

**1. Project Title** : GIS for Election Management system of Meghalaya

**2. Scope and Objectives:**

The Election Commission of India has been exploring the use of Geographic Information System (GIS) applications in order to improve the fidelity of the Electoral rolls. GIS can ensure the clear and disagreement demarcation of polling stations catchment area, scientific location of polling stations and rationalized route planning etc. for conduct of polls.

The development of GIS based Electoral Management System has been initiated at the request of Chief Electoral Officer (CEO), Meghalaya.

The main objectives of this project are as follows:

- Delineation of Parliament and Assembly constituency boundaries and preparation of location specific GIS maps containing information on polling stations, villages, district & block head Qtr, police set up, health centre and mobile network etc. showing connectivity and accessibility with road network.
- Query based services based on buffering and proximity analysis, route information like shortest route, alternate route, traffic analysis etc. during emergency situation like natural disaster, movement of civil authorities during election etc.
- Application strategy for assigning polling stations and query based route information services like shortest route, alternate route, finding closest facility etc.

**3. Centre/Unit** : North Eastern Space applications Centre (NESAC)

**4. Funding Agency** : Department of Election, Government of Meghalaya

**5. Study Area** : Meghalaya

**6. Methodology:** GIS layers such as road, drainage, settlement location have been collected and brought into the same GIS format. IRSP6 L4 multispectral satellite images were used for updation of road and drainage networks. GIS mapping was done at 1:50,000 scale for all the ACs areas except 4 urban ACs of Shillong. IRSP6 L4 multispectral and Cartosat-1 images were used for GIS mapping of Shillong urban areas at 1:5,000 scale. Since, the latest village information was not available for identification of polling stations along with their corresponding polling areas for the state of Meghalaya, hence extensive field was carried out by the officials of Government of Meghalaya using GPS in order to collect information (latitude, longitude) on missing polling areas and polling stations. Locations of police setup, health centre, BSNL mobile tower etc. were also collected during field survey and integrated accordingly into the GIS environment.

**7. Data Used** : IRS P6 LISS 4 (2008-2009) satellite imageries, SOI topomaps (1:50K), inputs from State IT Department and Elections Department.

**8. Status of the Project:** The work was completed. Chief Secretary of Meghalaya has released the database in the form of CD to the various State Government Departments in an inaugural meeting held in the office chamber of Chief Secretary.

**9. Results:**

Database created for 60 Assembly Constituencies (ACs) and two Parliamentary Constituencies (PCs) of Meghalaya of 12, 76,758 electoral with 2,117 polling stations and 6,117 polling areas as per the latest data records.

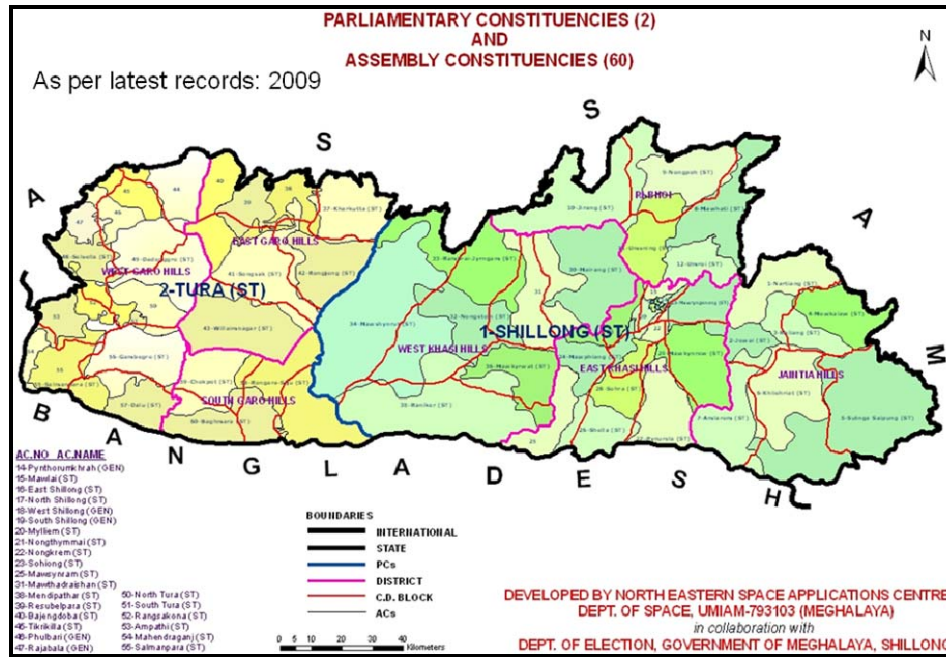


Fig.1 GIS map for PC & ACs as on 2009 records

Apart from this, a geospatial strategy has been developed for identification of scientific locations of polling stations along with their polling areas based on certain criterion (numbers of electors, infrastructure facilities, route information, emergency services etc.) as recommended by the Election Commission of India (ECI).

**10. Utilization/Success Stories:**

The Election Management System developed for the state of Meghalaya is found to be a real management tool in making more practical policies while conducting the election processes viz. in examining numbers of electors in polling stations, location of emergency services, preparing transportation budget, manpower deployment etc. This work has been accepted and highly appreciated by the ECI.

**11. Duration:** 2 years (2007-2009)