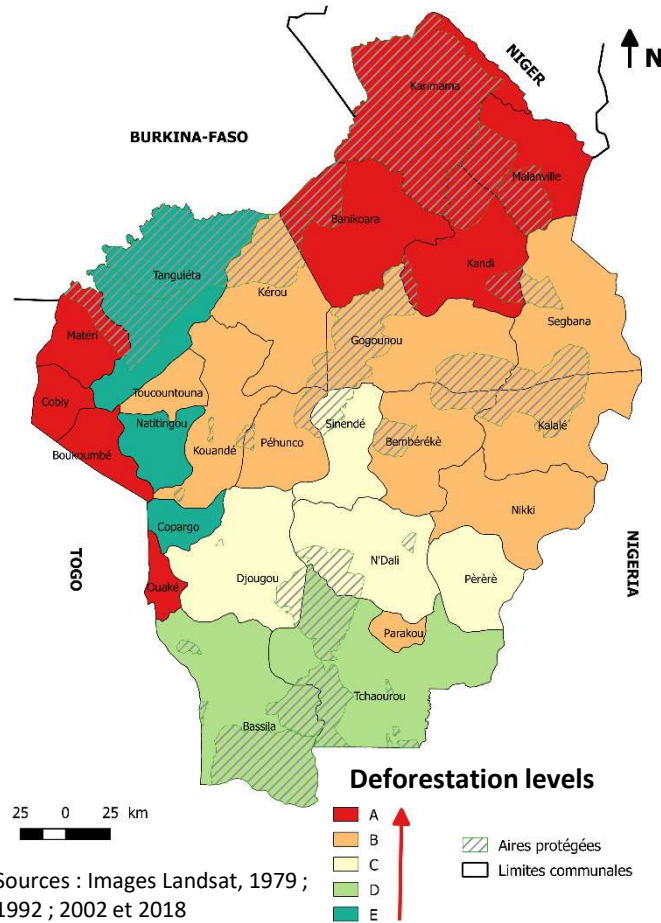
# From 1979 to 2018 : the different deforestation stages



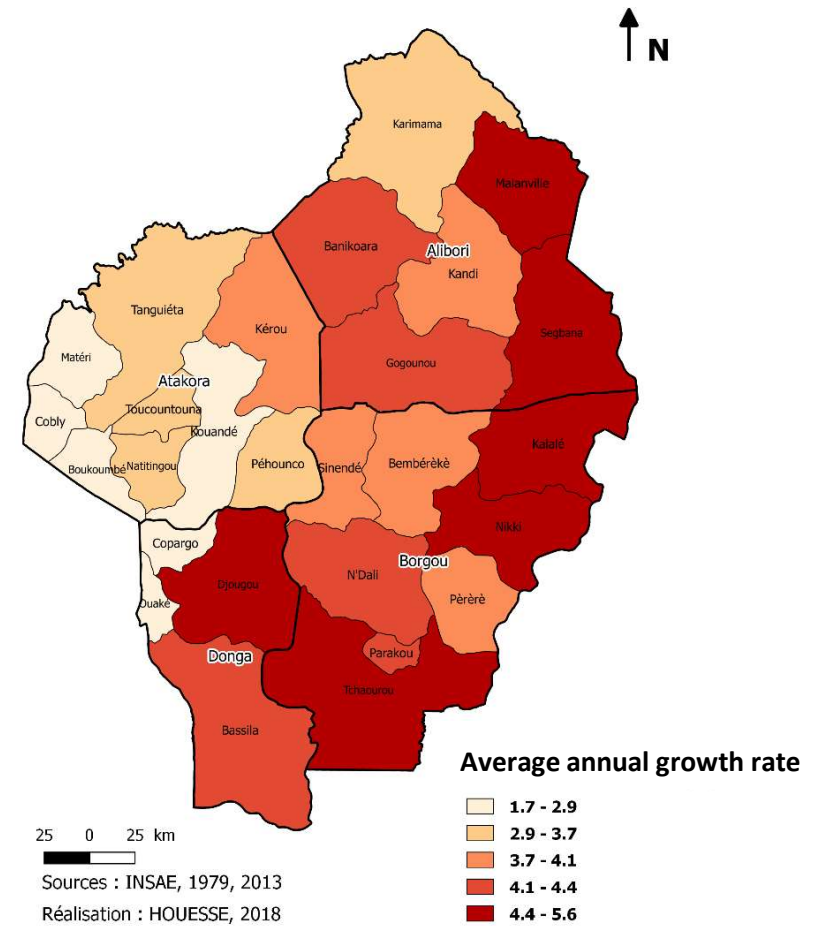


# Deforestation vs population growth

Deforestation rate within unprotected areas from 1979 to 2018

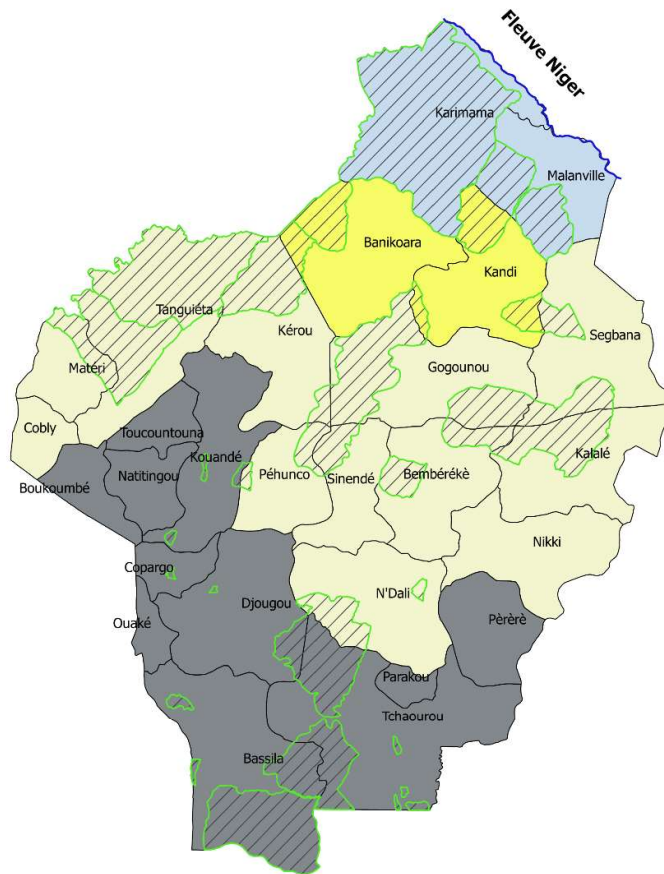


Average annual population growth from 1979 to 2013



# Agricultural production vs deforestation

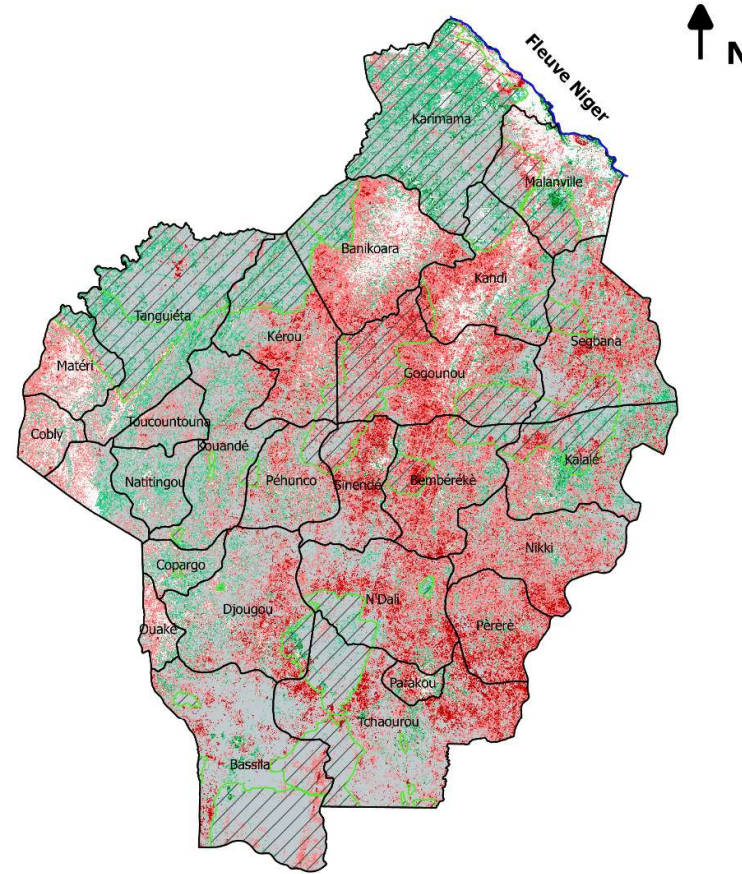
## Crop productions



**Main crop productions at communal level**

- Cotton, corn and sorghum
- Tubers, corn and cotton
- Vegetable and fruit crop, corn and sorghum
- Tubers and corn

## Evolution of ligneous cover from 1979 to 2018



**Evolution of ligneous cover**

- Strong progression
- Low progression
- Strong regression
- Low regression
- Bare soil stability
- Ligneous couvert stability

Protected areas

25 0 25 km

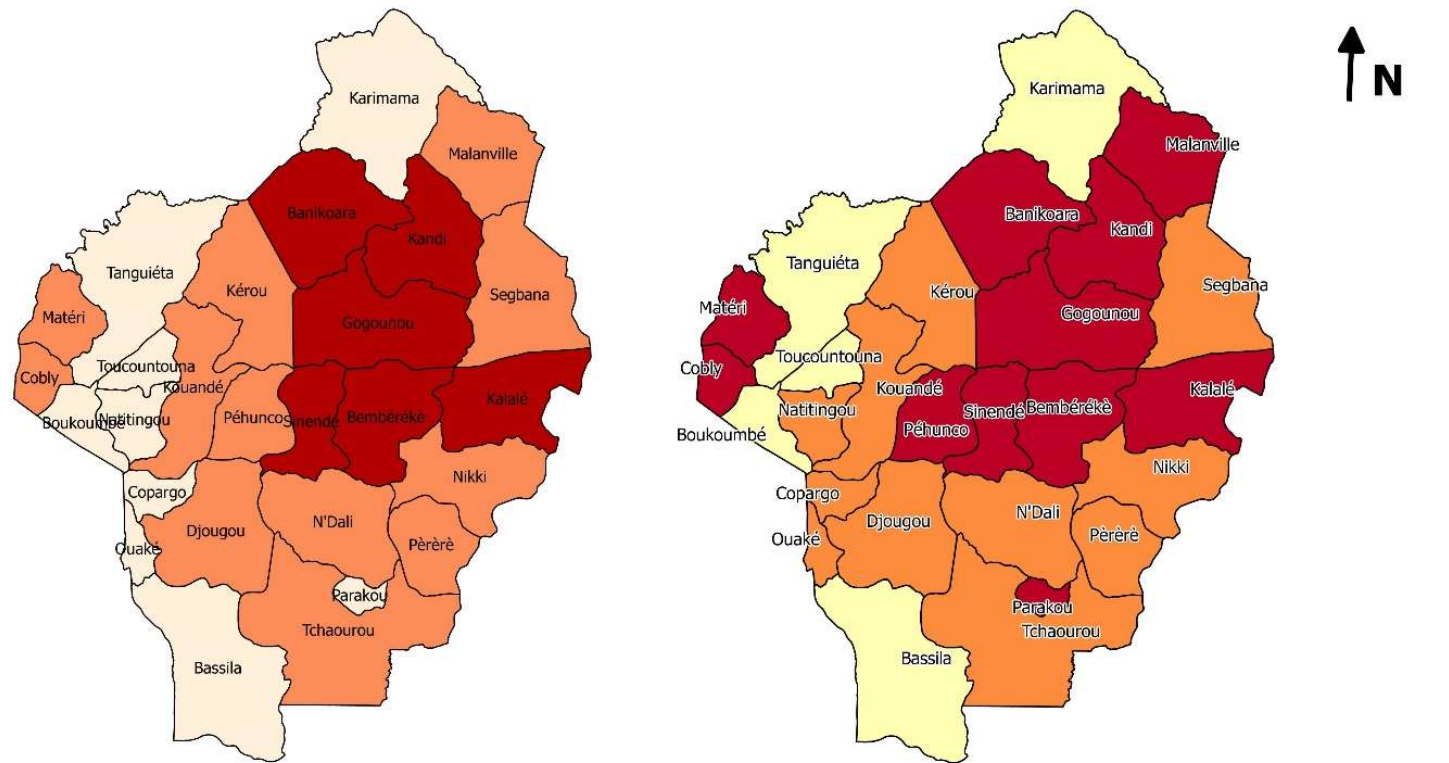


Sources : MAEP-Bénin, 2016 ;  
Landsat 1979 et 2018

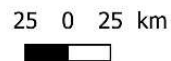
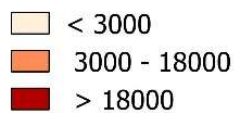
Réalisation : HOUESSE, 2019

# Cotton production vs deforestation before the cotton crisis (2005)

## Average cotton production before the crisis vs deforestation rate

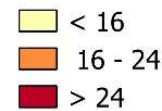


Average annual cotton production (T) from 1995 to 2005



Sources : MAEP, 2017  
Images Landsat 1992 et 2002

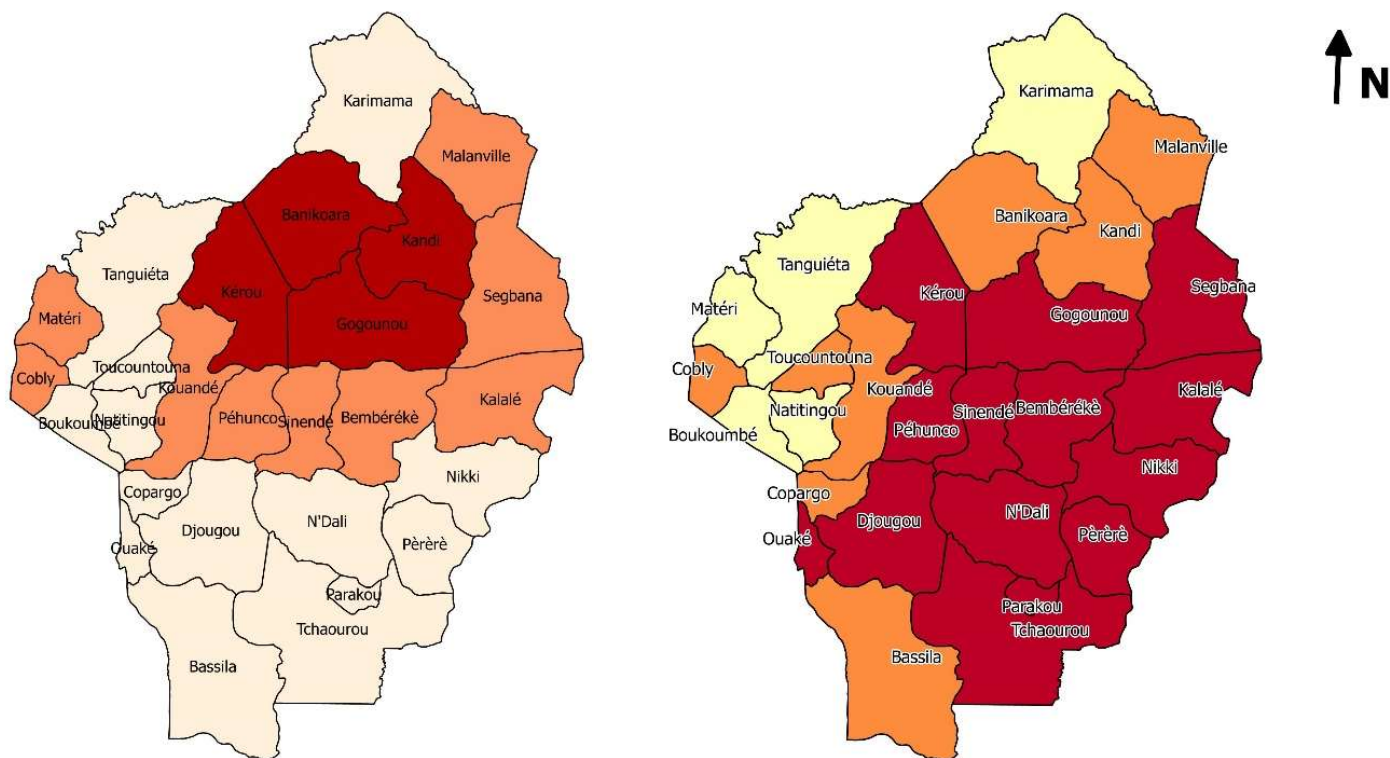
Deforestation rate (in %) from 1992 to 2002



Réalisation : HOUESSE, 2019


# After the cotton crisis, deforestation is continuing.....

## Average cotton production after the crisis vs deforestation rate



Average annual cotton production (T) from 2005 to 2016

- < 3000
- 3000 - 18000
- > 18000

25 0 25 km  


Sources : MAEP, 2017  
 Images Landsat 2002 et 2018

Deforestation rate (in %) from 2002 to 2018

- < 16
- 16 - 24
- > 24

Réalisation : HOUESSE, 2019

## Conclusions

- Population growth is not the only reason for deforestation in rural areas
- From the 80's, cotton crop played a crucial role in deforestation ;
- After the cotton crisis, intensification of subsistence agriculture is also responsible for deforestation

Thanks ...

