

Front. Agr. Sci. Eng.

<https://doi.org/10.15302/J-FASE-2023494>

Verso: Front. Agr. Sci. Eng.

Recto: Xinpeng JIN et al. Strategies for a low-carbon food system in China

RESEARCH ARTICLE

STRATEGIES FOR A LOW-CARBON FOOD SYSTEM IN CHINA

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Received November 16, 2022;

Accepted March 7, 2023.

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SUPPLEMENTARY MATERIALS

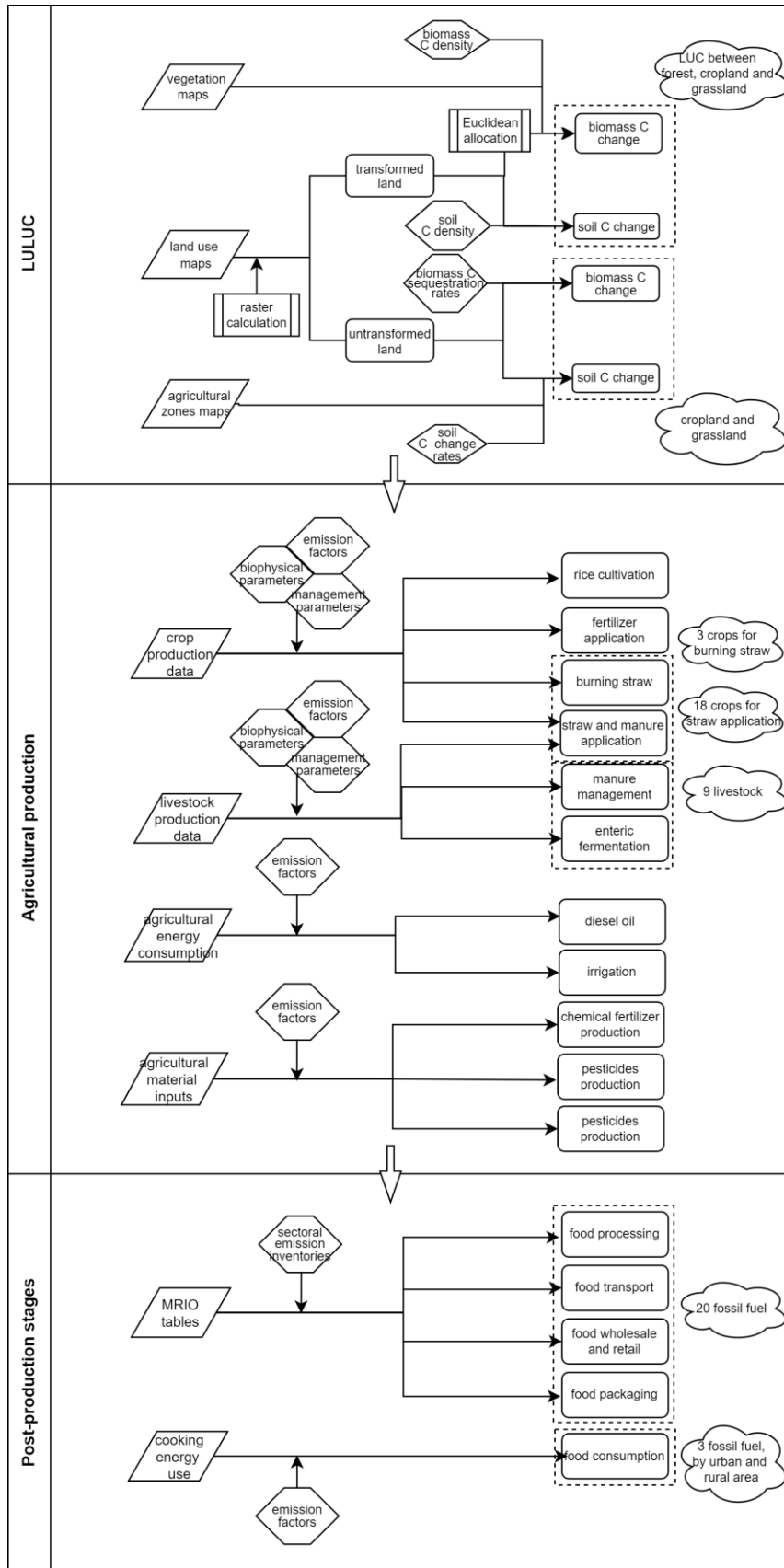


Fig. S1 Technical route of this study.

Table S1 Area of land use change in China during 1990 to 2020 (km²)

		2020				
2015	Cropland	Forest	Grassland	Water	Construction	Unused land
Cropland	1,762,948	631	2692	994	14,208	519
Forest	639	2,238,148	54	131	2880	51
Grassland	6030	303	2,976,966	1373	2326	329
Water	1680	90	530	356,656	663	426
Construction	836	81	149	131	221,933	150
Unused land	3347	125	456	1901	1310	1,901,373
		2015				
2010	Cropland	Forest	Grassland	Water	Construction	Unused land
Cropland	1,766,472	511	1357	1754	16,645	153
Forest	1095	2,240,207	1329	468	3464	71
Grassland	9935	703	2,982,758	1388	3843	471
Water	525	14	414	354,838	691	1697
Construction	573	101	50	222	197,637	14
Unused land	3392	366	1418	1375	1001	1,906,106
		2005				
2000	Cropland	Forest	Grassland	Water	Construction	Unused land
Cropland	1,773,700	4368	5448	3132	12,115	759
Forest	2386	2,236,113.1	1985	499	1955	272
Grassland	11,393	4333	2,988,359	834	1011	5291
Water	1060	105	503	350,900	997	1299
Construction	–	–	–	104	172,108	–
Unused land	–	–	–	1784	787	–
		2000				
1990	Cropland	Forest	Grassland	Water	Construction	Unused land
Cropland	1,780,232	4213.5758	7366.4242			–
Forest	17,473	2,234,933	8114	8081	17763	–
Grassland	34576	10473	2998415			–
Water		6240		–		–
Construction	–	–	–	–	–	–
Unused land	–	–	–	–	–	–

Note: Land use change matrixes of 1990–2000 and 2000–2005 are incomplete due to lack of data, but the parts for land use change between cropland, forest and grassland are still completed. This did not affect the GHG accounting of food system induced land use change according to our definition.

Table S2 Merged sectors in this study

Sectors in emission inventories	Sectors in input-output tables	Sectors in this study
Farming, Forestry, Animal Husbandry, Fishery and Water Conservancy	Farming, Forestry, Animal Husbandry, Fishery and Water Conservancy	Farming, Forestry, Animal Husbandry, Fishery and Water Conservancy
Coal Mining and Dressing	Coal Mining and Dressing	Coal Mining and Dressing
Petroleum and Natural Gas Extraction	Petroleum and Natural Gas Extraction	Petroleum and Natural Gas Extraction
Ferrous Metals Mining and Dressing	Mining and processing of metal ores	Mining and processing of metal ores
Nonferrous Metals Mining and Dressing		
Nonmetal Minerals Mining and Dressing	Mining and processing of nonmetal and other ores	Mining and processing of nonmetal and other ores
Other Minerals Mining and Dressing		
Logging and Transport of Wood and Bamboo		
Food Processing	Food and tobacco processing	Food and tobacco processing
Food Production		
Beverage Production		
Tobacco Processing		
Textile Industry	Textile industry	Textile industry
Garments and Other Fiber Products	Manufacture of leather, fur, feather and related products	Manufacture of leather, fur, feather and related products
Leather, Furs, Down and Related Products		
Timber Processing, Bamboo, Cane, Palm Fiber & Straw Products	Processing of timber and furniture	Processing of timber and furniture
Furniture Manufacturing		
Papermaking and Paper Products	Manufacture of paper, printing and articles for culture, education and sport activity	Manufacture of paper, printing and articles for culture, education and sport activity
Printing and Record Medium Reproduction		
Cultural, Educational and Sports Articles		
Petroleum Processing and Coking	Petroleum Processing and Coking	Petroleum Processing and Coking
Raw Chemical Materials and Chemical Products	Raw Chemical Materials and Chemical Products	Raw Chemical Materials and Chemical Products

Medical and Pharmaceutical Products	Manuf. of non -metallic mineral products	Manuf. of non -metallic mineral products
Chemical Fiber		
Rubber Products		
Plastic Products		
Nonmetal Mineral Products		
Smelting and Pressing of Ferrous Metals	Smelting and processing of metals	Smelting and processing of metals
Smelting and Pressing of Nonferrous Metals		
Metal Products	Metal Products	Metal Products
Ordinary Machinery	Ordinary Machinery	Ordinary Machinery
Equipment for Special Purposes	Equipment for Special Purposes	Equipment for Special Purposes
Transportation Equipment	Transportation Equipment	Transportation Equipment
Electric Equipment and Machinery	Electric Equipment and Machinery	Electric Equipment and Machinery
Electronic and Telecommunications Equipment	Electronic and Telecommunications Equipment	Electronic and Telecommunications Equipment
Instruments, Meters, Cultural and Office Machinery	Instruments, Meters, Cultural and Office Machinery	Instruments, Meters, Cultural and Office Machinery
Other Manufacturing Industry	Other manufacturing and waste resources	Other manufacturing and waste resources
Scrap and waste		
	Repair of metal products, machinery and equipment	
Production and Supply of Electric Power, Steam and Hot Water	Production and Supply of Electric Power, Steam and Hot Water	Production and Supply of Electric Power, Steam and Hot Water
Production and Supply of Gas	Production and Supply of Gas	Production and Supply of Gas
Production and Supply of Tap Water	Production and Supply of Tap Water	Production and Supply of Tap Water
Construction	Construction	Construction
Transportation, Storage, Post and Telecommunication Services	Transport, storage, and postal services	Transportation, Storage, Post and Telecommunication Services
	Information transfer, software and information technology services	
Wholesale, Retail Trade and Catering Services	Wholesale and retail trades	Wholesale, Retail Trade and Catering Services

Others

Accommodation and catering

Finance

Real estate

Leasing and commercial services

Scientific research

Polytechnic services

Administration of water, environment, and public facilities

Resident, repair and other services

Education

Health care and social work

Culture, sports, and entertainment

Public administration, social insurance, and social organizations

Others