

センサスデータでみるインド・アッサム州ブラマプトラ川溪谷
の村落分布と人口動態

Village and demography in the Brahmaputra valley of Assam, India:
Distribution and dynamics from census data

浅田 晴久

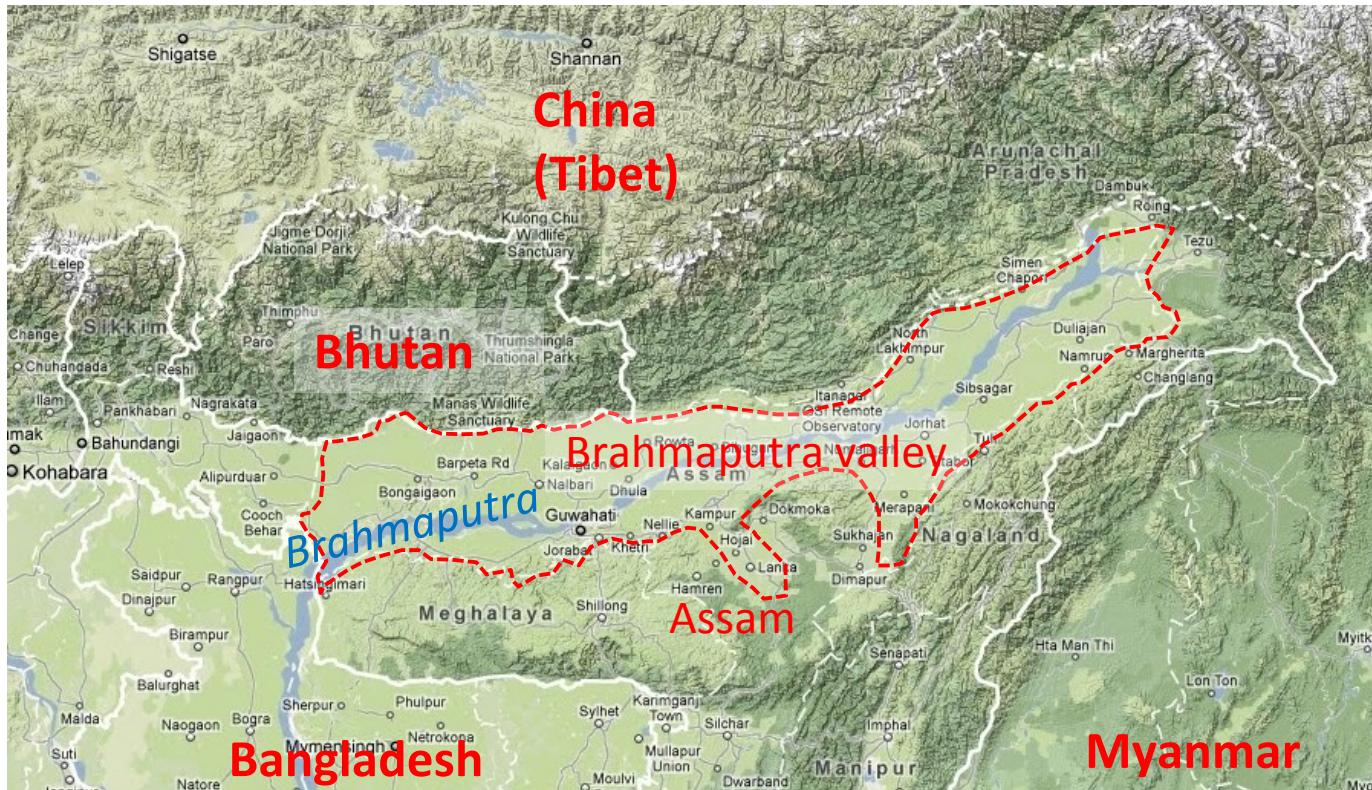
日本学術振興会 特別研究員PD

首都大学東京 都市環境科学研究科 客員研究員

Haruhisa Asada

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Introduction



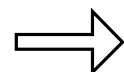
Brahmaputra valley of Assam

Floodplain topography
Multi-ethnic society



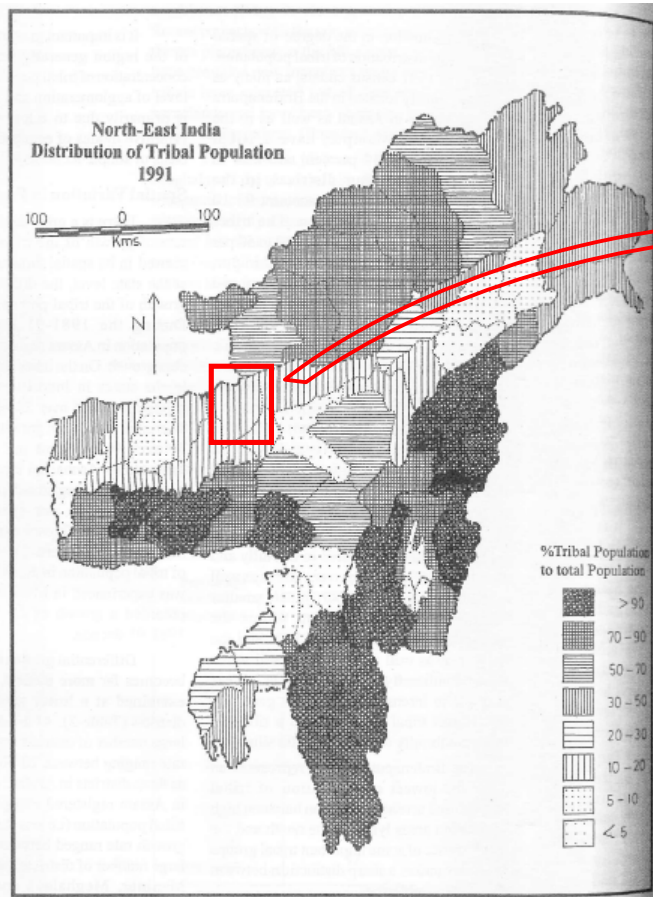
Natural disasters (e.g. Flood, Erosion, Drought)
Ethnic conflicts (e.g. Extremists, Immigrant problem)

Which area, how many people are affected?

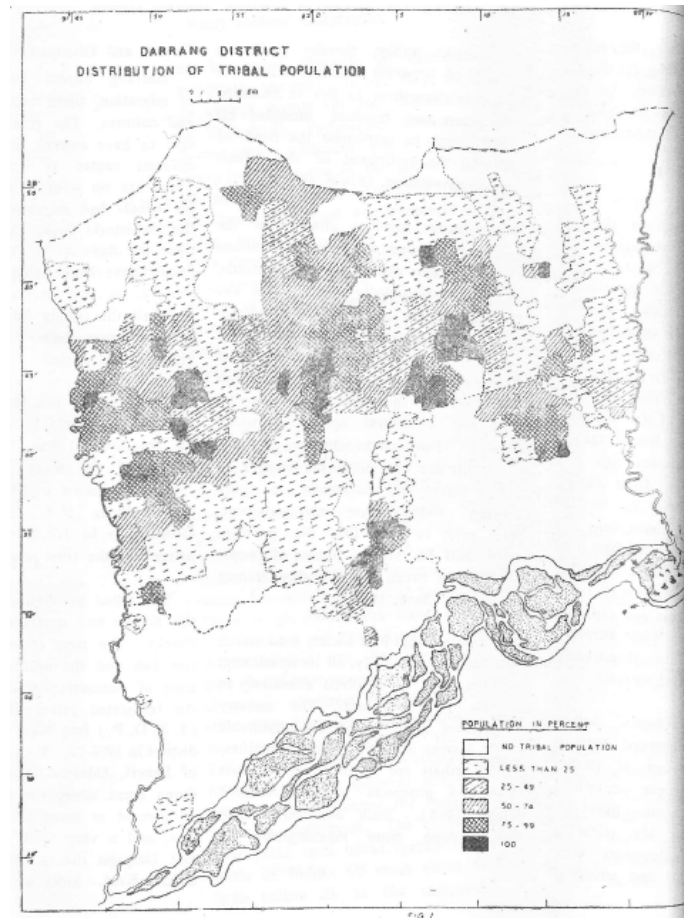


Demographic map should be prepared.

Previous studies



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



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

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

Objective

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

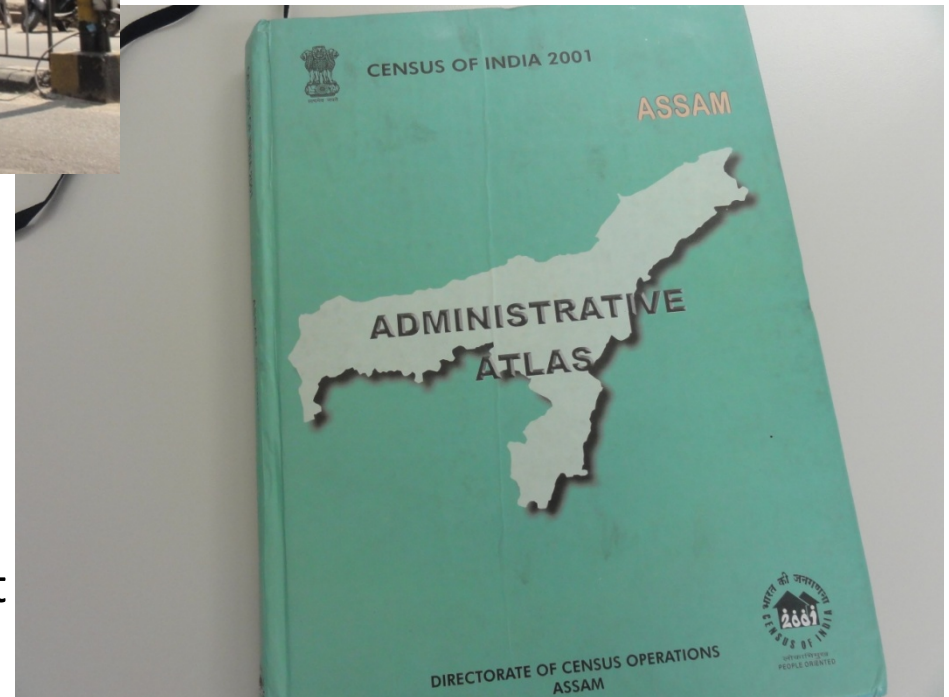
I would like to consider how the **inter-disciplinary research team** can collaborate to solve the regional problems by using map.

Census Data



Census Office in Guwahati, Assam

- Administrative Atlas
- Village Directory of each district (CD format)



Census Data (2) Table

Census Atlas of Assam 2001

VILLAGE CODE LIST KAMRUP DISTRICT					
PLCN	Name of Village	PLCN	Name of Village	PLCN	Name of Village
GOESWARAR REVENUE CIRCLE					
0051360	Deochunga	00517000	Niz-Kushula	00520700	Harijora
0051370	Uparkhuti	00517100	Pukhuripar	00520800	Son Mahari
0051380	Bangali Para	00517200	Simila	00520900	Gurmou
0051390	Dabasila	00517300	Makundapur	00521000	Bhehbari
0051400	Oubari	00517400	Bakulguri	00521100	Khatpara
0051410	Bholajhar	00517500	No.3 Roumari	00521200	Dongpara
0051420	Bholabatabari	00517600	Kerpavita	00521300	Gosaigaon
0051430	Pepalari	00517700	Niz-Betna	00521400	Borghuli
0051440	Barnadi Par	00517800	Bhogpur	00521500	Hatimura
0051450	No.3 Suagpur	00517900	Karipara	00521600	Madoikata
0051460	Jalthang Par No.3	00518000	Ouguri	00521700	Niz-Kaorbaha
0051470	No.4 Suagpur	00518100	Barpathar	00521800	Dhulabari
0051480	No.2 Suag Pur	00518200	Fahurabari	00521900	Bagiribari
0051490	No.1 Suagpur	00518300	Ramcha	00522000	Dhepar Gaon
0051500	No.5 Suagpur	00518400	Sarphutchaki	00522100	Lahapara
0051510	No.1 Jalthang Par	00518500	Cheuni	00522200	Senimara
0051520	No.2 Jalthang Par	00518600	Rangmahal	00522300	Bihapara
		00518700	Umananda Than	00522400	Khundikar
		00518800	Singimari	00522500	Deulkuchi
		00518900	Rampur	00522600	Dhokuchi
				00522700	Balahati
RANGIA REVENUE CIRCLE					
				00525700	Pathalikuchi
				00525800	Kekerikuchi
				00525900	Dwarkuchi
				00526000	Khepnikuchi
				00526100	Jajjali

Village Directory (2001) from Census Office, Guwahati

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
ST_CODE	DIST_CODE	THSIL_CODE	BLOCK_CODE	V_CT_CODE	VILL_NAME	AREA	T_HH	T_P	T_M	T_F	SC_P	SC_M	SC_F	ST_P	ST_M	ST_F
18	06	0001	0001	00513600	Deochunga	870	651	3658	1871	1787	4	2	2	555	273	282
18	06	0001	0001	00513700	Uparkhuti	509	447	2717	1368	1349	23	14	9	91	50	41
18	06	0001	0001	00513800	Bangali Para	491	598	3167	1633	1534	119	59	60	27	12	15
18	06	0001	0001	00513900	Dabasila	130	96	567	302	265	0	0	0	168	83	85
18	06	0001	0001	00514000	Oubari	490	505	2769	1421	1348	78	39	39	448	215	233
18	06	0001	0001	00514100	Bholajhar	319	179	971	474	497	0	0	0	519	254	265
18	06	0001	0001	00514200	Bholabatabari	232	77	449	235	214	0	0	0	378	195	183
18	06	0001	0001	00514300	Pepalari	163	81	454	221	233	194	92	102	5	3	2
18	06	0001	0001	00514400	Barnadi Par	185	198	976	478	498	190	90	100	379	178	201
18	06	0001	0001	00514500	No.3 Suagpur	96	68	412	213	199	0	0	0	183	92	91
18	06	0001	0001	00514600	Jalthang Par No.3	253	204	1132	593	539	0	0	0	762	394	368
18	06	0001	0001	00514700	No.4 Suagpur	227	82	454	237	217	0	0	0	192	100	92
18	06	0001	0001	00514800	No.2 Suag Pur	285	204	1195	637	558	0	0	0	584	322	262
18	06	0001	0001	00514900	No.1 Suagpur	303	252	1330	684	646	88	47	41	72	39	33
18	06	0001	0001	00515000	No.5 Suagpur	154	50	289	153	136	0	0	0	244	128	116
18	06	0001	0001	00515100	No.1 Jalthang Par	216	113	584	292	292	0	0	0	554	279	275
18	06	0001	0001	00515200	No. 2 Jalthang Par	148	135	730	388	342	0	0	0	458	245	213
18	06	0001	0001	00515300	Sub-Naokata	470	485	2747	1381	1366	19	9	10	1529	764	765
18	06	0001	0001	00515400	aban Par	259	226	1288	690	598	0	0	0	706	379	327
18	06	0001	0001	00515500	etagaon	763	598	3190	1615	1575	349	178	171	1105	563	542
18	06	0001	0001	00515600	Niz-Jargaon	379	245	1364	724	640	0	0	0	309	162	147
18	06	0001	0001	00515700	Kalbari	191	265	1260	621	639	0	0	0	0	0	0
18	06	0001	0001	00515800	agurmari	172	97	598	301	297	0	0	0	504	251	253
18	06	0001	0001	00515900	achim Naokata	369	390	2073	1040	1033	66	35	31	704	354	350
18	06	0001	0001	00516000	arigaon	310	240	1270	662	608	106	53	53	495	250	245

Village CODE Village Name

Village CODE

Village Name

Area (ha)

Households

Population (Total, SC, ST)

Income, Expenditure

Commodity

Facility (School, Well etc.)

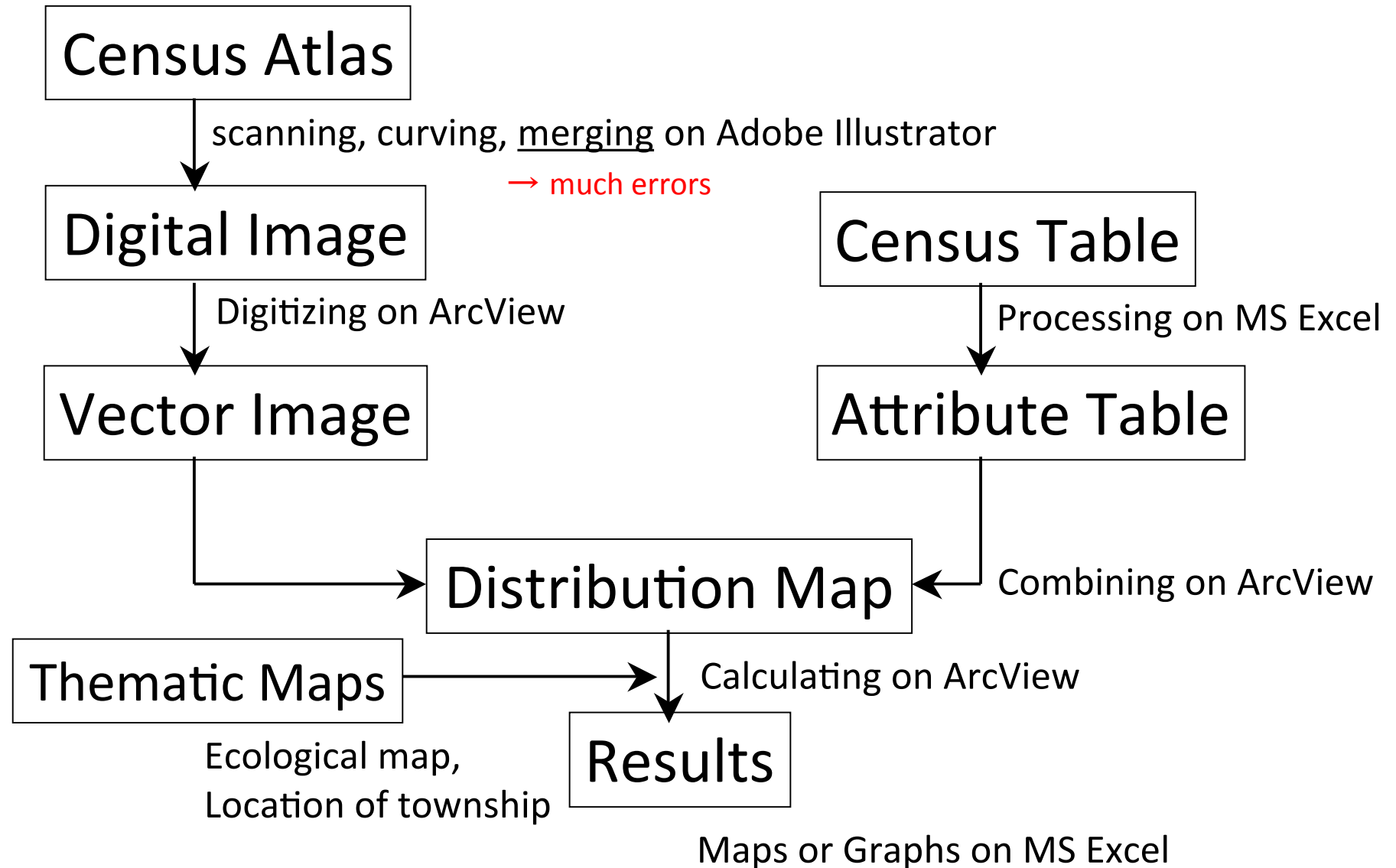
Land Use (Forest, Waste,


Irrigated etc.)

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).

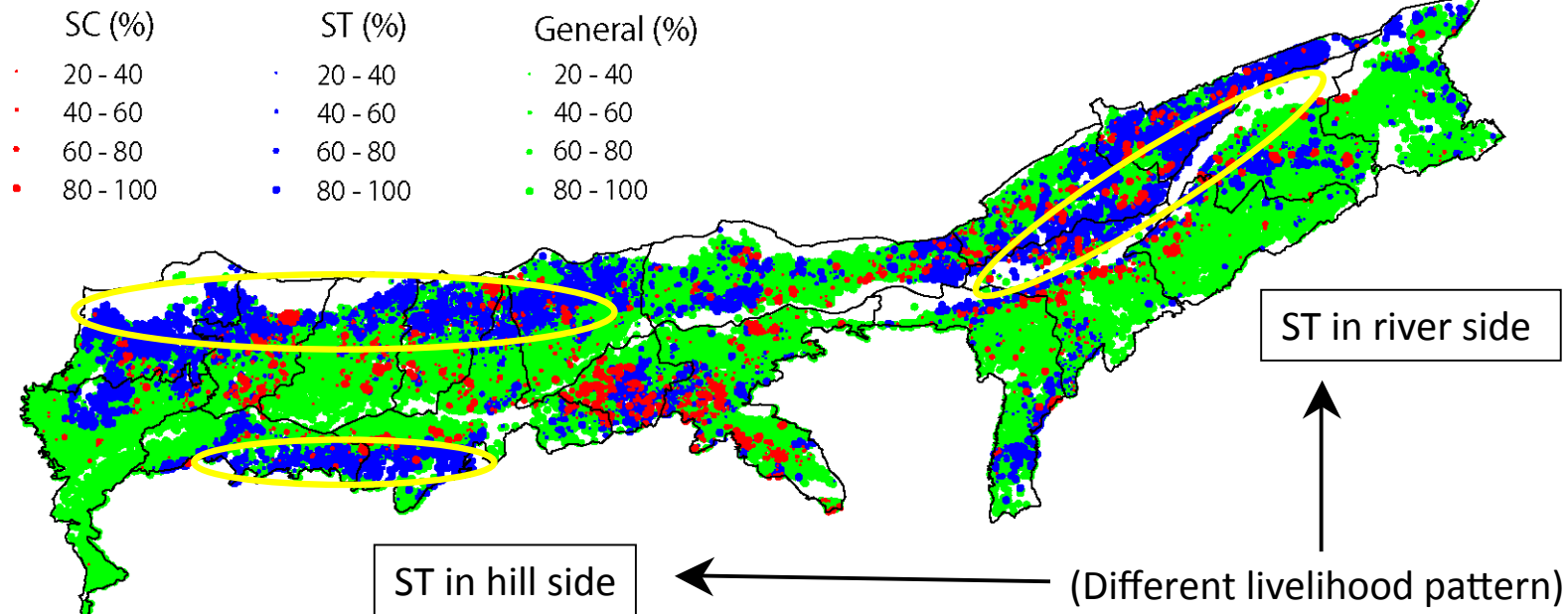
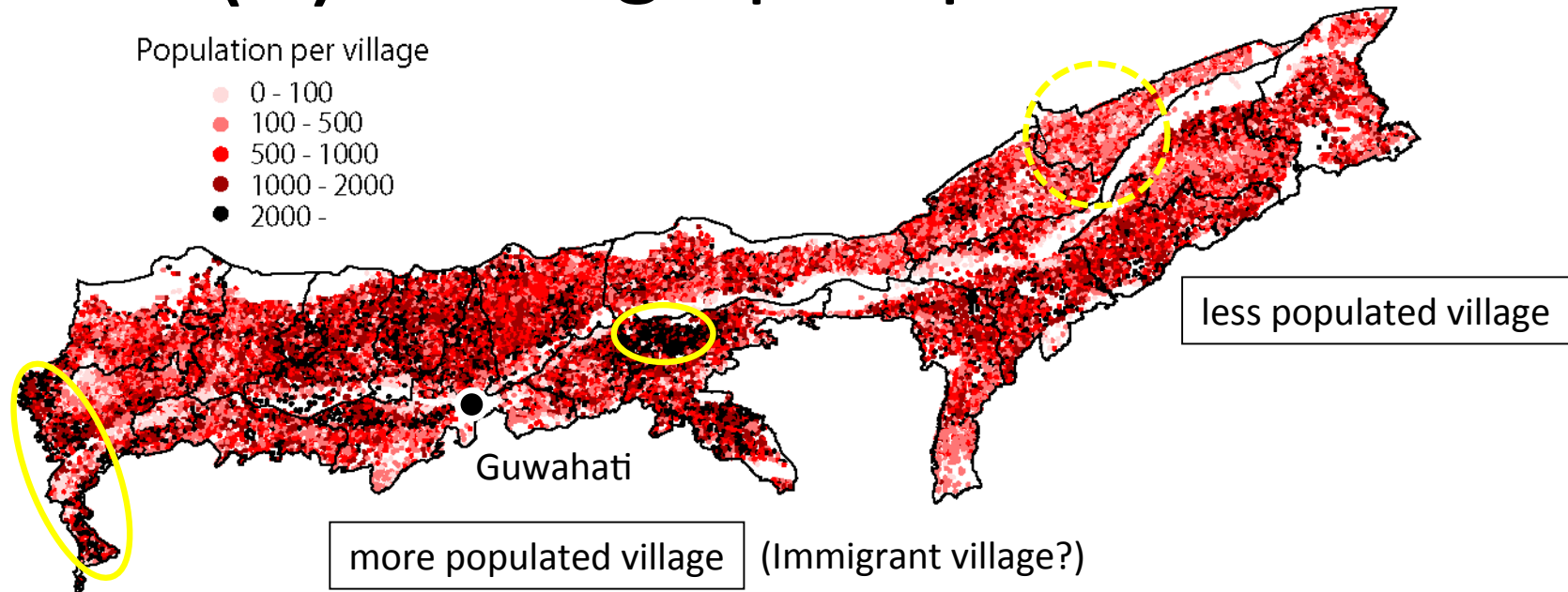
Flow of Data Process



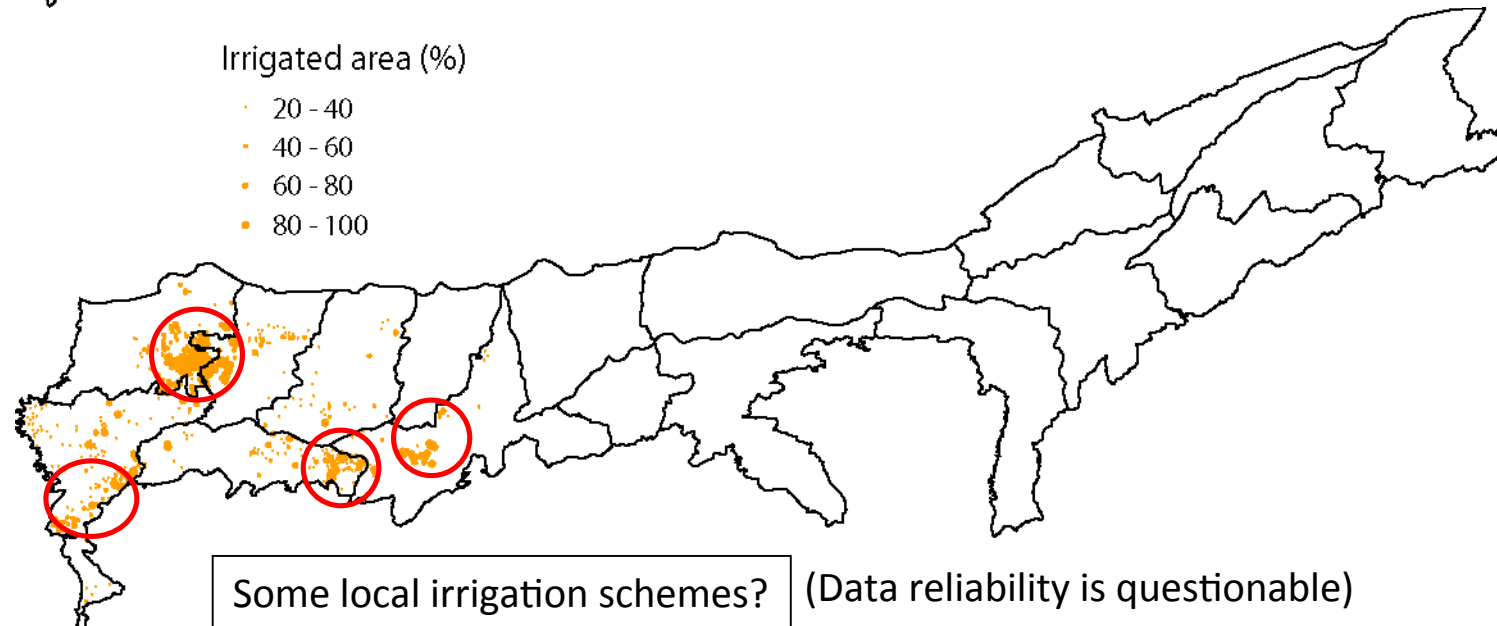
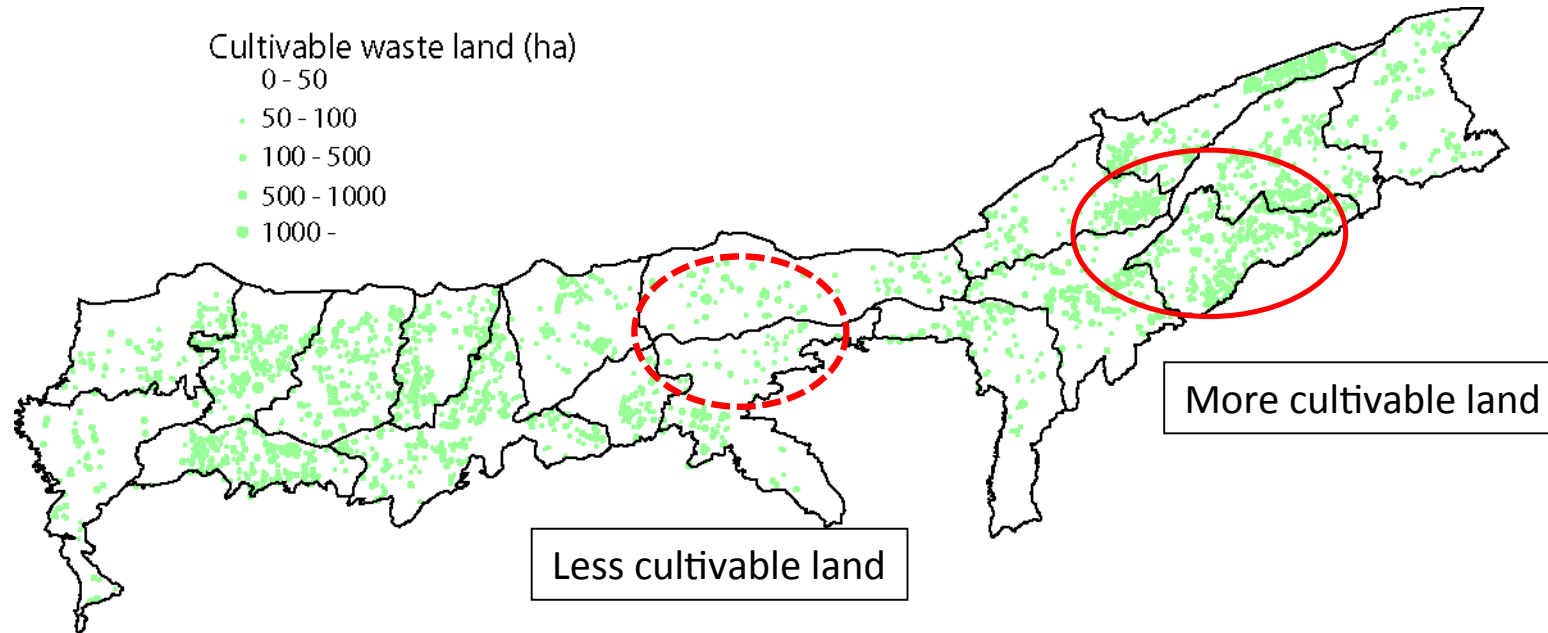


Results (1) – (7)

Result (1) Demographic pattern in 2001

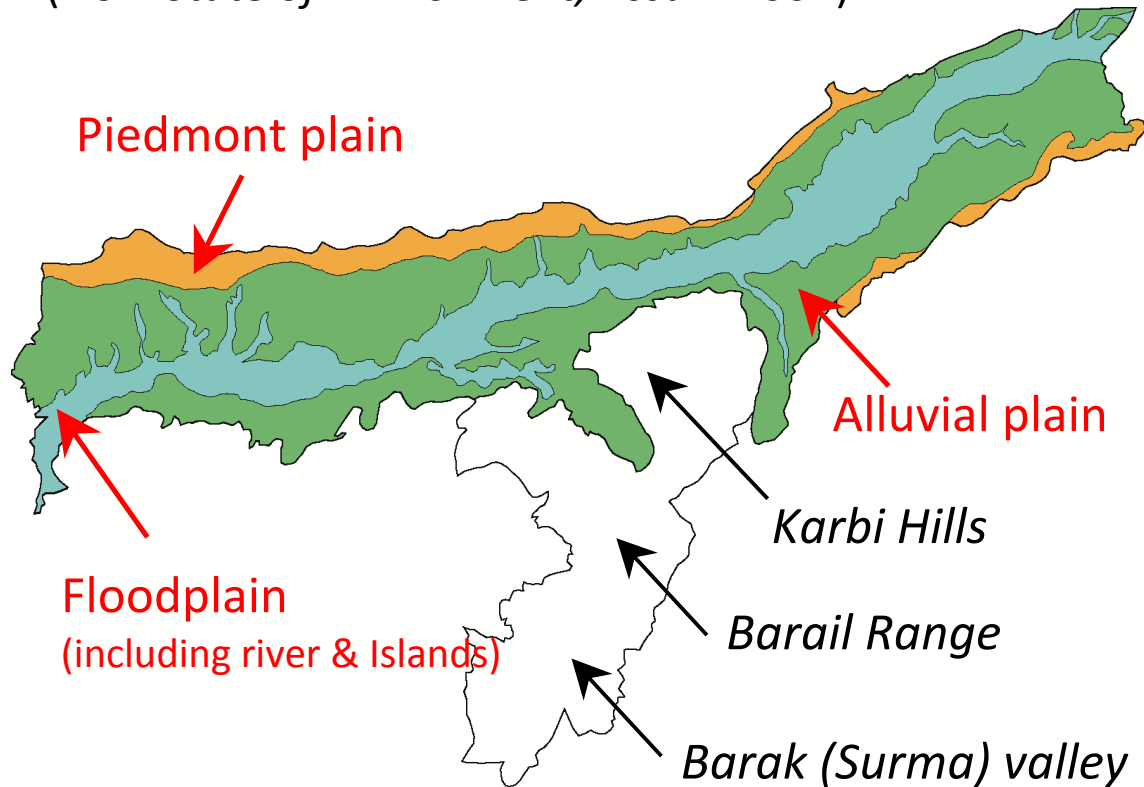


Result (2) Agricultural Land Use in 2001



Result (3) Relation with ecological zones

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

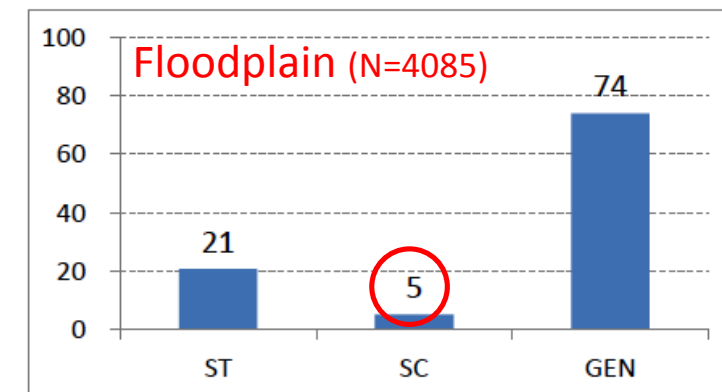
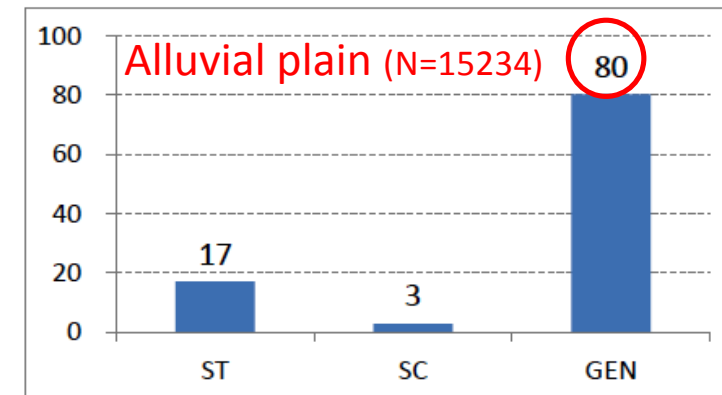
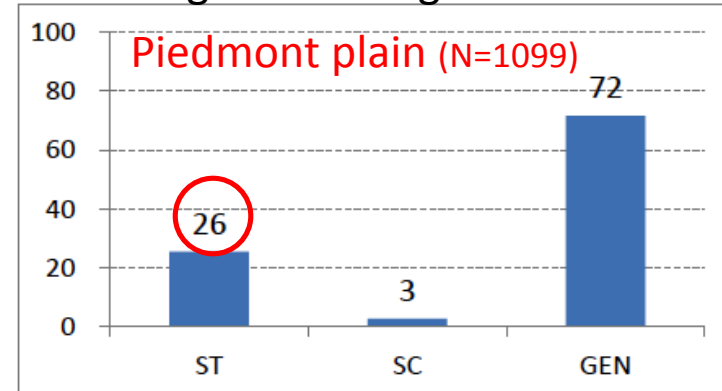


Proportion of ST people in piedmont plain is more.

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

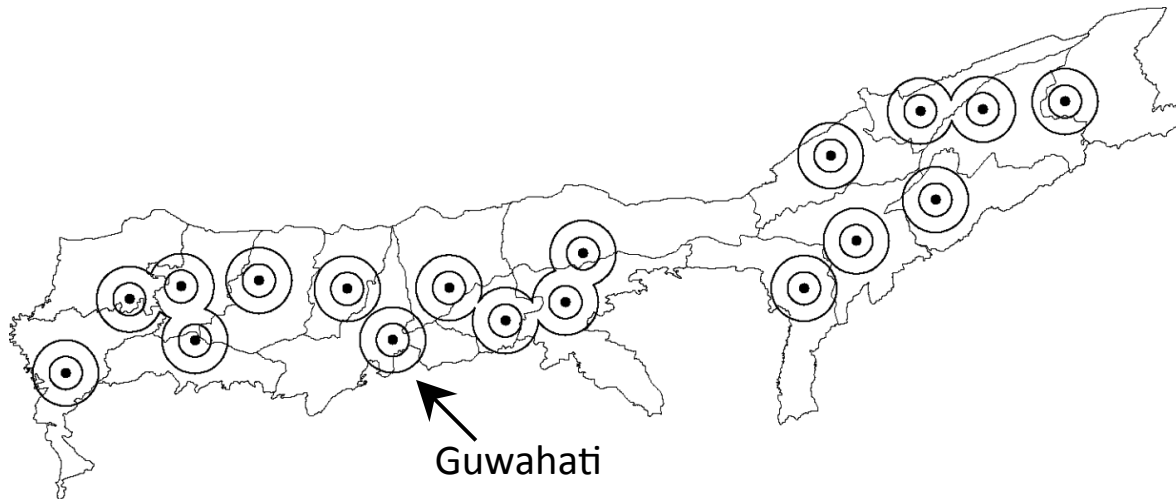
→ There may be some errors.

Village Percentage in each zones



Result (4) Distance from township

10, 20 km buffer zone from 18 district headquarters

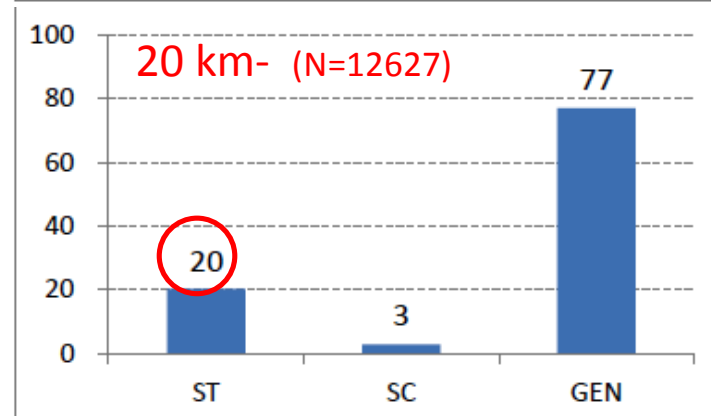
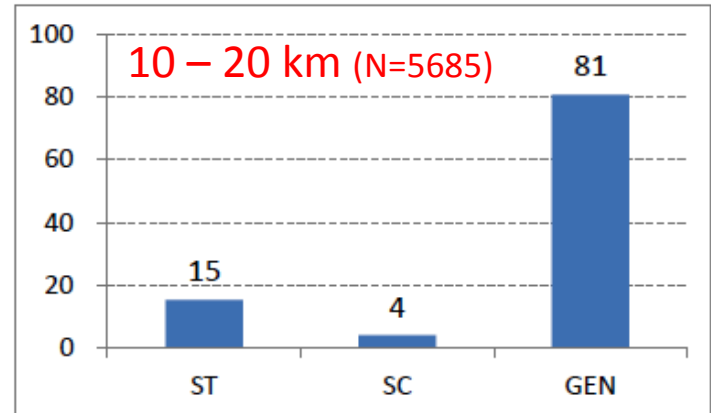
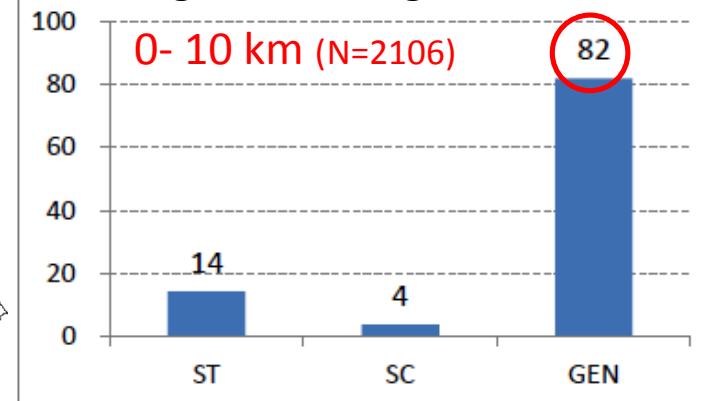


ST people lives in more distant place from town.

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

→ There may be some errors.

Village Percentage in each zones



Comparison of different decades of Census

Village Directory, Census 1991

	A	B	C	D	E	F	G
1	CODE, C, 18	NAME, C, 30	AREA, N, 8, 2	RES_HOUSE	HOUSEHOL	T_POPL, N	T_M_POPL
2	070010008000800001	Pathalikuchi	226.97	101	101	640	333
3	070010008000800002	Kekerikuchi	402.84	221	221	1642	911
4	070010008000800003	Dwarkuchi	463.9	526	526	3663	2012
5	070010008000800004	Khupouikuchi	130.75	141	141	899	477
6	070010008000800005	Jaljali	253.12	166	166	1022	545
7	070010008000800006	Khudra Garikona	138.42	49	49	329	167
8	070010008000800007	Sekonibari	376.66	365	365	2092	1098
9	070010008000800008	Tulsibari	801.31	750	750	4271	2307
10	070010008000800009	Ichapur	296.77	197	197	1402	705
11	070010008000800010	Halikuchi	289.14	131	131	894	485
12	070010008000800011	Bichennala	382.38	319	319	2091	1124
13	070010008000800012	Tarani	455.4	394	394	2319	1245
14	070010008000800013	Hairandhab	308	120	120	697	366
15	070010008000800014	Kathra	104.96	57	57	415	217
16	070010008000800015	Batakuchi	95.96	131	131	759	405
17	070010008000800016	Jamtala	151.8	205	205	1241	642
18	070010008000800017	Karargarbhitur	369.76	248	248	1495	765
19	070010008000800018	Doloigaon	66.24	44	44	277	147
20	070010008000800019	Balagaon	62.68	83	83	507	267
21	070010008000800020	Tatarakuchi	105.44	122	122	783	406
22	070010008000800021	Pub-Sitara	118.34	59	59	392	201
23	070010008000800022	Poshim Sitara	154.91	118	118	831	449
24	070010008000800023	Teleranakuchi	48.28	7	7	59	29
25	070010008000800024	Goriakath	174	195	195	1325	690
26	070010008000800025	Alagdia	98.88	27	27	209	103
27	070010008000800026	Kakohati	210.12	105	105	749	393
28	070010008000800027	Bhatkuchi	161.94	19	19	112	48
29	070010008000800028	Udiana	319.9	538	538	3504	1844
30	070010008000800029	Gurkuchi	95.06	119	119	745	372

CODE Village Name Area & Households

Village Directory, Census 2001

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	ST_CODE	DIST_CODE	THSI_CODE	BLOCK_CODE	V_CT_CODE	VILL_NAME	AREA	T_HH	T_P	T_M	T_F	SC_P	SC_M	SC_F	ST_P	ST_M	ST_F
2	18	06	0001	0001	00513600	Deochunga	870	651	3658	1871	1787	4	2	2	555	273	282
3	18	06	0001	0001	00513700	Iparkhuti	509	447	2717	1368	1349	23	14	9	91	50	41
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5	18	06	0001	0001	00513900	Dabasila	130	96	567	302	265	0	0	0	168	83	85
6	18	06	0001	0001	00514000	Dubari	490	505	2769	1421	1348	78	39	39	448	215	233
7	18	06	0001	0001	00514100	Dholajhar	319	179	971	474	497	0	0	0	519	254	265
8	18	06	0001	0001	00514200	Dholabatabari	232	77	449	235	214	0	0	0	378	195	183
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21	18	06	0001	0001	00515500	Detagaon	763	598	3190	1615	1575	349	178	171	1105	563	542
22	18	06	0001	0001	00515600	Jiz-Jargaon	379	245	1364	724	640	0	0	0	309	162	147
23	18	06	0001	0001	00515700	Kalbari	191	265	1260	621	639	0	0	0	0	0	0
24	18	06	0001	0001	00515800	Tagurmari	172	97	598	301	297	0	0	0	504	251	253
25	18	06	0001	0001	00515900	Pachim Naokata	369	390	2073	1040	1033	66	35	31	704	354	350
26	18	06	0001	0001	00516000	Barigaon	310	240	1270	662	608	106	53	53	495	250	245

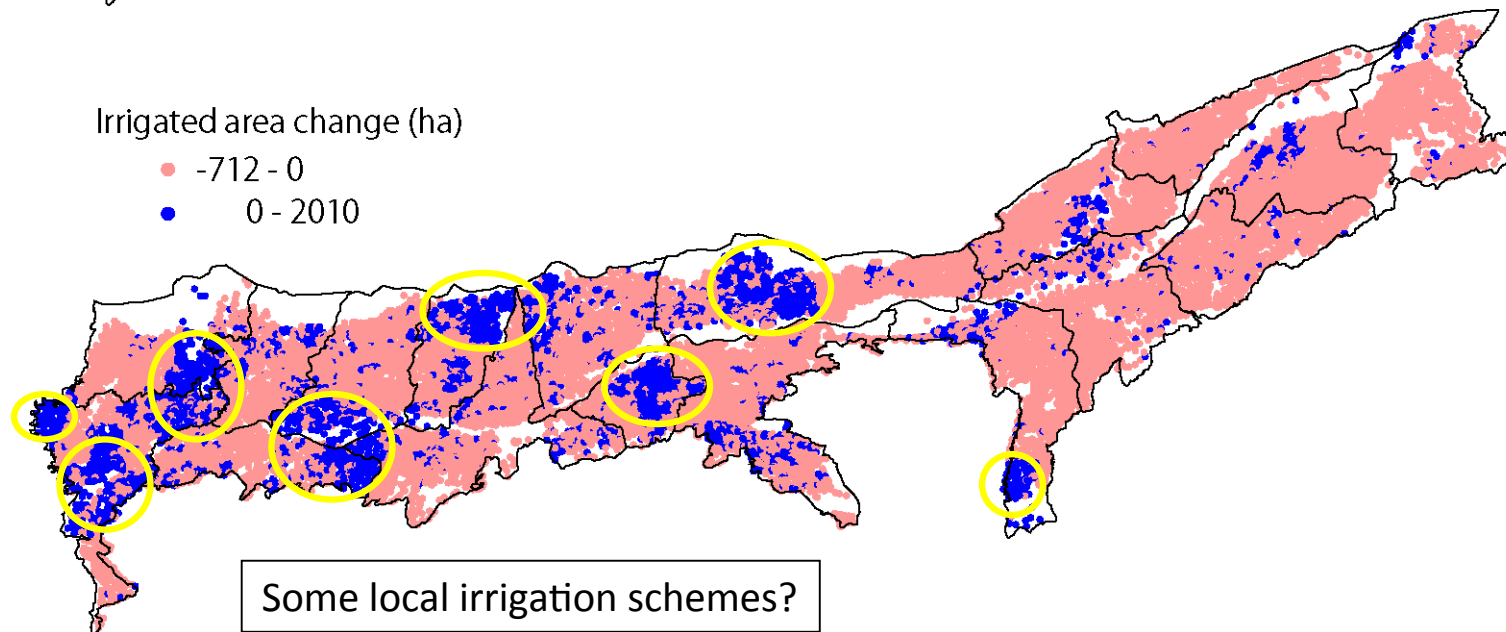
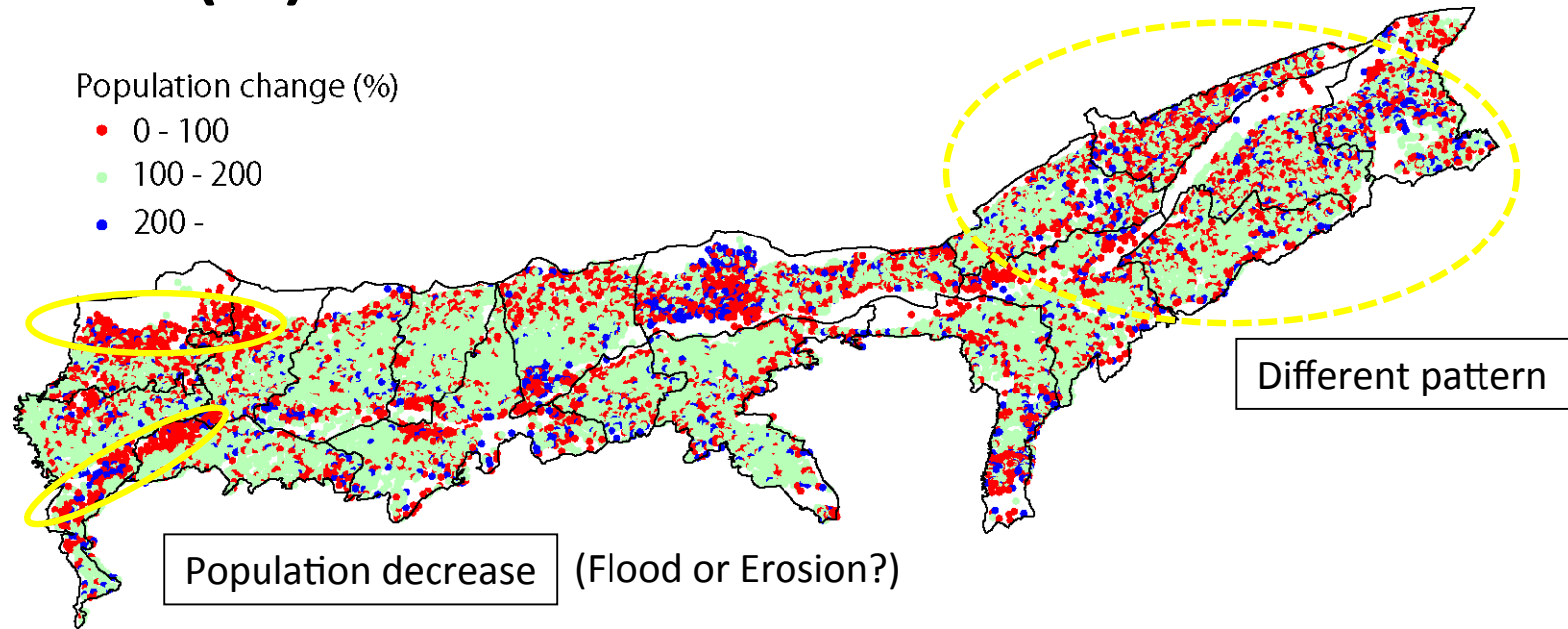
CODE Village Name Area & Households

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.

Result (5) Difference of 2001-1991



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

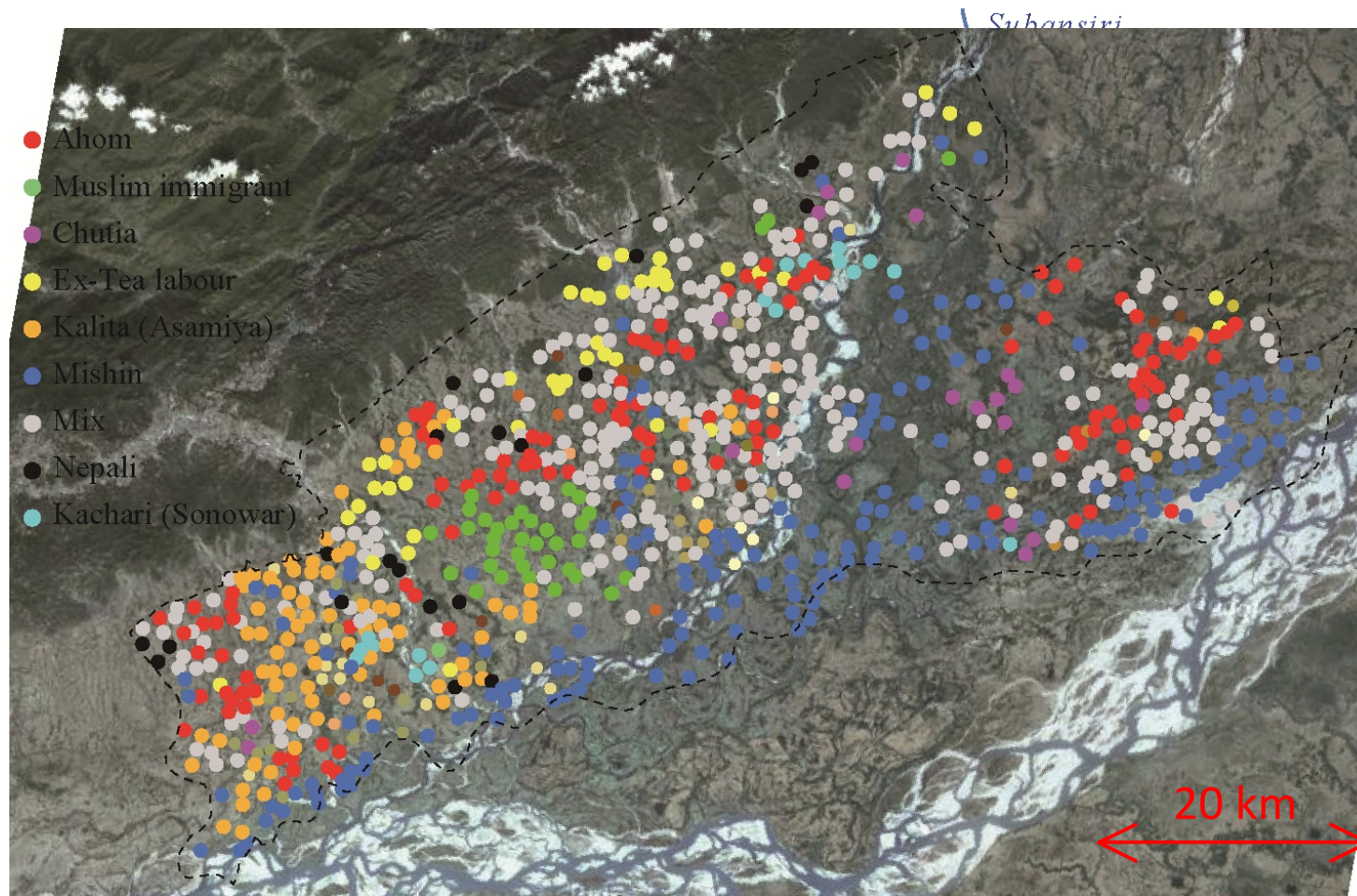
ST : *Mishin, Kachari, Deuri, Khamti*

SC : *Dum, Hari, Bania*

General & OBC : *Kalita (Asamiya), Ahom, Bengali, Nepali, Chutia*



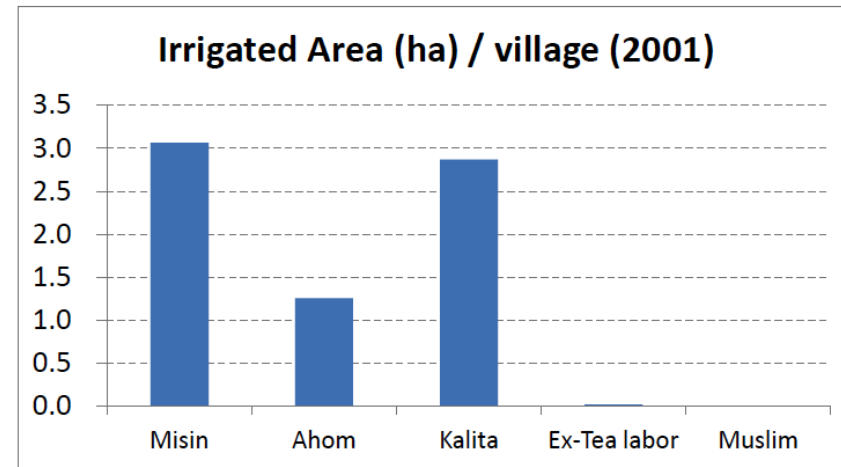
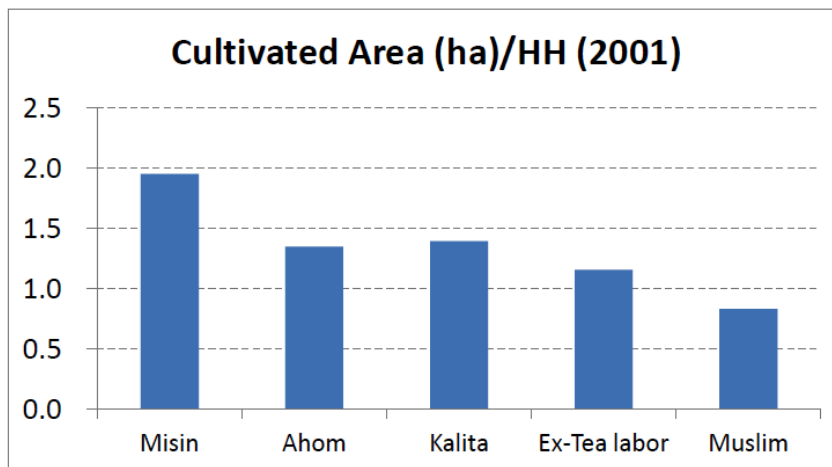
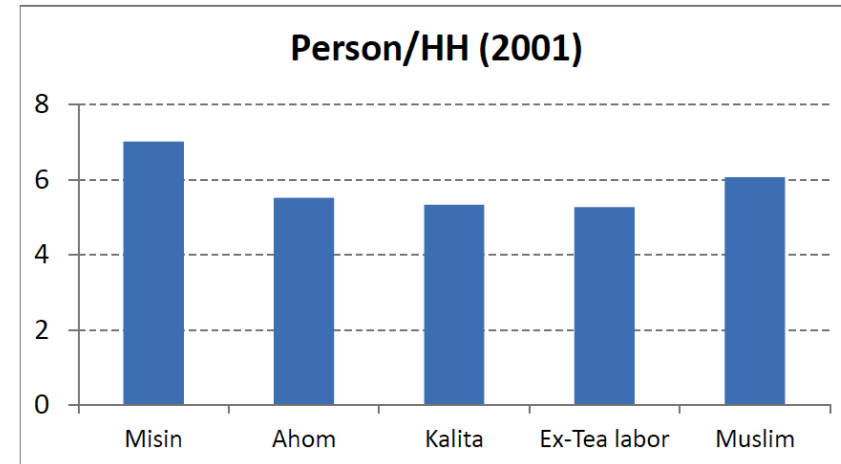
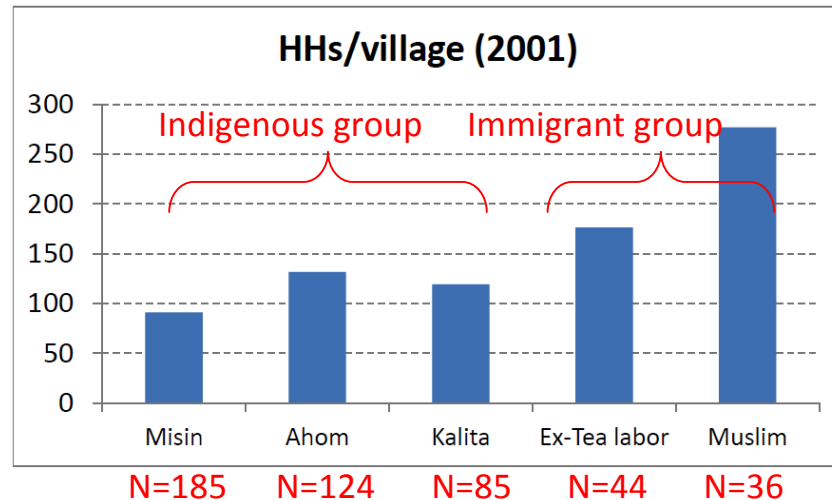
Result (6) Demographic pattern of Lakhimpur district



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**.

A black and white photograph of three women sitting on a floor in front of a stone wall. They are wearing white saris and headscarves. The woman on the left is looking towards the center. The woman in the middle is looking towards the right. The woman on the right is looking towards the camera. The wall behind them has a diamond-shaped pattern. The floor is made of dirt or concrete. There are some bundles of sticks or straw on the floor in the foreground.

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.

Conclusion

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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.

