USDA

GIS based Maps of Shrimp & Prawn Gher Areas

In twelve upazilas of Bagerhat, Cox's Bazar, Jessore, Khulna and Satkhira Districts, Bangladesh

WINROCK INTERNATIONAL

SAFETI

Supporting the Bangladesh Shrimp and Prawn Sector

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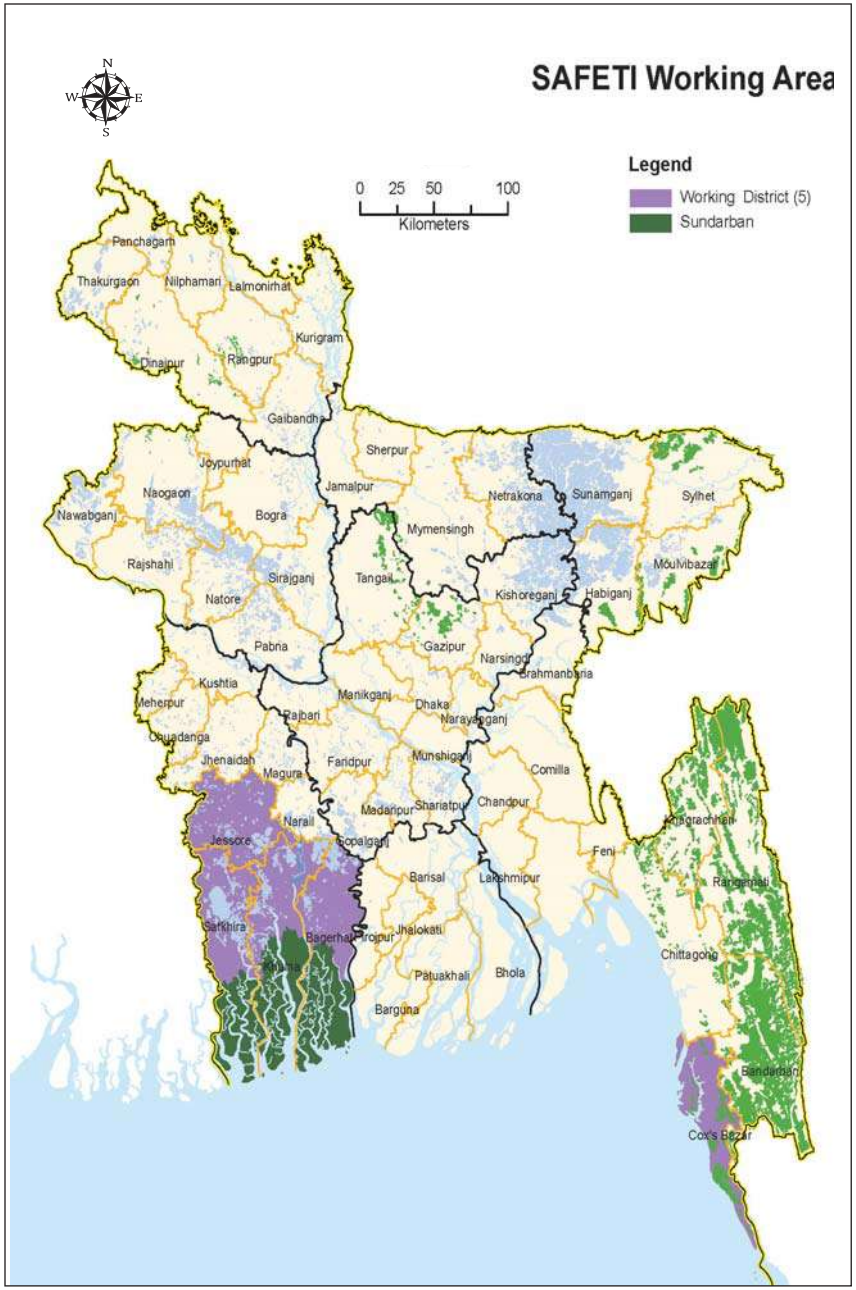
About SAFETI

Funded by the U.S. Department of Agriculture (USDA), the Safe Aqua Farming for Economic and Trade Improvement (SAFETI) project, being implemented by Winrock International, is a five-year project working in the southern region of Bangladesh. The objectives of the project are: increasing shrimp and prawn production and national exports; increasing trade and income of supply chain participants – particularly farmers but also input suppliers and others; and, improving the quality of exported shrimp and prawn.

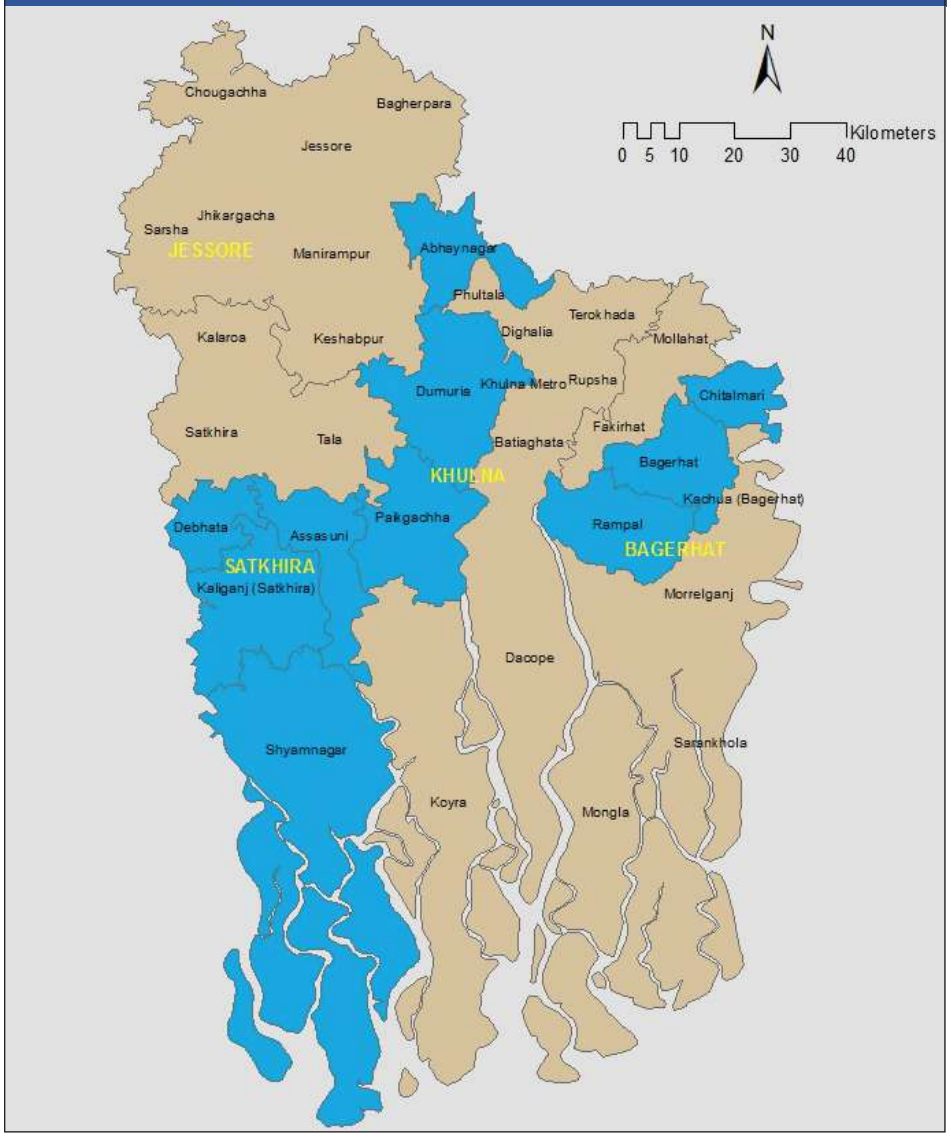
Use of this booklet

This Geographic Information System (GIS) map booklet presents interpreted satellite imagery of gher areas during the months of October/November/December and February/March, 2016 or 2017, covering twelve Upazilas in Bagerhat, Cox's Bazar, Jessore, Khulna, and Satkhira Districts where the SAFETI project is working. By comparing the two Sentinel-2 (ESA) satellite images of each Upazila, it is possible to identify seasonal changes in land use between paddy, shrimp and prawn-fish production.

SAFETI is using these paired images to help in its identification of the most suitable work areas for project activities, but anticipates also that the collection will be of practical use to a range of Government and development professionals in their own work.



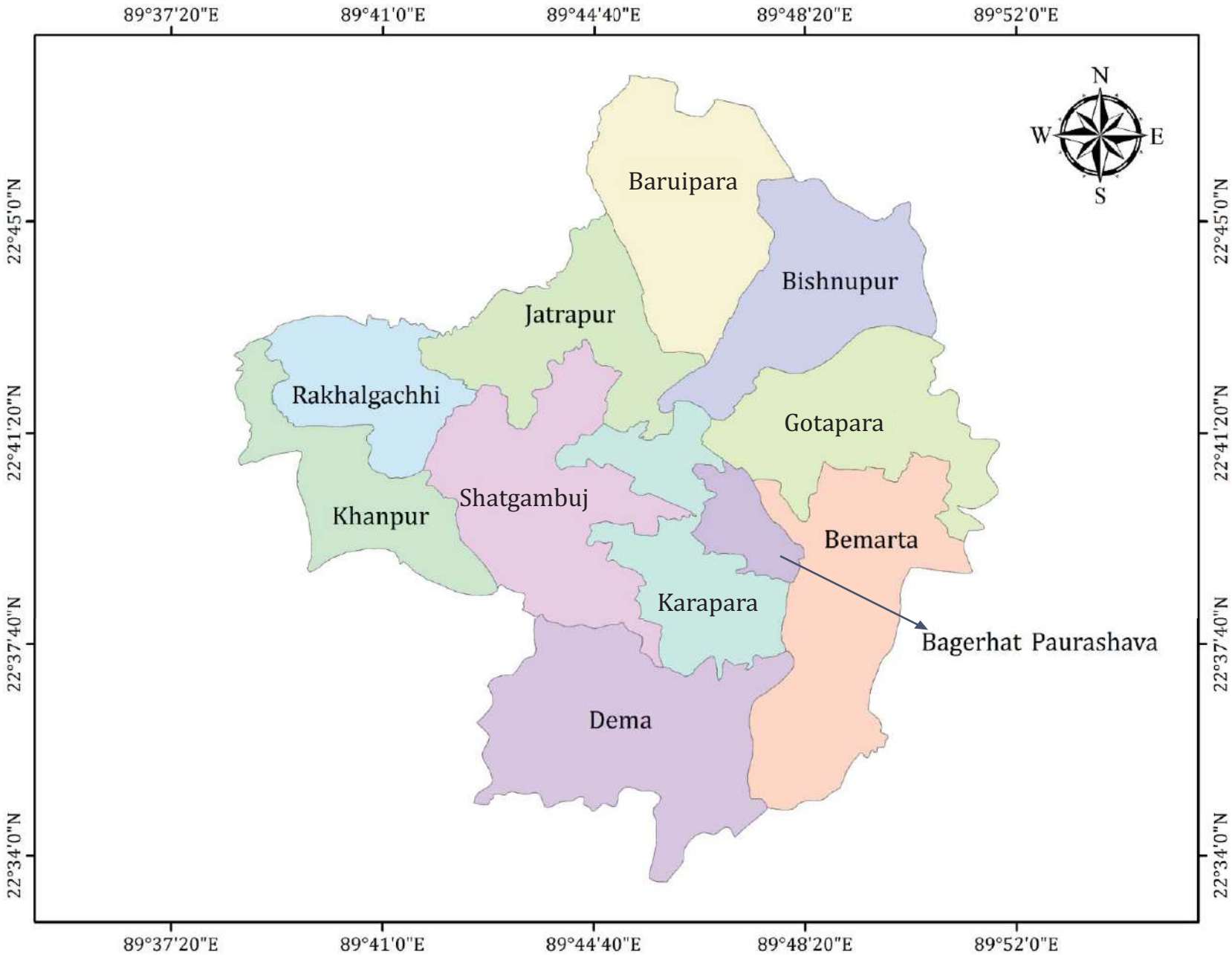
Upazilas where USDA-SAFETI will be working with small-holder farmers



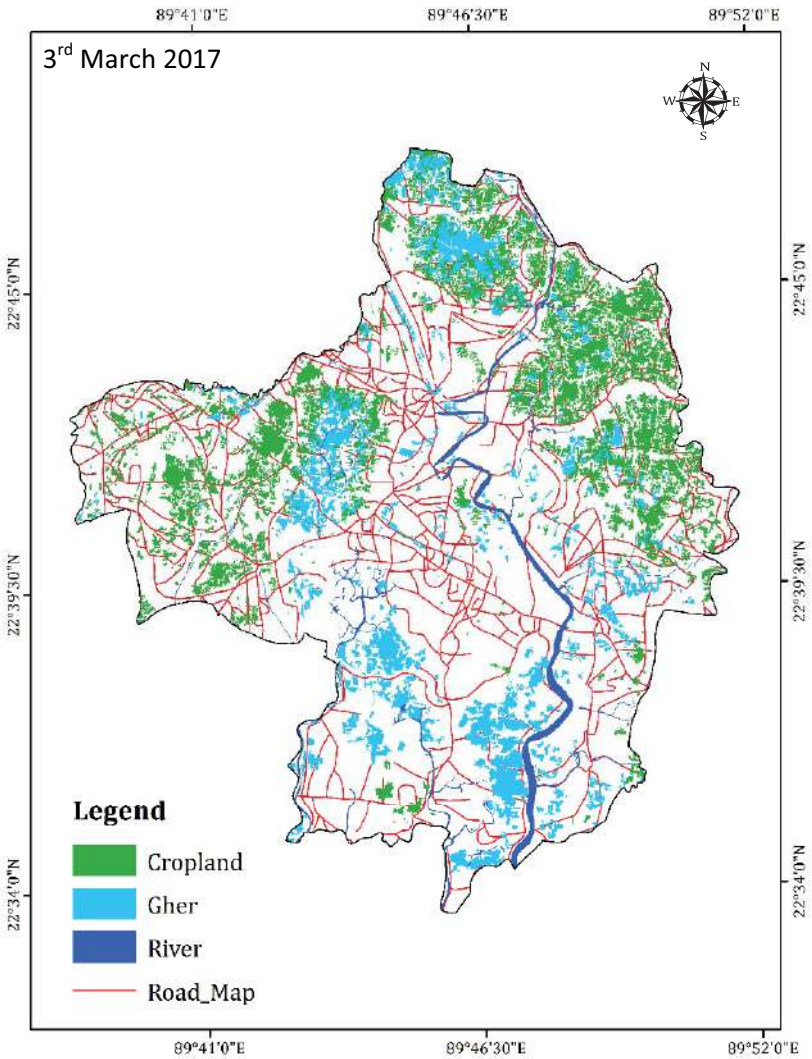
Bagerhat District

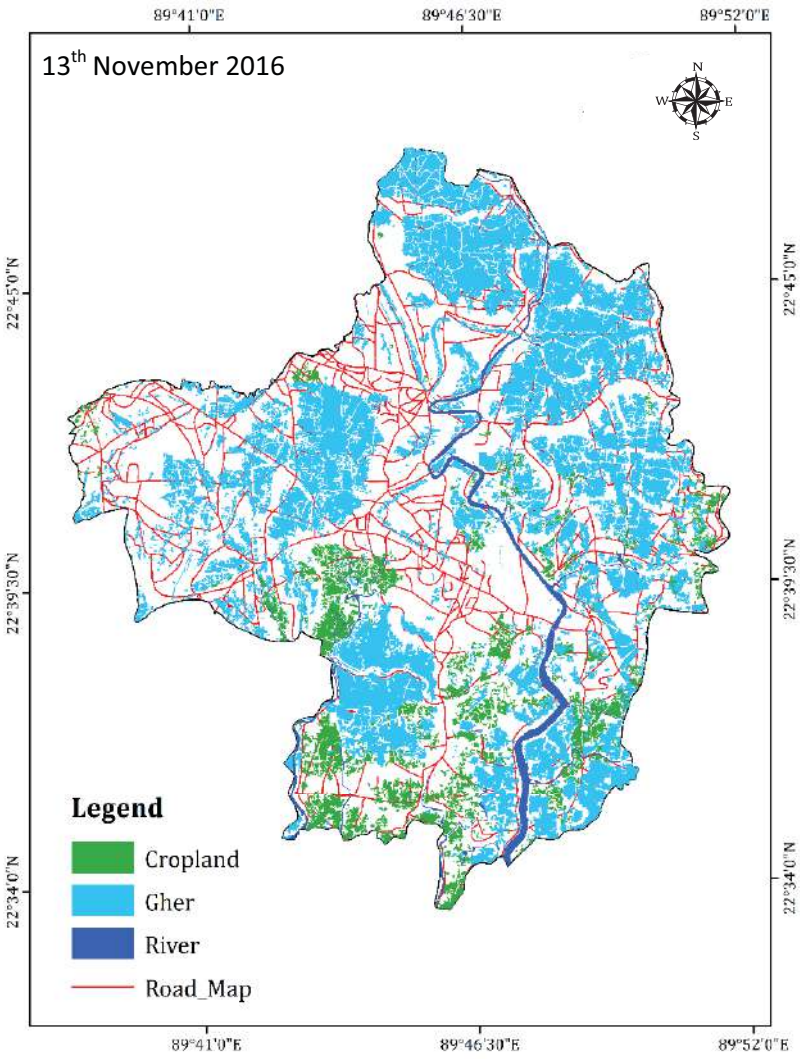
GIS based Gher map of Unions of Bagerhat Sadar Upazila

Map of Bagerhat Sadar Upazila with Unions



GIS map of Bagerhat Sadar Upazila with Gher and Crop area

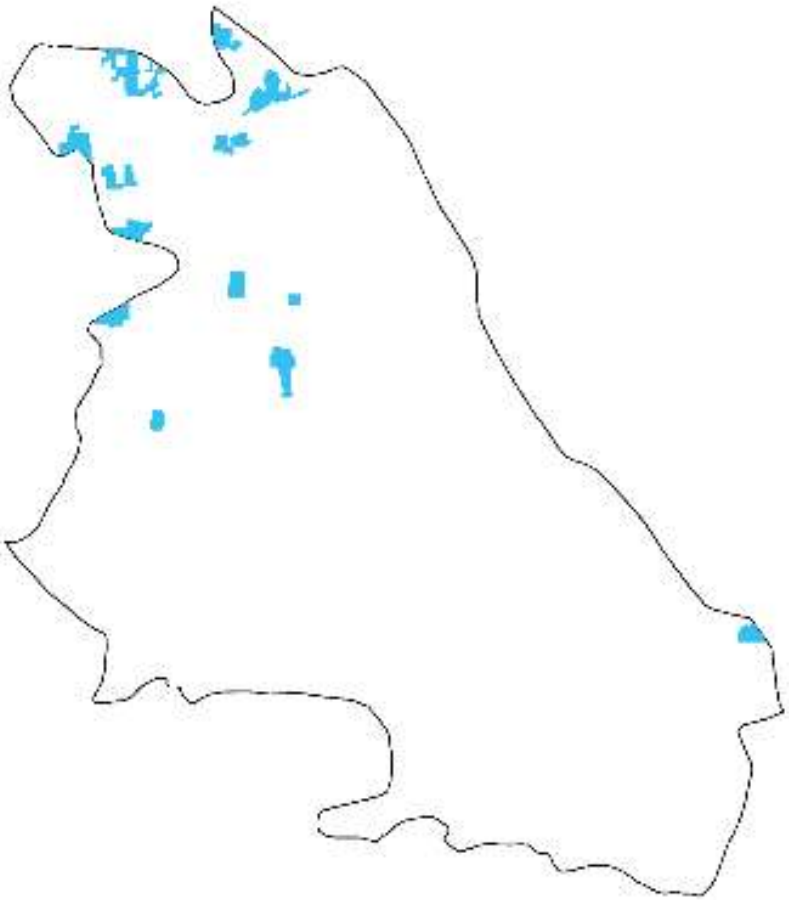




Upazila Name	Total area (ha)	3rd March 2017		13th November 2016	
		Agriculture (ha)	Gher (ha)	Agriculture (ha)	Gher (ha)
Bagerhat Sadar	31099	2966	4574	2125	10231

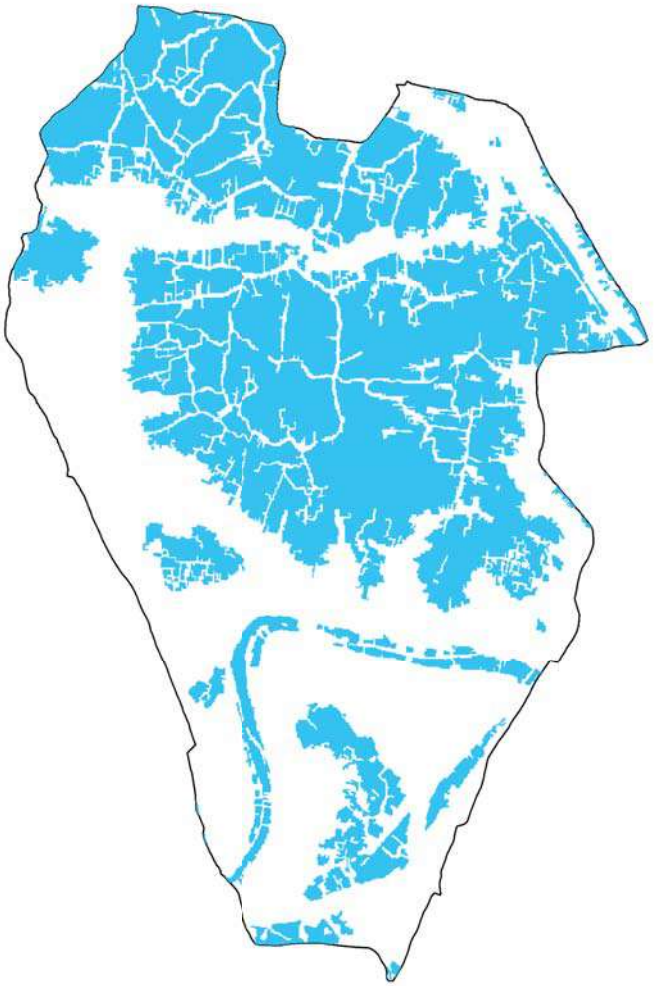
Bagerhat Paurashava

November, 2016: Total Gher area: 39 hectare

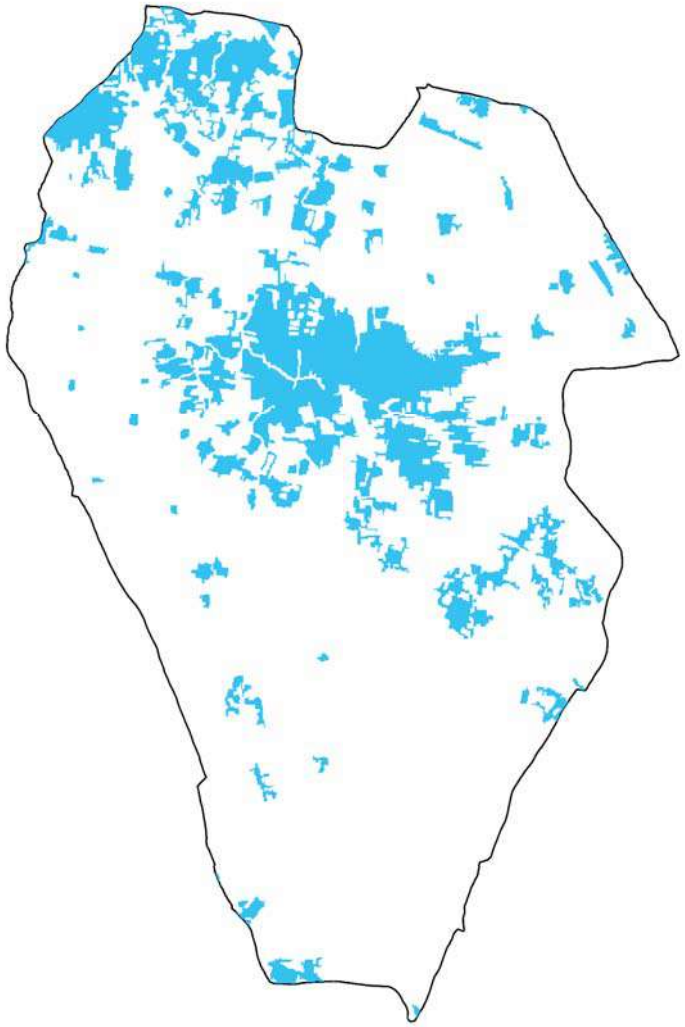


March, 2017: Total Gher area: 14 hectare

Baruipara

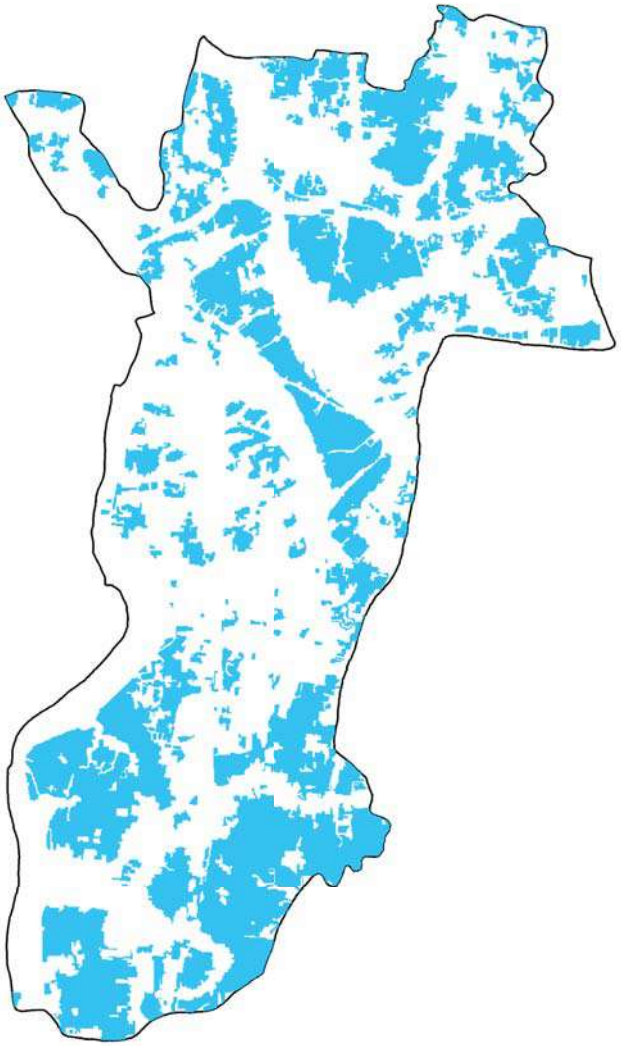


November, 2016: Total Gher area: 1590 hectare

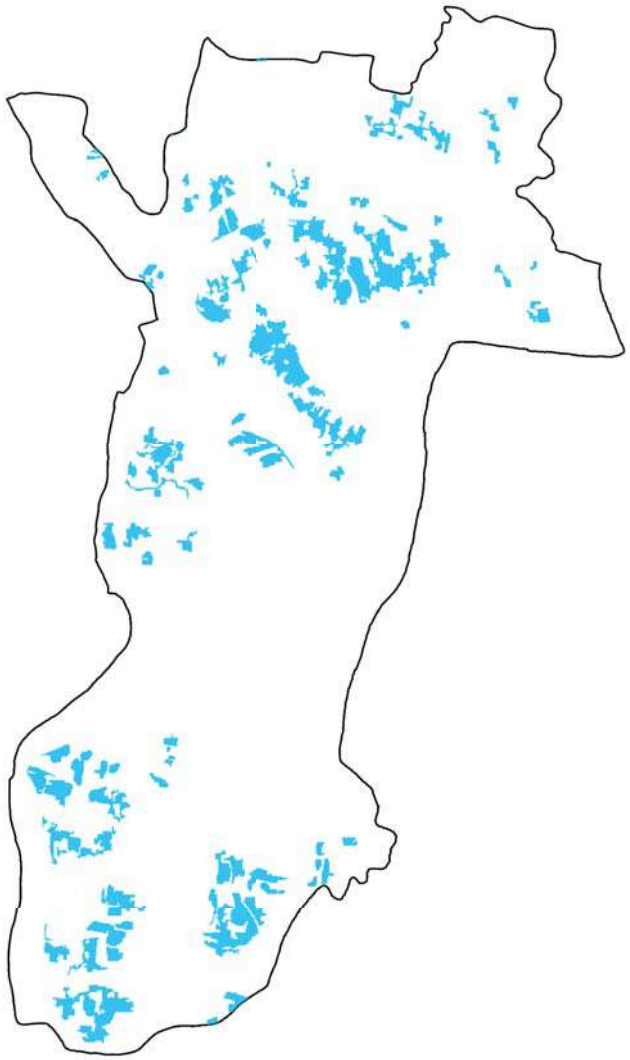


March, 2017: Total Gher area: 555 hectare

Bemarta

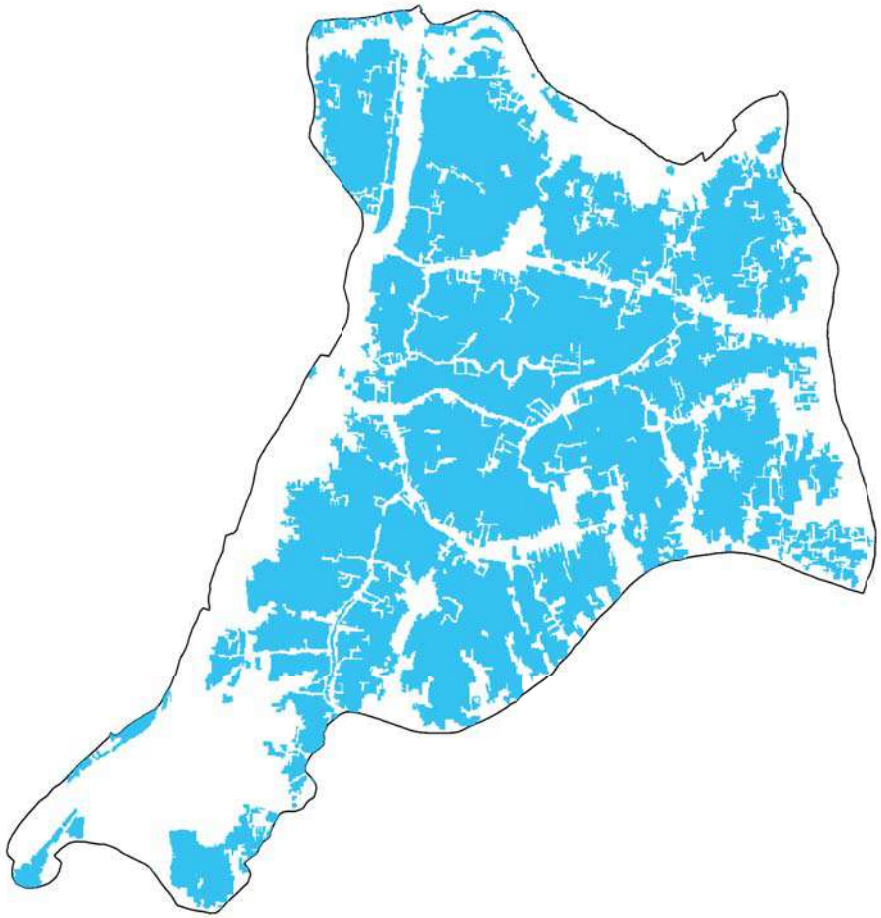


November, 2016: Total Gher area: 1430 hectare

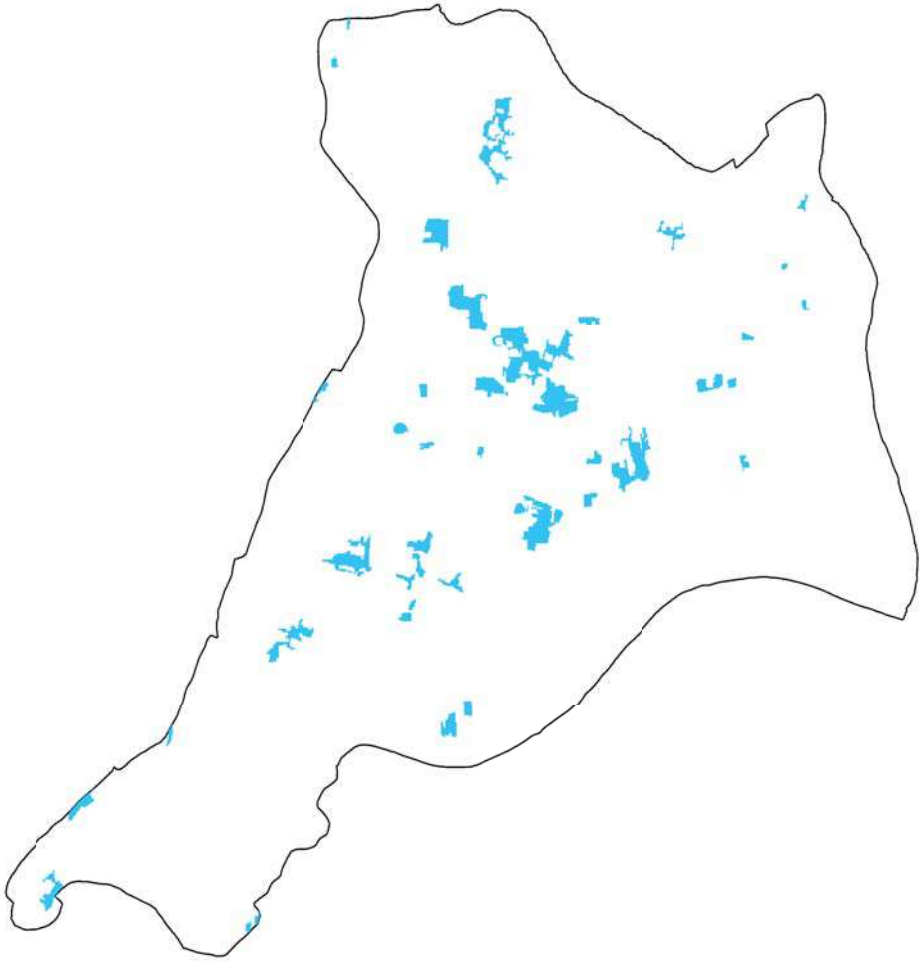


March, 2017: Total Gher area: 329 hectare

Bishnupur

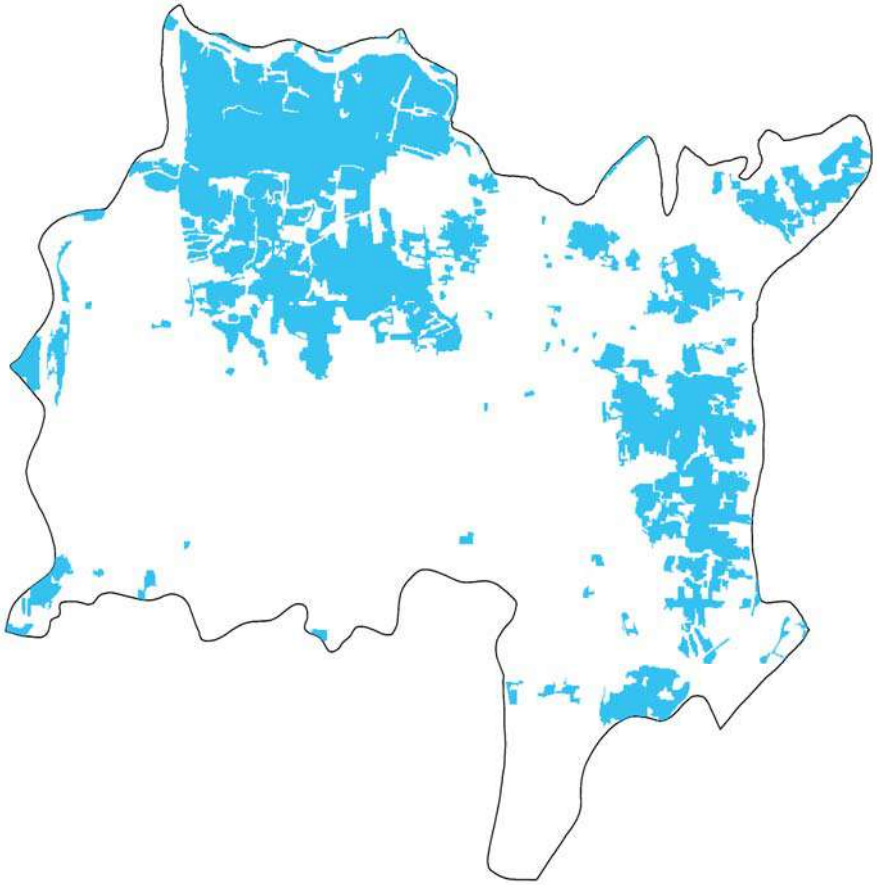


November, 2016: Total Gher area: 1711 hectare

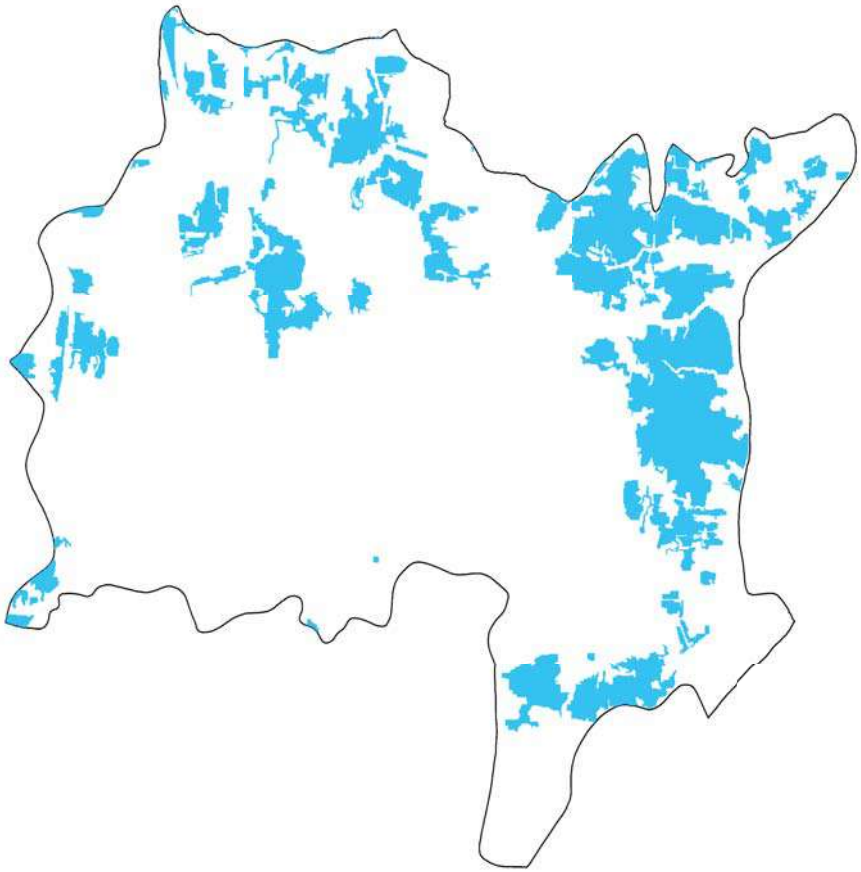


March, 2017: Total Gher area: 94 hectare

Dema

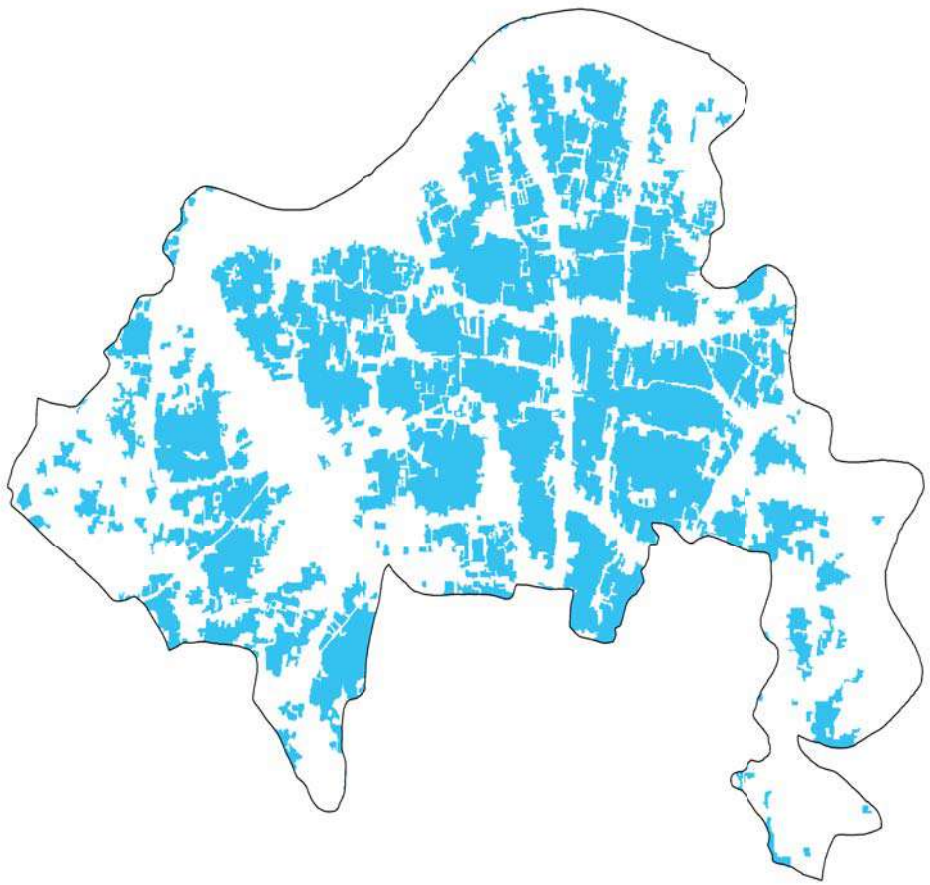


November, 2016: Total Gher area: 1062 hectare

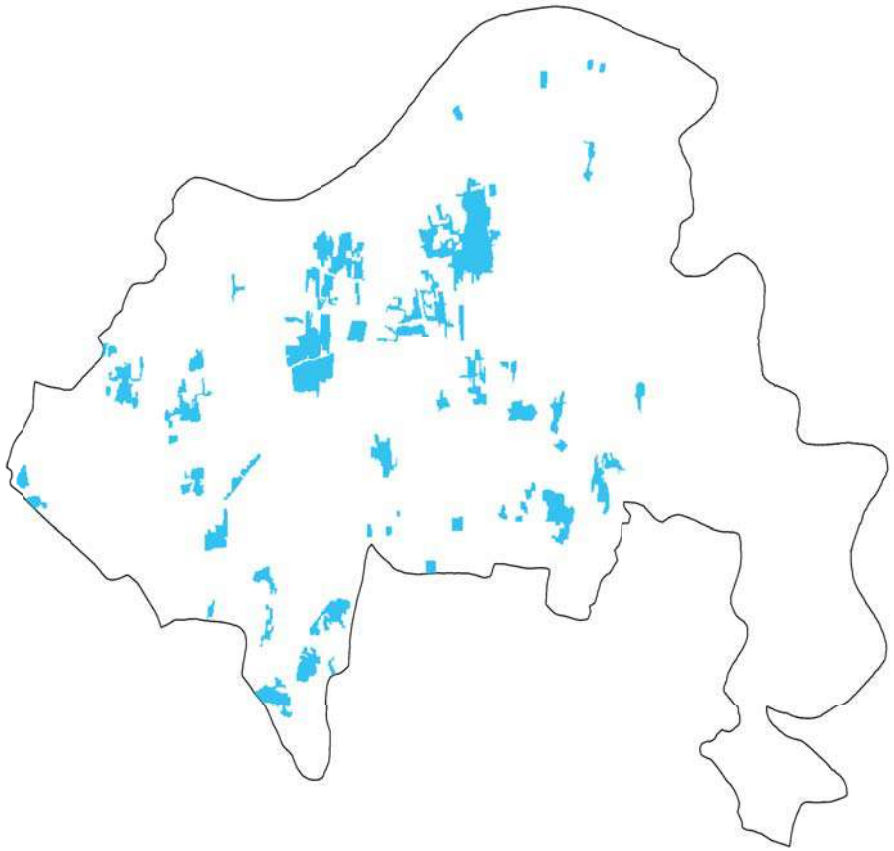


March, 2017: Total Gher area: 764 hectare

Gotapara

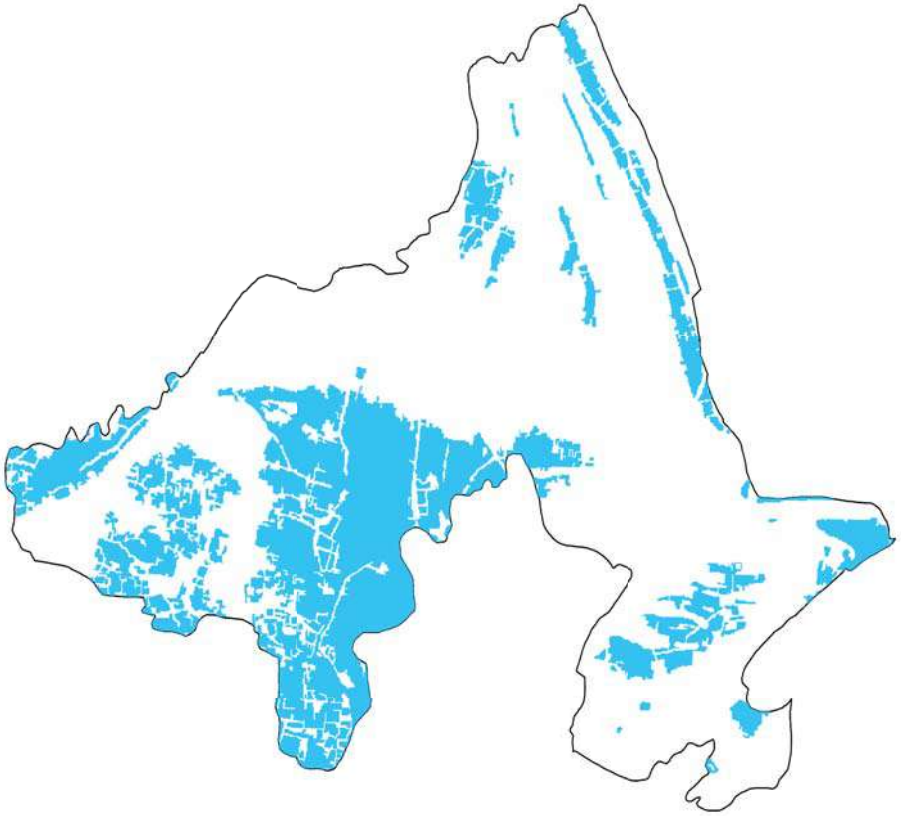


November, 2016: Total Gher area: 1193 hectare

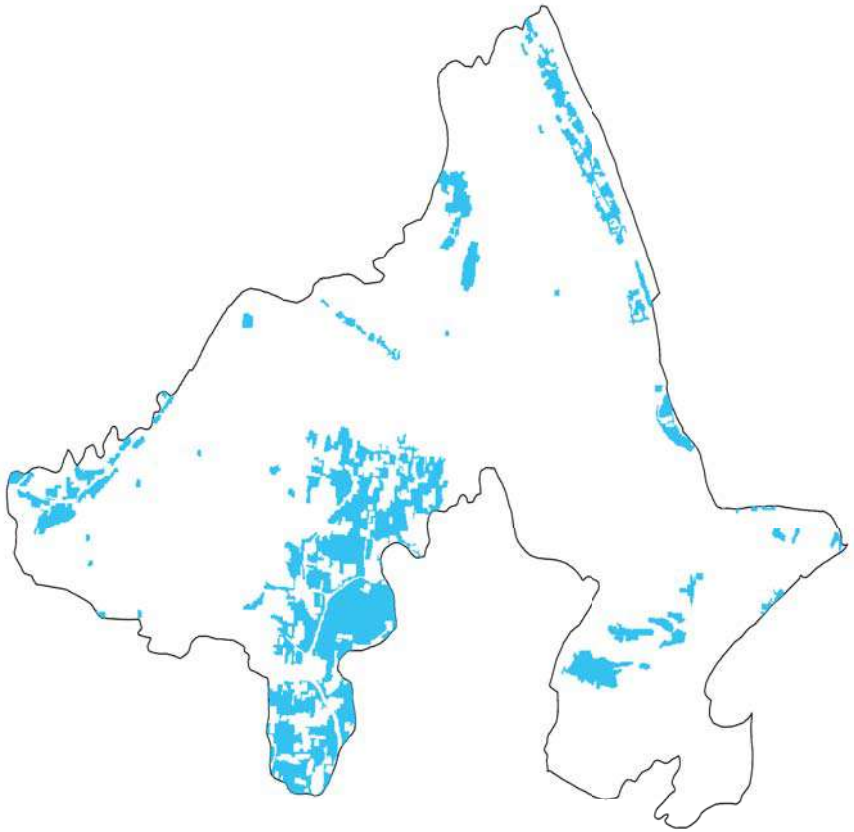


March, 2017: Total Gher area: 176 hectare

Jatrapur

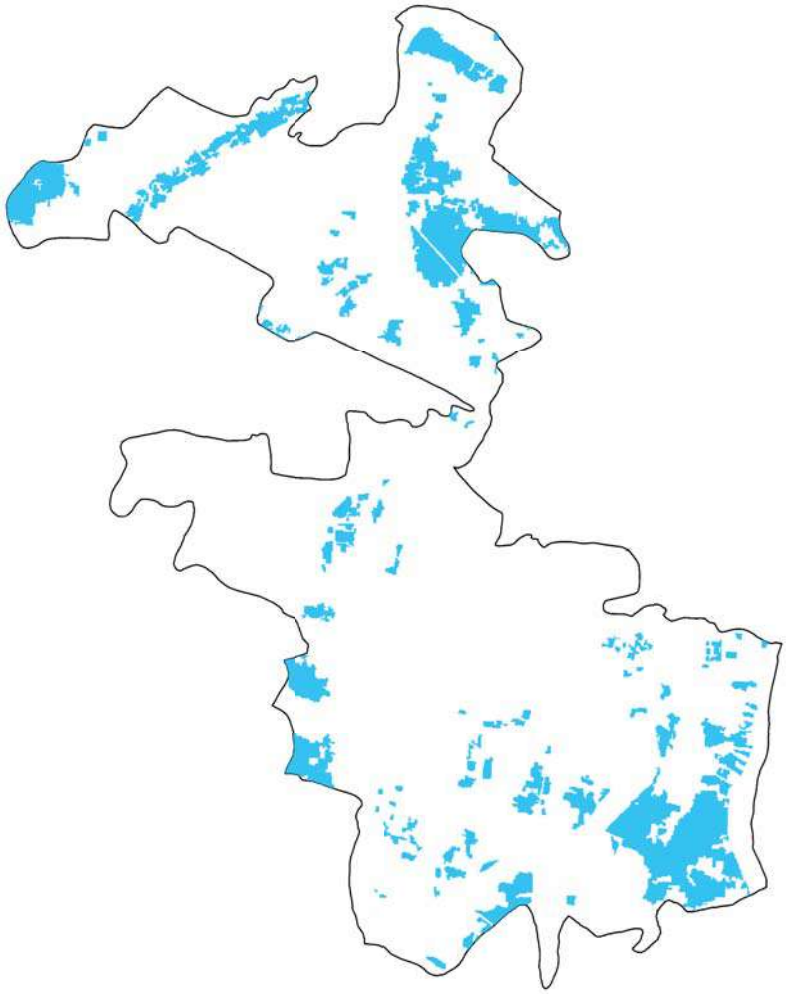


November, 2016: Total Gher area: 702 hectare



March, 2017: Total Gher area: 297 hectare

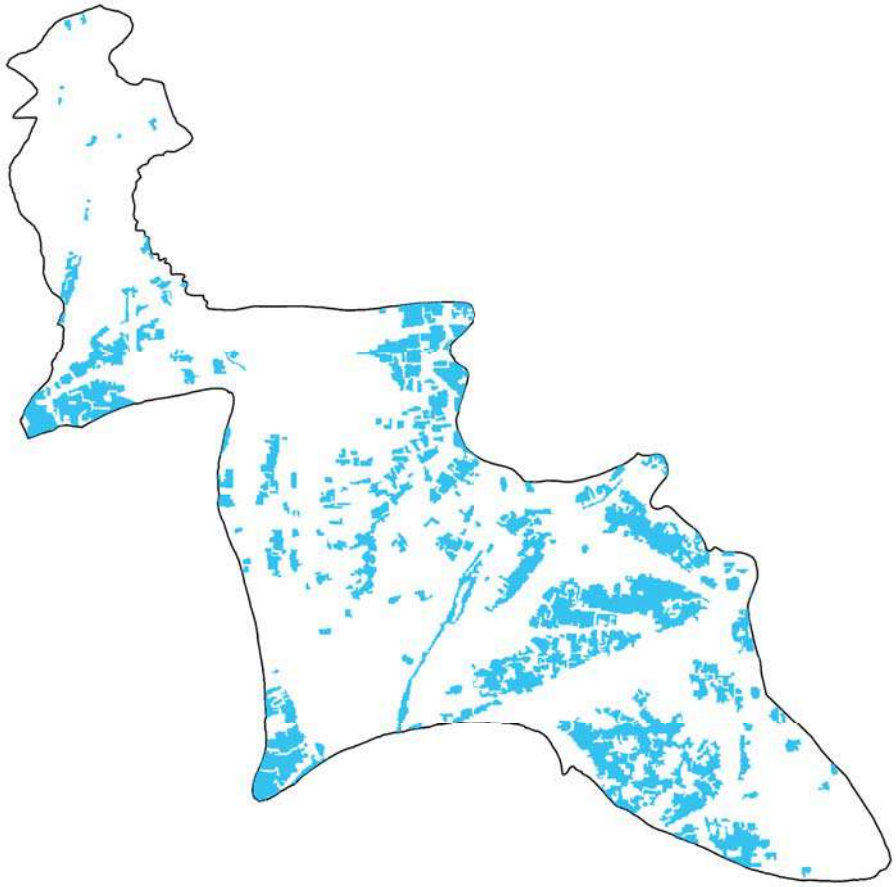
Karapara



November, 2016: Total Gher area: 324 hectare

March, 2017: Total Gher area: 143 hectare

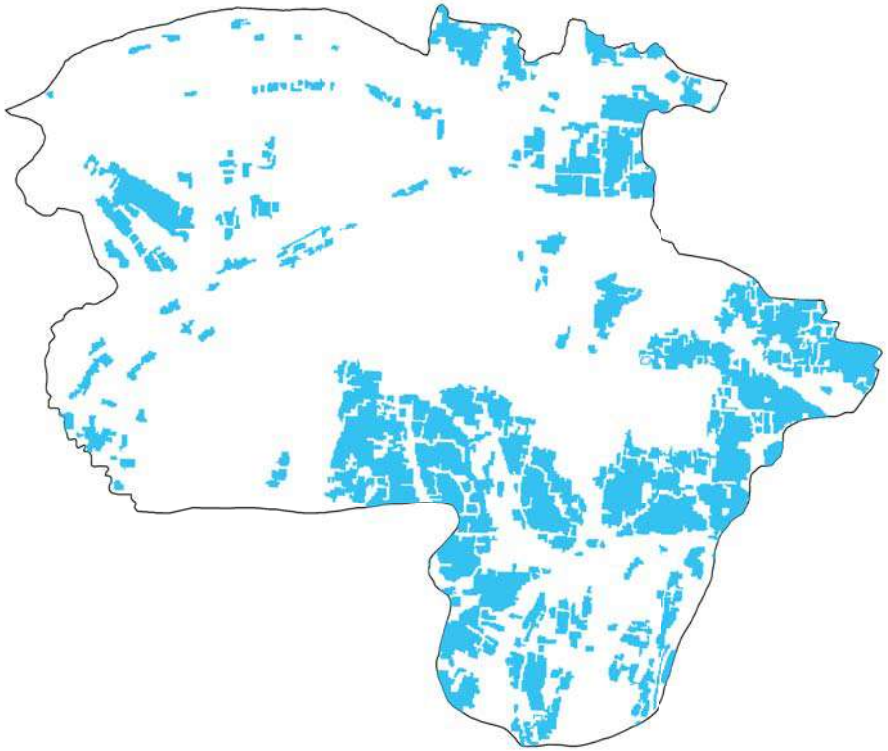
Khanpur



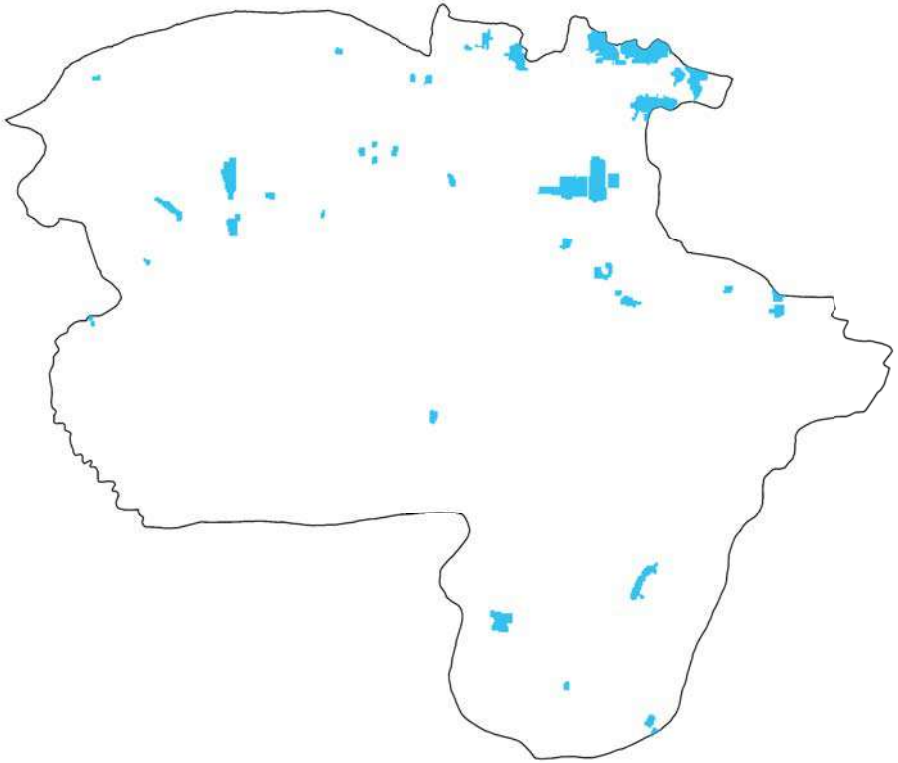
November, 2016: Total Gher area: 418 hectare

March, 2017: Total Gher area: 14 hectare

Rakhalgachhi

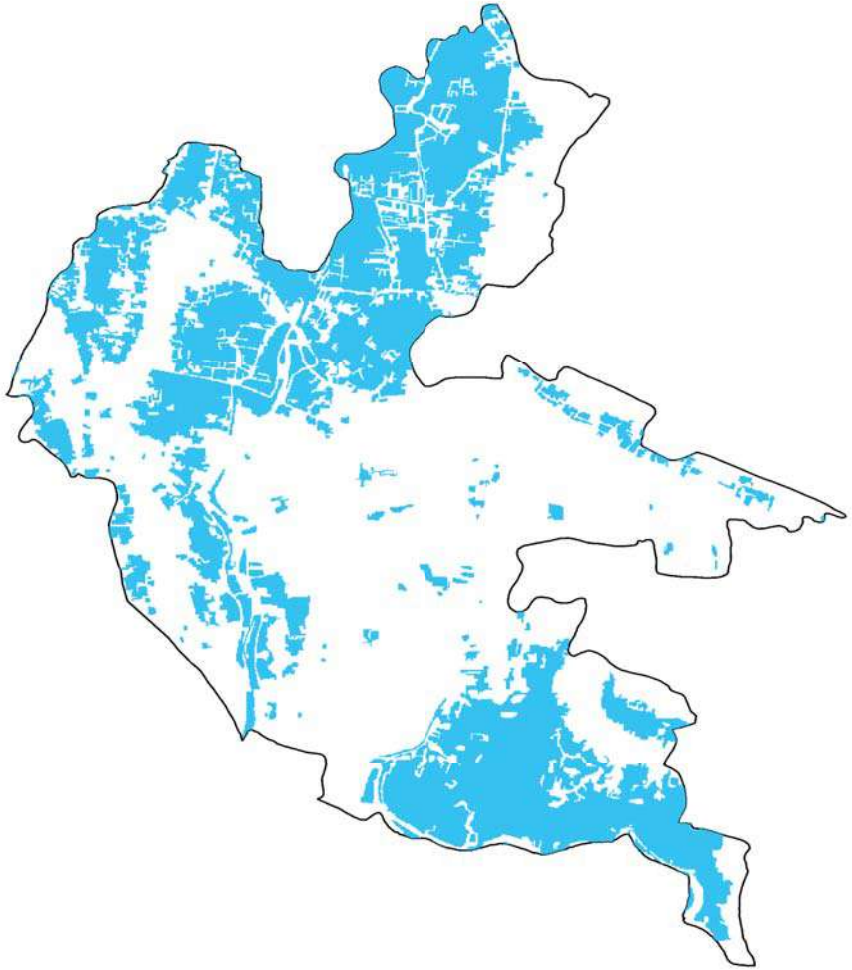


November, 2016: Total Gher area: 430 hectare

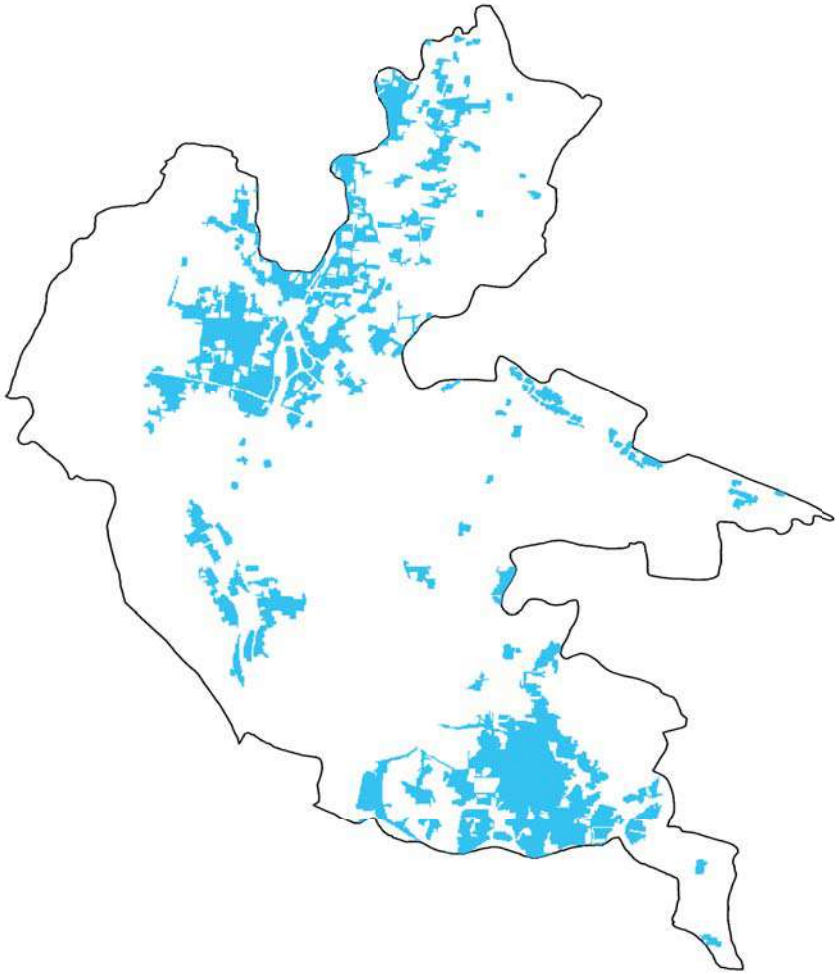


March, 2017: Total Gher area: 40 hectare

Shatgambuj



November, 2016: Total Gher area: 1326 hectare

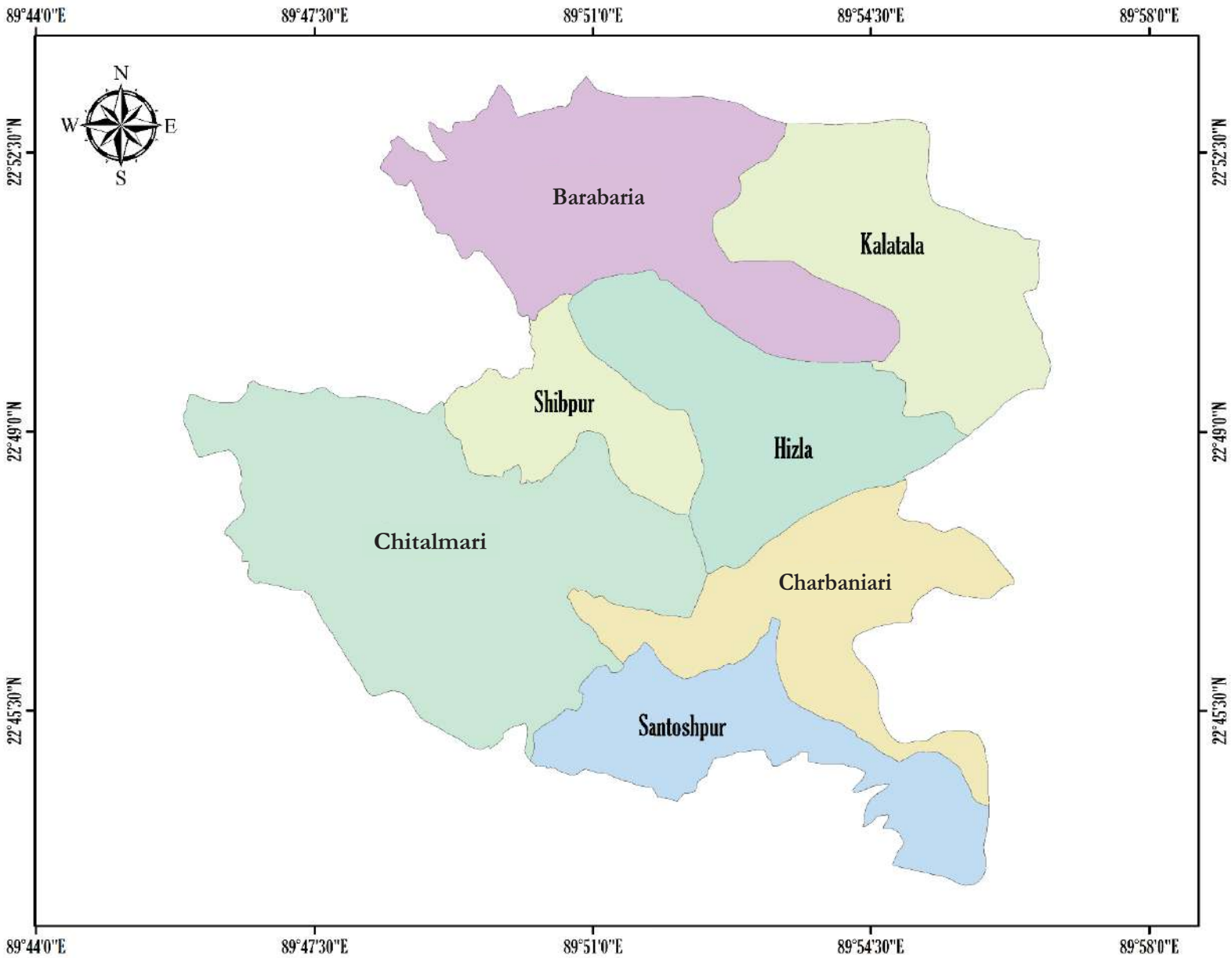


March, 2017: Total Gher area: 538 hectare

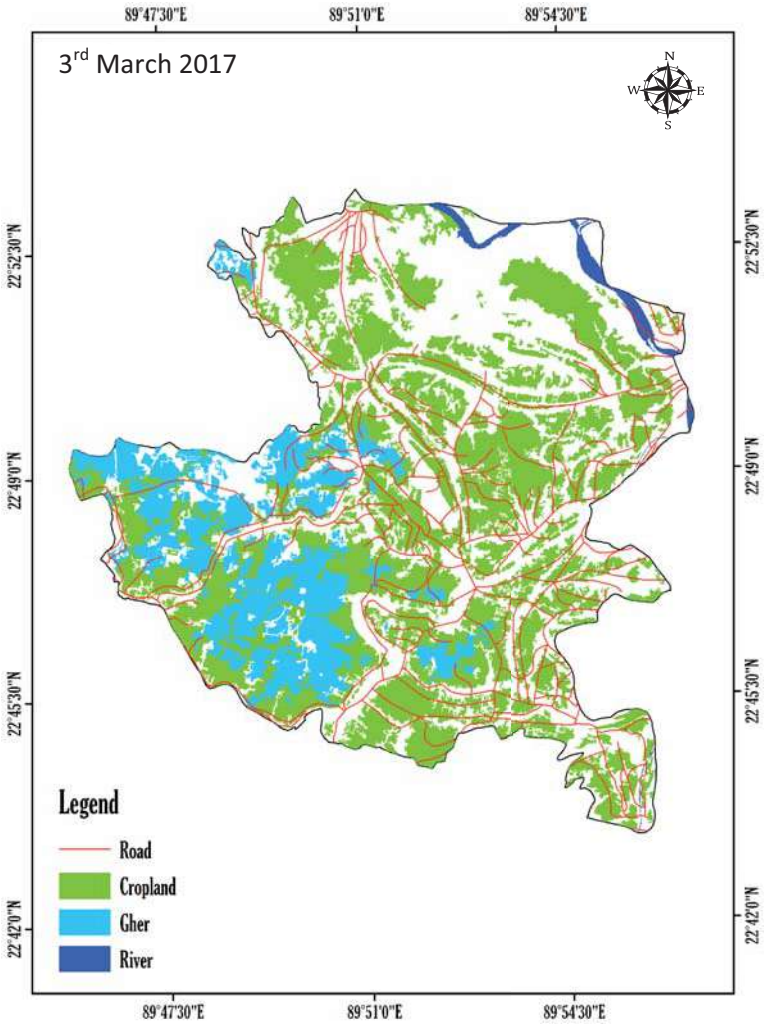
Bagerhat District

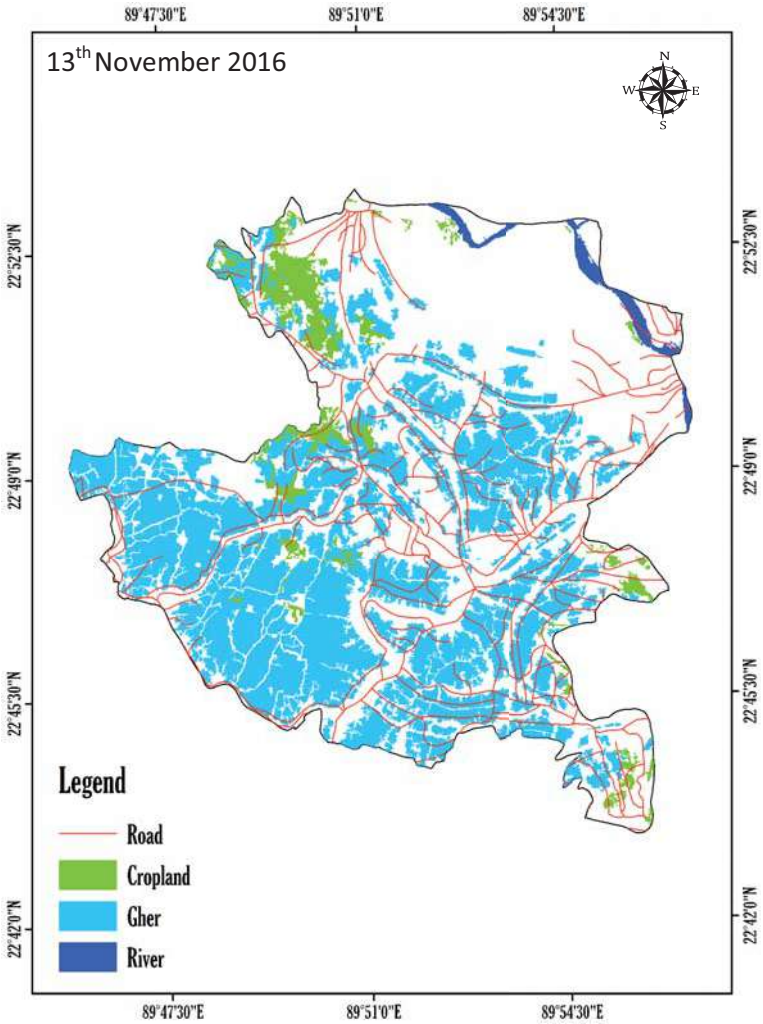
GIS based Gher map of Unions of Chitalmari Upazila

Map of Chitalmari Upazila with Unions



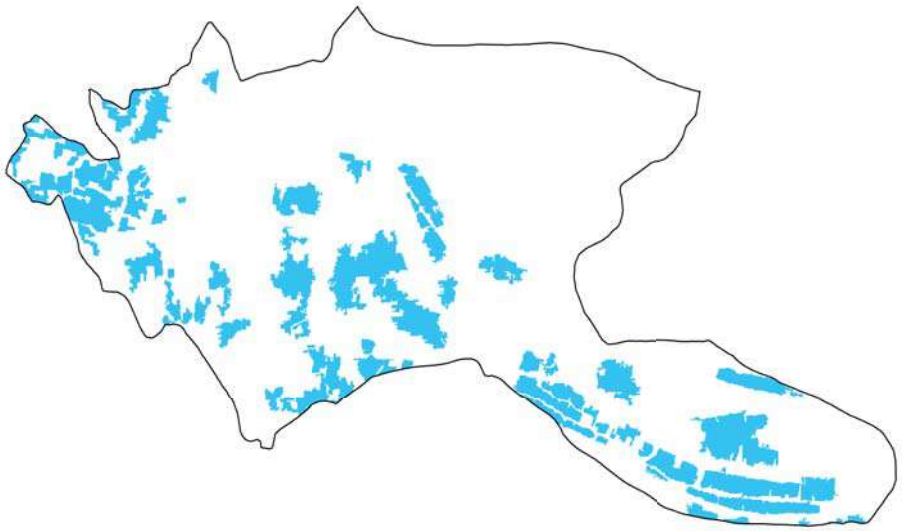
GIS map of Chitalmari Upazila with Gher and Crop area



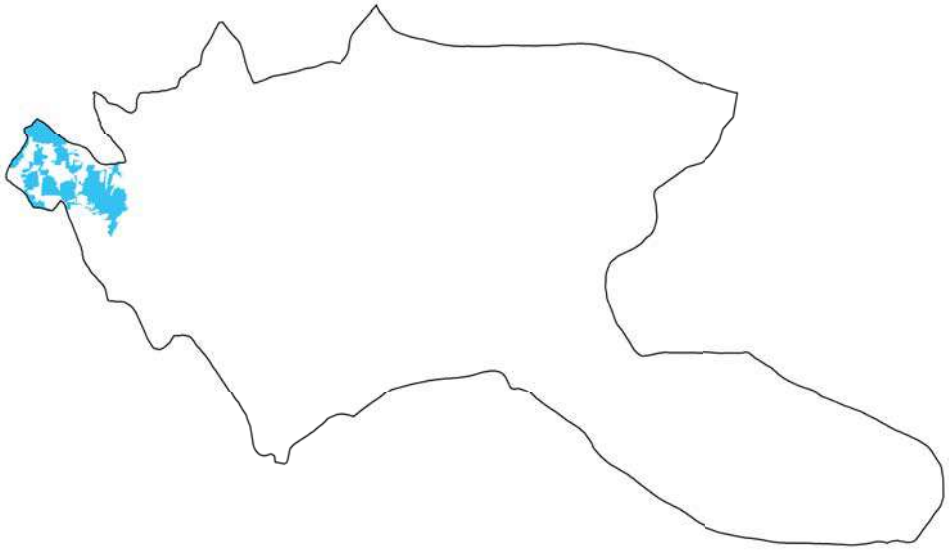


Upazila Name	Total area (ha)	3rd March 2017		13th November 2016	
		Agriculture (ha)	Gher (ha)	Agriculture (ha)	Gher (ha)
Chitalmari	19770	8539	2662	872	7927

Barabaria

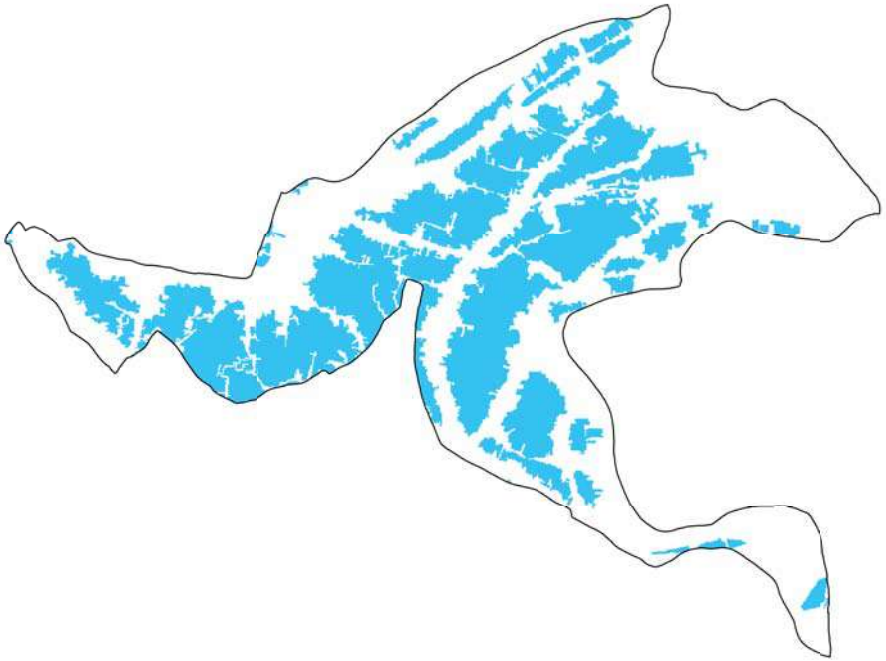


November, 2016: Total Gher area: 608 hectare

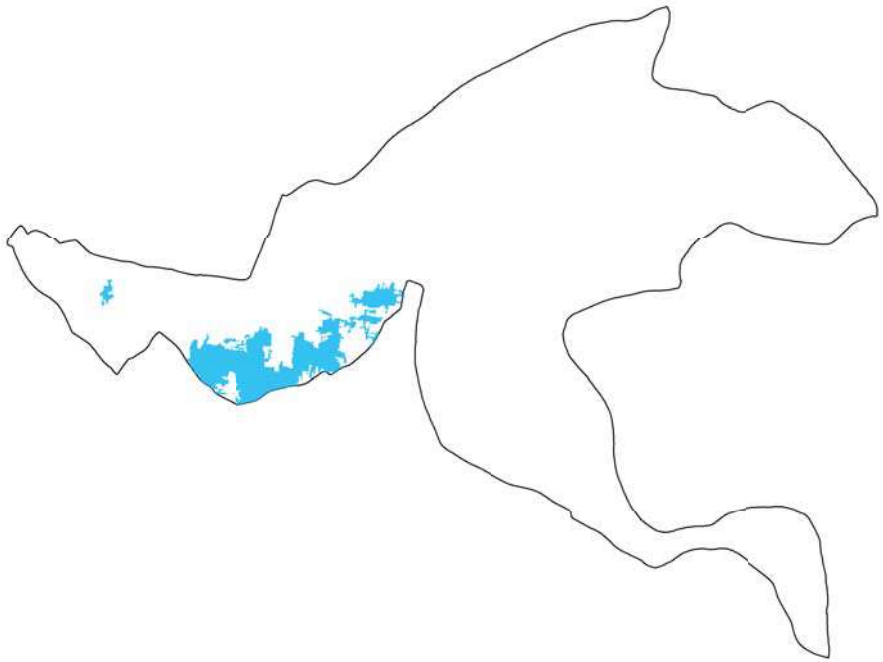


March, 2017: Total Gher area: 61 hectare

Charbaniari

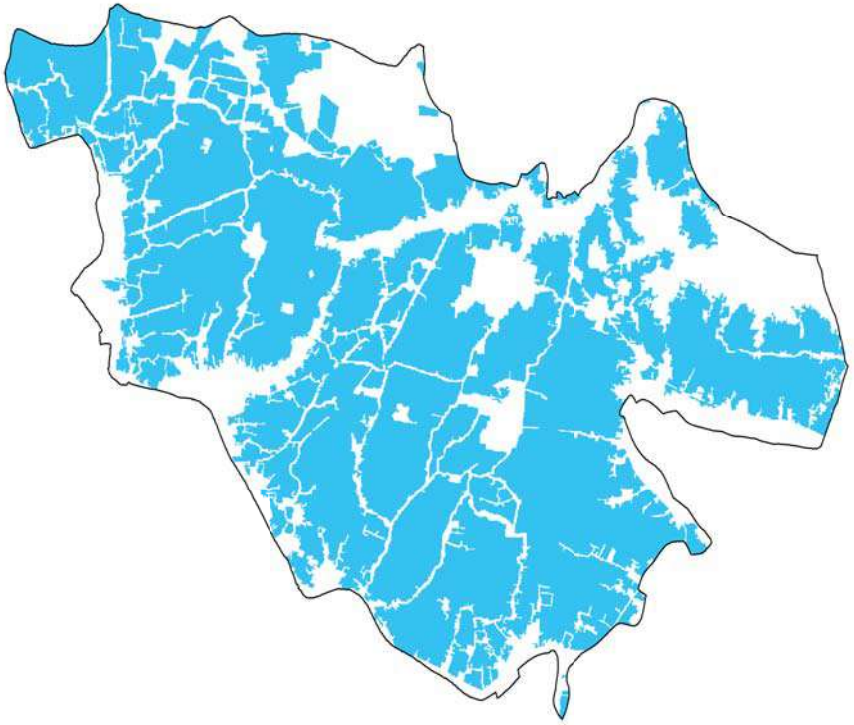


November, 2016: Total Gher area: 949 hectare

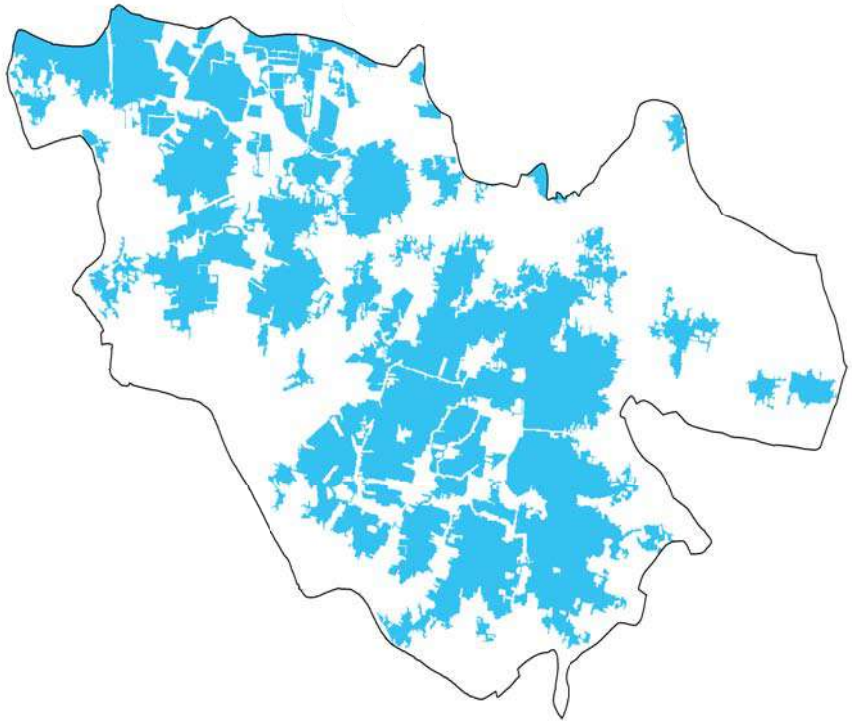


March, 2017: Total Gher area: 97 hectare

Chitalmari

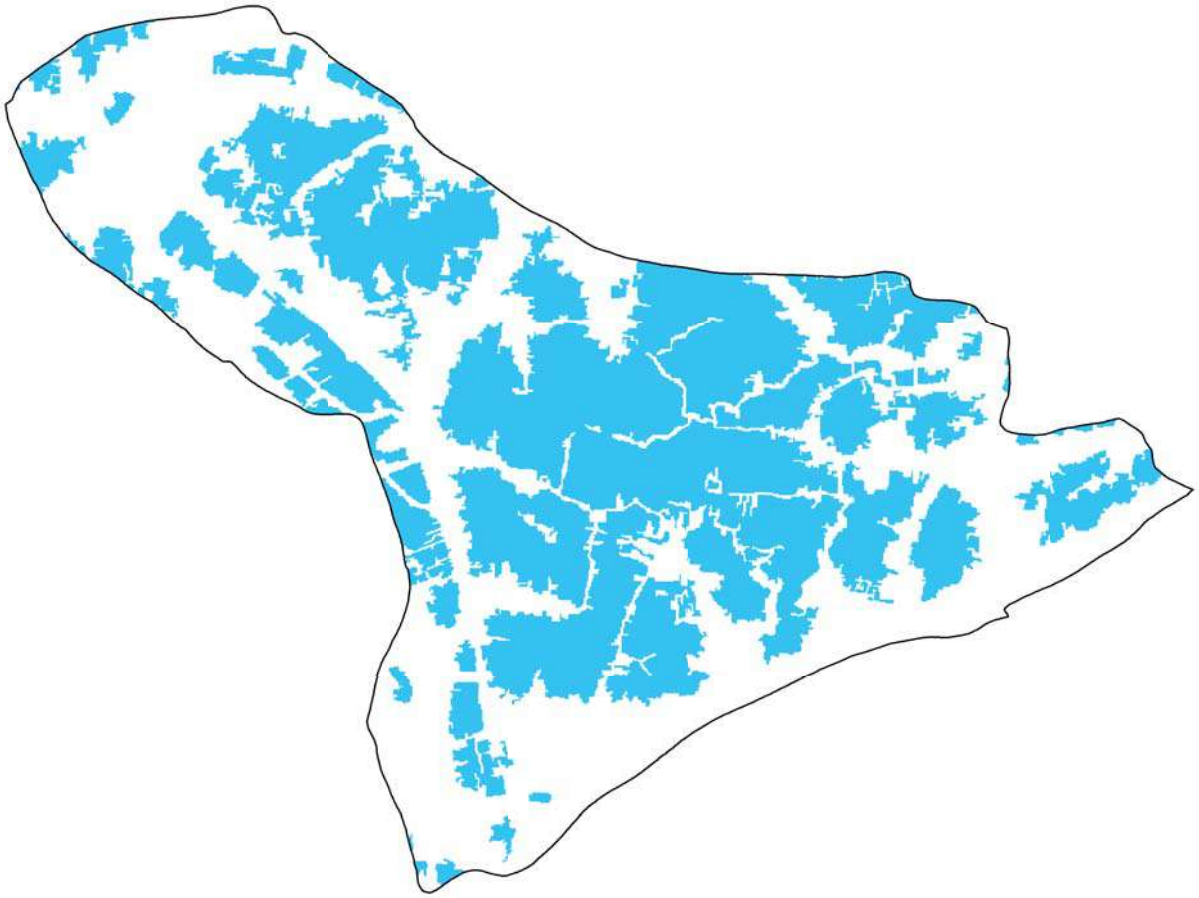


November, 2016: Total Gher area: 3570 hectare



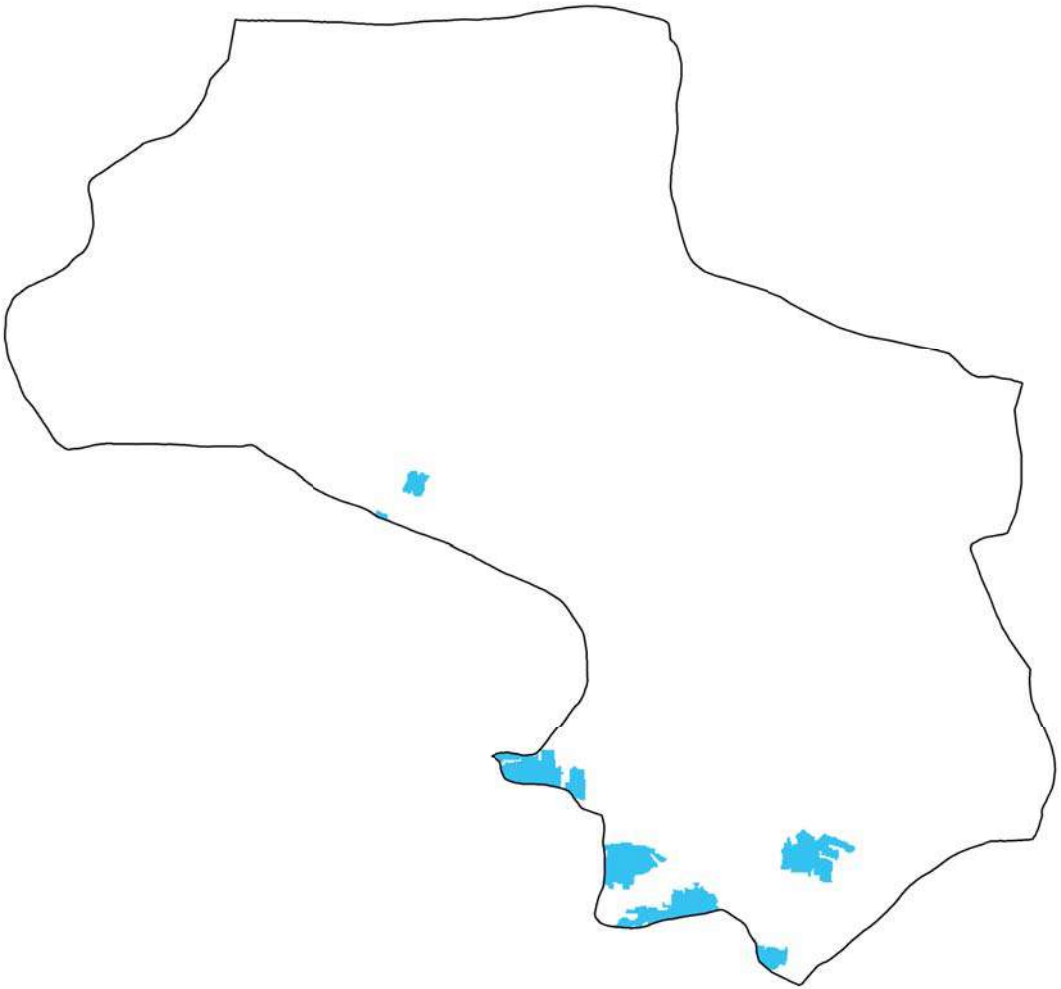
March, 2017: Total Gher area: 2068 hectare

Hizla



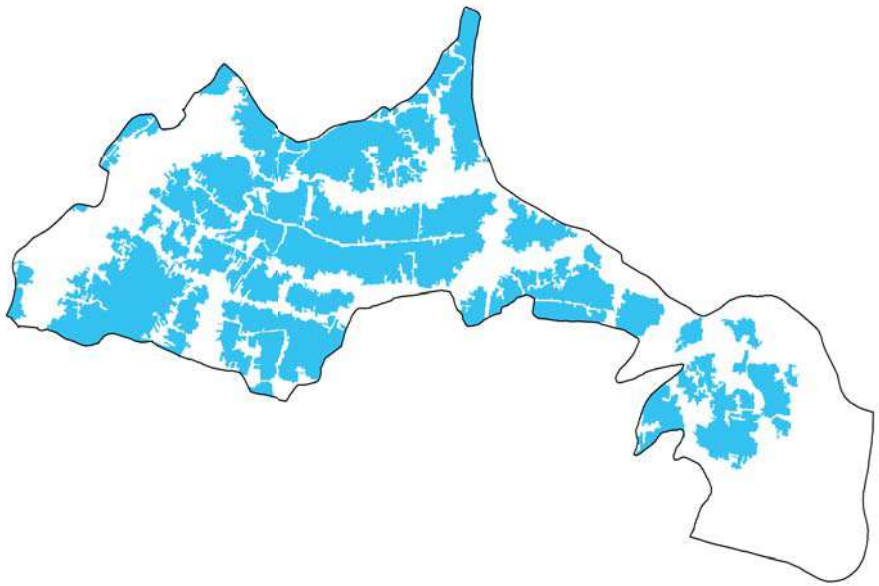
November, 2016: Total Gher area: 1208 hectare

Kalatala

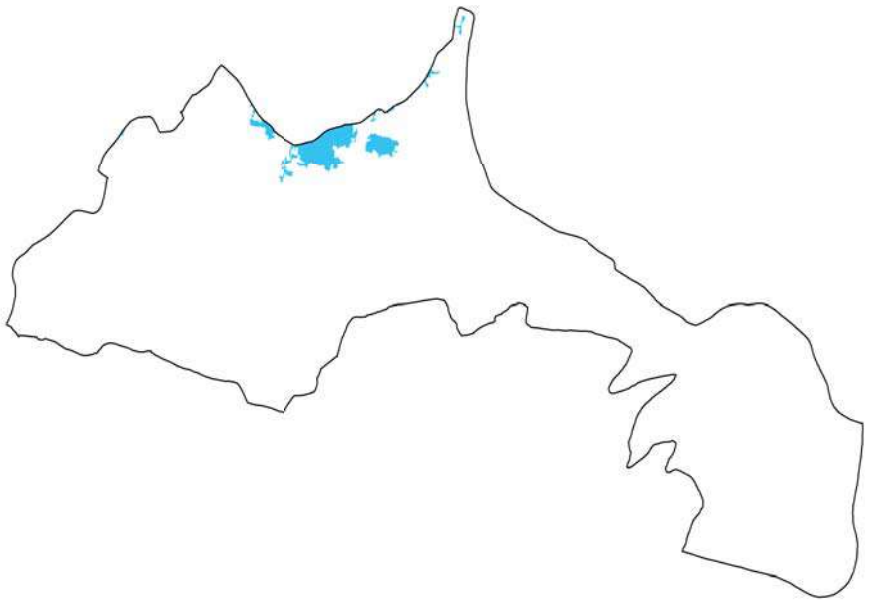


November, 2016: Total Gher area: 47 hectare

Santoshpur

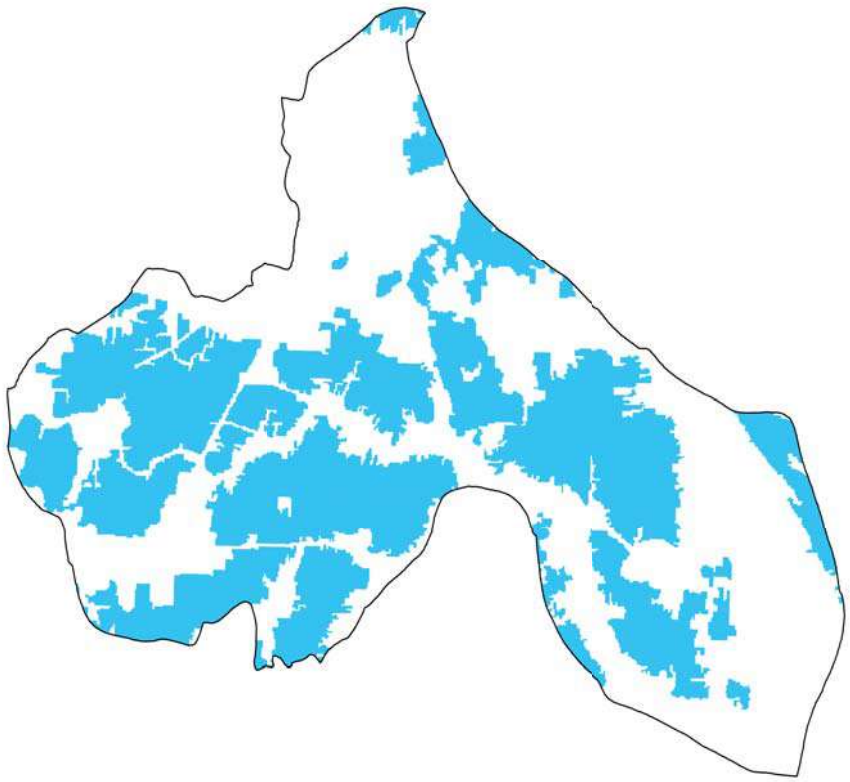


November, 2016: Total Gher area: 958 hectare

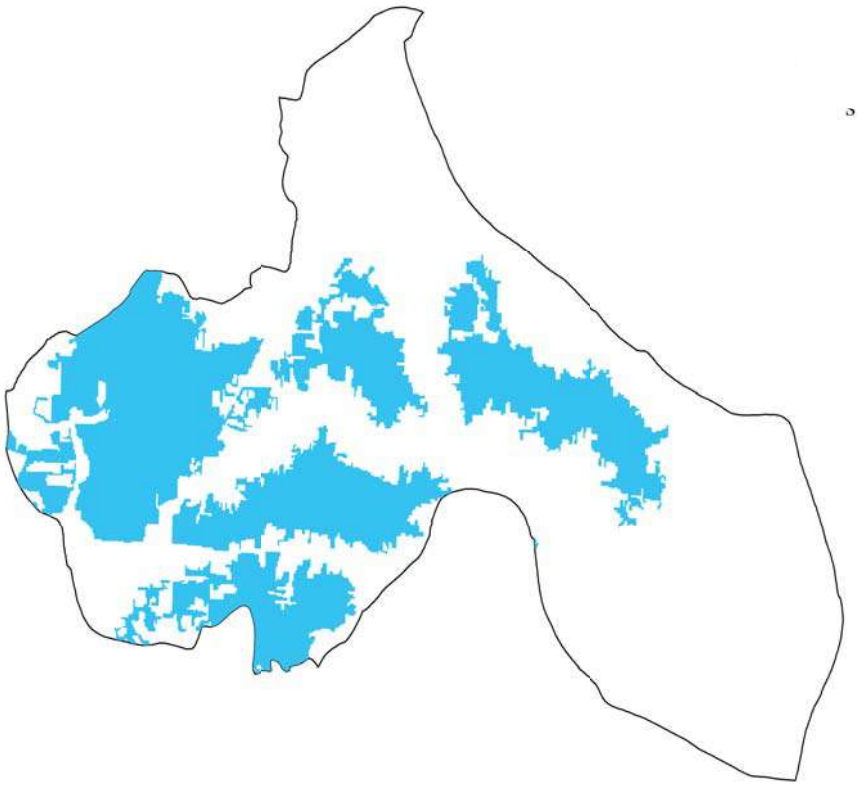


March, 2017: Total Gher area: 32 hectare

Shibpur



November, 2016: Total Gher area: 584 hectare

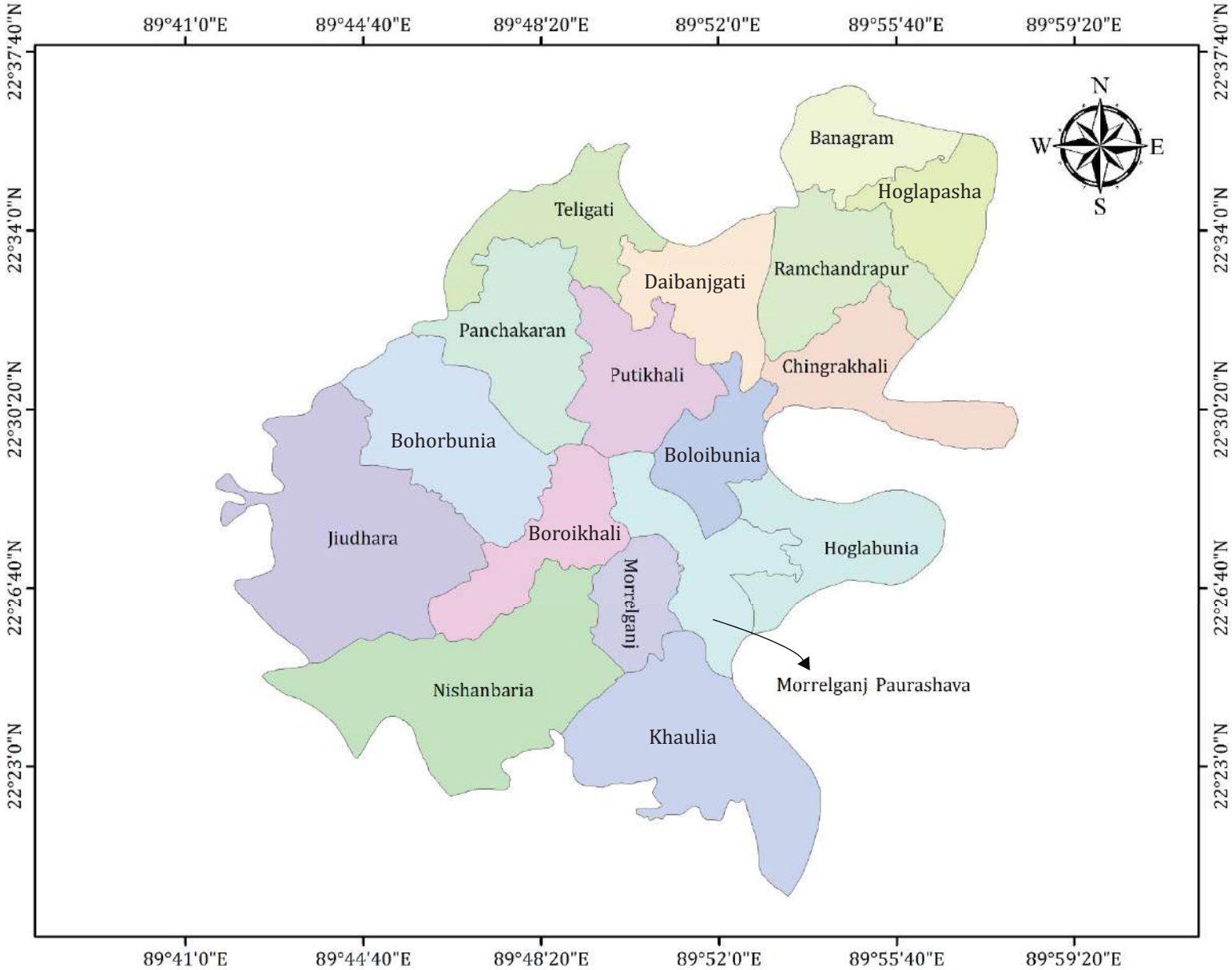


March, 2017: Total Gher area: 402 hectare

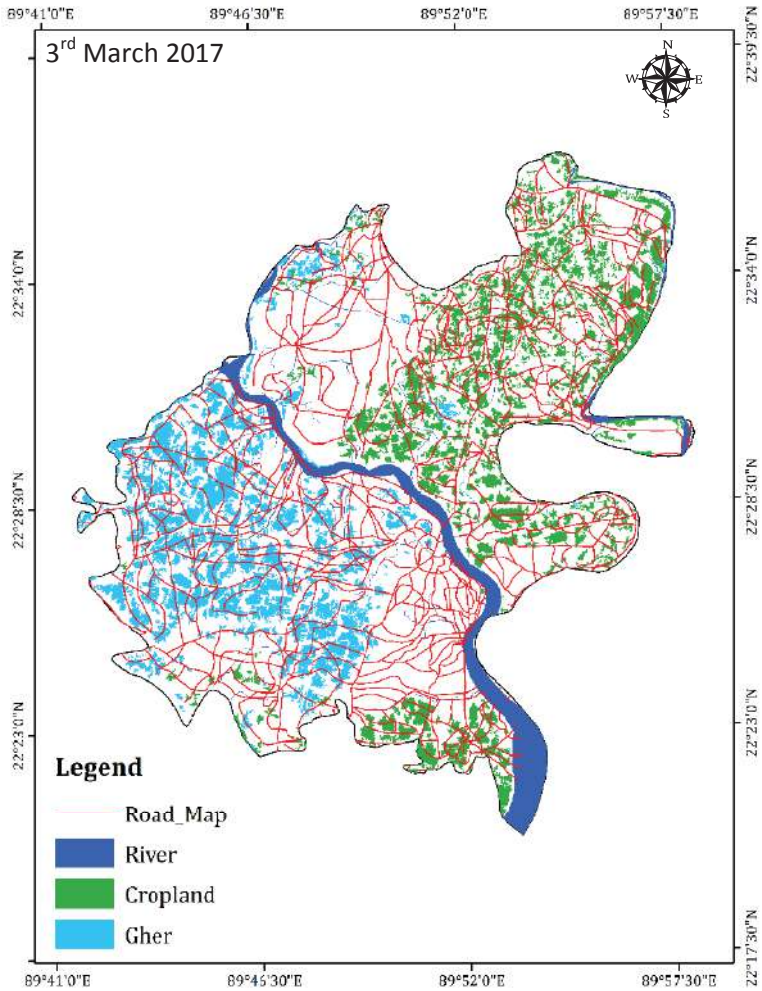
Bagerhat District

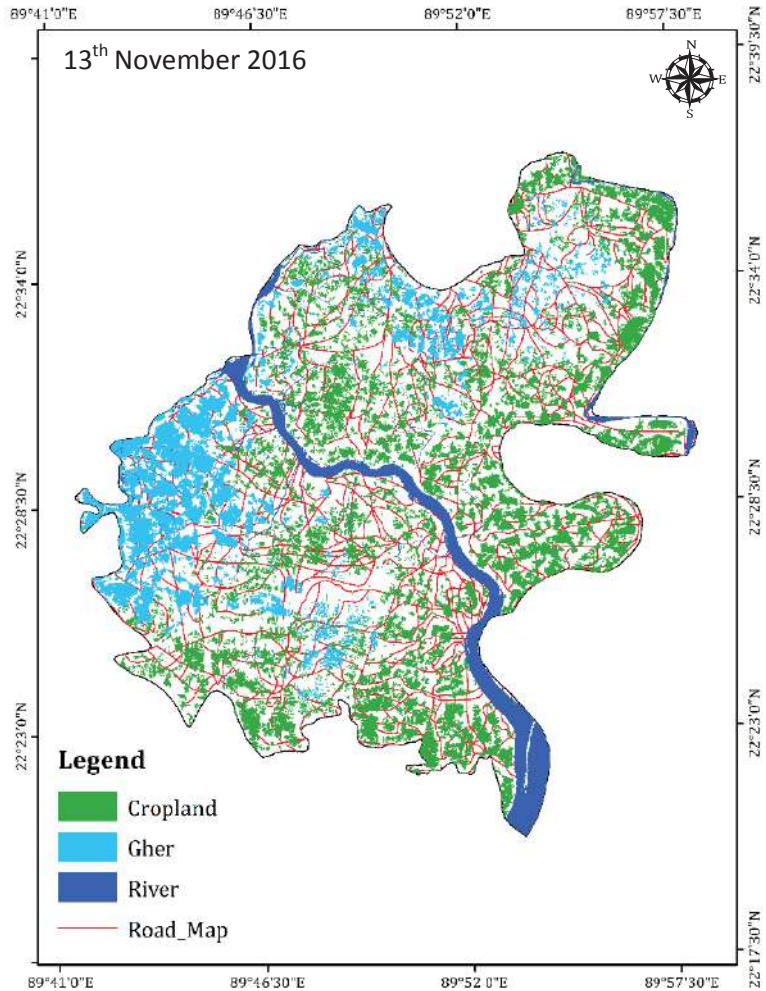
GIS based Gher map of Unions of Morrelganj Upazila

Map of Morrelganj Upazila with Unions



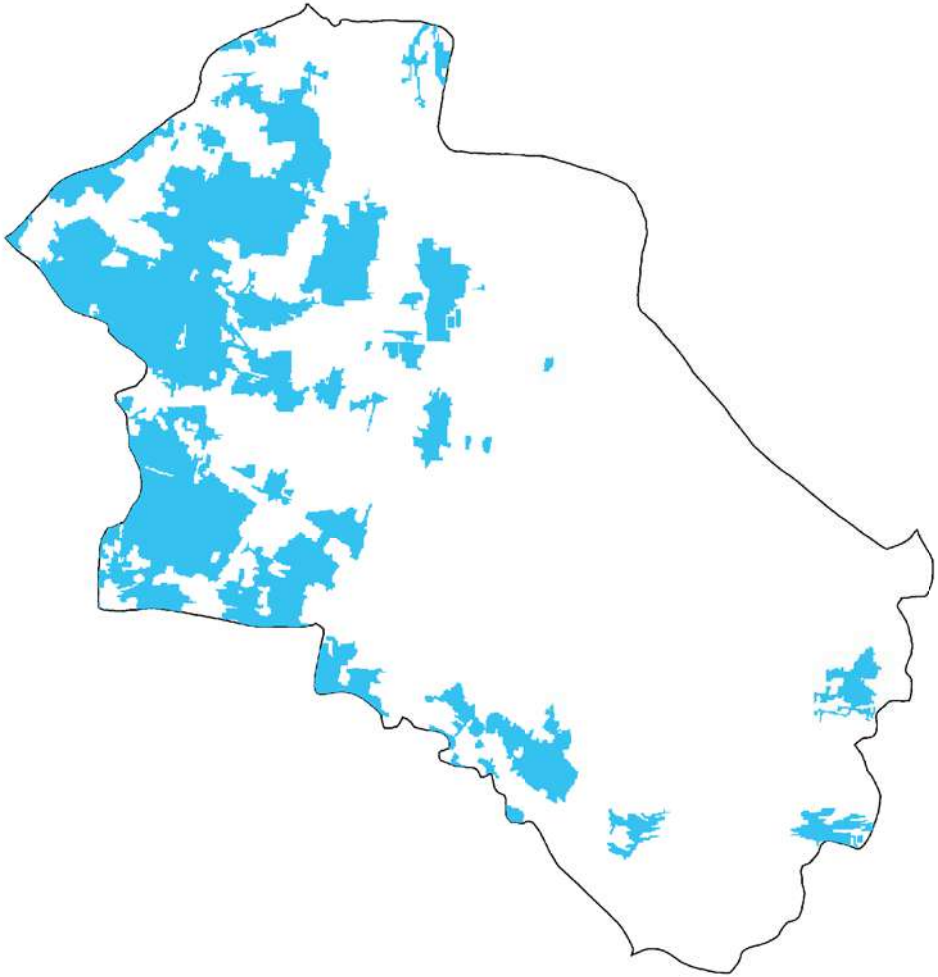
GIS map of Morrelganj Upazila with Gher and Crop area



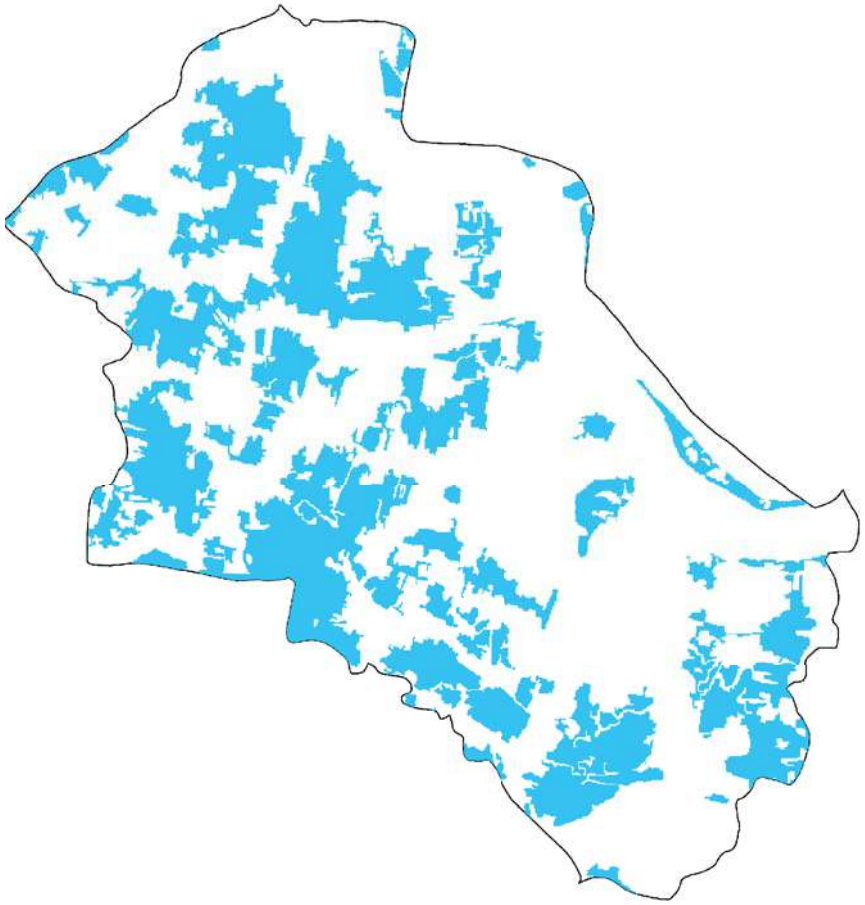


Upazila Name	Total area (ha)	3rd March 2017		13th November 2016	
		Agriculture (ha)	Gher (ha)	Agriculture (ha)	Gher (ha)
Morrelganj	44468	5636	5864	5013	10623

Bohorbunia

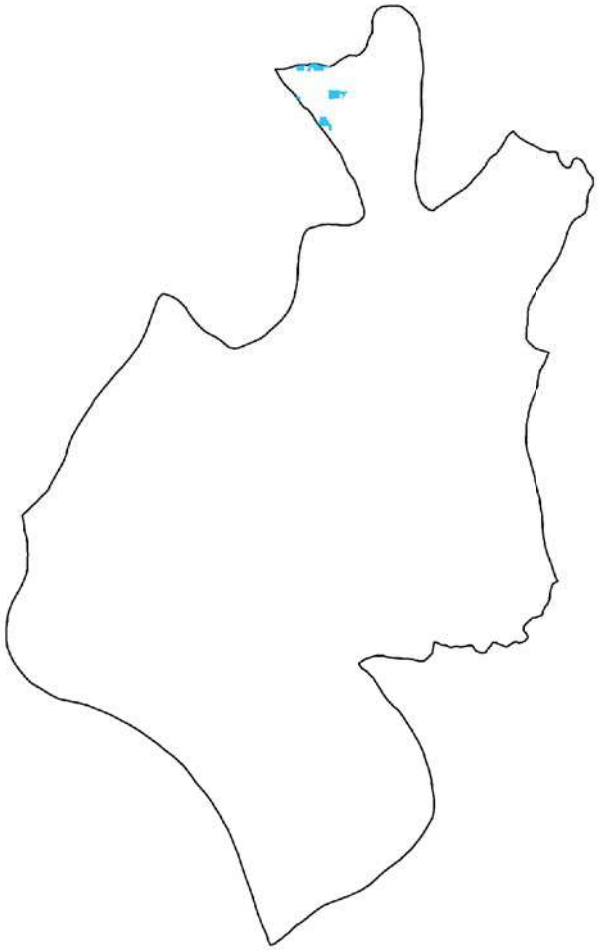


November, 2016: Total Gher area: 673 hectare

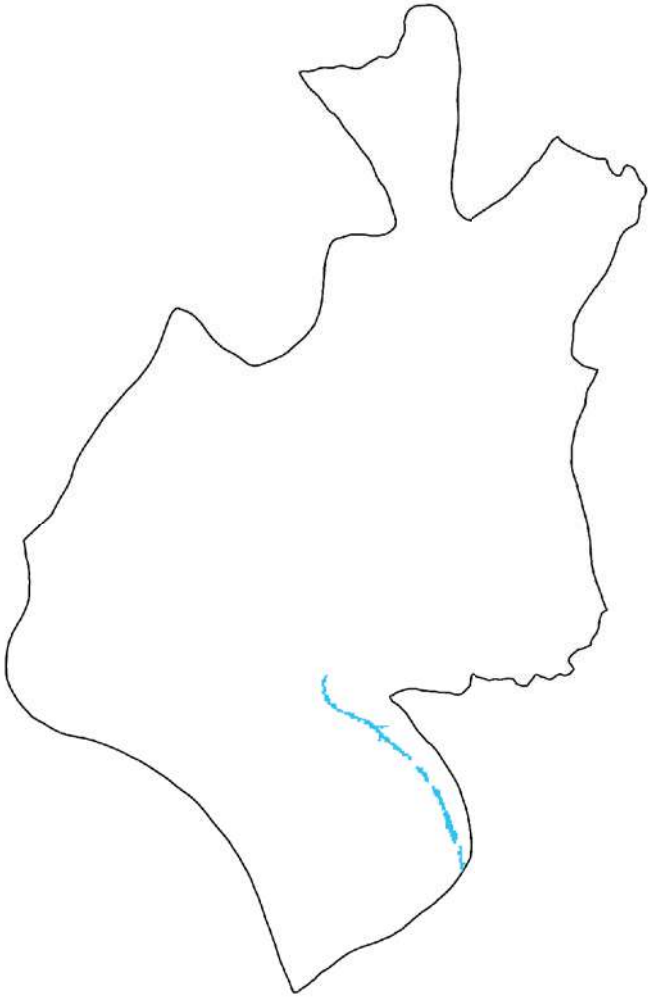


March, 2017: Total Gher area: 1006 hectare

Boloibunia

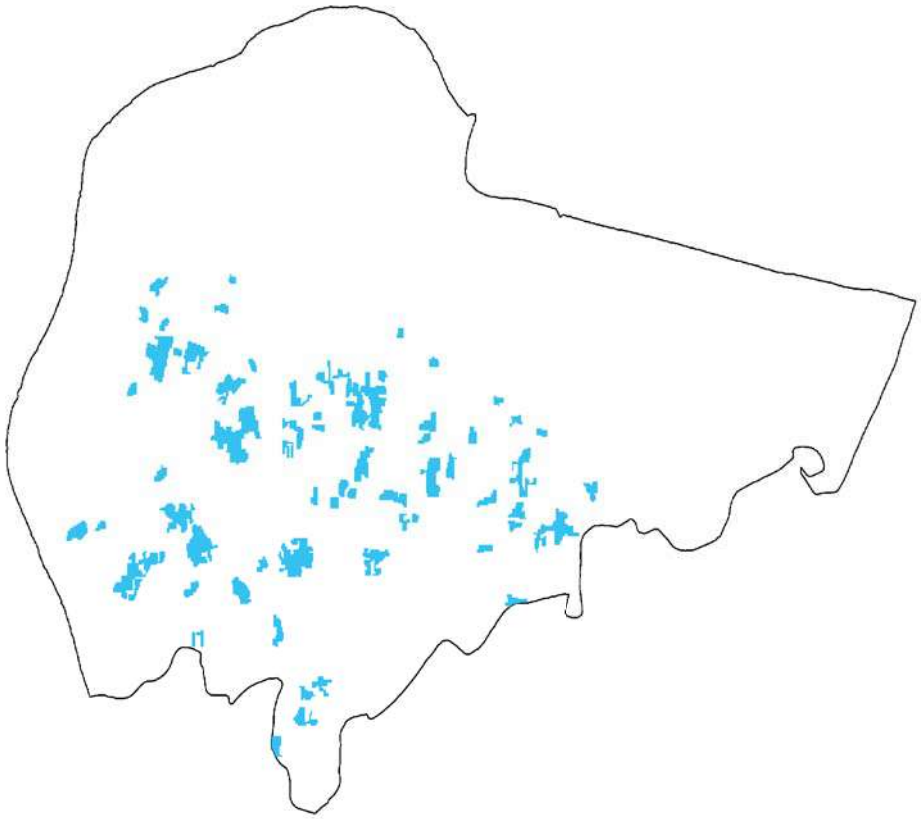


November, 2016: Total Gher area: 2 hectare

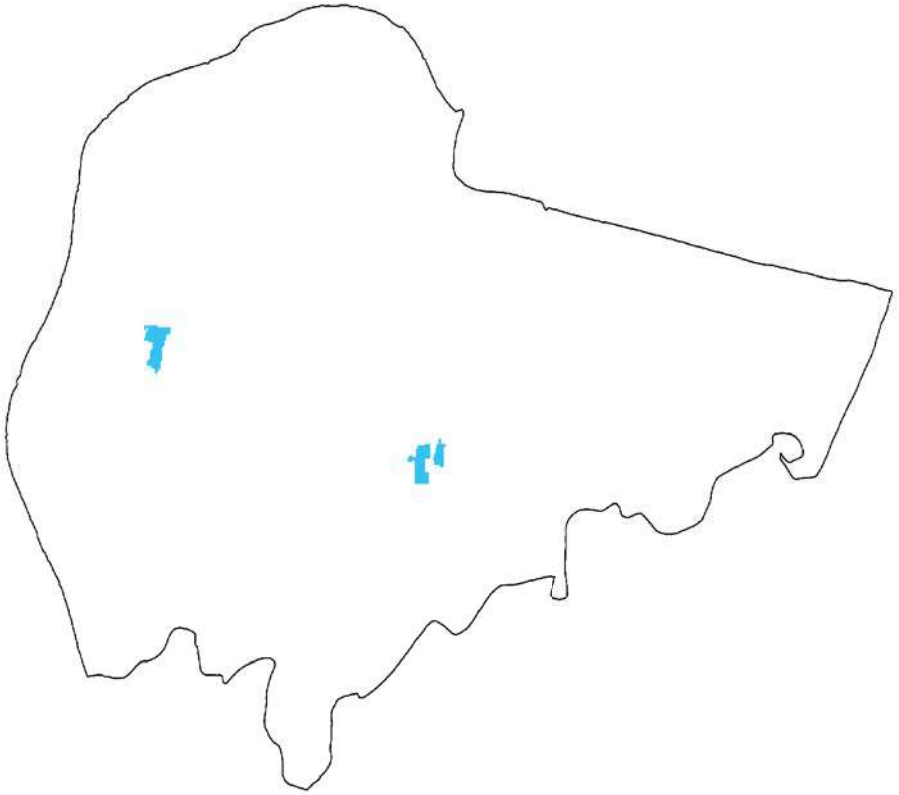


March, 2017: Total Gher area: 5 hectare

Banagram

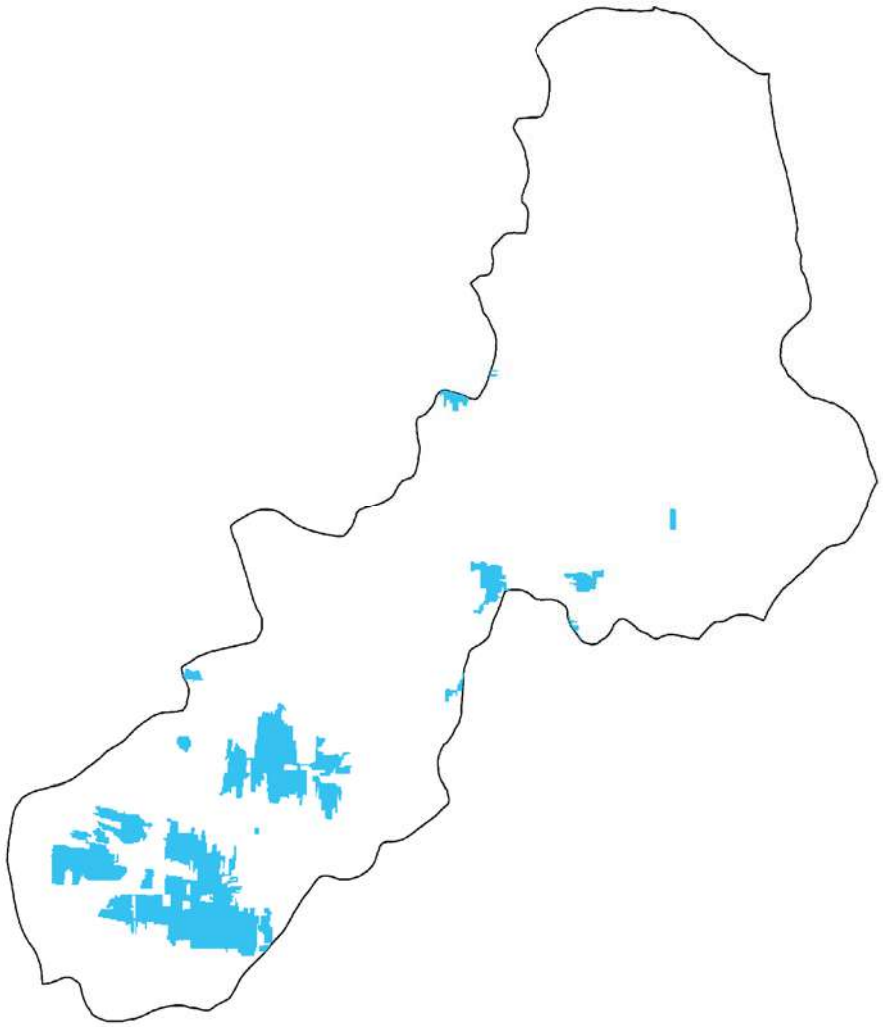


November, 2016: Total Gher area: 67 hectare

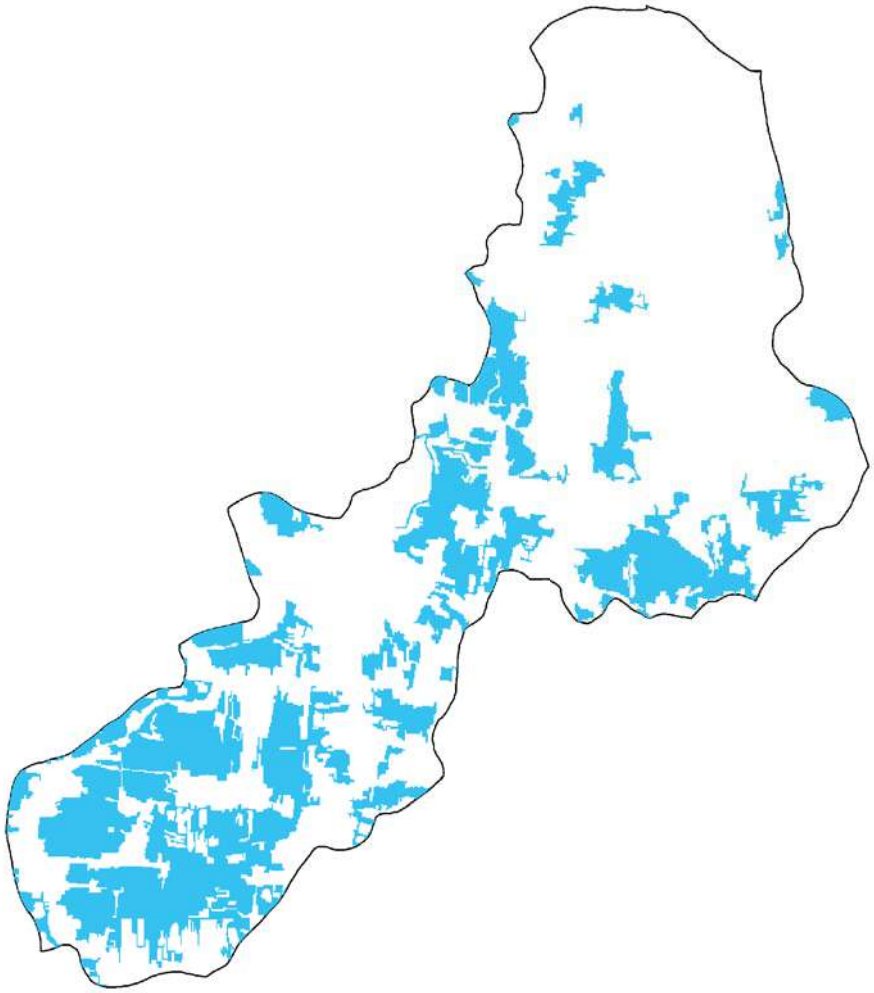


March, 2017: Total Gher area: 6 hectare

Baroikhali

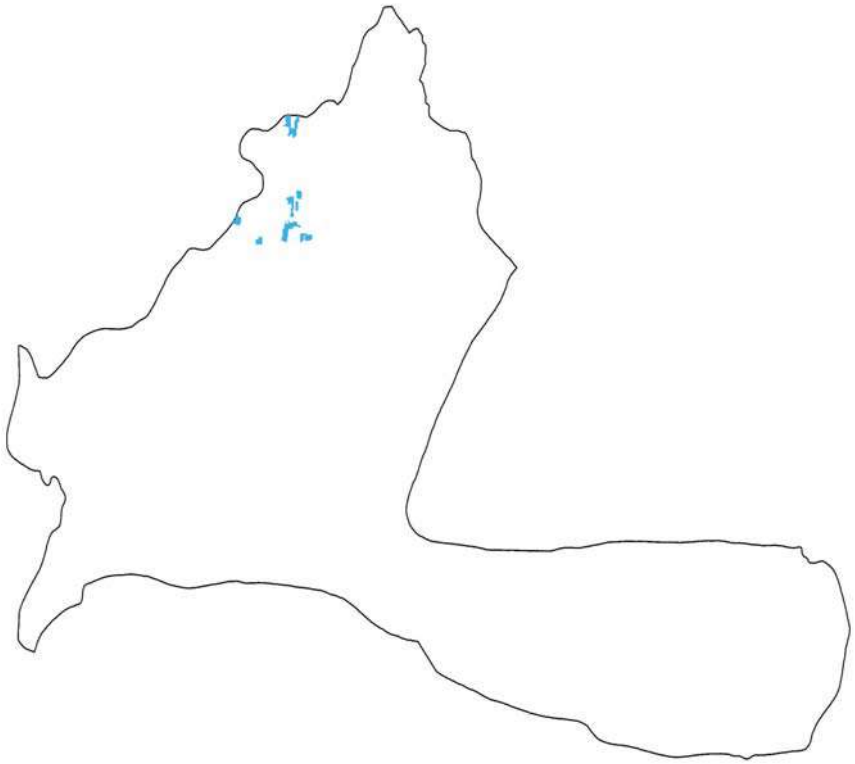


November, 2016: Total Gher area: 134 hectare

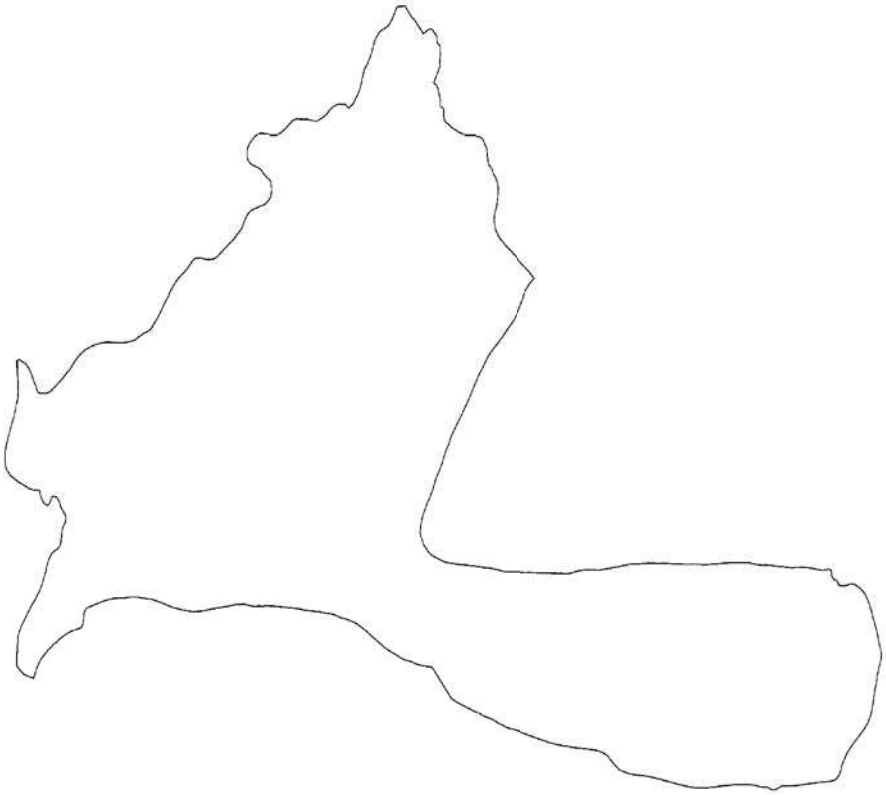


March, 2017: Total Gher area: 556 hectare

Chingrakhali

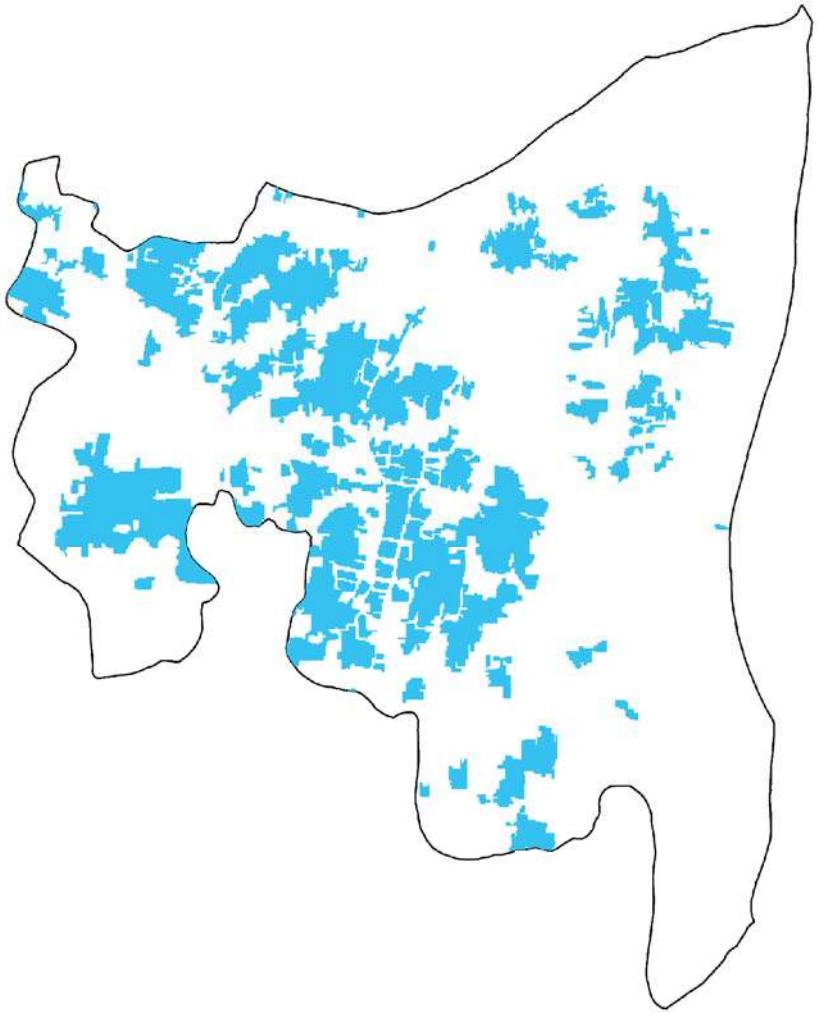


November, 2016: Total Gher area: 6 hectare

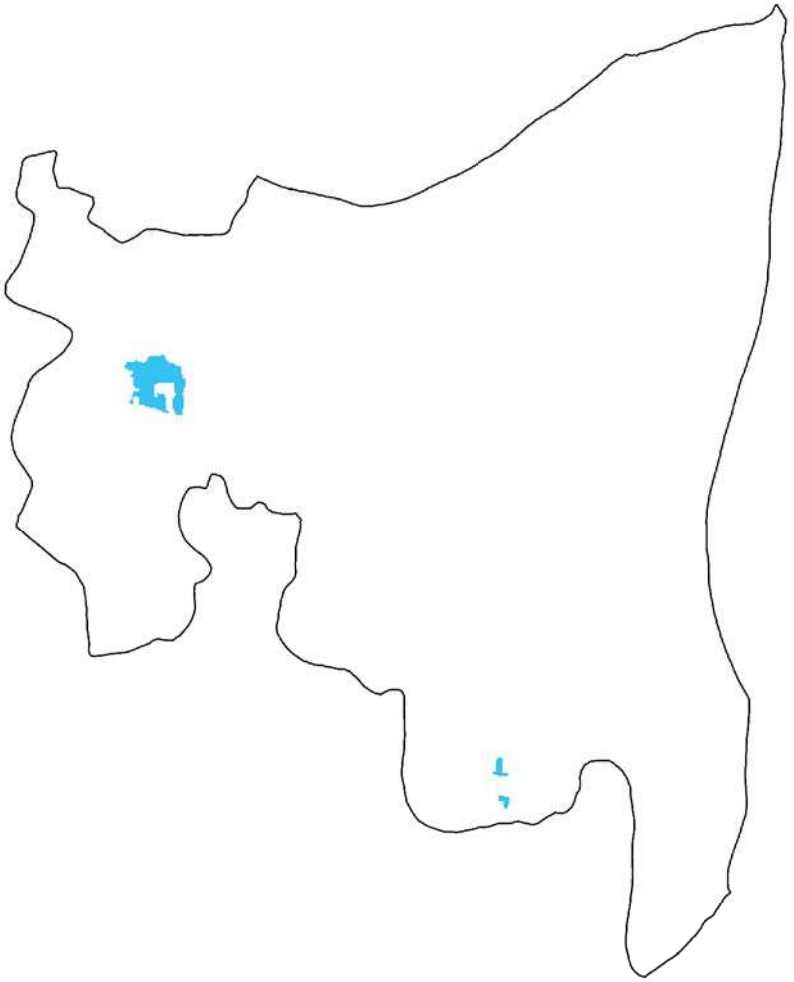


March, 2017: Total Gher area: 0 hectare

Daibanjgati

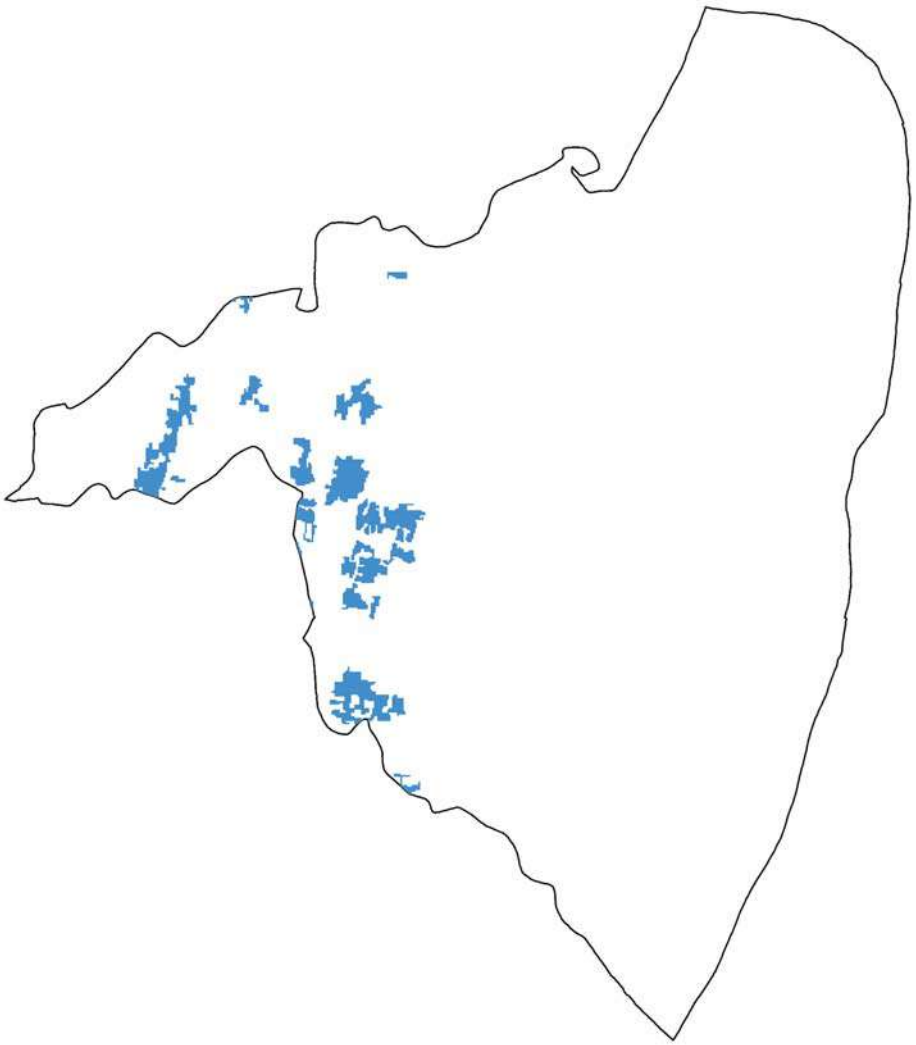


November, 2016: Total Gher area: 67 hectare

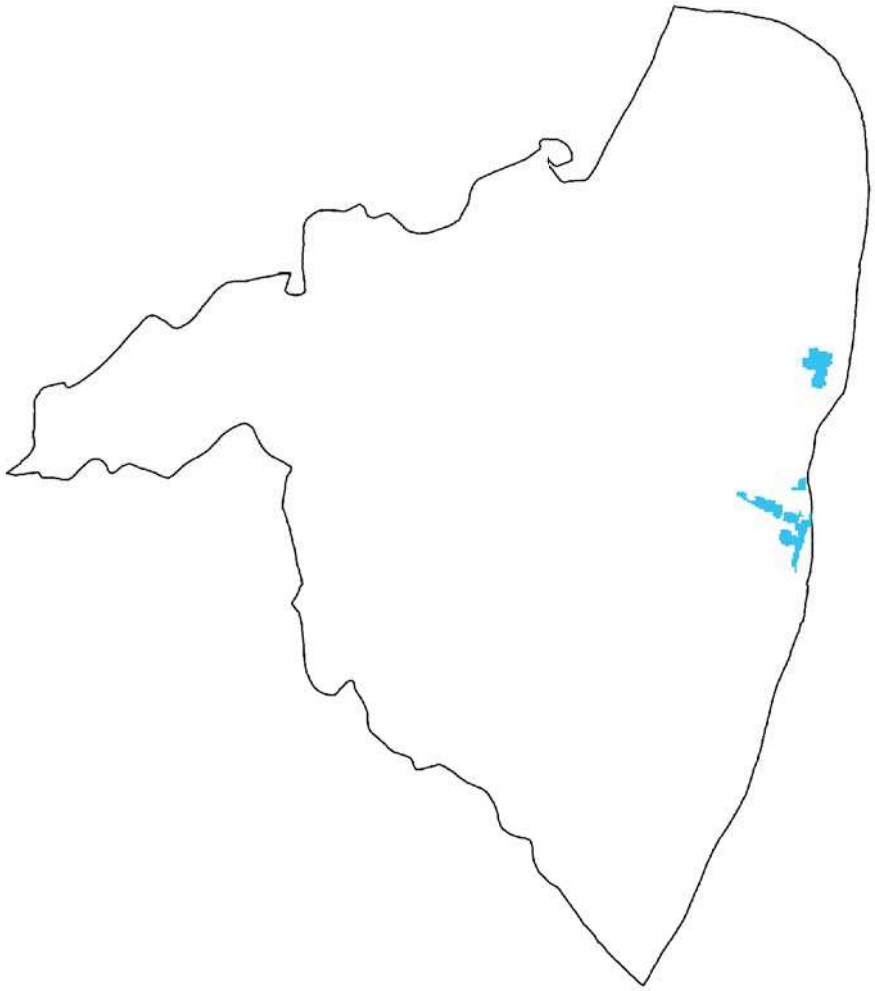


March, 2017: Total Gher area: 12 hectare

Hoglapasha



November, 2016: Total Gher area: 43 hectare



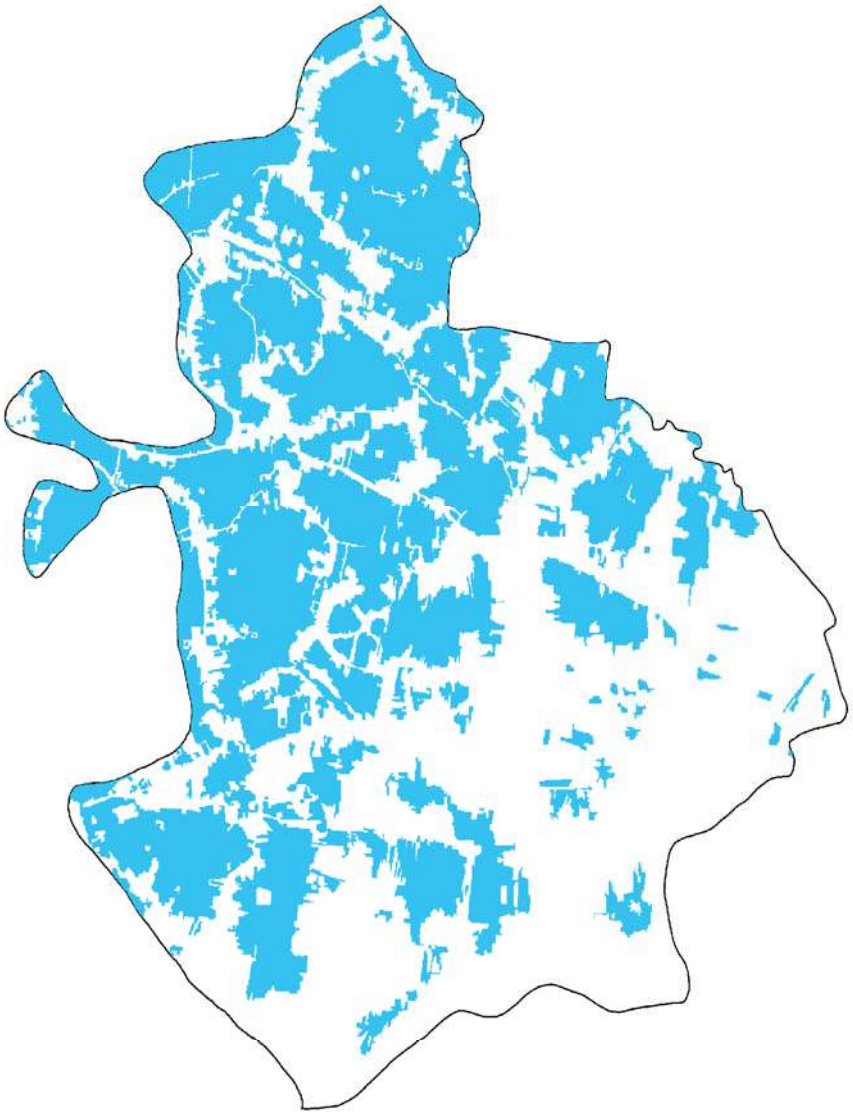
March, 2017: Total Gher area: 9 hectare

Hoglabunia

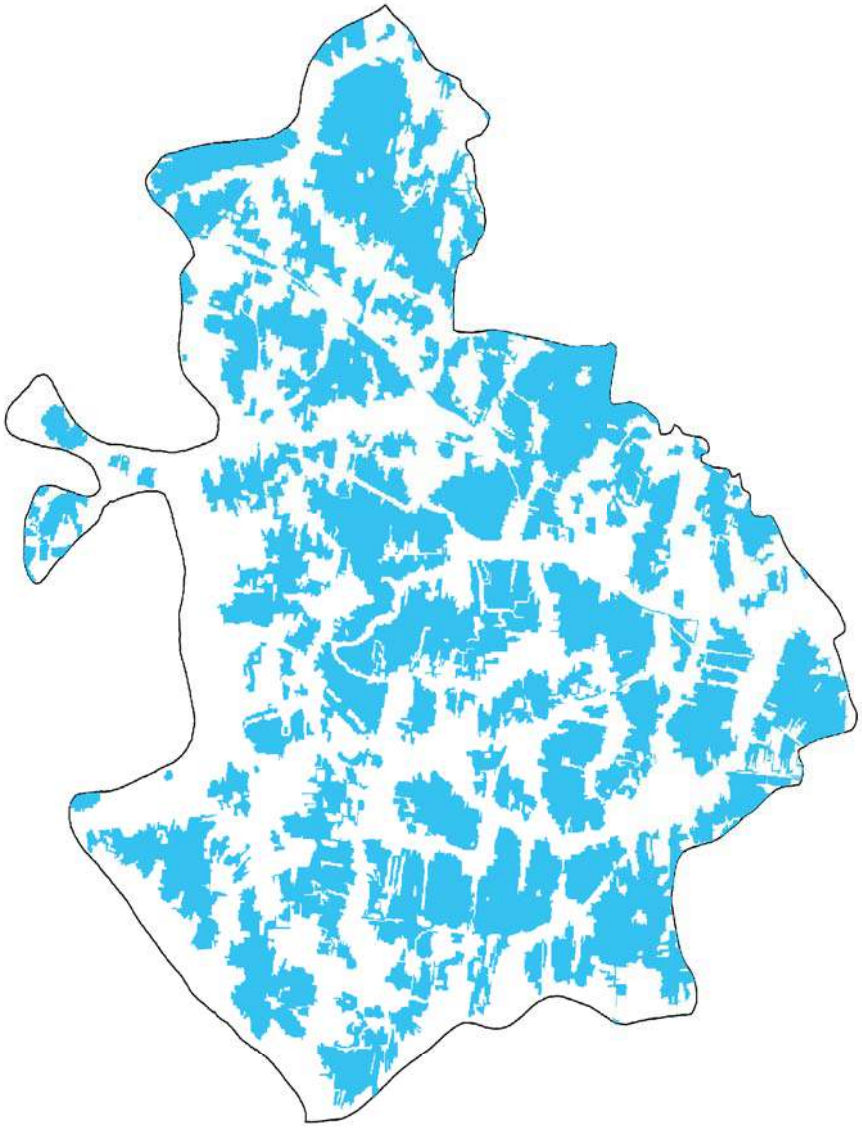
November, 2016: Total Gher area: 0 hectare

March, 2017: Total Gher area: 6 hectare

Jiudhara

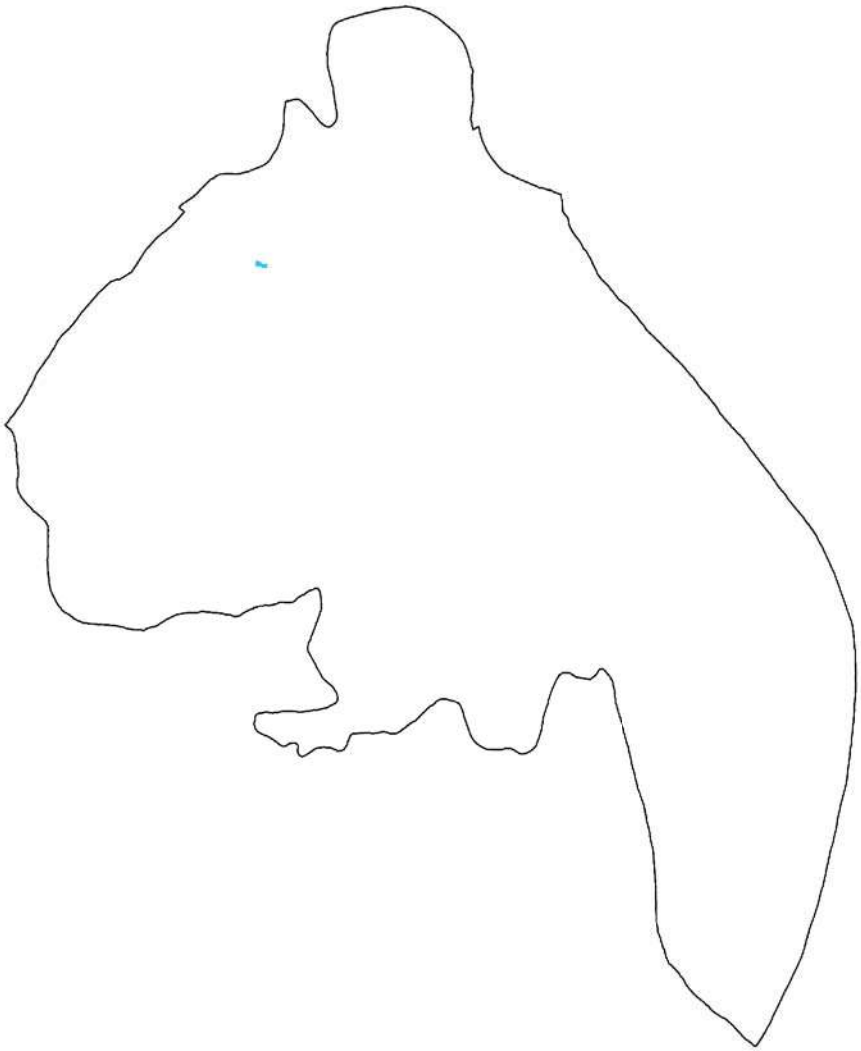


November, 2016: Total Gher area: 2437 hectare

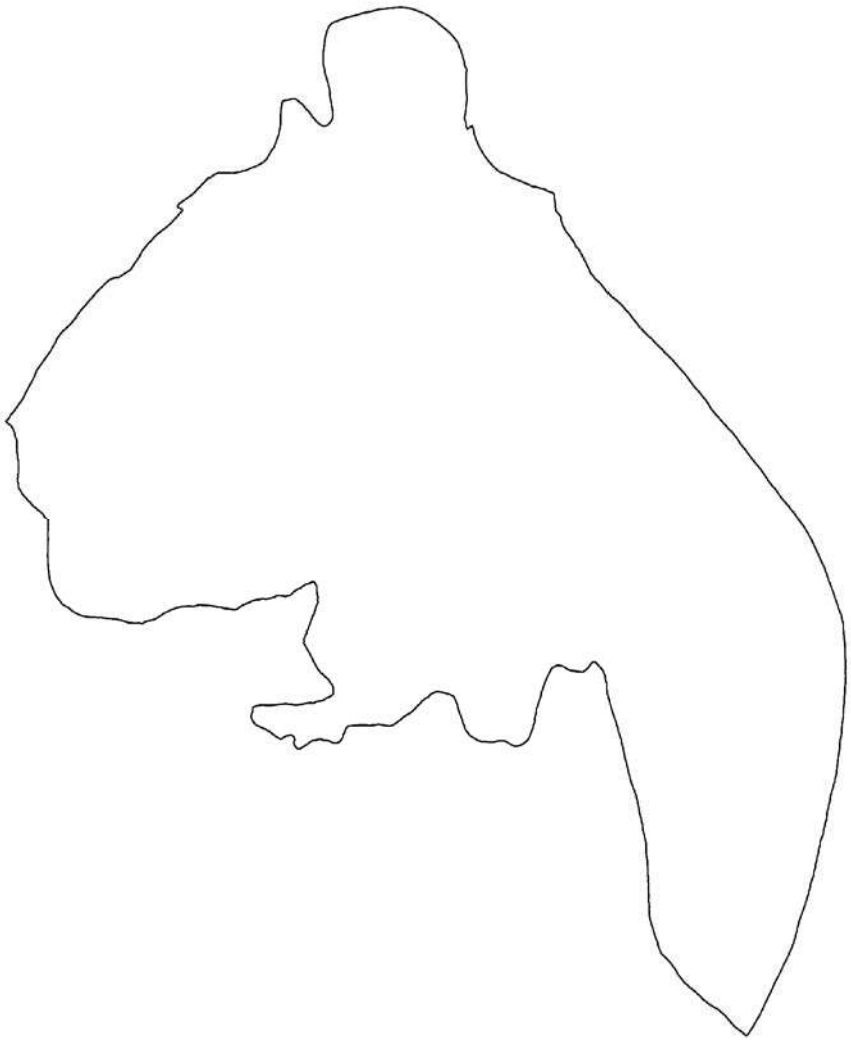


March, 2017: Total Gher area: 2468 hectare

Khaulia

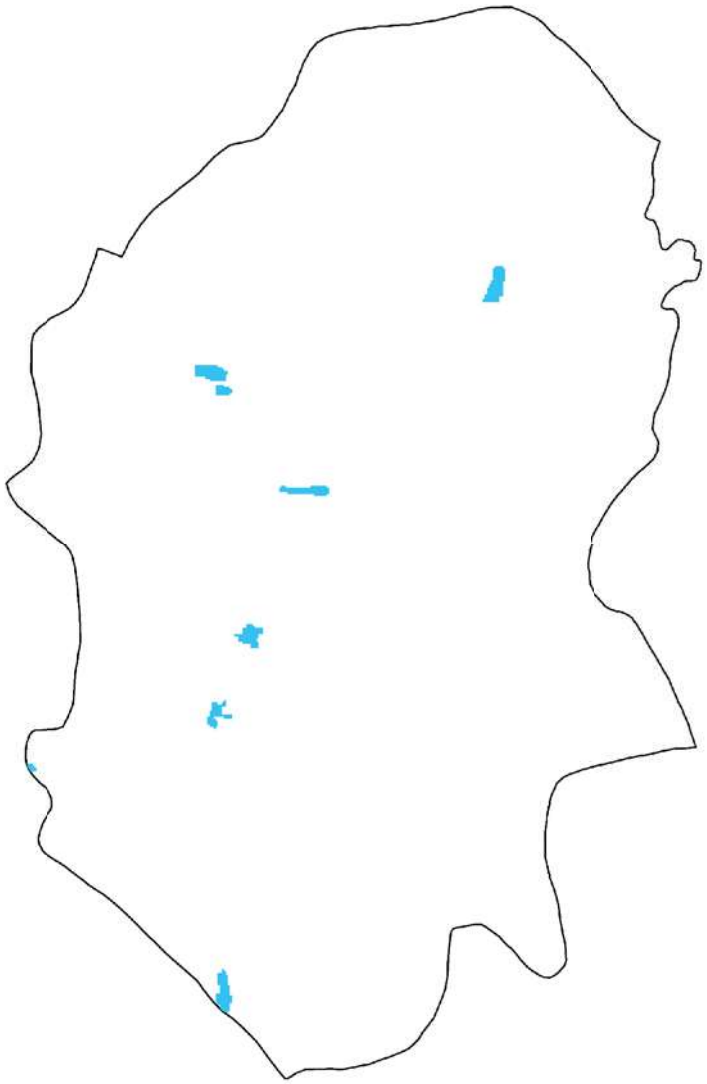


November, 2016: Total Gher area: 0 hectare

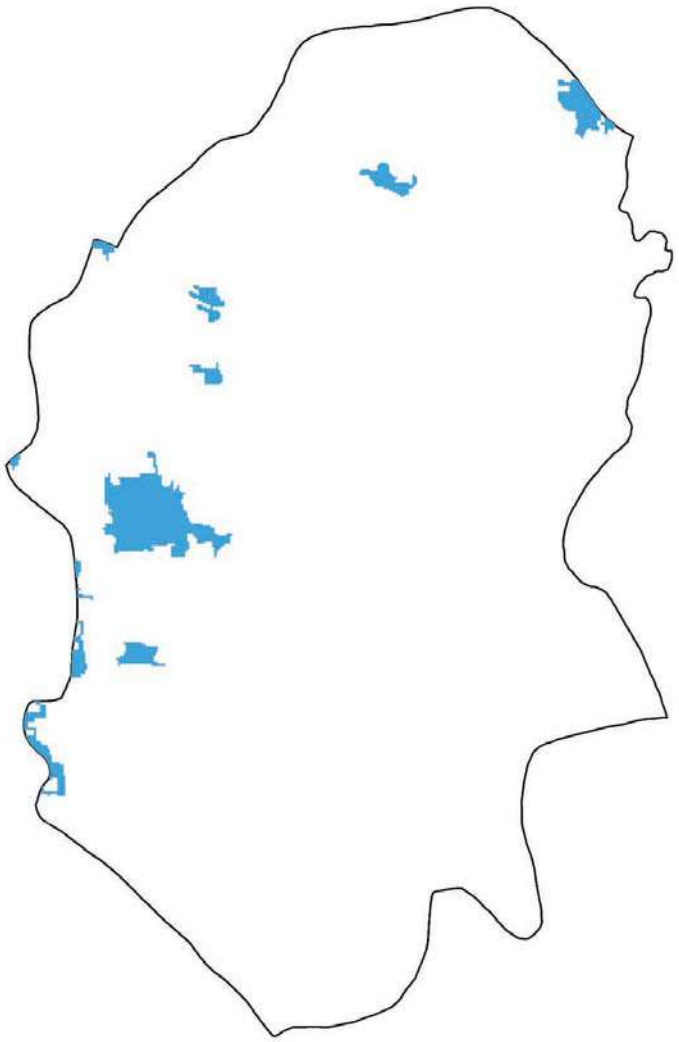


March, 2017: Total Gher area: 0 hectare

Morrelganj

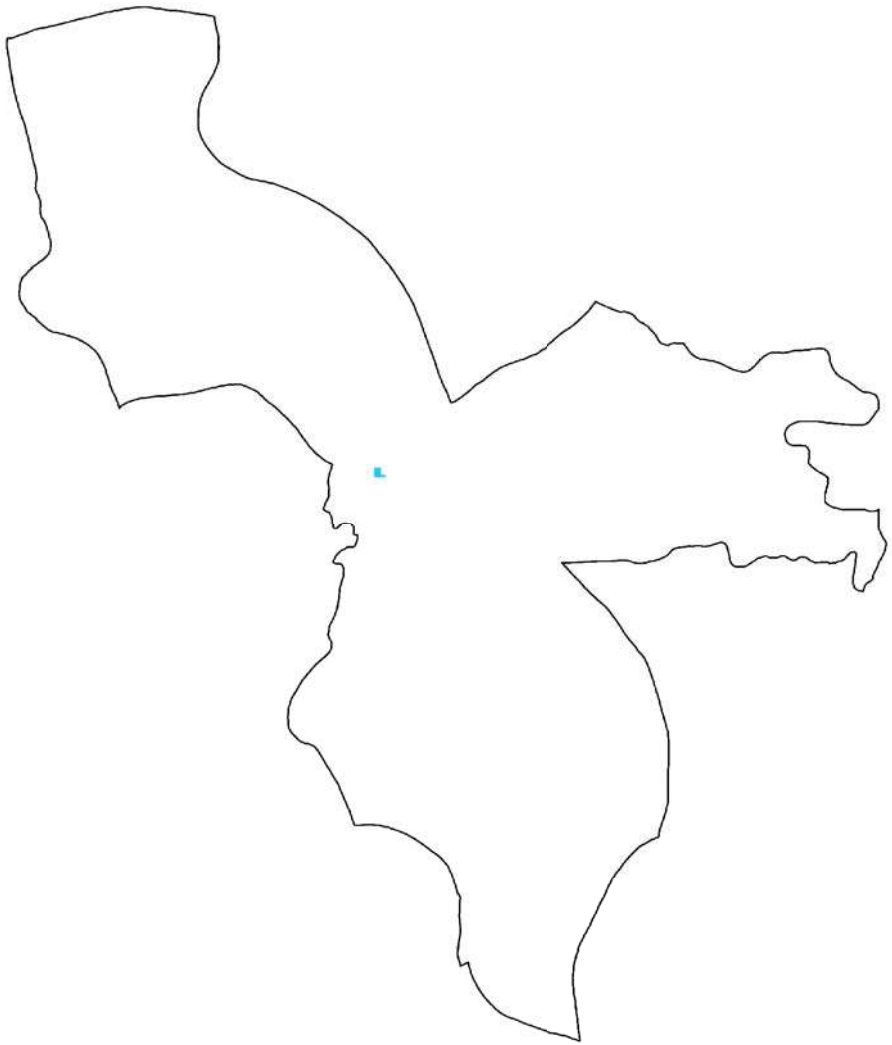


November, 2016: Total Gher area: 6 hectare

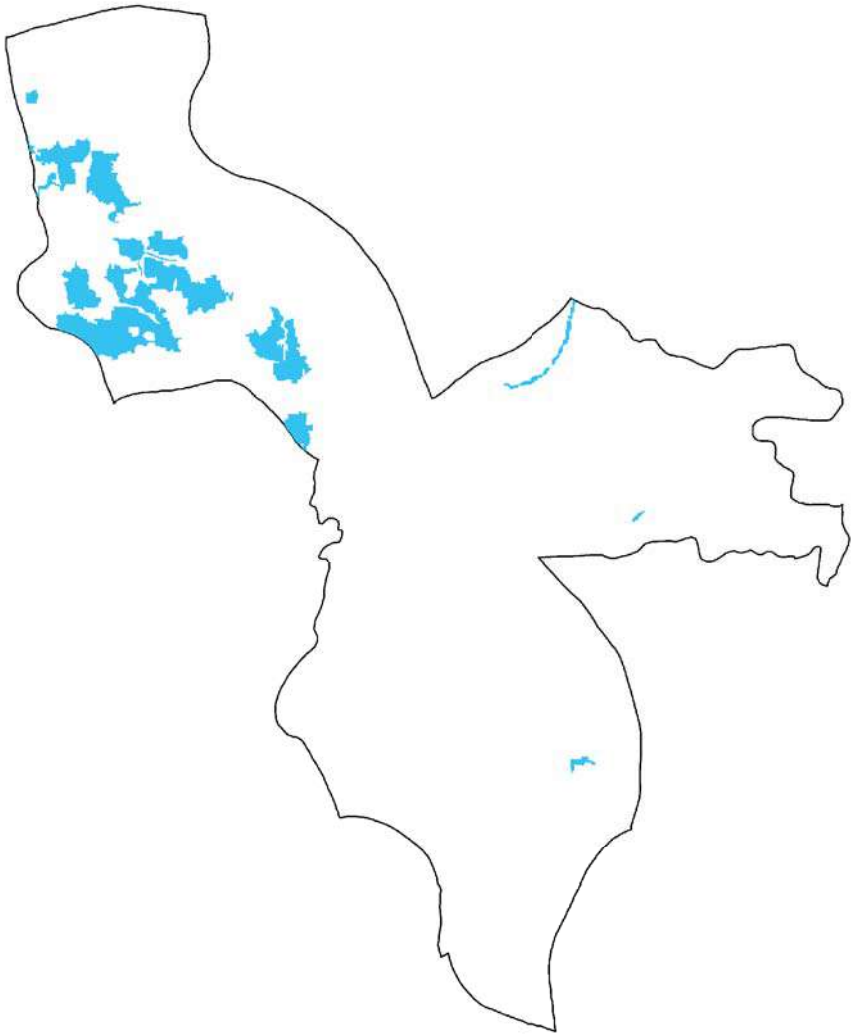


March, 2017: Total Gher area: 31 hectare

Morrelganj Paurashava

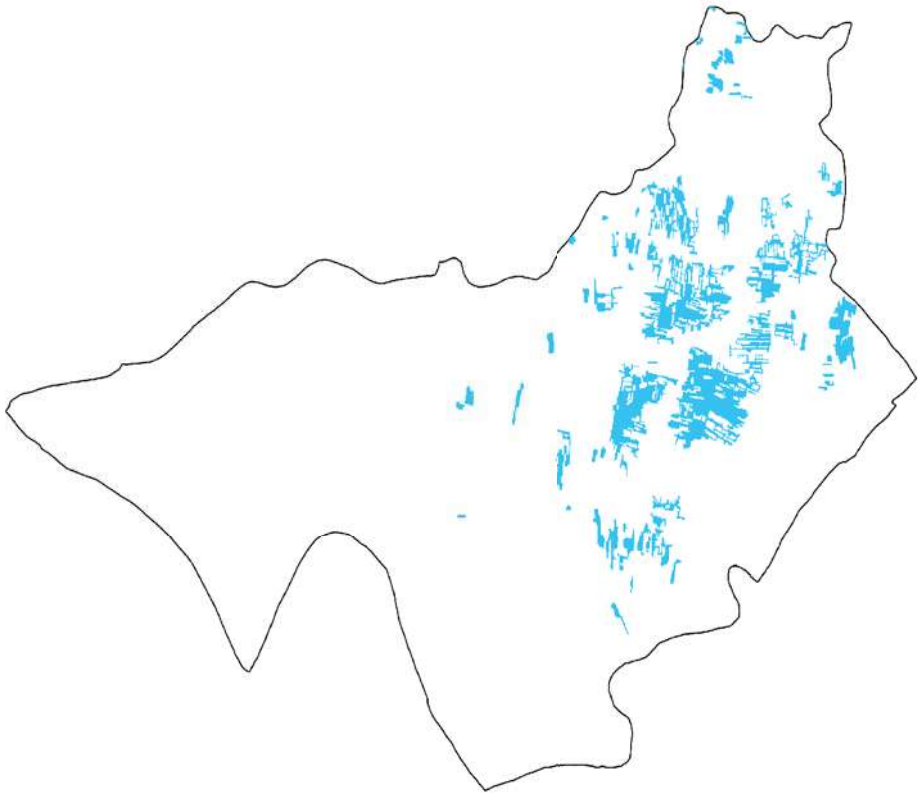


November, 2016: Total Gher area: 0 hectare

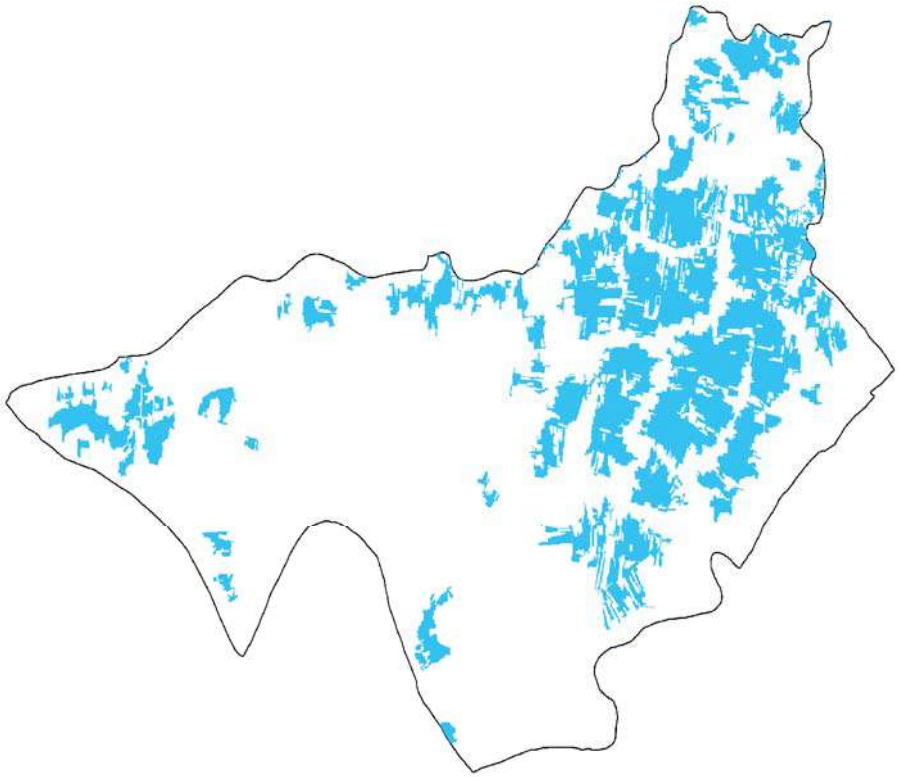


March, 2017: Total Gher area: 109 hectare

Nishanbaria

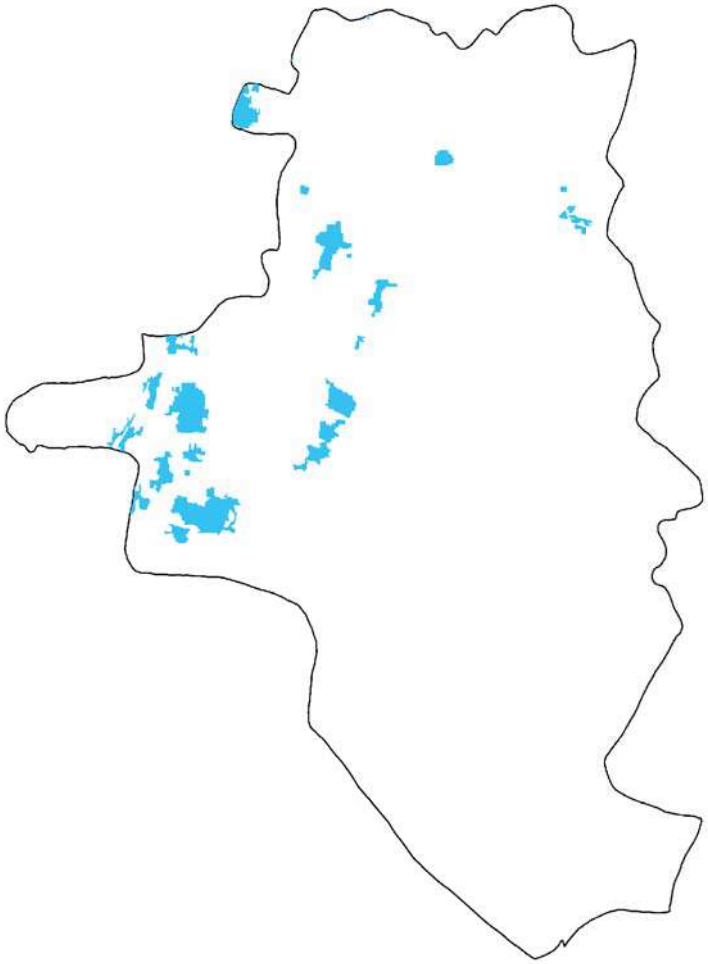


November, 2016: Total Gher area: 306 hectare

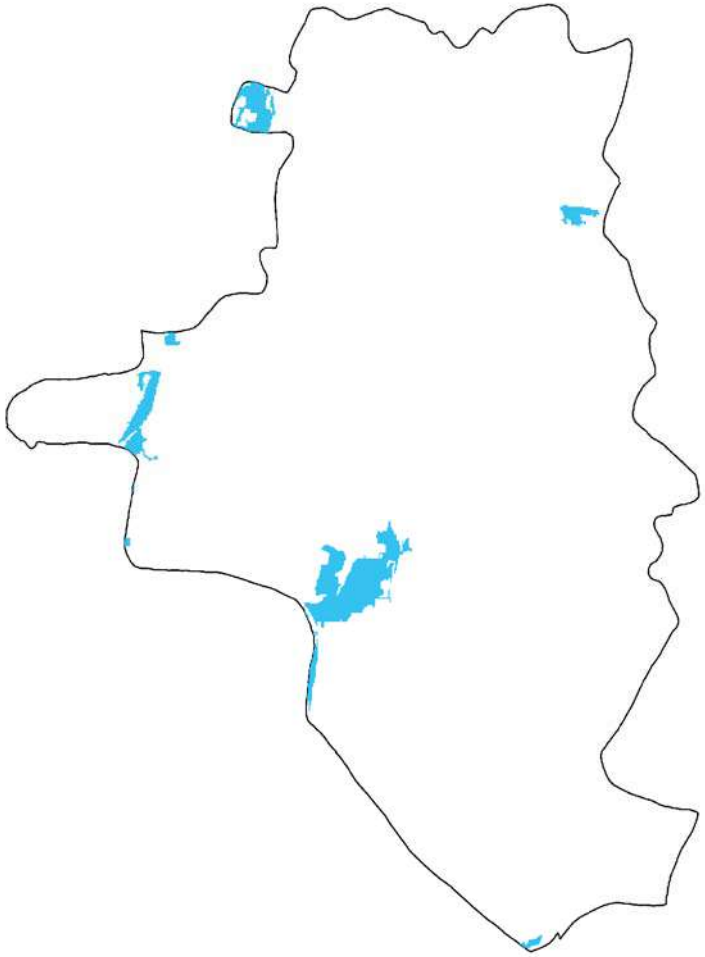


March, 2017: Total Gher area: 1150 hectare

Panchakaran

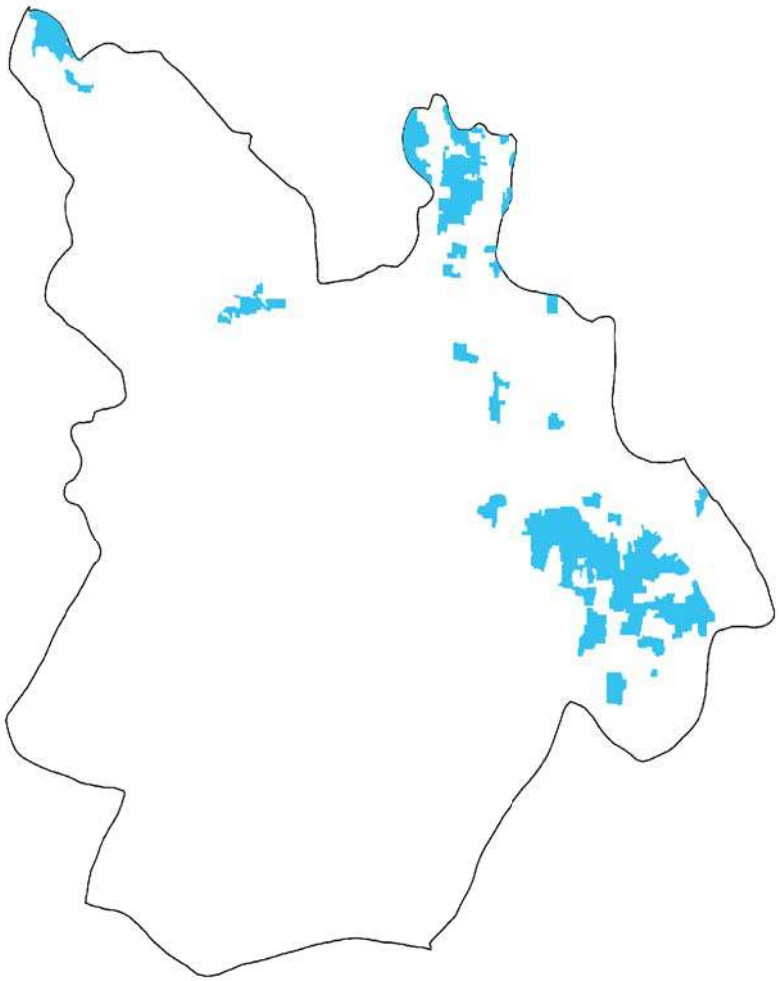


November, 2016: Total Gher area: 74 hectare

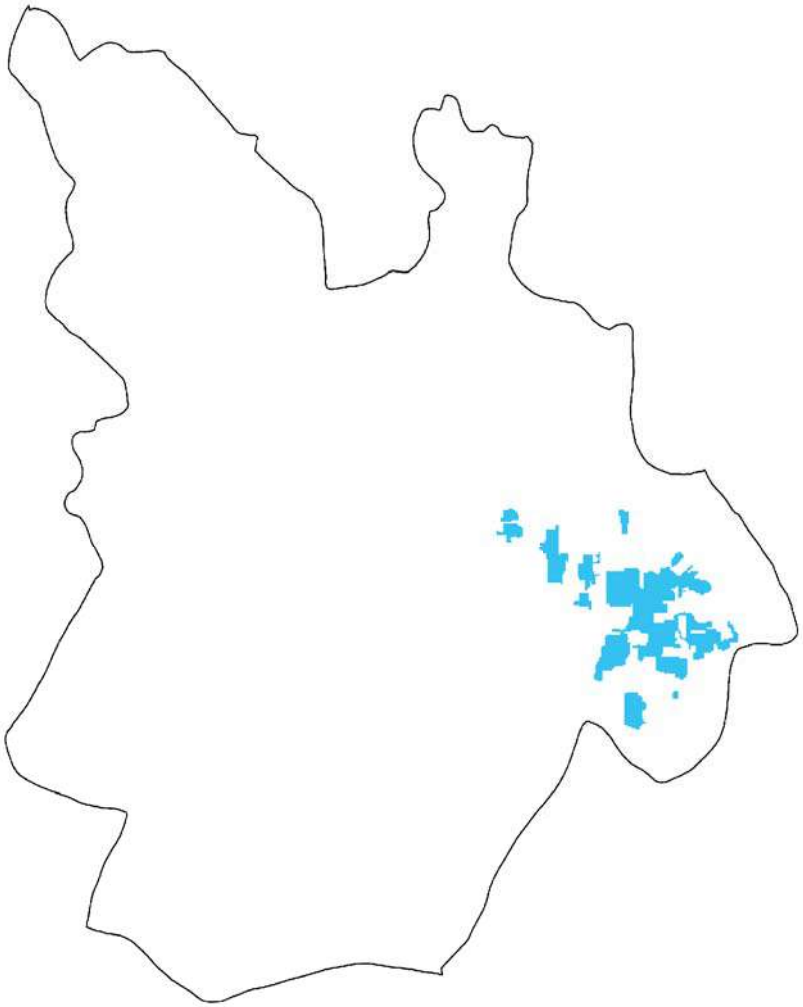


March, 2017: Total Gher area: 64 hectare

Putikhali

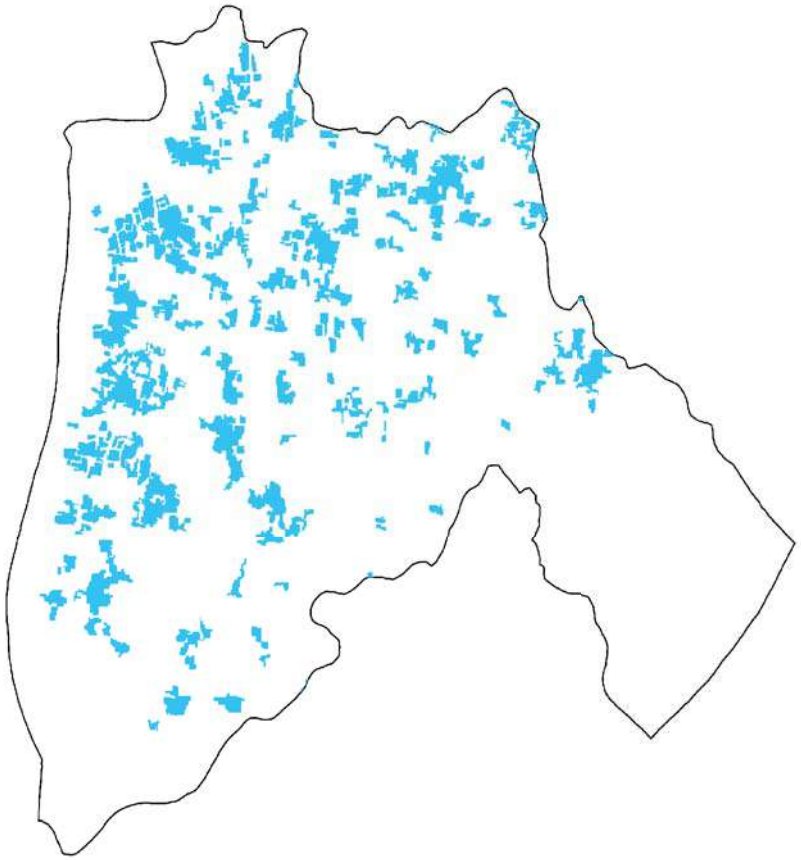


November, 2016: Total Gher area: 114 hectare

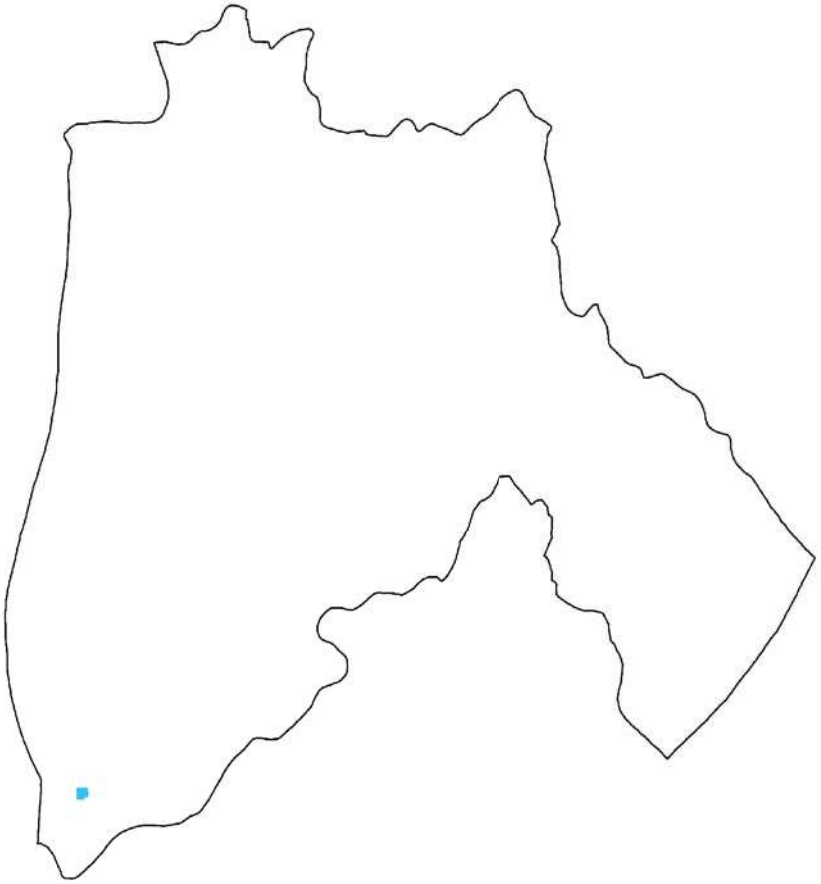


March, 2017: Total Gher area: 51 hectare

Ramchandrapur

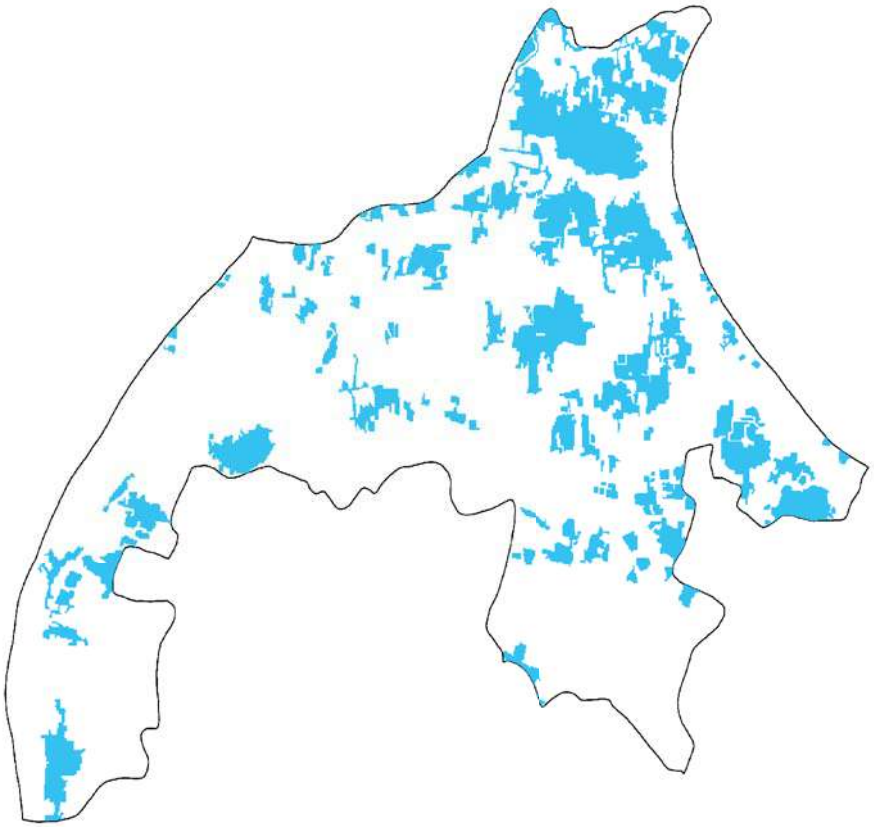


November, 2016: Total Gher area: 291 hectare

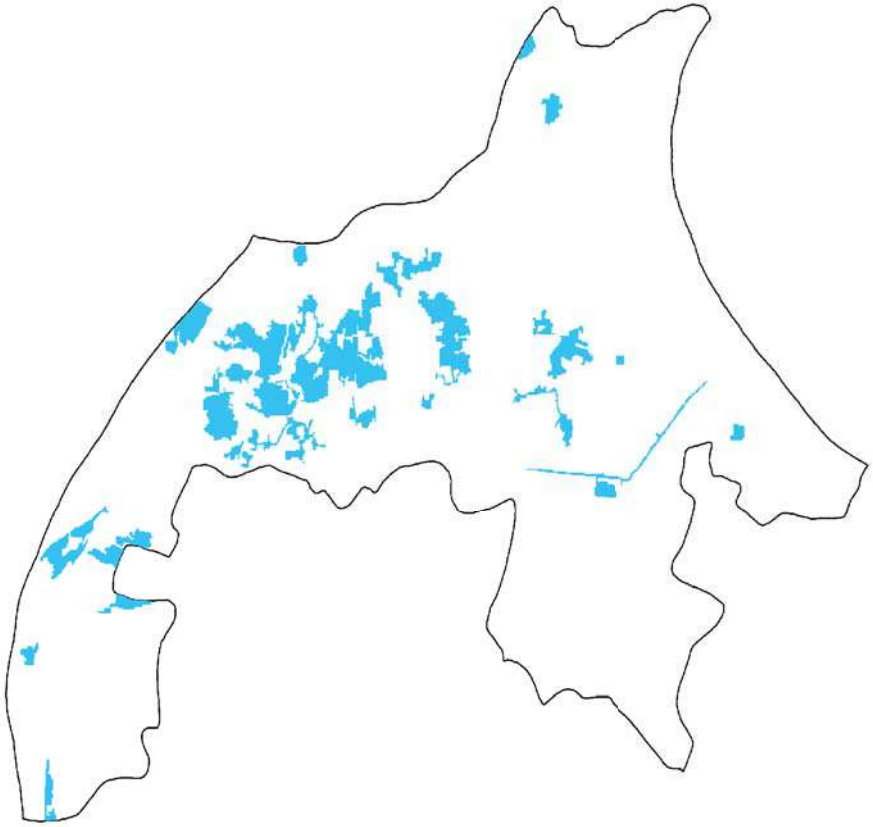


March, 2017: Total Gher area: 0 hectare

Teligati



November, 2016: Total Gher area: 414 hectare

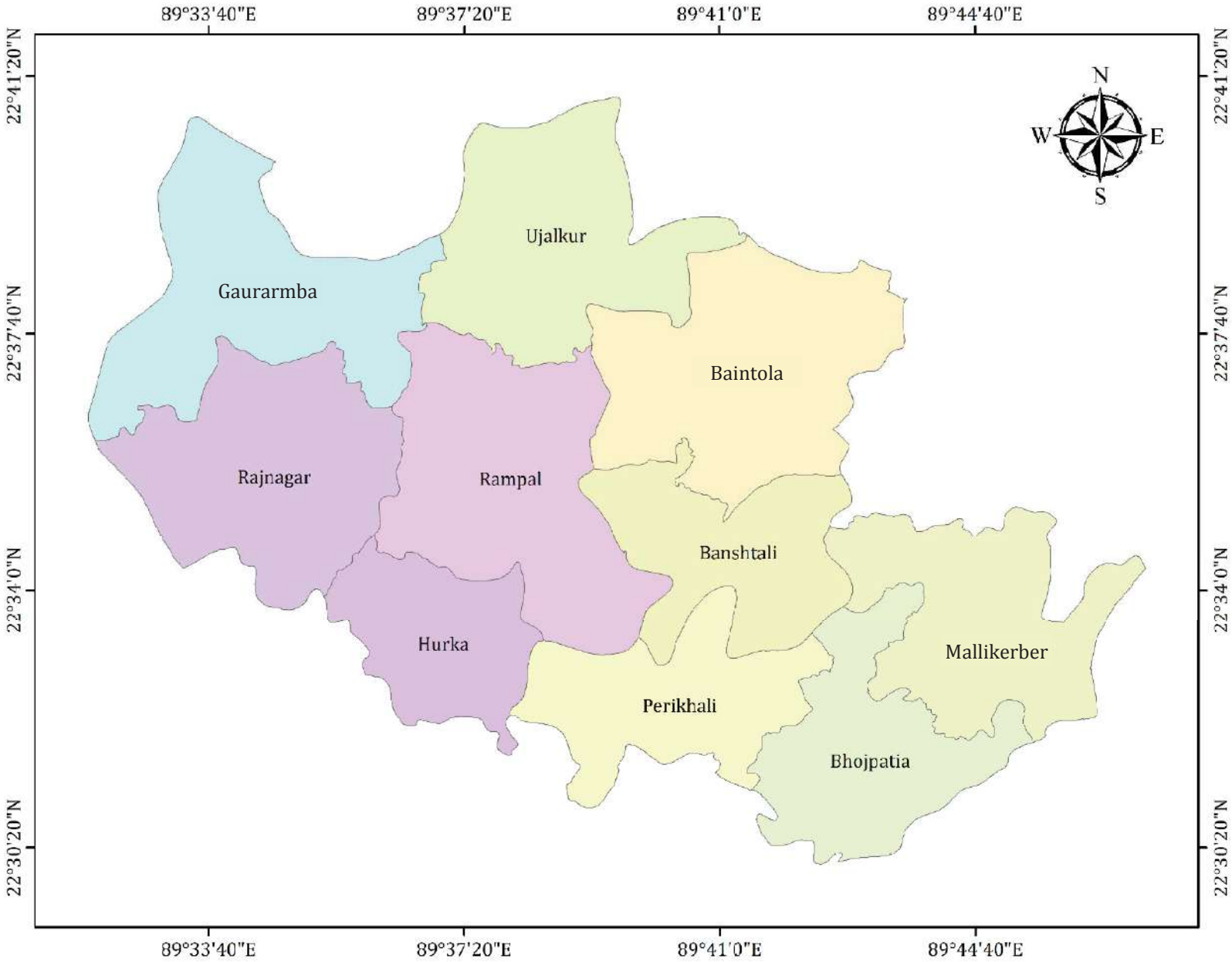


March, 2017: Total Gher area: 161 hectare

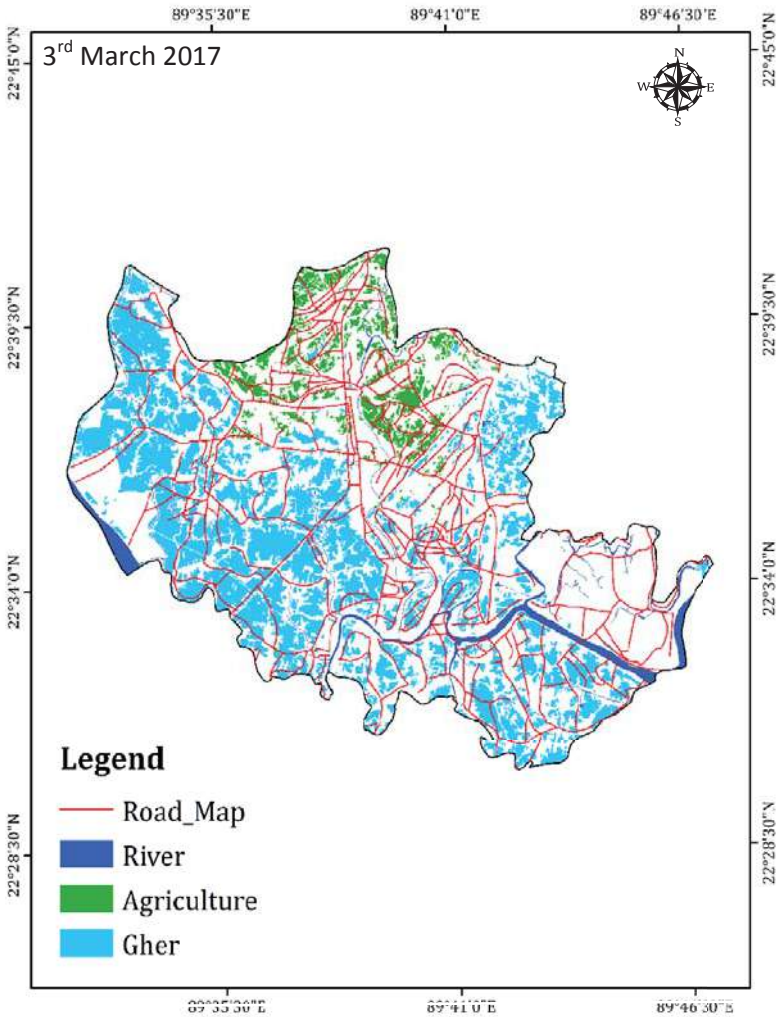
Bagerhat District

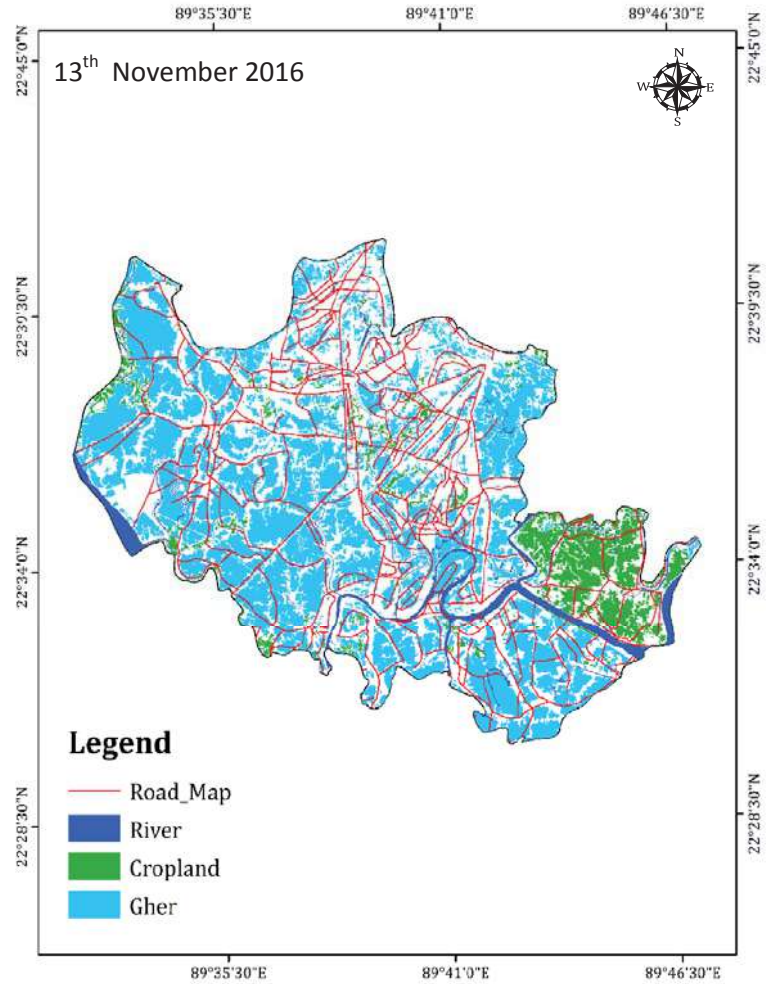
GIS based Gher map of Unions of Rampal Upazila

Map of Rampal Upazila with Unions



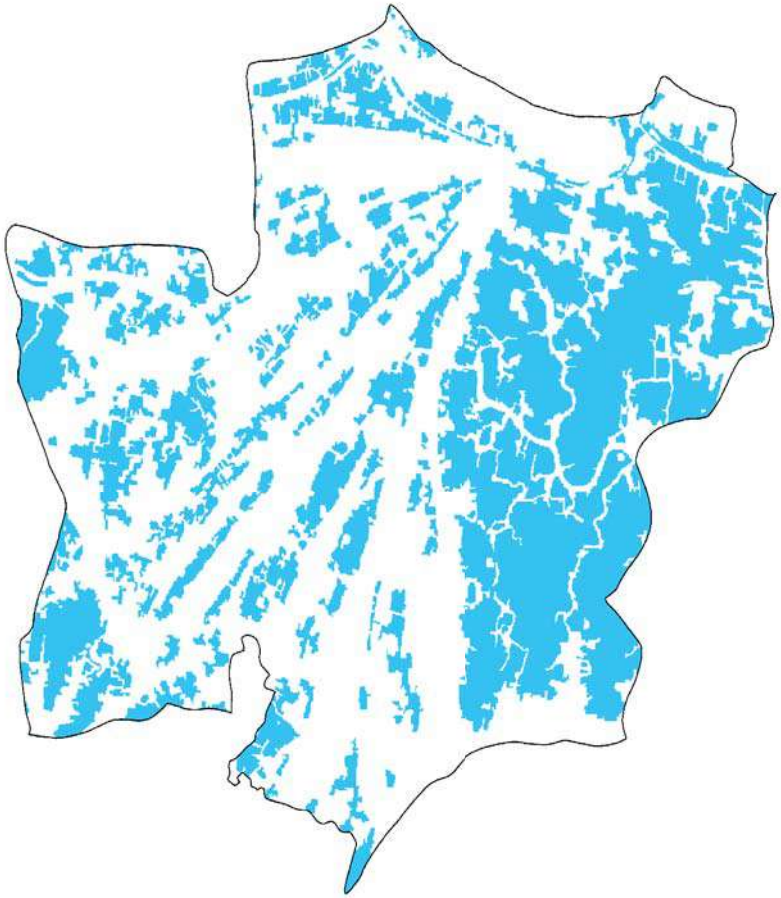
GIS map of Rampal Upazila with Gher and Crop area



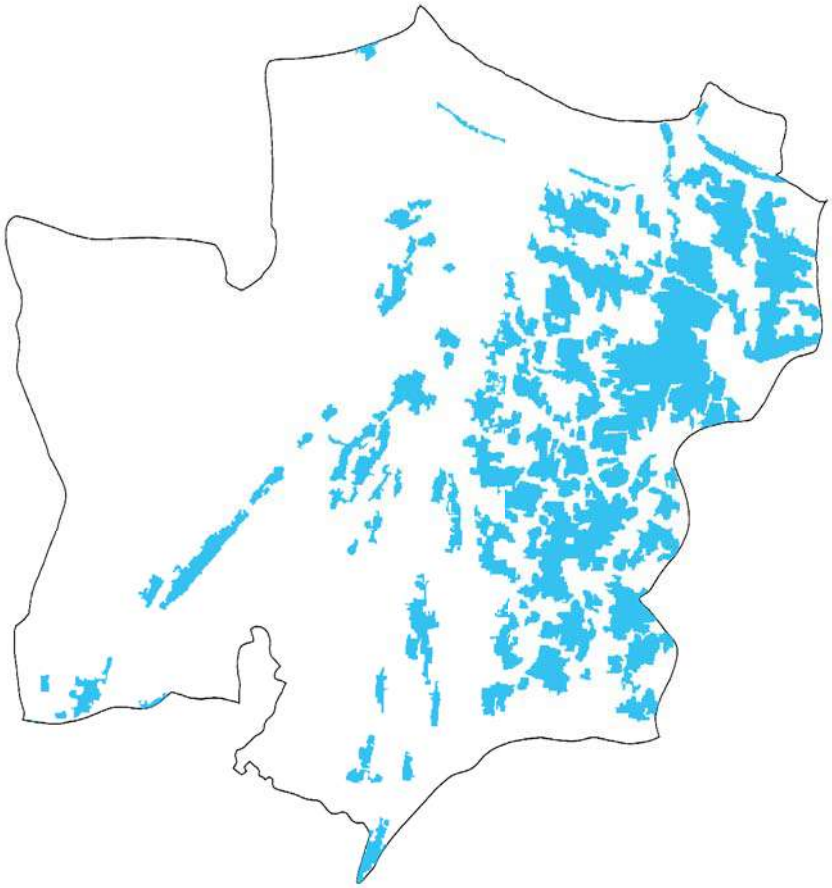


Upazila Name	Total area (ha)	3rd March 2017		13th November 2016	
		Agriculture (ha)	Gher (ha)	Agriculture (ha)	Gher (ha)
Rampal	27899	1490	8206	2092	12066

Baintola

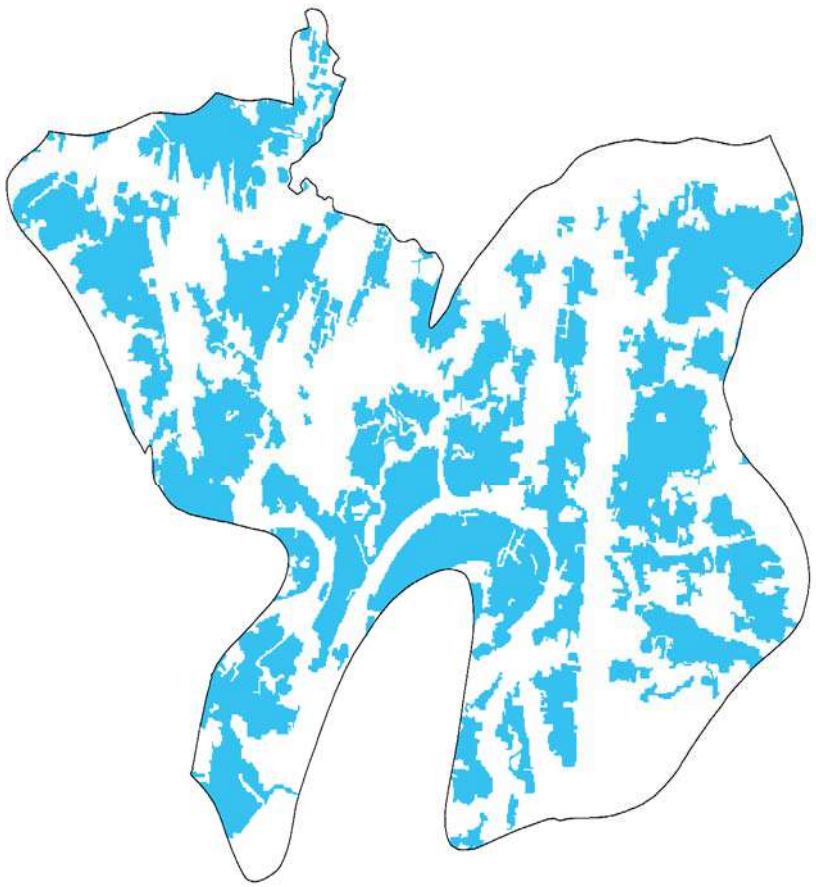


November, 2016: Total Gher area: 1420 hectare

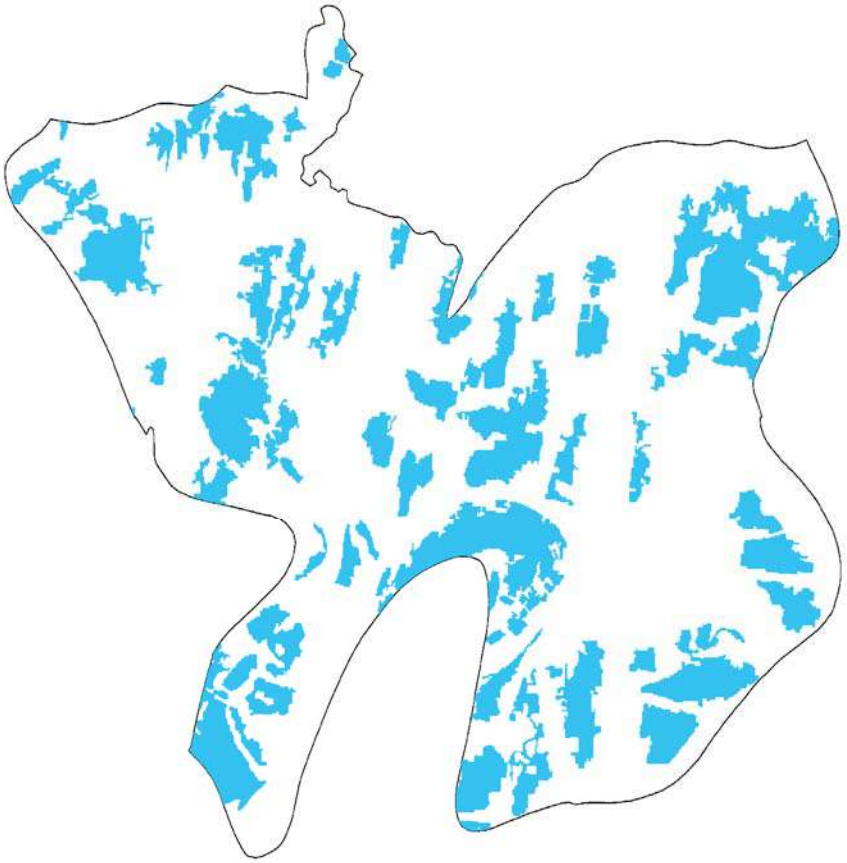


March, 2017: Total Gher area: 664 hectare

Banshtali

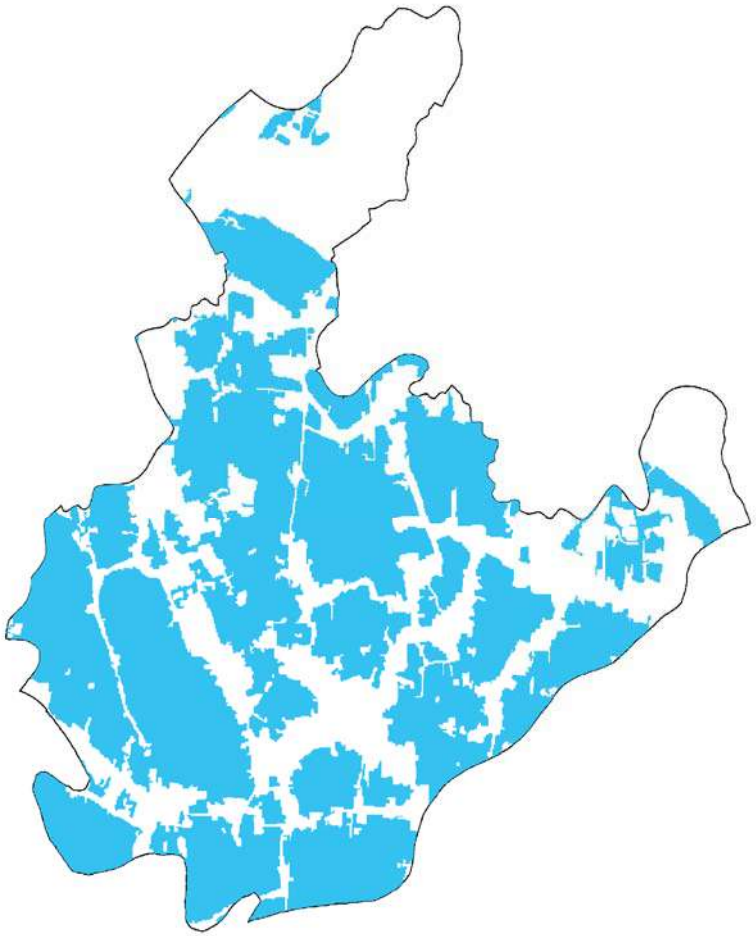


November, 2016: Total Gher area: 924 hectare

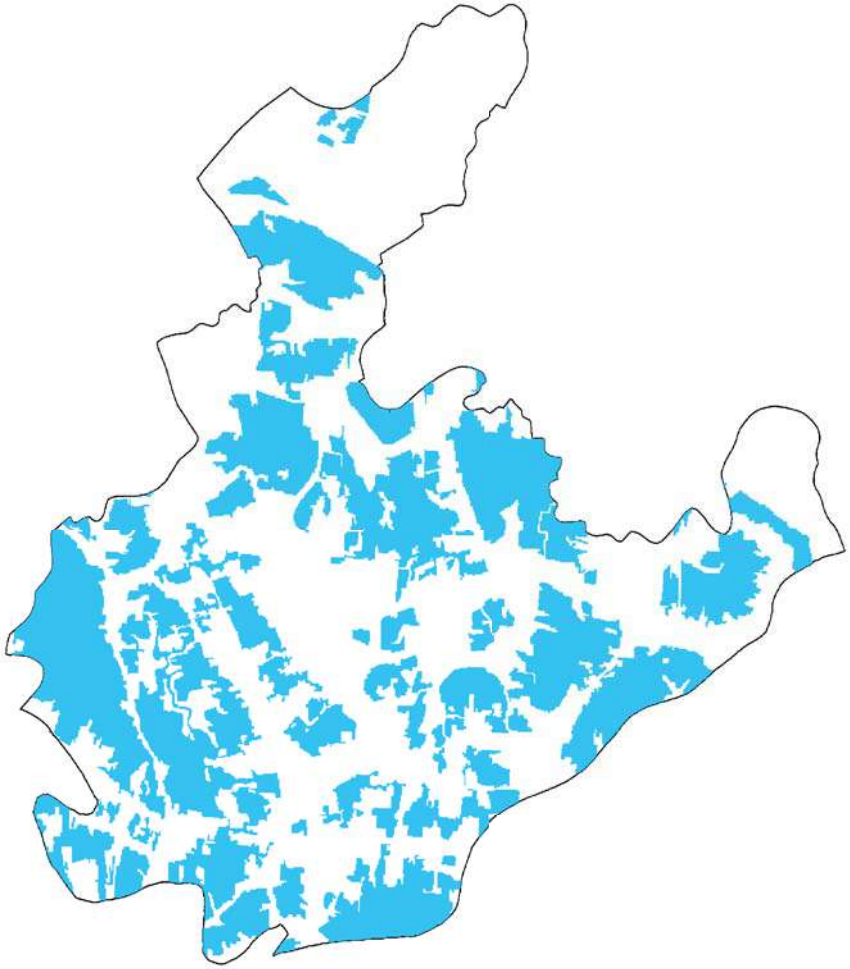


March, 2017: Total Gher area: 562 hectare

Bhojpatia

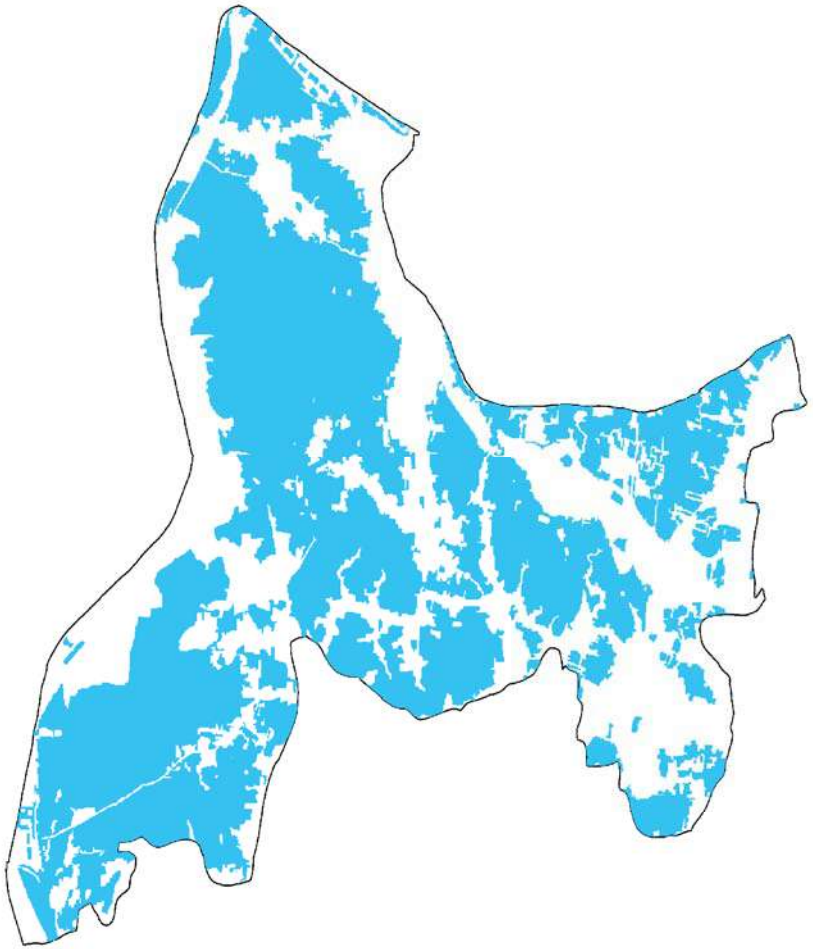


November, 2016: Total Gher area: 1356 hectare

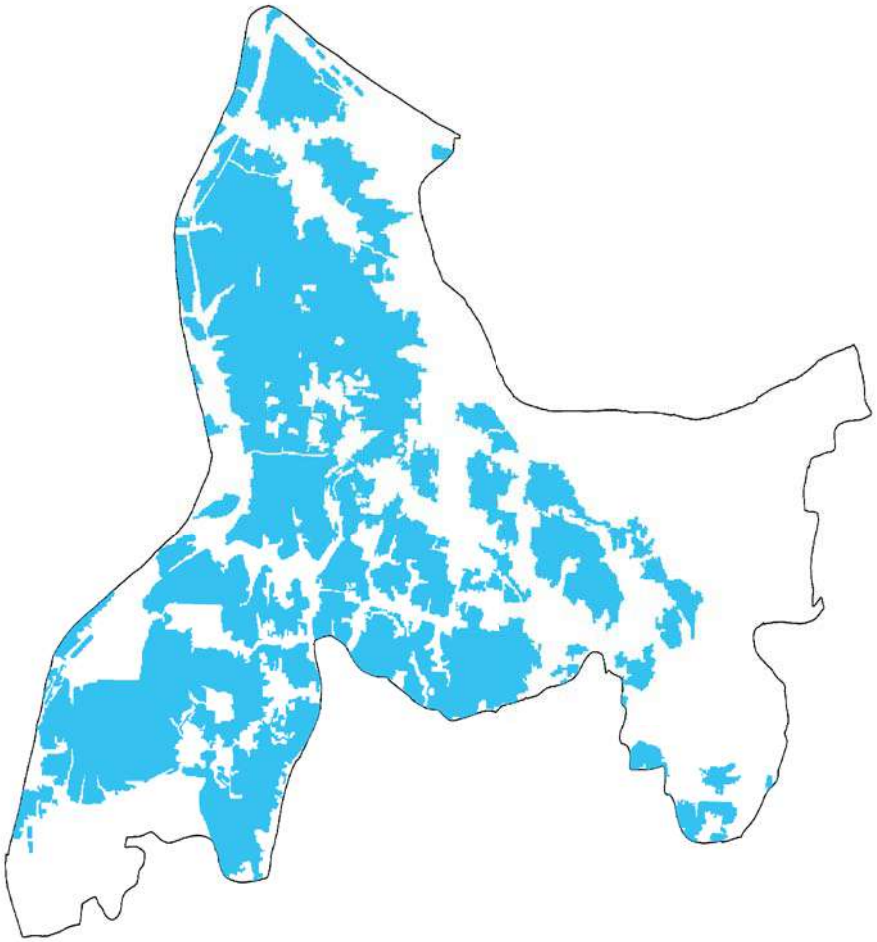


March, 2017: Total Gher area: 937 hectare

Gauramba

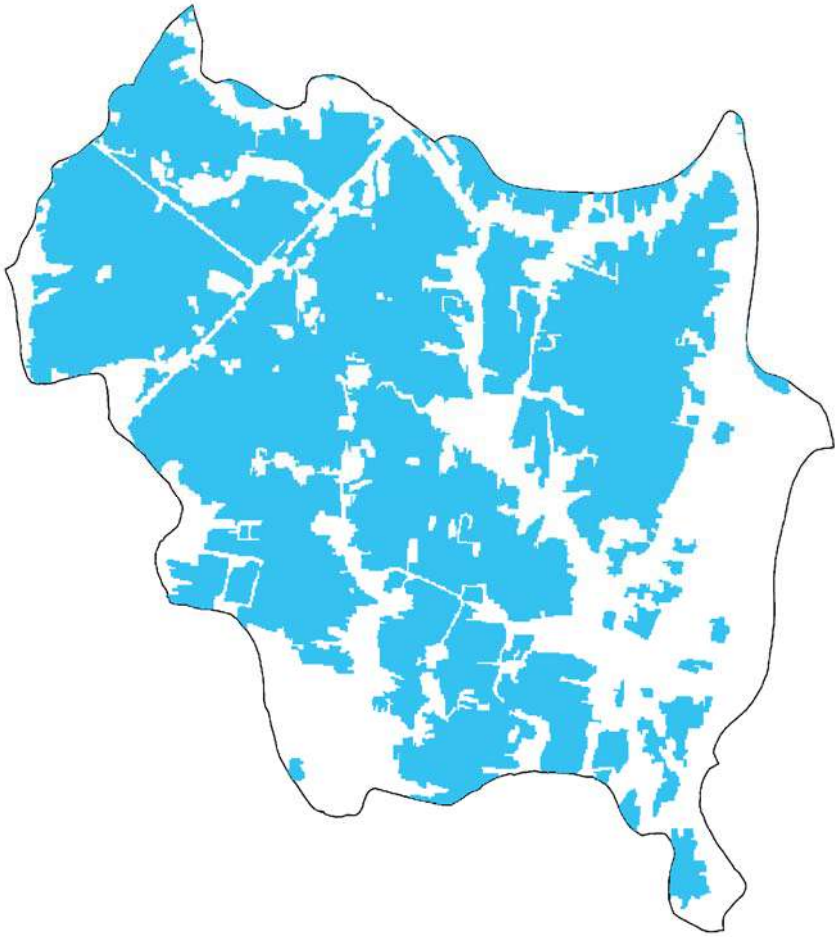


November, 2016: Total Gher area: 1882 hectare

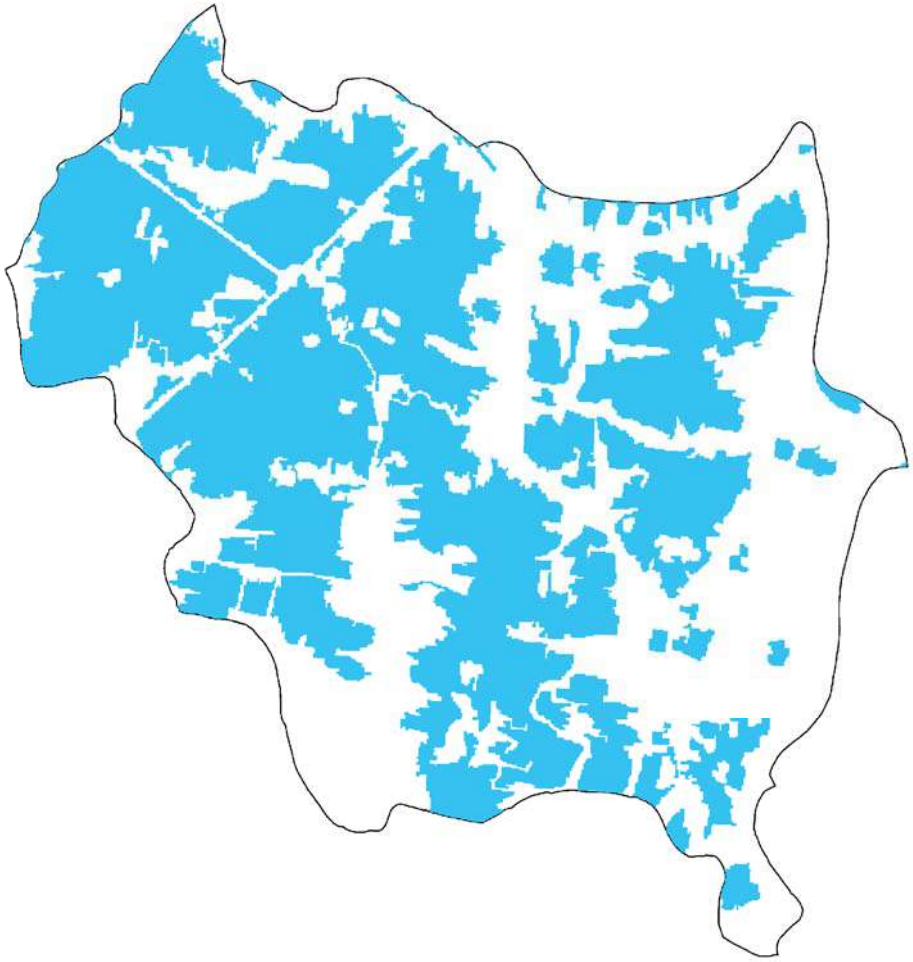


March, 2017: Total Gher area: 1444 hectare

Hurka

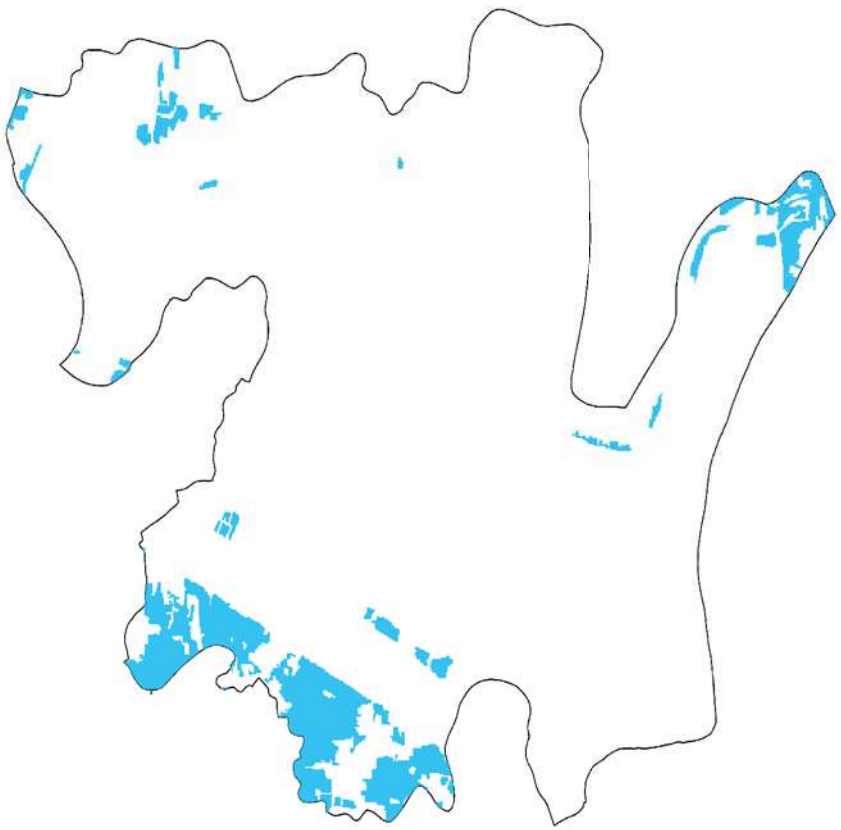


November, 2016: Total Gher area: 1064 hectare

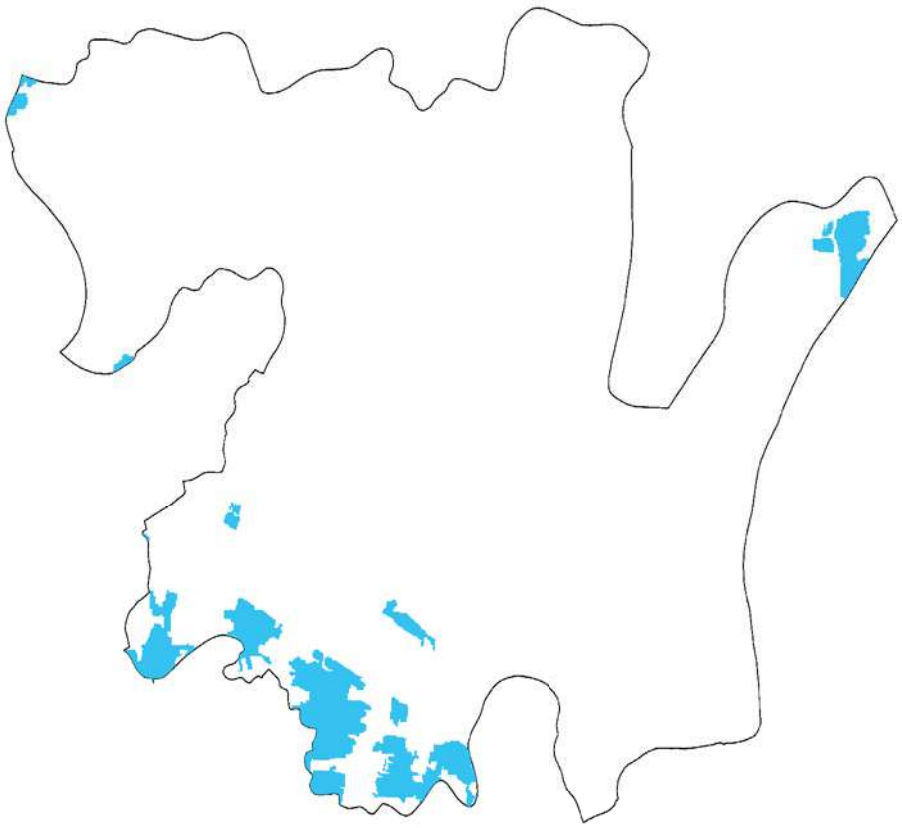


March, 2017: Total Gher area: 913 hectare

Mallikerber

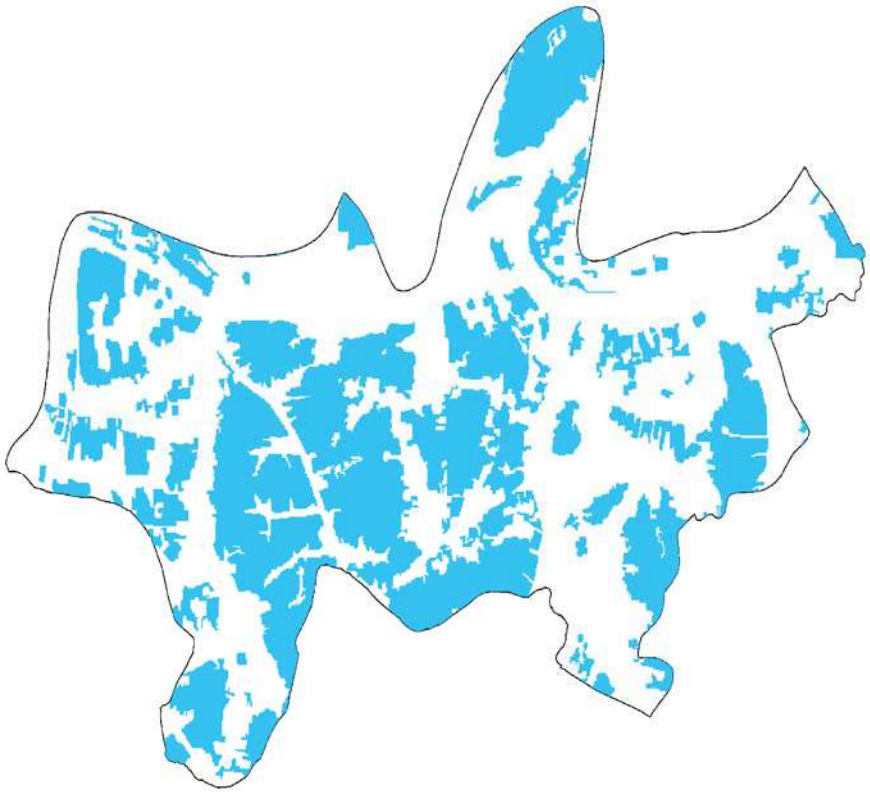


November, 2016: Total Gher area: 189 hectare

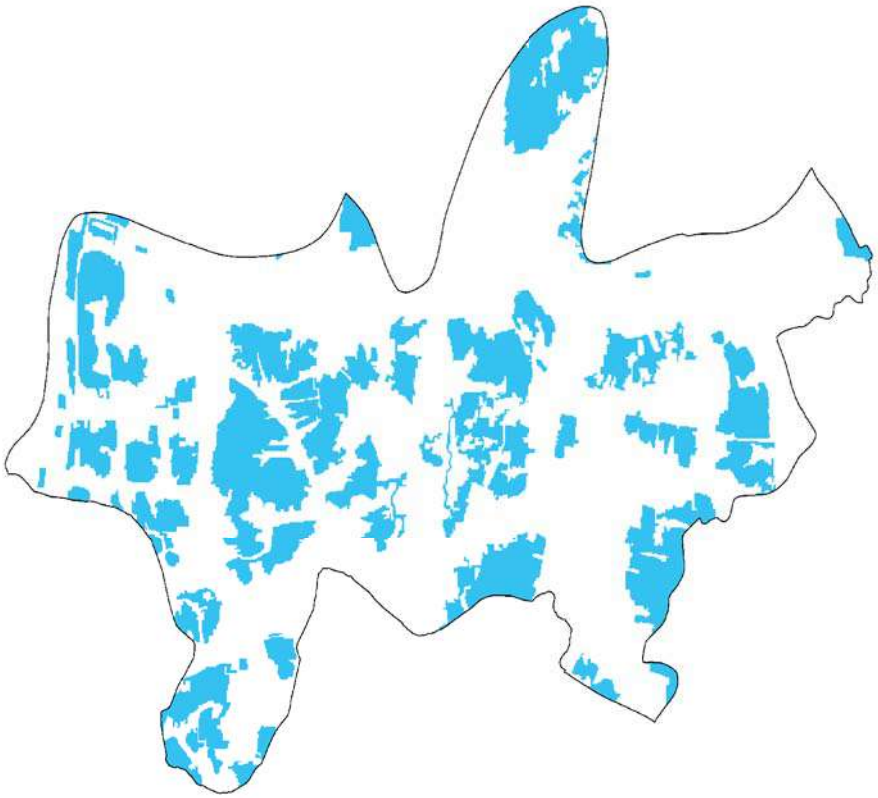


March, 2017: Total Gher area: 126 hectare

Perikhali

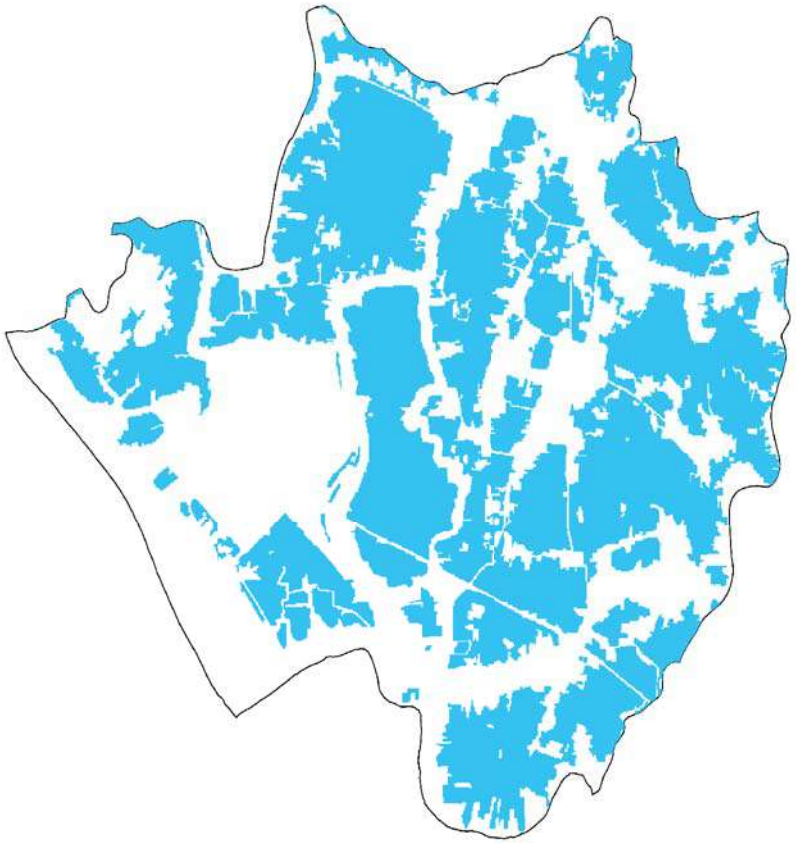


November, 2016: Total Gher area: 884 hectare

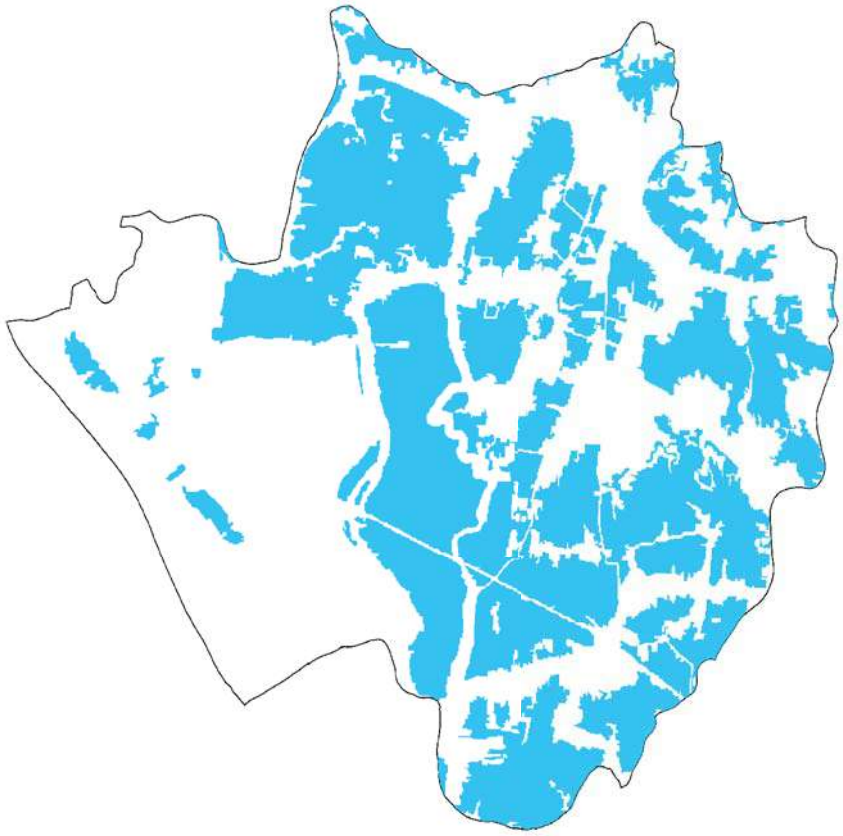


March, 2017: Total Gher area: 607 hectare

Rajnagar

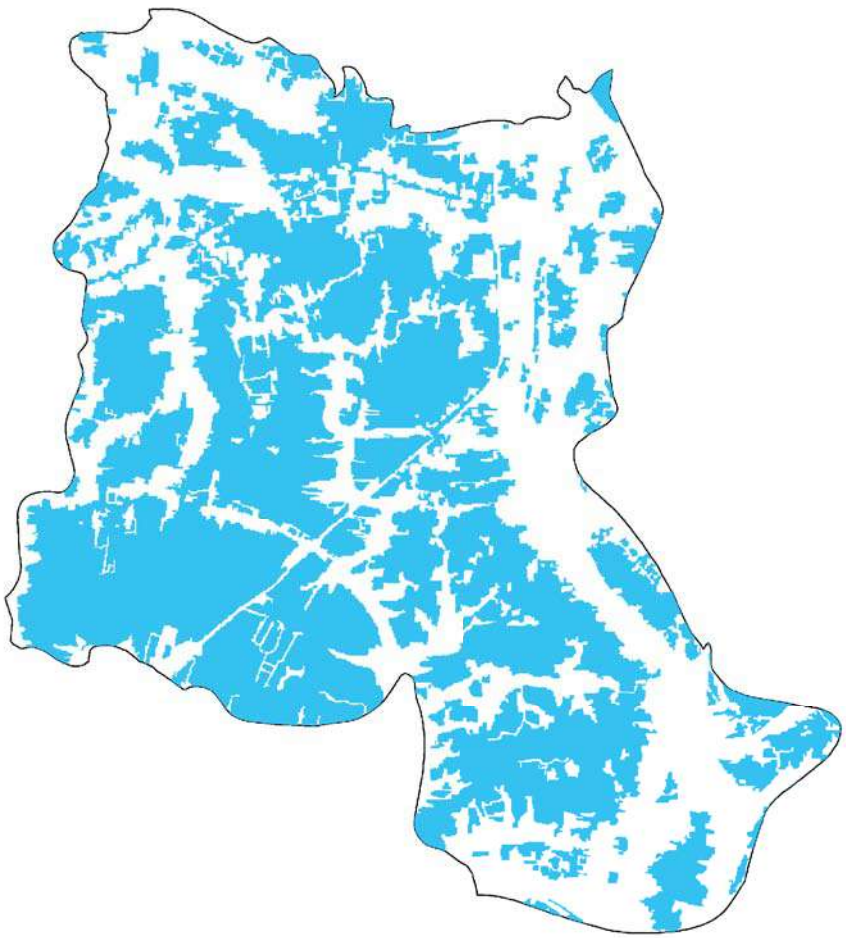


November, 2016: Total Gher area: 1626 hectare

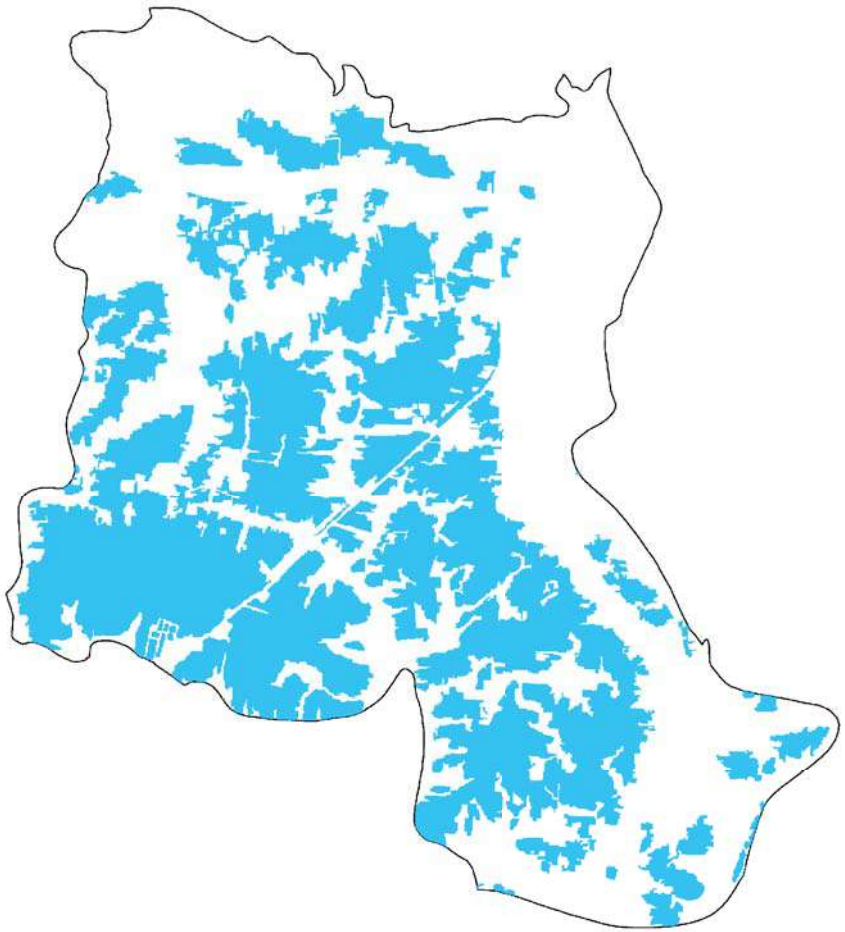


March, 2017: Total Gher area: 1411 hectare

Rampal

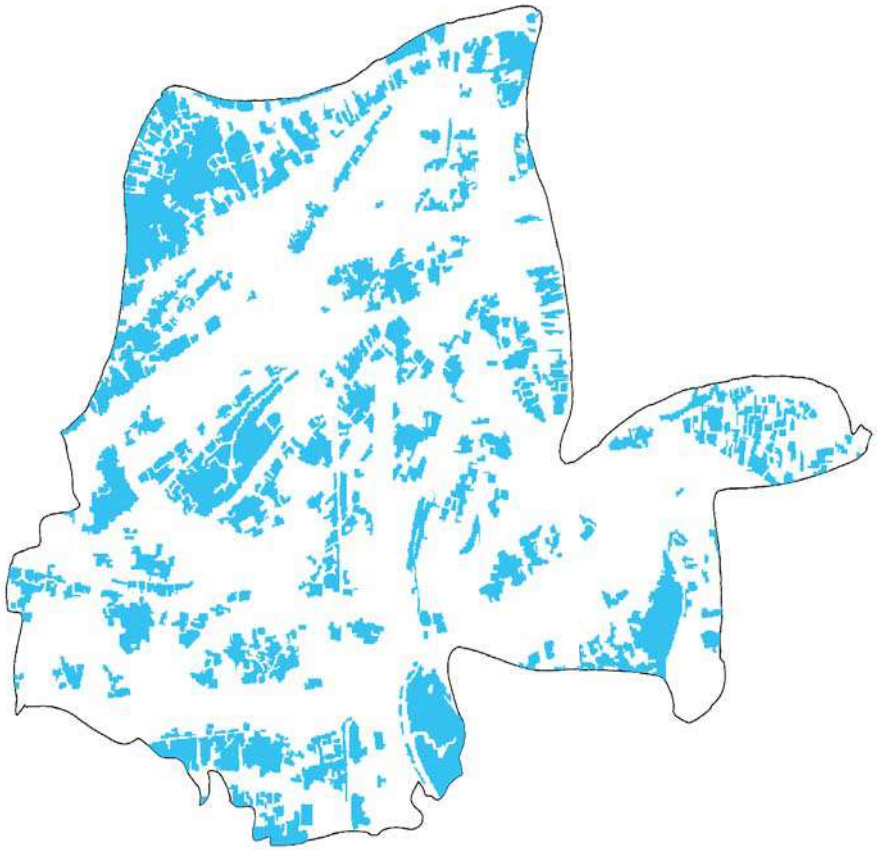


November, 2016: Total Gher area: 1945 hectare

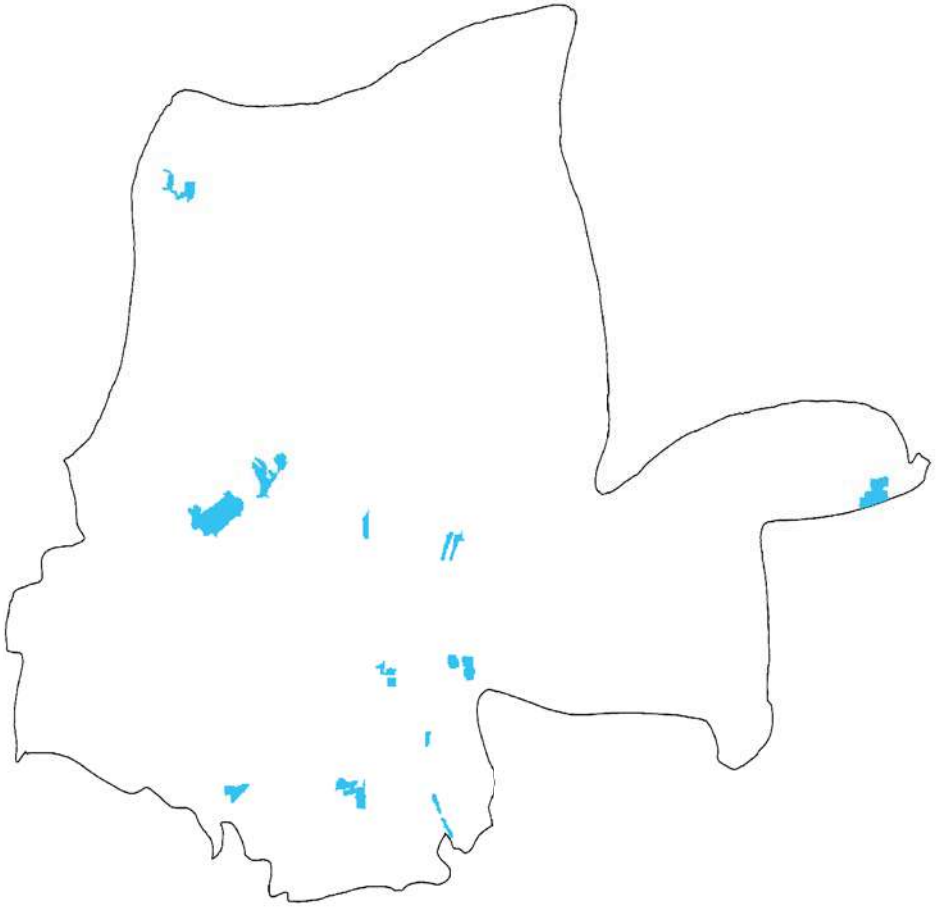


March, 2017: Total Gher area: 1504 hectare

Ujalkur



November, 2016: Total Gher area: 771 hectare

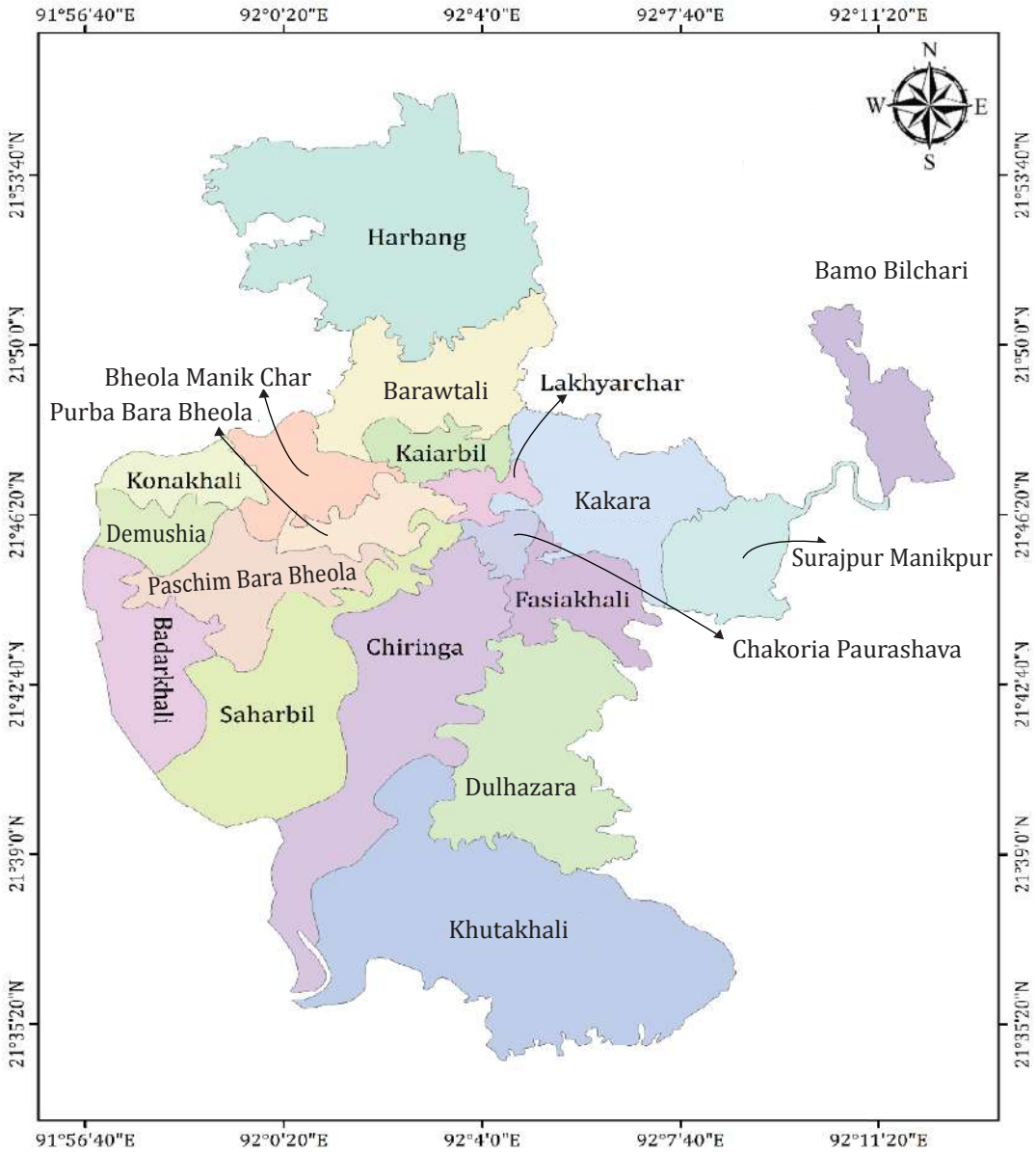


March, 2017: Total Gher area: 34 hectare

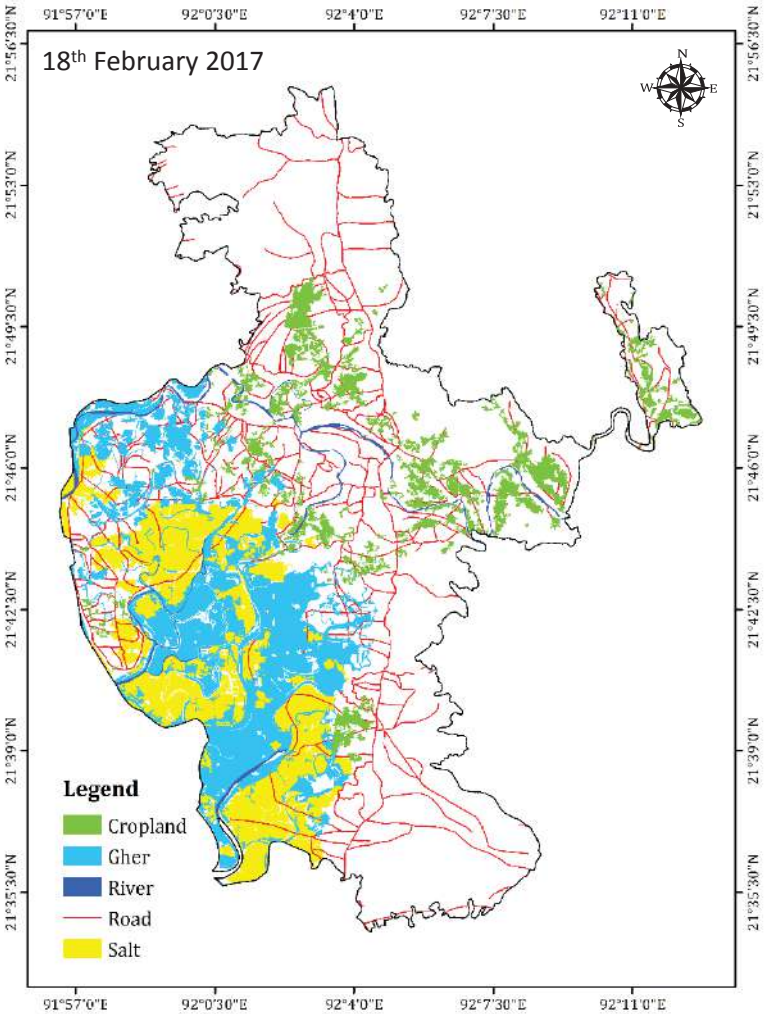
Cox’s Bazar District

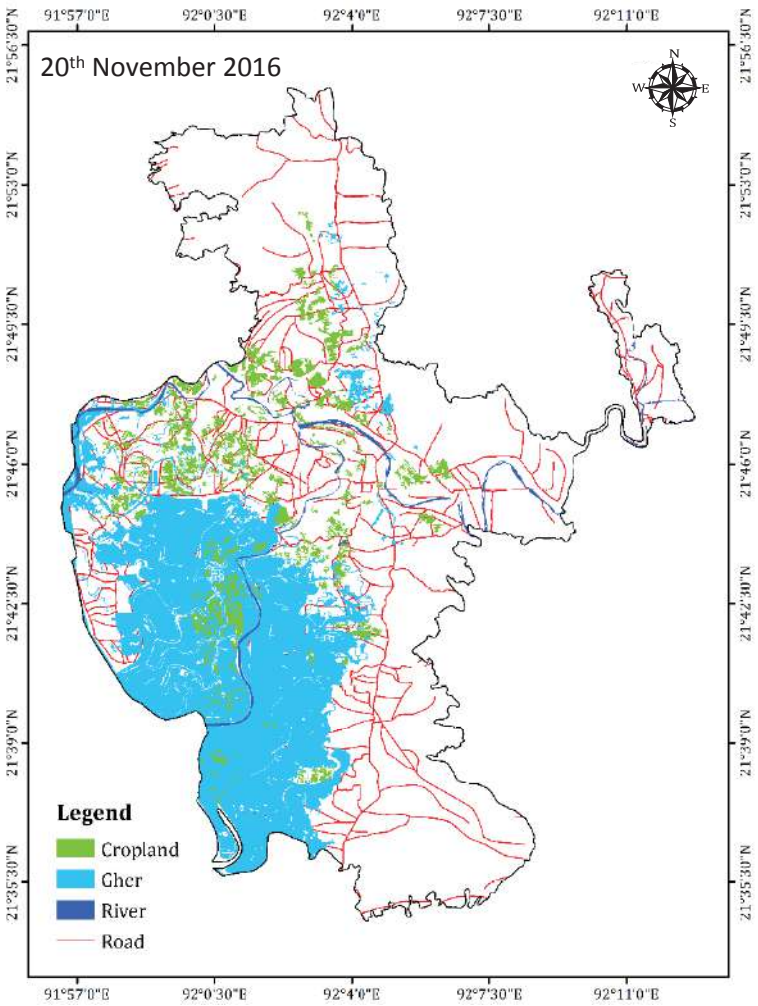
GIS based Gher map of Unions of Chakoria Upazila

Map of Chakoria Upazila with Unions



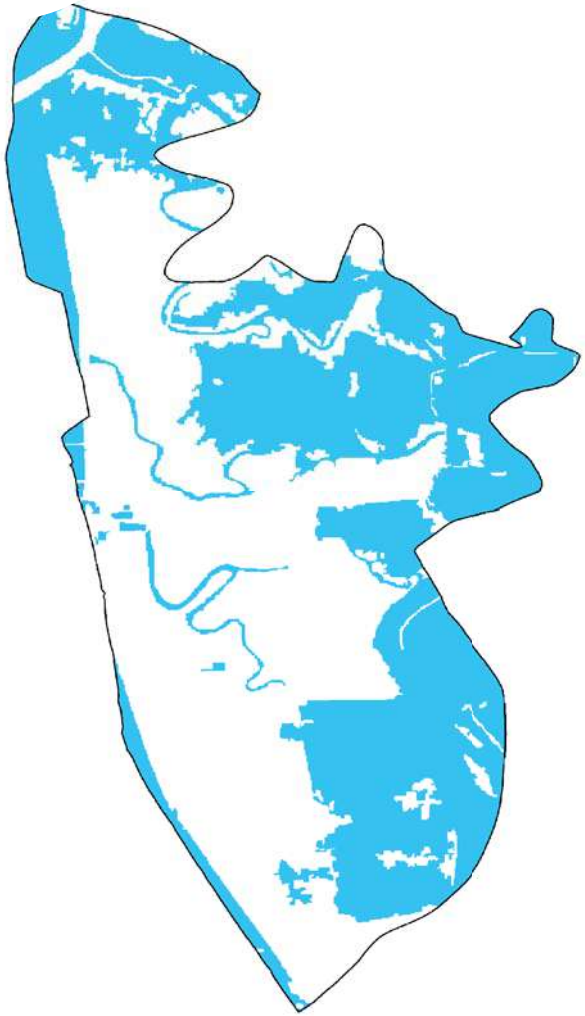
GIS map of Chakoria Upazila with Gher and Crop area



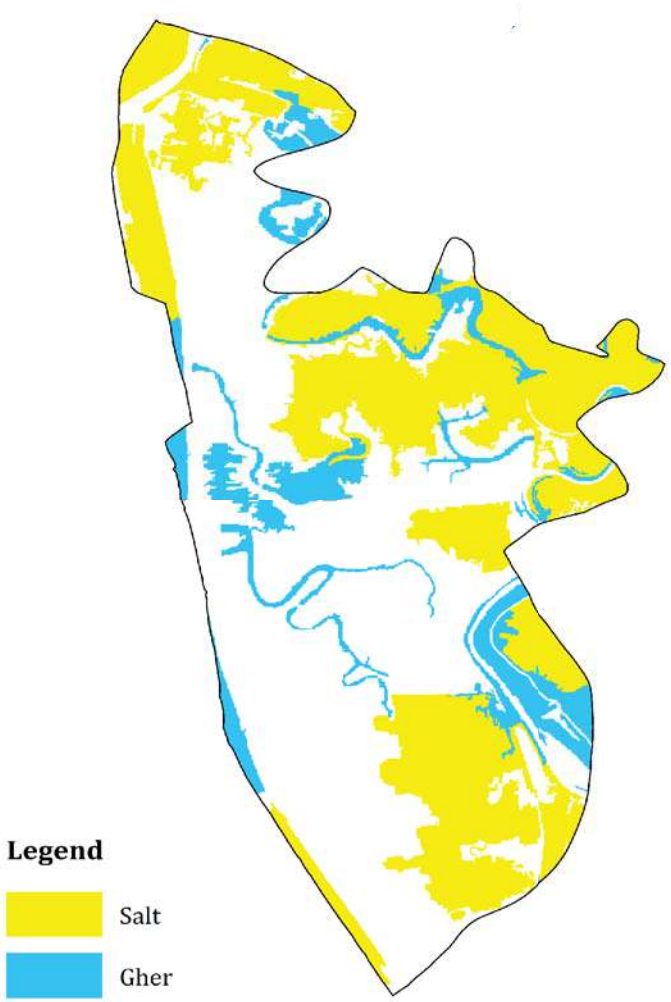


Upazila Name	Total area (ha)	18th February 2017			20th November 2016	
		Agriculture (ha)	Gher (ha)	Salt (ha)	Agriculture (ha)	Gher (ha)
Chakoria	47836	3116	6977	5856	2526	12235

Badarkhali

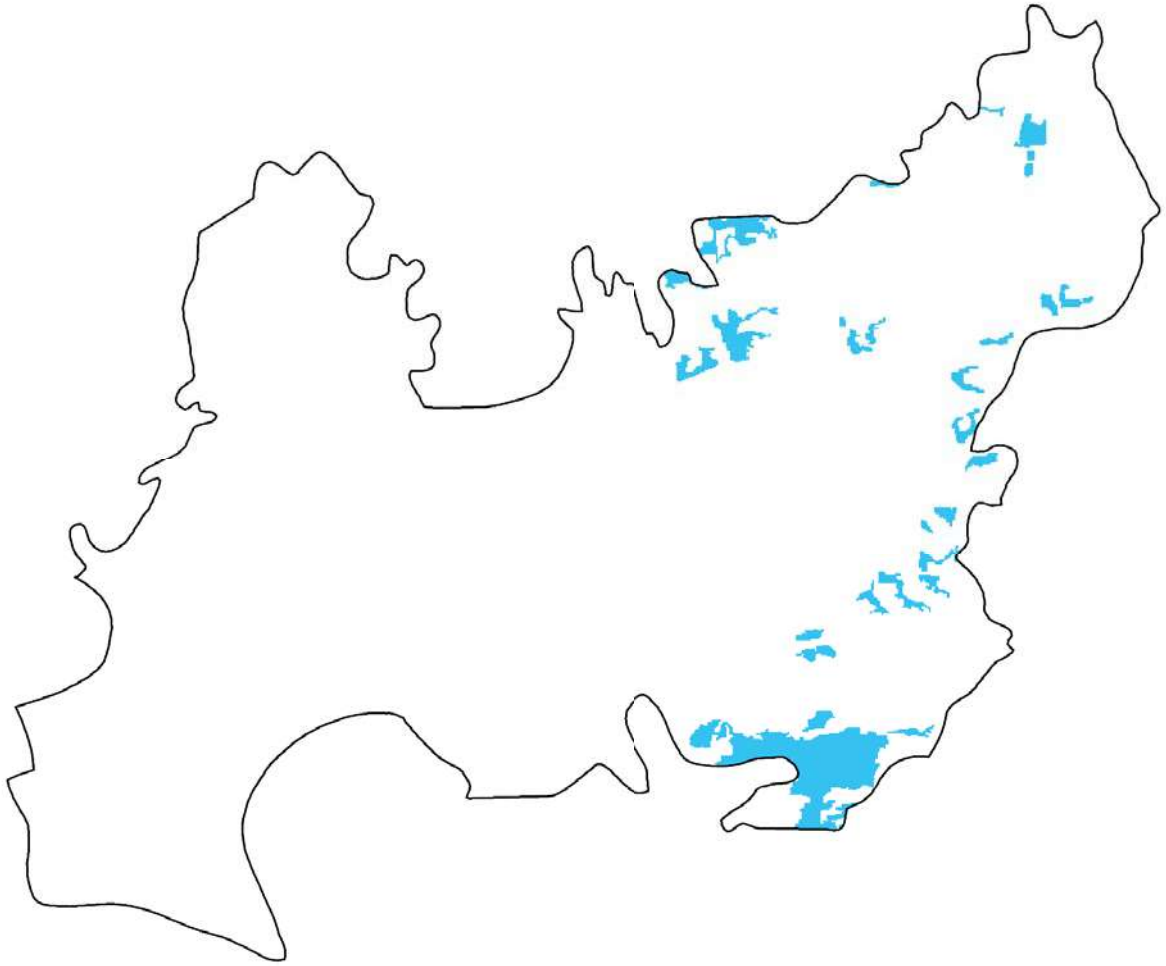


November, 2016: Total Gher area: 1015 hectare



February, 2017: Total Gher area: 232 hectare

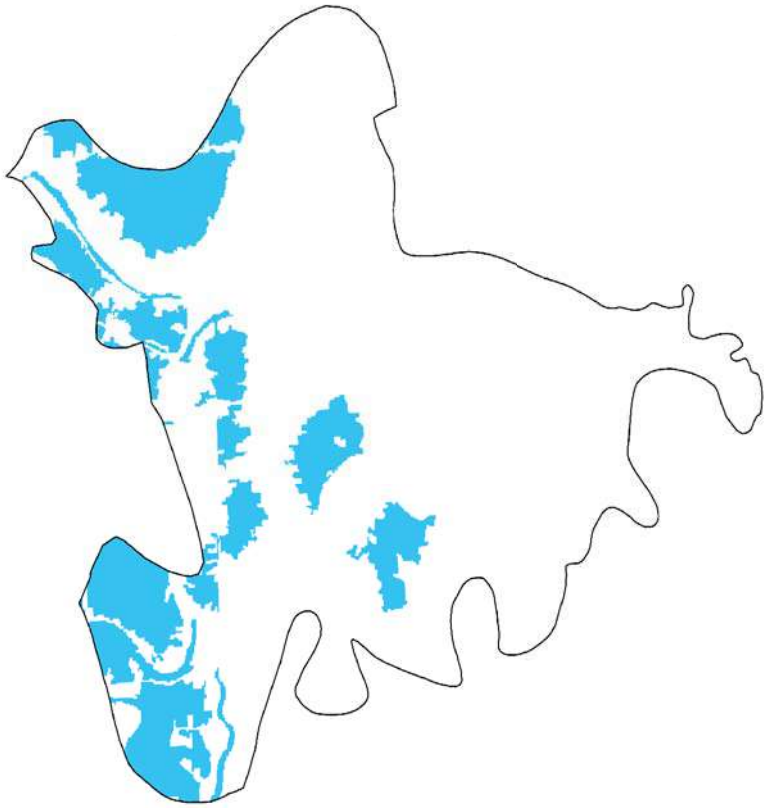
Barawtali



November, 2016: Total Gher area: 89 hectare

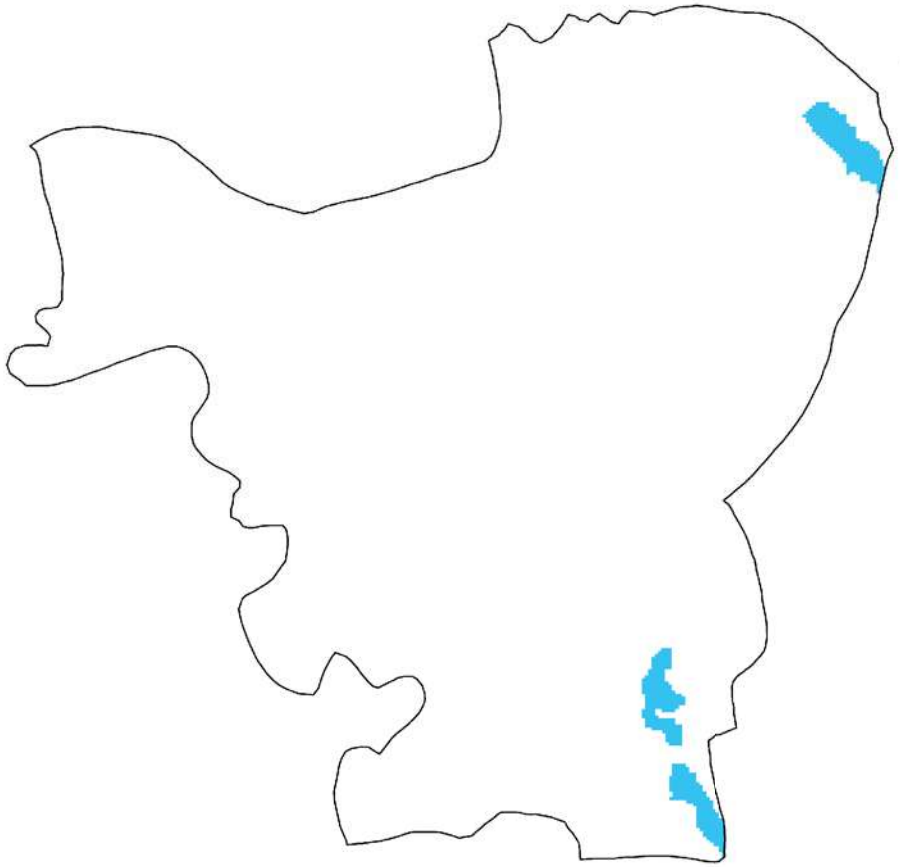
Bheola Manik Char

November, 2016: Total Gher area: 25 hectare



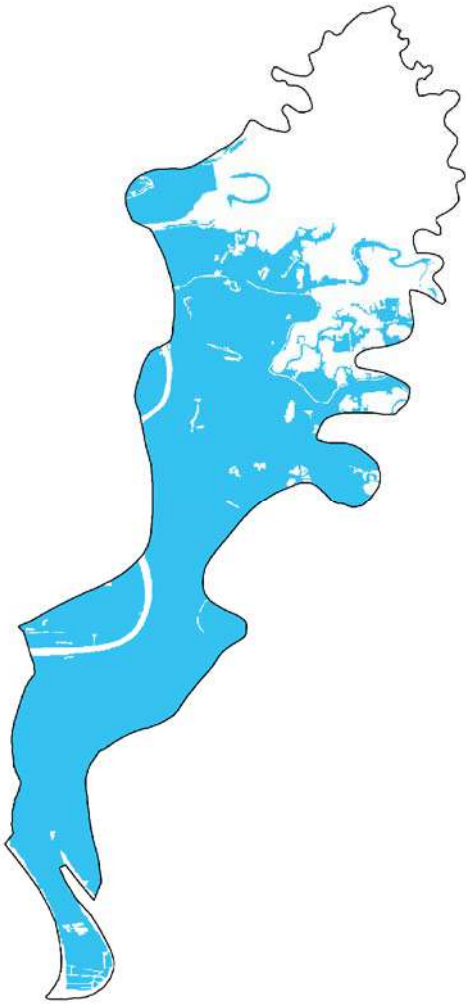
February, 2017: Total Gher area: 264 hectare

Chakoria Paurashava

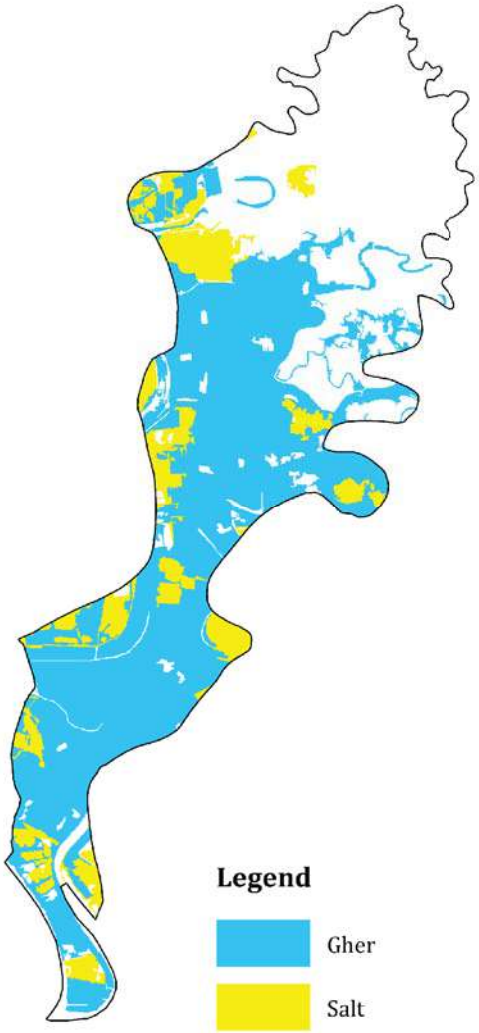


November, 2016: Total Gher area: 7 hectare

Chiringa

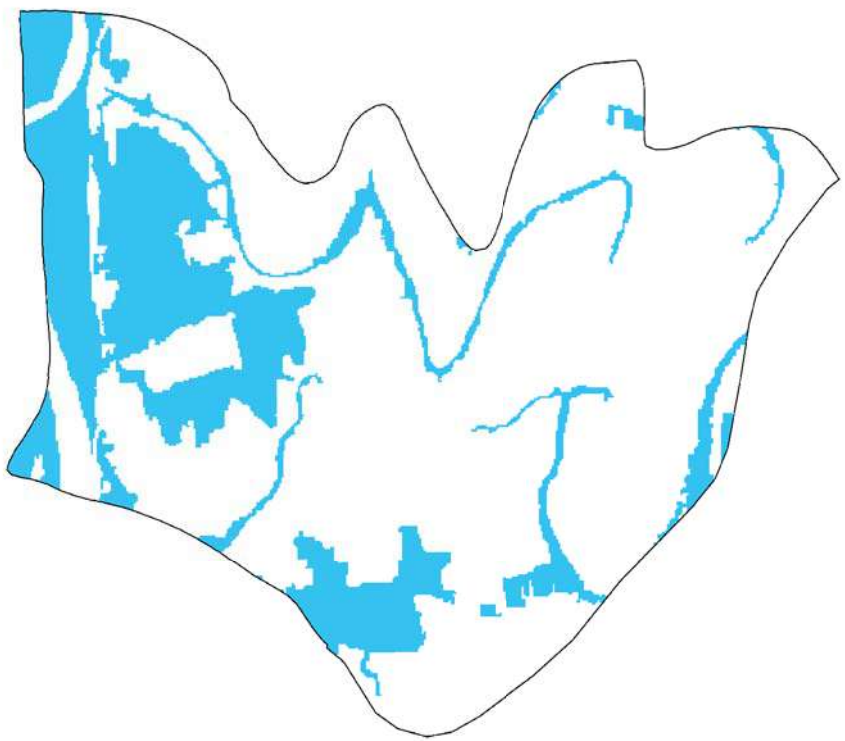


November, 2016: Total Gher area: 3015 hectare

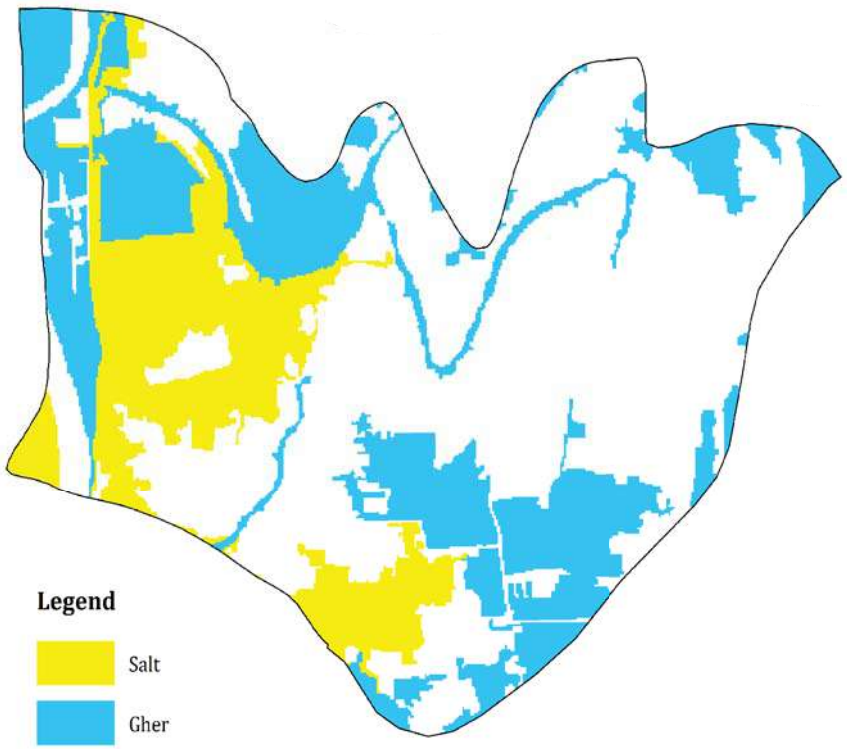


February, 2017: Total Gher area: 2393 hectare

Demushia

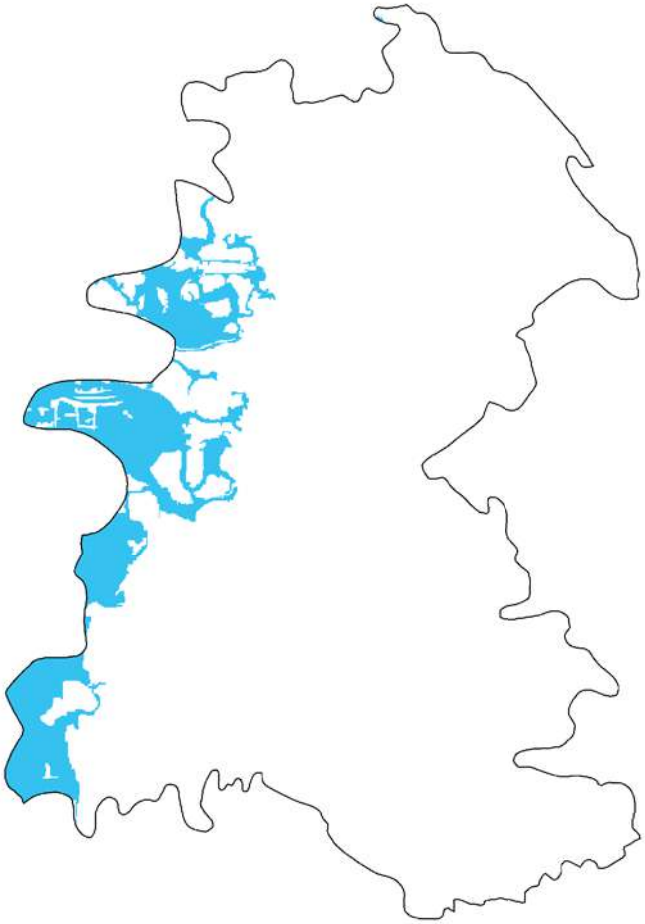


November, 2016: Total Gher area: 222 hectare

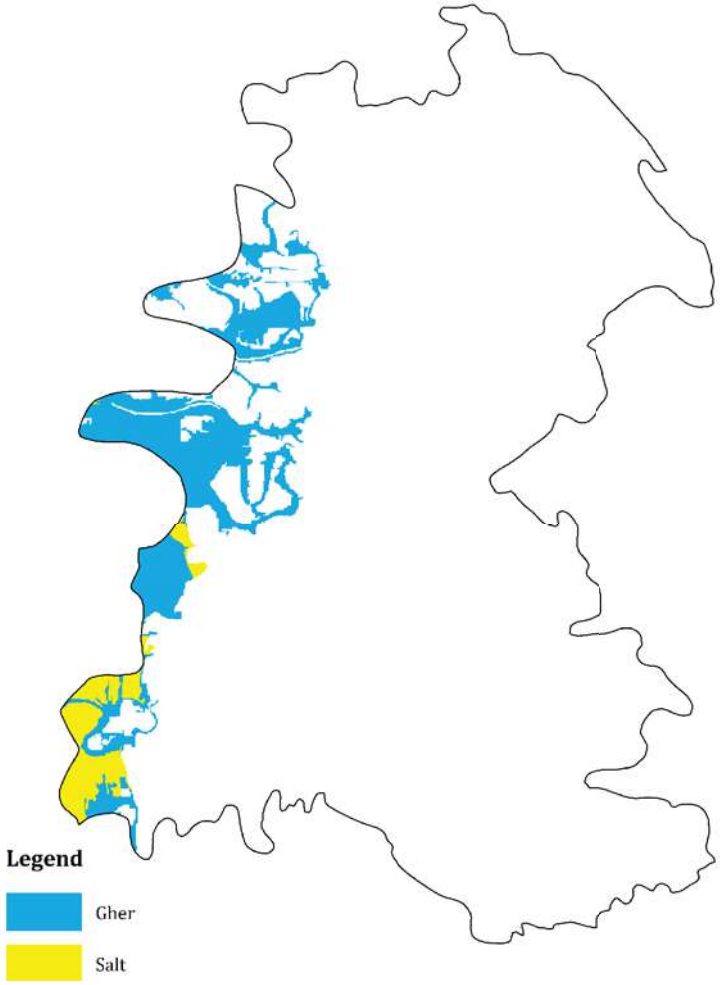


February, 2017: Total Gher area: 241 hectare

Dulhazara

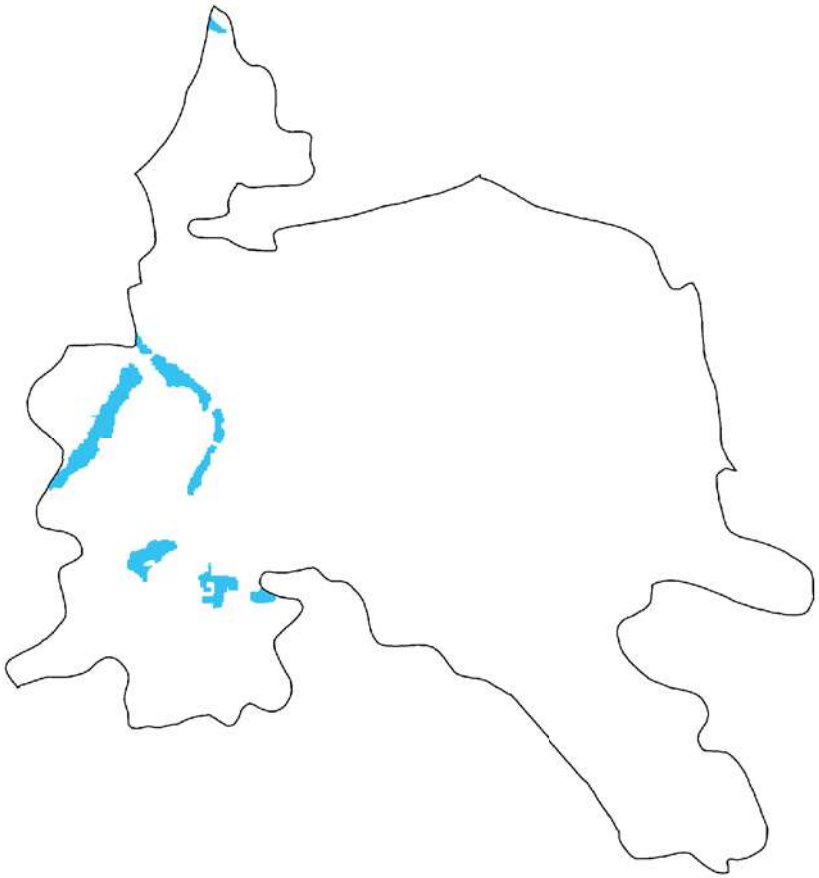


November, 2016: Total Gher area: 369 hectare



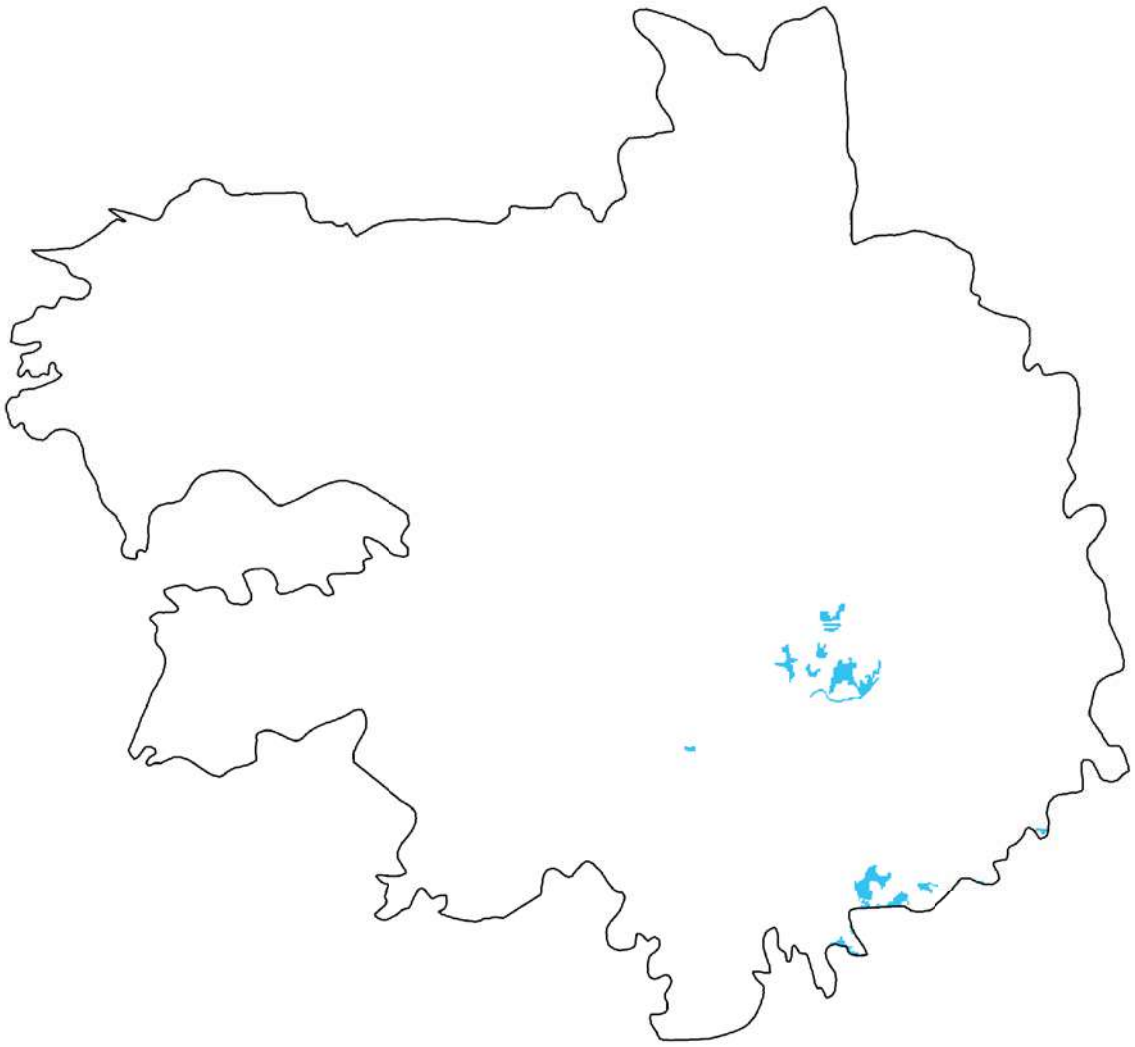
February, 2017: Total Gher area: 282 hectare

Fasiakhali



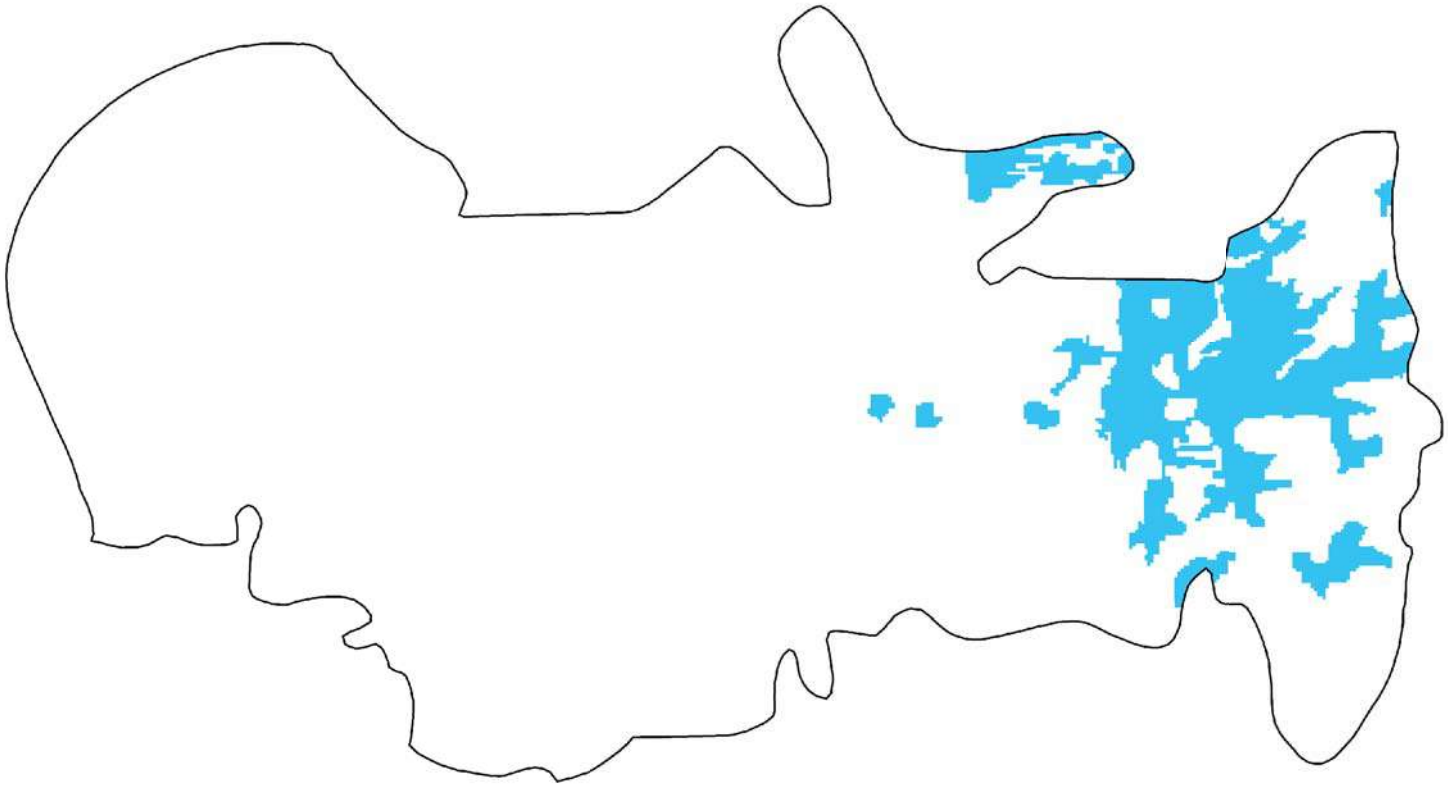
November, 2016: Total Gher area: 29 hectare

Harbang



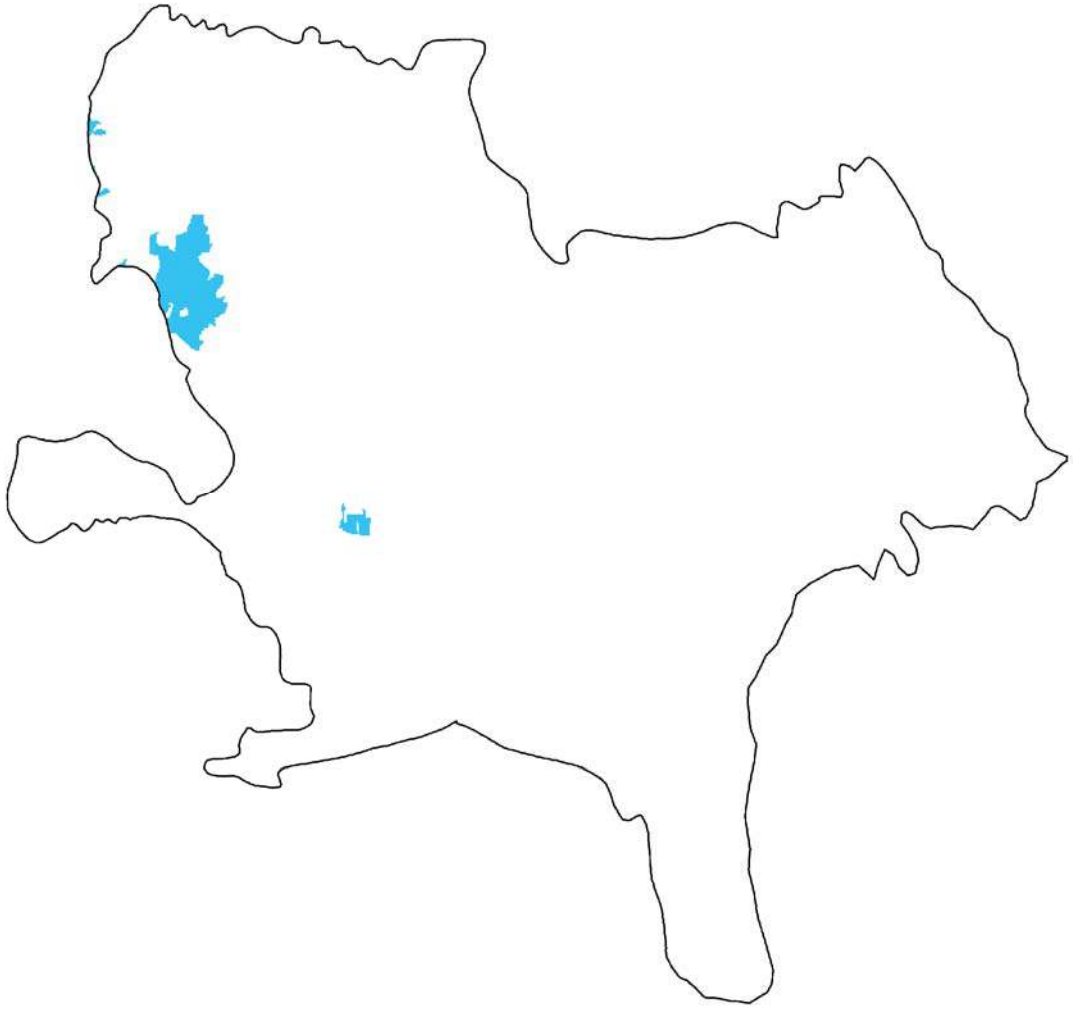
November, 2016: Total Gher area: 28 hectare

Kaiarbil



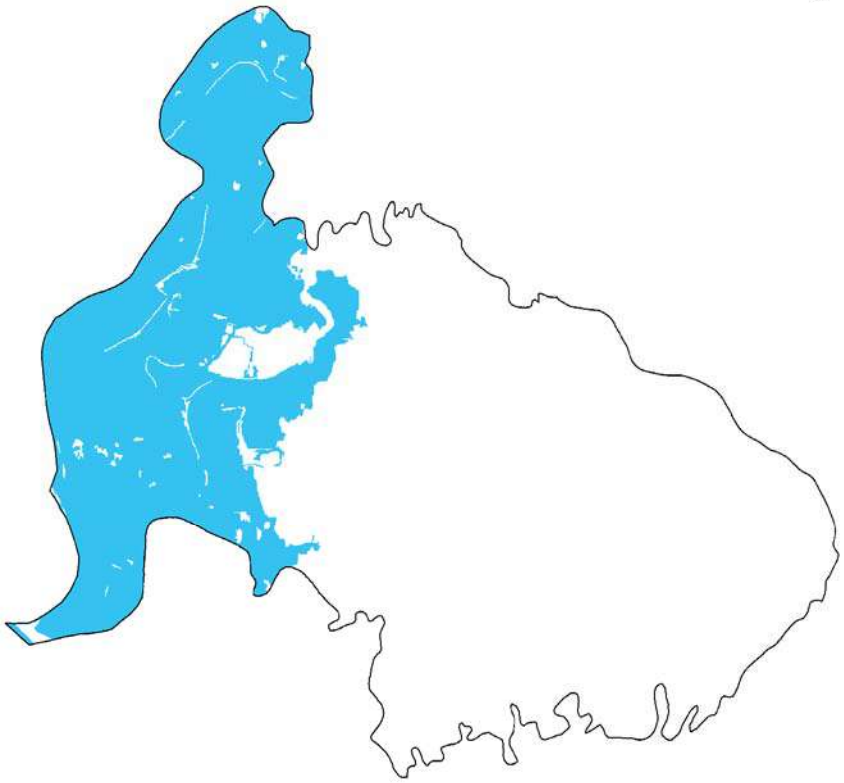
November, 2016: Total Gher area: 71 hectare

Kakara

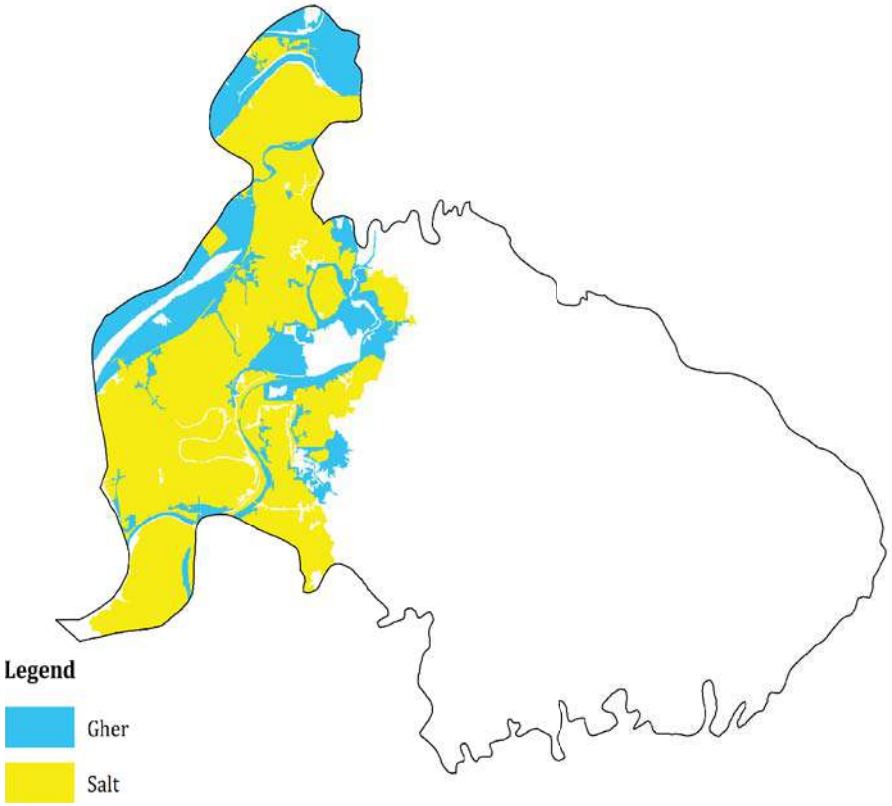


November, 2016: Total Gher area: 38 hectare

Khutakhali

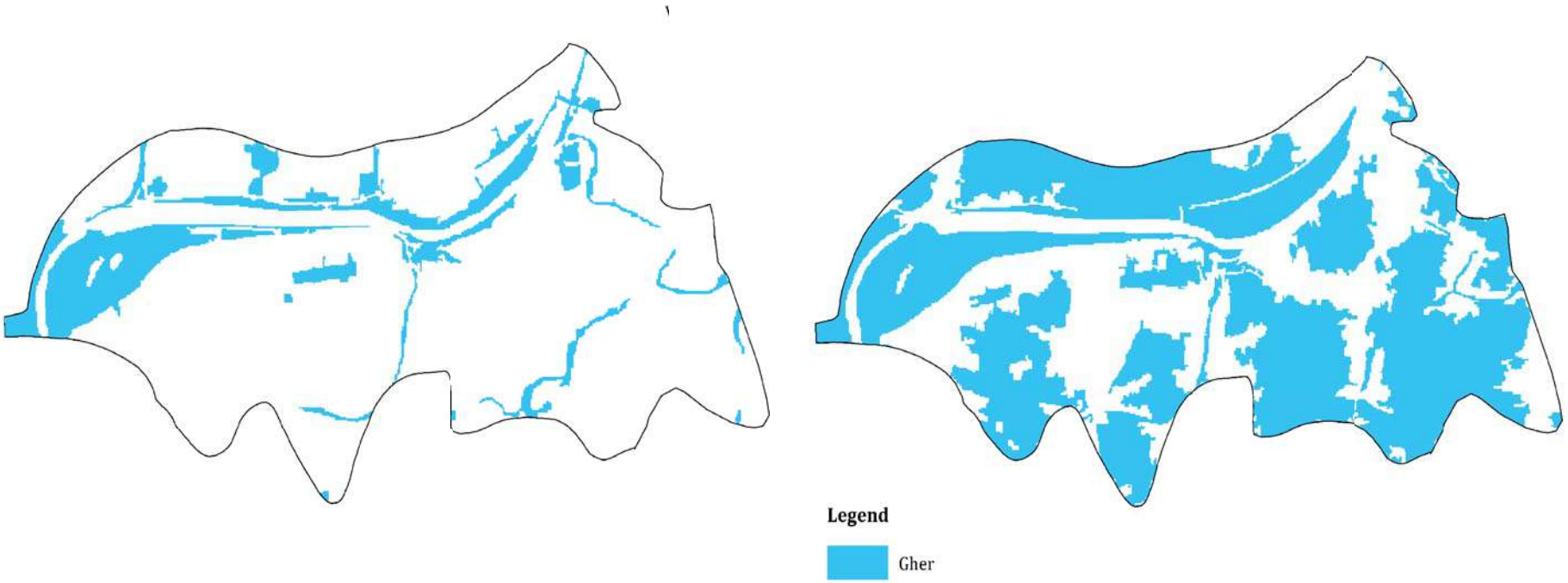


November, 2016: Total Gher area: 2573 hectare



February, 2017: Total Gher area: 732 hectare

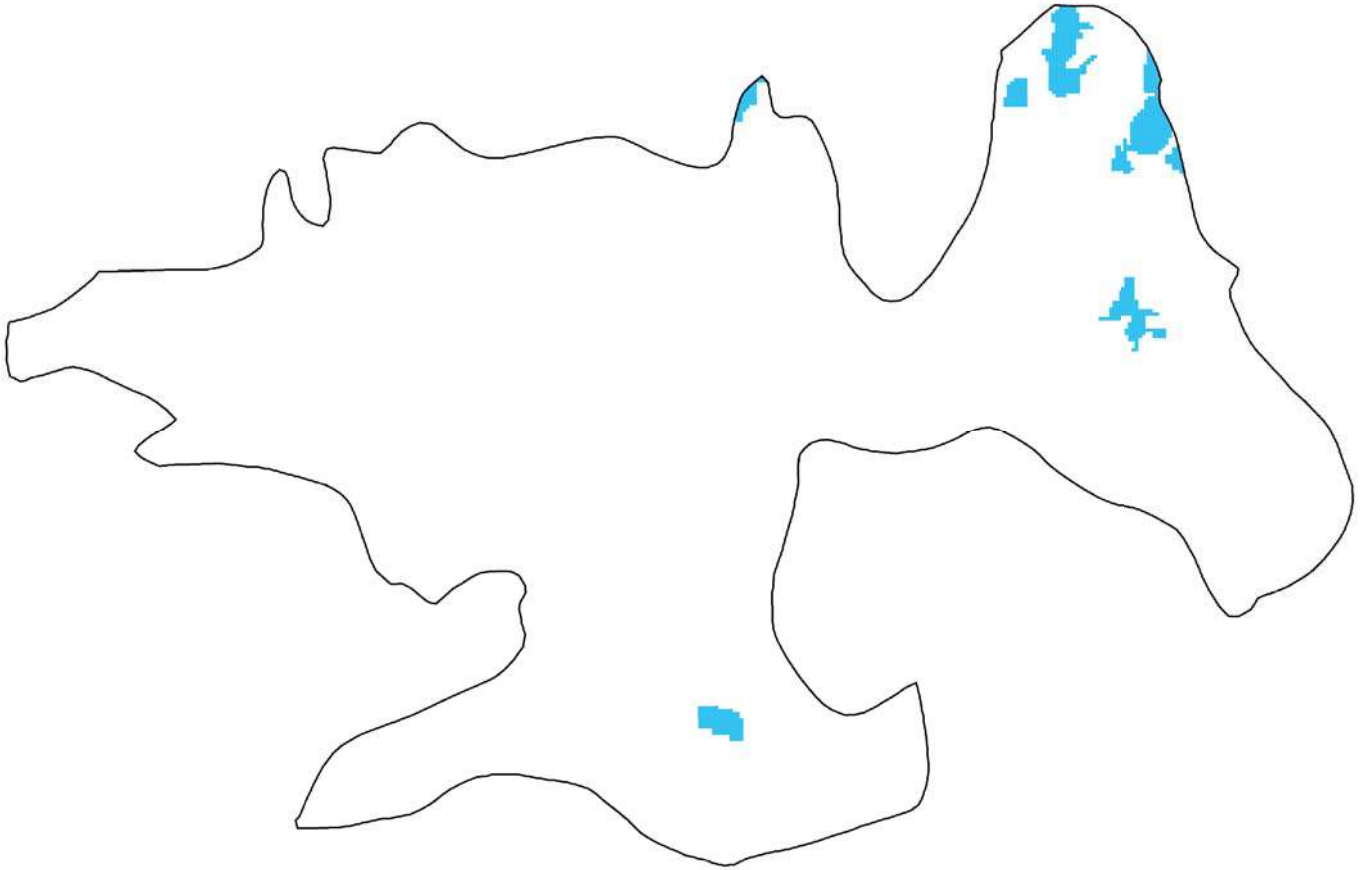
Konakhali



November, 2016: Total Gher area: 133 hectare

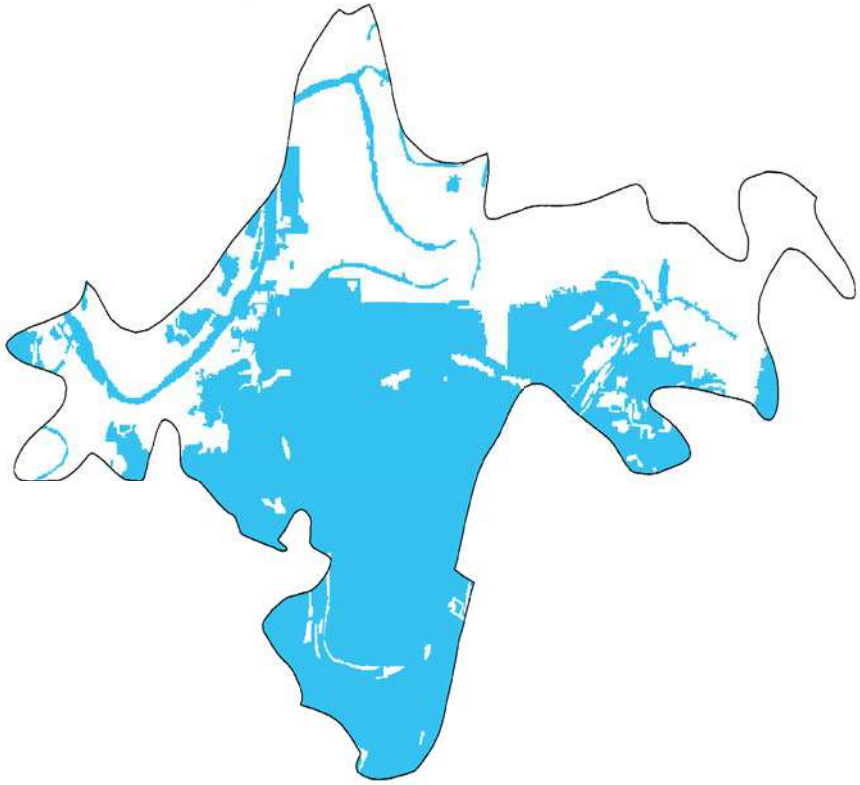
February, 2017: Total Gher area: 564 hectare

Lakhyarchar

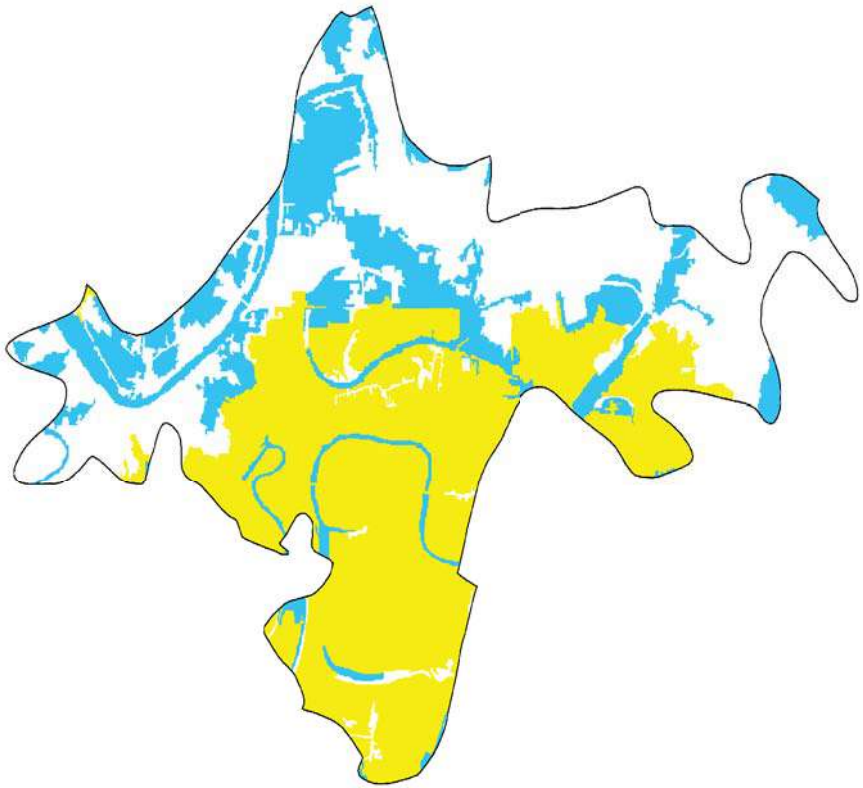


November, 2016: Total Gher area: 9 hectare

Paschim Bara Bheola

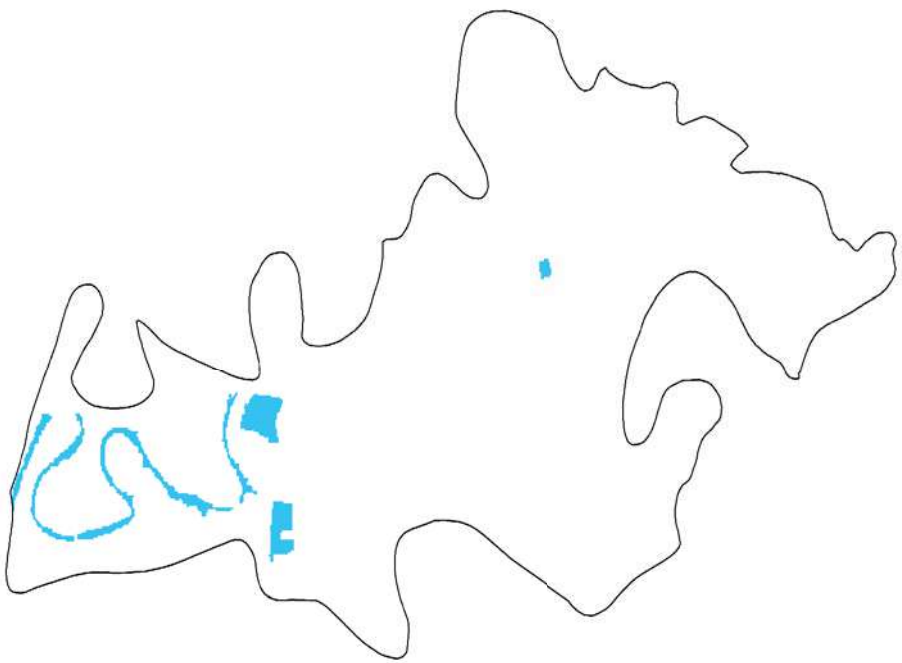


November, 2016: Total Gher area: 1146 hectare

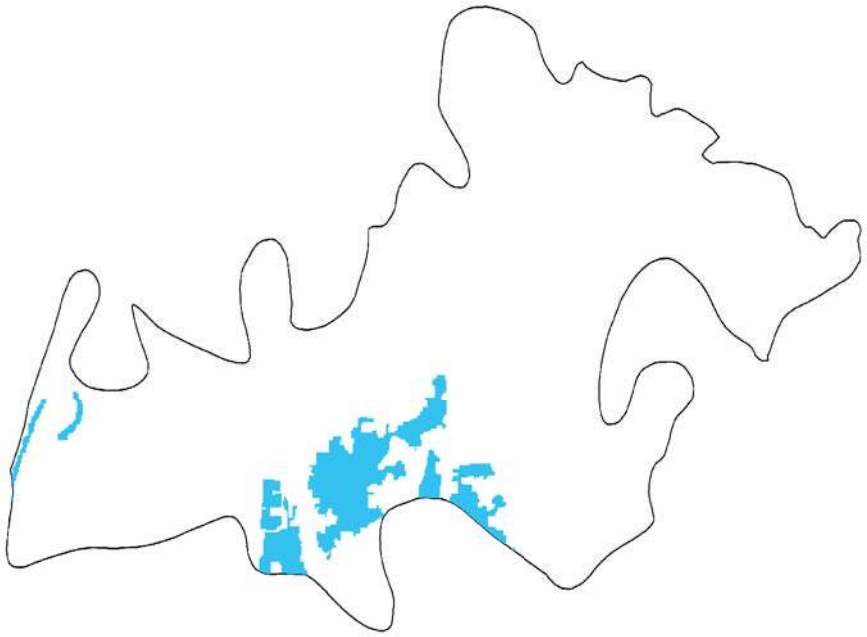


February, 2017: Total Gher area: 440 hectare

Purba Bara Bheola



November, 2016: Total Gher area: 24 hectare



February, 2017: Total Gher area: 55 hectare

Saharbil

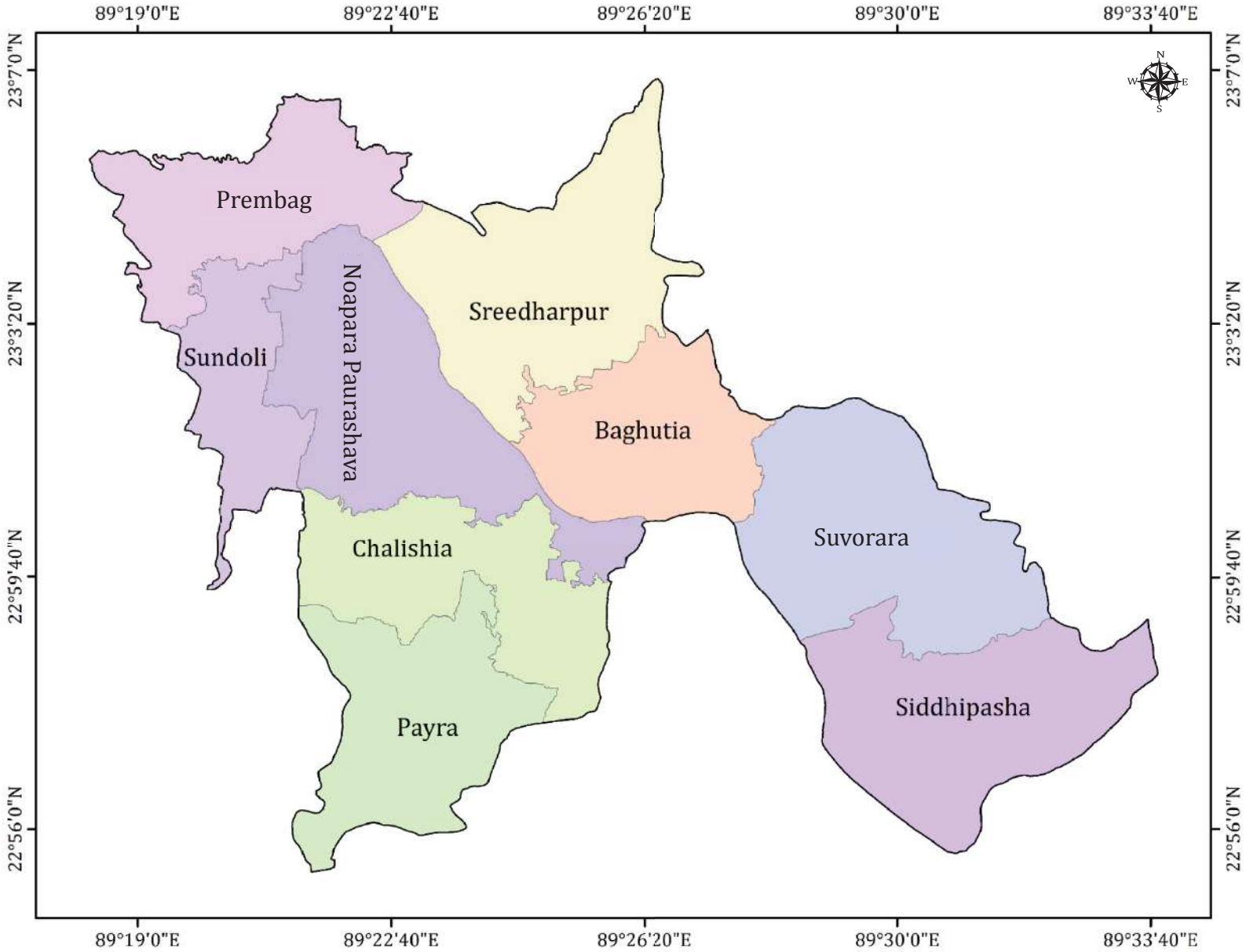
November, 2016: Total Gher area: 3440 hectare

February, 2017: Total Gher area: 1772 hectare

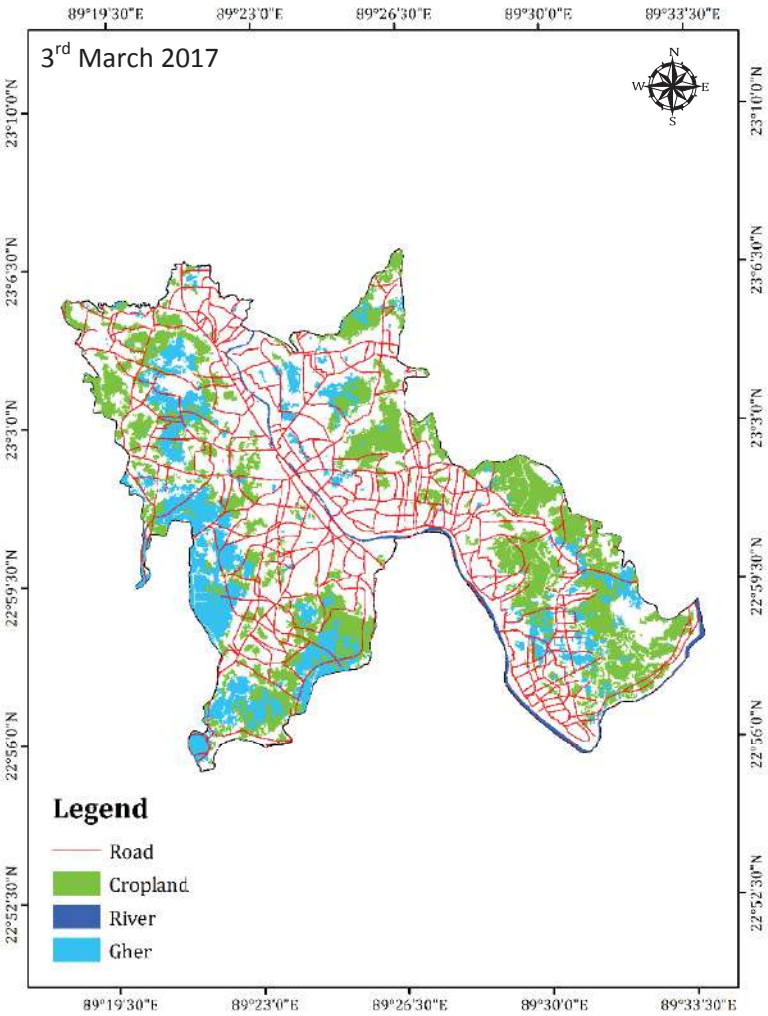
Jessore District

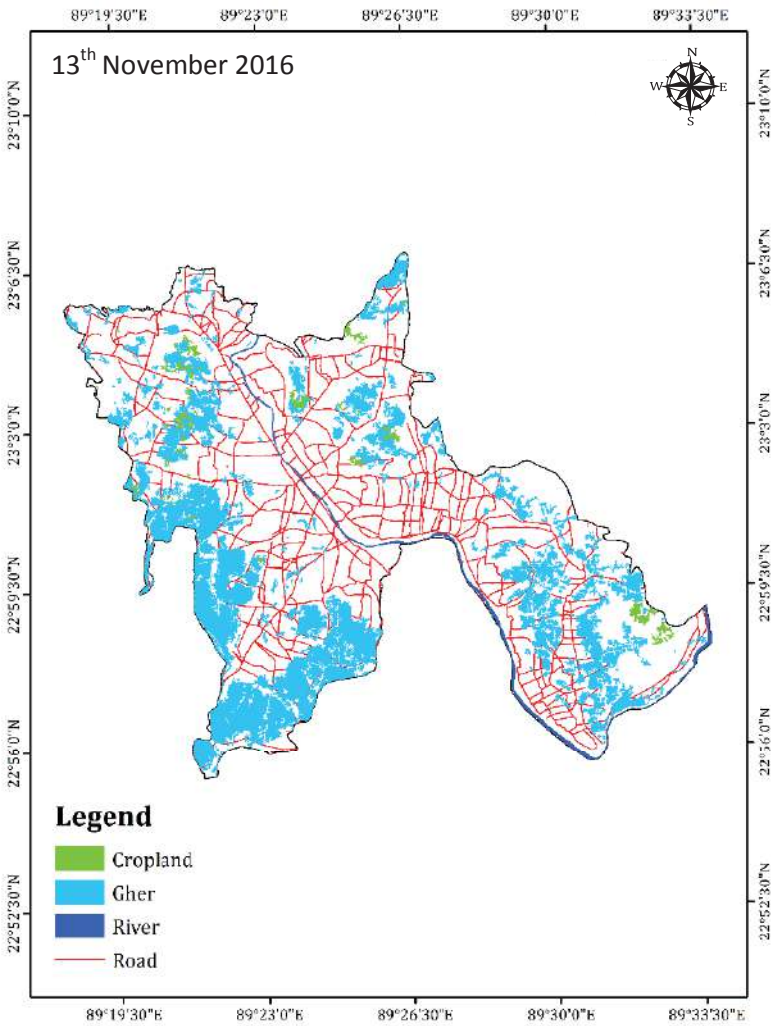
GIS based Gher map of Unions of Abhoynagar Upazila

Map of Abhoynagar Upazila with Unions



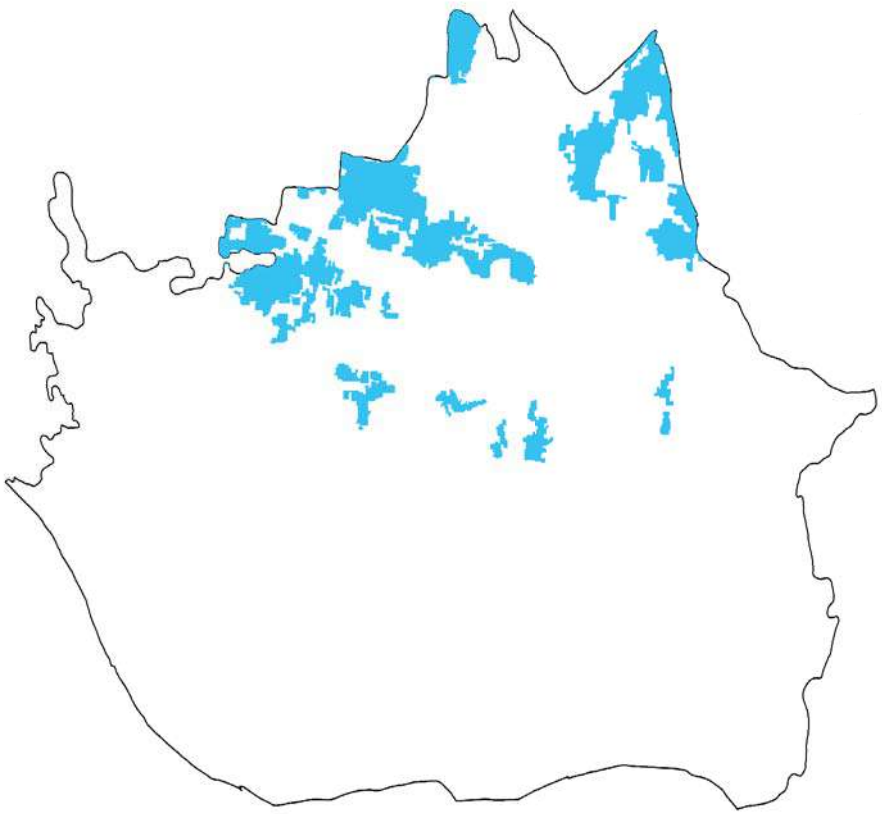
GIS map of Abhoynagar Upazila with Gher and Crop area



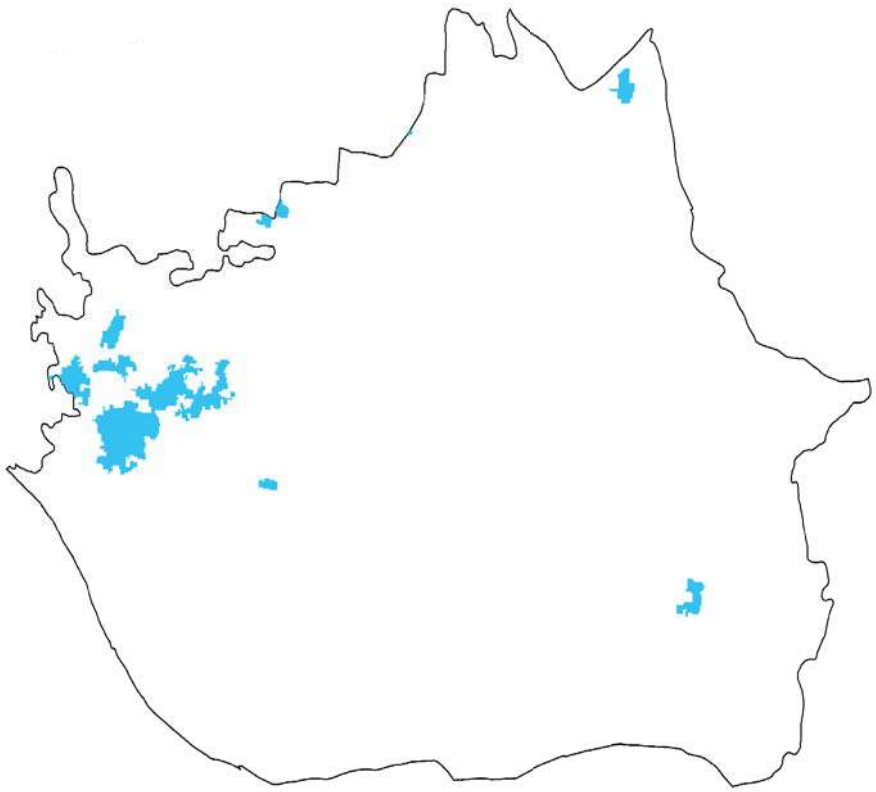


Upazila Name	Total area (ha)	3rd March 2017		13th November 2016	
		Agriculture (ha)	Gher (ha)	Agriculture (ha)	Gher (ha)
Abhaynagar	24713	6510	3456	284	6264

Baghutia

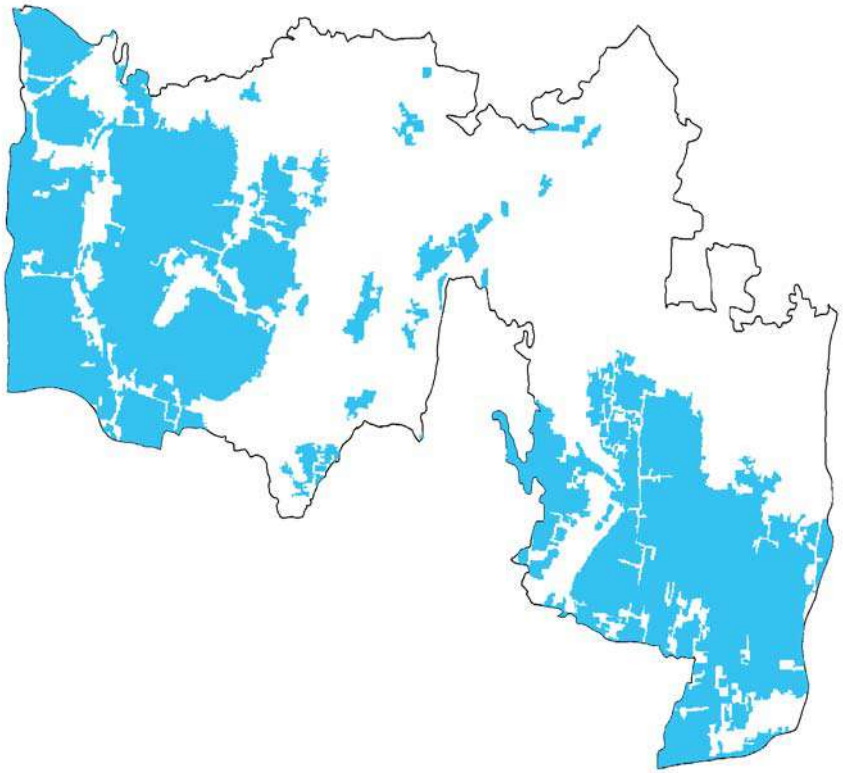


November, 2016: Total Gher area: 163 hectare

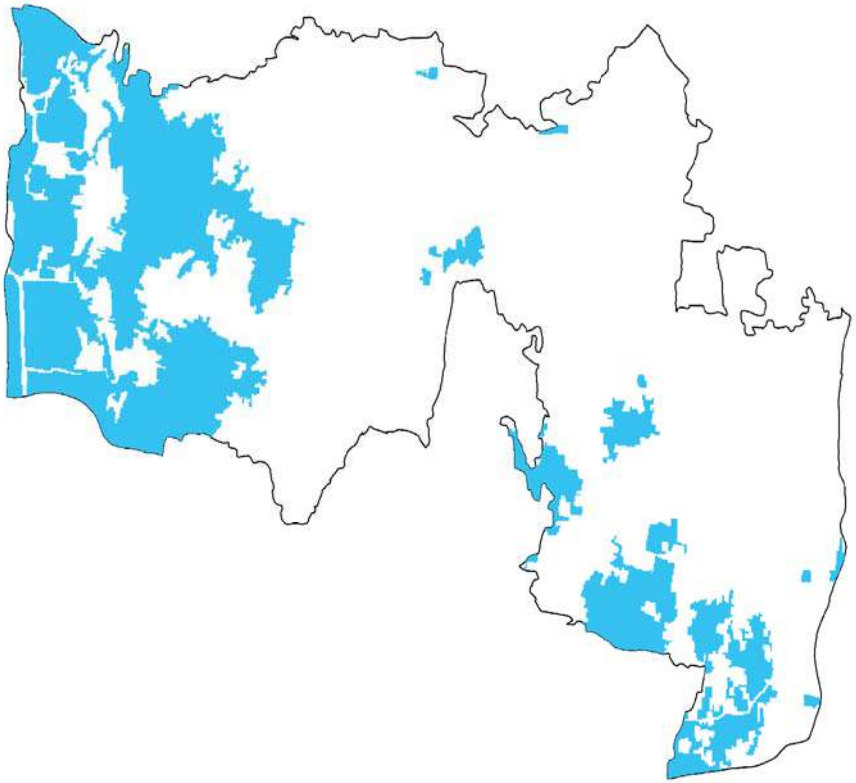


March, 2017: Total Gher area: 46 hectare

Chalishia

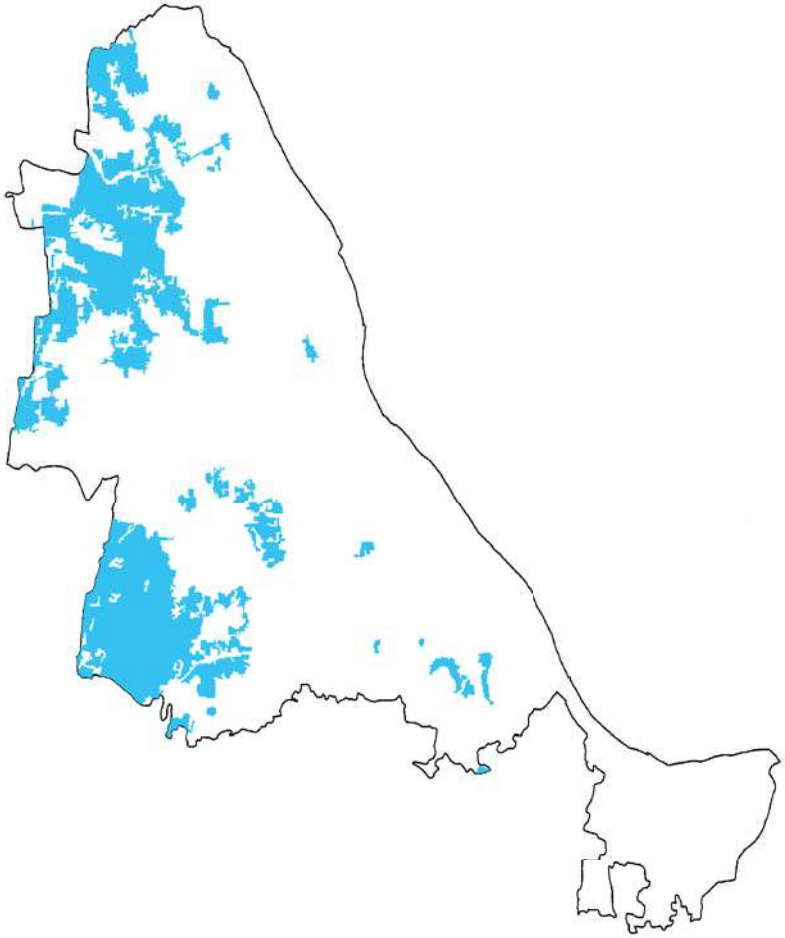


November, 2016: Total Gher area: 1046 hectare

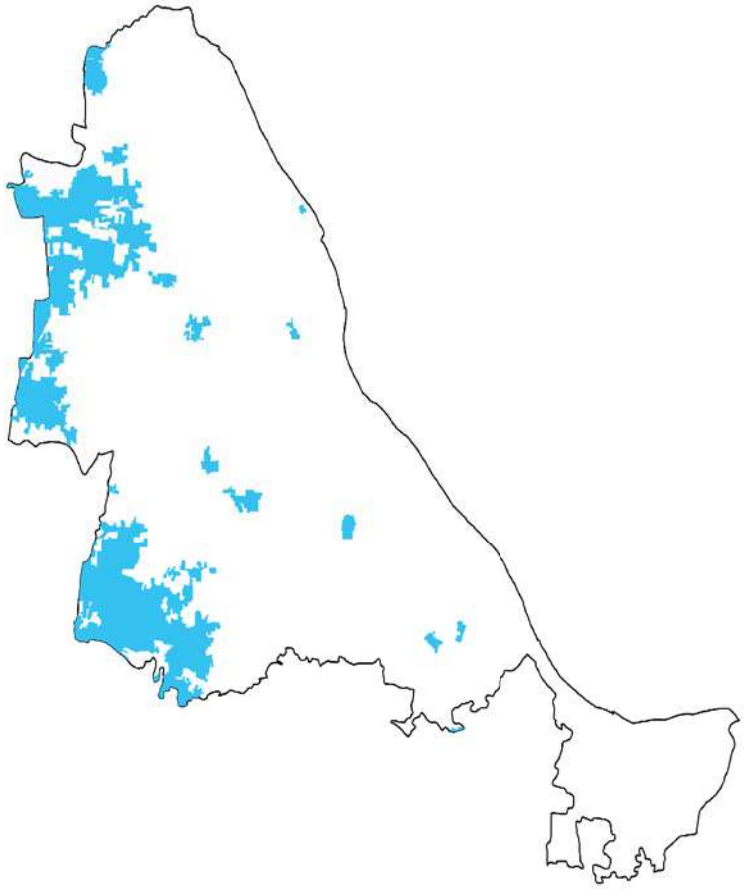


March, 2017: Total Gher area: 628 hectare

Noapara Paurashava

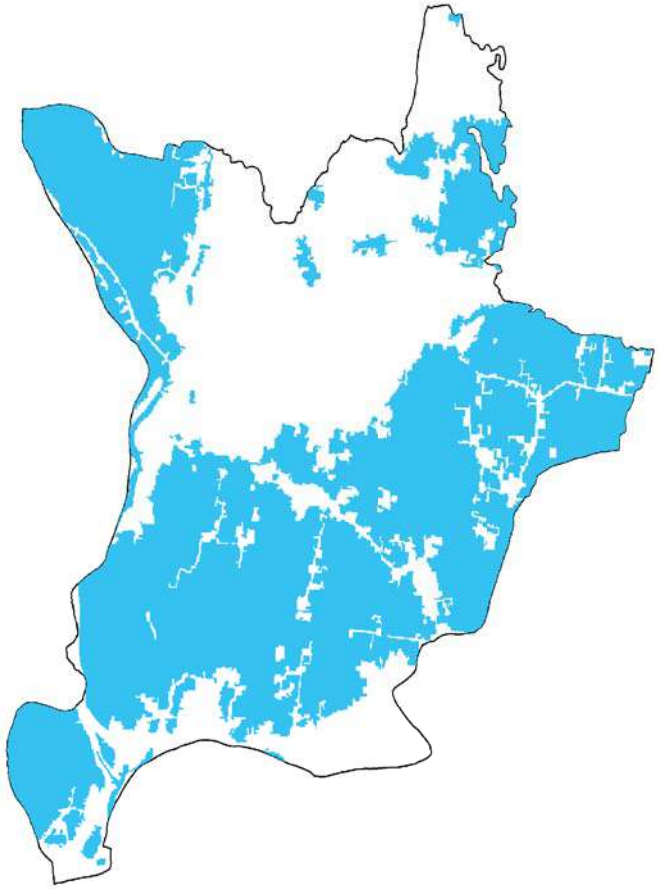


November, 2016: Total Gher area: 578 hectare

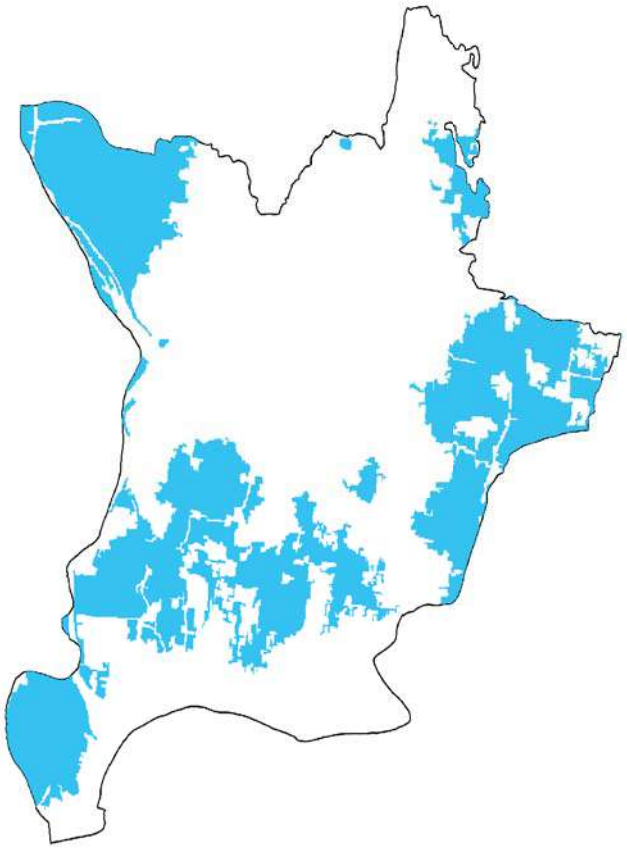


March, 2017: Total Gher area: 410 hectare

Payra

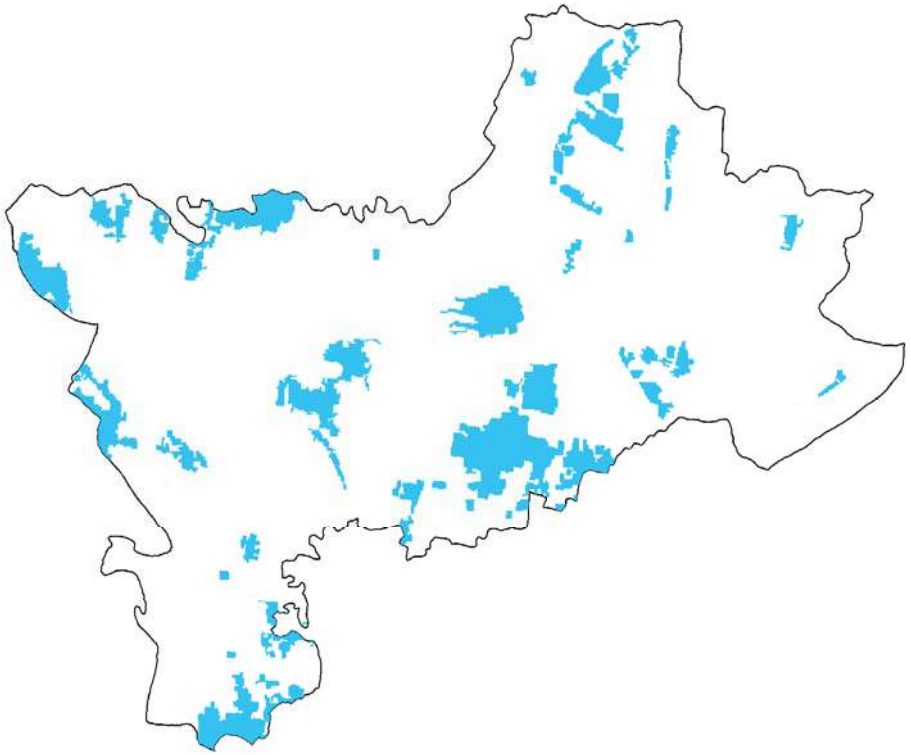


November, 2016: Total Gher area: 1479 hectare

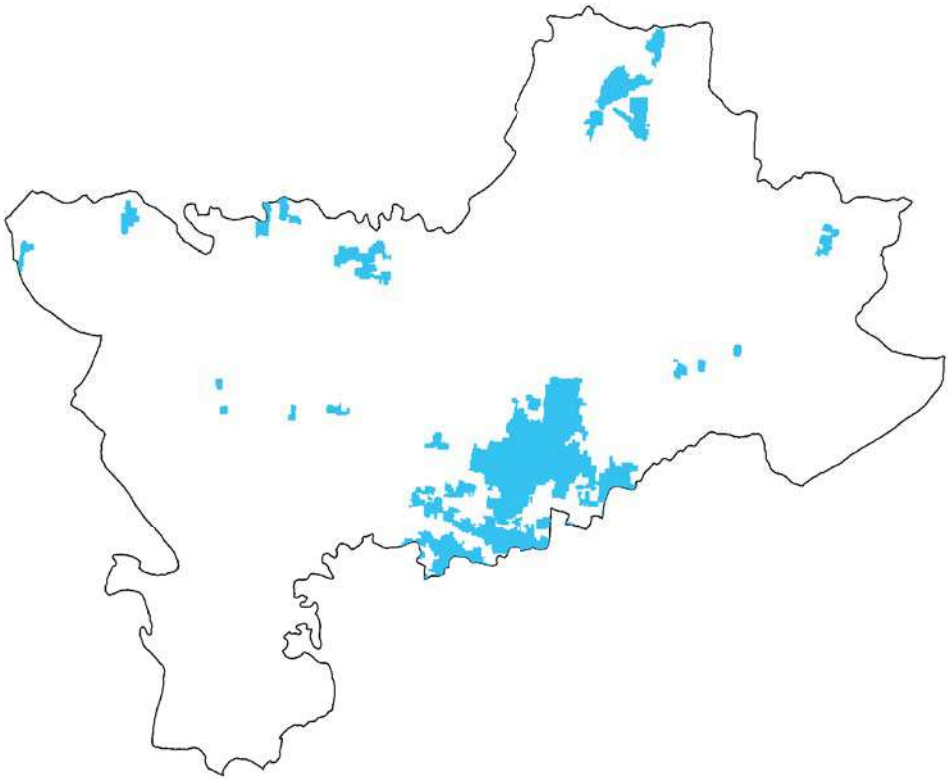


March, 2017: Total Gher area: 847 hectare

Prembag

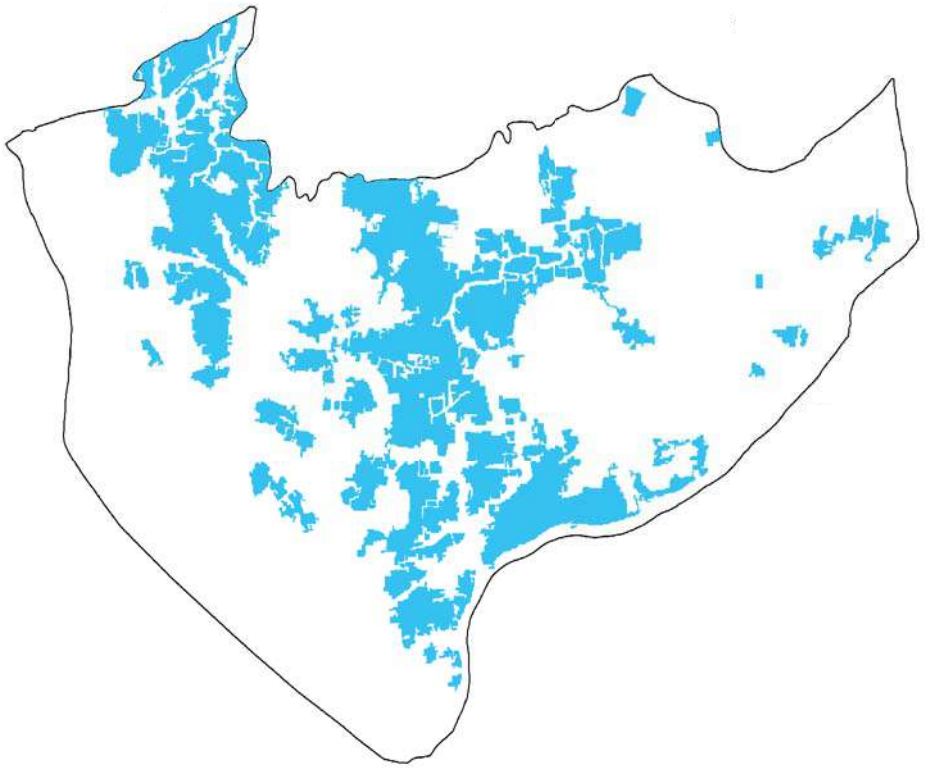


November, 2016: Total Gher area: 276 hectare

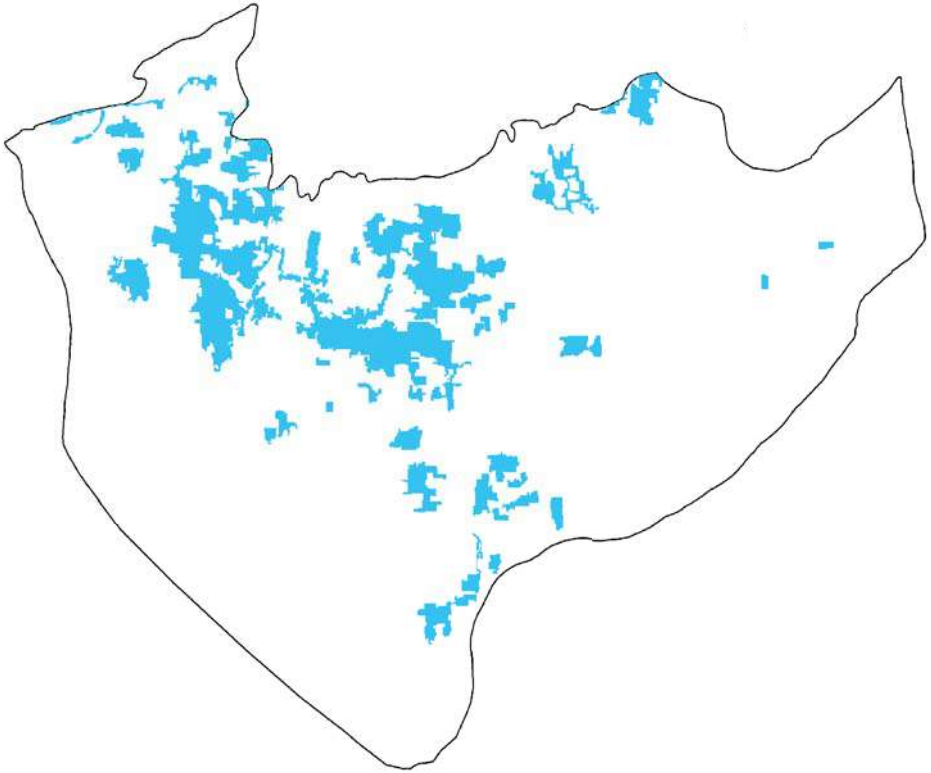


March, 2017: Total Gher area: 156 hectare

Siddhipasha

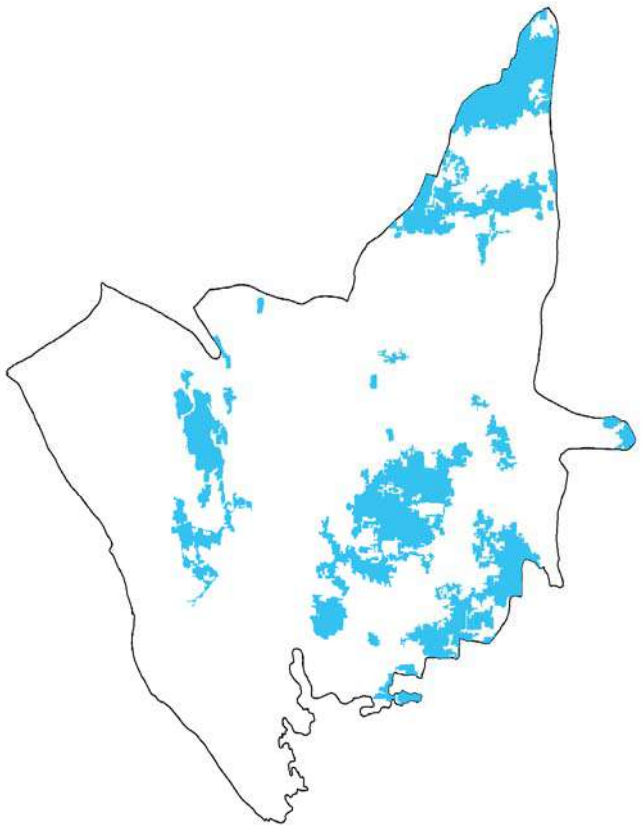


November, 2016: Total Gher area: 793 hectare

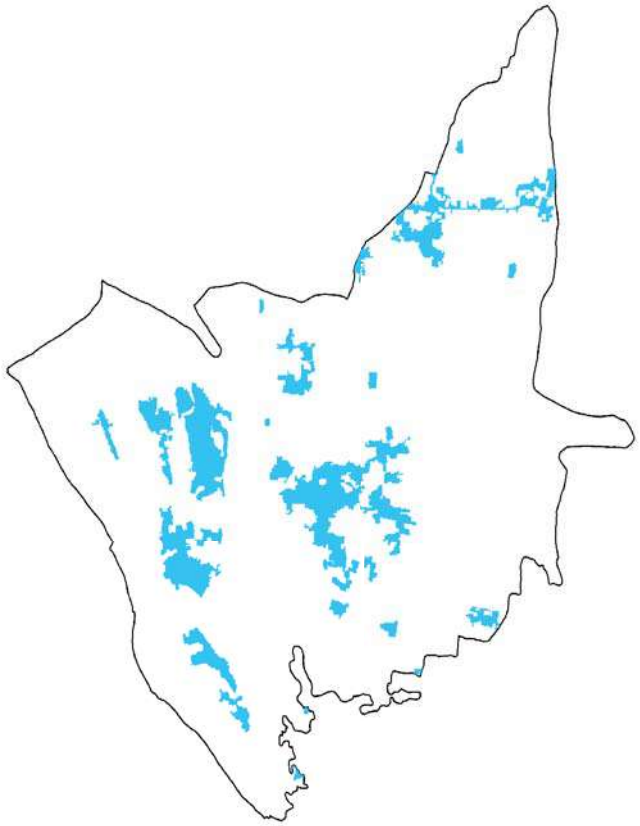


March, 2017: Total Gher area: 341 hectare

Sreedharpur

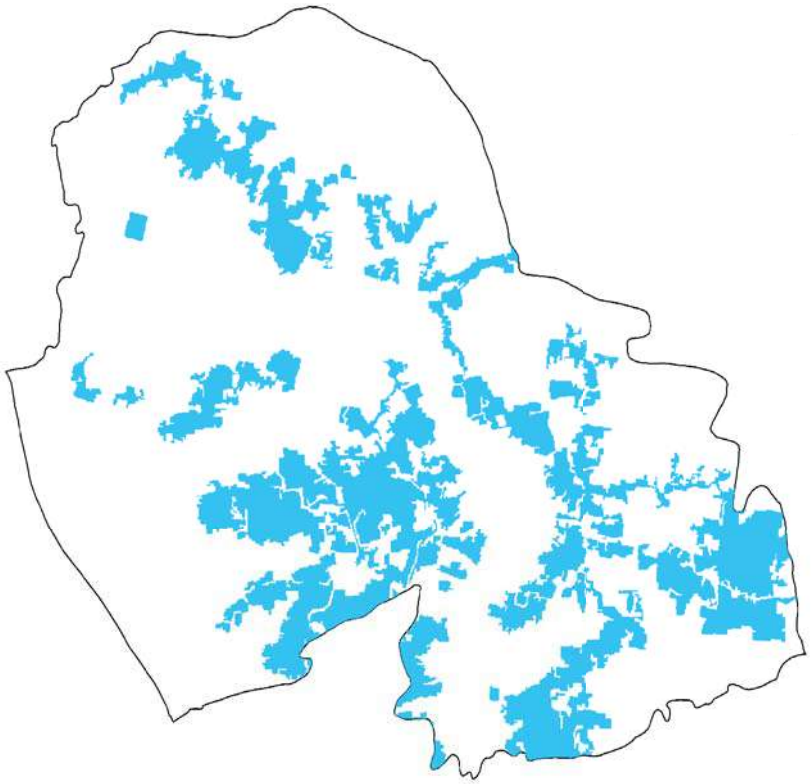


November, 2016: Total Gher area: 529 hectare

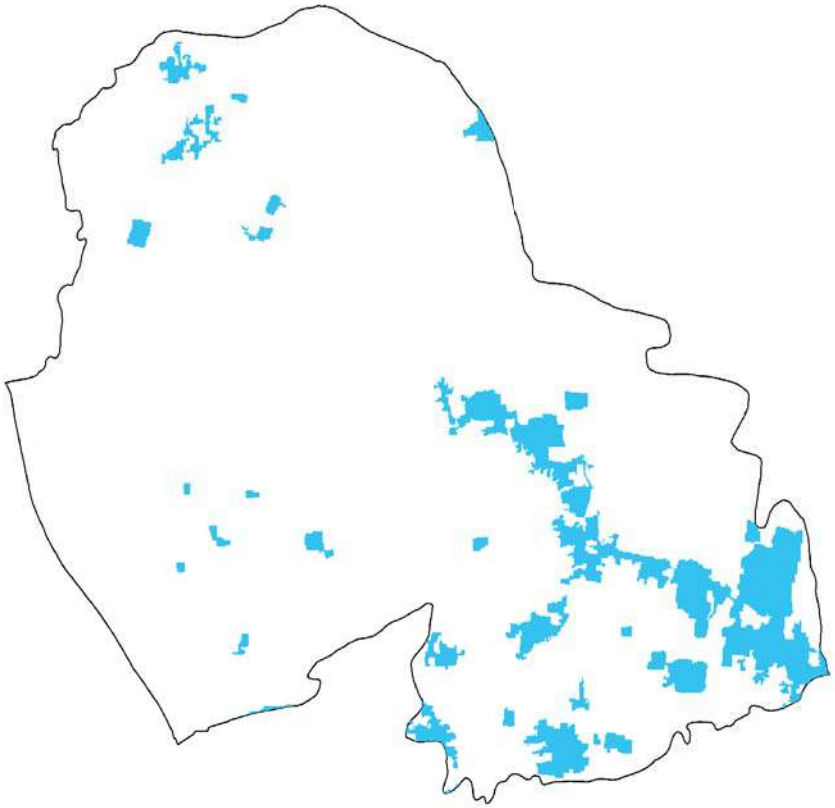


March, 2017: Total Gher area: 330 hectare

Suvorara

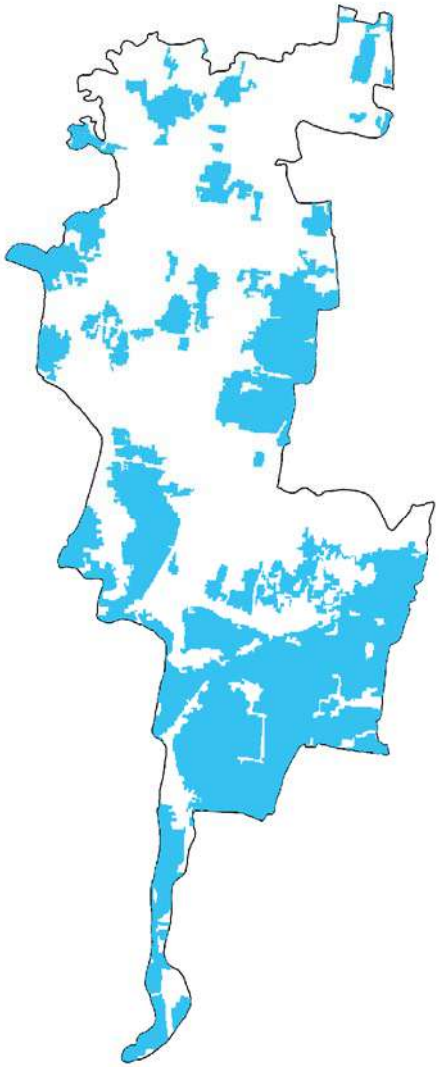


November, 2016: Total Gher area: 791 hectare

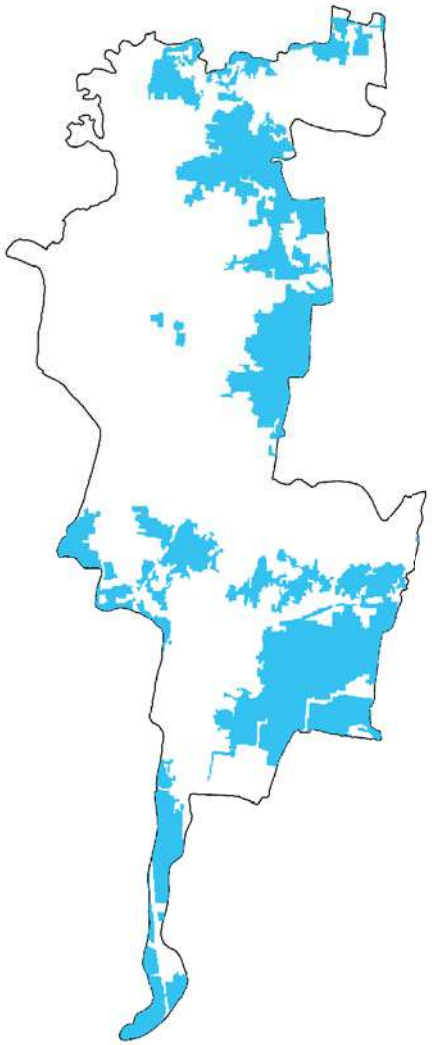


March, 2017: Total Gher area: 276 hectare

Sundoli



November, 2016: Total Gher area: 604 hectare

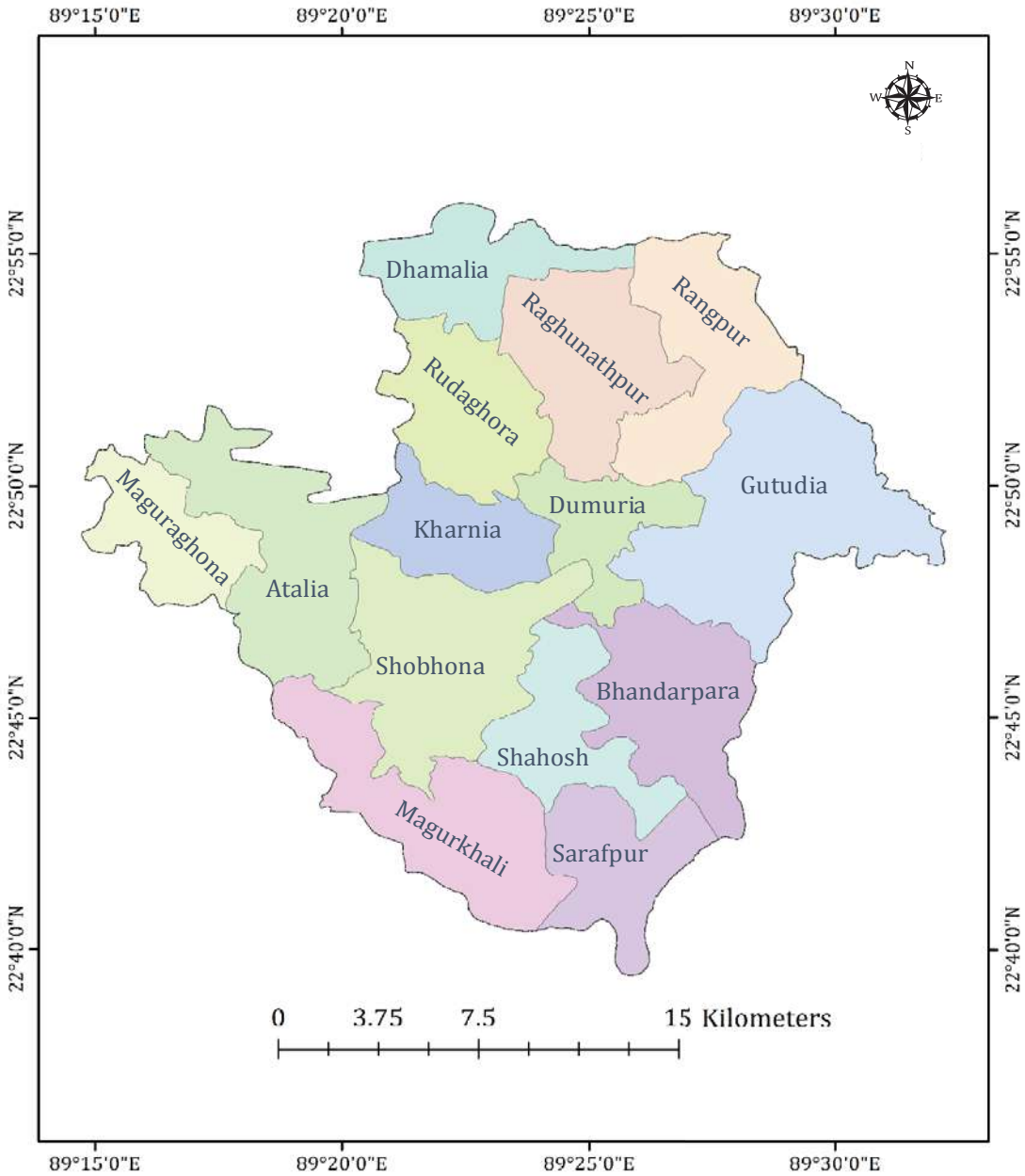


March, 2017: Total Gher area: 419 hectare

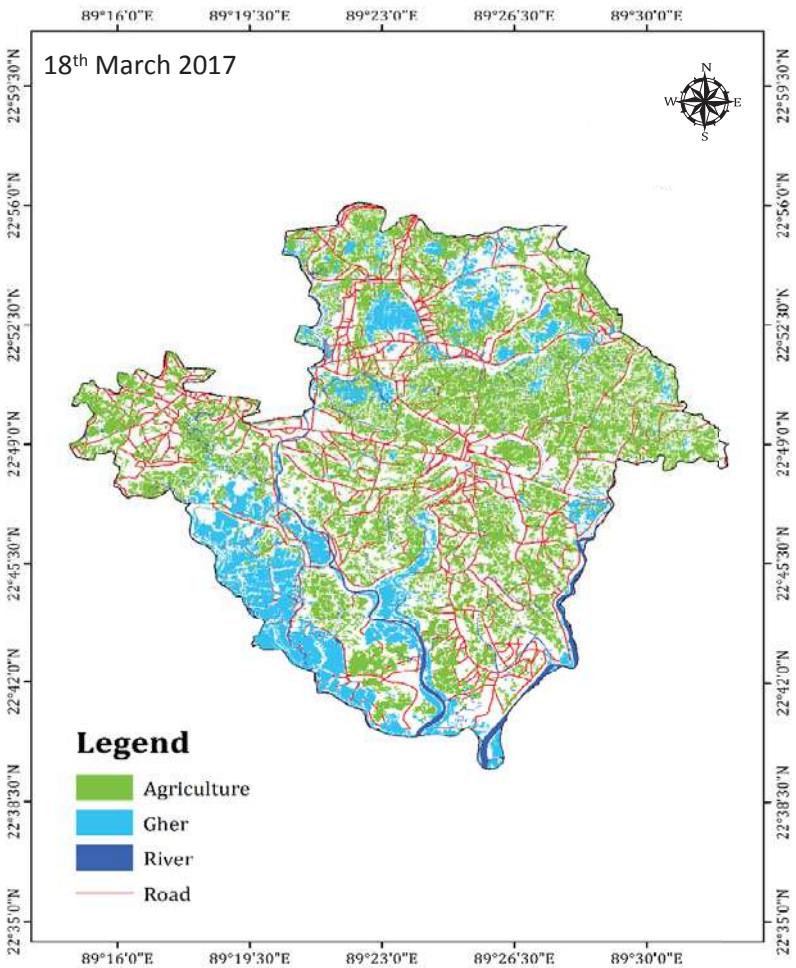
Khulna District

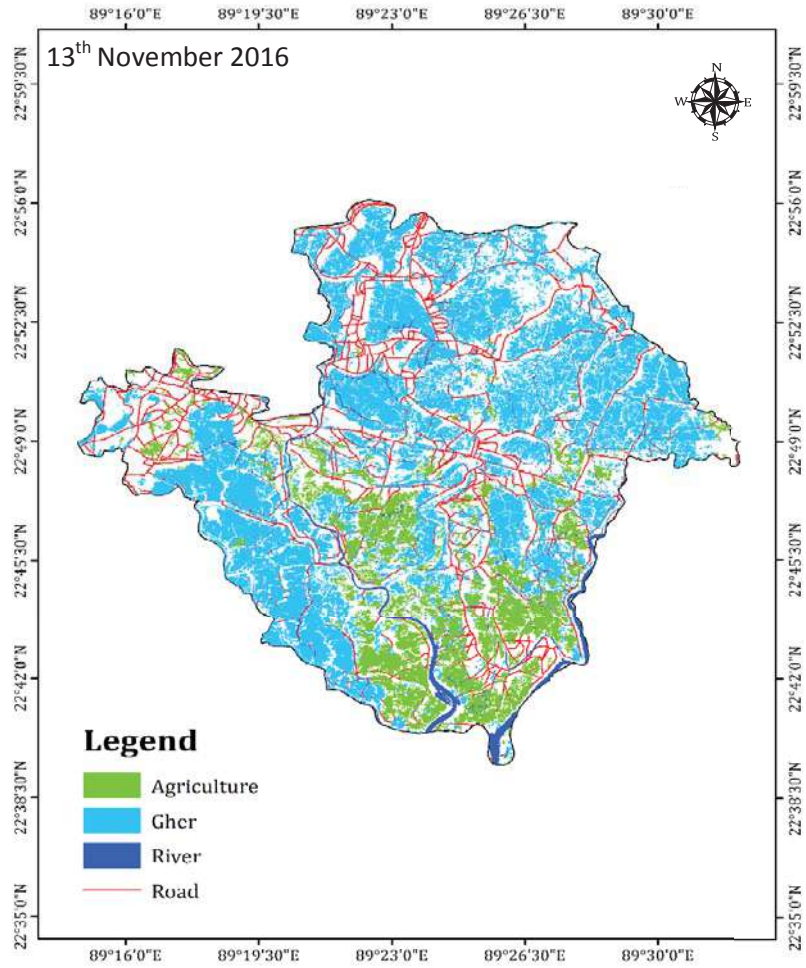
GIS based Gher map of Unions of Dumuria Upazila

Map of Dumuria Upazila with Unions



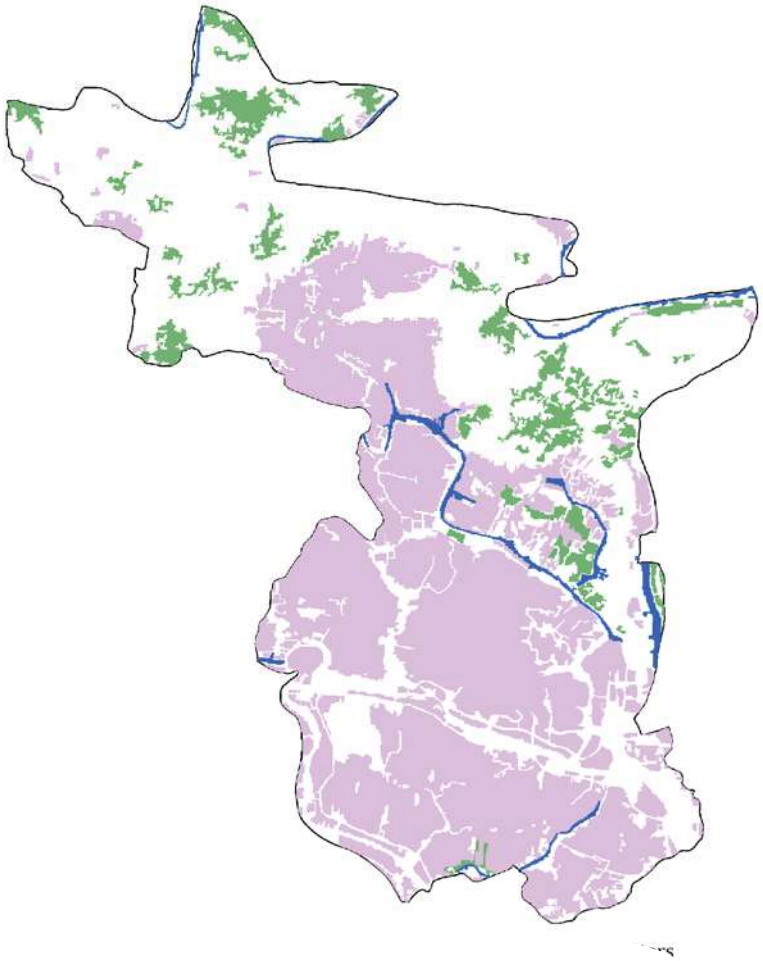
GIS map of Dumuria Upazila with Gher and Crop area



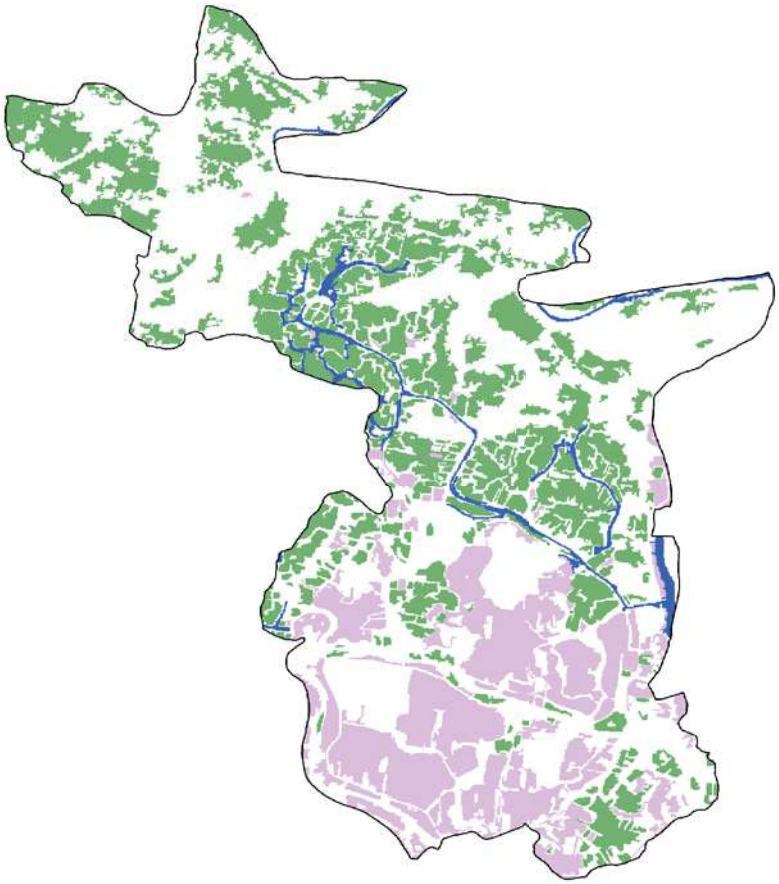


Upazila Name	Total area (ha)	18th March 2016		13th November 2016	
		Agriculture (ha)	Gher (ha)	Agriculture (ha)	Gher (ha)
Dumuria	45673	15237	5824	5617	17359

Atalia

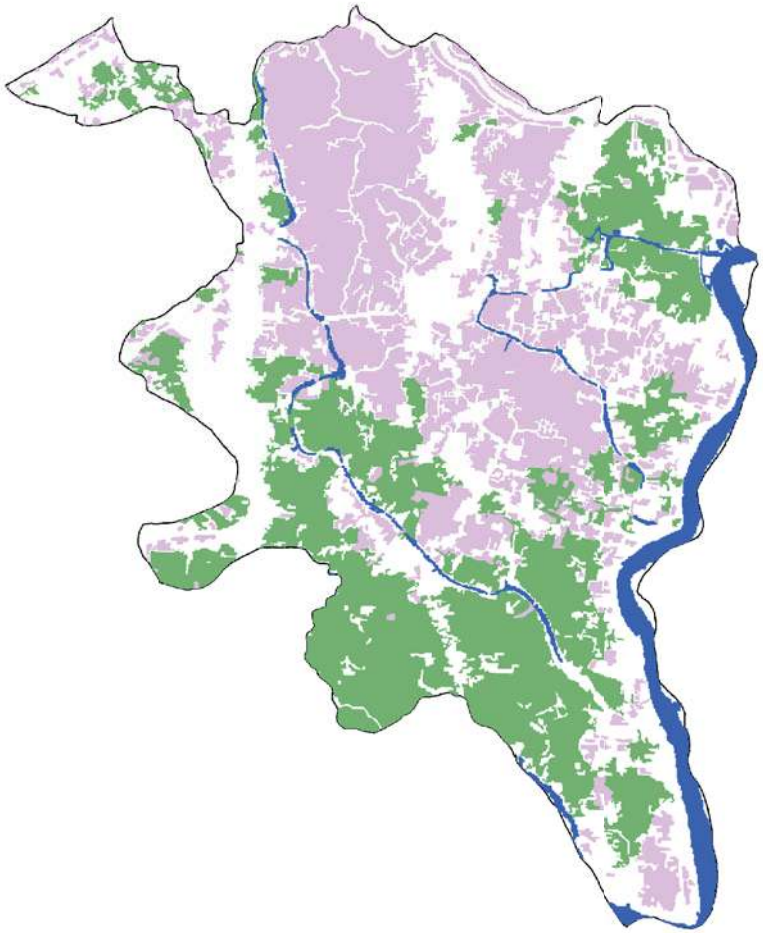


November, 2016: Total Gher area: 1798 hectare

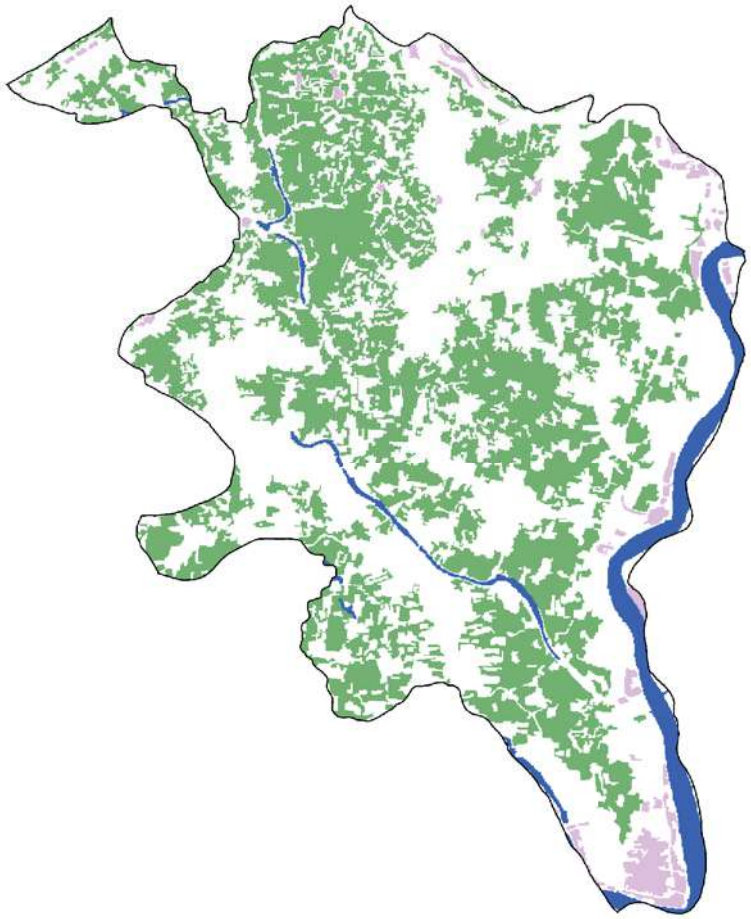


March, 2017: Total Gher area: 710 hectare

Bhandarpara

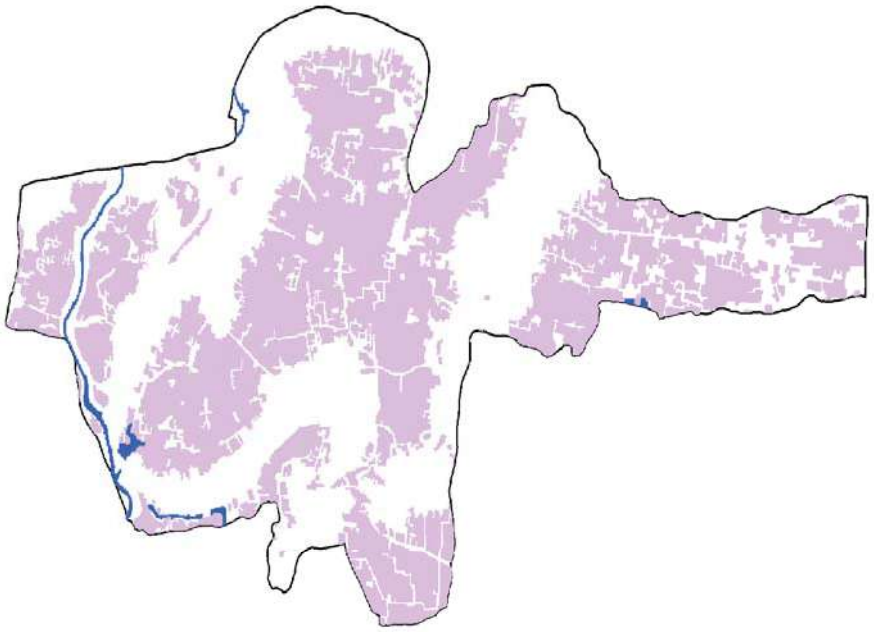


November, 2016: Total Gher area: 1080 hectare

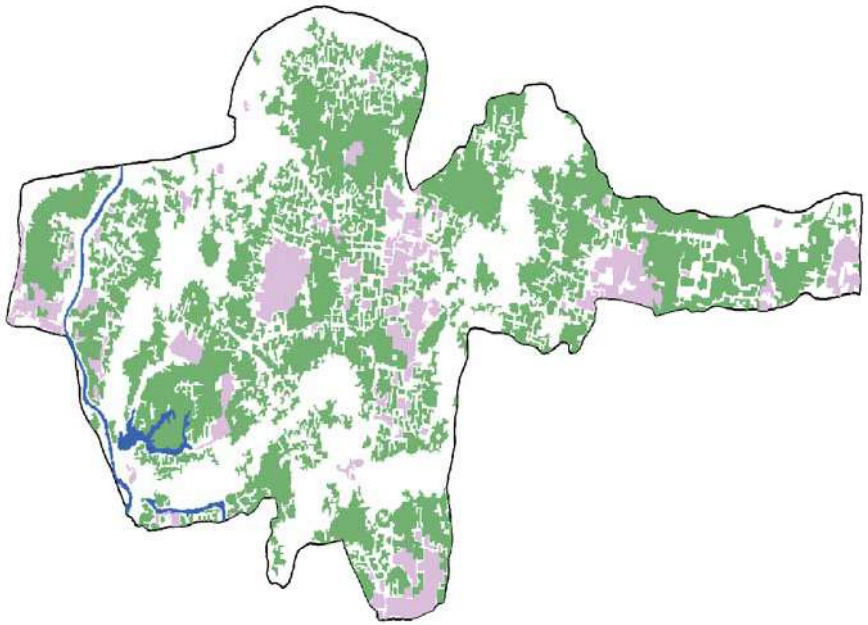


March, 2017: Total Gher area: 87 hectare

Dhamalia

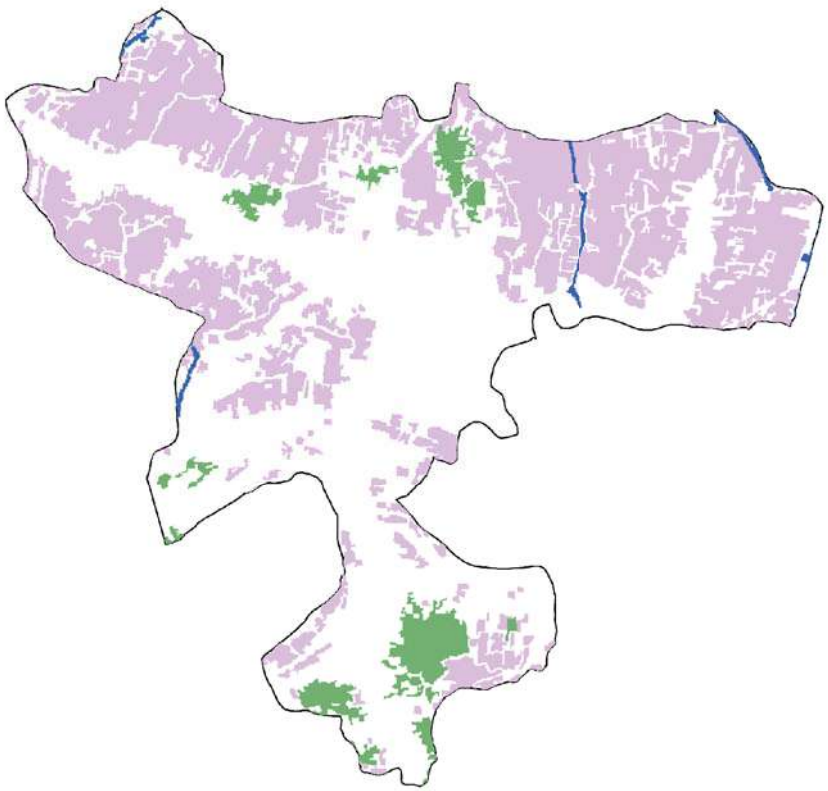


November, 2016: Total Gher area: 1142 hectare

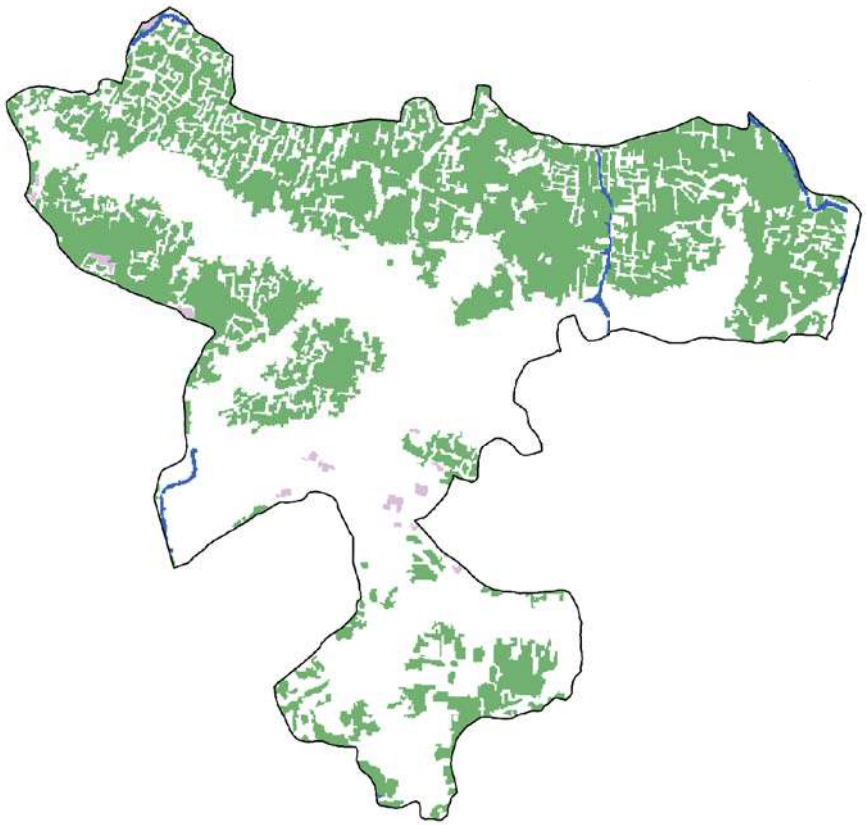


March, 2017: Total Gher area: 207 hectare

Dumuria

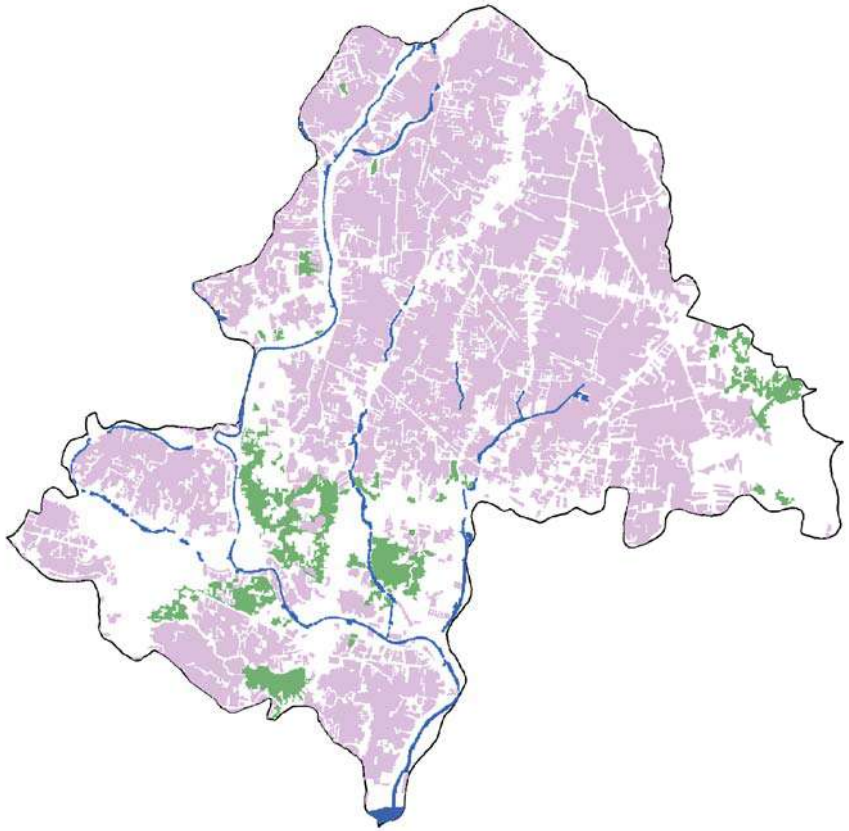


November, 2016: Total Gher area: 704 hectare

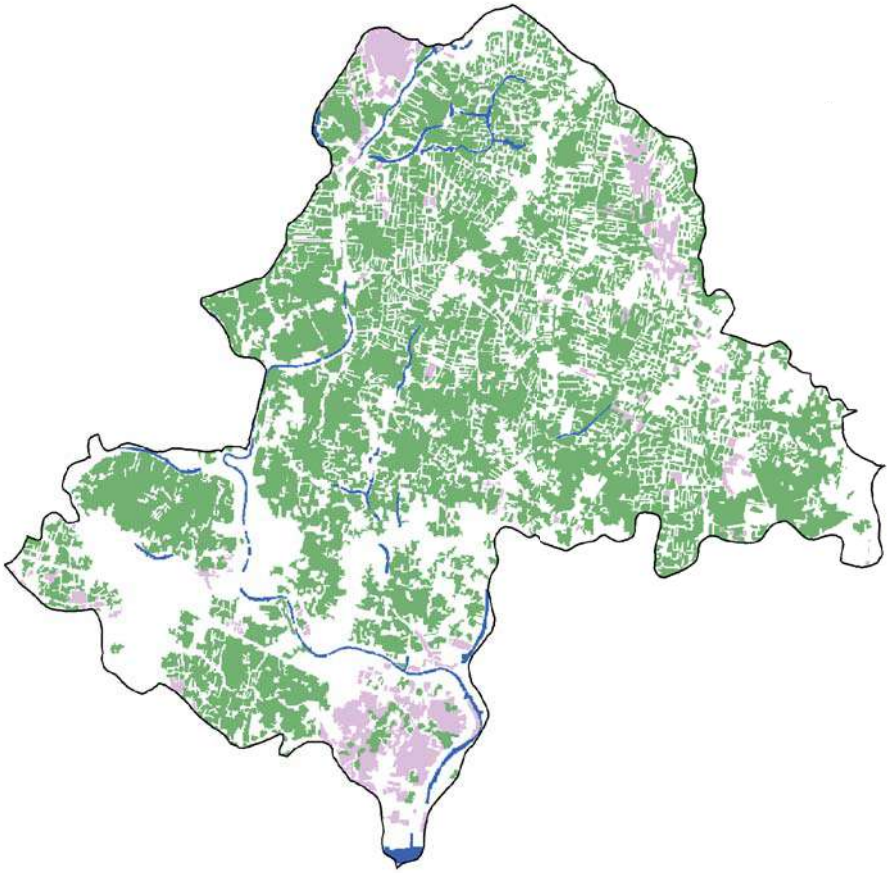


March, 2017: Total Gher area: 10 hectare

Gutudia

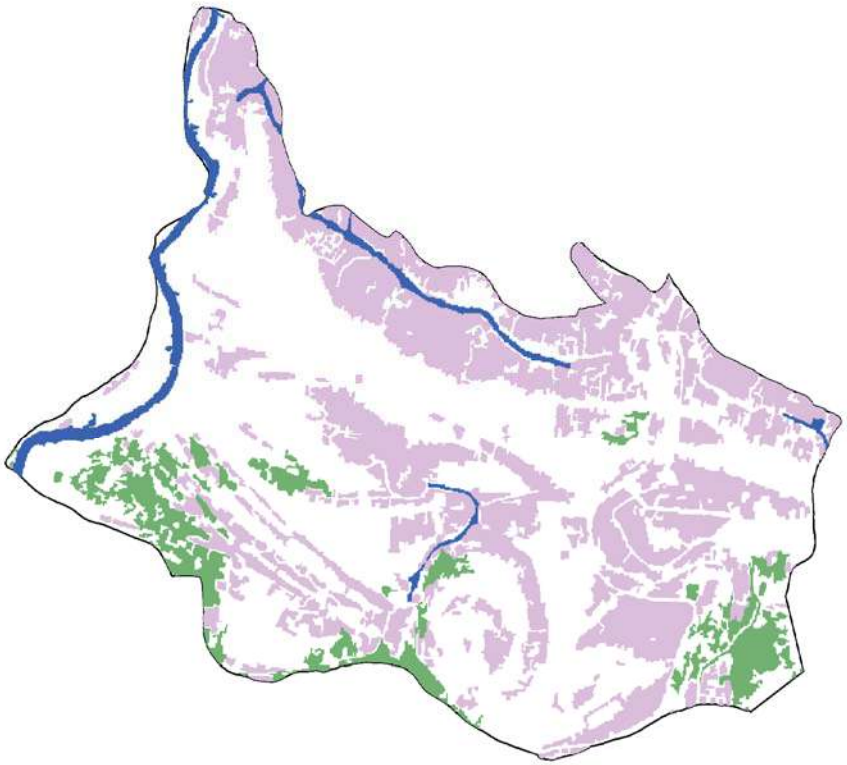


November, 2016: Total Gher area: 3042 hectare

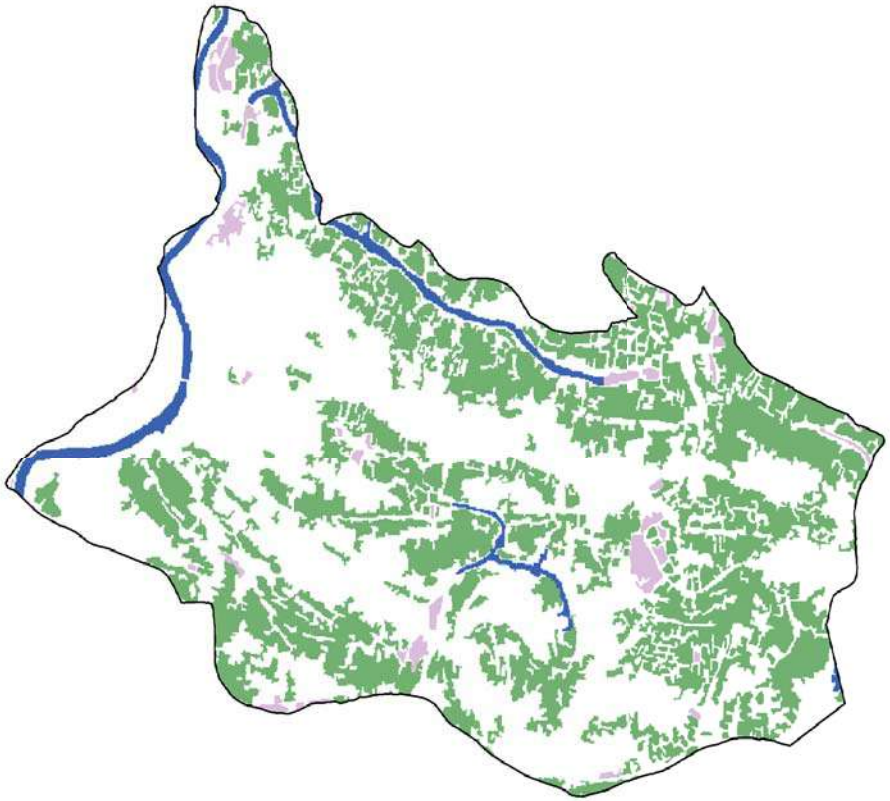


March, 2017: Total Gher area: 295 hectare

Kharnia

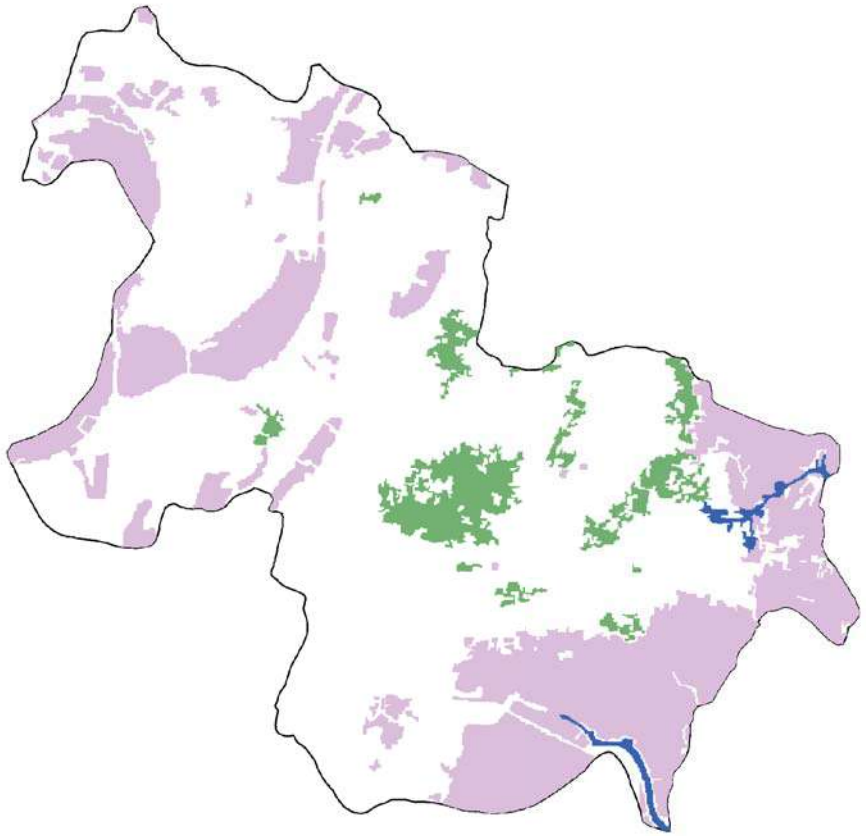


November, 2016: Total Gher area: 693 hectare

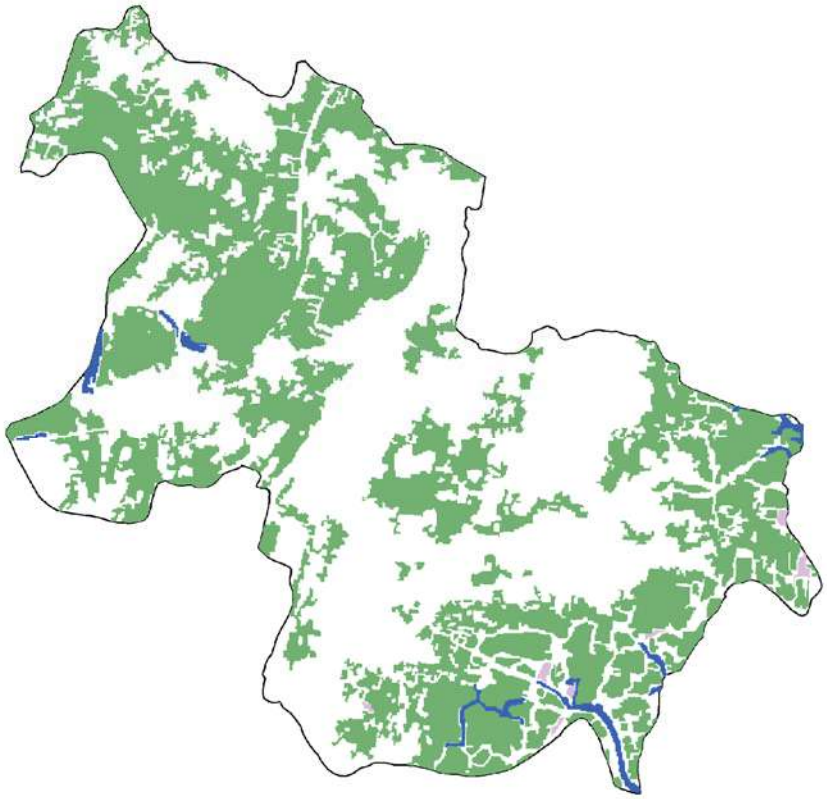


March, 2017: Total Gher area: 44 hectare

Maguraghona

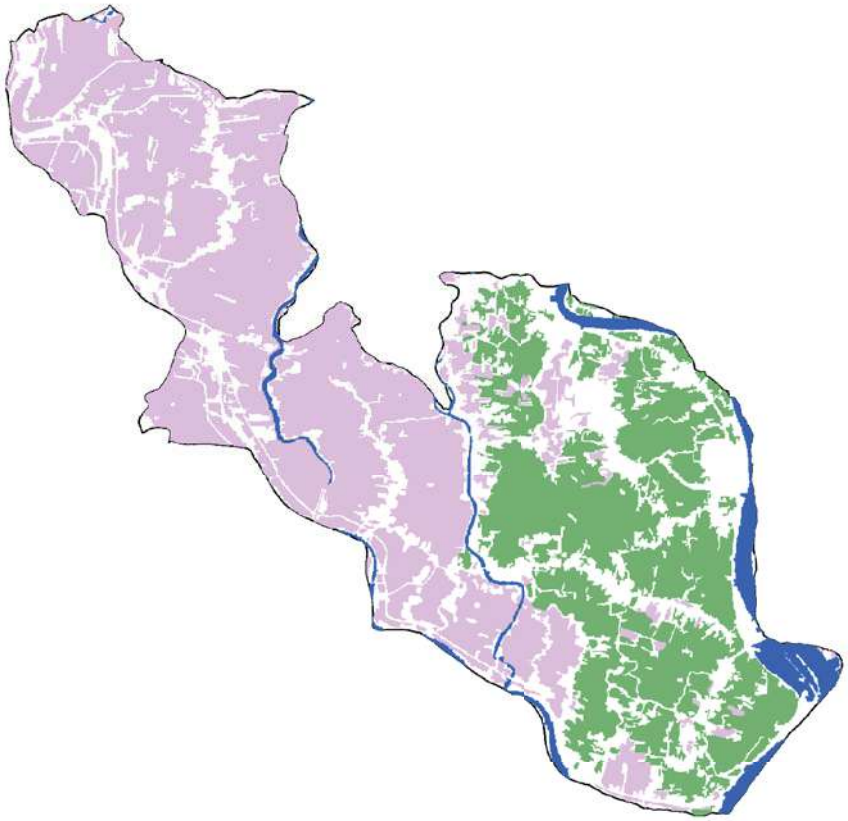


November, 2016: Total Gher area: 560 hectare

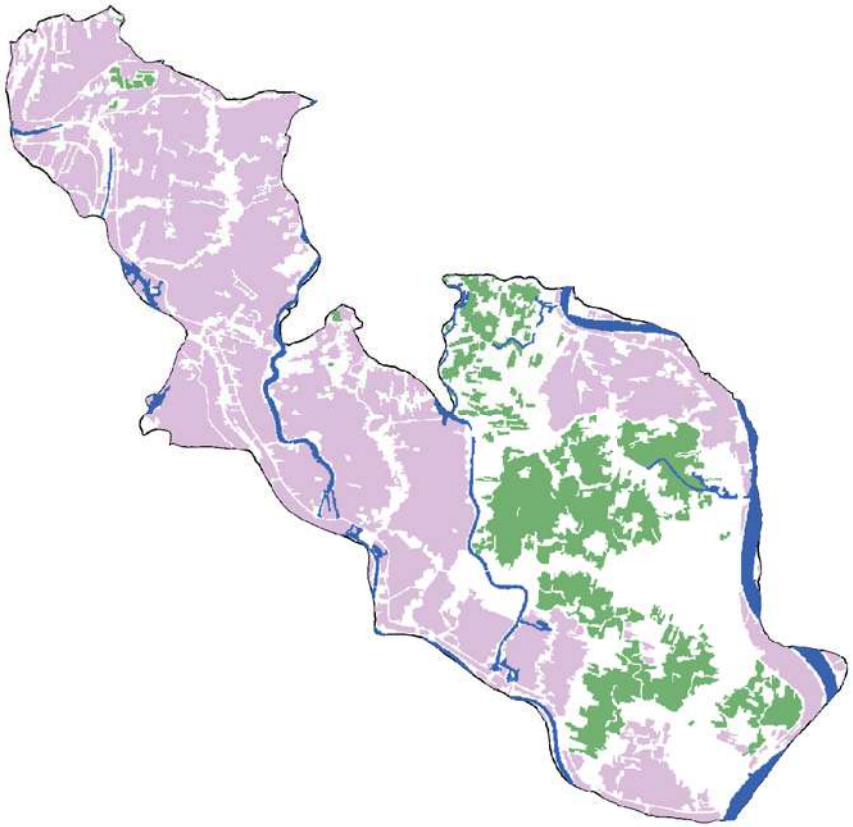


March, 2017: Total Gher area: 6 hectare

Magurkhali

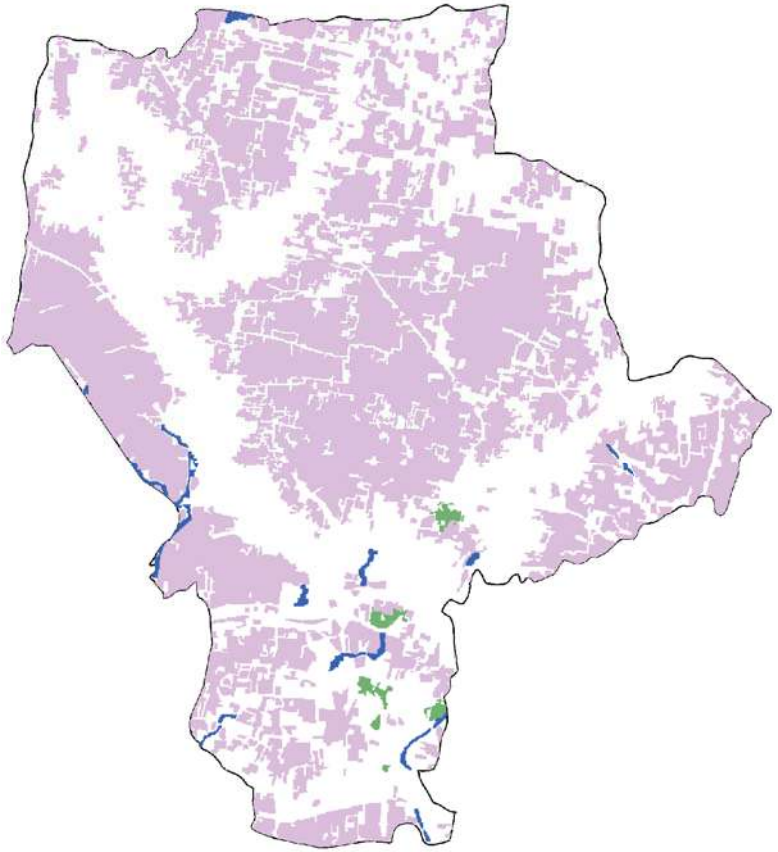


November, 2016: Total Gher area: 1745 hectare

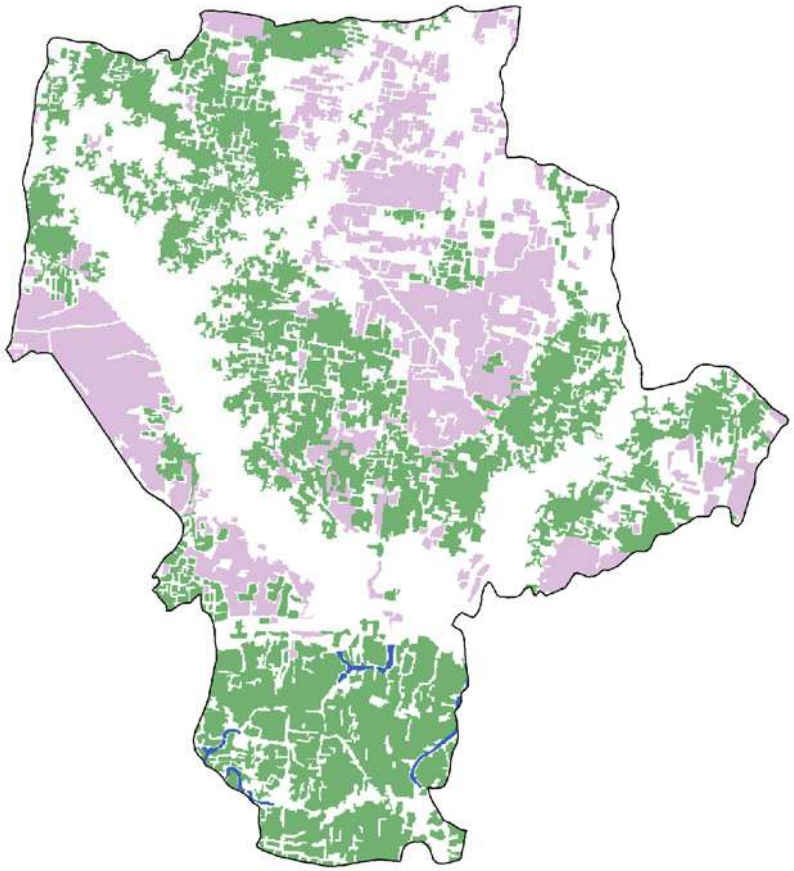


March, 2017: Total Gher area: 1864 hectare

Raghunathpur

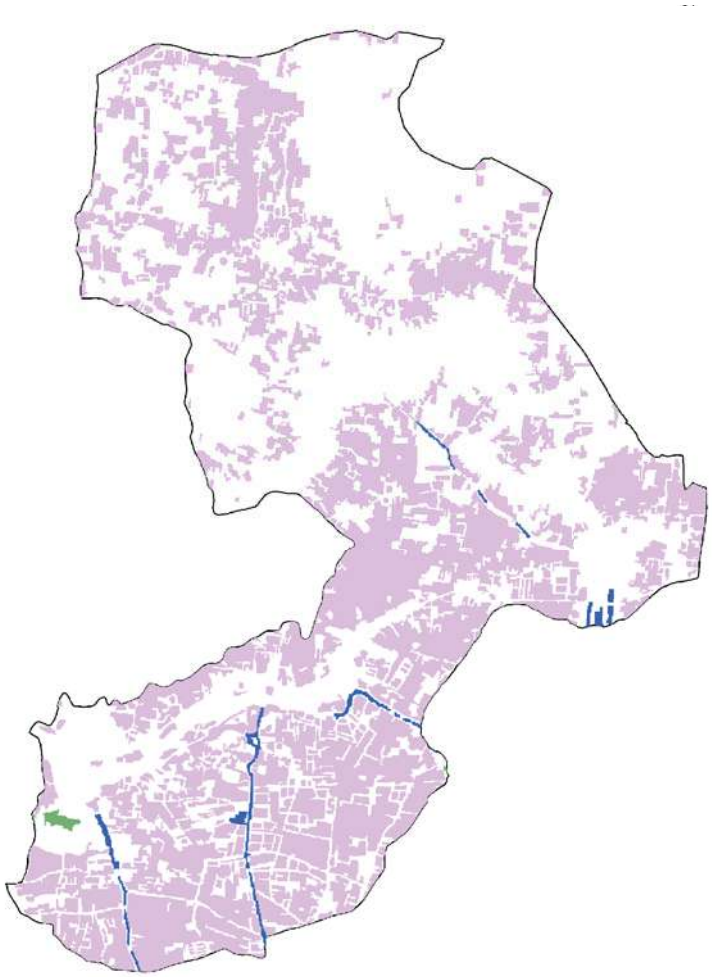


November, 2016: Total Gher area: 1715 hectare

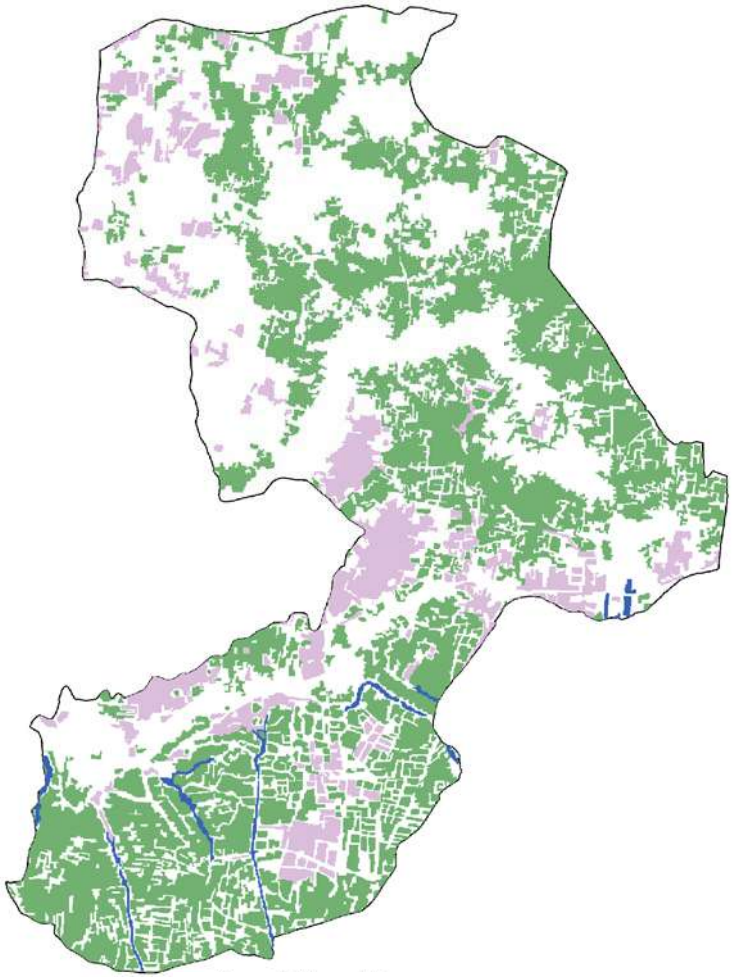


March, 2017: Total Gher area: 659 hectare

Rangpur

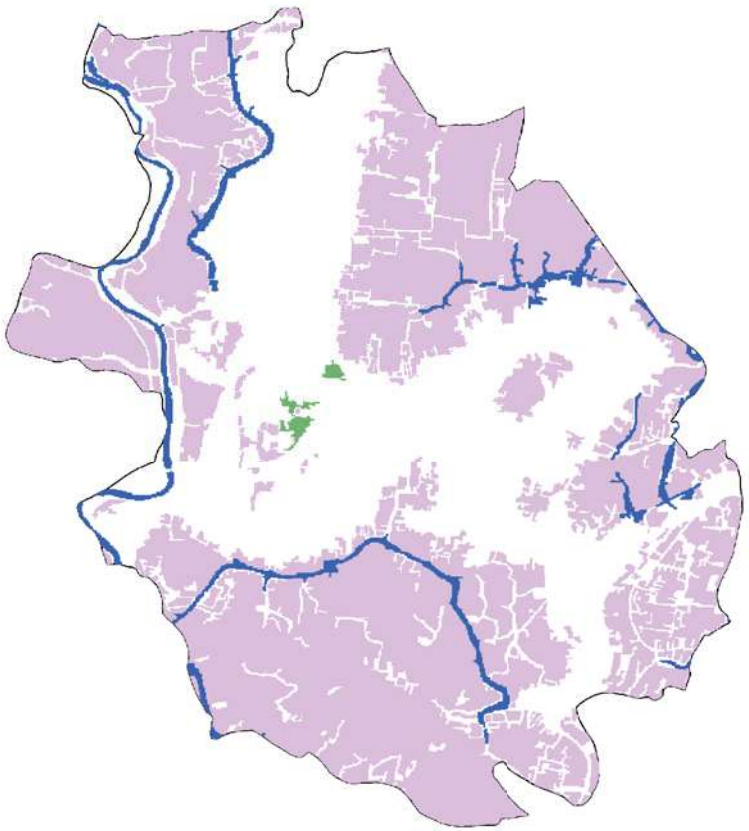


November, 2016: Total Gher area: 1482 hectare

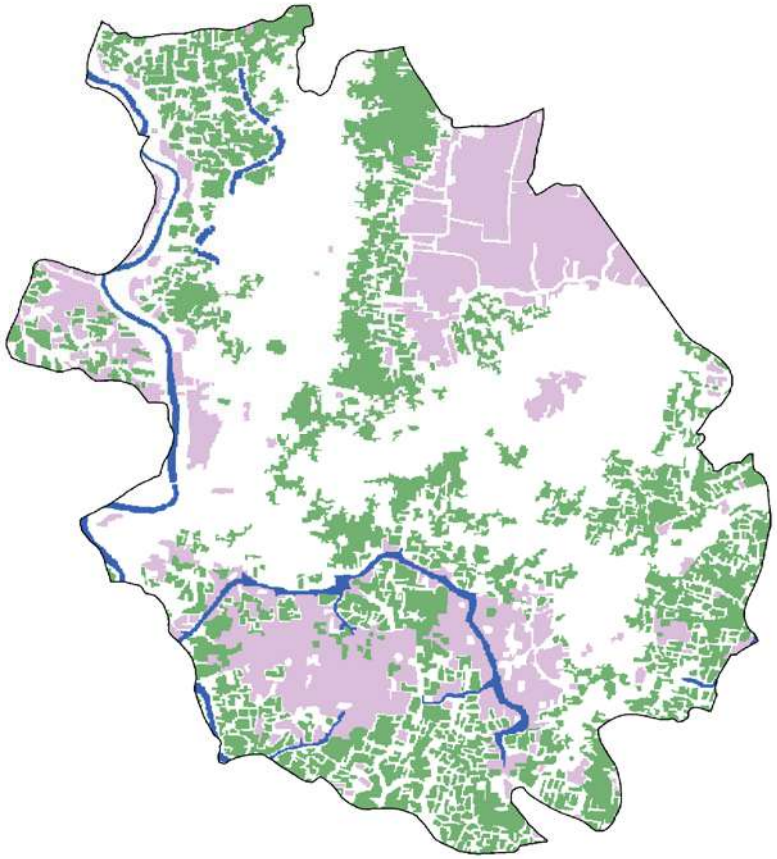


March, 2017: Total Gher area: 338 hectare

Rudaghora

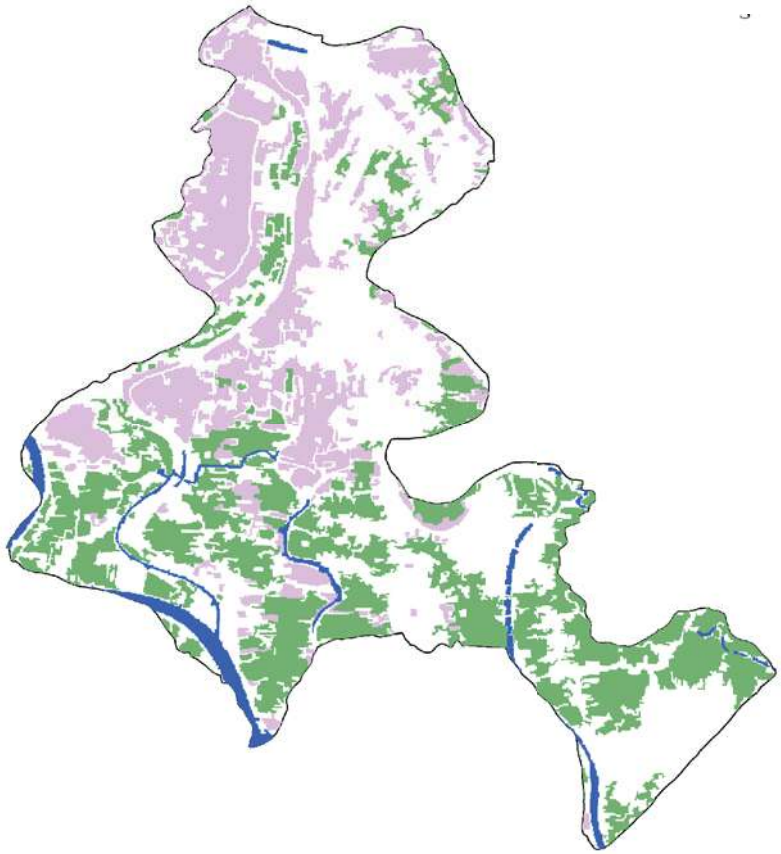


November, 2016: Total Gher area: 1438 hectare

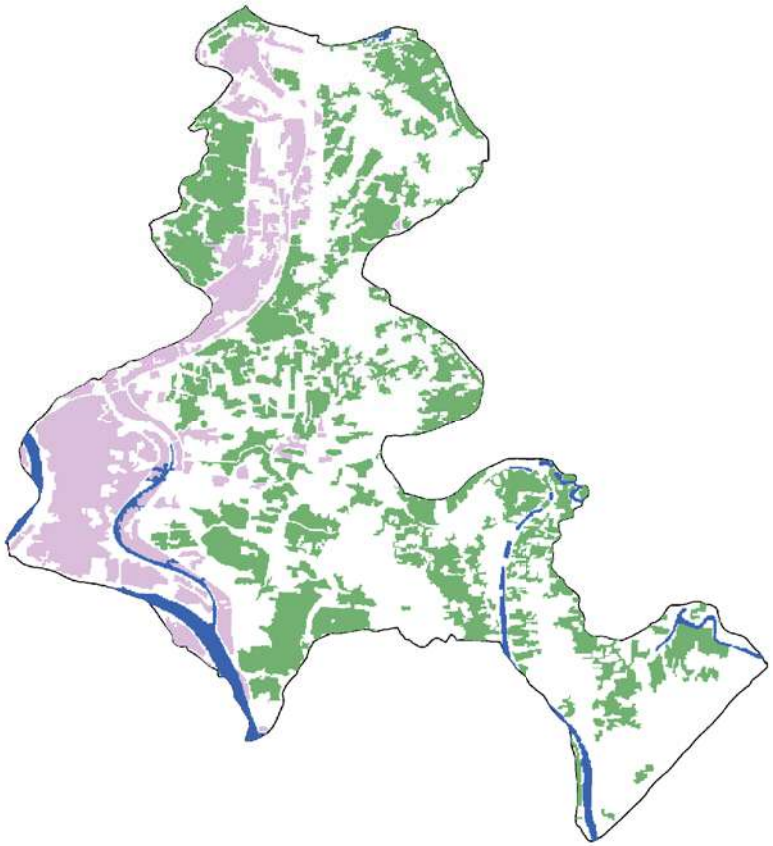


March, 2017: Total Gher area: 520 hectare

Shahosh

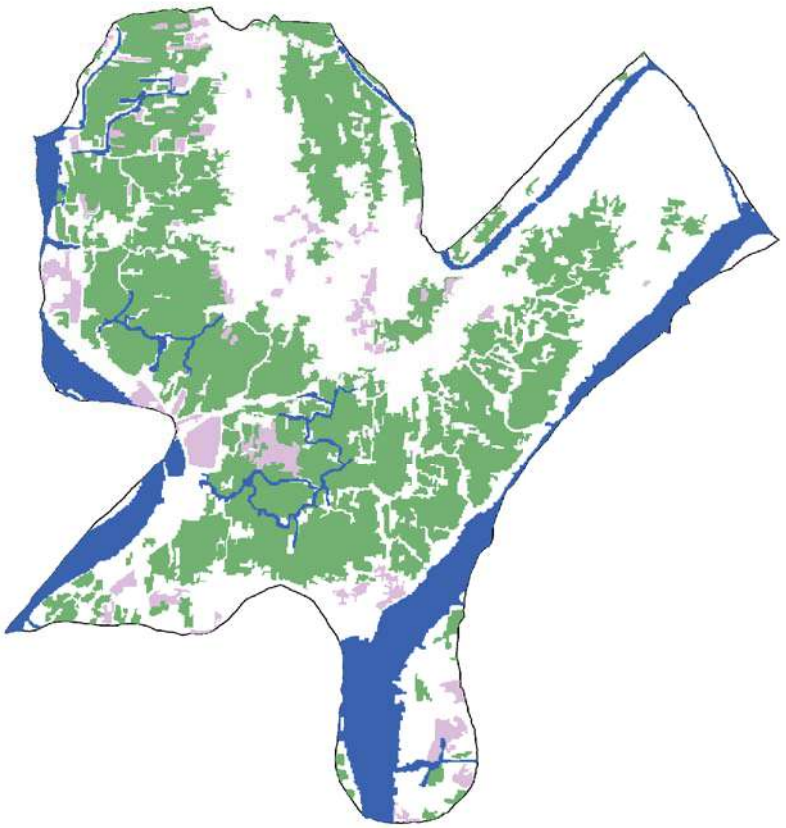


November, 2016: Total Gher area: 515 hectare

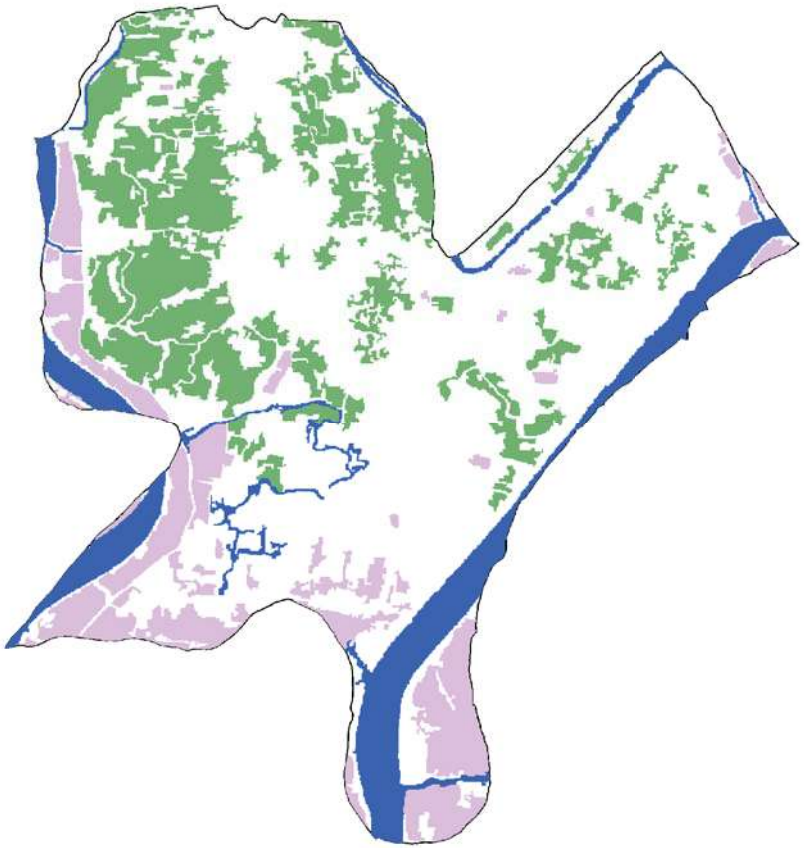


March, 2017: Total Gher area: 343 hectare

Sarafpur

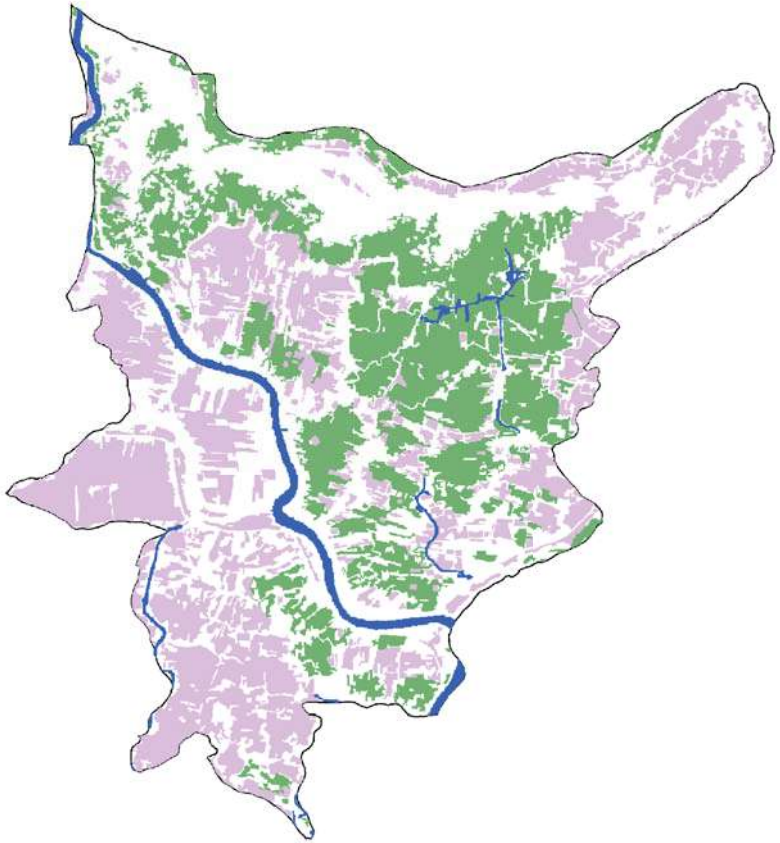


November, 2016: Total Gher area: 104 hectare

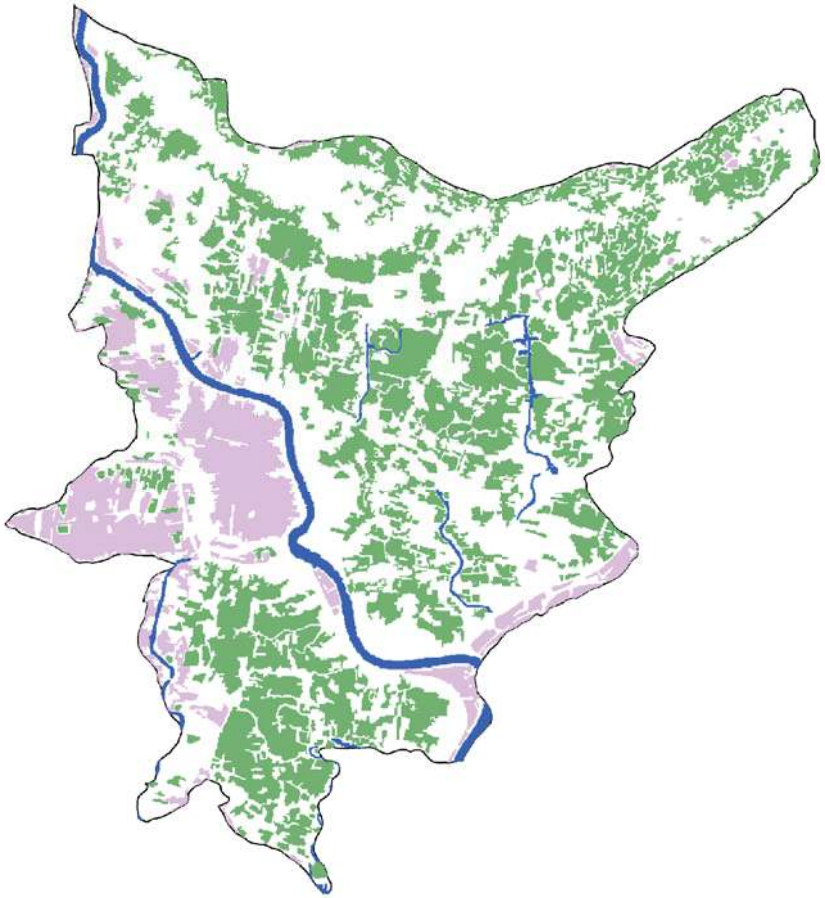


March, 2017: Total Gher area: 270 hectare

Shobhona



November, 2016: Total Gher area: 1340 hectare

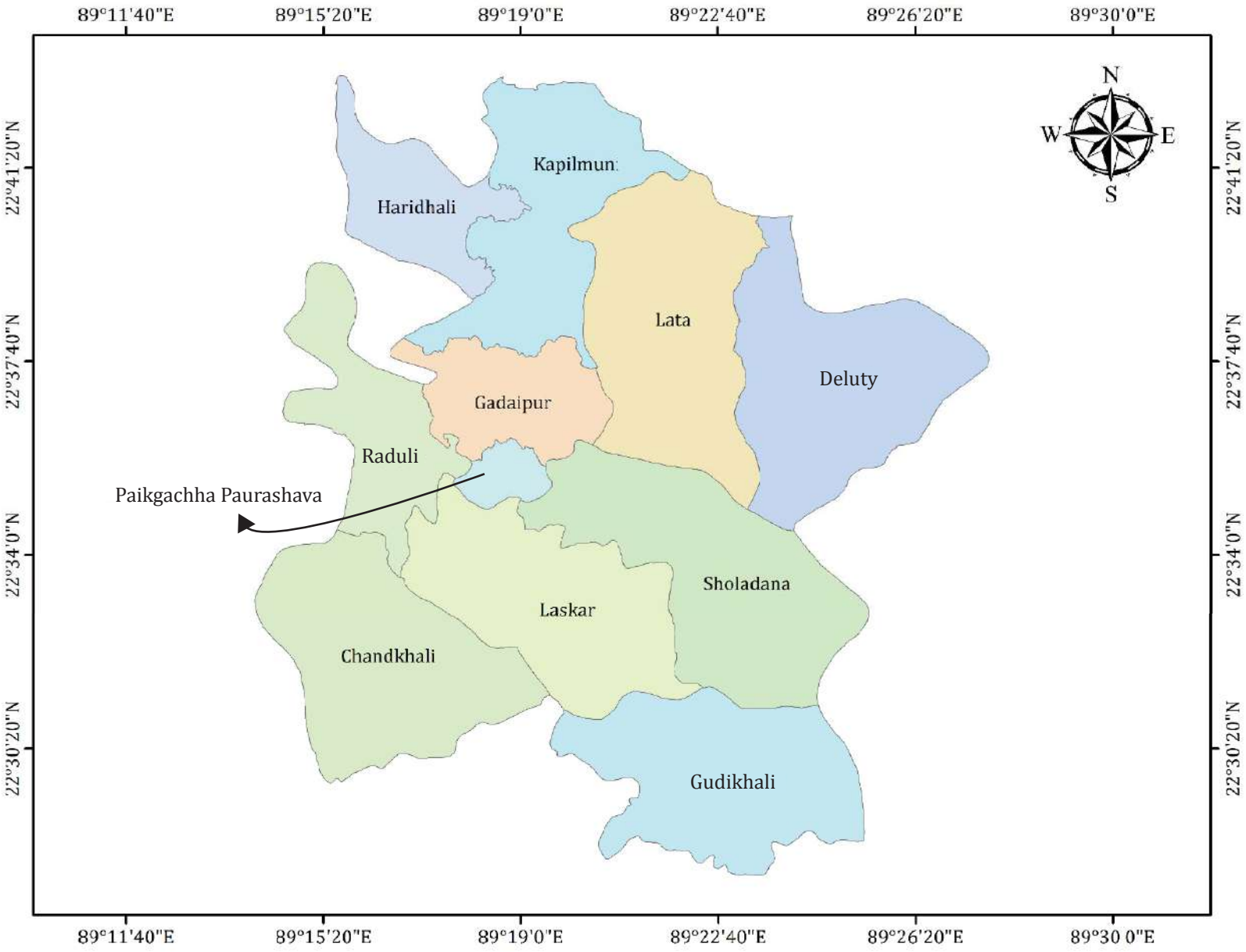


March, 2017: Total Gher area: 472 hectare

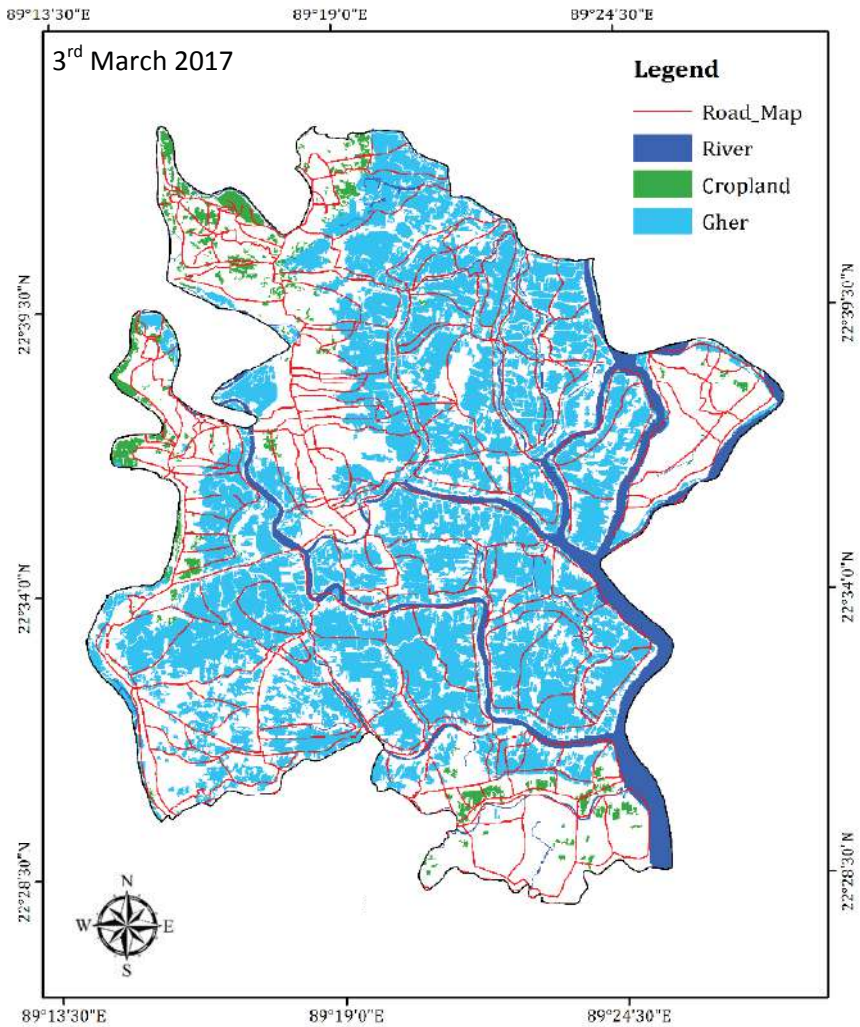
Khulna District

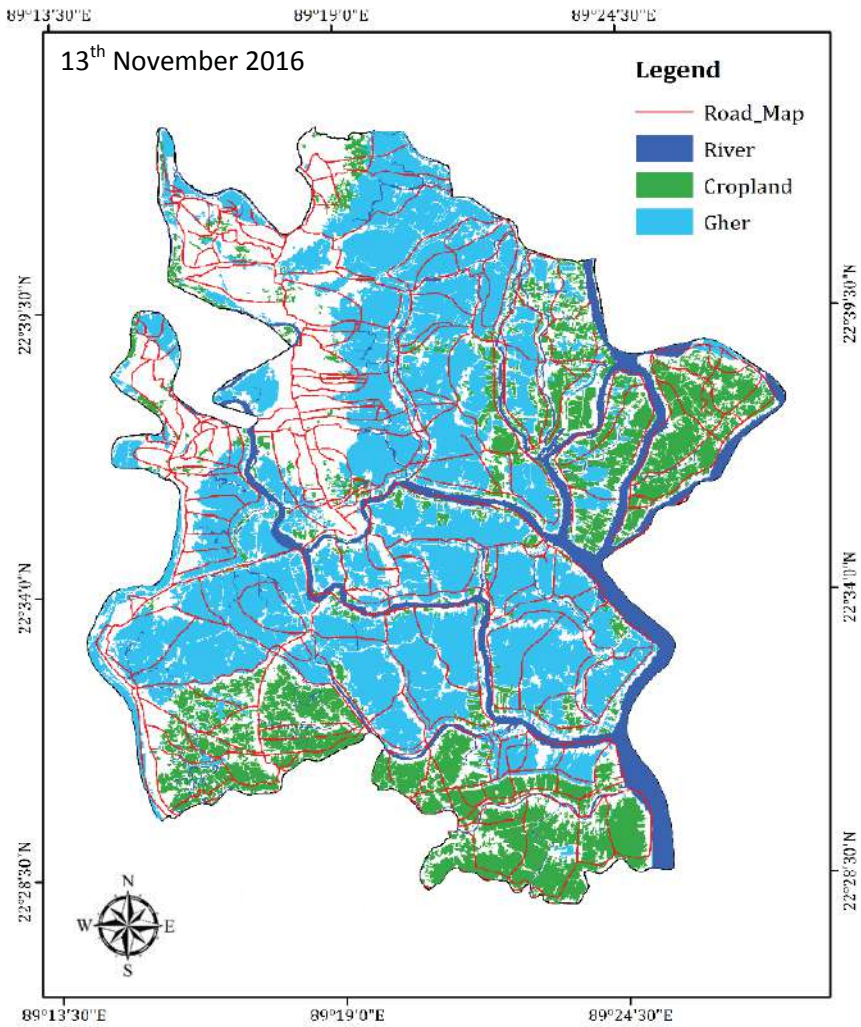
GIS based Gher map of Unions of Paikgachha Upazila

Map of Paikgachha Upazila with Unions



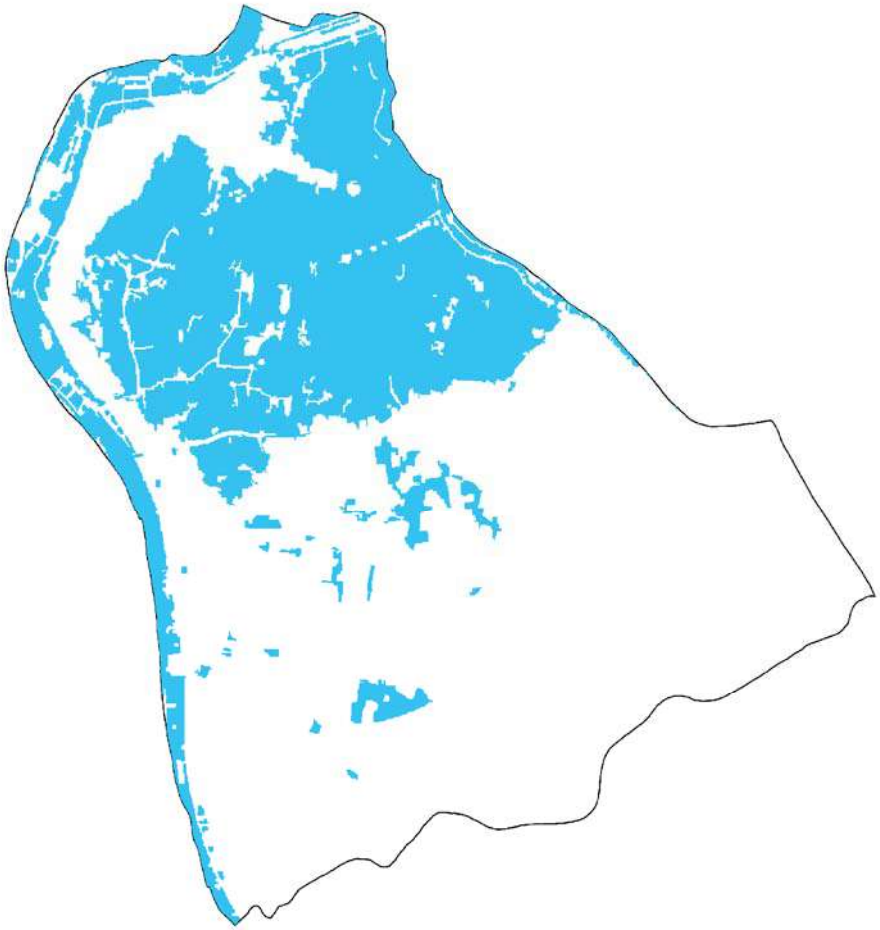
GIS map of Paikgachha Upazila with Gher and Crop area



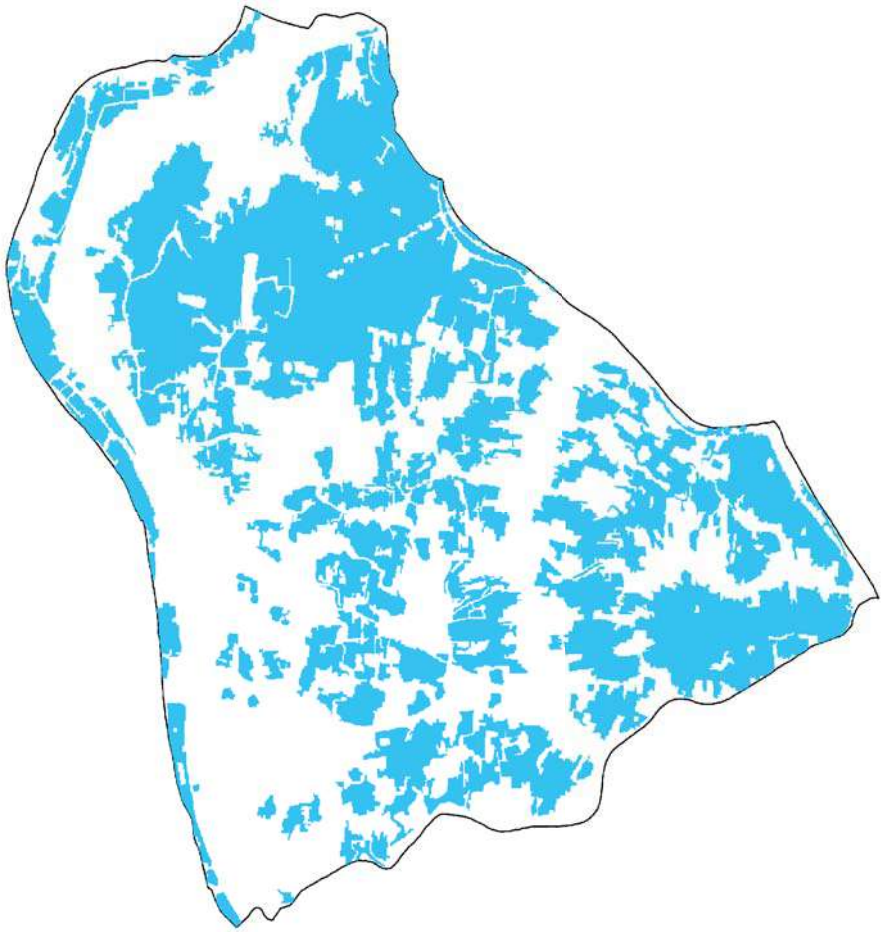


Upazila Name	Total area (ha)	3rd March 2017		13th November 2016	
		Agriculture (ha)	Gher (ha)	Agriculture (ha)	Gher (ha)
Paikgachha	38187	1093	15997	7030	15442

Chandkhali

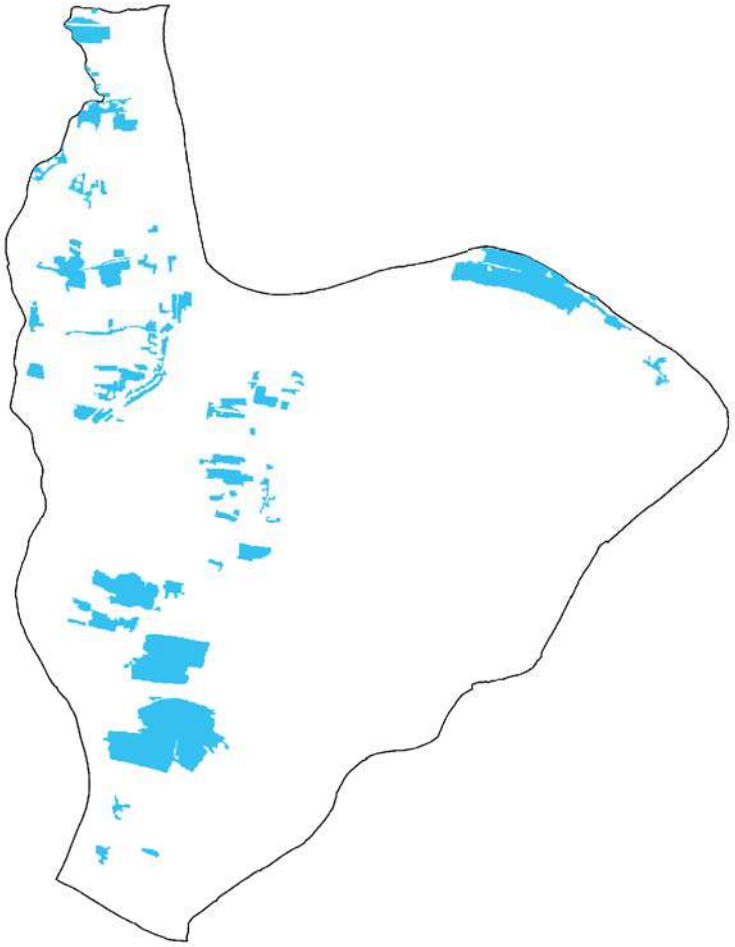


November, 2016: Total Gher area: 1458 hectare

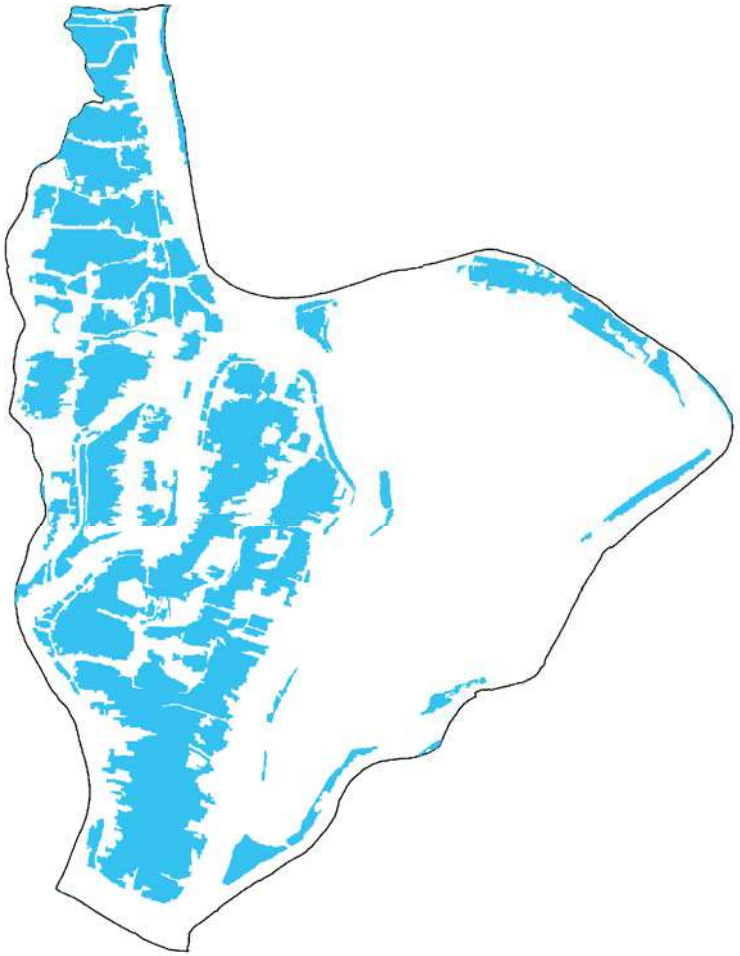


March, 2017: Total Gher area: 2043 hectare

Deluty

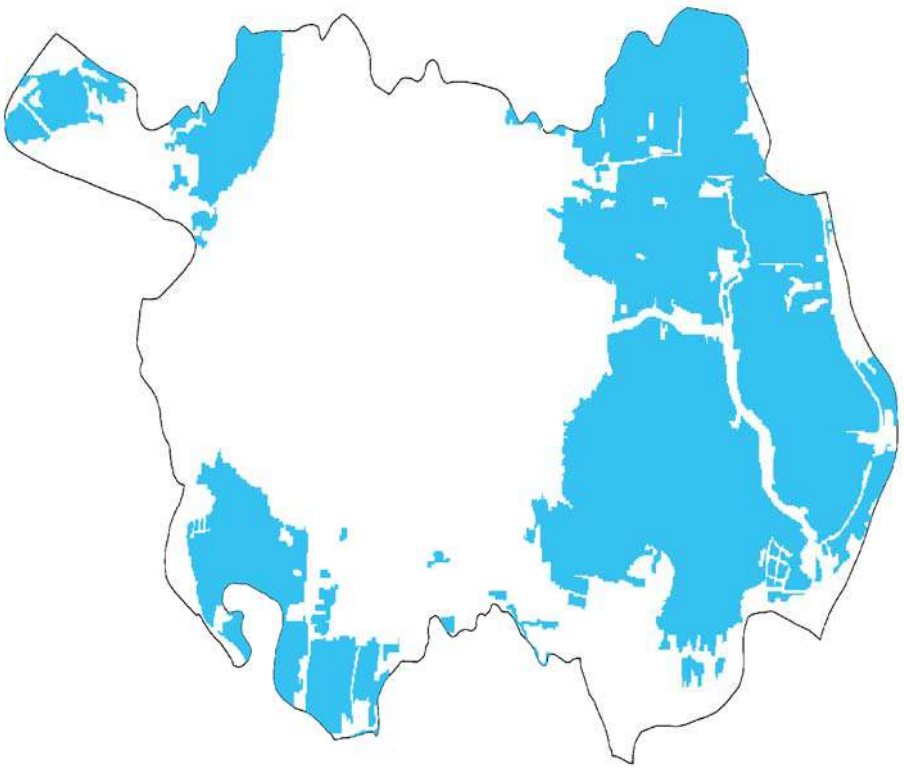


November, 2016: Total Gher area: 346 hectare

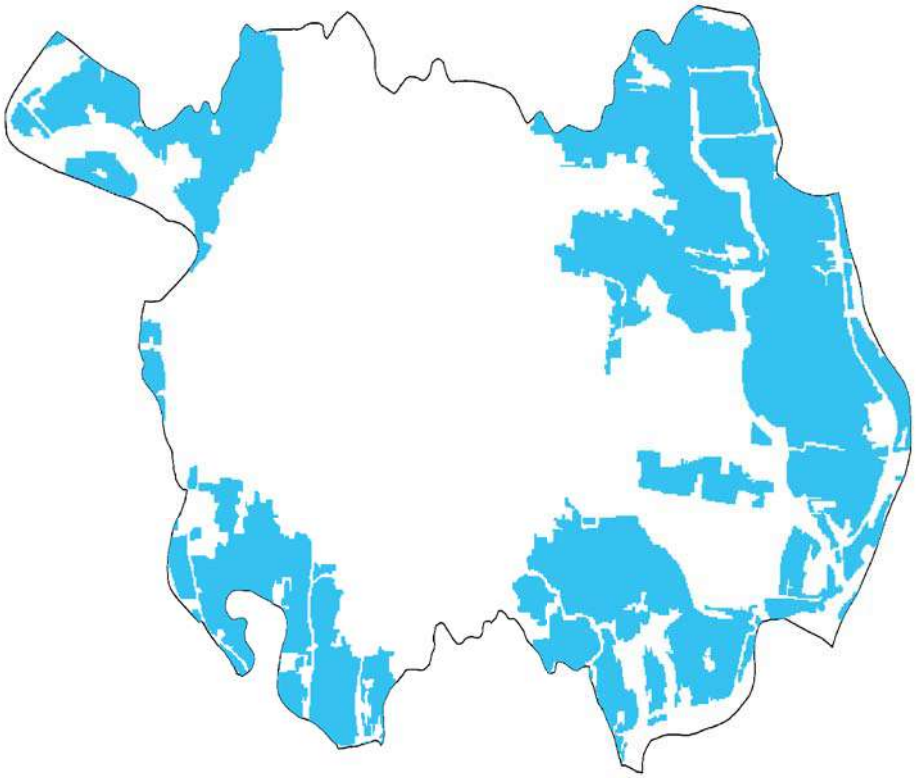


March, 2017: Total Gher area: 1361 hectare

Gadaipur

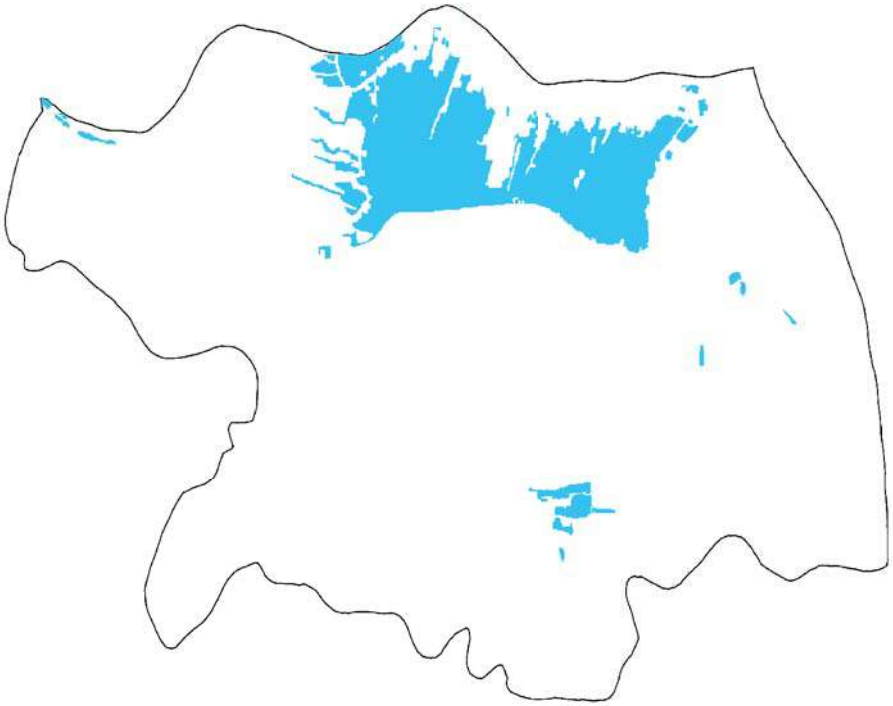


November, 2016: Total Gher area: 811 hectare

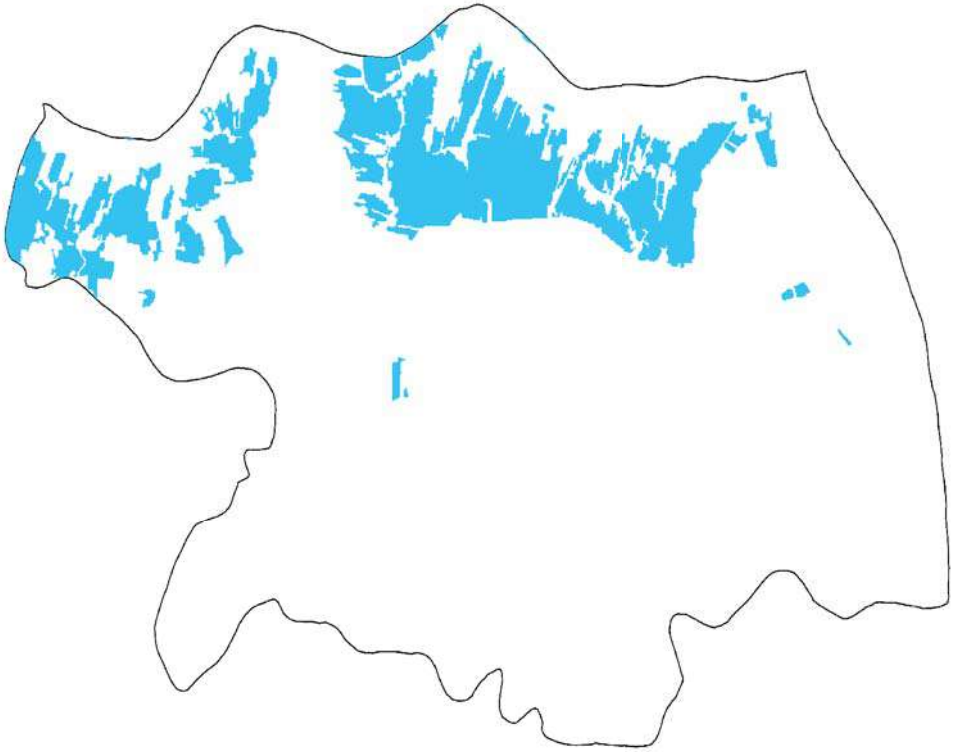


March, 2017: Total Gher area: 719 hectare

Gudikhali

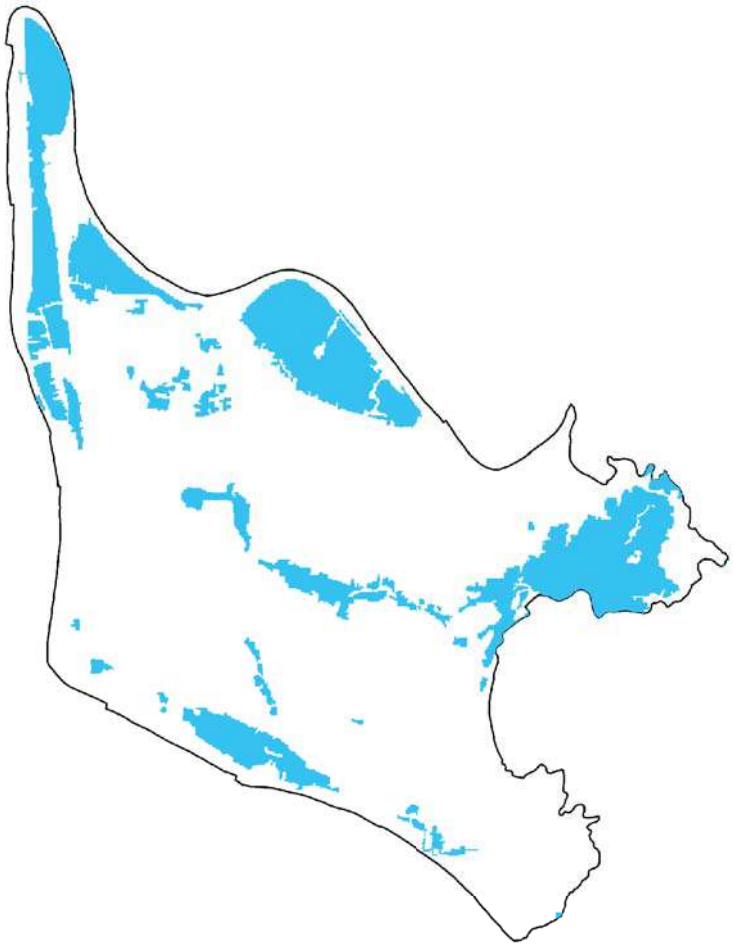


November, 2016: Total Gher area: 413 hectare

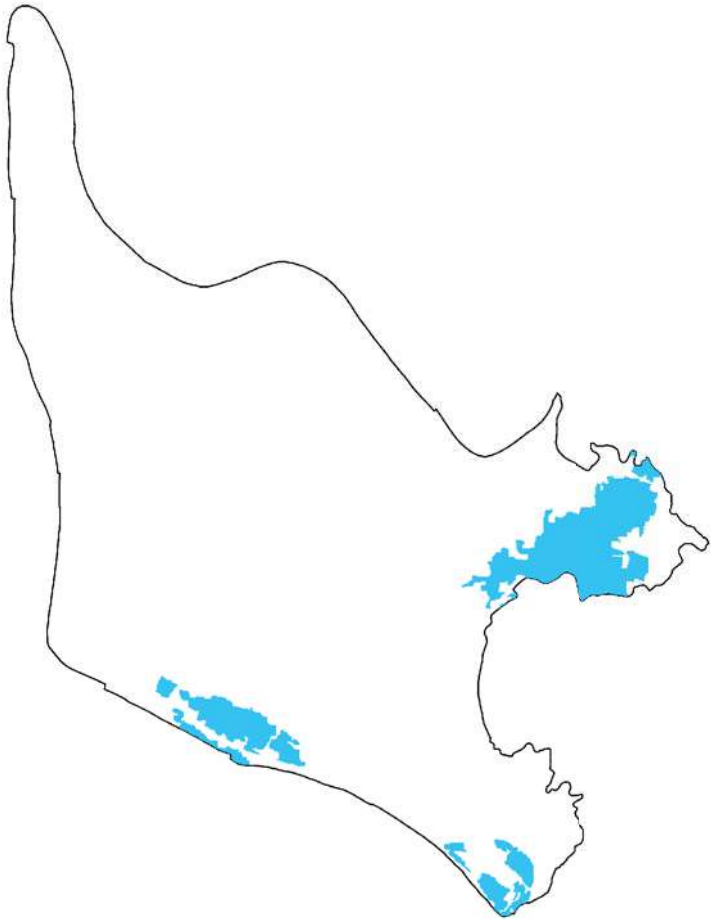


March, 2017: Total Gher area: 528 hectare

Haridhali

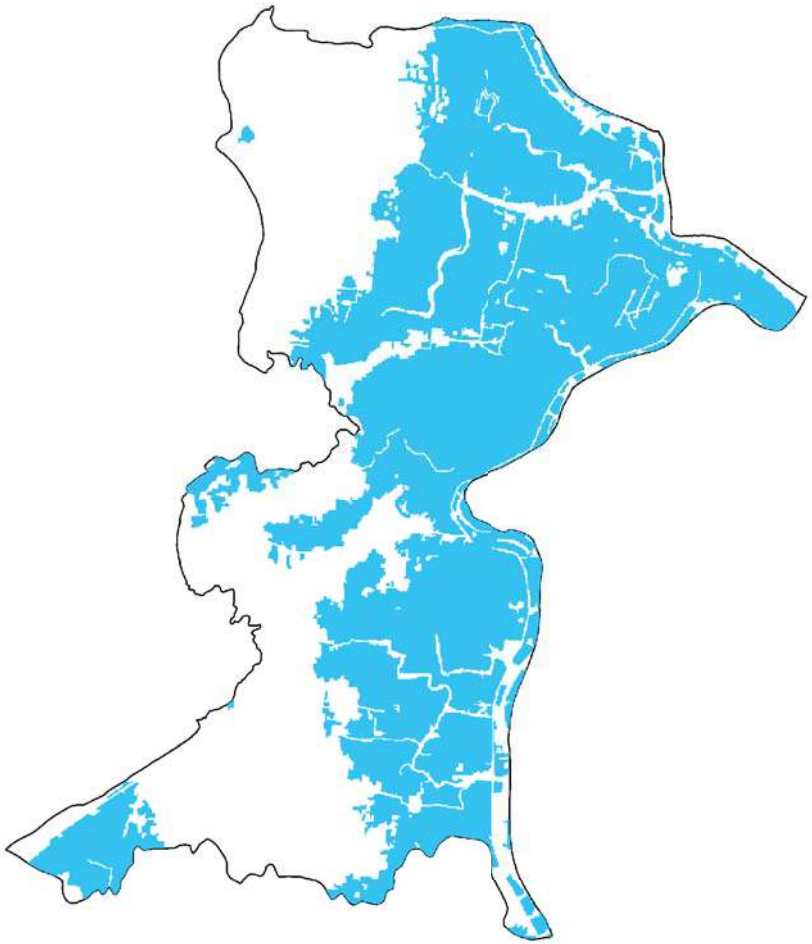


November, 2016: Total Gher area: 348 hectare

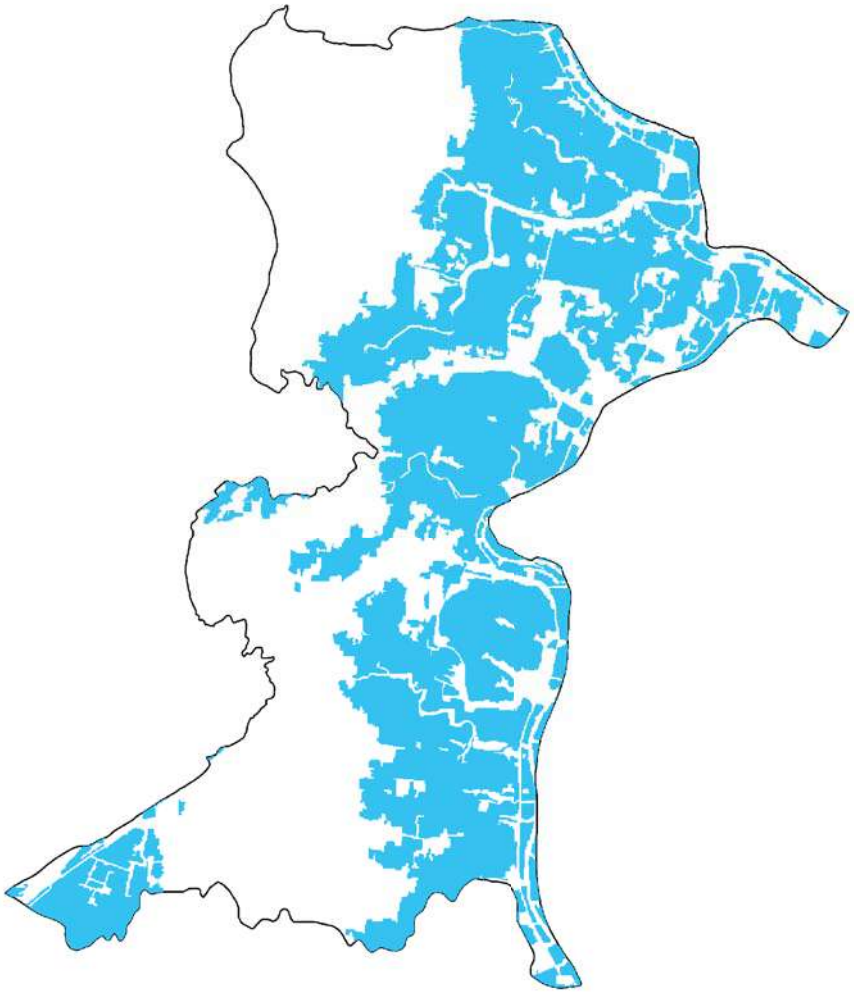


March, 2017: Total Gher area: 135 hectare

Kapilmuni

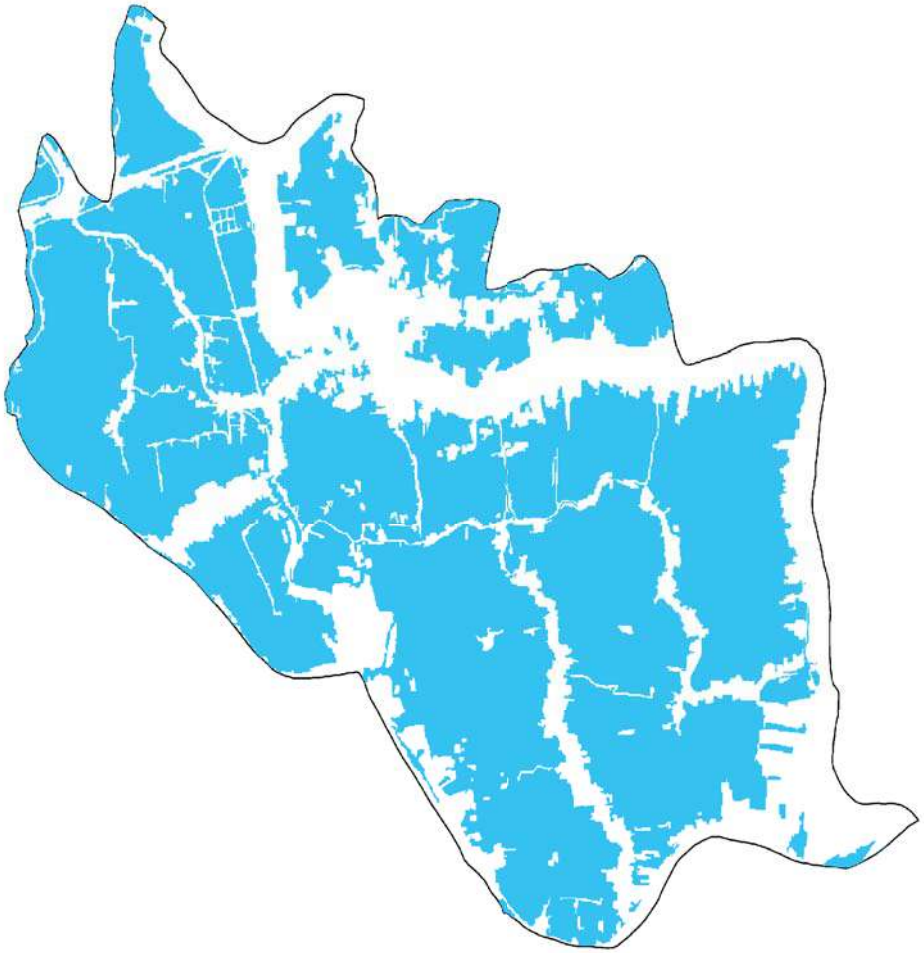


November, 2016: Total Gher area: 2079 hectare

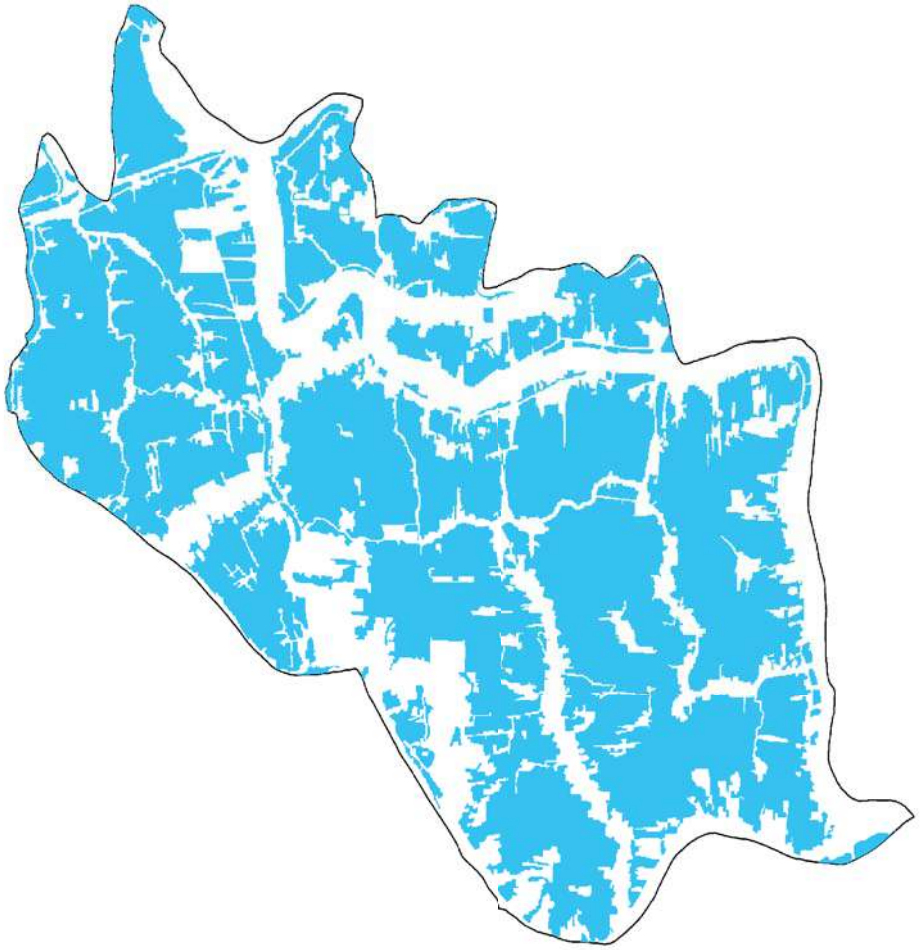


March, 2017: Total Gher area: 1775 hectare

Laskar

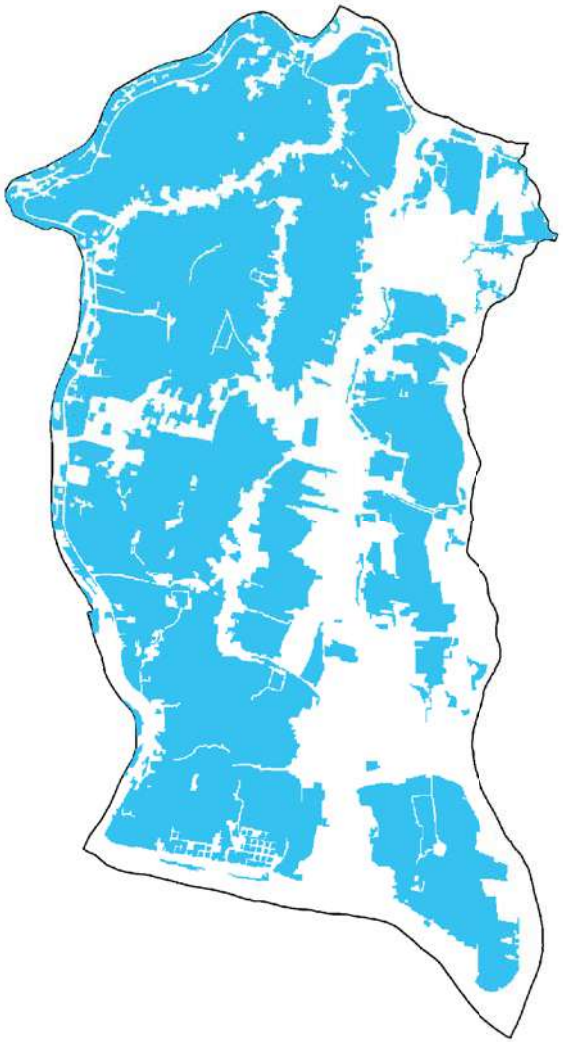


November, 2016: Total Gher area: 2876 hectare

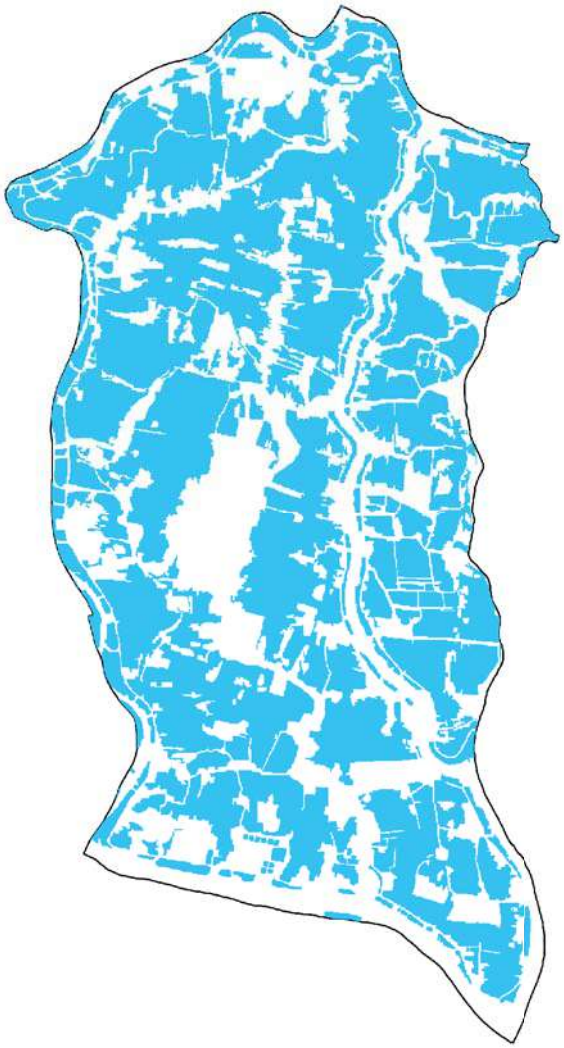


March, 2017: Total Gher area: 2721 hectare

Lata

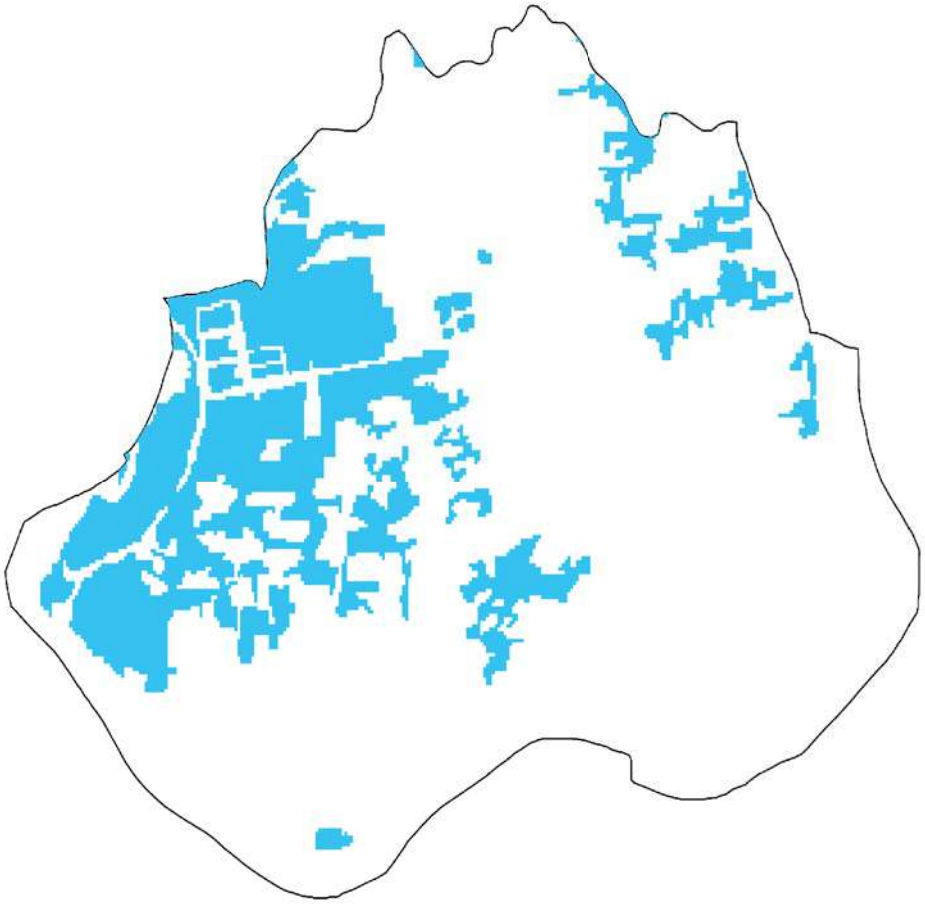


November, 2016: Total Gher area: 2881 hectare

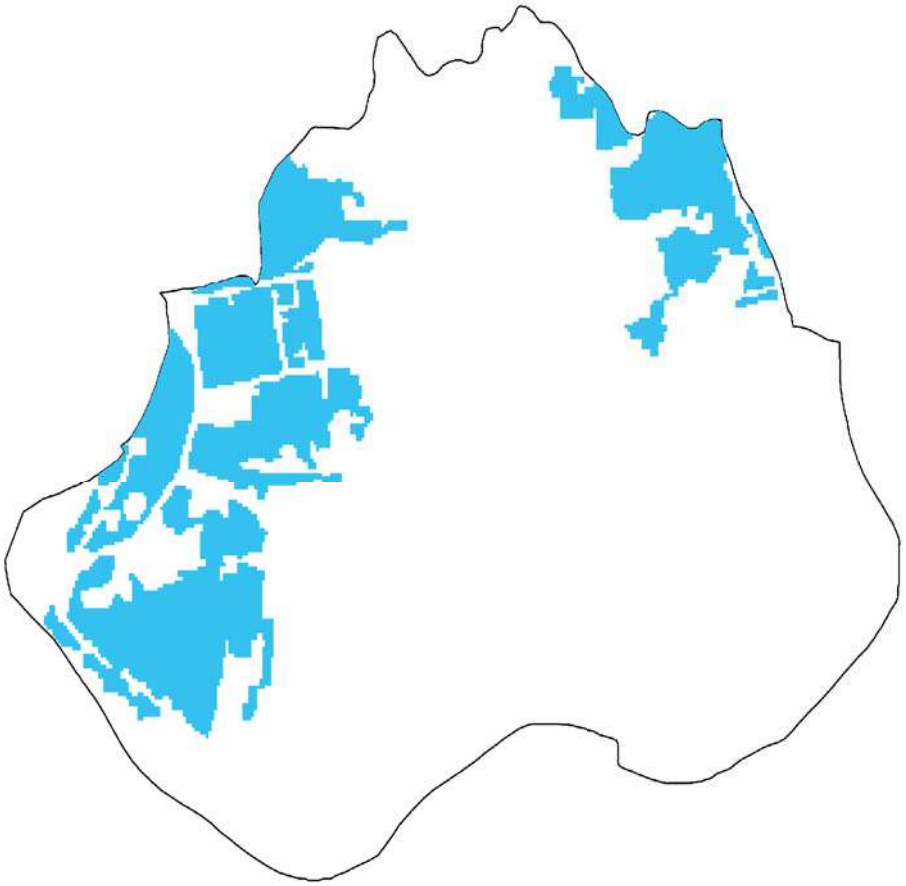


March, 2017: Total Gher area: 2913 hectare

Paikgachha Paurashava

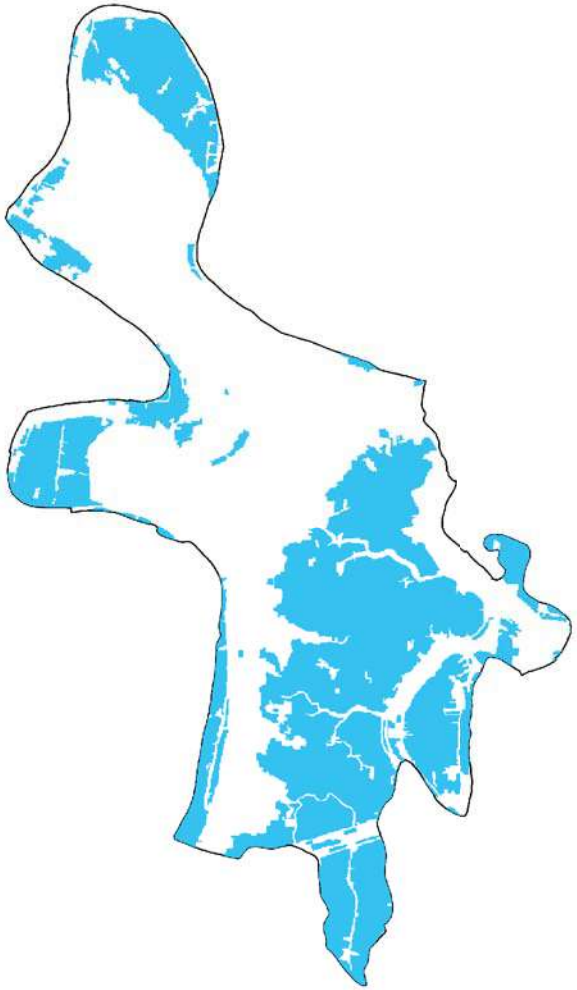


November, 2016: Total Gher area: 98 hectare

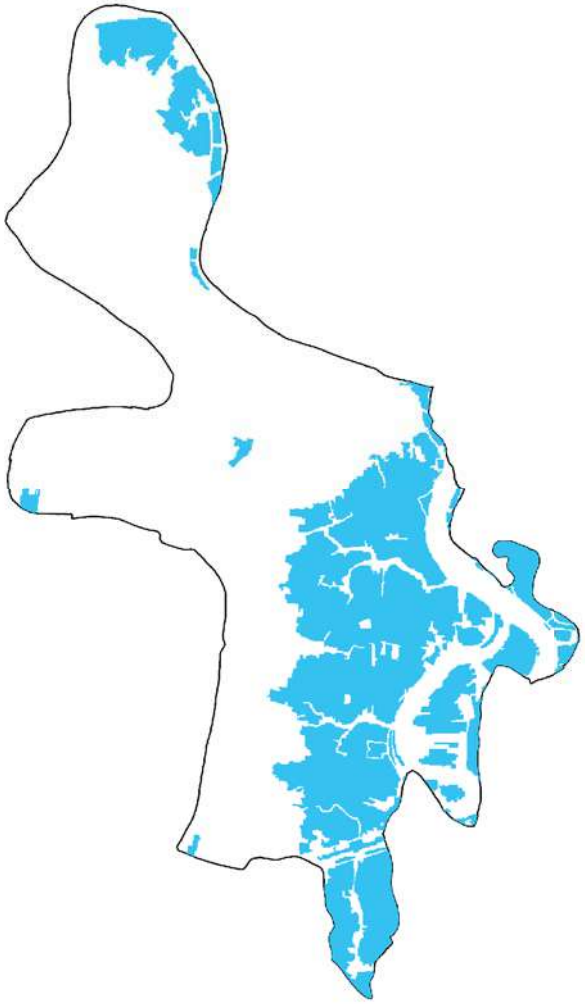


March, 2017: Total Gher area: 86 hectare

Raduli

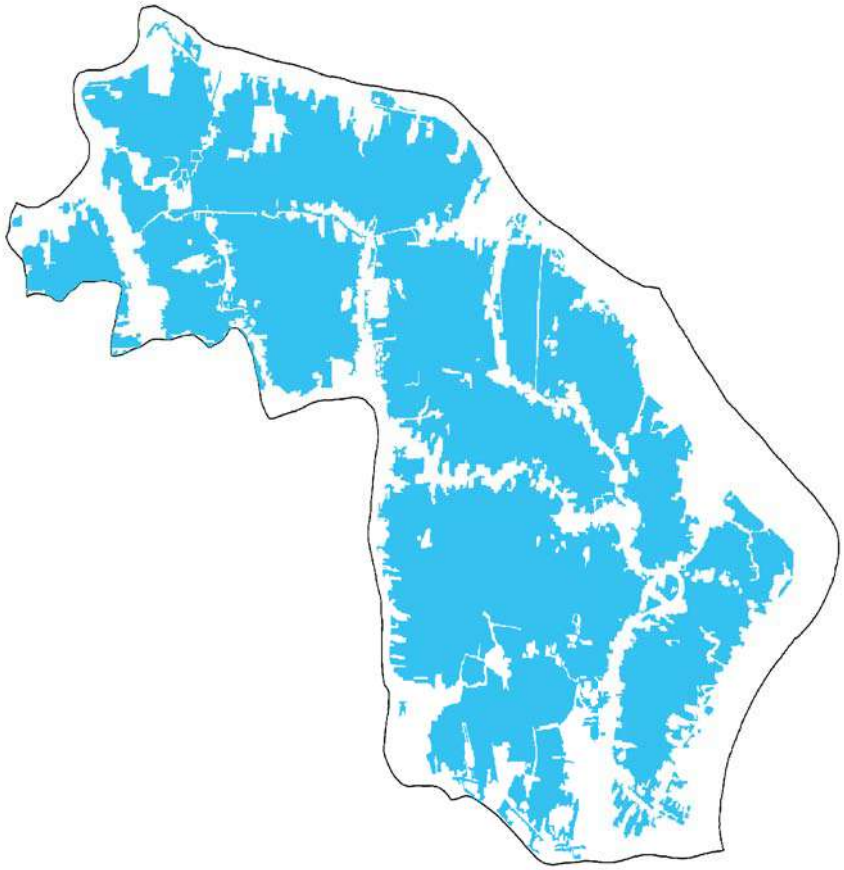


November, 2016: Total Gher area: 1050 hectare

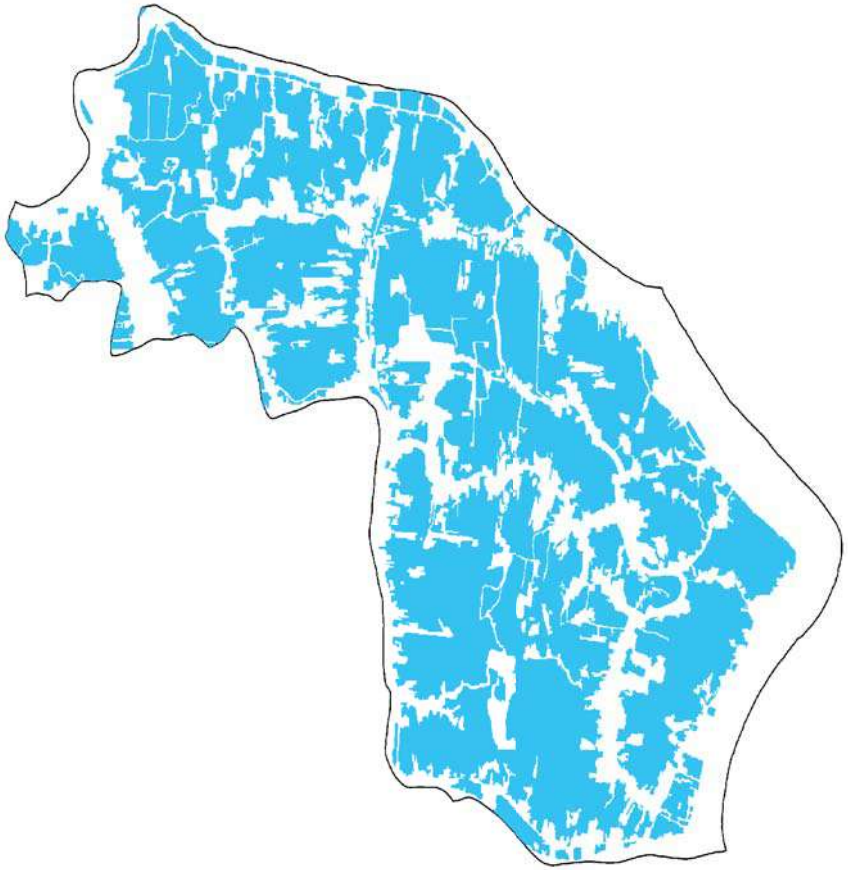


March, 2017: Total Gher area: 782 hectare

Sholadana



November, 2016: Total Gher area: 3042 hectare

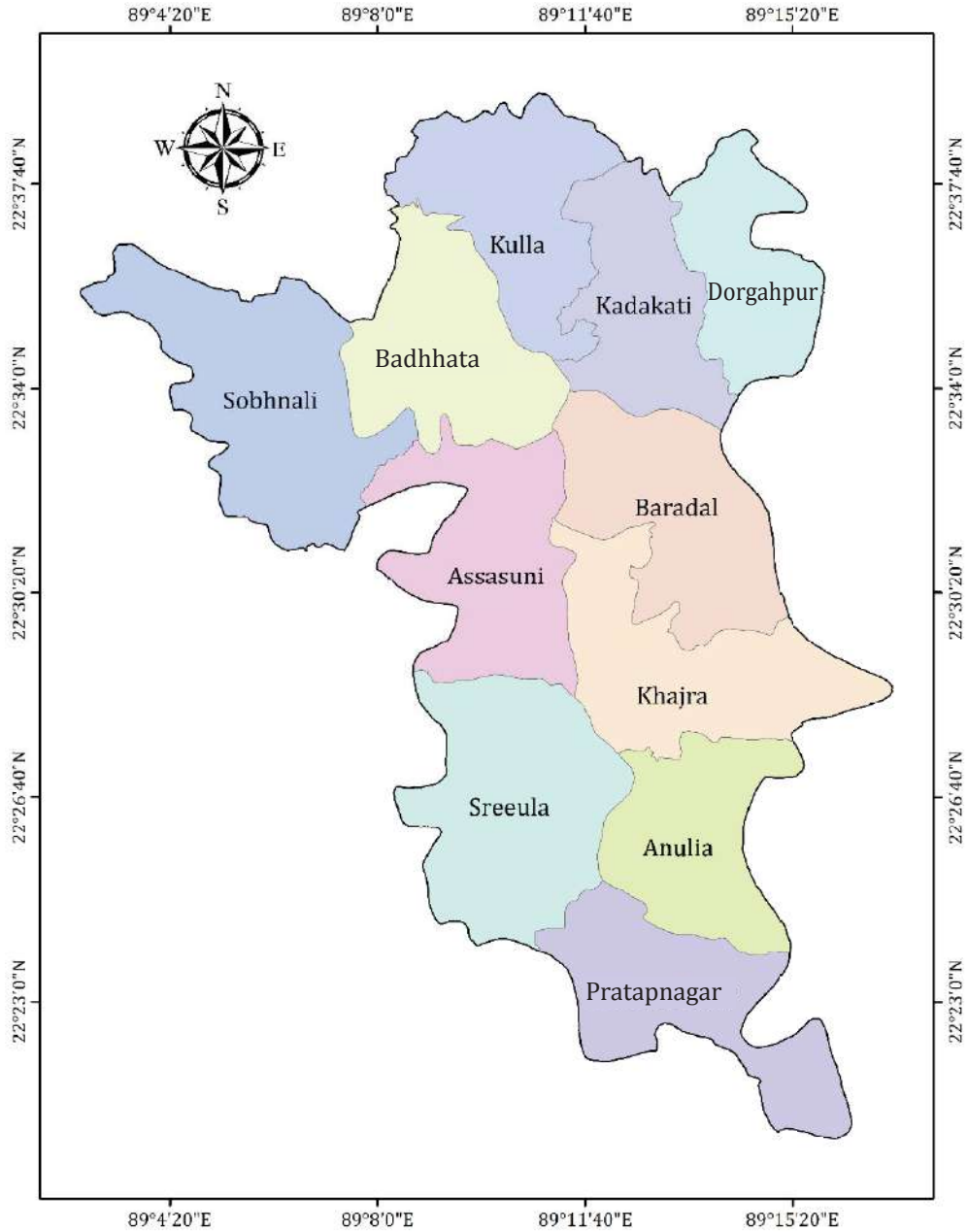


March, 2017: Total Gher area: 2932 hectare

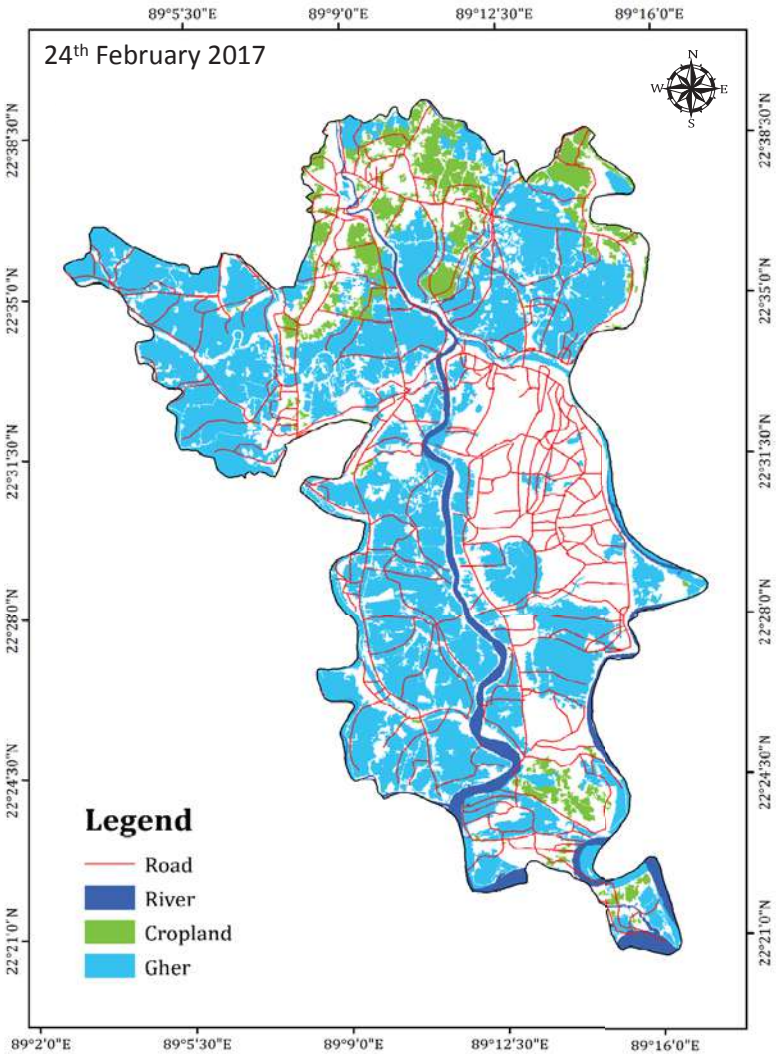
Satkhira District

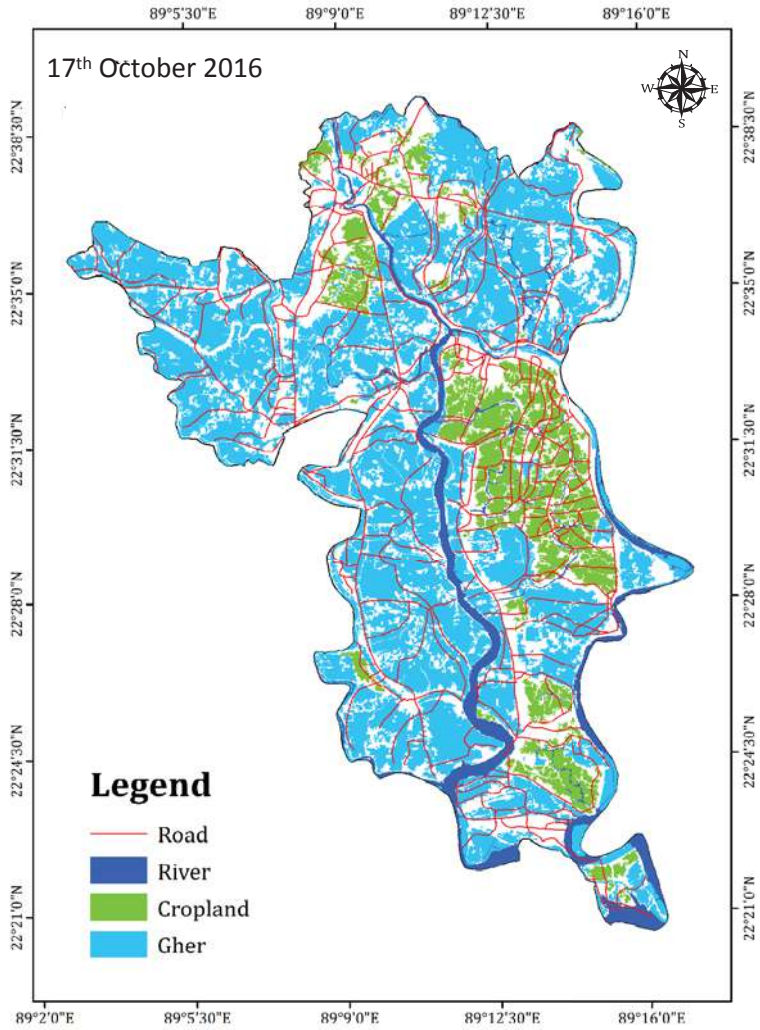
GIS based Gher map of Unions of Assasuni Upazila

Map of Assasuni Upazila with Unions



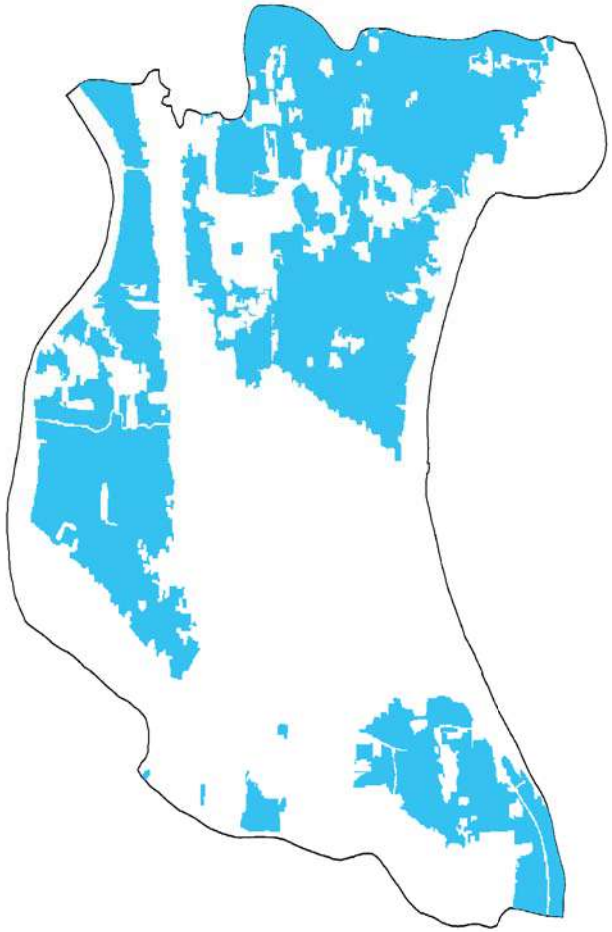
GIS map of Assasuni Upazila with Gher and Crop area



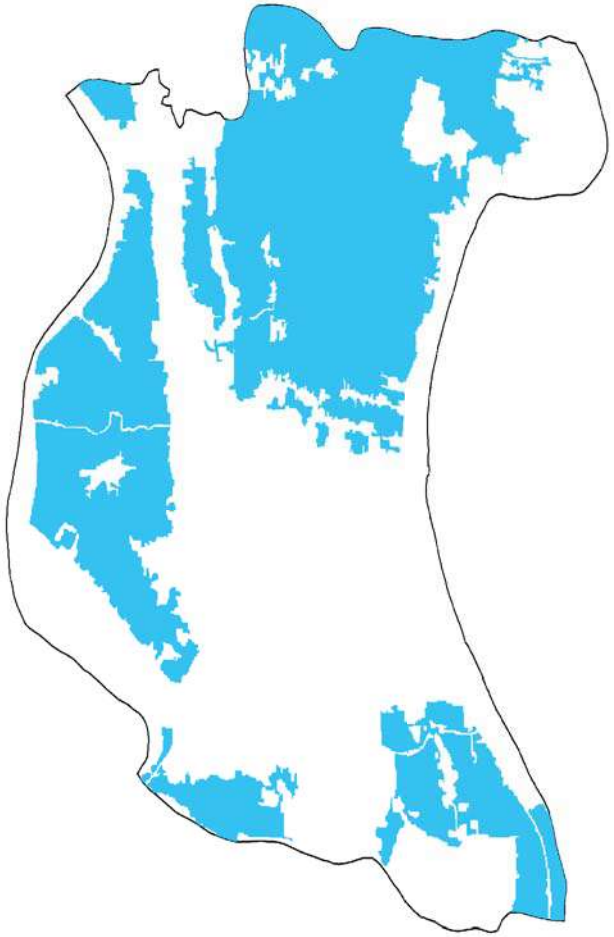


Upazila Name	Total area (ha)	24th February 2017		17th October 2016	
		Agriculture (ha)	Gher (ha)	Agriculture (ha)	Gher (ha)
Assasuni	37846	2657	17895	4533	18244

Anulia

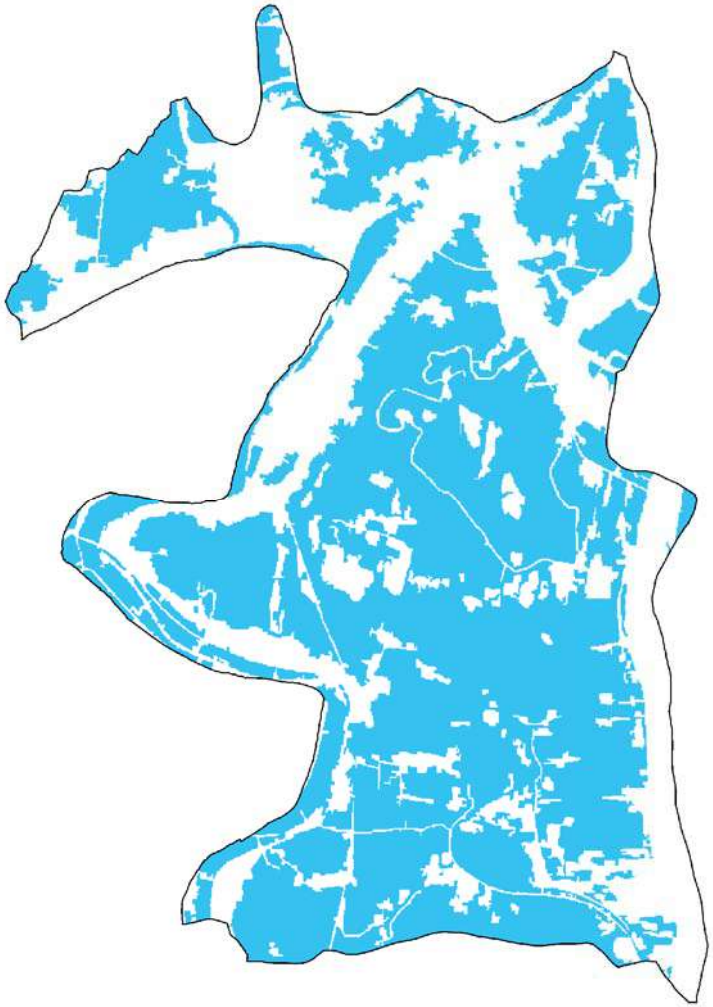


October, 2016: Total Gher area: 1108 hectare

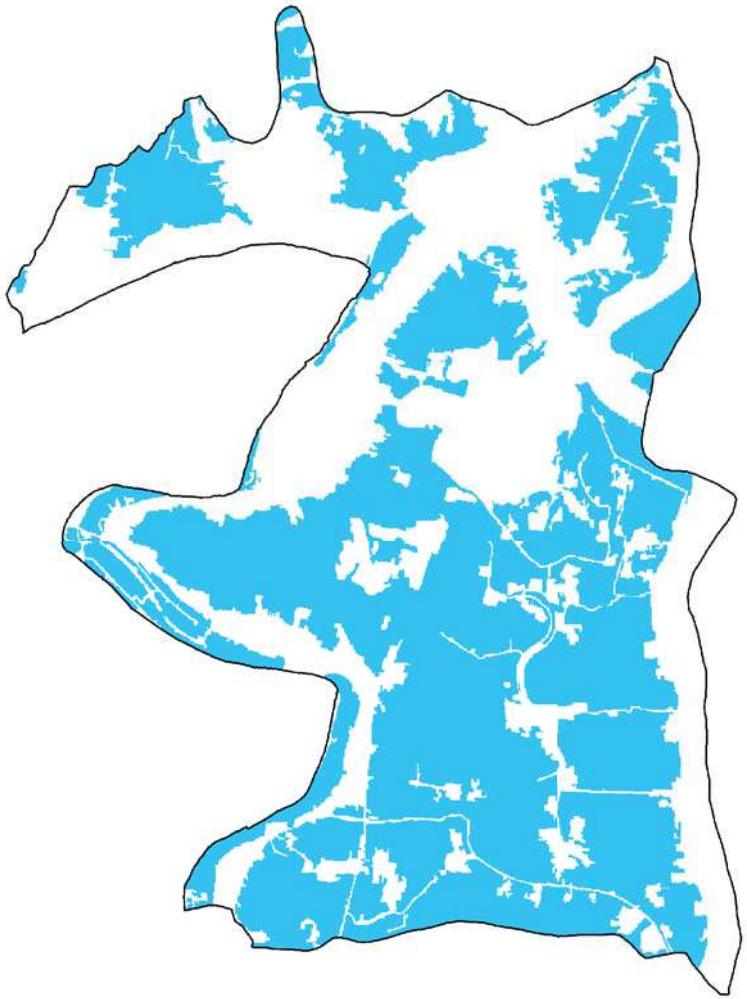


February, 2017: Total Gher area: 1247 hectare

Assasuni

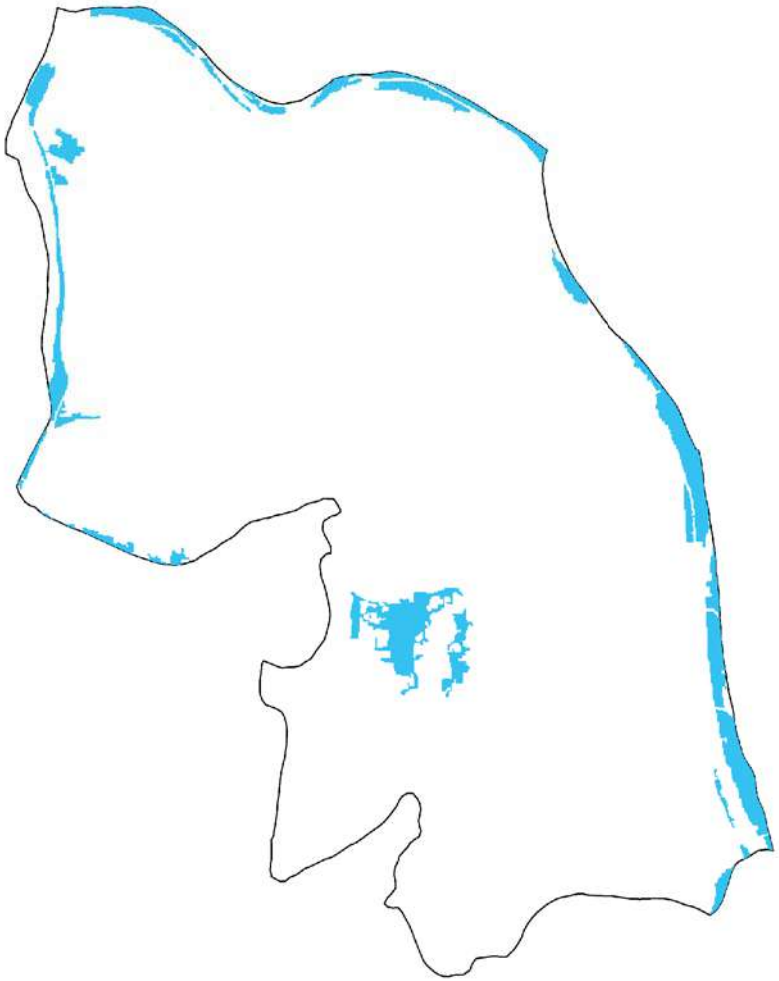


October, 2016: Total Gher area: 2111 hectare

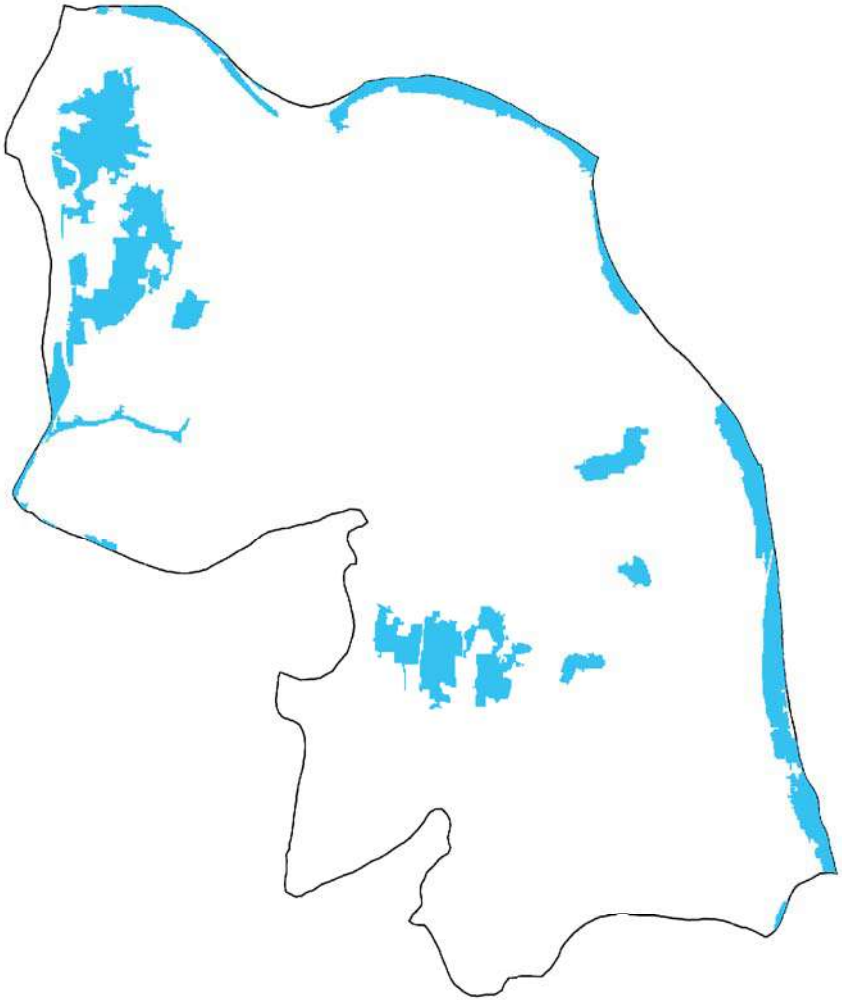


February, 2017: Total Gher area: 1919 hectare

Baradal

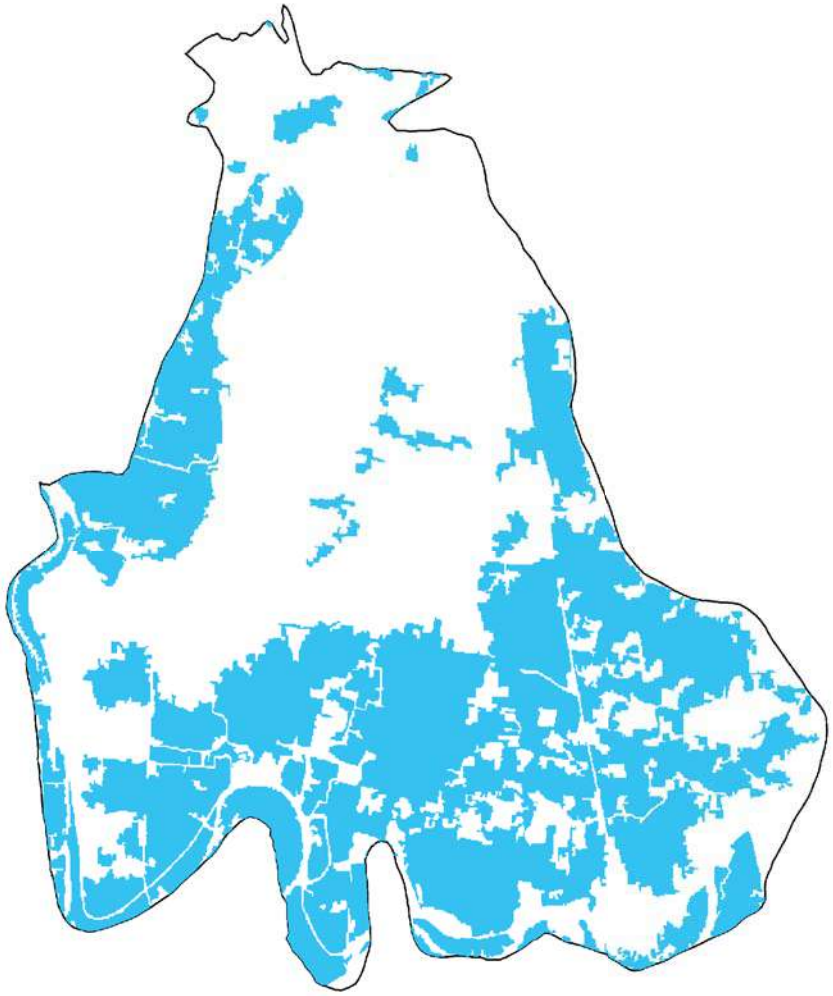


October, 2016: Total Gher area: 181 hectare

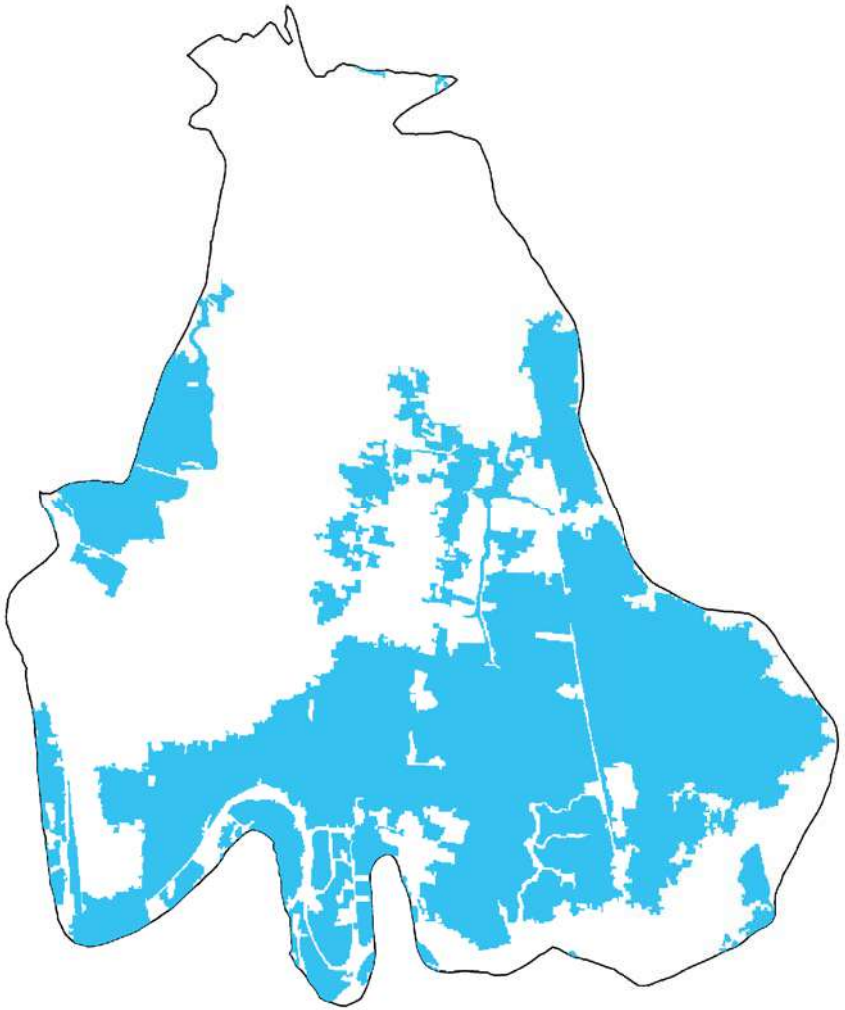


February, 2017: Total Gher area: 328 hectare

Badhhata

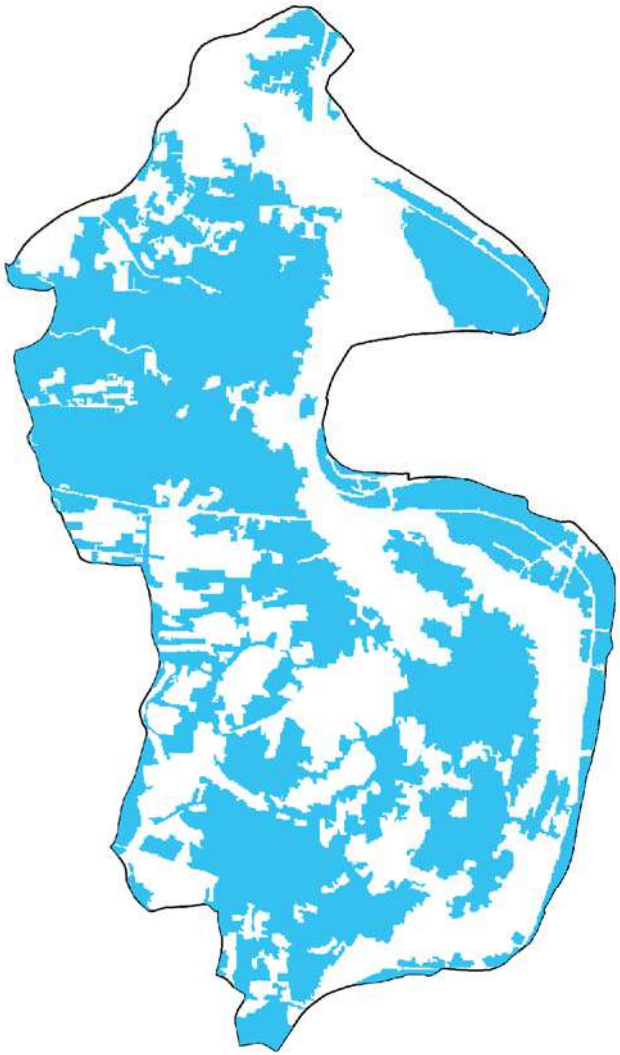


October, 2016: Total Gher area: 1435 hectare

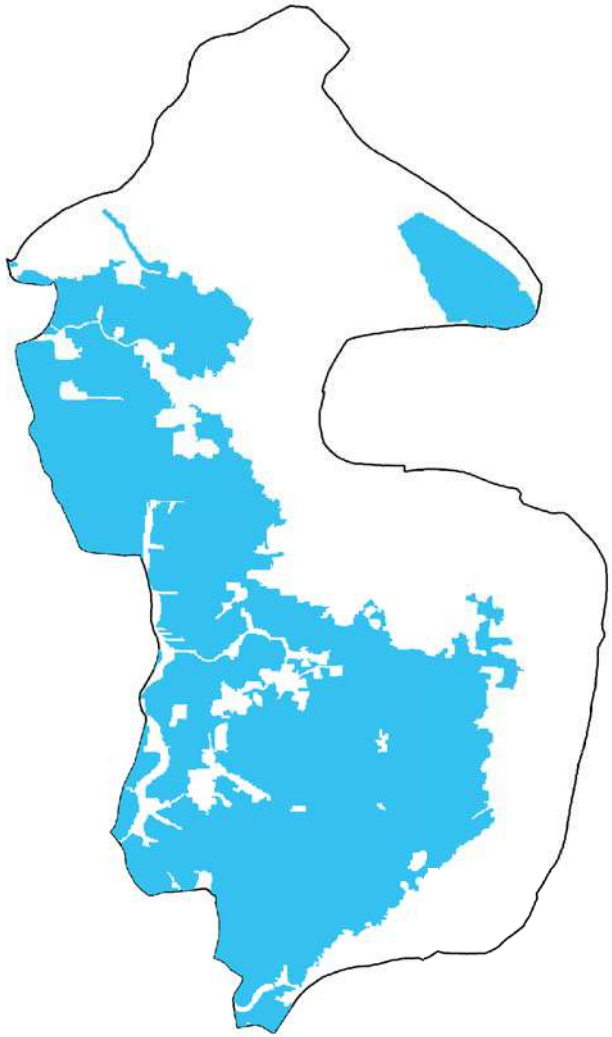


February, 2017: Total Gher area: 1423 hectare

Dorgahpur

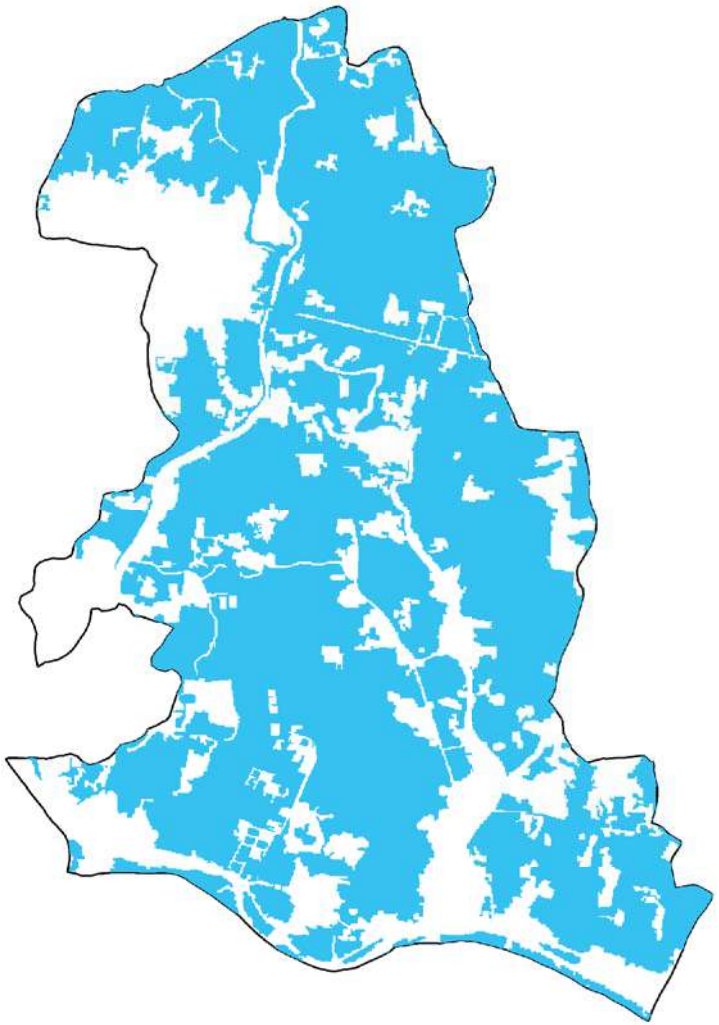


October, 2016: Total Gher area: 1329 hectare

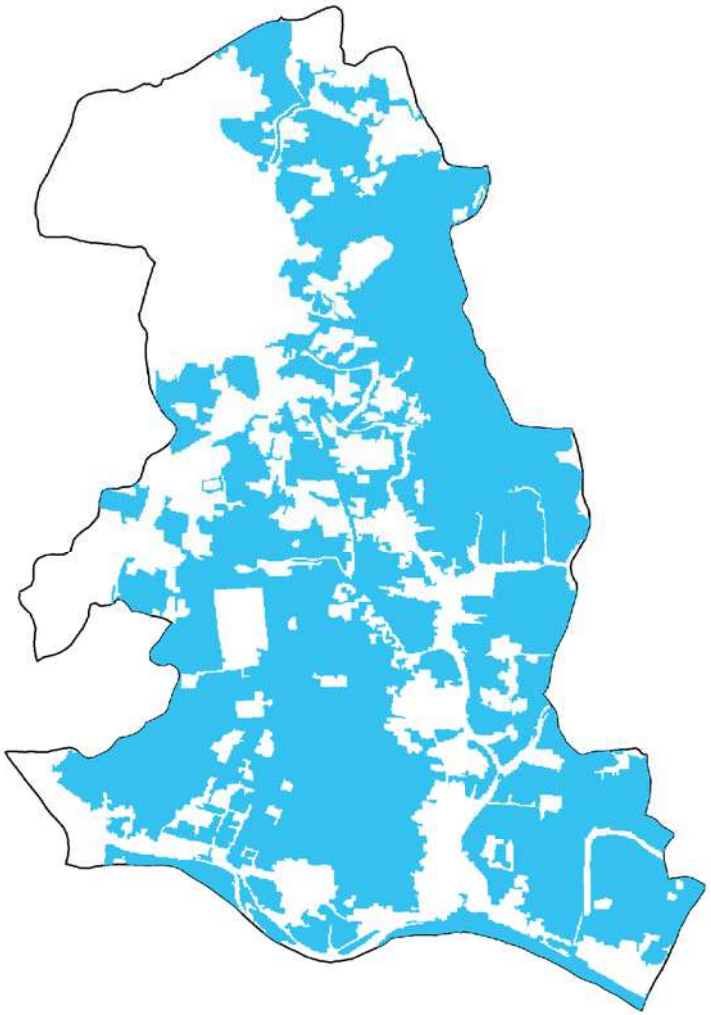


February, 2017: Total Gher area: 1096 hectare

Kadakati

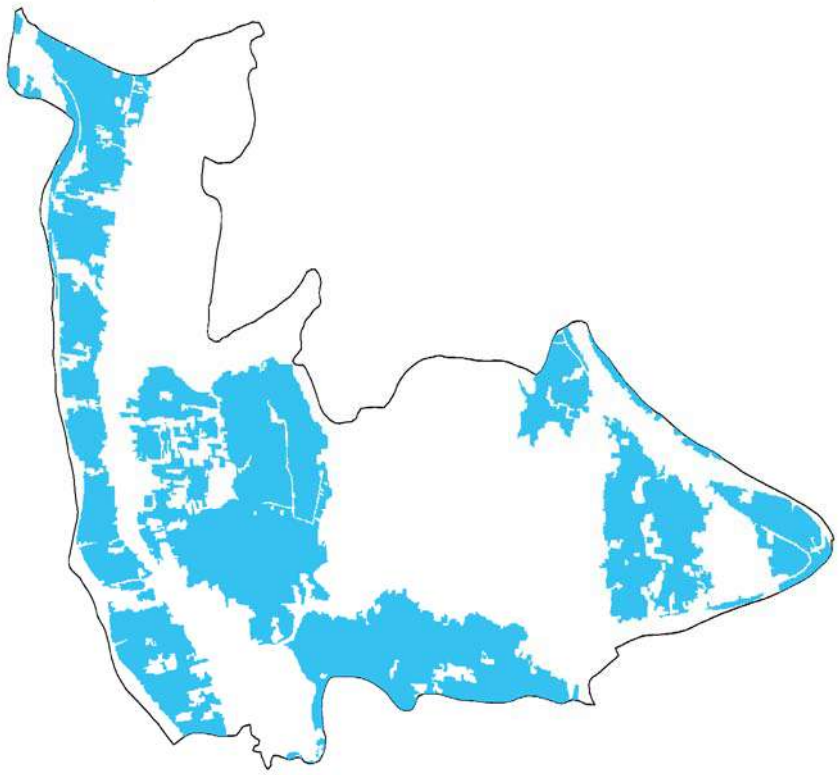


October, 2016: Total Gher area: 1877 hectare

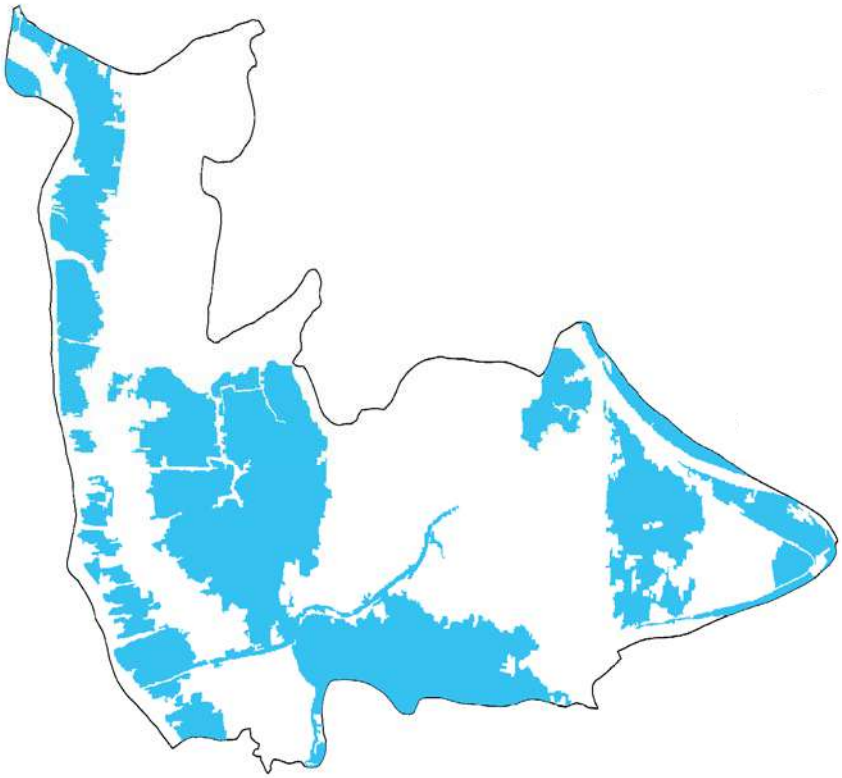


February, 2017: Total Gher area: 1640 hectare

Khajra

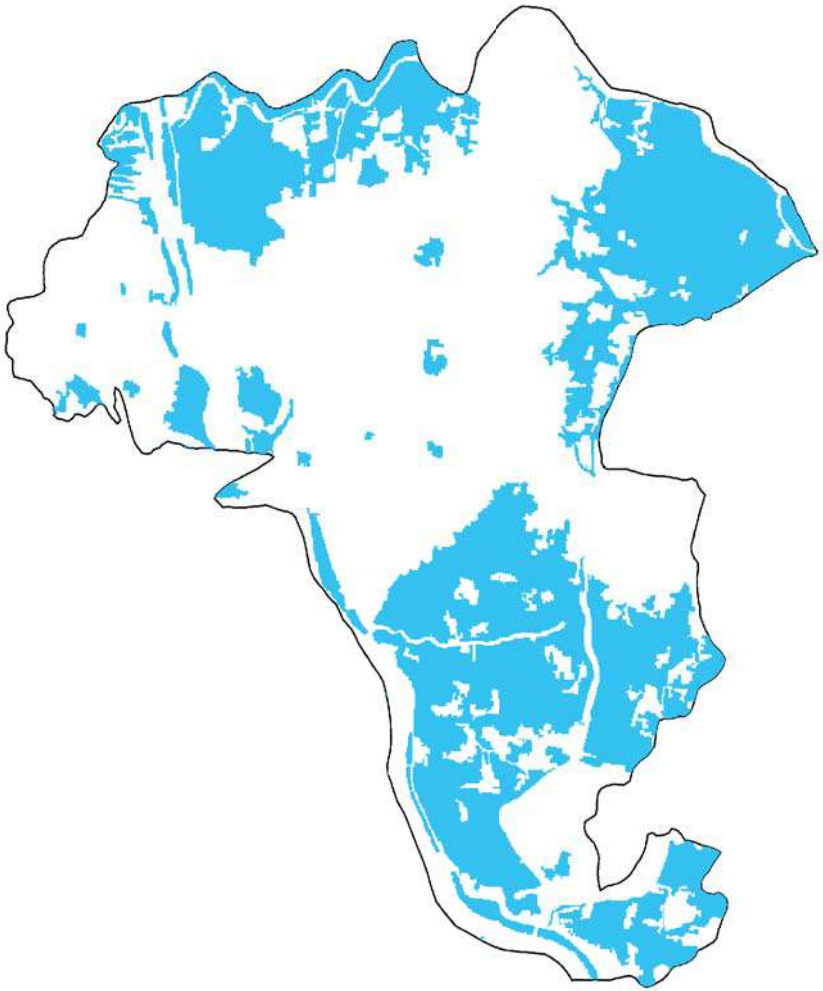


October, 2016: Total Gher area: 1425 hectare

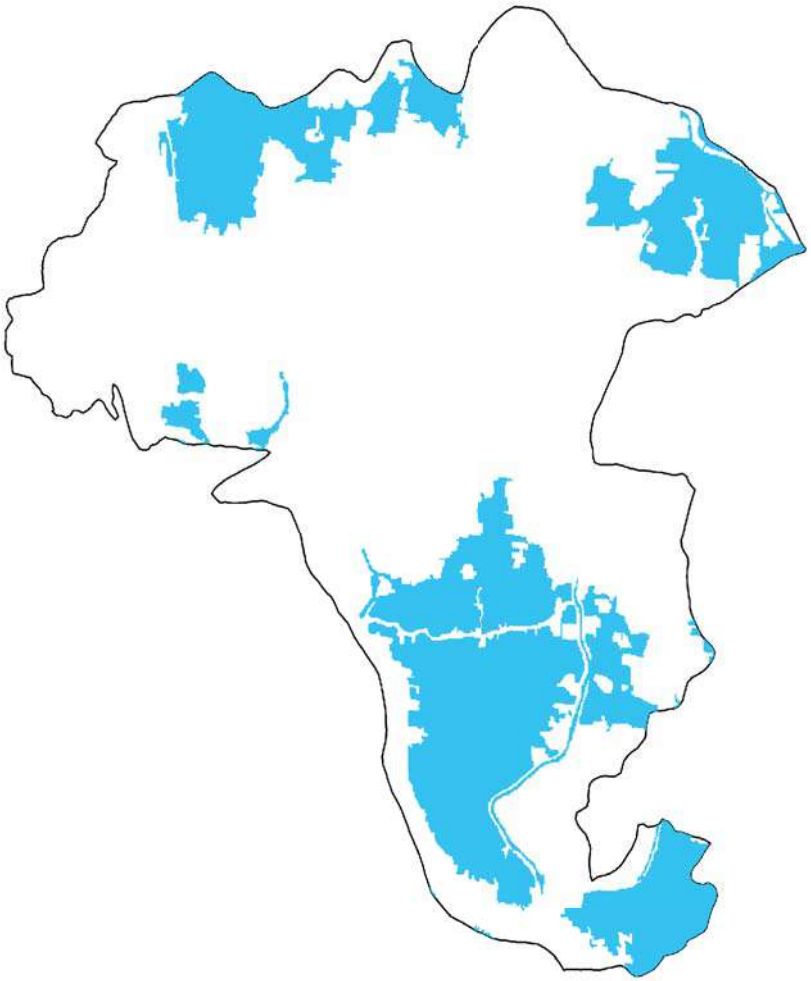


February, 2017: Total Gher area: 1403 hectare

Kulla

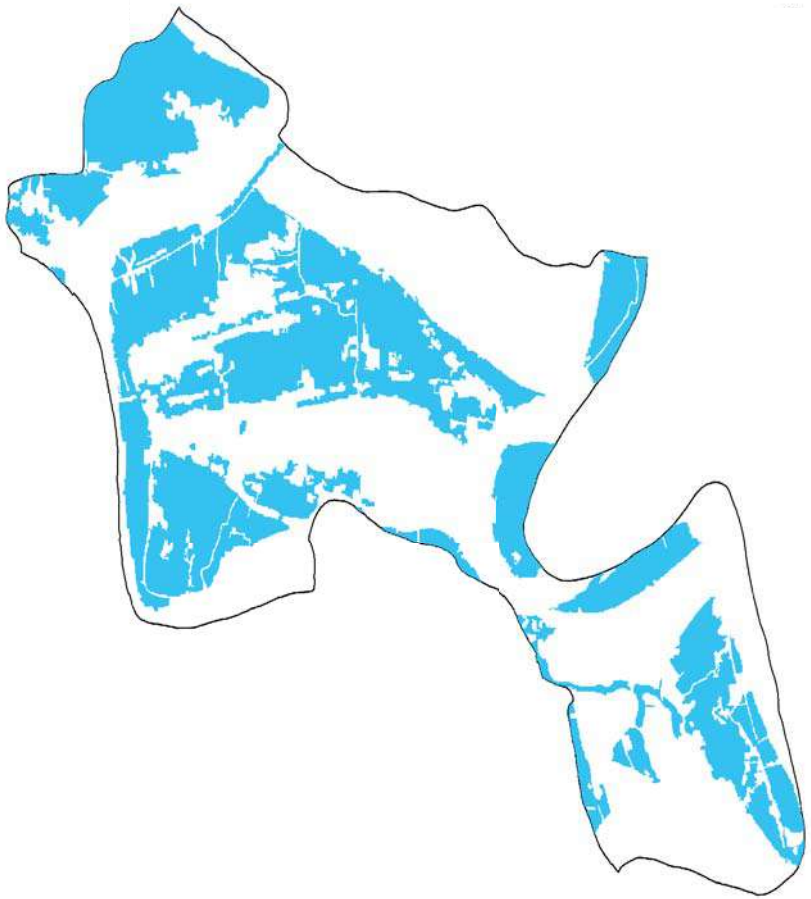


October, 2016: Total Gher area: 1230 hectare

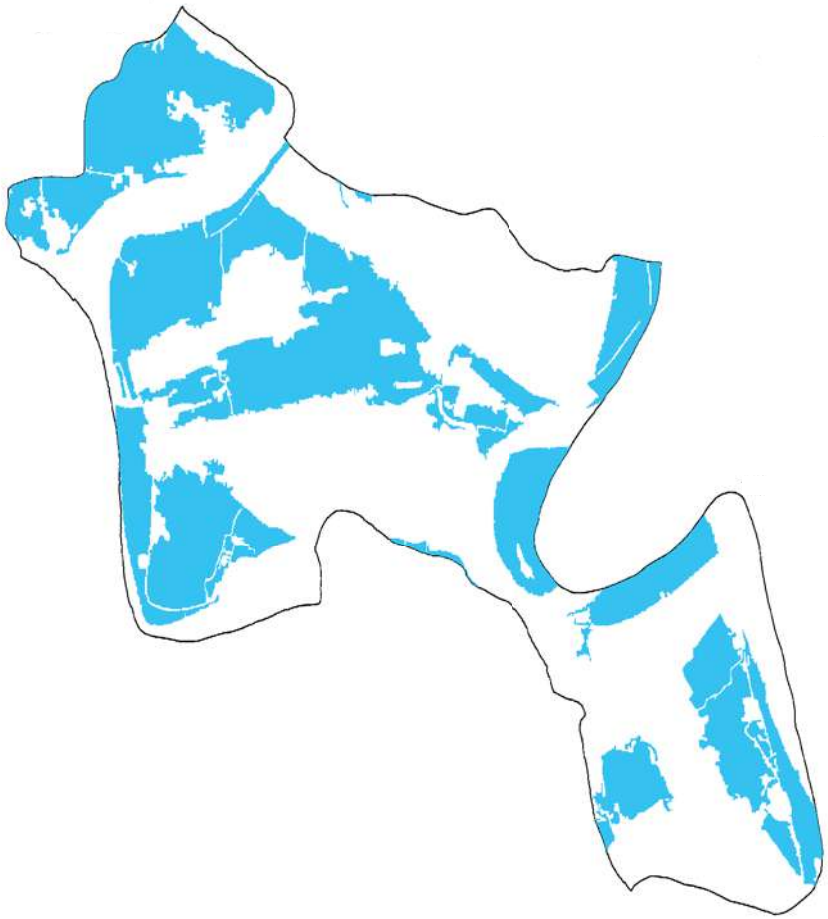


February, 2017: Total Gher area: 846 hectare

Pratapnagar

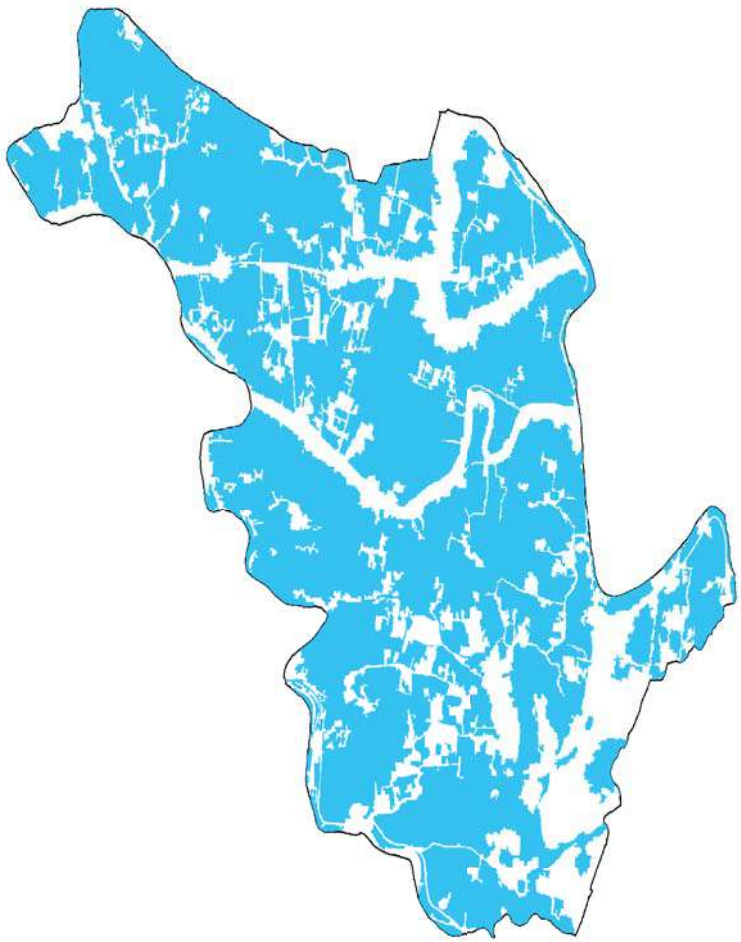


October, 2016: Total Gher area: 1291 hectare

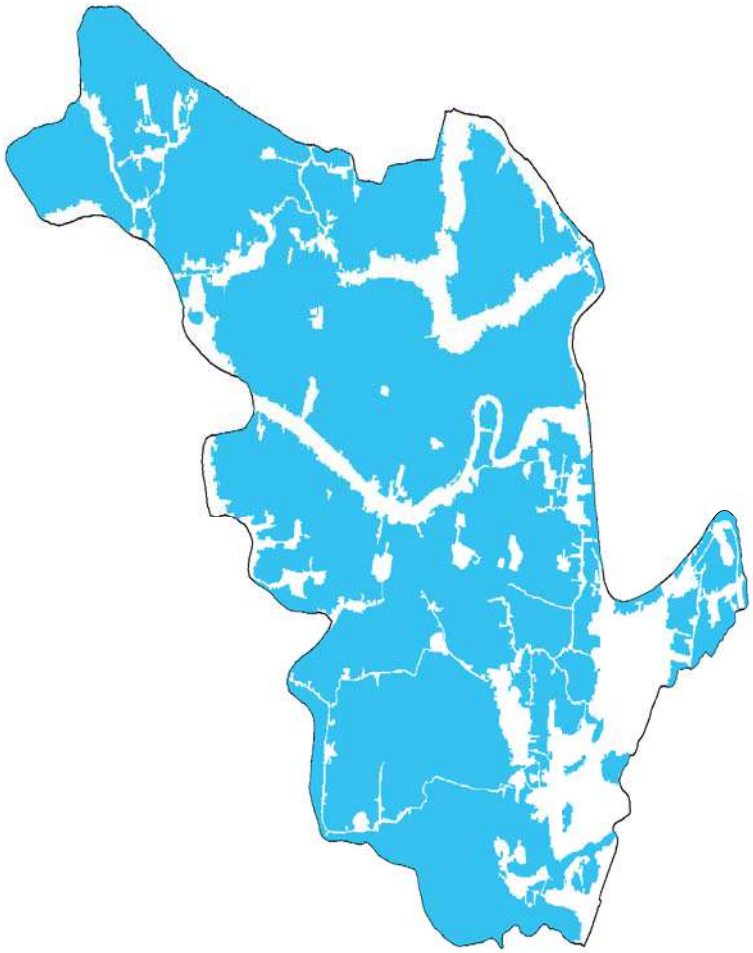


February, 2017: Total Gher area: 1278 hectare

Sobhnali

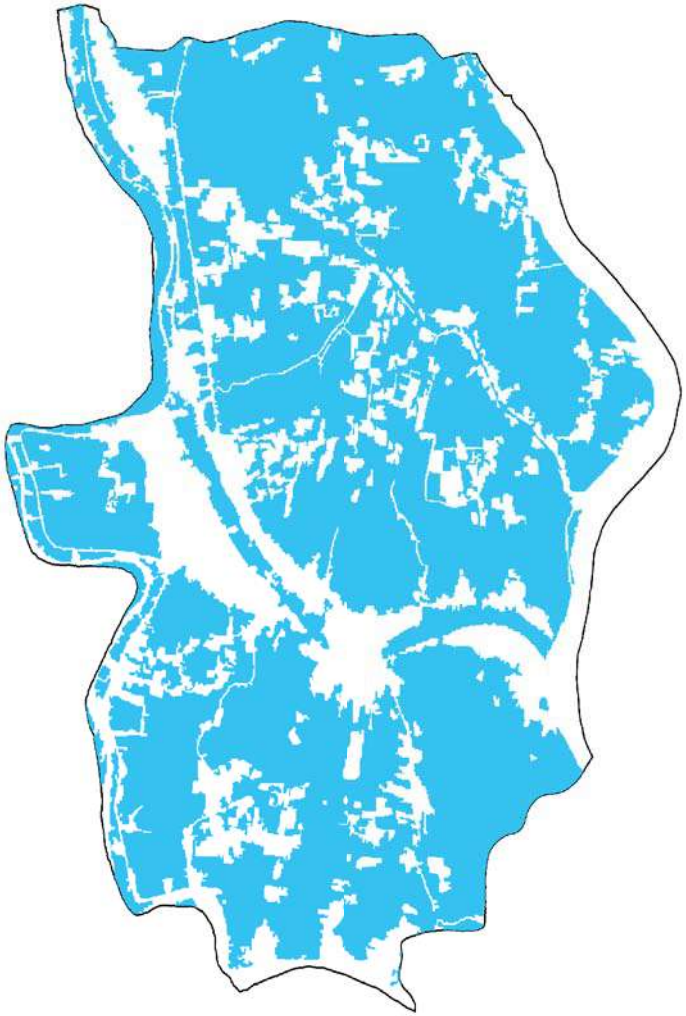


October, 2016: Total Gher area: 3277 hectare

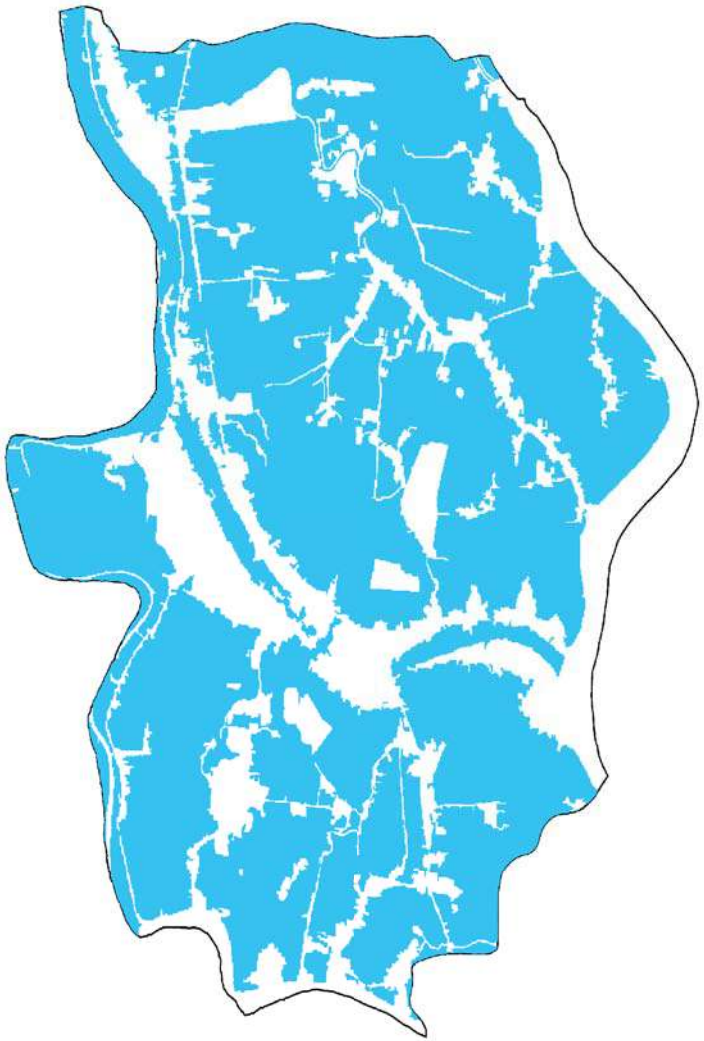


February, 2017: Total Gher area: 3569 hectare

Sreeula



October, 2016: Total Gher area: 2972 hectare

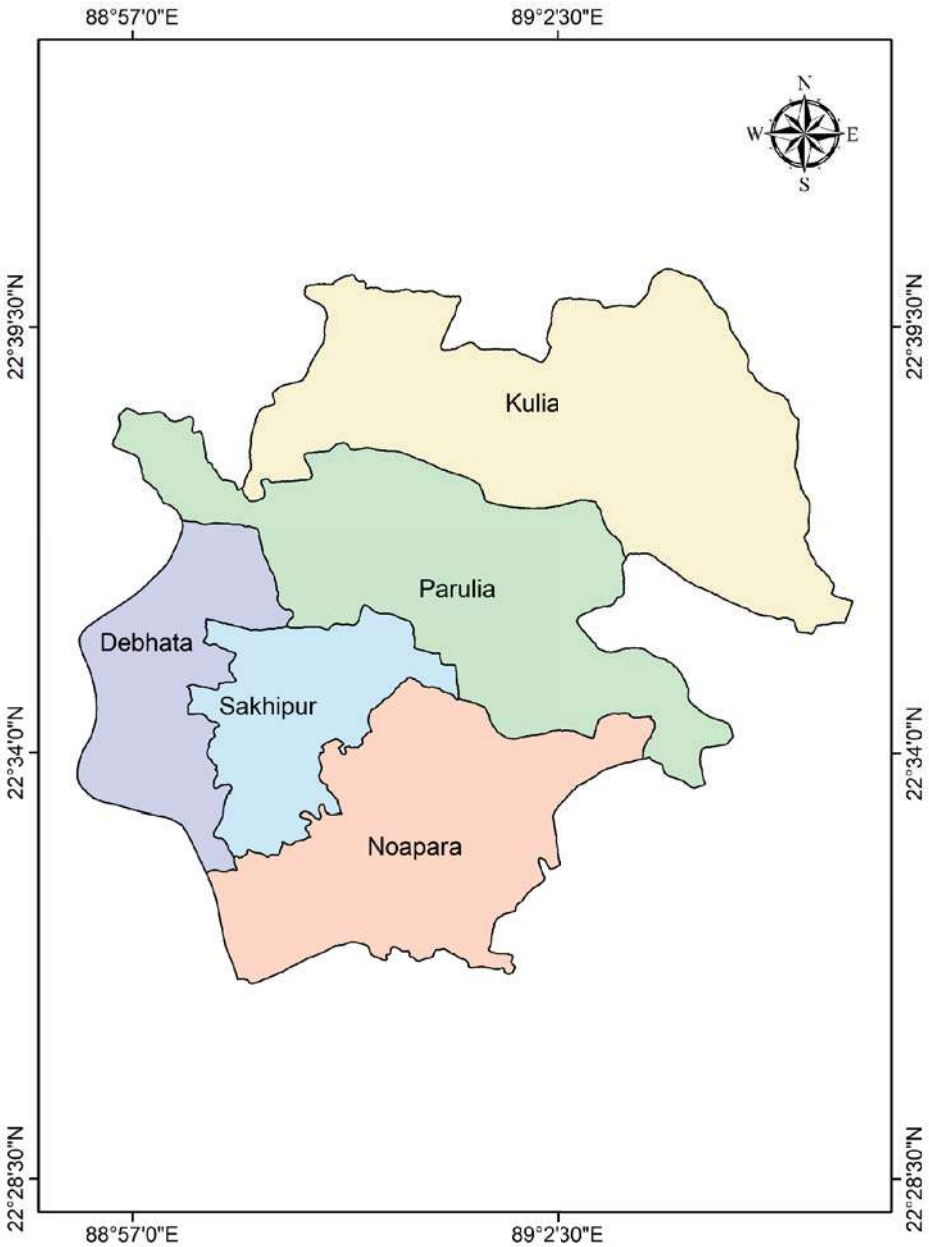


February, 2017: Total Gher area: 3139 hectare

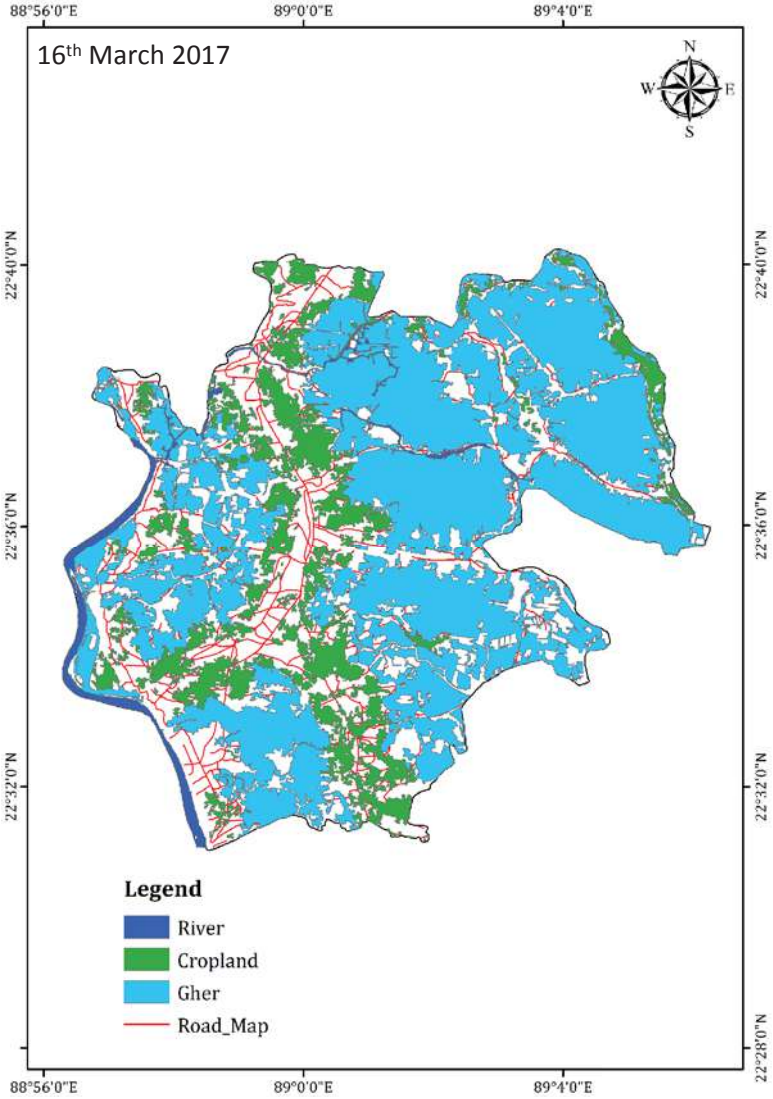
Satkhira District

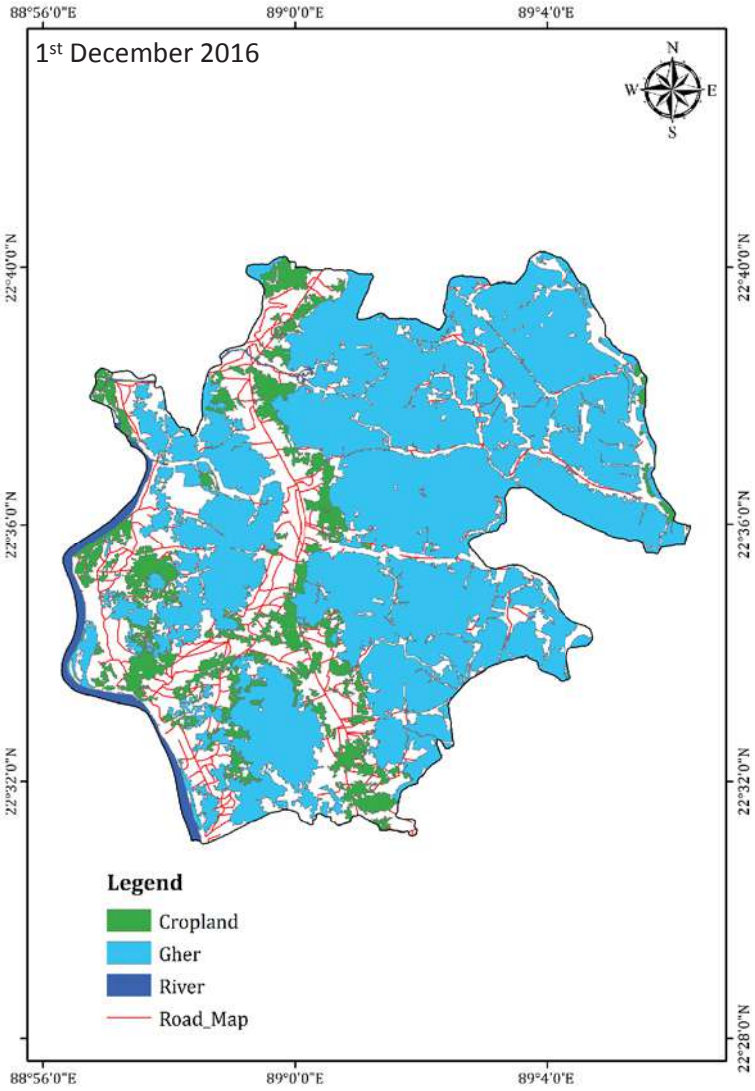
GIS based Gher map of Unions of Debhata Upazila

Map of Debhata Upazila with Unions



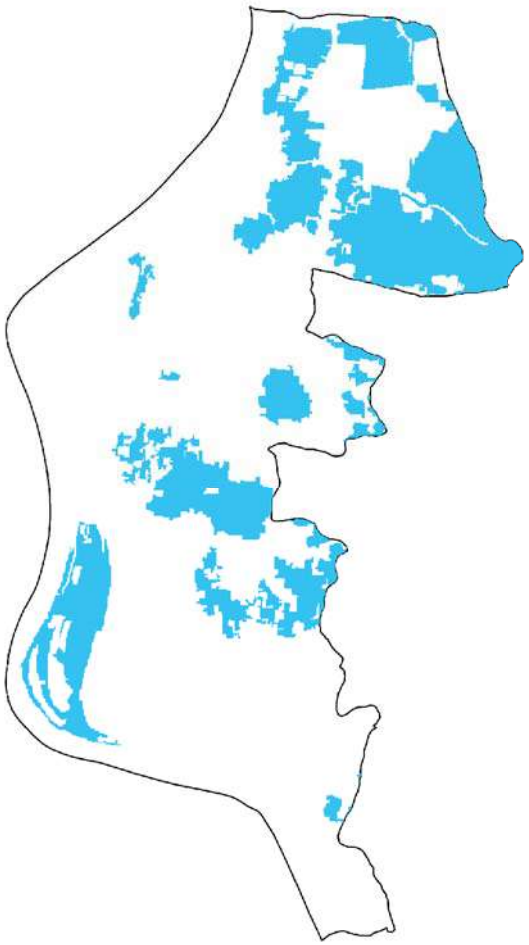
GIS map of Debhata Upazila with Gher and Crop area



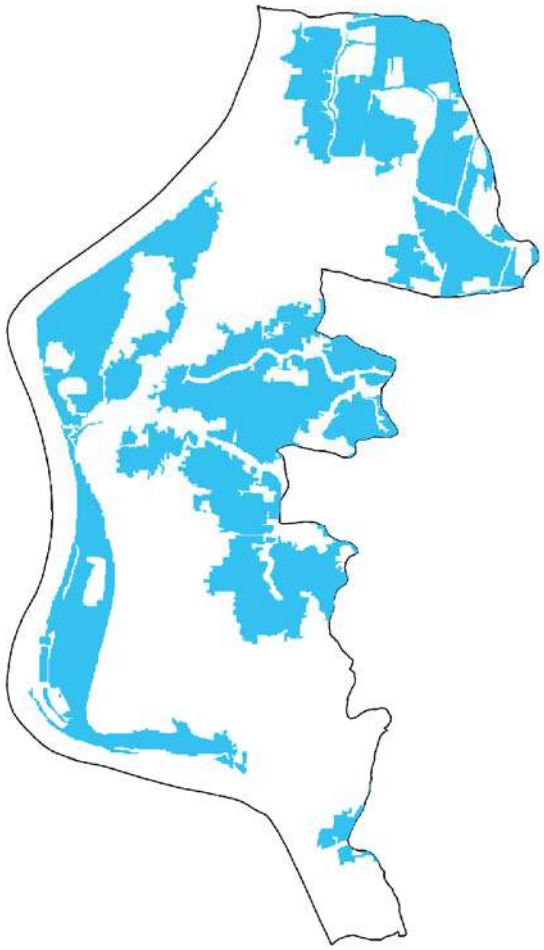


Upazila Name	Total area (ha)	16th March 2017		1st December 2017	
		Agriculture (ha)	Gher (ha)	Agriculture (ha)	Gher (ha)
Debhata	17548	2387	8919	1655	10451

Debhata

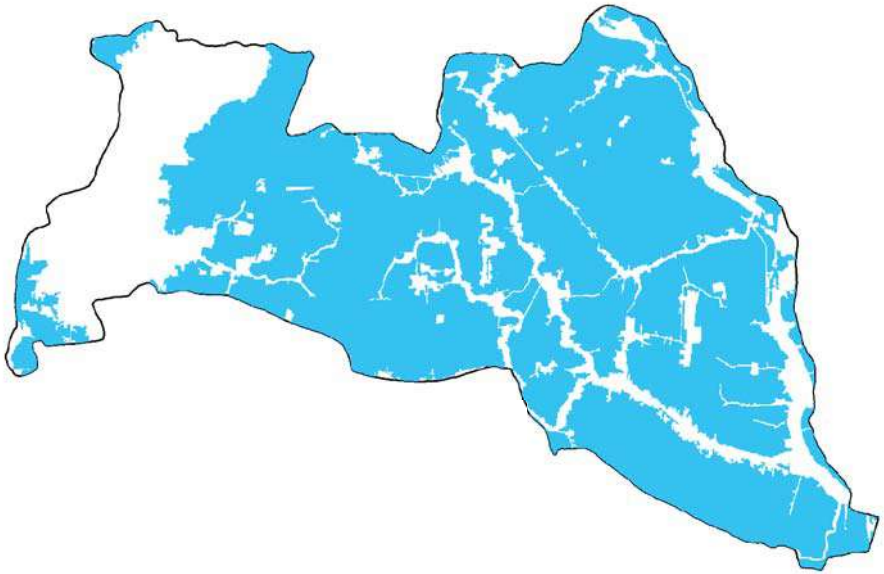


December, 2017: Total Gher area: 479 hectare

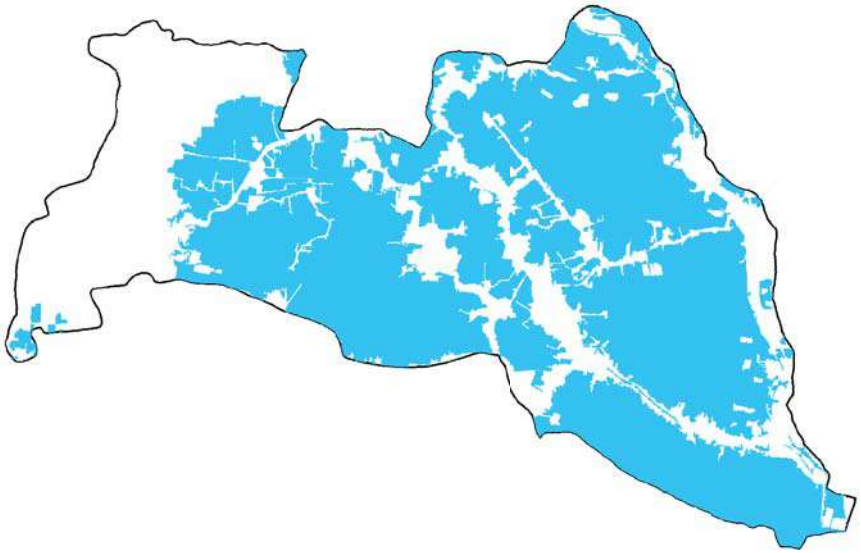


March, 2017: Total Gher area: 738 hectare

Kulia

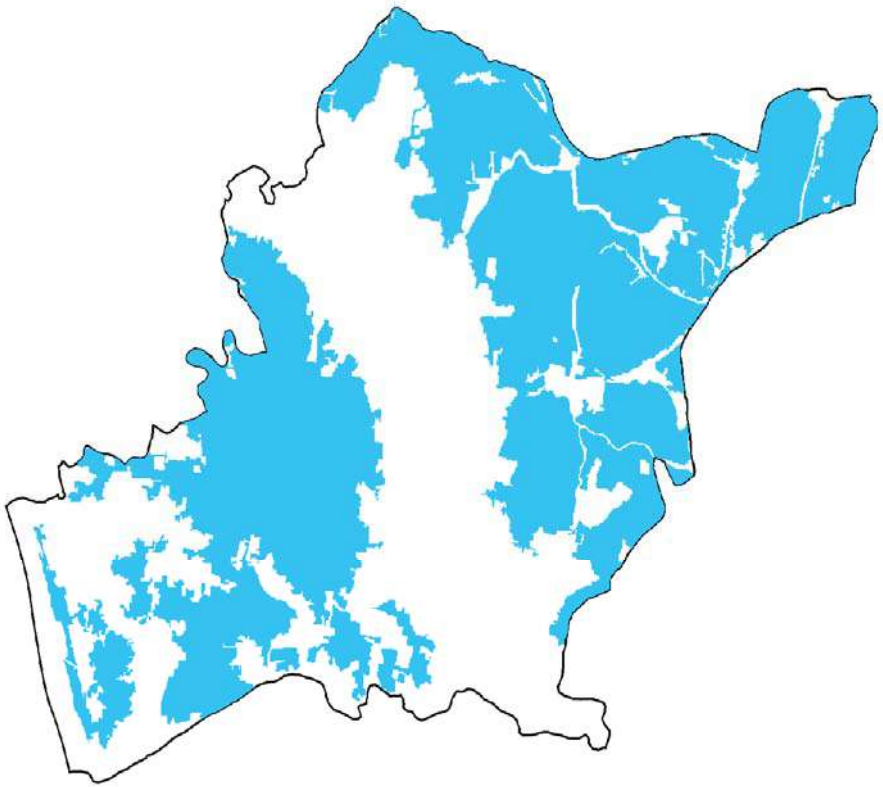


December, 2017: Total Gher area: 4141 hectare

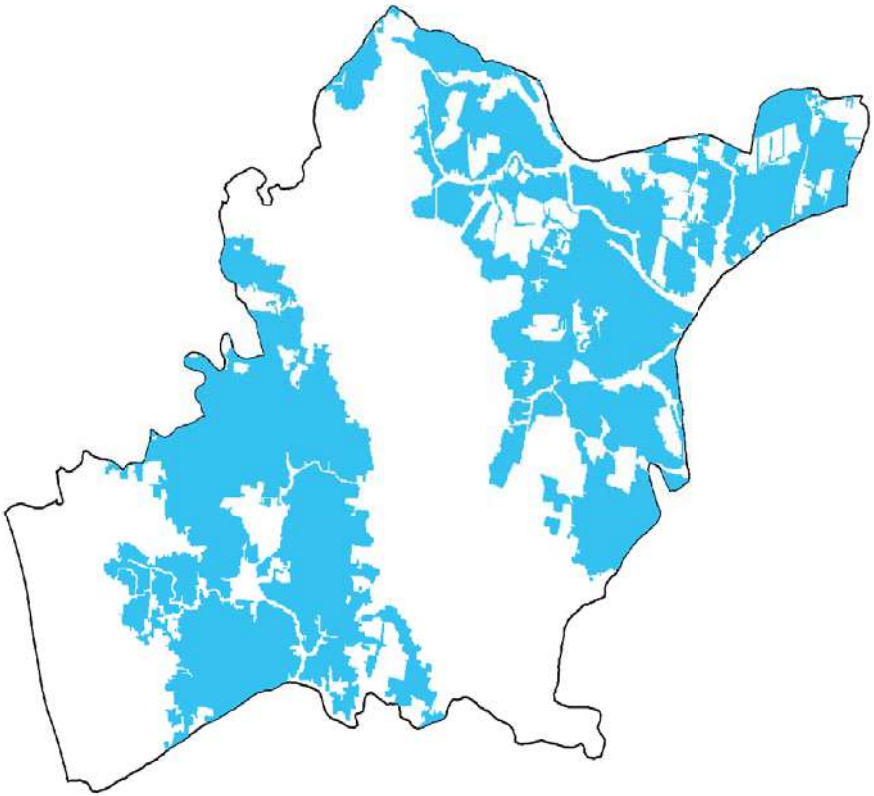


March, 2017: Total Gher area: 3658 hectare

Noapara

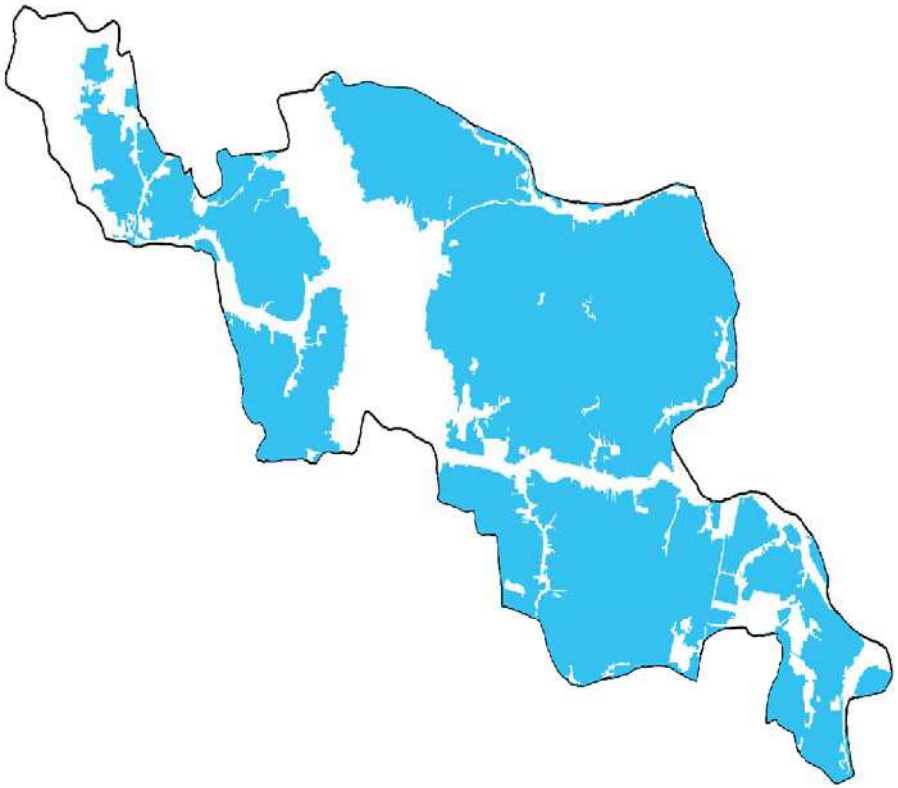


December, 2017: Total Gher area: 1944 hectare

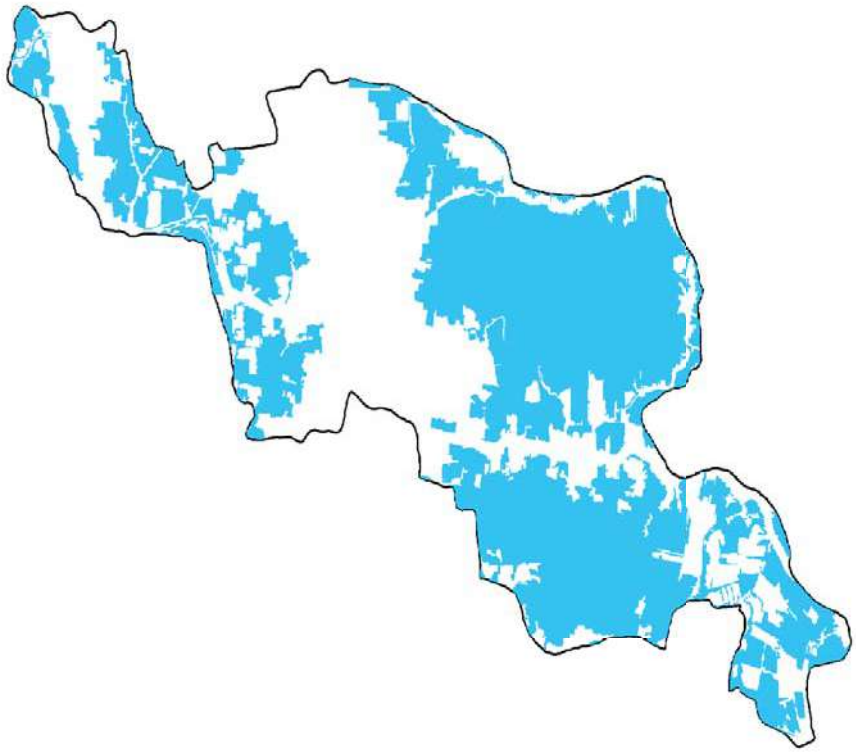


March, 2017: Total Gher area: 1542 hectare

Parulia

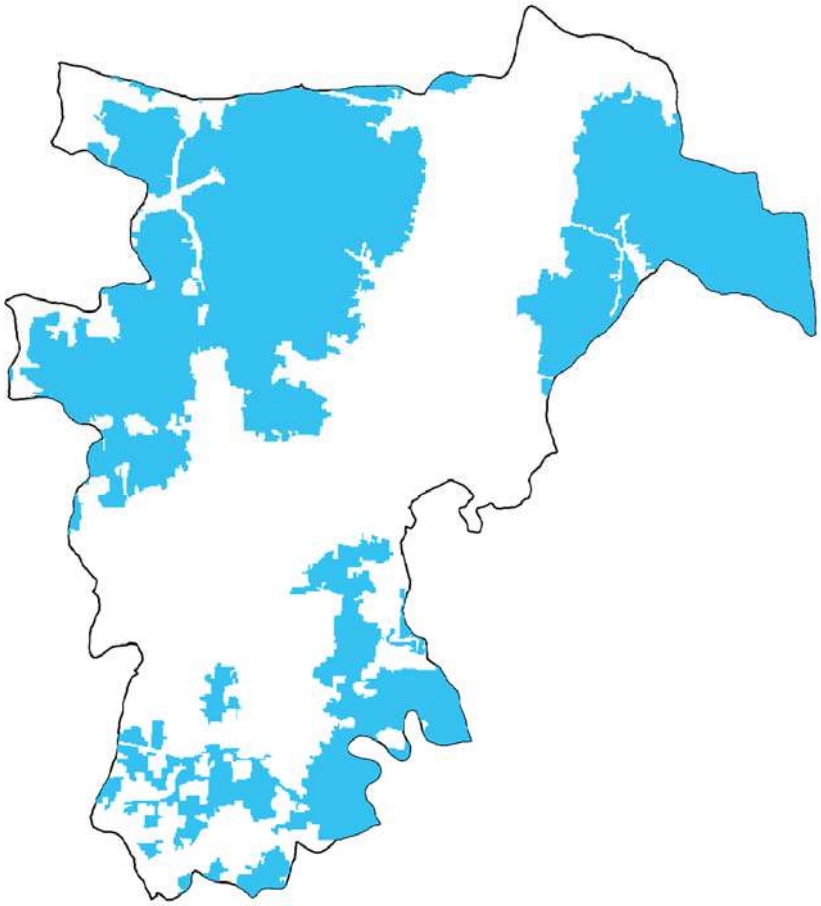


December, 2017: Total Gher area: 3083 hectare

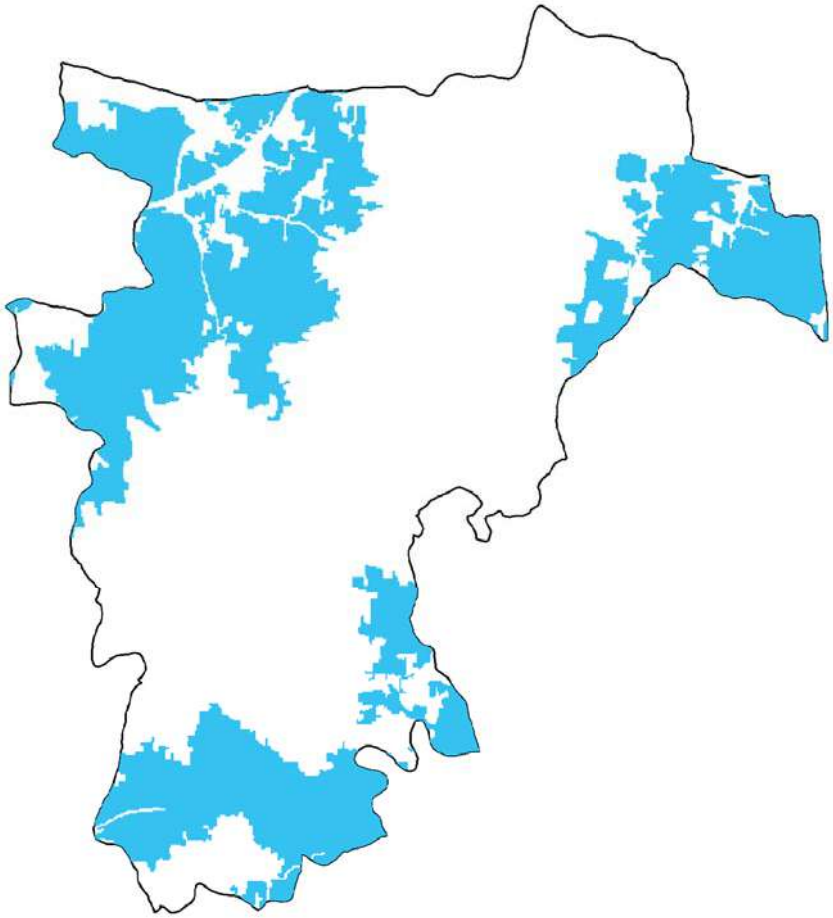


March, 2017: Total Gher area: 2387 hectare

Sakhipur



December, 2017: Total Gher area: 800 hectare

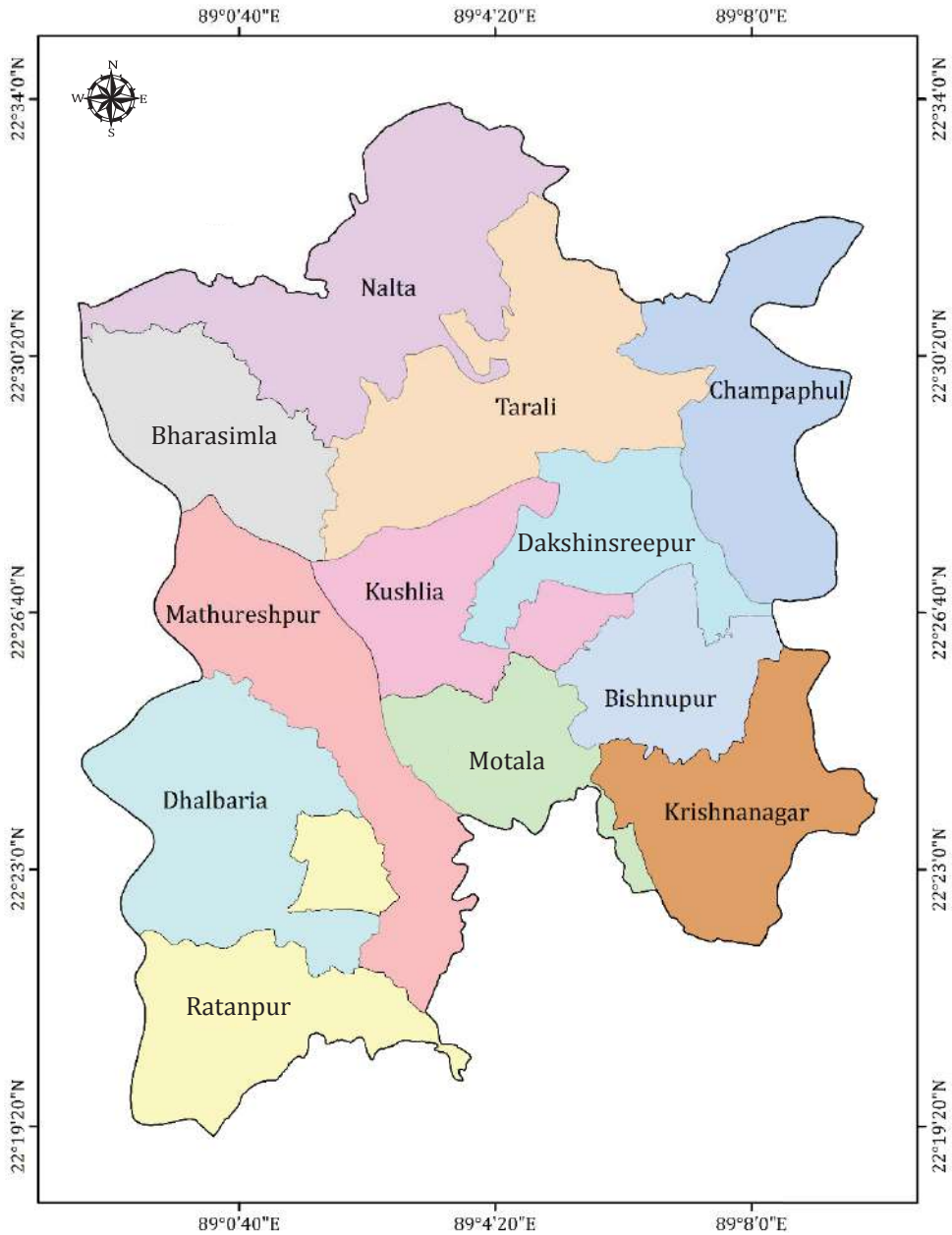


March, 2017: Total Gher area: 588 hectare

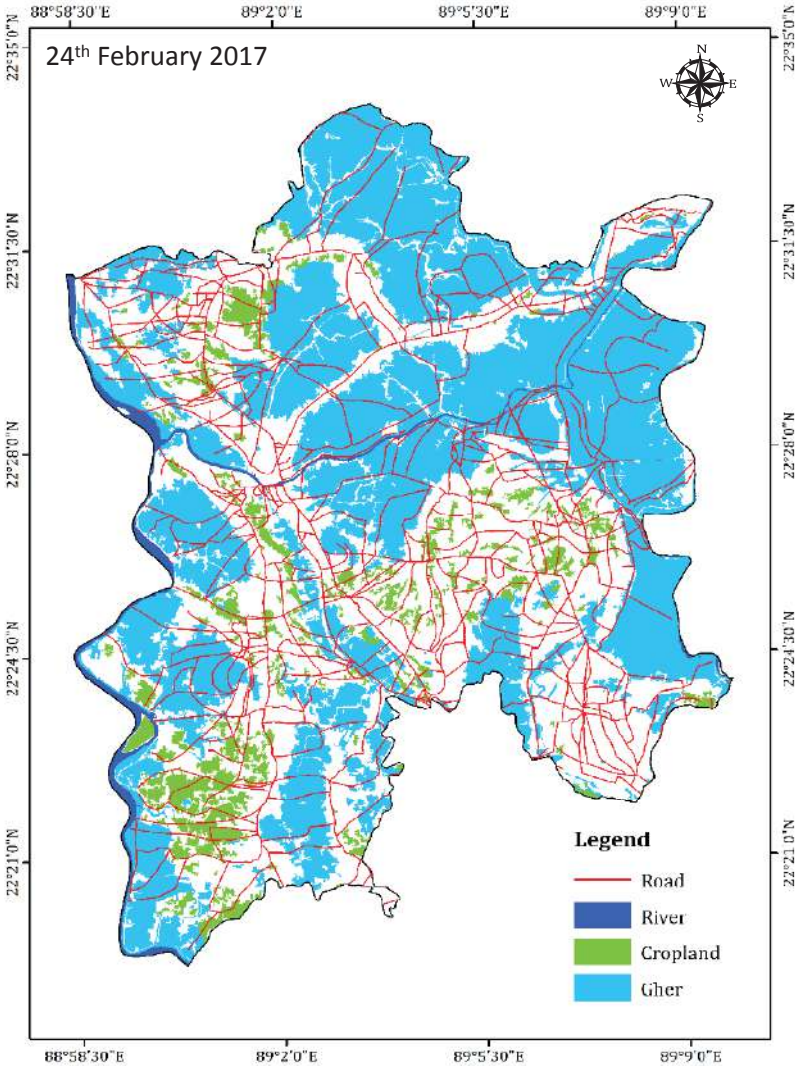
Satkhira District

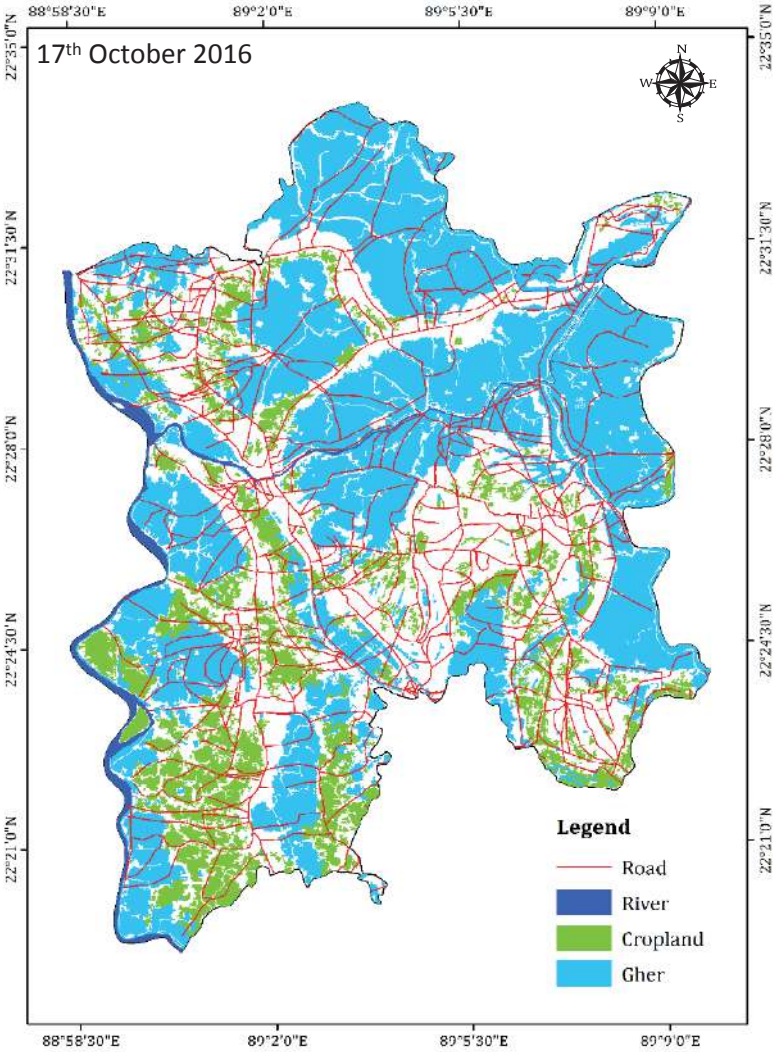
GIS based Gher map of Unions of Kaliganj Upazila

Map of Kaliganj Upazila with Unions



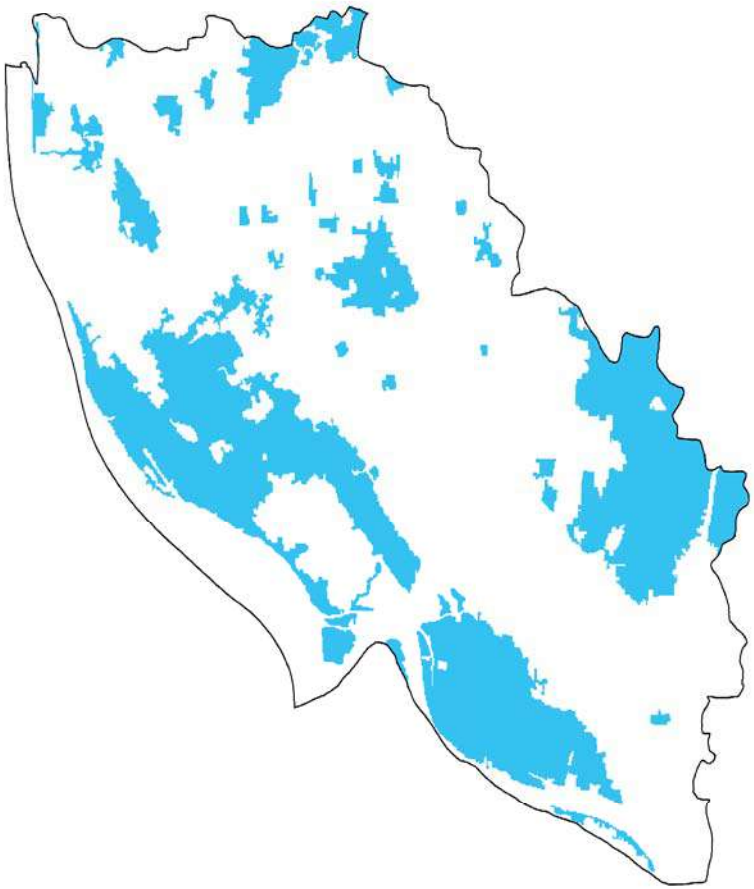
GIS map of Kaliganj Upazila with Gher and Crop area



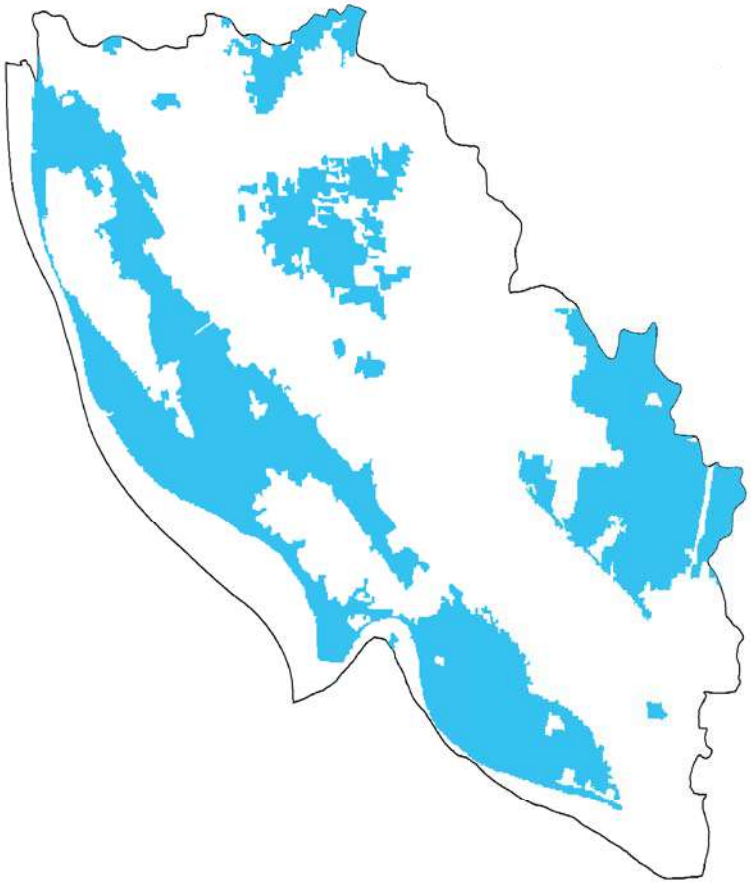


Upazila Name	Total area (ha)	24th February 2017		17th October 2016	
		Agriculture (ha)	Gher (ha)	Agriculture (ha)	Gher (ha)
Kaliganj	32735	2215	15747	5000	15030

Bharasimla



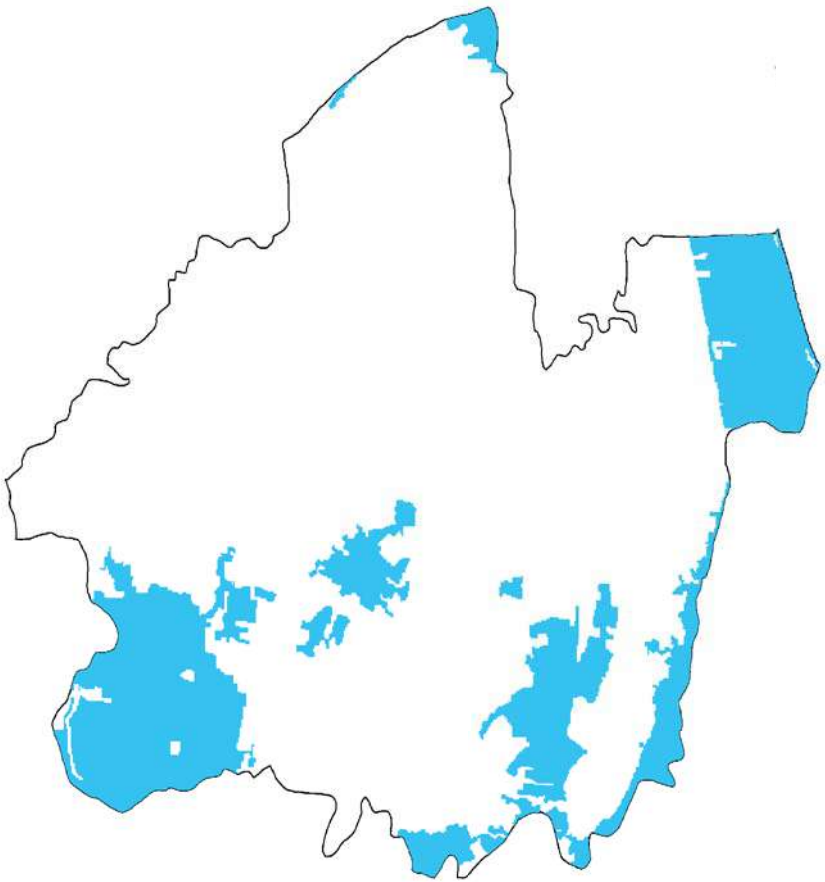
October, 2016: Total Gher area: 618 hectare



February, 2017: Total Gher area: 735 hectare

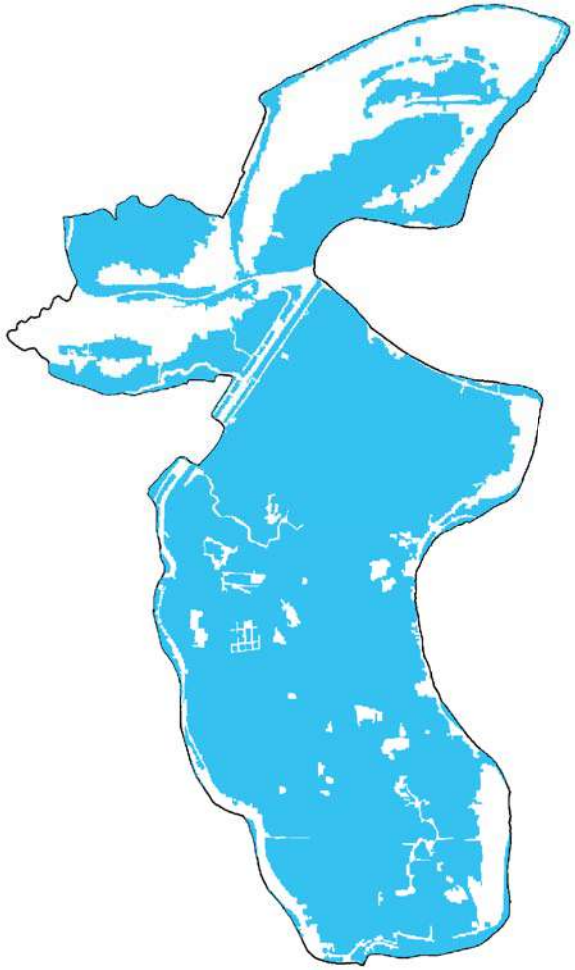
Bishnupur

October, 2016: Total Gher area: 316 hectare

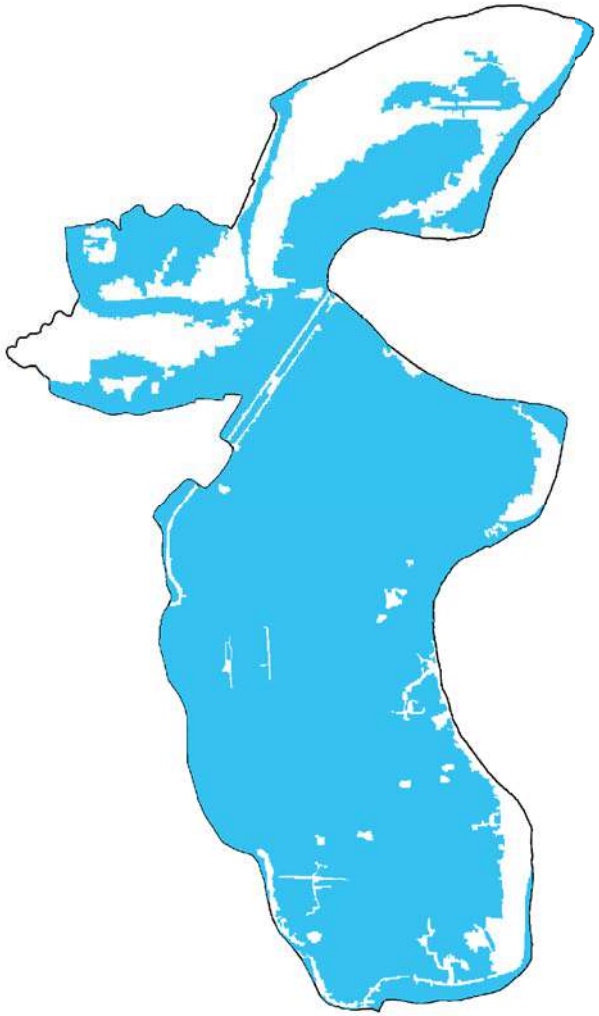


February, 2017: Total Gher area: 336 hectare

Champaphul

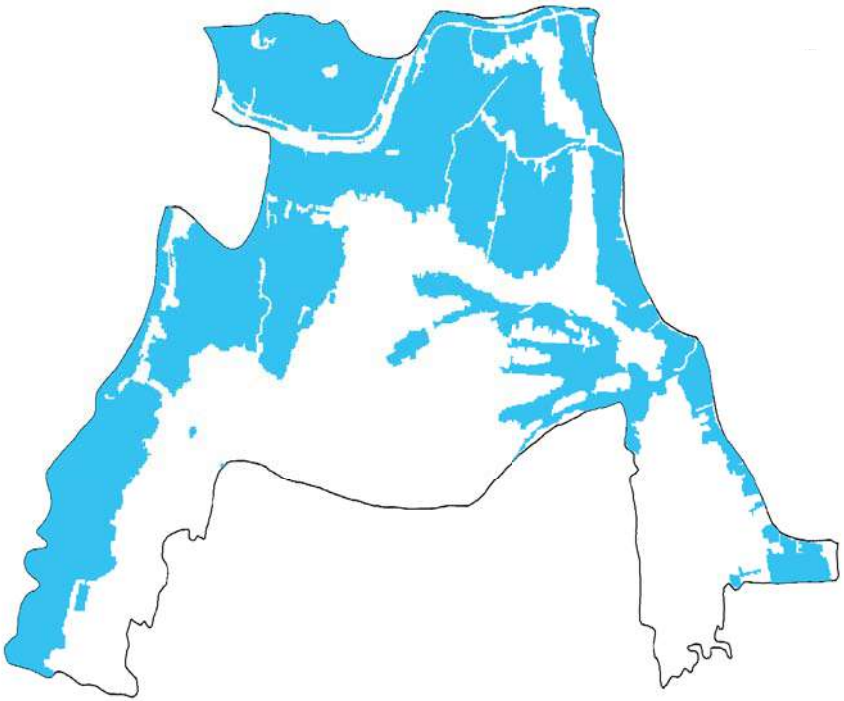


October, 2016: Total Gher area: 2205 hectare

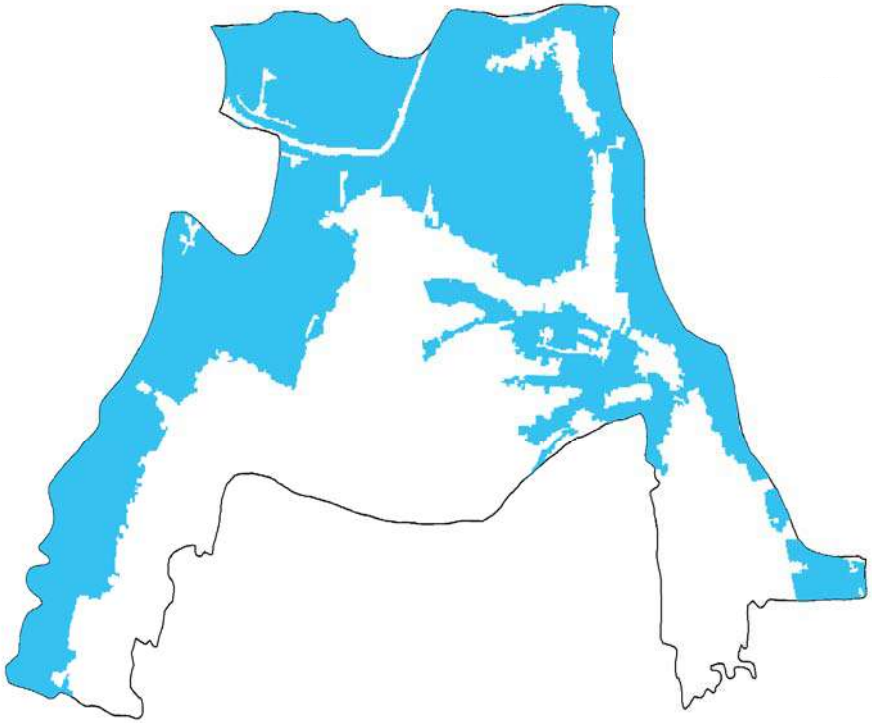


February, 2017: Total Gher area: 2296 hectare

Dakshinsreepur

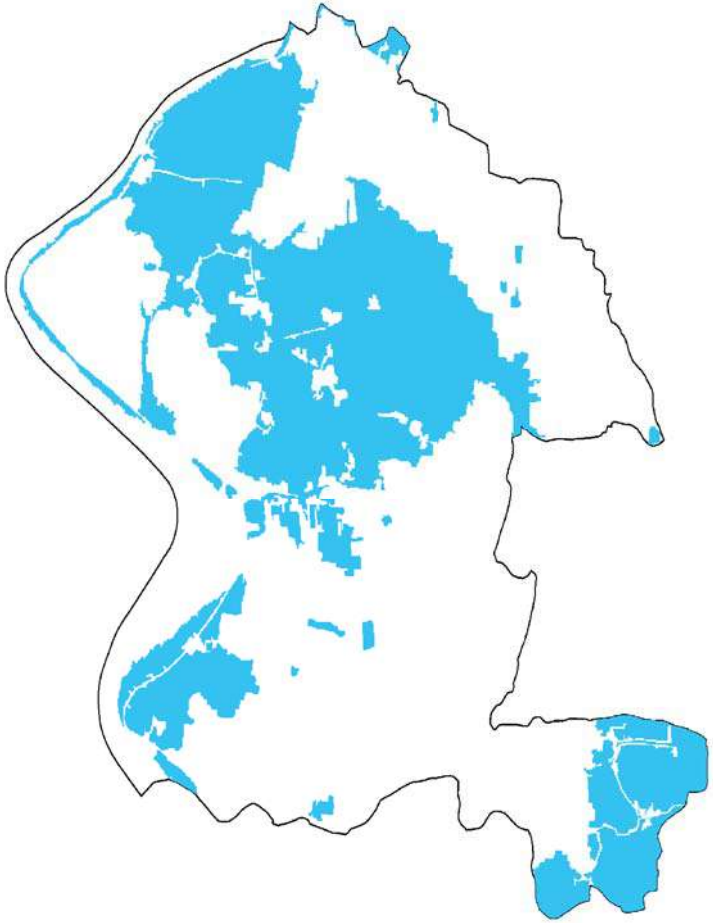


October, 2016: Total Gher area: 908 hectare

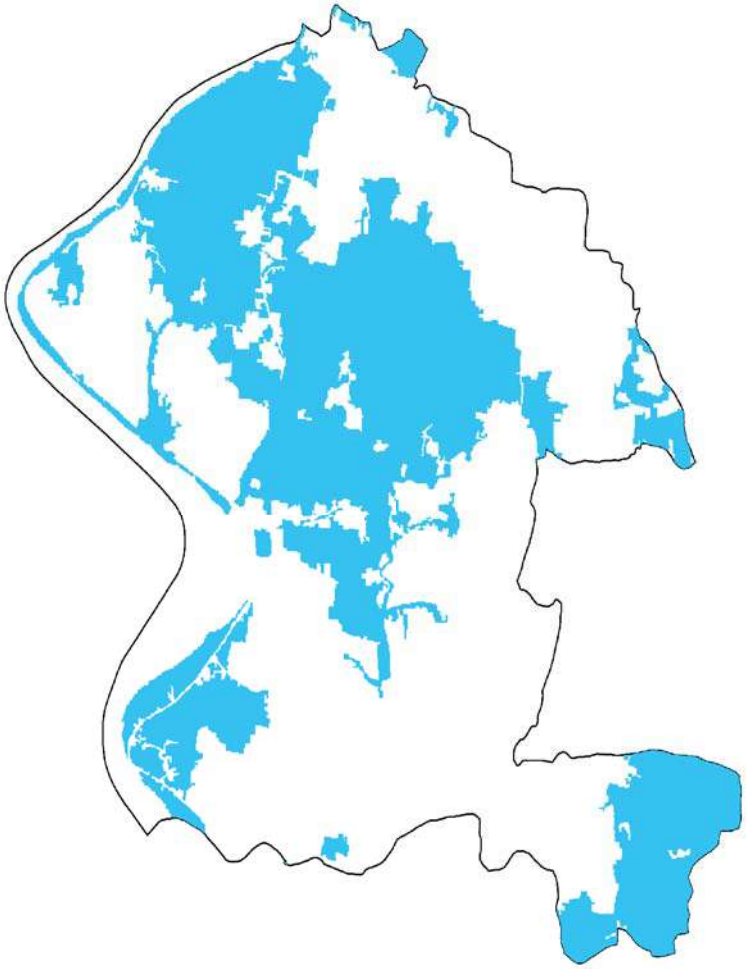


February, 2017: Total Gher area: 980 hectare

Dhalbaria

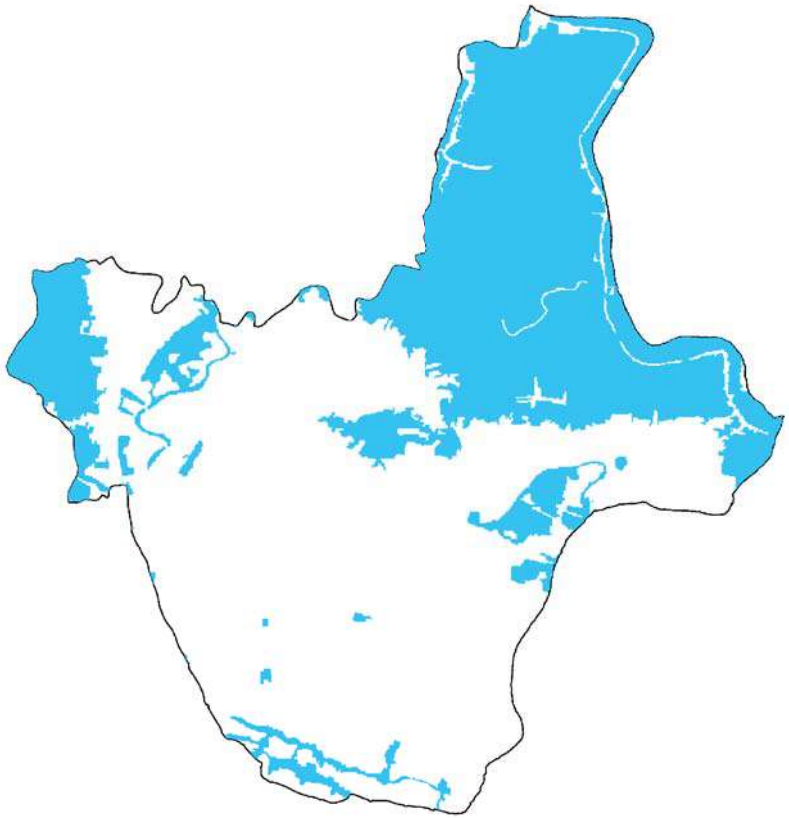


October, 2016: Total Gher area: 1122 hectare

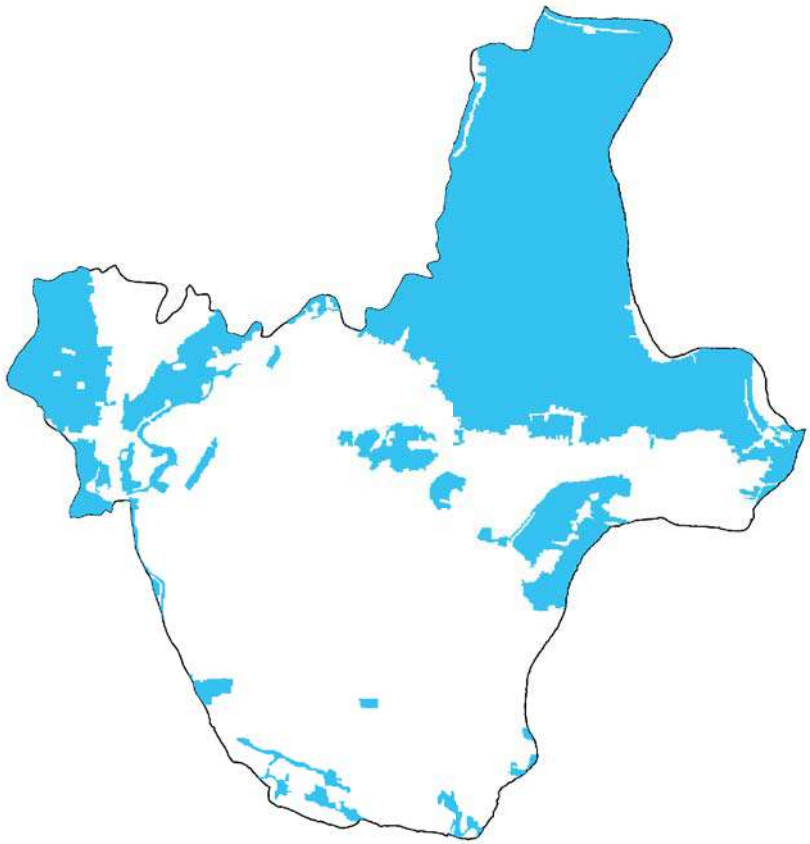


February, 2017: Total Gher area: 1265 hectare

Krishnanagar

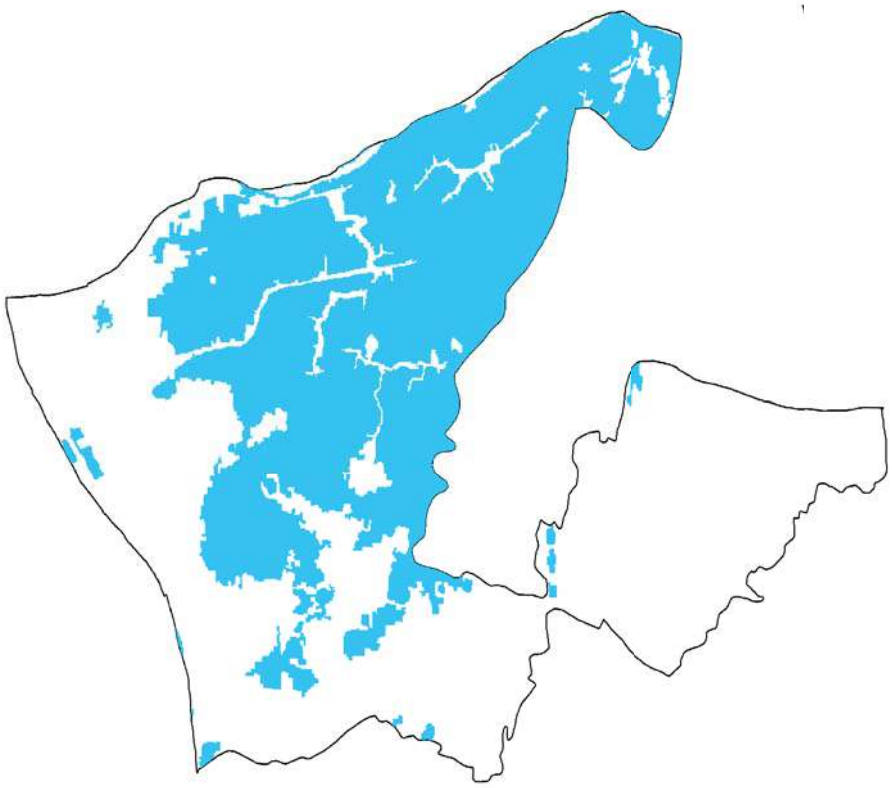


October, 2016: Total Gher area: 997 hectare

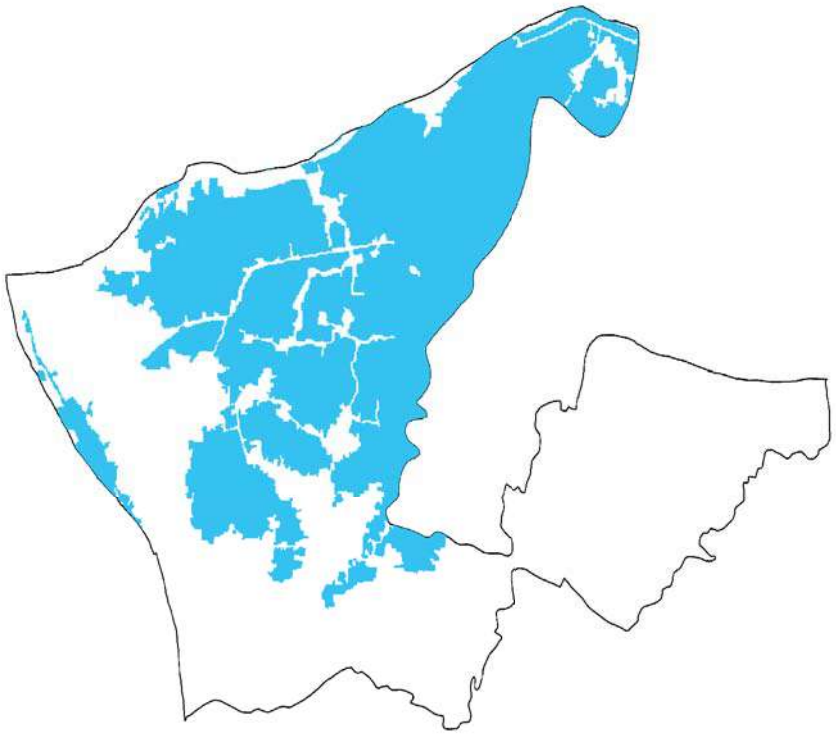


February, 2017: Total Gher area: 1050 hectare

Kushlia

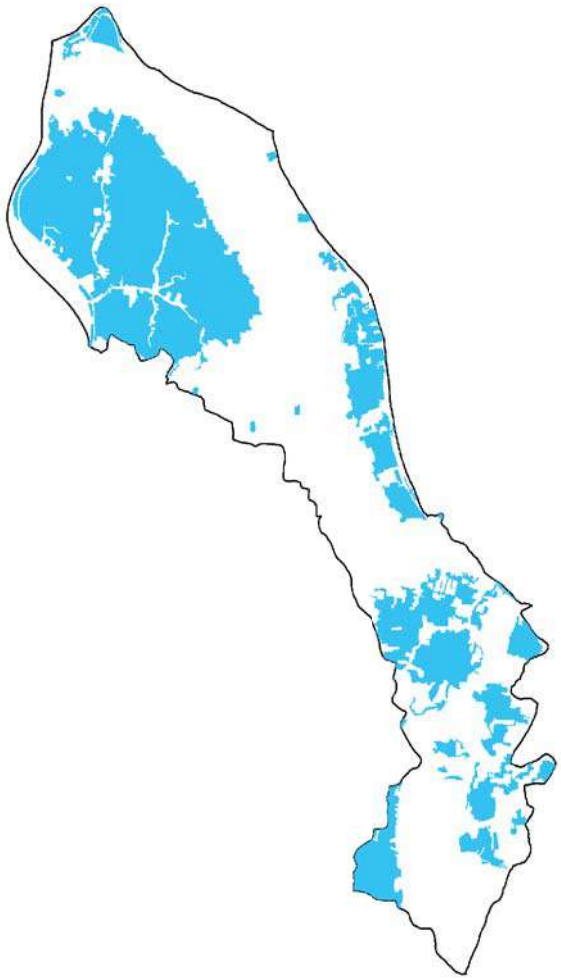


October, 2016: Total Gher area: 921 hectare

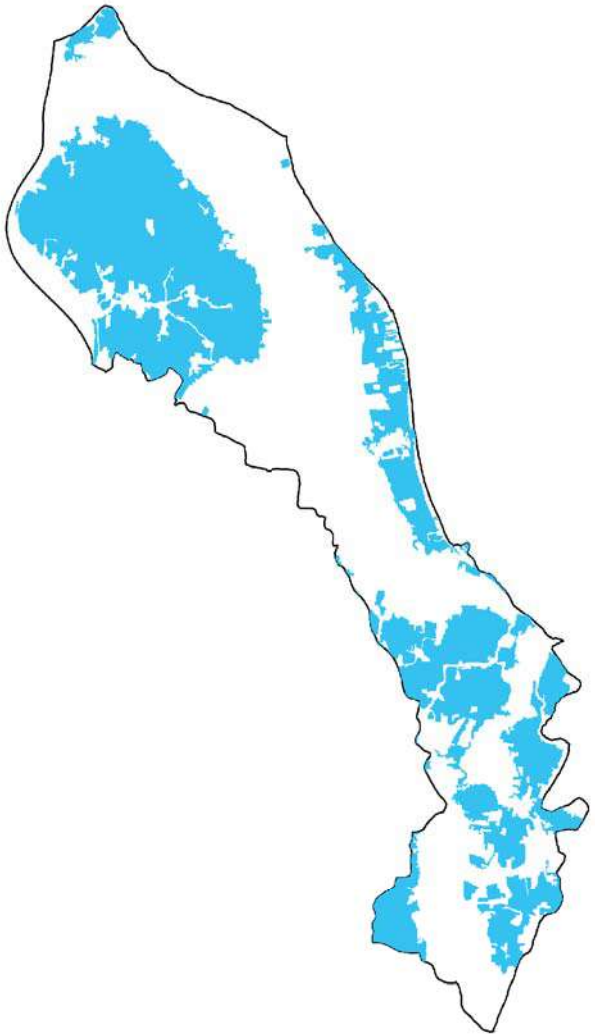


February, 2017: Total Gher area: 904 hectare

Mathureshpur

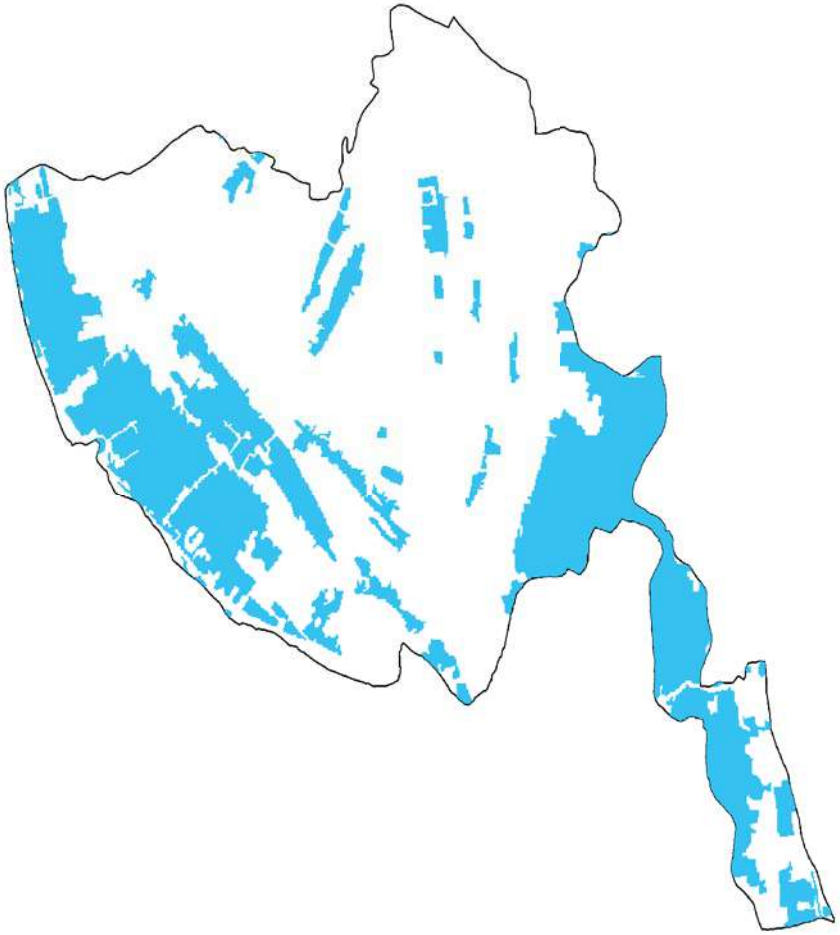


October, 2016: Total Gher area: 1175 hectare

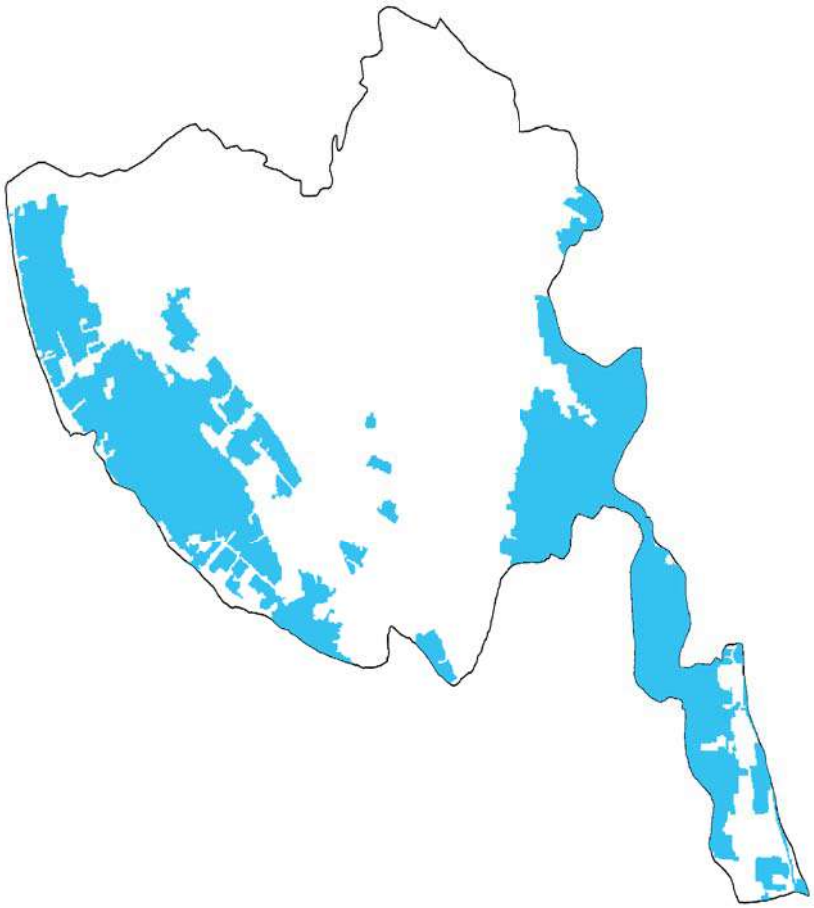


February, 2017: Total Gher area: 1315 hectare

Motala

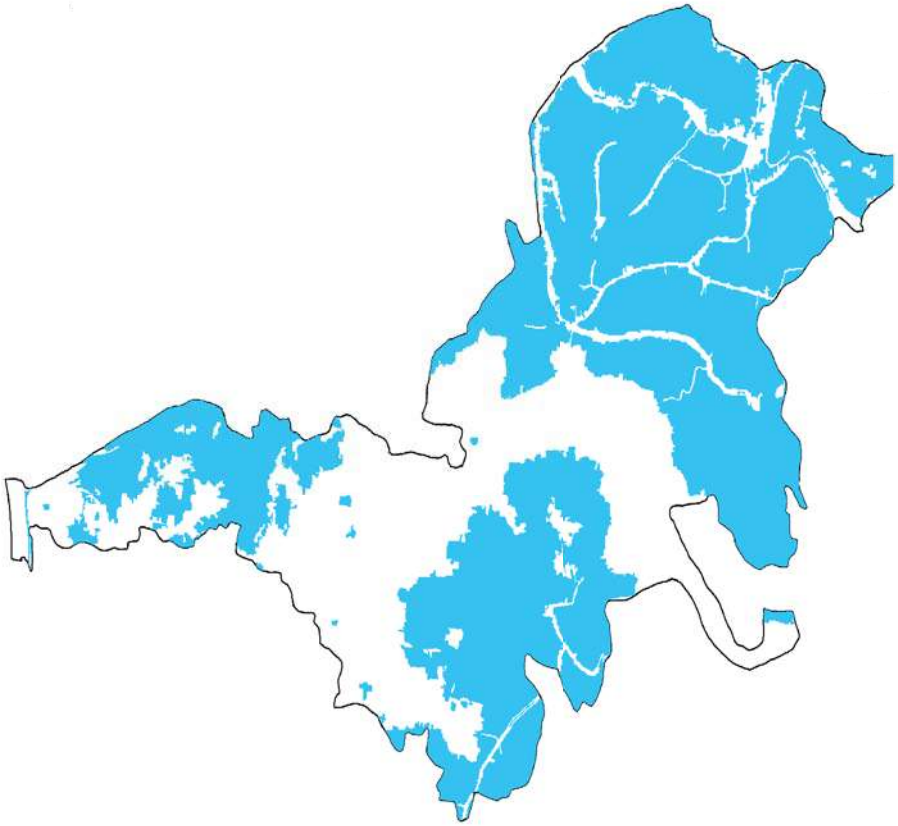


October, 2016: Total Gher area: 511 hectare

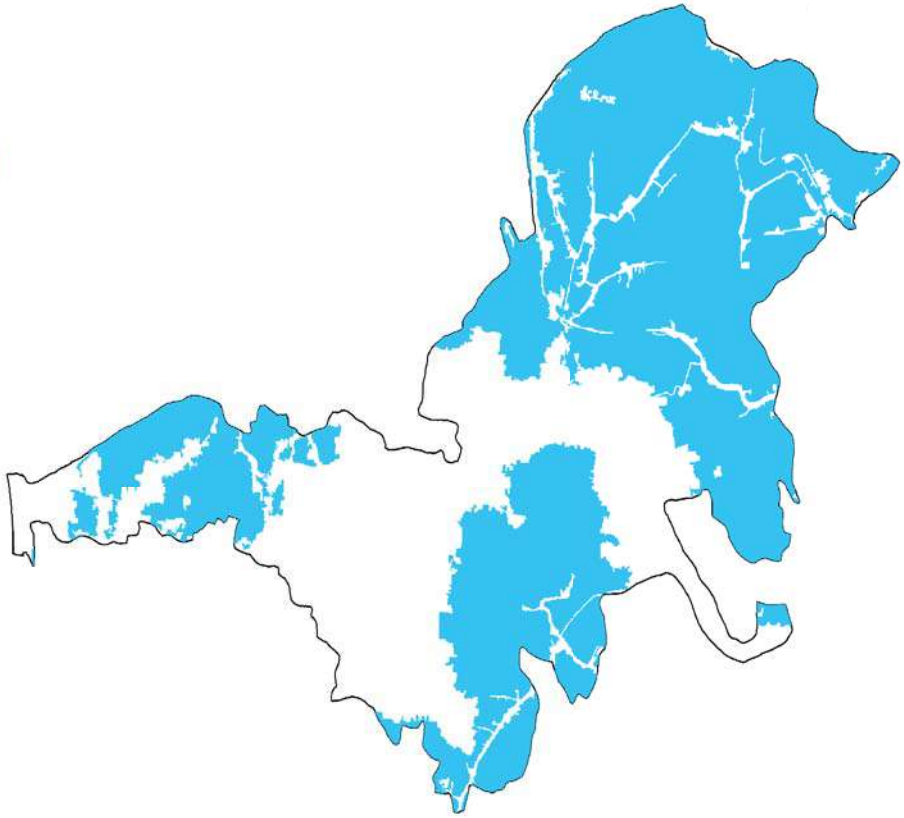


February, 2017: Total Gher area: 488 hectare

Nalta

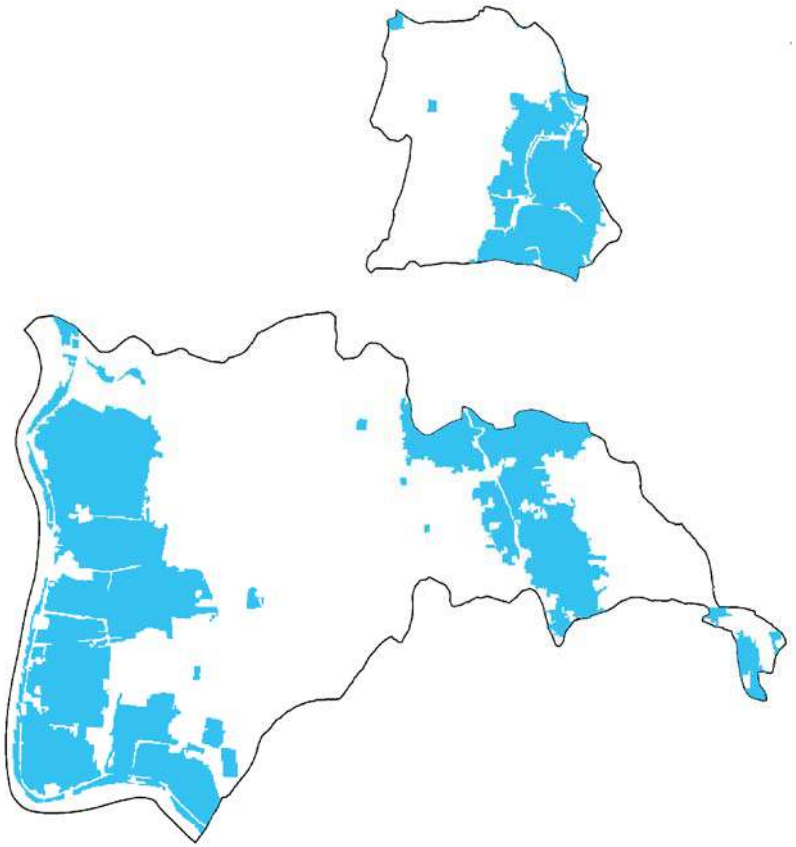


October, 2016: Total Gher area: 2565 hectare

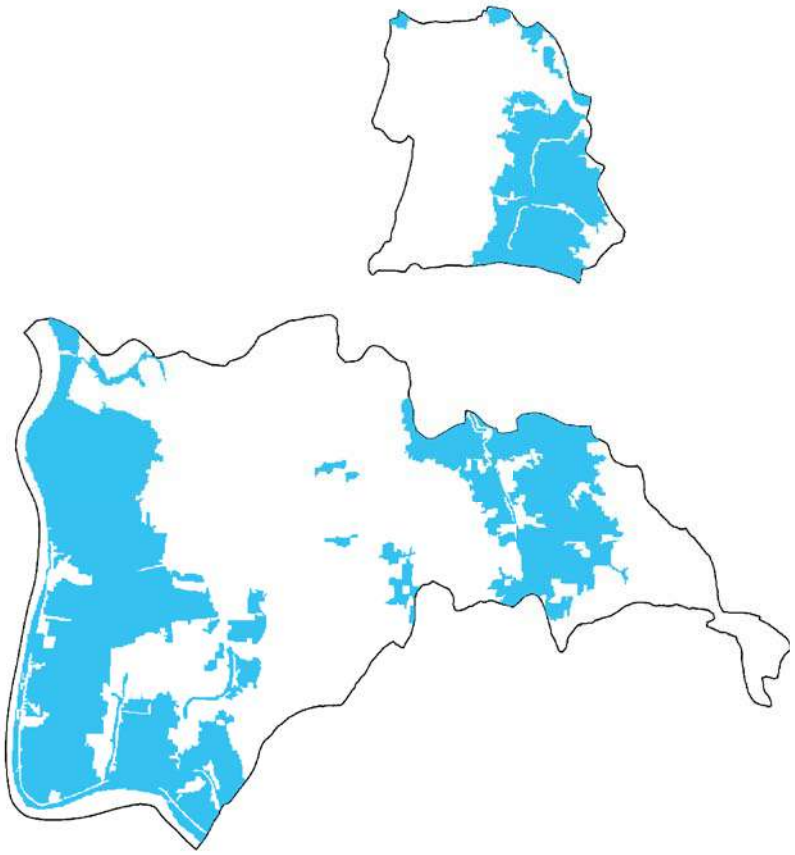


February, 2017: Total Gher area: 2489 hectare

Ratanpur

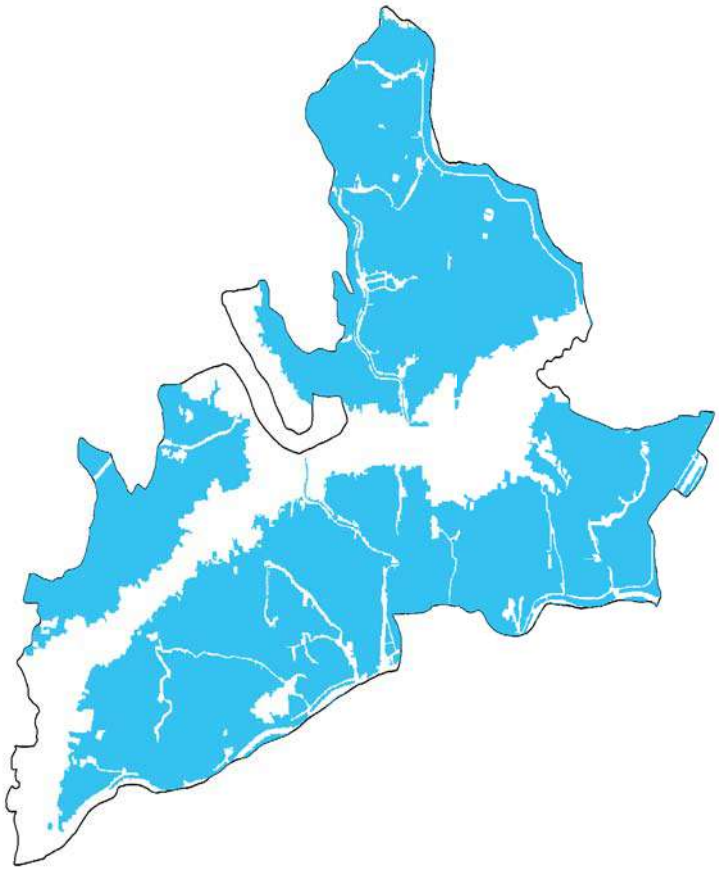


October, 2016: Total Gher area: 915 hectare

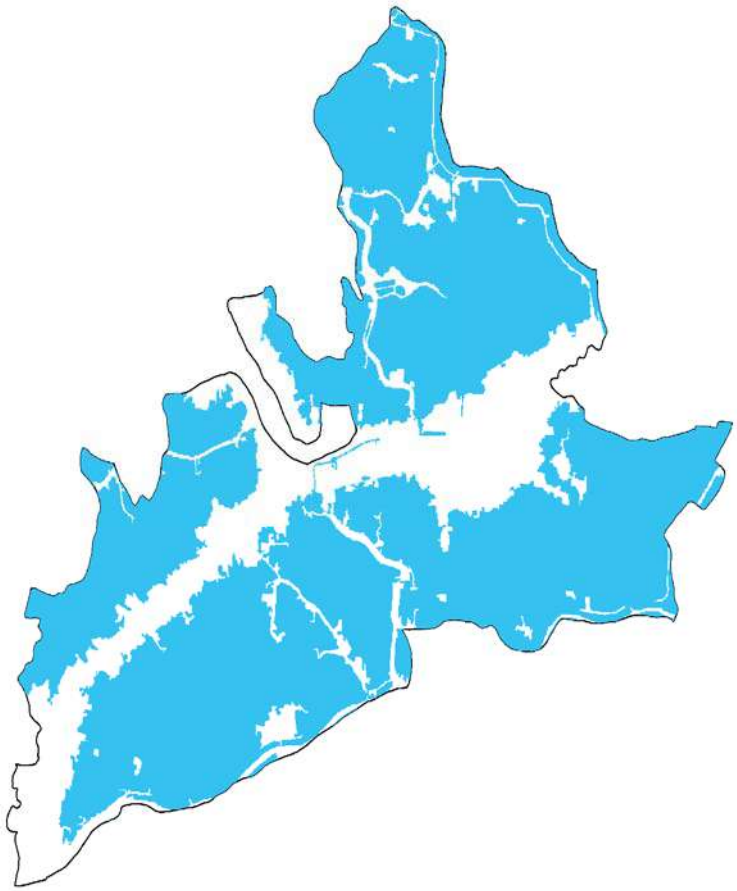


February, 2017: Total Gher area: 1022 hectare

Tarali



October, 2016: Total Gher area: 2771 hectare

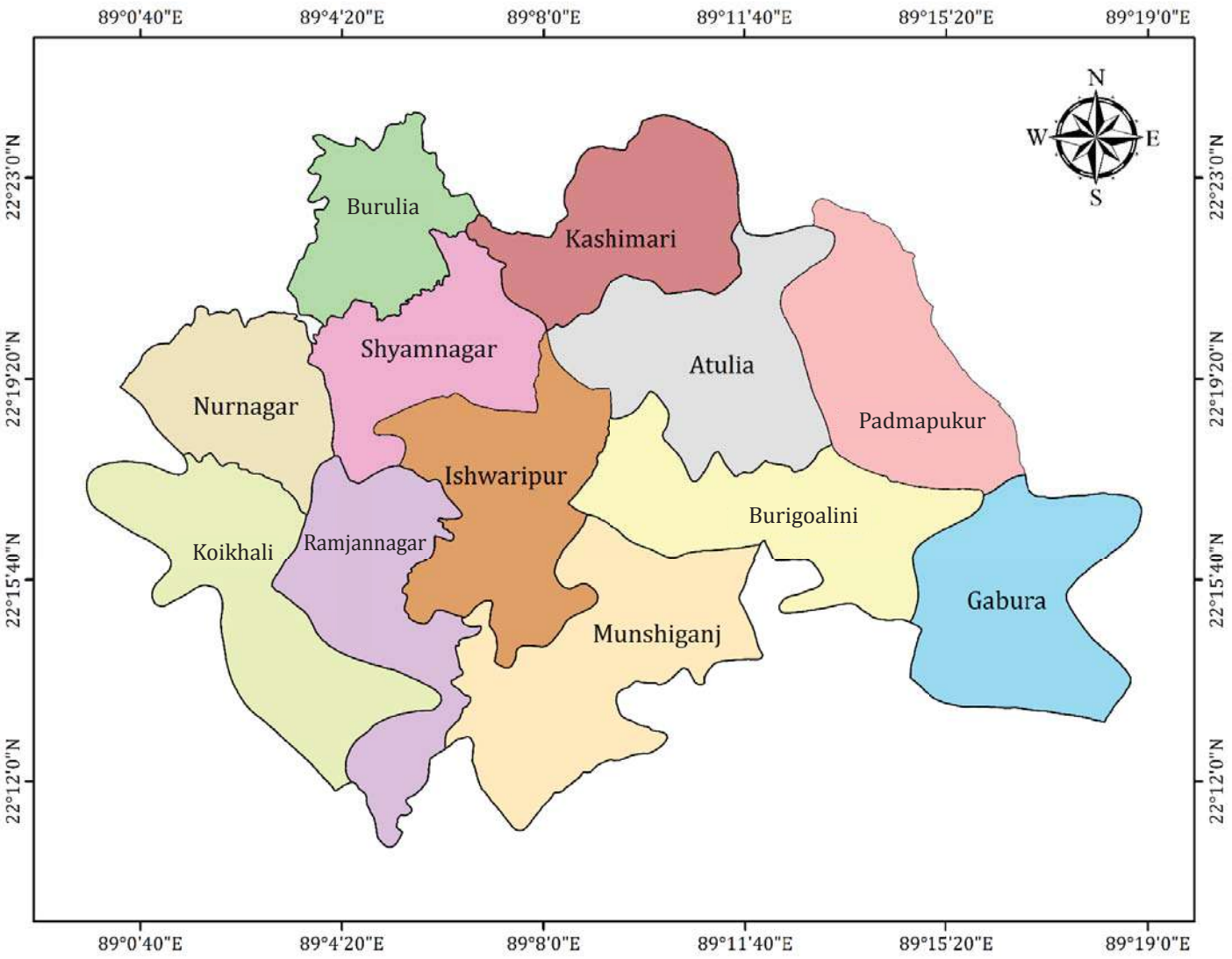


February, 2017: Total Gher area: 2860 hectare

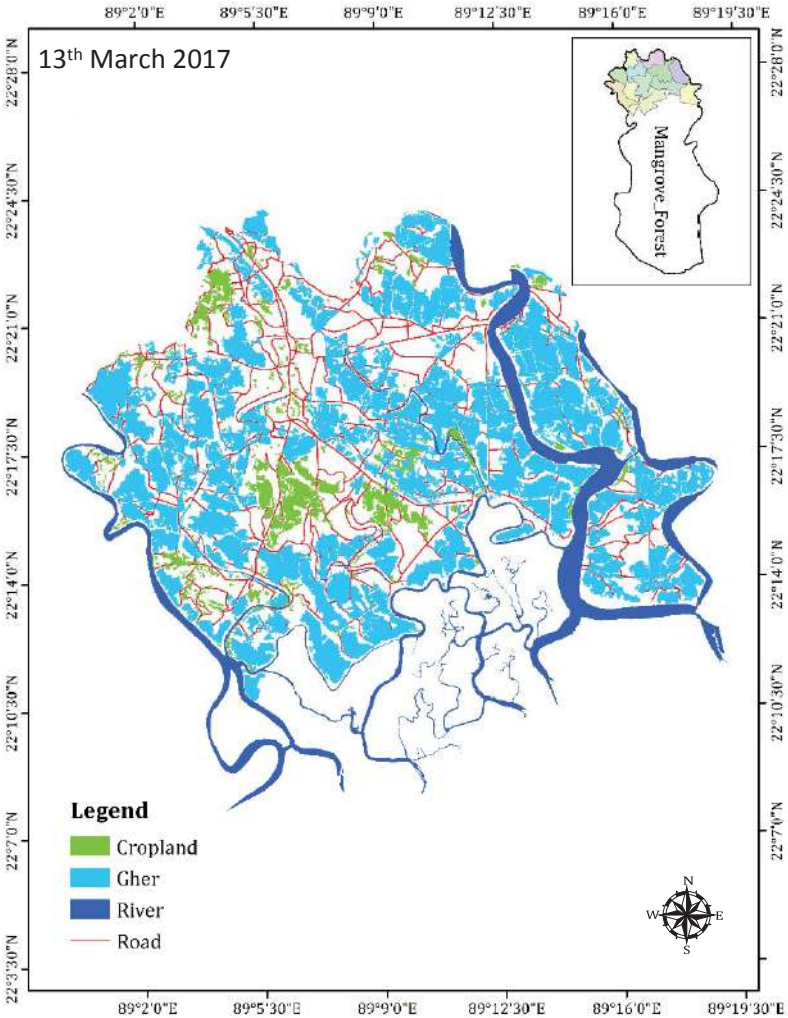
Satkhira District

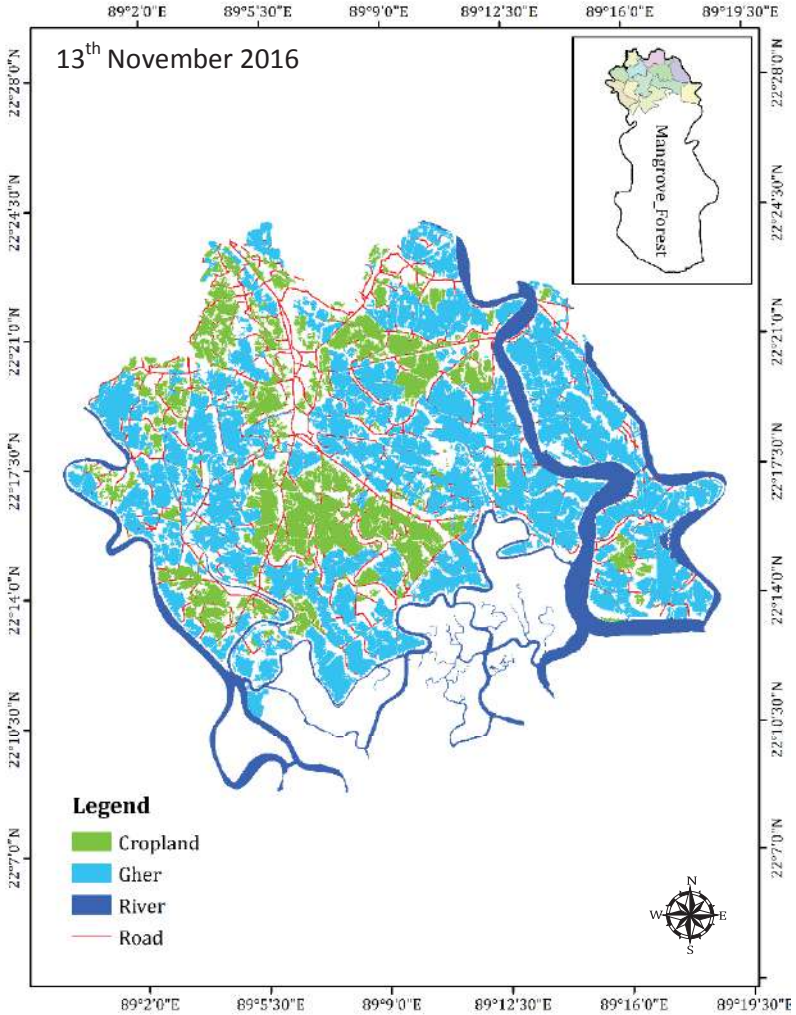
GIS based Gher map of Unions of Shyamnagar Upazila

Map of Shyamnagar Upazila with Unions



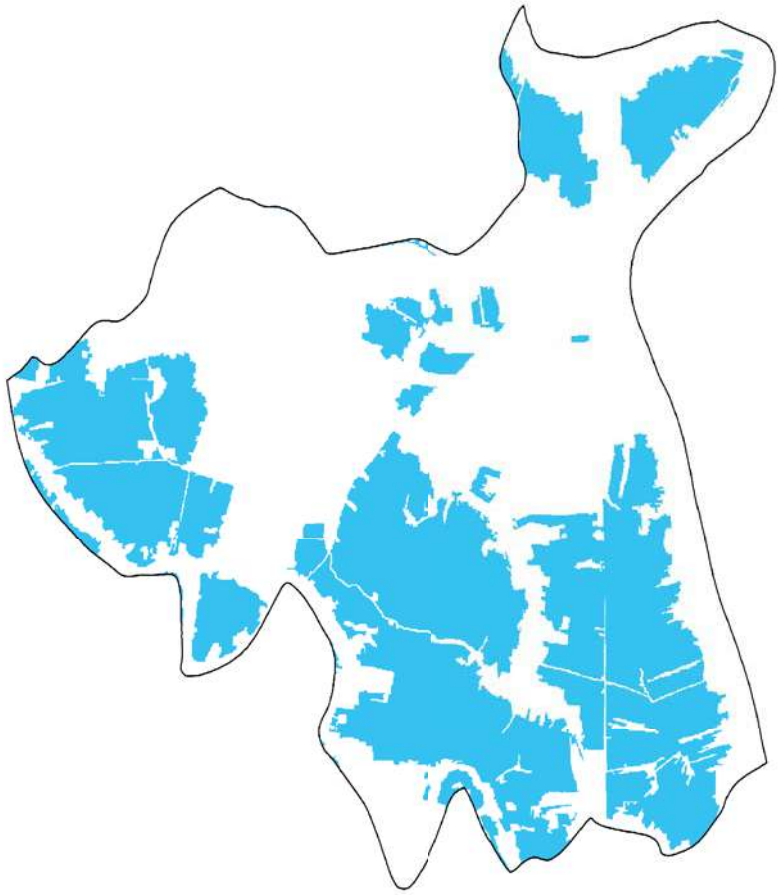
GIS map of Shyamnagar Upazila with Gher and Crop area



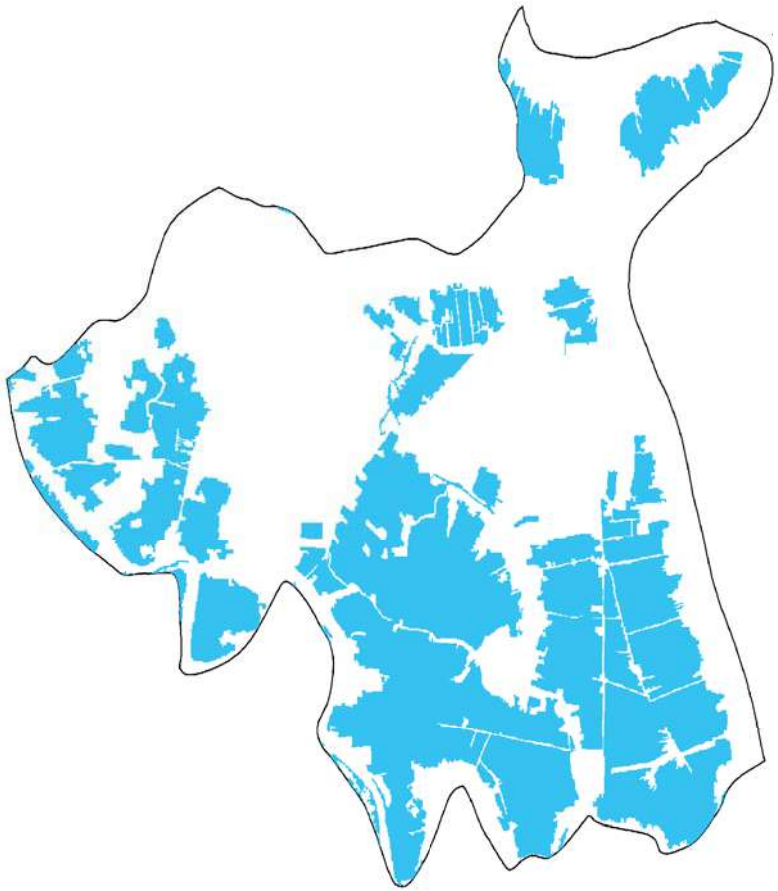


Upazila Name	Total area (ha)	13th March 2017		13th November 2016	
		Agriculture (ha)	Gher (ha)	Agriculture (ha)	Gher (ha)
Shyamnagar	205299	2493	18803	7471	18985

Atulia

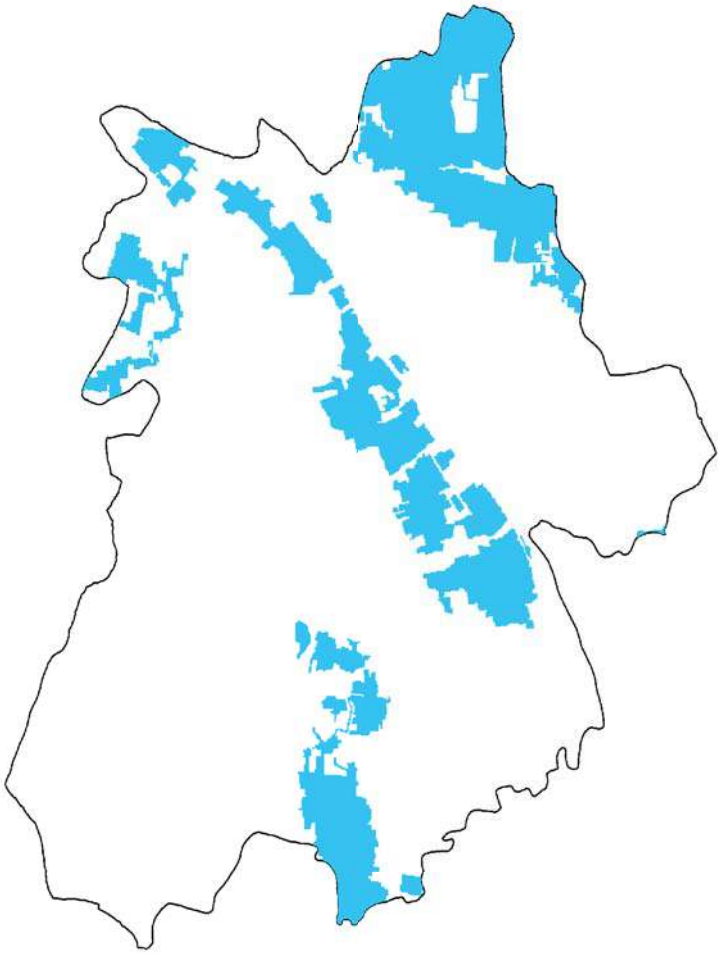


November, 2016: Total Gher area: 1729 hectare

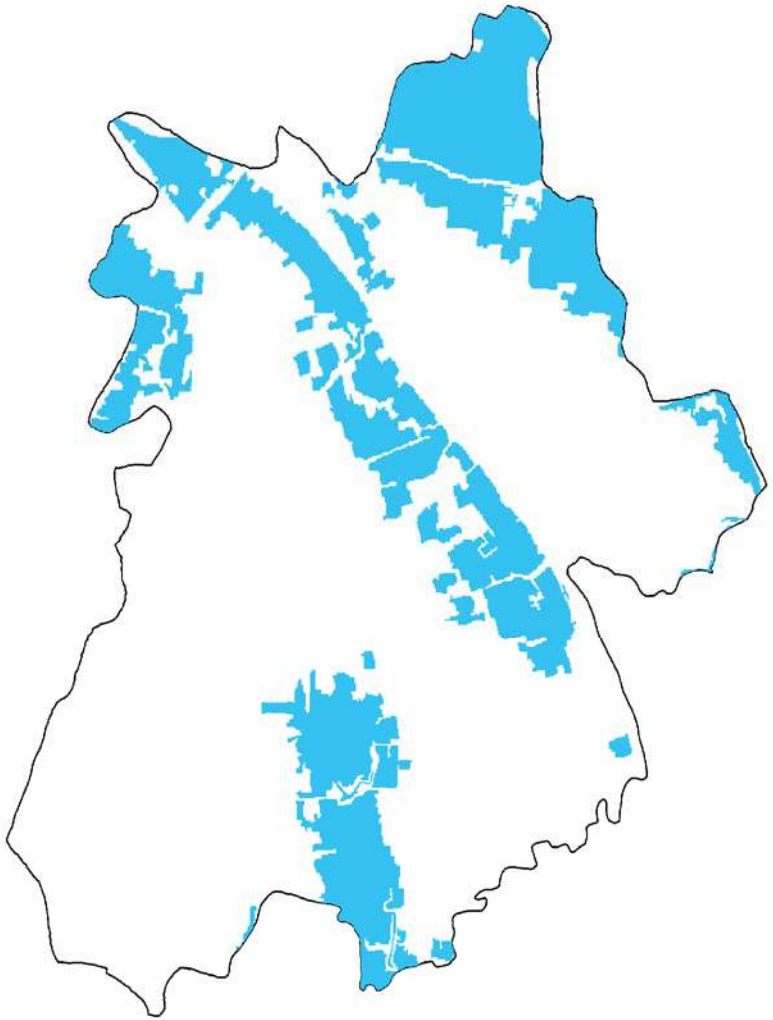


March, 2017: Total Gher area: 1648 hectare

Burulia

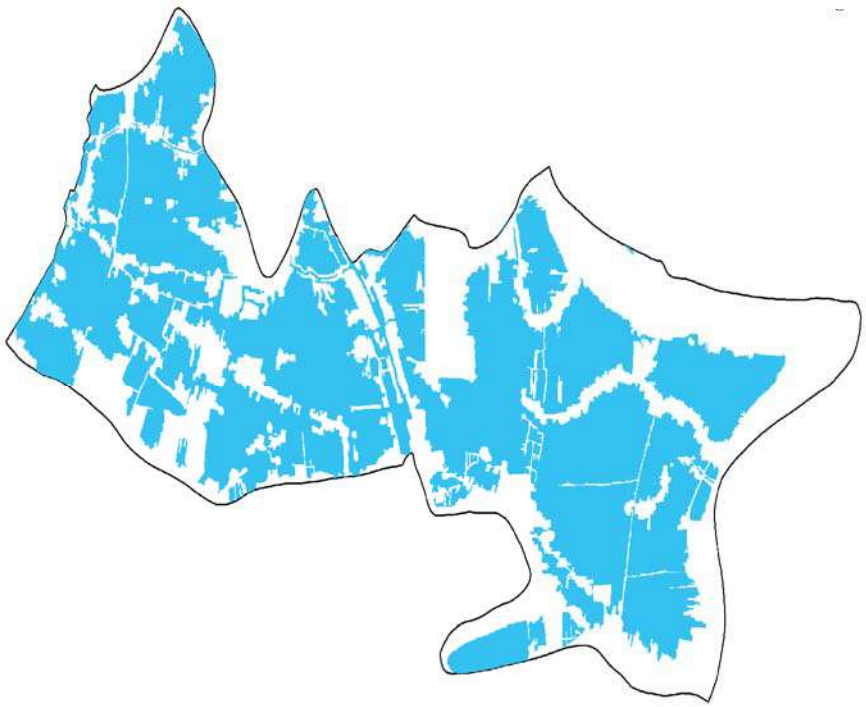


November, 2016: Total Gher area: 455 hectare

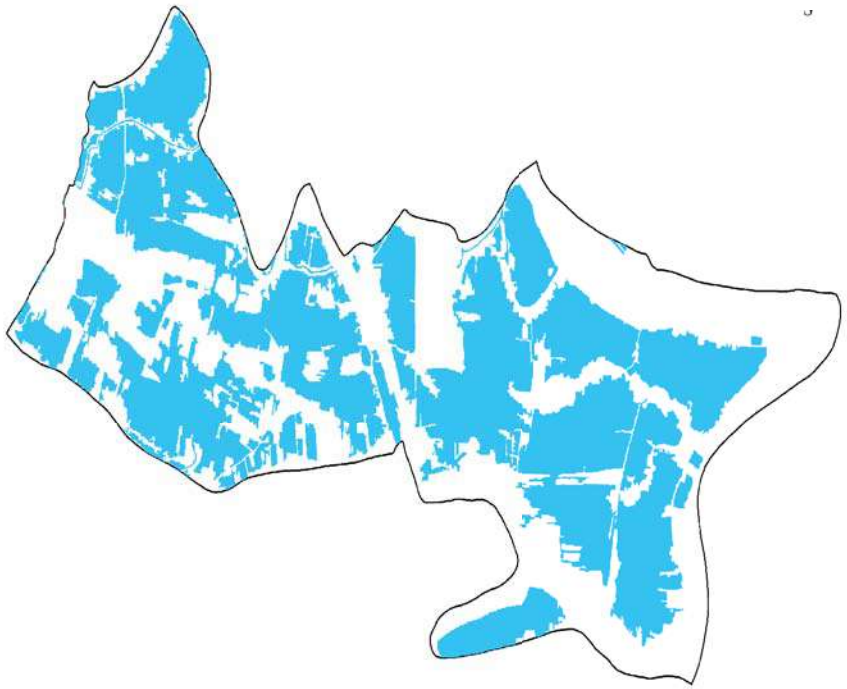


March, 2017: Total Gher area: 594 hectare

Burigoalini

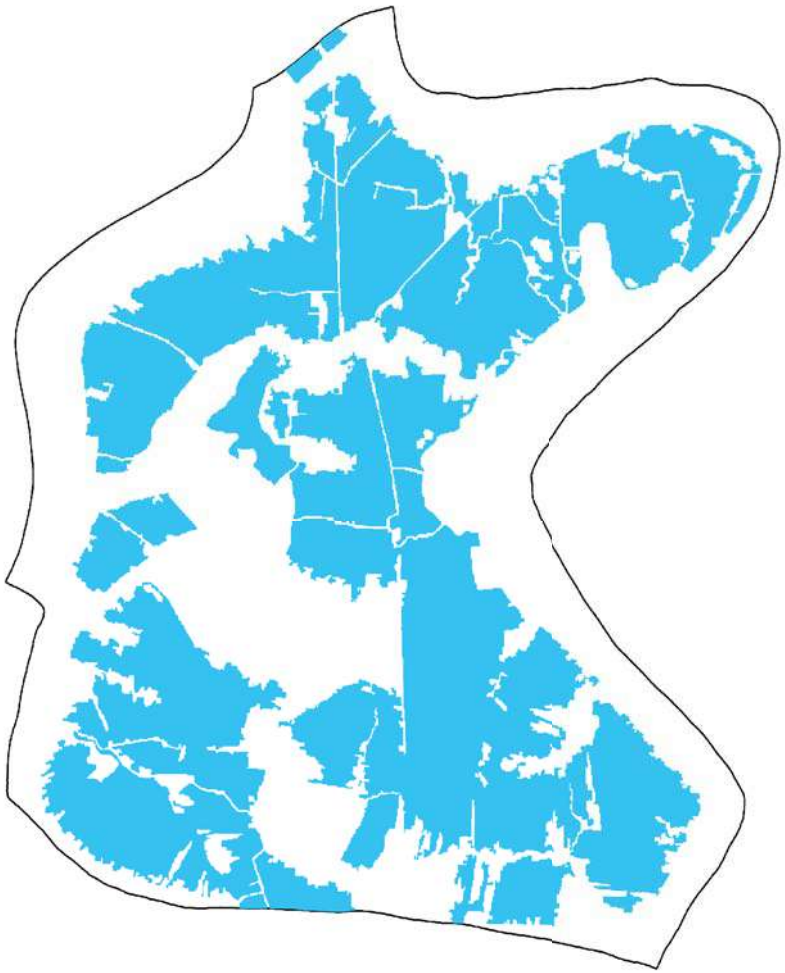


November, 2016: Total Gher area: 2485 hectare

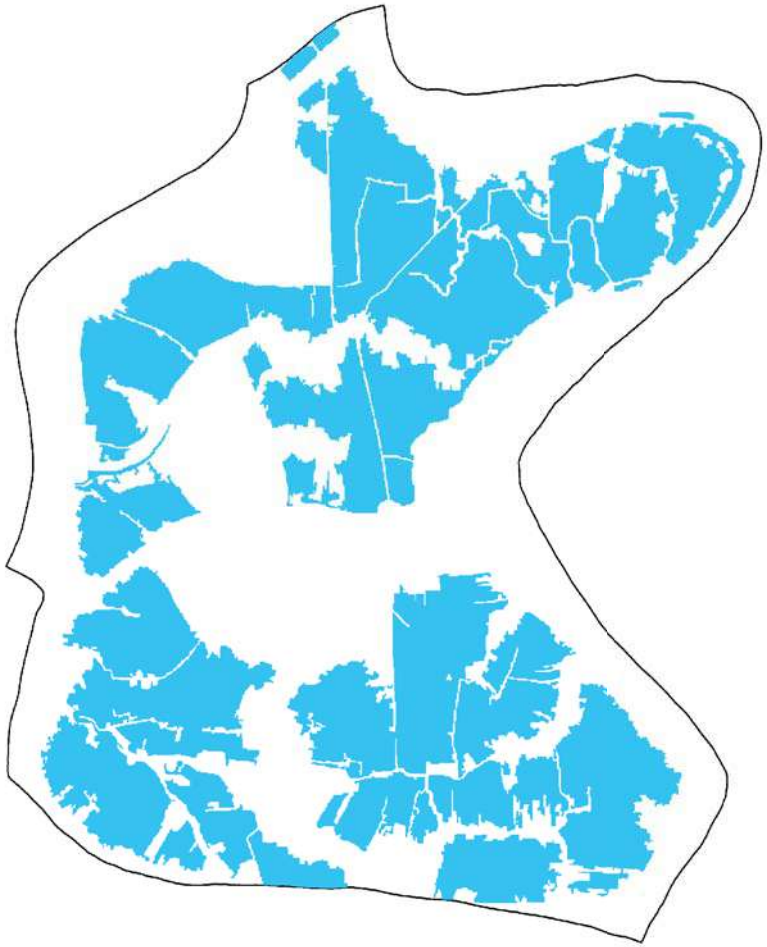


March, 2017: Total Gher area: 2189 hectare

Gabura

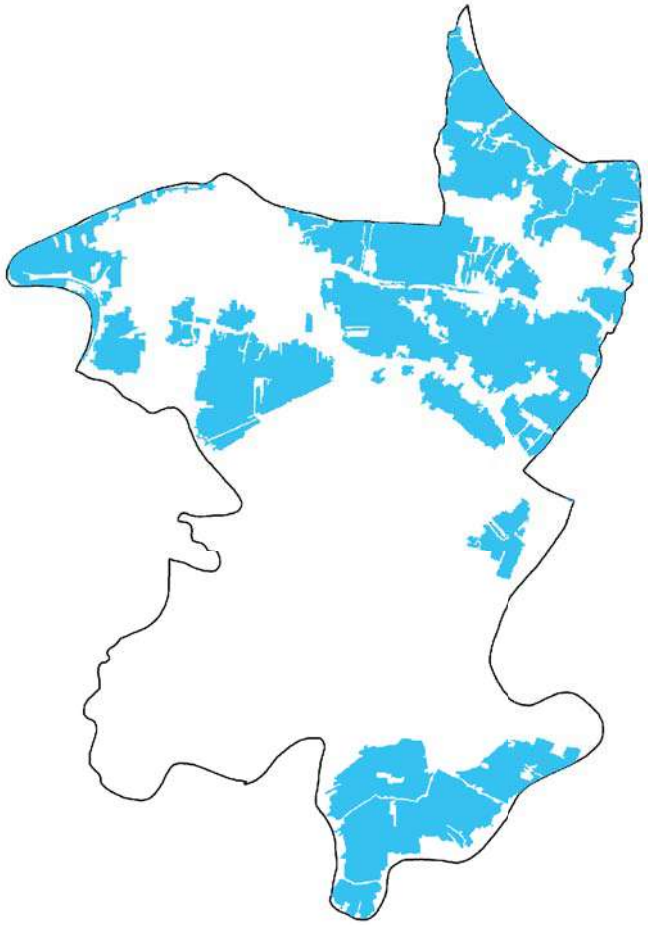


November, 2016: Total Gher area: 1984 hectare

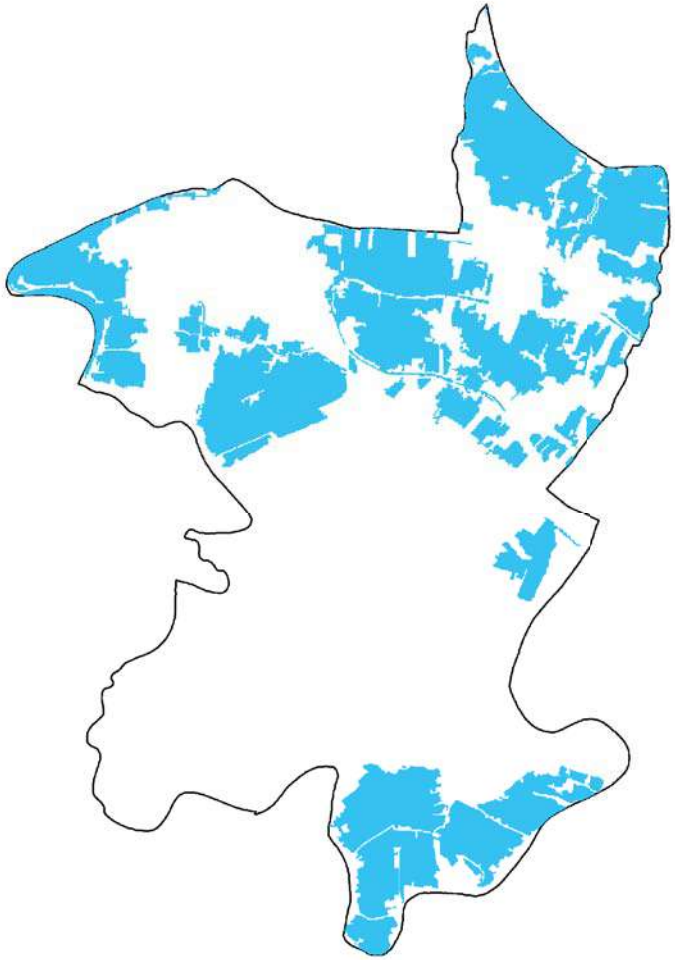


March, 2017: Total Gher area: 1817 hectare

Ishwaripur

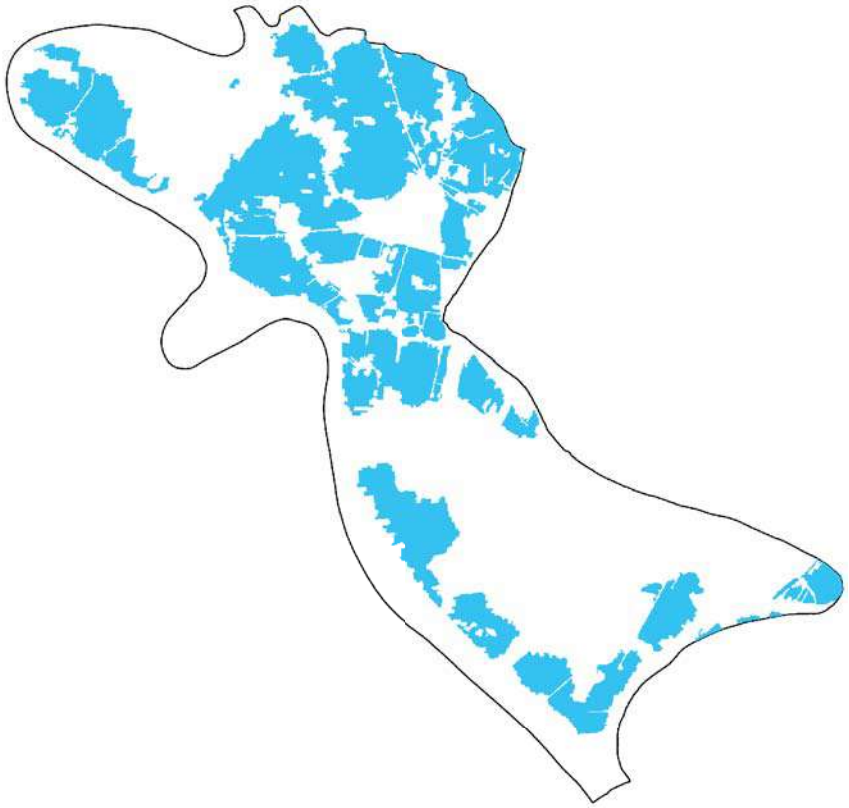


November, 2016: Total Gher area: 1323 hectare

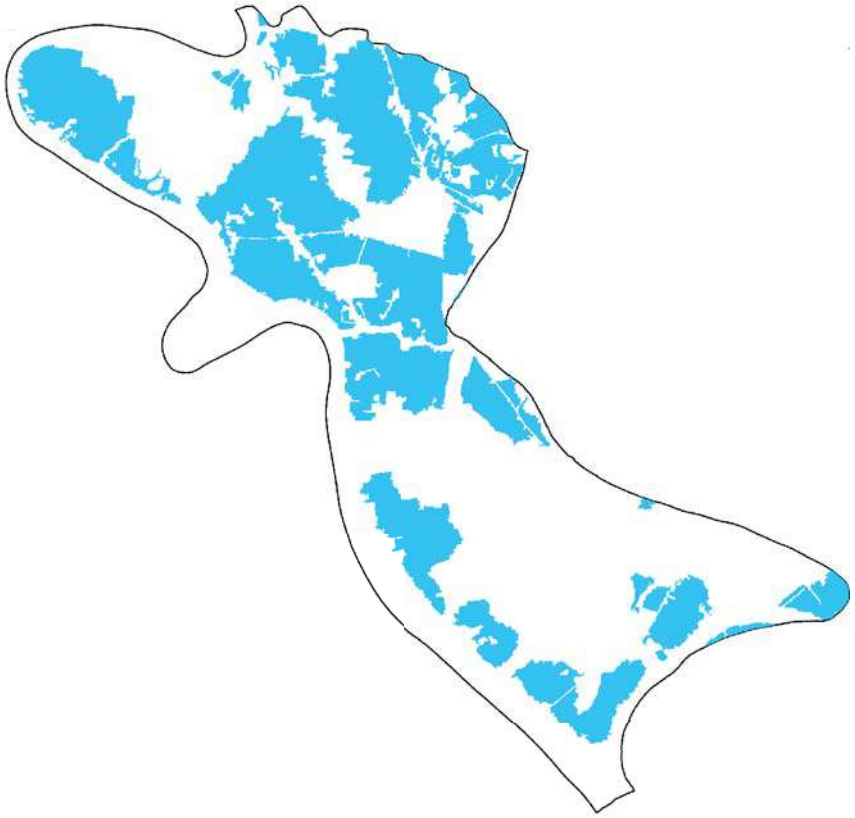


March, 2017: Total Gher area: 1261 hectare

Koikhali

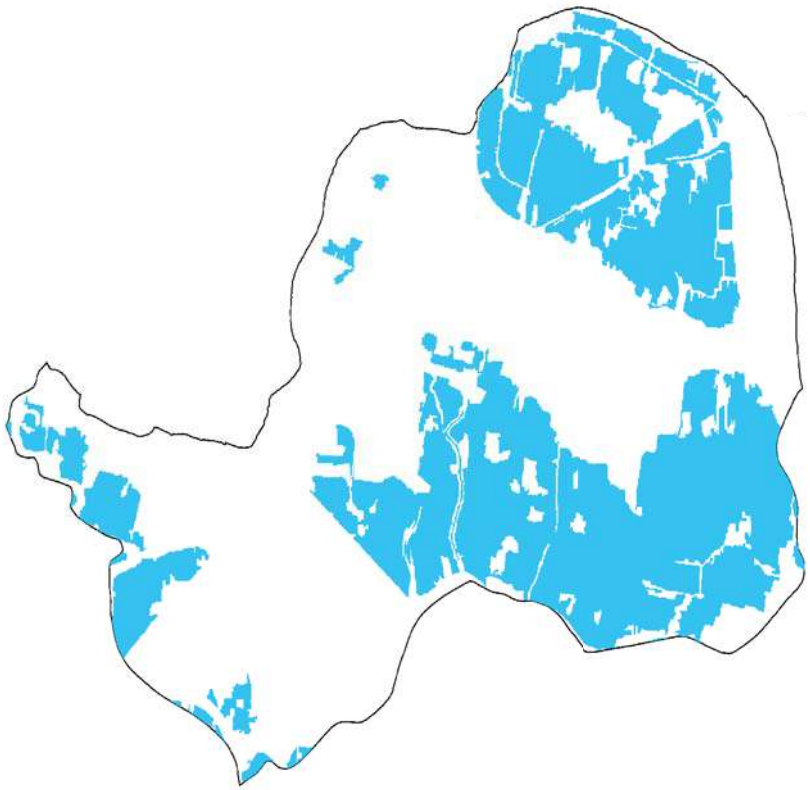


November, 2016: Total Gher area: 1456 hectare

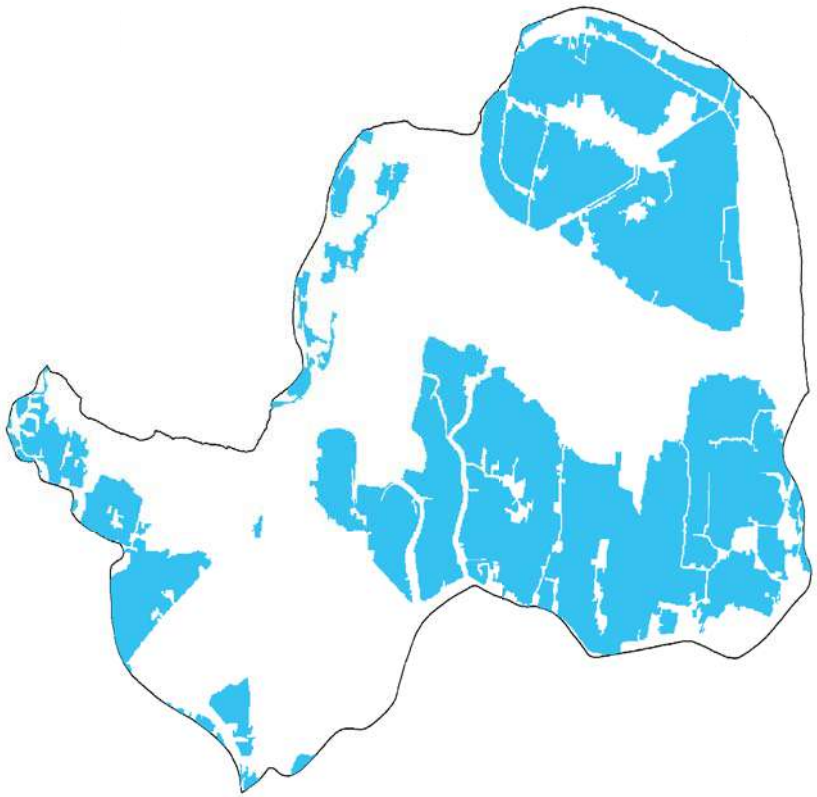


March, 2017: Total Gher area: 1585 hectare

Kashimari

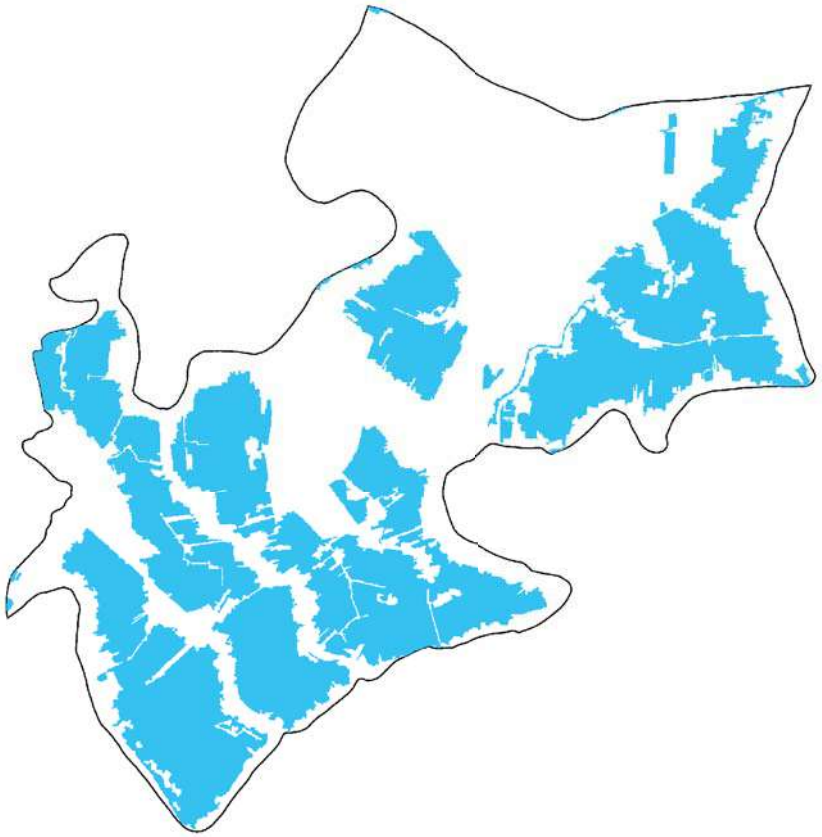


November, 2016: Total Gher area: 1284 hectare

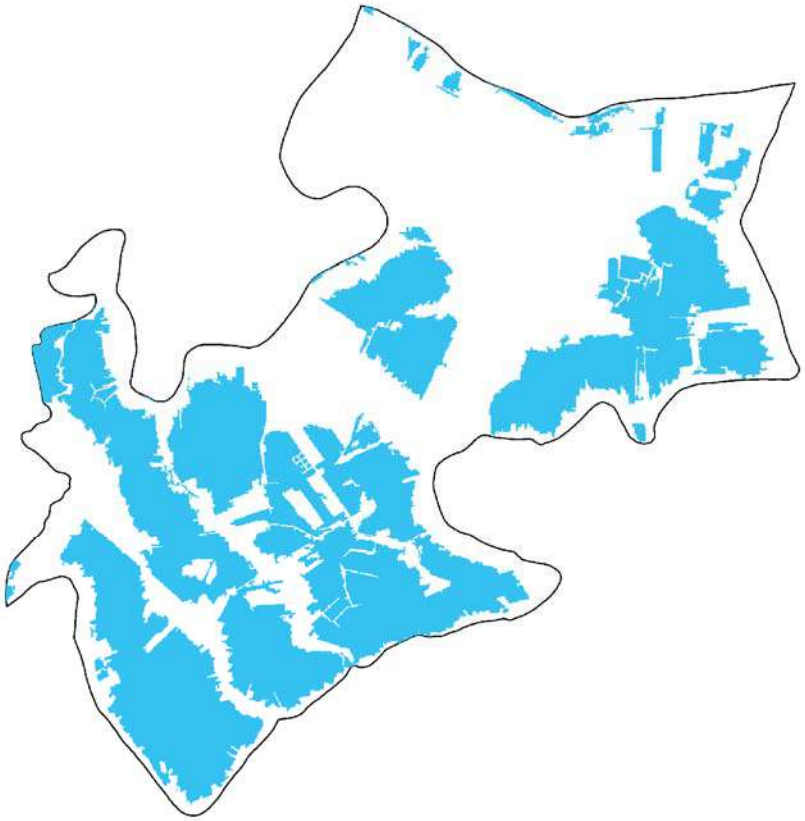


March, 2017: Total Gher area: 1430 hectare

Munshiganj

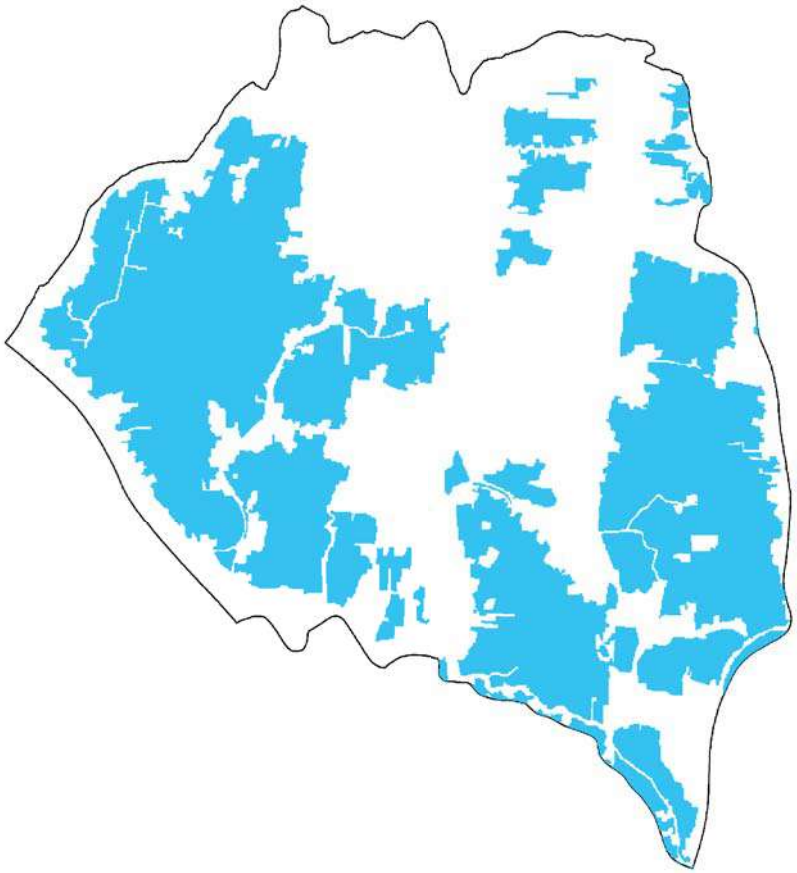


November, 2016: Total Gher area: 2099 hectare

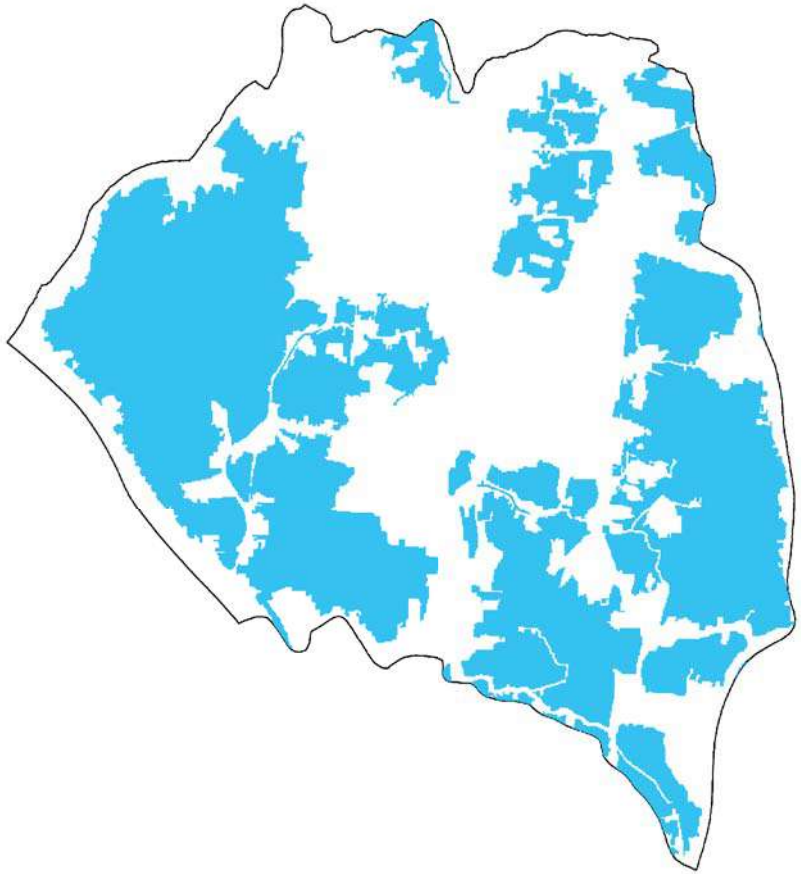


March, 2017: Total Gher area: 2097 hectare

Nurnagar

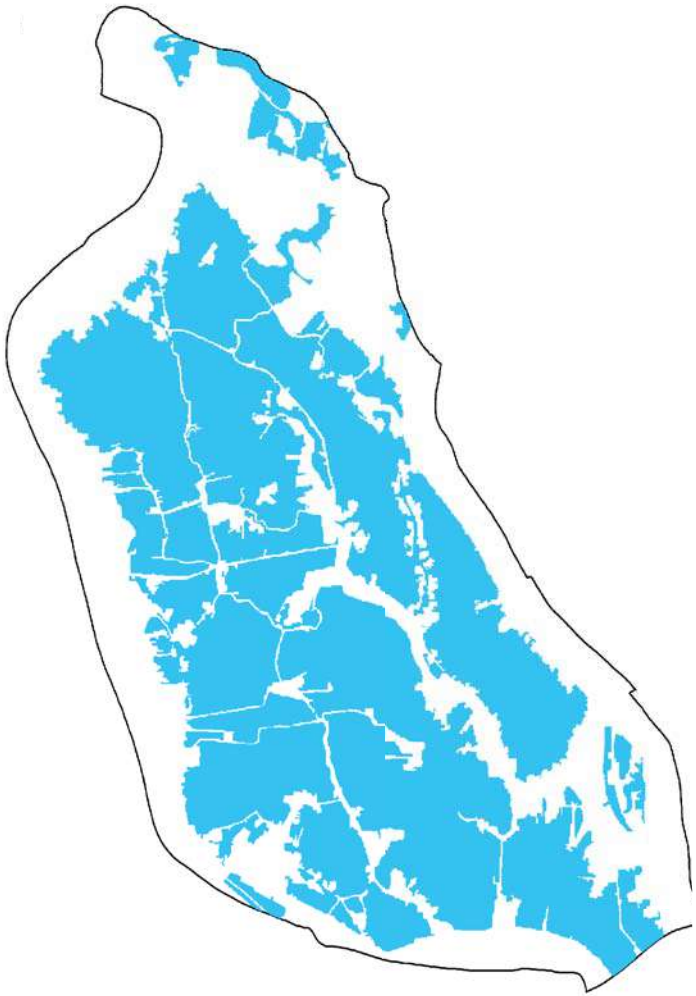


November, 2016: Total Gher area: 1249 hectare

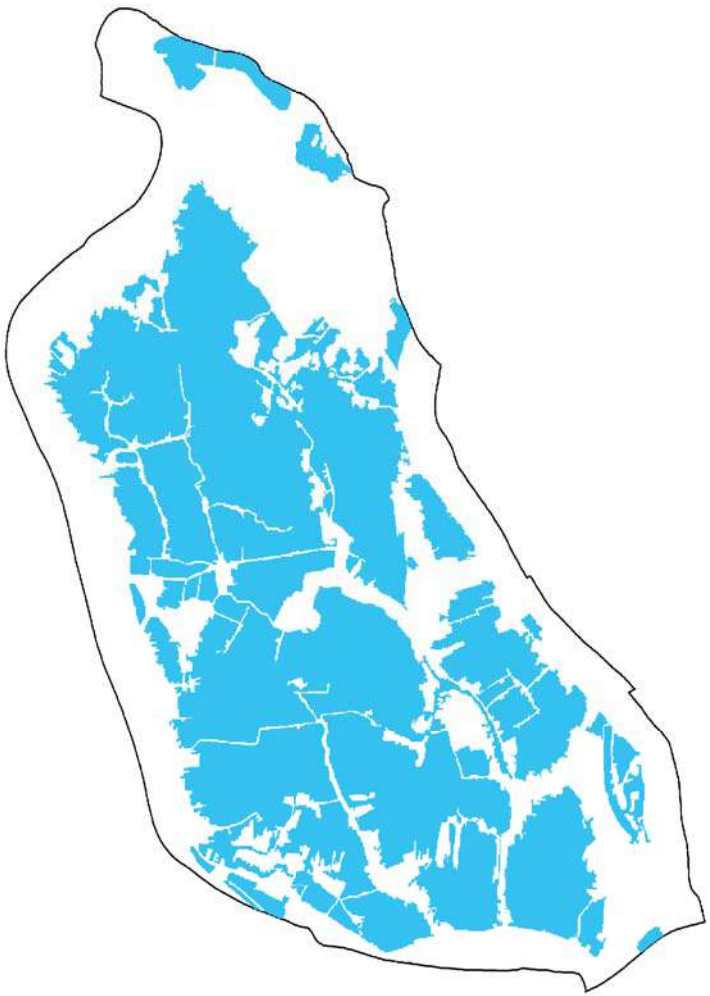


March, 2017: Total Gher area: 1335 hectare

Padmapukur

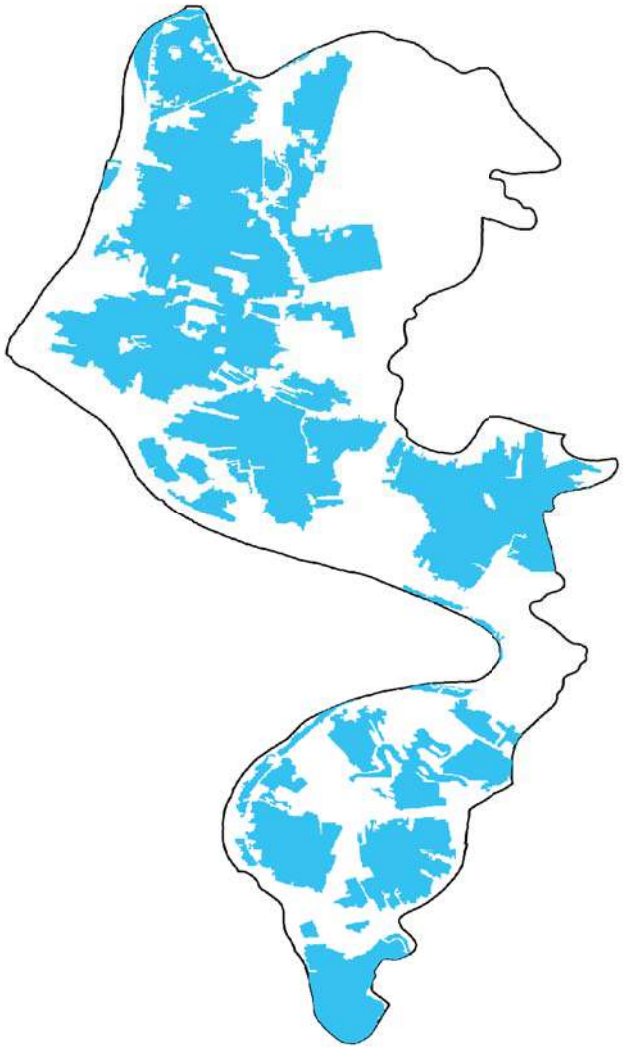


November, 2016: Total Gher area: 2225 hectare

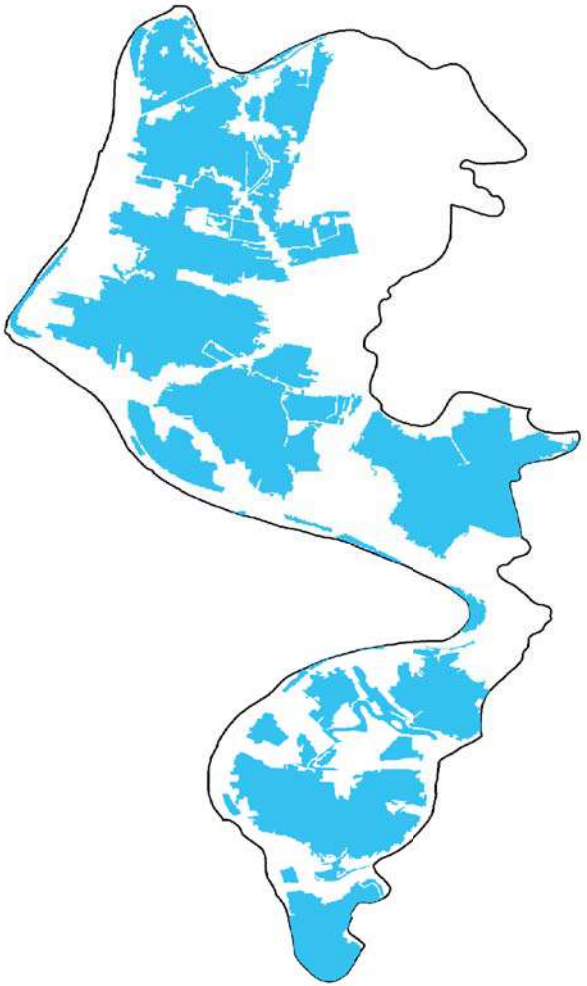


March, 2017: Total Gher area: 2106 hectare

Ramjannagar

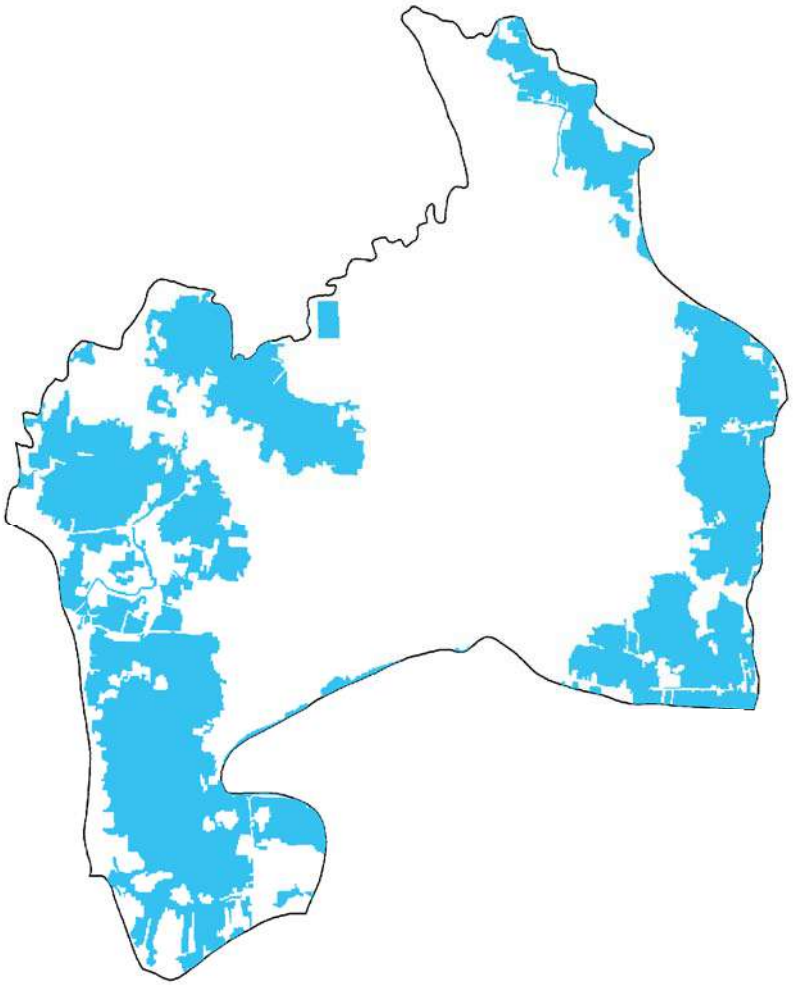


November, 2016: Total Gher area: 2225 hectare

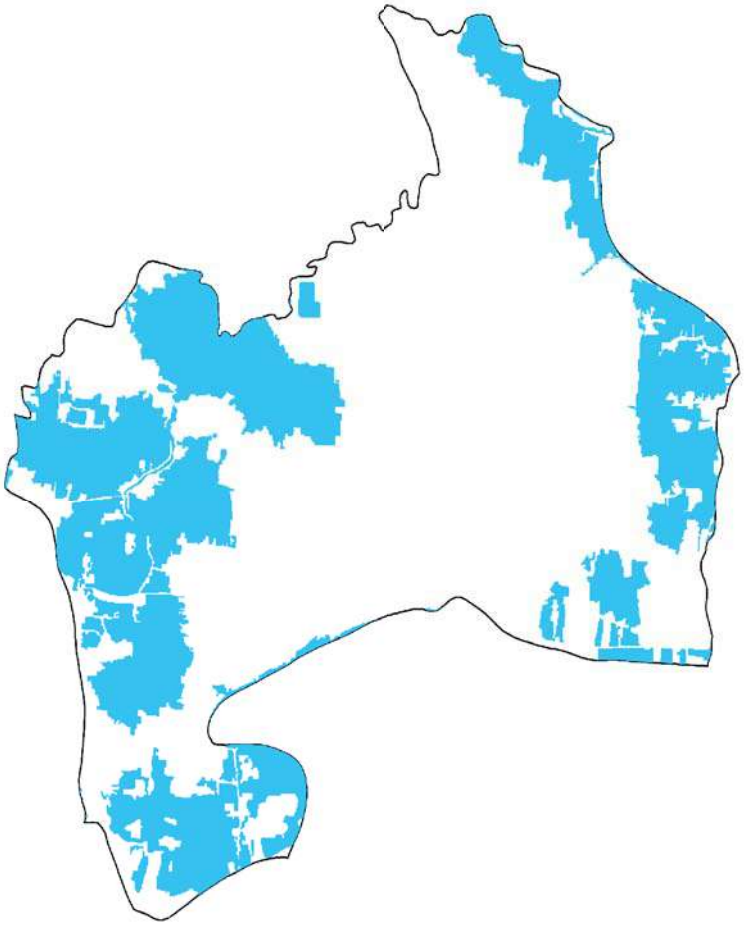


March, 2017: Total Gher area: 1726 hectare

Shyamnagar



November, 2016: Total Gher area: 1022 hectare



March, 2017: Total Gher area: 999 hectare

Summary table of calculations of crop and gher areas in two seasons, derived from the interpretation of satellite imagery.

District	Upazila	GIS based data of crop and gher areas (ha)			
		November 2016		March 2017	
		Gher	Crop	Gher	Crop
Bagerhat	Bagerhat Sadar	10,231	2,125	4,574	2,966
	Chitalmari	7,927	872	2,662	8,539
	Morrelganj	10,623	5,013	5,864	5,636
	Rampal	12,066	2,092	8,206	1,490
Cox's Bazar	Chakoria	12,235	2,562	6,977	3,116
Jessore	Abhoynagar	6,264	284	3,456	6,510
Khulna	Dumuria	17,359	5,617	5,824	15,237
	Paikgachha	15,442	7,030	15,997	1,093
		October 2016		February 2017	
Satkhira	Assasuni	18,244	4,533	17,895	2,657
	Kaliganj	15,030	5,000	15,747	2,215
	Shyamnagar	18,985	7,471	18,803	2,493
		December 2017		March 2017	
	Debhata	10,451	1,655	8,919	2,387

Disclaimer:

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