Supplementary information for

"Optimizing the land use and land cover pattern to increase its contribution to carbon neutrality"

Content

Table S1. Carbon density of each land use type in the InVEST model

In this study, it should be noted that construction land is hardened surface, so its carbon density was set to 0; Water as a special land-use type was also set to 0. Barren land only was took into account the carbon storage of soil. The estimation of vegetation carbon density was mainly obtained by converting parameters such as vegetation biomass and vegetation carbon content rate measured in the field, where the above-ground and below-ground biomass of forest and below-ground biomass of cropland [1] and vegetation carbon content rate were obtained based on relevant studies [2-4]. Soil carbon densities were calculated using field measurements except for barren.

Table S1. Carbon density of each land use type in the InVEST model

LULC types	Carbon Density (Mg C/ha)				Source
	AGC	BGC	SOC	DOC	
Cropland	3.03	1.10	11.48	0.00	Measured data in the field [1, 3, 4]
Forest	44.24	7.49	27.27	3.30	Measured data in the field [2]
Grassland	1.50	3.54	17.36	0.29	Measured data in the field
Water	0.00	0.00	0.00	0.00	-
Barren land	0.00	0.00	3.18	0.00	A dataset of carbon density in Chinese terrestrial ecosystems (2010s)，http://www.nesdc.org.cn/
Construction land	0.00	0.00	0.00	0.00	-

Note: AGC-aboveground carbon storage; BGC-belowground carbon storage; SOC-soil organic carbon storage; DOC-dead organic matter carbon storage.

Table S2. Conversion factor to standard coal from different types of energy and carbon emission coefficient

Table S2. Conversion factor to standard coal from different types of energy and carbon emission coefficient

Energy types	Conversion factor to standard coal	Carbon emission coefficient
Raw coal	0.7143	0.7559
Coke	0.9714	0.8550
Crude oil	1.4286	0.5857
Gasoline	1.4714	0.5538
Kerosene	1.4714	0.5714
Diesel oil	1.4571	0.5921
Fuel oil	1.4286	0.6185
Natural gas	1.2143	0.4483
Electric power	0.1229	0.7935

Figure S1. Spatial and temporal distribution of carbon storage in the study area from 2000 to 2020

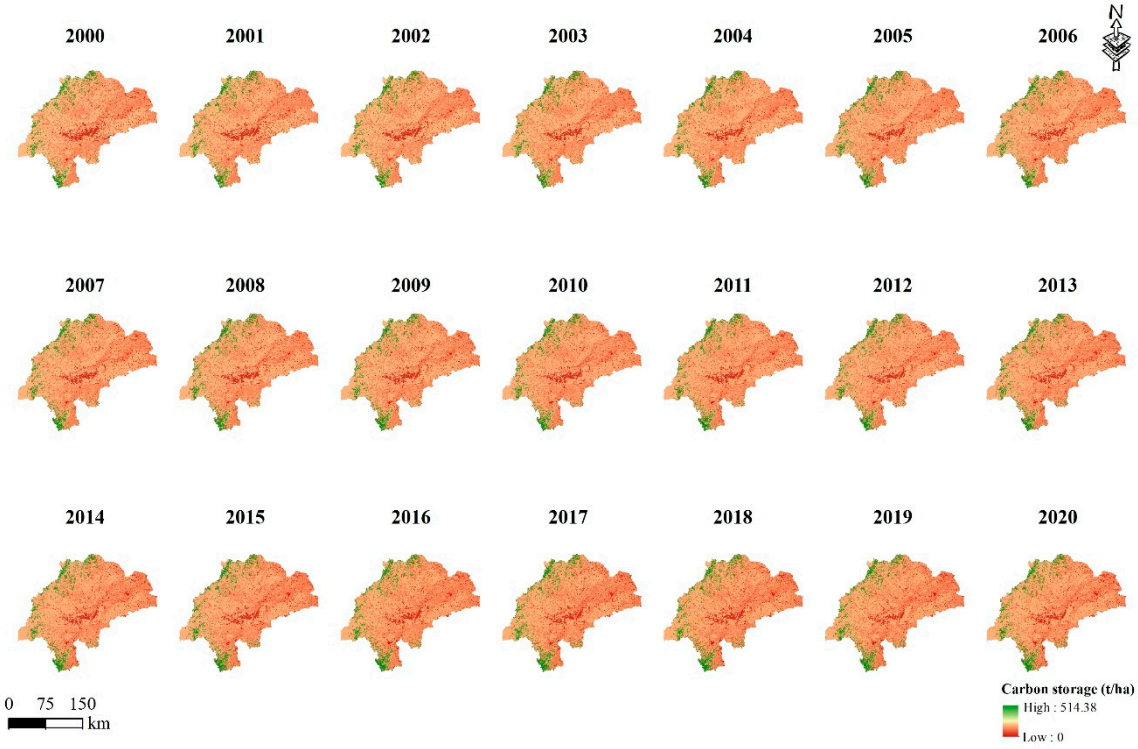

Figure S1. Spatial and temporal distribution of carbon storage in the study area from 2000 to 2020

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