Diversity of facilities of mouzas in Amta-II block, Haora, W.B.: A Geoinformatics approach

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Abstract: Diversity in mouzas of W.B. represents a contrasting picture that is reflected in terms of social as well as economic parameters surrounding the communities. The rural population of the state live in conditions that is not actually fit for their livelihood in digital India. All the mouzas (i.e. 69) of Amta-II have been portrayed in this paper as case studies to draw transparent picture of rural diversity. There are eleven selected facilities viz. habitation, drinking water supply, sanitation, medical amenities, education, newspaper supply and recreation (social parameters); transport, communication, banks and agricultural credit society and electricity (economic parameters) chosen for measuring the diversity. It is found that Jhikhira, Kasmali, Khariop, Kusberia, Paschim Khalna CT, Ghoraberia CT and Paschim Gazipur CT (i.e.) have all 11 facilities taken into account whereas Paschim Jaypur has not a single facility.

It is found that 22 mouzas have 10 to 11 selected facilities followed by 38 mouzas with 8 to 9 facilities and 8 mouzas with 6 to 7 selected facilities. To alleviate such uneven scenario the people-centered development approach (PCDA), the empowerment of both male and female and proper implementation of state as well as central govt. scheme regarding rural development can reduced the spatial differentiation. Finally, the analyzed data has been presented through maps, prepared with the help of 21st century GIS software.

Keywords: diversity, mouza, social-economic parameters, facility, alleviate, PCDA, 21st century GIS.

Introduction

Identifying the diversity with civic amenities has been a major issue of Indian planning i.e. multilevel planning, be it at micro (mouza) or macro level. The basis of differentiation can be physical factors coupled with socio-cultural potentials and opportunities. But some sort of well-set regularity or order is certainly present in spatial pattern of environmental elements over the earth’s surface. In space–time frame the degree of orderliness of spatial pattern can be detected by a geographical aspect through mapping. Hence, an attempt has been made here to identify the regional disparity at micro level by taking the case of Amta-II block. Amta II is the remotest block of Haora district as its area is greater than any block of this district as well as for the only island of Haora. Disaster comes like an annual visitor in the form of Flood mainly. So, study on amenities of this block is really important for planning perspective.

Study Area

Amta-II (fig.1) is a block of the district Haora. Geographically it lies between 22°30′ N to 22°38′ N Latitude and 87°51′ E to 88°00′ E Longitude. It is covering an area of 137.45 sq. km with 14 Gram Panchayats which divided into 69 Mouzas. It is surrounded by Hooghly district and Udaynarayanpur block in the north-west & north-west respectively; Amta-I and Bagnan-I blocks in the east and south whereas Panchim Medinipur District (bounded by Rupnarayan River) is situated on the south-western side. Amta-II block resided with 45,400 households with 208,132 populations.

Objectives

The sole aim of the current research is to identify and map the surface and delineate regions through eleven selected criterion. Giving the importance on such diversity, backward regions are marked and recommendation to mitigate the inequality.

Methodology

The study based on both primary and secondary information. The primary data has been collected...
from the field survey and Gram Panchayats (GP) by adopting interview method. A questionnaire has been designed for collecting the relevant data. The secondary data has been collected from Block Development Office of Amta-II, Land and Land Reforms Departments of W.B., DCHB report on Haora, DSHB of Haora, Official website of Census of India, etc.

The collected data has been presented with the help of maps and tables using 21st century GIS software.

**Results and Discussion**

Maps are visual data that gives a better understanding of the distribution of any parameters over space. There are two types of parameters that have been extracted from the dataset -

- **Social parameters** i.e., habitation, drinking water supply, sanitation, medical amenities, education, news paper supply and recreation centre
- **Economic parameters** i.e., transport, communication, banks and agricultural credit society and electricity

**Social parameters**

The block is an aggregate of 69 Mouzas; out of them 68 are inhabited (table-1). The density of population is 1515 per sq. km. as per 2011 census. Being the rural area several mixed settlement pattern is observed. Basically, settlements are unevenly distributed. There are ten types of settlement zone as shown in the fig. 2. Most of the mouzas have been covering with settlement of compact + dispersed + agricultural land followed by Linear + compact; linear + compact + dispersed + agricultural land; compact + dispersed; linear + compact + dispersed; linear + compact + agricultural land; dispersed + agricultural land; dispersed. Only 1 mouza is uninhabited i.e. Paschim Jaypur. Paschim Khalna, Ghoraberia and Paschim Gazipur- these mouzas have been turned in Census Towns (CT) with their eligible criteria in West Bengal due to rapid change in the occupational pattern and rapid urbanization.

“The quality of drinking-water is a powerful environmental determinant of health. Assurance of drinking-water safety is a foundation for the prevention and control of waterborne diseases”- WHO, 2014. Hand pump, River, Pond, Tap and Well water – these are the sources of drinking water and other household work. All the inhabitant mouzas have adequate hand pump tube well. Maximum numbers of mouza have more than one source of water for drinks and other purpose. Mostly in the western part mouzas and north-eastern mouzas i.e. Maraychak, Uttar Bhatora, Solbaga, Dahshin Bhatora, Chintan, Beral, Mahishamuri, Kundalia, Ranjaybar, Saoraberia, Nischintapur, Hanidaha, etc. are served by hand pump, river and pond water. Jhikira, Chingrajola, Ghardubra, Uttar Khalna, Dakshin Khalna, Purba Khalna, Khariop, etc - these mouzas have tap water (fig.3). But Baolia, Nakubar, Kakol, Jaypur, Hiop, Nawapara, etc. –these mouzas are served by handpump only, they need serious attention. Paschim Khalna, Ghoraberia and Paschim Gazipur- these three CT are served by protected TT (Tap water from treated source).
Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and toilet (Mandal, 2016). Inadequate sanitation is a major cause of disease world-wide and improving sanitation is known to have a significant beneficial impact on health both in households and across communities. The word 'sanitation' also refers to the maintenance of hygienic conditions, through services such as garbage collection and wastewater disposal- (WHO). All the inhabited mouzas and CT have pucca toilet. It is true that toilet facility within the premise is not present of every household; scheduled caste and few backward class people are using open space for this purpose. There were also presents 6 Community toilet including bath, 22 Community toilet excluding bath, 18 Rural sanitary mart or sanitary hardware outlet available near the village and 3 Community bio- gas or recycle of waste for productive use as per census 2011. All three CT have both pit and flush/Pour Flush system latrines.

Better health is essential to human happiness and well-being. It also makes an important contribution to economic progress as reduced dependency ratio, as healthy populations live longer, are more productive and save more (Mandal, 2016). 8 Community health centre (CHC), 11 Primary health centre (PHC), 32 Primary health sub-centre (PHS), 1 Hospital-allopathic (HA), 1 Hospital-alternative medicine (HO), 16 Dispensary (D) and 48 Medicine Shop - these are the available medical amenities of Amta-II. There is one only B. B. Dhar Rural hospital which is located at Amraguri. 47 mouzas including CT have served one to four medical amenities. The northern, central and southern portion of the block is better position compare to other place (fig.5). Other 22 mouzas do not have any medical amenity. So these mouza facilitated from other mouza which are situated at a distance of 5 to 12 km.
### Table 1. Availability of facilities of Amta-II block

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Mouzas with available facilities, n=69 (%)</th>
<th>Remarks (type)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitation</td>
<td>68</td>
<td>Linear, Compact, Dispersed and Habitation with agricultural land cover</td>
</tr>
<tr>
<td>Drinking water supply</td>
<td>68</td>
<td>Hand pump, River, Pond, Tap and Well water</td>
</tr>
<tr>
<td>Sanitation</td>
<td>68</td>
<td>Pucca and Mixed</td>
</tr>
<tr>
<td>Medical Amenities</td>
<td>48</td>
<td>CHC, PHC, PHS, Dispensary, and Medical shop</td>
</tr>
<tr>
<td>Educational institution</td>
<td>68</td>
<td>Pre primary, Primary, Middle, Secondary, Senior Secondary school and College</td>
</tr>
<tr>
<td>Newspaper supply</td>
<td>57</td>
<td>Bengali and English newspaper</td>
</tr>
<tr>
<td>Recreation centre</td>
<td>49</td>
<td>Sports Field, Sports Club, Cinema halls, Public library And Public reading rooms</td>
</tr>
<tr>
<td>Road</td>
<td>57</td>
<td>Pucca roads, Kutchhu road, Water bounded macadam (WBM) roads and Navigable waterways (river/canal) (NW)</td>
</tr>
<tr>
<td>Communication</td>
<td>19</td>
<td>Post office (PO), Sub Post office (SPO), Post and Telegraph office (PTO)</td>
</tr>
<tr>
<td>Banks and Credit Societies</td>
<td>21</td>
<td>Commercial &amp; co-operative banks and Agricultural credit societies</td>
</tr>
<tr>
<td>Electricity</td>
<td>68</td>
<td>Power supply for domestic use (ED) and Power supply for commercial use (EC).</td>
</tr>
</tbody>
</table>

Source: Computed by the Authors (Primary data)

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**Fig. 7 Availability of news paper supply, Amta-II**

This educational attitude and interest are focused to the development of civilization. The block is served by 208 Pre-Primary schools (PP), 196 Primary school (P), 38 Middle schools (M), 30 Secondary school (S), 18 senior secondary school (SS) and one and only Joypur Panchanan Roy College (limited Honours subject combination) as per census, 2011. The uneven distribution of educational institutions is noticed. It is reveals that the red and yellow colour (fig.6) indicates presence of maximum educational institution followed by others. The western, northern and south-eastern portions of the block are well served than other part. But these institutions have few problems like, lack in infrastructure, teaching as well as non-teaching staff crisis is very common, there is demand for English-medium School.

**Fig. 8 Availability of recreation centre, Amta-II**

Newspaper supply is available only 58 mouzas (fig.7). Weekly-monthly magazines are also
circulated in those mouzas. The most common means of staying informed about the contemporary social-economic-political condition. The dwellers are basically preferred Bengali and English news paper.

Social recreations of the block have given high importance. There are 45 sports field, 50 sports club, 9 cinema/video halls, 16 public library and 20 public reading rooms in the block (fig.8). Except the western and south-western portion of the block rest of the block are well distributed of recreation centre.

Economic parameters-

Economic character i.e., road, communication, banks and agricultural credit society and electricity are very important for social development. Proper metalled road facility shows the level of development at any place. There are 33 pucca roads, 34 kutchha road, 11 water bounded macadam (WBM) roads and 11 navigable waterways (river/canal) (NW) in the block. But these roads are not evenly distributed. Baolia, Nekubar, Rautara, Binalakrishnapati, Thalia, Kharipoi, Kascoli, Kushberia, Sarda and Sital Chak have all the four type of roads whereas Shibgachhia, Khajur Daha, Kundalia, Mischintapur, Mainan, Mahismuri have only kutchha road (fig.9). The density of roads is decreasing towards western and northern portion. Bagunan and Amta railway stations are near in the block.

About 72 percent (table-1) i.e., 50 mouzas are lacking the basic communication facility i.e. post office (PO), sub post office (SPO), post and telegraph office (PTO). The 11 post office are situated at Jhikhira, Kakrol, Amraguri, Ghanashyam Chak, Kharipoi, Cushberia, Sarda, Bankura, Uttar Khalna, Ghorebaria CT and Paschim Gazipur CT; 2 posts and telegraph office i.e. Chitnan and Tajpur (fig.10). Though, personal mobile are playing largest role to mitigate the distance but till their (PO, SPO) role are equally significant.

The distributions of banks are showing in the figure-11. There are 4 commercial and co-operative banks (i.e. Jhikhira, Purba Khalma and Kharipoi) and 18 agricultural credit societies (i.e. Ghorebaria CT, Paschim Gazipur CT, Nekubar, Ghardubra, Uttar Bhatora, Kascoli, Ajlangachi, Chitnan, Dhanaghari, Kakrol, Amragari, Ghanashyam Chak, Chak Janardan, Jaypur, Sehagari, Kushberia, Mahismuri and Kharipoi). Credit societies are located in dispersed pattern so; the farmers can get benefit as agricultural and other loan facility which is most important for such agriculturally dominant block.
All the inhabited mouzas are electrified by WBSEDCL (fig.12). All the 68 mouzas belong to power supply for domestic use (ED) whereas 57 have power supply for commercial use (EC).

**Summary and concluding remarks**

The uneven distributions of facilities are identified in table-2. The Mouzas of Jhikhira, Kasmali, Khariop, Kusberia, Paschim Khalna CT, Ghoraberia CT and Paschim Gazipur CT (i.e.) have all 11 facilities taken into account whereas Paschim Jaypur has not a single facility. Uttarbhatora, Maraychak, Shibgachhia, Chingrajola, Ranjoybar, Saoraberia, Hanidaha, Binalakrishnabati, Chak Kundalia, Rautara, Amragari, Chak Janardan, Kalasdihi, Kamar Khola, Madhya Jaypur, Nischintapur, Thalina, Minan, Dhaipur, Bhategari, Kamargaria, Uttar Khalna, Dakshin Jaypur, Khajur Daha, Nignan, Takipara, Kulia, Dakshin Bhatora, Chitnun, Dhanyaghari, Fatik beria, Hiop, Dakshin Khalna, Sital Chak, Bankura, Mahishamuri, Jayanti and Batai (about 55 percent) stands at good position with available 8 to 9 facilities (fig.13).

From the findings, it can be argued that the people-centered development approach (PCDA), the empowerment of both male and female and proper implementation of state as well as central govt. scheme regarding rural development can reduce the disparity. Khari Geria, Solbaga, Hatgachha, Beral, Mirgram, Kalbansh, Bargazipur and Sirol (only about 12 percent) are come third position with available 6 to 7 types of facilities at each Mouza (fig.13). About 32 percent i.e. 22 mouzas have very good position with 10 to 11 available facilities.

Besides that, tap water, hospital, Primary health centre (PHC), post office (PO), commercial & co-operatives banks, agricultural credit societies are very less in no in the block. So, there are need some proper policy to alleviate diversity and accelerate development from grass-root level.

**Table 2: Distribution of facilities in Amta-II**

<table>
<thead>
<tr>
<th>No. of Facilities</th>
<th>No. of Mouzas</th>
<th>% of Mouzas</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>1.45</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>8.69</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>2.89</td>
</tr>
<tr>
<td>8</td>
<td>23</td>
<td>33.33</td>
</tr>
<tr>
<td>9</td>
<td>15</td>
<td>21.75</td>
</tr>
<tr>
<td>10</td>
<td>15</td>
<td>21.75</td>
</tr>
<tr>
<td>11</td>
<td>7</td>
<td>10.14</td>
</tr>
</tbody>
</table>

Source: Computed by the Authors (Primary data)
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