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<th>Village and demography in the Brahmaputra valley of Assam, India: Distribution and dynamics from census data</th>
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<tbody>
<tr>
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<td>Asada, Haruhisa</td>
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Kyoto University
Village and demography in the Brahmaputra valley of Assam, India: Distribution and dynamics from census data

Haruhisa Asada
Department of Geography, Tokyo Metropolitan University
Introduction

Brahmaputra valley of Assam

Floodplain topography
Multi-ethnic society

Natural disasters (e.g. Flood, Erosion, Drought)
Ethnic conflicts (e.g. Extremists, Immigrant problem)

Which area, how many people are affected?

Demographic map should be prepared.
Previous studies

Studies of population analysis have done only at Macro & Micro scale. The scales do not match with contemporary problems at Meso scale.

District-wise tribal population of Northeast India in 1991 (Nayak&Das 1998)

Village-wise tribal population of Darrang district in 1971 (Goswami 1989)
Objective

This study examines the possibility of village level census data for studying the Meso-scale problems in the Brahmaputra valley of Assam.

I would like to consider how the inter-disciplinary research team can collaborate to solve the regional problems by using map.
Census Data

- Administrative Atlas
- Village Directory of each district (CD format)
Census Data (1) Map

Census Atlas of Assam 2001

- Circle-wise map
- District-wise map
- Village-wise map

Village CODE, Location
### Census Data (2) Table

#### Village Directory (2001) from Census Office, Guwahati

<table>
<thead>
<tr>
<th>Village CODE</th>
<th>Village Name</th>
<th>Area (ha)</th>
<th>Households</th>
<th>Population (Total, SC, ST)</th>
<th>Income, Expenditure</th>
<th>Commodity</th>
<th>Facility (School, Well etc.)</th>
<th>Land Use (Forest, Waste, Irrigated etc.)</th>
</tr>
</thead>
</table>

**Scheduled Caste (SC)**: People of historically disadvantaged class.

**Scheduled Tribe (ST)**: Ethnic minority with unique culture & language.

In this study, people other than SC and ST is defined as General (GEN).
Flow of Data Process

Census Atlas
- scanning, curving, merging on Adobe Illustrator
- much errors

Digital Image
- Digitizing on ArcView

Vector Image

Census Table
- Processing on MS Excel

Attribute Table
- Combining on ArcView

Distribution Map
- Calculating on ArcView

Thematic Maps
- Ecological map, Location of township

Results
- Maps or Graphs on MS Excel
Results (1) – (7)
Result (1) Demographic pattern in 2001

Population per village
- 0 - 100
- 100 - 500
- 500 - 1000
- 1000 - 2000
- 2000 -

Guwahati

more populated village
(Immigrant village?)

less populated village

<table>
<thead>
<tr>
<th>SC (%)</th>
<th>ST (%)</th>
<th>General (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 - 40</td>
<td>20 - 40</td>
<td>20 - 40</td>
</tr>
<tr>
<td>40 - 60</td>
<td>40 - 60</td>
<td>40 - 60</td>
</tr>
<tr>
<td>60 - 80</td>
<td>60 - 80</td>
<td>60 - 80</td>
</tr>
<tr>
<td>80 - 100</td>
<td>80 - 100</td>
<td>80 - 100</td>
</tr>
</tbody>
</table>

(ST in river side)
(ST in hill side)

(Different livelihood pattern)
Result (2) Agricultural Land Use in 2001

Cultivable waste land (ha)
- 0 - 50
- 50 - 100
- 100 - 500
- 500 - 1000
- 1000 -

More cultivable land

Less cultivable land

Irrigated area (%)
- 20 - 40
- 40 - 60
- 60 - 80
- 80 - 100

Some local irrigation schemes? (Data reliability is questionable)
Result (3) Relation with ecological zones

Ecological Zones of the Brahmaputra valley (from *State of Environment, Assam 2004*)

- Piedmont plain
- Alluvial plain
- Floodplain (including river & Islands)
  - Karbi Hills
  - Barail Range
  - Barak (Surma) valley

Proportion of ST people in piedmont plain is more.

In the Brahmaputra valley as a whole, difference of inhabitant pattern is small.

→ There may be some errors.
Result (4) Distance from township

10, 20 km buffer zone from 18 district headquarters

ST people lives in more distant place from town.
In the Brahmaputra valley as a whole, difference of inhabitant pattern is small.
→ There may be some errors.
Comparison of different decades of Census

<table>
<thead>
<tr>
<th>CODE</th>
<th>Village Name</th>
<th>Area &amp; Households</th>
<th>CODE</th>
<th>Village Name</th>
<th>Area &amp; Households</th>
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</thead>
<tbody>
<tr>
<td>2055</td>
<td>Pathakachki</td>
<td>225.97</td>
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<td>2056</td>
<td>Keekarikuchi</td>
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<tr>
<td>2057</td>
<td>Dwarikuchi</td>
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<td>2058</td>
<td>Khupakuchi</td>
<td>150.25</td>
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<tr>
<td>2059</td>
<td>Jalji</td>
<td>250.6</td>
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<td>Area &amp; Households</td>
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<tr>
<td>2060</td>
<td>Khudra Gualkona</td>
<td>198.42</td>
<td>7010</td>
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<tr>
<td>2061</td>
<td>Sekonbari</td>
<td>376.06</td>
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<tr>
<td>2062</td>
<td>Tulishan</td>
<td>801.31</td>
<td>7012</td>
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<td>2063</td>
<td>Ichakar</td>
<td>286.77</td>
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<tr>
<td>2064</td>
<td>Hamidkuchi</td>
<td>295.14</td>
<td>7014</td>
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<tr>
<td>2065</td>
<td>Bichunalal</td>
<td>282.20</td>
<td>7015</td>
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<tr>
<td>2066</td>
<td>Irian</td>
<td>405.4</td>
<td>7016</td>
<td>Village Name</td>
<td>Area &amp; Households</td>
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<tr>
<td>2067</td>
<td>Harindhbh</td>
<td>300.12</td>
<td>7017</td>
<td>Village Name</td>
<td>Area &amp; Households</td>
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<tr>
<td>2068</td>
<td>Kirti</td>
<td>104.96</td>
<td>7018</td>
<td>Village Name</td>
<td>Area &amp; Households</td>
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<tr>
<td>2069</td>
<td>Iballchok</td>
<td>95.96</td>
<td>7019</td>
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<td>Area &amp; Households</td>
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<tr>
<td>2070</td>
<td>Jamtala</td>
<td>151.8</td>
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<tr>
<td>2071</td>
<td>Karasapati</td>
<td>360.76</td>
<td>7021</td>
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<tr>
<td>2072</td>
<td>Deleagun</td>
<td>66.24</td>
<td>7022</td>
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<tr>
<td>2073</td>
<td>Belagun</td>
<td>62.60</td>
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<td>2074</td>
<td>Talikachki</td>
<td>105.44</td>
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<tr>
<td>2075</td>
<td>Puri SilHot</td>
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<td>7025</td>
<td>Village Name</td>
<td>Area &amp; Households</td>
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<tr>
<td>2076</td>
<td>Bagni</td>
<td>154.91</td>
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<td>Village Name</td>
<td>Area &amp; Households</td>
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<tr>
<td>2077</td>
<td>Talenakachki</td>
<td>40.08</td>
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<td>Village Name</td>
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<tr>
<td>2078</td>
<td>Ganakot</td>
<td>17.4</td>
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<tr>
<td>2079</td>
<td>Alegia</td>
<td>80.86</td>
<td>7029</td>
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<td>Area &amp; Households</td>
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<tr>
<td>2080</td>
<td>Kalchati</td>
<td>210.12</td>
<td>7030</td>
<td>Village Name</td>
<td>Area &amp; Households</td>
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<tr>
<td>2081</td>
<td>Bhakti</td>
<td>161.94</td>
<td>7031</td>
<td>Village Name</td>
<td>Area &amp; Households</td>
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<tr>
<td>2082</td>
<td>Udana</td>
<td>379.9</td>
<td>7032</td>
<td>Village Name</td>
<td>Area &amp; Households</td>
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<tr>
<td>2083</td>
<td>Santucli</td>
<td>95.9</td>
<td>7033</td>
<td>Village Name</td>
<td>Area &amp; Households</td>
</tr>
</tbody>
</table>

Village CODE does not match in different census series.
By using village name, Area and Households, we must identify all villages.

18054 villages are identified among 20330 villages (89%) between two census.

Population change (%)
- 0 - 100
- 100 - 200
- 200 -

Different pattern

Population decrease (Flood or Erosion?)

Irrigated area change (ha)
- -712 - 0
- 0 - 2010

Some local irrigation schemes?
Adding information by hearing survey

Census data only provide the information of **ST / SC population**, but Hearing survey from local people can provide the information about which **community or ethnic groups** live in each village.

Residential information of **869 villages** are identified among **1170 villages** (74 %) in Lakhimpur district (my study area).

**Community in Lakhimpur district**
- **ST**: Mishin, Kachari, Deuri, Khamti
- **SC**: Dum, Hari, Bania
- **General & OBC**: Kalita (Asamiya), Ahom, Bengali, Nepali, Chutia
Result (6) Demographic pattern of Lakhimpur district

Some kinds of pattern are according to ecological (hill side or river side) and social environment (near town or along highways).

Community group with small population (SC) is difficult to identify.
Result (7) Comparison of different ethnic groups

Some differences are seen in both demographic pattern and agricultural land use between indigenous group and immigrant group.
Discussion & Conclusion
Discussion

Possibility of using village-level Census

1. Collaboration with other research field
   Flood affected area map, Epidemic map, Land use map etc.
2. Additional data from field survey
   Combining field work with GIS analysis enables deeper studies.

Some problems on using census data

3. Geometric error of census maps.
   Less accuracy in GIS calculation with other thematic maps.

4. Quality of census data
   Available data type varies by each census.
   Digital data is not available before census 1991.
1. Village level census data can provide a **new regional image** which can go beyond the existing district boundary and match with **Meso-scale phenomena**.

2. By combining with different census data set, other thematic maps and field work data, **inter-disciplinary study** will be possible.

3. **Some errors on census data** should be corrected for accurate GIS calculation.