

Supplementary Information

Compilation of an Embodied CO₂ Emission Inventory for China Using 135-Sector Input-Output Tables. *Sustainability* 2015, 7, 8223-8239

Qian Zhang *, Jun Nakatani and Yuichi Moriguchi

Department of Urban Engineering, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-8656, Japan; E-Mails: nakatani@env.t.u-tokyo.ac.jp (J.N.); yuichi@env.t.u-tokyo.ac.jp (Y.M.)

* Author to whom correspondence should be addressed; E-Mail: zhang_qian@env.t.u-tokyo.ac.jp; Tel./Fax: +81-3-5841-1279.

Table S1. Explanation of data sources.

Sources	Contents	Characteristics	
	Energy balance sheets	Energy transformation and loss	
China Energy Statistical Yearbook [1]	The table of final energy consumption in industrial sectors	16 fuels: raw coal, cleaned coal, other washed coal, coke, coke oven gas, other gas, other coking products, crude oil, gasoline, kerosene, diesel, fuel oil, LPG, refinery gas, other	
	Appendix of standard coal coefficients	petroleum products, and natural gas Default heat value of fuels in China	
	The table of energy consumption in	8 fuels: coal total, coke, crude oil,	
China Statistical Yearbook [2]	primary industry, construction,	gasoline, kerosene, diesel, fuel oil,	
	tertiary industry, and household use	and natural gas	
	The sheet of investment in	Invested money in urban	
	environmental treatment	environmental infrastructure	
Input-Output Tables of China	Input output tables and coefficients	135 sectors including 40 sectors of	
in 2007 [3]	Input-output tables and coefficients	tertiary industry	
Guidelines for national inventories [4]	Volume 2: Energy	Default carbon contents and heat value of fuels (as reference)	

Table S2. Clarification of sector names in this study [3].

Specific IO Sector	Code II	Code I	Corresponding General IO Sector
Farming	001	1	Agriculture, Forestry, Animal Husbandry, and Fishery
Forestry	002	1	Agriculture, Forestry, Animal Husbandry, and Fishery
Animal Husbandry	003	1	Agriculture, Forestry, Animal Husbandry, and Fishery
Fishery	004	1	Agriculture, Forestry, Animal Husbandry, and Fishery
Services in Support of Agriculture	005	1	Agriculture, Forestry, Animal Husbandry, and Fishery
Mining and Washing of Coal	006	2	Mining and Washing of Coal
Extraction of Petroleum and Natural Gas	007	3	Extraction of Petroleum and Natural Gas
Mining of Ferrous Metal Ores	008	4	Mining of Metal Ores
Mining of Non-Ferrous Metal Ores	009	4	Mining of Metal Ores
Mining and Processing of Nonmetal Ores			Mining and Processing of Nonmetal Ores
and Other Ores	010	5	and Other Ores
Grinding of Grains	011	6	Manufacture of Foods and Tobacco
Processing of Forage	012	6	Manufacture of Foods and Tobacco
Refining of Vegetable Oil	013	6	Manufacture of Foods and Tobacco
Manufacture of Sugar	014	6	Manufacture of Foods and Tobacco
Slaughtering and Processing of Meat	015	6	Manufacture of Foods and Tobacco
Processing of Aquatic Product	016	6	Manufacture of Foods and Tobacco
Processing of Other Foods	017	6	Manufacture of Foods and Tobacco
Manufacture of Convenience Food	018	6	Manufacture of Foods and Tobacco
Manufacture of Liquid Milk and Dairy Products	019	6	Manufacture of Foods and Tobacco
Manufacture of Flavoring and Ferment Products	020	6	Manufacture of Foods and Tobacco
Manufacture of Other Foods	021	6	Manufacture of Foods and Tobacco
Manufacture of Alcohol and Wine	022	6	Manufacture of Foods and Tobacco
Processing of Soft Drinks and Purified Tea	023	6	Manufacture of Foods and Tobacco
Manufacture of Tobacco	024	6	Manufacture of Foods and Tobacco
Spinning and Weaving, Printing and Dyeing of	025	7	M. C. C. CT. CI
Cotton and Chemical Fiber	025	7	Manufacture of Textiles
Spinning and Weaving, Dyeing	026	7	Manufacture of Textiles
and Finishing of Wool	026	7	Manufacture of Textiles
Spinning and Weaving of Hemp and Tiffany	027	7	Manufacture of Textiles
Manufacture of Textile Products	028	7	Manufacture of Textiles
Manufacture of Knitted Fabric and Its Products	029	7	Manufacture of Textiles
Manufacture of Textile Wearing Apparel,	030	8	Manufacture of Textile Wearing Apparel, Footwear,
Footwear, and Caps			Caps, Leather, Fur, Feather and Its Products
Manufacture of Leather, Fur, Feather	031	8	Manufacture of Textile Wearing Apparel, Footwear,
and Its Products	031	0	Caps, Leather, Fur, Feather and Its Products
Processing of Timbers, Manufacture of Wood,	032	9	Processing of Timbers and Manufacture of Furniture
Bamboo, Rattan, Palm, and Straw Products			and remaind of a minute
Manufacture of Furniture	033	9	Processing of Timbers and Manufacture of Furniture
Manufacture of Paper and Paper Products	034	10	Papermaking, Printing and Manufacture of Articles for
			Culture, Education, and Sports Activities
Printing, Reproduction of Recording Media	035	10	Papermaking, Printing and Manufacture of Articles for
			Culture, Education, and Sports Activities

Table S2. Cont.

Specific IO Sector	Code II	Code I	Corresponding General IO Sector
Manufacture of Articles for Culture, Education	036	10	Papermaking, Printing and Manufacture of Articles for
and Sports Activities	030	10	Culture, Education, and Sports Activities
Processing of Petroleum and Nuclear Fuel	037	11	Processing of Petroleum, Coking, Processing of
rrocessing of retroleum and Nuclear rue	037	11	Nuclear Fuel
Coking	038	11	Processing of Petroleum, Coking, Processing of
Coking	038	11	Nuclear Fuel
Manufacture of Basic Chemical Raw Materials	039	12	Chemical Industry
Manufacture of Fertilizers	040	12	Chemical Industry
Manufacture of Pesticides	041	12	Chemical Industry
Manufacture of Paints, Printing Inks, Pigments and	042	12	Chemical Industry
Similar Products	042	12	Chemical muusuy
Manufacture of Synthetic Materials	043	12	Chemical Industry
Manufacture of Special Chemical Products	044	12	Chemical Industry
Manufacture of Chemical Products for Daily Use	045	12	Chemical Industry
Manufacture of Medicines	046	12	Chemical Industry
Manufacture of Chemical Fiber	047	12	Chemical Industry
Manufacture of Rubber	048	12	Chemical Industry
Manufacture of Plastic	049	12	Chemical Industry
Manufacture of Cement, Lime, and Plaster	050	13	Manufacture of Non-Metallic Mineral Products
Manufacture of Products of Cement and Plaster	051	13	Manufacture of Non-Metallic Mineral Products
Manufacture of Brick, Stone,	052	13	Manufacture of Non-Metallic Mineral Products
and Other Building Materials	032	13	Manufacture of Non-Metanic Mineral Froducts
Manufacture of Glass and Its Products	053	13	Manufacture of Non-Metallic Mineral Products
Manufacture of Pottery and Porcelain	054	13	Manufacture of Non-Metallic Mineral Products
Manufacture of Fire-resistant Materials	055	13	Manufacture of Non-Metallic Mineral Products
Manufacture of Graphite and Other Nonmetallic	056	13	Manufacture of Non-Metallic Mineral Products
Mineral Products	050	13	Manufacture of Non-Metanic Mineral Froducts
Iron-Smelting	057	14	Smelting and Rolling of Metals
Steel making	058	14	Smelting and Rolling of Metals
Rolling of Steel	059	14	Smelting and Rolling of Metals
Smelting of Ferroalloy	060	14	Smelting and Rolling of Metals
Smelting of Non-Ferrous Metals and Manufacture	061	14	Smelting and Rolling of Metals
of Alloys		14	Silierung and Rolling of Wetais
Rolling of Non-Ferrous Metals	062	14	Smelting and Rolling of Metals
Manufacture of Metal Products	063	15	Manufacture of Metal Products
Manufacture of Boiler and Prime Mover	064	16	Manufacture of General Purpose and
Manufacture of Boner and Frime Mover	064	10	Special Purpose Machinery
Manufacture of Metalmouling Washing	065	16	Manufacture of General Purpose and
Manufacture of Metalworking Machinery			Special Purpose Machinery
Manufacture of Liftons	066	16	Manufacture of General Purpose and
Manufacture of Lifters			Special Purpose Machinery
Manufacture of Pump,	067	16	Manufacture of General Purpose and
Valve and Similar Machinery	067	16	Special Purpose Machinery

Table S2. Cont.

Specific IO Sector	Code II	Code I	Corresponding General IO Sector
Manufacture of Other Consuel Brown on Maskinson	069	16	Manufacture of General Purpose and
Manufacture of Other General Purpose Machinery	068	16	Special Purpose Machinery
Manufacture of Special Purpose Machinery for	060	16	Manufacture of General Purpose and
Mining, Metallurgy, and Construction	069	16	Special Purpose Machinery
Manufacture of Special Purpose Machinery for			Manufacture of Canaral Dumaga and
Chemical Industry, Processing of Timber, and	070	16	Manufacture of General Purpose and Special Purpose Machinery
Nonmetals			Special Fulpose Machinery
Manufacture of Special Purpose Machinery			Manufacture of General Purpose and
for Agriculture, Forestry, Animal Husbandry,	071	16	Special Purpose Machinery
and Fishery			Special Larpose Machinery
Manufacture of Other Special Purpose Machinery	072	16	Manufacture of General Purpose and
Wallufacture of Other Special Lurpose Watchinery	072	10	Special Purpose Machinery
Manufacture of Railroad Transport Equipment	073	17	Manufacture of Transport Equipment
Manufacture of Automobiles	074	17	Manufacture of Transport Equipment
Manufacture of Boats and Ships	075	17	Manufacture of Transport Equipment
and Floating Devices	073		Manufacture of Transport Equipment
Manufacture of Other Transport Equipment	076	17	Manufacture of Transport Equipment
Manufacture of Generators	077	18	Manufacture of Electrical Machinery and Equipment
Manufacture of Equipment for	078	18	Manufacture of Electrical Machinery and Equipment
Power Transmission and Distribution and Control	070	10	Manufacture of Electrical Machinery and Equipment
Manufacture of Wire, Cable, Optical Cable,	079	18	Manufacture of Electrical Machinery and Equipment
and Electrical Appliances			manufacture of Electron (Manufacture) and Equipment
Manufacture of Household Electric and	080	18	Manufacture of Electrical Machinery and Equipment
Non-electric Appliances			
Manufacture of Other Electrical Machinery	081	18	Manufacture of Electrical Machinery and Equipment
and Equipment			,
Manufacture of Communication Equipment	082	19	Manufacture of Communication Equipment,
			Computers, and Other Electronic Equipment
Manufacture of Radar	083	19	Manufacture of Communication Equipment,
and Broadcasting Equipment			Computers, and Other Electronic Equipment
Manufacture of Computer	084	19	Manufacture of Communication Equipment,
			Computers, and Other Electronic Equipment
Manufacture of Electronic Component	085	19	Manufacture of Communication Equipment, Computers, and Other Electronic Equipment
			Manufacture of Communication Equipment,
Manufacture of Household Audiovisual Apparatus	086	19	Computers, and Other Electronic Equipment
			Manufacture of Communication Equipment,
Manufacture of Other Electronic Equipment	087	19	
			Computers, and Other Electronic Equipment Manufacture of Measuring Instruments and Machinery
Manufacture of Measuring Instruments	088	20	for Cultural Activity and Office Work
Manufacture of Machinery			Manufacture of Measuring Instruments and Machinery
for Culture Activities and Office Work	089	20	for Cultural Activity and Office Work
Manufacture of Artwork, Other Manufacture	090	21	Manufacture of Artwork, Other Manufacture
Scrap and Waste	090	22	Scrap and Waste
ociap anu wasic	091	22	ociap and wasic

Table S2. Cont.

Specific IO Sector	Code II	Code I	Corresponding General IO Sector
Production and Supply of Electric Power	000		Production and Supply of Electric Power and Heat
and Heat Power	092	23	Power
Production and Distribution of Gas	093	24	Production and Distribution of Gas
Production and Distribution of Water	094	25	Production and Distribution of Water
Construction	095	26	Construction
Transport via Railway	096	27	Traffic, Transport, and Storage
Transport via Road	097	27	Traffic, Transport, and Storage
Urban Public Traffic	098	27	Traffic, Transport, and Storage
Water Transport	099	27	Traffic, Transport, and Storage
Air Transport	100	27	Traffic, Transport and Storage
Transport via Pipeline	101	27	Traffic, Transport, and Storage
Loading, Unloading, Portage,	101		Traine, Trainsport, and Storage
and Other Transport Services	102	27	Traffic, Transport, and Storage
Storage	103	27	Traffic, Transport, and Storage
Post	104	28	Post
Telecom & Other Information	104	20	Information Transmission, Computer Services, and
Transmission Services	105	29	Software
Transmission services			Information Transmission, Computer Services, and
Computer Services	106	29	Software
			Information Transmission, Computer Services, and
Software Industry	107	29	Software
Wholesale and Retail Trades	108	30	Wholesale and Retail Trades
Hotels	109	31	Hotels and Catering Services
Catering Services	110	31	Hotels and Catering Services
Banking, Security, Other Financial Activities	111	32	Financial Intermediation
Insurance	112	32	Financial Intermediation
Real Estate	113	33	Real Estate
Leasing	114	34	Leasing and Business Services
Business Services	115	34	Leasing and Business Services
Tourism	116	34	Leasing and Business Services
Research and Experimental Development	117	35	Research and Experimental development
Professional Technical Services	118	36	Comprehensive Technical Services
Services of Science and Technology Exchanges			-
and Promotion	119	36	Comprehensive Technical Services
Geological Prospecting	120	36	Comprehensive Technical Services
			Management of Water Conservancy, Environment, and
Management of Water Conservancy	121	37	Public Facilities
		37	Management of Water Conservancy, Environment, and
Environment Management	122		Public Facilities
			Management of Water Conservancy, Environment, and
Management of Public Facilities	123	37	Public Facilities
Services to Households	124	38	Services to Household and Other Services
Other Services	125	38	Services to Household and Other Services
Net 11000	123	55	The state of the s

Table S2. Cont.

Specific IO Sector	Code II	Code I	Corresponding General IO Sector
Education	126	39	Education
Health	127	40	Health, Social Security, and Social Welfare
Social Security	128	40	Health, Social Security, and Social Welfare
Social Welfare	129	40	Health, Social Security, and Social Welfare
Journalism and Publishing Activities	130	41	Culture, Sports, and Entertainment
Broadcasting, Movies, Televisions,	131	41	Culture, Sports, and Entertainment
and Audiovisual Activities			
Cultural and Art Activities	132	41	Culture, Sports, and Entertainment
Sports Activities	133	41	Culture, Sports, and Entertainment
Entertainment	134	41	Culture, Sports, and Entertainment
Public Management and Social Organization	135	42	Public Management and Social Organization

References

- 1. NBS. Chinese Energy Statistics Yearbook-2007; China Statistics Press: Beijing, China, 2008.
- 2. NBS. China Statistical Yearbook 2008. Available online: http://www.stats.gov.cn/tjsj/ndsj/2008/indexeh.htm (accessed on 13 April 2015).
- 3. NBS. 2007 Input-Output Tables of China; China Statistics Press: Beijing, China, 2009.
- 4. IPCC. 2006 IPCC Guidelines for National Greenhouse Gas Inventories; Eggleston, H.S., Buendia, L., Miwa, K., Ngara, T., Tanabe, K., Eds.; Institute for Global Environmental Strategies (IGES): Tokyo, Japan, 2006.
- © 2015 by the authors; licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license (http://creativecommons.org/licenses/by/4.0/).