



CCAFS site atlas

Lawra - Jirapa / Lawra Ghana

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://ccaafs.cgiar.org/resources/baseline-surveys>).

More information on CCAFS work in all the three regions can be accessed at www.ccaafs.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 Lawra - Jirapa / Lawra in Ghana, in West Africa Region.

CCAFS Sites: West Africa

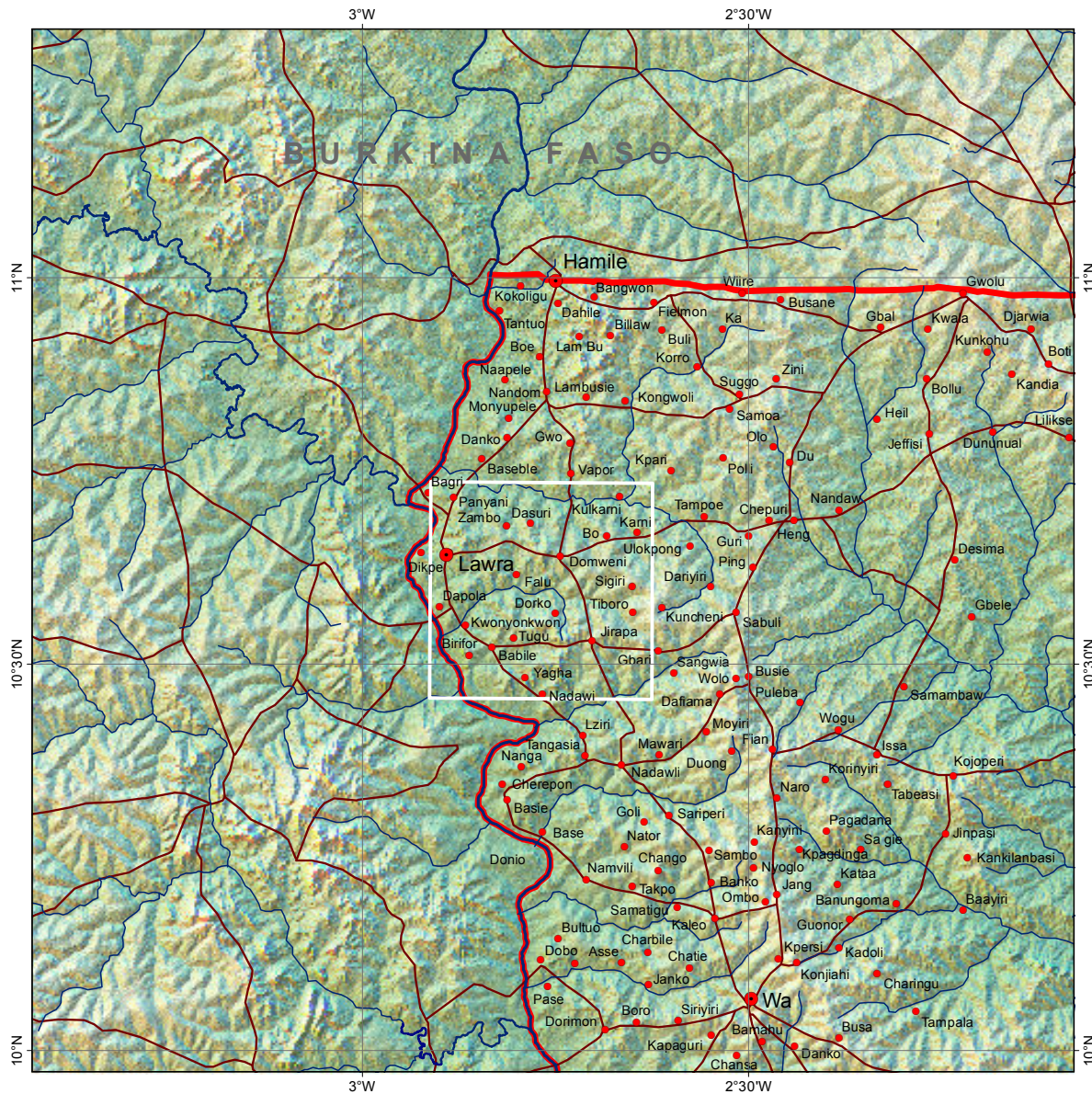


- Burkina Faso: Yatenga (BF01)
- Ghana: Lawra-Jirapa (GH01)
- Mali: Segou (MA01)
- Niger: Kollo (NI01)
- Senegal: Kaffrine (SE01)

CCAFS Country Sites

Topography Lawra-Jirapa

CCAFS Site GH01, Lawra - Jirapa / Lawra, Ghana.



Coordinates of the CCAFS Baseline Sampling frame

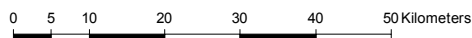
- 2.624W 10.735N
- 2.624W 10.455N
- 2.911W 10.455N
- 2.911W 10.735N



Sampling frame size: 30km x 30km

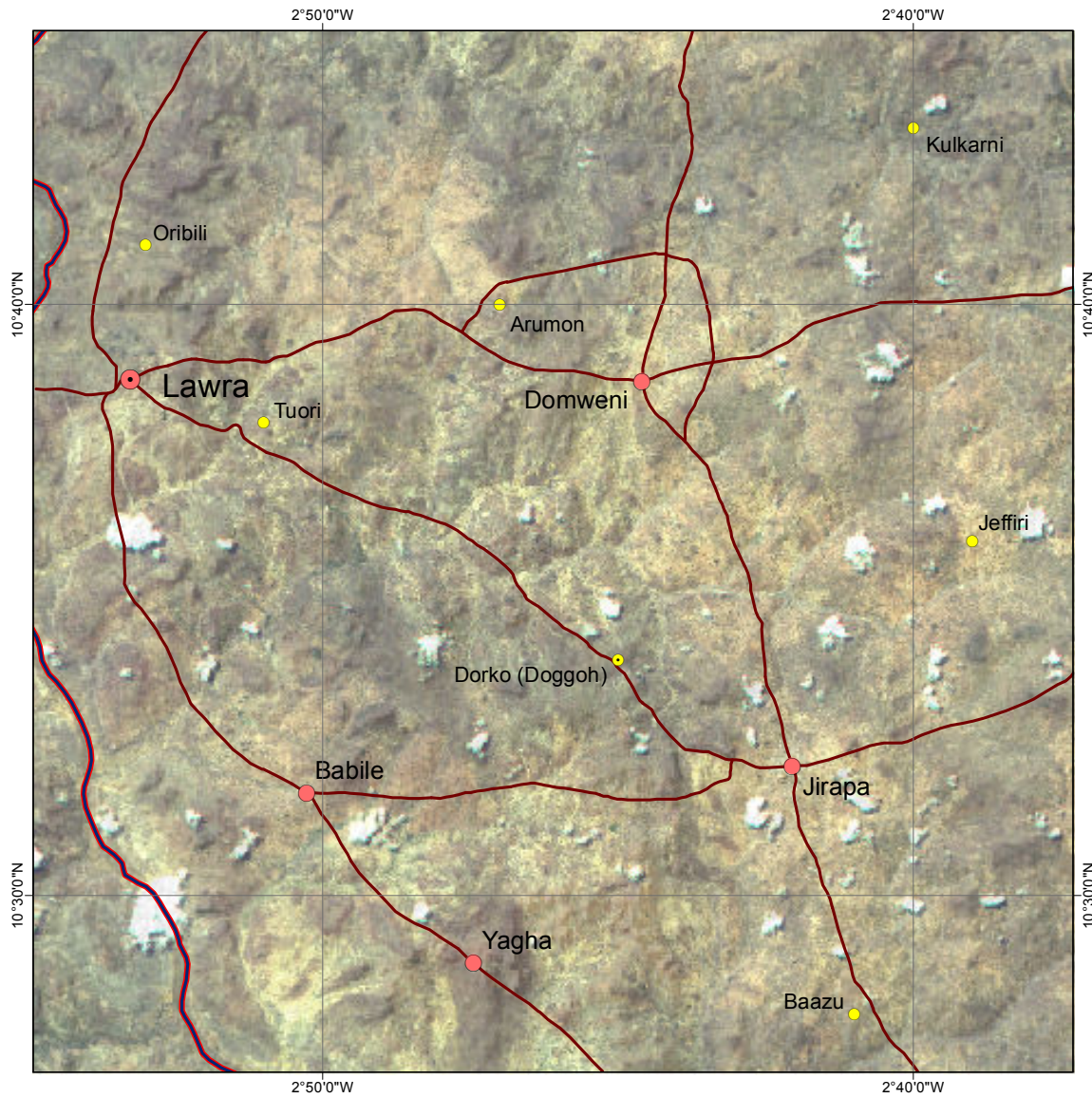
- Town
- Settlement
- International boundary
- Road
- River

Scale 1:1,000,000










1 cm = 10 km

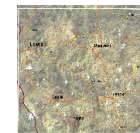
Satellite Image Lawra



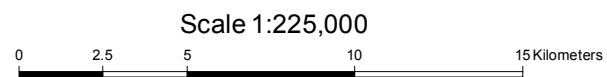
RapidEye imagery from 27-04-2011
 at 5m ground resolution

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

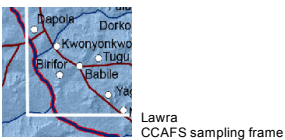
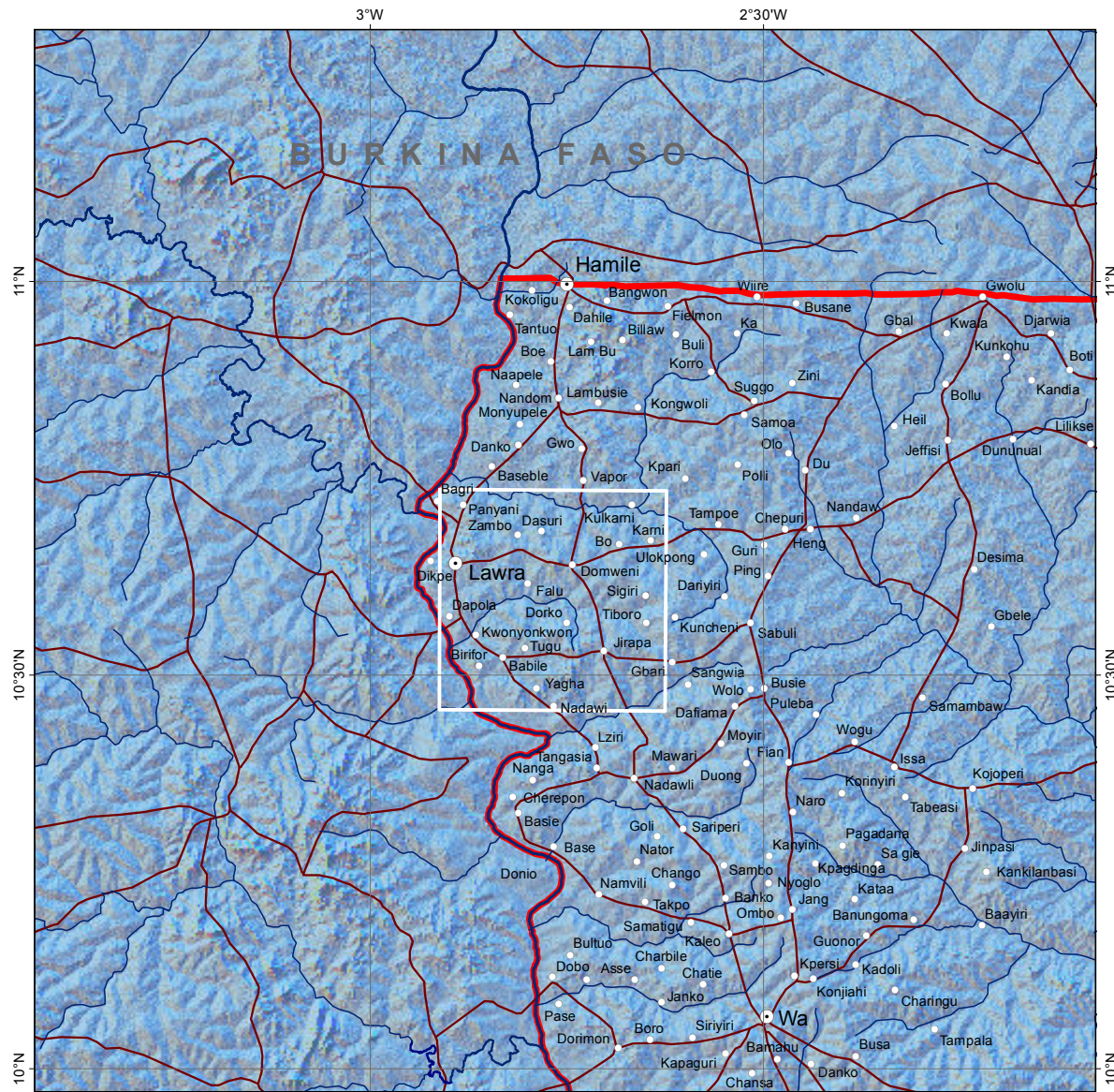
-  International Boundary
-  Road
-  River
-  Town
-  Settlement
-  CCAFS VBS/OBS village
-  CCAFS HBS villages



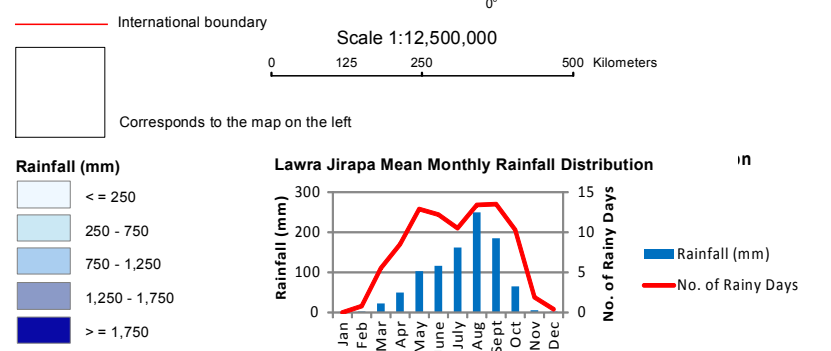
CCAFS Baseline Sampling Frame



Annual Rainfall



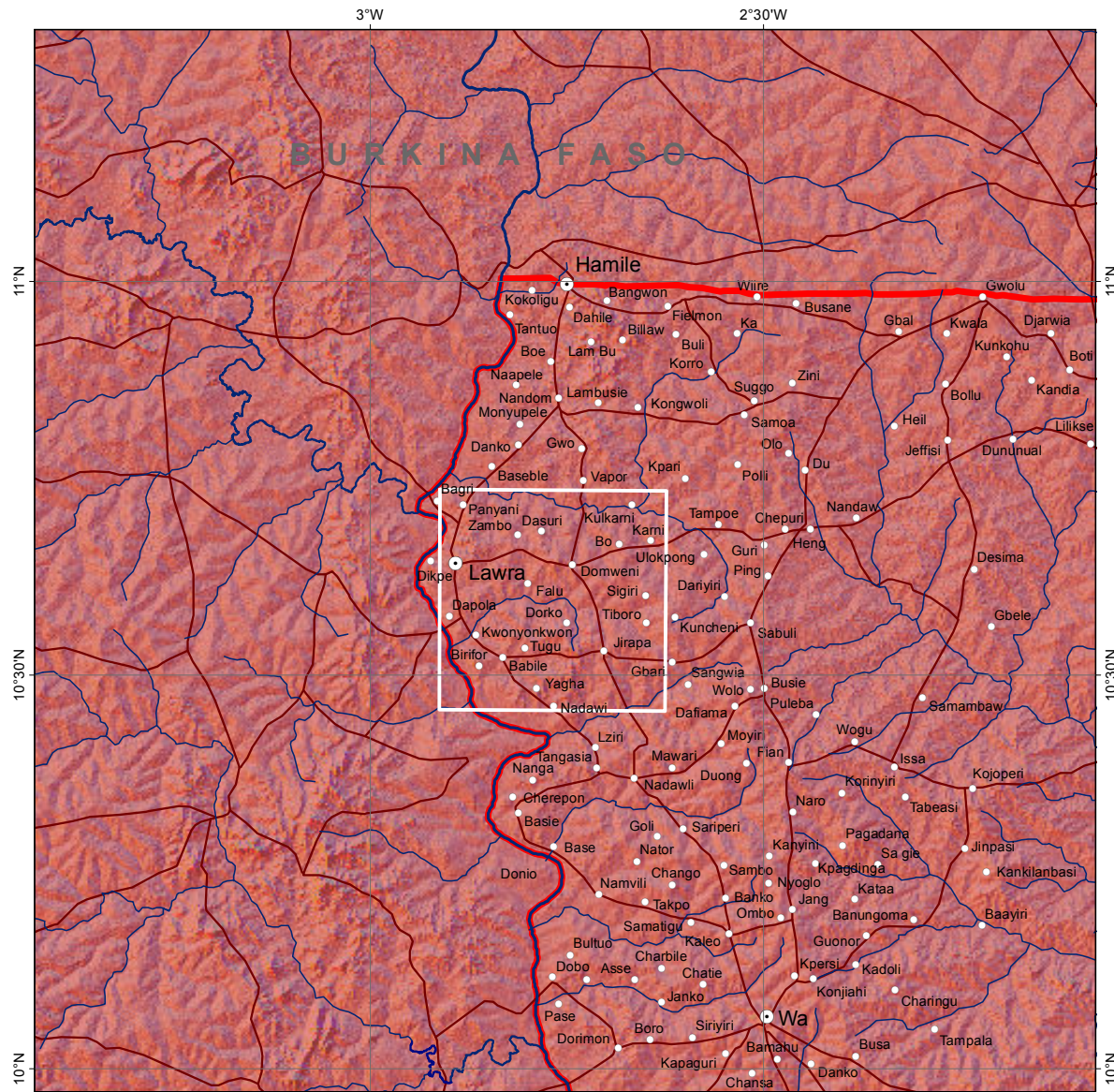
Annual Rainfall data of current interpolations of observed data, representative of 1950 - 2000



Citation: Jones et al (2002)

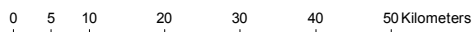
Citation: Hijmans et al (2005)

Annual Temperature

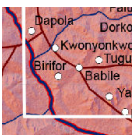


- Town
- Settlement
- International boundary
- Road
- River

Scale 1:1,000,000



1 cm = 10 km



Lawra CCAFS sampling frame



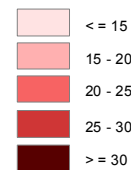
— International boundary

Scale 1:12,500,000

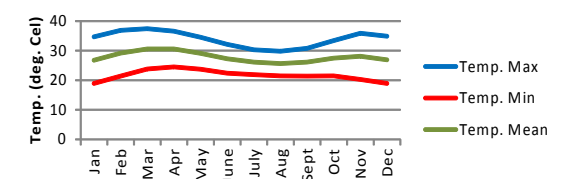


Corresponds to the map on the left

Temperature (°C)



Lawra Jirapa Mean Monthly Temperature Distribution

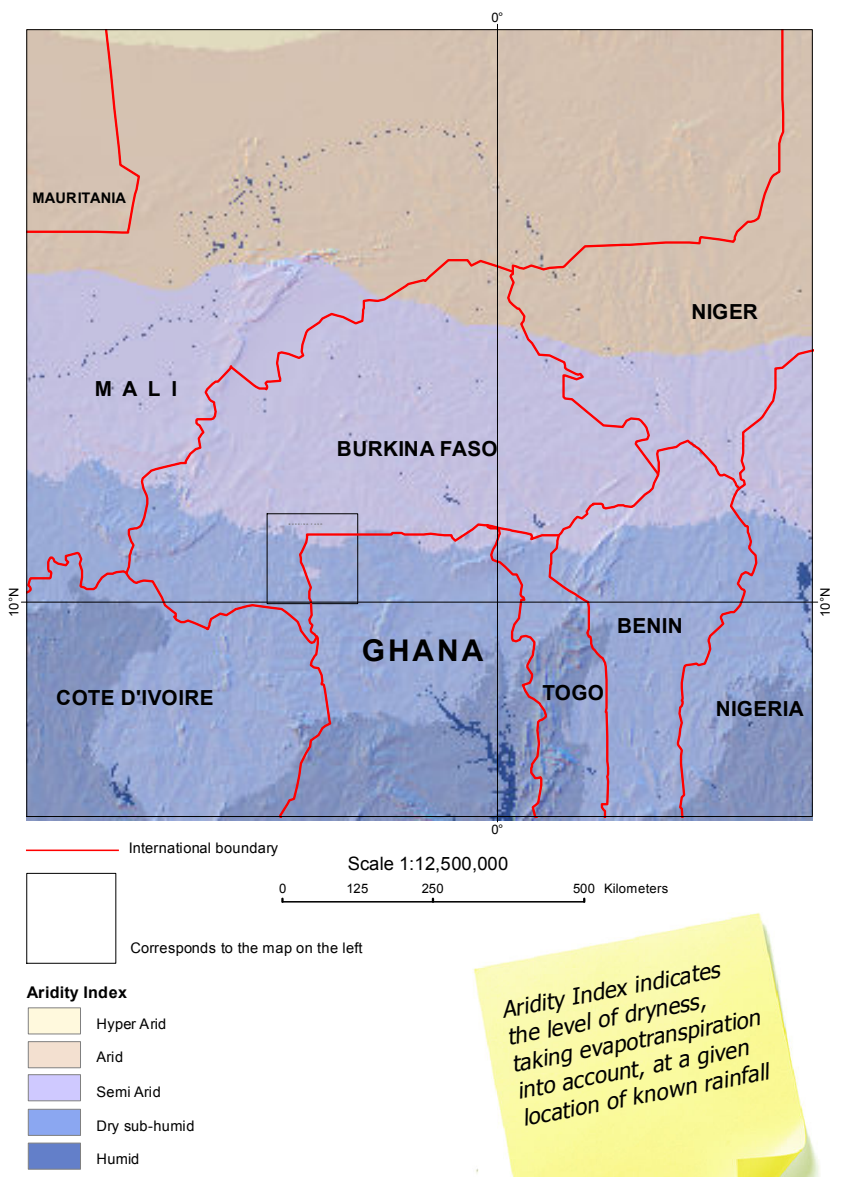
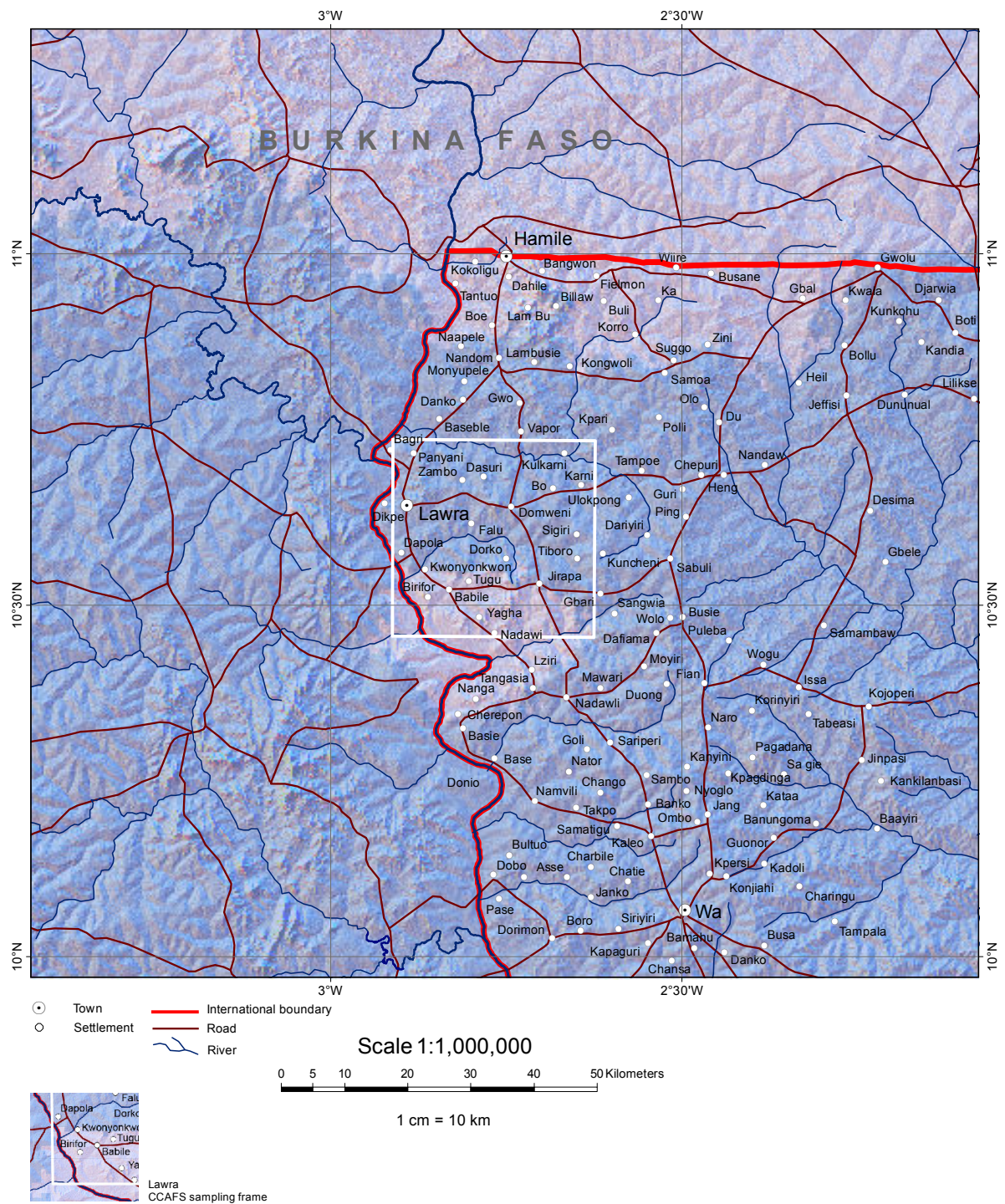


Citation: Jones et al (2002)

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

Citation: Hijmans et al (2005)

Aridity Index

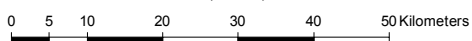


Aridity Index indicates the level of dryness, taking evapotranspiration into account, at a given location of known rainfall

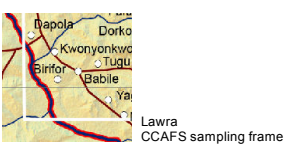


- Town
- Settlement
- International boundary
- Road
- River

Scale 1:1,000,000



1 cm = 10 km



— International boundary

Scale 1:12,500,000



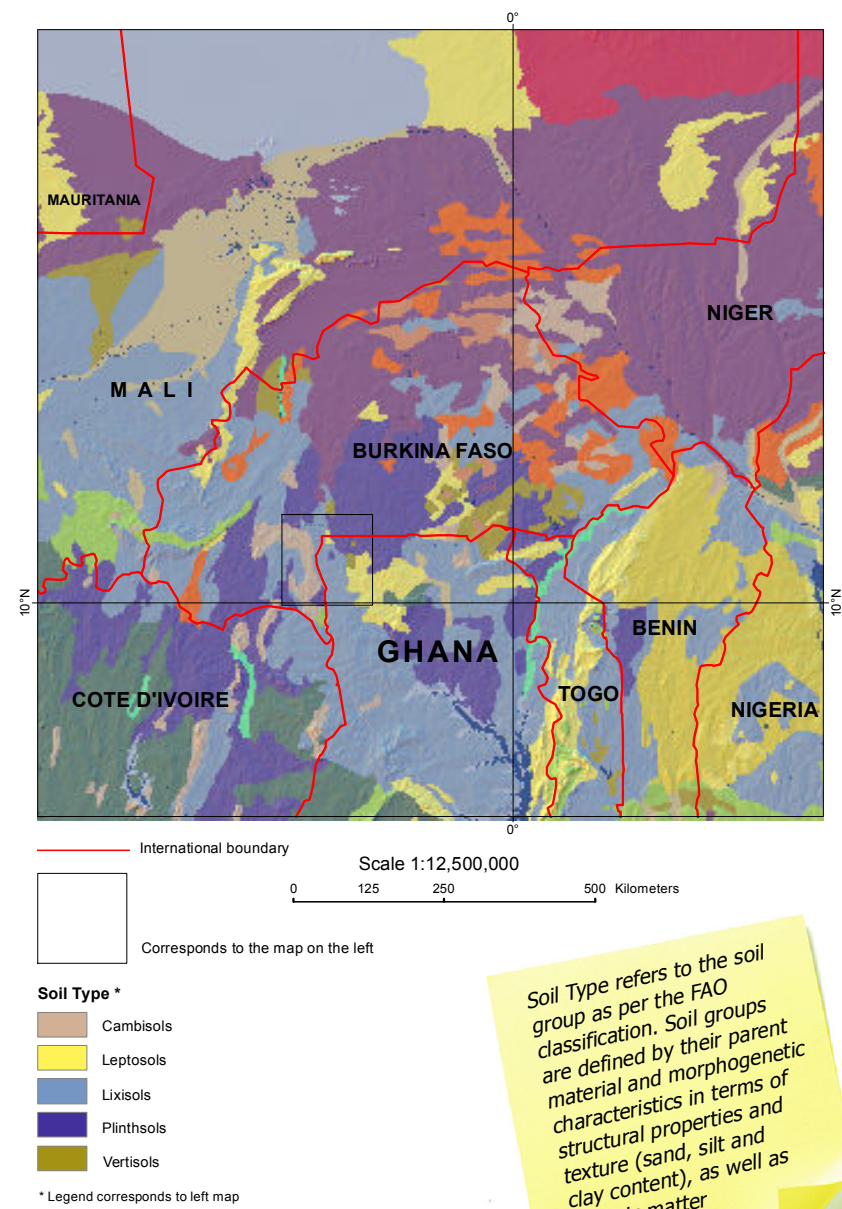
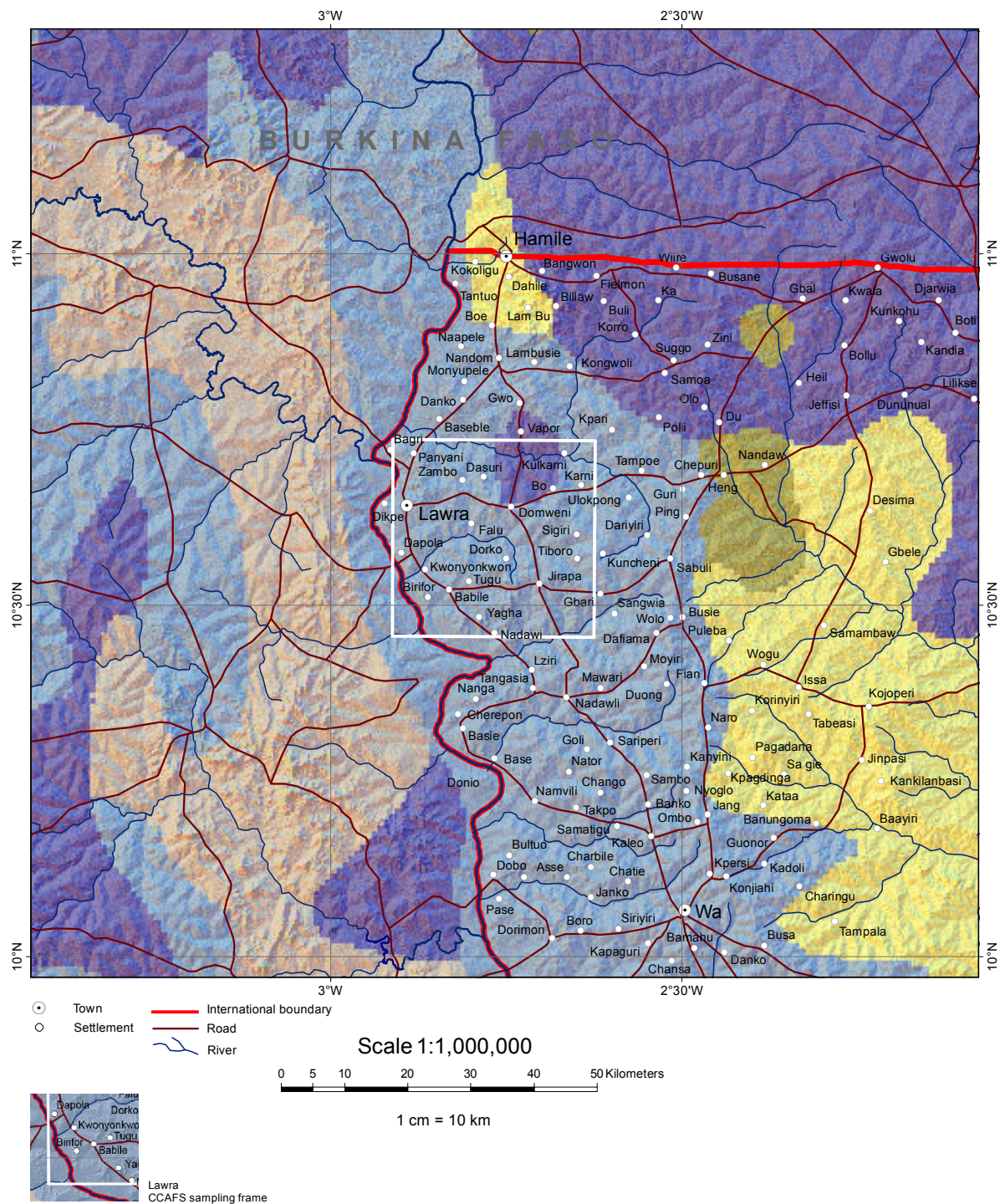
Corresponds to the map on the left

Altitude (m)

-
-
-
-
-
-

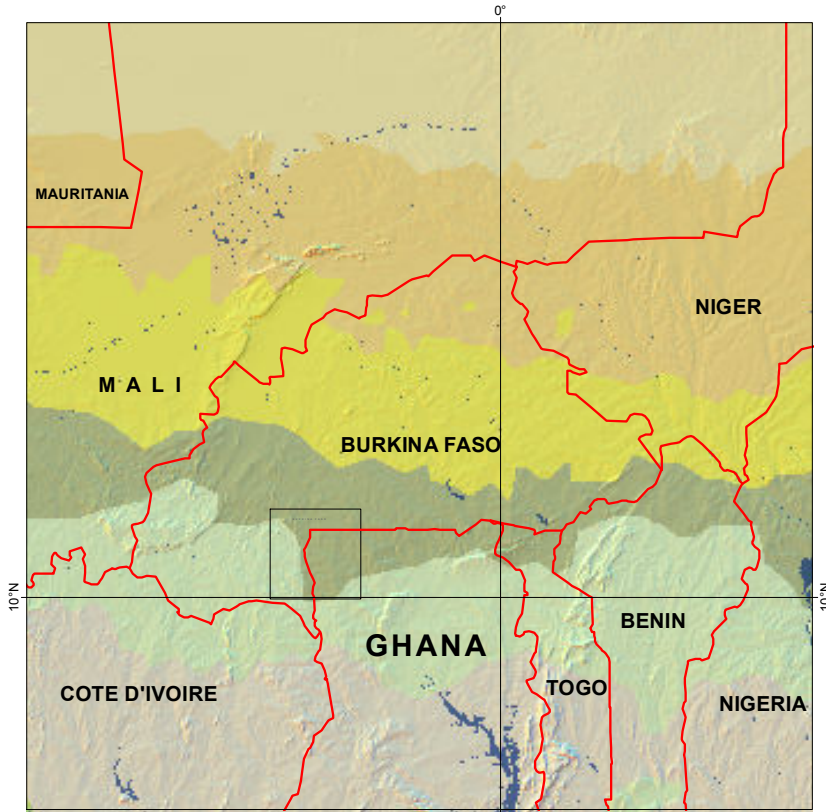
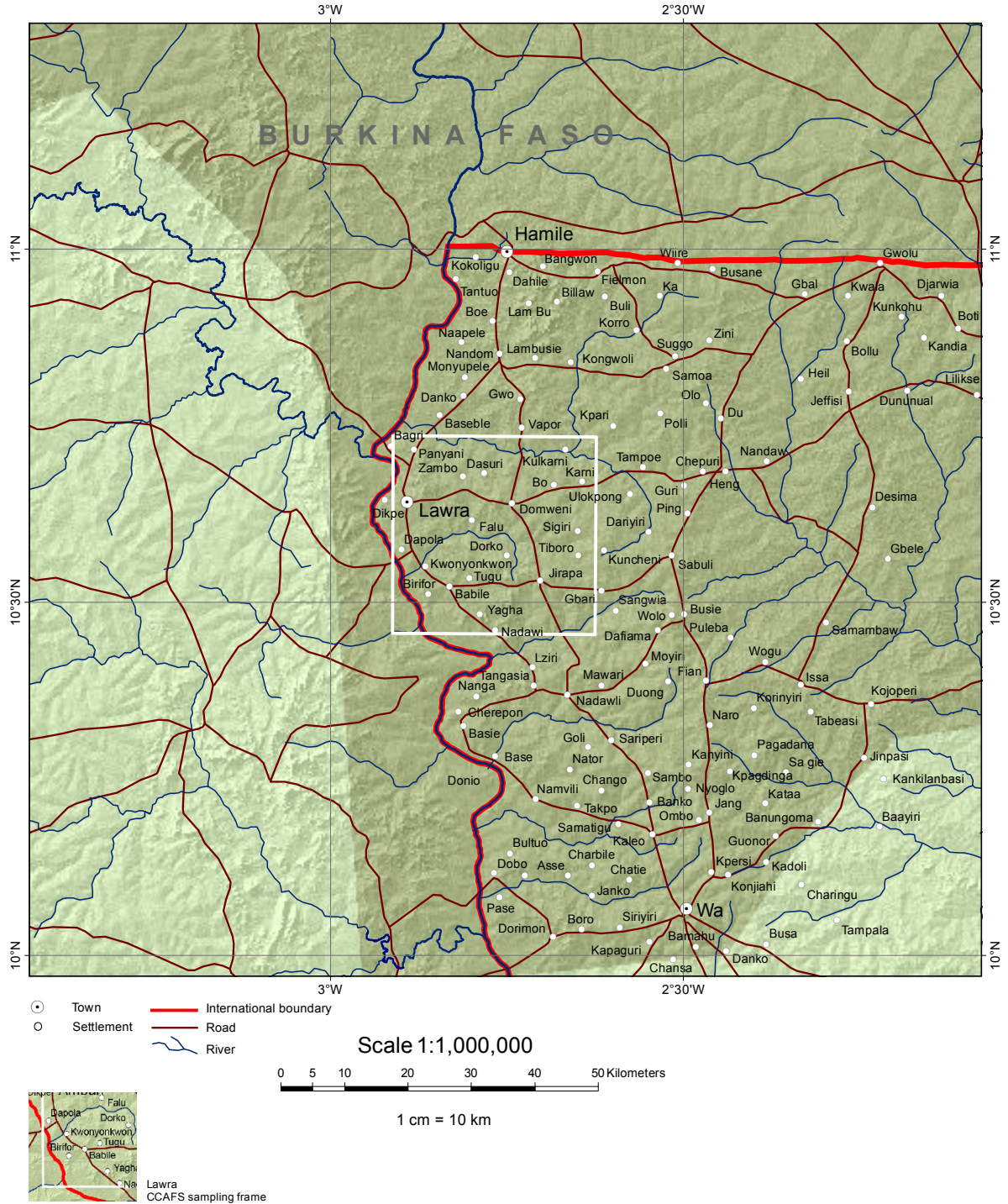
Altitude indicates the height above sea level in meters

Soil Type



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 structural properties and texture (sand, silt and clay content), as well as organic matter content.

Agro-Ecological Zones



— International boundary

Corresponds to the map on the left

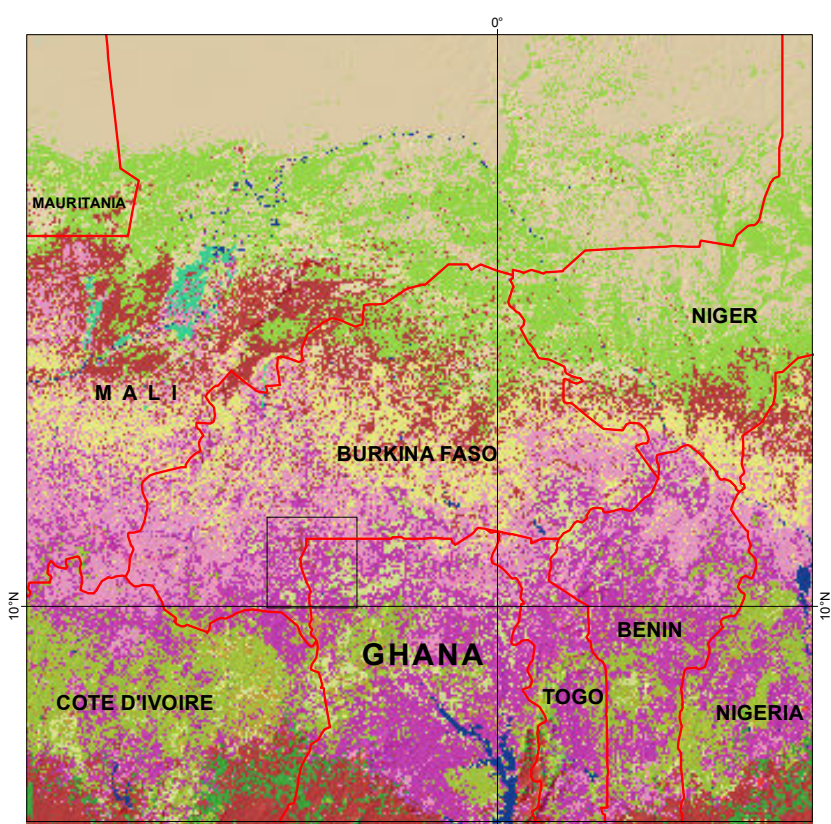
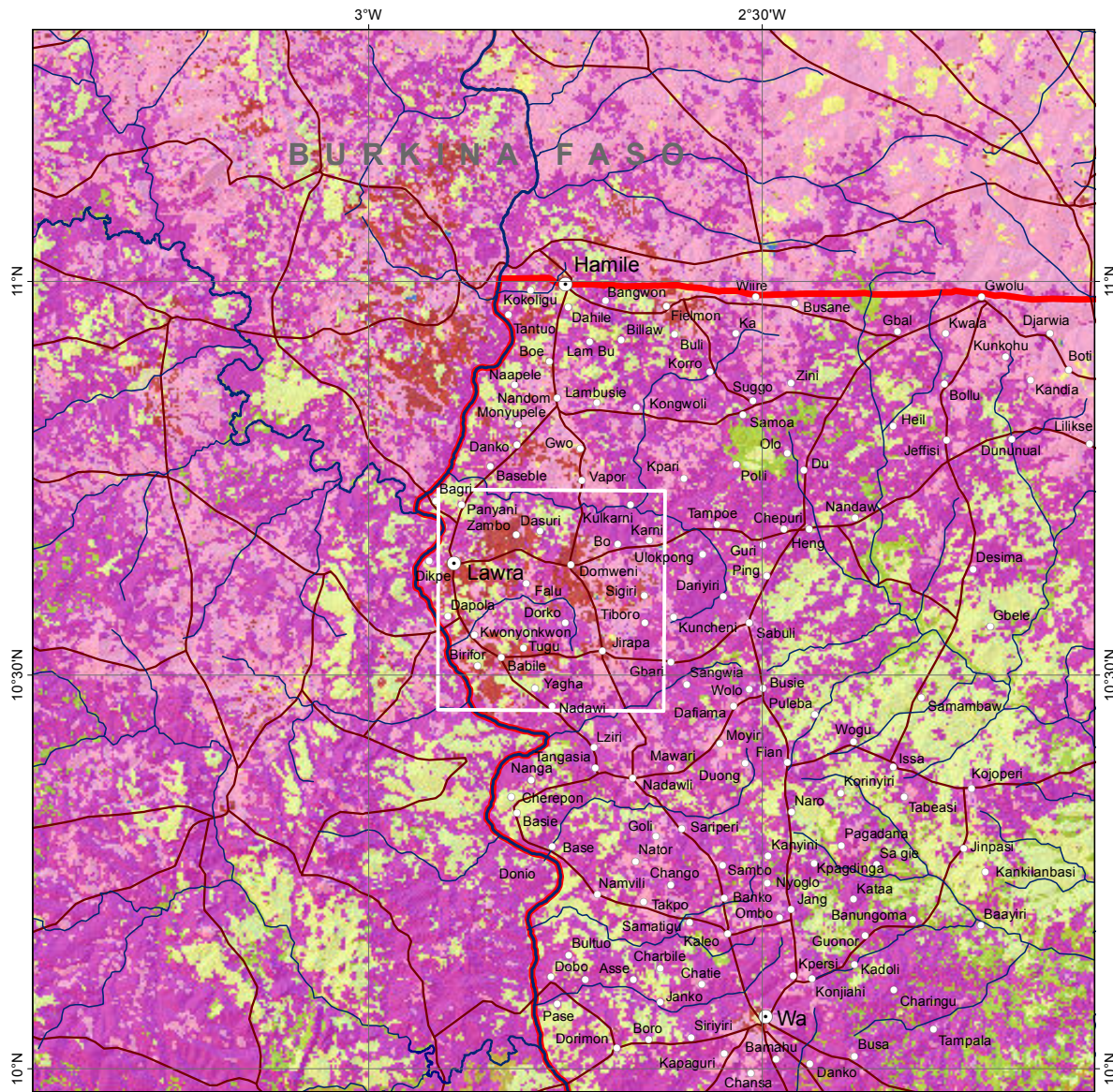
Agro-Ecological Zones *

- Northern Guinea Savanna
- Southern Guinea 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.

Citation: FAO (2008)



— 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
- Open broadleaved deciduous forest
- Mosaic Forest-Shrubland/Grassland
- Closed to open shrubland

* Legend corresponds to left map

○ Town
○ Settlement

— International boundary
— Road
— River

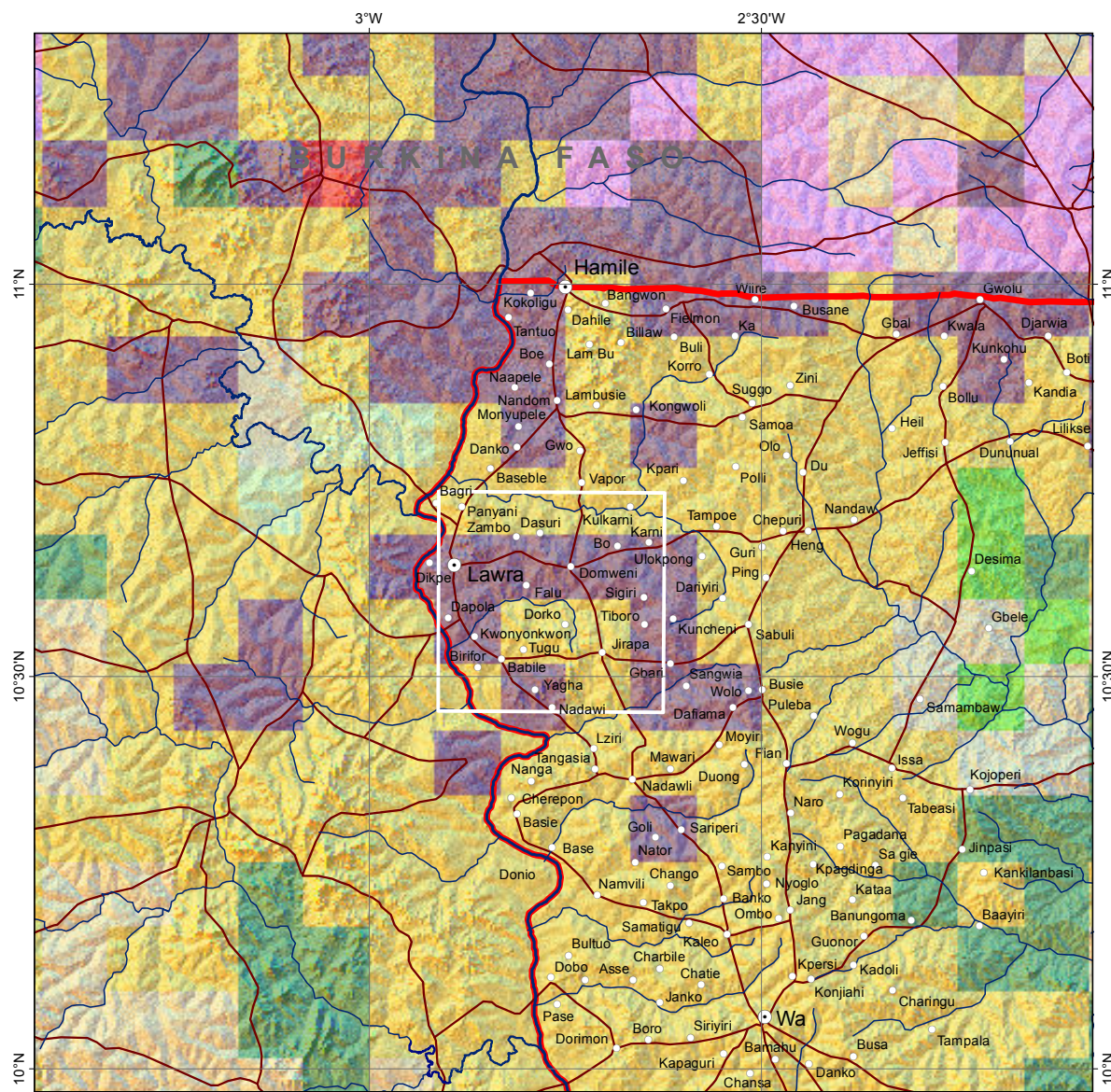
Scale 1:1,000,000

0 5 10 20 30 40 50 Kilometers

1 cm = 10 km

Lawra CCAFS sampling frame

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



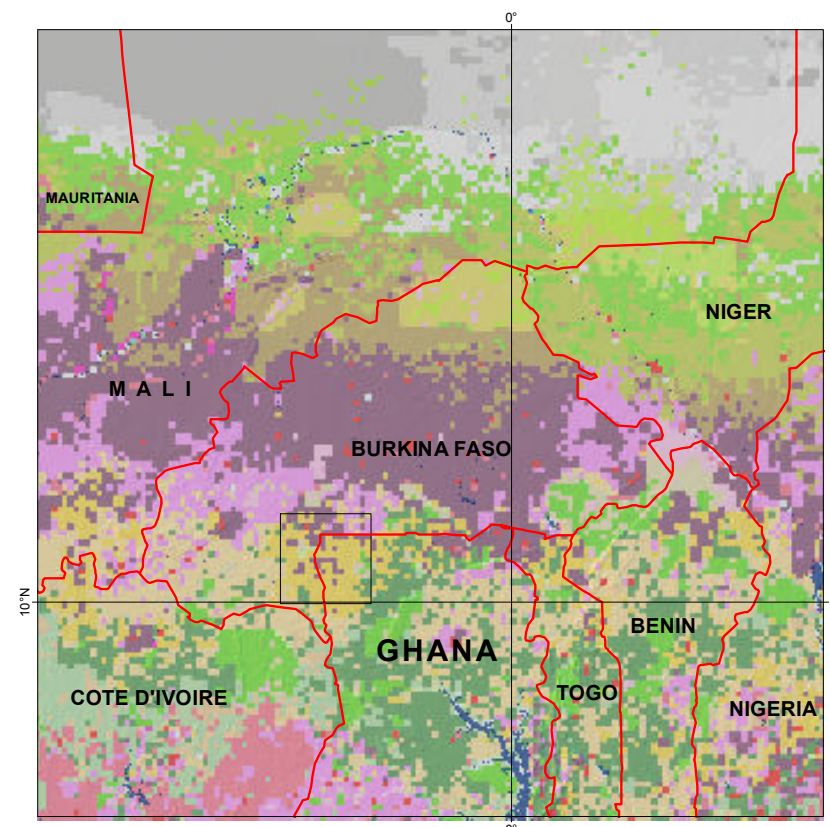
- Town
- Settlement
- International boundary
- Road
- River

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

1 cm = 10 km



Lawra CCAFS sampling frame



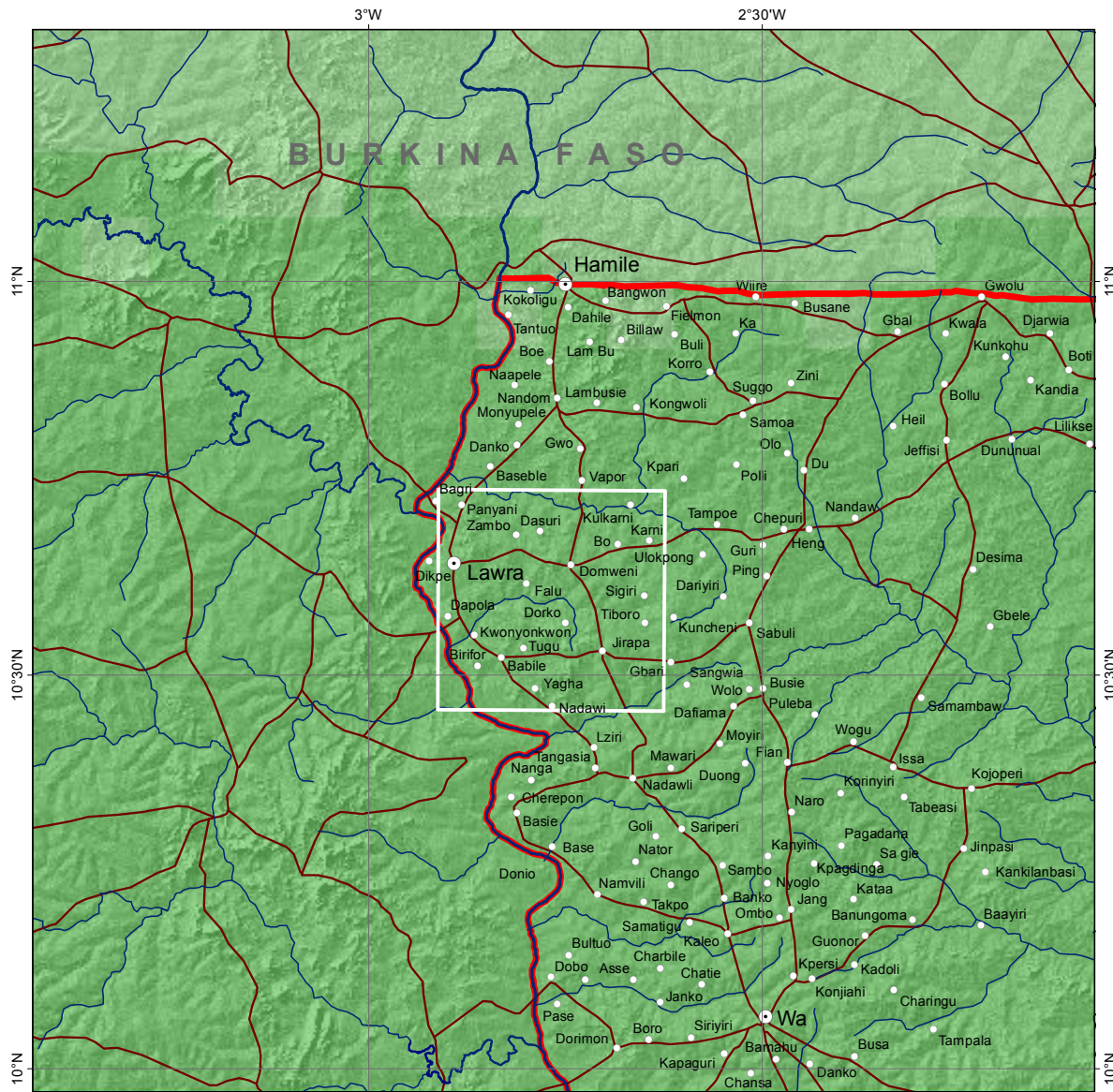
— International boundary
Scale 1:12,500,000
0 125 250 500 Kilometers

Corresponds to the map on the left

- Landuse**
- Forest protected
 - Forest with moderate or higher livestock density
 - Shrubs unmanaged
 - Shrubs protected
 - Shrubs moderate livestock density
 - Shrubs high livestock density
 - Crops and moderate intensive livestock density
 - Crops and high livestock density
 - Urban area

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 into built environment, such as agricultural fields and settlements. At any place, there may be multiple land uses, the dominant one is presented here.

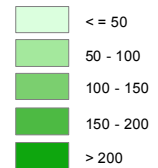
Length of Growing Period 2000



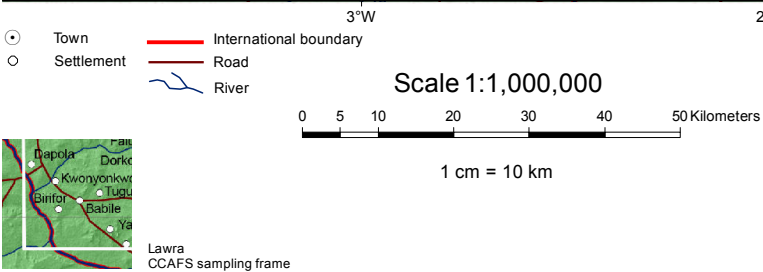
International boundary
Scale 1:12,500,000
0 125 250 500 Kilometers

Corresponds to the map on the left

Length of Growing Period (Days)

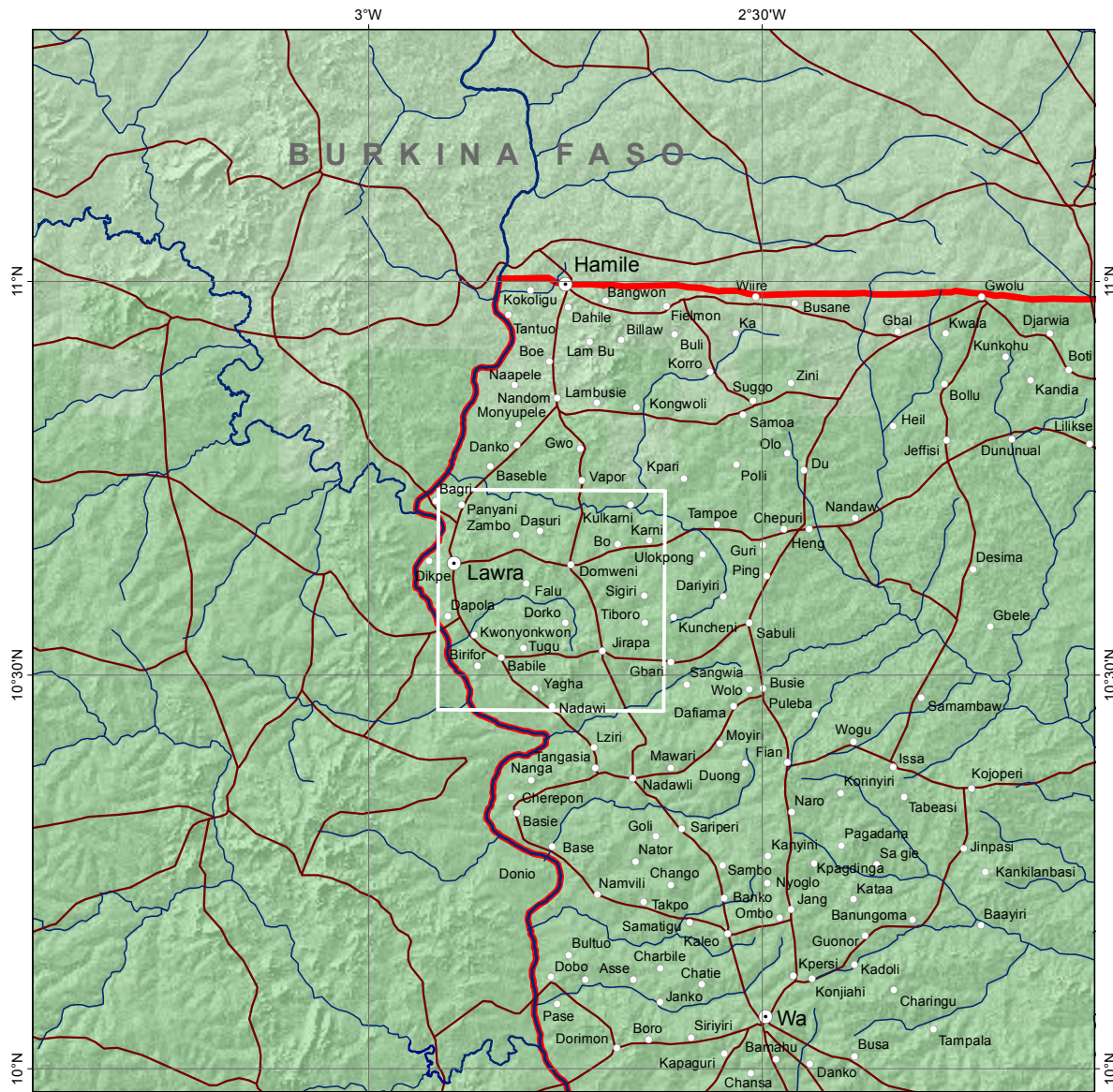


The Length of Growing Period (LGP) is defined as the number of days in a year during which there is available rainfed soil moisture supply for plant growth.



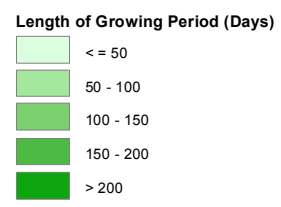
Citation: Thornton et al (2006)

Length of Growing Period 2030

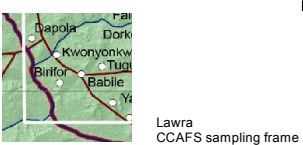


International boundary
Scale 1:12,500,000
0 125 250 500 Kilometers

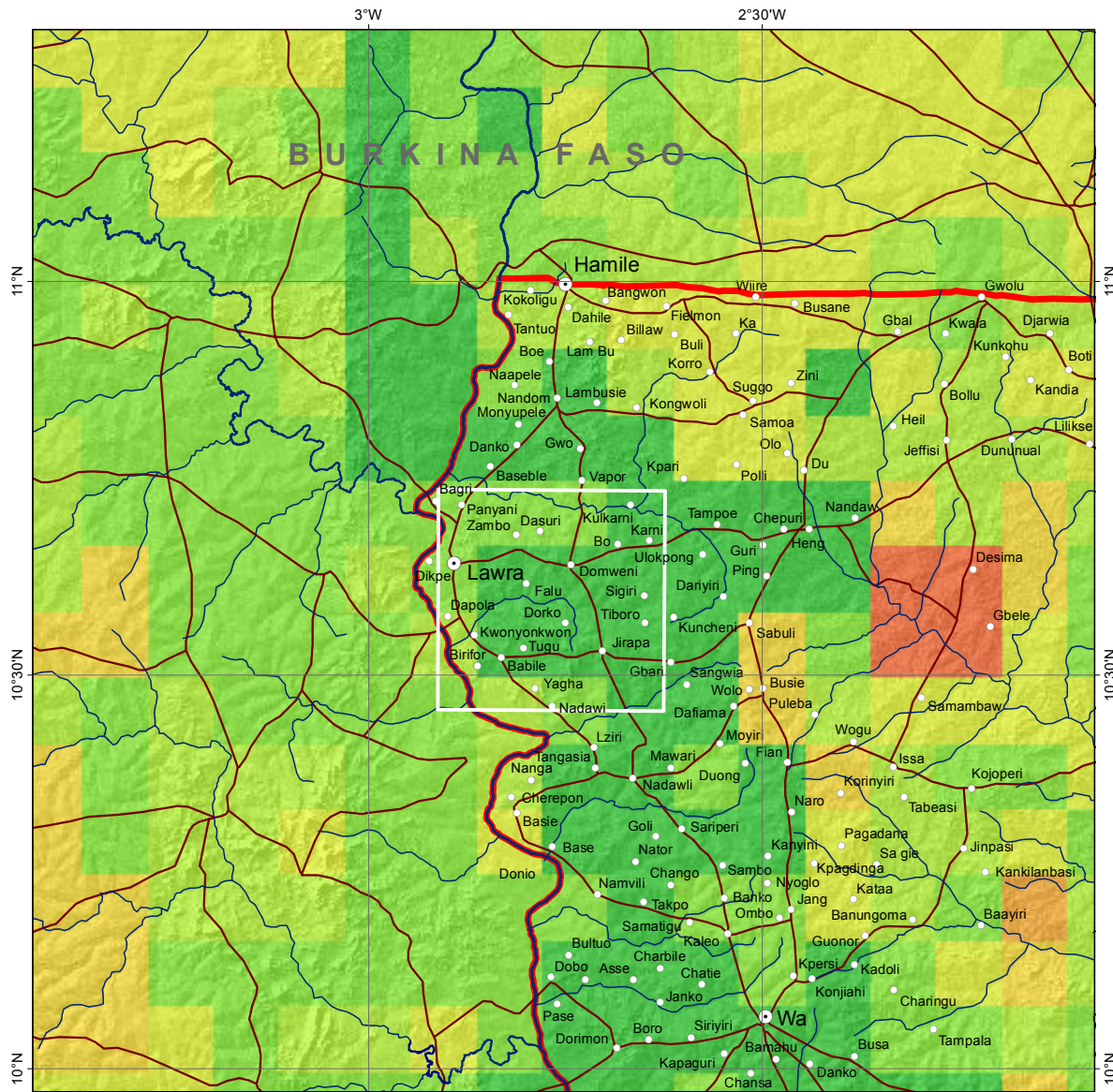
Corresponds to the map on the left



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

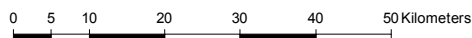


Crop Suitability

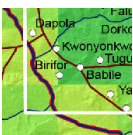


- Town
- Settlement
- International boundary
- Road
- River

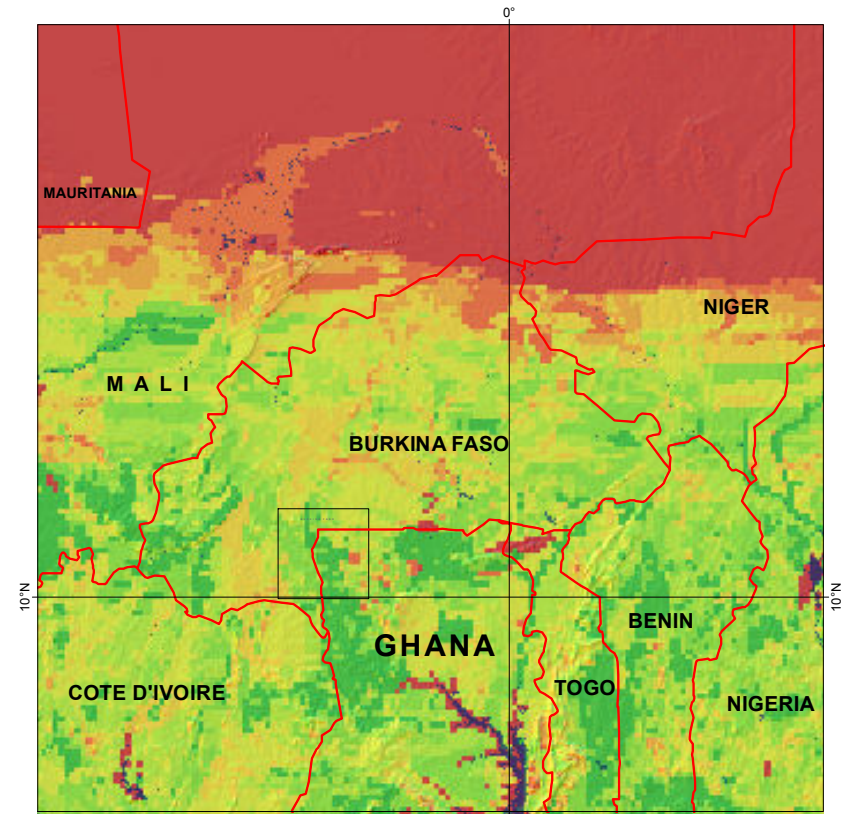
Scale 1:1,000,000



1 cm = 10 km



Lawra CCAFS sampling frame



— International boundary

Scale 1:12,500,000



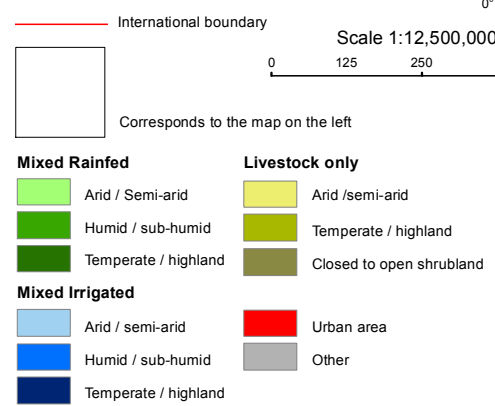
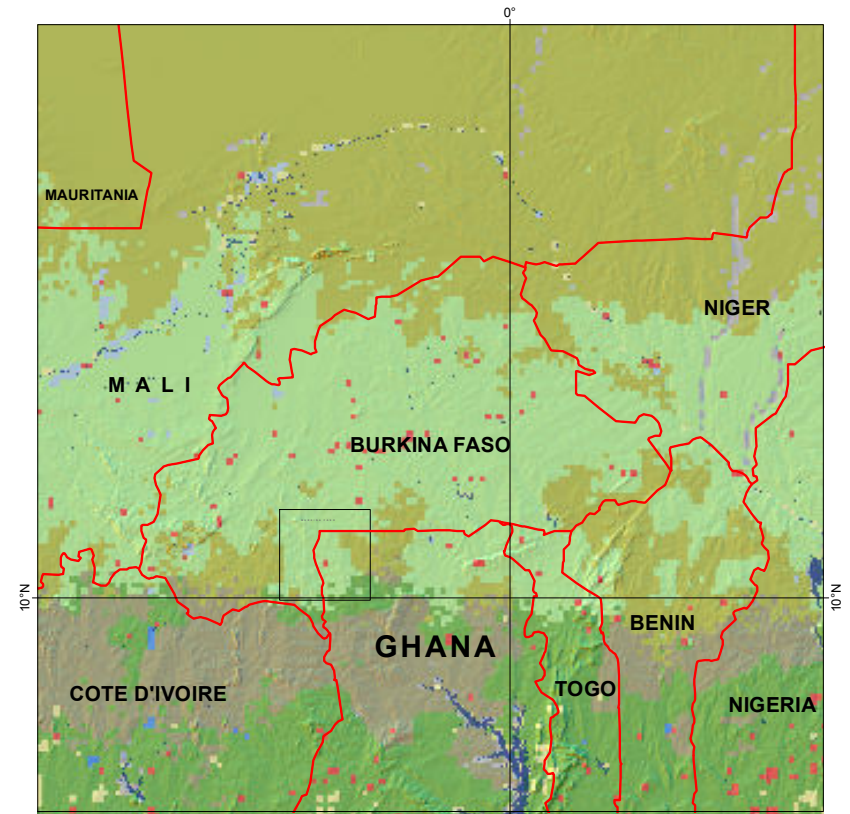
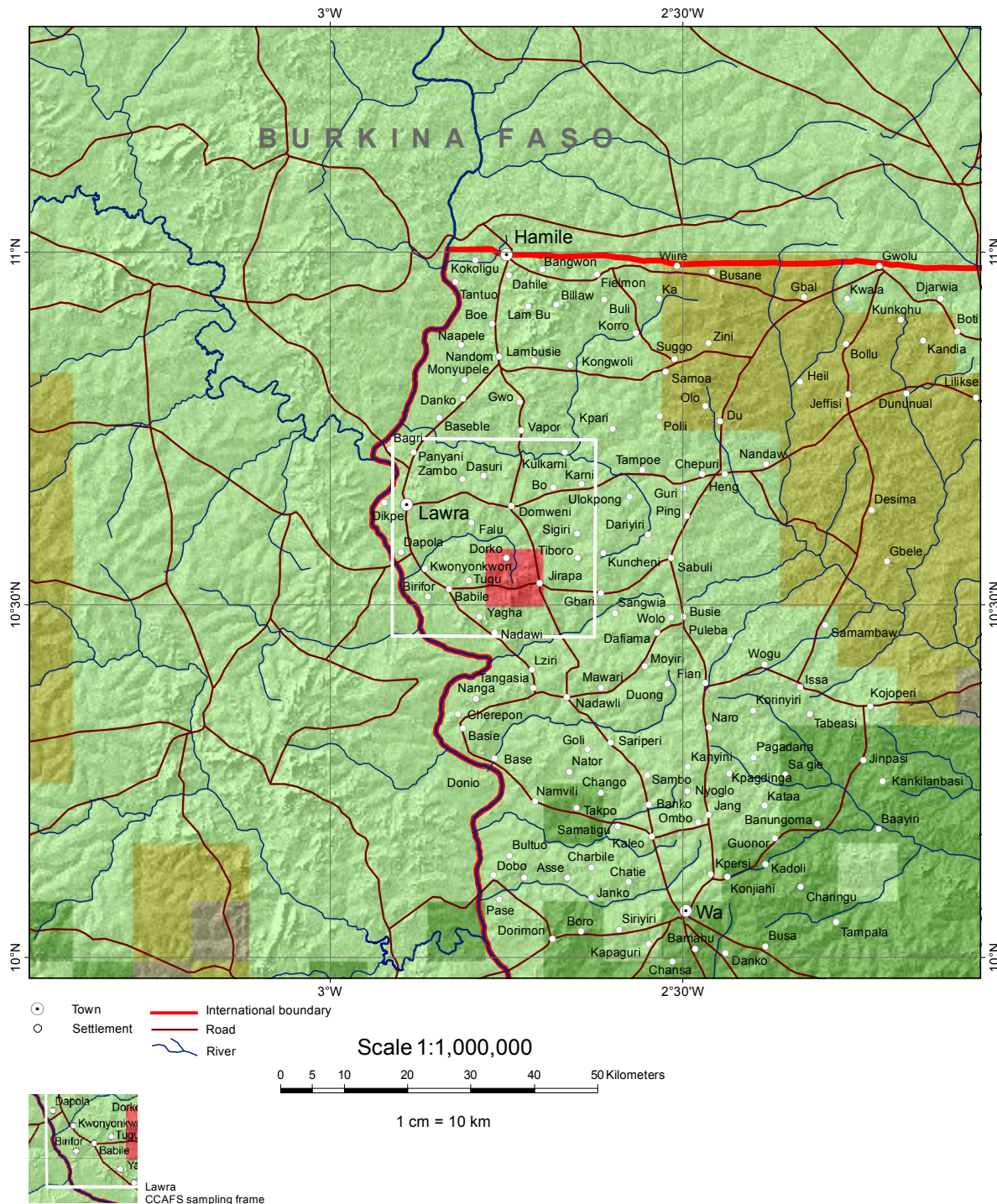
Corresponds to the map on the left

Crop Suitability

- Not suitable
- Very low
- Low
- Medium low
- Medium
- Medium high
- High
- Very high

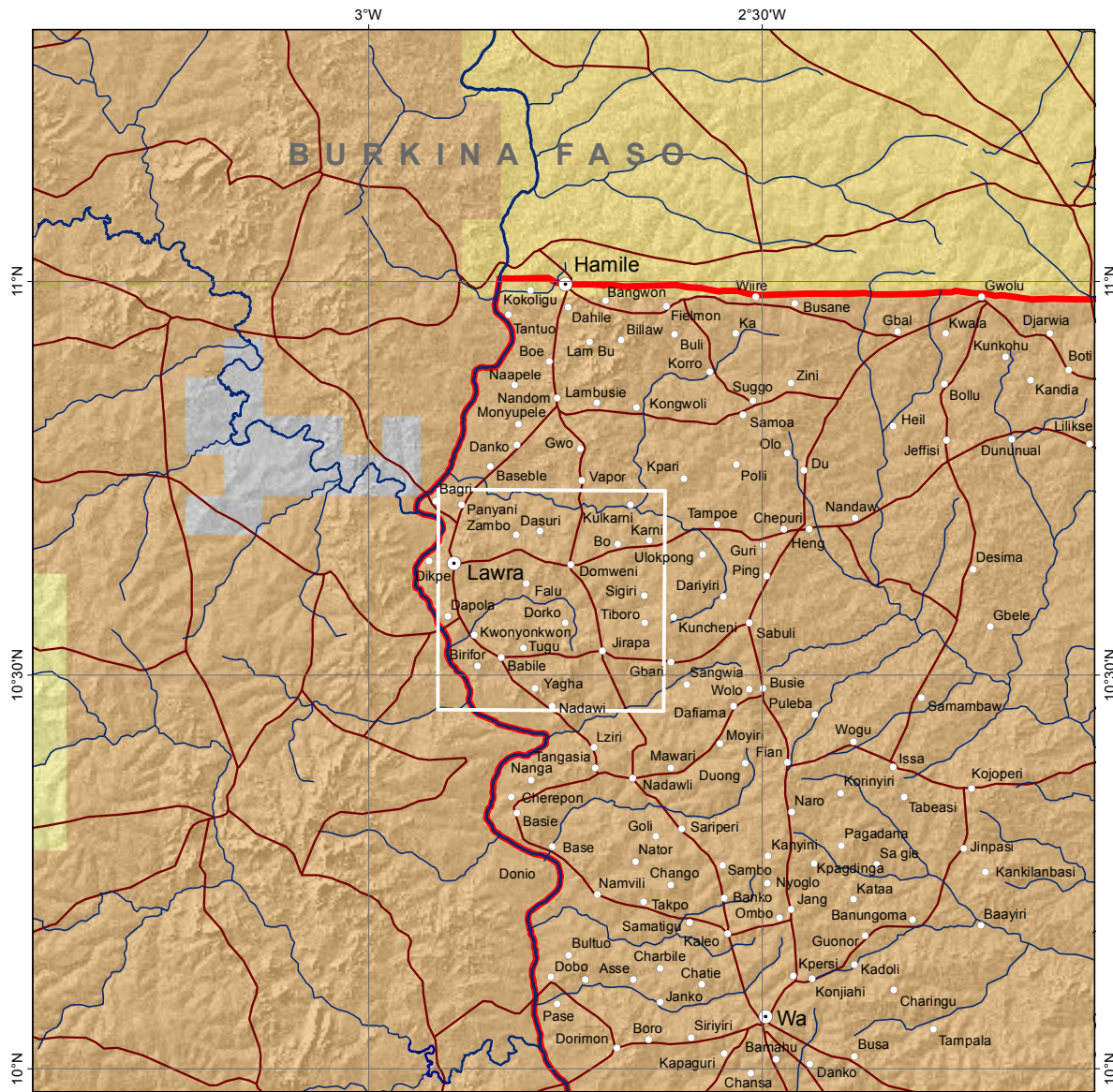
Crop Suitability refers to the land resource assessment that considers agricultural land use options with relevant agro-ecological condition to estimate expected cropping activities.

Livestock Production Systems



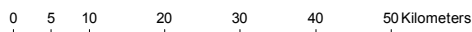
Livestock Production Systems as part of agricultural systems take agro-climatic condition into account and are classified in terms of feed and livestock resources; livestock commodities produced; production technology; product use and livestock functions; area covered; geographic locations; and human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

Livestock Density



- Town
- Settlement
- International boundary
- Road
- River

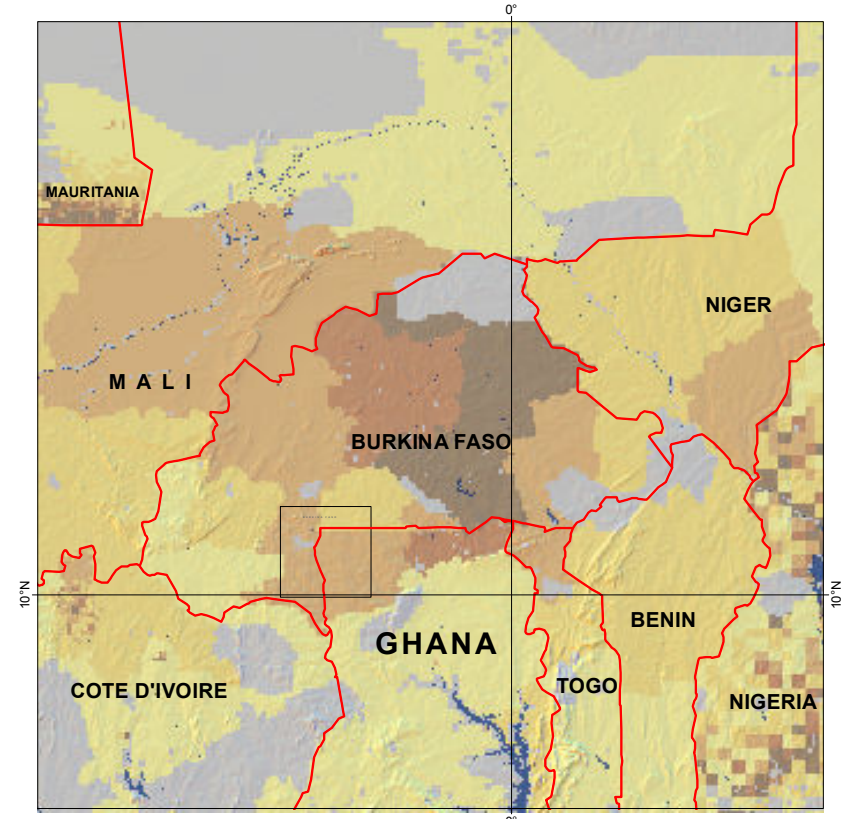
Scale 1:1,000,000



1 cm = 10 km



Lawra CCAFS sampling frame



— International boundary

Scale 1:12,500,000



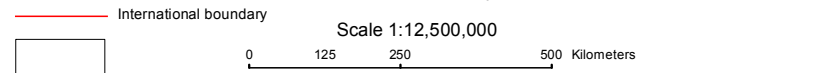
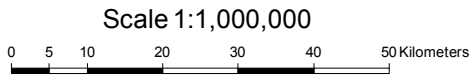
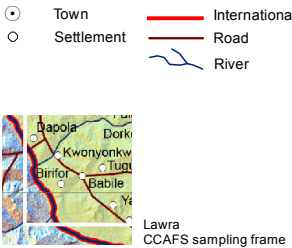
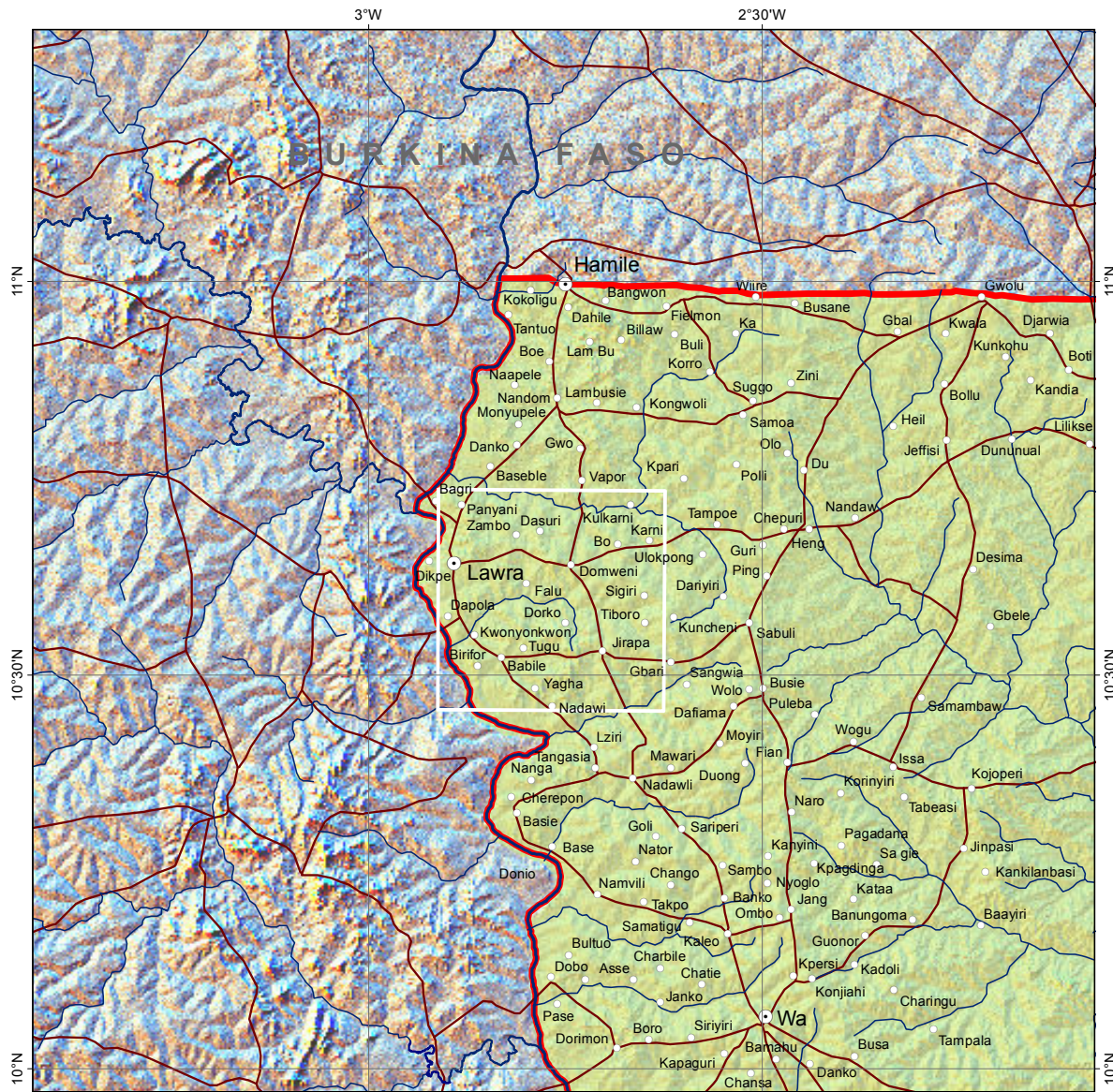
Corresponds to the map on the left

Number per km²

- No Observations
- ≤ 5
- 5 - 10
- 10 - 15
- 15 - 20
- ≥ 20

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

Livelihood Zones



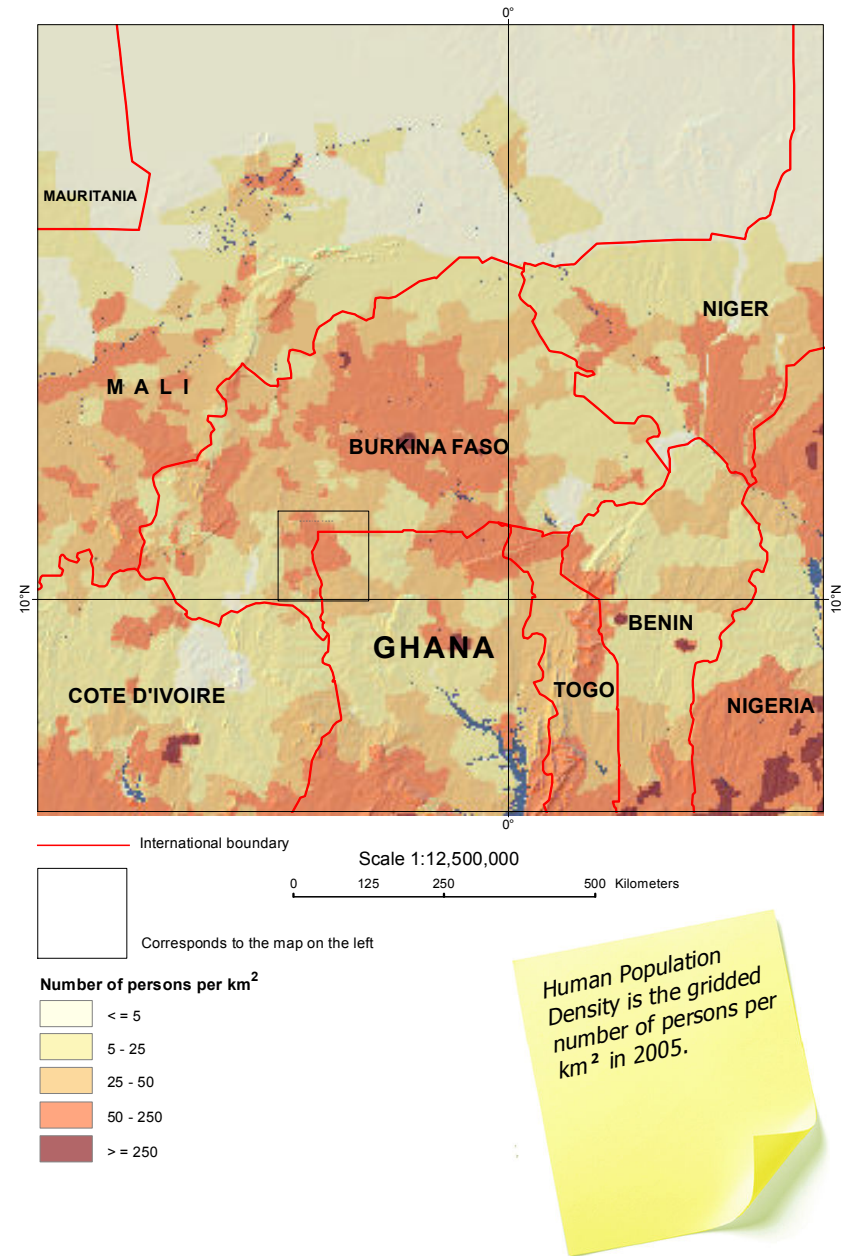
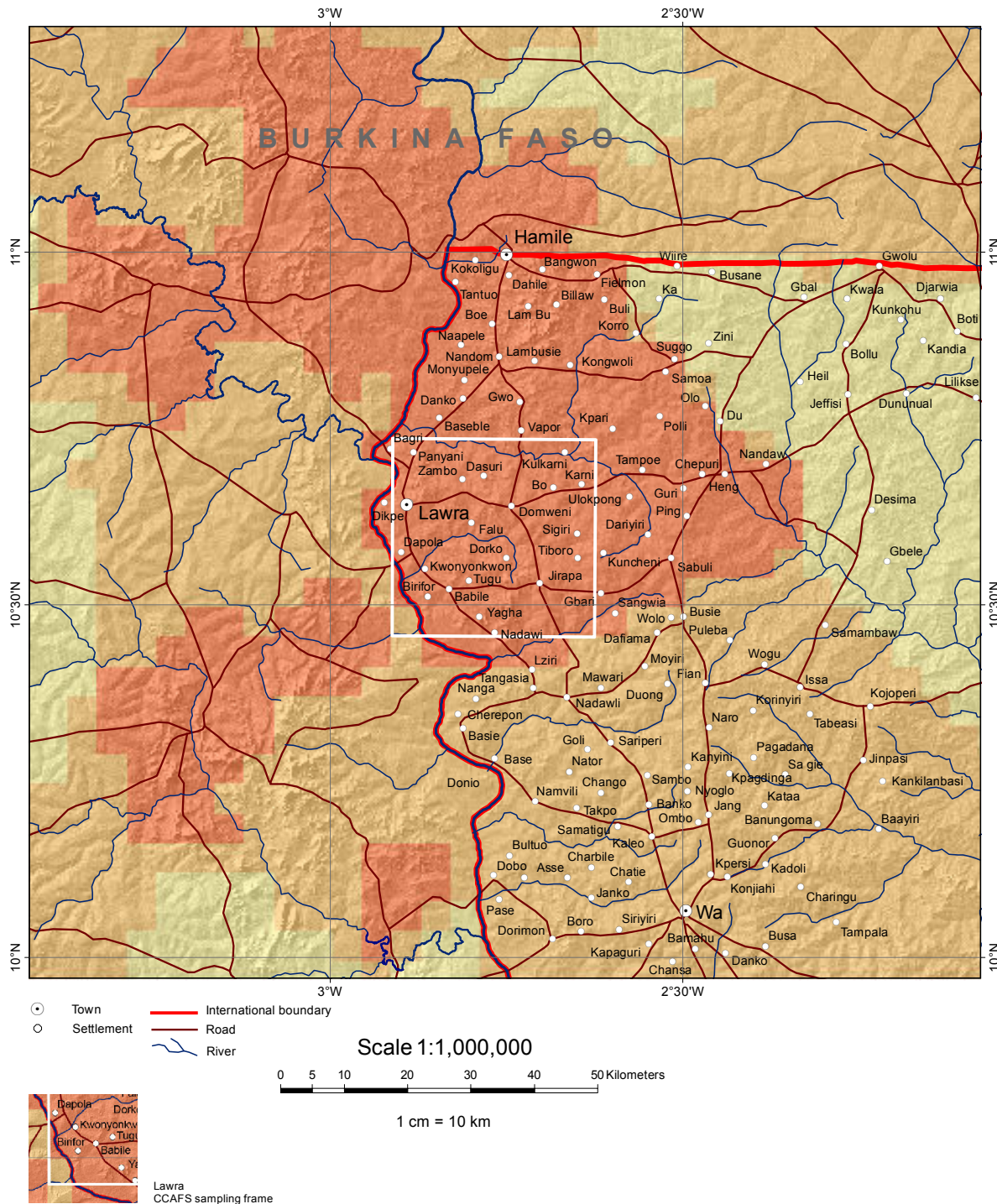
Corresponds to the map on the left

Livelihood Zones

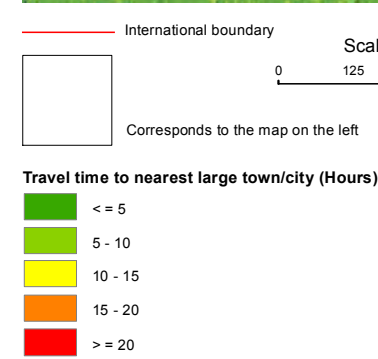
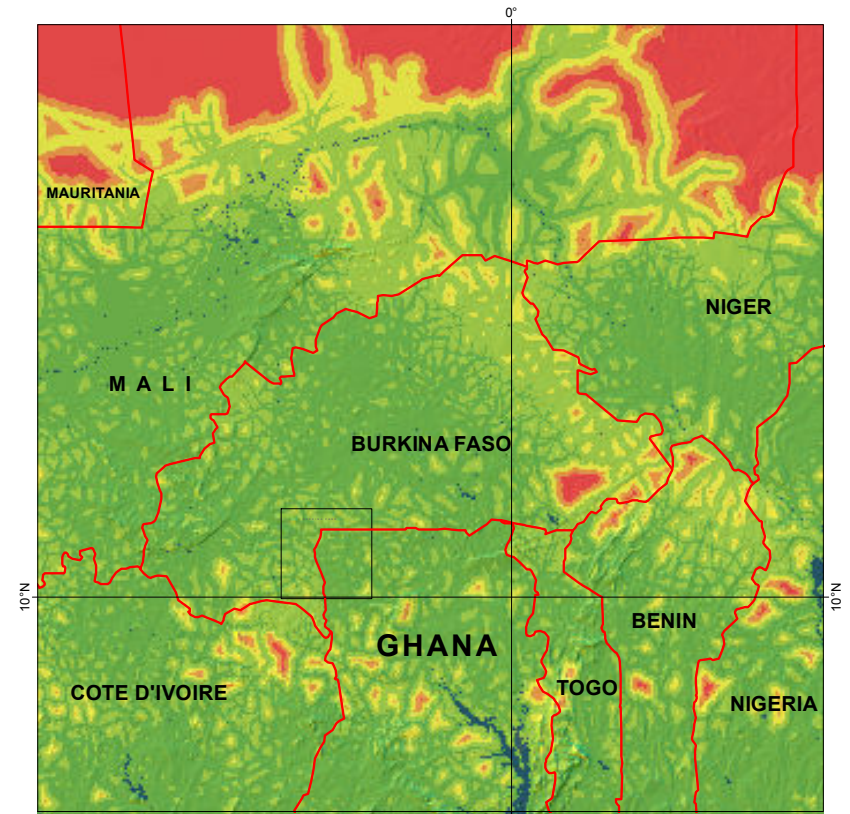
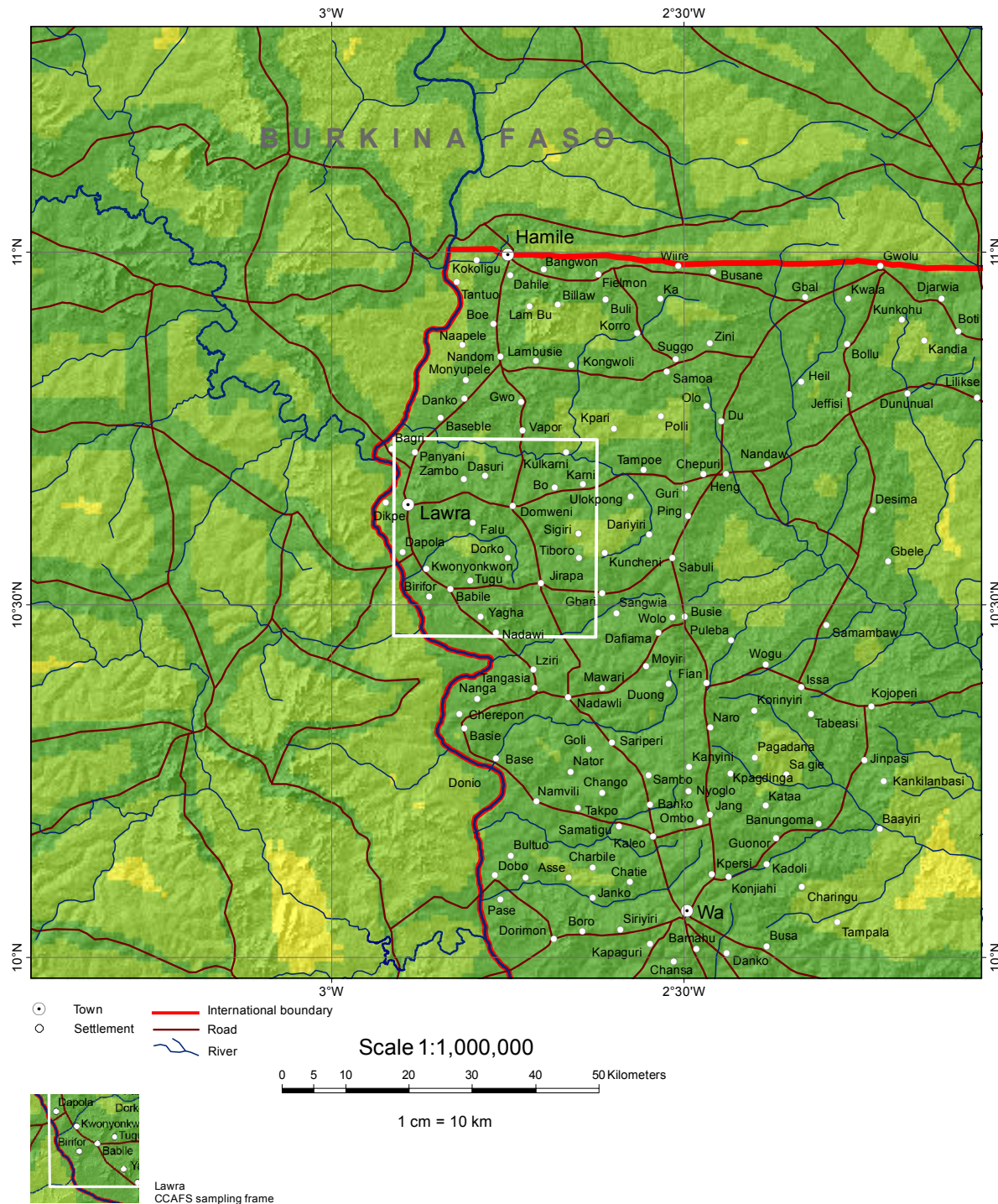
- Cereals (sorghum / millet), legumes, yam, livestock
- Cereals-sorghum millet, legumes, yam small ruminants fowl
- Fishing, Salt, Vegetables
- Fishing, Maize, Yam
- Tree Crop Zone, Commercial Poultry
- Tubers Maize, Cashew, Livestock
- Yam, Cassava, Livestock
- Commercial Rice and Livestock
- Commercial Maize, Cassava, Small Ruminants
- Forest Tree Crops, Rubber
- Maize, Rice, Tree Crops / Mango, Livestock

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.

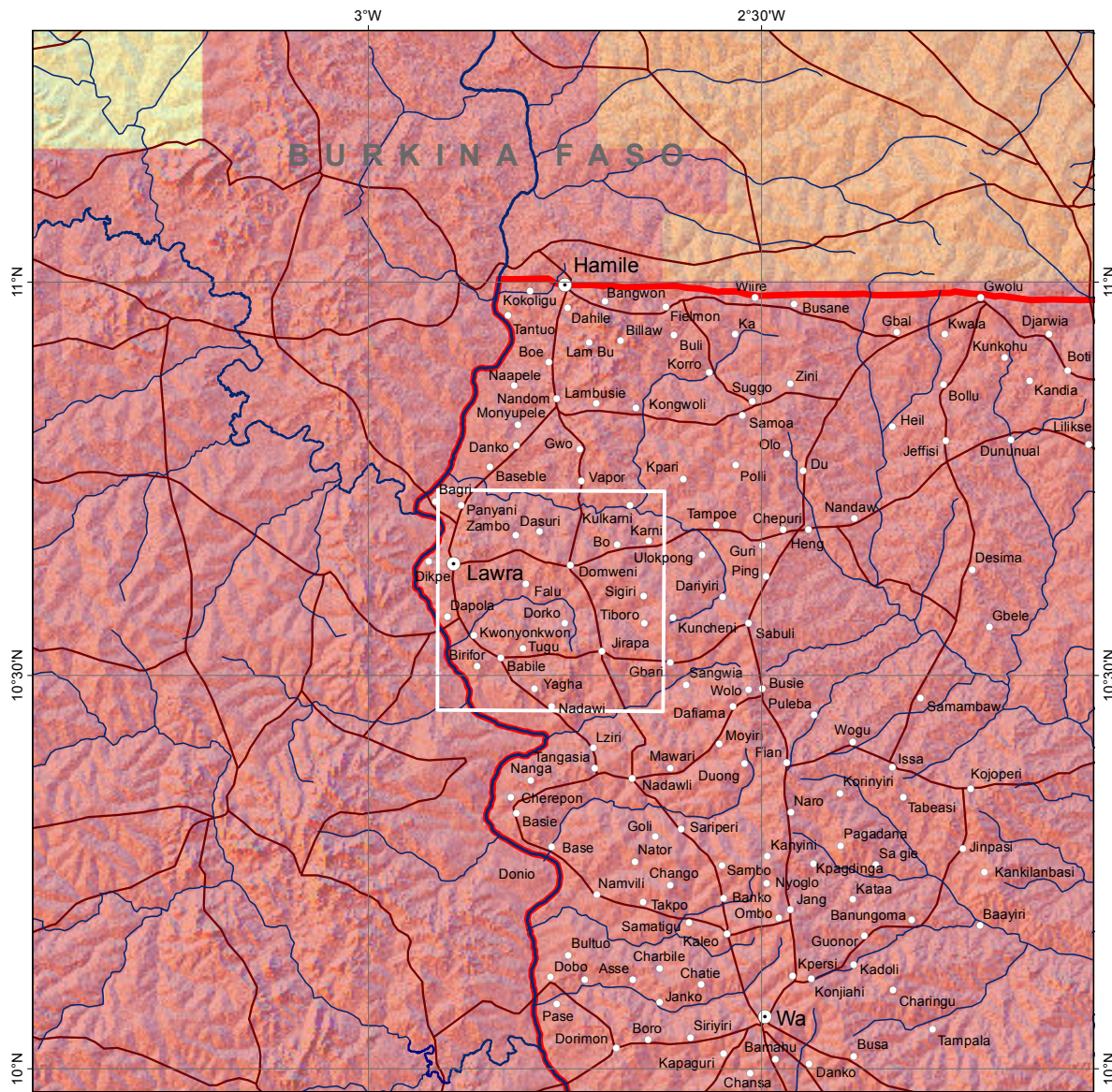
Human Population Density



Market Access

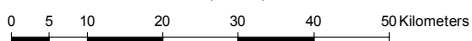


Travel time is a measure of accessibility determined in the time (hours) taken to the nearest urban centre, town or city of a population of 50,000 people or more (taking different means of transportation into account)

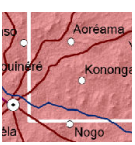


- Town
- Settlement
- International boundary
- Road
- River

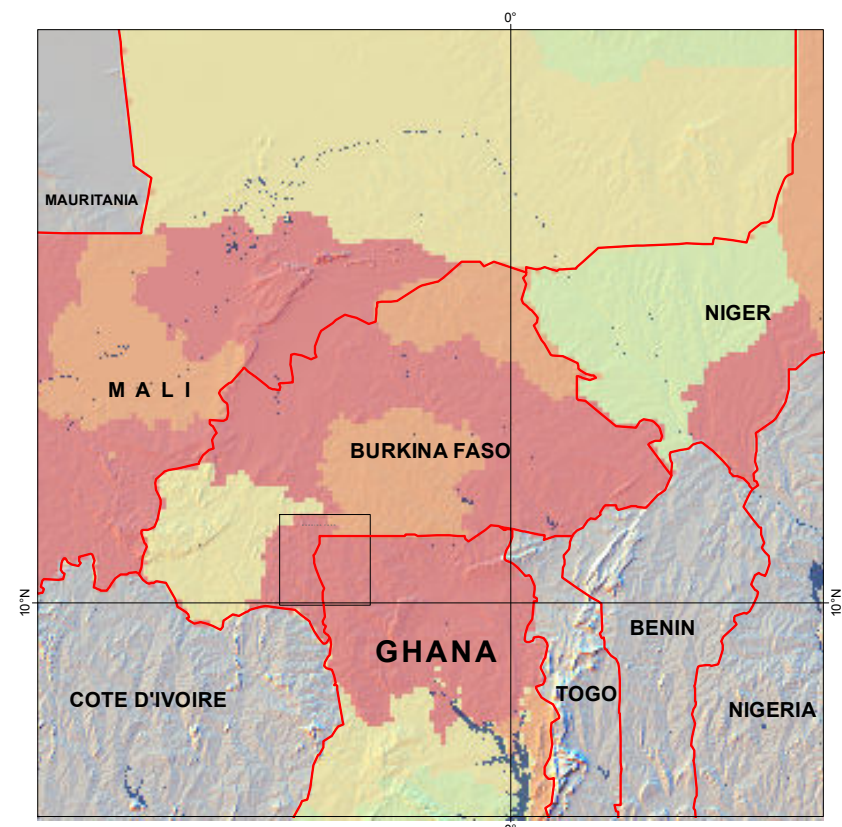
Scale 1:1,000,000



1 cm = 10 km



Lawra CCAFS sampling frame



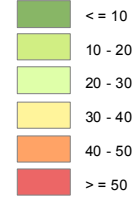
— International boundary

Scale 1:12,500,000



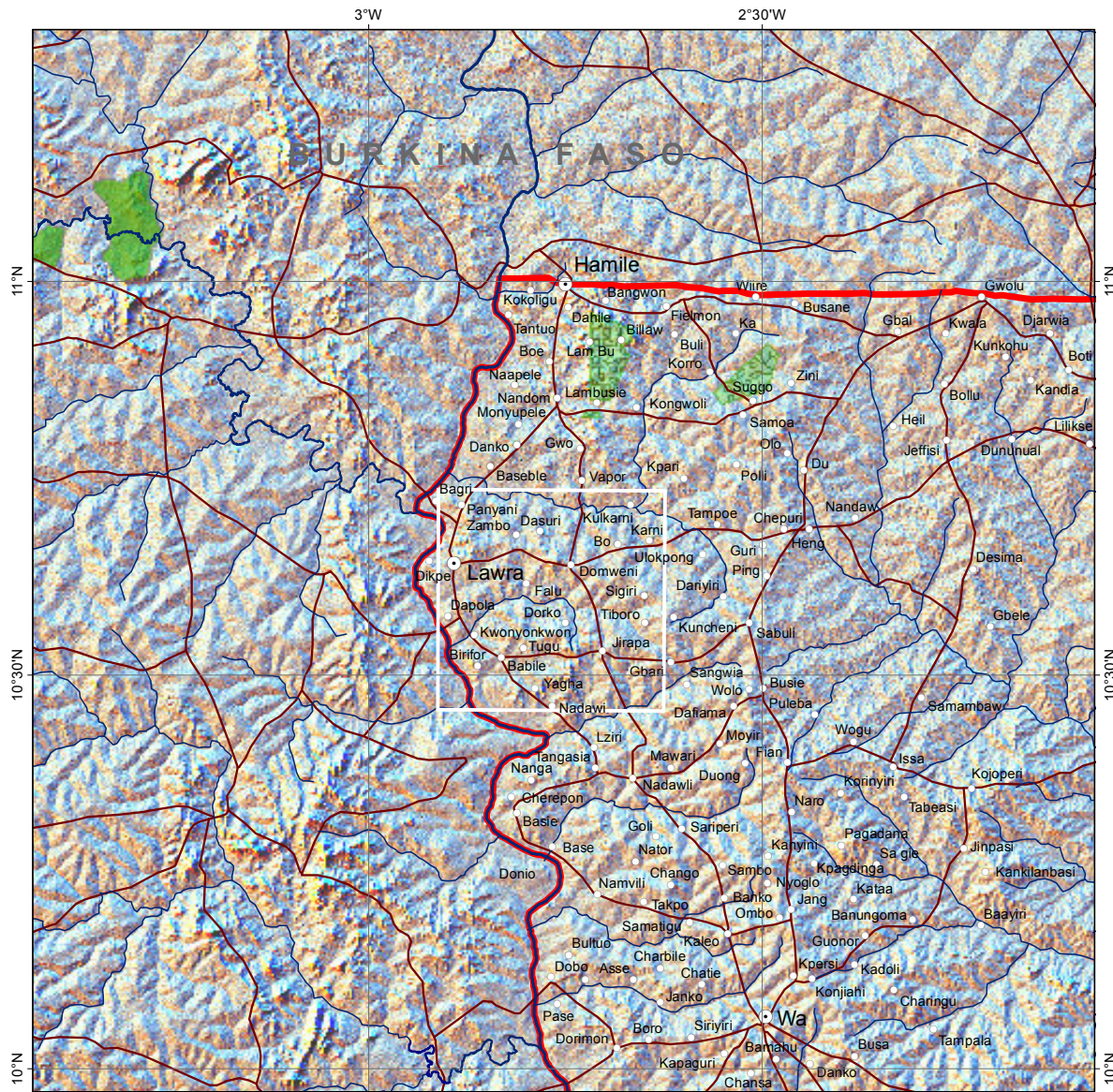
Corresponds to the map on the left

Percentage of People living on less than 2 US\$ per day



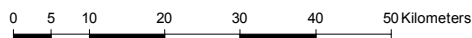
CIESIN constructed global data sets of poverty that are based on estimates of subnational infant mortality and child malnutrition data, recognizing that both are proxies for poverty and welfare rather than direct measures.

Conservation Areas



- Town
- Settlement
- International boundary
- Road
- River

Scale 1:1,000,000



1 cm = 10 km



— International boundary

Scale 1:12,500,000



Corresponds to the map on the left

Conservation Areas

- Forest Reserve
- Classified Forest

Conservation Areas represent protected areas that, according to IUCN, are clearly defined geographic spaces, recognized, dedicated and managed 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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