

Supplementary Material: A comprehensive dataset for global, regional and national greenhouse gas emissions by sector 1970-2019

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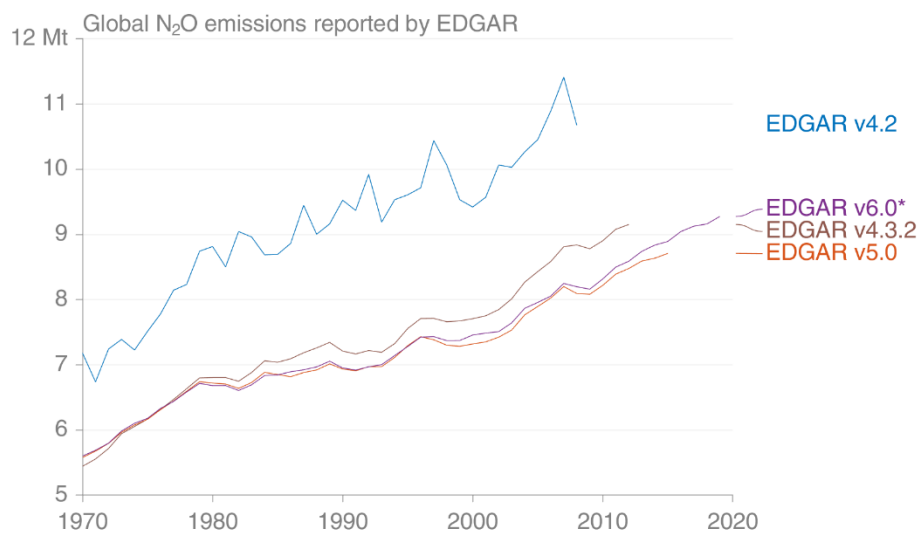
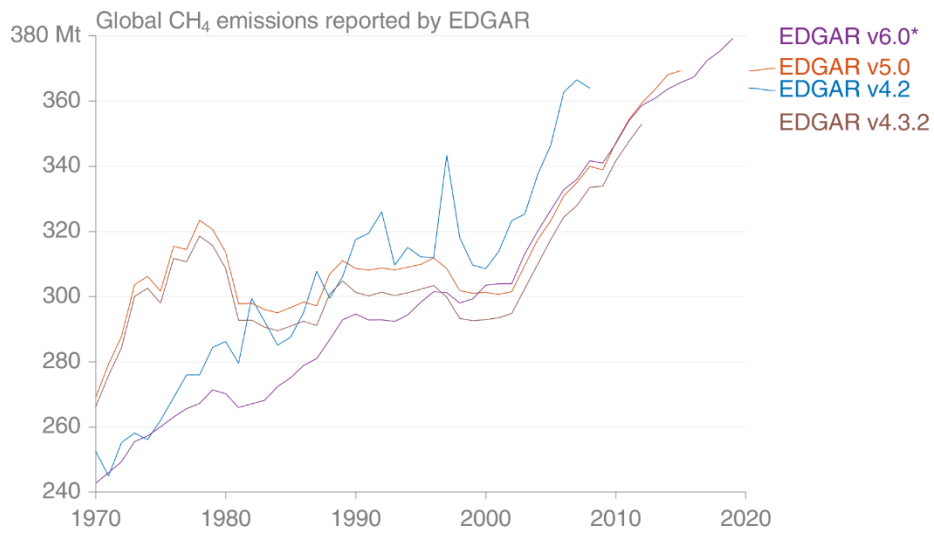
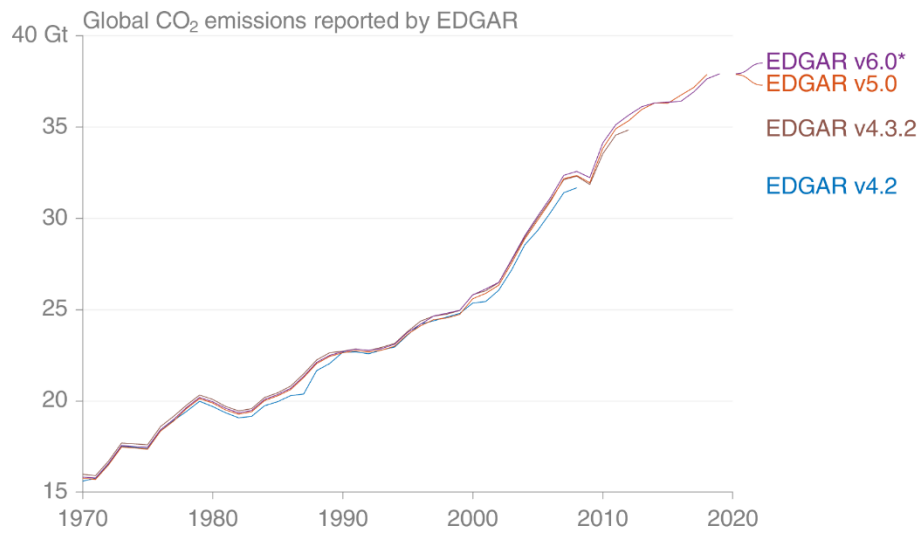
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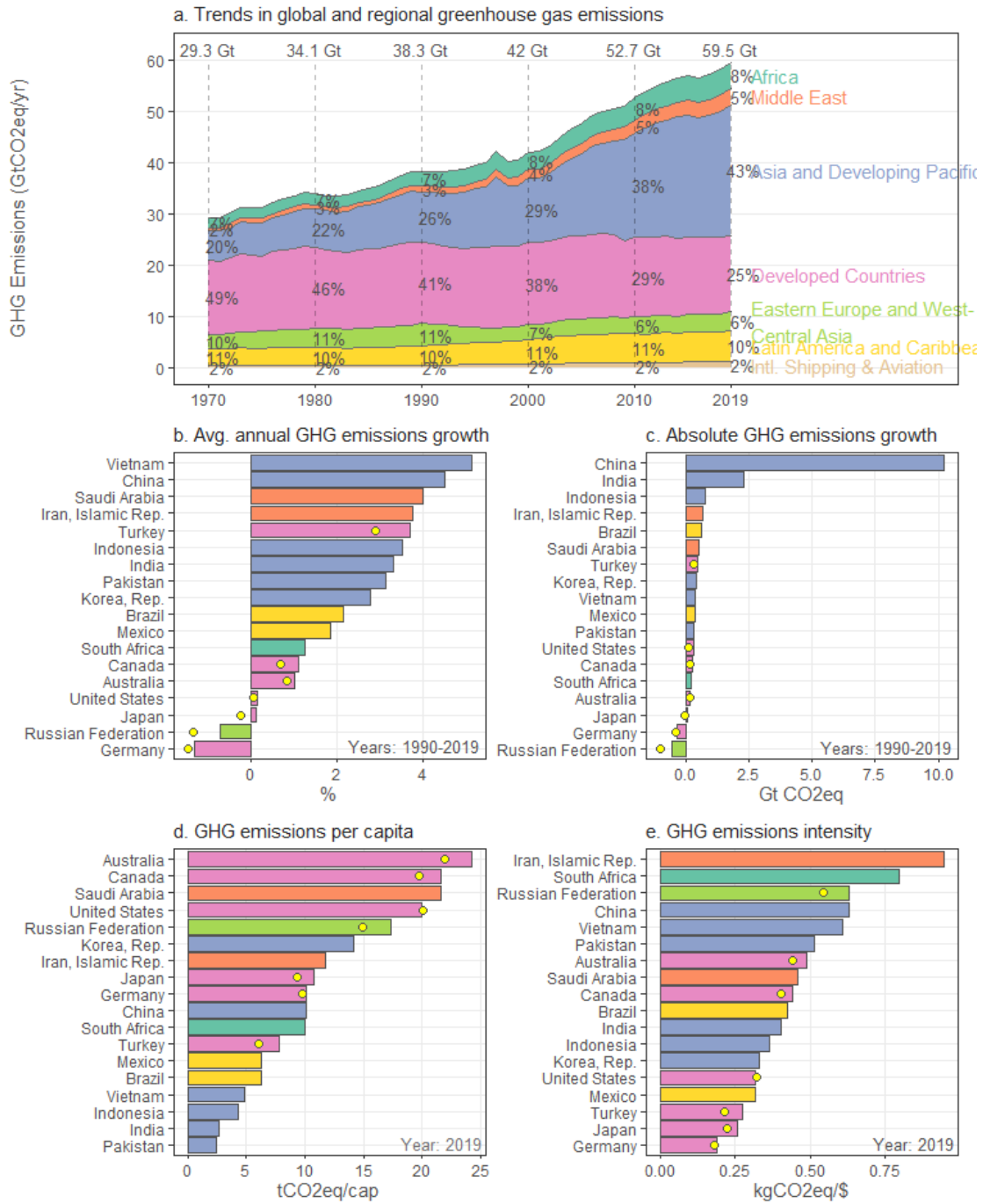
30 **Figure SM 1 - Comparison of estimates from different versions of the EDGAR database for CO₂, CH₄ and N₂O**

31 **Table SM 1 - Average annual anthropogenic GHG emissions and emissions growth by decade and world region for**
 32 **1970-2019: Aggregate GHG emission trends are reported in GtCO₂eq converted based on global warming potentials**
 33 **with a 100-year time horizon (GWP-100) from the IPCC Fifth Assessment Report (Myhre et al., 2013).**

	Africa		Middle East		Asian & Developing Pacific		Developed Countries		Eastern Europe and West-Central Asia		Latin America & Caribbean		International Aviation & Shipping	
	Levels	Growth	Levels	Growth	Levels	Growth	Levels	Growth	Levels	Growth	Levels	Growth	Levels	Growth
2019	5.0		3.1		26		15		3.7		5.9		1.4	
2010-2019	4.7	1.6%	2.9	2.4%	23	2.1%	15	-0.5%	3.5	1.1%	5.7	0.4%	1.2	2.3%
2000-2009	3.8	2.0%	2.0	4.4%	16	5.4%	16	-0.3%	3.1	1.4%	5.3	1.8%	1.0	3.5%
1990-1999	3.2	2.3%	1.3	3.8%	11	2.6%	16	0.3%	3.3	-5.9%	4.1	2.1%	0.74	3.0%
1980-1989	2.4	2.0%	0.92	3.3%	8.5	3.4%	15	0.4%	3.8	1.0%	3.5	0.7%	0.57	1.9%
1970-1979	2.1	1.6%	0.84	3.9%	6.4	2.6%	15	1.3%	3.2	2.9%	3.4	0.7%	0.57	0.4%
1970	2.0		0.66		5.7		14		2.8		3.3		0.55	

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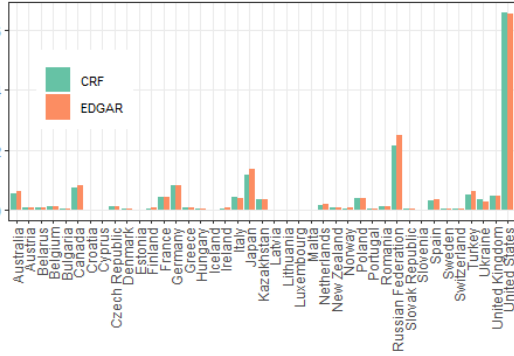


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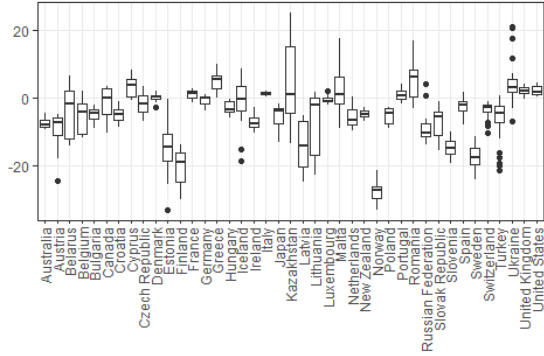
37 **Figure SM 2 - Change in regional GHGs from multiple perspectives and their underlying drivers. Panel a: Regional**
 38 **GHG emission trends (in GtCO₂eq yr⁻¹) for the time period 1970-2019. GHG emissions from international aviation**
 39 **(AIR) and shipping (SEA) are not assigned to individual countries and shown separately. Panels b and c: Changes in**
 40 **GHG emissions for largest emitters (75% of global emissions) for the reporting period 1990-2019 in relative (% annual**
 41 **change) and absolute terms (GtCO₂eq). Panels d and e: GHG emissions per capita and per GDP in 2019 for the largest**
 42 **emitters (75% of global emissions). GDP estimated using constant international purchasing power parity (USD 2011).**
 43 **Emissions are converted into CO₂-equivalents based on global warming potentials with a 100 year time horizon (GWP-**
 44 **100) from the IPCC Fifth Assessment Report.**

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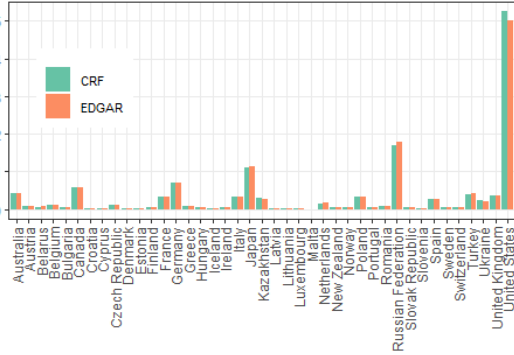
2019 GHG data in GtCO₂eq/yr



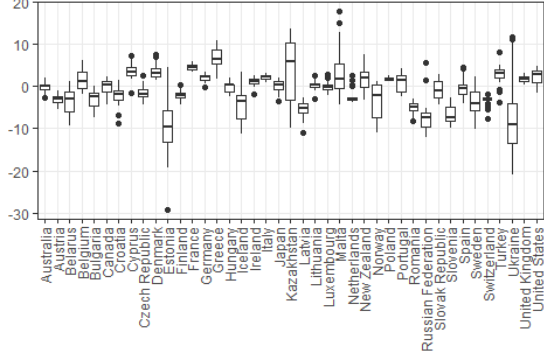
Annual differences in GHG data between 1990 and 2019 (in %)



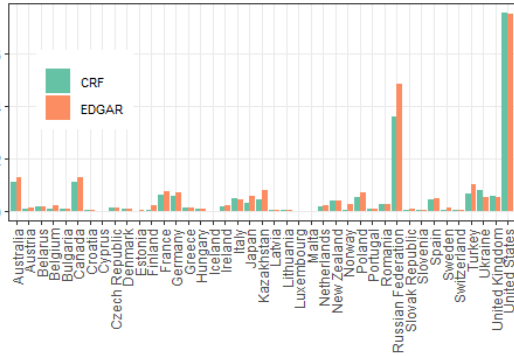
2019 CO₂ data in GtCO₂eq/yr



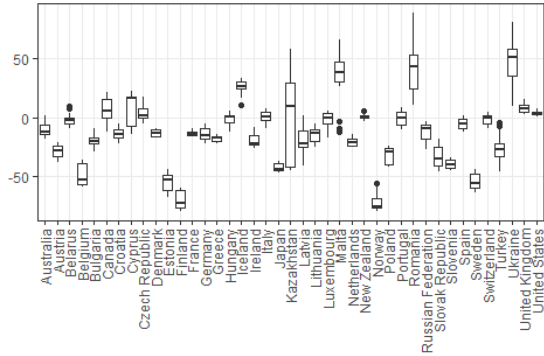
Annual differences in CO₂ data between 1990 and 2019 (in %)



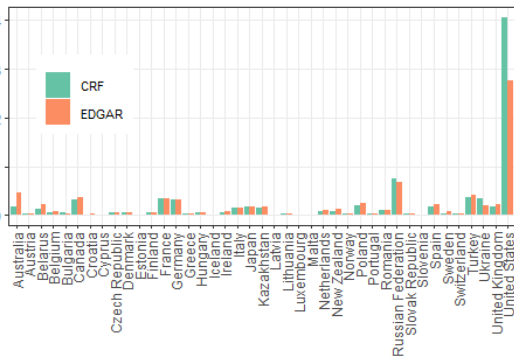
2019 CH₄ data in GtCO₂eq/yr



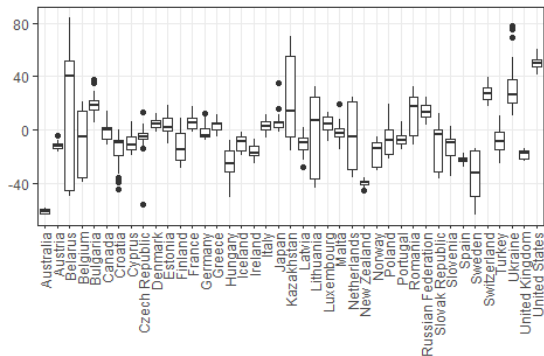
Annual differences in CH₄ data between 1990 and 2019 (in %)



2019 N₂O data in GtCO₂eq/yr



Annual differences in N₂O data between 1990 and 2019 (in %)



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Figure SM 3 - Differences between the EDGAR data presented in this paper and the data reported by the Annex I countries of the Kyoto Protocol to the UNFCCC via the common reporting framework (CRF).

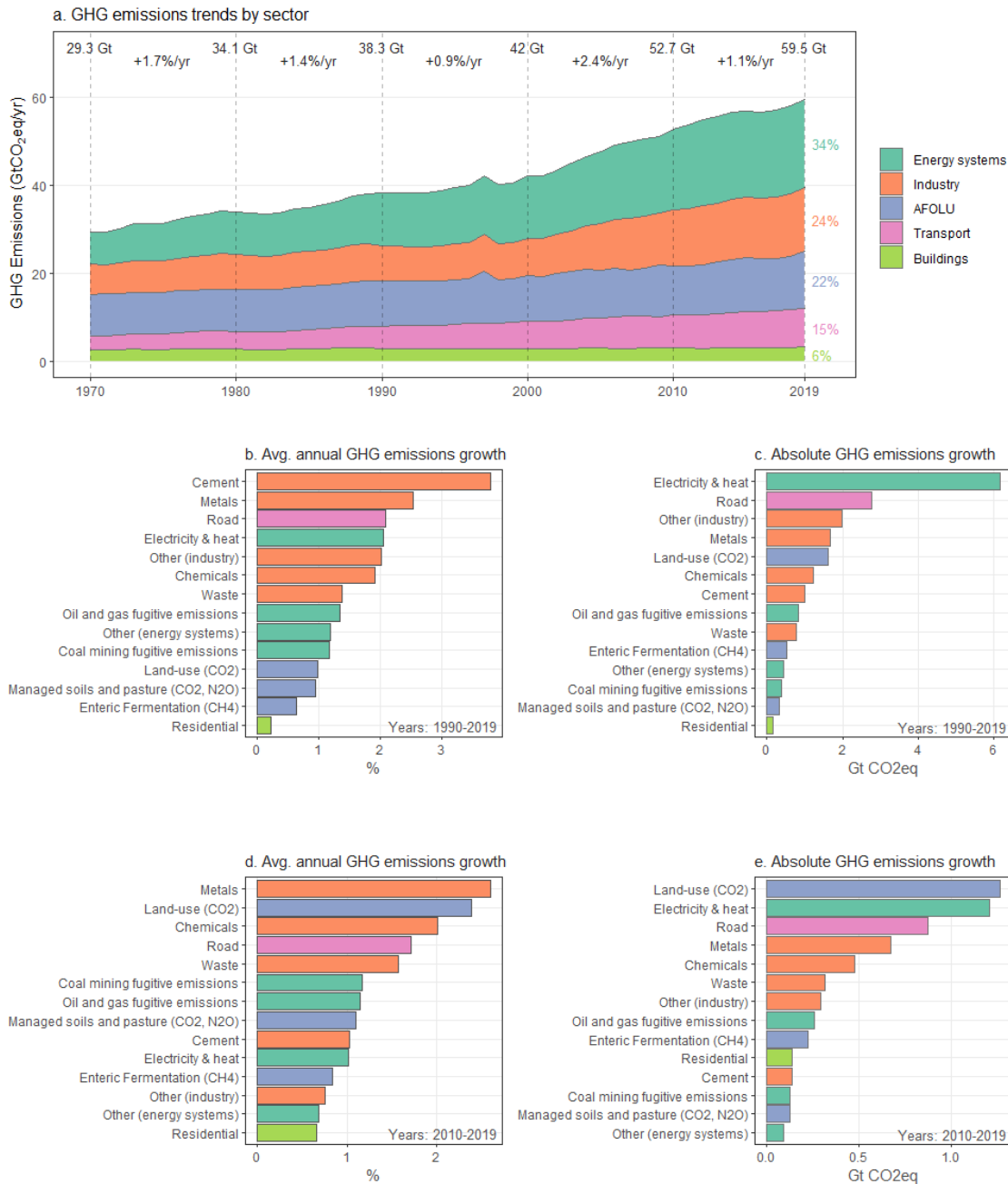
50 **Table SM 2 - Average annual anthropogenic GHG emissions and emissions growth by decade and major sector for**
51 **1970-2019: Aggregate GHG emission trends are reported in GtCO₂eq converted based on global warming potentials**
52 **with a 100-year time horizon (GWP-100) from the IPCC Fifth Assessment Report (Myhre et al., 2013).**

Average annual emissions levels (GtCO ₂ eq yr ⁻¹) and emissions growth (%)												
	Energy Systems		AFOLU		Industry		Transport		Buildings		International Aviation & Shipping	
	Levels	Growth	Levels	Growth	Levels	Growth	Levels	Growth	Levels	Growth	Levels	Growth
2019	20		13		15		7.3		3.3		1.4	
2010 - 2019	19	0.7%	12	1.3%	14	1.3%	6.9	1.8%	3.1	0.8%	1.2	2.3%
2000 - 2009	16	2.8%	11	0.8%	10	4.4%	5.8	1.8%	3.0	0.5%	1.0	3.5%
1990 - 1999	13	1.5%	10	0.0%	8.0	0.8%	4.7	2.0%	3.0	-0.3%	0.74	3.0%
1980 - 1989	10	2.1%	9.9	1.1%	7.9	0.6%	3.7	2.4%	3.0	1.5%	0.57	1.9%
1970 - 1979	8.5	3.3%	9.4	-0.3%	7.3	1.9%	3.0	3.9%	2.8	1.2%	0.57	0.4%
1970	7.2		9.5		6.9		2.5		2.7		0.55	

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62 **Figure SM 4 - Total annual anthropogenic GHG emissions by major economic sector (1970-2019) and the largest sub-**
 63 **sectoral changes during the periods 1990-2019 and 2010-2019. AFOLU refers to GHG emissions from agriculture,**
 64 **forestry and other land-use change. Panel a: Trends in total annual anthropogenic GHG emissions (in GtCO₂eq) by**
 65 **major economic sector. Panels b and c: Largest sub-sectoral changes in GHG emissions for the reporting period 1990-**
 66 **2019 in relative (% annual change) and absolute terms (GtCO₂eq). Panels d and e: Largest sub-sectoral changes in**
 67 **GHG emissions for the reporting period 2010-2019 in relative (% annual change) and absolute terms (GtCO₂eq).**
 68 **Emissions are converted into CO₂-equivalents based on global warming potentials with a 100 year time horizon (GWP-**
 69 **100) from the IPCC Fifth Assessment Report (Myhre et al., 2013).**

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71 **References**

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