Dear reviewer,

Thanks a lot for your recognition and the valuable suggestions!

This file shows all the revised and supplementary figures and tables mentioned in the response text.

All the corrections and responses will be incorporated into the new revised manuscript (manuscript_R1). If further responses and corrections should be made, please don't hesitate to let me know.

Yours Sincerely
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Figure R1 (Figure S1 in supplement_R1): Comparison of China's emission inventories compiled in this study and in other studies.

Table R1: Comparison of research contents among similar studies.

Elements		This study	Zheng et al. (2018)	Gao et al. (2022)	Zhang et al. (2022)
Dataset		ABaCAS-EI	MEIC	CHRED 3.0A	China Environment Yearbook, CHRED
Time		2005-2021	2010-2017	2018	2012-2018
Spatial scale		province city	nation	city grid (10km)	city
Sector		15 subsectors	5 sectors	21 subsectors	NA
Historical trend	reduction measures	structure adjustment energy & material saving end-of-pipe control	end-of-pipe control	NA	energy use technological progress end-of-pipe control
	co-control achievement	sector province/city	NA	NA	city
Future priority	potential synergistic reduction	sector province/city measure	NA	grid	measure

NA: not analyzed

Table R2: Information list of ABaCAS-EI v2.0 dataset.

NO.	Type	Content
1	Text	Profile of emission inventory and research team
2	Text	Emission source framework
3	Text	Emission inventory methodology
4	Text	Basic data sources
5	Data	Example data of activity level
6	Data	Example data of emission factor
7	Data	Example data of reduction measure application ratio and efficiency
8	Data	Air pollutants and CO_2 emissions during 2005–2021 by species, sector, and province
9	Figure	Example figure of emission trend in China from 2005 to 2021
10	Figure	Example figure of gird emissions in 2021 in China
11	Figure	Example figure of source contributions in 2021 in China

Table R3: Example data of end-of-pipe measures in power plant in China in 2020.

Source	Sector	Fuel	Technology	Measure type	Removal species	Measure name [a]	Application ratio	Removal efficiency
Power plant	Coal-fired power	Coal	pulverized coal boiler - sub critical >=300MW	End-of-pipe	SO_2	FGD	100%	96%
					NOx	LNB-SCR	97%	88%
						LNB-SNCR	3%	71%
						LNB	0%	59%
					$PM_{2.5}$	ESP-FF	36.3%	99.8%
						LTESP-WESP	28.6%	98.95%
						FF	5.2%	99%
						LTESP	27.5%	97.26%
						ESP	2.3%	93%

a: FGD, flue gas desulfurization; LNB, low nitrogen combustion technology; SCR, selective catalytic reduction; SNCR, selective non-catalytic reduction; ESP-FF, electrostatic and fabric composite filter; LTESP, low temperature electrostatic precipitator; WESP, wet electrostatic precipitator.

Table R4 (Table S2 in supplement_R1): Major data sources of activity data of different emission sources.

Emission sources	Activity data	Major data sources[a]
Power plant	Fuel consumption	China Energy Statistical Yearbook, section 6: Regional Energy Balance Sheets Compendium of statistical data on the electric power industry, Table 2-2: Electricity generation by region
Industrial boiler	Fuel consumption	China Energy Statistical Yearbook, section 6: Regional Energy Balance Sheets China's Environmental Statistics (not publicly released) Industrial investigation (not publicly released)
Residential combustion	Fuel consumption	China Energy Statistical Yearbook, section 6: Regional Energy Balance Sheets China Statistical Yearbook, Table 14-23: Building areas
Transport	Vehicle population	China Statistical Yearbook, Table 16-20: Civil vehicle population China Transportation Statistical Yearbook, Table: Public transport population
	Fuel consumption	China Energy Statistical Yearbook, section 6: Regional Energy Balance Sheets International Energy Agency dataset: https://www.iea.org/ (last access: 8 November 2022)
Open burning	Biomass consumption	China Statistical Yearbook, Table 12-10: Major agricultural products production Satellite observation product of MODIS burned area: MCD64Al, http://modis-fire.umd.edu/ (last access: 8 November 2022)
Industrial process	Industrial product output	China Statistical Yearbook, Table 13-13: Industrial products output by region China Industrial Statistics Yearbook, Table 3-55: Industrial products output by region China Iron and Steel Industry Yearbook, Table 7: Artificial block ore output China Nonferrous Metal Yearbook, Table: Non-ferrous metal output by region China Building Materials Industry Yearbook, Table: Major building materials products output China Chemical Industry Yearbook, Table 8: Major products output China's Environmental Statistics (not publicly released) Industrial investigation (not publicly released)
Solvent	Solvent consumption	China Light Industry Yearbook, Table 2: Major products output China Paint Industry Yearbook, section 3: Architectural coatings market review and development trend outlook China Coating Industry Association dataset: https://www.chinacoatingnet.com/index2.php (last access: 8 November 2022) China adhesives and tape industry association dataset: https://www.catia-china.com/ (last access: 8 November 2022)

Oil storage and transportation	Oil production and sales	China Energy Statistical Yearbook, Table 3-5: Gasoline production by region; Table 3-6: Diesel production by region
Waste treatment	Waste disposal volume	China Environmental Statistical Yearbook, Table 10-6: Municipal wastewater discharge and treatment by region, Table 10-7: Urban appearance and environmental health by region
Agriculture	Livestock stocking	Chinese Animal Husbandry and Veterinary Yearbook, Table: Annual slaughter of major livestock by region, Table: Annual stock of major livestock by region
	Fertilizer application	China Rural Statistical Yearbook, Table 3-6: Chemical fertilizer application amount by region Compendium of cost and income data of national agricultural products, Table: Fertilizer input by crop

a: All data collected from national yearbooks can be retrieved from the official website of National Bureau of Statistics: https://data.stats.gov.cn/english/, last access: 25 April 2023.

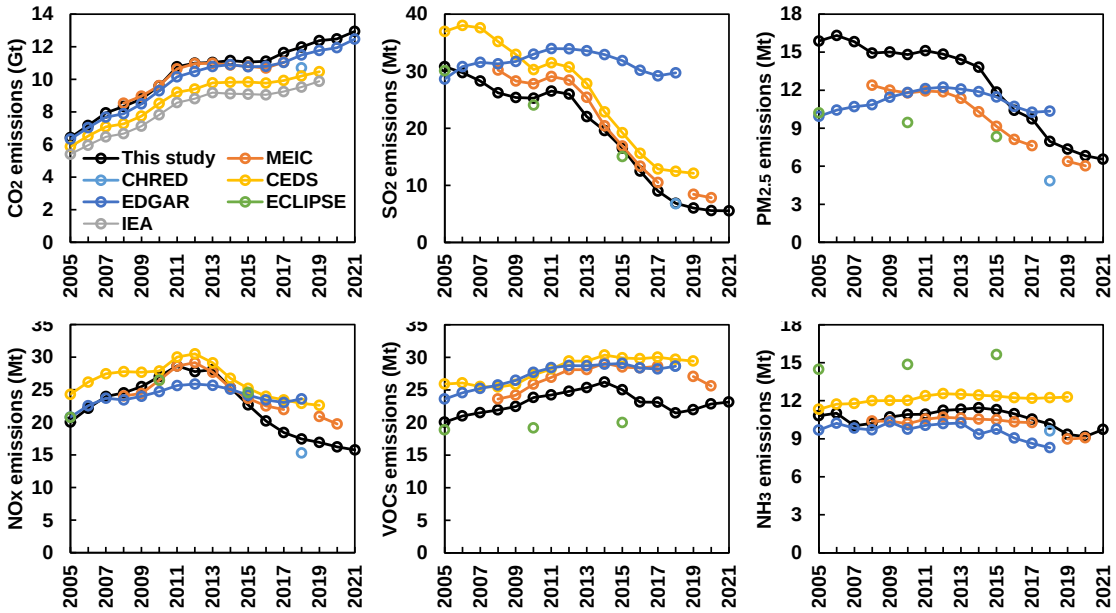

Figure R1 (Figure S1 in supplement_R1): Comparison of China's emission inventories compiled in this study and in other studies.