



CCAFS site atlas

Yatenga / Tougou Burkina Faso

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)

Site Atlas

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Titles in this series aim to disseminate interim climate change, agriculture and food security research and practices and stimulate feedback from the scientific community.

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Introduction

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) seeks to promote a food-secure world through the provision of science-based efforts that support sustainable agriculture and enhance livelihoods while adapting to climate change and conserving natural resources and environmental services.

Climate change is an unprecedented threat to the food security of hundreds of millions of people who depend on small-scale agriculture for their livelihoods. Climate change affects agriculture and food security, and likewise, agriculture and natural resource management affect the climate system.

CCAFS has initially focused on three regions; East Africa (EA), West Africa (WA) and South Asia (SA) to carry out its research. The 15 CCAFS sites in these areas represent areas that are becoming both drier and wetter, and are focal locations that will generate results that can be applied and adapted to other regions worldwide. In this year, 2013, CCAFS is expanding its portfolio to additional sites in Latin America and South-East Asia.

These sites serve as the initial focus of CCAFS partnership-building and long-term research activities falling within the following CCAFS Research Themes; Adaptation to Progressive Climate Change, Adaptation through Managing Climate Risk, Pro-Poor Climate Change Mitigation and Integration for Decision Making. At all 15 CCAFS sites, baseline surveys have been conducted, including three levels of data collection and analysis at household, village and organizational levels (see: <http://ccafs.cgiar.org/resources/baseline-surveys>).

More information on CCAFS work in all the three regions can be accessed at www.ccafs.cgiar.org

To better understand the CCAFS sites' characteristics, a list of geospatial indicators for climate variability, bio-physical characteristics and socio-economic variables have been mapped into site atlases.

This Atlas was developed for the CCAFS site at Yatenga / Tougou in Burkina Faso, in West Africa Region.

CCAFS Sites: West Africa



- Burkina Faso: Yatenga (BF01)
- Ghana: Lawra-Jirapa (GH01)
- Mali: Segou (MA01)
- Niger: Kollo (NI01)
- Senegal: Kaffrine (SE01)

CCAFS Country Sites

Topography Yatenga

CCAFS Site BF01, Yatenga / Tougou. Burkina Faso



Coordinates of the CCAFS Baseline Sampling frame

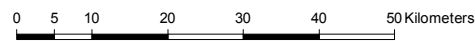
- 2.113W 13.828N
- 2.113W 13.554N
- 2.391W 13.554N
- 2.391W 13.828N



Sampling frame size: 30km x 30km

- Town
- Settlement
- Road
- Railway
- River
- Open Water

Scale 1:1,000,000








1 cm = 10 km

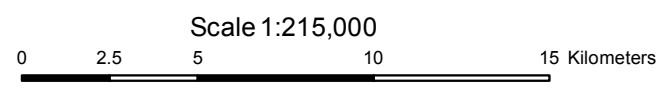
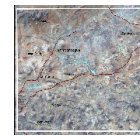
Satellite Image Tougo



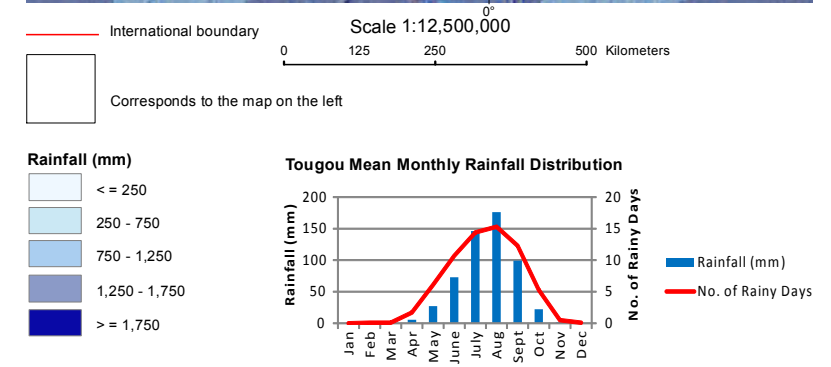
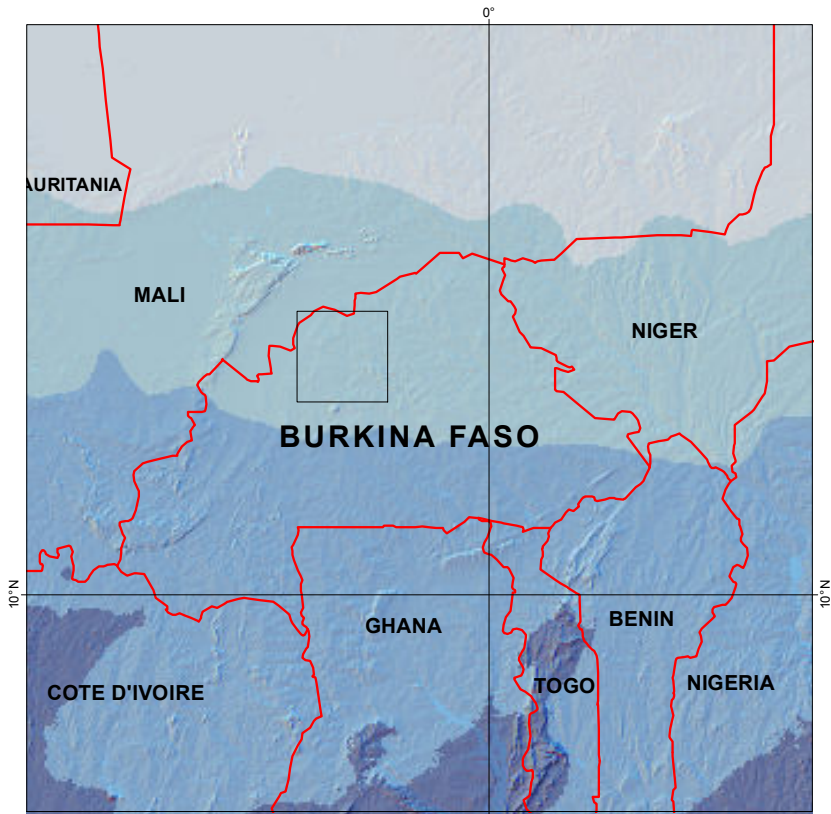
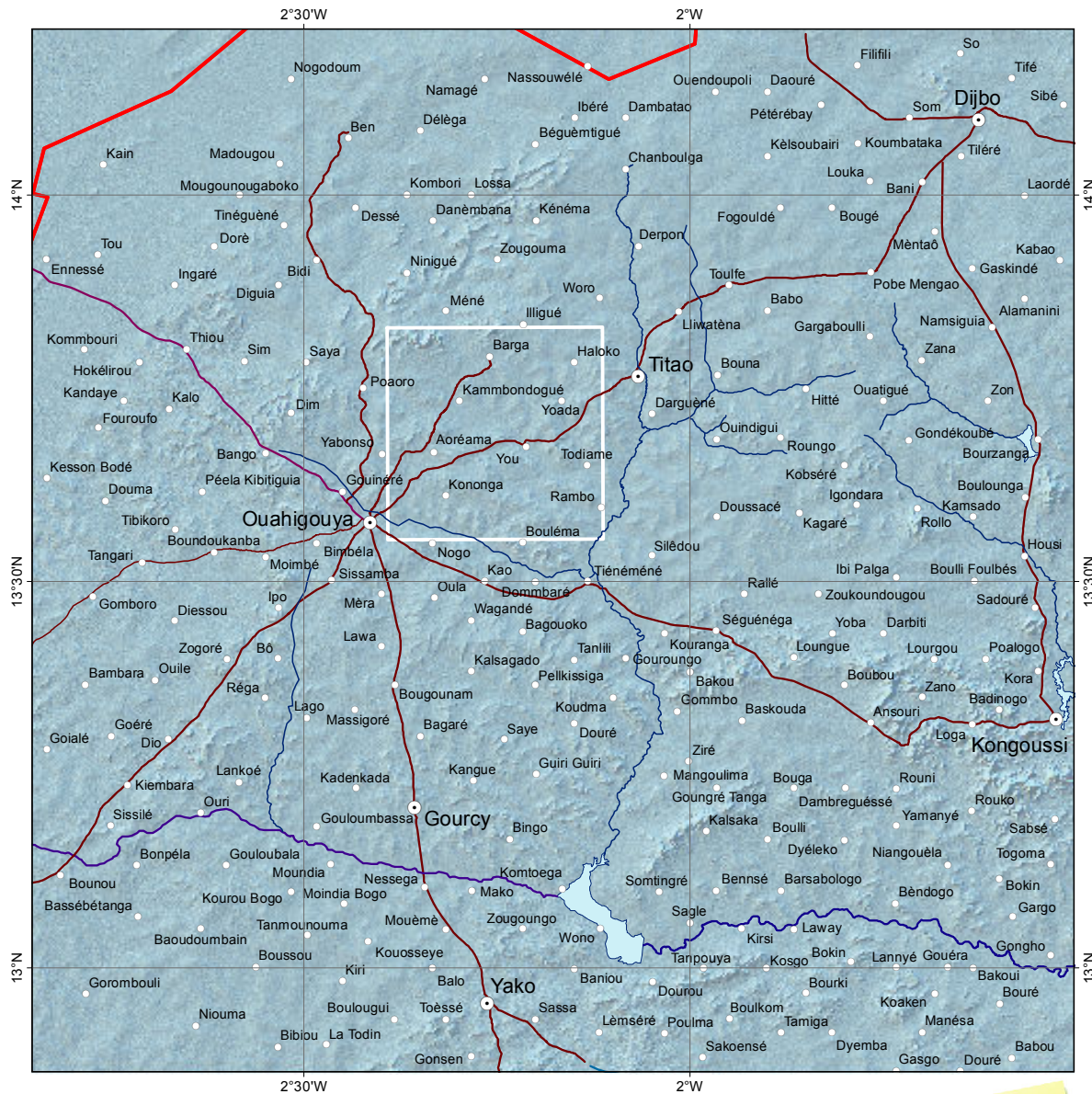
RapidEye imagery from 27-04-2011
 at 5m ground resolution

HBS= Household Baseline Survey
 VBS= Village Baseline Survey
 OBS= Organizational Baseline Survey

-  Road
-  River
-  Settlement
-  CCAFS VBS/OBS village
-  CCAFS HBS villages



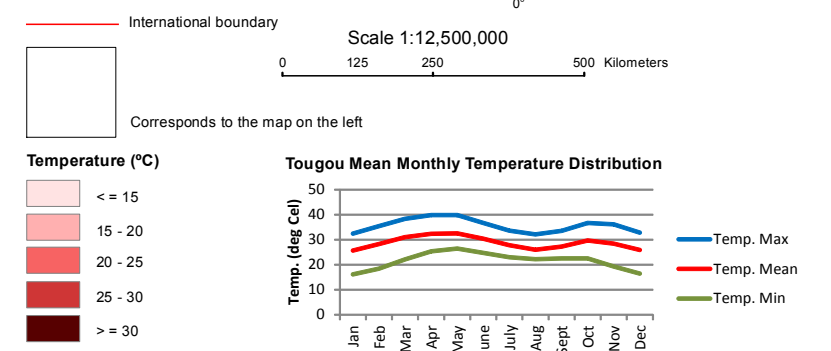
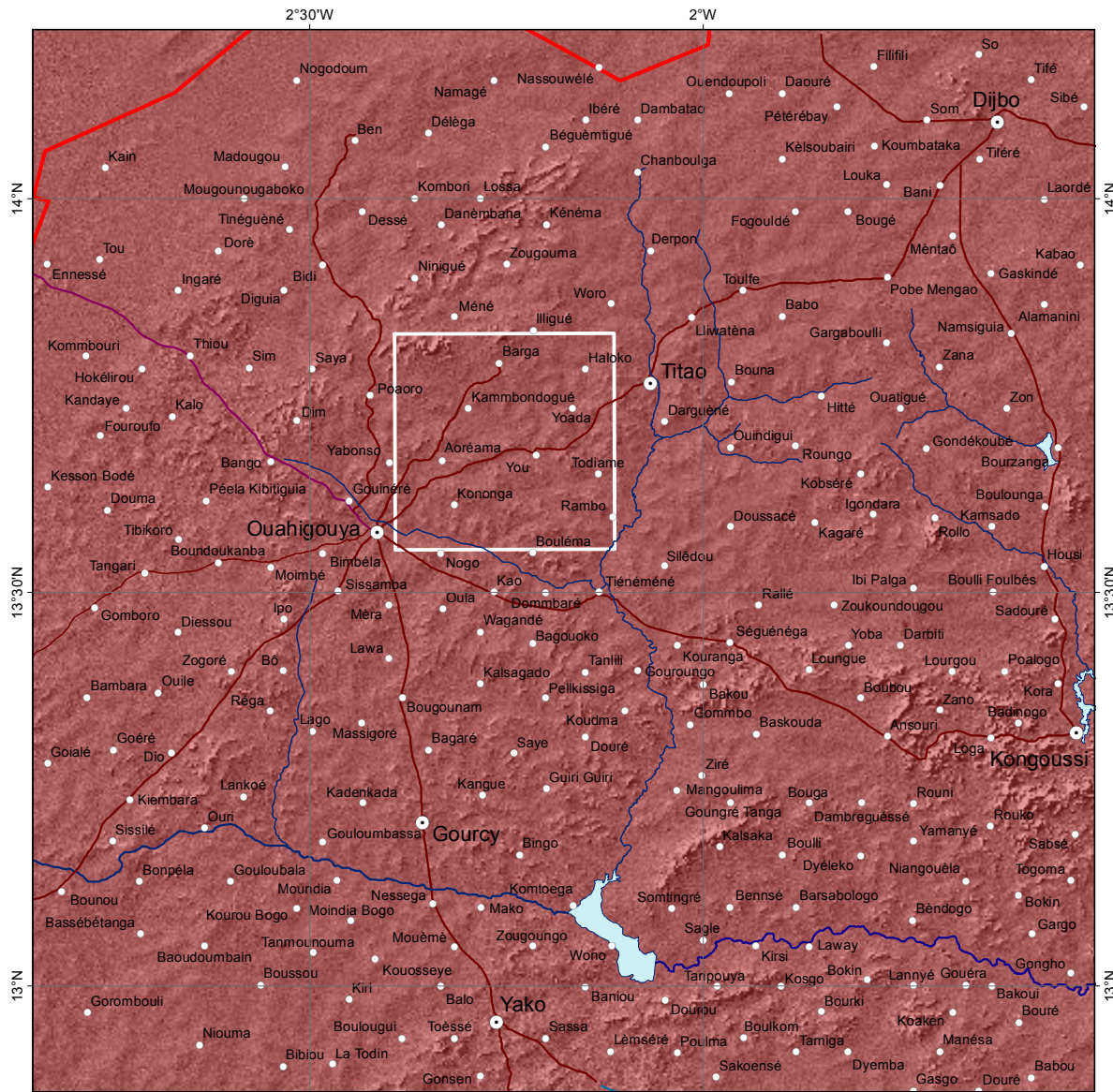
Annual Rainfall



Annual Rainfall data of current interpolations of observed data, representative of 1950 - 2000

Citation: Hijmans et al (2005)

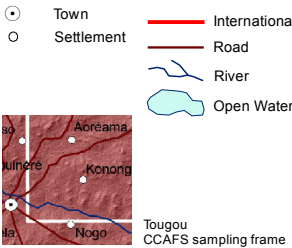
Annual Temperature



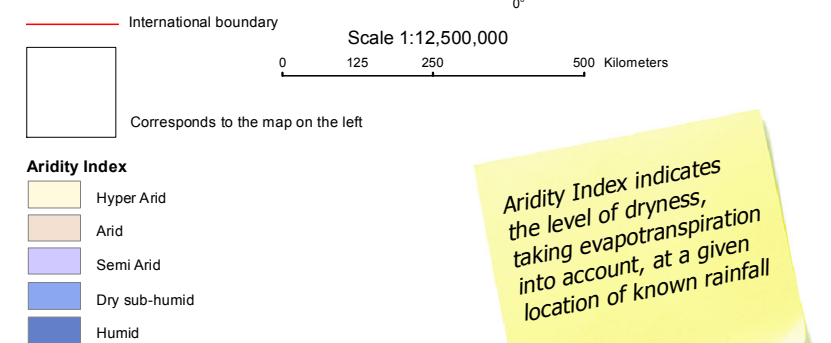
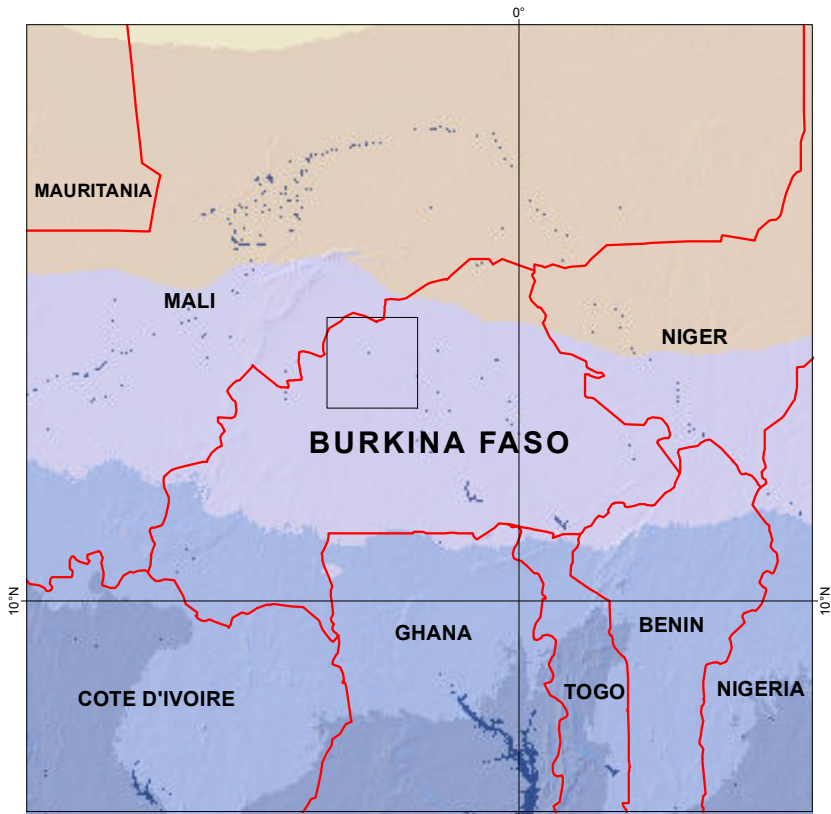
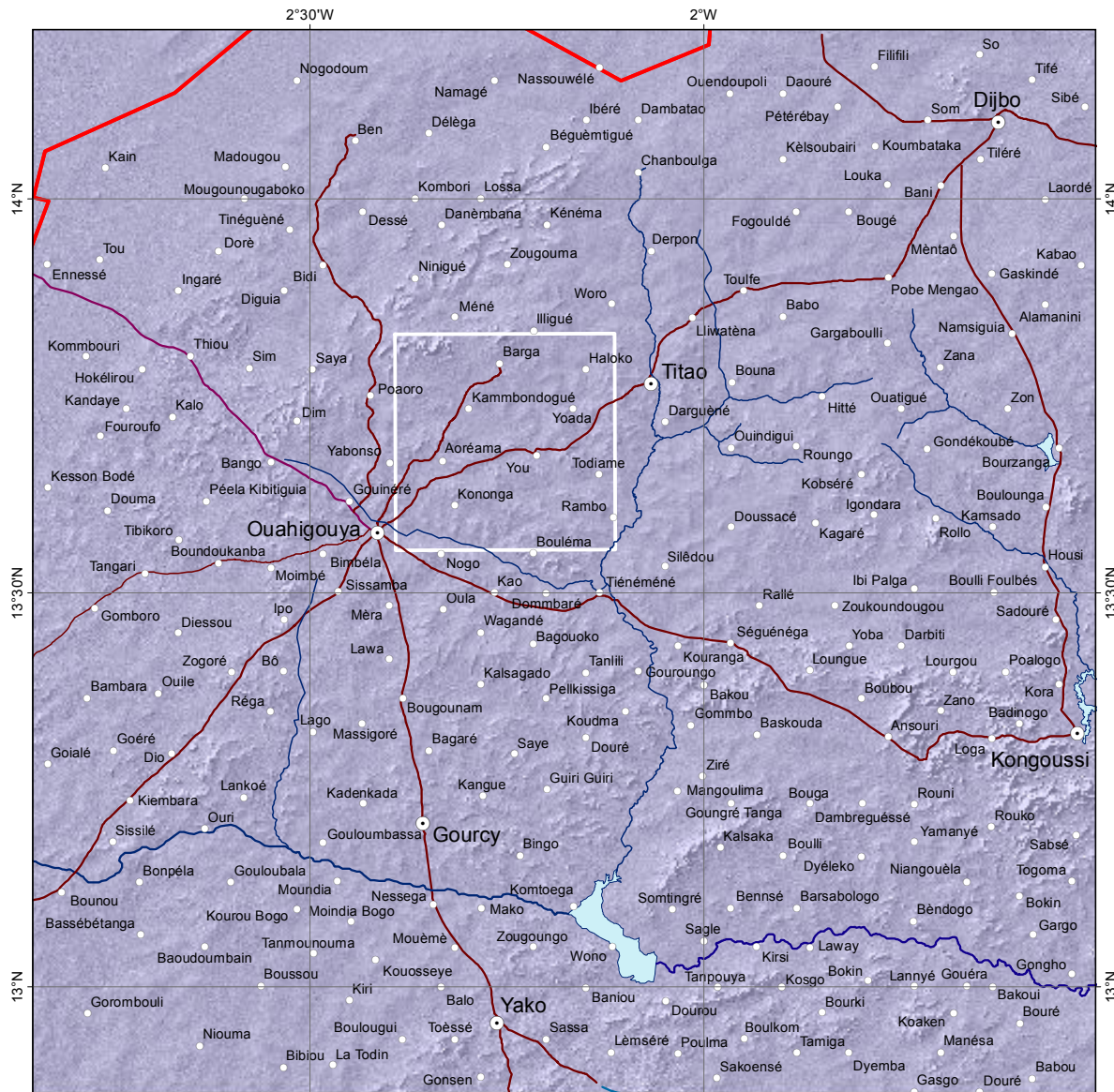
Citation: Jones et al (2002)

Citation: Hijmans et al (2005)

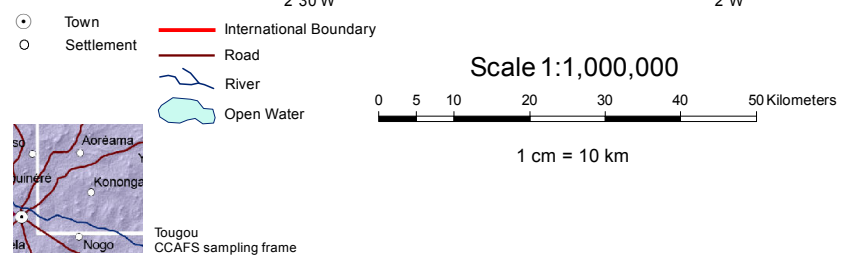
Annual Temperature represents annual temperature data of current interpolations of observed data, averaged for 1950 - 2000



Aridity Index

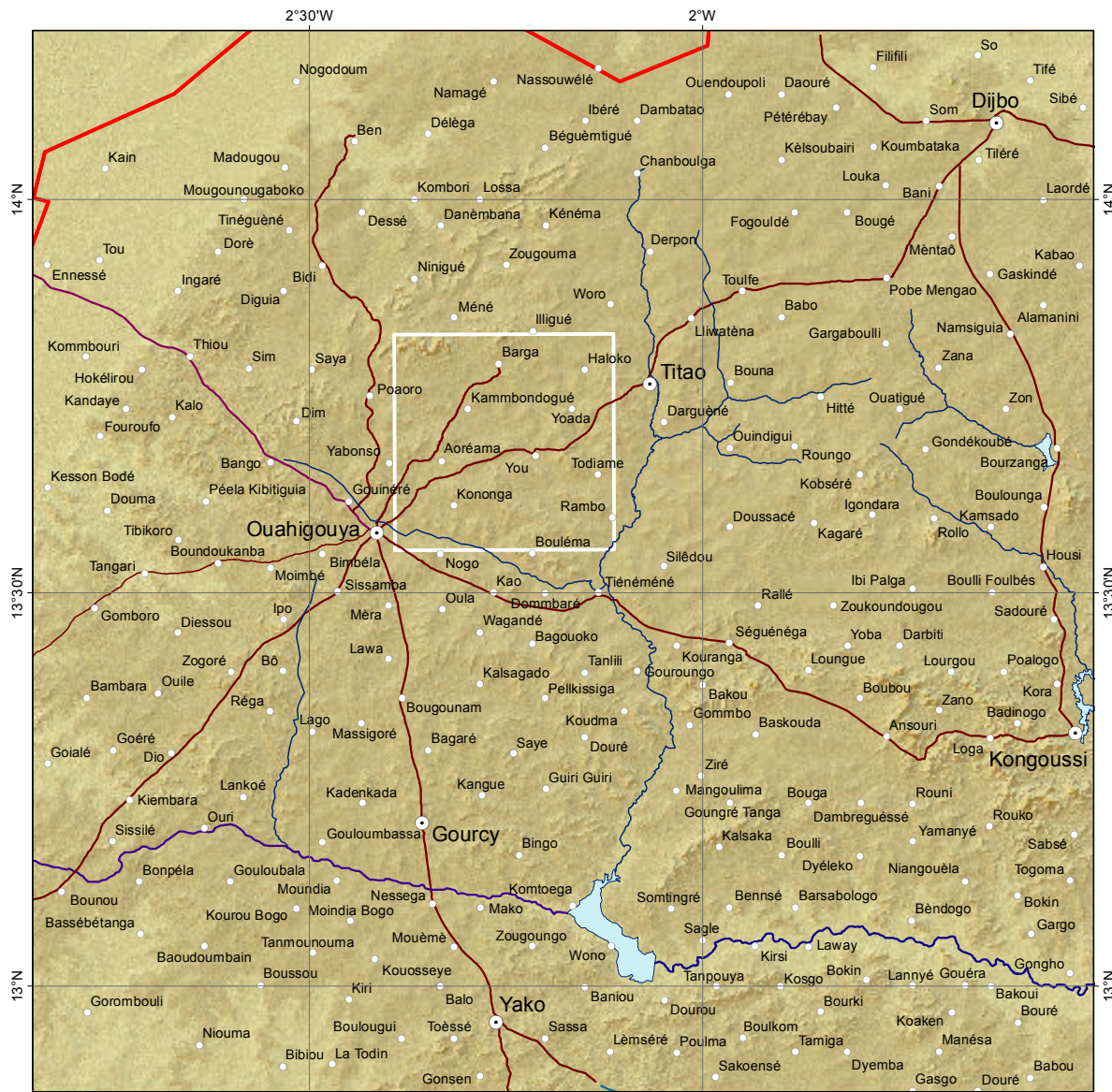


Aridity Index indicates the level of dryness, taking evapotranspiration into account, at a given location of known rainfall



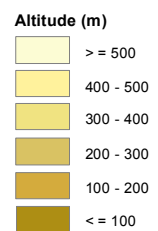
Citation: Hijmans et al (2005)

Altitude



Scale 1:12,500,000
0 125 250 500 Kilometers

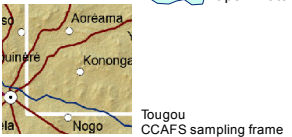
Corresponds to the map on the left



Altitude indicates the height above sea level in meters

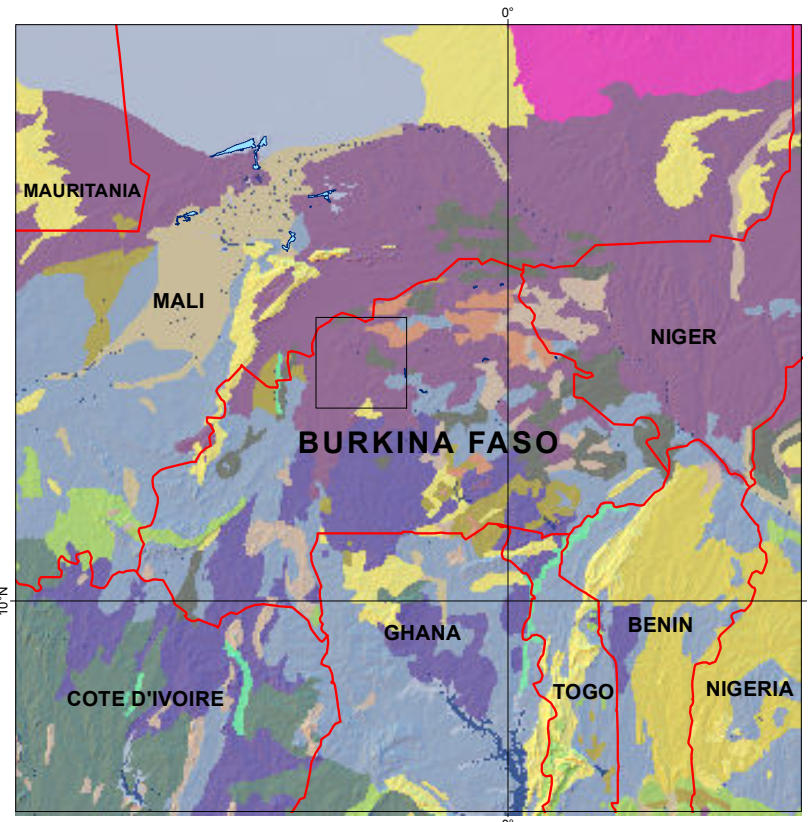
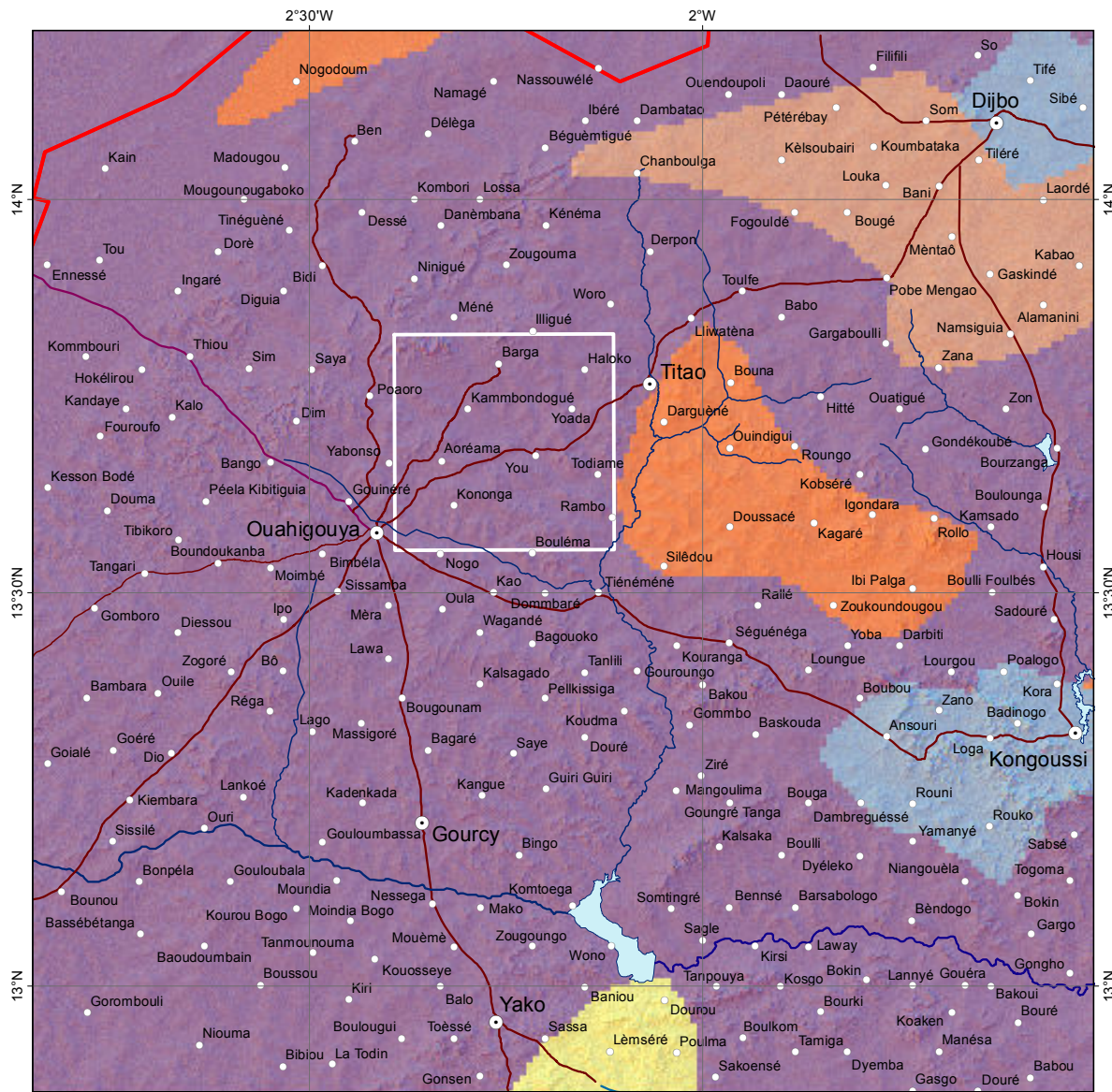
Scale 1:1,000,000
0 5 10 20 30 40 50 Kilometers
1 cm = 10 km

- Town
- Settlement
- International Boundary
- Road
- River
- Open Water



Citation: Jarvis et al (2008)

Soil Type



International boundary
 Scale 1:12,500,000
 0 125 250 500 Kilometers

Corresponds to the map on the left

Soil Type *

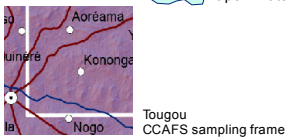
- Arenosols
- Leptosols
- Lixisols
- Planosols
- Regosols

* Legend corresponds to left map

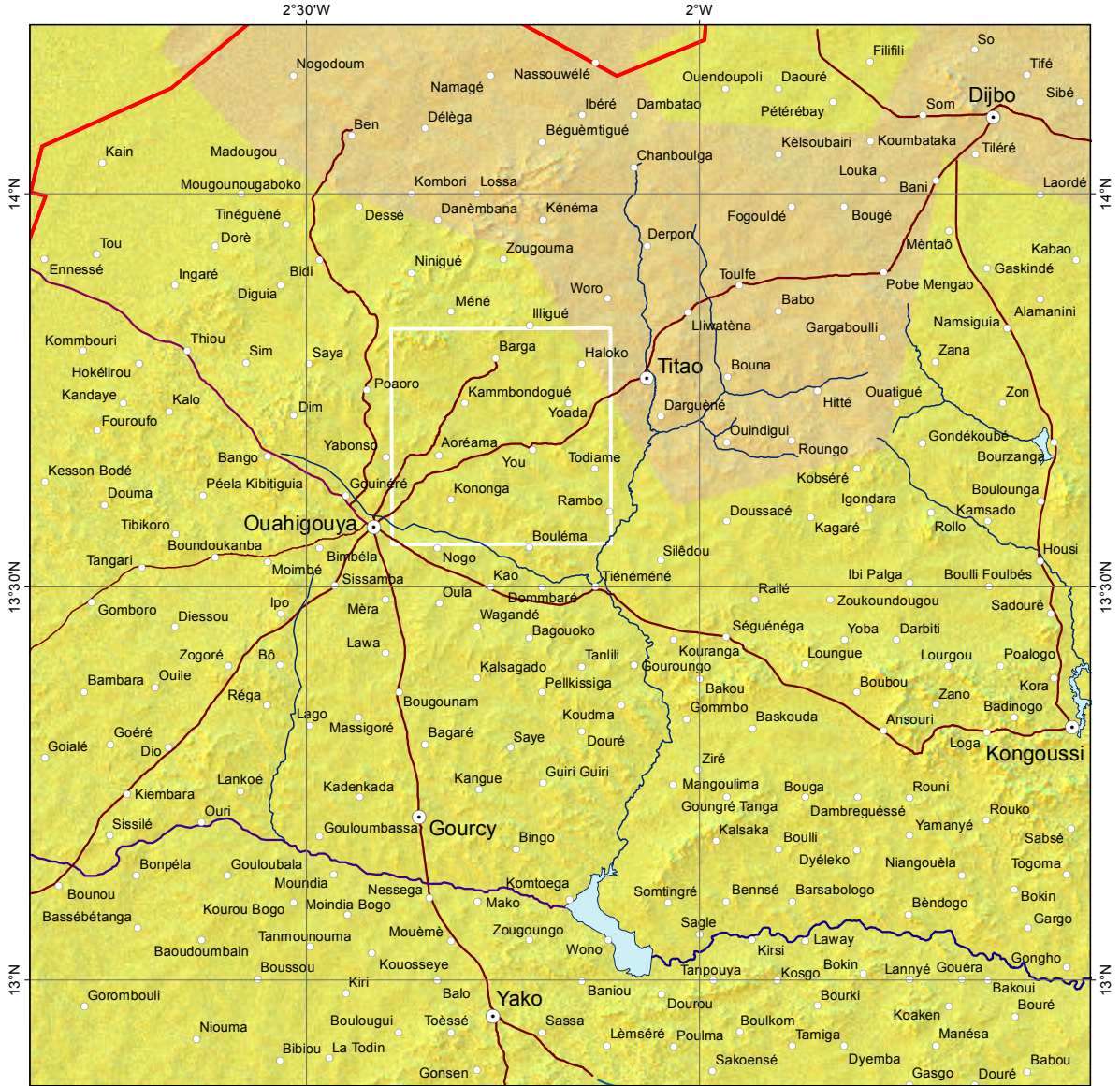
Soil Type refers to the soil group as per the FAO classification. Soil groups are defined by their parent material and morphogenetic characteristics in terms of texture (sand, silt and clay content), as well as organic matter content.

Town
 Settlement
 International Boundary
 Road
 River
 Open Water

Scale 1:1,000,000
 0 5 10 20 30 40 50 Kilometers
 1 cm = 10 km



Agro-Ecological Zones



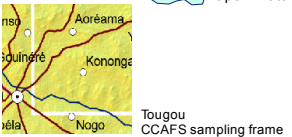
International boundary
 Scale 1:12,500,000
 0 125 250 500 Kilometers

Corresponds to the map on the left

Agro-Ecological Zones *
 Arid/Sahel Savanna
 Semi-arid/Sudan Savanna
 * Legend corresponds to left map

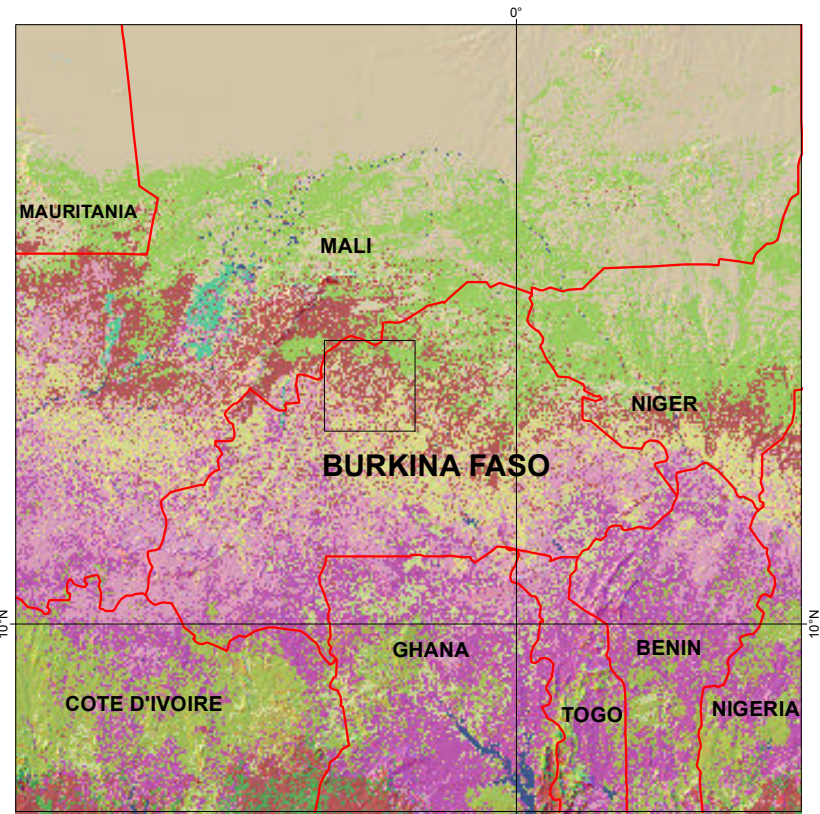
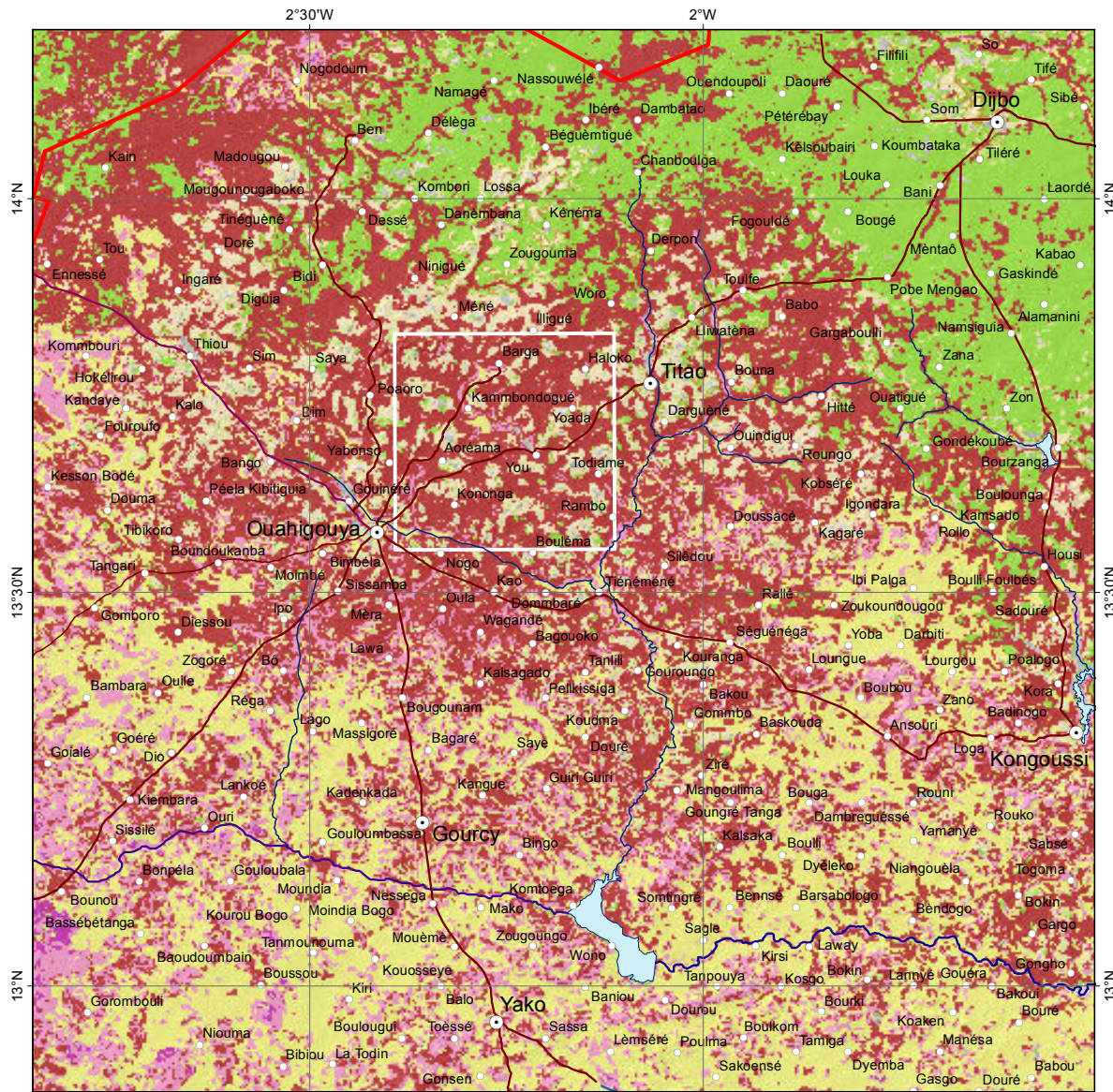
Agro-Ecological Zones indicate the division of land areas that have similar characteristics related to land suitability, potential agricultural production and environmental impact.

○ Town
 ○ Settlement
 — International Boundary
 — Road
 — River
 — Open Water
 Scale 1:1,000,000
 0 5 10 20 30 40 50 Kilometers
 1 cm = 10 km



Citation: FAO (2008)

Landcover



— International boundary
 Scale 1:12,500,000
 0 125 250 500 Kilometers
 □ Corresponds to the map on the left

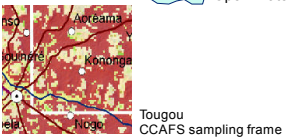
- Landcover ***
- Rainfed croplands
 - Mosaic Croplands/Vegetation
 - Mosaic Vegetation/Croplands
 - Mosaic Grassland/Forest-Shrubland
 - Mosaic Forest-Shrubland/Grassland
 - Closed to open shrubland
 - Closed to open grassland
 - Sparse vegetation

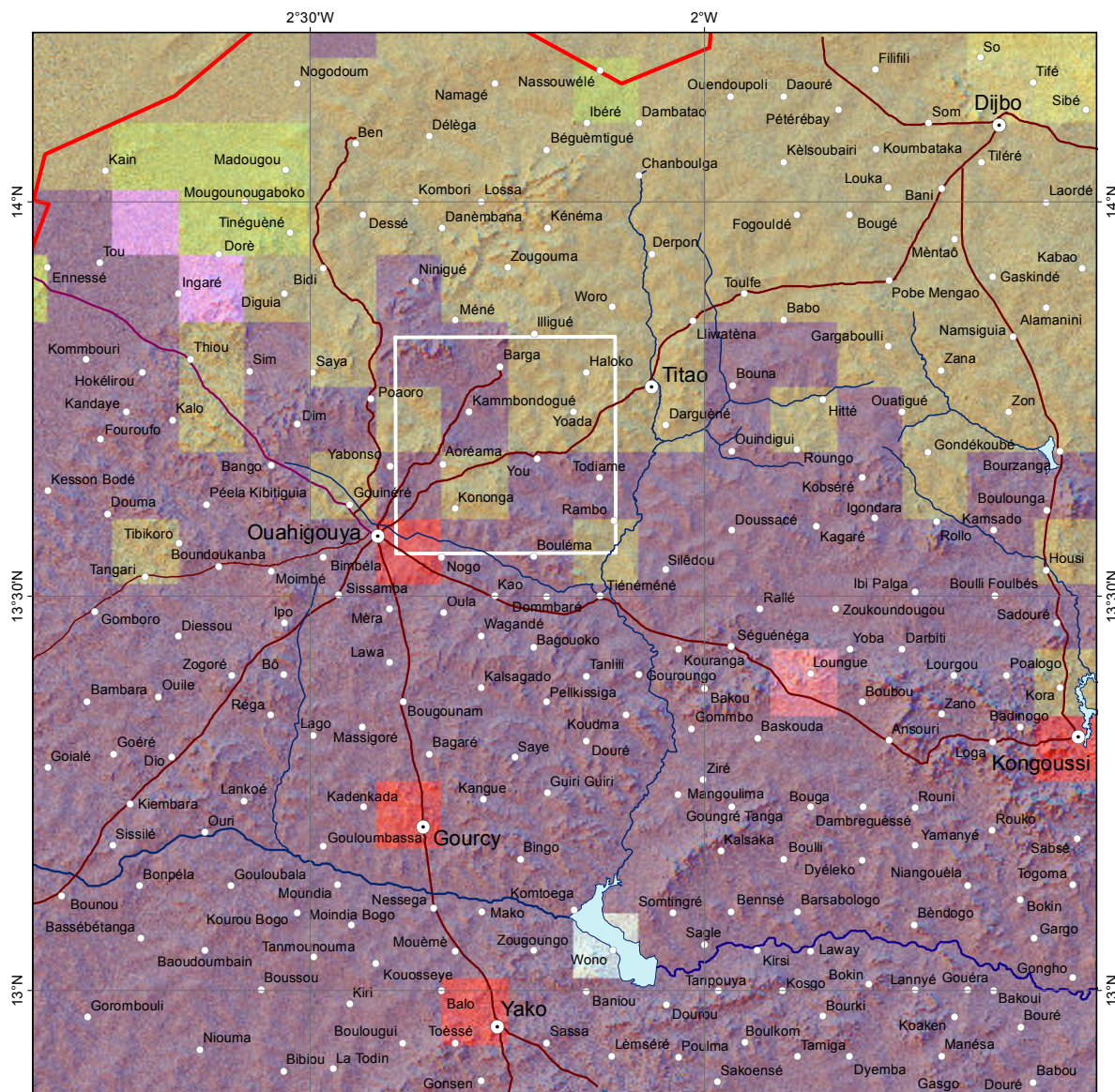
* Legend corresponds to left map

Landcover shows the observed (bio)physical cover of the earth's surface, i.e. dominant vegetation, land use and man-made features.

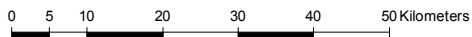
○ Town
 ○ Settlement
 — International Boundary
 — Road
 — River
 — Open Water

Scale 1:1,000,000
 0 5 10 20 30 40 50 Kilometers
 1 cm = 10 km

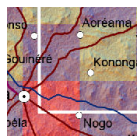




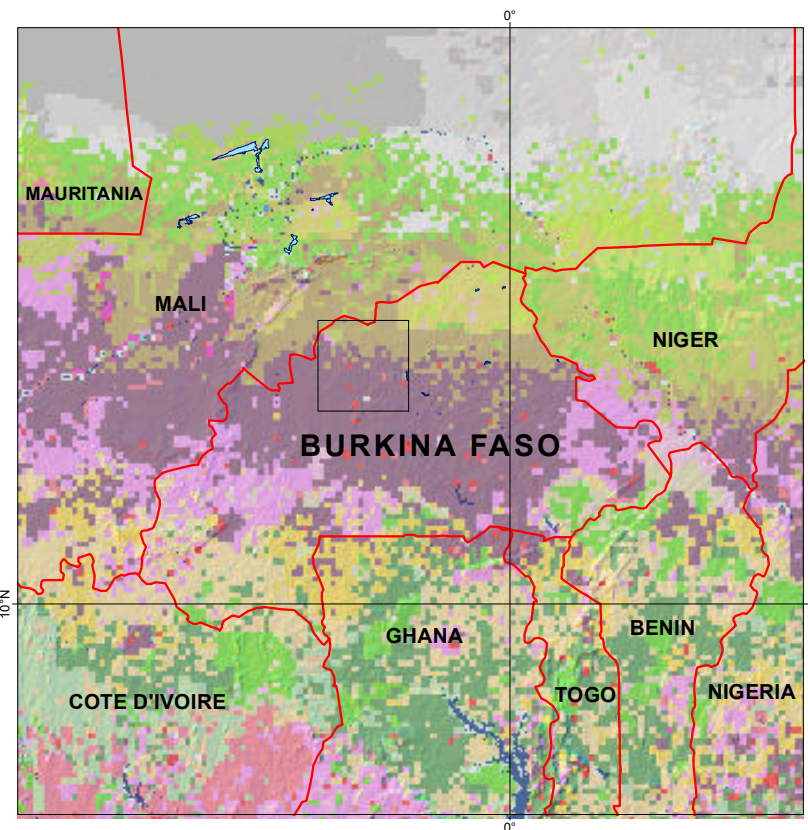
Scale 1:1,000,000



1 cm = 10 km

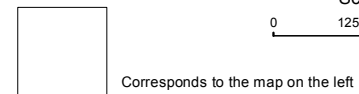


Tougo CCAFS sampling frame



International boundary

Scale 1:12,500,000



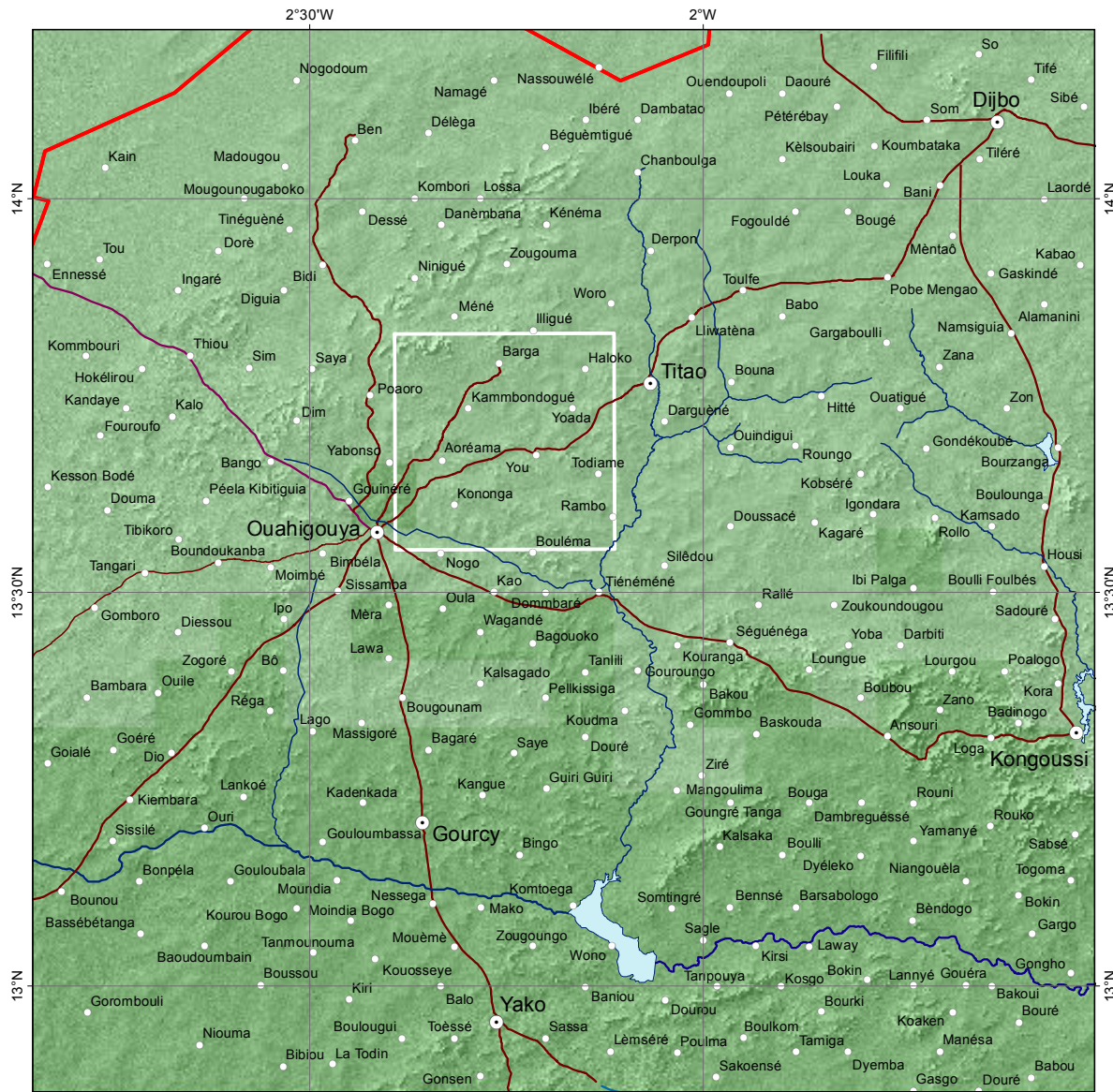
Landuse *

- Grasslands protected
- Grasslands moderate livestock density
- Grasslands high livestock density
- Rainfed crops (Subsistence/Commercial)
- Crops and moderate intensive livestock density
- Crops and high livestock density
- Urban area
- Open water inland Fisheries

* Legend corresponds to left map

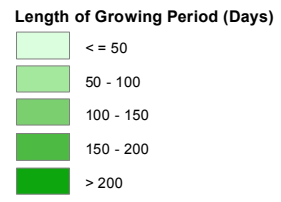
Landuse is a description of how people utilize the land. It involves socio-economic activity, i.e. the management and modification of the natural environment, such as agricultural fields and settlements. At any place, there may be multiple land uses, the dominant one is presented here.

Length of Growing Period 2000



International boundary
 Scale 1:12,500,000
 0 125 250 500 Kilometers

Corresponds to the map on the left

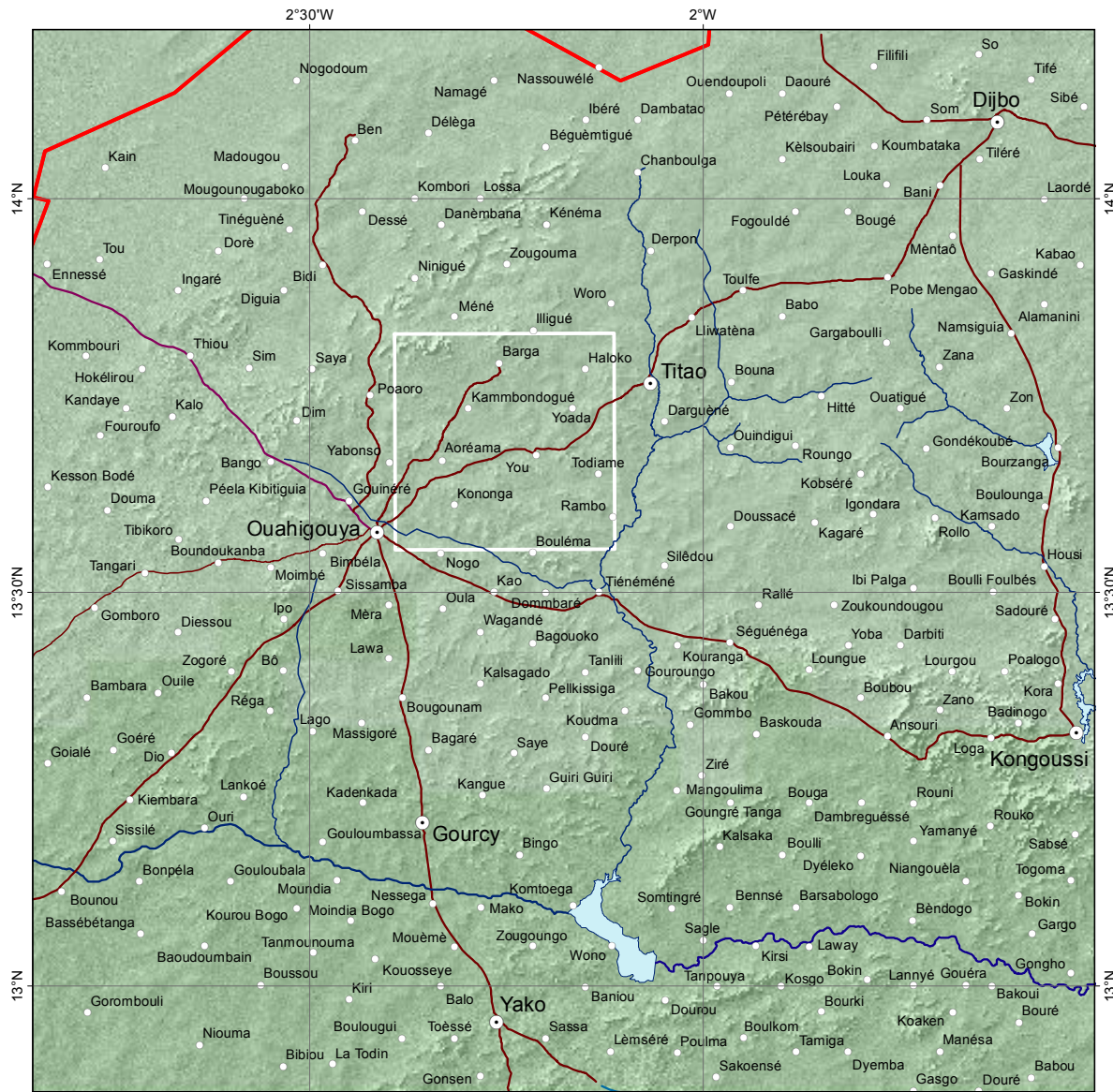


The Length of Growing Period (LGP) is defined as the number of days in a year during which there is available rainfall soil moisture supply for plant growth.

● Town
 ○ Settlement
 — International Boundary
 — Road
 — River
 — Open Water
 Scale 1:1,000,000
 0 5 10 20 30 40 50 Kilometers
 1 cm = 10 km
 Toucou CCAFS sampling frame

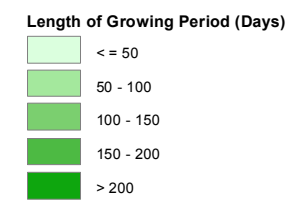
Citation: Thornton et al (2006)

Length of Growing Period 2030

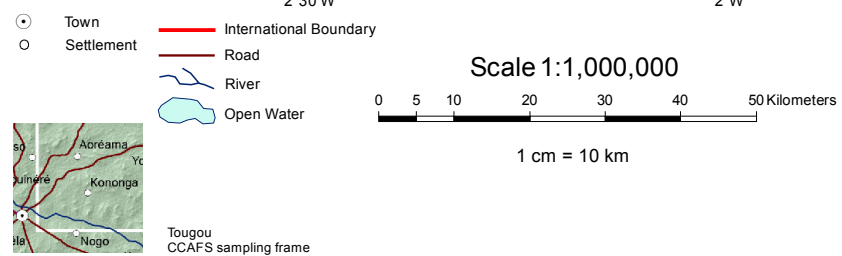


International boundary
 Scale 1:12,500,000
 0 125 250 500 Kilometers

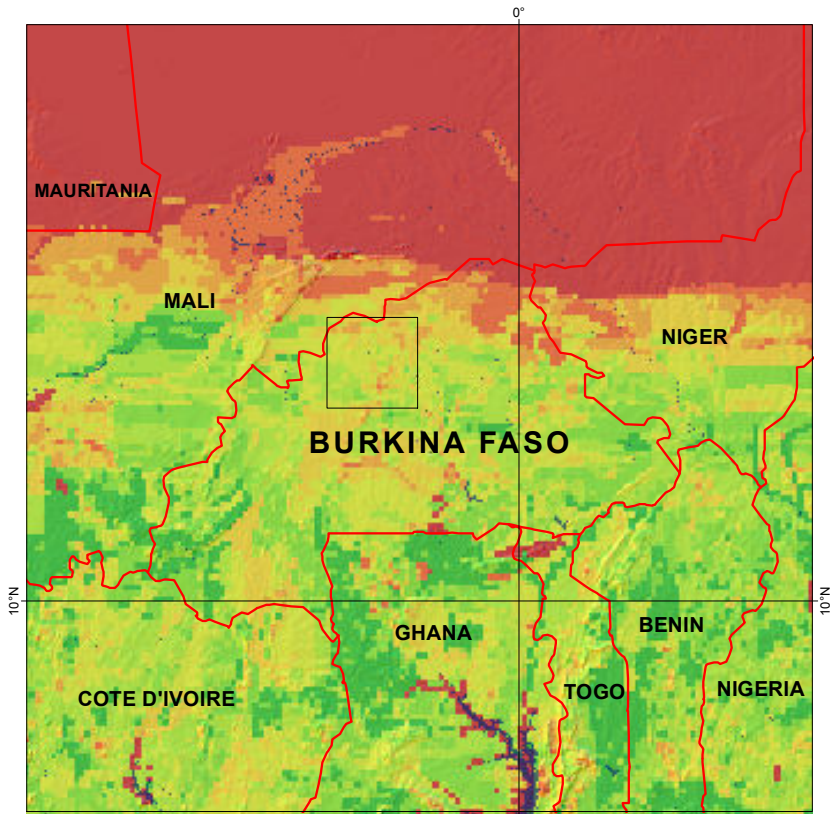
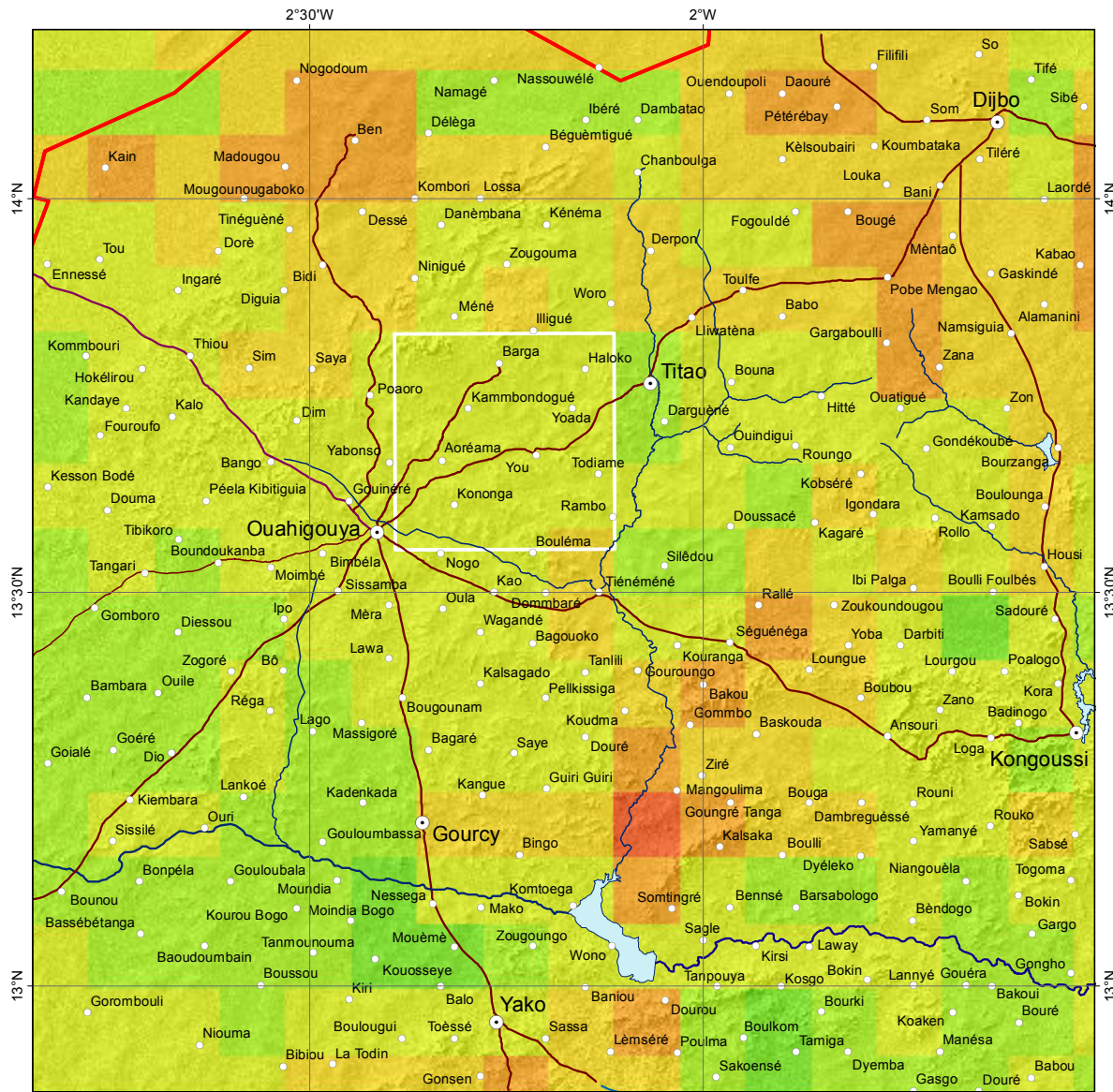
Corresponds to the map on the left



The Length of Growing Period (LGP) is defined as the number of days in a year during which there is available rainfed soil moisture supply for plant growth; here modeled for 2030



Crop Suitability



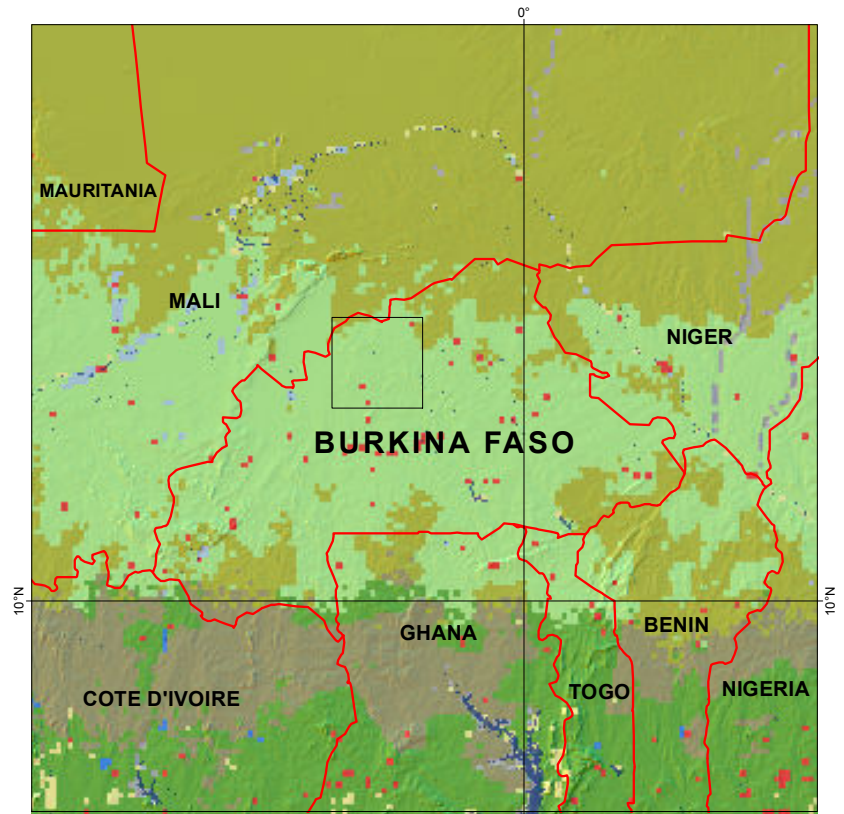
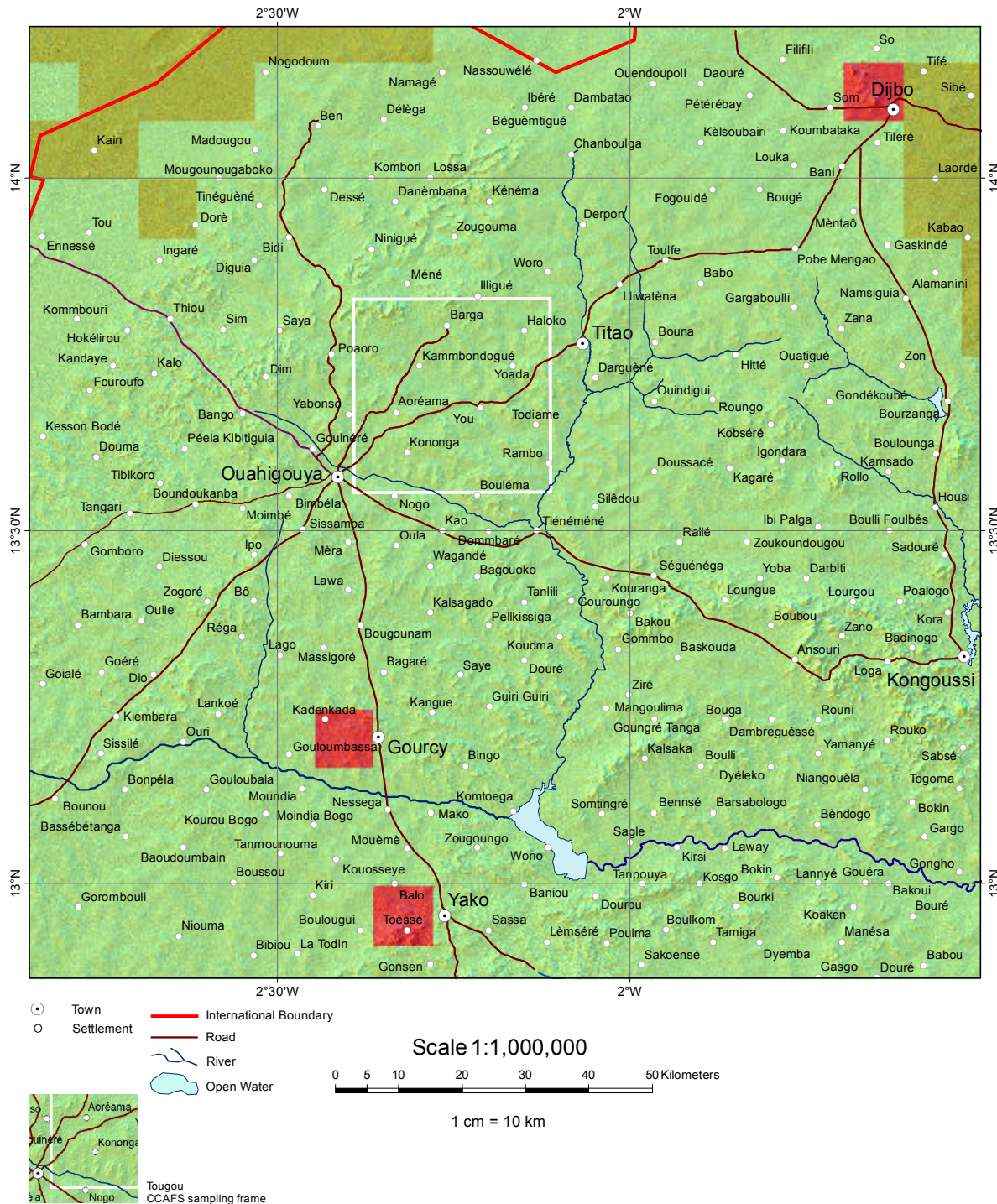
— International boundary
 Scale 1:12,500,000
 0 125 250 500 Kilometers
 [White Box] Corresponds to the map on the left

- Crop Suitability**
- Not suitable
 - Very low
 - Low
 - Medium low
 - Medium
 - Medium high
 - High
 - Very high

Crop Suitability refers to the land resource assessment that considers agricultural land use options with relevant agro-ecological condition to estimate expected cropping activities.

Citation: FAO and IIASA (2007)

Livestock Production Systems



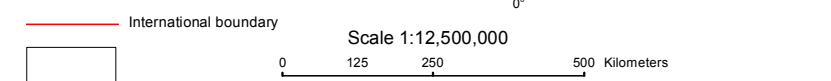
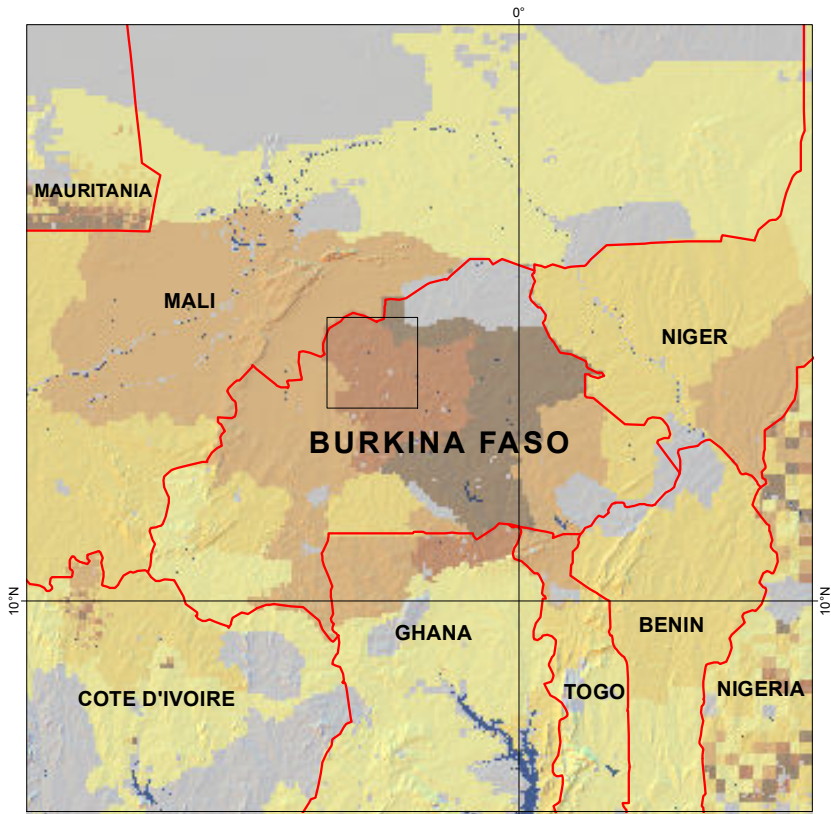
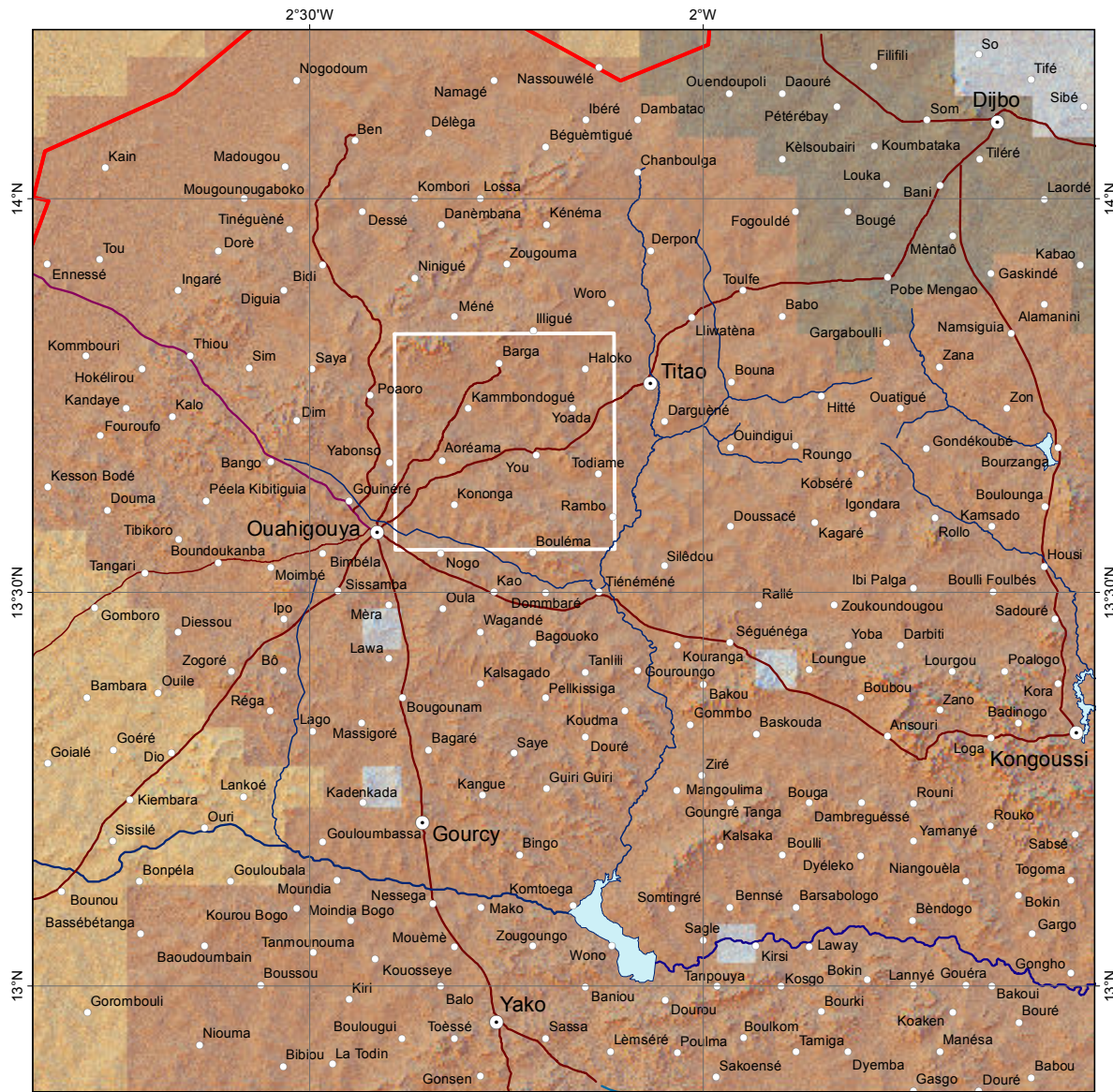
— International boundary
Scale 1:12,500,000
0 125 250 500 Kilometers

Corresponds to the map on the left

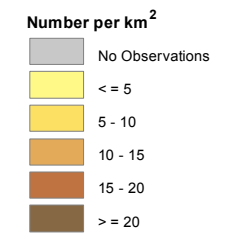
- | | |
|----------------------------------|------------------------------------|
| Mixed Rainfed | Livestock only |
| Light Green: Arid / Semi-arid | Light Yellow: Arid / semi-arid |
| Medium Green: Humid / sub-humid | Yellow-Green: Temperate / highland |
| Dark Green: Temperate / highland | Brown: Closed to open shrubland |
| Light Blue: Arid / semi-arid | Red: Urban area |
| Blue: Humid / sub-humid | Grey: Other |
| Dark Blue: Temperate / highland | |

Livestock Production Systems as part of agricultural systems take agro-climatic conditions into account and are classified in terms of feed and livestock resources; livestock commodities produced; production technology; product use and livestock functions; area covered; geographic locations; and human populations supported.

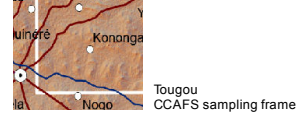
Livestock Density



Corresponds to the map on the left

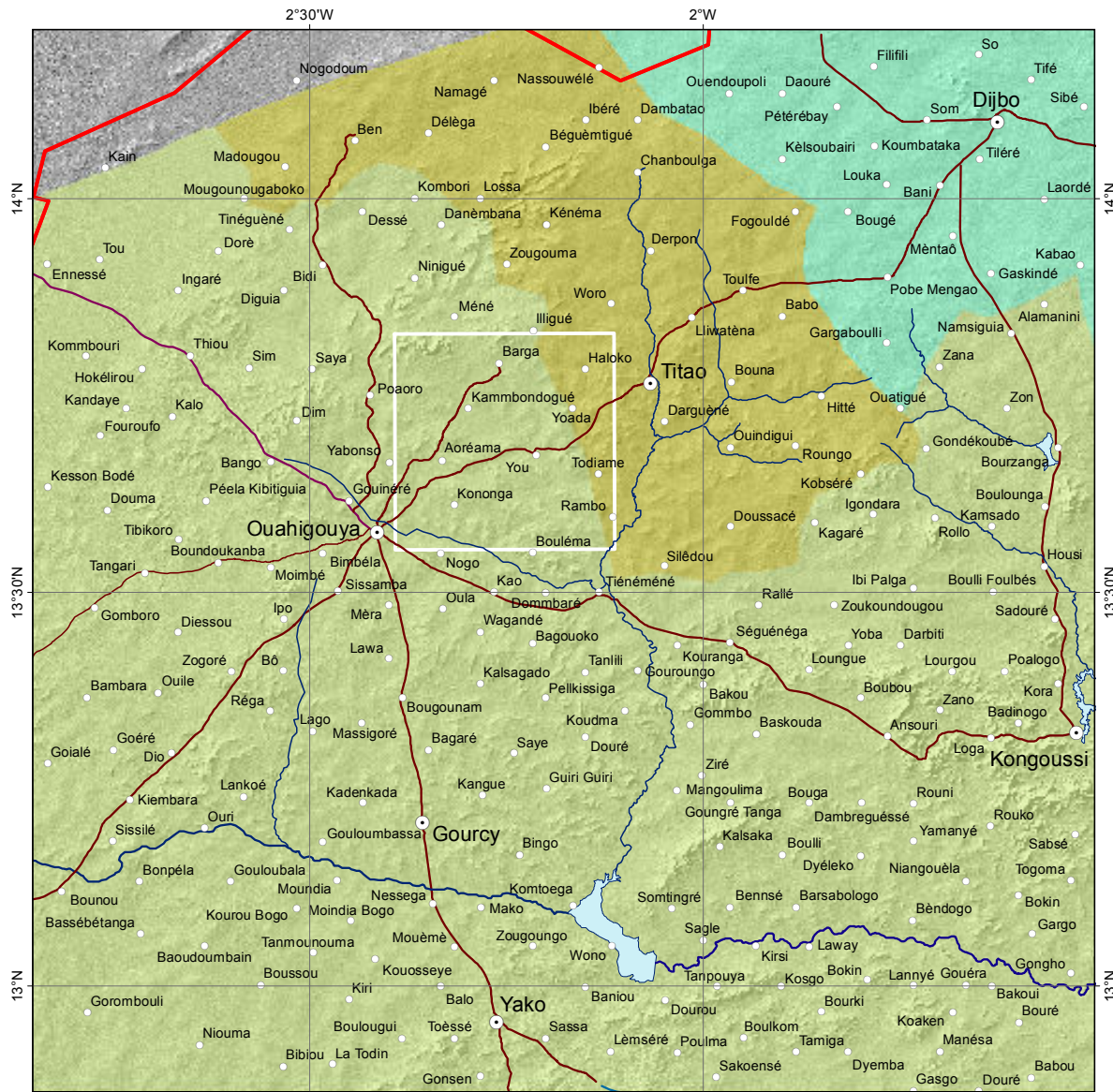


Livestock Density is measured in numbers of livestock, including cattle, goats and sheep, per km²



Citation: Wint et al (2007)

Livelihood Zones



— International boundary

Scale 1:12,500,000

0 125 250 500 Kilometers

Corresponds to the map on the left

Livelihood Zones *

- Central plateau cereals and market gardening
- North and east livestock and cereals
- North transhuman pastoralism and millet

* Legend corresponds to left map

Livelihoods are complex and shaped by a variety of factors. These livelihood zone maps delineate geographic areas within which people broadly share the same livelihood patterns including access to food, income, and markets.

○ Town
○ Settlement

— International Boundary
— Road
— River
— Open Water

Scale 1:1,000,000

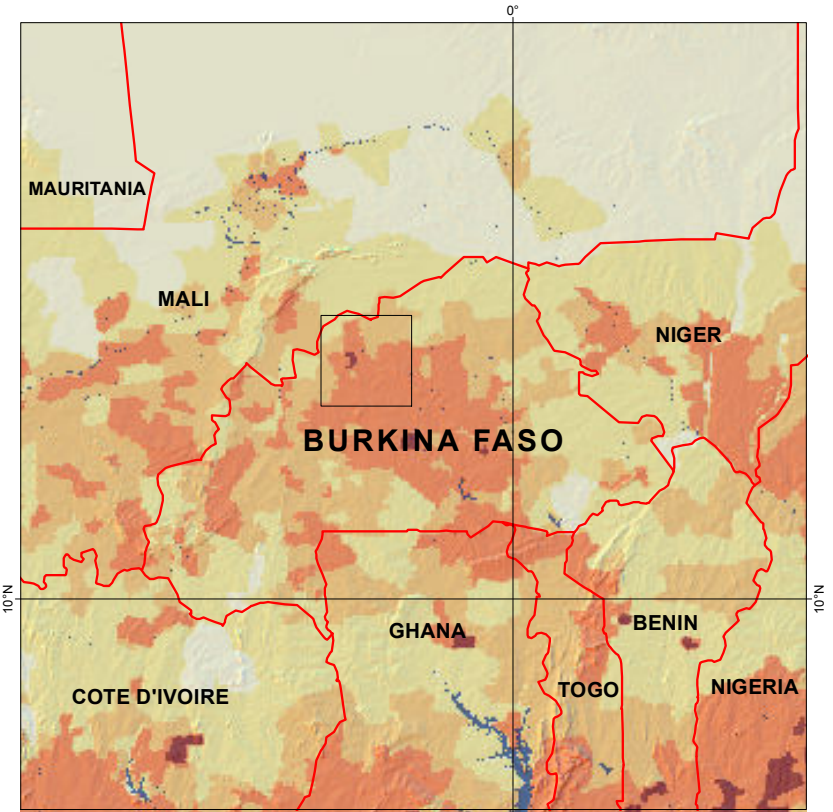
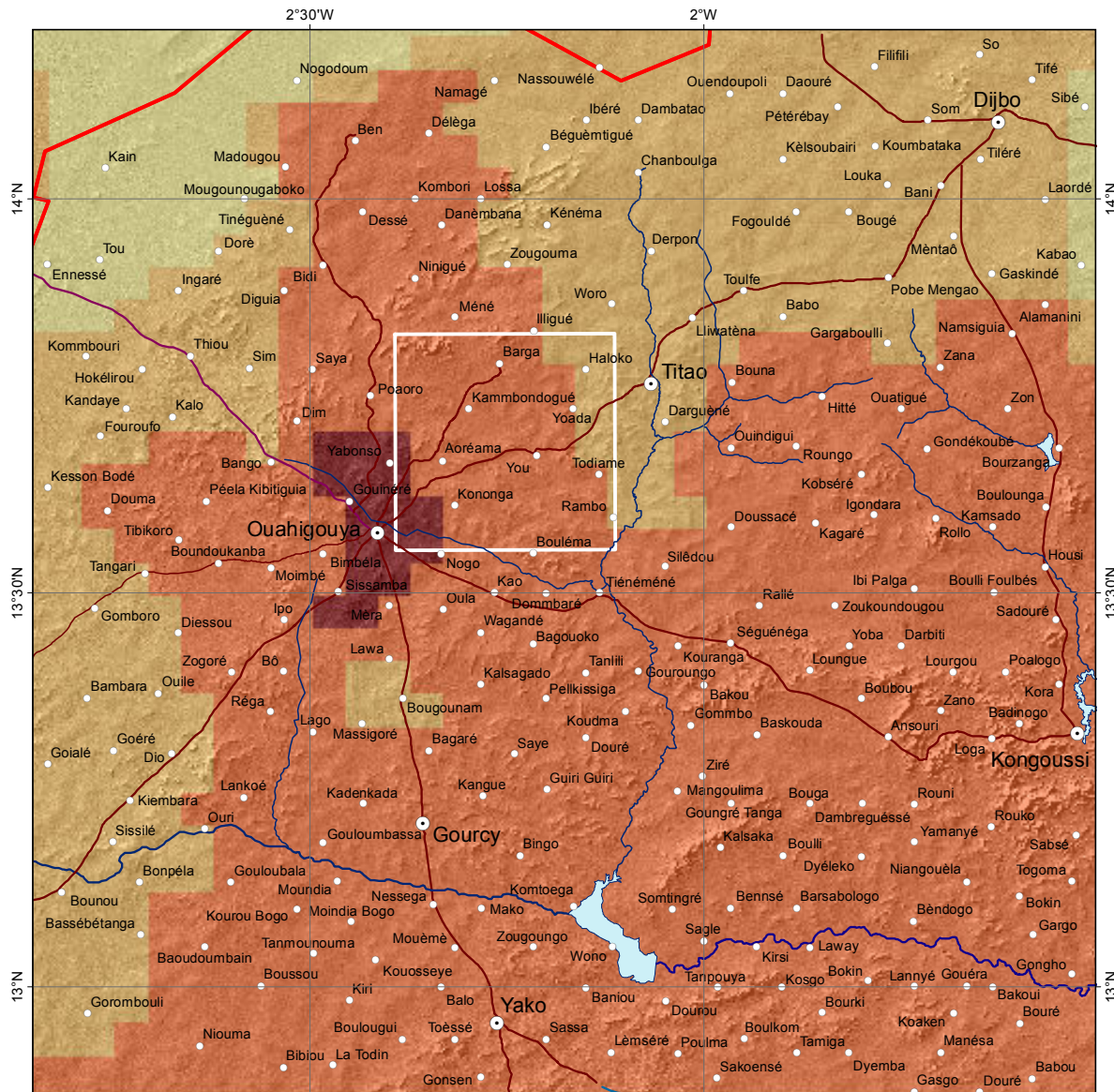
0 5 10 20 30 40 50 Kilometers

1 cm = 10 km

Toucou CCAFS sampling frame

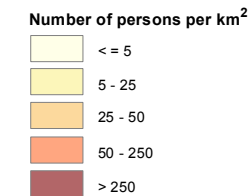
Citation: USAID (2011)

Human Population Density



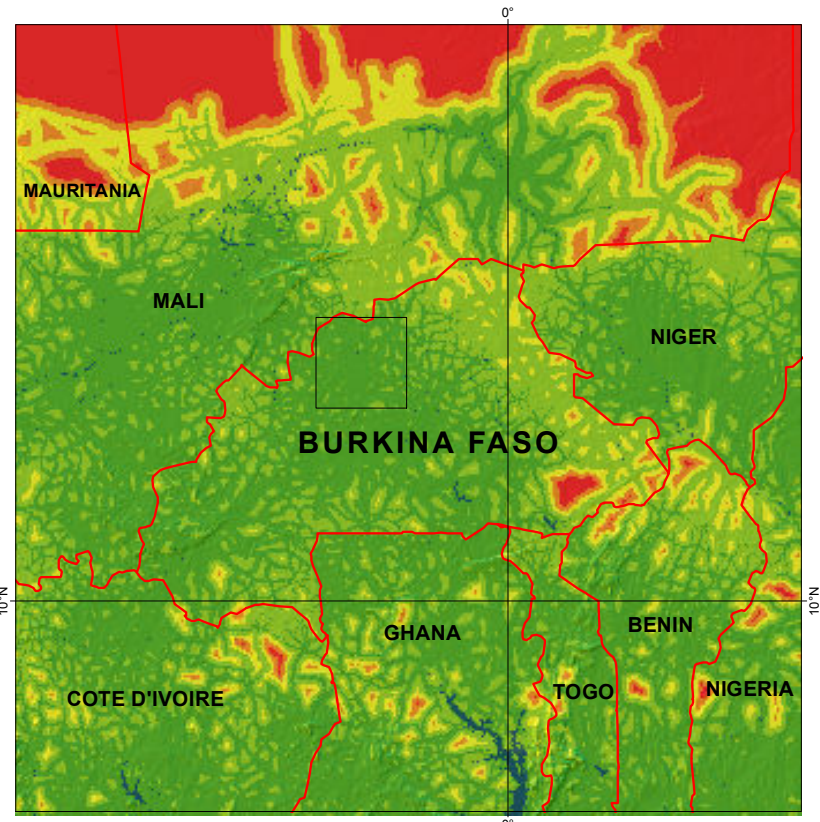
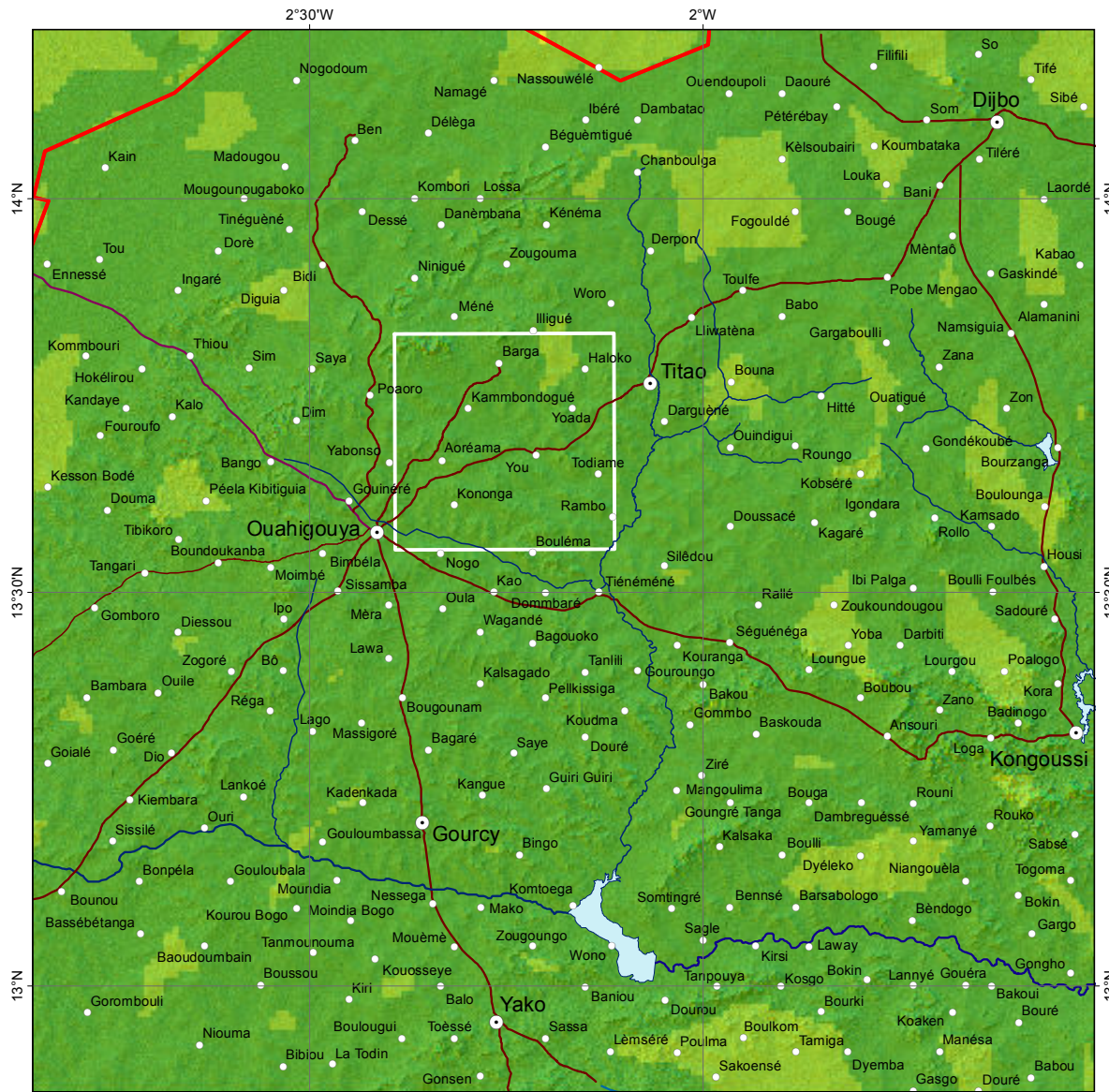
International boundary
 Scale 1:12,500,000
 0 125 250 500 Kilometers

Corresponds to the map on the left



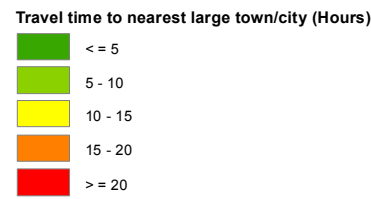
Human Population Density is the gridded number of persons per km² in 2005.

Market Access

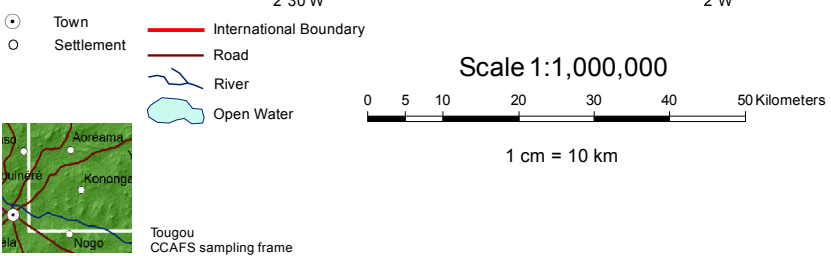


International boundary
 Scale 1:12,500,000
 0 125 250 500 Kilometers

Corresponds to the map on the left

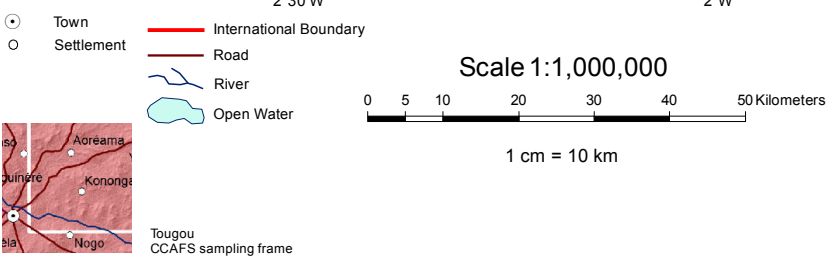
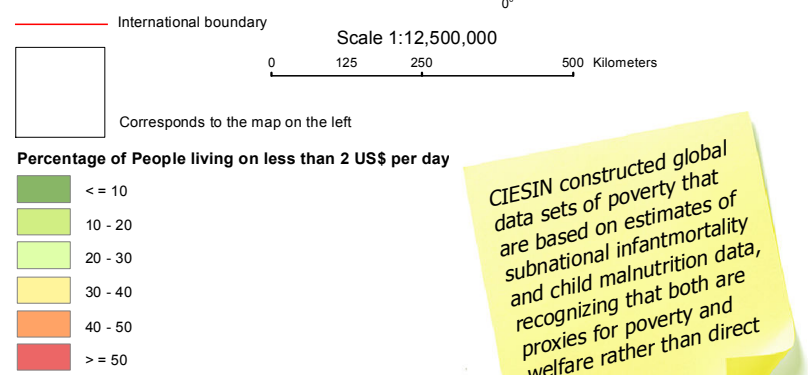
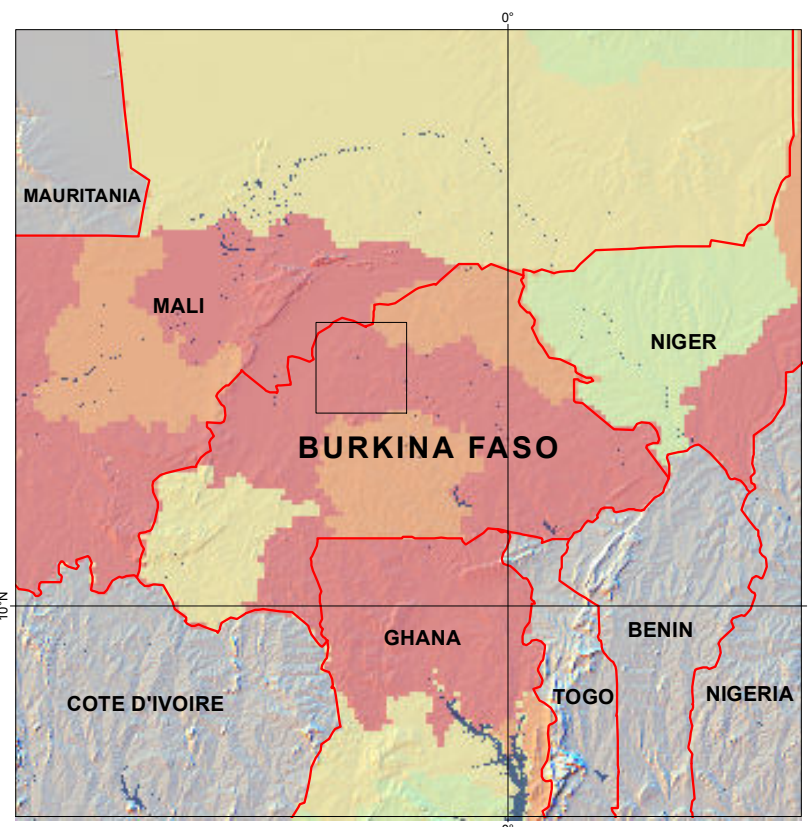
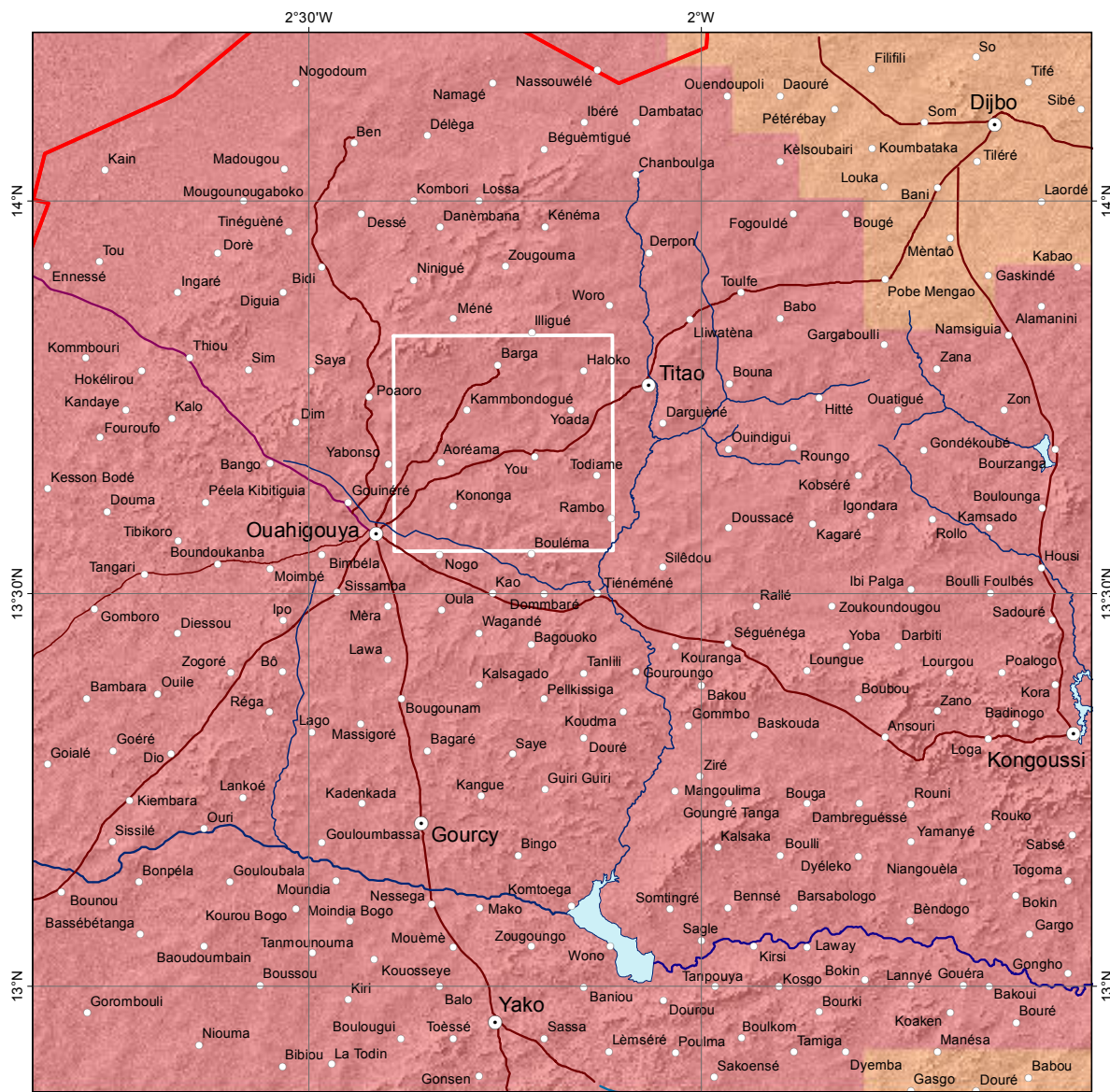


Travel time is a measure of accessibility determined in the time (hours) taken to the nearest urban centre, of 50,000 people or more (taking different means of transportation into account)



Citation: Nelson (2008)

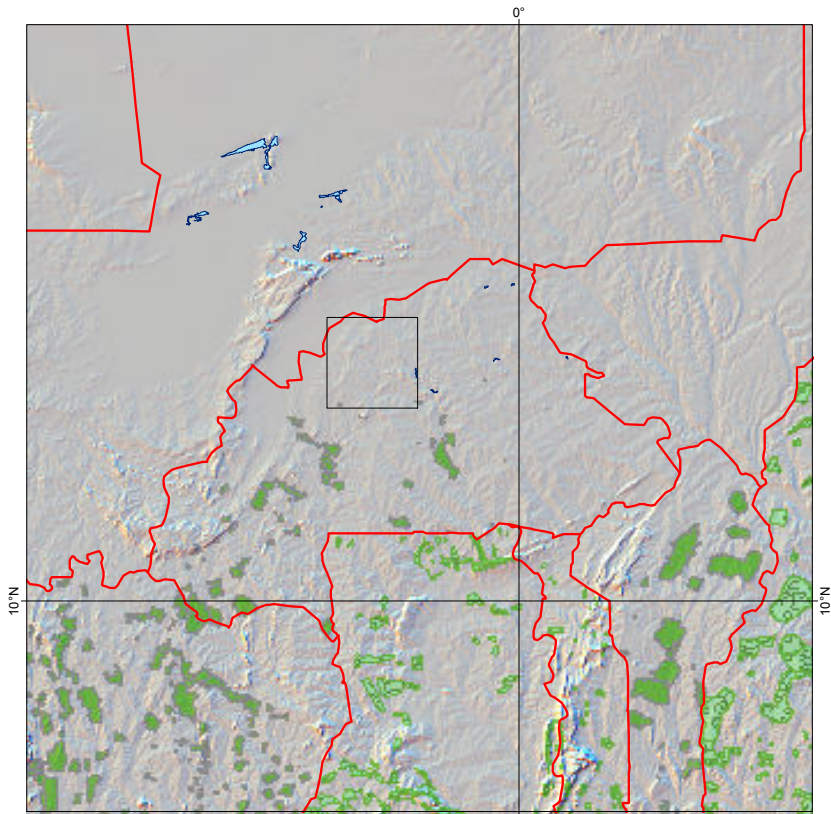
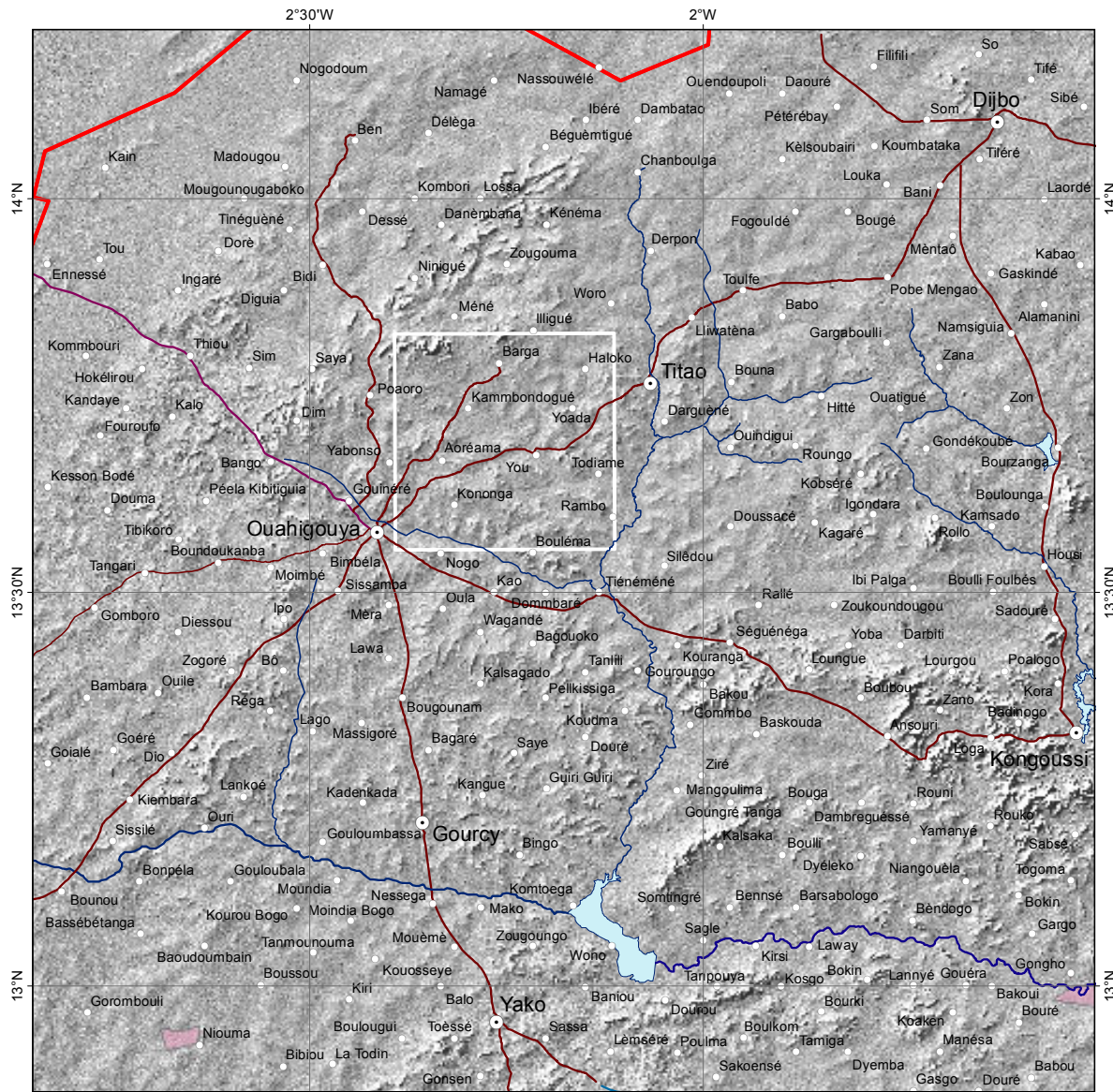
Poverty



CIESIN constructed global data sets of poverty that are based on estimates of subnational infant mortality and child malnutrition data, recognizing that both are proxies for poverty and welfare rather than direct measures.

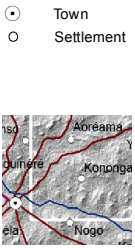
Citation: CIESIN (2005)

Conservation Areas



- International boundary
- Corresponds to the map on the left
- Conservation Areas**
- Classified Forest
- National Park

Conservation Areas represent protected areas that, according to IUCN, are clearly defined geographic spaces, recognized through legal or other effective means, to achieve long-term conservation of nature with associated ecosystem services and cultural value.



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Topographic Map

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