CCAFS site atlas

Khulna / Morrelganj
Bangladesh

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)
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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 Khulna / Morrelganj in Bangladesh, in South Asia Region.
CCAFS Sites: South Asia

Bengladesh: Khulna (BA04)
India: Bihar (IN16)
India: Haryana (IN17)
Nepal: Mid-Western Terrai (NE03)
Topography Khulna

CCAFS Site BA04  Khulna / Morrelganj, Bangladesh

Coordinates of the CCAFS Baseline
Sampling frame
89.911E  22.552N
89.911E  22.461N
89.812E  22.461N
89.812E  22.552N

Sampling frame size: 10km x 10km

Citation: GeoMaps (2013b)
RapidEye imagery from 26-12-2011 at 5m ground resolution

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

Settlement

CCAFS VBS/OBS village
CCAFS HBS villages

CCAFS Baseline Sampling Frame

Citation: RapidEye (2011)
Altitude

Altitude indicates the height above sea level in meters.

- > 1000
- 750 - 1000
- 750 - 500
- 250 - 500
- > 250

Citation: Jarvis et al (2008)
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.

Citation: FAO et al (2009)
Agro-Ecological Zones

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

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.

Legend:
- Forest with moderate to higher livestock density
- Shrubs protected
- Shrubs with high livestock density
- Rainfed crops (Subsistence/Commercial)
- Crops and high livestock density
- Crops, large-scale irrigated, moderate or higher livestock density
- Urban area
- Wetlands protected
- Open Water inland Fisheries

Citation: Netchtergaar et al (2010)
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.
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 refers to the land resource assessment that considers agricultural land use options with relevant agro-ecological condition to estimate expected cropping activities.

Crop Suitability considers agricultural land use options with relevant agro-ecological condition to estimate expected cropping activities.

Citation: FAO and IIAASA (2007)
Livestock Production Systems

Mixed Rainfed
- Arid / Semi-arid
- Humid / sub-humid
- Temperate / highland

Livestock only
- Arid / semi-arid
- Temperate / highland
- Humid and sub-Humid
- Urban area
- Other

Livestock Production Systems as part of agricultural systems take into account and are classified as feed and livestock commodities, resources, livestock commodities, production technology, production use and livestock functions, product use and livestock functions, area covered, geographic localization, and human populations supported.

Citation: FAO (2007)
Livestock Density

Number per km²

- No Observations
- 0 - 15
- 15 - 30
- 30 - 45
- 45 - 60
- > 60

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

Citation: Wint et al (2007)
References and Data Sources

Regional Map

Topographic Map
Sijmons K. 2013b. Relief representation derived from Digital Elevation Model (DEM) of SRTM (Shuttle Radar Topographic Mission) 2000, Ground resolution 90 meter and ASTER GDEM, Ground resolution 30 meter, NASA. Topographic Features digitized from Google Earth Projection: Geographic, Lat/Long, WGS84

Satellite Image
RapidEye Satellite Image, 5 meter ground resolution, Image acquisition, 17-01-2011

Annual Rainfall

Annual Rainfall Graph

Annual Temperature

Annual Temperature Graph

Aridity Index

Altitude

Soil Type

Agro-Ecological Zones

Landcover

Landuse

Length of Growing Period 2000

Length of Growing Period 2030

**Crop Suitability**

**Livestock Production Systems**

**Livestock Density**
FAO, 131 pp.

**Human Population Density**

**Market Access**

**Poverty**

**Conservation Areas**
UNEP-WCMC (2012). Data Standards for the World Database on Protected Areas. UNEP-WCMC: Cambridge, UK.
The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) brings together the world’s best researchers in agricultural science, development research, climate science and Earth System science, to identify and address the most important interactions, synergies and tradeoffs between climate change, agriculture and food security. CCAFS is a strategic partnership of CGIAR and Future Earth, led by the International Center for Tropical Agriculture (CIAT).

For more information, visit www.ccafs.cgiar.org and www.geomapa.nl