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LGED

ICT in LGED

A New Horizon for Planning, Decision Making, Implementation and Monitoring of Development Programs to build Digital Bangladesh .....

ICT in LGED

Information Communication Technology (ICT) encompasses the broad field of data/information processing, transmission and communications by means of computer and telecommunication techniques and these modern tools are being increasingly used for organizational/personal information processing in all sectors of socio-economic development.

One of the major functions of LGED is to provide technical support to local government institutions throughout the country along with development and maintenance of rural and urban infrastructure. In doing so, information and communication technology is considered to be an essential tool to perform these functions with efficiency. LGED started computerization at the head quarter level in late 1980s. During early 1990s, computers were provided at district and upazila level. In 1992, Geographic Information System (GIS) and Management Information System (MIS) units were established in LGED HQ.

On January 2, 1997 the then Hon'ble Prime Minister Sheikh Hasina, when inaugurated the new LGED HQ Building, visited both the Units of LGED. Her farsighted guidelines helped immensely in nurturing and developing the ICT culture into its present stage.

MIS UNIT

Management Information System is key to running any modern organization efficiently. Local Area Network (LAN) at LGED head quarter was established in 1996 with fiber optic backbone. At present, about 1000 computers at LGED HQ are connected with 5 servers through intelligent switches. High speed broadband internet connectivity has been established from BTCL. LGED is striving to attain more perfection in MIS in line with present Government's "Vision 2021".

GIS UNIT

Geographic Information System (GIS) is a modern approach for gathering spatial data concerning sustainable development. It has opened a new horizon for the planners, decision makers for a comprehensive and perspective planning. LGED is entrusted with infrastructure development in Rural and Urban areas of Bangladesh. As a decision making tool, GIS Unit digitized all Upazila maps to develop geo-spatial database of different features which helped to prepare digital map for all Upazilas and Districts. LGED not only institutionalized GIS within own institution, it has also been playing a pioneering role to disseminate the technology by providing database and technical support to other organizations in the country.

The newly-built LGED Head Quarter Building was formally inaugurated by the Hon'ble Prime Minister Sheikh Hasina on 2 January 1997.

Major Functions of MIS

- Development of Management Information System for LGED
- Develop and Maintain Local and Wide Area Network in LGED
- Develop and Maintain reliable and sustainable high capacity file server facilities
- Establish and Maintain high speed and secured communication network
- Develop and Maintain of LGED dynamic webportal
- Develop and Maintain necessary customized software and applications

Developed Major Software

Municipal Software:

- Municipal Accounting Software
- Municipal Holding Tax Management Software
- Municipal Water Billing Software
- Municipal Trade License Management Software

Maintenance Software:

- Roads and Structures Database Management System (RSDMS)
- Rate Schedule and Estimate Preparation System (RSEPS)
- Earth Volume Calculation System (EVCS)
- Road Asset Management Sysytem (RAMS)

Other Software:

- Progress Monitoring System (PMS)
- Unified Financial Management System (UFMS)
- Environmental Information Management System (EIMS)
- Gender Analysis Software
- Personnel Management Information System (PMIS)
- Laboratory Management System (LMS)
- Tax Management System for Union Parishad
- Recruitment Management System

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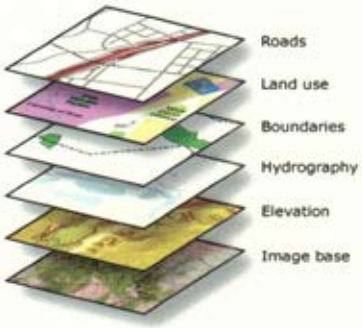
Maps on LGED Website

One of the major achievements of LGED is the preparation of digital maps of all Upazila and District. The maps are available for public since Hon'ble Prime Minister Sheikh Hasina released those in LGED website at her office on 12 June 2011.

In line with the present government's vision of "Digital Bangladesh", the release of all maps on LGED website is a creditable milestone. Earlier, people used to collect the paper copy of those maps from LGED HQ on payment basis. By making these maps public, now any person from any part of the world can get his/her desired map at his convenient time and free of cost. LGED maps are being widely used by different Government institutions, development partners, non- government organizations and others. In particular, local government institutions will be one of the major users of the LGED maps for the local level planning.

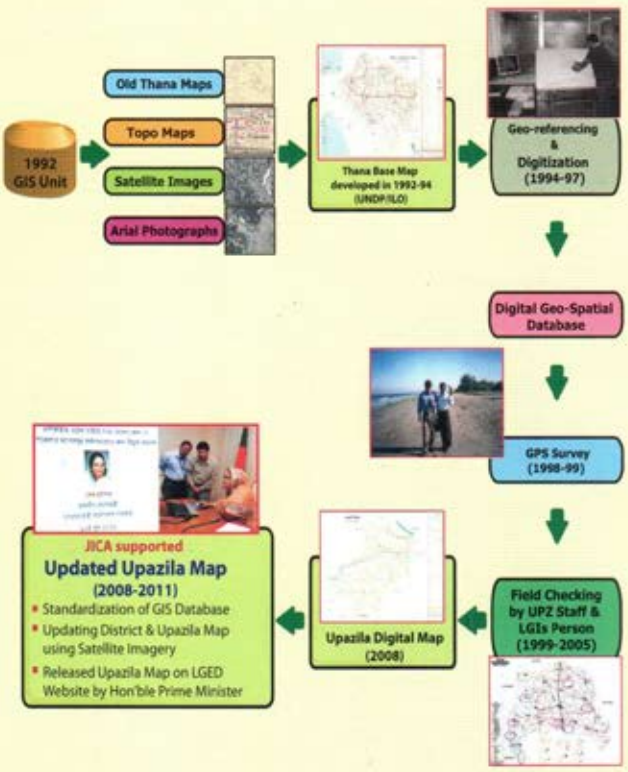
PURPOSE OF GIS UNIT

The main objective of GIS Unit is to develop local government infrastructure database in GIS platform to facilitate local level planning and participation with modern planning tool. Geo-spatial database in different thematic layers becomes essential basic information for project planning and monitoring. LGED maintains the GIS database and maps which enable the local stakeholders to take part in the process of planning and decision-making with more technical and information-based inputs. The overall purpose of GIS Unit is to provide platform of Geo-spatial database and technology for planning of a wide range of development activities, not only for LGED, but also for other local and national level development programs.



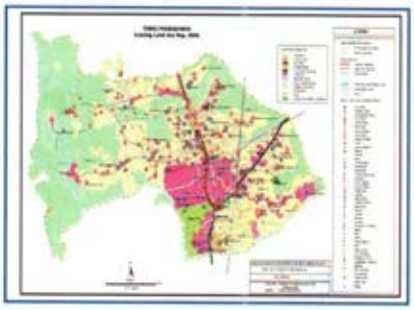
Development of Spatial Database

GIS Unit of LGED has completed digitization of Upazila Maps at 1:50000 scale in 90s for the whole country which comprises various layers including administrative boundaries, physical infrastructure, educational institutions, settlement pattern and other agriculture and socio-economic infrastructure. The basic spatial data were captured for Upazila Map with the help of 1961's topographic maps of Survey of Bangladesh (SoB), old (1942) thana maps of Department of Land Record and Survey (DLRS), Aerial photograph of SoB (1983-84), SPOT Satellite Images of 1989-90 and also Global Positioning System (GPS) survey & ground truthing with the help of Upazila level technical staff and representatives of Local Government Institutions (LGIs).



Pourashava Map

Landuse Map



MAJOR GIS APPLICATION AREAS

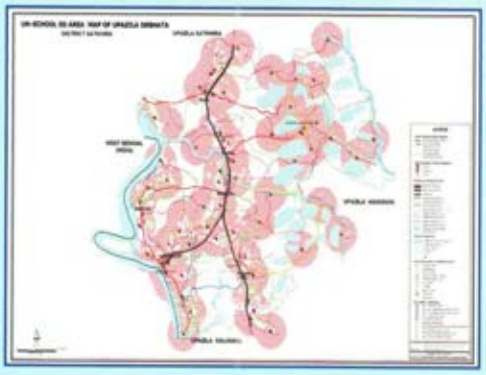
With the introduction of GIS technology in Bangladesh during early 1990, its use and application has widened considerably. The major application areas of GIS in infrastructure development activities under LGED are as follows:

- Rural Accessibility and Transport Planning
- Prioritization and Selection of development schemes
- GIS based infrastructure development project monitoring system
- Rural infrastructure Disaster Damage Database and Mapping
- School mapping for School Infrastructure development planning
- Pourashava Master Plan with Landuse Plan

School Map

Upazila wise geo-spatial information of all catagories of school are available in GIS database. School map shows the location and accessibility of different schools. It also helps planning for school infrastructure development activities.

One type of school mapping is un-schooled area map. According to government policy, each student should have facility to reach school within one Km. Using GIS technology, one km buffering area of each school has been analysed to find out un-schooled area.

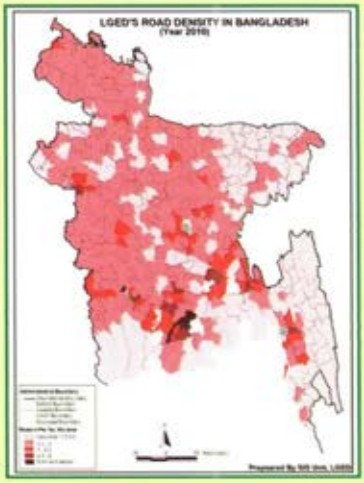


Upazila Map

Upazila map shows basic information, such as road and infrastructure information to meet peoples requirements. The Upazila map prepared by GIS Unit is a base map to show different basic information into different layers. User can add additional data to prepare different map with specialized information. In LGED, the Upazila maps are being used for planning and monitoring purpose for various development activities. Moreover, these are being widely used by different Government institutions, development partners, non- government organizations and others also.

Road Density Map

GIS technology is used to map the features of existing road density considering each district area. This mapping information is very useful to rationalize investment planning for rural road infrastructure.

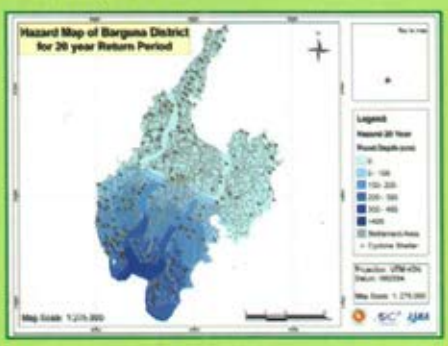


Accessibility Map

Physical Accessibility is an important aspect of rural developent, as rural areas are generally not adequately served by transportation network. GIS tools allow explicit geographical representation of transportation networks with associated properties such as length and surface condition. GIS functions are used to determine spatial relationship and to calculate distance and travel time between origin and destination. The use of these analyses influences decision-makers to improve accessibility of rural people to enhance social and economic opportunity in terms of livelihoods and living standards.

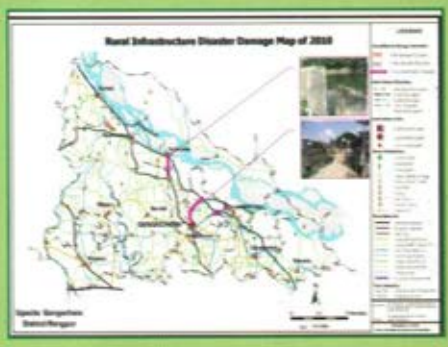
Hazard Map

In Bangladesh, cyclone and tidal surge are considered as the most catastrophic natural hazard. During the period of 1797 to 2009, Bangladesh experienced 65 severe cyclones. Of those, 35 cyclones were accompanied with storm surge. Considering this, a research study was carried out on Cyclone Hazard and Vulnerability analysis in a Coastal District (Barguna) of Bangladesh. Cyclone storm surge mapping and modeling with RS and GIS tools helped to analyze a variety of possible scenarios. Hazard Mapping helps the preparedness for unprotected settlements of hazardous places.



Disaster Damage Map

Disaster Damage Map is one kind of thematic map where damaged rural infrastructures due to disaster are shown in map. GIS Unit has developed a disaster information database using Disaster Damage Software. Flood damaged infrastructure (road/embankment, bridge/culvert etc.) data and picture are collected with the help of field staff. Disaster Damage Map is developed using disaster database and GIS software which is helpful for maintenance and rehabilitation works after disaster. In addition, this information can facilitate the decision-makers for planning of future development work.



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Road & Structure Database Management System (RSDMS)

The road network database, RSDMS, is the backbone of the planning, monitoring and maintenance management system of LGED's road network. This application is used at HQ and all the district and upazila offices for following purposes:

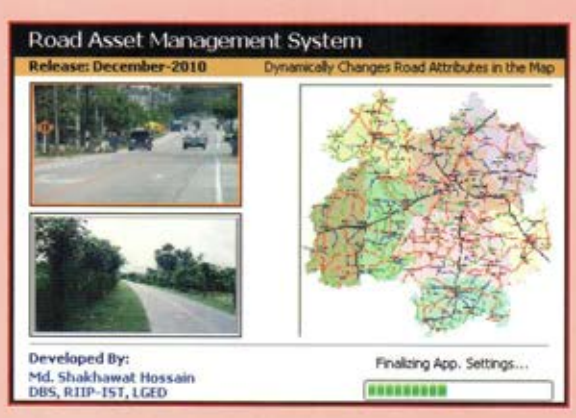
- To store basic and geometrical information of road network and bridge/culvert inventory associated with road
- To store various attributes and condition data of road network
- To store construction and maintenance history data of road network
- To store road connectivity information of road with socio-economic infrastructure
- To assess annual maintenance need and to draw up comprehensive maintenance program including rational allocation of fund based on multi-criteria analysis
- To generate various MIS and Decision Support reports

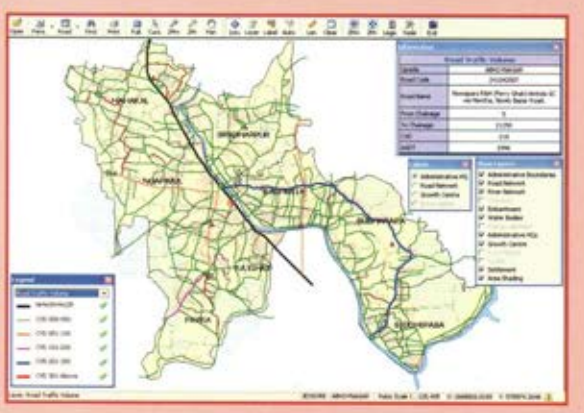
Road Asset Management System (RAMS)

RAMS is an Executive Support System to monitor and maintain assets associated with LGED road network and it contains tools for analyzing and geographically representing the physical structure of the LGED roads.

Main features of this System are:

- It can establish dynamic linkage between GIS spatial data and road attribute database
- It gives all the information of the roads and its history of maintenance and other related important engineering data for analysis
- It can produce various thematic maps dynamically showing surface type, pavement condition, traffic information, ongoing maintenance schemes, etc
- Overall, it is a visualization tool that could act as a part of strategic decision-making process





Up Coming Activities:

- Deployment of Strategic ICT Planning
- Implementing Next Generation Network (NGN)
- Implementing of Electronic Government Procurement (e-GP) System
- On line Procurement Management Information System (PROMIS)
- Pourashava Master Plan
- Pourashava Disaster Map
- Small Scale Water Resource Sub-Project Location Map

Hon'ble Ministers of GoB visited GIS Unit

Hon'ble UN Under Secretary visited GIS Unit

Hon'ble JICA Vice President visited GIS Unit

National Workshop jointly Organised by LGED & ICIMOD, Nepal

Participation in Digital Innovation Fair-2011

Presentation Meeting jointly organised by LGED & JICA

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