

Contents

1	Introduction	1
1.1	Scientific Background of Climate Change	1
1.2	International Efforts on Climate Change Mitigation	2
1.3	Energy Consumption and Carbon Emission in China	4
1.4	China's National Strategy on Climate Change Mitigation	6
	References	9
2	China's National, Regional, and City's Carbon Emission Inventories	13
2.1	Methodology for Emission Accounting	13
2.1.1	Calculation of Carbon Emissions from Fossil Fuel Combustion	13
2.1.2	Calculation of Carbon Emission from Cement Production	14
2.1.3	Calculation of Carbon Emission from Industrial Process	16
2.2	Emission Factors	18
2.3	China's National Carbon Emission Inventories	23
2.3.1	Carbon Emission from Energy Combustion	23
2.3.2	Carbon Emission from Cement Production Process	24
2.3.3	Emission from Industrial Process	25
2.4	China's Provincial Carbon Emission Inventories	27
2.4.1	Methods	27
2.4.2	Carbon Emissions from 30 Provinces in 1995–2010	28
2.5	Difference of China's Carbon Emission Estimates Between National and Provincial Statistics	31
2.6	City's Carbon Emission Inventories	34
2.6.1	Methodology	34
2.6.2	Carbon Emissions in Chinese Megacities: Case Study in Beijing, Tianjin, Shanghai, and Chongqing	35
2.6.3	Carbon Emissions from 150 Chinese Cities	40

2.7	Summary	41
	References	41
3	Carbon Emissions from Regions and Sectors	45
3.1	Characteristics of China's Regional Carbon Emissions	45
3.2	The Spatial Autocorrelation of China's Carbon Emissions	48
3.2.1	Methodology—Spatial Autocorrelation.	50
3.2.2	Results.	51
3.3	Carbon Emissions from Sectors.	52
3.3.1	Carbon Intensity for Sectors	55
3.4	The Embodied Energy Consumption and Carbon Emissions from China's Industrial Sectors	61
3.4.1	Methodology—Environmental Extend Input–Output Model (EIO).	61
3.4.2	Results of Embodied Energy Consumption.	63
3.4.3	Discussion and Policy Implications of Embodied Energy Consumption	68
3.5	Summary	71
	References	72
4	Driving Factors of China's Carbon Emissions.	75
4.1	Methodology	75
4.2	Driving Factors of Carbon Emission from 1997 to 2009.	77
4.3	Summary	83
	References	83
5	Carbon Emissions Embodied in Trade	85
5.1	Methodology	85
5.1.1	Estimates of Sectoral Level Imported and Exported CO ₂ Emissions	86
5.1.2	Emissions and Trade Data	87
5.2	Carbon Emissions Embodied in Domestic Trade	88
5.3	Carbon Emissions Embodied in International Trade	88
5.4	Summary	96
	References	96
6	Policy Implications for China's Low-Carbon Development	99
6.1	Disaggregate National Targets into Regions	99
6.2	Low-Carbon Technology Revolution	100
6.3	Expand Carbon Trading Nationwide	101