

Figure S1. The spatial pattern of projected mean annual rainfall under RCP4.5 and RC8.5

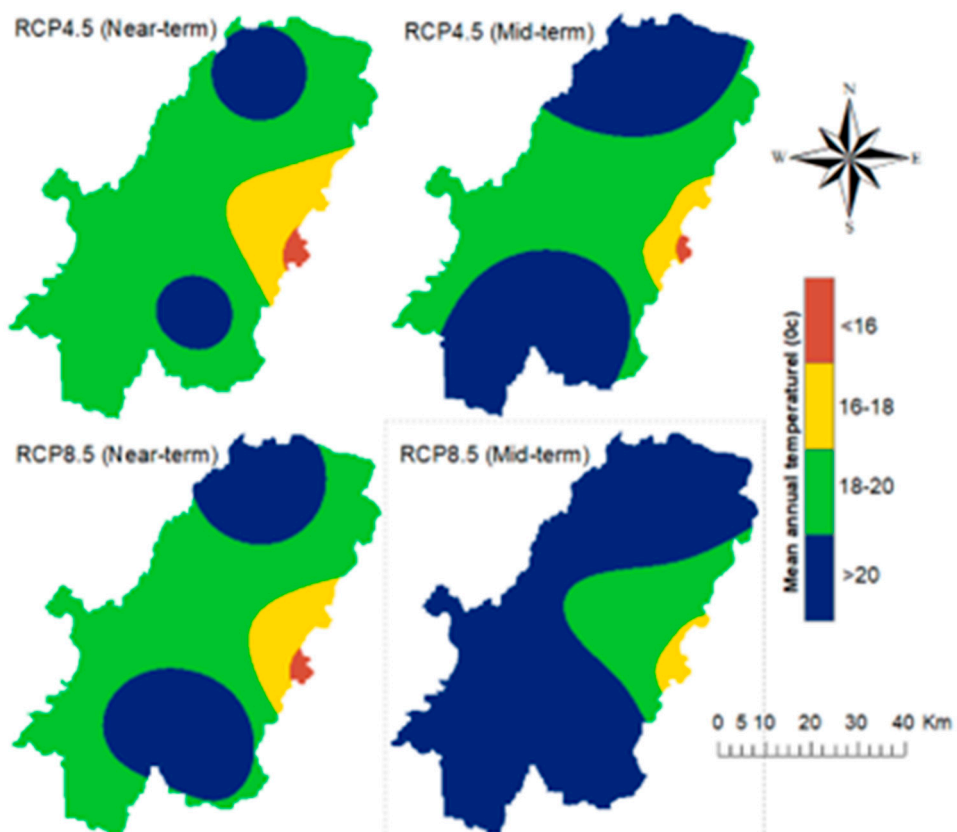


Figure S2. The spatial pattern of projected mean annual temperature under RCP4.5 and RC8.5

Table S1. Transition area matrix (ha) of LULC between 1985–2003 and 2003–2021

LULC Class		2003									
		Water body	Grass land	Forest	Agriculture land	Barren land	Built-up area	Agroforestry	Shrub land	Marsh land	Total
1985	Water body	88.29	1.08	0.99	0.09	0	0	0	0.99	0	91.44
	Grass land	95.22	21002.76	2590.65	14708.7	7834.05	80.01	574.29	14883.66	67.05	61836.39
	Forest	344.7	4499.55	32333	8690.58	125.19	137.88	20827.35	10163.16	72.81	77194.26
	Agriculture land	8.1	10312.47	8228.61	30688.11	1703.7	160.47	5995.71	13229.55	0.27	70326.99
	Barren land	25.38	2696.67	86.85	1044	6886.8	60.93	16.02	1634.85	56.25	12507.75
	Built-up area	0	0.18	2.25	0.09	0.18	474.93	0.09	0.72	0	478.44
	Agroforestry	4.68	1863	11446.74	10855.53	40.59	88.47	17835.21	4072.86	0.09	46207.17
	Shrub land	28.26	12347.82	14482.8	23070.24	1469.52	173.25	9139.68	25516.8	10.08	86238.45
	Marsh land	7.2	4.32	0.72	4.68	0.36	0	0	15.21	52.92	85.41
	Total	601.83	52727.85	69172.65	89062.02	18060.39	1175.94	54388.35	69517.8	259.47	354966.3
LULC Class		2021									
		Water body	Grass land	Forest	Agriculture land	Barren land	Built-up area	Agroforestry	Shrub land	Marsh land	Total
2003	Water body	516.96	30.87	16.47	16.02	4.32	0.36	0.27	15.84	0.72	601.83
	Grass land	671.4	10591.56	2573.55	22179.87	5150.61	294.93	2683.08	8014.41	568.44	52727.85
	Forest	1232.64	3326.13	12149.28	21027.06	1482.84	441.72	18520.92	10947.06	45	69172.65
	Agriculture land	185.31	5393.43	9449.46	48537.18	2797.29	570.69	15199.56	6794.1	135	89062.02
	Barren land	376.92	3470.58	209.34	5041.17	5761.8	160.47	73.35	2375.1	591.66	18060.39
	Built-up area	0	1.98	3.87	0.72	0.45	1166.13	0.27	2.52	0	1175.94
	Agroforestry	98.73	439.92	8711.64	14089.5	220.95	195.48	29096.1	1534.59	1.44	54388.35
	Shrub land	548.91	6844.77	6708.69	29977.47	3976.02	349.83	5535.99	14936.13	639.99	69517.80
	Marsh land	167.4	10.08	0.27	0	2.97	0	0	3.33	75.42	259.47
	Total	3798.3	30109.3	39822.6	140869.0	19397.3	3179.6	71109.5	44623.1	2057.7	354966.3

Table S2. Transition area matrix (ha) of LULC between 2021–2035 and 2035–2050

LULC Class		2035									
		Water body	Grass land	Forest	Agriculture land	Barren land	Built-up area	Agroforestry	Shrub land	Marsh land	Total
2021	Water body	3798.27	0	0	0	0	0	0	0	0	3798.27
	Grass land	328.23	16743.69	0	9526.59	3044.07	144.54	0	0	322.2	30109.32
	Forest	688.95	1831.86	24984.63	7534.44	756.63	226.98	1071.27	2719.89	7.92	39822.57
	Agriculture land	197.19	0	0	112737.51	4197.87	802.98	22764.42	0	169.02	140869
	Barren land	120.24	0	0	4992.84	13477.23	155.16	0	0	651.78	19397.25
	Built-up area	0	0	0	0	0	3179.61	0	0	0	3179.61
	Agroforestry	0	0	0	17386.29	156.42	213.3	53353.53	0	0	71109.54
	Shrub land	276.66	4484.61	0	19138.86	2539.08	191.88	2936.16	14640.84	414.99	44623.08
	Marsh land	651.24	73.44	0	0	22.05	0	0	20.79	1290.15	2057.67
Total		6060.78	23133.6	24984.63	171316.53	24193.35	4914.45	80125.38	17381.52	2856.06	354966.3
		2050									
		Water body	Grass land	Forest	Agriculture land	Barren land	Built-up area	Agroforestry	Shrub land	Marsh land	Total
2035	Water body	5752.62	96.12	0	0.9	58.68	0	0	144.45	8.01	6060.78
	Grass land	472.5	9094.68	0	13111.29	138.96	20.88	21.96	260.37	12.96	23133.6
	Forest	3.6	960.39	9242.91	8633.52	480.24	159.57	4308.66	1128.78	66.96	24984.63
	Agriculture land	775.53	3.51	0	157583.7	2388.42	867.78	9610.56	86.4	0.63	171316.5
	Barren land	484.65	19.35	0	3420.54	19830.78	80.64	0	13.32	344.07	24193.35
	Built-up area	2.7	0	0	8.1	11.88	4891.68	0.09	0	0	4914.45
	Agroforestry	0	0	0	7709.67	234.18	523.62	71615.25	0	42.66	80125.38
	Shrub land	231.66	410.85	0	4397.58	305.19	168.57	3749.76	8113.41	4.5	17381.52
	Marsh land	1295.19	4.32	0	18.27	30.78	0.18	0	39.42	1467.9	2856.06
Total		9018.45	10589.22	9242.91	194883.57	23479.11	6712.92	89306.28	9786.15	1947.69	354966.3

Table S3. Summary of land degradation indicators based on SDG 15.3.1

Land degradation indicator	1985-2003		2003-2021	
	Area (sq km)	Percent of land area	Area (sq km)	Percent of land area
LP indicator				
Land area with improved productivity	38.8	1.58%	4.3	0.17%
Land area with stable productivity	2,045.2	83.21%	1,642.3	66.81%
Land area with degraded productivity	359.0	14.61%	796.5	32.40%
Land area with no data for productivity	14.9	0.61%	14.9	0.61%
Total land area	2,458.0	100%	2,458.0	100.00%
LC indicator				
Land area with improved land cover	305.1	12.41%	262.5	10.68%
Land area with stable land cover	1,270.6	51.69%	1,156.3	47.04%
Land area with degraded land cover	882.4	35.90%	1039.2	42.28%
Land area with no data for land cover	0.0	0.00%	0.0	0.00%
Total land area	2,458.0	100.00%	2,458.0	100.00%
SOC indicator				
Land area with improved SOC	306.7	12.5%	291	11.84%
Land area with stable SOC	1290.4	52.5%	1,196.10	48.66%
Land area with degraded SOC	848.6	34.52%	958.6	39.00%
Land area with no data for SOC	12.3	0.50%	12.3	0.50%
Total land area	2458.0	100.00%	2458.0	100.00%
Combined indicators				
Land area improved	336.8	13.70%	305.2	12.42%
Land area stable	1,005.8	40.92%	758.2	30.85%
Land area degraded	1,096.6	44.61%	1,375.80	55.97%
Land area with no data	18.8	0.76%	18.8	0.76%
Total land area	2,458.0	100.00%	2,458.0	100.00%