LAND COVER
ATLAS
OF BANGLADESH 2015

(in support of REDD+)

Land Cover Atlas of Bangladesh 2015

(in support of REDD+)

Land Cover Atlas of Bangladesh 2015 (in support of REDD+)

Contact:

Suggested Citation:

Disclaimer

Foreword

Abdullah Al Mohsin Chowdhury
Secretary
Ministry of Environment, Forest and Climate Change

The Ministry of Environment, Forest and Climate Change, with the vision of ensuring sustainable use of natural resources in the country, is keen to support initiatives that address the data needs for mitigating the negative impacts of climate change and pollution. This ultimately leads to better monitoring and management of ecosystem and biodiversity resources. It is extremely important for natural resource monitoring in particular, that land cover information achieves a high standard of data quality, takes advantage of the most practical and best technology available, and is derived from consensus expert opinion.

Based on the Land Representation System of Bangladesh (LRSB), the land cover map of Bangladesh 2015 has been developed with the aim of having more accurate land cover information for monitoring natural resources in support of REDD+ activities, national forest resources assessment, interventions on land degradation, and informing related policies. The land cover map 2015 is also useful for producing either official data or supplemental data for multiple indicators under the sustainable development goals (SDGs). Indicator 15.1.1 in particular is directly assessed using the land cover map. For other indicators, land cover information can be used in combination with other datasets to derive or validate both baseline and change statistics for: proportion of agricultural area under productive and sustainable agriculture (Indicator 2.4.1), proportion of bodies of water with good ambient water quality (Indicator 6.3.2), change in the extent of water-related ecosystems over time (Indicator 6.6.1), forest area as a proportion of total land area (Indicator 15.1.1), progress toward sustainable forest management (Indicator 15.2.1), proportion of land that is degraded over total land area (Indicator 15.3.1) and mountain green cover index (Indicator 15.4.2).

With the technical support of the Food and Agriculture Organization of the United Nations (FAO), the development of the map considered methods and information appropriate for Bangladesh and was based on the participation and technical expertise of several national institutions and non-government partners. Such integrated efforts ensure cost-efficiency by avoiding duplication and confusion related to parallel activities involved in land cover map development. It is expected that this advantage will facilitate the process of producing consistent statistics and time-series data for comparisons, which will contribute towards sustainable management of natural resources, environmental protection, biodiversity conservation and developing sustainable livelihoods.

(Abdullah Al Mohsin Chowdhury)

Message

Mohammed Shafiul Alam Chowdhury
Chief Conservator of Forests
Forest Department

Forest Department as a government organization is responsible for forest resource management and affirms that the publication titled "Land Cover Atlas of Bangladesh, 2015" is a great initiative made under the project "Strengthening National Forest Inventory and Satellite Land Monitoring System in support of REDD+ in Bangladesh". This publication was successful due to the tremendous cooperation and technical support of multiple organizations.

The Land Cover Map of Bangladesh 2015 is the first ever such map of Bangladesh that is based on a standard classification system. The legend of the map is developed based on the Land Representation System of Bangladesh (LRSB) – a standardized and harmonized classification system ensuring that the objectives and consideration of the different national institutions are reflected. The map is intended to establish a benchmark where land cover is classified based on actual physical features present on the ground rather than traditional definitions using subjective and ambiguous terminology.

This publication reflects the integrated approach to represent land cover of Bangladesh with detailed information derived from geospatial analysis of SPOT satellite images and legend preparation using LCCS tool. Land cover classes were generated by use of LCCS tool while maps were generated through systematic satellite images. The Land Cover Map of Bangladesh 2015 presents the results of the land cover mapping activities to facilitate wider dissemination, acceptability and use across different end-users from national and international arena. In the atlas, each of the 64 districts of Bangladesh has been presented with district land cover map and area statistics along with descriptions and picture of the district.

I am confident that this publication is a valuable resource for the government and people of Bangladesh. It is also an example of successful multi-agency collaboration from which other mapping initiatives may learn from.

(Mohammed Shafiul Alam Chowdhury)

Message

Robert Douglas Simpson
FAO Representative in Bangladesh
Food and Agriculture Organization of the United Nations

Food and Agriculture Organization of the United Nations

Geographic location of Bangladesh has blessed the country with abundance of natural resources and perfect conditions of climate and soil. Most of the largest mangrove forest of the world, the Sundarbans, is in the southern Bangladesh with a unique ecosystem and biodiversity while the Ganges-Brahmaputra-Meghna river system have been providing from centuries fertile sediments and abundance of water for food production. At the same time, the location and topography of Bangladesh are also accused for its ever-increasing risk to the impacts of climate change and other natural hazards like river and coastal erosion, storm and cyclones, soil salinization, sea-level rise, degradation of natural forests etc. While the natural resources and favorable climate speeds the growth of population, poverty is rising as well, often resulting in over-exploitation of the resources including deforestation, degradation, environmental pollution and most importantly conversion into agricultural land.

To ensure comprehensive development of the country, balanced governance must prevail focusing the interest of both natural environment and need of the citizens. Mapping of land cover is an ineluctable step for assessing and monitoring natural resources and policy making in order to ensure this balance. The trend of land cover change can provide the ground for policy and monitoring activities. To ensure a sustainable mapping of land cover of Bangladesh that can be adopted by any organizations for their purpose and can provide as the base for land cover change analysis in future, the LCCS approach has been followed for the first time. This approach of land cover mapping by describing land features for identifying a particular land cover, acts as a standard framework for land cover mapping and change analysis. In the view of this objective the Land Cover map of Bangladesh has been created for the year 2015 and it is hoped that this initiative will lead to a sustainable land cover mapping system in future. Several organizations in different projects have contributed to develop this land cover map resulting in a final product that serves the purpose of all.

(Robert Douglas Simpson)

Message

Janina Jaruzelski
Bangladesh Mission Director
United States Agency for International Development

The United States Agency for International Development (USAID) has supported the development of Bangladesh since the country gained independence in 1971. Over this time, Bangladesh has made impressive strides in many sectors, including agriculture, natural resource management, education, and health. These improvements have increased the nation's prosperity, food security, and resilience to natural disasters. USAID is proud of its partnership with the government and people of Bangladesh and we are encouraged by the positive results emerging from investments in development projects.

The Land Cover Atlas provides graphically rich land cover information at a district level throughout Bangladesh and is built upon the Land Representation System of Bangladesh, a transparent and internationally standardized land classification system. Numerous government, academic, and civil society organizations were actively involved in different stages of development of the Atlas, demonstrating evidence of wide acceptability and utility of the Atlas by end-users. This commitment furthers the national goal of achieving an efficient and effective land management system in Bangladesh.

At USAID, we place great importance on the ability to measure, evaluate, and learn from the impact of our investments to ensure projects are achieving desired results, and that time, energy, and resources are well spent. It is our hope that the Land Cover Atlas will become a benchmark to monitor and assess the contributions of the Government of Bangladesh, USAID, and other development partners to environmental projects, and will help ensure that future investments are well-targeted.

USAID continues to support the Government of Bangladesh's efforts to sustainably manage the country's agricultural and forest resources and looks forward to seeing the Atlas used to enhance these efforts.

(Janina Jaruzelski)

Message

Professor Dr. Mashfiqus Salehin
Director
Institute of Water and Flood management (IWFM)
Bangladesh University of Engineering and Technology (BUET)

Institute of Water and Flood management (IWFM) as a research and capacity development organization announce that "Land Cover Atlas of Bangladesh 2015" is a successful publication developed by enormous effort of intellectual peoples from institution working on mapping actions.

The prime purpose of this publication is to represent general landscape of Bangladesh at national level and this innovate approach has not attempted ever before in Bangladesh. The "Land Representation System of Bangladesh" is a publication based on a unique classification system which has been followed to prepare the land cover atlas. To represent landscape, total land cover has been classified following the Land Cover Classification System (LCCS) tool developed by FAO to guide the mappers to select the appropriate class name.

This publication has given immense effort to ensure precision at every step from SPOT image collection, correction, analysis, accuracy measurement to map generation and legend settings. The geospatial analysis is the backbone of this atlas and LCCS tool supports to generate harmonized land cover class legend. LCCL tool is mainly based on Land Cover Meta Language (LCML) -an object oriented language that normalizes all the class names to avoid complexity and data inconsistency in using maps for further analysis.

The systematic presentation of map, description, representative pictures, graph, diagrams of sixty four districts of Bangladesh enhances its aesthetic view and expresses itself as a wonderful outcome to receive wider approval throughout the world. IWFM being a part of this creative effort is very much gratified and has firm belief to expand this knowledge for future projects or reports.

(Dr. Mashfiqus Salehin)

Message

Engr. Md. Waji Ullah
Executive Director
Center for Environmental and Geographic Information Services (CEGIS)

Center for Environmental and Geographic Information Services (CEGIS) as a Center of Excellence in Bangladesh is pleased to announce that this publication titled "Land Cover Atlas of Bangladesh, 2015" is an excellent initiative. This initiative was supported by three projects: National Forest Inventory (NFI), Deltas, Vulnerability & Climate Change: Migration & Adaptation (DECCMA) and UN-REDD. While the DECCMA project supported the land cover mapping of the coastal zone, the NFI project and UN-REDD supported the land cover mapping, the integration of forest monitoring and land cover assessment al together.

CEGIS provided technical and expert knowledge support to RIMS Unit of Forest Department for the land cover map development using remote sensing (SPOT 6/7, Resolution 6 m) and GIS technology. The Land Cover Classification System (LCCS) developed by FAO was used for creation of the national legend in consultation and getting inputs from the national experts. The SPOT satellite images were segmented into homogeneous image objects or polygons and those polygons were labeled using the LCCS classification system. The detailed and seamless land cover database developed under this initiative will be the foundation of future detailed land cover monitoring in the country.

Land cover data and maps helps better understanding of the impacts of natural phenomena and anthropogenic use of the landscape. The land cover map developed under this project will provide information to support the UN-REDD programme for Reducing Emissions from Deforestation and Forest Degradation. Finally, it will enable Forest Department to provide regular and updated information about the status of greeneries and forests for a multitude of purposes.

(Md. Wazi Ullah)

Contents

List of Figure

Acronyms

BARI   : Bangladesh Agricultural Research Institute

BBS   : Bangladesh Bureau of Statistics

BIP   : Bangladesh Institute of Planners

BSGI   : Bangladesh Society of Geoinformatics

BUET   : Bangladesh University of Engineering and Technology

CEGIS   : Centre for Environmental and Geographic Information Services

DECCMA   : Deltas, vulnerability and Climate Change: Migration and Adaptation

DFID   : Department for International Development

DFO   : Divisional Forest Officer

FAO   : Food and Agriculture Organization

FD   : Forest Department

GIS   : Geographic Information System

IDRC   : International Development Research Centre

LCCS   : Land Cover Classification System

LCML   : Land Cover Meta Language

LRSB   : Land Representation System of Bangladesh

MoL   : Ministry of Land

NFI   : National Forest Inventory

NIR   : Near Infra-Red

SoB   : Survey of Bangladesh

SPOT   : French: Satellite Pour l'Observation de la Terre, lit. (Satellite for observation of Earth)

SRDI   : Soil Resource Development Institute

UNEP   : United Nations Environment Programme

UNREDD   : United Nations - Reducing Emissions from Deforestation and Forest Degradation Program

UTM   : Universal Transverse Mercator

1 Introduction

Assessment and monitoring of forest and land cover dynamics are essential for the sustainable management of natural resources, environmental protection, biodiversity conservation and developing sustainable livelihoods particularly for a populated country like Bangladesh. There is a need for spatially explicit data describing land cover, uses and management practices to recognize and characterize the heterogeneity of country's land, water and vegetation resources. In response, several national institutions are collecting and analyzing natural resources and forest-related data, and provide knowledge and recommendations at regular intervals.

During the last decades in Bangladesh, several governments, autonomous as well as private or trustee organizations were engaged in land cover/land use mapping, at different levels, by making use of remote sensing and ancillary data (Akhter and Shaheduzzaman 2013). It appears that several national land cover/use maps are developed. However, due to differences in organizational purposes, methodologies, boundaries, definitions, classification systems, varying means and capacities, the different land cover maps are not comparable in time and space. Several problems in terms of transparency, accuracy, consistency, completeness and comparability of land cover assessments limit their potential use. Many of the legends used for land cover mapping are not available and the classes are not appropriately described. Accuracy assessment is not performed in most cases. In some cases, the classification system for a single thematic area is not the same for different projects in an organization itself. In brief, organizational differences are highly manifested not only in the end products but also in the processes involved. In consequence, the use of the different land cover maps and their integration into one system is limited by constraints such as lack of documentation, inconsistency in spatial and temporal resolutions, accessibility, different classification systems, etc.

In 2011 Bangladesh became member of the UN-REDD programme and prepared a national REDD+ Readiness Roadmap that was endorsed by the UN-REDD policy board in 2012. The Bangladesh REDD+ Readiness Roadmap describes a plan of activities to prepare the country fully for the implementation of GHG emission reductions in the forestry sector. When implementing climate change mitigation activities in forestry and for other sectors through international mechanism such as REDD+ (Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries) or through national frameworks, it is imperative to ensure that the data are consistent to each other. It is also imperative that the data are properly documented in order to ensure the sustainability of the process and its continuous improvement to meet the emerging demands from the society.

The Land Cover map of Bangladesh 2015 has been developed with the aim of having more accurate land cover information that can help in policy making and monitoring of natural resources. The mapping activities were conducted with collaboration between three projects, i.e., Strengthening National Forest Inventory and Satellite Land Monitoring System in support of REDD+ in Bangladesh (GCP/BGD/058/USA), Deltas, Vulnerability & Climate Change: Migration & Adaptation (DECCMA) (GCP /GLO/546/USH) and United Nations - Reducing Emissions from Deforestation and Forest Degradation Programme (UN-REDD) (UNJP/BGD/057/UNJ) under the technical supervision of the Food and Agriculture Organization of the United Nations (FAO). The process is built on the comparative advantage of several national institutions and their respective technical expertise to implement the production chain of the land cover map development. Such integration efforts ensure the cost-efficiency by avoiding duplication and confusion related to parallel activities involved in land cover map development.

Land cover mapping is an essential yet complicated issue in the context of Bangladesh. The growing population and economic transition have significant impacts on land cover within the country which should be monitored, analyzed and taken into consideration for policy making. Despite a number of parallel projects developing land cover data for parts of the country the lack of consistent classifications makes inter-comparison and change analysis more difficult. Reasons behind this inconsistency include difference in the concept or definition of the land cover classes, errors in mapping and lack of appropriate descriptions of the legends. Due to these dissimilarities, land cover monitoring and change analysis are often hampered significantly.

To lessen the issues of inconsistency, the Global Land Cover Network (GLCN), a joint initiative between FAO, UNEP and IAO, has developed the Land Cover Meta Language (LCML) for representing different land cover classes based on the description of elements found in each of the land cover types. LCML is an ISO (International Organization for Standardization) standard (ISO 19144-2) which defines an innovative object oriented meta-language allowing flexibility in the description of land features. In collaboration with a number of government, non-government and academic organizations, including: Bangladesh Bureau of Statistics (BBS), Forest Department (FD), Bangladesh Institute of Planners (BIP), Bangladesh Society of Geoinformatics (BSGI), Bangladesh University of Engineering and Technology (BUET), Centre for Environmental and Geographic Information Services (CEGIS), Soil Resource Development Institute (SRDI), Survey of Bangladesh (SoB) and Ministry of Land (MoL), the Land Representation System of Bangladesh (LRSB), a classification system representing all possible land cover types in Bangladesh, has been developed. This system provides flexible and standard framework to prepare legends for land cover maps ensuring comparability across different organizations and times.

The legend for the Land Cover Atlas of Bangladesh have been derived from the land representation based on the discrimination of classes from satellite image interpretation, availability of ancillary data, availability of expert knowledge, etc. Mapping has been conducted based on 6m SPOT imagery (high resolution) with maximum 10% cloud coverage for year 2015. This process is mainly supported mainly by three projects, "Strengthening National Forest Inventory and Satellite land Monitoring System in support of REDD+ in Bangladesh", "Deltas, Vulnerability & Climate Change: Migration & Adaptation (DECCMA)" and "United Nations - Reducing Emissions from Deforestation and Forest Degradation Programme (UN-REDD)". The "Deltas Vulnerability and Climate Change: Migration and Adaptation" (DECCMA) project focuses on three contrasting deltas: one major, the Ganges-Brahmaputra-Meghna (Bangladesh and India); and two minors – the Volta (Ghana) and the Mahanadi (India). The project has two main aims: 1) to assess migration as an adaptation in deltaic environments with a changing climate; 2) to deliver policy support to create the conditions for sustainable gender-sensitive adaptation. The "United Nations Reducing Emissions from Deforestation and Forest Degradation" (UNREDD) project aims at developing forest information system along with delineating forest reference level through historical change in land cover. On the other hand, the "National Forest Inventory" (NFI) project includes two major objectives: 1) to develop satellite land monitoring system for improved forest and natural resource management and 2) to address domestic information needs and to support national policy processes related to forest and the multitude of interconnected human and environment systems that forests support.

While the DECCMA project is aimed at supporting land cover change assessment for the delta zone and those administrative regions that include low-lying lands (about 25% of the national land area), the NFI and UN-REDD projects tend to support the land cover map development and the integration of forest monitoring and land cover assessment.

The land cover map of Bangladesh is the first product in Bangladesh following the LCCS approach. This map has been prepared with the aim of having a more accurate land cover information system that can also help to support REDD+ activities in Bangladesh in policy making and monitoring of natural resources.

2 Methodology

With advanced remote sensing tools and techniques, land cover mapping has become more accurate and reliable for understanding land cover changes, and monitoring and planning activities. The land cover mapping has been conducted following several steps to develop and validate a land cover geospatial dataset and map of Bangladesh, to support REDD+, which may also be used for other purposes. The LCCS tool has also been applied to prepare the legend that is flexible, repeatable and that can be used for comparing land cover changes in future. The whole methodology followed in the mapping activity is presented in a graphical format below:
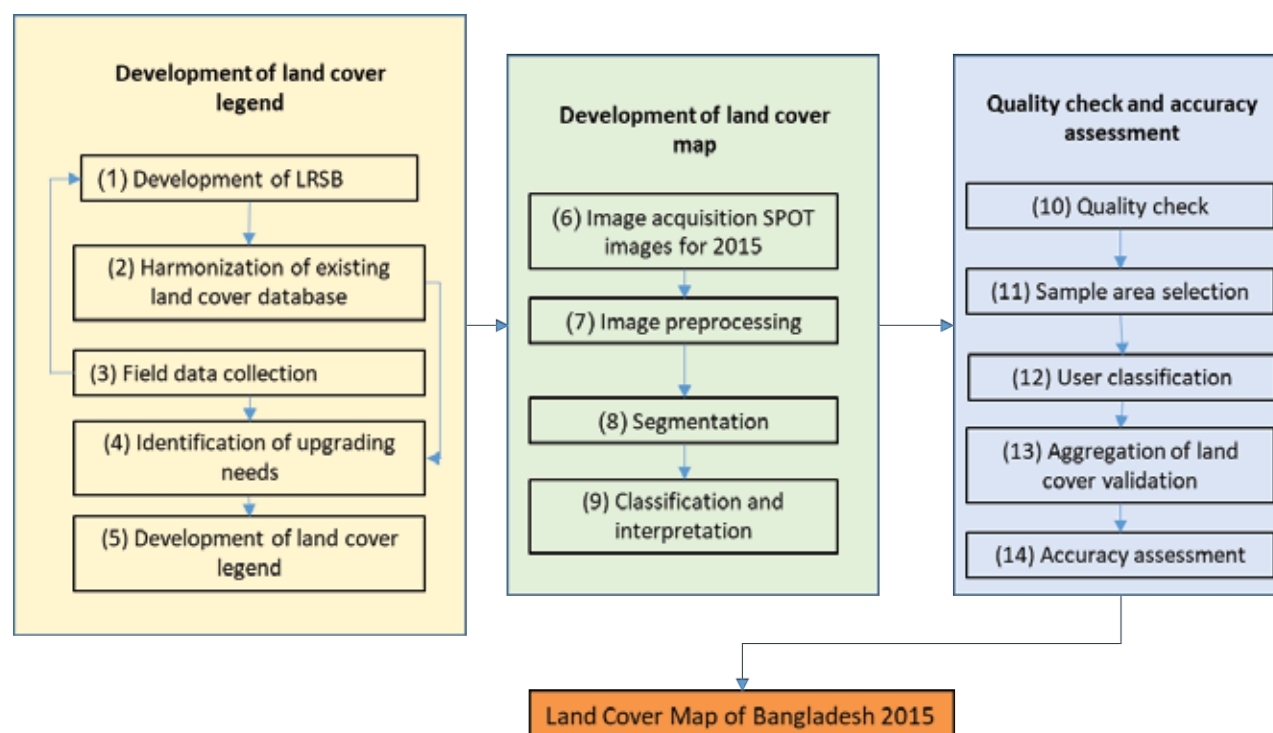
Figure 1: Methodology for development of land cover map of Bangladesh

2.1 Development of the land representation system of Bangladesh

In response to the prevailing problems of inconsistency between land cover maps, developed by different organizations in different time at different scales, Bangladesh Forest Department (BFD) has led the process of developing an object-based Land Representation System of Bangladesh (GoB 2017). The process has brought together several national organizations involving an extensive process of consultation, data collection, translation and analysis of existing classification systems beginning in 2013 and completed in 2016 (Akhter and Shaheduzzaman 2013, Di Gregorio 2013, Shaheduzzaman and Akhter 2013, Di Gregorio, Costello and Franceschini 2015, Costello and Piazza 2015, BSGI 2016, Di Gregorio 2016, Hadi 2016, Hadi, Khan et al. 2016, Hadi, Udita et al. 2016).

In March 2016, a national workshop for the development of the LRSB was organized. In this workshop, with the contribution of experts from different national organizations, a draft national land representation system for land cover/use mapping was developed. The flexibility and comprehensiveness of the system to accommodate and integrate all possible national classes were tested and recognized during a national consultation (held right after the workshop) with stakeholders from 15 national organizations (Hadi, Udita et al. 2016, GoB 2017).

2.1.1 Harmonization of existing land cover databases

Land cover datasets, prepared in different years by Soil Resource Development Institute (SRDI), Bangladesh Forest Department (BFD) and Space Research and Remote Sensing Organization (SPARRSO) were taken into consideration to prepare a harmonized database for land use/cover classes. Specifically, the land use maps of SRDI

for the years 1996 and 2004, and the database of National Forest Assessment prepared by BFD and SPARRSO were collected. The legends of these three existing national land cover/use maps were collected, documented and translated using the Land Cover Classification System (LCCS v3) – an implementation tool of Land Cover Meta Language (LCML) (Di Gregorio 2016).

2.1.2 Field data collection

In order to get an idea about the present land classes in Bangladesh, data were collected from the field using the LCCS approach. A field data collection protocol was developed by FAO to allow non-experts, receiving basic training, to collect data and contribute to build up the Land Representation System of Bangladesh. A total of 1144 field points (Figure 2) were recorded using Open Foris Collect (Costello and Piazza 2015) by Bangladesh Society of Geoinformatics (BSGI) and Centre for Environmental and Geographic Information Services (CEGIS), focusing on the land features present in those points and not using any particular class or name to it (BSGI 2016). Based on the description of these points the possible land cover classes for Bangladesh were developed.
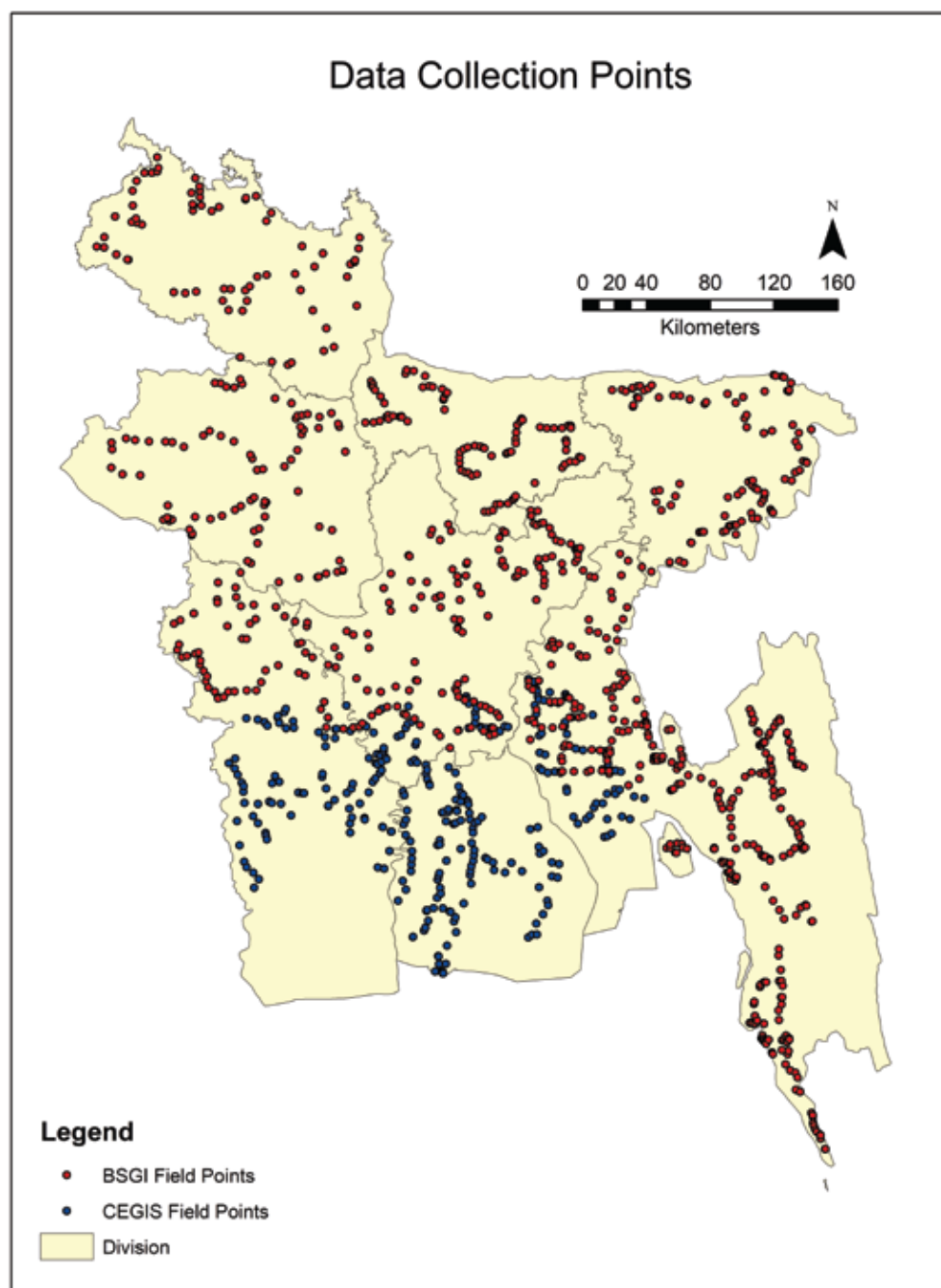
Figure 2: Field data collection points

2.1.3 Identification of upgrading needs

The transition from a traditional legend to a LCML/LCCS3 approach allows assessment of the coherence, completeness and semantic content of a traditional legend. Several workshops, trainings and consultation sessions were conducted at national level where experts analyzed the existing legends to identify the need of upgrading them, including identification of gaps or potential areas of improvement, both in term of class number, extension and rationalization of class meaning. The results were incorporated with the development of land cover legend.

2.2 Derivation of land cover legend from land representation system of Bangladesh

From the land representation system, the legends for land cover map were derived after a national workshop with experts from different organizations working in relevant fields. Legends of land cover classes are developed based on expert knowledge and interpretation from acquired satellite images. The development of legend was a continuous process throughout the land cover mapping as based on map visualization often classes were rearranged. Some of the classes were extended from the land representation system, while other classes were merged when distinction among some classes was not discernable from the images (Figure 3 & 4).

Example on how to use the extendable attributes to refine the classes used in Land Representation System
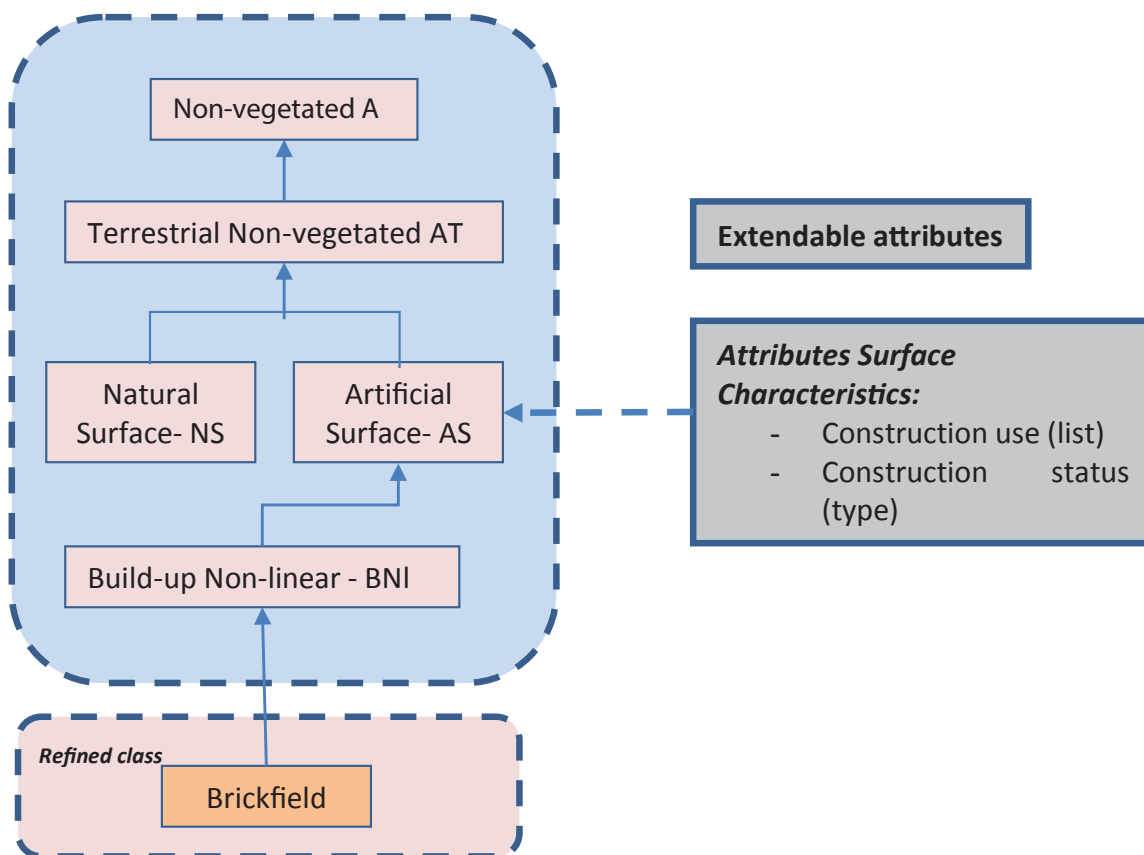
Figure 3: Brickfield, an extended class from the land representation system of Bangladesh
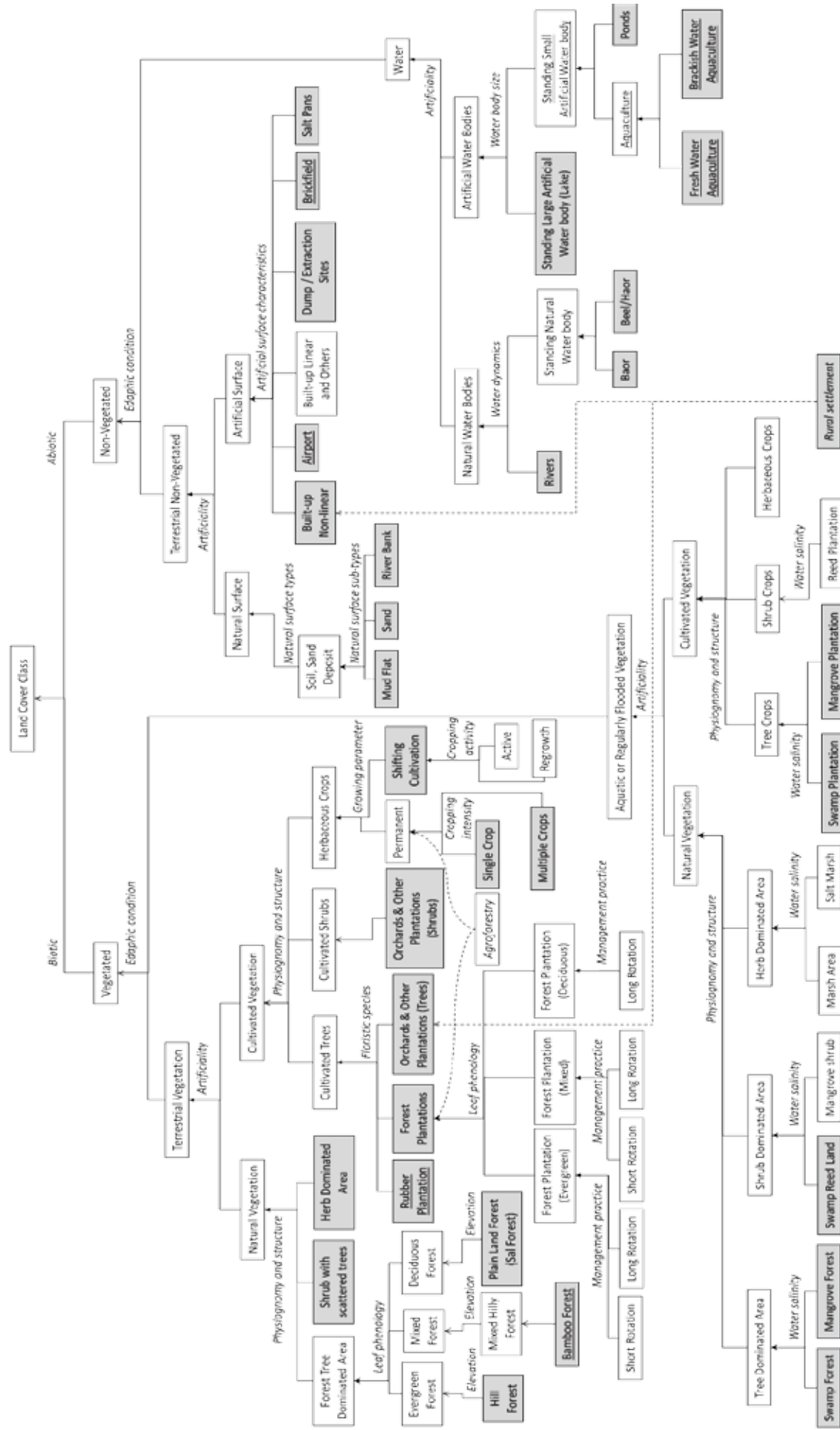
Figure 4: Schematic overview of the relationship between classes of the Land Representation System Bangladesh and land cover map 2015 legend. The LRSB classes are in rectangular box. Legend classes are in grey box. Legend classes extended from LRSB are underlined. Mixed classes are in italic (Rashed, Iqbal et al. 2019)

2.3 Land cover map development

2.3.1 Image acquisition

High resolution multi-band SPOT6/7 images were acquired for the period of 2015 for land cover mapping of the whole country. The images have the following spectral bands: blue (0.450-0.520 μm), Green (0.530-0.590 μm), Red (0.625-0.695 μm) and Near Infrared (0.760-0.890 μm); a dynamic range of 12 bits per pixel and a spatial resolution of 6 meter. Images with maximum 10% cloud coverage were selected for mapping. For areas not covering by the SPOT images due to cloud coverage or for better visualization, open source satellite data (Landsat 8 and Sentinel 2) were used.

2.3.2 Image pre-processing

Images were mosaicked to reduce overlapped and cloud covered areas. For further cloud masking and gap filling Sentinel images were used. An international boundary and a 1km buffer area around the boundary were considered. As the whole country is under two different UTM projection zones, the images were converted from .JP2 to .img format in 16 bit. To make the file more manageable, the images were further converted into 8 bit. For both 16 bit and 8 bit images the segmentation process was conducted and it was evident that the 8 bit images provided more homogenous polygons without overestimating the number of polygons. In compensation, the scale parameter for segmentation was reduced to avoid further loss of spectral information.

The images were separated by district and then selected images in a district were prioritized for mosaicking based on cloud coverage. During the mosaicking, the dates of the images were carefully managed to ensure the proper order of images.

Figure 5: SPOT image coverage for Bangladesh

2.3.3 Segmentation

Object-Based Image Analysis (OBIA) approach was adopted to create image objects defined by spectral, spatial, contextual, and hierarchical properties. In particular, multi resolution segmentation algorithm (Baatz and Schäpe 2000) was used to develop image objects using the bands green, red and near-infrared (NIR) with equal weights as input layers. The choice of the scale parameter, the most critical value that influence the detail of the segmentation (i.e. how many polygons are generated), was iteratively tested to identify homogeneous polygons. The segmented files were then exported with the attributes including, mean variance of each band, brightness, Normalized Difference Vegetation Index (NDVI) and length to width ratio. These files were further simplified to reduce vertex density and consequently file size.

2.3.4 Classification and interpretation

The image segments developed were used as the basic unit of classification. Meaningful image segments (Castilla and Hay 2008) were directly assigned with land cover code. Not-qualified image segments were manually edited to correspond well to geo-objects in geometry before assigning appropriate land cover code. This was the most time consuming task of the whole production chain and required the largest number of staffs. All the photo-interpreters were trained to have a clear understanding of the land cover legend with LCCS approach and of all the conditions and criteria to detect each class. It was useful to indicate the land cover classes that may generally occur in each district (e.g. bamboo and hill forest only occur on the hill districts, while mangrove only occur in the coastal area) and to assign the districts to interpret based on the individual knowledge of the photo-interpreters (e.g. forestry officer may have more experience to detect tree-dominant classes). Interpretation was undertaken using a geo-database with domain lists assigned to attribute fields to avoid data entry mistakes.

The districts were interpreted by assigning the code in a specific order of major land cover classes rather than assigning the code by sequential polygons. In principle, the most represented classes and the most difficult ones were interpreted later. Interpretation of the classes, in general, followed the order of water bodies, rural settlements, artificial surface classes, forest classes, cropland classes. Seasonal variation in land cover is very common in Bangladesh. To ensure the correct interpretation, Landsat and Sentinel images from a different season were taken into consideration. Classes having a seasonal variation (especially agricultural classes) were classified after interpreting images from both seasons.

2.4 Quality checking

The quality checking of the final product was completed using multiple approaches. A workshop on quality checking and accuracy assessment was organized to conduct the following activities in order to ensure the quality of the land cover map (Tasnim, Franceschini et al. 2017).

2.4.1 Topology check

Under this activity, spatial topology was checked to verify that there were no overlapping polygons and no gaps exist between polygons.

2.4.2 Attribute check

Under this activity, the consistency of LCCS codes in the map was checked with the national land cover legend. There were supposed to have no gaps (unclassified polygons) and no codes should be outside of the legend.

2.4.3 Consistency check

Under this activity, it was verified that no consistency errors (e.g. mangroves in elevated areas) were present. A list of the possible land cover classes were defined by participants for each district. The consistency check was conducted to ensure that land cover classes were consistent with this list. Classes which were unusually present or absent in a particular districts were noted and rechecked by expert opinions. Additional inconsistencies were checked through field visit of those particular areas and finally were integrated with the land cover map.

2.5 Accuracy assessment

The accuracy assessment is a fundamental step in the production of reliable land cover information that not only ensured quality and credibility of the final product, but also informed the end-users about the limitations and cautions of the depicted land cover classes. The accuracy assessment analysis was designed using a pseudo-ground truth validation technique, with a stratified random sampling by district and by land cover class. The districts were categorized into three groups (i.e., small, medium and large) based on district size. Number of sample units for small, medium and large district were assigned as 150, 200 and 250, respectively. The number of sample units for each land cover within a district was determined by the relative occurrence (in terms of area) of the land cover in the district. Minimum number of sample units was set to 50 at national level.

For the collection of reference data 100m by 100m homogeneous spatial assessment unit was used. Homogeneous unit is considered as one which is assigned fully to only one class. Sample units were then randomly allocated with a routine developed in R and visually classified in the accuracy assessment workshop (Tasnim, Franceschini et al. 2017), by GIS and land cover experts from different national organizations according to the historical Google Earth imagery of 2015. During the accuracy assessment workshop (held in February 2017) historical imagery of Google Earth for 2015 covered whole Bangladesh with images mostly between 2014 and 2016 and with resolution higher than SPOT imagery used for the mapping activities. The reference class was defined as the best available determination of the ground condition at the sample units in 2015 with support from expert judgment and local knowledge. The reference class label is assumed to be correct considering the fact that that reference classification error often occurs and may have implications for analysis of accuracy of land cover by remote sensing (Foody 2010). It is to be noted here that visual discrimination between single crop and multiple crops was not possible from Google Earth imagery. These classes were grouped into higher level class of the LRSB for reference data collection.

3 Results

A wall-to-wall national land cover map and area statistics were produced for different levels of classification (Table 1 and Figure 6). The most commonly used measures of accuracy (i.e., overall accuracy, user's accuracy, and producer's accuracy) are estimated. The overall accuracy was estimated at 89%.
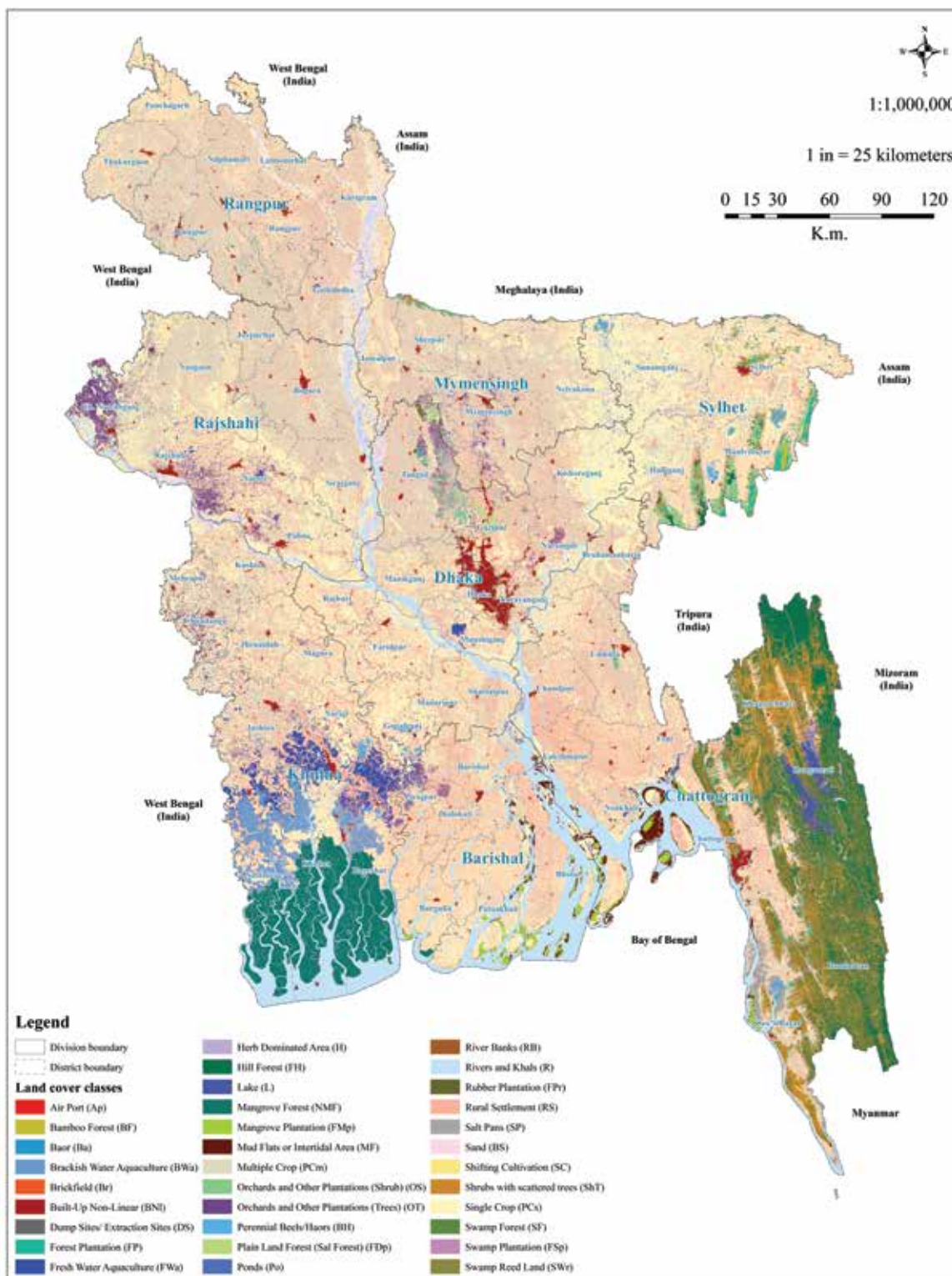
Figure 6: Land Cover Map 2015 of Bangladesh

Table 1: Area statistics of land cover classes of Land Cover Map, 2015 of Bangladesh with different levels of classification

| Land cover at different levels | | | | | | Map area | |
Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Km²	%
Vegetated Area	Terresterial	Natural	Tree Dominated Area	Evergreen Forest	Hill Forest	6,839	4.634
				Mixed Forest	Bamboo Forest	57	0.039
				Deciduous Forest	Plain Land Forest (Sal Forest)	189	0.128
			Shrub Dominated Area	Shrub Dominated Area	Shrubs with scattered trees	6,145	4.164
			Herb Dominated Area	Herb Dominated Area	Herb Dominated Area	654	0.443
		Cultivated	Cultivated Trees	Rubber Platation	Rubber Plantation	237	0.160
				Forest Plantation	Forest Plantation	793	0.537
				Orchards and Other Plantation	Orchards and Other Plantations (Trees)	1,807	1.224
			Cultivated Shrub	Orchards and Other Plantation	Orchards and Other Plantations (Shrub)	703	0.476
			Herbaceous Crops	Permanent crop	Single Crop	43,485	29.467
					Multiple Crop	28,223	19.125
				Shifting Cultivation	Shifting Cultivation	343	0.232
	Aquatic or Regularly Flooded	Natural	Tree Dominated Area	Swamp Forest	Swamp Forest	1	0.001
				Mangrove Forest	Mangrove Forest	4,022	2.725
			Shrub Dominated Area	Swamp Reed Land	Swamp Reed Land	134	0.091
		Cultivated	Tree Crop	Mangrove Plantation	Mangrove Plantation	551	0.373
				Swamp Plantation	Swamp Plantation	6	0.004
Rural Settlement	Rural Settlement	Rural Settlement	Rural Settlement	Rural Settlement	Rural Settlement	31,245	21.173
Non-Vegetated Area	Terresterial	Natural	Soil, Sand Deposit	Mud Flats or Intertidal Area	Mud Flats or Intertidal Area	763	0.517
				Sand	Sand	1,513	1.025
				River Banks	River Banks	8	0.005
		Artificial	Built-up Non-Linear	Built-up Non-Linear	Built-up Non-Linear	1,792	1.214
			Airport	Airport	Airport	25	0.017
			Dump / Extraction Sites	Dump / Extraction Sites	Dump / Extraction Sites	44	0.030
			Brickfield	Brickfield	Brickfield	210	0.142
			Salt Pans	Salt Pans	Salt Pans	373	0.253
	Water	Natural	Rivers and Khals	Rivers and Khals	Rivers and Khals	12,536	8.495
			Standing Natural Waterbody	Baor	Baor	185	0.125
				Perennial Beels/Haors	Perennial Beels/Haors	576	0.391
		Artificial	Standing Large Artificial Waterbody	Lake	Lake	533	0.361
			Standing Small Artificial Waterbody	Fresh Water Aquaculture	Fresh Water Aquaculture	1,903	1.290
				Brackish Water Aquaculture	Brackish Water Aquaculture	1,570	1.064
				Ponds	Ponds	106	0.072
					Total	**147,570**	**100**
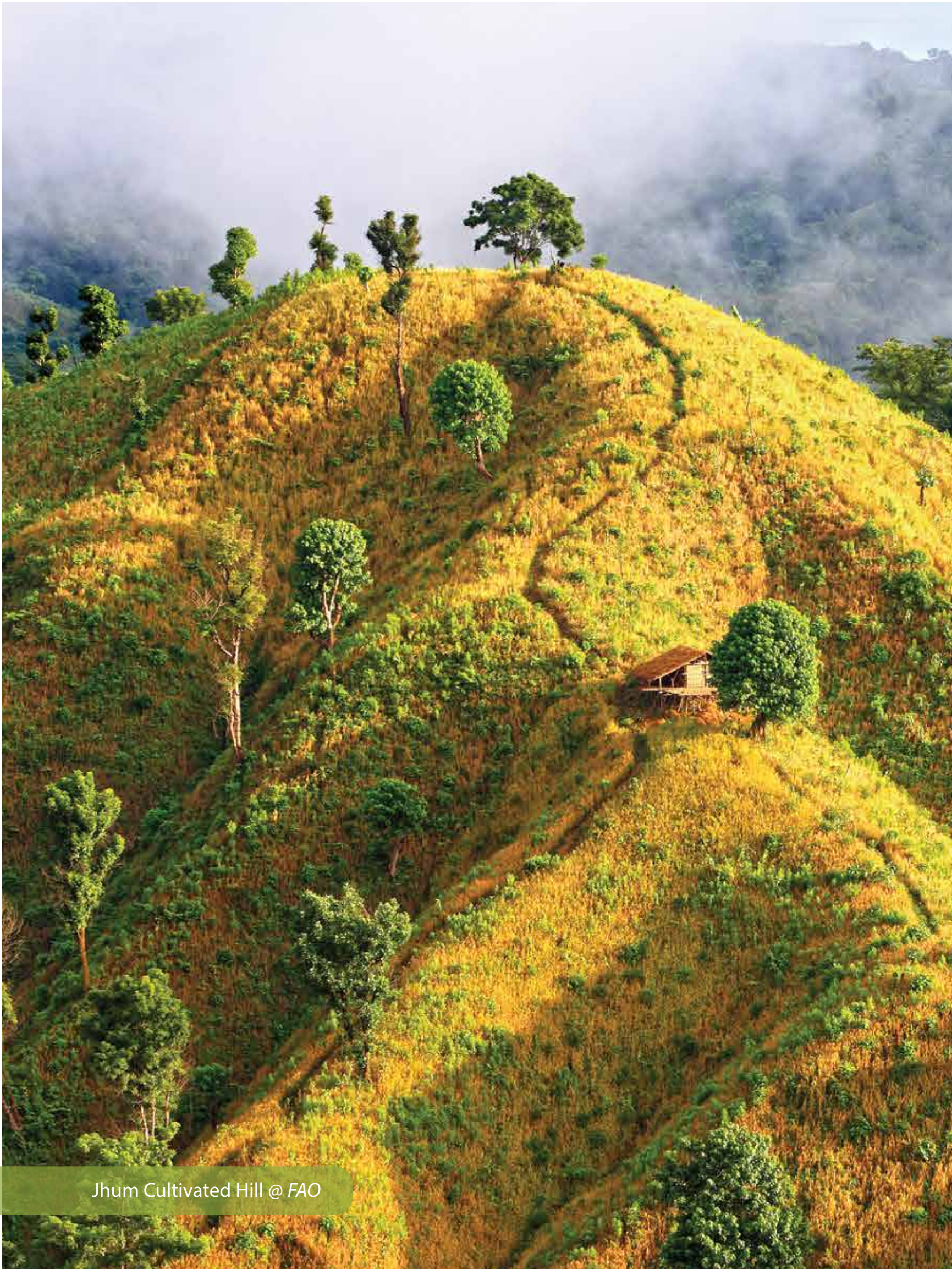
Jhum Cultivated Hill @ *FAO*

4 Description and photo keys for interpretation of legend classes

Airport - Ap

It is built-up nonlinear area which is used for flights to take off and land.

LCCS Diagram

| Airport
Map Code: Ap | Horizontal Pattern 1 | Stratum 1
Presence Type: Mandatory
Ontop: 0 | Built-up Surfact
Presence Type: Mandatory | Construction Use
Type: Airport |

Picture: Class Photograph
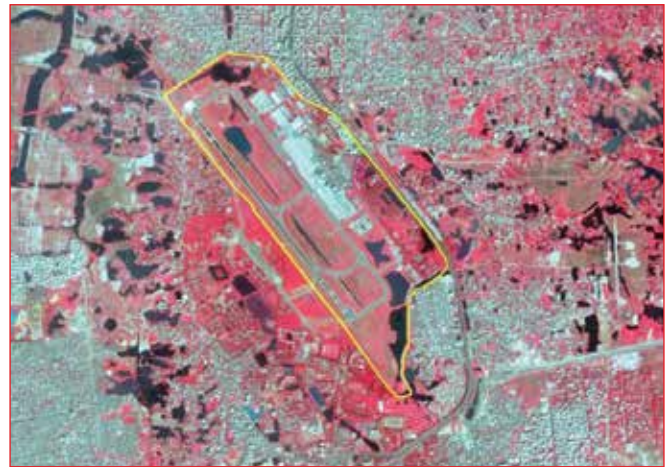
Picture: Class Satellite Image

Bamboo Forest - BF

Bamboo forest is woody grass of more than 5m and covers more than 80% within a patches. It is perennial evergreen and it grows up to 15m. The bamboos in the rural areas are not included in this class. Major species of bamboo are Muli *(Melocanna baccifera),* Mitenga *(Bambusa tulda)*, Dalu *(Neohouzeaua dullooa)* etc. This class is located in the hilly areas of Chittagong, Chittagong Hill Tracts and Sylhet.

LCCS Diagram
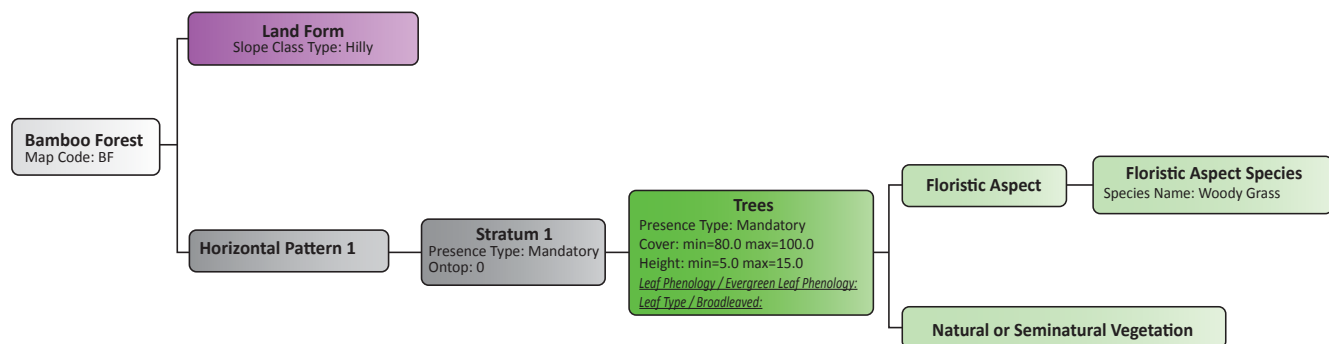
Picture: Class Photograph

Picture: Class Satellite Image

A baor or oxbow lake is an old river channel with limited connection to their parent rivers in the monsoon season. It is created when a wide meander from the main stem of a river is cut off, creating a free-standing body of water. The persistence of water ranges from 11 to 12 months.

LCCS Diagram

Geographical Aspects
Type: Upper Moribund Delta and Part of old river channel

Baor
Map Code: Ba

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Water Body
Presence Type: Mandatory
Dynamics: Standing
Position: Above Surface
Periodic Variation/ Periodic Variation:
-Description: Describe a periodic variation element
-Persistance units: Months

Artificiality
Type: Natural

Water Salinity
Type: Fresh

Picture: Class Photograph

Picture: Class Satellite Image

Sand - BS

Sand is soil or sand deposits within the river channels or in an estuary, occurring commonly as islands.

LCCS Diagram

| Beaches/Sand bar
Map Code: BS | | Horizontal Pattern 1 | | Stratum 1
Presence Type: Mandatory
Ontop: 0 | | Loose and Shifting Sand
Presence Type: Mandatory | | Natural Surface Characteristic |
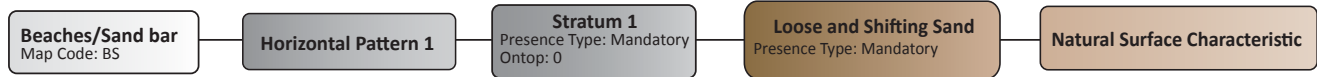
Picture: Class Photograph

Picture: Class Satellite Image

Brackish Water Aquaculture - BWa

This class includes the geographic areas, which are used for year round brackish water aquaculture. This class may include the areas where aquaculture is practiced after harvesting the rice crop.

LCCS Diagram

Brackish Water Acquaculture
Map Code: BWa

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Herbaceous Growth Forms
Presence Type: Optional

Floristic Aspect

Floristic Aspect Species
Species Name: Rice

Water Body
Presence Type: Mandatory
Dynamics: Standing
Position: Above Surface

Artificiality
Type: Artificial

Aquaculture
Type: Shrimp

Water Salinity
Type: Brackish

Picture: Class Photograph

Picture: Class Satellite Image

Brickfields - Br

The brickfields are geographic areas, which are used for bricks production.

LCCS Diagram

| Brickfields Map Code: Br | | Horizontal Pattern 1 | | Stratum 1 Presence Type: Mandatory Ontop: 0 | | Built-up Surfact Presence Type: Mandatory | | Construction Use Type: Brickfields |

Picture: Class Photograph

Picture: Class Satellite Image

Built-Up Non-Linear - BNL

The artificial and impervious surfaces which are paved with hard materials and functionally linked with vegetated areas, recreational parks and water bodies are built-up non-linear.

LCCS Diagram

| Built-up Non-Linear Map Code: BNL | Horizontal Pattern 1 | Stratum 1 Presence Type: Mandatory Ontop: 0 | Non Linear Surface Presence Type: Mandatory Construction Material: Hard Material | Construction Use Type: Urban Residential Area, Industrial Area, Commercial Area |
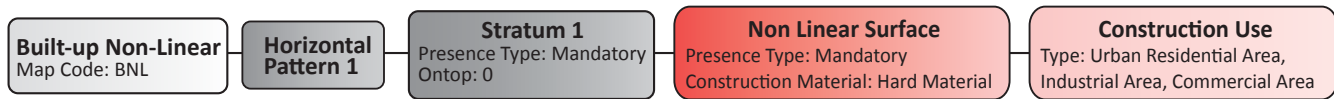
Picture: Class Photograph

Picture: Class Satellite Image

Dump Sites/ Extraction Sites - DS

Land used for disposal of waste materials is known as dump sites. Extraction sites are defined by the absence of the original land cover which is removed by human activity or machinery for extraction of sand, stone, minerals or coal.

LCCS Diagram

Dump and Extraction Site	Horizontal Pattern 1	Stratum 1
Map Code: DS		Presence Type: Mandatory Ontop: 0

Dump Site
Presence Type: Exclusive
Type: Waste Dumps

Extraction
Presence Type: Exclusive
Type: Stone or Coal Mining
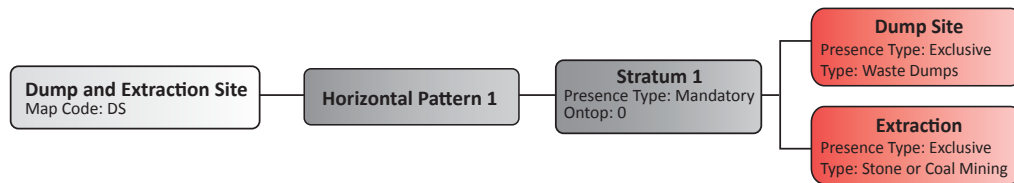
Picture: Class Photograph
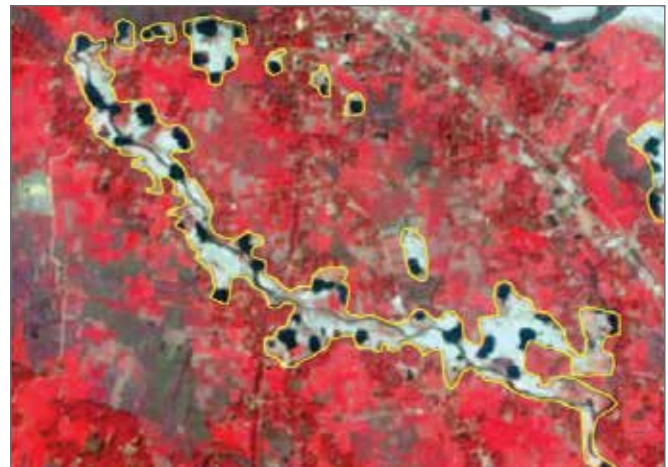
Picture: Class Satellite Image

Hill Forest - FEh

The natural forest area (in Chittagong, Chittagong Hill Tracts, Cox's Bazar, and Sylhet), consisting of moist tropical evergreen and semi-evergreen trees or a mixture of moist tropical evergreen and deciduous trees and generally uneven-aged are known as hill forest. Shrubs and herbs occur fewer in number as undergrowth in this forest. Major tree species are Chaplish *(Artocarpus chaplasha)*, Dipterocarps species, Syzigium species, Jarul *(Legarstromia speciosa)*, Gamar *(Gmelina arborea),* Koroi *(Albizzia spp),* Civit *(Swintonia floribunda),* Toon *(Cedrela toona),* Bandorhola *(Duabanga grandiflora)* etc.

LCCS Diagram

Geographical Aspects
Type: Within Reserve Forest and
Protected Forest Boundary of CHT

Topographical Aspects
Altitude: min=200.0 max=1100.0

Unconsolidated Surface Characteristics
Soil Type: Brown hill soil

Hill Forest
Map Code: FEh

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Stratum 2
Presence Type: Optional
Ontop: 0

Stratum 3
Presence Type: Optional
Ontop: 0

Trees
Presence Type: Mandatory
Cover: min=80.0 max=100.0
Height: min=25.0 max=62.0
Leaf Phenology / Evergreen Leaf Phenology:
Leaf Type / Broadleaved:

Shrubs
Presence Type: Mandatory
Cover: min=40.0 max=60.0
Height: min=1.0 max=5.0
Leaf Phenology / Evergreen Leaf Phenology:
Leaf Type / Broadleaved:

Herbaceous Growth Forms
Presence Type: Mandatory
Cover: min=40.0 max=100.0

Floristic Aspect

Floristic Aspect Species
Species Name: Wood Timber

Allometric Measurements
Crown Diameter: min=10.0 max=20.0
Trunk Diameter : min=0.5 max=1.5

Natural or Seminatural Vegetation

Natural or Seminatural Vegetation

Allometric Measurements
Crown Diameter: min=1.0 max=2.0
Trunk Diameter: min=0.1 max=0.15

Natural or Seminatural Vegetation

Picture: Class Photograph

Picture: Class Satellite Image

Forest Plantations - FP

The geographic area where trees are planted under long-term or short-term management for production of high volume of timber and fuel wood is known as forest plantation. Trees are generally even-aged, planted and managed in rows, consist of a single species and cover a large area. Tree height ranges from 5 - 40m and its coverage is between from 80%-100%. Sometimes annual agricultural crops are also incorporated with the forest plantation *(Agroforestry)*. Major species under long term management are Teak *(Tectona grandis)*, Chapalish *(Artocarpus chama)*, Gamar *(Gmelina arborea)*, Mehgoni *(S. mahagony)*. Major species under short term management are Akashmoni *(Acacia auriculiformis)* and Menjium *(Acacia mangium)*.

LCCS Diagram

Forest Plantations
Map Code: FP

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Trees
Presence Type: Mandatory
Cover: min=80.0 max=100.0
Height: min=5.0 max=40.0
Leaf Phenology / Deciduous Leaf Phenology:
Leaf Phenology / Evergreen Leaf Phenology:
Leaf Type / Broadleaved:

Floristic Aspect

Floristic Aspect Species
Species Name: Wood Timber

Allometric Measurements
Crown Diameter: min=10.0 max=25.0
Trunk Diameter: min=0.25 max=0.5

Cultivated and Managed Vegetation

Forest Plantation

Plant Spreading Geometry
Type: Regular

Stratum 2
Presence Type: Optional
Ontop: 0

Herbaceous Growth Forms
Presence Type: Mandatory

Cultivated and Managed Vegetation

Floristic Aspect

Floristic Aspect Species
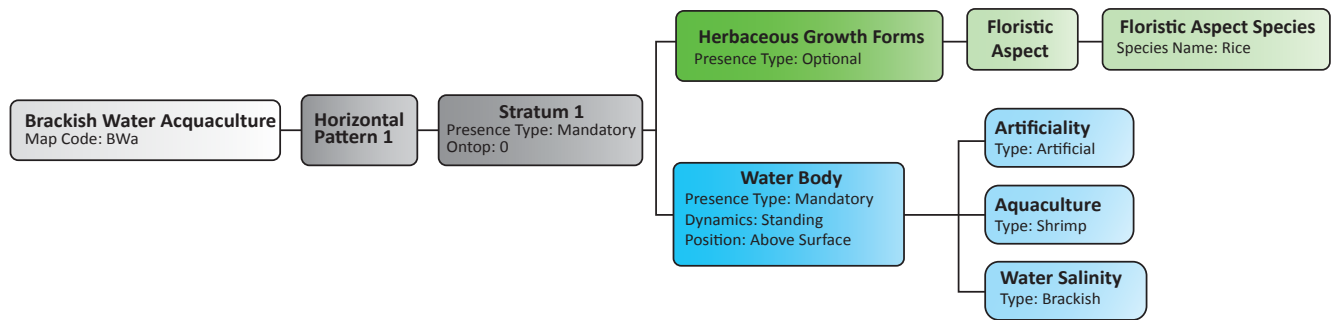Species Name: Vegetables

Picture: Class Photograph

Picture: Class Satellite Image

Fresh Water Aquaculture - FWa

This class includes the geographic areas which are used for year round fresh water aquaculture. This class may include the areas where fresh water aquaculture is practiced after harvesting the rice crop.

LCCS Diagram
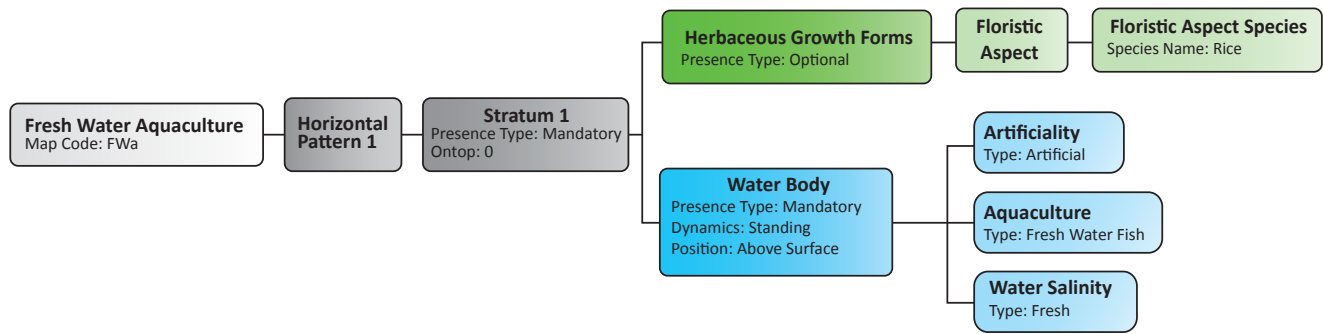
Picture: Class Photograph

Picture: Class Satellite Image

Herb Dominated Area - H

The geographic area, which is dominated by grass with very little to no woody vegetation, is called herb dominated area. These types of vegetation are generally found in newly accreted land, year round fallow land or adjacent to the international boundary of Bangladesh. The coverage is 20 - 100%.

LCCS Diagram

| Herb Dominated Area
Map Code: H | Horizontal Pattern 1 | Stratum 1
Presence Type: Mandatory
Ontop: 0 | Herbaceous Growth Forms
Presence Type: Mandatory
Cover: min=20.0 max=100.0 | Natural or Seminatural Vegetation |
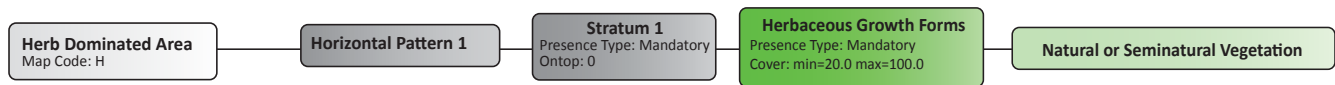
Picture: Class Photograph

Picture: Class Satellite Image

Lake - L

A Lake is an artificial standing water reservoir that is bigger than a pond and has an irregular shape.

LCCS Diagram

| Lake
Map Code: L | → | Horizontal Pattern 1 | → | Stratum 1
Presence Type: Mandatory
Ontop: 0 | → | Water Body
Presence Type: Mandatory
Dynamics: Standing
Position: Above Surface |

Artificiality
Type: Artificial

Water Salinity

Area Size (Waterbody)
Size Ha: >50
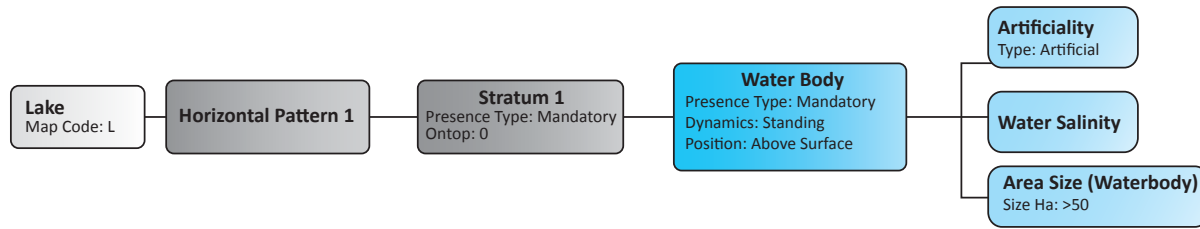
Picture: Class Photograph

Picture: Class Satellite Image

Mangrove Forest - NMF

The geographical area which is dominated by halophytic natural trees and the forest floor is inundated twice daily by brackish water is known as mangrove forest. The canopy cover of mangrove forest varies from 85% to 100% and the tree height varies from 5m - 17m. The undergrowth is mostly seedlings of the mangrove trees. The forest area is intersected by numerous rivers and creeks. The dominant mangrove species is Sundri (Heritiera fomes). Other species include Avicennia spp., *Xylocarpus mekongensis, Xylocarpus granatum, Sonneratia apetala, Bruguiera gymnorrhiza, Ceriops decandra, Aegiceras corniculatum, Rhizophora mucronata,* and *Nypa fruticans* palms.

LCCS Diagram

Mangrove Forest
Map Code: NMF

Geographical Aspects
Type: Coastal Area

Topographical Aspects
Altitude: min=0.9 max=2.11

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Trees
Presence Type: Mandatory
Cover: min=85.0 max=100.0
Height: min=5.0 max=17.0
Leaf Phenology / Evergreen Leaf Phenology:
Leaf Type / Broadleaved:

Floristic Aspect

Floristic Aspect Species
Species Name: Wood Timber

Allometric Measurements
Crown Diameter: min=4.0 max=15.0
Trunk Diameter: min=0.2 max=0.8

Natural or Seminatural Vegetation

Stratum 2
Presence Type: Mandatory
Ontop: 0

Water Body
Presence Type: Mandatory
Dynamics: Standing
Position: Above Surface
Periodic Variation/ Periodic Variation:
-Description: Describe a periodic variation element
-Persistance Units: Hours
-Period Type: Tidal
-Persistance Period: min=6.0 max=6.0

Artificiality
Type: Natural

Water Salinity
Type: Brackish

Picture: Class Photograph

Picture: Class Satellite Image

Mangrove Plantation - FMp

This class includes mangrove plantations on newly accreted land in the estuaries of the Bay of Bengal to provide protection against natural calamities and land erosion. Major species are Keora *(Sonneratia apetalla)*, Baen *(Avecinia alba)*, Gewa *(Excoecaria agallocha)*. In older plantations other species like Rhizophora Sp., Exochorea Sp., Ceriops Sp. are also found.

LCCS Diagram

Land Form
Slope Class Type: Flat to Almost Flat
Type: Plain

Geographical Aspects
Type: Coastal Area

Mangrove Plantation
Map Code: FMp

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Trees
Presence Type: Mandatory
Cover: min=25.0 max=100.0
Leaf Phenology / Evergreen Leaf Phenology:
Leaf Type / Broadleaved:

Floristic Aspect

Floristic Aspect Species
Species Name: Wood Timber

Cultivated and Managed Vegetation

Forest Plantation

Stratum 2
Presence Type: Mandatory
Ontop: 0

Water Body
Presence Type: Mandatory
Dynamic: Flowing
Position: Above Surface
Periodic Variation/ Periodic Variation:
-Description: Describe a periodic variation element
-Period Type: Tidal
-Perisistence Units: Hours
-Persistance Period: min=6.0 max=6.0

Artificiality
Type: Barckish

Water Salinity
Type: Barckish

Picture: Class Photograph

Picture: Class Satellite Image

Mud Flats or Intertidal Area - MF

These areas are wet non-vegetated lands near estuaries. They are exposed twice daily when not submerged by tidal water.

LCCS Diagram

```
                            ┌─────────────────────────────┐
                            │ Geographical Aspects        │
                            │ Type: Estuary               │
                            └─────────────────────────────┘

┌──────────────────────────┐
│ Mud Flats of Intertidal Area │       ┌──────────────────────────┐   ┌──────────────────────────────┐
│ Map Code: MF             │       │ Stratum 1                │   │ Inorganic Deposits           │
└──────────────────────────┘       │ Presence Type: Mandatory │   │ Presence Type: Mandatory     │
                                    │ Ontop: 0                 │   │ Type: Silts and Clay         │
                                    └──────────────────────────┘   └──────────────────────────────┘
                  ┌──────────────┐
                  │ Horizontal   │
                  │ Pattern 1    │
                  └──────────────┘
```

Water Body
Presence Type: Mandatory
Dynamic: Flowing
Position: Above Surface
Periodic Variation/ Periodic Variation:
-Description: Describe a periodic variation element
-Period Type: Tidal
-Perisistence Units: Hours
-Persistance Period: min=1.0 max=6.0

Stratum 2
Presence Type: Mandatory
Ontop: 0

Water Salinity
Type: Saline

Artificiality
Type: Natural

Picture: Class Photograph

Picture: Class Satellite Image

Multiple Crop - PCm

This class includes agricultural lands that are cultivated sequentially with more than one herbaceous crop (two or three) in different growing seasons within a year, and the same crop rotation is practiced for several years. Some of these agricultural lands are free of floods while others are flooded by irrigation or during the monsoon season after harvesting the crops.

LCCS Diagram
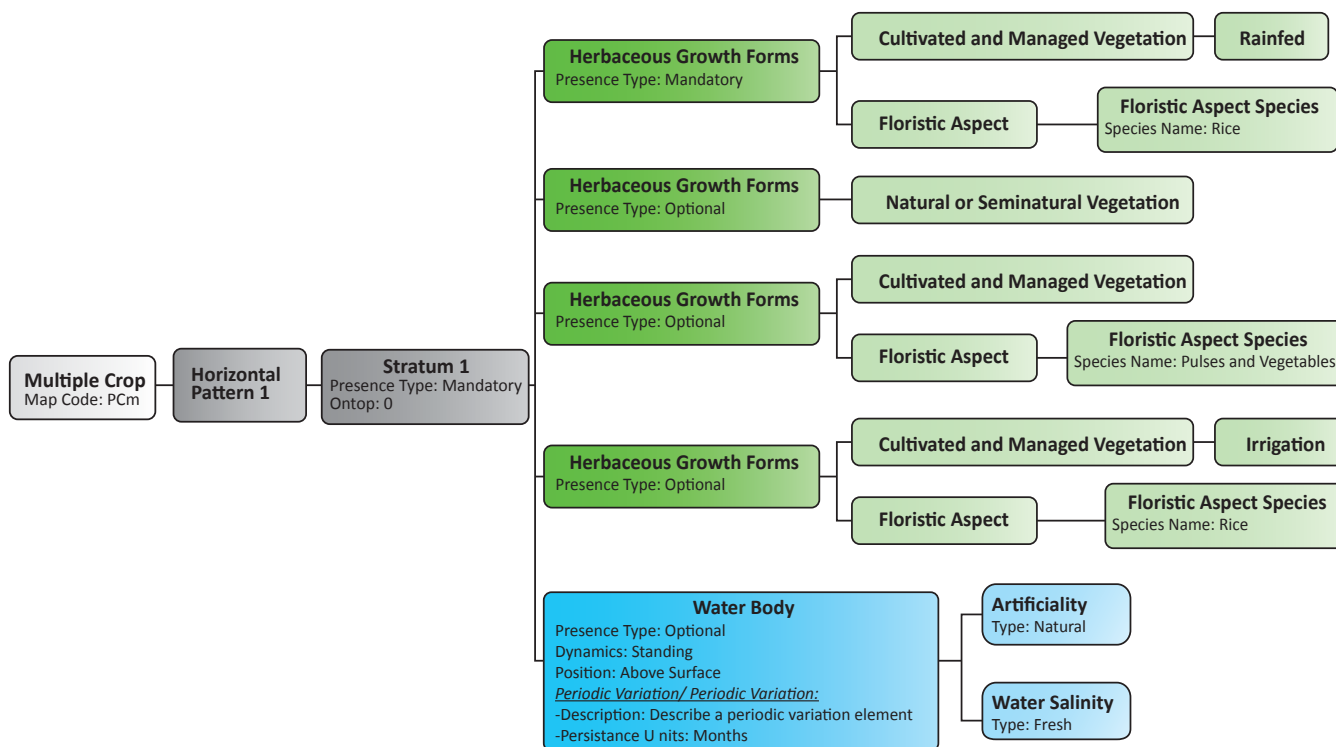
Picture: Class Photograph
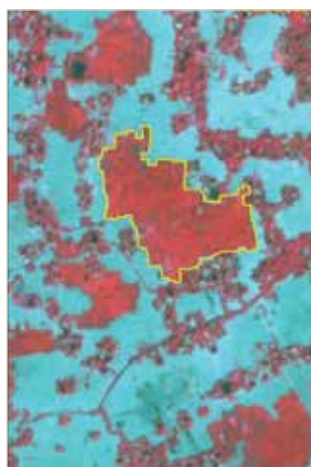
Picture: Class Satellite Image

Orchards and Other Plantations (Shrubs) - OS

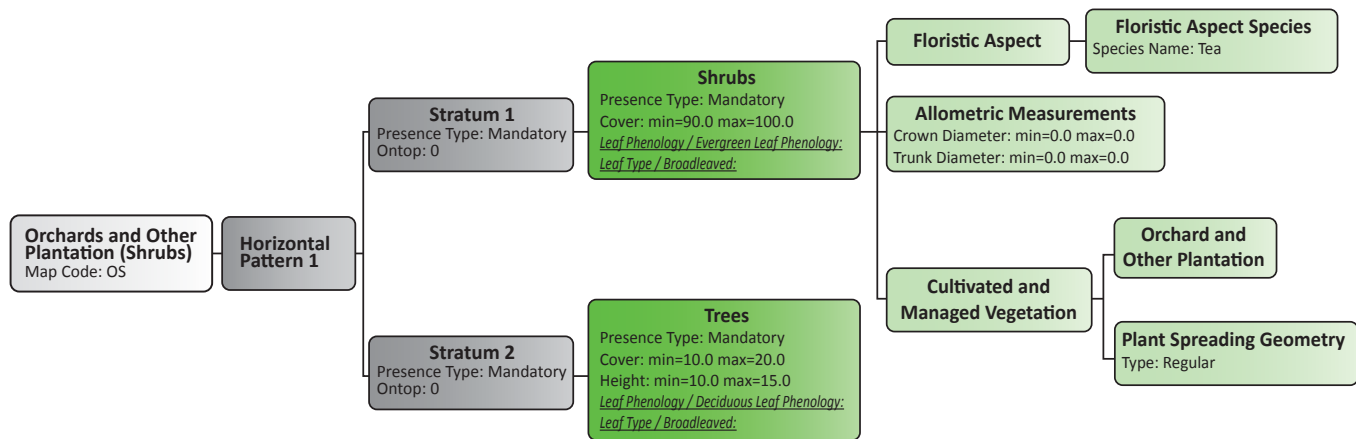The land areas where shrubs are planted for fruits and leaf are called orchards and other plantations (shrubs). This class mainly includes tea gardens. The use of shade trees in tea cultivation is a vital and integral component.

LCCS Diagram

Orchards and Other Plantation (Shrubs)
Map Code: OS

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Shrubs
Presence Type: Mandatory
Cover: min=90.0 max=100.0
Leaf Phenology / Evergreen Leaf Phenology:
Leaf Type / Broadleaved:

Floristic Aspect

Floristic Aspect Species
Species Name: Tea

Allometric Measurements
Crown Diameter: min=0.0 max=0.0
Trunk Diameter: min=0.0 max=0.0

Stratum 2
Presence Type: Mandatory
Ontop: 0

Trees
Presence Type: Mandatory
Cover: min=10.0 max=20.0
Height: min=10.0 max=15.0
Leaf Phenology / Deciduous Leaf Phenology:
Leaf Type / Broadleaved:

Cultivated and Managed Vegetation

Orchard and Other Plantation

Plant Spreading Geometry
Type: Regular

Picture: Class Photograph

Picture: Class Satellite Image

Orchards and Other Plantations (Trees) - OT

This class includes the geographic areas dominated by fruit trees. Trees are even-aged, planted and managed in rows, and cover a large area. Plantations in marginal land (roadside, railway line, embankment, and canal side) are also included in this class.

LCCS Diagram

Picture: Class Photograph
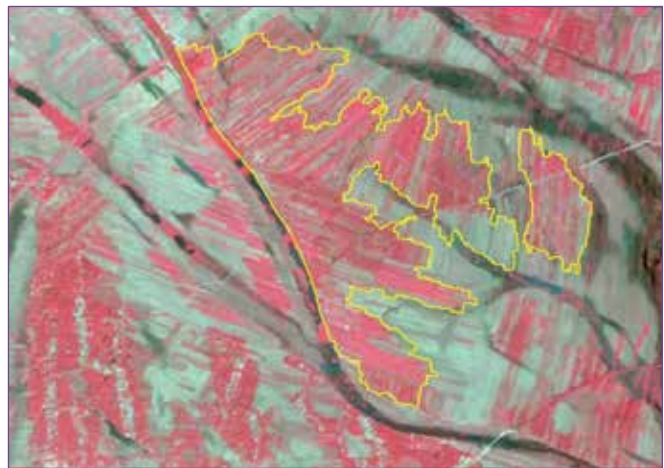
Picture: Class Satellite Image

Perennial Beels/Haors - BH
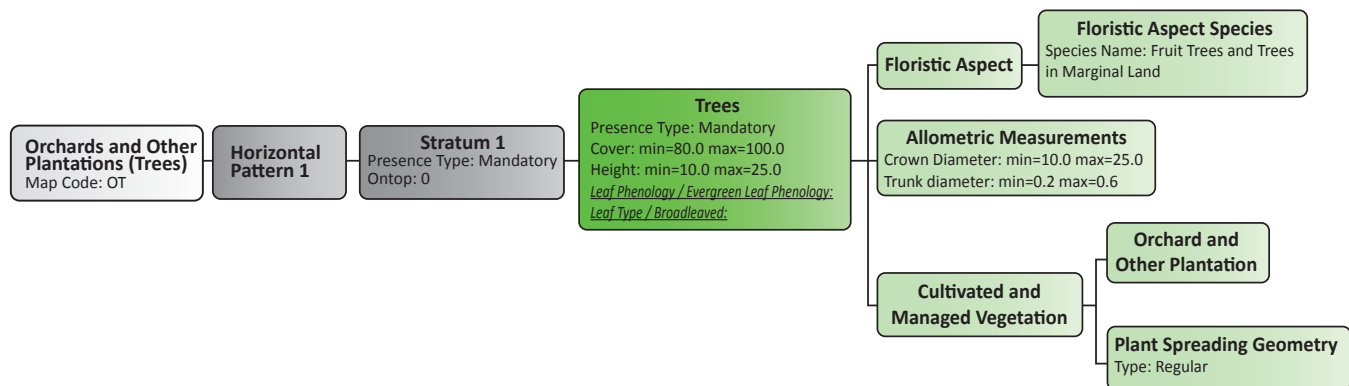
These standing water bodies are located in the low lying depressions of flood plains where water persists for a period of 12 months.

LCCS Diagram

Picture: Class Photograph

Picture: Class Satellite Image

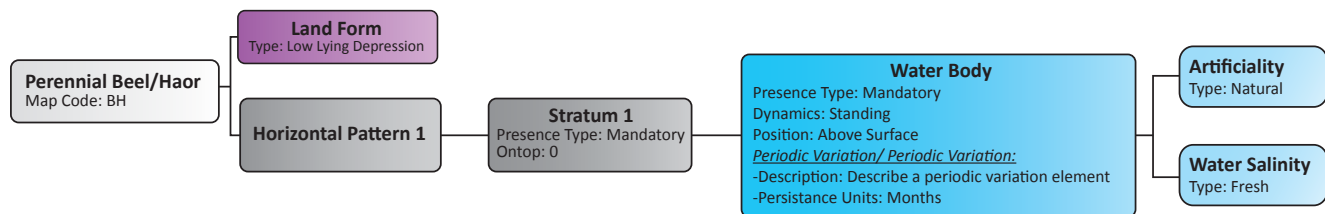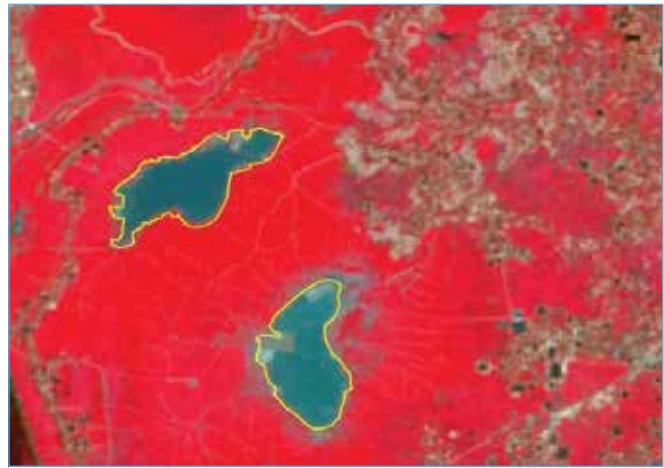## Plain Land Forest (Sal Forest) - FDp

Land dominated with tropical moist deciduous forests is known as plain land sal forest. The main species is Sal *(Shorea robusta)* with a height of 10-25 m. It's coverage ranges from 80% - 100%. Sal forests have a fairly wide but interrupted distribution in drier central and northern part of the country, mostly occurring in Gazipur, Tangail, Mymensingh, Jamalpur, Cumilla, Dinajpur, Thakurgaon, Rangpur and Rajshahi districts.

LCCS Diagram

Land Form
Slope Class Type: Flat to Almost Flat

Topographical Aspects
Altitude: min=9.0 max=18.0

Plain Land Sal Forest
Map Code: FDp

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Trees
Presence Type: Mandatory
Cover: min=80.0 max=100.0
Height: min=10.0 max=25.0
Leaf Phenology / Evergreen Leaf Phenology:
Leaf Type / Broadleaved:

Floristic Aspect

Floristic Aspect Species
Species Name: Sal *(Shorea robusta)*

Allometric Measurements
Crown Diameter: min=8.0 max=15.0
Trunk Diameter: min=0.25 max=0.5

Natural or Seminatural Vegetation

Picture: Class Photograph

Picture: Class Satellite Image

Ponds - Po

A pond is an artificial surface of standing water that is usually smaller than a lake and has a regular shape. The ponds more than 0.3 hectares were included in this class. Ponds functionally related with rural settlement were included in the "Rural Settlement" class.

LCCS Diagram

Pond
Map Code: Po

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Water Body
Presence Type: Mandatory
Dynamics: Standing
Position: Above Surface

Artificiality
Type: Artificial

Area Size (Water body)
Size Ha: > 0.3
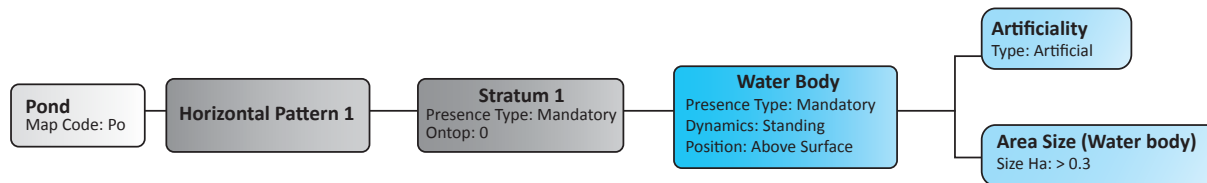
Picture: Class Photograph
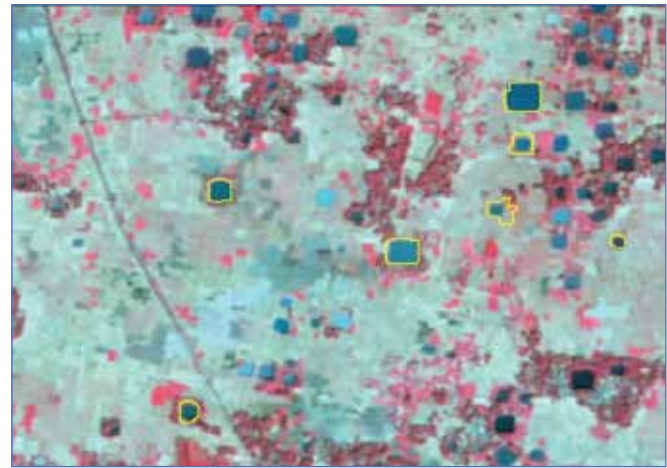
Picture: Class Satellite Image

River Banks - RB

The river bank is the land alongside the bed of a river which is usually consist of soil and sand deposits and inundated when the river flows with full capacity.

LCCS Diagram

```
River Bank          Horizontal Pattern 1          Stratum 1              Loose and Shifting Sand       Natural Surface Characteristic
Map Code: RB                                       Presence Type: Mandatory    Presence Type: Mandatory
                                                   Ontop: 0

                                                   Stratum 2              Water Body
                                                   Presence Type: Mandatory    Presence Type: Mandatory
                                                   Ontop: 0               Dynamic: Flowing
                                                                          Position: Above Surface
                                                                          Periodic Variation/ Periodic Variation:
                                                                          -Description: Describe a periodic variation element
                                                                          -Perisistence Units: Months
```
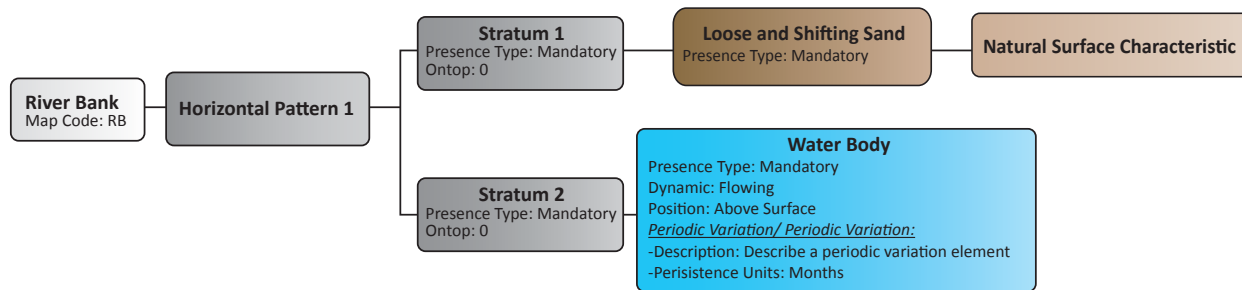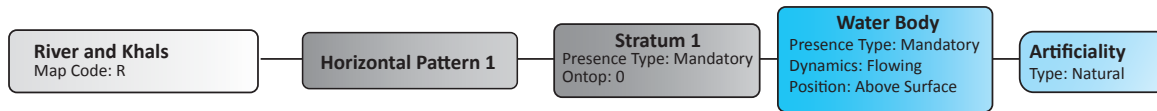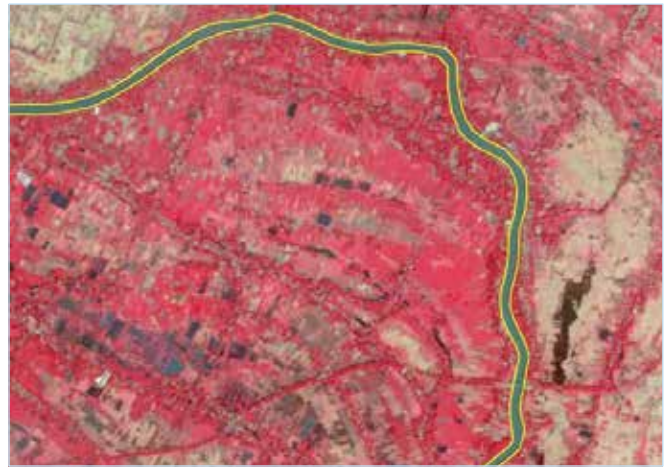
Picture: Class Photograph

Picture: Class Satellite Image

Rivers and Khals - R

The rivers and khals are natural water courses which serve as water drainage channels.

LCCS Diagram

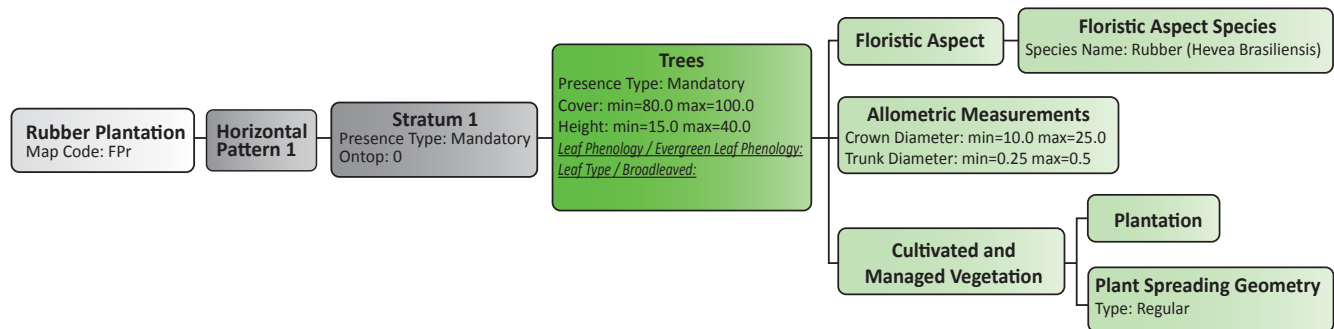| River and Khals
Map Code: R | — | Horizontal Pattern 1 | — | Stratum 1
Presence Type: Mandatory
Ontop: 0 | — | Water Body
Presence Type: Mandatory
Dynamics: Flowing
Position: Above Surface | — | Artificiality
Type: Natural |

Picture: Class Photograph

Picture: Class Satellite Image

Rubber Plantation - FPr

This class includes the geographic areas where rubber *(Hevea brasiliensis)* is planted for latex production. It is broadleaved, deciduous in the drier month for a very short period. It is monotype forest and tree area generally even-aged, planted and managed in rows. It grows 15 – 40m and cover ranges from 80% – 100%. This class is located in the Chittagong and Sylhet hilly regions, Chittagong Hill Tracts and Madhupur.

LCCS Diagram

Rubber Plantation
Map Code: FPr

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Trees
Presence Type: Mandatory
Cover: min=80.0 max=100.0
Height: min=15.0 max=40.0
Leaf Phenology / Evergreen Leaf Phenology:
Leaf Type / Broadleaved:

Floristic Aspect

Floristic Aspect Species
Species Name: Rubber (Hevea Brasiliensis)

Allometric Measurements
Crown Diameter: min=10.0 max=25.0
Trunk Diameter: min=0.25 max=0.5

Cultivated and Managed Vegetation

Plantation

Plant Spreading Geometry
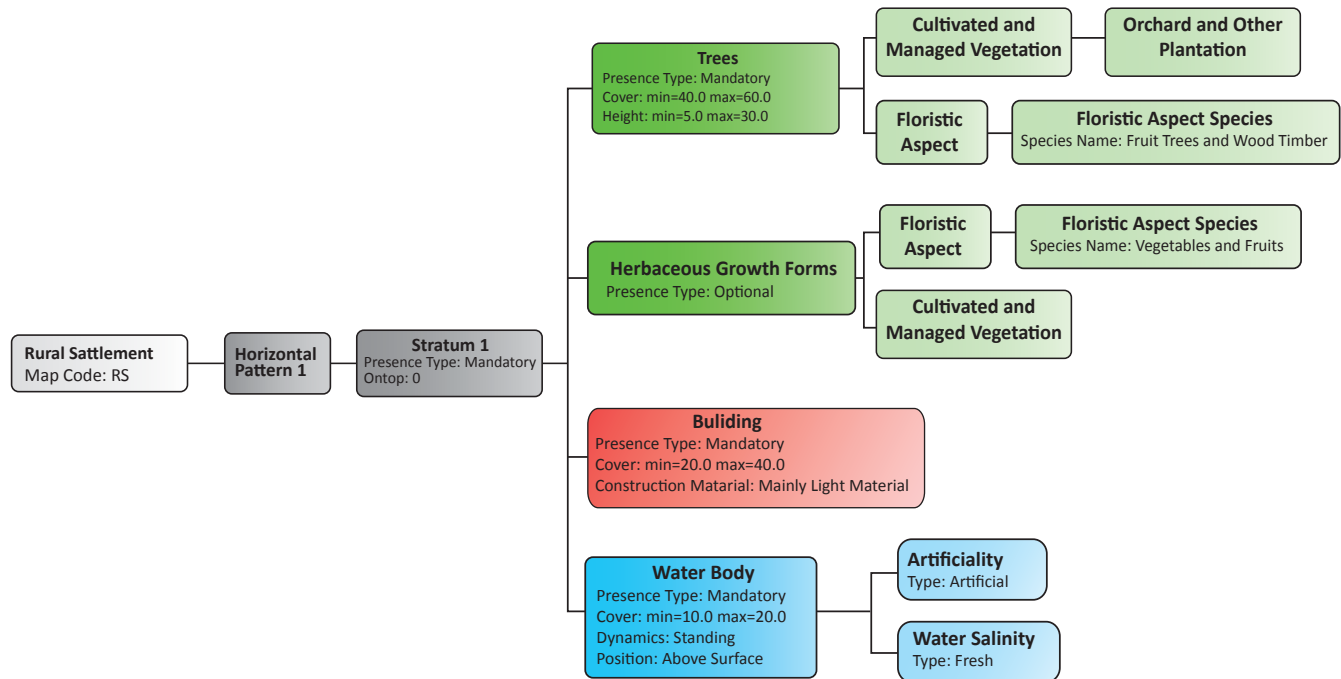Type: Regular

Picture: Class Photograph
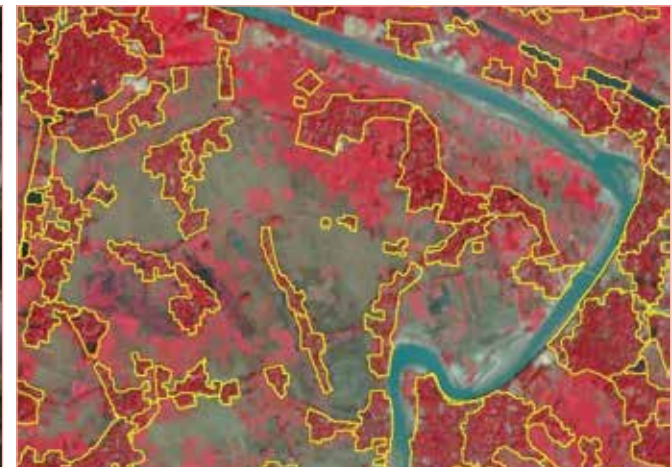

Picture: Class Satellite Image

Rural Settlement - RS

The rural settlements are geographic areas of clustered or linear rural dwellings which are covered by fruit trees and other plantation and functionally linked with small scale vegetables gardens, open spaces and ponds around the dwellings. Rural markets or growth centres within the rural environment are also included in this class.

LCCS Diagram

Trees
Presence Type: Mandatory
Cover: min=40.0 max=60.0
Height: min=5.0 max=30.0

Cultivated and Managed Vegetation

Orchard and Other Plantation

Floristic Aspect

Floristic Aspect Species
Species Name: Fruit Trees and Wood Timber

Herbaceous Growth Forms
Presence Type: Optional

Floristic Aspect

Floristic Aspect Species
Species Name: Vegetables and Fruits

Cultivated and Managed Vegetation

Rural Sattlement
Map Code: RS

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Buliding
Presence Type: Mandatory
Cover: min=20.0 max=40.0
Construction Matarial: Mainly Light Material

Water Body
Presence Type: Mandatory
Cover: min=10.0 max=20.0
Dynamics: Standing
Position: Above Surface

Artificiality
Type: Artificial

Water Salinity
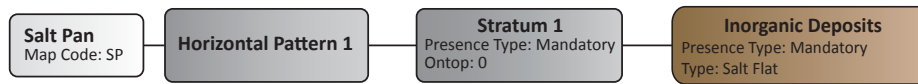Type: Fresh

Picture: Class Photograph

Picture: Class Satellite Image

Salt Pan - SP

The artificial land surfaces which are used for salt production from seawater by solar evaporation.

LCCS Diagram

| Salt Pan
Map Code: SP | Horizontal Pattern 1 | Stratum 1
Presence Type: Mandatory
Ontop: 0 | Inorganic Deposits
Presence Type: Mandatory
Type: Salt Flat |

Picture: Class Photograph

Picture: Class Satellite Image

Shifting Cultivation - SC

This class includes lands where herbaceous crops are cultivated temporarily, then abandoned and allowed to return to their natural vegetation while the farmer moves on to another area.

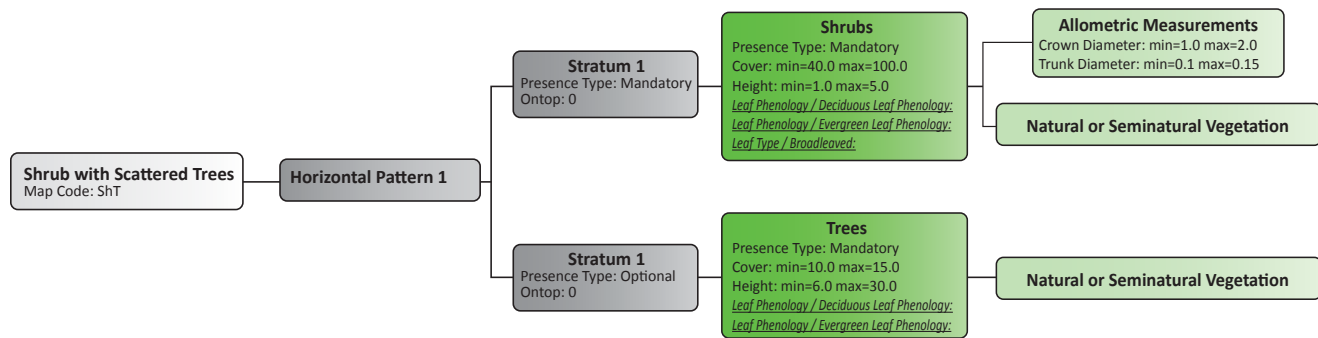## LCCS Diagram
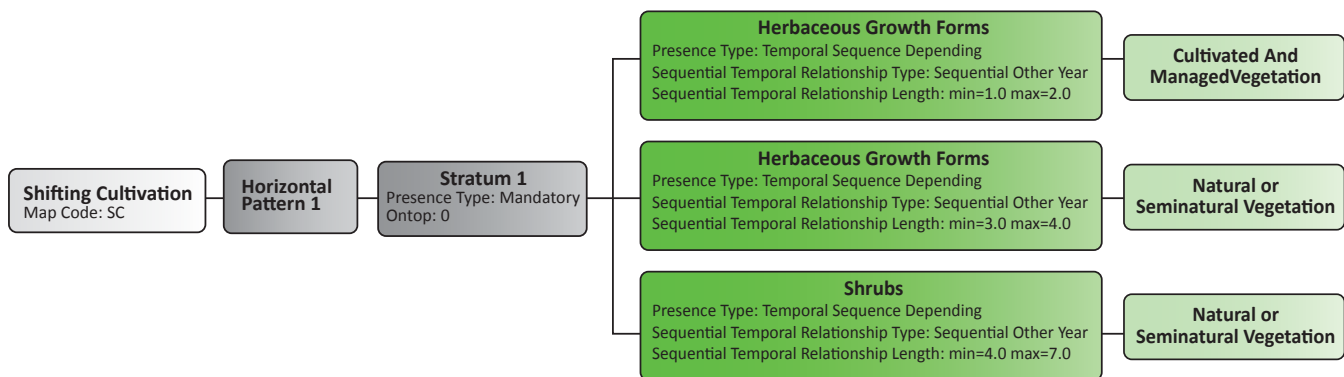
Picture: Class Photograph
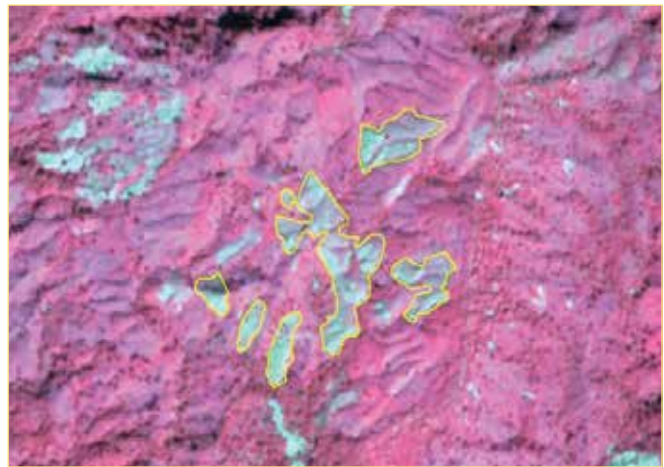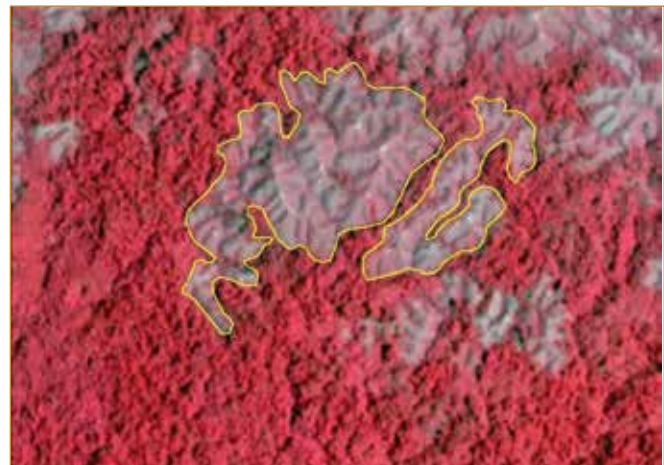
Picture: Class Satellite Image

Shrub with Scattered Trees - ShT

This class includes natural woody vegetation of less than 5 m in height. The uppermost canopy layer may be dominated by trees. The shrub foliage can be either evergreen or deciduous.

LCCS Diagram
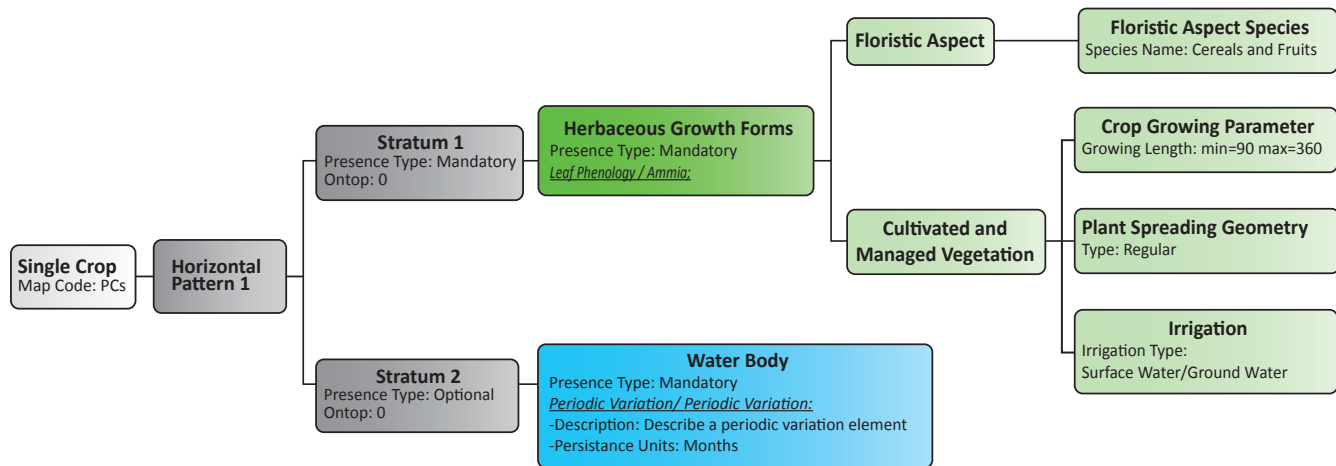

Picture: Class Photograph
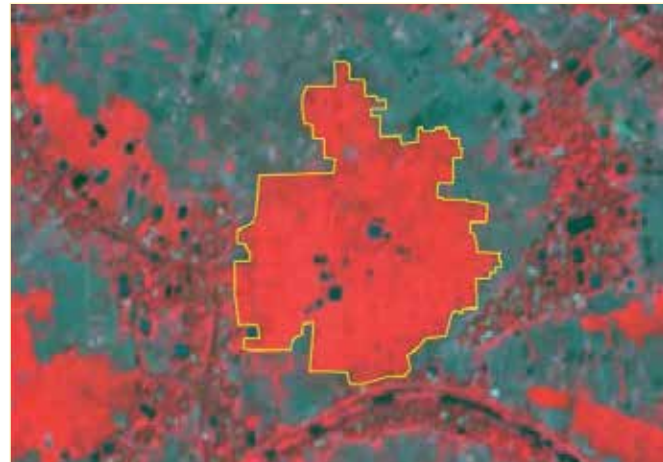

Picture: Class Satellite Image

Single Crop - PCs

This class includes agriculture lands cultivated with a single herbaceous crop in a year and the same herbaceous crop is cultivated in the same land for several years. This class includes both herbaceous rice fields and non- rice fields (pineapple, banana, sugarcane etc.) where only one crop is practiced in a year. The rice crop fields may be flooded in the growing season or in the monsoon period after harvesting.

LCCS Diagram
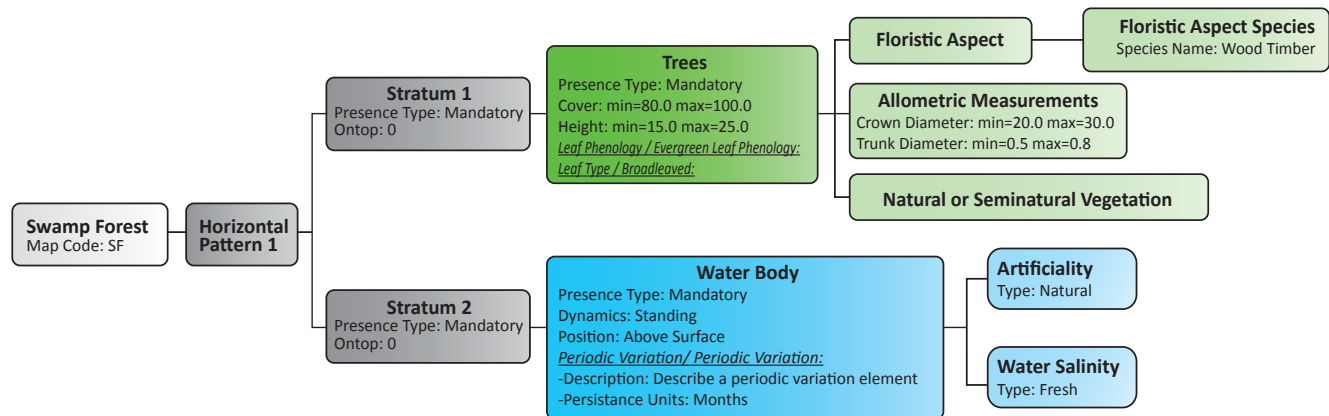

Picture: Class Photograph
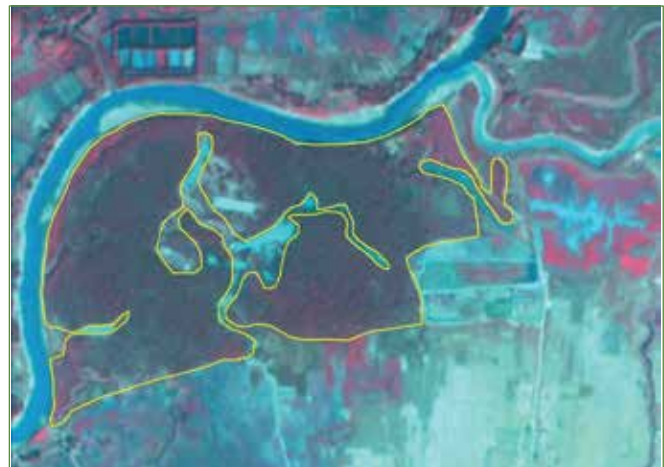

Picture: Class Satellite Image

Swamp Forest - SF

The land dominated by evergreen trees, which is inundated in monsoon with freshwater, is known as Swamp forest. Roots of these trees are in two levels. One is in the ground, and another is in the mid-level, which is used while the forest is flooded in the monsoon period. Trees grow to about 15-25m in height with a large canopy. Ratargul swamp forest is the only swamp forest of Bangladesh, which is located in Gowainghat, Sylhet. Most of the trees of this forest are Koroch *(Millettia pinnata)*.

LCCS Diagram

Swamp Forest
Map Code: SF

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Trees
Presence Type: Mandatory
Cover: min=80.0 max=100.0
Height: min=15.0 max=25.0
Leaf Phenology / Evergreen Leaf Phenology:
Leaf Type / Broadleaved:

Floristic Aspect

Floristic Aspect Species
Species Name: Wood Timber

Allometric Measurements
Crown Diameter: min=20.0 max=30.0
Trunk Diameter: min=0.5 max=0.8

Natural or Seminatural Vegetation

Stratum 2
Presence Type: Mandatory
Ontop: 0

Water Body
Presence Type: Mandatory
Dynamics: Standing
Position: Above Surface
Periodic Variation/ Periodic Variation:
-Description: Describe a periodic variation element
-Persistance Units: Months

Artificiality
Type: Natural

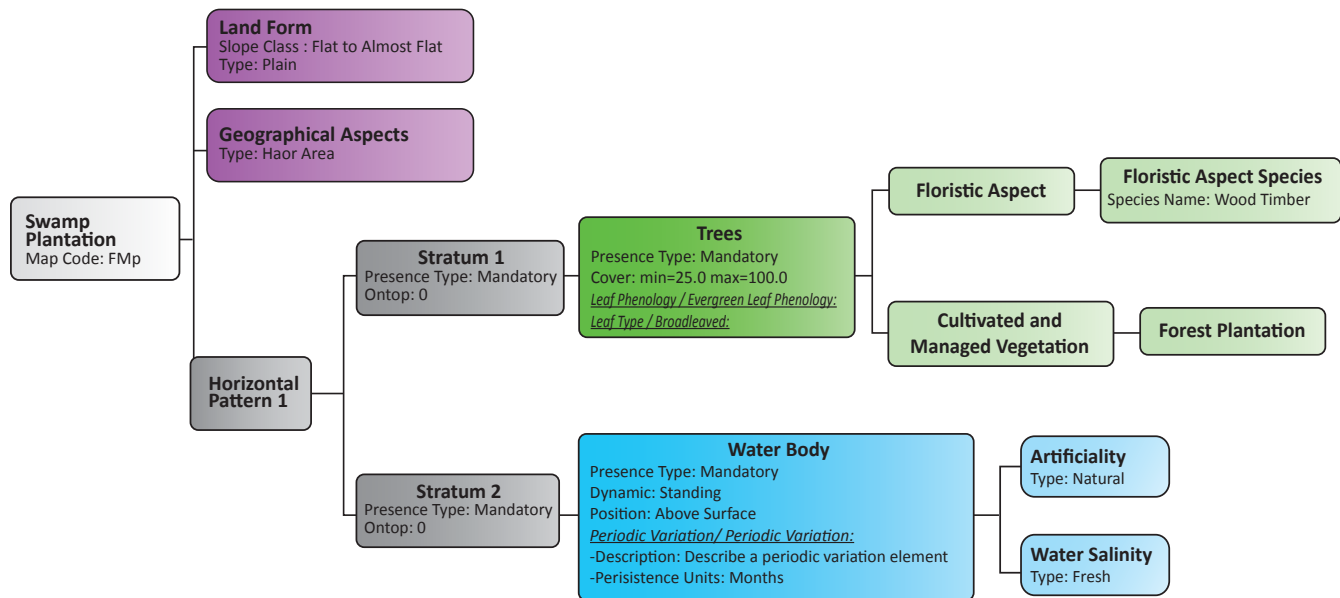**Water Salinity**
Type: Fresh

Picture: Class Photograph
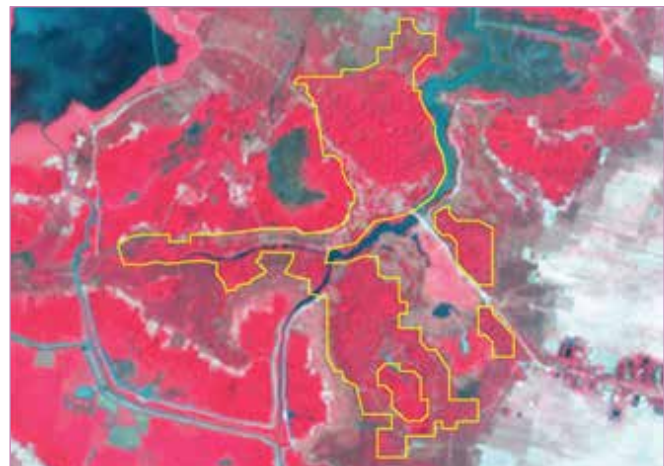
Picture: Class Satellite Image

Swamp Plantation - FSp

The Land dominated by evergreen trees, which are cultivated and inundated in monsoon with freshwater, is known as Swamp Plantation. Trees grow to about 5 - 45m in height with a large canopy.

LCCS Diagram

Swamp Plantation
Map Code: FMp

Land Form
Slope Class : Flat to Almost Flat
Type: Plain

Geographical Aspects
Type: Haor Area

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Trees
Presence Type: Mandatory
Cover: min=25.0 max=100.0
Leaf Phenology / Evergreen Leaf Phenology:
Leaf Type / Broadleaved:

Floristic Aspect

Floristic Aspect Species
Species Name: Wood Timber

Cultivated and Managed Vegetation

Forest Plantation

Stratum 2
Presence Type: Mandatory
Ontop: 0

Water Body
Presence Type: Mandatory
Dynamic: Standing
Position: Above Surface
Periodic Variation/ Periodic Variation:
-Description: Describe a periodic variation element
-Perisistence Units: Months

Artificiality
Type: Natural

Water Salinity
Type: Fresh
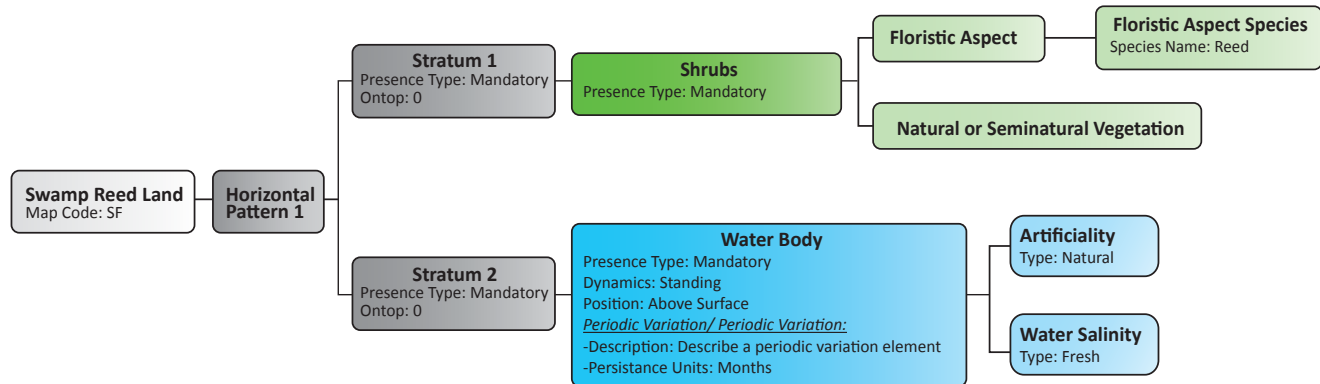

Picture: Class Photograph
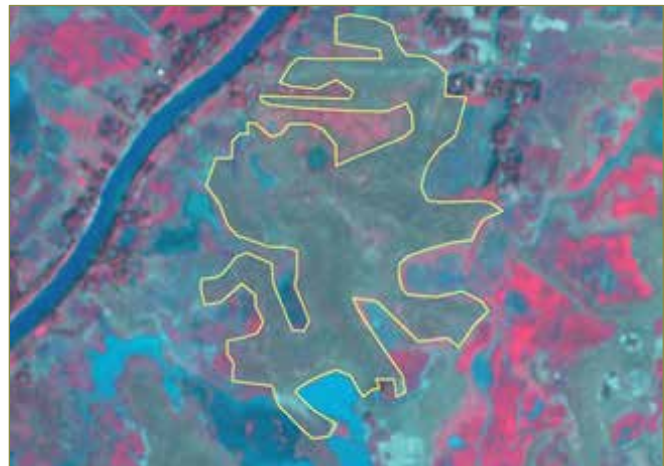

Picture: Class Satellite Image

Swamp Reed Land - SWr

The geographical area which is dominated by reed shrub and the root system is influenced by the fresh water is known as swamp reed land. The swamp reed lands are scattered in Sunamganj and Sylhet Districts of the Sylhet Division of Bangladesh.

LCCS Diagram

Swamp Reed Land
Map Code: SF

Horizontal Pattern 1

Stratum 1
Presence Type: Mandatory
Ontop: 0

Shrubs
Presence Type: Mandatory

Floristic Aspect

Floristic Aspect Species
Species Name: Reed

Natural or Seminatural Vegetation

Stratum 2
Presence Type: Mandatory
Ontop: 0

Water Body
Presence Type: Mandatory
Dynamics: Standing
Position: Above Surface
Periodic Variation/ Periodic Variation:
-Description: Describe a periodic variation element
-Persistance Units: Months

Artificiality
Type: Natural

Water Salinity
Type: Fresh

Picture: Class Photograph

Picture: Class Satellite Image

Training on national land cover classification system using LCCS 3

Using Open Foris Collect with LCCS

Workshop on the accuracy assessment and quality checking of land cover map of Bangladesh 2015

Jute Fiber Processing @ *FAO*

Bagerhat

Sixty Dome Mosque @ *Falgoonee Kumar Mondal*

Bagerhat district is located in between 21.82° and 22.98° north latitudes and 89.63° and 89.88° east longitudes. It is situated at the fringe of the Bay of Bengal with the ample bounties of Sundarbans. It is bounded by the Gopalganj district on the north, Pirojpur and Barguna districts on the east, the Bay of Bengal on the south and Khulna district on the west. Bagerhat district was formed on 1984.

The district consists of 9 sub-districts and 3 municipalities. The major rivers are the Madhumati, Pasur, Haringhata, Mongla and Baleshwar. The archaeological heritages are Shatgambuj Mosque, Nine-Dome Mosque, Sona Mosque, Khan Jahan's tomb complex , Mongla Bandar, Karamjal of Sundarbans and Hiron Point, Sundarban Museum etc.

Ten most dominant land cover in district
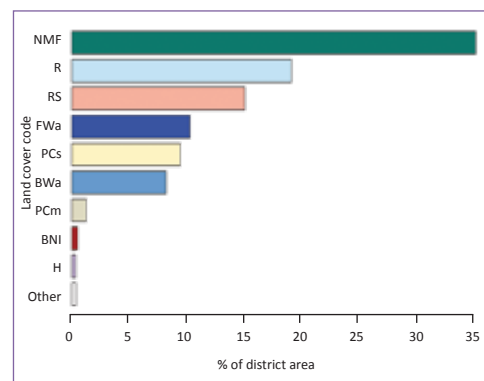
Location of Bagerhat district

Land cover areas in district

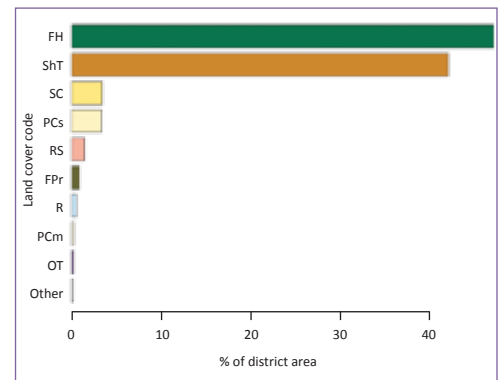| Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	35	0.01	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	447	0.1
Baor (Ba)	--	--	Perennial Beels/Haors (BH)	--	--
Sand (BS)	190	0.04	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	35198	8.24	Ponds (Po)	44	0.01
Brickfield (Br)	126	0.03	River Banks (RB)	--	--
Built-up Non-Linear (BNI)	2457	0.58	Rivers and Khals (R)	81513	19.09
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	64309	15.06
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	44125	10.33	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	1700	0.4	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	40484	9.48
Mangrove Forest (NMF)	149714	35.06	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	69	0.02	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	922	0.22	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	5662	1.33			
Total	**426994**				

Land cover map 2015, Bagerhat district
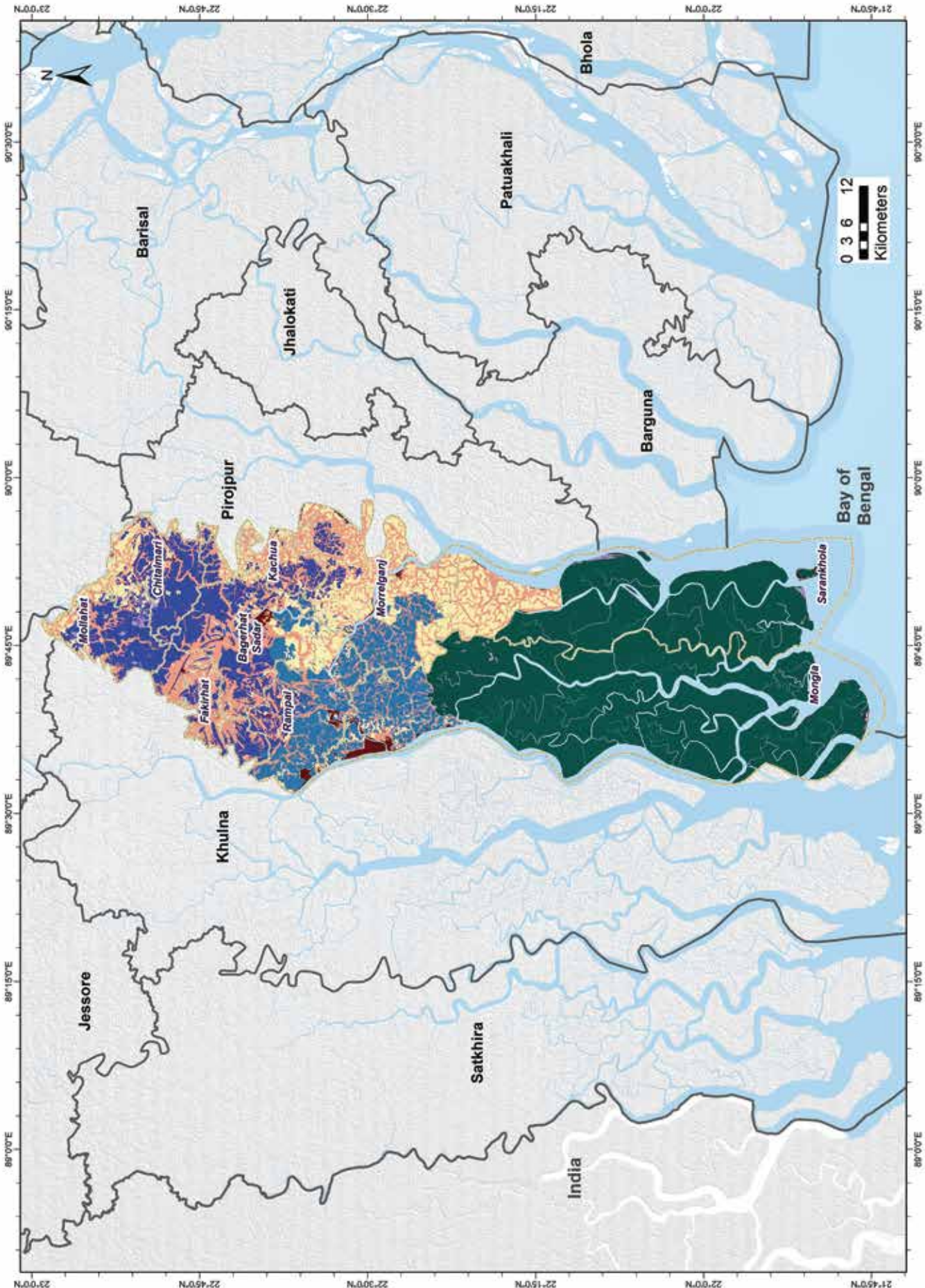
Bandarban

Golden Temple @ *Pankaj Sikder*

Bandarban district is located in between 21.18° and 22.37° north latitudes and 92.01° and 92.68° east longitudes. It is bounded by Rangamati district on the north, Arakan (Myanmar) on the south, Chin Province (Myanmar) and Rangamati district on the east and Chattogram and Cox's Bazar districts on the west. Bandarban district was formed on 1 October 1981.

It consists of 7 sub-districts and 2 municipalities. The major rivers are the Shankha (sangu), Matamuhuri and Bakkhali. The major ethnic nations are the Marma, Murong, Tripura, Bawm, Tanchangya, Chakma, Chak, Khyang, Khumi, Lushei and the Pankho. Meraindang hill, (Alikadam), Sharna Mandir (Bandarban Sadar), Tazingdang, Kewkradang hill etc the notable tourist spots.

Ten most dominant land cover in district

Location of Bandarban district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1246	0.27
Baor (Ba)	--	--	Perennial Beels/Haors (BH)	--	--
Sand (BS)	--	--	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	323	0.07
Brickfield (Br)	126	0.03	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	374	0.08	Rivers and Khals (R)	2746	0.6
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	4220	0.92
Hill Forest (FH)	216201	47.16	Rural Settlement (RS)	6929	1.51
Forest Plantation (FP)	103	0.02	Salt Pans (SP)	0	0
Fresh Water Aquaculture (FWa)	--	--	Shifting Cultivation (SC)	15930	3.47
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	193062	42.11
Lake (L)	132	0.03	Single Crop (PCs)	15542	3.39
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	1538	0.34			
Total	**458471**				

Land cover map 2015, Bandarban district
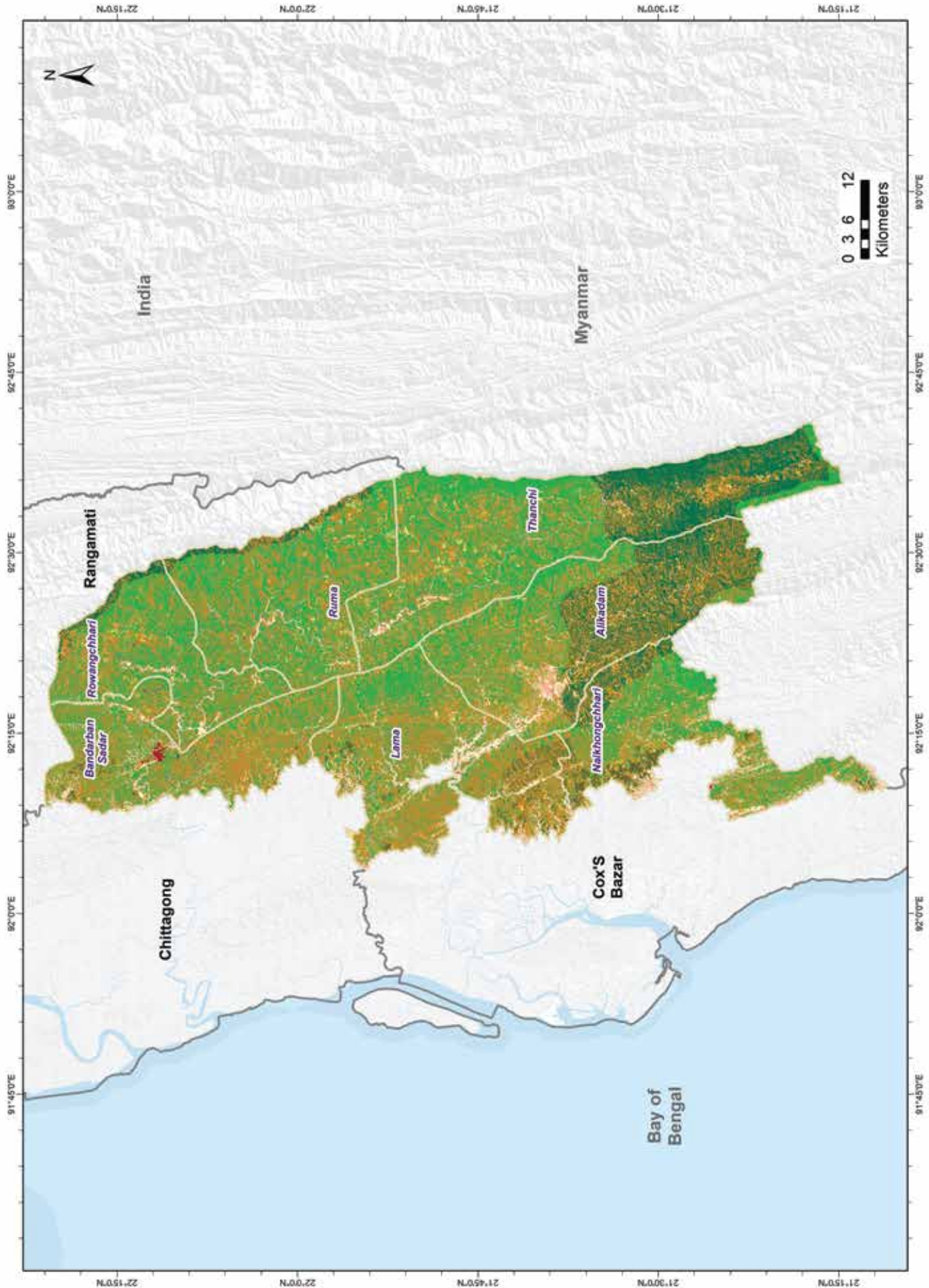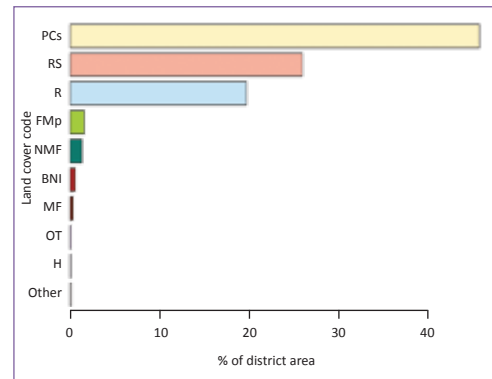
Barguna

Taltali Para Zeyarama Thirimingala Buddhist Temple @ *Falgoonee Kumar Mondal*

Barguna district is located in between 21.80° and 22.48° north latitudes and 89.87° and 90.37° east longitudes. It is bounded by Barishal and Patuakhali districts on the north, Patuakhali district on the east, the Bay of Bengal on the south and Pirojpur and Khulna districts on the west. Previously it was a sub-division of Patuakhali district, and was upgraded into a district on the 28th February, 1984.

The district consists of 6 sub-districts and 4 municipalities. The major rivers are the Bishkhali, Baleshwar, Burishwar, Payra, Andharmanik and Gajalia. The archaeological heritages are Bibichini Mosque at Betagi and the Buddhist temple and Buddhist Academy at Taltali etc.

Ten most dominant land cover in district

Location of Barguna district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	237	0.15
Baor (Ba)	--	--	Perennial Beels/Haors (BH)	--	--
Sand (BS)	110	0.07	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	11	0.01
Brickfield (Br)	94	0.06	River Banks (RB)	24	0.02
Built-up Non-Linear (BNI)	1042	0.65	Rivers and Khals (R)	33057	20.57
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	43498	27.07
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	85	0.05	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	187	0.12	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	76628	47.68
Mangrove Forest (NMF)	2292	1.43	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	2778	1.73	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	671	0.42	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	1	0			
Total	**160715**				

*Land cover map 2015, Barguna district*
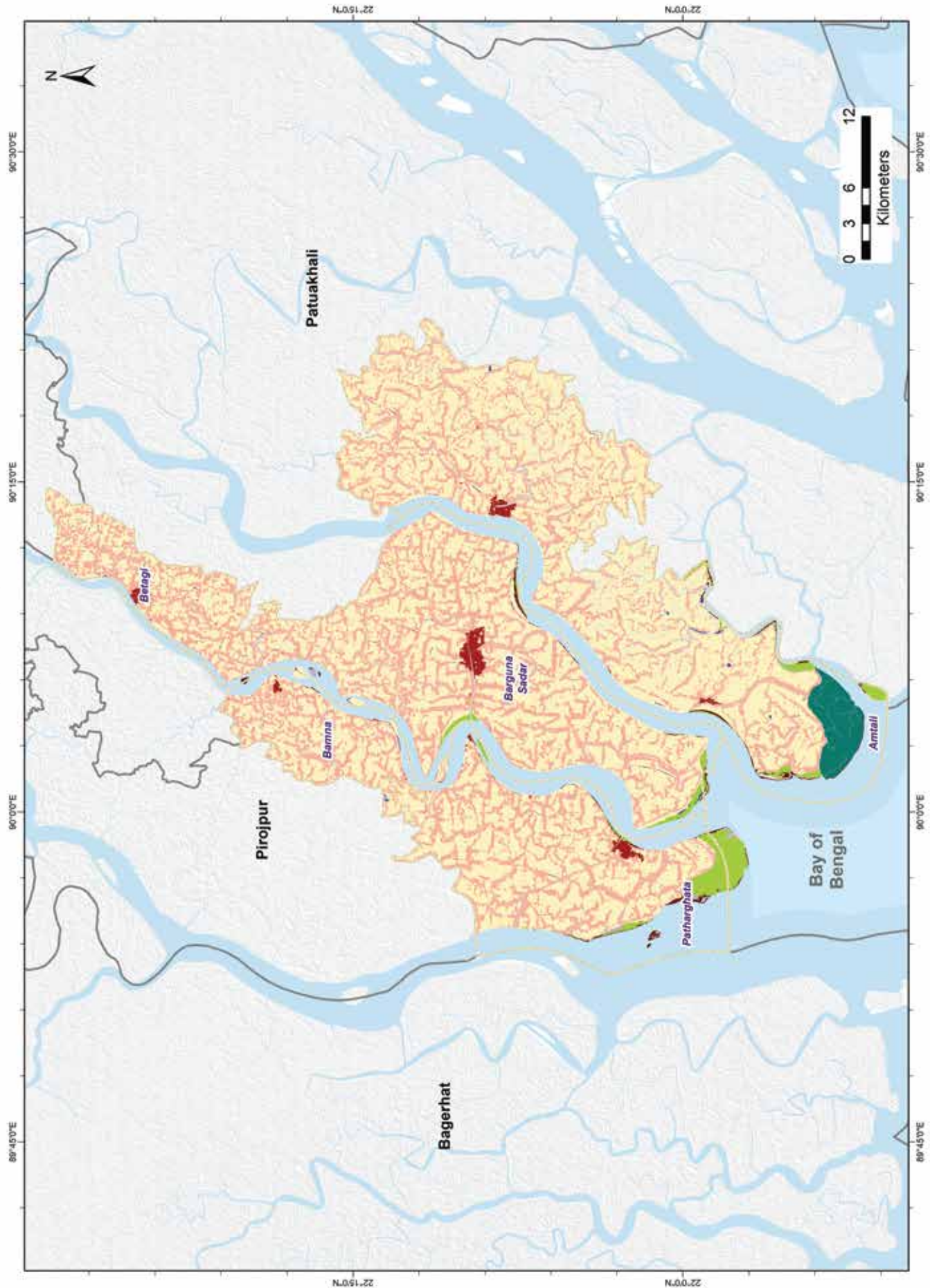
Barishal

Launch Ghat @ *FAO*

Barishal district is located in between 22.45° and 22.87° north latitudes and 90.02° and 90.72° east longitudes. It is bounded by Madaripur, Shariatpur and Chandpur districts on the north, Lakshmipur and Bhola districts on the east, Patuakhali and Barguna districts on the south and Gopalganj, Pirojpur and Jhalokathi districts on the west. Barishal was previously known as Bakerganj district. Barishal Paurasabha was formed in 1957 and it was turned into a city corporation in 2000.

The district consists of 10 sub-districts, 1 city corporation and 6 municipalities. The major rivers are the lower Meghna, Arial Khan, Katcha, Kirtankhola, Tentulia, Naya Bhanga, Jayanti, Shwarupkathi and Amtali. The archaeological heritages are Oxford Church, Shankar Math, Kali Bari of Mukunda Das, Aswini Kumar Town Hall, Charkella, Durgasagar Dighi etc.

Ten most dominant land cover in district
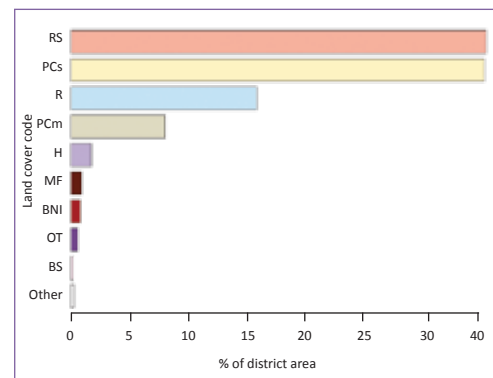
Location of Barishal district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	48	0.02	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1660	0.65
Baor (Ba)	--	--	Perennial Beels/Haors (BH)	--	--
Sand (BS)	559	0.22	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	2	0
Brickfield (Br)	396	0.15	River Banks (RB)	10	0
Built-up Non-Linear (BNl)	2178	0.85	Rivers and Khals (R)	40926	15.98
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	91314	35.65
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	283	0.11	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	4604	1.8	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	90922	35.49
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	2437	0.95	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	20820	8.13			
Total	**256160**				

*Land cover map 2015, Barishal district*
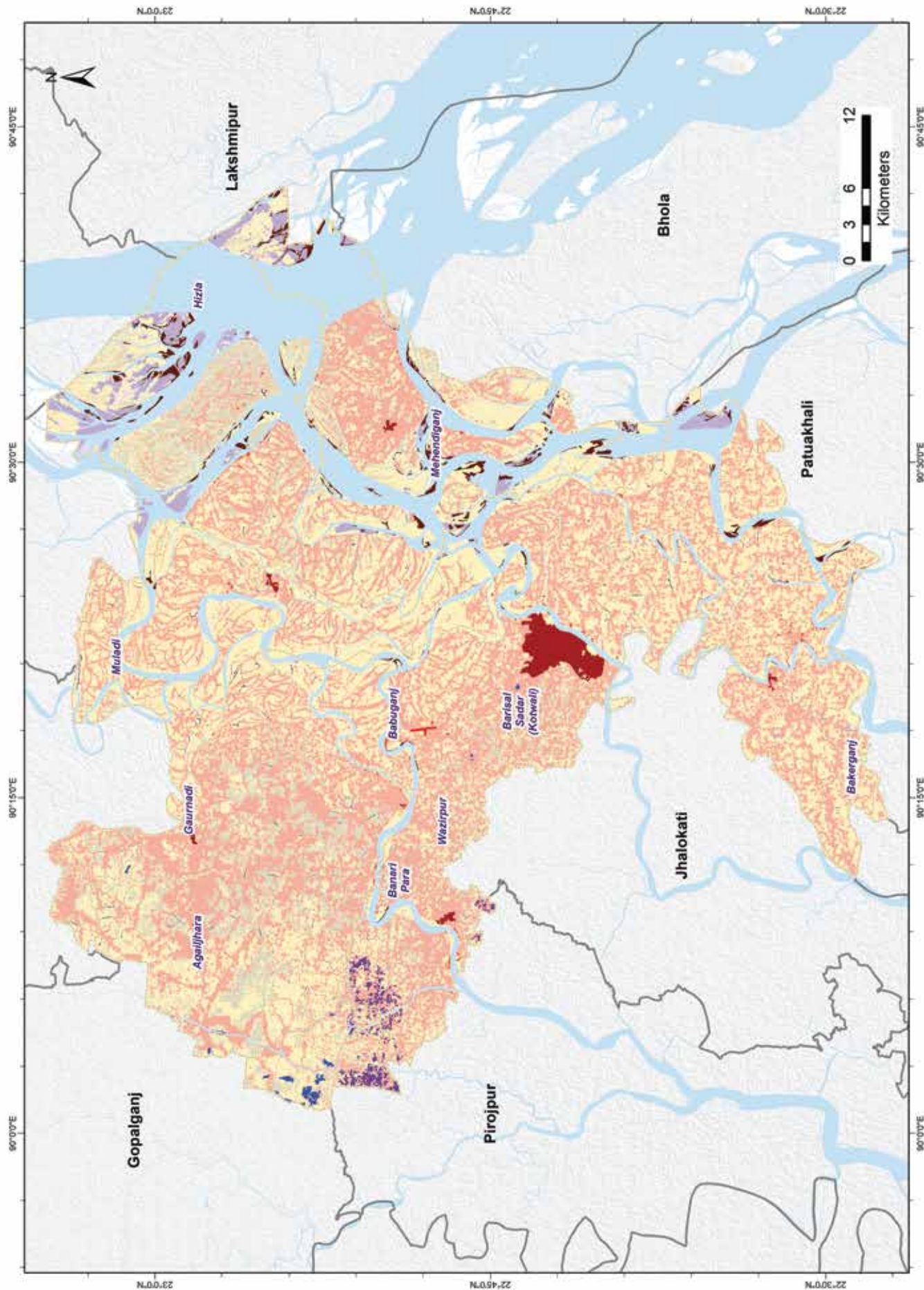
Bhola

Coastal Plantation @ *FAO*

Bhola district is located in between 21.90° and 22.87° north latitudes and 90.57° and 91.02° east longitudes. The district is bounded by Lakshmipur and Barishal districts on the north, Lakshmipur and Noakhali districts on the east, the Bay of Bengal on the south and Barishal and Patuakhali districts on the west. Bhola was previously a sub-division of Noakhali district and was established in 1845.

The district consists of 7 sub-districts and 5 municipalities. The major rivers and canals are the Meghna, Tentulia and Ganeshpura river and Darogar canal. Zahiruddin, Patila, Dhalchar, Kukri-Mukri are some islands in this district. The notable memorial sculpture that bears the testimony of the War of Liberation is at Char Jangla.

Ten most dominant land cover in district
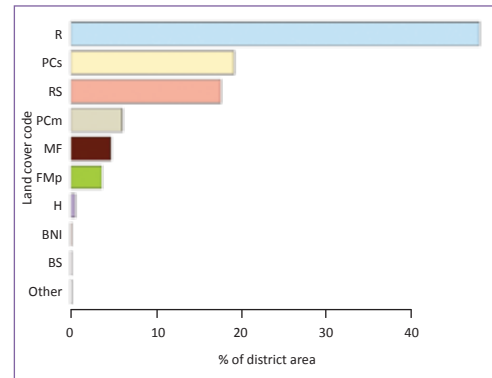
Location of Bhola district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	71	0.02
Baor (Ba)	--	--	Perennial Beels/Haors (BH)	--	--
Sand (BS)	265	0.07	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	2	0
Brickfield (Br)	198	0.05	River Banks (RB)	13	0
Built-up Non-Linear (BNl)	297	0.08	Rivers and Khals (R)	175075	47.93
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	64399	17.63
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	148	0.04	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	1966	0.54	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	70008	19.17
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	13429	3.68	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	17136	4.69	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	22268	6.1			
Total	**365273**				

*Land cover map 2015, Bhola district*
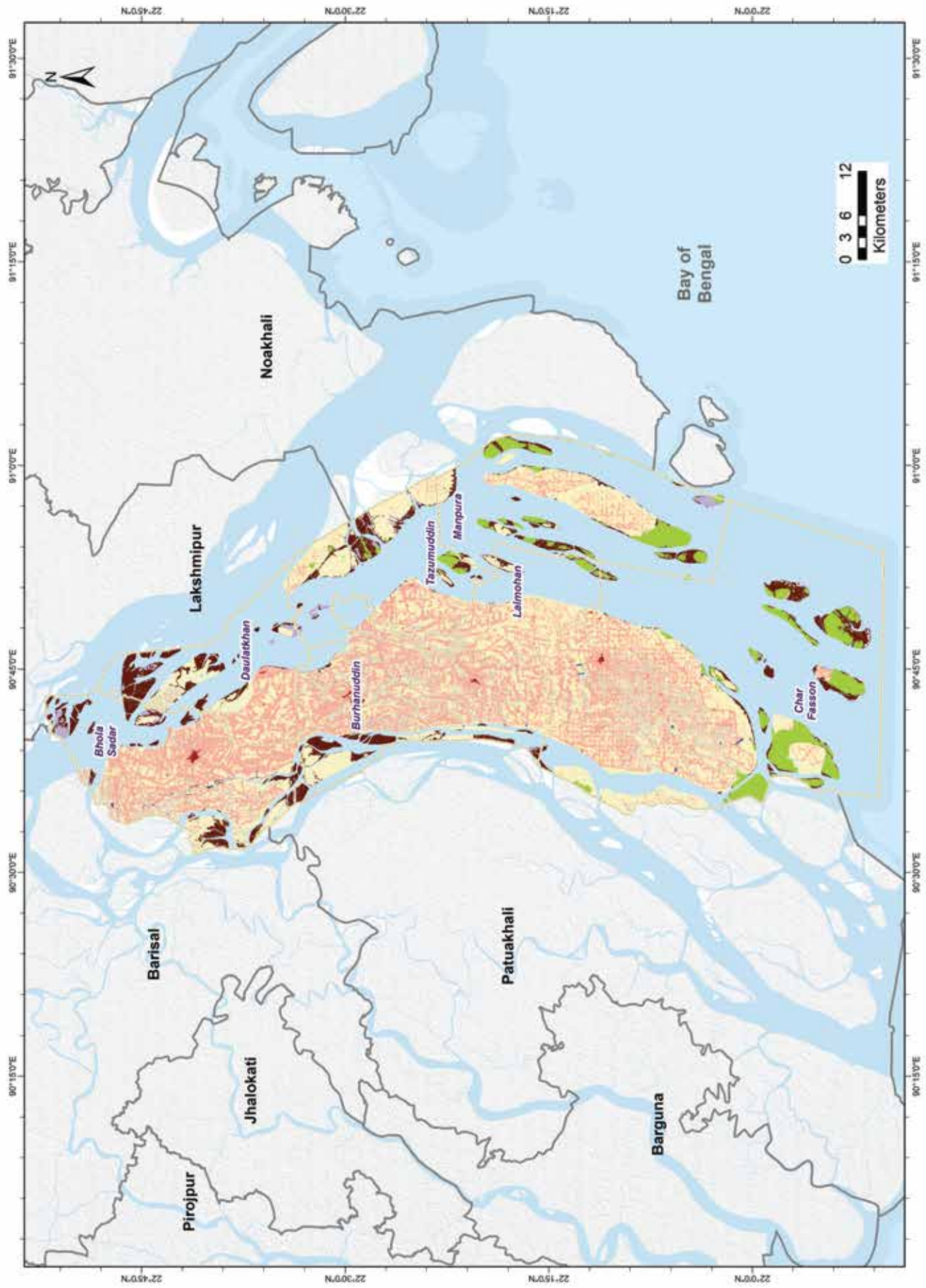
Bogura

Gokul Medh, Mahasthangarh @ *Falgoonee Kumar Mondal*

Bogura district is located in between 24.53° and 25.12° north latitudes and 88.97° and 89.75° east longitudes. The district is bounded by Gaibandha district and Joypurhat district on the north, Jamalpur and Sirajganj districts on the east, Sirajganj and Natore districts on the south and Naogaon and Joypurhat districts on the west. Bogura town was founded in 1850.

The district consists of 12 sub-districts and 11 municipalities. The main rivers are the Karatoya, Jamuna, Nagar, Bangali, Ichamati. Notable archaeological heritages are Kherua Mosque at Sherpur, remnants of the historical Mahasthangarh, Bara Masjid, Mazar (tomb) of Shah Sultan Balkhi, Gokul Medh, Parshuram's Palace and Vasu Vihara etc.

Ten most dominant land cover in district
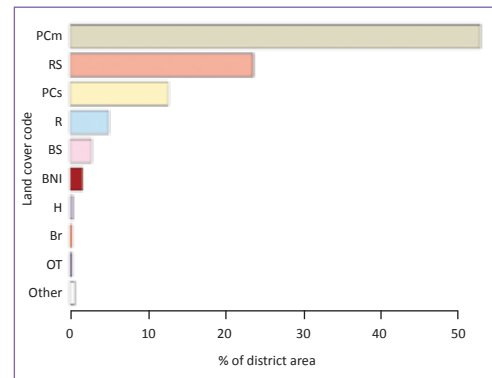
Location of Bogura district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	37	0.01	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	723	0.25
Baor (Ba)	388	0.13	Perennial Beels/Haors (BH)	681	0.23
Sand (BS)	8114	2.77	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	443	0.15
Brickfield (Br)	772	0.26	River Banks (RB)	43	0.01
Built-up Non-Linear (BNl)	4887	1.67	Rivers and Khals (R)	14716	5.03
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	69044	23.59
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	238	0.08	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	1178	0.4	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	36961	12.63
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	154489	52.78			
Total	**292714**				

Land cover map 2015, Bogura district
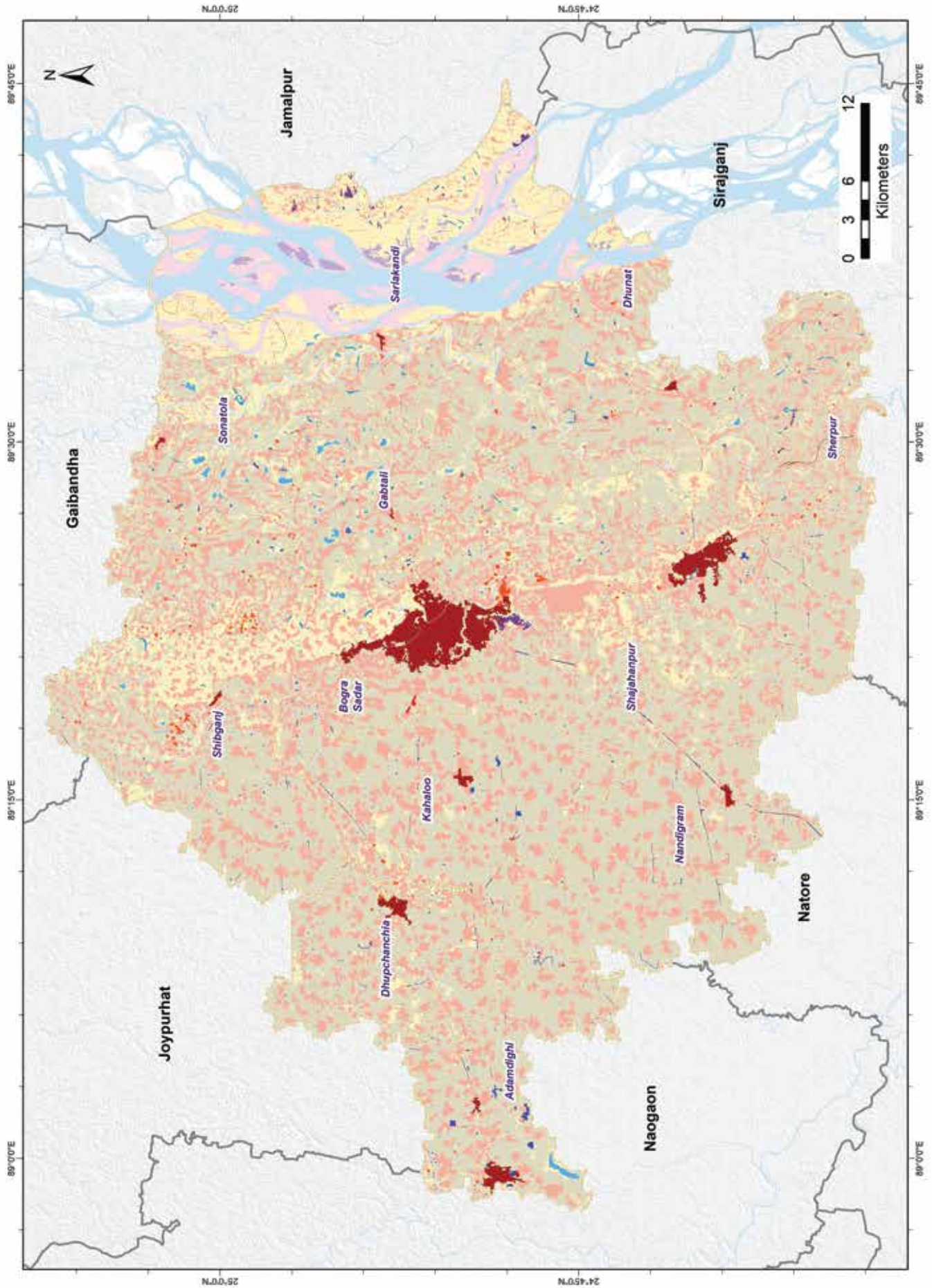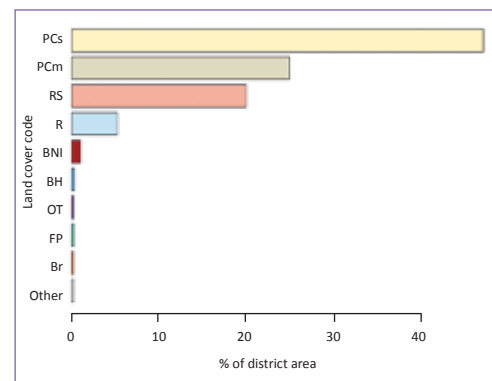
Brahmanbaria

Titas river @ *FAO*

Brahmanbaria district is located in between 23.65° and 24.27° north latitudes and 90°44' and 91°51' east longitudes. The district bounded on the north by Kishoreganj and Habiganj districts, on the east by India, on the south by Cumilla district and on the west by Narsingdi, Narayanganj and Kishoreganj districts. Brahmanbaria district was formed in 1984.

The district consists of 9 sub-districts and 5 municipalities. The major rivers and wetlands are Meghna, Titas, Buri, Haora, Mehedi Haor and Akashi Haors. Arphail Sagardighi Mosque and Twin Graves (sixteenth century, Sarail), Arphannesa Mosque (1662, Sarail), Bhadurghar Shahi Mosque (1084 AH) etc are the notable archaeological sites.

*Ten most dominant land cover in district*

Location of Brahmanbaria district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	656	0.34
Baor (Ba)	54	0.03	Perennial Beels/Haors (BH)	787	0.41
Sand (BS)	18	0.01	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	49	0.03
Brickfield (Br)	482	0.25	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	2078	1.08	Rivers and Khals (R)	10208	5.3
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	1	0
Hill Forest (FH)	--	--	Rural Settlement (RS)	38494	20
Forest Plantation (FP)	590	0.31	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	309	0.16	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	61	0.03	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	90632	47.08
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	48086	24.98			
Total	**192504**				

*Land cover map 2015, Brahmanbaria district*
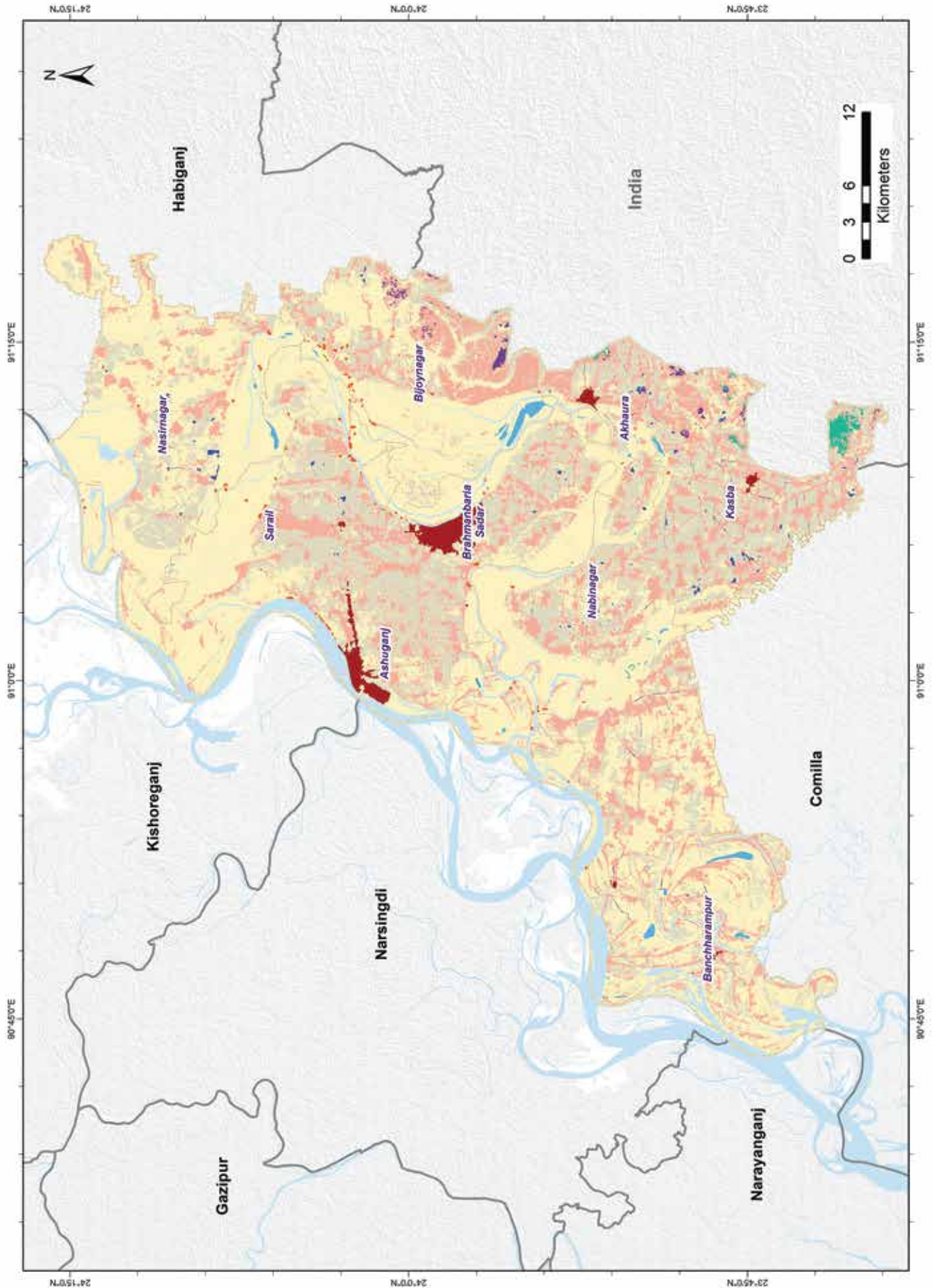
Chandpur

Hilsha Market @ *FAO*

Chandpur district is located in between 23.00° and 23.50° north latitudes and 90.53° and 91.03° east longitudes. The district is bounded by Munshiganj and Cumilla districts on the north, Cumilla district on the east, Lakshmipur and Barishal districts on the south and Munshiganj and Shariatpur districts on the west. Chandpur was designated as district in 1984.

The district consists of 8 sub-districts and 7 municipalities. It is located near the estuary of the Padma and Meghna. Main tributaries of the Meghna are Dakatia, Dhanagada, Matlab and Udhamdi. The archaeological heritages are Rasti Shah Dargah, Begum Mosque, Hajiganj Bara Mosque, Suja Mosque, Alamgiri Mosque, Mada Khan Mosque etc. Chandpur is famous for 'Hilsha', the national fish of Bangladesh.

Ten most dominant land cover in district
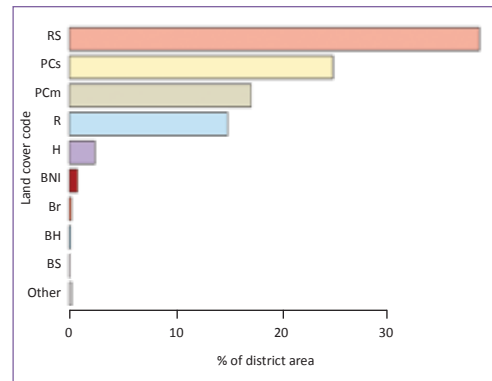
Location of Chandpur district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	50	0.03
Baor (Ba)	29	0.02	Perennial Beels/Haors (BH)	276	0.16
Sand (BS)	193	0.11	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	0	0
Brickfield (Br)	414	0.24	River Banks (RB)	110	0.06
Built-up Non-Linear (BNl)	1441	0.84	Rivers and Khals (R)	25661	14.99
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	66369	38.76
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	168	0.1	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	4227	2.47	Shrub with scattered trees (ShT)	--	--
Lake (L)	66	0.04	Single Crop (PCs)	42698	24.93
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	28	0.02	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	29512	17.23			
Total	**171244**				

Land cover map 2015, Chandpur district
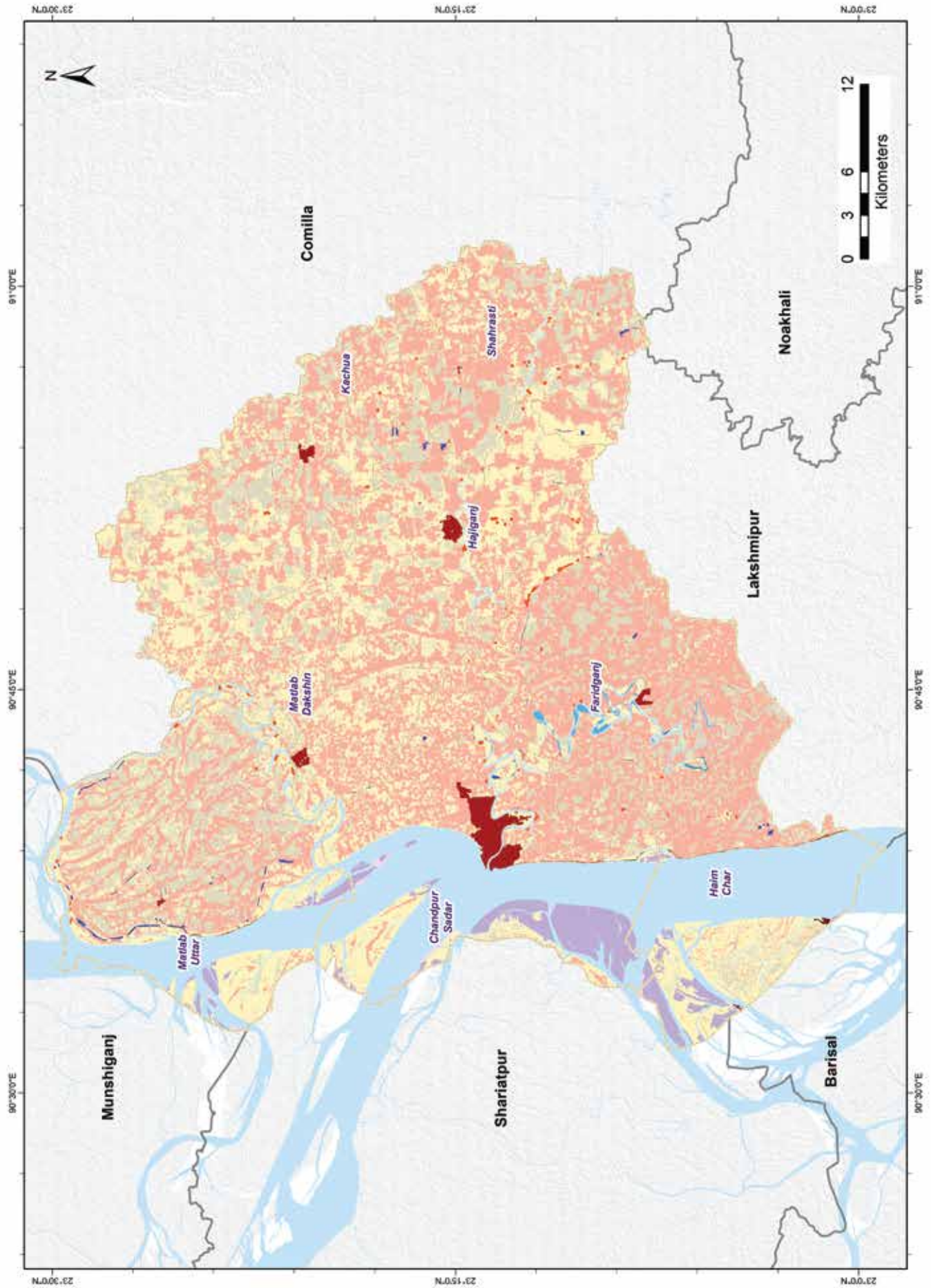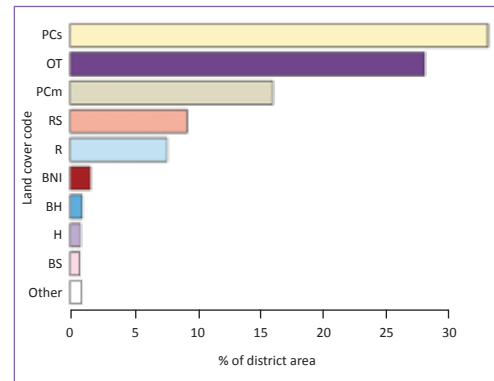
Chapai Nawabganj

Mango market @ *FAO*

Chapai Nawabganj district is located in between 24.36° and 24.95° north latitudes and 87.33° and 88.38° east longitudes. The district is bounded by Naogaon and Rajshahi districts on the east and India on the north, south and the west. It was one of the sub-divisions of the former Rajshahi district. It was turned into a district in 1984.

The district consists of 5 sub-districts and 4 municipalities. The major rivers are the Ganges, Mahananda, Pagla, Moraganga and Punarbhaba. The major archaeological sites are Chota Sona Mosque (1493-1519), Darashbari Mosque (1479), Rajbari (palace), Baragharia Kacharibari (revenue office) etc. Chapai Nawabganj is famous for its mangoes.

Ten most dominant land cover in district

Location of Chapai Nawabganj district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	47659	28.23
Baor (Ba)	364	0.22	Perennial Beels/Haors (BH)	1690	1
Sand (BS)	1374	0.81	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	768	0.45
Brickfield (Br)	366	0.22	River Banks (RB)	3	0
Built-up Non-Linear (BNI)	2784	1.65	Rivers and Khals (R)	13069	7.74
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	15759	9.33
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	129	0.08	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	1464	0.87	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	56143	33.25
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	27264	16.15			
Total	**168836**				

*Land cover map 2015, Chapai Nawabganj district*
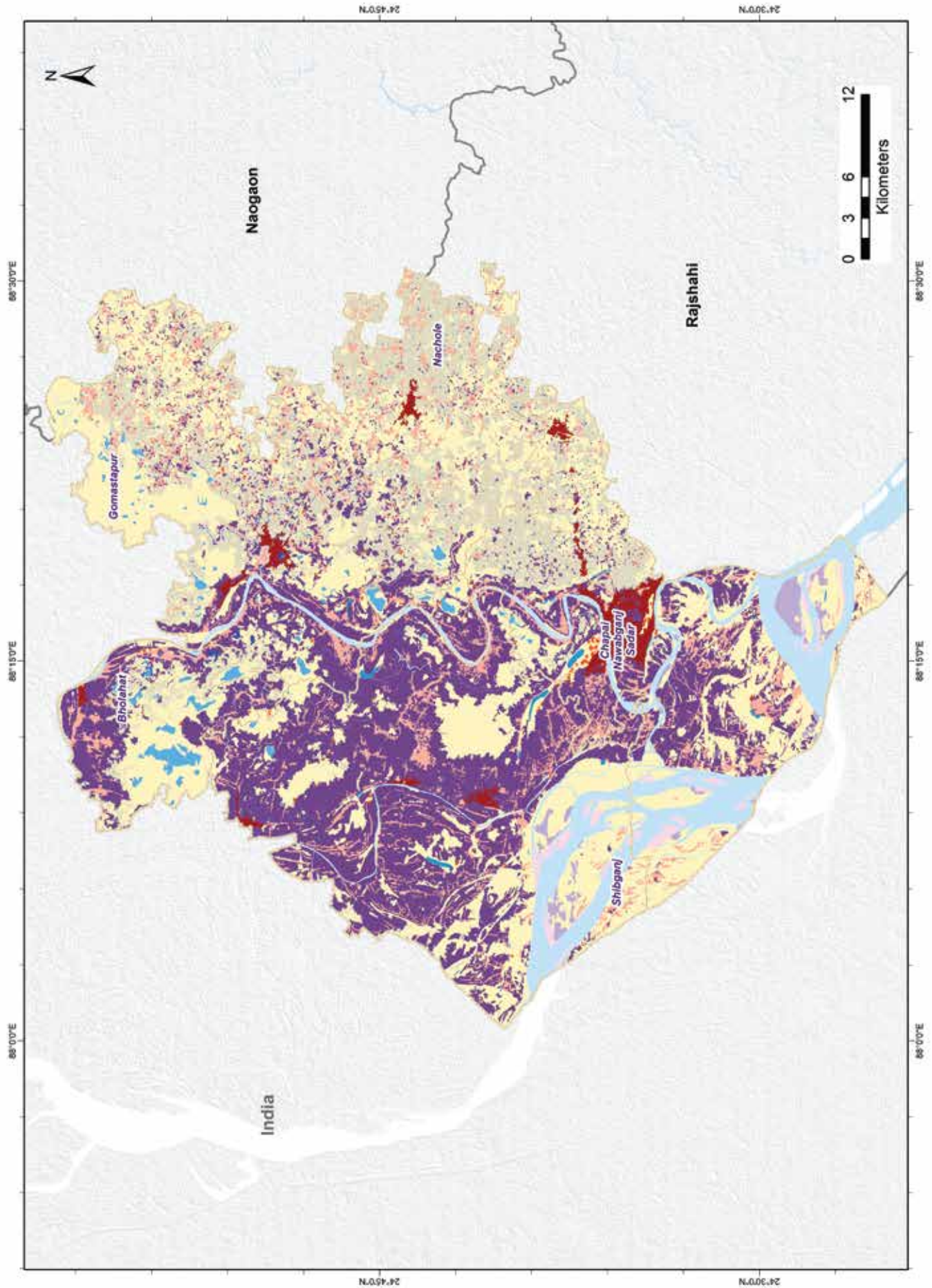
Chattogram

Suptadhara Waterfall @ *Yousuf Tushar*

Chattogram district is located in between 21.90° and 22.98° north latitudes and 91.28° and 92.22° east longitudes. The district is bounded by Tripura State of India on the north, Khagrachhari, Rangamati and Bandarban districts on the east, Cox's Bazar district on the south and the Bay of Bengal, Feni and Noakhali districts on the west. Chattogram Municipality was established on 27 June 1977; Chattogram City Corporation was formed on 31 July 1990.

The district consists of 15 sub-districts, 1 city corporation and 15 municipalities. The major rivers are the Karnafuli, Halda and Sangu. The major archaeological heritages are Bronze statues (8th and 9th centuries), Fakira Mosque, Musa Khan Mosque (1658), Chattogram Court Building (1893), Collegiate School, Ethnological Museum (1974) etc. Chattogram is the most important centre of trade and commerce of the country.

Ten most dominant land cover in district
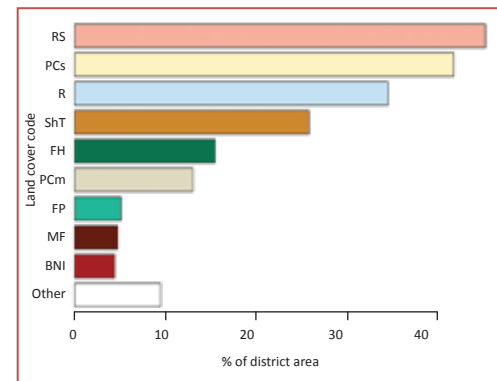
Location of Chattogram district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	482	0.09	Orchards & Other Plantations (Shrub) (OS)	4899	0.92
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	735	0.14
Baor (Ba)	4	0	Perennial Beels/Haors (BH)	30	0.01
Sand (BS)	558	0.1	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	1047	0.2
Brickfield (Br)	1202	0.23	River Banks (RB)	70	0.01
Built-up Non-Linear (BNl)	11929	2.24	Rivers and Khals (R)	91745	17.26
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	4339	0.82
Hill Forest (FH)	41324	7.77	Rural Settlement (RS)	120209	22.61
Forest Plantation (FP)	13756	2.59	Salt Pans (SP)	3495	0.66
Fresh Water Aquaculture (FWa)	2135	0.4	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	1	0	Shrub with scattered trees (ShT)	68673	12.92
Lake (L)	1231	0.23	Single Crop (PCs)	111035	20.89
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	5094	0.96	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	12805	2.41	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	34811	6.55			
Total	**531609**				

67

*Land cover map 2015, Chattogram district*
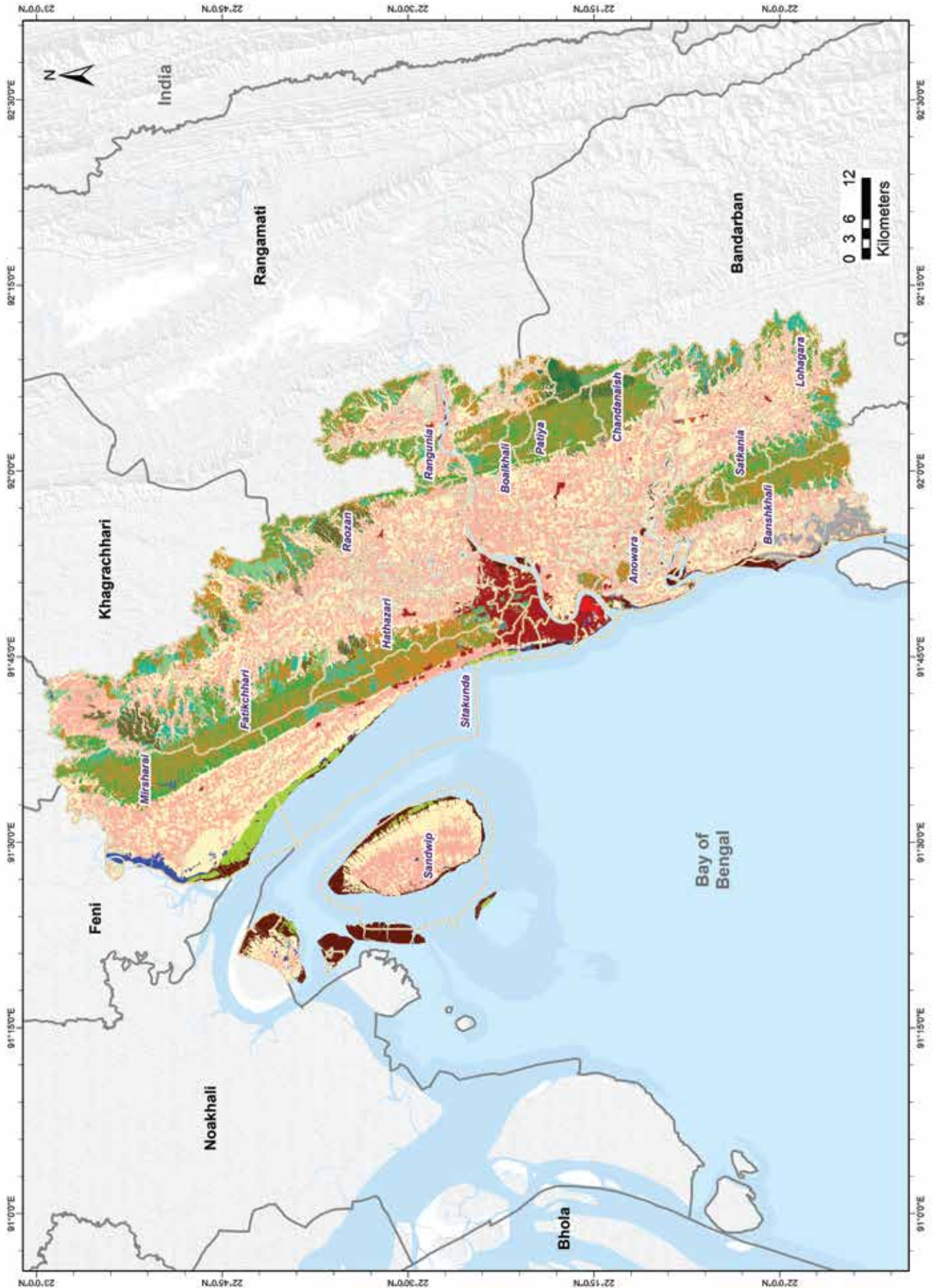
Chuadanga

Darshana Railway Junction@ *FAO*

Chuadanga district is located in between 23.37° and 23.83° north latitudes and 88.65° and 89.00° east longitudes. The district is bounded by Kushtia and Meherpur districts on the north, Jhenaidah district on the south and the east, and Meherpur district and India on the west. Chuadanga sub-division was turned into a district in 1984.

The district consists of 4 sub-districts and 4 municipalities. The major rivers are the Mathabhanga, Bhairab, Kumar, Chitra, and Nabaganga. The major archaeological heritages are Three domed Chuadanga Bara Mosque, Gholdari Mosque (1006 AD), Thakurpur Mosque, Shibnagar Mosque etc. Murshidi, Marfati, Baul songs, Jatra, Bhab song, Bhasan song, Kavigan, Gazir Geet, etc are notable folk culture.

Ten most dominant land cover in district
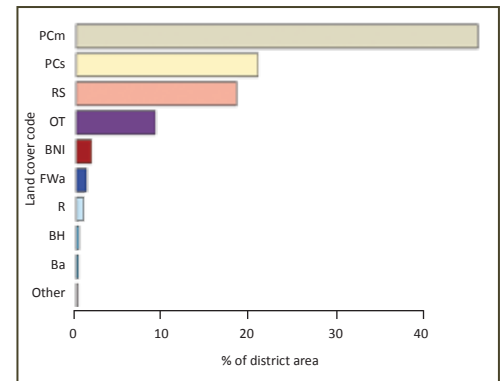
Location of Chuadanga district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	10598	9.17
Baor (Ba)	327	0.28	Perennial Beels/Haors (BH)	401	0.35
Sand (BS)	--	--	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	64	0.06
Brickfield (Br)	230	0.2	River Banks (RB)	--	--
Built-up Non-Linear (BNI)	2122	1.84	Rivers and Khals (R)	1052	0.91
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	21419	18.54
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	1448	1.25	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	9	0.01	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	24307	21.04
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	53543	46.35			
Total	**115519**				

Land cover map 2015, Chuadanga district
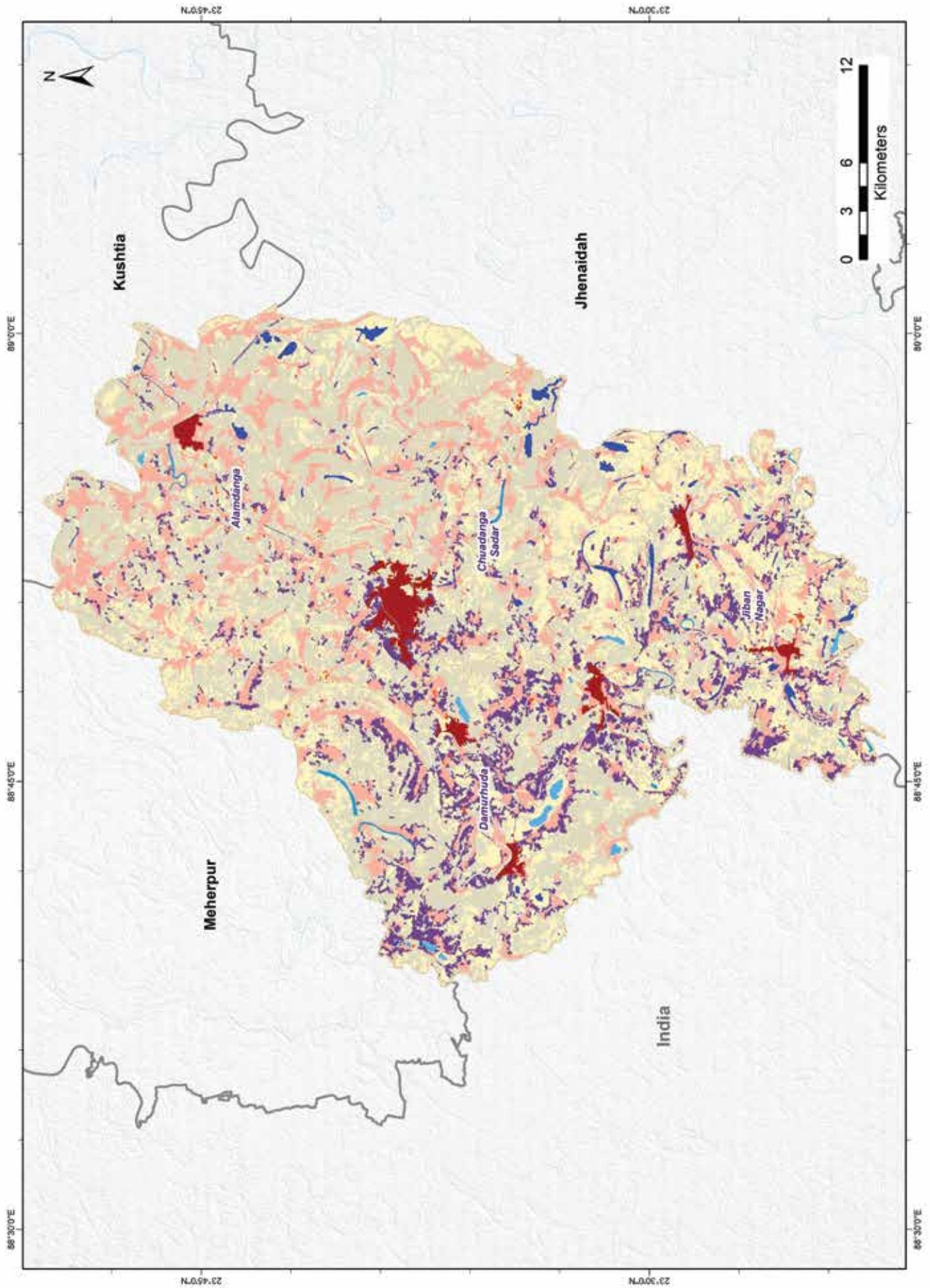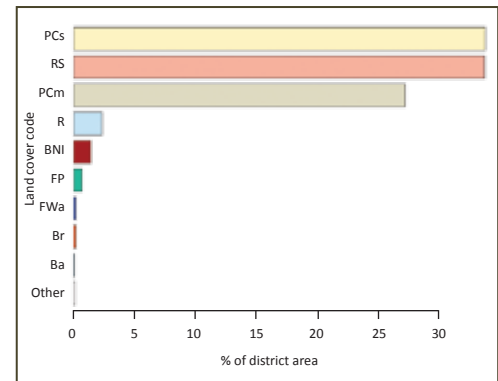
Cumilla

Shalban Vihara, Mainamati @ *FAO*

Cumilla district is located in between 23.03° and 24.78° north latitudes and 92.65° and 91.37° east longitudes. It is bounded by Brahmanbaria district on the north, Tripura State of India on the east, Feni and Noakhali districts on the south and Narayanganj, Munshiganj and Chandpur districts on the west. This district was established as Tippera district in 1790.

The district consists of 17 sub-districts, 1 city corporation and 8 municipalities. Archaeological heritages are Shalvan Vihara, Kutila Mura, Charandra Mura etc which are located within Lalmai Mainamati hills. Among the folk cultures, Puthi-path, Palli geeti, Bhatiyali, Bhawaya, Jarigan, Sarigan, Khanar Bachan, proverbs etc are notable.

Ten most dominant land cover in district

Location of Cumilla district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	27	0.01
Baor (Ba)	303	0.1	Perennial Beels/Haors (BH)	160	0.05
Sand (BS)	--	--	Plain Land Forest (Sal Forest) (FDp)	121	0.04
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	148	0.05
Brickfield (Br)	771	0.25	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	4537	1.47	Rivers and Khals (R)	7326	2.37
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	6	0
Hill Forest (FH)	--	--	Rural Settlement (RS)	104207	33.71
Forest Plantation (FP)	2305	0.75	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	786	0.25	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	104352	33.76
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	84096	27.2			
Total	**309144**				

Land cover map 2015, Cumilla district
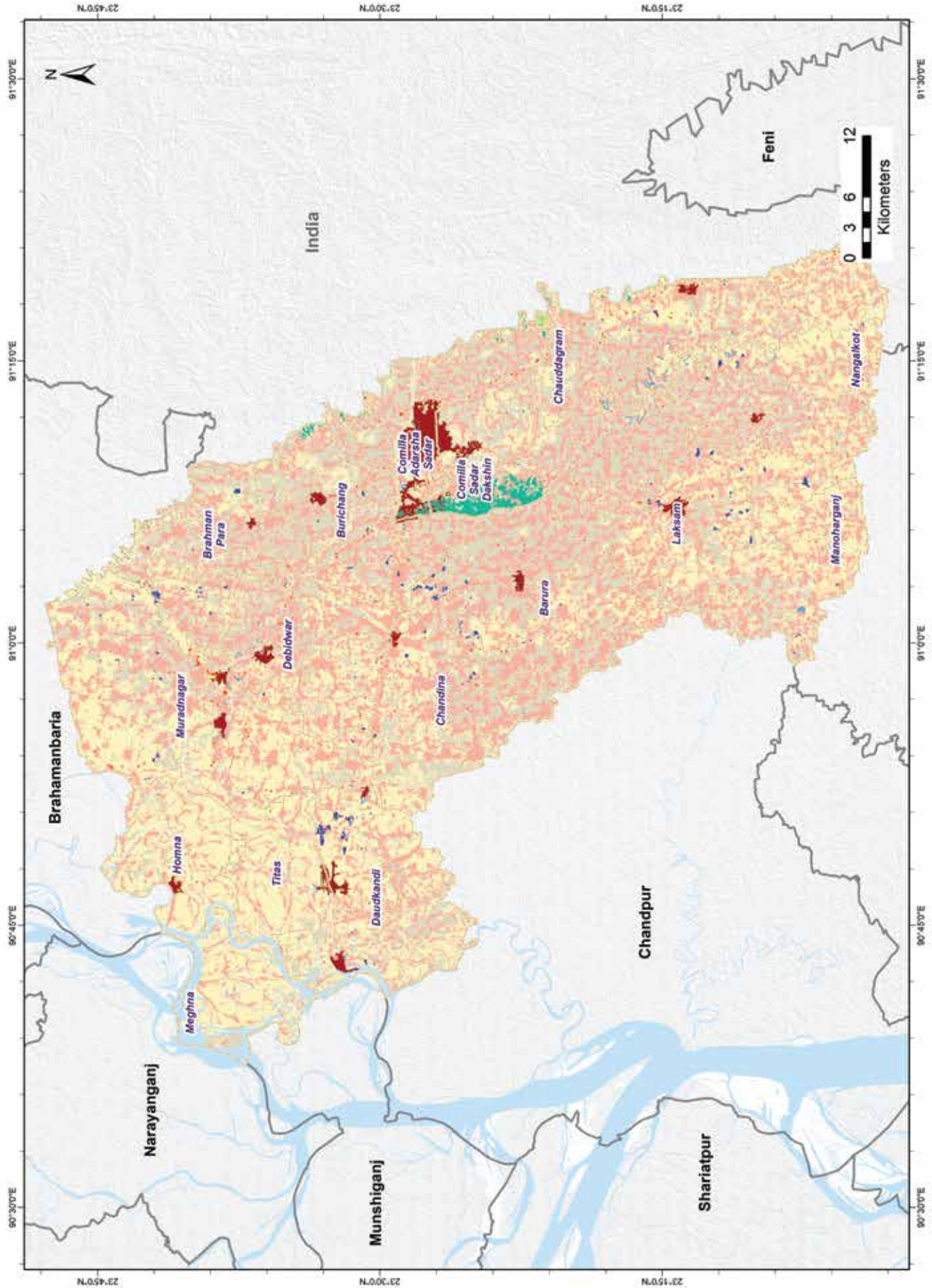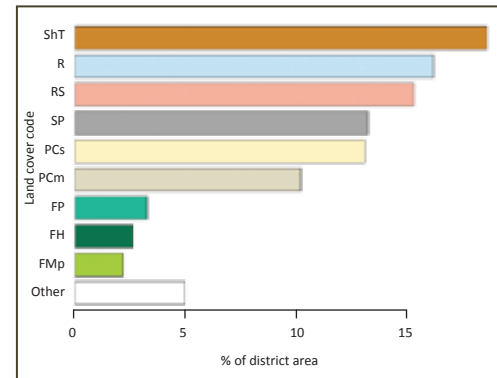
Cox's Bazar

Inani Beach @ *Zaheer Iqbal*

Cox's Bazar is famous for the longest unbroken sea-beach in the world. It is located at the fringe of Bay of Bengal and in between 20.72° and 21.93° north latitudes and 91.83° and 92.38° east longitudes. It is bounded by Chattogram district on the north, Bandarban district and Myanmar on the east, the Bay of Bengal on the south and west. In 1972, Cox's Bazar was turned into a municipality.

The district consists of 8 sub-districts and 4 municipalities. The major rivers and chanals are the Matamuhuri, Bakkhali, RejuKhal, Naf, Maheshkhali channel and Kutubdia channel. The archaeological heritages are Adinath Temple (Maheskhali), Tomb of Shah Umar (Chakoria), Satgambuj Masjid of FazlQuke at Manikpur etc.

Ten most dominant land cover in district

Location of Cox's Bazar district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	66	0.03	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	--	--
Baor (Ba)	67	0.03	Perennial Beels/Haors (BH)	21	0.01
Sand (BS)	2163	0.85	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	4857	1.91	Ponds (Po)	39	0.02
Brickfield (Br)	208	0.08	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	1115	0.44	Rivers and Khals (R)	41245	16.21
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	534	0.21
Hill Forest (FH)	6754	2.65	Rural Settlement (RS)	39023	15.34
Forest Plantation (FP)	8386	3.3	Salt Pans (SP)	33777	13.27
Fresh Water Aquaculture (FWa)	81	0.03	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	36	0.01	Shrub with scattered trees (ShT)	47438	18.64
Lake (L)	89	0.03	Single Crop (PCs)	33386	13.12
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	5658	2.22	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	3462	1.36	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	26036	10.23			
Total	**254438**				

*Land cover map 2015, Cox's Bazar district*
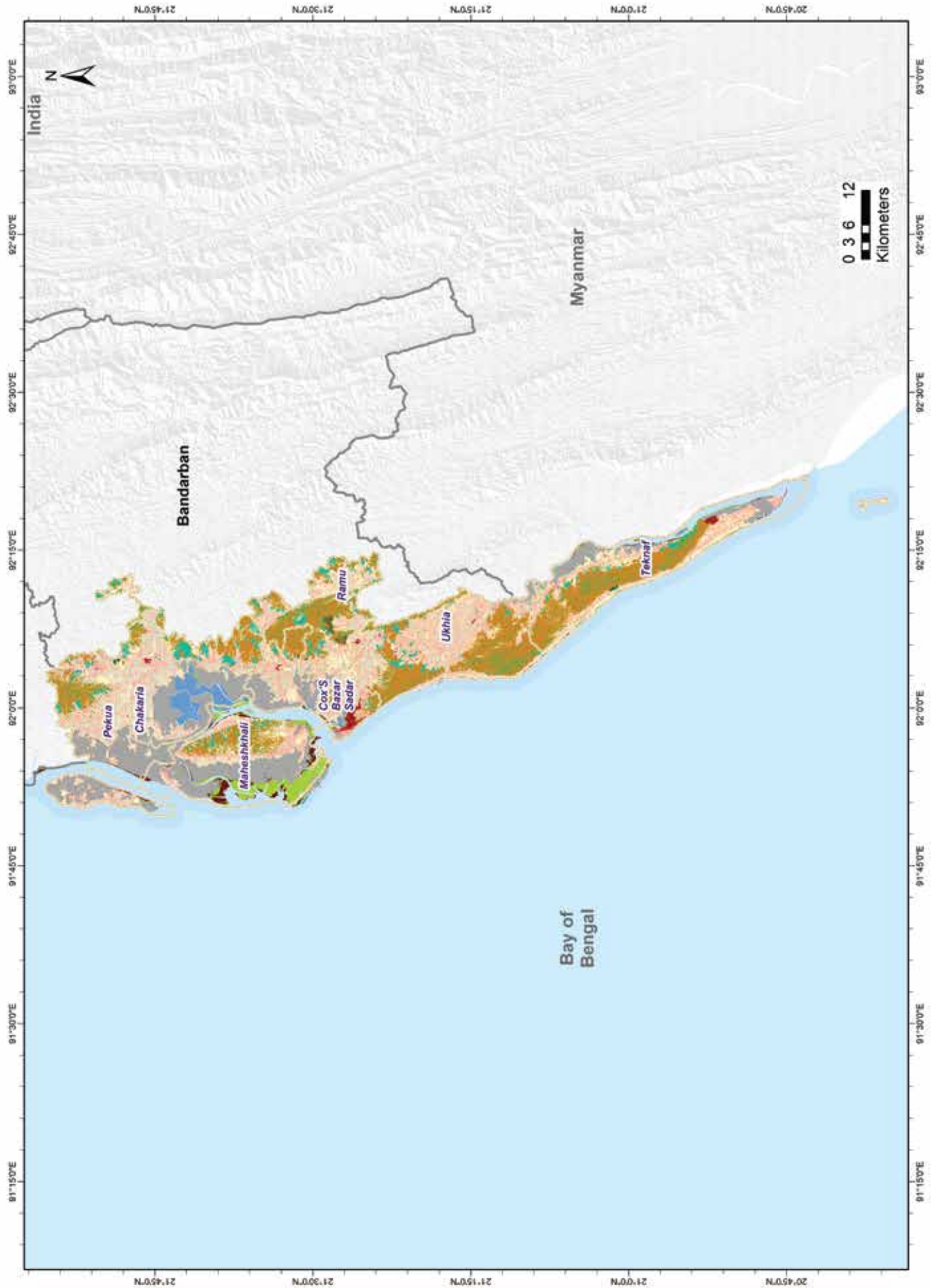
Dhaka

National Parliament Building @ *Zaheer Iqbal*

Dhaka district is located in between 23.88° and 24.01° north latitudes and 90.00° and 90.62° east longitudes. It is bounded by Gazipur and Tangail districts on the north, Narayanganj district on the east, Munshiganj and Faridpur districts on the south and by Manikganj district on the west. Dhaka turned into a City Corporation in 1990.

The district consists of 5 upazilas, 2 city corporations and 3 municipalities. The major rivers are the Padma, Kaliganga, Dhaleshwari, Ichamati, Shitalakshya and Buriganga. The archaeological heritages are Lalbagh Fort and the tomb of Pari Bibi (1668), Chhota Katra and tomb of Bibi Champa (1663), Ancient Fort and the palace of the Nawab (Jail Hospital, 1638), Ahsan Manzil (1872) etc.
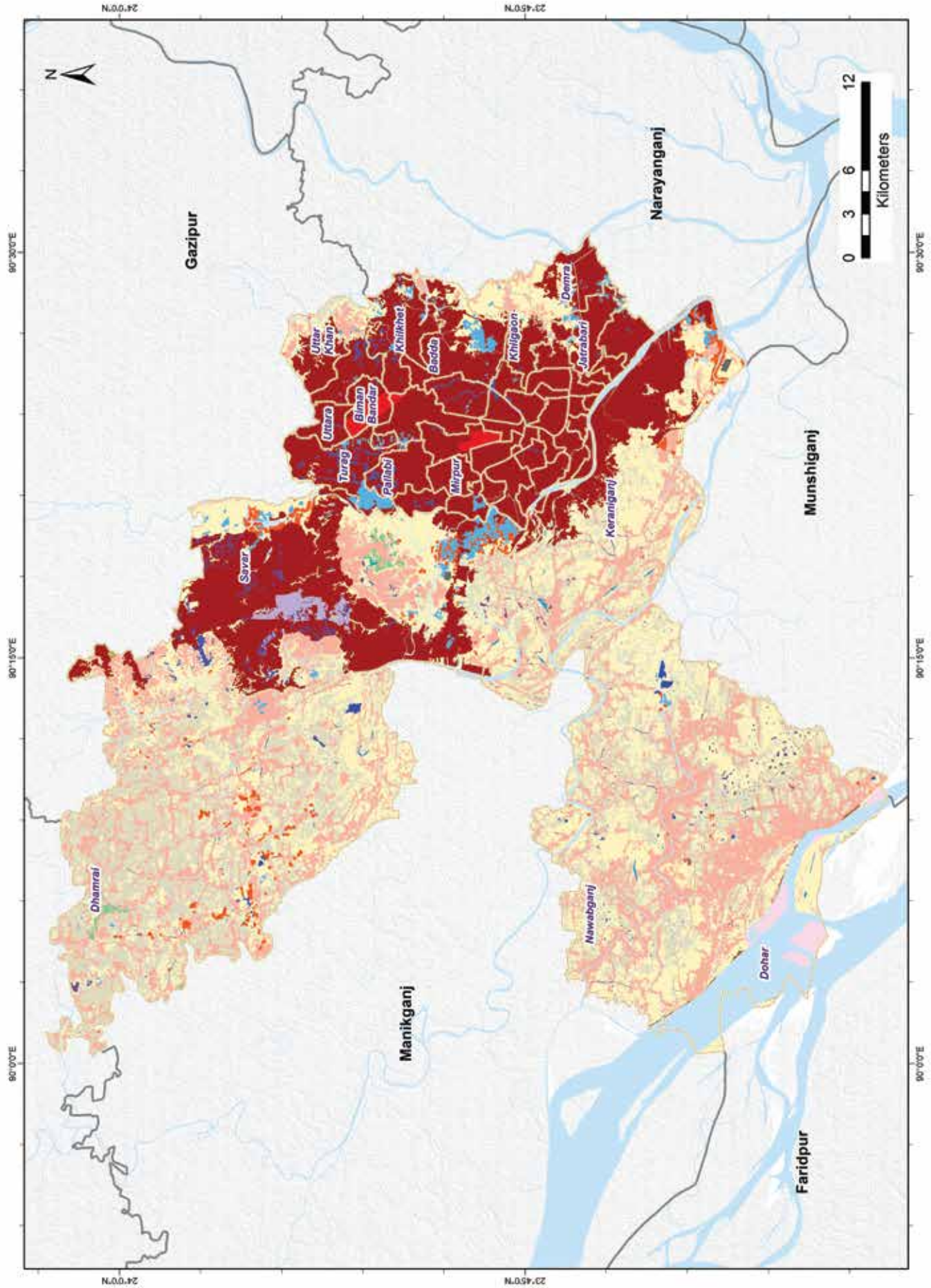
Ten most dominant land cover in district
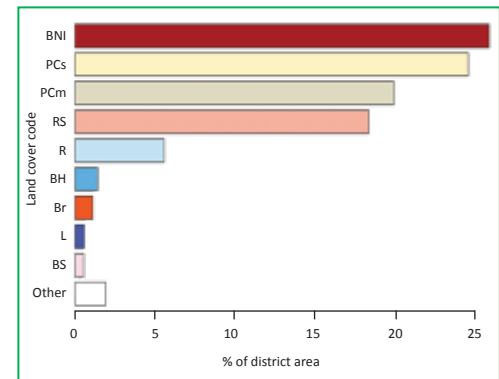
Location of Dhaka district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	661	0.45	Orchards & Other Plantations (Shrub) (OS)	268	0.18
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	625	0.43
Baor (Ba)	102	0.07	Perennial Beels/Haors (BH)	2154	1.47
Sand (BS)	889	0.6	Plain Land Forest (Sal Forest) (FDp)	24	0.02
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	163	0.11
Brickfield (Br)	1693	1.15	River Banks (RB)	66	0.05
Built-up Non-Linear (BNl)	37951	25.82	Rivers and Khals (R)	8223	5.59
Dump Sites/Extraction Sites (DS)	61	0.04	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	26954	18.34
Forest Plantation (FP)	21	0.01	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	212	0.14	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	695	0.47	Shrub with scattered trees (ShT)	--	--
Lake (L)	956	0.65	Single Crop (PCs)	36044	24.52
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	29230	19.89			
Total	**146991**				

75

Land cover map 2015, Dhaka district

Gazipur

Narayanganj

Munshiganj

Manikganj

Faridpur

Uttar Khan

Khilkhet

Badda

Khilgaon

Demra

Jatrabari

Biman Bandar

Uttara

Turag

Pallabi

Mirpur

Keraniganj

Savar

Dhamrai

Nawabganj

Dohar

0 3 6 12
Kilometers

76

Dinajpur

Kantajew Temple @ *Falgoonee Kumar Mondal*

Dinajpur district is located in between 25.17° and 26.07° north latitudes and 88.38° and 89.30° east longitudes. Dinajpur is bounded on the north by Panchagarh and Thakurgaon districts, on the south by Gaibandha and Joypurhat districts and India, and on the west by Thakurgaon district and India. Dinajpur district was established in 1786.

The district consists of 13 upazilas and 9 municipalities. The major rivers are the Dhepa, Punarbhaba, Kanchan and Atrai. The major archaeological heritages are Kantanagar Temple, Rajbari, Dinajpur Museum, Ramsagar tank and the tombs of Chehel Gazi and Gora Shahid etc.

Ten most dominant land cover in district
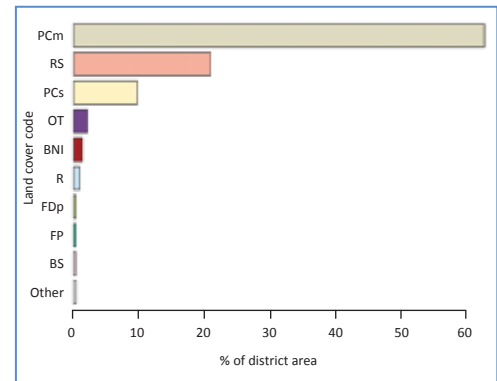
Location of Dinajpur district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	7744	2.24
Baor (Ba)	5	0	Perennial Beels/Haors (BH)	173	0.05
Sand (BS)	1484	0.43	Plain Land Forest (Sal Forest) (FDp)	1631	0.47
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	446	0.13
Brickfield (Br)	476	0.14	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	4932	1.43	Rivers and Khals (R)	3682	1.06
Dump Sites/Extraction Sites (DS)	201	0.06	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	72517	20.97
Forest Plantation (FP)	1602	0.46	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	458	0.13	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	79	0.02	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	33944	9.82
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	216407	62.59			
Total	**345779**				

*Land cover map 2015, Dinajpur district*

78
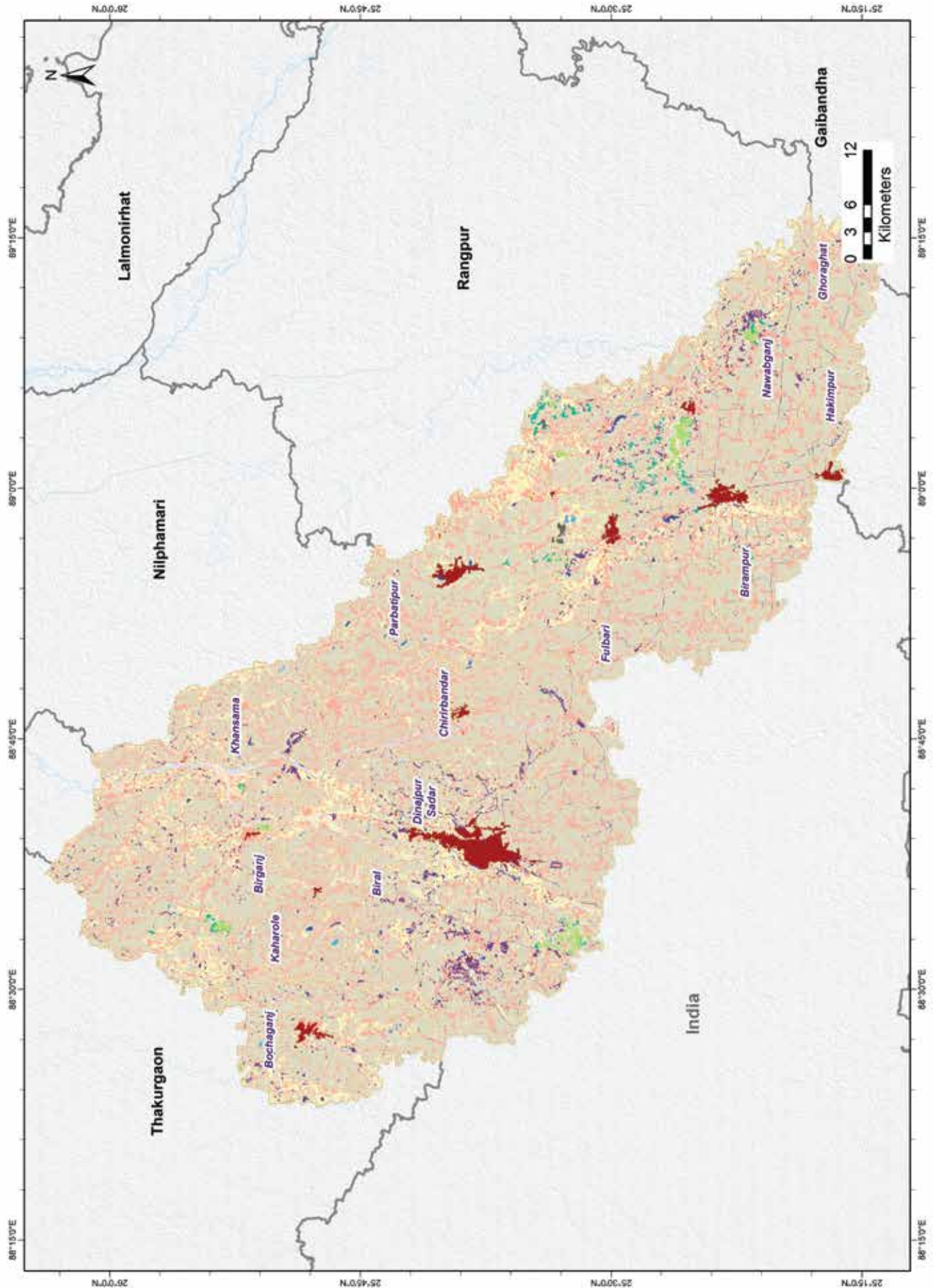
Faridpur

Mathurapur Deul @ *FAO*

Faridpur district is located in between 23.28° and 23.67° north latitudes and 89.48° and 90.18° east longitudes. The district is bounded by Manikganj, Dhaka and Rajbari districts on the north, Madaripur, Dhaka and Munshiganj districts on the east, Gopalganj and Madaripur districts on the south and Rajbari, Magura and Narail districts on the west. Faridpur District was formed in 1815.

The district consists of 9 sub-districts and 5 municipalities. The major rivers are the Padma, Old Kumar, Arial Khan, Gorai, Chandana, Bhubanshwar and Lohartek. The major archaeological heritages are Garoda Mosque (1013 AH), Pathrail Mosque and dighi (1493-1519 AD), Satoir Mosque (1519 AD), Fatehabad Taksal (1519-32), Mathurapur Wall, District Judge Court building (1889 AD) etc.

Ten most dominant land cover in district
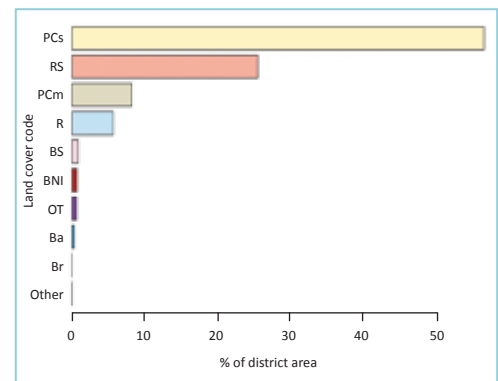
Location of Faridpur district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1622	0.8
Baor (Ba)	908	0.45	Perennial Beels/Haors (BH)	238	0.12
Sand (BS)	1997	0.98	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	44	0.02
Brickfield (Br)	239	0.12	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	1737	0.86	Rivers and Khals (R)	11750	5.79
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	52021	25.66
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	51	0.03	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	6	0	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	115179	56.81
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	16967	8.37			
Total	**202758**				

Land cover map 2015, Faridpur district

Muhuri Project @ *FAO*
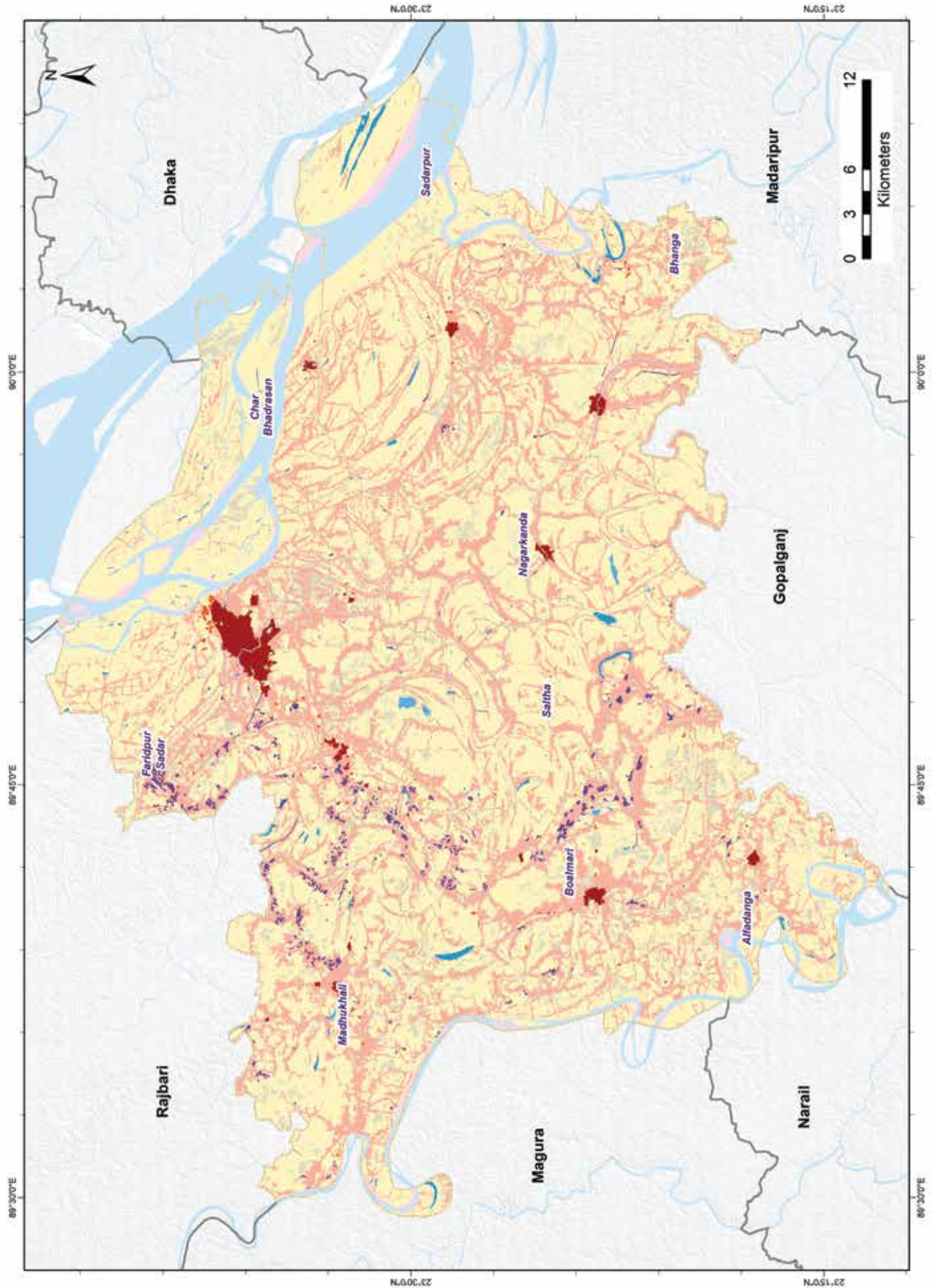
Feni

Feni district is located in between 22.73° and 23.27° north latitudes and 91.25 and 91.58° east longitudes. The district is bounded on the north by Cumilla district and India, on the east by Chattogram district and India, on the south by Chattogram and Noakhali districts and on the west by Noakhali district. Feni was designated as district in 1984.

The district consists of 6 sub-districts and 5 municipalities. The major rivers are the Feni, Little Feni and Muhuri. The archaeological heritages are Mohammad Ali Chowdhury Mosque (built 700 years ago), Chandgazi Mosque (built 400 years ago) and Feni Government College Building (1822 AD), Bijoy Singh Dighi at Mohipal (1760) etc.

Ten most dominant land cover in district
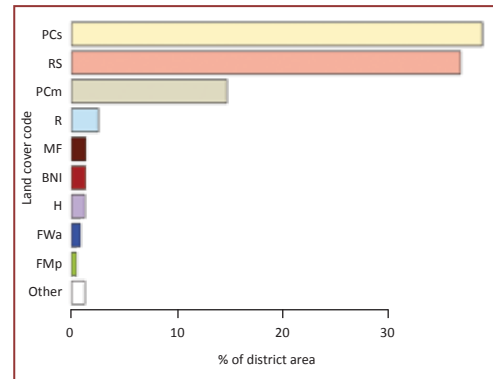
Location of Feni district

Land cover areas in district

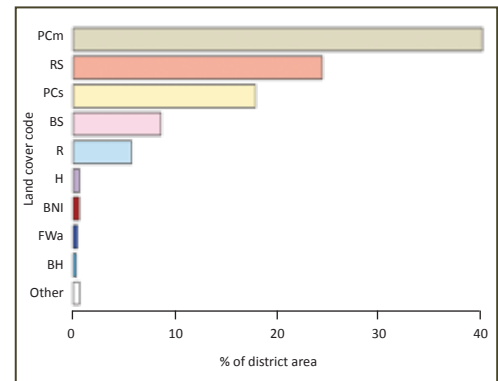| Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	80	0.09
Baor (Ba)	17	0.02	Perennial Beels/Haors (BH)	--	--
Sand (BS)	396	0.43	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	74	0.08
Brickfield (Br)	264	0.29	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	1296	1.4	Rivers and Khals (R)	2413	2.61
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	21	0.02
Hill Forest (FH)	--	--	Rural Settlement (RS)	34065	36.85
Forest Plantation (FP)	359	0.39	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	831	0.9	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	1230	1.33	Shrub with scattered trees (ShT)	--	--
Lake (L)	8	0.01	Single Crop (PCs)	35967	38.9
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	481	0.52	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	1311	1.42	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	13639	14.75			
Total	**92451**				

Land cover map 2015, Feni district
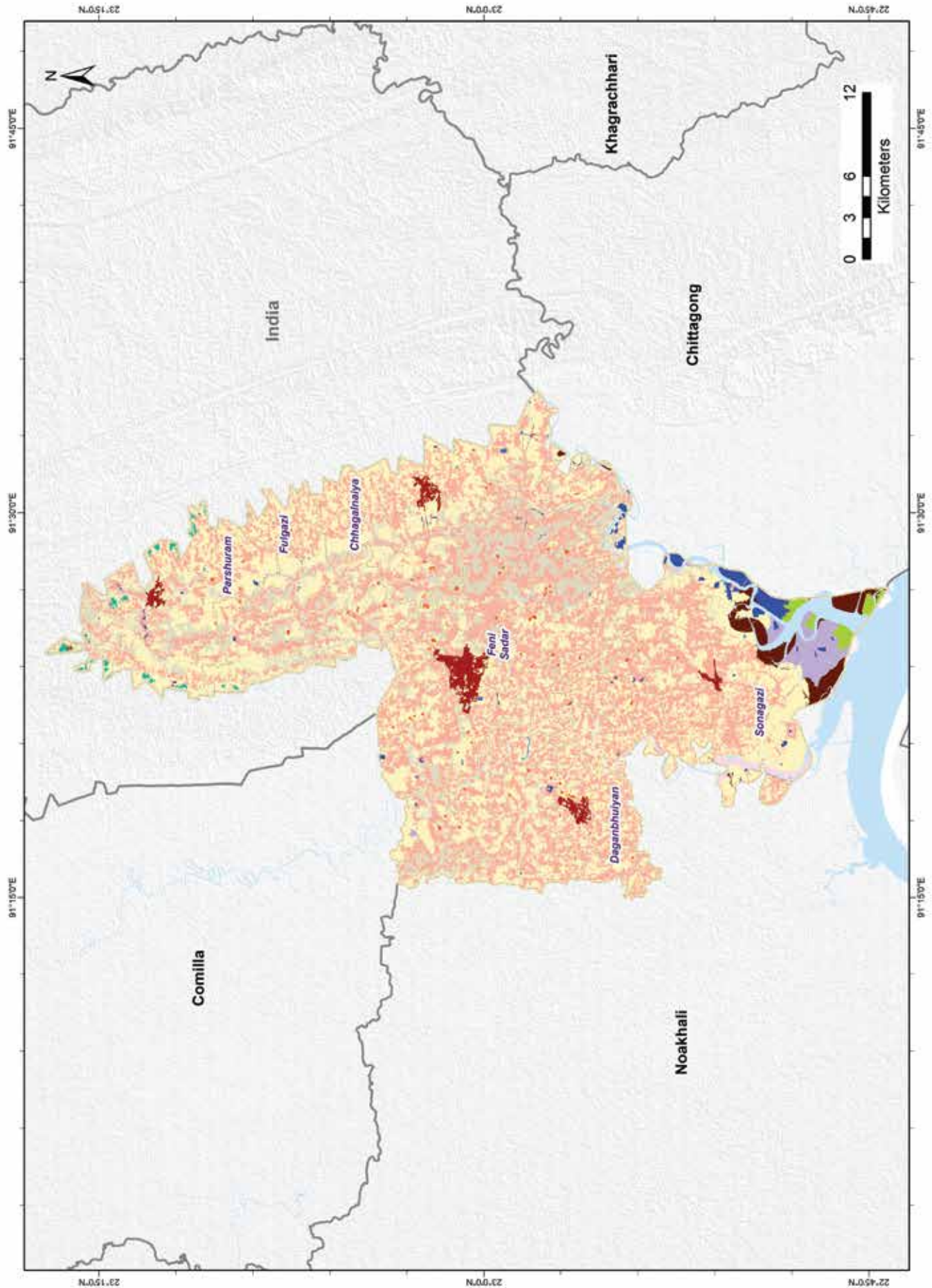
Gaibandha

The Statue of Victory @ *FAO*

Gaibandha district is located in between 25.03° and 25.65° north latitudes and 89.18° and 89.77° east longitudes. It is bounded on the north by Kurigram and Rangpur districts, on the east by Kurigram and Jamalpur districts, on the south by Bogura district and on the west by Joypurhat, Dinajpur and Rangpur districts. Gaibandha district was formed in 1984.

The district consists of 7 sub-districts and 3 municipalities. The major rivers are Ghaghat, Karatoya, Bangali and Tista. The major archaeological heritages are Vardhan Kuthi, Gobindaganj (17th century), house of Naldanga Zamindar along with its Shiva Linga made of black basalt, Vrisa Mandir of white stone etc .
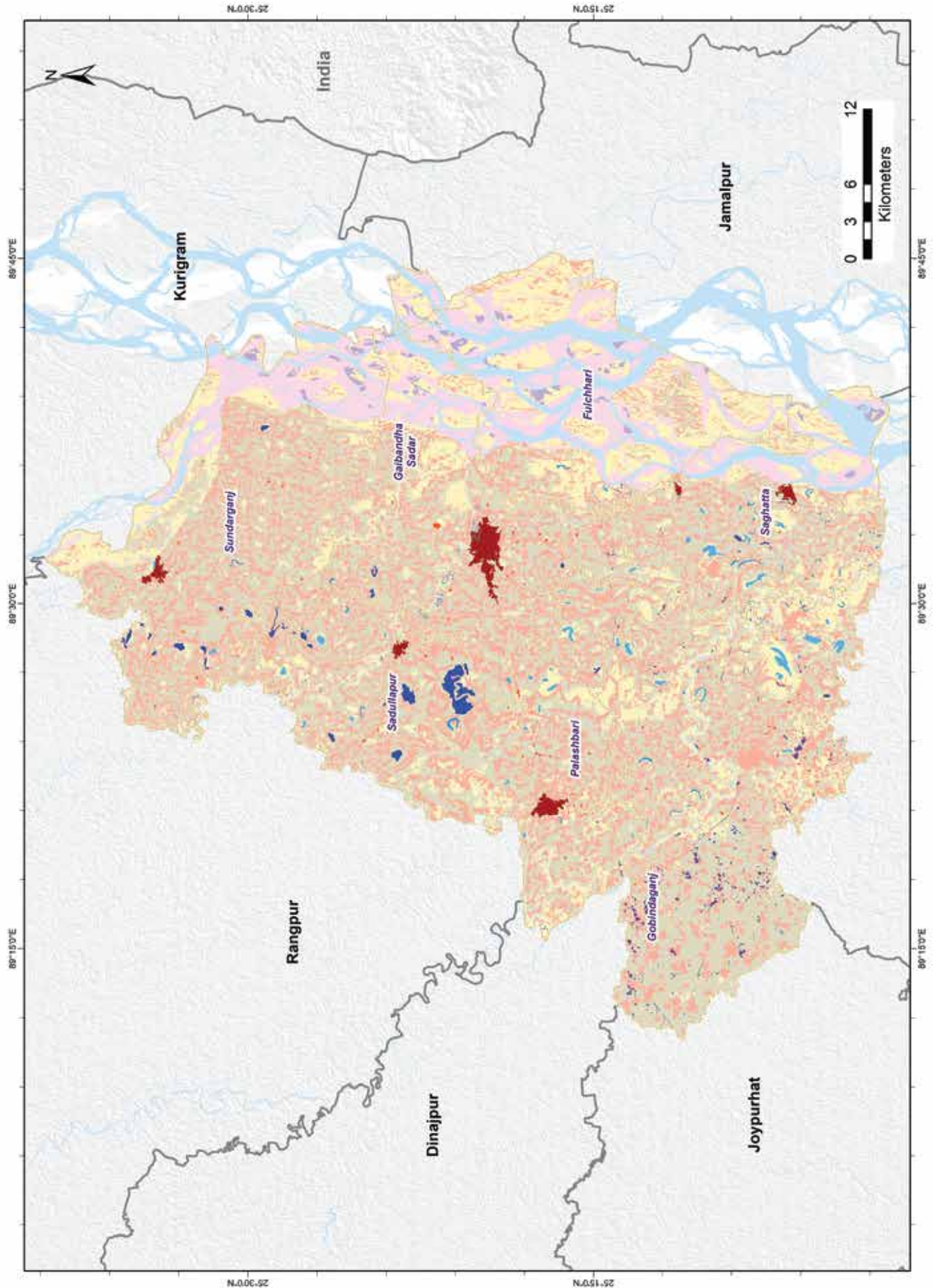
Ten most dominant land cover in district

Location of Gaibandha district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	- -	- -	Orchards & Other Plantations (Shrub) (OS)	- -	- -
Bamboo Forest (BF)	- -	- -	Orchards & Other Plantations (Trees) (OT)	679	0.32
Baor (Ba)	417	0.19	Perennial Beels/Haors (BH)	800	0.37
Sand (BS)	18571	8.65	Plain Land Forest (Sal Forest) (FDp)	- -	- -
Brackish Water Aquaculture (BWa)	- -	- -	Ponds (Po)	117	0.05
Brickfield (Br)	241	0.11	River Banks (RB)	- -	- -
Built-up Non-Linear (BNI)	1411	0.66	Rivers and Khals (R)	12467	5.81
Dump Sites/Extraction Sites (DS)	- -	- -	Rubber Plantation (FPr)	- -	- -
Hill Forest (FH)	- -	- -	Rural Settlement (RS)	52573	24.5
Forest Plantation (FP)	- -	- -	Salt Pans (SP)	- -	- -
Fresh Water Aquaculture (FWa)	1071	0.5	Shifting Cultivation (SC)	- -	- -
Herb Dominated Area (Terrestrial) (H)	1522	0.71	Shrub with scattered trees (ShT)	- -	- -
Lake (L)	- -	- -	Single Crop (PCs)	38476	17.93
Mangrove Forest (NMF)	- -	- -	Swamp Forest (SF)	- -	- -
Mangrove Plantation (FMp)	- -	- -	Swamp Plantation (FSp)	- -	- -
Mud Flats or Intertidal Area (MF)	- -	- -	Swamp Reed Land (SWr)	- -	- -
Multiple Crop (PCm)	86273	40.2			
Total	**214619**				

Land cover map 2015, Gaibandha district

India

Kurigram

Jamalpur

Sundarganj

Gaibandha
Sadar

Fulchhari

Saghatta

Sadullapur

Palashbari

Gobindaganj

Rangpur

Dinajpur

Joypurhat

0 3 6 12
Kilometers

Gazipur

Bhawal National Park @ *Falgoonee Kumar Mondal*

Gazipur district is located between 23.88° and 24.35° north latitudes and 90.15° and 92.65° east longitudes. It is bounded on the north by Mymensingh and Kishoreganj districts, on the east by Narsingdi district, on the south by Narayanganj and Dhaka districts and on the west by the Tangail district. Gazipur district was formed in 1984.

The district consists of 5 sub-districts, 1 city corporations and 3 municipalities. The major rivers are the Old Brahmaputra, Shitalakshya, Turag, Bangshi, Balu and Banar. Dholsamundra (the capital of the local Pala kings) at Boali, Toke Badshahi Mosque; Dighi and mazar at Chaura; old bridge (built by Meer Jumla) at Tongi, Bhawal Rajbari and the maths at Joydebpur etc are some of the major archaeological heritages.

Ten most dominant land cover in district
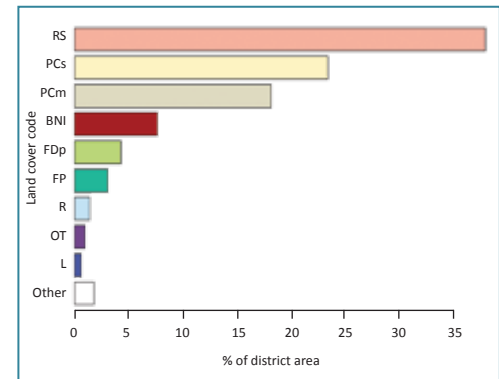
Location of Gazipur district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1883	1.04
Baor (Ba)	48	0.03	Perennial Beels/Haors (BH)	804	0.44
Sand (BS)	7	0	Plain Land Forest (Sal Forest) (FDp)	7894	4.35
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	74	0.04
Brickfield (Br)	1198	0.66	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	14020	7.73	Rivers and Khals (R)	2671	1.47
Dump Sites/Extraction Sites (DS)	8	0	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	68977	38.03
Forest Plantation (FP)	5706	3.15	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	610	0.34	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	562	0.31	Shrub with scattered trees (ShT)	42	0.02
Lake (L)	1233	0.68	Single Crop (PCs)	42579	23.47
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	33077	18.23			
Total	**181393**				

*Land cover map 2015, Gazipur district*
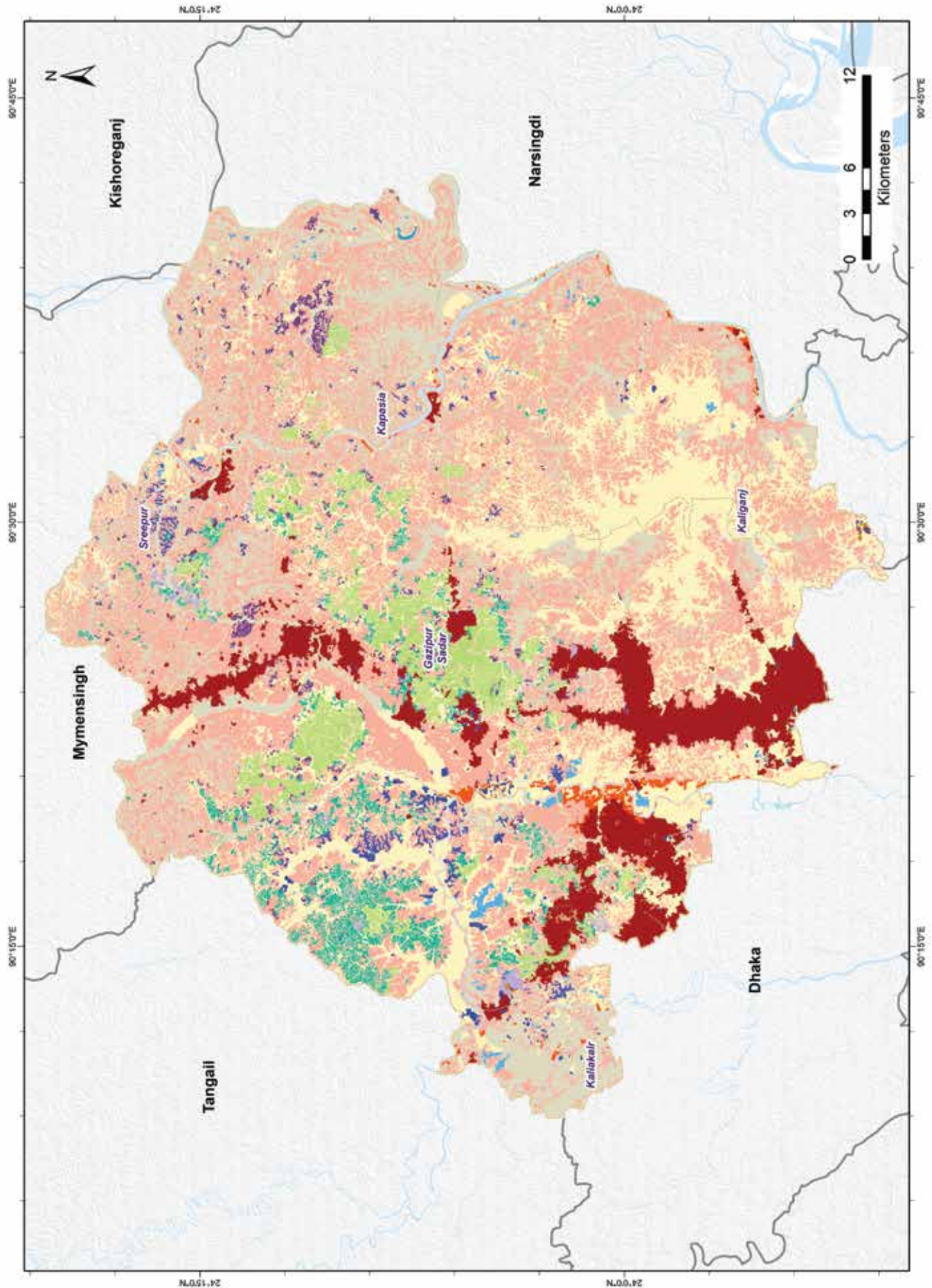
Gopalganj

Tomb of Bangabandhu Sheikh Mujibur Rahman @ *FAO*

Gopalganj district is located between 22.83° and 23.00° north latitudes and 89.67° and 90.03° east longitudes. It is bounded by Faridpur district on the north, on the east by Madaripur and Barishal districts, on the south by Pirojpur and Bagerhat districts and on the west by Narail district. It was a sub-division under Faridpur district and upgraded as district in 1984.

The district consists of 5 sub-districts and 4 municipalities. The major rivers are the Garai, Madhumati, Kaliganga, Hunda, Ghagar and Old Kumar. The tourist spots are Bangabandhu Memorial Complex, Akramuzzaman Park. The notable folk cultures are rhymes, proverbs, riddle, Sarigan, Murshidigan, Haloigan, Bratageeti, Gambhira song etc.
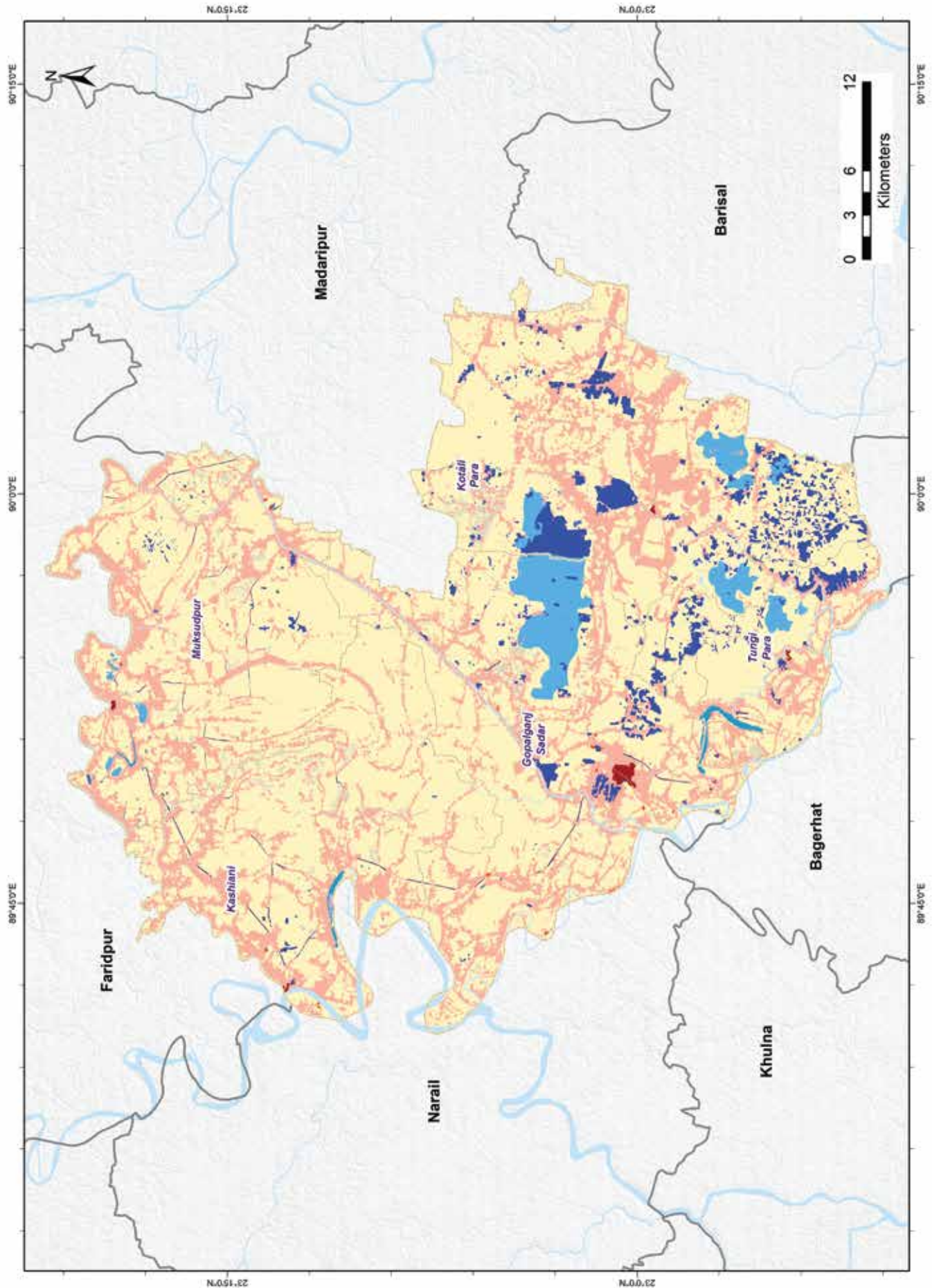
Ten most dominant land cover in district
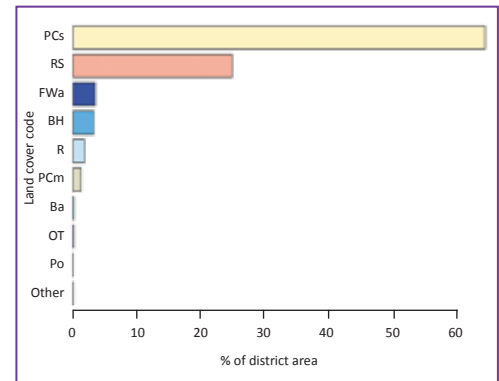
Location of Gopalganj district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	400	0.27
Baor (Ba)	424	0.29	Perennial Beels/Haors (BH)	5042	3.41
Sand (BS)	4	0	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	272	0.18
Brickfield (Br)	75	0.05	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	216	0.15	Rivers and Khals (R)	2834	1.92
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	36656	24.77
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	5338	3.61	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	31	0.02	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	94573	63.91
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	2105	1.42			
Total	**147969**				

Land cover map 2015, Gopalganj district

Habiganj

Rema Kalenga Wildlife Sanctuary @ *FAO*

Habiganj district is located in between 23.97° and 24.70° north latitudes and 91.15° and 91.67° east longitudes. The district is bounded on the north by Sunamganj district, on the east by Moulvibazar and Sylhet districts, on the south by India and on the west by Kishoreganj and Brahmanbaria districts.

The district consists of 9 sub-districts and 6 municipalities. The major rivers are the Khowai, Sutang, Korangi, Kalni, Kushiyara, Gopala, Ratna and Barak. The main business centre of the town is Chowdhury Bazar.

Ten most dominant land cover in district
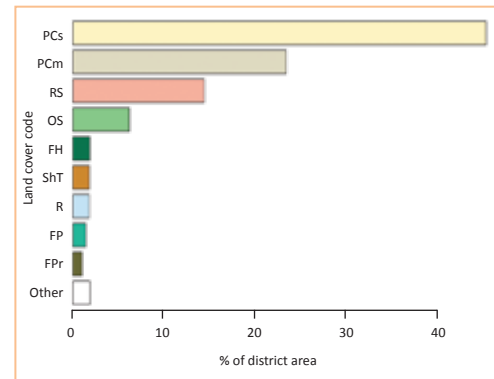
Location of Habiganj district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	16390	6.3
Bamboo Forest (BF)	26	0.01	Orchards & Other Plantations (Trees) (OT)	906	0.35
Baor (Ba)	769	0.3	Perennial Beels/Haors (BH)	525	0.2
Sand (BS)	36	0.01	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	150	0.06
Brickfield (Br)	275	0.11	River Banks (RB)	1	0
Built-up Non-Linear (BNl)	1130	0.43	Rivers and Khals (R)	4885	1.88
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	2846	1.09
Hill Forest (FH)	5077	1.95	Rural Settlement (RS)	37735	14.49
Forest Plantation (FP)	3916	1.5	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	685	0.26	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	508	0.2	Shrub with scattered trees (ShT)	4952	1.9
Lake (L)	61	0.02	Single Crop (PCs)	118277	45.43
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	61194	23.51			
Total	**260344**				

*Land cover map 2015, Habiganj district*
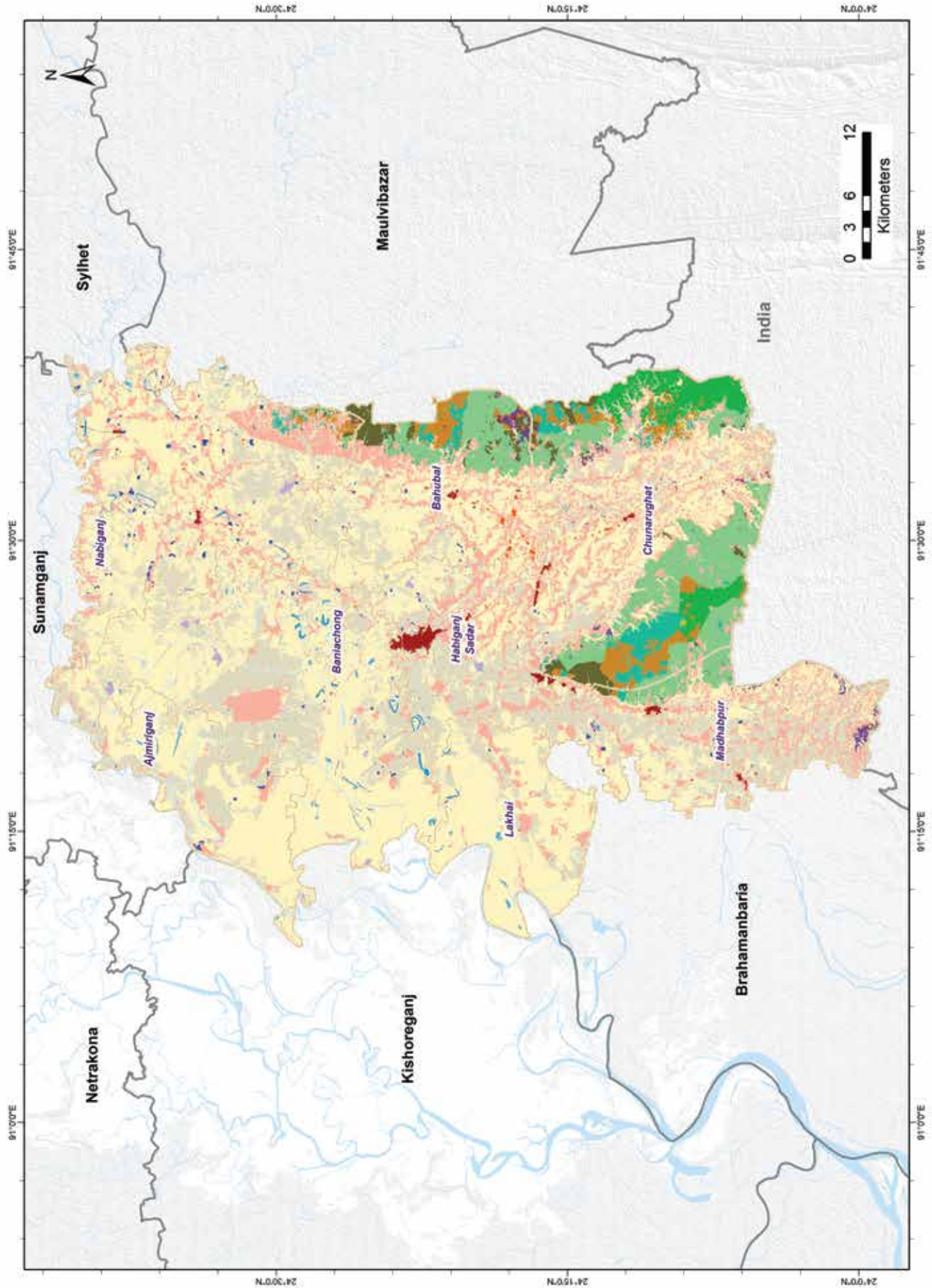
Jamalpur

Lauchapra @ *FAO*

Jamalpur district is located in between 24.57° and 25.43° north latitudes and 89.67° and 90.20° east longitudes. The district is bounded by Kurigram and India on the north, Sherpur and Mymensingh districts on the east, Tangail district on the south and Sirajganj, Bogura and Gaibandha districts on the west. Jamalpur district was established in 1978.

The district consists of 7 sub-districts and 7 municipalities. The major rivers are the Jamuna, Old Brahmaputra, Jhenai, Banar, Jinjira, Chhatal. The notable archaeological heritages are tomb of Shah Jamal, tomb of Shah Kamal, Dayamoye Mondir, five domed Raspal Jame Mosque at Sarishabari (nineteenth century), Narapara Fort at Sarishabari (sixteenth century) etc.

Ten most dominant land cover in district
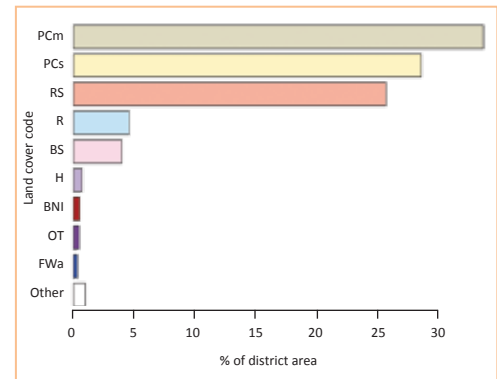
Location of Jamalpur district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1093	0.53
Baor (Ba)	392	0.19	Perennial Beels/Haors (BH)	553	0.27
Sand (BS)	8301	4.04	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	--	--
Brickfield (Br)	210	0.1	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	1193	0.58	Rivers and Khals (R)	9563	4.65
Dump Sites/Extraction Sites (DS)	20	0.01	Rubber Plantation (FPr)	5	0
Hill Forest (FH)	--	--	Rural Settlement (RS)	52850	25.71
Forest Plantation (FP)	737	0.36	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	799	0.39	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	1571	0.76	Shrub with scattered trees (ShT)	226	0.11
Lake (L)	--	--	Single Crop (PCs)	58800	28.6
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	69252	33.69			
Total	**205565**				

*Land cover map 2015, Jamalpur district*
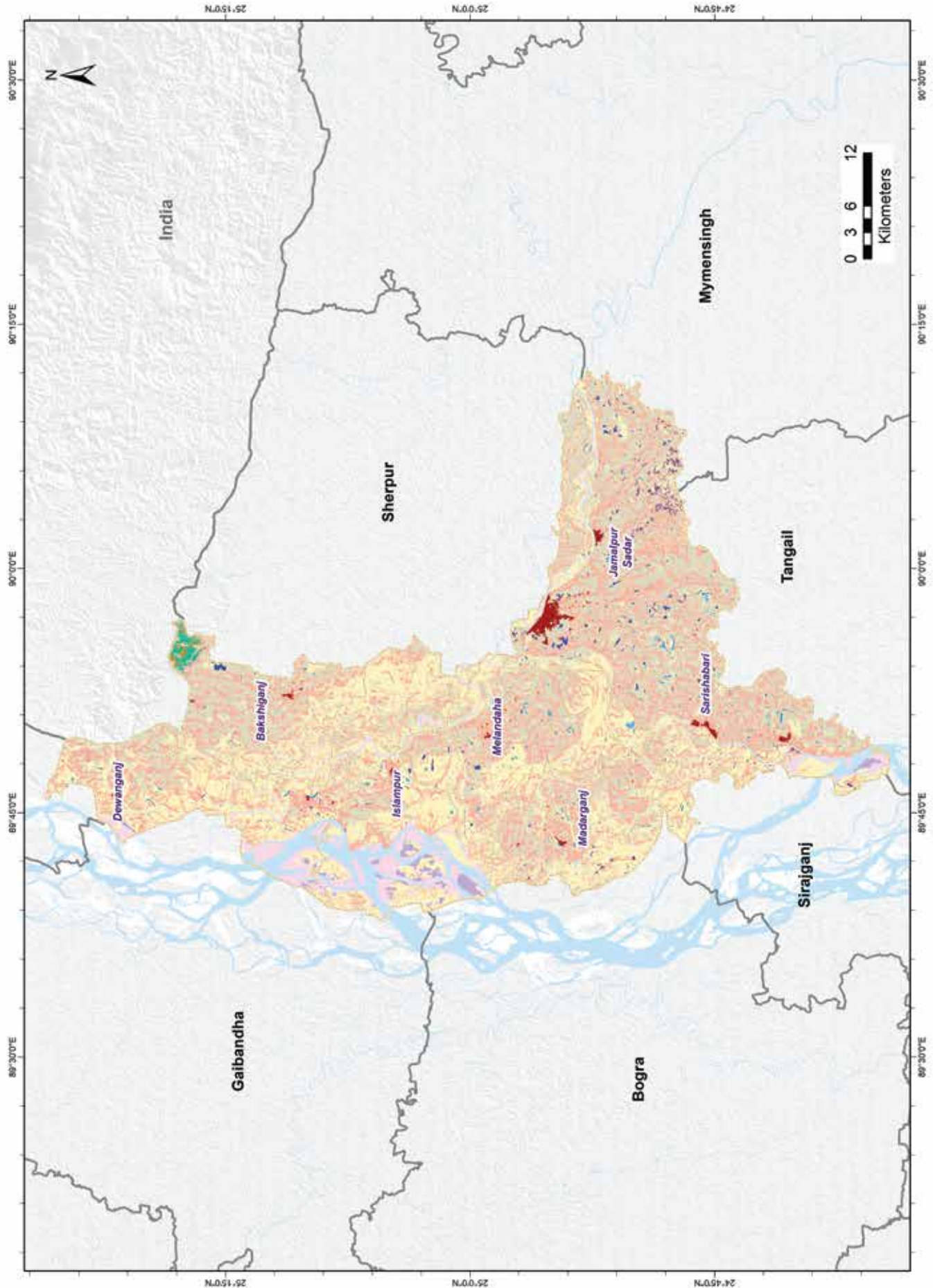
Jashore

Date Tree @ *Yousuf Tushar*

Jashore district is located in between 22.80° and 23.37° north latitudes and 88.85° and 89.57° east longitudes. The district is bounded on the north by Jhenaidah district, on the east by Narail and Magura districts, on the south by Khulna and Satkhira districts and on the west by India. Jashore district was formed in 1781.

The district consists of 8 sub-districts and 8 municipalities. The major rivers are the Bhairab and Mukteshwari. The notable archaeological heritages are remnants of the Chanchara Rajbari, Kali Mandir, Dargaha of Ghazi Kalu, Rajbari, Dighi and Mandir at Siddirpasha etc.

Ten most dominant land cover in district
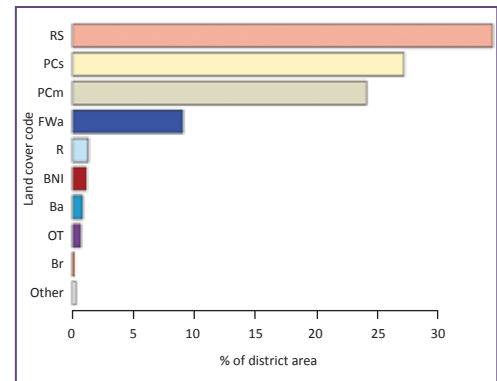
Location of Jashore district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	289	0.11	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1875	0.73
Baor (Ba)	2257	0.88	Perennial Beels/Haors (BH)	314	0.12
Sand (BS)	--	--	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	192	0.07
Brickfield (Br)	500	0.19	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	3055	1.19	Rivers and Khals (R)	3467	1.35
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	88968	34.63
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	23505	9.15	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	70216	27.33
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	62269	24.24			
Total	**256906**				

93

*Land cover map 2015, Jashore district*
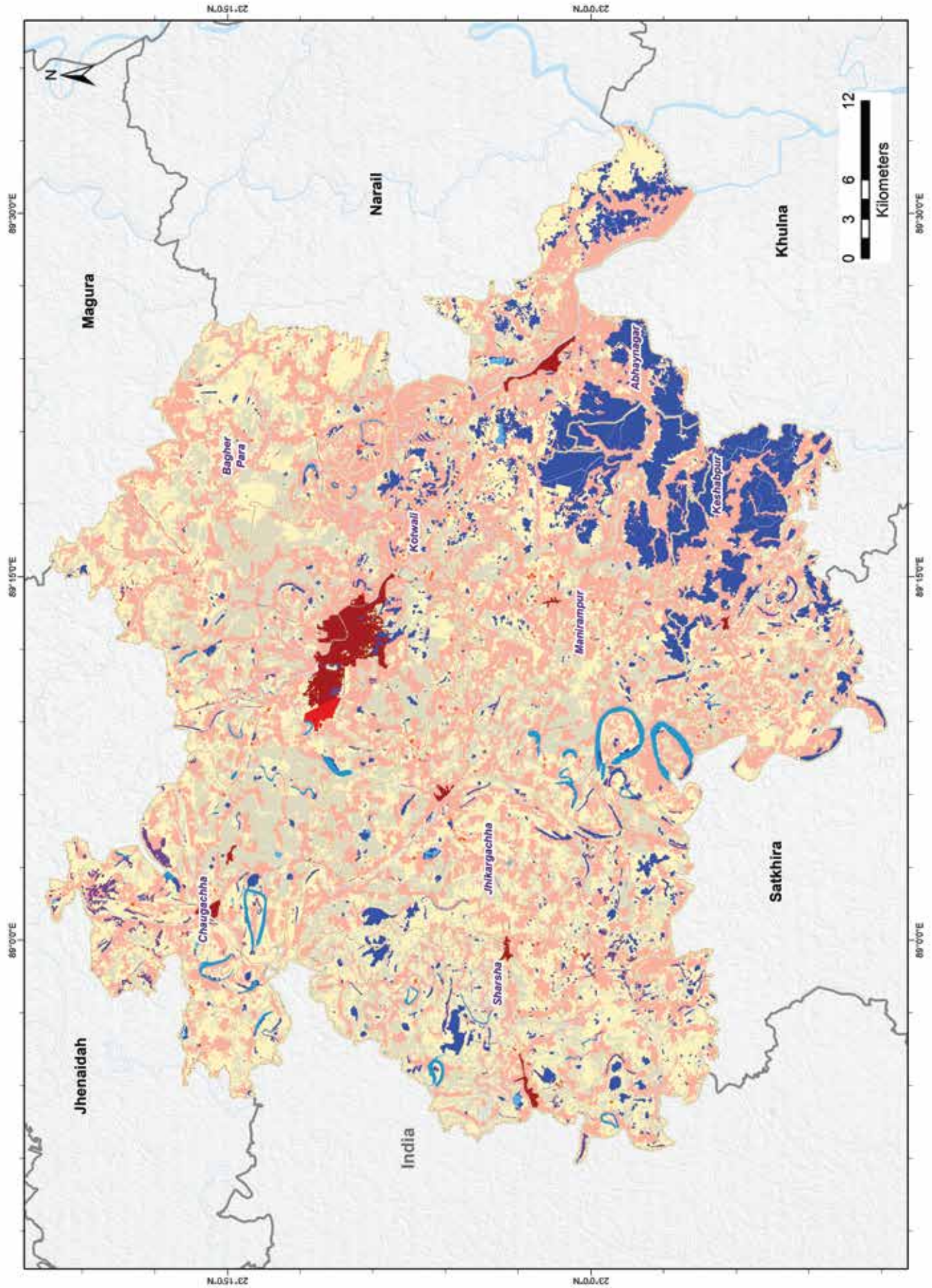
Jhalokathi

Floating Market @ *Falgoonee Kumar Mondal*

Jhalokathi district is located in between 22.33° and 22.78° north latitudes and 90.02° and 90.38° east longitudes. It is bounded on the north by Pirojpur and Barishal districts, on the east by Barishal district, on the south by Barguna district and on the west by Pirojpur district. Jhalokathi turned into a district in 1984.

The district consists of 4 sub-districts and 2 municipalities. The major rivers are Bishkhali, Sugandha, Dhansiri, Gabkhan, Jangalia and Bamanda. The notable archaeological heritages are Sujabad Kellah (fort), remnants of the Ghosal Rajbari, Old Municipal Building, Civil Court Building (1781), Surichora Jami Mosque and Madabar Mosque.

*Ten most dominant land cover in district*
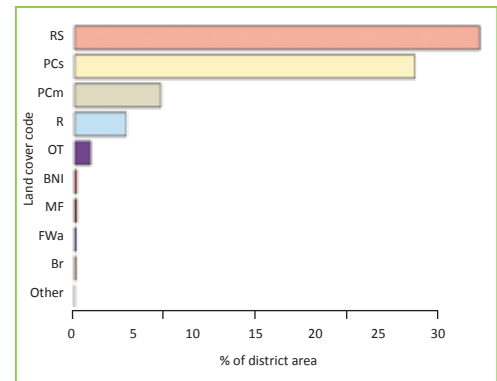
Location of Jhalokathi district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1345	1.81
Baor (Ba)	--	--	Perennial Beels/Haors (BH)	--	--
Sand (BS)	--	--	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	11	0.01
Brickfield (Br)	118	0.16	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	214	0.29	Rivers and Khals (R)	4257	5.73
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	33048	44.51
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	165	0.22	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	27783	37.42
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	31	0.04	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	213	0.29	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	7066	9.52			
Total	**74249**				

95

Land cover map 2015, Jhalokathi district
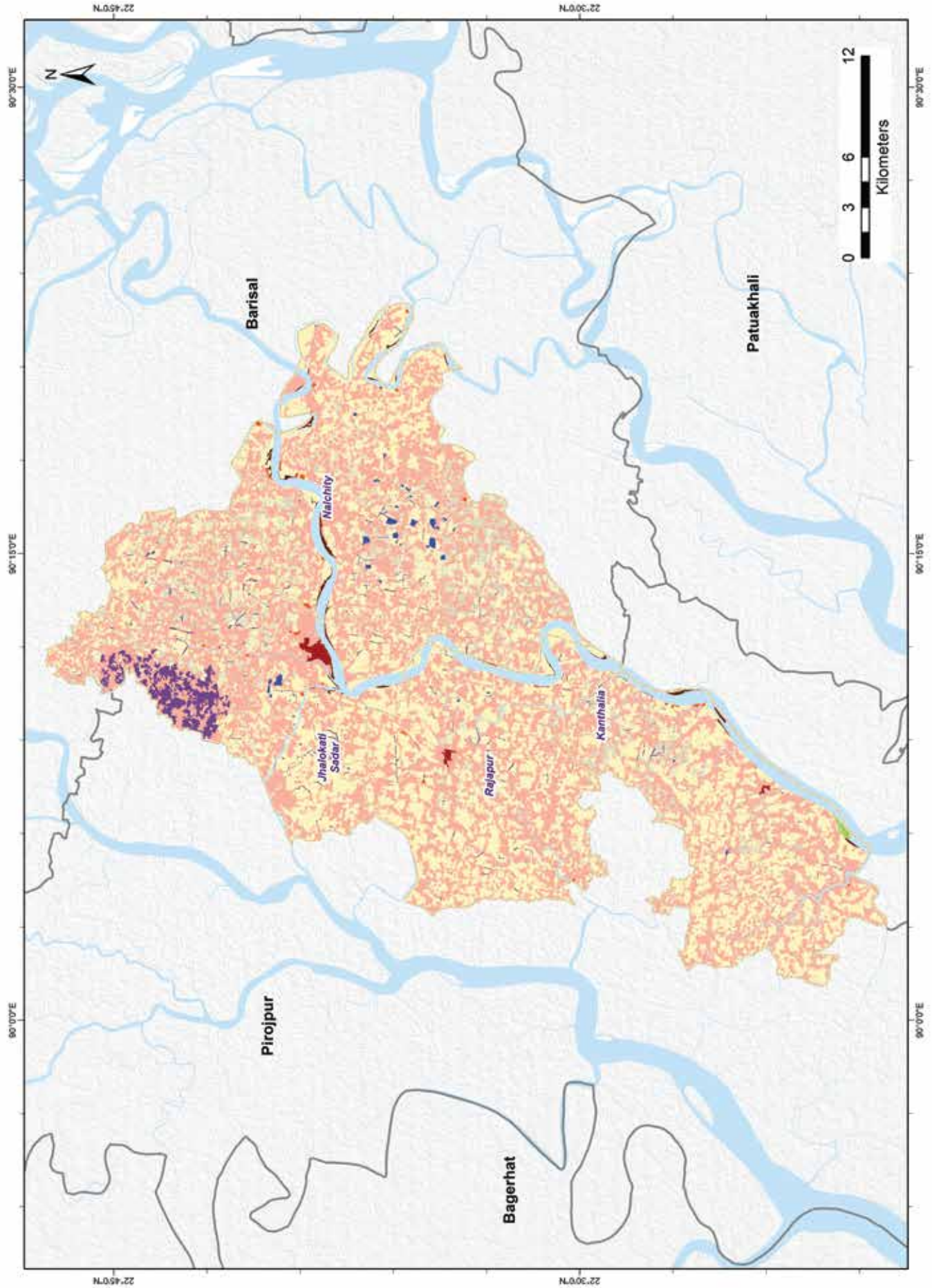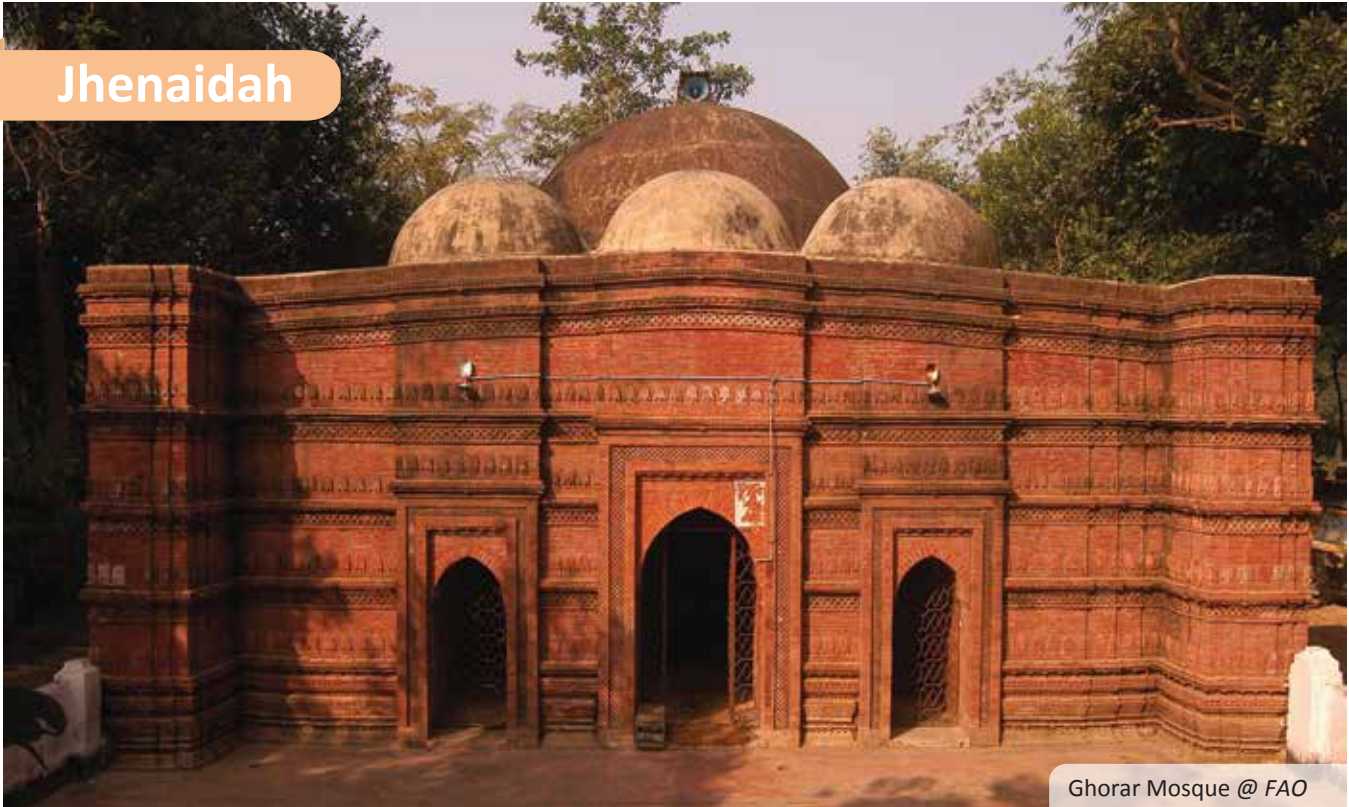
Ghorar Mosque @ *FAO*

Jhenaidah

Jhenaidah district is located in between 23.22° and 23.77° north latitudes and 88.70° and 89.38° east longitudes. The district is bounded on the north by Kushtia and Rajbari districts, on the east by Magura district, on the south by Jashore district and on the west by Chuadanga district and India. Jhenaidah turned into a district in 1984 and previously was a sub-division established in 1862.

The district consists of 6 sub-districts and 6 municipalities. The major rivers are Garai, Kumar, Nabaganga, Begabati, Chitra, Bairab, Kobadak, Kodla, Phatki, Kaliganga and Ichamati etc. The notable archaeological heritages are Biswabat (Bethuli), Harihar Garh (Shailkupa), Shailkupa Jame Mosque, Ram Gopal Mandir (Shailkupa), Rani Mata Dighi etc.

Ten most dominant land cover in district
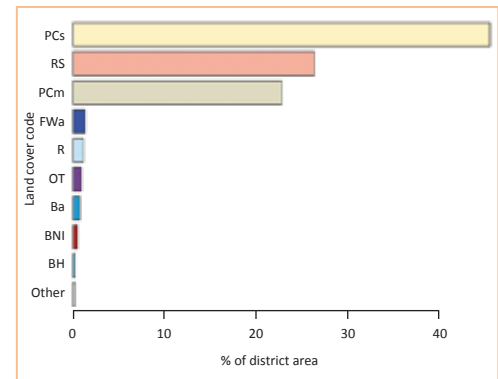
Location of Jhenaidah district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1912	0.97
Baor (Ba)	1568	0.8	Perennial Beels/Haors (BH)	580	0.3
Sand (BS)	126	0.06	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	334	0.17
Brickfield (Br)	32	0.02	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	1050	0.53	Rivers and Khals (R)	2310	1.18
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	51714	26.34
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	2683	1.37	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	89246	45.46
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	44750	22.8			
Total	196303				

*Land cover map 2015, Jhenaidah district*
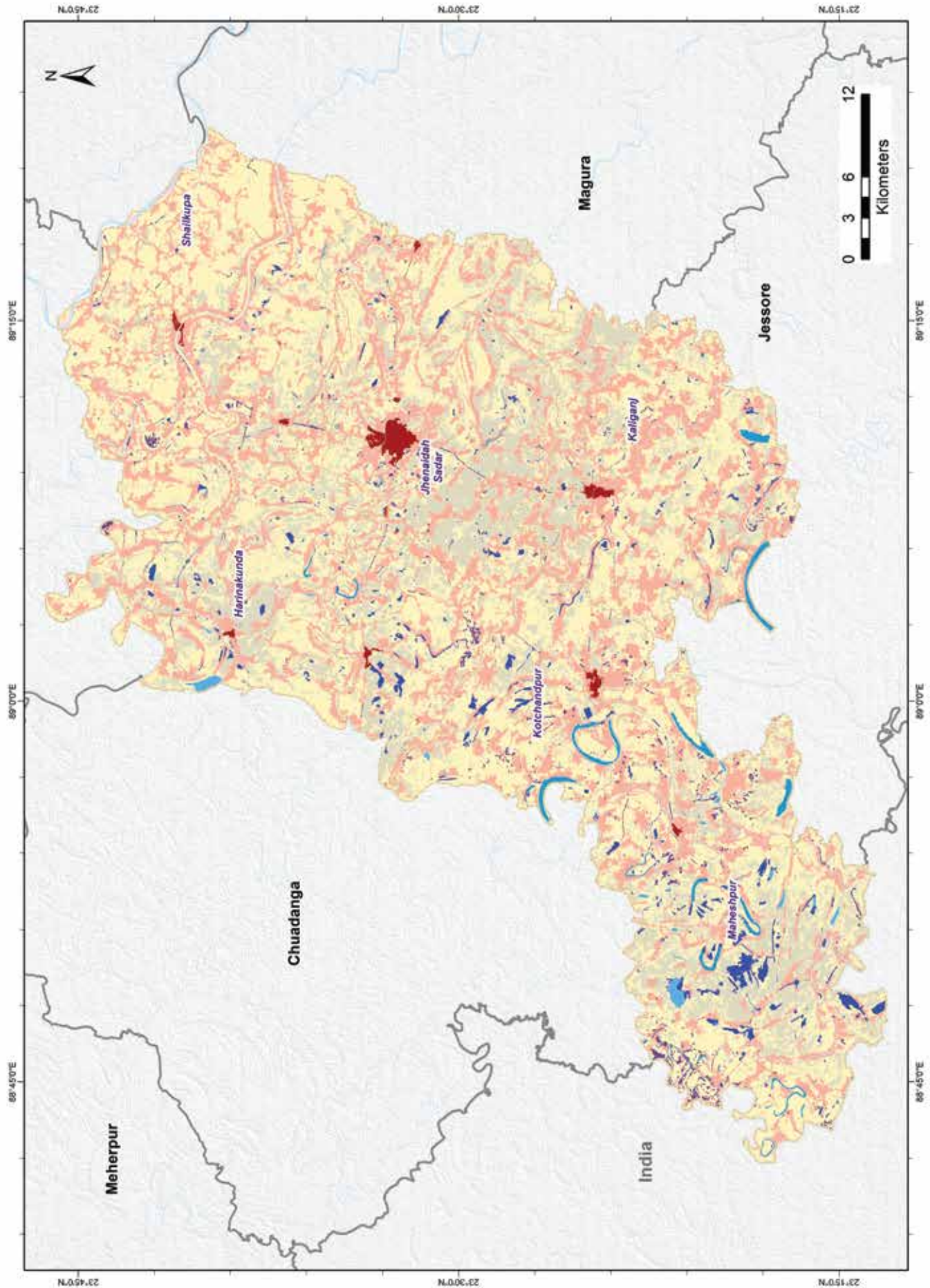
Joypurhat

Potato Cultivation @ *Falgoonee Kumar Mondal*

Joypurhat district is located in between 24.85° and 25.28° north latitudes and 88.28° and 88.92° east longitudes. The district is bounded on the north by Dinajpur district, east by Gaibandha and Bogura districts, south by Bogura and Naogaon districts, west by Naogaon district and West Bengal State of India. Joypurhat sub-division was turned into a district in 1982.

The district consists of 5 sub-districts and 5 municipalities. The Little Jamuna, Tulsi Ganga and Haramati are the main rivers of this district. The notable archaeological heritages are remains of the palace of Raja Jaygopal, the Garuda Pillar at Bhimer Panti and Dargah of Nimai Pir etc.

Ten most dominant land cover in district
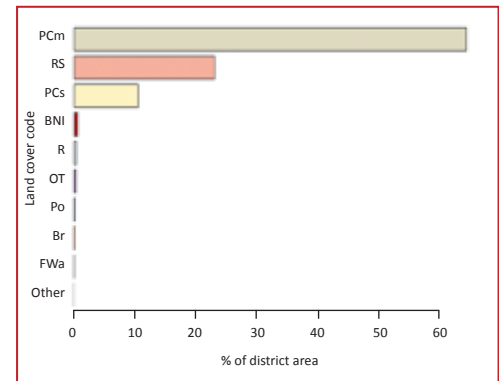
Location of Joypurhat district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	338	0.35
Baor (Ba)	--	--	Perennial Beels/Haors (BH)	2	0
Sand (BS)	--	--	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	216	0.22
Brickfield (Br)	182	0.19	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	652	0.68	Rivers and Khals (R)	401	0.42
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	22327	23.11
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	65	0.07	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	10192	10.55
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	62236	64.42			
Total	**96612**				

Land cover map 2015, Joypurhat district

Khagrachhari

Hill Tract @ *FAO*
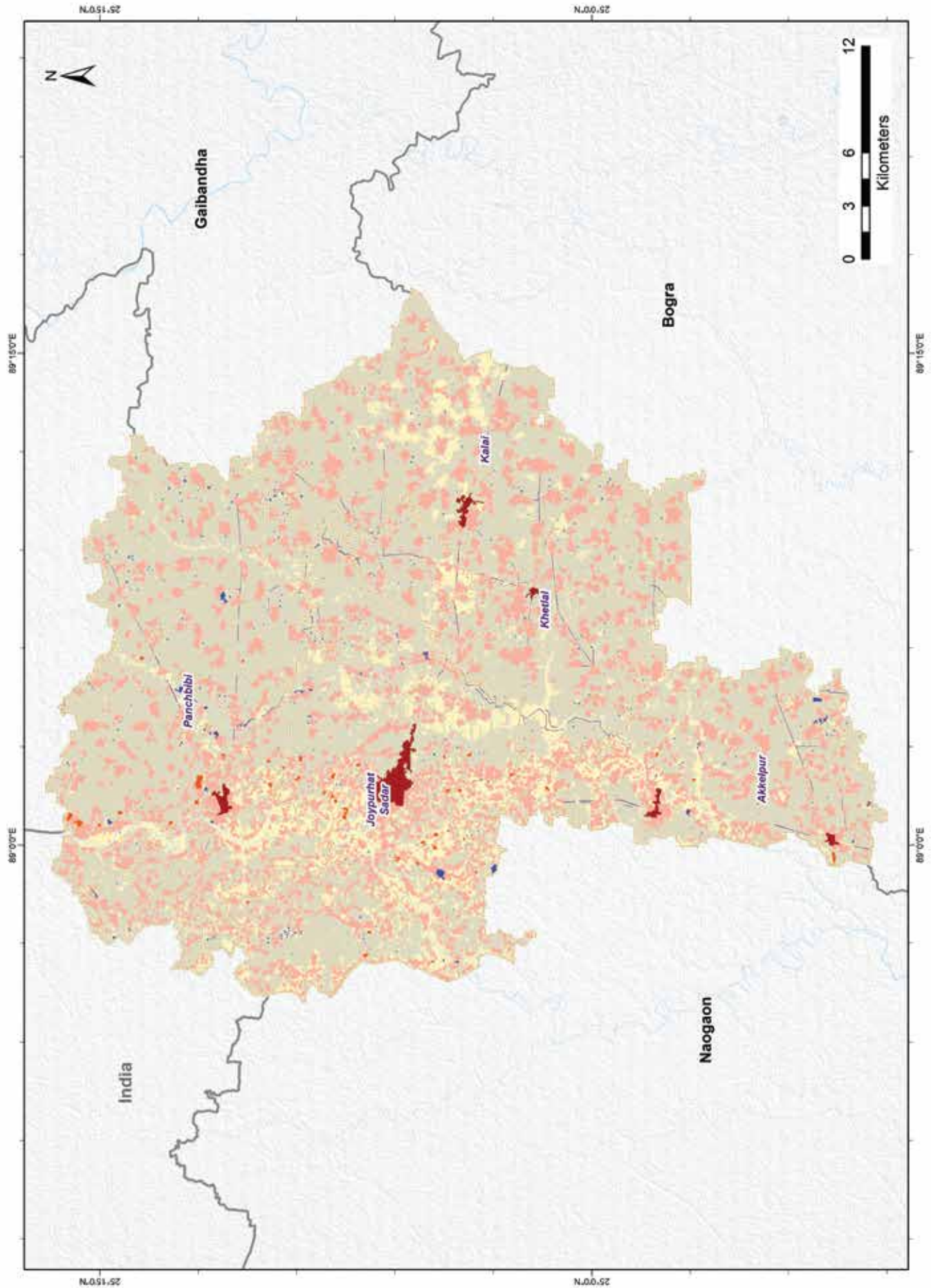
Khagrachhari district is located in between 22.63° and 23.73° north latitudes and 91.73° and 92.18° east longitudes. It is bounded on the north by India, on the east by Rangamati district, on the south by Chattogram and Rangamati districts and on the west by India and Chattogram district.

The district consists of 9 sub-districts and 3 municipalities. The major rivers are Chingri, Maini, Feni and Halda; lake Mataipukhiri (Debotarpukur). The archaeological heritages are Rajbari of the Mong Circle and Dighi (large pond) of Dighinala (excavated by Gobindo Manikko exiled king of Tripura).

Ten most dominant land cover in district
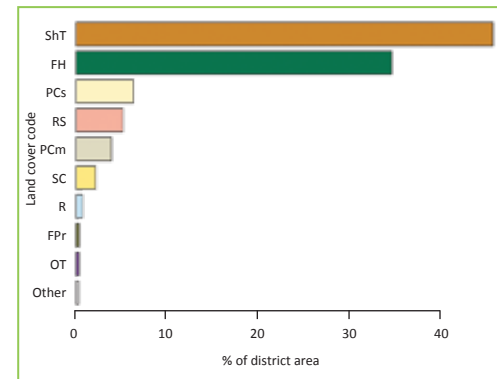
Location of Khagrachhari district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	5	0
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1134	0.38
Baor (Ba)	--	--	Perennial Beels/Haors (BH)	--	--
Sand (BS)	--	--	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	135	0.05
Brickfield (Br)	96	0.03	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	322	0.11	Rivers and Khals (R)	2259	0.76
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	1204	0.4
Hill Forest (FH)	103121	34.65	Rural Settlement (RS)	15471	5.2
Forest Plantation (FP)	3	0	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	--	--	Shifting Cultivation (SC)	6536	2.2
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	136210	45.77
Lake (L)	447	0.15	Single Crop (PCs)	18965	6.37
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	11700	3.93			
Total	**297610**				

*Land cover map 2015, Khagrachhari district*
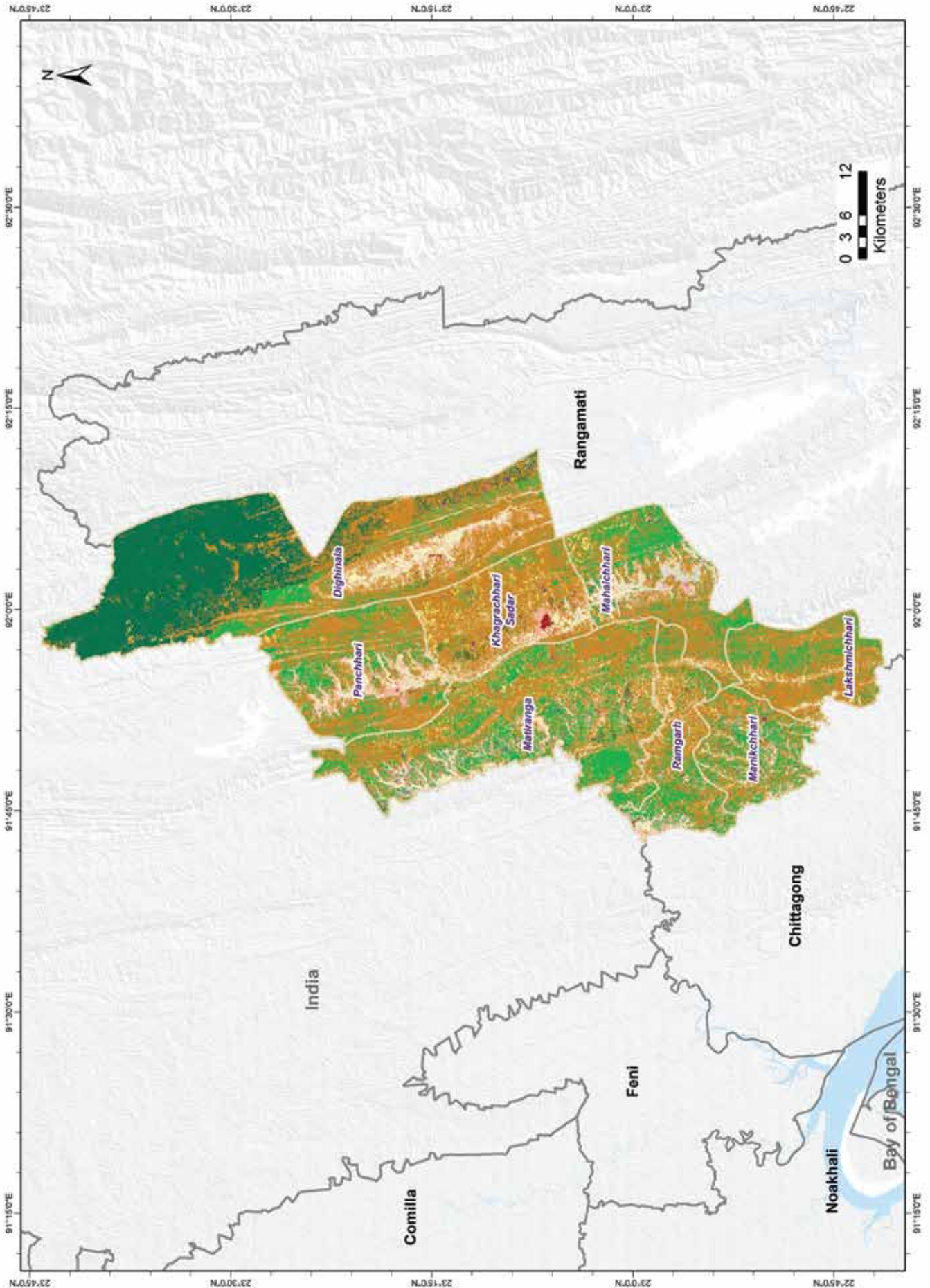
Khulna

Rupsha Bridge @ *FAO*

Khulna district is located in between 21.68° and 23.00° north latitudes and 89.23° and 89.75° east longitudes. The district is bounded on the north by Jashore and Narail districts, on the east by Bagerhat district, on the south by the Bay of Bengal and on the west by Satkhira district. Khulna district was established in 1882.

The district consists of 9 sub-districts, 1 city corporation and 2 municipalities. The major rivers are the Rupsa-Pasur, Bhairab, Shibsha, Dharla, Bhadra, Ball and Koddak. The important installations or tourist spots are the Sundarbans, Khulna Shipyard, Khulna Stadium, Khulna Circuit House, Khulna District Court, Khulna Hadis Park, Central Jail, Khan Jahan Ali Bridge (Rupsa Bridge) etc.

Ten most dominant land cover in district
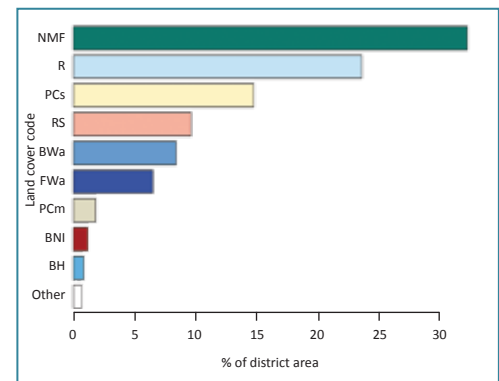
Location of Khulna district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	347	0.08
Baor (Ba)	--	--	Perennial Beels/Haors (BH)	4111	0.9
Sand (BS)	356	0.08	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	38531	8.45	Ponds (Po)	2	0
Brickfield (Br)	780	0.17	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	5643	1.24	Rivers and Khals (R)	107593	23.6
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	44036	9.66
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	29789	6.54	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	276	0.06	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	67367	14.78
Mangrove Forest (NMF)	146849	32.22	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	112	0.02	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	1451	0.32	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	8587	1.88			
Total	**455830**				

*Land cover map 2015, Khulna district*
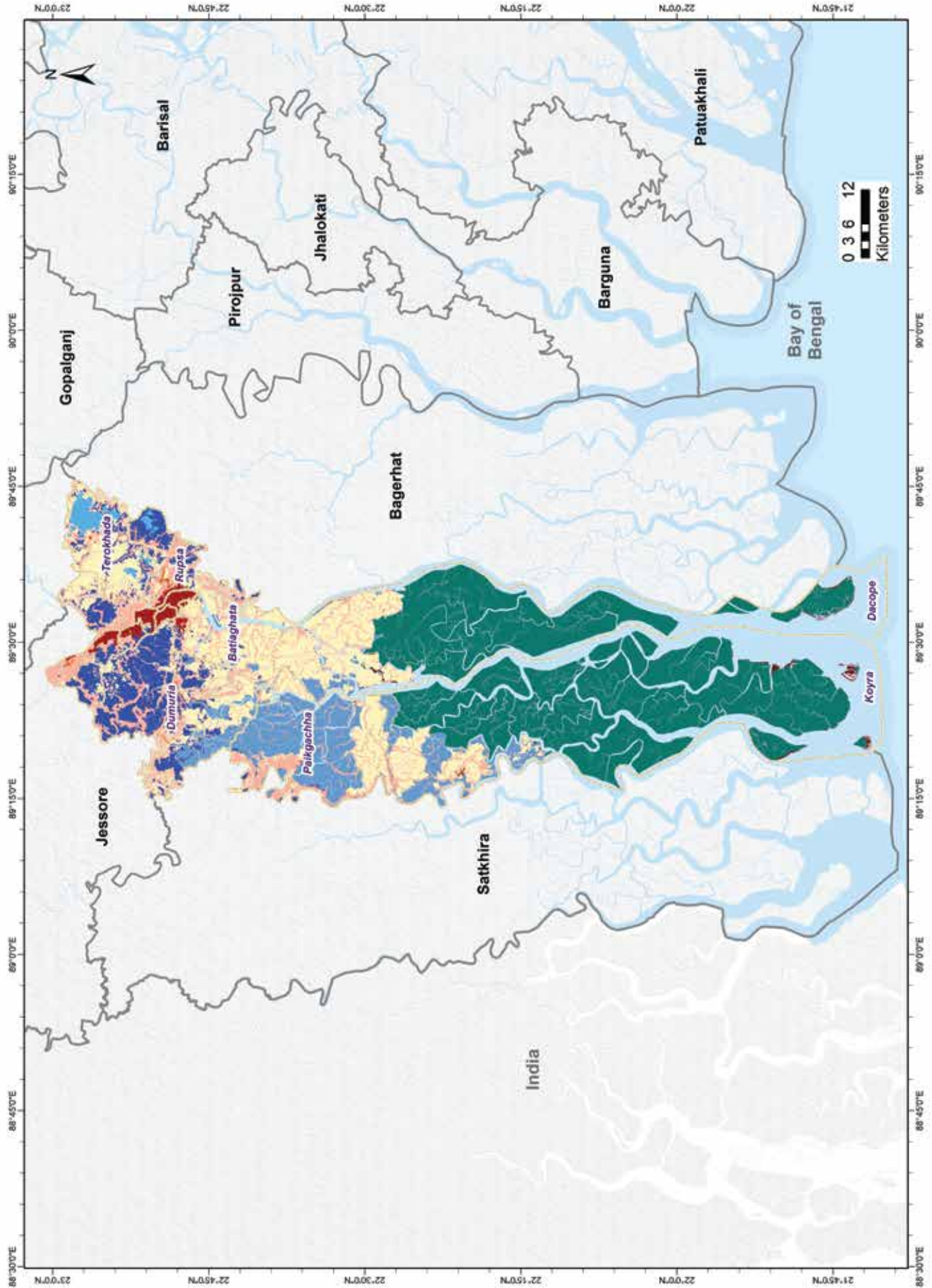
Kishoreganj

Bhairab Bridge @ *FAO*

Kishoreganj district is located in between 24.03° and 24.65° north latitudes and 90.58° and 91.25° east longitudes. The district is bounded by Mymensingh, Netrokona and Sunamganj districts on the north, Narsingdi on the south, Habiganj and Brahmanbaria on the east and Gazipur and Mymensingh on the west. It was established as a district in 1984.

The district consists of 13 sub-districts and 8 municipalities. The main rivers are the Brahmaputra, Meghna, Kalni, Dhanu, Ghorautra, Bauri, Narasunda and Piyain. The notable archaeological heritages are relics, Jangalbari Fort (fifteenth century), Egarasindhur Fort (fifteenth century), Sadi Mosque (1652), Salanka Jame Mosque at Pakundia, Gurai Mosque at Bajitpur (1680) etc.

*Ten most dominant land cover in district*
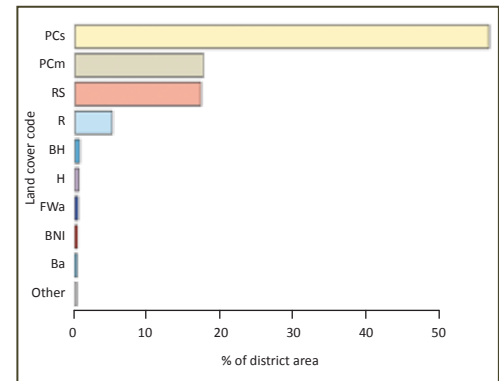
Location of Kishoreganj district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	176	0.07
Baor (Ba)	895	0.35	Perennial Beels/Haors (BH)	1860	0.73
Sand (BS)	79	0.03	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	187	0.07
Brickfield (Br)	380	0.15	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	1107	0.43	Rivers and Khals (R)	13317	5.2
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	44469	17.35
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	1358	0.53	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	1641	0.64	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	145441	56.74
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	32	0.01
Multiple Crop (PCm)	45389	17.71			
Total	**256330**				

Land cover map 2015, Kishoreganj district
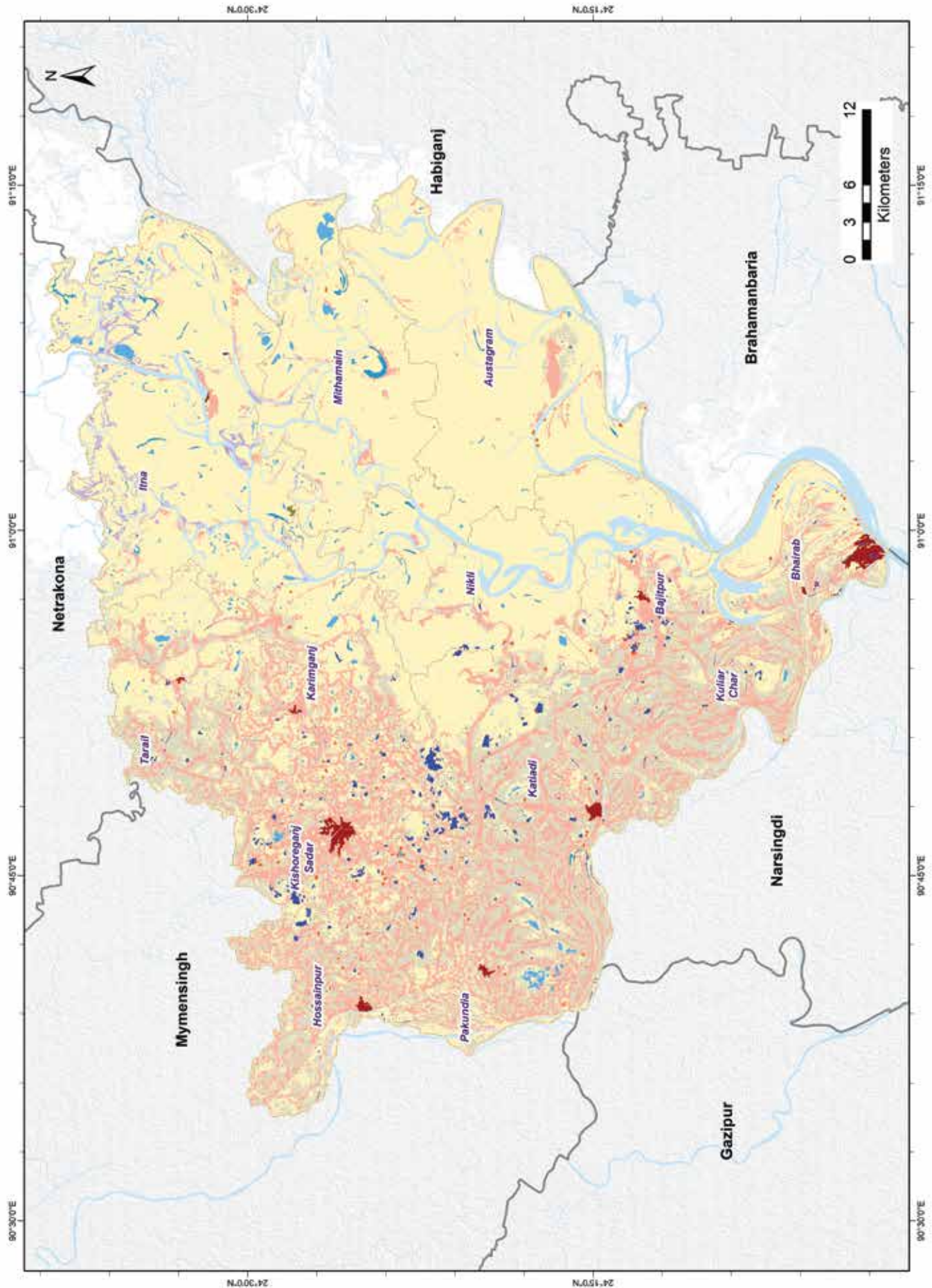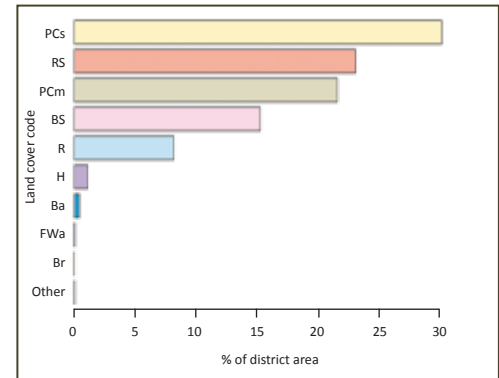
Kurigram

Chilmari River Port @ *FAO*

Kurigram district is located in between 25.38° and 26.23° north latitudes and 89.45° and 89.9° east longitudes. It is bounded by India on the north and east side whereas, Jamalpur and Gaibandha districts on the south and Lalmonirhat, Rangpur districts and West Bengal on the west. It was turned into a district in 1984.

The district consists of 9 sub-districts and 3 municipalities. The notable archaeological heritages are the remnants of a mosque (Mughal period, 1176 AH) at Nayarhat (Rajarhat), remnants of a mosque near Patweshwari Bazar (Mughal period), three domed mosques (Mughal period) at village Majider Par of Thanahat Union (Bhurangamari) etc.

*Ten most dominant land cover in district*

Location of Kurigram district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	18	0.01
Baor (Ba)	1060	0.47	Perennial Beels/Haors (BH)	100	0.04
Sand (BS)	34557	15.25	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	21	0.01
Brickfield (Br)	151	0.07	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	84	0.04	Rivers and Khals (R)	18554	8.19
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	52200	23.04
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	247	0.11	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	2641	1.17	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	68100	30.06
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	48795	21.54			
Total	**226527**				

*Land cover map 2015, Kurigram district*
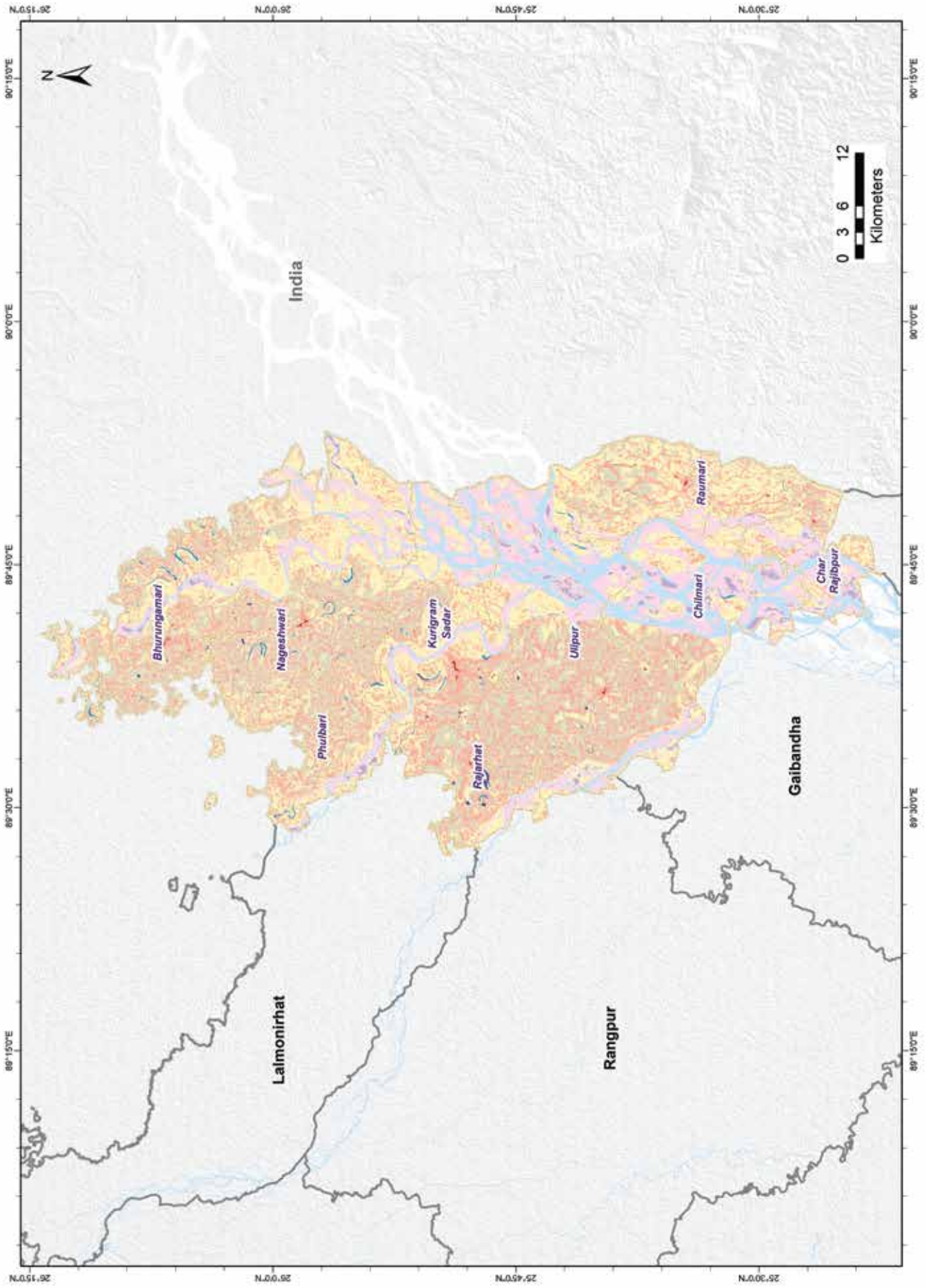
Kushtia

Shrine of Lalon Shah @ *Falgoonee Kumar Mondal*

Kushtia district is located in between 23.70° and 24.20° north latitudes and 88.70° and 89.37° east longitudes. The district is bounded on the north by Rajshahi, Natore and Pabna districts, on the east by Pabna and Rajbari districts, on the south by Jhenaidah, Chuadanga and Meherpur districts and on the west by Chuadanga and Meherpur districts and India. In 1947, Kushtia district was formed comprising Kushtia Sadar, Chuadanga and Meherpur sub-divisions.

The district consists of 6 sub-districts and 5 municipalities. The main rivers are the Ganges, Garai, Mathabhanga, Kaliganga and Kumar. The notable archaeological heritages are Kuthibari of Rabindranath Tagore at Shilaidaha, tomb of Lalon Shah, Shahi Mosque (Mughal period), house of Mir Mosharraf Hossain at Lahinipara, tomb of Nafar Shah at Aruapara etc.

Ten most dominant land cover in district
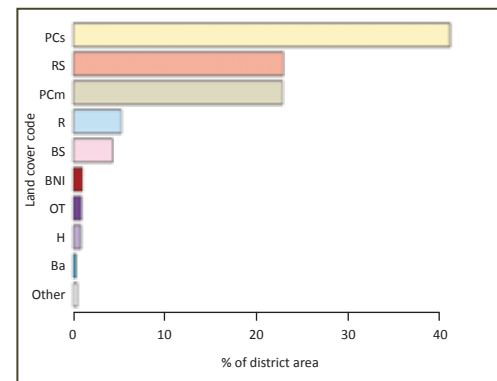
Location of Kushtia district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1564	0.96
Baor (Ba)	579	0.35	Perennial Beels/Haors (BH)	5	0
Sand (BS)	7075	4.32	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	165	0.1
Brickfield (Br)	423	0.26	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	1734	1.06	Rivers and Khals (R)	8630	5.27
Dump Sites/Extraction Sites (DS)	17	0.01	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	37446	22.87
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	196	0.12	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	1480	0.9	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	67082	40.97
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	37325	22.8			
Total	**163721**				

*Land cover map 2015, Kushtia district*
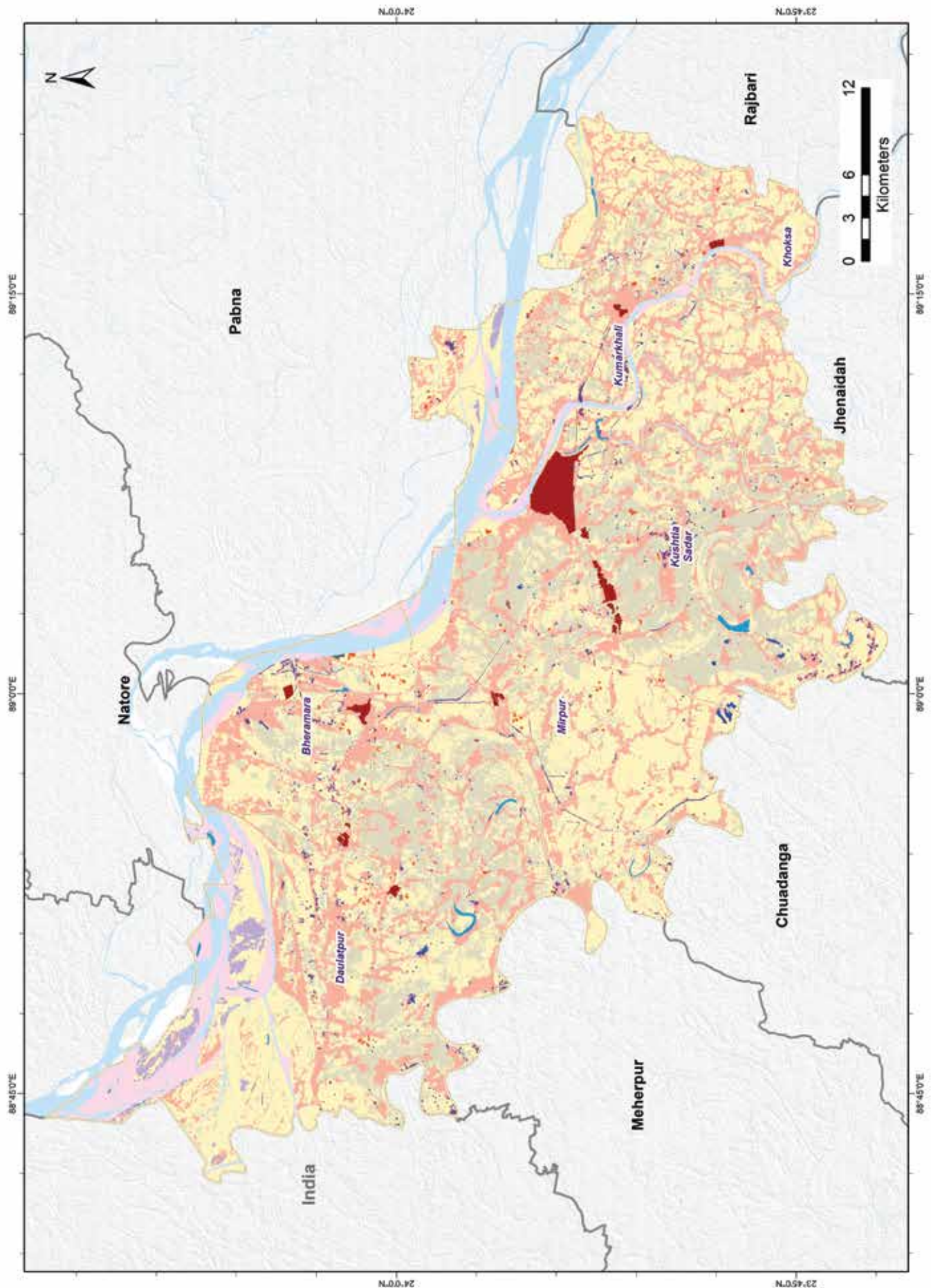
Lakshmipur

Khoyasagar Lake @ *FAO*

Lakshmipur district is located in between 22.50° and 23.17° north latitudes and 90.63° and 90.00° east longitudes. The district is bounded on the north by Chandpur district, on the east by Noakhali district, on the south by Bhola district and on the west by Barishal and Bhola districts. The district was established in 1984.

The district consists of 5 sub-districts and 4 municipalities. The main rivers are the Meghna, Dakatia, Katakhali, Rahmatkhali and Bhulua. The notable archaeological heritages are Tita Khan Jami Mosque, Mita Khan Mosque, Majupur Matka Mosque, Madhu Banu Mosque, Dayem Shah Mosque etc.

Ten most dominant land cover in district
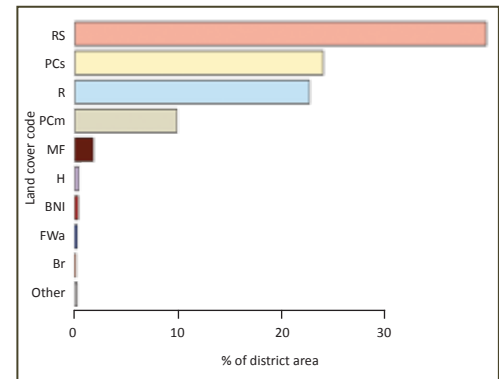
Location of Lakshmipur district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	87	0.06
Baor (Ba)	35	0.02	Perennial Beels/Haors (BH)	28	0.02
Sand (BS)	76	0.05	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	70	0.05
Brickfield (Br)	269	0.18	River Banks (RB)	150	0.1
Built-up Non-Linear (BNl)	600	0.4	Rivers and Khals (R)	34107	22.72
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	59709	39.78
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	446	0.3	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	734	0.49	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	36079	24.04
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	2791	1.86	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	14914	9.94			
Total	**150095**				

Land cover map 2015, Lakshmipur district
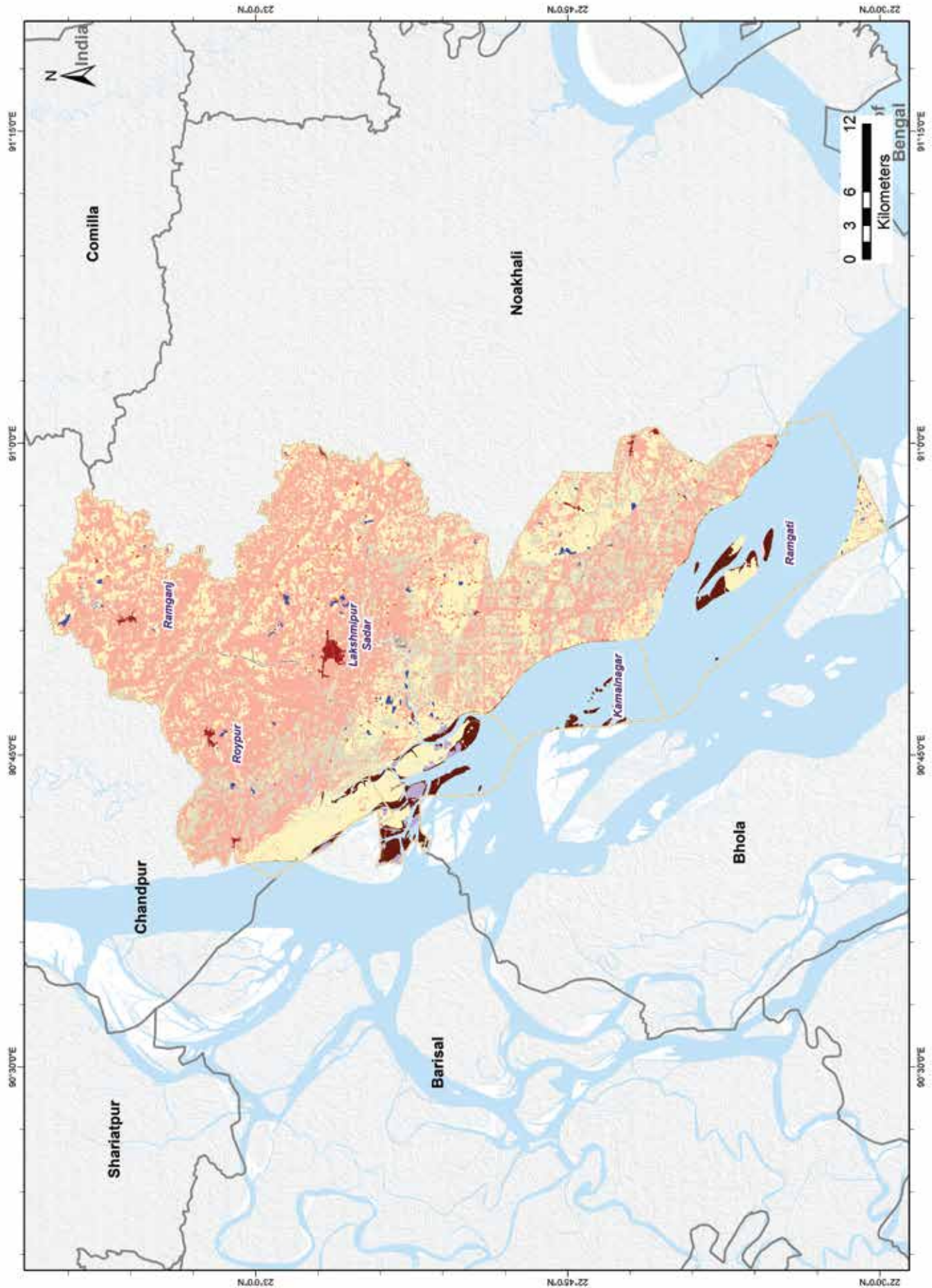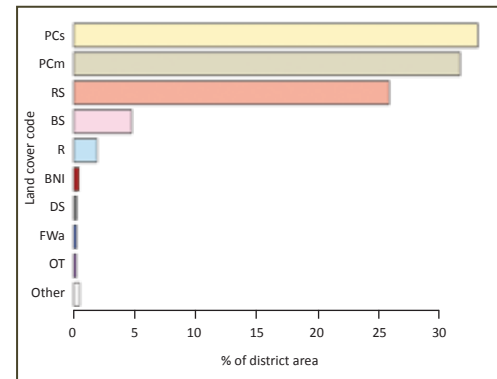
Lalmonirhat

Teesta Barrage @ *FAO*

Lalmonirhat district is located in between 25.77° and 26.55° north latitudes and 89.00° and 89.60° east longitudes. The district is bounded on the north by India, on the east by Kurigram district, on the south by Kurigram and Rangpur districts and on the west by Nilphamari district and India. Lalmonirhat district was formed in 1984.

The district consists of 5 sub-districts and 2 municipalities. The main rivers are the Tista, Dharla and Saniajan. The notable archaeological heritages are Subadar Monsur Khan Mosque (known as Nidaria Mosque), Sindhumatidighi, Hussain Sarabor (dry pond), Tushbhandar Zamindar Bari (Kaliganj), Tista Barrage (Hatibandha), Shalban (Hatibandha) etc.

Ten most dominant land cover in district

Location of Lalmonirhat district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	133	0.11	Orchards & Other Plantations (Shrub) (OS)	27	0.02
Bamboo Forest (BF)	- -	- -	Orchards & Other Plantations (Trees) (OT)	322	0.26
Baor (Ba)	95	0.08	Perennial Beels/Haors (BH)	46	0.04
Sand (BS)	5890	4.85	Plain Land Forest (Sal Forest) (FDp)	- -	- -
Brackish Water Aquaculture (BWa)	- -	- -	Ponds (Po)	2	0
Brickfield (Br)	103	0.08	River Banks (RB)	- -	- -
Built-up Non-Linear (BNl)	613	0.5	Rivers and Khals (R)	2387	1.96
Dump Sites/Extraction Sites (DS)	366	0.3	Rubber Plantation (FPr)	- -	- -
Hill Forest (FH)	- -	- -	Rural Settlement (RS)	31664	26.05
Forest Plantation (FP)	- -	- -	Salt Pans (SP)	- -	- -
Fresh Water Aquaculture (FWa)	336	0.28	Shifting Cultivation (SC)	- -	- -
Herb Dominated Area (Terrestrial) (H)	255	0.21	Shrub with scattered trees (ShT)	- -	- -
Lake (L)	- -	- -	Single Crop (PCs)	40541	33.35
Mangrove Forest (NMF)	- -	- -	Swamp Forest (SF)	- -	- -
Mangrove Plantation (FMp)	- -	- -	Swamp Plantation (FSp)	- -	- -
Mud Flats or Intertidal Area (MF)	- -	- -	Swamp Reed Land (SWr)	- -	- -
Multiple Crop (PCm)	38776	31.9			
Total	**121556**				

113

*Land cover map 2015, Lalmonirhat district*
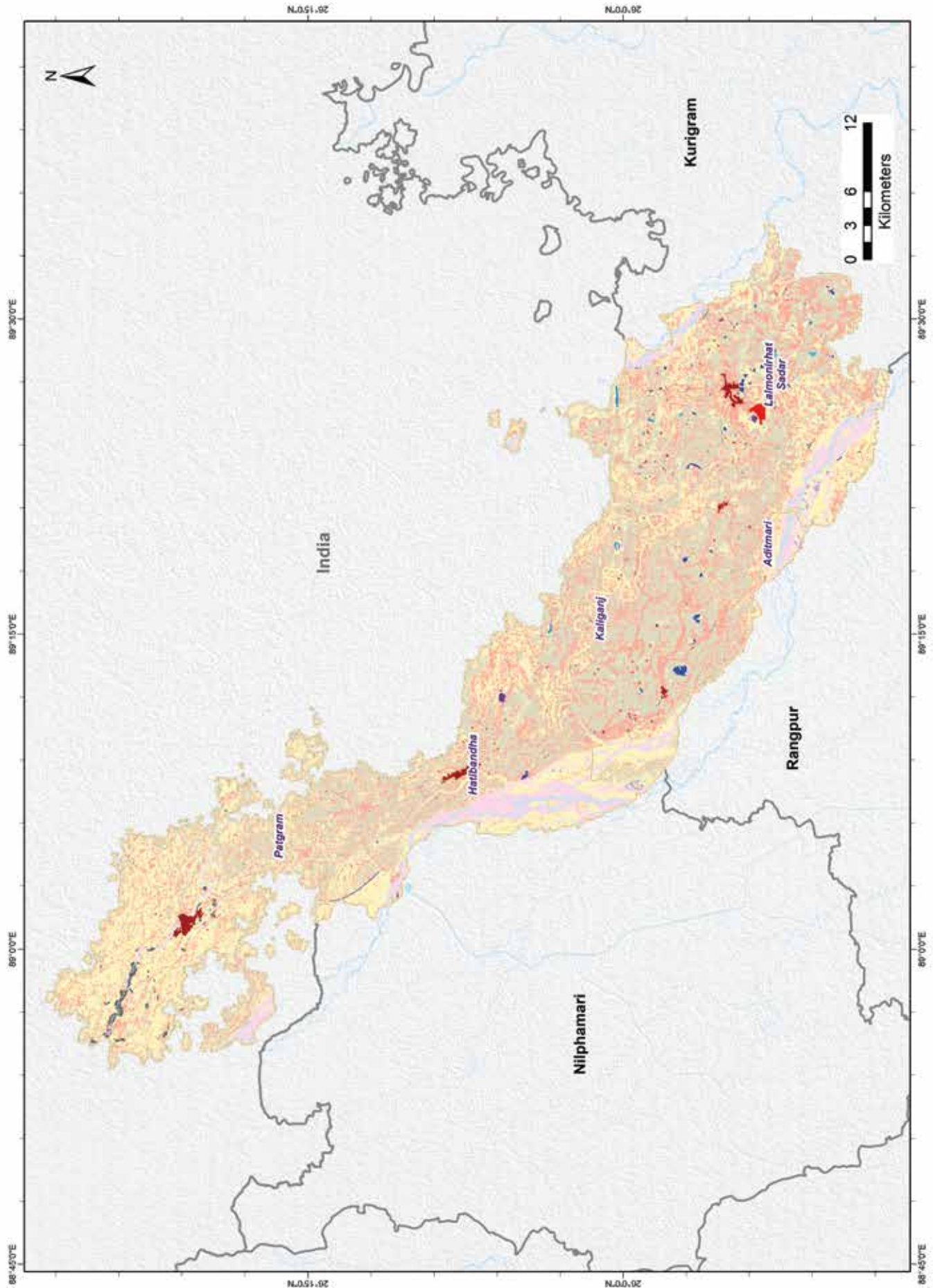
Madaripur

Golden Fibre Field @ *FAO*

Madaripur district is located in between 23.00° and 23.50° north latitudes and 89.93° and 90.35° east longitudes. The district is bounded on the north by Faridpur and Munshiganj districts, on the east by Shariatpur district, on the south by Gopalganj and Barishal districts and on the west by Faridpur and Gopalganj districts. It was turned into a district in 1984.

The district consists of 4 sub-districts and 4 municipalities. The main rivers are the Padma, Arial khan, Kumar, Ghagor and the notable canal is Madaripur Beel Route canal. The notable archaeological heritages are Aoliapur Neelkuti, Algi Kazibadi Mosque, Ram Mandir at Khalia, Senapati Dighi and the tomb of Shah Mazar etc.

*Ten most dominant land cover in district*
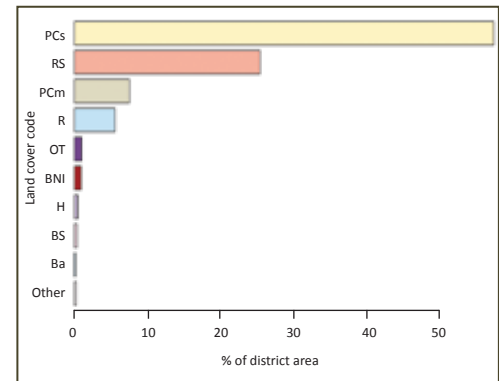
Location of Madaripur district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1254	1.11
Baor (Ba)	211	0.19	Perennial Beels/Haors (BH)	12	0.01
Sand (BS)	479	0.42	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	7	0.01
Brickfield (Br)	203	0.18	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	1147	1.02	Rivers and Khals (R)	6400	5.66
Dump Sites/Extraction Sites (DS)	99	0.09	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	28839	25.52
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	77	0.07	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	595	0.53	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	65060	57.58
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	8607	7.62			
Total	**112989**				

115

*Land cover map 2015, Madaripur district*
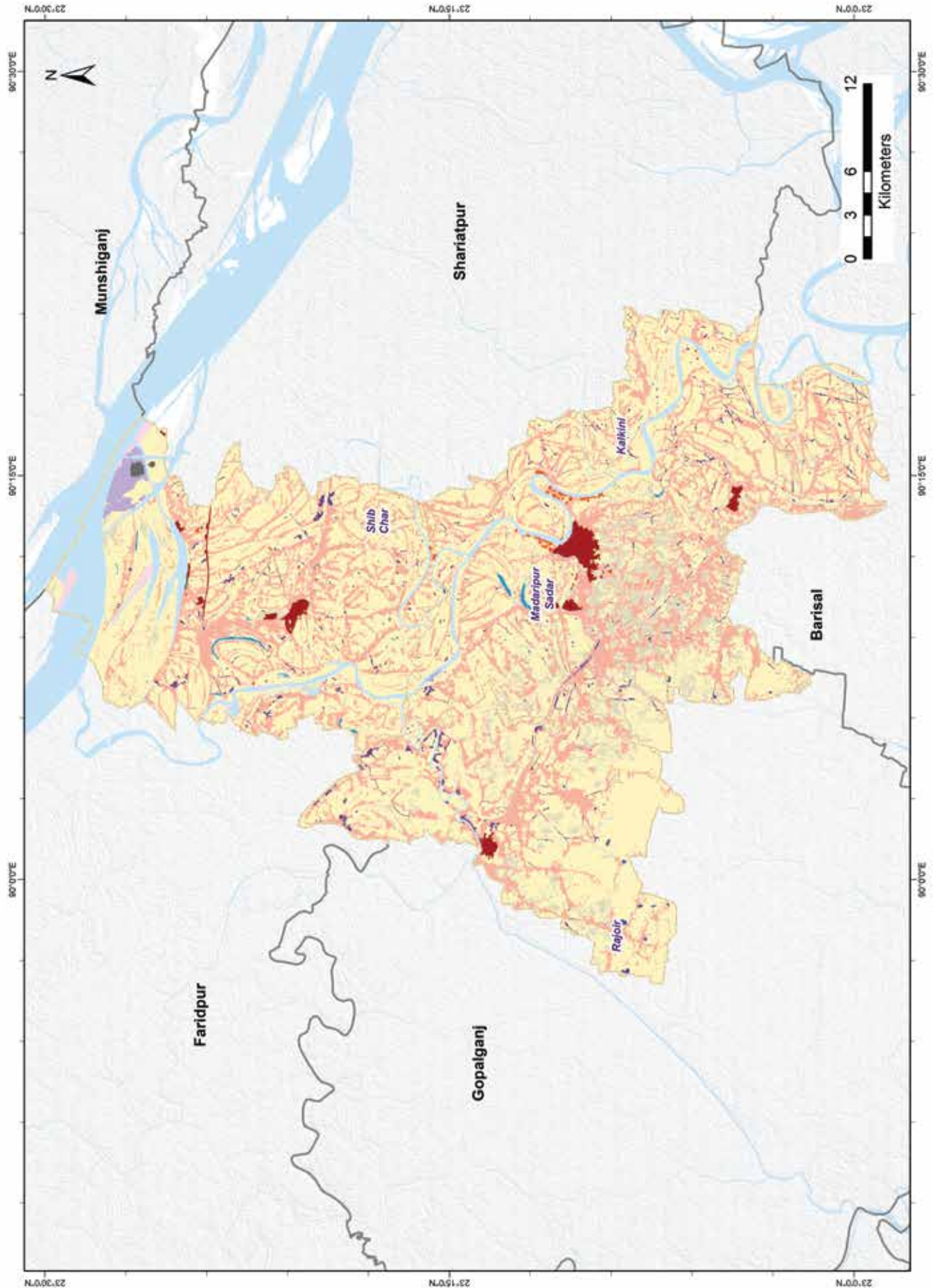
Magura

Sitaram Rajprasad @ *FAO*

Magura district is located in between 23.25° and 23.68° north latitudes and in between 89.25° and 89.70° east longitudes. It is bounded by Rajbari district on the north, on the east by Rajbari and Faridpur districts, on the south by Narail and Jashore districts and on the west by Jhenaidah district. Magura was previously a sub-division formed in 1945 and turned into a district in 1984.

The district consists of 4 sub-districts and 1 municipalities. The main rivers are the Gorai-Madhumati, Nabaganga and Kumar. The notable archaeological heritages are the Ghat of Nader Chand, tomb of Pir Mokerram Ali, tomb of Garib Shah, remnants of the Rajbari of Raja Sitaram Roy, Rajbari of Raja Satrujit Roy etc.
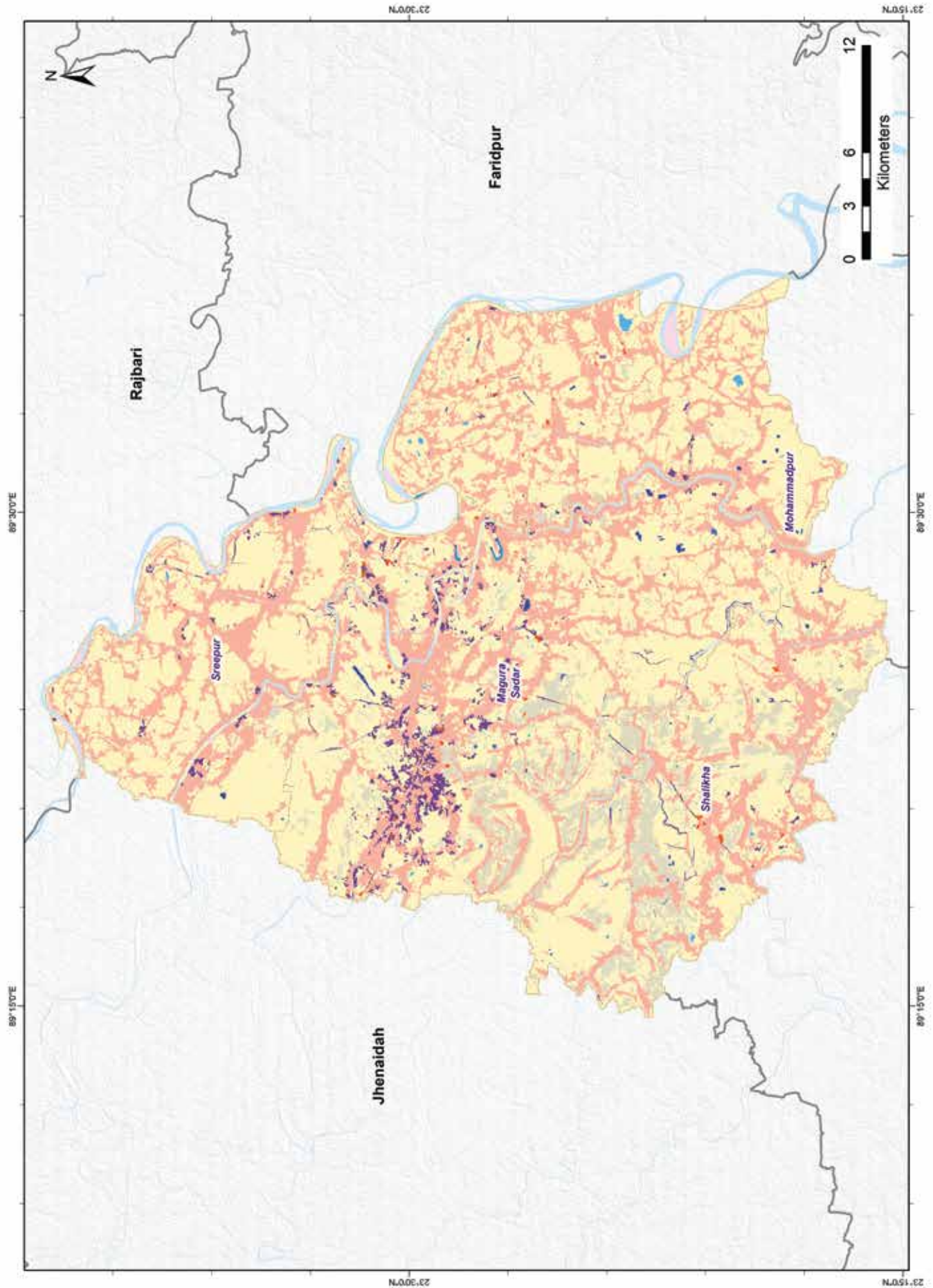
Ten most dominant land cover in district
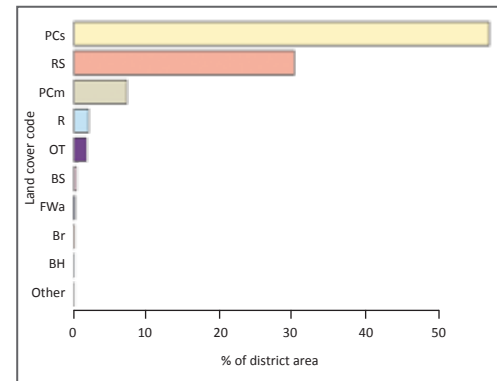
Location of Magura district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1854	1.78
Baor (Ba)	44	0.04	Perennial Beels/Haors (BH)	140	0.13
Sand (BS)	428	0.41	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	71	0.07
Brickfield (Br)	153	0.15	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	--	--	Rivers and Khals (R)	2208	2.12
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	31753	30.46
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	201	0.19	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	59705	57.28
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	7685	7.37			
Total	**104241**				

117

Land cover map 2015, Magura district

Rajbari

Faridpur

Jhenaidah

Sreepur

Magura Sadar

Mohammadpur

Shalikha

Kilometers

0　3　6　12

Manikganj

Jute (Golden Fiber) @ *FAO*

Manikganj district is located in between 23.63° and 24.05° north latitudes and 89.68° and 90.13° east longitudes. The district is bounded on the north by Sirajganj and Tangail districts, on the east by Dhaka district, on the south by Faridpur, Rajbari and Dhaka districts and on the west by Pabna and Rajbari districts. In 01 March 1984, Manikganj district is formed under Dhaka division.

The district consists of 7 sub-districts and 2 municipalities. The main rivers are the Padma, Jamuna, Dhaleshwari, Ichamati and Kaliganga. The notable archaeological heritages are Matta Math, Sree Sree Anandamayee Kalibari, Rajani Bhaban and Jhobhat Bhaban, Narayan Sadhu Asram etc.

Ten most dominant land cover in district
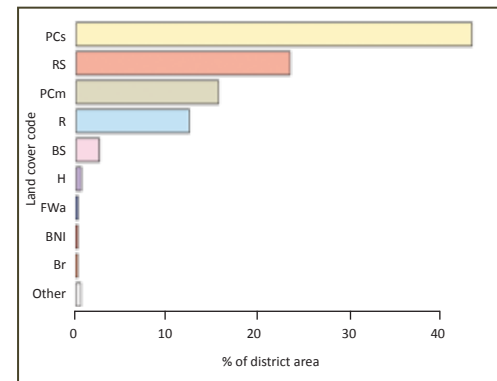
Location of Manikganj district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	44	0.03
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	139	0.1
Baor (Ba)	323	0.23	Perennial Beels/Haors (BH)	170	0.12
Sand (BS)	3687	2.65	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	8	0.01
Brickfield (Br)	354	0.25	River Banks (RB)	147	0.11
Built-up Non-Linear (BNl)	384	0.28	Rivers and Khals (R)	17457	12.54
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	32770	23.54
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	413	0.3	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	938	0.67	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	60503	43.46
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	21868	15.71			
Total	**139203**				

Land cover map 2015, Manikganj district
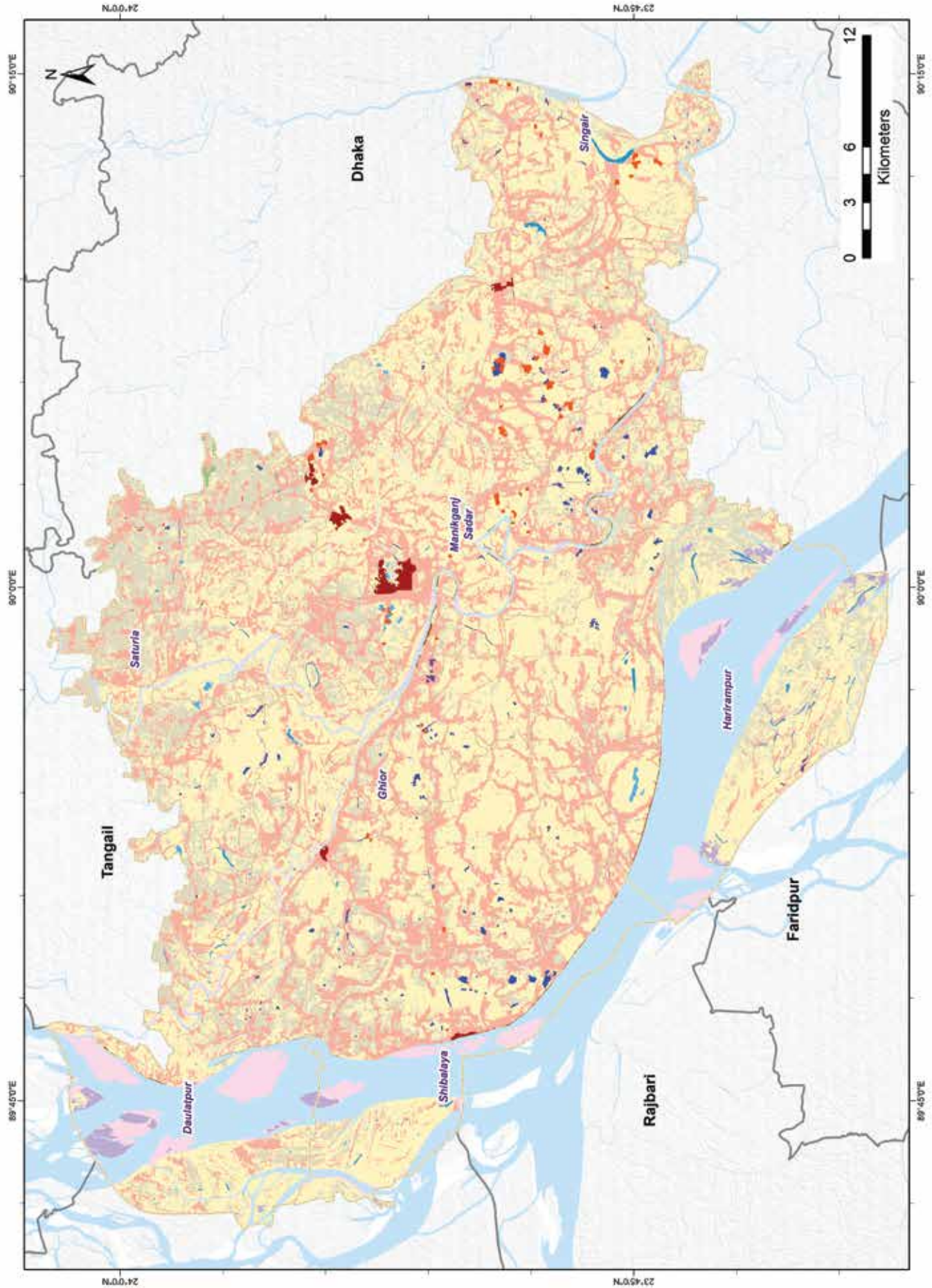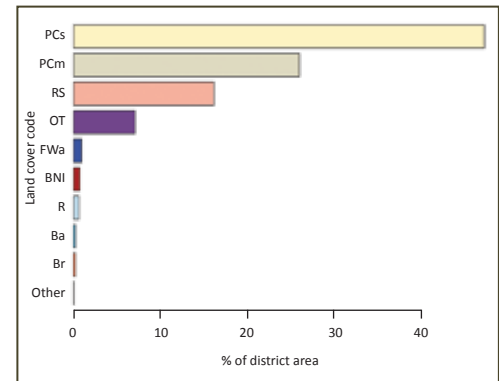
Meherpur

Mujibnagar Complex @ *FAO*

Meherpur district is located in between 23.60° and 23.97° north latitudes and 88.55°and 88.88° east longitudes. The district is bounded on the north by Kushtia district, on the east by Chuadanga district, on the south by Chuadanga district and India and on the west by India. Meherpur district was formed on 24 February 1984.

The district consists of 3 sub-district and 2 municipalities. The main rivers are the Bhairab, Mathabhanga and Kazla. The notable archaeological heritages are Gosaidubi Mosque at Karamdi, Dargahs of Sheik Farid and Shah Enayet, Mazars of Barkat Bibi and Bagudewan etc.

Ten most dominant land cover in district


Location of Meherpur district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	5145	7.17
Baor (Ba)	198	0.28	Perennial Beels/Haors (BH)	81	0.11
Sand (BS)	--	--	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	16	0.02
Brickfield (Br)	194	0.27	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	591	0.82	Rivers and Khals (R)	493	0.69
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	11647	16.22
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	730	1.02	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	33983	47.33
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	18719	26.07			
Total	**71795**				

Land cover map 2015, Meherpur district

Moulvibazar

Tea Garden @ *Zaheer Iqbal*
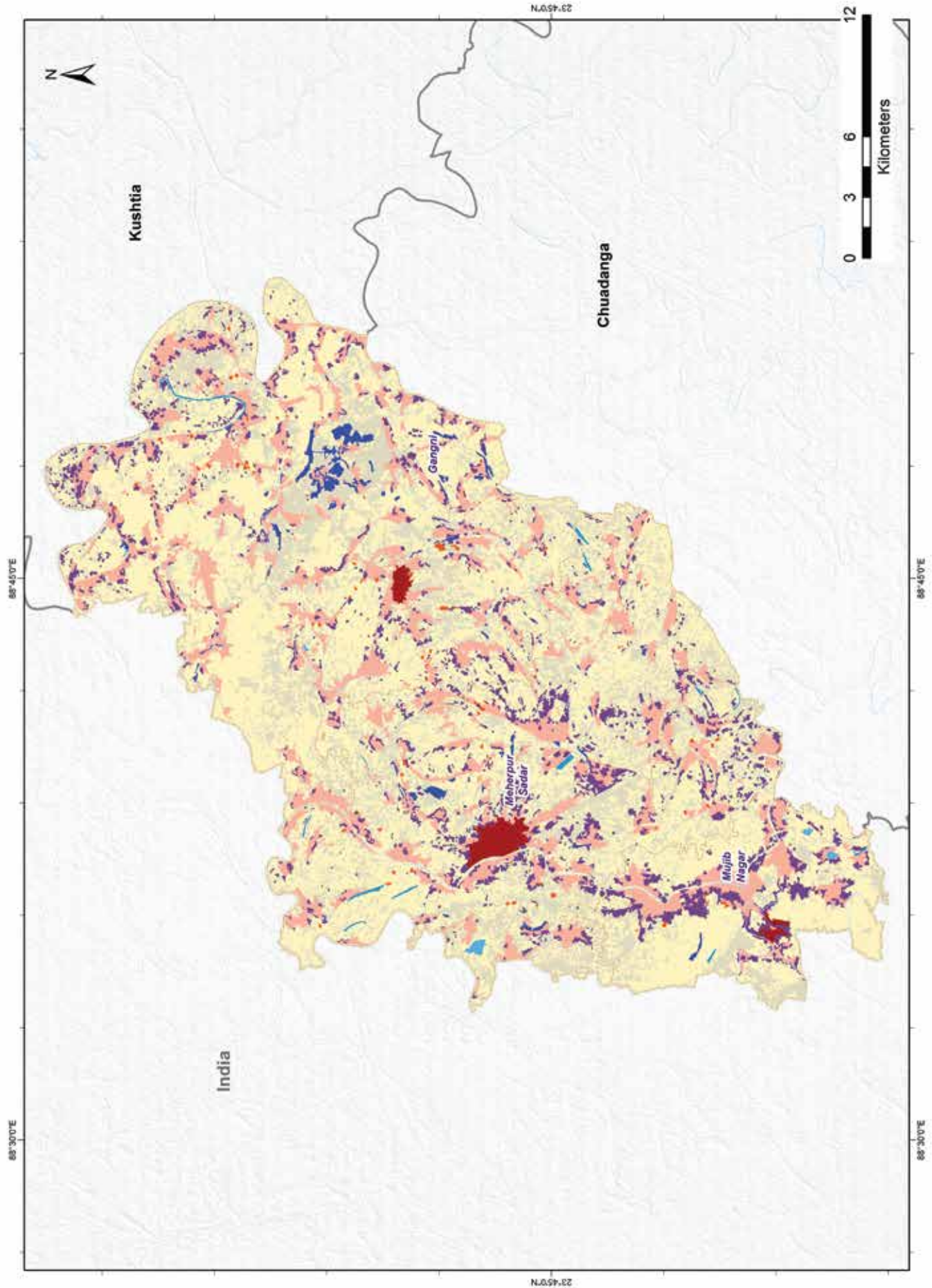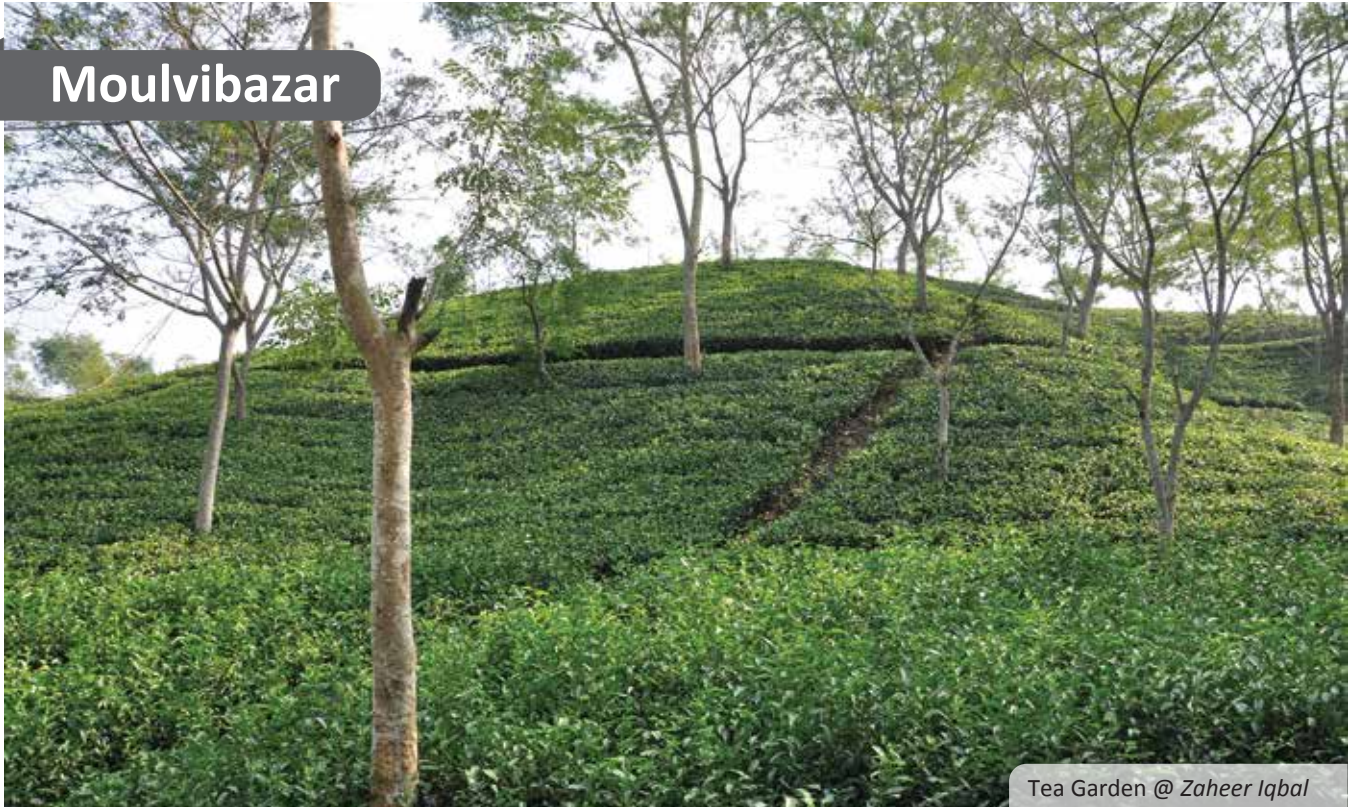
Moulvibazar district is located in between 24.13° to 24.83° north latitude and 91.59° to 92.29° east longitude. The district is bounded on the north by Sylhet district, on the east by Assam State and Tripura State of India, on the south by Tripura State of India and on the west by Habiganj district. It was turned into a district in 1984. It is generally believed that the district is was named after Maulvi Qudratullah, a prominent social worker, who set up a bazar (Market) there.

The district consists of 7 sub-districts and 5 municipalities. The notable archaeological heritages are Khoja Mosque of Laghati village in Dasher Bazar (Baralekha, 16th century), Madhab Mandir located near the Madhabkunda water fall, Rangirkul Viddyashram (Old home) etc.

Ten most dominant land cover in district
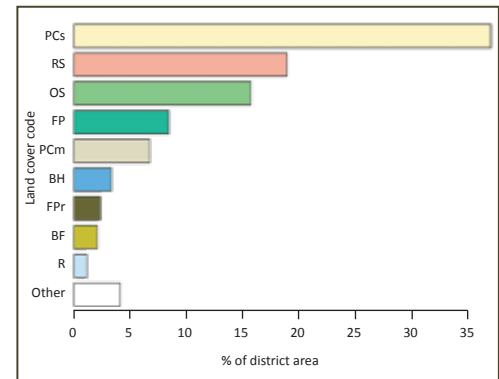
Location of Moulvibazar district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	264	0.1	Orchards & Other Plantations (Shrub) (OS)	41963	15.7
Bamboo Forest (BF)	5660	2.12	Orchards & Other Plantations (Trees) (OT)	269	0.1
Baor (Ba)	138	0.05	Perennial Beels/Haors (BH)	9038	3.38
Sand (BS)	100	0.04	Plain Land Forest (Sal Forest) (FDp)	134	0.05
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	0	0
Brickfield (Br)	189	0.07	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	530	0.2	Rivers and Khals (R)	3151	1.18
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	6389	2.39
Hill Forest (FH)	2471	0.92	Rural Settlement (RS)	50555	18.92
Forest Plantation (FP)	22571	8.45	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	980	0.37	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	905	0.34	Shrub with scattered trees (ShT)	2635	0.99
Lake (L)	309	0.12	Single Crop (PCs)	98757	36.96
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	2134	0.8
Multiple Crop (PCm)	18057	6.76			
Total	267198				

*Land cover map 2015, Moulvibazar district*
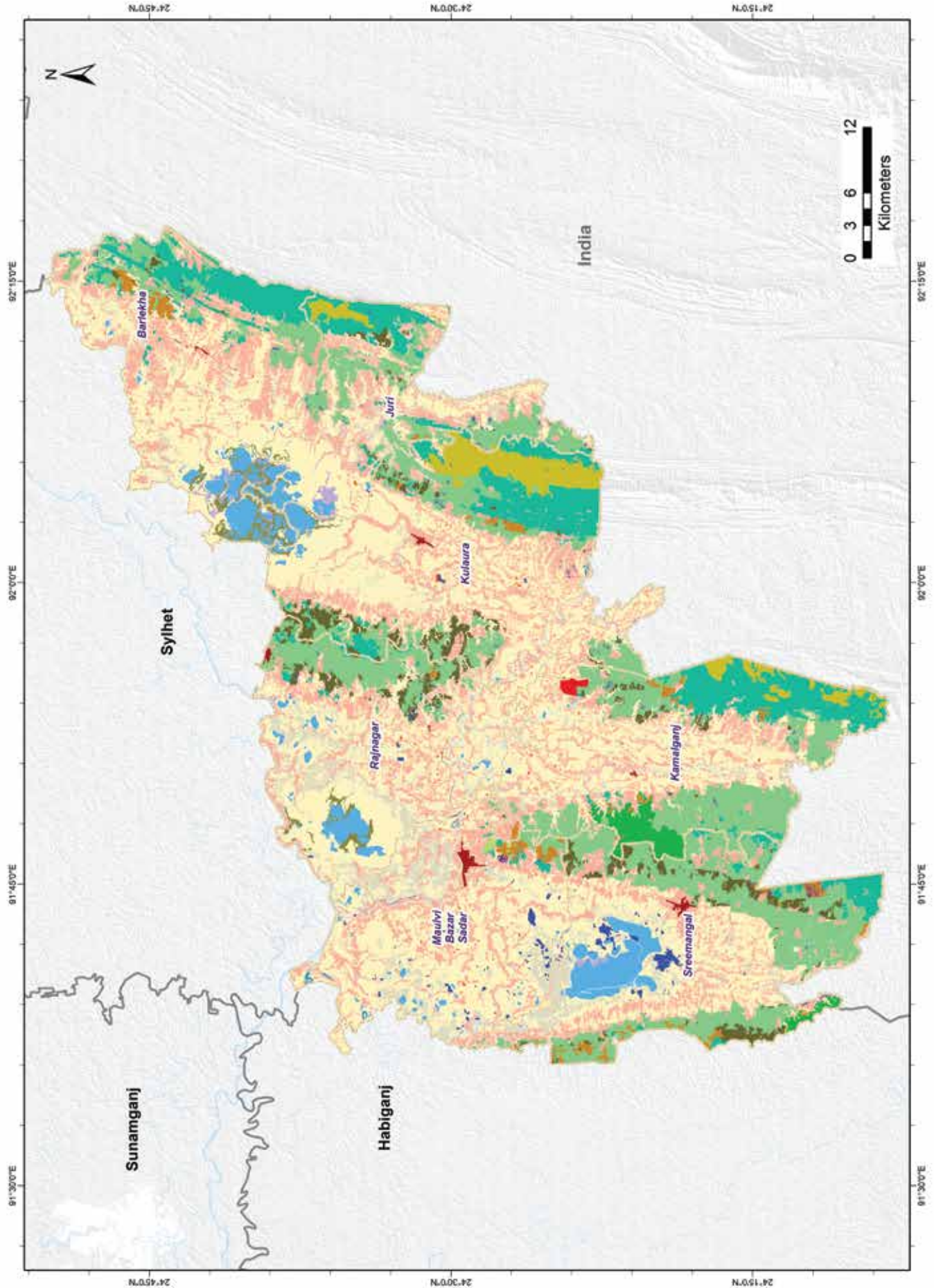
Munshiganj

Idrakpur Fort @ *FAO*

Munshiganj district is located in between 23.38° and 23.63° north latitudes and 90.17° and 90.72° east longitudes. It is bounded on the north by Dhaka and Narayanganj districts, on the east by Cumilla and Chandpur districts, on the south by Shariatpur and Madaripur districts and on the west by Dhaka and Faridpur districts.

The district consists of 6 sub-districts and 2 municipalities. The notable archaeological heritages are Idrakpur Fort (1660) in Munshiganj town, Panditer vita (birth place of Atish Dipankar Srijnan) at Bajrayogini, Baba Adam's Mosque, Dighi of Raja Haris chandra etc.

Ten most dominant land cover in district
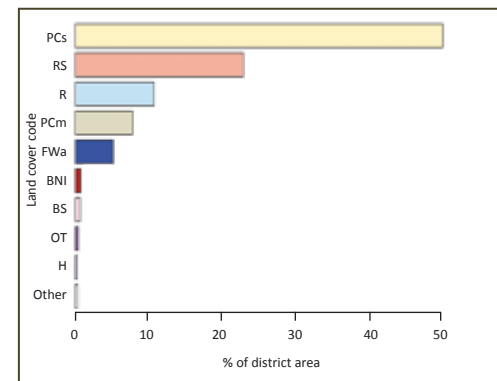
Location of Munshiganj district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	448	0.48
Baor (Ba)	40	0.04	Perennial Beels/Haors (BH)	--	--
Sand (BS)	706	0.76	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	73	0.08
Brickfield (Br)	264	0.28	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	802	0.86	Rivers and Khals (R)	10128	10.83
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	21485	22.98
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	4907	5.25	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	334	0.36	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	46908	50.18
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	7383	7.9			
Total	**93478**				

125

*Land cover map 2015, Munshiganj district*
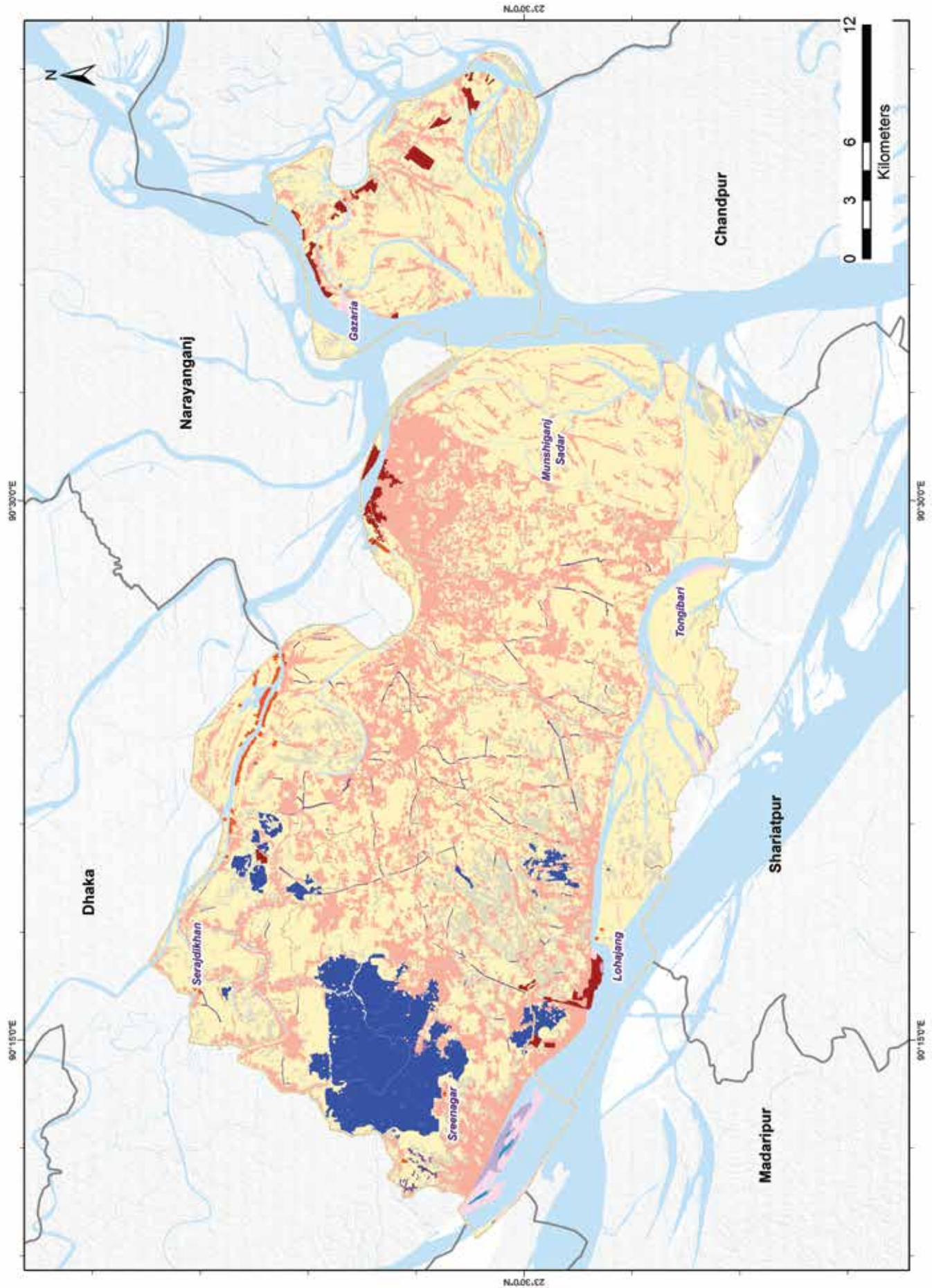
Mymensingh

Bangladesh Liberation War Martyrs Sculpture @ *FAO*

Mymensingh district is located in between 24.25° and 25.20° north latitudes and 90.07° and 90.82° east longitudes. The district is bounded on the north by India, on the east by Netrokona and Kishoreganj districts, on the south by Gazipur district and on the west by Tangail, Sherpur and Jamalpur districts. Mymensingh district was established in 1787.

The district consists of 13 sub-districts, 1 city corporation and 9 municipalities. The main river is the Old Brahmaputra. Mymensingh is famous for folk culture and heritage. The notable archaeological heritages are Rajbaris of Gauripur and Muktagachha, Shashi Lodge, Museum, Durgabari, Kella Tajpur, Mymensingh Town Hall, Bokaynagar Fort, Alexandra Castle and Gospel Church etc.

Ten most dominant land cover in district
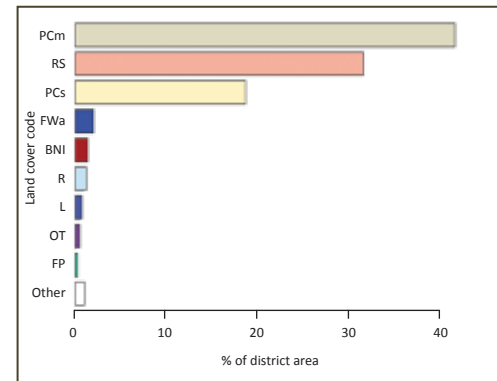
Location of Mymensingh district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	2663	0.62
Baor (Ba)	442	0.1	Perennial Beels/Haors (BH)	982	0.23
Sand (BS)	887	0.2	Plain Land Forest (Sal Forest) (FDp)	1317	0.3
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	118	0.03
Brickfield (Br)	623	0.14	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	6472	1.49	Rivers and Khals (R)	5792	1.34
Dump Sites/Extraction Sites (DS)	72	0.02	Rubber Plantation (FPr)	311	0.07
Hill Forest (FH)	--	--	Rural Settlement (RS)	137116	31.67
Forest Plantation (FP)	1628	0.38	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	9254	2.14	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	22	0.01	Shrub with scattered trees (ShT)	85	0.02
Lake (L)	3657	0.84	Single Crop (PCs)	81226	18.76
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	180335	41.65			
Total	**433003**				

127

*Land cover map 2015, Mymensingh district*
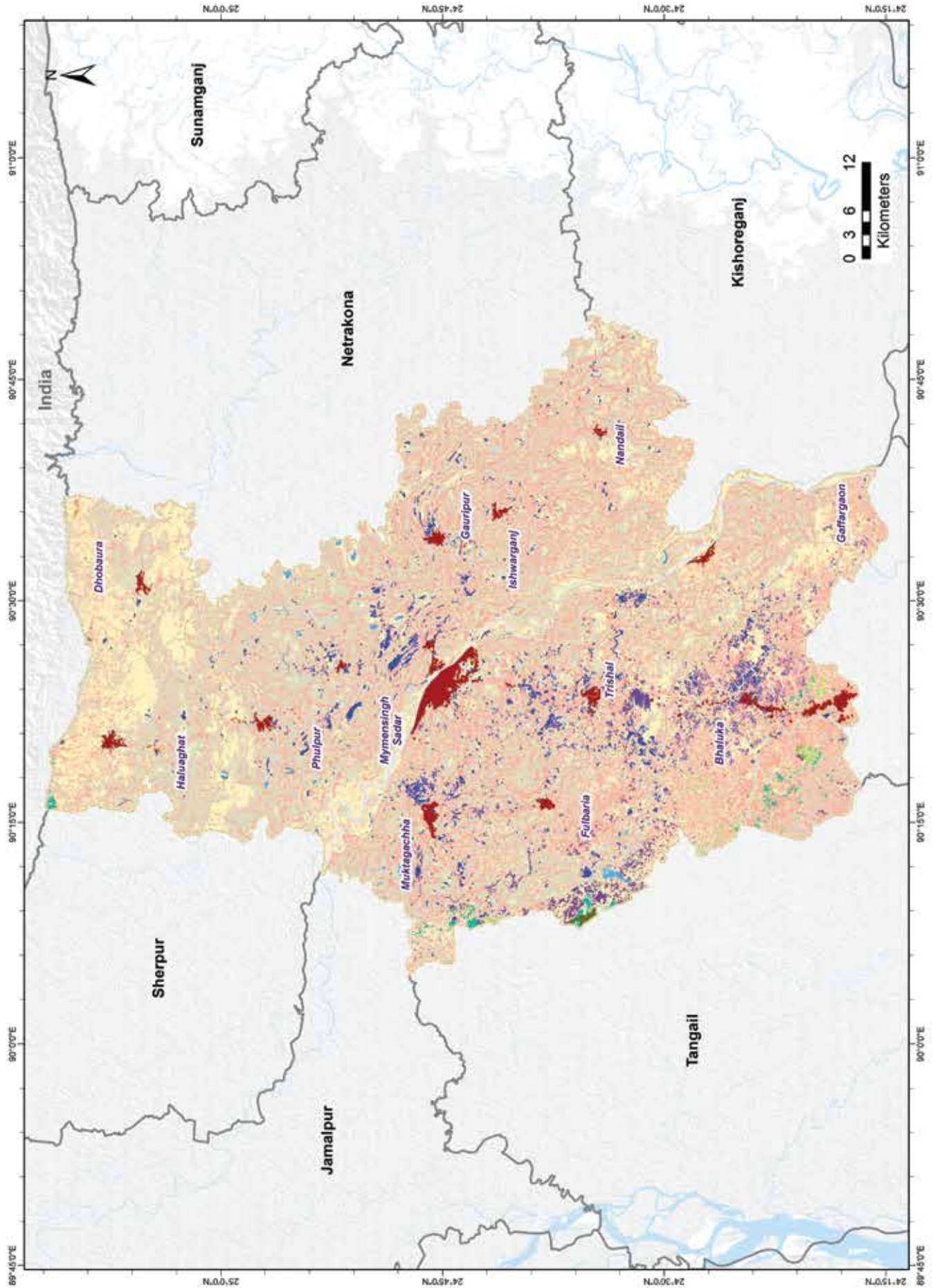
Naogaon

Paharpur @ *FAO*

Naogaon district is located in between 24.53° and 25.22° north latitudes and 88.38° and 89.17° east longitudes. The district is bounded on the north by India, on the east by Joypurhat and Bogura districts, on the south by Natore and Rajshahi districts and on the west by Chapai Nawabganj and India. Naogaon turned into a district in 1984. Previously, it was a sub-division, under Rajshahi district, established in 1877.

The district consists of 11 sub-districts and 3 municipalities. The main rivers are the Atrai, Punarbhaba, little Jamuna, Nagar and Shib. The notable archaeological heritages are Paharpur Buddhist Vihara, Jagaddal Vihara, Halud Vihara and Agrapuri Vihara etc.

Ten most dominant land cover in district
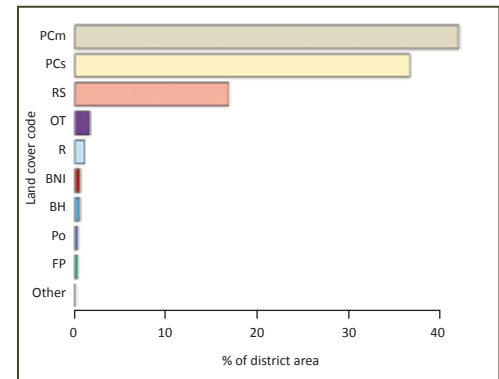
Location of Naogaon district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	5629	1.64
Baor (Ba)	6	0	Perennial Beels/Haors (BH)	1959	0.57
Sand (BS)	--	--	Plain Land Forest (Sal Forest) (FDp)	197	0.06
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	1165	0.34
Brickfield (Br)	39	0.01	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	2049	0.6	Rivers and Khals (R)	3785	1.1
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	57788	16.83
Forest Plantation (FP)	1072	0.31	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	40	0.01	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	--	--
Lake (L)	18	0.01	Single Crop (PCs)	125645	36.59
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	144032	41.94			
Total	**343425**				

*Land cover map 2015, Naogaon district*
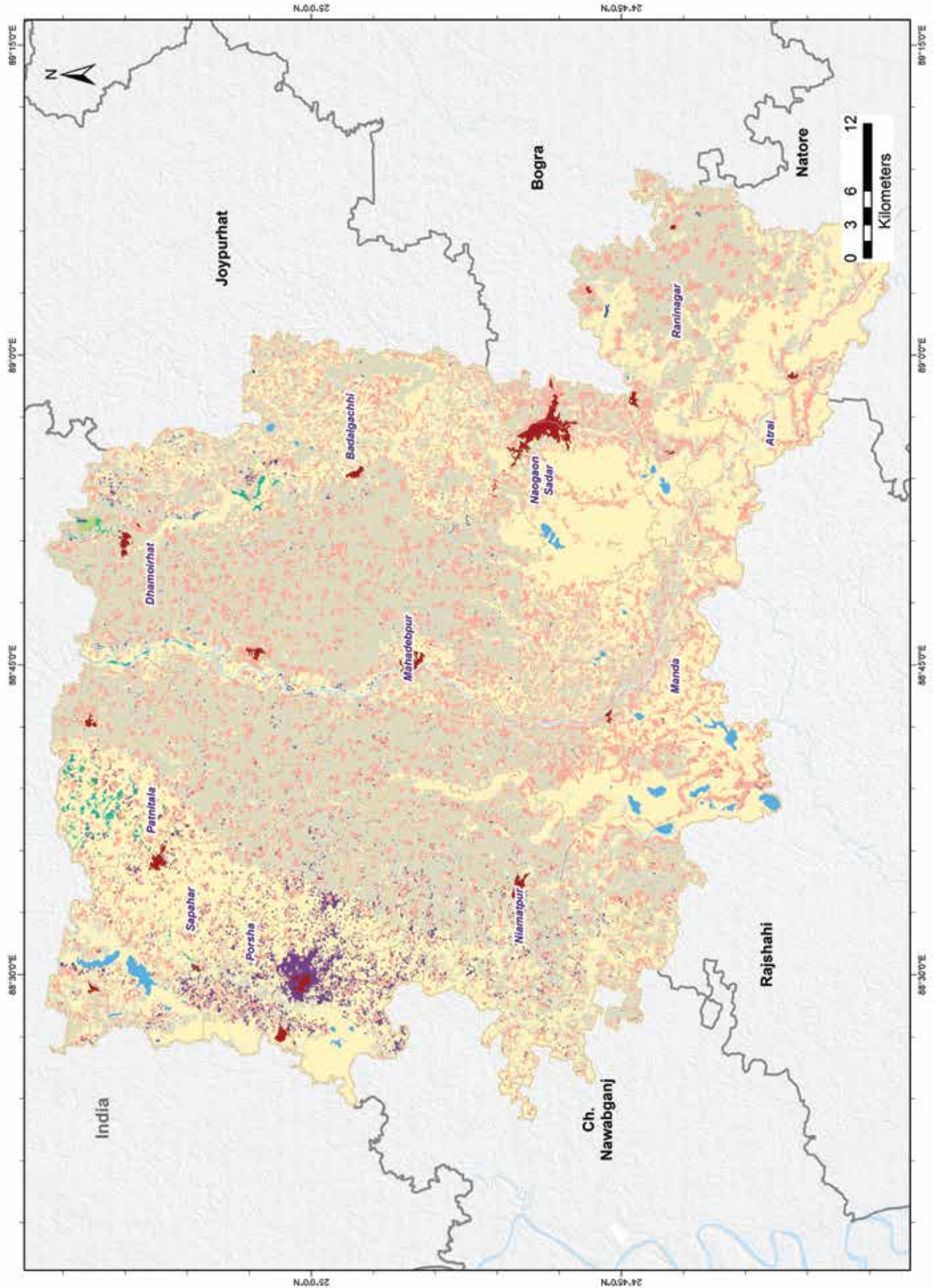
Narail

Sultan Complex @ *FAO*

Narail district is located in between 23.03° and 23.32° north latitudes and 89.38° and 89.80° east longitudes. The district is bounded on the north by Magura district, on the east by Faridpur and Gopalganj districts, on the south by Khulna and Bagerhat districts and on the west by Jashore district. Narail district was formed in 1984.

The district consists of 3 sub-districts and 3 municipalities. The major rivers are the Madhumati, Nabaganga, Bhairab, Chitra and Kajla. The notable archaeological heritages are Mosque at Village Goalbathan (1654), Kadamtala Mosque, Ghazir Dargah at Naldi, homestead of Raja Keshab Roy at Wazirpur etc.

*Ten most dominant land cover in district*
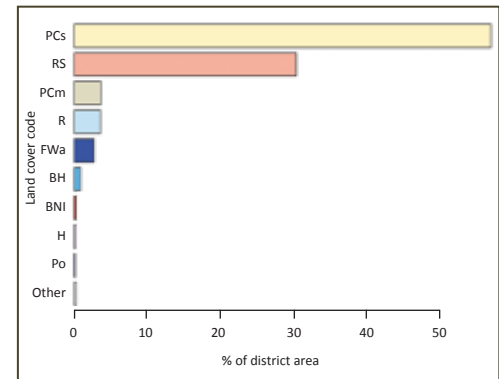
Location of Narail district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	85	0.09
Baor (Ba)	79	0.08	Perennial Beels/Haors (BH)	983	1
Sand (BS)	49	0.05	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	218	0.22
Brickfield (Br)	142	0.14	River Banks (RB)	3	0
Built-up Non-Linear (BNl)	364	0.37	Rivers and Khals (R)	3631	3.68
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	30078	30.45
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	2773	2.81	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	326	0.33	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	56327	57.03
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	27	0.03	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	3682	3.73			
Total	**98767**				

*Land cover map 2015, Narail district*
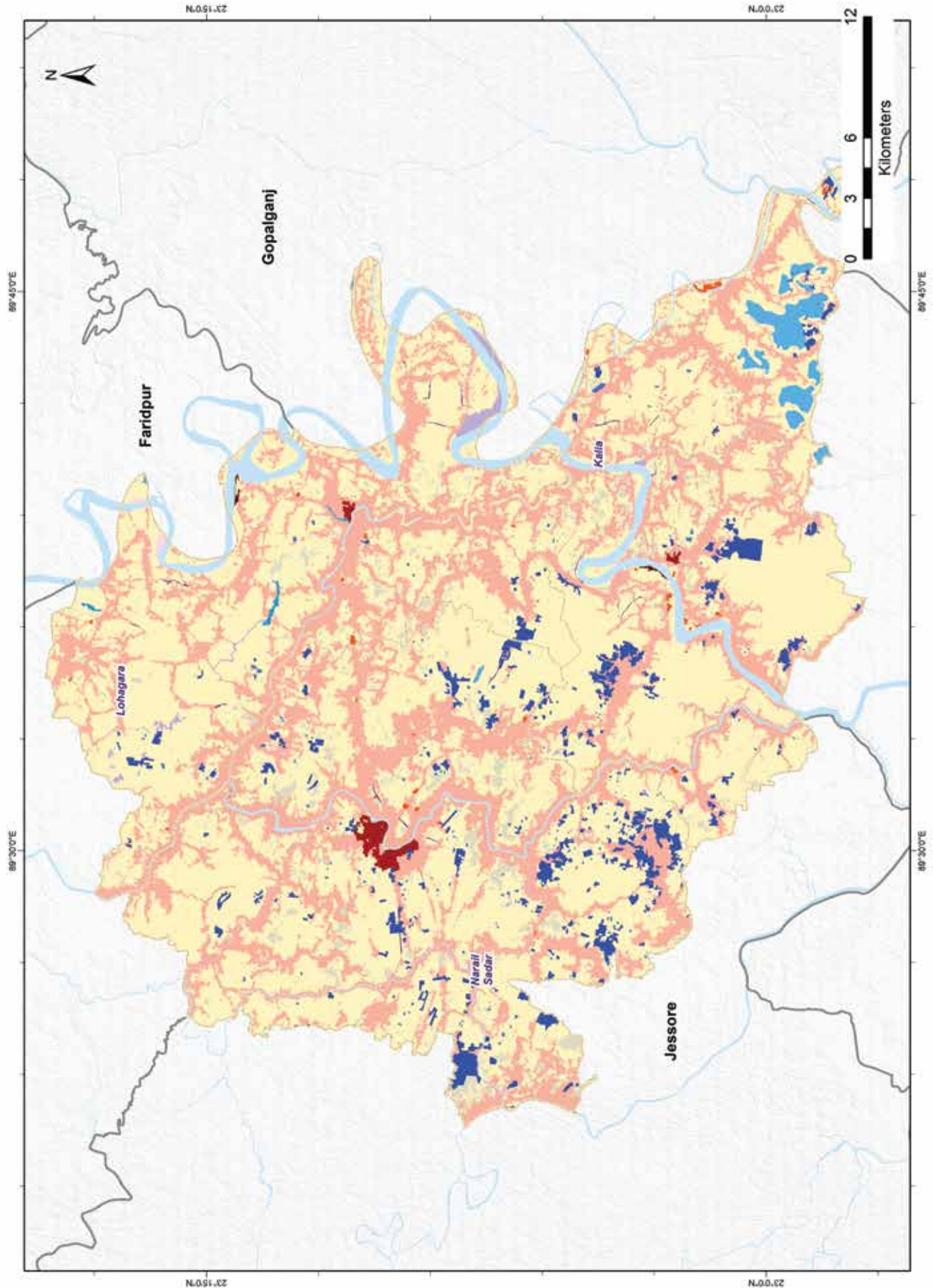
Narayanganj

Panam City in Sonargaon @ *FAO*

Narayanganj district is located in between 23.55° and 23.95° north latitudes and 90.43° and 90.75° east longitudes. It is bounded on the north by Gazipur and Narsingdi districts, on the east by Brahmanbaria and Cumilla districts, on the south by Munshiganj district and on the west by Dhaka district. It was formed as a sub-division in 1882 and became district in 1984.

The district consists of 5 sub-districts, 1 city corporation and 5 municipalities. The main rivers are the Shitalakshya, Meghna, Old Brahmaputra, Buriganga, Balu and Dhaleshwari. The notable archaeological heritages are tomb of Sultan Giasuddin Azam Shah (1389-1411 AD), Baba Saleh Mosque (1481 AD), Goaldi Mosque (1519 AD), Hajiganj Fort etc.

*Ten most dominant land cover in district*
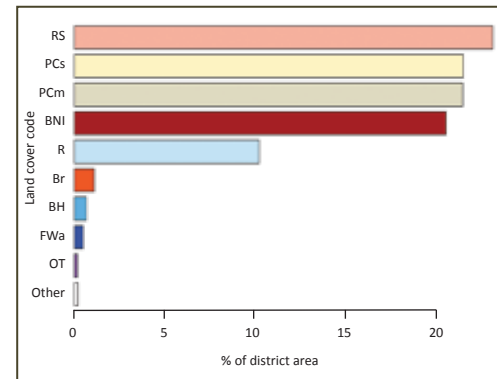
Location of Narayanganj district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	145	0.21
Baor (Ba)	15	0.02	Perennial Beels/Haors (BH)	497	0.7
Sand (BS)	7	0.01	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	63	0.09
Brickfield (Br)	802	1.13	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	14598	20.62	Rivers and Khals (R)	7269	10.27
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	16432	23.21
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	371	0.52	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	--	--
Lake (L)	83	0.12	Single Crop (PCs)	15277	21.58
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	15248	21.53			
Total	**70809**				

*Land cover map 2015, Narayanganj district*

Narsingdi

Wari Bateshwar @ *FAO*
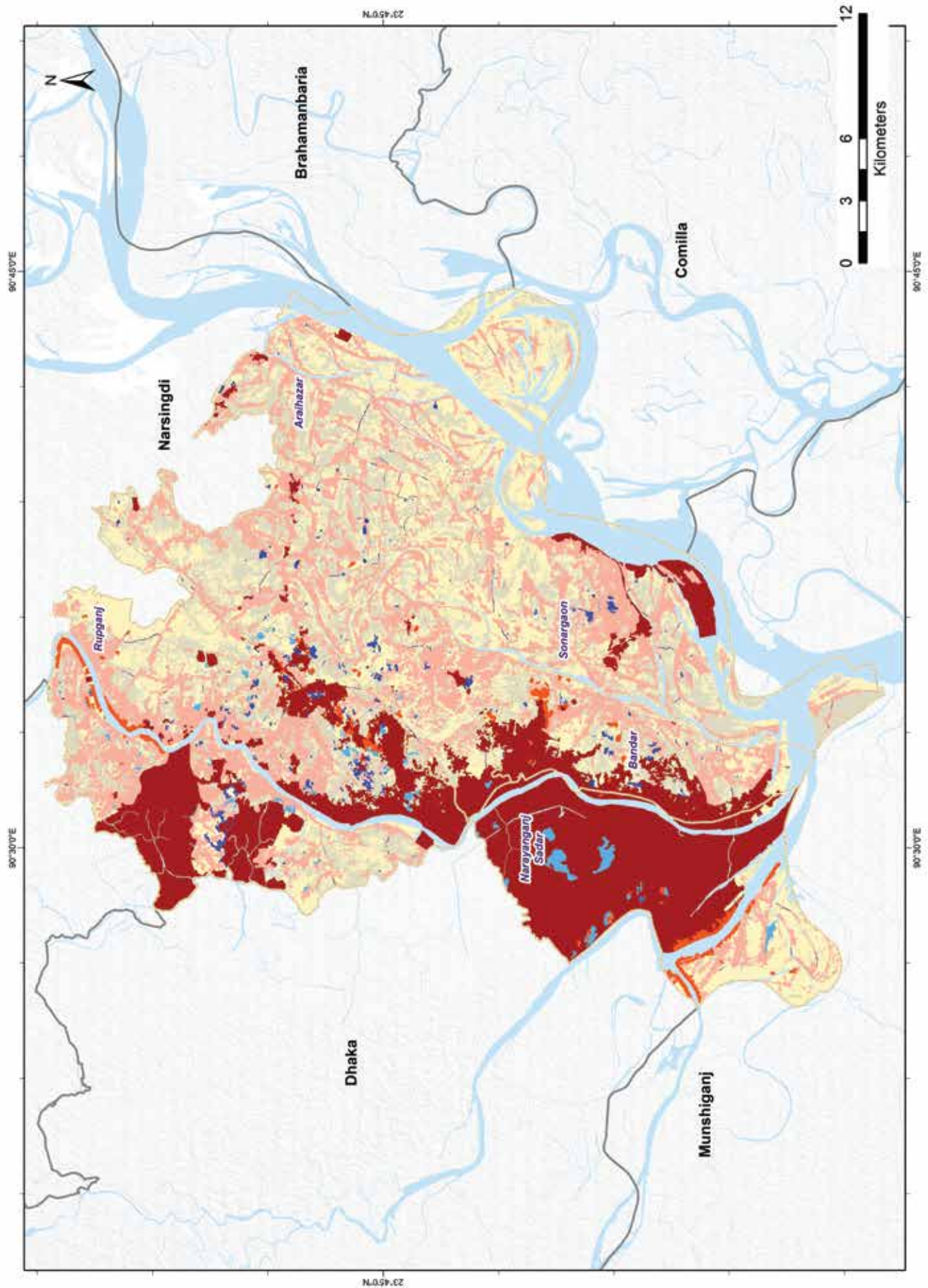
Narsingdi district is located in between 23.77° and 24.25° north latitudes and 90.57° and 90.98° east longitudes. It is bounded by Kishoreganj district on the north, by Kishoreganj and Brahmanbaria districts on the east, by Brahmanbaria and Narayanganj districts on the south and by the Gazipur district on the west. It was a sub-division under greater Dhaka which became district in 1984.

The district consists of 6 sub-districts and 6 municipalities. The main rivers are the Meghna, Arial Khan, Haridhoa, Kalagachhia and Paharia. The major archaeological heritages are three domed mosque (1524) at Ashrafpur, single domed mosque. (eighteenth century) and tomb of Shah Monsur at Kumardi, Bibi Joynab Mosque (1719) etc.

Ten most dominant land cover in district
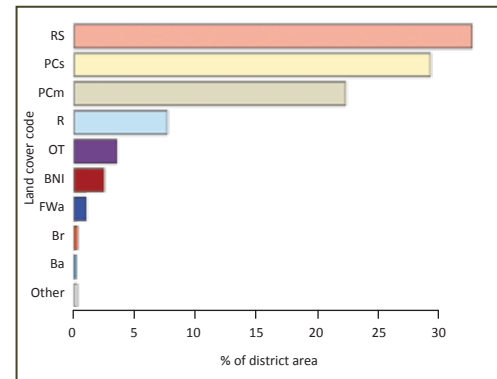
Location of Narsingdi district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	4125	3.55
Baor (Ba)	231	0.2	Perennial Beels/Haors (BH)	108	0.09
Sand (BS)	--	--	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	59	0.05
Brickfield (Br)	385	0.33	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	2944	2.54	Rivers and Khals (R)	8933	7.7
Dump Sites/Extraction Sites (DS)	122	0.11	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	37954	32.7
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	1228	1.06	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	--	--
Lake (L)	57	0.05	Single Crop (PCs)	33998	29.29
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	25924	22.33			
Total	**116068**				

Land cover map 2015, Narsingdi district

Natore

Uttara Gana Bhaban @ *FAO*
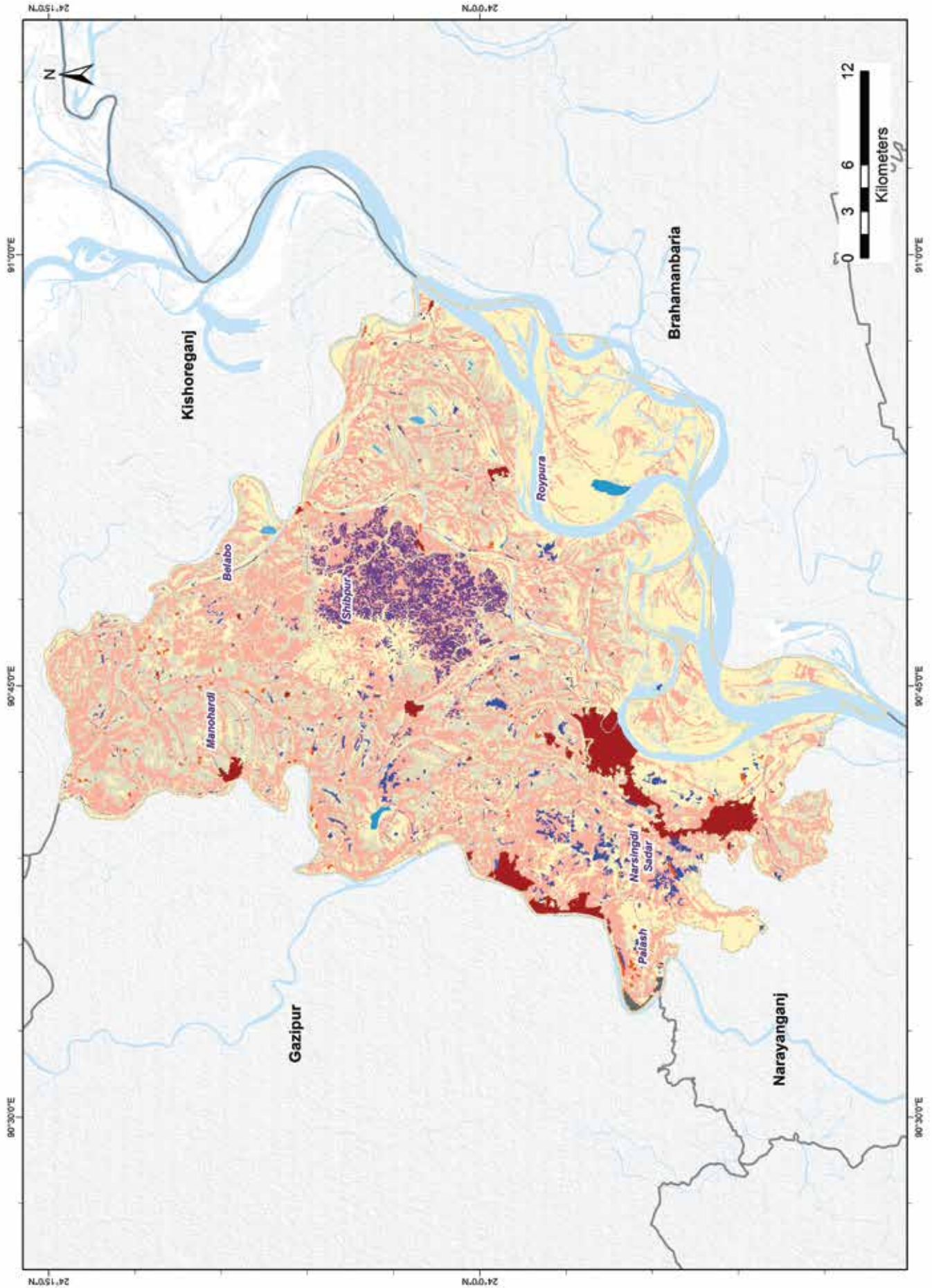
Natore district is located in between 24.42° and 24.97° north latitudes and 88.02° and 88.50° east longitudes. The district is bounded on the north by Bogura and Naogaon districts, on the east by Sirajganj and Pabna districts, on the south by Pabna and Kushtia districts and on the west by Rajshahi district. It was turned into a district in 1984.

The district consists of 7 sub-districts and 8 municipalities. The major rivers are the Atrai, Baral, Narod and Nandakunja. Chalan Beel is a notable waterbody here. Among the archaeological heritages Natore Rajbari and Dighapatia Rajbari (Uttara Ganabhaban), Dayarampur Rajbari (Bagatipara) and Budpara Kali Mandir (Lalpur) etc are notable. Natore is famous for 'Kacha Golla', a type of sweets.

Ten most dominant land cover in district
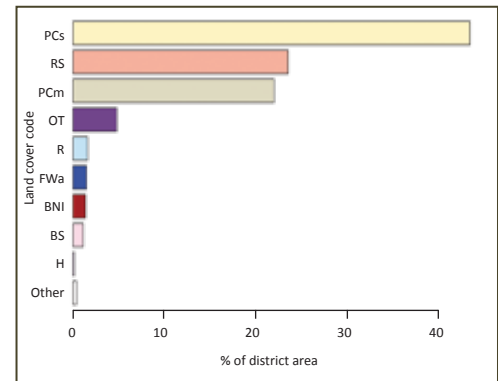
Location of Natore district

Land cover areas in district

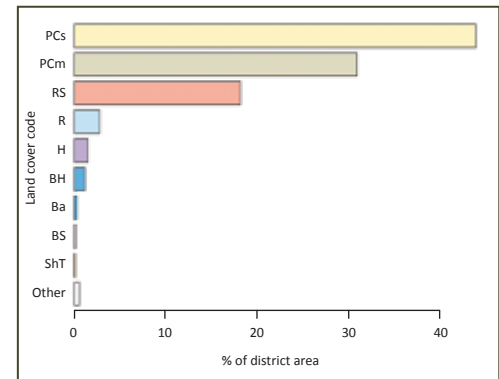| Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	146	0.08	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	9197	4.84
Baor (Ba)	29	0.02	Perennial Beels/Haors (BH)	41	0.02
Sand (BS)	2284	1.2	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	273	0.14
Brickfield (Br)	367	0.19	River Banks (RB)	9	0
Built-up Non-Linear (BNl)	2738	1.44	Rivers and Khals (R)	3165	1.66
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	44677	23.49
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	2945	1.55	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	382	0.2	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	82224	43.23
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	41711	21.93			
Total	**190188**				

Land cover map 2015, Natore district
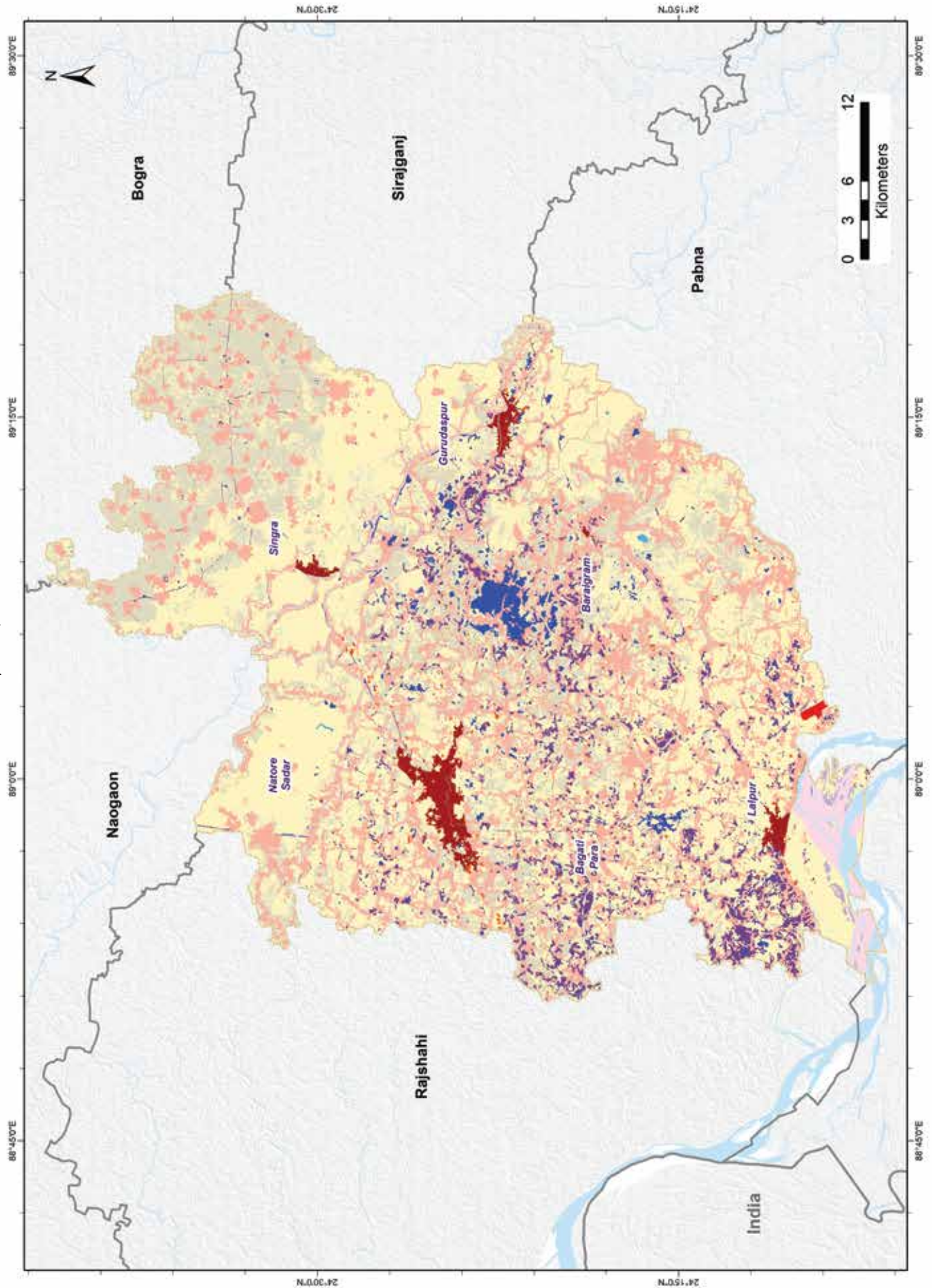
Hill of White Limestone @ *Pankaj Sikder*

Netrokona

Netrokona district is located in between 24.57° and 25.20° north latitudes and 90.00° and 91.12° east longitudes. The district is bounded on the north by India, on the east by Sunamganj district, on the south by Kishoreganj district and on the west by Mymensingh district. It was turned into a district in 1984.

The district consists of 10 sub-districts and 5 municipalities. The main rivers are the Someshwari, Kangsha, Magra, Dhanu, Dhala, Teorkhali. The notable archaeological heritages are Roail Bari Fort at Kendua, Khoja dighi (pond), palace of Maharaja at Susang Durgapur, dighi of Kamol Rani, Buddhist Math at Krishnapur of Atpara and the archaeological relics of Salki Matikata etc.

Ten most dominant land cover in district

Location of Netrokona district

Land cover areas in district

	Land cover	Area (ha)	%		Land cover	Area (ha)	%
	Air Port (Ap)	--	--		Orchards & Other Plantations (Shrub) (OS)	--	--
	Bamboo Forest (BF)	--	--		Orchards & Other Plantations (Trees) (OT)	163	0.06
	Baor (Ba)	972	0.35		Perennial Beels/Haors (BH)	3436	1.23
	Sand (BS)	658	0.24		Plain Land Forest (Sal Forest) (FDp)	104	0.04
	Brackish Water Aquaculture (BWa)	--	--		Ponds (Po)	3	0
	Brickfield (Br)	150	0.05		River Banks (RB)	2	0
	Built-up Non-Linear (BNl)	236	0.08		Rivers and Khals (R)	7975	2.85
	Dump Sites/Extraction Sites (DS)	63	0.02		Rubber Plantation (FPr)	--	--
	Hill Forest (FH)	--	--		Rural Settlement (RS)	50897	18.21
	Forest Plantation (FP)	383	0.14		Salt Pans (SP)	--	--
	Fresh Water Aquaculture (FWa)	410	0.15		Shifting Cultivation (SC)	--	--
	Herb Dominated Area (Terrestrial) (H)	4390	1.57		Shrub with scattered trees (ShT)	452	0.16
	Lake (L)	--	--		Single Crop (PCs)	122616	43.87
	Mangrove Forest (NMF)	--	--		Swamp Forest (SF)	--	--
	Mangrove Plantation (FMp)	--	--		Swamp Plantation (FSp)	4	0
	Mud Flats or Intertidal Area (MF)	--	--		Swamp Reed Land (SWr)	162	0.06
	Multiple Crop (PCm)	86412	30.92				
	Total	**279486**					

*Land cover map 2015, Netrokona district*
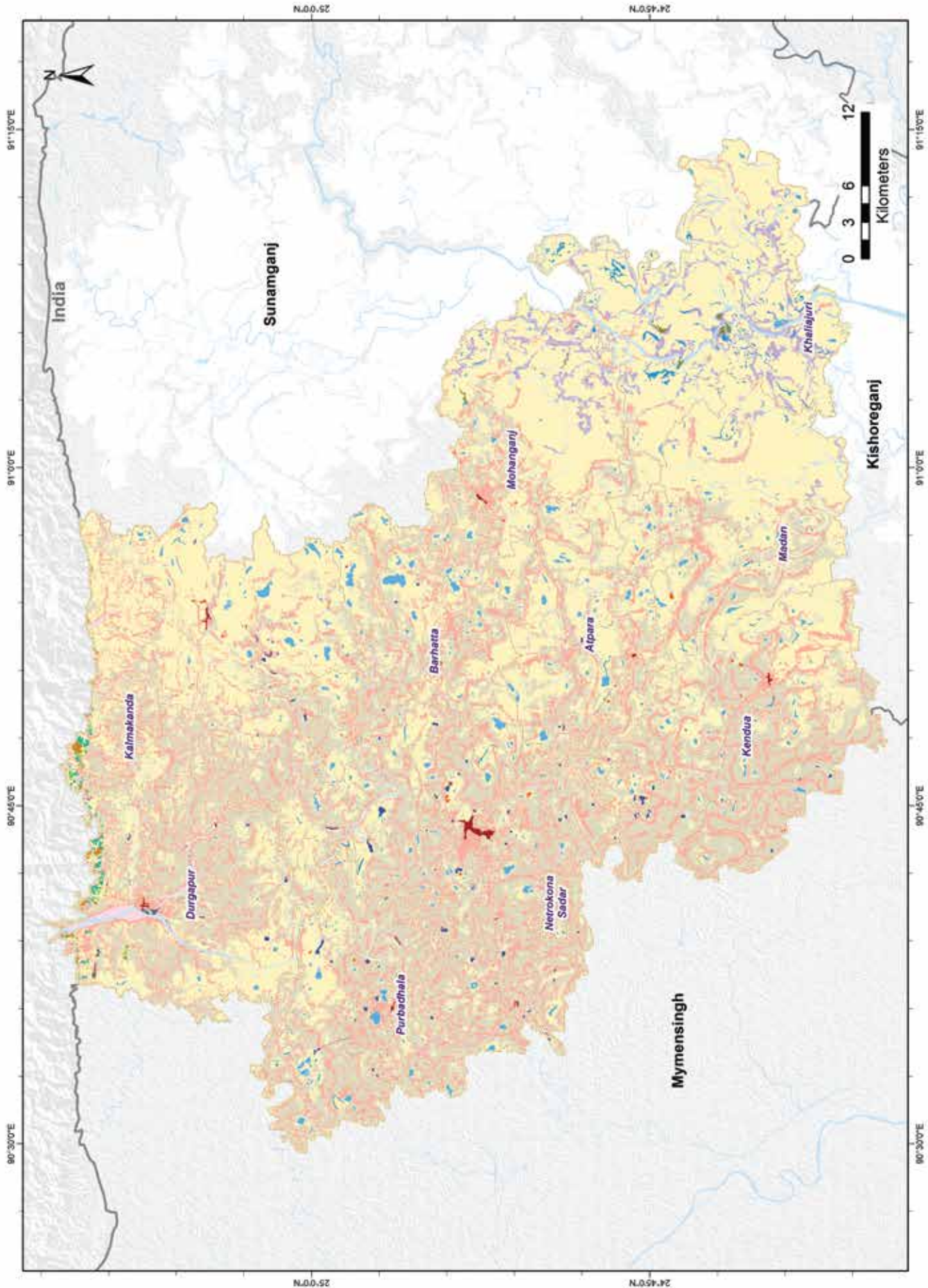
Nilphamari

Glass Mosque @ *FAO*

Nilphamari district is located in between 25.73° and 26.32° north latitudes and 88.73° and 89.20° east longitudes. The district is bounded by India on the north, Lalmonirhat and Rangpur districts on the east, Rangpur and Dinajpur districts on the south and Panchagarh and Dinajpur districts on the west. It was turned into a district in 1984.

The district consists of 6 sub-districts and 4 municipalities. The main rivers are the Tista, Jamuneshwari, Chikni and Dhaigan. The major archaeological heritages are the Birat Dighi (present name Nilsagar), Neel Kuthi (Nilphamari Sadar Upadistrict), Nat Settlement (prison, 1871), Saidpur Church (1893), Dimla Rajbari etc.

*Ten most dominant land cover in district*
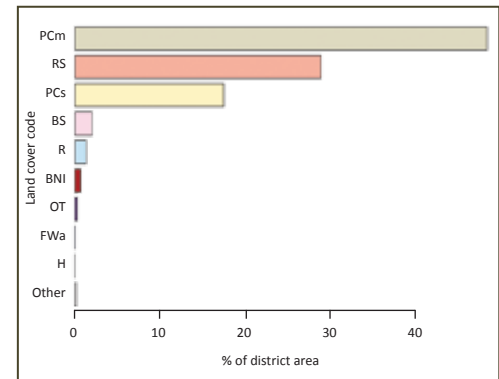
Location of Nilphamari district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	52	0.03	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	600	0.38
Baor (Ba)	34	0.02	Perennial Beels/Haors (BH)	119	0.07
Sand (BS)	3377	2.12	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	54	0.03
Brickfield (Br)	128	0.08	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	1268	0.8	Rivers and Khals (R)	2258	1.42
Dump Sites/Extraction Sites (DS)	36	0.02	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	46075	28.93
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	189	0.12	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	152	0.1	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	27924	17.53
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	77016	48.35			
Total	**159283**				

Land cover map 2015, Nilphamari district

142

Noakhali

Noakhali Nijhum Dwip @ *Zaheer Iqbal*
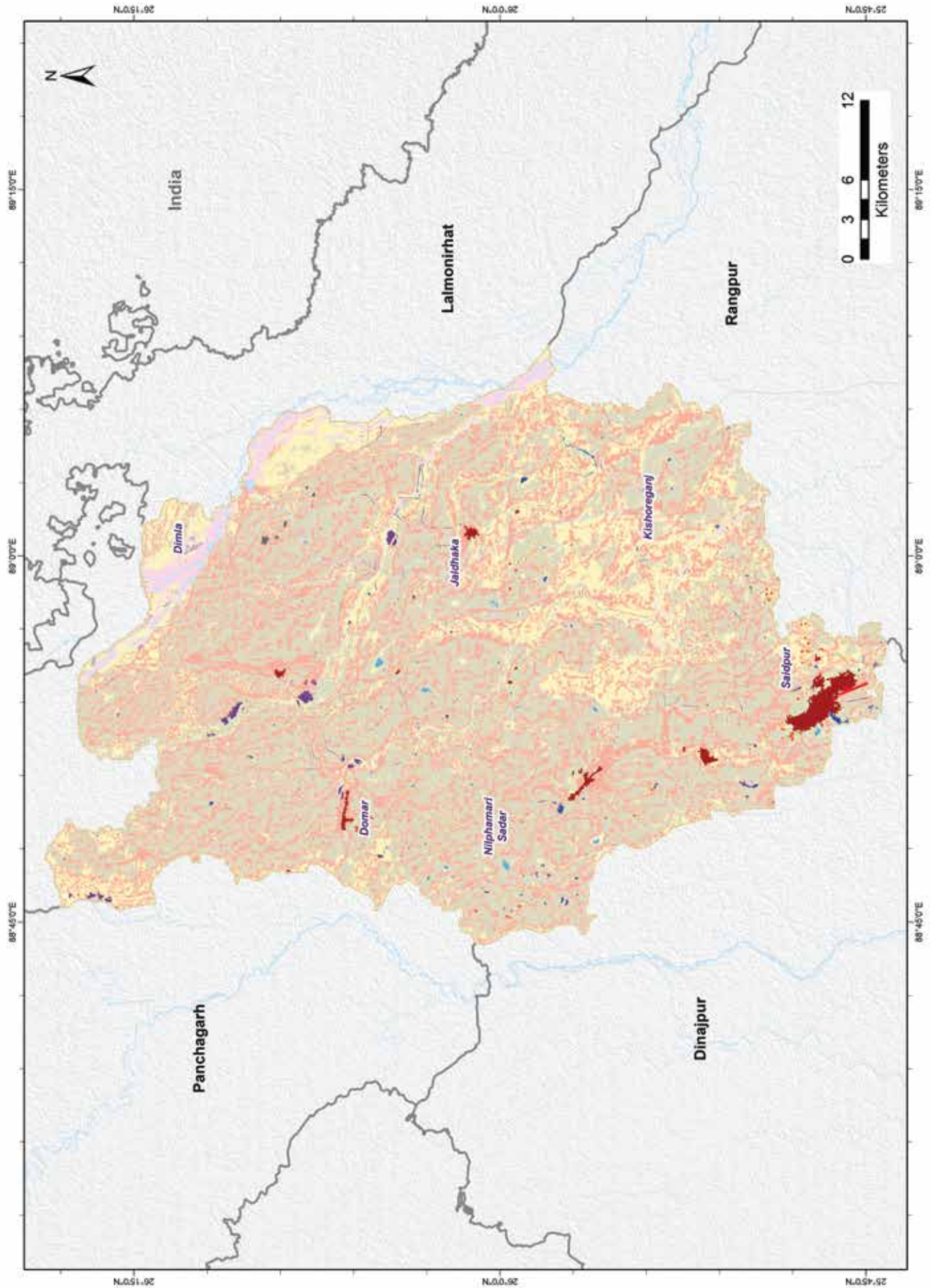
Noakhali is a deltaic district, situated at the fringe of the Bay of Bengal. It is located in between 22.12° and 23.13° north latitudes and 90.88° and 91.45° east longitudes. It is bounded by Cumilla district on the north, Feni and Chattogram districts on the east, the Bay of Bengal on the south and by Bhola and Lakshmipur districts on the west.

The district consists of 9 sub-districts and 8 municipalities. The major rivers are the Bamni and Meghna. The notable archaeological heritages are Noakhali Public Library (1895), Bajra Shahi Mosque (1153 AH, Chatkhil), Kali Statue (18th century) at Sirajpur union of Companiganj sub district etc.

Ten most dominant land cover in district
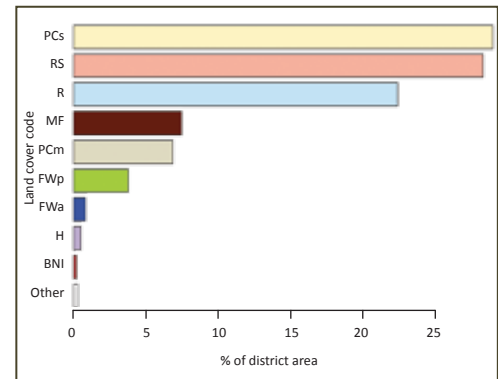
Location of Noakhali district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	127	0.04
Baor (Ba)	--	--	Perennial Beels/Haors (BH)	--	--
Sand (BS)	780	0.22	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	44	0.01
Brickfield (Br)	328	0.09	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	881	0.24	Rivers and Khals (R)	80721	22.41
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	101990	28.32
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	3117	0.87	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	2054	0.57	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	104411	28.99
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	13833	3.84	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	27014	7.5	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	24861	6.9			
Total	**360160**				

*Land cover map 2015, Noakhali district*
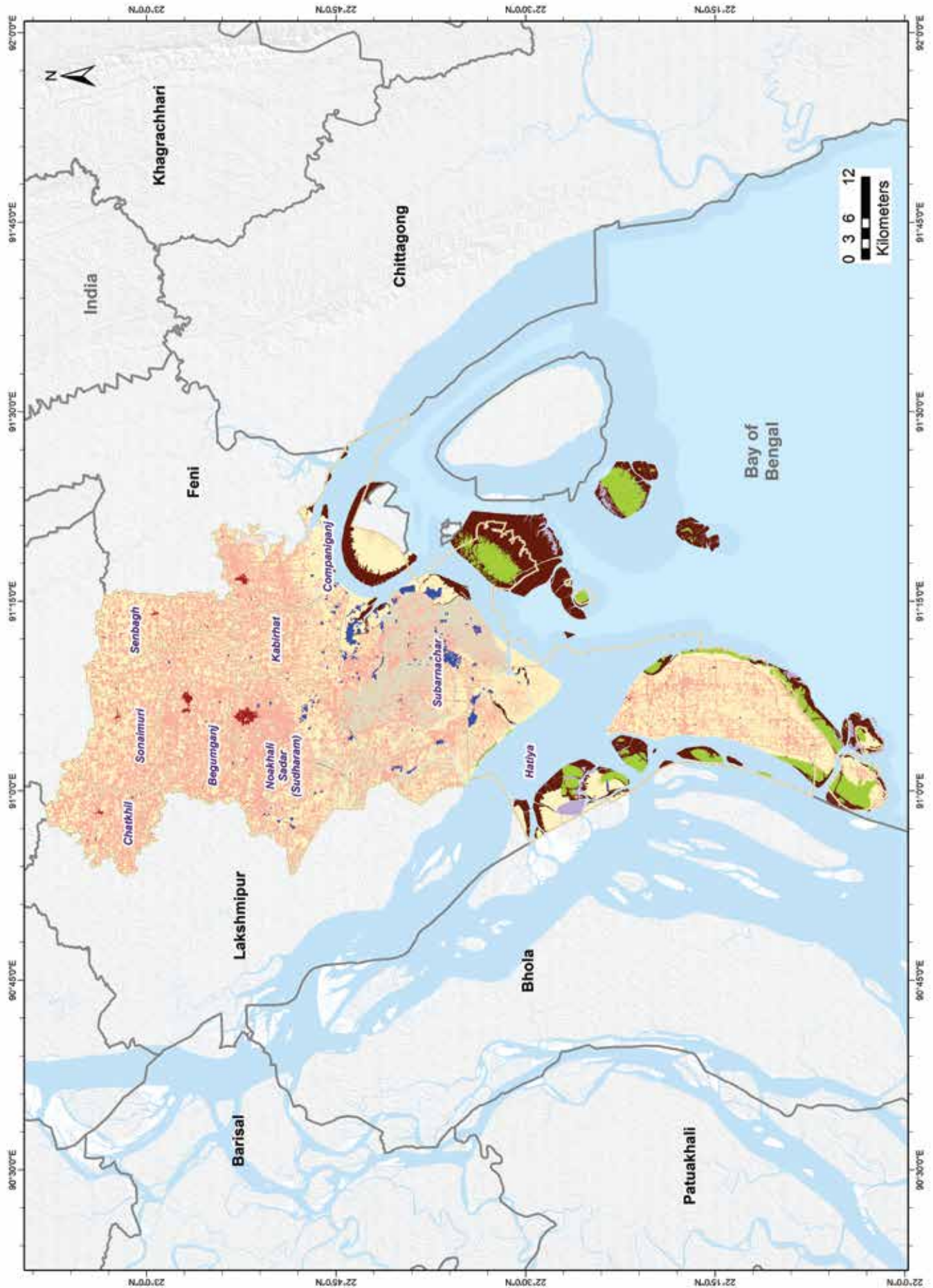
Pabna

Hardinge Bridge @ *FAO*

Pabna district is located in between 23.80° and 24.35° north latitudes and 89.00° and 89.73° east longitudes. It is bounded by Natore and Sirajganj districts on the north,the Padma river, Rajbari and Kushtia districts on the south, Manikganj and Sirajganj districts and the Jamuna river on the east and the Padma River, Natore and Kushtia districts on the west. Pabna district was formed in 1832.

The district consists of 9 sub-district and 9 municipalities. The main rivers are the Ganges, Ichamati, Gumani and Hurasagar. The major archaeological heritages are three domed Mosque at Bharara (1176 AH), three domed Kazipara Mosque, Chatmohar Shahi Mosque (989 AH), Samaj Shahi Mosque (958 AH) etc.

*Ten most dominant land cover in district*
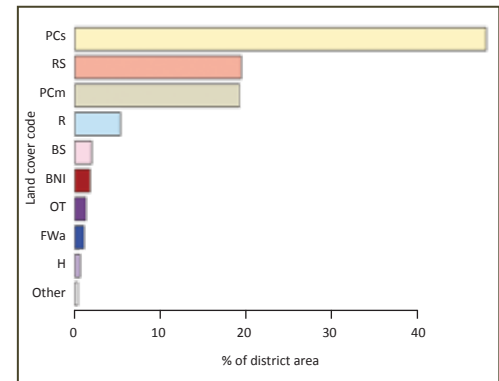
Location of Pabna district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	17	0.01	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	3298	1.39
Baor (Ba)	284	0.12	Perennial Beels/Haors (BH)	86	0.04
Sand (BS)	4855	2.04	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	219	0.09
Brickfield (Br)	380	0.16	River Banks (RB)	26	0.01
Built-up Non-Linear (BNl)	4477	1.89	Rivers and Khals (R)	12889	5.43
Dump Sites/Extraction Sites (DS)	11	0	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	46336	19.51
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	2799	1.18	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	1737	0.73	Shrub with scattered trees (ShT)	--	--
Lake (L)	17	0.01	Single Crop (PCs)	114142	48.07
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	45883	19.32			
Total	**237456**				

Land cover map 2015, Pabna district

Panchagarh

Banglabandha Border @ *Zaheer Iqbal*
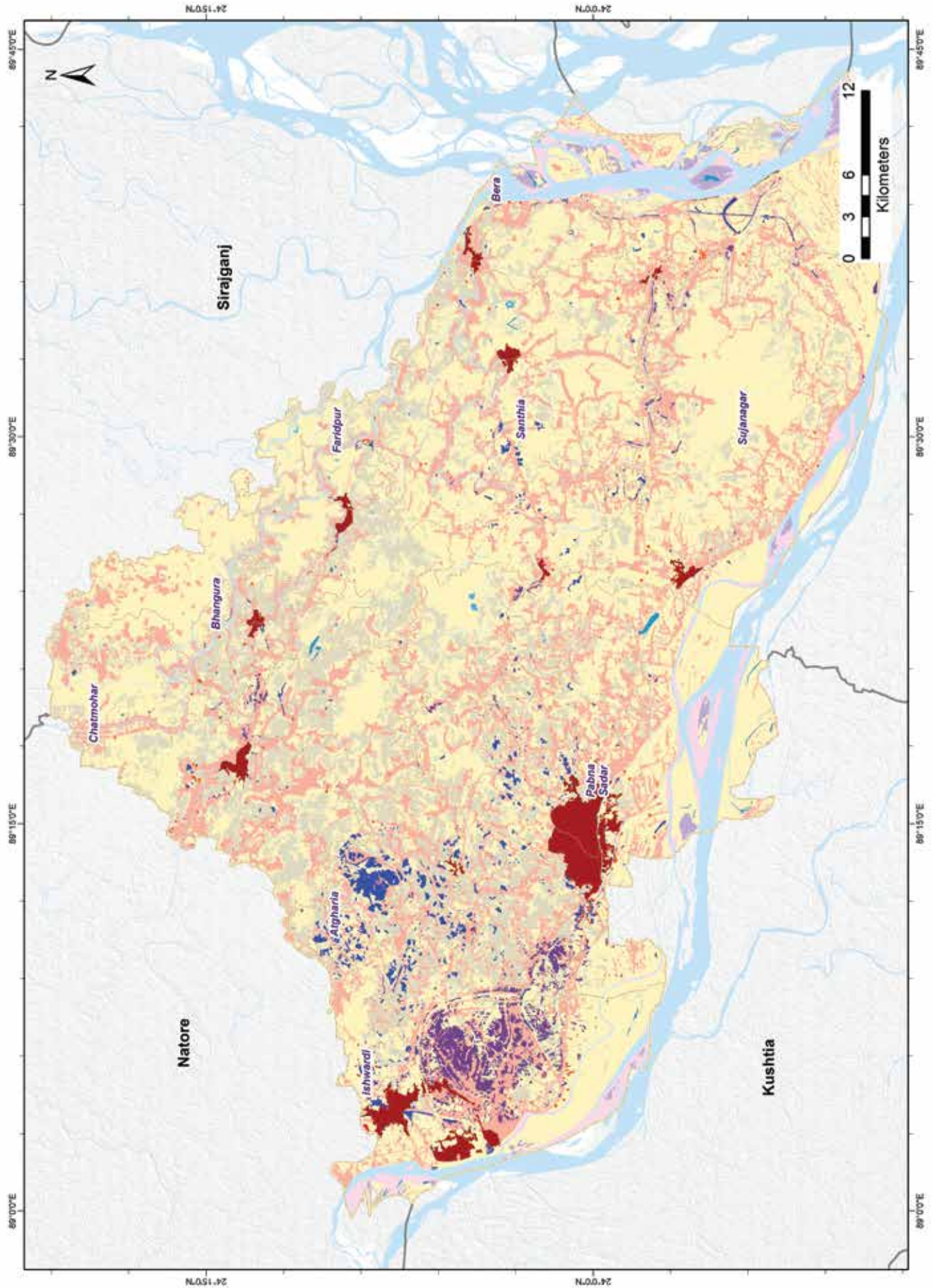
Panchagarh district is located in between 26.00° and 26.63° north latitudes and 88.32° and 88.82° east longitudes. It is bounded by West Bengal state of India on the north, Dinajpur and Thakurgaon districts on the south, Nilphamari district on the east, West Bengal state of India on the west. Panchagarh was formed as a sub-division in 1980 and turned into a district in 1984.

The district consists of 5 sub-districts and 2 municipalities. The main rivers are the Karatoya, Atrai, Mahananda, Tangon, Dahuk, Patharaj, Talma, Nagar, Chawai. The notable archaeological relics of the district include Nayani Burz (bastion), remains of Atwari Zamindar-Bari etc.

Ten most dominant land cover in district
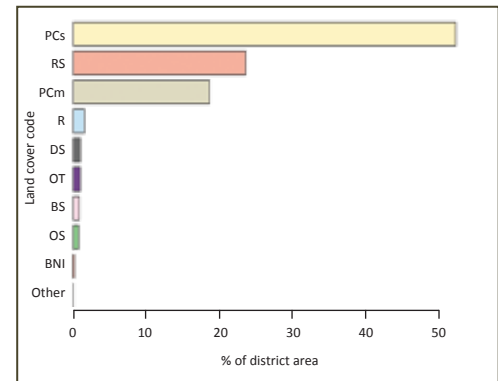
Location of Panchagarh district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	1171	0.84
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1489	1.06
Baor (Ba)	15	0.01	Perennial Beels/Haors (BH)	1	0
Sand (BS)	1321	0.94	Plain Land Forest (Sal Forest) (FDp)	15	0.01
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	25	0.02
Brickfield (Br)	66	0.05	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	324	0.23	Rivers and Khals (R)	2232	1.59
Dump Sites/Extraction Sites (DS)	1521	1.09	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	32965	23.53
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	9	0.01	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	27	0.02	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	72874	52.01
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	26072	18.61			
Total	**140124**				

Land cover map 2015, Panchagarh district
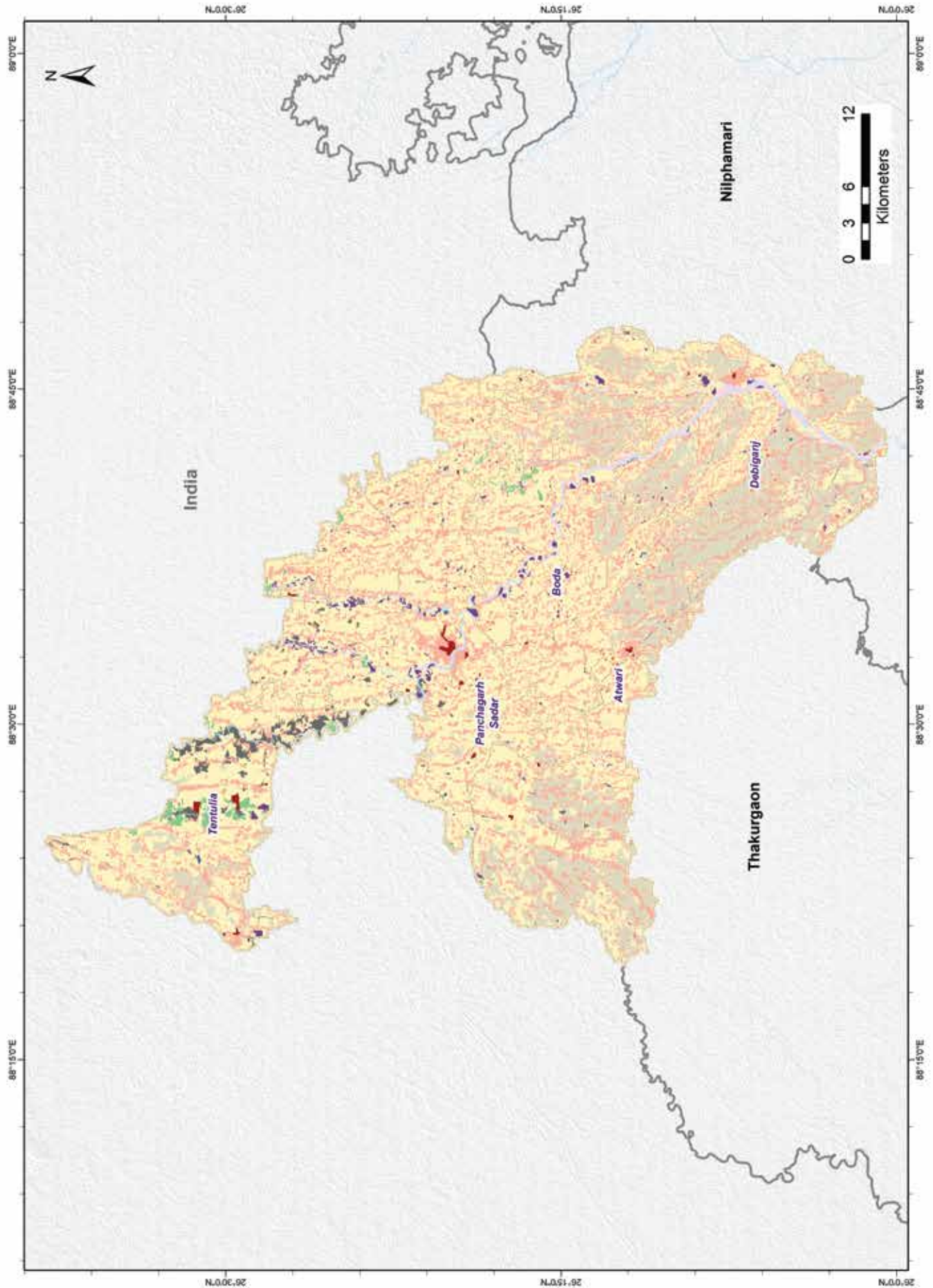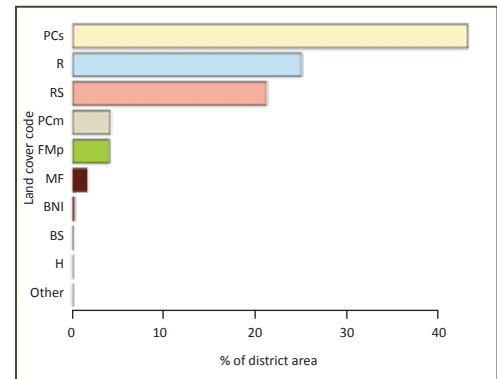
Patuakhali

Kuakata Sea Beach @ *Pankaj Sikder*

Patuakhali district is located in between 21.80° and 22.60° north latitudes and 90.13° and 90.68° east longitudes. It is bounded by Barishal district on the north, the Bay of Bengal on the south, Bhola district on the east, Barguna district on the west. It was formed as district in 1969.

The district consists of 8 sub-districts and 5 municipalities. The main rivers are the Andharmanik, Agunmukha, Payra, Lohalia, Patuakhali and Tentulia. The land of the district is composed of alluvial soil of the Meghna basin and of a number of small char lands. The notable archaeological heritages are Sutabaria Dayamayee Mandir, Gurinda Masjid at Ratandi, Sreerampur Mian Bari Mosque, Talukdar Bari Jame Mosque, Betagi Sikdaria Jame Mosque etc.

*Ten most dominant land cover in district*

Location of Patuakhali district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	- -	- -	Orchards & Other Plantations (Shrub) (OS)	- -	- -
Bamboo Forest (BF)	- -	- -	Orchards & Other Plantations (Trees) (OT)	87	0.03
Baor (Ba)	- -	- -	Perennial Beels/Haors (BH)	- -	- -
Sand (BS)	531	0.16	Plain Land Forest (Sal Forest) (FDp)	- -	- -
Brackish Water Aquaculture (BWa)	- -	- -	Ponds (Po)	5	0
Brickfield (Br)	117	0.04	River Banks (RB)	- -	- -
Built-up Non-Linear (BNl)	900	0.28	Rivers and Khals (R)	81019	25.04
Dump Sites/Extraction Sites (DS)	- -	- -	Rubber Plantation (FPr)	- -	- -
Hill Forest (FH)	- -	- -	Rural Settlement (RS)	68676	21.22
Forest Plantation (FP)	- -	- -	Salt Pans (SP)	- -	- -
Fresh Water Aquaculture (FWa)	46	0.01	Shifting Cultivation (SC)	- -	- -
Herb Dominated Area (Terrestrial) (H)	242	0.07	Shrub with scattered trees (ShT)	- -	- -
Lake (L)	- -	- -	Single Crop (PCs)	139829	43.22
Mangrove Forest (NMF)	- -	- -	Swamp Forest (SF)	- -	- -
Mangrove Plantation (FMp)	13215	4.08	Swamp Plantation (FSp)	- -	- -
Mud Flats or Intertidal Area (MF)	5425	1.68	Swamp Reed Land (SWr)	- -	- -
Multiple Crop (PCm)	13473	4.16			
Total	**323566**				

*Land cover map 2015, Patuakhali district*
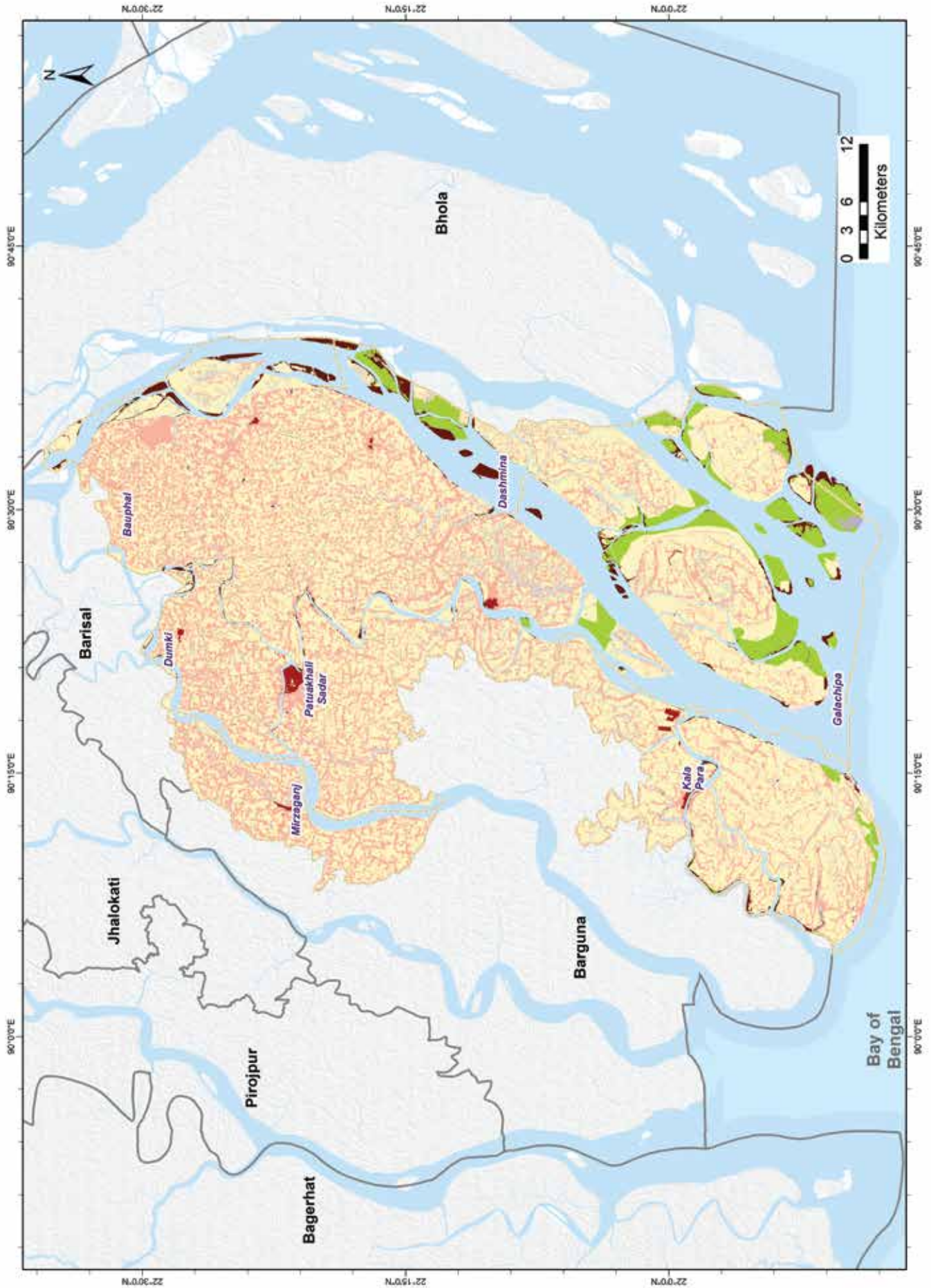
Pirojpur

Rayerkathi Zamider Bari @ *FAO*

Pirojpur district is located in between 22.15° and 22.87° north latitudes and 89.87° and 90.22° east longitudes. It is bounded by Gopalganj and Barishal districts on the north, Barguna district on the south, Jhalokathi district on the east, Bagerhat district on the west. Previously, Pirojour was a municipality, formed in 1886 which was designated as district in 1984.

The district consists of 7 sub-districts and 3 municipalities. The main rivers are the Baleshwar, Katcha, Kaliganga and Sandhya. The notable archaeological heritages are Kumarkhali Kali Mandir, Rayerkathi Zamindarbari and Shiva Mandir, two domed mosque (Nesarabad), remnants of Kaurikhara Zamindarbari etc.

Ten most dominant land cover in district
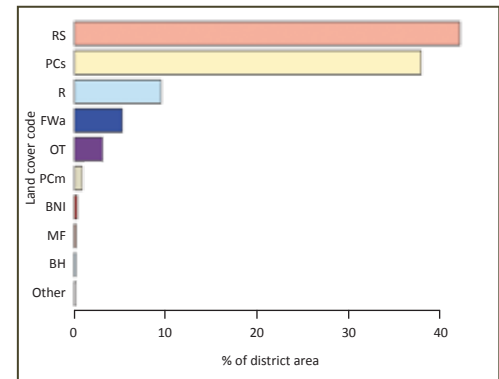
Location of Pirojpur district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	4030	3.17
Baor (Ba)	--	--	Perennial Beels/Haors (BH)	229	0.18
Sand (BS)	--	--	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	38	0.03
Brickfield (Br)	94	0.07	River Banks (RB)	18	0.01
Built-up Non-Linear (BNl)	454	0.36	Rivers and Khals (R)	12118	9.52
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	53662	42.17
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	6733	5.29	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	48290	37.95
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	159	0.12	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	258	0.2	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	1167	0.92			
Total	**127250**				

Land cover map 2015, Pirojpur district
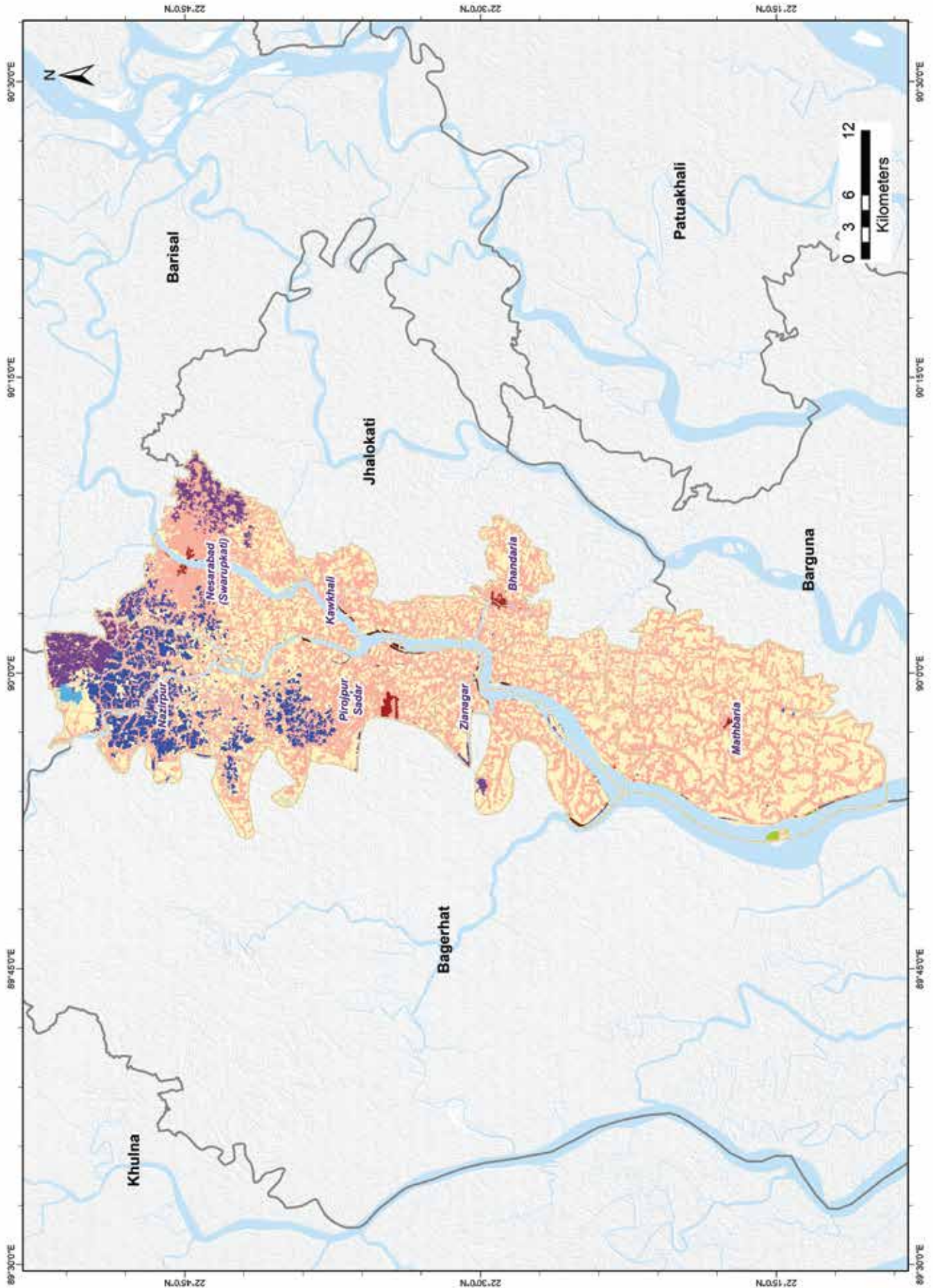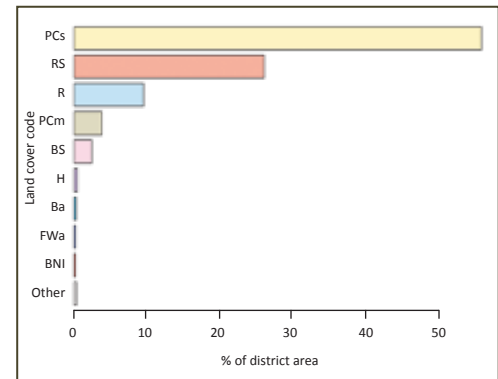
Rajbari

Daulatdia River Port @ *FAO*

Rajbari district is located in between 22.67° and 23.83° north latitudes and 89°19' and 90°40' east longitudes. It is bounded by Pabna district on the north, Faridpur and Magura districts on the south, Manikganj district on the east, Kushtia and Jhenaidah districts on the west. It was designated as district in 1984.

The district consists of 5 sub-districts and 3 municipalities. Most of the areas of the district are composed of the alluvial soil of the Padma. The main rivers are Jalangi, Kumar, Gorai, Madhumati, Harai tand Chandana etc. The notable archaeological heritages are Sawdagar Divi (mound) (marks the memory of Chand Sawdagar, a leading hero of the epic Manasamangal), tomb of Kamal Shah Awlia (darvish) etc.

*Ten most dominant land cover in district*

Location of Rajbari district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	169	0.15
Baor (Ba)	388	0.34	Perennial Beels/Haors (BH)	55	0.05
Sand (BS)	2865	2.51	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	69	0.06
Brickfield (Br)	132	0.12	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	329	0.29	Rivers and Khals (R)	10941	9.6
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	29826	26.17
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	334	0.29	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	634	0.56	Shrub with scattered trees (ShT)	--	--
Lake (L)	21	0.02	Single Crop (PCs)	63757	55.95
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	4444	3.9			
Total	**113964**				

*Land cover map 2015, Rajbari district*
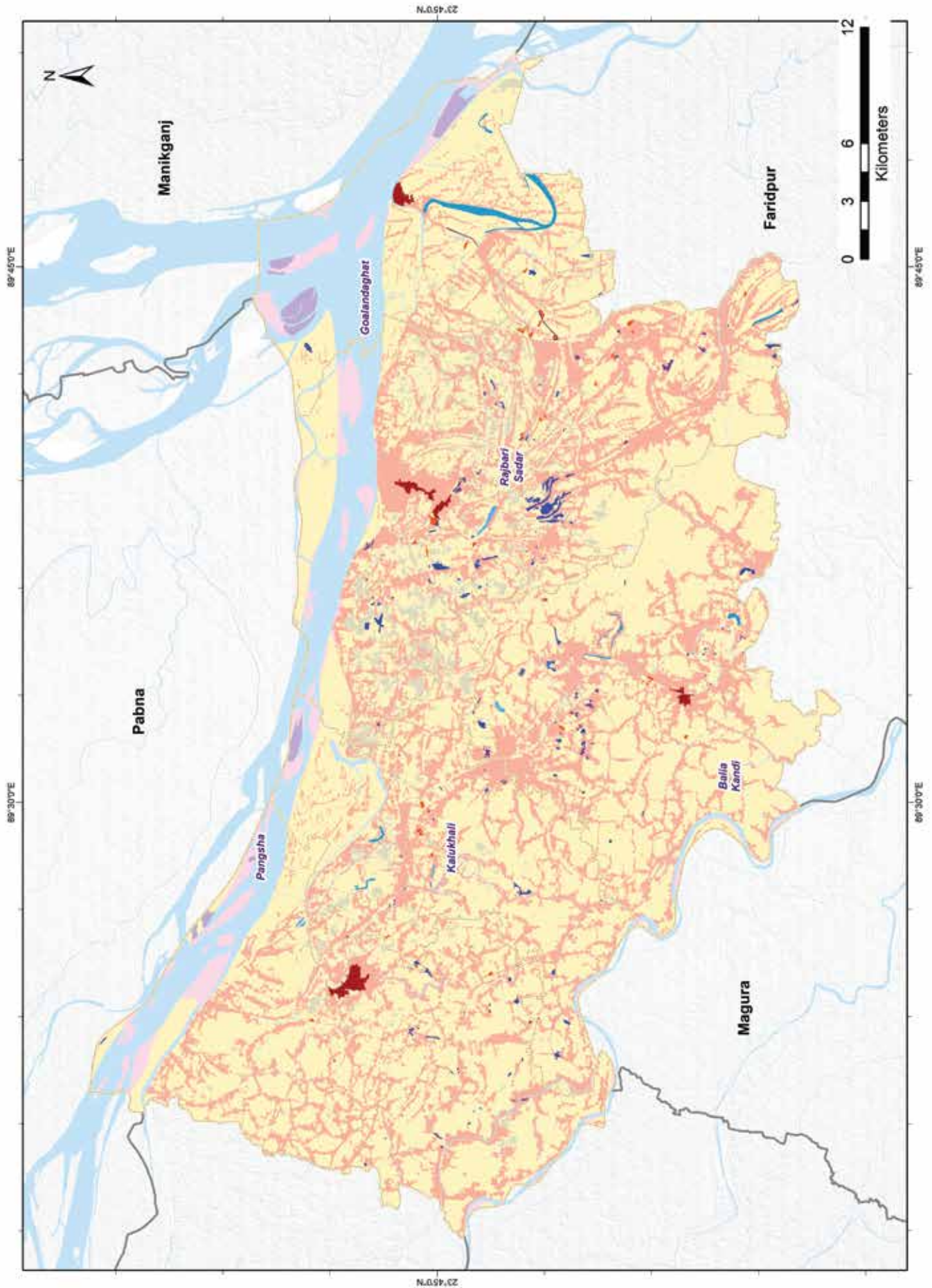
Rajshahi

Rajshahi Mango Square @ *FAO*

Rajshahi district is located in between 24.12° and 24.72° north latitudes and 88.28° and 88.97° east longitudes. It is bounded by Naogaon district on the north, West Bengal state of India, Kushtia district and Ganges river on the south, Natore district on the east, Chapai Nawabganj on the west. The region consists of barind tract, Diara and Char lands.

The district consists of 9 sub-districts, 1 city corporation and 14 municipalities. The main rivers are the Padma (Ganges), Mahananda, Baral and Barnai. The notable archaeological heritages are two domed Kismat Madia Mosque (eighteenth century), one domed Ruipara (Durgapur) Jame Mosque (sixteenth century), Bagdhani Mosque etc.

Ten most dominant land cover in district
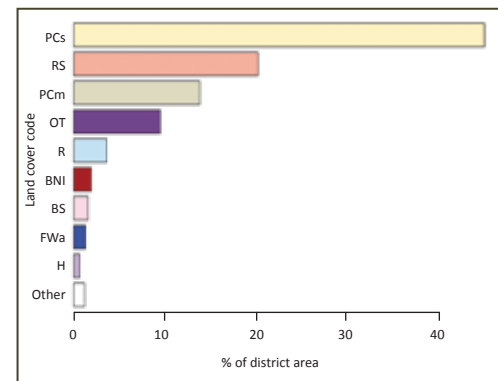
Location of Rajshahi district

Land cover areas in district

	Land cover	Area (ha)	%		Land cover	Area (ha)	%
	Air Port (Ap)	63	0.03		Orchards & Other Plantations (Shrub) (OS)	--	--
	Bamboo Forest (BF)	--	--		Orchards & Other Plantations (Trees) (OT)	23239	9.6
	Baor (Ba)	41	0.02		Perennial Beels/Haors (BH)	1454	0.6
	Sand (BS)	4056	1.68		Plain Land Forest (Sal Forest) (FDp)	--	--
	Brackish Water Aquaculture (BWa)	--	--		Ponds (Po)	1207	0.5
	Brickfield (Br)	377	0.16		River Banks (RB)	19	0.01
	Built-up Non-Linear (BNl)	4933	2.04		Rivers and Khals (R)	9040	3.74
	Dump Sites/Extraction Sites (DS)	--	--		Rubber Plantation (FPr)	--	--
	Hill Forest (FH)	--	--		Rural Settlement (RS)	49207	20.33
	Forest Plantation (FP)	--	--		Salt Pans (SP)	--	--
	Fresh Water Aquaculture (FWa)	3381	1.4		Shifting Cultivation (SC)	--	--
	Herb Dominated Area (Terrestrial) (H)	1881	0.78		Shrub with scattered trees (ShT)	--	--
	Lake (L)	--	--		Single Crop (PCs)	109342	45.18
	Mangrove Forest (NMF)	--	--		Swamp Forest (SF)	--	--
	Mangrove Plantation (FMp)	--	--		Swamp Plantation (FSp)	--	--
	Mud Flats or Intertidal Area (MF)	--	--		Swamp Reed Land (SWr)	--	--
	Multiple Crop (PCm)	33786	13.96				
	Total	**242026**					

*Land cover map 2015, Rajshahi district*
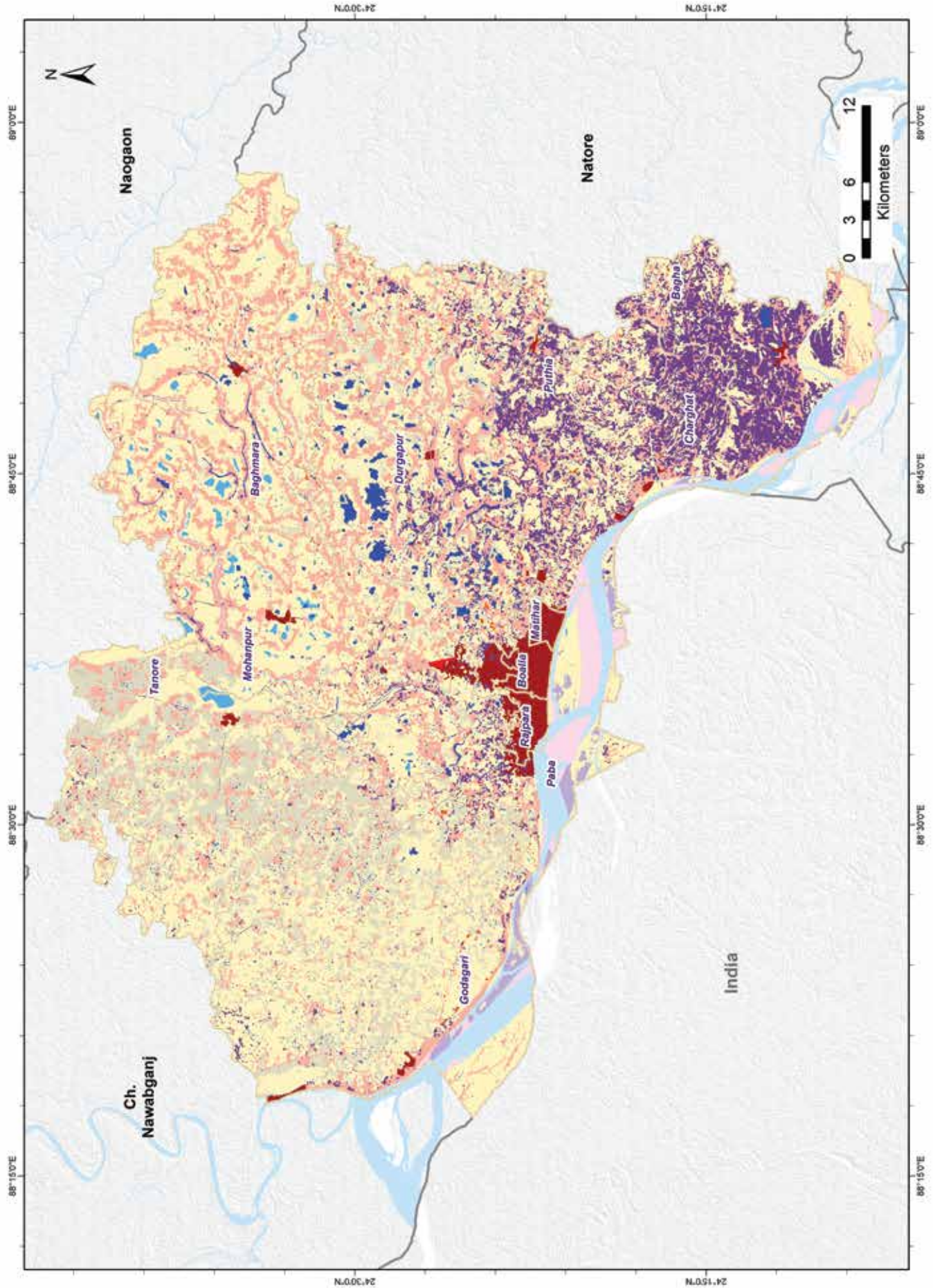
Rangamati

Kaptai Lake @ *Falgoonee Kumar Mondal*

Rangamati district is located in between 22.45° and 23.73° north latitudes and 91.93° and 92.55° east longitudes. The district is bounded on the north by Tripura State of India, east by Mizoram State of India, south by the Bandarban district and west by Khagrachhari and Chattogram districts. Rangamati was previously a sub-division which turned into a district in 1983.

The district consists of 10 sub-districts and 2 municipalities. The main rivers are the Karnaphuli, Thega, Horina, Kassalong, Shublang, Chengi, Rankhaing and Myani. The notable archaeological heritages and relics are Chakma royal palace, dighi and mosque of Raja Jan Bashk Khan, remnants of the residence of Raja Harish Chandra Roy and the hanging bridge etc.

Ten most dominant land cover in district
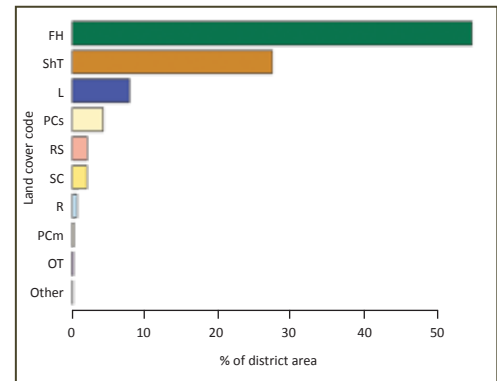
Location of Rangamati district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1417	0.25
Baor (Ba)	--	--	Perennial Beels/Haors (BH)	--	--
Sand (BS)	--	--	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	47	0.01
Brickfield (Br)	68	0.01	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	802	0.14	Rivers and Khals (R)	4192	0.74
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	132	0.02
Hill Forest (FH)	308554	54.62	Rural Settlement (RS)	11991	2.12
Forest Plantation (FP)	0	0	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	--	--	Shifting Cultivation (SC)	11787	2.09
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	154783	27.4
Lake (L)	44755	7.92	Single Crop (PCs)	24407	4.32
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	1933	0.34			
Total	**564869**				

*Land cover map 2015, Rangamati district*
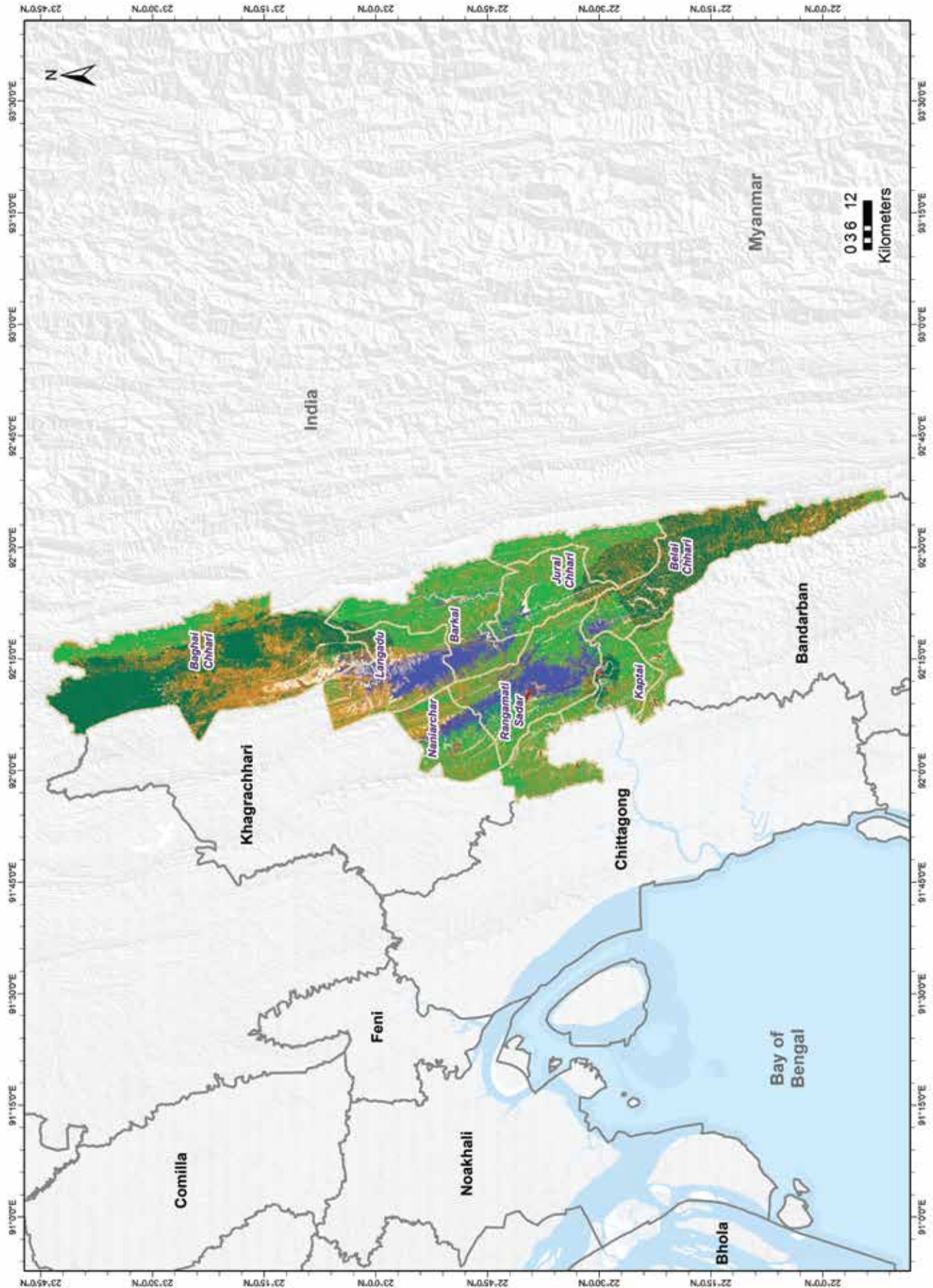
Rangpur

Tajhat Palace @ *FAO*

Rangpur district is located in between 25.30° and 25.95° north latitudes and 88.93° and 89.53° east longitudes. The district is bounded on the north by Nilphamari and Lalmonirhat districts, on the east by Lalmonirhat, Kurigram and Gaibandha districts, on the south by Gaibandha and Dinajpur districts and on the west by Dinajpur and Nilphamari districts. Rangpur district was formed on 1 February 1984.

The district consists of 8 sub-districts, 1 city corporation and 3 municipalities. The major rivers are the Tista, Jamuneshwari, Karatoya, Chikli, Ghaghat etc. The notable archaeological heritages are Tajhat Rajbari, Keramatia Mosque, Dimlaraj Kali Mandir, Sree Sree Karunamaye Kali Mandir, Rangpur Museum, Rangpur Town Hall, Rangpur Public Library etc.

*Ten most dominant land cover in district*
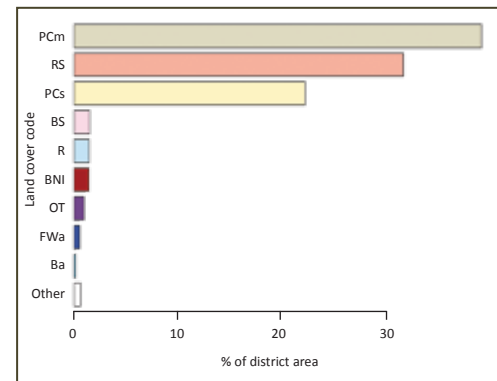
Location of Rangpur district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	2421	1.03
Baor (Ba)	489	0.21	Perennial Beels/Haors (BH)	435	0.18
Sand (BS)	3646	1.55	Plain Land Forest (Sal Forest) (FDp)	61	0.03
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	50	0.02
Brickfield (Br)	440	0.19	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	3465	1.47	Rivers and Khals (R)	3533	1.5
Dump Sites/Extraction Sites (DS)	44	0.02	Rubber Plantation (FPr)	5	0
Hill Forest (FH)	--	--	Rural Settlement (RS)	74625	31.65
Forest Plantation (FP)	399	0.17	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	1405	0.6	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	133	0.06	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	52395	22.22
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	92272	39.13			
Total	**235818**				

*Land cover map 2015, Rangpur district*
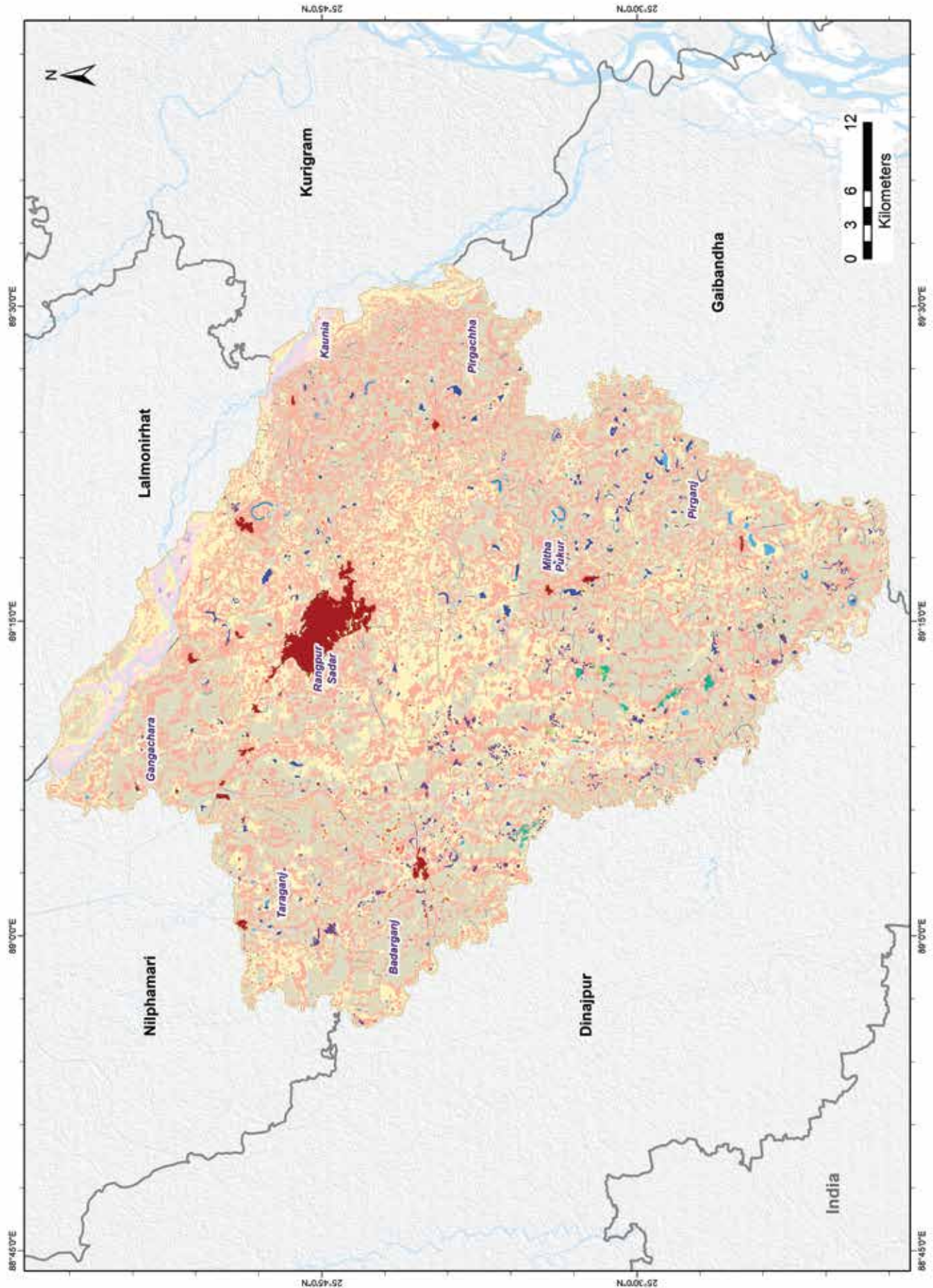
Satkhira

Sundarban Wildlife Sanctuary @ *Falgoonee Kumar Mondal*

Satkhira district is located in between 21.60° and 22.90° north latitudes and 88.90° and 89.33° east longitudes. It is bounded on the north by Jashore district, on the east by Khulna district, on the south by the Bay of Bengal and on the west by India. It was established in 1861 as a sub-division under Jashore which was included into Khulna district in 1882.

The district consists of 7 sub-distritcs and 2 municipalities. The main rivers are the Kobadak, Sonai, Kholpatua, Morischap, Raimangal, Hariabhanga, Ichamati, Betrabati and Kalindi-Jamuna. The major archaeological heritages are the Dargah of Mai Champa (1417), Jahajghata Naval Fort (1567) and clay walled Moneyghar of Tittar Raja (1582) etc.

Ten most dominant land cover in district
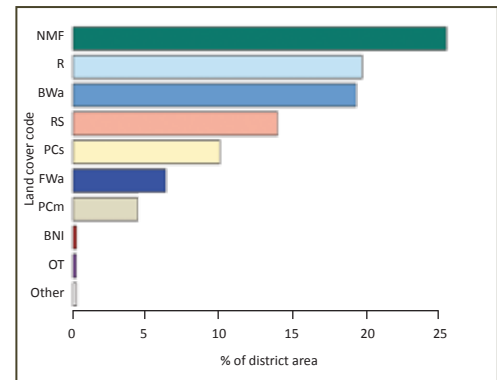
Location of Satkhira district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1104	0.27
Baor (Ba)	57	0.01	Perennial Beels/Haors (BH)	--	--
Sand (BS)	8	0	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	78377	19.28	Ponds (Po)	30	0.01
Brickfield (Br)	283	0.07	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	1142	0.28	Rivers and Khals (R)	80081	19.7
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	56719	13.95
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	25759	6.34	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	188	0.05	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	40756	10.03
Mangrove Forest (NMF)	103331	25.42	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	230	0.06	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	349	0.09	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	18093	4.45			
Total	**406507**				

*Land cover map 2015, Satkhira district*
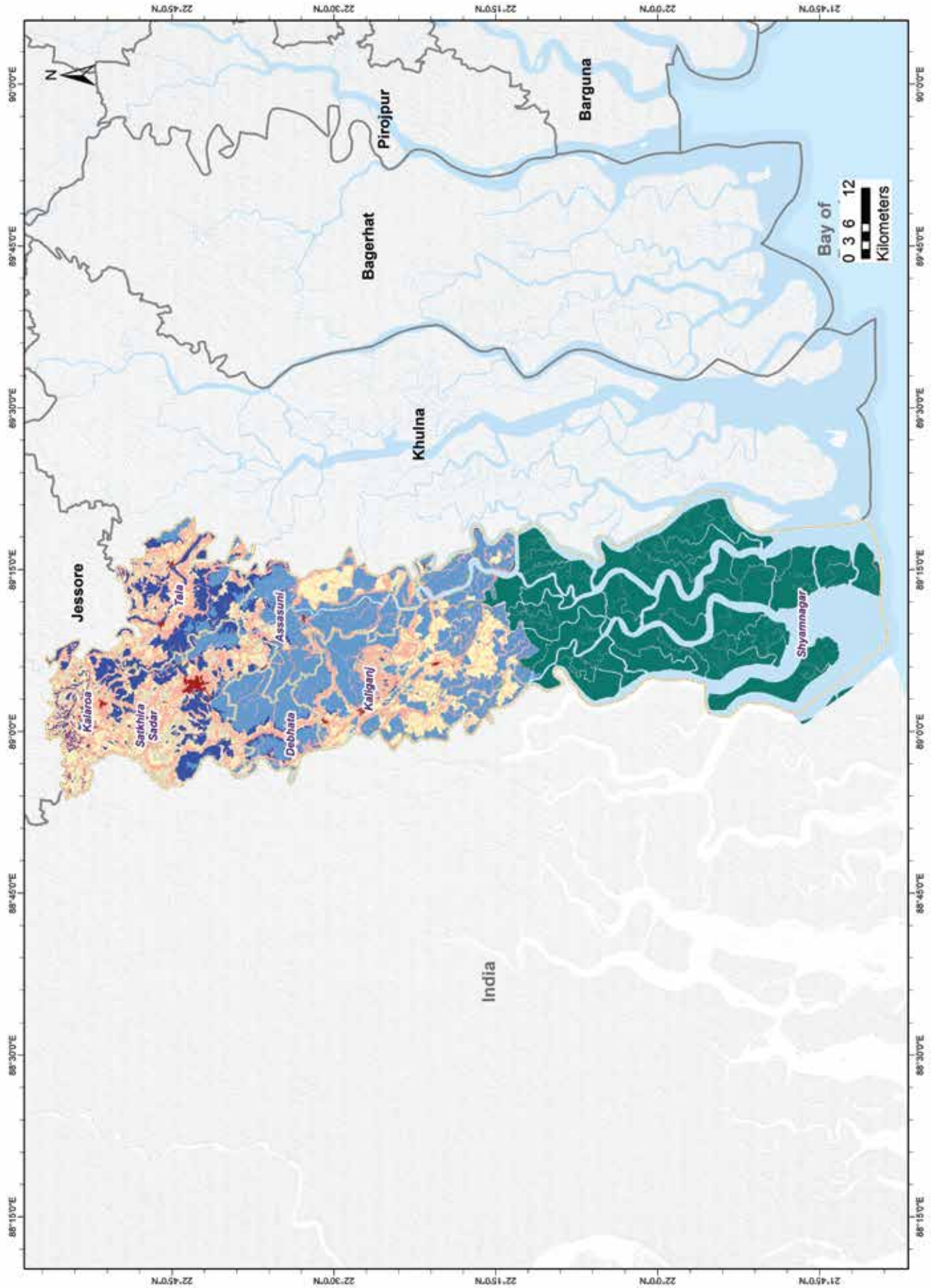
Shariatpur

The Padma River @ *FAO*

Shariatpur district is located in between 23.02° and 23.45° north latitudes and 90.22° and 90.60° east longitudes. The district is bounded on the north by Munshiganj district, on the east by Chandpur district, on the south by Barishal district and on the west by Madaripur district. Shariatpur district was formed on 1 March 1984. It is was named after famous social activist Hazi Shariat Ullah.

The district consists of 6 sub-districts and 6 municipalities. The main rivers are the Padma, Meghna, Palong and Kirtinasha. The notable archaeological heritages are the South Baluchara Mosque, Bilaskhan Mosque (Mughal period), Fateh Jangagpur Fort, Kedarbari at Kedarpur etc.

Ten most dominant land cover in district
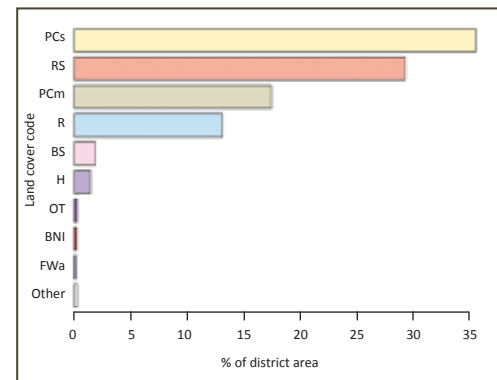
Location of Shariatpur district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	362	0.3
Baor (Ba)	102	0.09	Perennial Beels/Haors (BH)	--	--
Sand (BS)	2302	1.92	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	126	0.1
Brickfield (Br)	108	0.09	River Banks (RB)	26	0.02
Built-up Non-Linear (BNl)	322	0.27	Rivers and Khals (R)	15796	13.16
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	35209	29.33
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	216	0.18	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	1787	1.49	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	42690	35.56
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	20994	17.49			
Total	**120040**				

Land cover map 2015, Shariatpur district
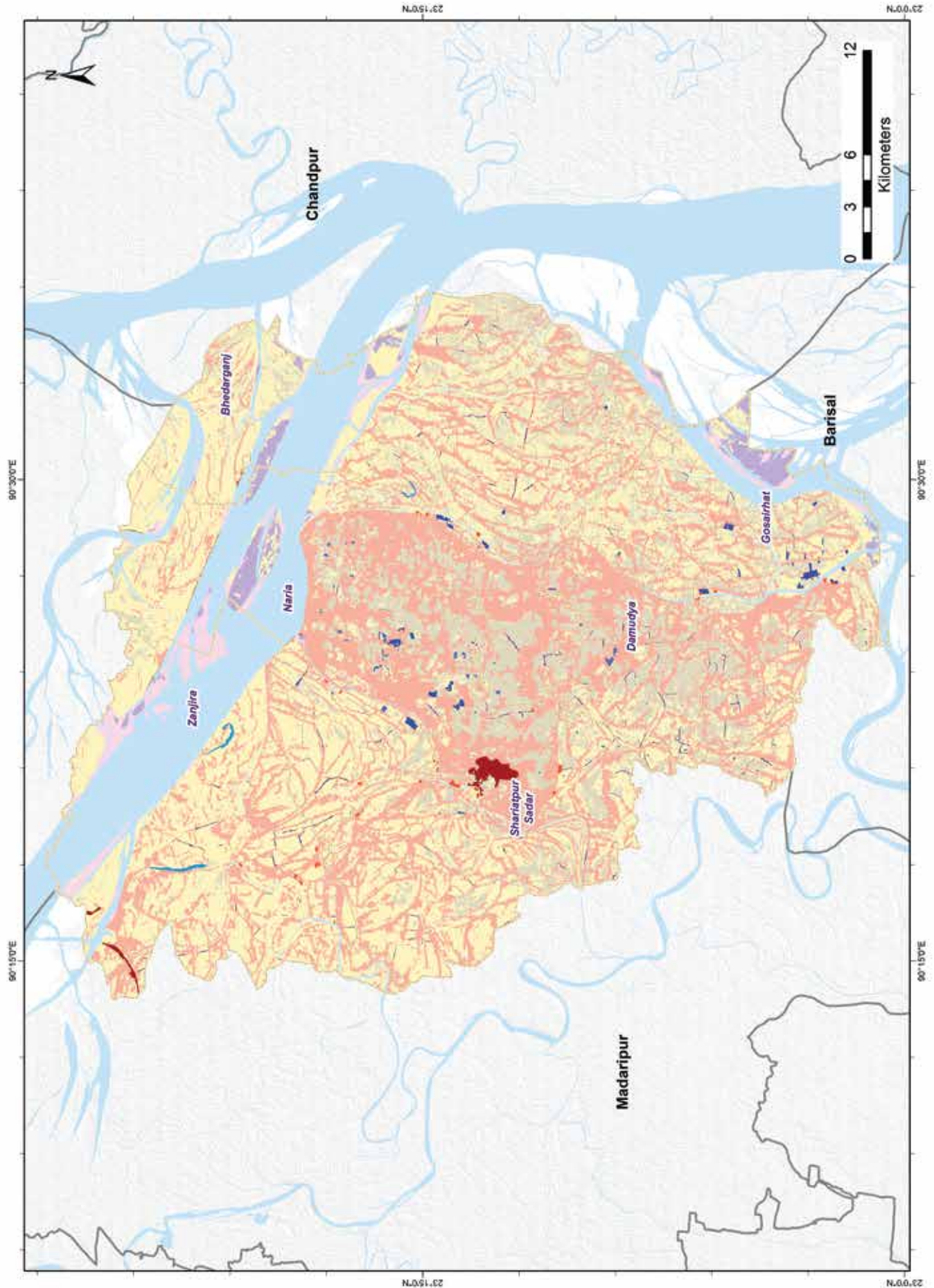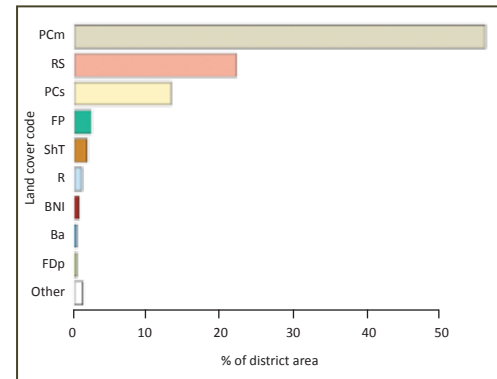
Sherpur

Garo Hill @ *FAO*

Sherpur district is located in between 24.30° and 25.30° north latitudes and 89.88° and 90.31° east longitudes. It is bounded on the north by India, on the east by Mymensingh district, on the south and west by Jamalpur district. Sherpur was designated as a district in 1984.

The district consists of 5 sub-districts and 4 municipalities. The main rivers are the Old Brahmaputra, Mrigi, Malijee, Bhogai, Chellashali and Maharashi. The notable archaeological heritages are Garh Jaripar Fort (1486-91 AD), tomb of Darvish Jarip Shah, Baraduari Mosque, tomb of Hazrat Shah Kamal (1644 AD) etc.

Ten most dominant land cover in district

Location of Sherpur district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	259	0.2
Baor (Ba)	494	0.38	Perennial Beels/Haors (BH)	234	0.18
Sand (BS)	360	0.28	Plain Land Forest (Sal Forest) (FDp)	490	0.37
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	--	--
Brickfield (Br)	77	0.06	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	911	0.7	Rivers and Khals (R)	1466	1.12
Dump Sites/Extraction Sites (DS)	12	0.01	Rubber Plantation (FPr)	191	0.15
Hill Forest (FH)	--	--	Rural Settlement (RS)	29249	22.33
Forest Plantation (FP)	3073	2.35	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	439	0.34	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	--	--	Shrub with scattered trees (ShT)	2369	1.81
Lake (L)	17	0.01	Single Crop (PCs)	17425	13.31
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	73895	56.43			
Total	**130961**				

Land cover map 2015, Sherpur district
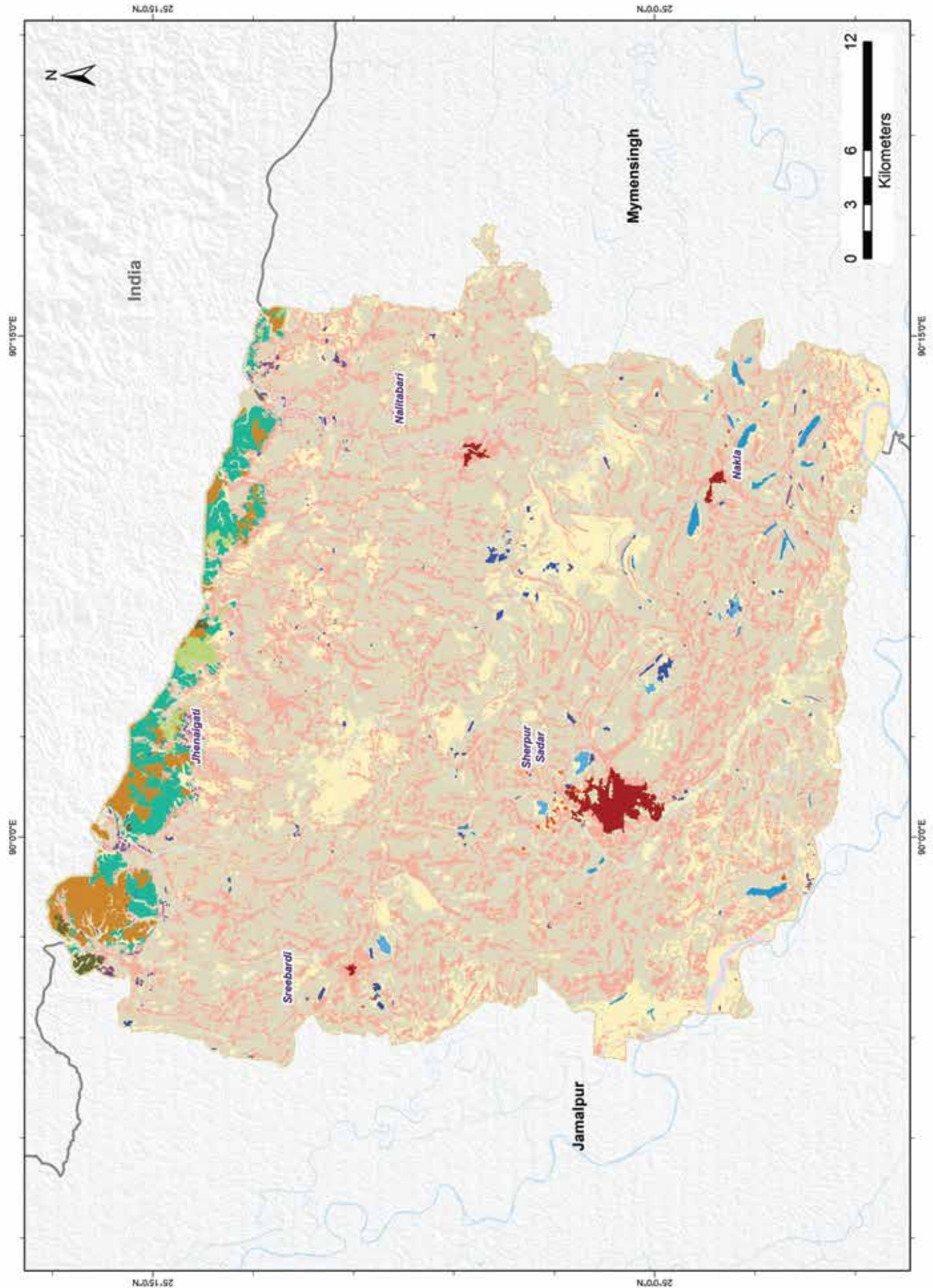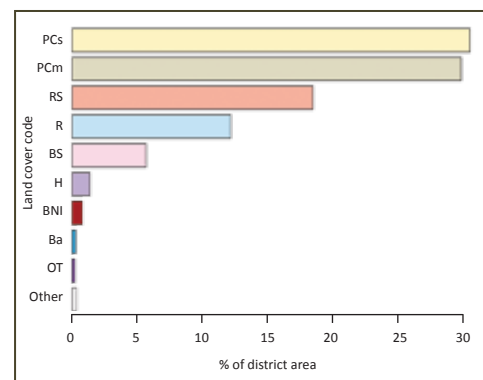
Sirajganj

Bangabandu Jamuna Bridge @ *FAO*

Sirajganj district is located in between 24.02° and 24.78° north latitudes and 89.25° and 89.98° east longitudes. The district is bounded on the north by Bogura, Tangail and Manikganj districts on the east, Manikganj and Pabna districts on the south and Natore and Bogura districts on the west. It was established in 1885 as sub-division under Pabna district and became a district in 1984.

The district consists of 9 sub-districts and 6 municipalities. The main rivers are the Jamuna, Baral, Ichamati, Karatoa and Phuljuri. Notable archaeological heritages are the tomb and mosque of Khawja Pir Saheb of Enayetpur (Chauhali), tomb of Hazrat Abdul Ali Baki Shah Sharif Jindani (R), homestead of Behula etc.

Ten most dominant land cover in district

Location of Sirajganj district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	676	0.27
Baor (Ba)	856	0.34	Perennial Beels/Haors (BH)	150	0.06
Sand (BS)	14342	5.72	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	167	0.07
Brickfield (Br)	284	0.11	River Banks (RB)	1	0
Built-up Non-Linear (BNI)	2108	0.84	Rivers and Khals (R)	30607	12.2
Dump Sites/Extraction Sites (DS)	8	0	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	46358	18.48
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	408	0.16	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	3587	1.43	Shrub with scattered trees (ShT)	--	--
Lake (L)	1	0	Single Crop (PCs)	76514	30.5
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	74823	29.82			
Total	**250892**				

Land cover map 2015, Sirajganj district
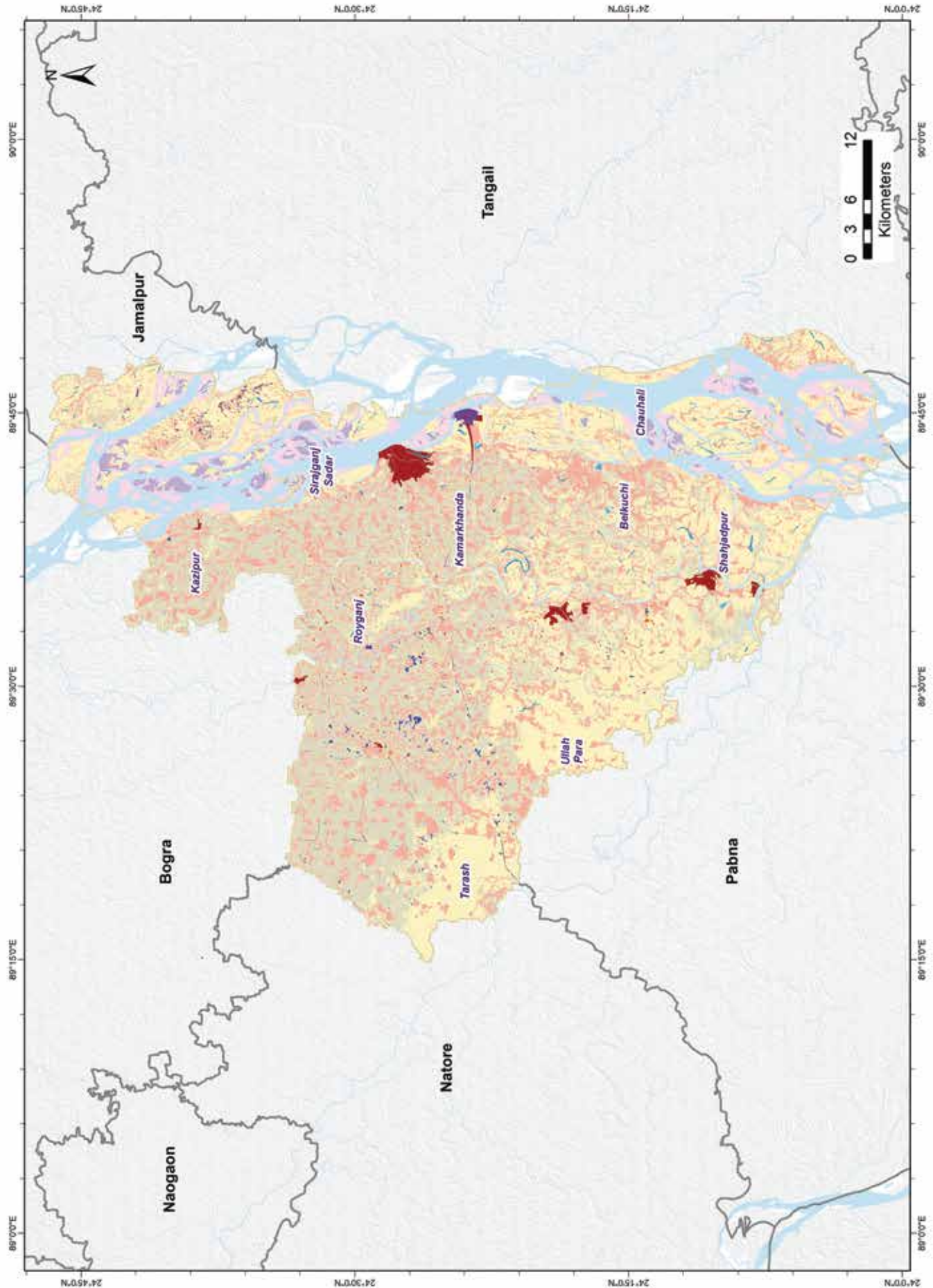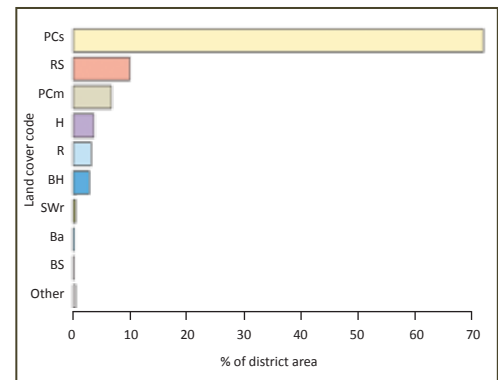
Sunamganj

Tanguar Haor @ *FAO*

Sunamganj district is located in between 24.57° and 25.20° north latitudes and 90.93° and 91.82° east longitudes. It is bounded on the north by India, on the east by Sylhet district, on the south by Habiganj and Kishoreganj districts and on the west by Netrokona district. Sunamganj was previously a sub-division which upgraded to a district in 1984.

The district consists of 11 sub-districts and 4 municipalities. The district is full of haor and baor (wetland) among which 'Tanguar' haor is well known for its ecosystem and as a tourist spot. The notable archaeological heritages are the Bagbari Tila (Chhatak subdistrict), Selbarash Jame Mosque, Sukhair Kalibari Temple, Kahala Kalibari etc.

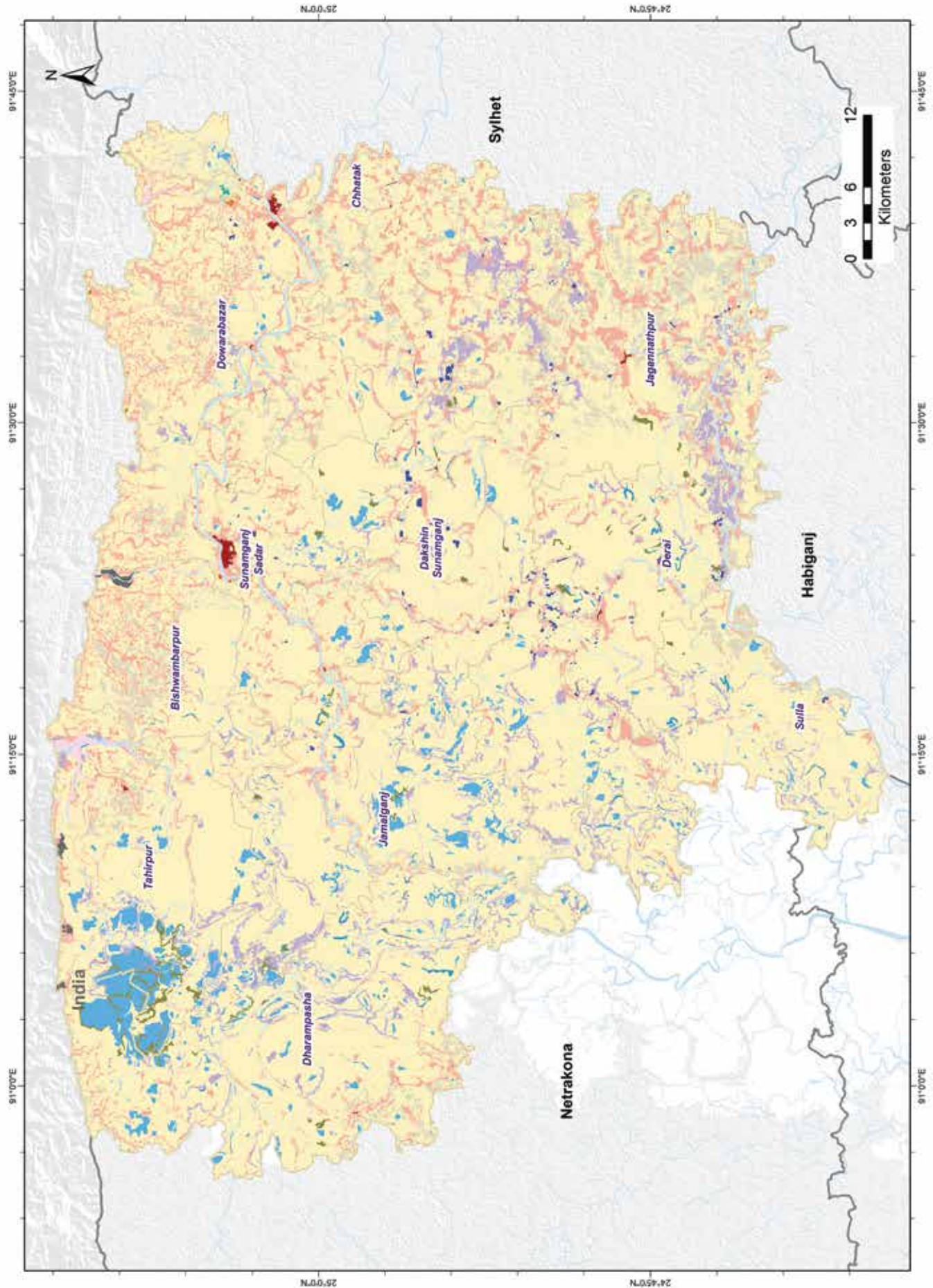*Ten most dominant land cover in district*

Location of Sunamganj district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	86	0.02
Baor (Ba)	1014	0.28	Perennial Beels/Haors (BH)	10615	2.9
Sand (BS)	903	0.25	Plain Land Forest (Sal Forest) (FDp)	--	--
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	3	0
Brickfield (Br)	66	0.02	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	368	0.1	Rivers and Khals (R)	11825	3.23
Dump Sites/Extraction Sites (DS)	337	0.09	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	36630	10
Forest Plantation (FP)	43	0.01	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	753	0.21	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	13500	3.69	Shrub with scattered trees (ShT)	77	0.02
Lake (L)	--	--	Single Crop (PCs)	263356	71.9
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	83	0.02
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	1821	0.5
Multiple Crop (PCm)	24796	6.77			
Total	**366278**				

*Land cover map 2015, Sunamganj district*

Ratargul Swamp Forest @ *Zaheer Iqbal*

Sylhet district is located in between 24.60° and 25.18° north latitudes and 91.63° and 92.50° east longitudes. The district is surrounded by India on the north and the east, by Moulvibazar district on the south and by Sunamganj and Habiganj districts on the west. The greater Sylhet was detached from Assam in 1947 and was divided into four new districts in 1984.

The district consists of 13 sub-districts, 1 city corporation and 4 municipalities. The major rivers are the Surma and the Kushiara. The archaeological heritages are stone monument of Jaintapur, Mound of Gharduara, Gaiyabi Mosque, tombs of Hazrat Shah Jalal (R.) and Shah Paran (R.), Abu Torab Mosque etc. Well known tourist spots are Jaflong and Lala Khal.

*Ten most dominant land cover in district*
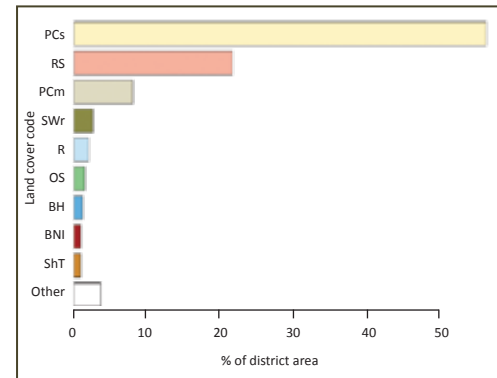
Location of Sylhet district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	245	0.07	Orchards & Other Plantations (Shrub) (OS)	5490	1.6
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	416	0.12
Baor (Ba)	426	0.12	Perennial Beels/Haors (BH)	4484	1.31
Sand (BS)	1091	0.32	Plain Land Forest (Sal Forest) (FDp)	36	0.01
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	198	0.06
Brickfield (Br)	386	0.11	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	3586	1.05	Rivers and Khals (R)	7231	2.11
Dump Sites/Extraction Sites (DS)	1401	0.41	Rubber Plantation (FPr)	786	0.23
Hill Forest (FH)	351	0.1	Rural Settlement (RS)	74422	21.74
Forest Plantation (FP)	2991	0.87	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	1106	0.32	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	2859	0.84	Shrub with scattered trees (ShT)	3533	1.03
Lake (L)	116	0.03	Single Crop (PCs)	193157	56.44
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	140	0.04
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	541	0.16
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	9288	2.71
Multiple Crop (PCm)	27977	8.17			
Total	**342258**				

*Land cover map 2015, Sylhet district*
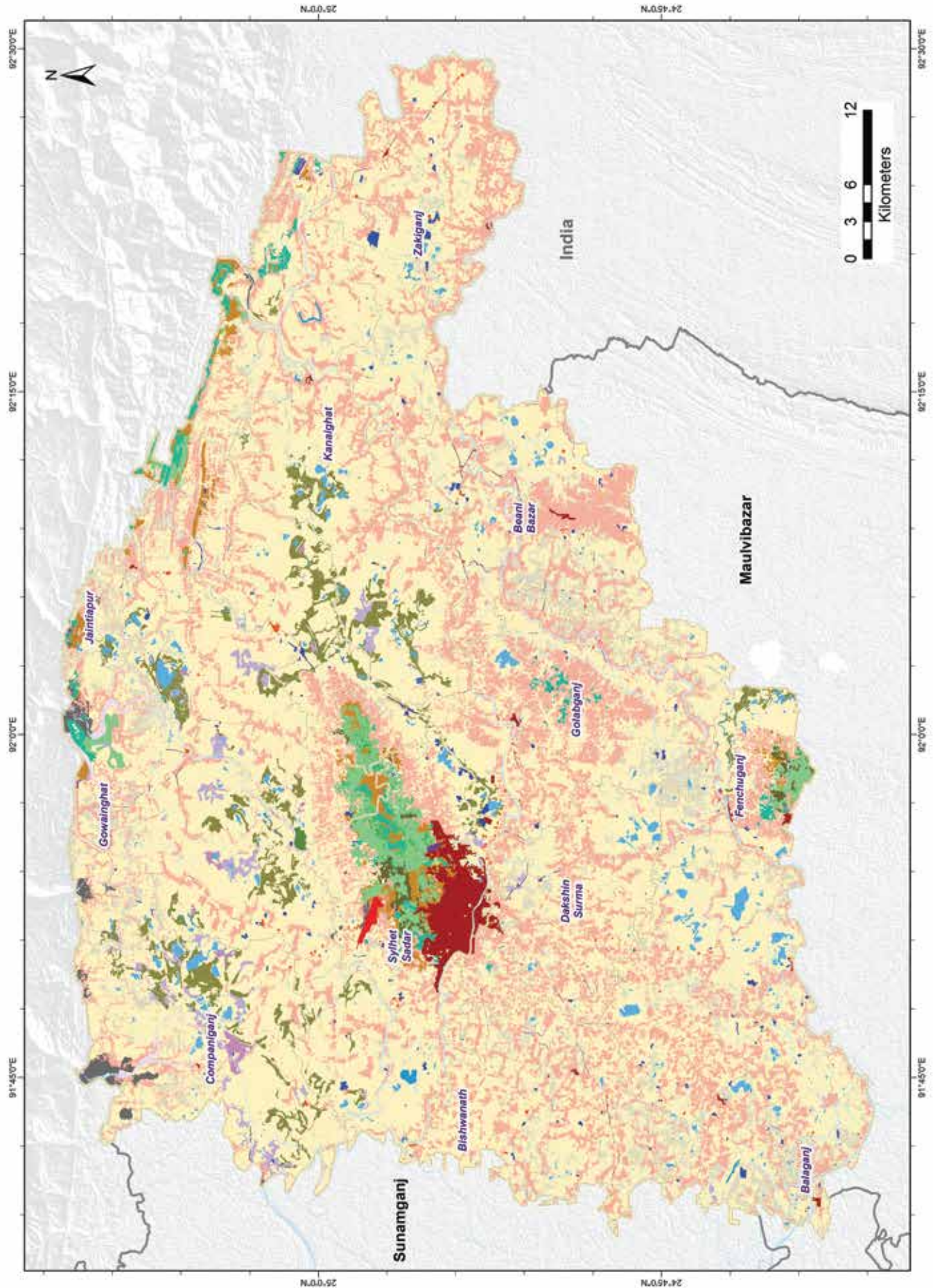
Tangail

Madhupur Sal Forest @ *Falgoonee Kumar Mondal*

Tangail district is located in between 24.02° and 24.78° north latitudes and 89.73° and 90.30° east longitudes. The district is bounded on the north by Jamalpur district, of the east by Mymensingh and Gazipur districts, on the south by Manikganj and Dhaka districts and on the west by the river Jamuna and Sirajganj district. It was turned into a district in 1969.

The district consists of 12 sub-districts and 11 municipalities. The main rivers are the Jamuna, Dhaleshwari, Jhenai, Bangshi, Lohajang and Turag. Among natural landscapes Madhupur forestry and Sukhipur and Ghatail hillocks are well known. The notable archaeological heritages are Atia Mosque (1608), Sagardighi, Ichamati Dighi, Nagarpur Dighi, Khamarpara Mosque, Dhanbari Mosque (1685) etc.

Ten most dominant land cover in district
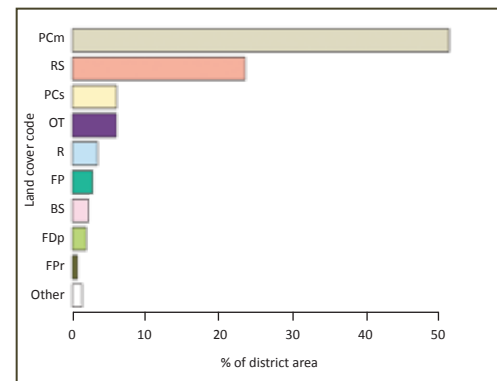
Location of Tangail district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	--	--
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	20475	6.07
Baor (Ba)	361	0.11	Perennial Beels/Haors (BH)	949	0.28
Sand (BS)	7796	2.31	Plain Land Forest (Sal Forest) (FDp)	6674	1.98
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	209	0.06
Brickfield (Br)	454	0.13	River Banks (RB)	38	0.01
Built-up Non-Linear (BNl)	2486	0.74	Rivers and Khals (R)	11852	3.51
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	2695	0.8
Hill Forest (FH)	--	--	Rural Settlement (RS)	79595	23.6
Forest Plantation (FP)	9654	2.86	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	205	0.06	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	40	0.01	Shrub with scattered trees (ShT)	--	--
Lake (L)	43	0.01	Single Crop (PCs)	20573	6.1
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	173182	51.35			
Total	**337282**				

*Land cover map 2015, Tangail district*
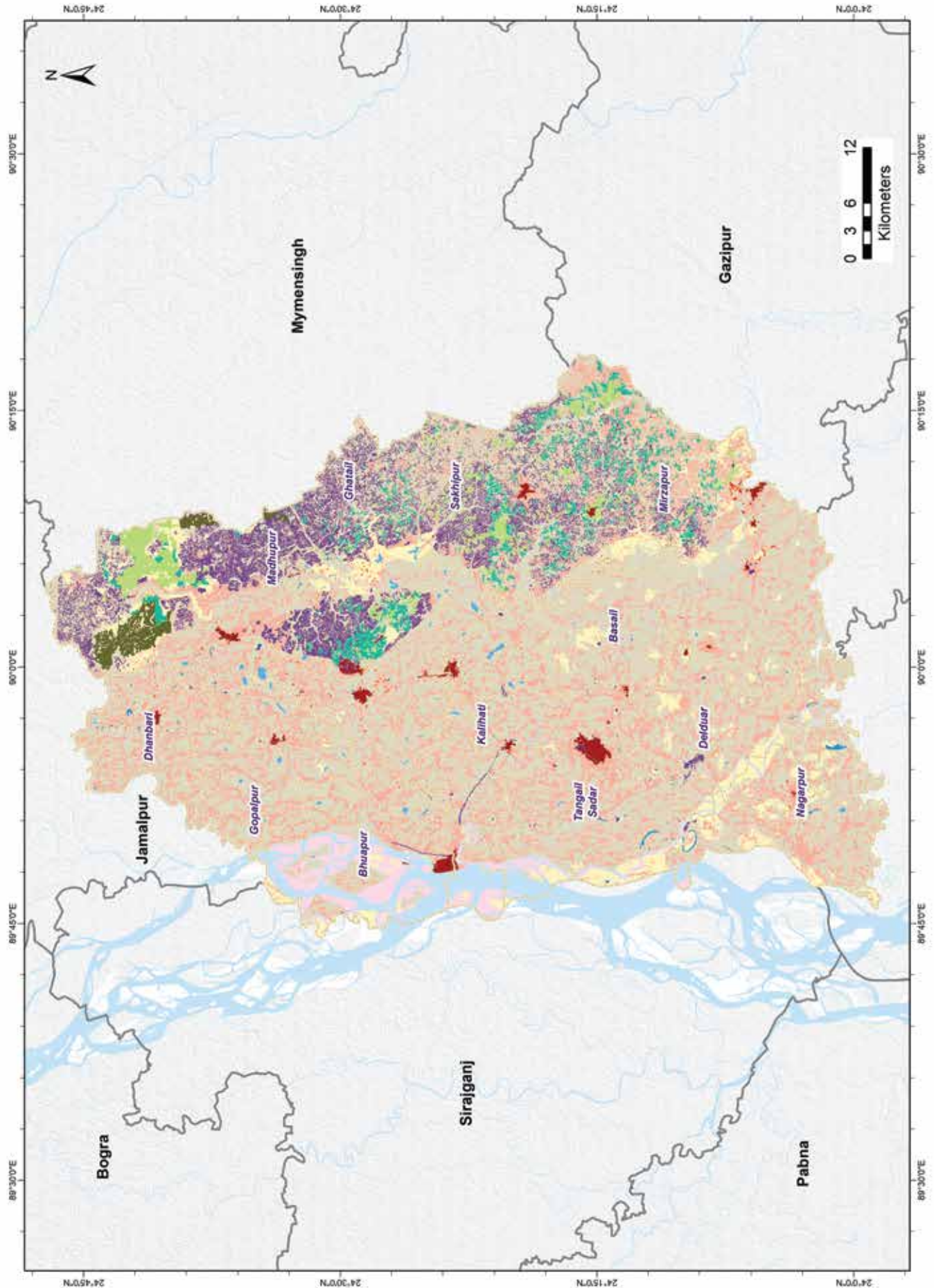
Thakurgaon

Palace of Raja Tankanath @ *FAO*

Thakurgaon district is located in between 25.67° and 26.20° north latitudes and 88.08° and 88.65° east longitudes. The district is bounded on the north by Panchagarh district, on the east by Panchagarh and Dinajpur districts, on the south and the west by West Bengal State of India. Thakurgaon was a sub-division under Dinajpur district which turned into a district in 1984.

The district consists of 5 sub-districts and 3 municipalities. Ramrai Dighi, Khunia Dighi, Adhar Dighi, Shapla Dighi and Rani Dighi are the notable lakes of this district. Among the archaeological heritages, residence of Raja Tankanath (Malduar), Rajbari of Raja Jagendra Narayan, Rajbari of Raja Ganesh, Jagadal Rajbari, Bangla Garh, Sangaon Shahi Mosque etc are notable.

*Ten most dominant land cover in district*
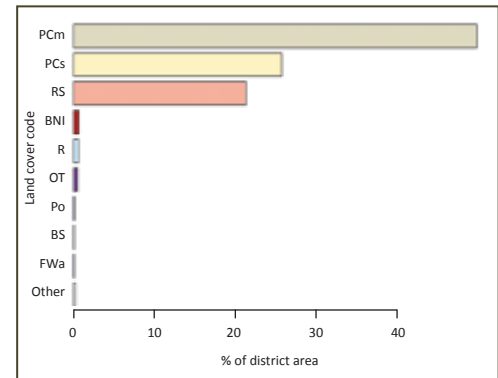
Location of Thakurgaon district

Land cover areas in district

Land cover	Area (ha)	%	Land cover	Area (ha)	%
Air Port (Ap)	--	--	Orchards & Other Plantations (Shrub) (OS)	23	0.01
Bamboo Forest (BF)	--	--	Orchards & Other Plantations (Trees) (OT)	1072	0.59
Baor (Ba)	59	0.03	Perennial Beels/Haors (BH)	5	0
Sand (BS)	367	0.2	Plain Land Forest (Sal Forest) (FDp)	222	0.12
Brackish Water Aquaculture (BWa)	--	--	Ponds (Po)	381	0.21
Brickfield (Br)	228	0.13	River Banks (RB)	--	--
Built-up Non-Linear (BNl)	1407	0.78	Rivers and Khals (R)	1277	0.71
Dump Sites/Extraction Sites (DS)	--	--	Rubber Plantation (FPr)	--	--
Hill Forest (FH)	--	--	Rural Settlement (RS)	38566	21.38
Forest Plantation (FP)	--	--	Salt Pans (SP)	--	--
Fresh Water Aquaculture (FWa)	320	0.18	Shifting Cultivation (SC)	--	--
Herb Dominated Area (Terrestrial) (H)	53	0.03	Shrub with scattered trees (ShT)	--	--
Lake (L)	--	--	Single Crop (PCs)	46497	25.78
Mangrove Forest (NMF)	--	--	Swamp Forest (SF)	--	--
Mangrove Plantation (FMp)	--	--	Swamp Plantation (FSp)	--	--
Mud Flats or Intertidal Area (MF)	--	--	Swamp Reed Land (SWr)	--	--
Multiple Crop (PCm)	89912	49.84			
Total	**180387**				

Land cover map 2015, Thakurgaon district
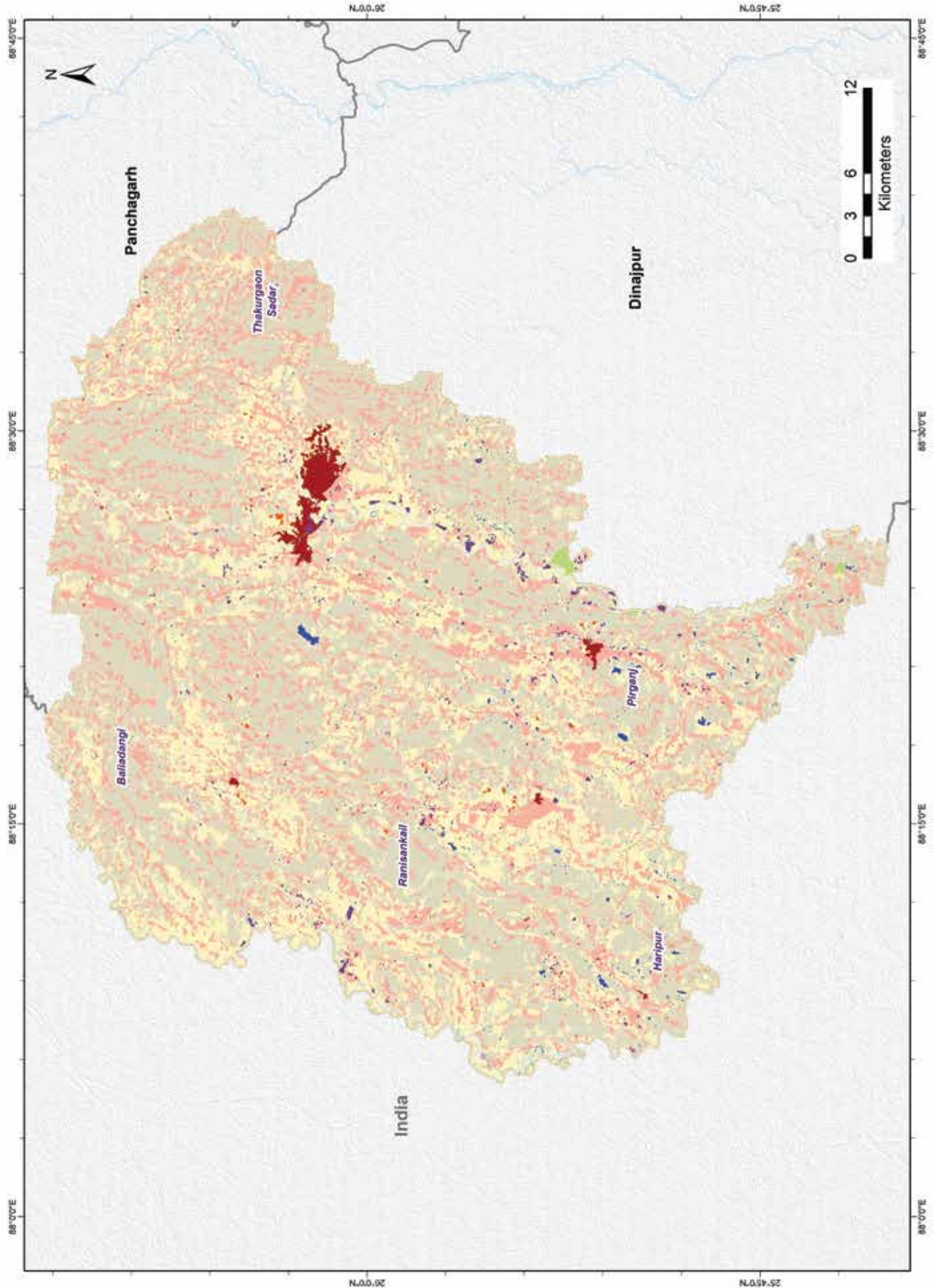
6 References

Akhter, M. & Shaheduzzaman, M. 2013. Forest Classification Systems in Bangladesh. Dhaka: (FAO of the United Nations and Bangladesh Forest Department).

Baatz, M. & Schäpe, A. 2000. Multiresolution Segmentation: An Optimization Approach for High Quality Multi-Scale Image Segmentation. Heidelberg, Wichmann,, pp.

BSGI. 2016. Protocol for Land Features Description in Bangladesh: Data Collection Field Manual. (Bangladesh Forest Department, Center for Environment and Geographic Information System, Bangladesh University of Engineering and Technology, Space Research and Remote Sensing Organization, Soil Resource Development Institute, Food and Agriculture Organization of the United Nations).

Castilla, G. & Hay, G. J. 2008. Image Objects and Geographic Objects. Berlin, Heidelberg, Springer Berlin Heidelberg, 91-110 pp.

Costello, L. & Franceschini, G. 2015. Proceedings for the Training on National Land Cover Classification Systems Using Lccs 3. (Bangladesh Forest Department and FAO of the United Nations).

Costello, L. & Piazza, M. 2015. Proceedings from the Training Survey Design and Data Management Using Open Foris Collect for NFI and Carbon Stock Assessment in Bangladesh. Dhaka: (Food and Agricultural Organization of the United Nations).

Di Gregorio, A. 2013. Recommendations on the Land and Forest Classification System of Bangladesh, Training Workshop on Land Cover Classification in the Context of Redd+ in Bangladesh   (UN-REDD Programme, Food and Agriculture Organization of the United Nations, Dhaka Bangladesh).

Di Gregorio, A. 2016. Land Cover Classification System Software Version 3 - Classification Concepts. (Food and Agriculture Organization of the United Nations, Rome, Italy).

Foody, G. M. 2010. Assessing the Accuracy of Land Cover Change with Imperfect Ground Reference Data. Remote Sensing of Environment,(114): 2271-2285.

GoB. 2017. National Land Representation System of Bangladesh. Dhaka, Forest Department, Ministry of Environment and Forests, Government of the People's Republic of Bangladesh, pp.

Hadi, A. 2016. Proceedings of Training on Translation and Harmonization of Srdi Land Use Map Legend into Lccs (V.3). Dhaka: (Food and Agricultural Organization of the United Nations).

Hadi, A., Khan, A. U., Kamal, M. & Henry, M. 2016. Protocol for Land Features Description in Bangladesh: Data Collection Field Manual. (Bangladesh Society of Geo-informatics, Bangladesh Forest Department and Food and Agricultural Organization of the United Nations, Dhaka, Bangladesh.).

Hadi, A., Udita, T. & Jalal, R. 2016. Proceedings of the National Consultation Conference on Land Cover Classification System in Bangladesh. (FAO of the United Nationa and Bangladesh Forest Department).

Jalal, R., Iqbal, Z., Henry, M., Franceschini, G., Islam, M. S., Akhter, M., Khan, Z. T., Hadi, M. A., Hossain, M. A.,

Mahboob, M. G., Udita, T. S., Aziz, T., Masum, S. M., Costello, L., Saha, C. R., Chowdhury, A. A. M., Salam, A., Shahrin, F., Sumon, F. R., Rahman, M., Siddique, M. A., Rahman, M. M., Jahan, M. N., Shaunak, M. F., Rahman, M. S., Islam, M. R., Mosca, N., D'Ánnunzio, R., Hira, S. & Gregorio, A. D. 2019. Toward Efficient Land Cover Mapping: An Overview of the National Land Representation System and Land Cover Map 2015 of Bangladesh. IEEE JOURNAL OF SELECTED TOPICS IN APPLIED EARTH OBSERVATIONS AND REMOTE SENSING,,(12):

Shaheduzzaman, M. & Akhter, M. 2013. Proceedings of the Training Workshop on Land Cover Classification in the Context of Redd+ in Bangladesh, Forest Department, Dhaka, Bangladesh, 24-25 March 2013 (UN-REDD Programme, Food and Agriculture Organization of the United Nations, Dhaka Bangladesh).

Tasnim, K. Z., Franceschini, G. & Jalal, R. 2017. Proceedings of the Workshop on the Accuracy Assessment and Quality Checking of Land Cover Map of Bangladesh 2015. (FAO of the United Nations and Bangladesh Forest Department).

LAND COVER ATLAS OF BANGLADESH 2015

(in support of REDD+)