

CEDS Version Comparison

CEDS_v_2024_07_08 vs CMIP6 Release (v_2016_07_16)

Rachel M. Hoesly, Steven J. Smith, Noah Prime, Hamza Ahsan, Harrison Suchyta,
Patrick R O'Rourke, Monica Crippa, Zbigniew Klimont, Diego Guizzardi, Jenna Behrendt,
Leyang Feng, Colin Harkins, Brian C. McDonald, Andrea Mott, Erin E. McDuffie,
Matthew B Nicholson, Shuxiao Wang

List of Tables and Figures

A. Overview of Data System Updates and Emissions Differences	3
B. Global emissions by species	4
Figure S1 Global historical emissions by emissions species (1750-1965). CH4 emissions only estimated from 1850 in CMIP6. N2O emissions not estimated in CMIP6.	4
Figure S2 Global historical emissions by emissions species over recent decades (1960-2022). N2O emissions not estimated in CMIP6.	5
C. Global emissions by aggregate sector	6
Figure S3 Global historical emissions by aggregate sector (1750-1965). CH4 emissions only estimated from 1850 in CMIP6. N2O emissions not estimated in CMIP6.	6
Figure S4 Global historical emissions by aggregate sector over recent decades (1960-2022). N2O emissions not estimated in CMIP6.	7
D. Emissions by aggregate region	8
Figure S5 Regional emissions by emissions species (1750-1965). CH4 emissions only estimated from 1850 in CMIP6. N2O emissions not estimated in CMIP6.	8
Figure S6 Regional emissions by emissions species over recent decades (1960-2022). N2O emissions not estimated in CMIP6.	9
E. Top emitting regions	10
Figure S7 Top emitting regions by emissions species (1750-1965). CH4 emissions only estimated from 1850 in CMIP6. N2O emissions not estimated in CMIP6.	10
Figure S8 Top emitting regions by emissions species over recent decades (1960-2022). N2O emissions not estimated in CMIP6.	11
F. Sector and Region Mapping	12
Table S1 Mapping of CEDS working sectors to aggregate figure sectors.	12
Table S2 Mapping of CEDS regions to aggregate figure regions in Section D.	13
Table S3 Mapping of CEDS regions to aggregate figure regions in Section E.	14

July 08, 2024

This document compares emission estimates from the v_2024_07_08 release of the Community Emissions Data System (CEDS) with values from the CMIP6 release (v_2016_07_16).

Comments and feedback are welcome. The best way to comment is through the CEDS Issues page.

For a more complete list of CEDS changes, updates, and **known issues** see the [release notes](#).

Previous [versions of this document](#) can be used to trace changes through CEDS versions.

For additional information on CEDS and this data system release, please see <https://github.com/JGCRI/CEDS>.

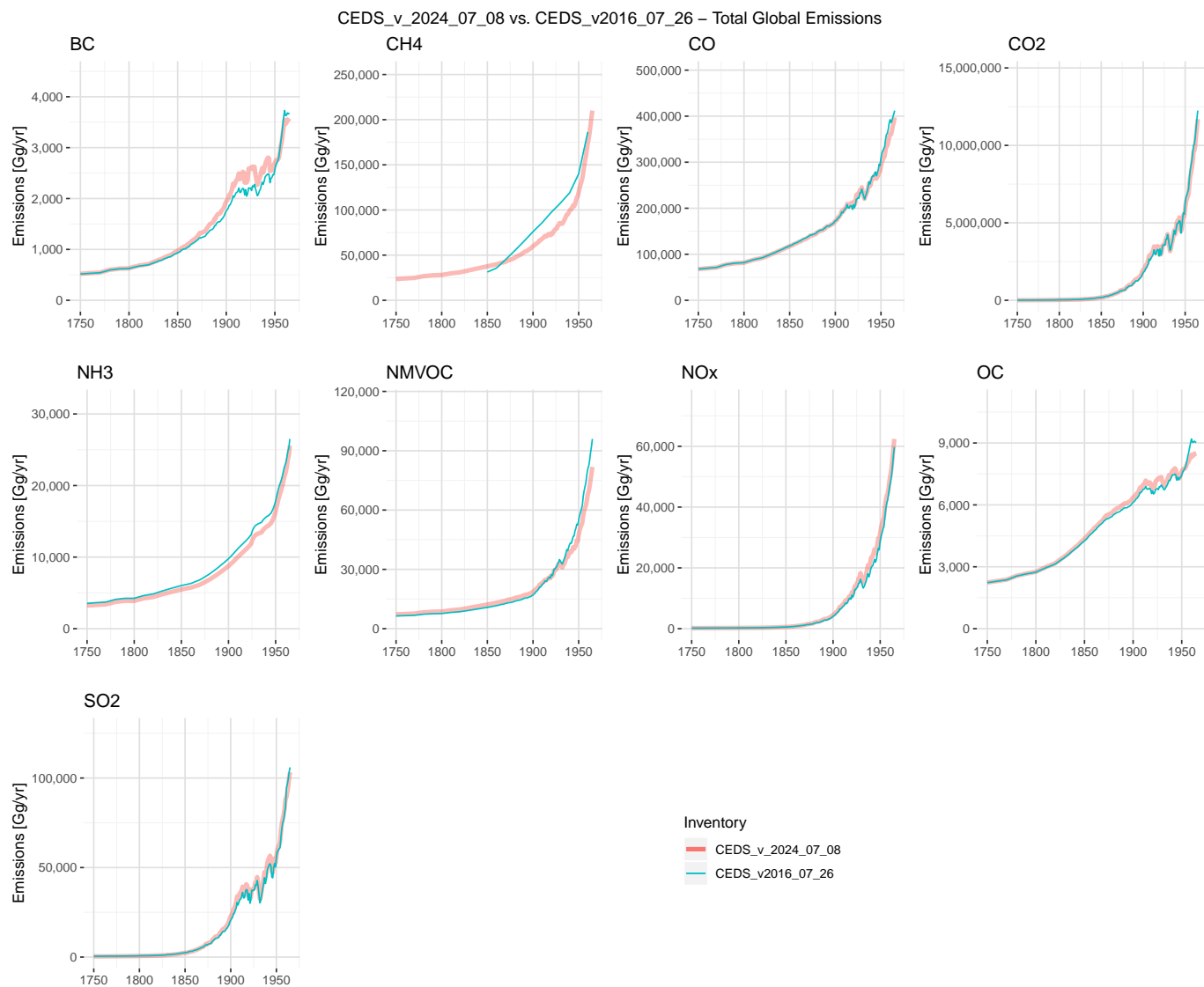


Figure S1: Global historical emissions by emissions species (1750-1965). CH4 emissions only estimated from 1850 in CMIP6. N2O emissions not estimated in CMIP6.

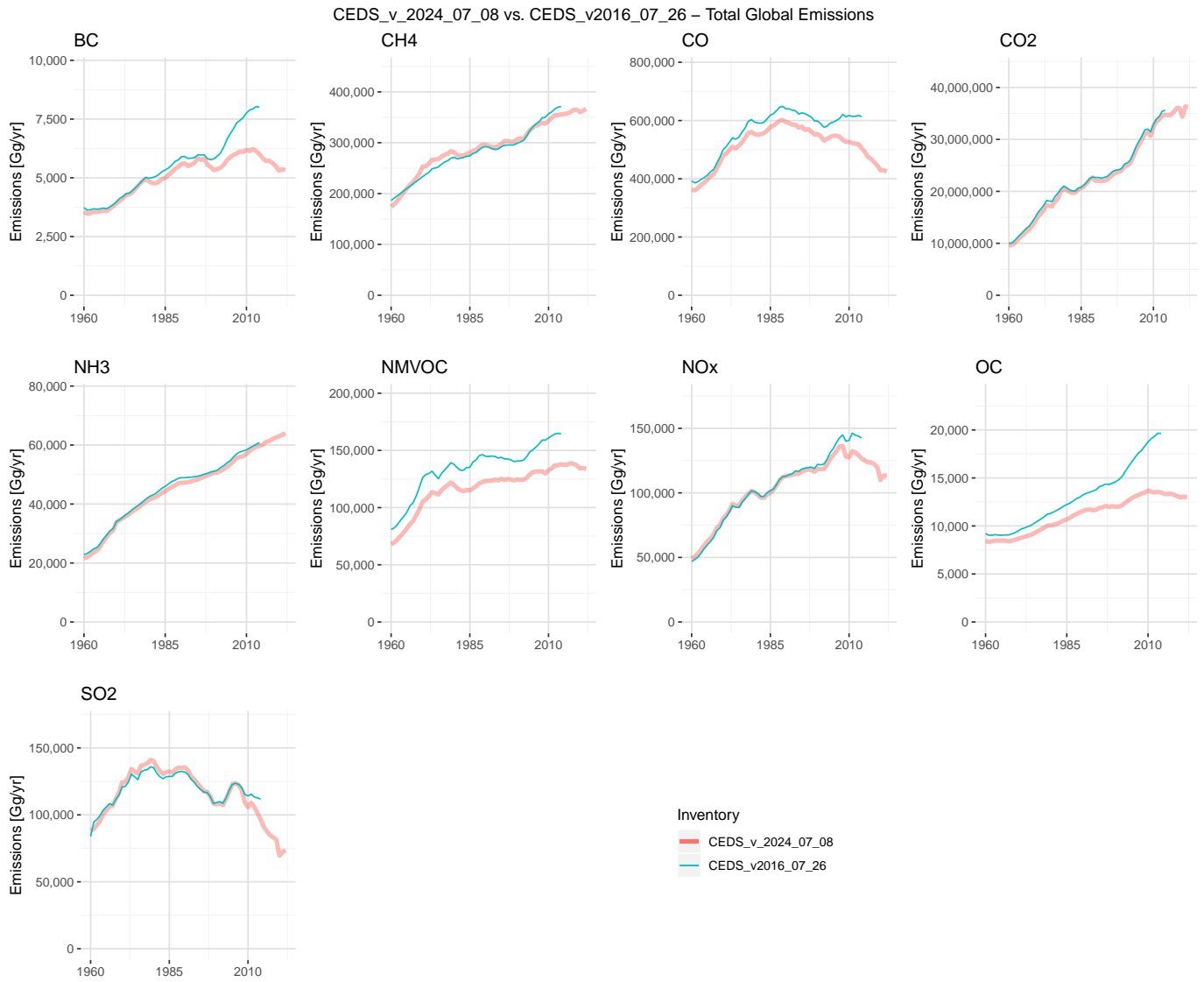


Figure S2: Global historical emissions by emissions species over recent decades (1960-2022). N₂O emissions not estimated in CMIP6.

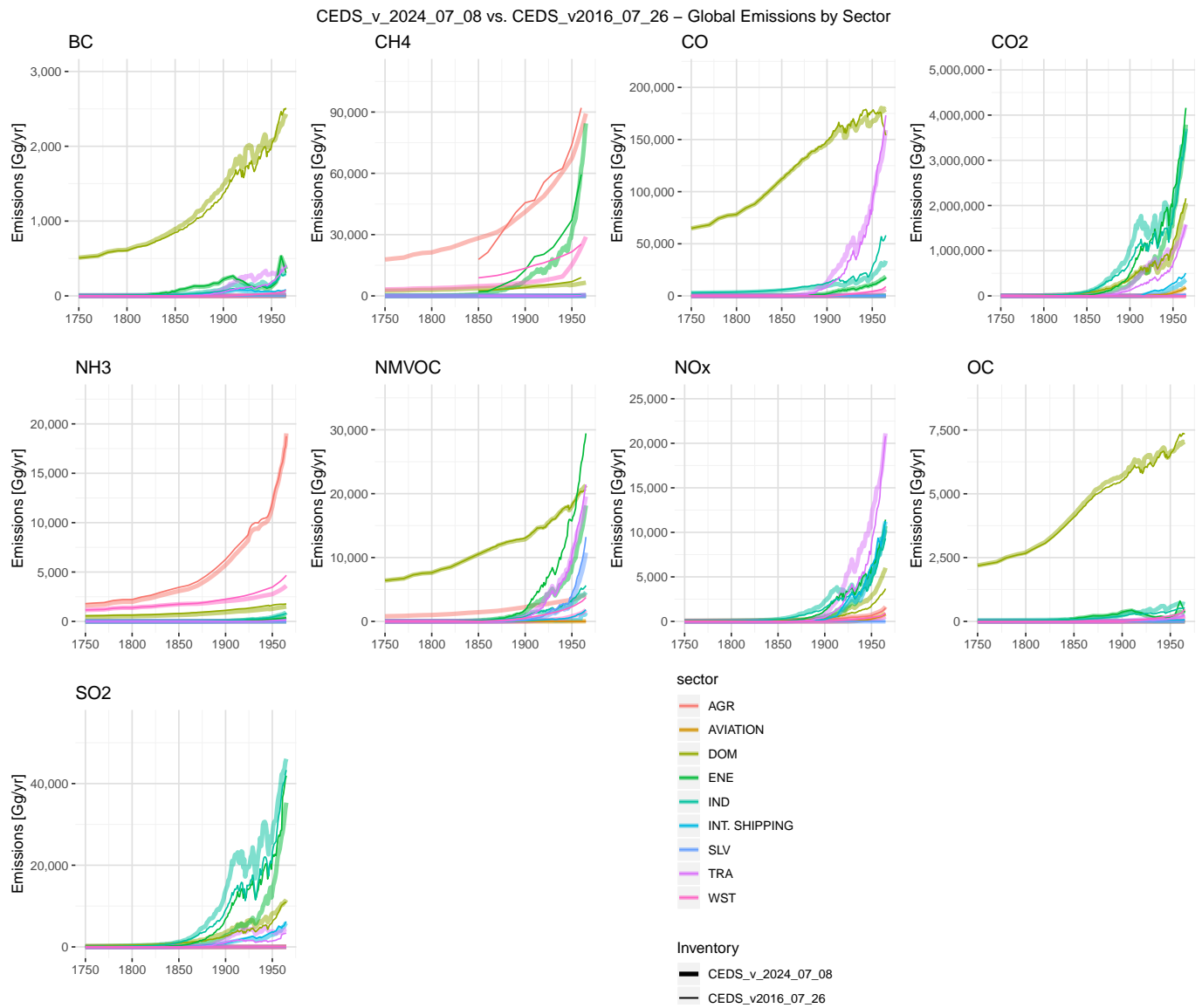


Figure S3: Global historical emissions by aggregate sector (1750-1965). CH4 emissions only estimated from 1850 in CMIP6. N2O emissions not estimated in CMIP6.

Note: See Table S1 for mapping of CEDS working sectors to aggregate sectors graphed here.

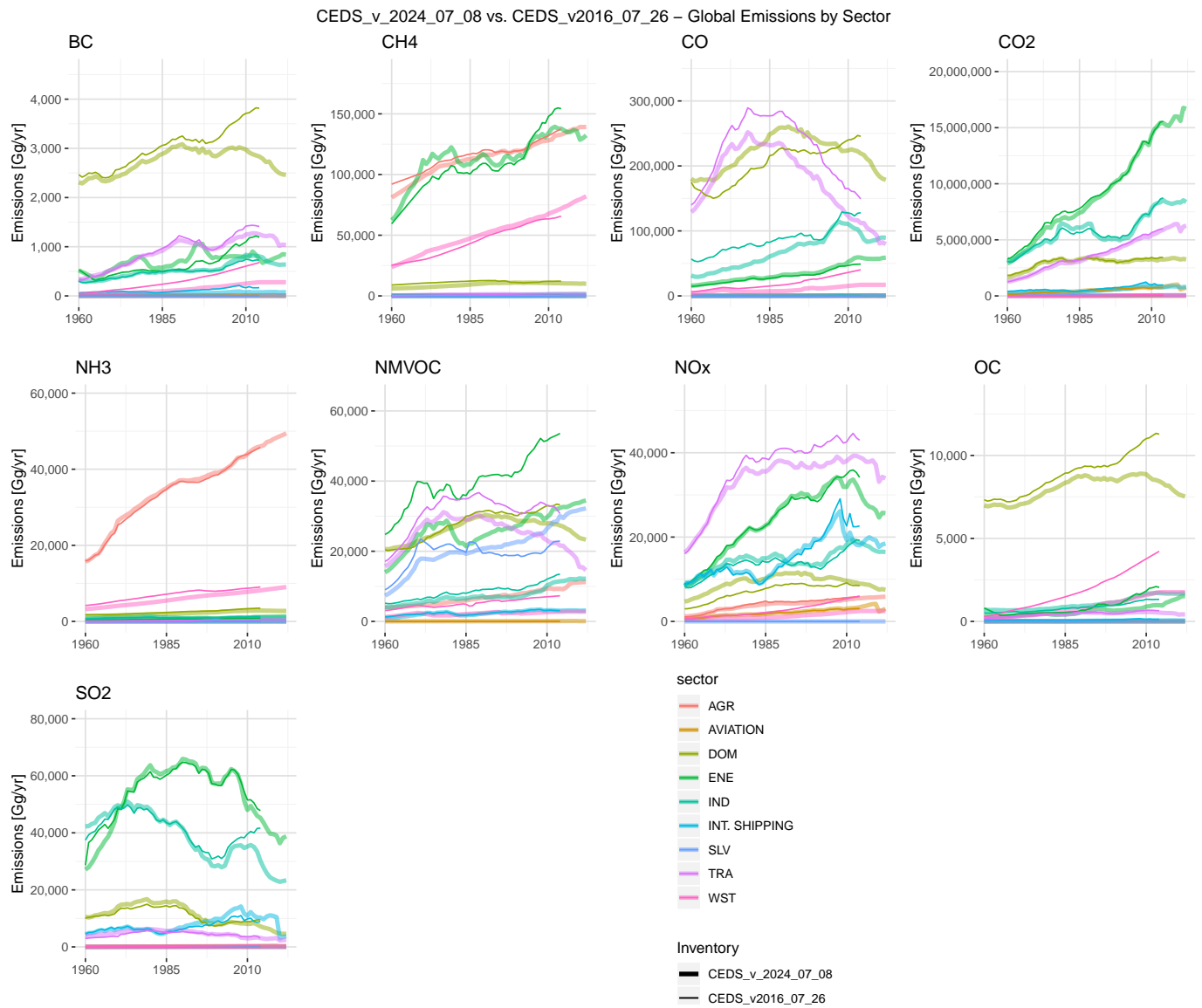


Figure S4: Global historical emissions by aggregate sector over recent decades (1960-2022). N₂O emissions not estimated in CMIP6.

Note: See Table S1 for mapping of CEDS working sectors to aggregate sectors graphed here.

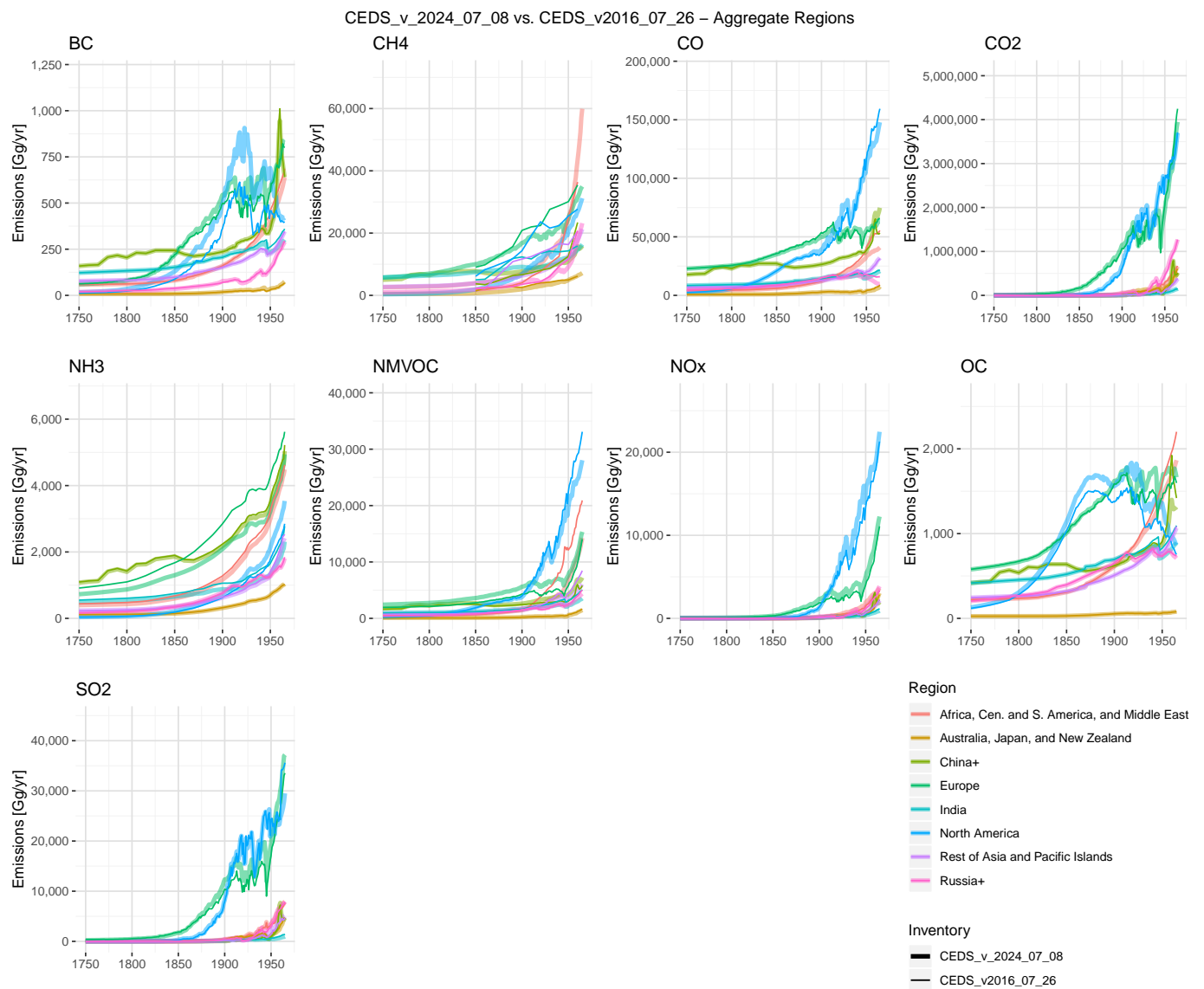


Figure S5: Regional emissions by emissions species (1750-1965). CH4 emissions only estimated from 1850 in CMIP6. N2O emissions not estimated in CMIP6.

Note: See Table S2 for mapping of CEDS regions to aggregate regions graphed here.

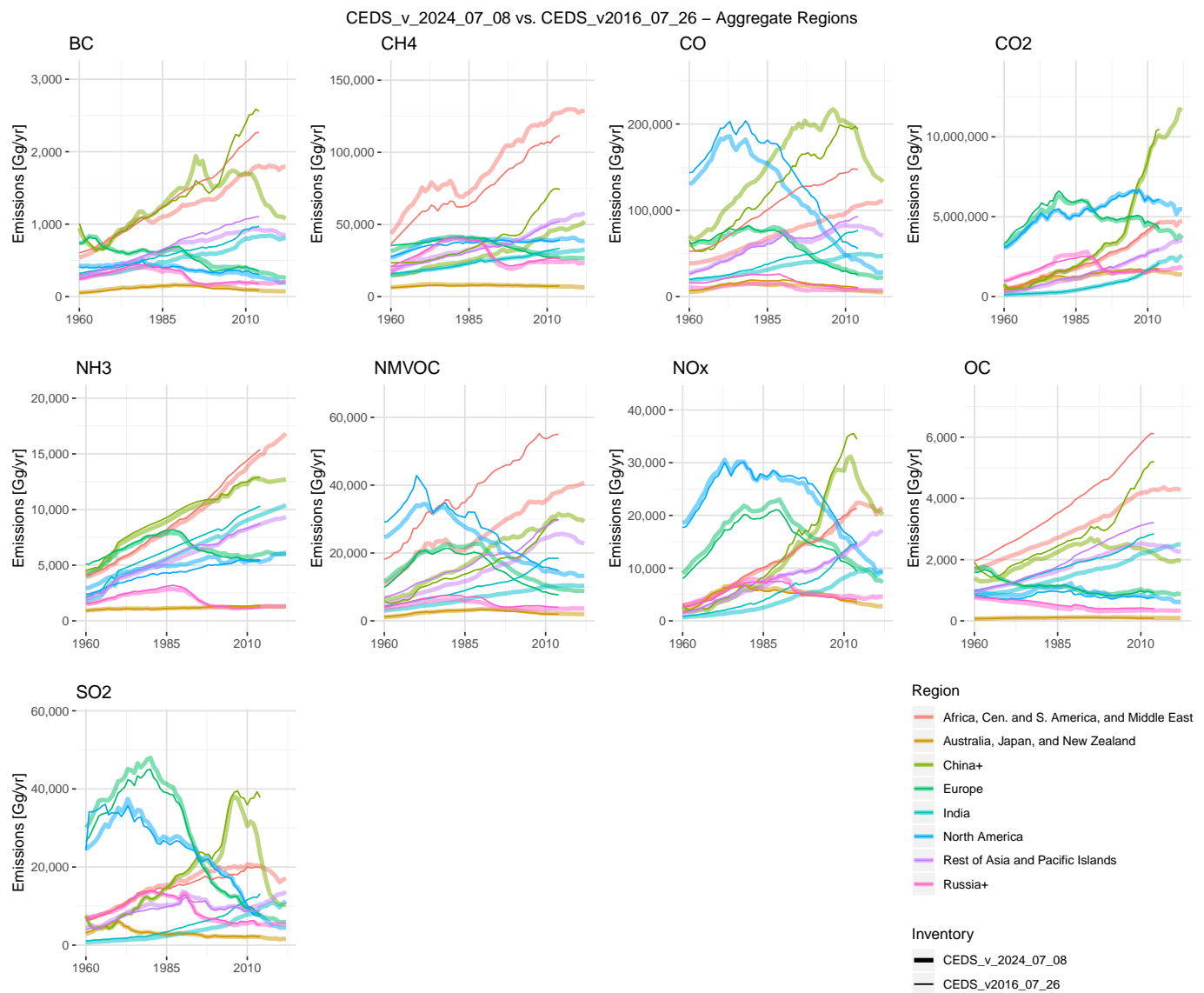


Figure S6: Regional emissions by emissions species over recent decades (1960-2022). N₂O emissions not estimated in CMIP6.

Note: See Table S2 for mapping of CEDS regions to aggregate regions graphed here.

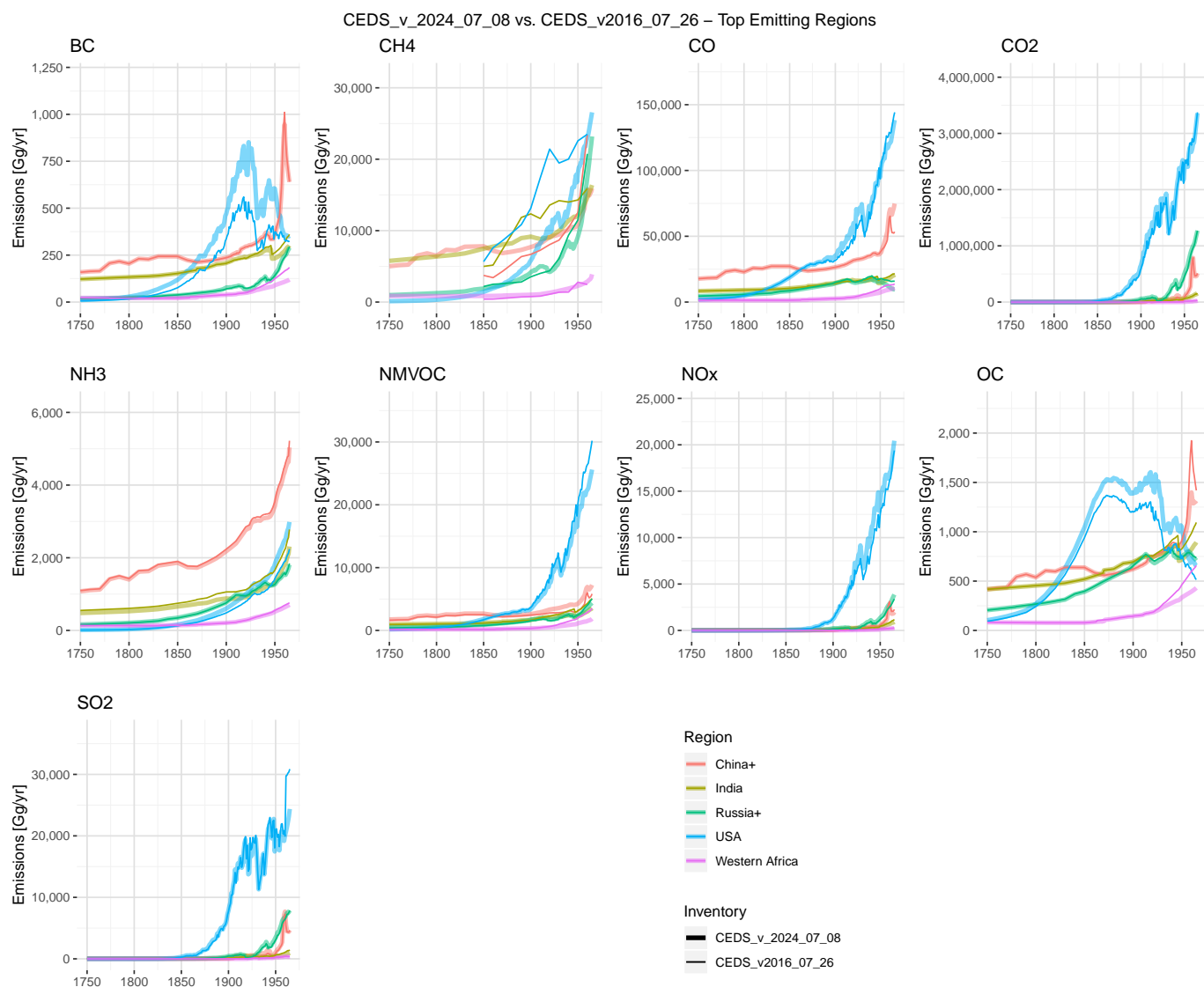


Figure S7: Top emitting regions by emissions species (1750-1965). CH4 emissions only estimated from 1850 in CMIP6. N2O emissions not estimated in CMIP6.

Note: See Table S3 for mapping of CEDS regions to aggregate regions graphed here.

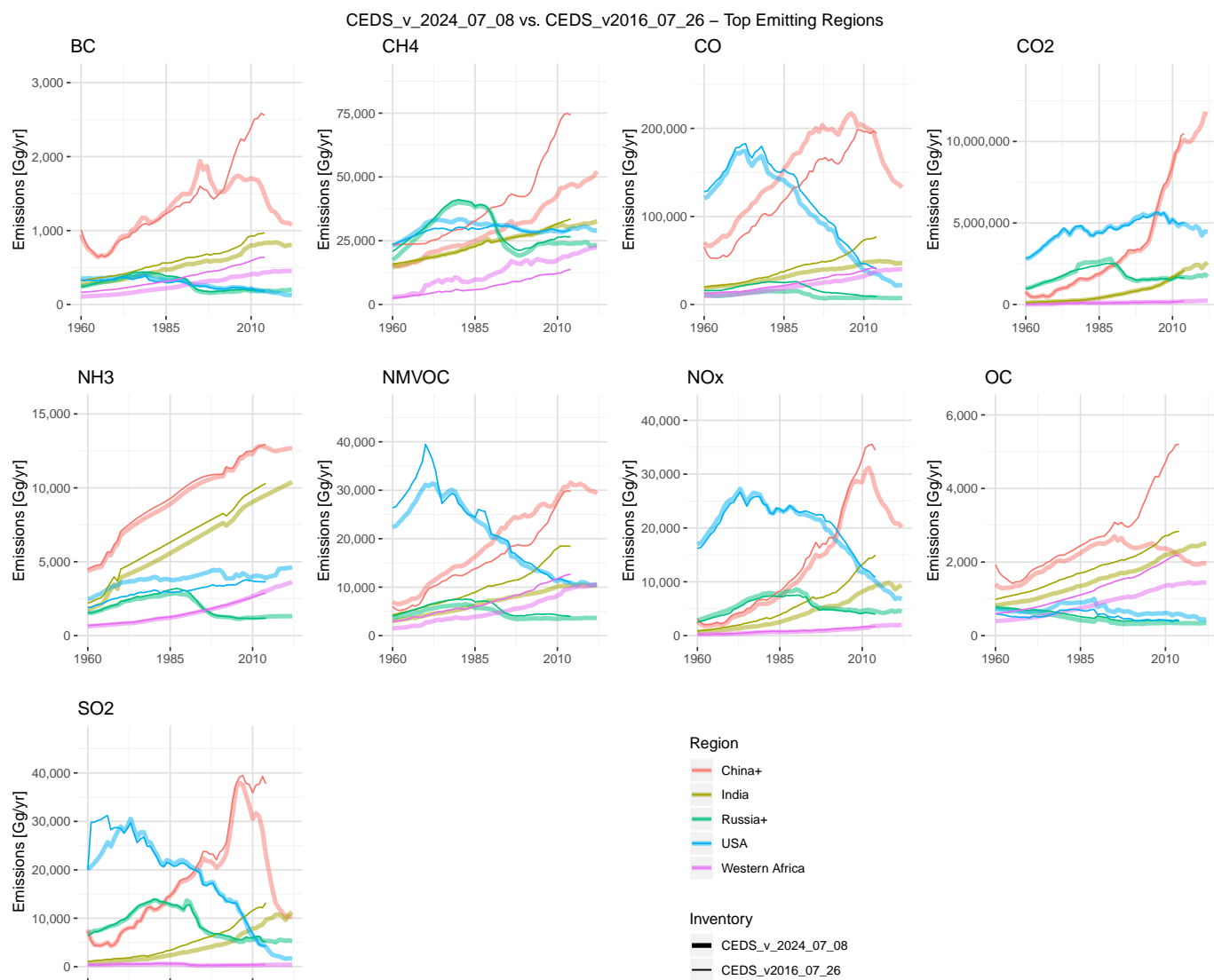


Figure S8: Top emitting regions by emissions species over recent decades (1960-2022). N₂O emissions not estimated in CMIP6.

Note: See Table S3 for mapping of CEDS regions to aggregate regions graphed here.

Table S1: Mapping of CEDS working sectors to aggregate figure sectors.

Aggregate Sector	CEDS Working Sector
Agriculture (AGR)	3B_Manure-management 3D_Rice-Cultivation 3D_Soil-emissions 3E_Enteric-fermentation 3I_Agriculture-other
Aviation	1A3ai_International-aviation 1A3aii_Domestic-aviation
Residential, Commercial, Other (DOM)	1A4a_Commercial-institutional 1A4b_Residential 1A4c_Agriculture-forestry-fishing 1A5_Other-unspecified
Energy Transformation and Production (ENE)	1A1a_Electricity-autoproducer 1A1a_Electricity-public 1A1a_Heat-production 1A1bc_Other-transformation 1B1_Fugitive-solid-fuels 1B2_Fugitive-petr-and-gas 1B2d_Fugitive-other-energy 7A_Fossil-fuel-fires
Industry (IND)	1A2a_Ind-Comb-Iron-steel 1A2b_Ind-Comb-Non-ferrous-metals 1A2c_Ind-Comb-Chemicals 1A2d_Ind-Comb-Pulp-paper 1A2e_Ind-Comb-Food-tobacco 1A2f_Ind-Comb-Non-metalic-minerals 1A2g_Ind-Comb-Construction 1A2g_Ind-Comb-machinery 1A2g_Ind-Comb-mining-quarrying 1A2g_Ind-Comb-other 1A2g_Ind-Comb-textile-leather 1A2g_Ind-Comb-transpequip 1A2g_Ind-Comb-wood-products 2A1_Cement-production 2A2_Lime-production 2A6_Other-minerals 2B_Chemical-industry 2C1_Iron-steel-alloy-prod 2C3_Aluminum-production 2H_Pulp-and-paper-food-beverage-wood 2H_Pulp-and-paper-food-beverage-wood 2L_Other-process-emissions
Solvents (SLV)	2D_Degreasing-Cleaning 2D_Paint-application 2D3_Chemical-products-manufacture-processing 2D3_Other-product-use
Transportation (TRA)	1A3b_Road 1A3c_Rail 1A3dii_Domestic-navigation 1A3eii_Other-transp
Int. Shipping	1A3di_International-shipping 1A3di_Oil_Tanker>Loading
Waste (WST)	5A_Solid-waste-disposal 5C_Waste-incineration 5D_Wastewater-handling 5E_Other-waste-handling 6A_Other-in-total

Table S2: Mapping of CEDS regions to aggregate figure regions in Section D.

Aggregate Region	CEDS Region
Africa, Central and South America, and Middle East	Algeria, Angola, Antigua and Barbuda, Argentina, Aruba, Bahamas, Bahrain, Barbados, Belize, Benin, Bermuda, Bolivia, Botswana, Brazil, British Virgin Islands, Burkina Faso, Burundi, Cameroon, Cape Verde, Cayman Islands, Central African Republic, Chad, Chile, Colombia, Comoros, Congo, Costa Rica, Cote d'Ivoire, Cuba, Curacao, Democratic Republic of Congo, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Ethiopia, Falkland Islands, French Guiana, Gabon, Gambia, Ghana, Grenada, Guadeloupe, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, Iraq, Islamic Republic of Iran, Israel, Jamaica, Jordan, Kenya, Kuwait, Lebanon, Lesotho, Liberia, Libya, Madagascar, Malawi, Malawi, Mali, Martinique, Mauritania, Mauritius, Montserrat, Morocco, Mozambique, Namibia, Nicaragua, Niger, Nigeria, Oman, Palestine, Panama, Paraguay, Peru, Puerto Rico, Qatar, Reunion, Rwanda, Saint Kitts and Nevis, Saint Lucia, Saint Pierre and Miquelon, Saint Vincent And Grenadines, Sao Tome and Principe, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Sint Maarten, Somalia, South Africa, South Sudan, Sudan, Suriname, Swaziland, Syria, Tanzania, Togo, Trinidad and Tobago, Tunisia, Turks and Caicos Islands, Uganda, United Arab Emirates, United States Virgin Islands, Uruguay, Venezuela, Western Sahara, Yemen, Zambia, Zimbabwe
Australia, Japan, and New Zealand	Australia, Japan, New Zealand
China+	Cambodia, China, Hong Kong, Macao, Mongolia
Europe	Albania, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Faeroe Islands, Finland, France, Germany, Gibraltar, Greece, Greenland, Hungary, Iceland, Ireland, Italy, Kosovo, Latvia, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malta, Moldova, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom
India	India
North America	Canada, Mexico, United States
Rest of Asia and Pacific Islands	Albania, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Afghanistan, American Samoa, Bangladesh, Bhutan, Brunei Darussalam, Chinese Taipei, Cook Islands, Democratic Peoples Republic of Korea, Federated States of Micronesia, Fiji, French Polynesia, Guam, Indonesia, Kazakhstan, Kiribati, Kyrgyzstan, Laos, Malaysia, Maldives, Marshall Islands, Myanmar (Burma), Nepal, New Caledonia, Niue, Pakistan, Palau, Papua New Guinea, Philippines, Republic of Korea, Samoa, Singapore, Solomon Islands, Sri Lanka, Tajikistan, Thailand, Timor-Leste, Tokelau, Tonga, Turkmenistan, Uzbekistan, Vanuatu, Vietnam, Wallis and Futuna Islands
Russia+	Armenia, Azerbaijan, Georgia, Russia

Table S3: Mapping of CEDS regions to aggregate figure regions in Section E.

Aggregate Region	CEDS Region
China+	Cambodia, China, Hong Kong, Macao, Mongolia
India	India
Russia+	Armenia, Azerbaijan, Georgia, Russia
USA	United States
Western Africa	Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Congo, Cote d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Sao Tome and Principe, Senegal, Sierra Leone, Togo