



Figure S1. Flowchart of the study.

Table A. Landsat 5 TM and Landsat 8 OLI acquired in the study.

Remote sensing platforms	Data	Spatial resolution (m)	Cloud cover (%)
Landsat5 TM	1990-11-28	30	2
Landsat5 TM	2000-11-23	30	0.16
Landsat5 TM	2008-03-02	30	0
Landsat8 OLI	2015-01-17	30 (band 8:15)	2.78
Landsat8 OLI	2022-12-22	30 (band 8:15)	9.88

Table B. Estimation of mangrove change area produced from stratified random sampling and mangrove change map for 1990-2022.

Period	Category	Mapped area (ha)	Stratified random estimated area with margin of error (ha)
1990-2000	Stable mangrove	220.11	231.09 ( $\pm 54.57$ )
	Stable non-mangrove	7385.69	7308.93 ( $\pm 73.67$ )
	Mangrove gain	323.48	391.43 ( $\pm 81.56$ )
	Mangrove loss	16.34	14.16 ( $\pm 2.02$ )
2000-2008	Stable mangrove	524.71	485.70 ( $\pm 74.74$ )
	Stable non-mangrove	7217.29	7161.41 ( $\pm 93.51$ )
	Mangrove gain	184.72	265.65 ( $\pm 84.92$ )
	Mangrove loss	18.88	32.83 ( $\pm 28.60$ )
2008-2015	Stable mangrove	647.80	659.64 ( $\pm 33.67$ )
	Stable non-mangrove	7101.07	7192.11 ( $\pm 38.64$ )
	Mangrove gain	135.11	60.05 ( $\pm 24.53$ )
	Mangrove loss	61.63	30.82 ( $\pm 11.21$ )
2015-2022	Stable mangrove	739.14	731.37 ( $\pm 86.41$ )
	Stable non-mangrove	7022.76	7076.58 ( $\pm 73.74$ )
	Mangrove gain	139.94	118.69 ( $\pm 55.56$ )
	Mangrove loss	43.77	18.97 ( $\pm 7.89$ )
1990-2022	Stable mangrove	232.64	220.82 ( $\pm 66.79$ )
	Stable non-mangrove	7062.72	7128.48 ( $\pm 100.54$ )
	Mangrove gain	646.44	594.80 ( $\pm 113.74$ )
	Mangrove loss	3.81	1.52 ( $\pm 0.68$ )