

Supplementary material to:

Multi-Scenario Simulation and Eco-Environmental Effects Analysis of Land Use/Cover Change in China by an Integrated Cellular Automata and Markov Model

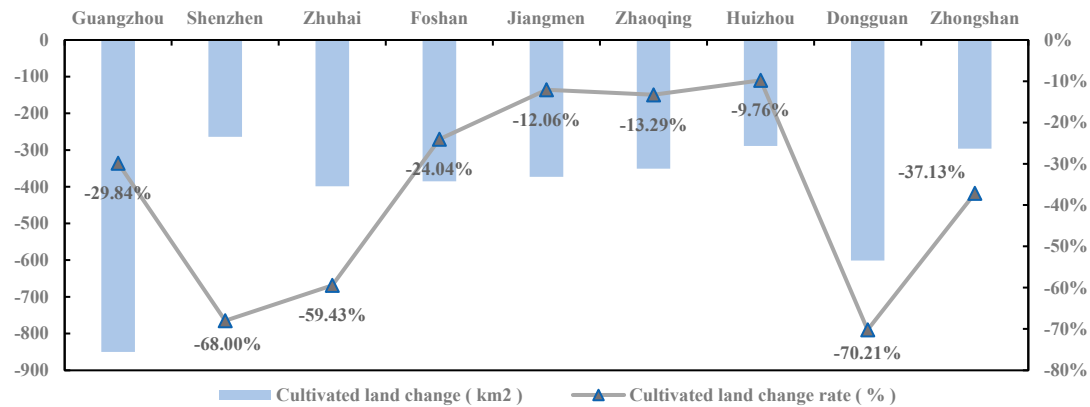


Figure S1. Change of cultivated land area in the cities of the PRD from 1990 to 2020

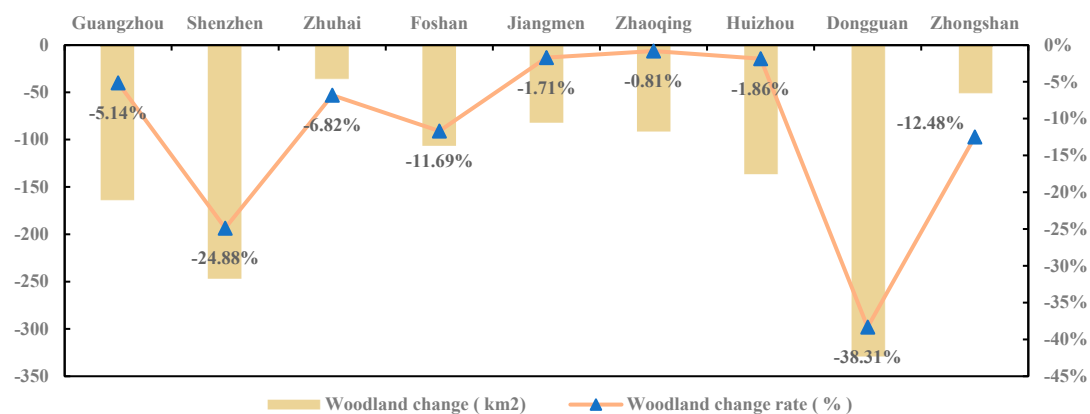


Figure S2. Change of woodland area in the cities of the PRD from 1990 to 2020

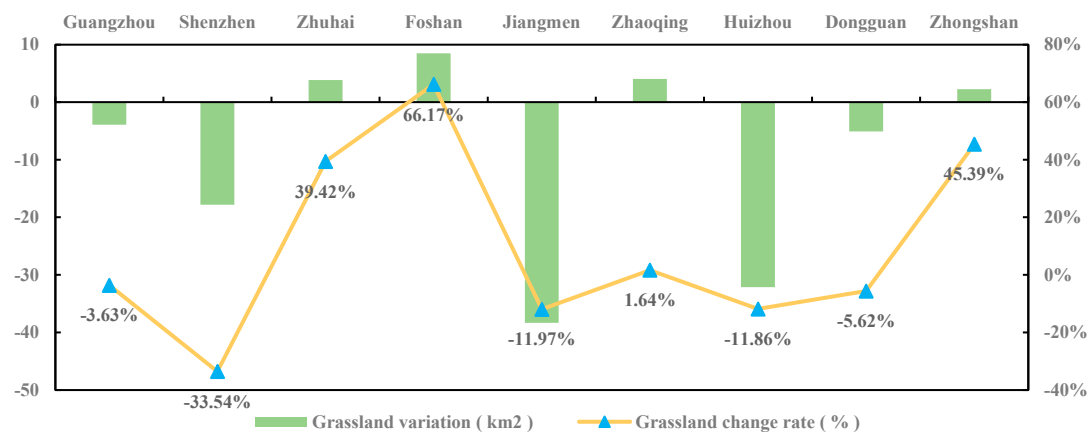


Figure S3. Change of grassland area in the cities of the PRD from 1990 to 2020

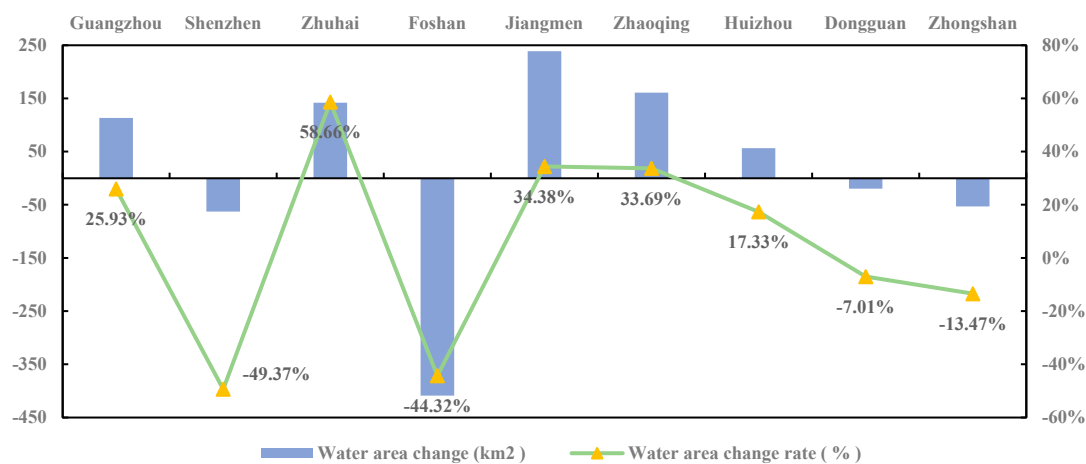


Figure S4. Change of construction land area in the cities of the PRD from 1990 to 2020

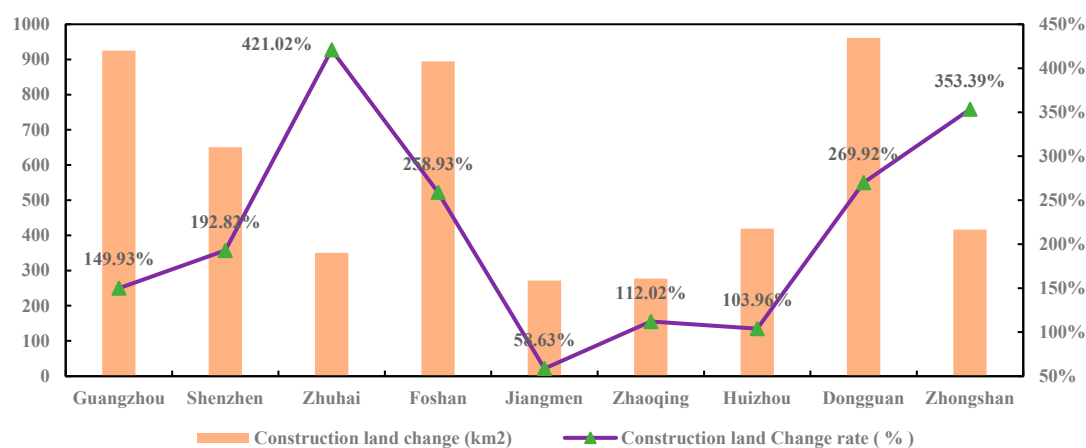


Figure S5. Change of water area in the cities of the PRD from 1990 to 2020

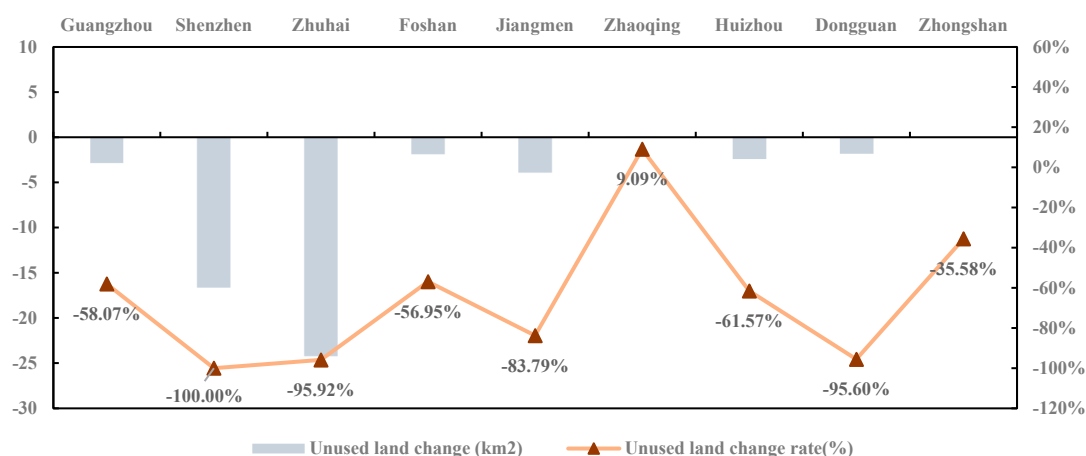


Figure S6. Change of unused land in the cities of the PRD from 1990 to 2020

Table S1. The main secondary land use transformation and its ecological contribution rate affecting the ecological environment quality in the PRD from 1990 to 2000

Pattern	Secondary land use type change	Change area / km ²	Ecological contribution rate (%)
Lead to the improvement of ecological environment quality	Paddy field - Reservoir pond	685.24	0.316%
	Sparse woodland - Forest land	64.26	0.059%
	Other woodlands - Forest land	47.98	0.049%
	Dry land - Reservoir pond	38.57	0.021%
	Foreshore - Reservoir pond	69.54	0.013%
	Dry land - Forest land	7.20	0.009%
	Shoaly land - Reservoir pond	30.70	0.006%
	Marine, reclamation or other unused land - Urban land	14.35	0.005%
	High coverage grassland - Forest land	10.66	0.004%
	Marine, reclamation or other unused land - Other construction land	13.23	0.003%
Leading to the deterioration of ecological environment quality	Forest land - Other woodlands	163.01	-0.165%
	Shrub land - Urban land	84.96	-0.071%
	Forest land - Urban land	37.71	-0.052%
	Forest land - Sparse woodland	55.27	-0.051%
	Paddy field - Rural settlements	264.70	-0.049%
	Paddy field - Urban land	258.68	-0.048%
	Reservoir pond - Urban land	46.62	-0.030%
	Reservoir pond - Rural settlements	40.12	-0.026%
	Forest land - Dry land	19.32	-0.025%
	Forest land - Rural settlements	17.72	-0.025%

Table S2. The main secondary land use transformation and its ecological contribution rate affecting the ecological environment quality in the PRD from 2000 to 2010

Pattern	Secondary land use type change	Change area / km ²	Ecological contribution rate (%)
Lead to the improvement of ecological environment quality	Other woodlands - Forest land	427.58	0.433%
	Paddy field - Reservoir pond	523.47	0.241%
	Dry land - Forest land	53.41	0.069%
	Sparse woodland - Forest land	57.60	0.053%
	Dry land - Reservoir pond	92.79	0.051%
	Paddy field - Forest land	41.16	0.049%
	Urban land - Forest land	26.71	0.037%
	Rural settlements - Forest land	15.68	0.022%
	Other construction land - Reservoir pond	23.68	0.017%
	Other construction land - Forest land	9.82	0.014%
Leading to the deterioration of ecological environment quality	Forest land - Other woodlands	693.47	-0.702%
	Paddy field - Urban land	631.78	-0.116%
	Reservoir pond - Paddy field	508.85	-0.234%
	Dry land - Urban land	415.08	-0.038%
	Paddy field - Other construction land	359.70	-0.099%
	Reservoir pond - Urban land	304.38	-0.196%
	Other woodlands - Urban land	174.07	-0.064%
	Paddy field - Rural settlements	169.92	-0.031%
	Forest land - Other construction land	163.79	-0.241%
	Reservoir pond - Other construction land	160.11	-0.118%

Table S3. The main secondary land use transformation and its ecological contribution rate affecting the ecological environment quality in the PRD from 2010 to 2020

Pattern	Secondary land use type change	Change area / km ²	Ecological contribution rate (%)
Lead to the improvement of ecological environment quality	Paddy field - Forest land	107.51	0.129%
	Other woodlands - Forest land	104.86	0.106%
	Dry land - Forest land	62.47	0.080%
	Other construction land - Forest land	42.84	0.063%
	Paddy field - Reservoir pond	111.28	0.051%
	Other construction land -High coverage grassland	46.07	0.051%
	Rural settlements - Forest land	30.51	0.042%
	Urban land - Forest land	30.26	0.042%
	Sparse woodland - Forest land	40.89	0.038%
	Other construction land - Reservoir pond	45.86	0.034%
Leading to the deterioration of ecological environment quality	Forest land - Other construction land	147.34	-0.217%
	Forest land - Paddy field	113.88	-0.136%
	Reservoir pond - Other construction land	175.19	-0.129%
	Paddy field - Other construction land	334.86	-0.092%
	Forest land - Dry land	69.48	-0.089%
	Forest land - Urban land	58.05	-0.080%
	Forest land - Other woodlands	53.54	-0.054%
	Forest land - Sparse woodland	52.74	-0.048%
	Forest land - Reservoir pond	52.39	-0.039%
	Reservoir pond - Urban land	58.90	-0.038%