

An integration of parliamentary and assembly constituencies with other spatial data for delimitation- 2002 using GIS - a case study of Deoria district, U.P.

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ABSTRACT

India is a democratic country; therefore in such democratic set up, time bound elections are compulsory phenomenon. By virtue of being the largest democracy in the world, execution of elections (either Lok Sabha or Vidhan Sabha) in the country like India, is a hectic exercise. To ease out such exercise, Election Commission of India has decided the delimitation of parliamentary and assembly constituencies due to increasing population and setting up new provinces like Uttaranchal, Jharkhand & Chattisgarh in the country.

In the present study, an attempt has been made for dasymetric mapping using ARC/INFO GIS software to integrate all the assembly and parliamentary constituencies and other data, in order to generate a comprehensive map of Deoria district showing all the relevant informations, as desire by the Election Commission of U.P. from the district election office, Deoria.

INTRODUCTION

To better understand the patterns of administrative boundaries, location of administrative units, parliamentary & assembly constituencies, each of them is to be brought on a common platform. With the help of conventional methods, it could be achieved, but it requires too much time and labor. To overcome such difficulty, GIS technique comes as a helping tool in order to generate such comprehensive maps and that too in a precise manner. With the help of GIS, information can be stored, updated, manipulated and retrieved when required.

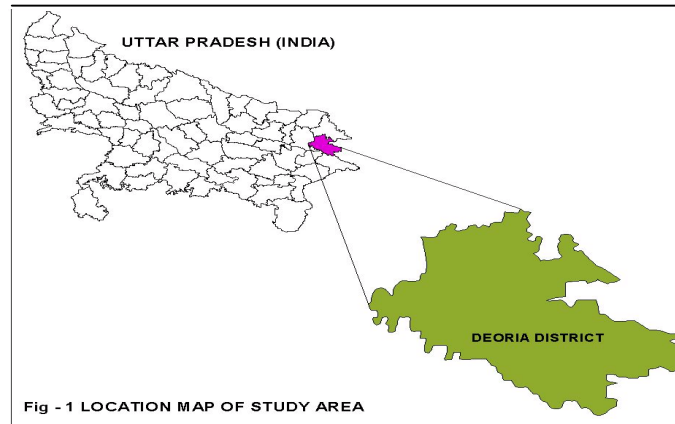
The present paper envisages an automated GIS application that uses ARC/INFO to precisely map all the information desired by the Election Commission of U.P., through the process of dasymetric mapping.

In view of providing the desired information in a map form for delimitation the district election office, Deoria has approached Remote Sensing Applications Centre, Uttar Pradesh (RSAC-UP) to carry out such work through NRDMS database centre, Deoria. Since it was time bound exercise, hence an ARC/Info based GIS software has been used to achieve this task through overlay analysis.

STUDY AREA

The district of Deoria is one of the district of Gorakhpur division, and occupies the extreme north-eastern corner of U.P., It is bounded by the district Gorakhpur on the West, Maharajganj and Padrauna districts in North, Mau & Ballia districts in South and Bihar state in the East. The dividing line being partly artificial and partly provided by the Gandak and little Gandak rivers, on its south Ghagra separates the district of Mau and Ballia from it. It lies between lat

$26^{\circ}.0^{\circ}$ N to $26^{\circ}.45^{\circ}$ N and Long $83^{\circ} 30'$ E $84^{\circ} 15'$ E. Total area of the district is above 2573.5 sq. kms. and the district hqts. is located at Deoria. Fig.-1 shows location map of the study area.



DATA USED

Three types of data sets have been used for the present study.

1. The Survey of India topographical maps no. 63N/10, 63N/12, 63N/14, 63N/15, 63N/16, 72B/2, 3, 4 on 1:50,000 scale.
2. Boundary of all the assembly and parliamentary constituencies, provided by district election office, Deoria.
3. Boundary of Blocks and tehsils and their location and other relevant information, provided by district administration and district statistical department, Deoria.

METHODOLOGY & DISCUSSION

Realizing the potential of GIS to bring information from diverse source into a common platform and subsequently generate meaningful information from them following step were carried out in the present study.

(i) Generation of Base Information :- This accomplish by scanning of topographical maps from SOI on 1:50,000 scale pertaining to the study area. The scanned maps were used in backdrop and themes like district boundary, drainage network, transport network etc. were digitized from it. Each maps were geo-referenced to real world coordinate system by assigning tic values at each intersection points of latitude and longitude. Finally each layers were re-projected to polyconic projections system. The layers from individual sheets were joined together using Mapjoin module of Arc/info to get information for entire district present in single layer.

(ii) Bringing Census Data in GIS :- Tahsil and Block boundaries map from census dept. were scanned and digitized. These layers were geo-referenced with respect to SOI maps and transformed to polyconic projection systems. The district comprises of 5 Tahsils & 12 Blocks.

(iii) Bringing District Election Office Data into GIS :- Information gathered from district election office regarding Parliamentary and Assembly boundaries in the form of maps were scanned and stored in Raster format in GIS. These maps also contain information like district boundary, major roads, etc, which were used as reference while bringing the information in common projection system. Assembly & Parliamentary boundaries were digitized from these maps. Finally these

layers were geo-referred using SOI base layer information as a reference and assigning coordinates of later to them. Transformation operation was carried out to bring all the information into a common projection systems.

(iv) Output Generation :- A base map containing district boundary, Taluk boundary, drainage network, transport network and major settlement location to give general information of the study area. Further, using spatial overlay capability of GIS was used to combine Assembly and Parliamentary boundaries with district, Taluk & transport network layers to get a single map containing all these information. This helps in visualizing the details of information available in each Parliamentary and Assembly constituencies and further by addition of other information like landuse, soil etc. to prioritize the development activities to be carried out in future. Fig.-2 shows Assembly and Parliamentary constituencies alongwith base layer information. The area contains 2 Parliamentary & 7 Assembly constituency.

CONCLUSION

The information generated through the present study could provide meaningful help to district administration, mainly to district election office and finally to Election Commission of U.P. in view of properly organization general assembly & Parliamentary Elections in the state of U.P. Such work could be extended to corporate elections in the Urban areas of the state, through superimposing of ward boundaries in such type of map. It could be achieved easily through GIS application.

The map generated through present exercise would enable the officials related with Election Commission, in examining the constituencies; it's population (in form of no. of voters) and in deciding the location & no. of polling booths etc.

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