

How the Glasgow Declaration on Forests can help keep alive the 1.5 °C target

Supplementary Information

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Methods

Model. We used the exact version of OSCAR used for the Global Carbon Budget 2021 (ref. 3). Our scenarios extend the historical simulations we made for that study (that stop in 2020). We used the same probabilistic framework in which we ran 2000 randomly drawn parameterizations of the model, combined with 2 different historical land use data sets, to obtain a 4000-element Monte Carlo ensemble that we weighted using the net land-to-atmosphere carbon flux over 1850-2020 as constraint. The approach is detailed in ref. 7. The only key difference is that we replaced the FRA-based driving data set for land use and land cover change by its updated version that goes up to 2020, and that was used in the same GCB2021 with the H&N model and provided to us (Houghton & Castanho, pers. comm.).

For the End Tree Cover Loss scenario, we implemented a specific treatment of plantations, as this is not a native biome of OSCAR. To approximate the carbon dynamic of plantations, when new plantations were added, we increased the amount of shifting cultivation (i.e. simultaneous transitions back and forth) between non-forest and cropland to emulate intensive harvest, and added a one-time transition from cropland to non-forest to emulate a slow carbon capture (mostly in soils) without which plantations would be net emitters.

Scenarios. To create the BAU, we did a linear extrapolation of the past driving data for all drivers of the bookkeeping module of OSCAR: atmospheric CO₂, regional temperature and precipitation changes, land cover transitions, shifting cultivation areas, and wood harvest. The past trend is taken over 5 years for land use and land cover change drivers, over 11 years for CO₂, and over 31 years for climate. It is calculated separately over each region and for every biome or transition, using a Theil-Sen estimator. Trends in land use and land cover change drivers are provided in Supplementary Table. The linear extrapolation stops in 2030 for land use and land cover change drivers, after which date they are kept constant. For CO₂ and climate, it continues linearly until 2050.

The End Gross Forest Loss scenario was built by linearly decreasing shifting cultivation and land cover change involving forest down to zero in 2030. If in a region and for a transition the BAU reached zero before 2030, the BAU was taken instead. In the End Net Forest Loss scenario, in any given region, we reduced gross deforestation down to a level equal to the gross reforestation (if any). Conversely, in the End Tree Cover Loss scenario, in any region, we increased gross reforestation up to the level needed to compensate for the gross deforestation (if any). This additional reforestation is assumed to be plantations (see above). In both Net and Net&Plant, we kept BAU shifting cultivation, and we implemented a linear transition from 2022 to 2030 between BAU regime and the Glasgow-compliant one.

Regions. In this version of OSCAR, some countries/territories remain aggregated together. Here is a list of the countries/territories constituting the aggregate regions reported in the Supplementary Table.

Unknown: Antarctica, Bouvet Island, South Georgia and the South Sandwich Islands, Heard Island and McDonald Islands, Hong Kong, Montenegro, Singapore, Svalbard and Jan Mayen.

Rest of Oceania: American Samoa, Solomon Islands, Cook Islands, Fiji, French Polynesia, Kiribati, Guam, Nauru, New Caledonia, Vanuatu, Niue, Norfolk Island, Northern Mariana Islands, United States Minor Outlying Islands, Micronesia Federated States of, Marshall Islands, Palau, Papua New Guinea, Pitcairn, Tokelau, Tonga, Tuvalu, Wallis and Futuna, Samoa.

Rest of East Asia: Korea (Democratic People's Republic of), Macao, Mongolia.

Rest of Southeast Asia: Brunei Darussalam, Christmas Island, Cocos (Keeling) Islands, Timor-Leste.

Rest of South Asia: Afghanistan, Bhutan, Maldives, Nepal.

Rest of North America: Bermuda, Greenland, Saint Pierre and Miquelon.

Rest of South America: Falkland Islands (Malvinas), French Guiana, Guyana, Suriname.

Rest of Central America: Belize, El Salvador, Honduras.

Rest of Caribbean: Antigua and Barbuda, Bahamas, Barbados, Virgin Islands British, Cayman Islands, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Montserrat, Curacao, Aruba, Sint Maarten (Dutch part), Bonaire Sint Eustatius and Saba, Puerto Rico, Saint Barthelemy, Saint Kitts and Nevis, Anguilla, Saint Lucia, Saint Martin (French part), Saint Vincent and the Grenadines, Trinidad and Tobago, Turks and Caicos Islands, Virgin Islands US.

Rest of European Free Trade Association: Czechia, Iceland, Liechtenstein, Slovakia.

Rest of Europe: Andorra, Bosnia and Herzegovina, Croatia, Faroe Islands, Aland Islands, Gibraltar, Holy See, Monaco, San Marino, Serbia, Slovenia, Macedonia (the former Yugoslav Republic of), Guernsey, Jersey, Isle of Man.

Rest of Former Soviet Union: Azerbaijan, Armenia, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova (Republic of), Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

Rest of Western Asia: Bahrain, Palestine State of, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, Yemen.

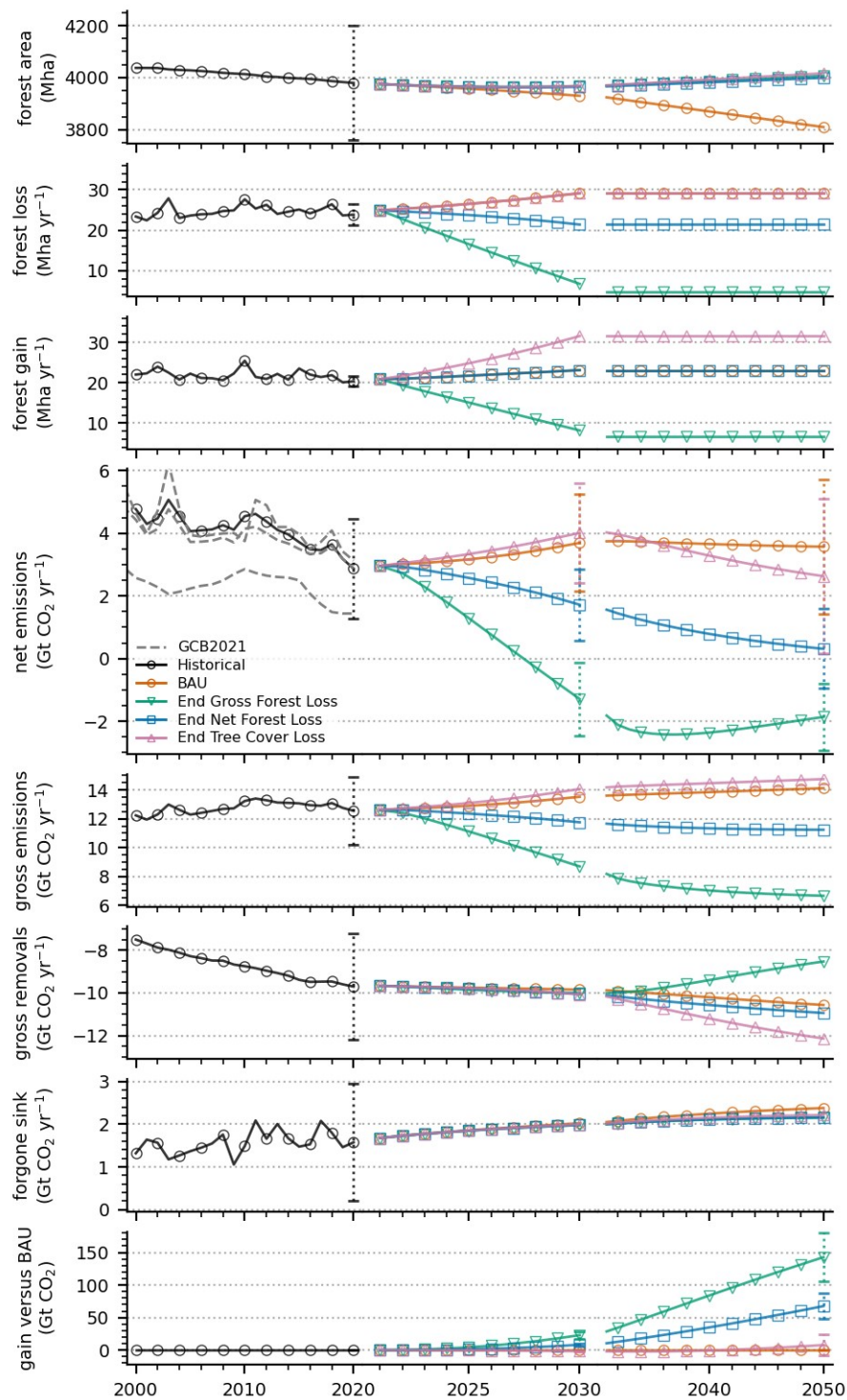
Rest of Western Africa: Cabo Verde, Benin, Gambia, Ghana, Guinea, Cote d'Ivoire, Liberia, Mali, Mauritania, Niger, Guinea-Bissau, Saint Helena Ascension and Tristan da Cunha, Sierra Leone, Western Sahara, Togo, Burkina Faso.

Rest of Central Africa: Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Gabon, Sao Tome and Principe.

Rest of South Central Africa: Angola, Congo (the Democratic Republic of the).

Rest of Eastern Africa: British Indian Ocean Territory, Burundi, Comoros, Mayotte, Eritrea, French Southern Territories, Djibouti, Kenya, Reunion, Rwanda, Seychelles, Somalia, South Sudan, Sudan.

Rest of South African Customs Union: Lesotho, Namibia, Swaziland.



Supplementary Figure. Forest areas, land use change emissions and related variables in the BAU and three Glasgow-compliant scenarios. See text for scenario description. Net forest area varies because of forest gains and losses. Net emissions are made of gross emissions and gross removals (including shifting cultivation). The forgone sink is the loss of sink capacity caused by the loss of forest area compared with preindustrial times. The carbon “gain” is the cumulative sequestration. The GCB2021 dashed lines show the three

bookkeeping models used in the latest Global Carbon Budget (ref. 3), excluding emissions from peatland burning and drainage. Uncertainty bars are one standard deviation range.

Supplementary Table. Regional contribution to Glasgow commitment, historical trends in LULCC drivers, and net emissions in 2020, 2030 and 2050.

Region	Fraction of region in Glasgow	Trends in LULCC drivers			
		Gross deforestation (excl. shifting cult.)	Gross reforestation (excl. shifting cult.)	Shifting cultivation (with forest only)	Wood harvest (in forest only)
		(kha yr-2)	(kha yr-2)	(kha yr-2)	(ktC yr-2)
Unknown	100%	-0.2 ± 0.1	-0.6 ± 0.5	-0.0 ± 0.0	3.1 ± 2.6
Australia	100%	-3.3 ± 2.8	-11.8 ± 7.9	0.0 ± 0.0	-32.9 ± 15.4
New Zealand	100%	-0.1 ± 0.0	0.7 ± 1.2	0.0 ± 0.0	328.3 ± 12.1
Rest of Oceania	91%	-0.8 ± 0.9	-0.4 ± 0.4	1.0 ± 1.1	0.2 ± 0.0
China	100%	190.1 ± 163.5	-104.7 ± 90.1	1.8 ± 1.6	832.1 ± 115.4
Japan	100%	-1.6 ± 2.4	-1.8 ± 2.0	0.0 ± 0.0	305.9 ± 36.3
South Korea	100%	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-37.6 ± 3.5
Taiwan	0%	-0.4 ± 0.3	-0.4 ± 0.3	0.0 ± 0.0	-0.0 ± 0.0
Rest of East Asia	70%	-0.7 ± 0.5	12.6 ± 10.9	0.0 ± 0.0	10.7 ± 0.7
Cambodia	0%	-6.9 ± 9.0	-0.1 ± 0.1	4.3 ± 5.3	-48.1 ± 8.2
Indonesia	100%	-34.8 ± 5.0	-18.9 ± 16.2	10.5 ± 9.0	404.2 ± 83.8
Laos	0%	1.2 ± 0.7	-1.5 ± 1.3	2.9 ± 0.5	-14.3 ± 2.3
Myanmar	0%	-2.8 ± 2.5	-0.2 ± 0.1	11.0 ± 7.1	-0.0 ± 0.0
Malaysia	100%	4.0 ± 7.6	-1.3 ± 1.1	4.5 ± 0.3	84.5 ± 11.1
Philippines	100%	-1.2 ± 1.0	-1.9 ± 1.7	-0.8 ± 1.1	-15.6 ± 4.5
Thailand	0%	1.4 ± 1.9	-1.8 ± 1.5	0.8 ± 0.4	-32.0 ± 5.7
Vietnam	100%	-4.3 ± 3.7	-4.3 ± 1.3	4.5 ± 7.2	546.3 ± 82.8
Rest of Southeast Asia	29%	-0.0 ± 0.1	0.0 ± 0.0	0.0 ± 0.0	-0.3 ± 0.4
Bangladesh	100%	-0.3 ± 0.1	-0.8 ± 0.7	-2.2 ± 1.9	-71.0 ± 2.4
India	0%	-3.2 ± 2.7	-5.7 ± 4.8	-5.7 ± 6.4	-820.8 ± 423.4
Pakistan	100%	0.6 ± 0.5	-0.0 ± 0.0	0.6 ± 0.7	-2.2 ± 1.9
Sri Lanka	100%	-0.1 ± 0.7	-0.3 ± 0.3	0.0 ± 0.0	-28.5 ± 6.4
Rest of South Asia	88%	-1.1 ± 0.9	-1.1 ± 0.9	0.0 ± 0.0	-15.7 ± 3.3
Canada	100%	-20.2 ± 7.9	-18.5 ± 9.2	0.0 ± 0.0	-1474.0 ± 397.9
United States of America	100%	-14.0 ± 11.2	-34.5 ± 0.2	0.0 ± 0.0	1365.7 ± 516.0
Mexico	100%	-27.1 ± 23.9	22.1 ± 19.0	4.1 ± 2.5	-21.0 ± 12.7
Rest of North America	0%	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Argentina	100%	-5.6 ± 5.3	-1.2 ± 1.0	3.0 ± 3.5	0.0 ± 0.0

Bolivia	0%	0.7 ± 1.6	-2.6 ± 2.2	5.2 ± 6.7	67.7 ± 12.9
Brazil	100%	-52.9 ± 38.1	-108.7 ± 93.6	38.3 ± 33.9	-740.4 ± 575.7
Chile	100%	-2.6 ± 2.3	-3.0 ± 2.5	-1.8 ± 2.1	256.6 ± 18.8
Colombia	100%	-1.6 ± 7.0	-3.2 ± 2.8	8.7 ± 1.6	-130.2 ± 16.7
Ecuador	100%	2.2 ± 0.3	-0.3 ± 0.3	-1.1 ± 4.5	3.2 ± 0.0
Paraguay	100%	-2.0 ± 7.9	-8.7 ± 7.4	8.0 ± 9.1	42.0 ± 7.2
Peru	100%	-0.1 ± 0.3	-1.0 ± 0.9	2.4 ± 7.9	34.5 ± 22.6
Uruguay	100%	-3.7 ± 3.2	-2.7 ± 2.2	0.0 ± 0.0	64.0 ± 17.1
Venezuela	0%	-4.0 ± 3.0	-0.8 ± 0.7	2.6 ± 2.9	8.7 ± 1.5
Rest of South America	81%	-0.7 ± 0.5	-0.2 ± 0.2	0.7 ± 0.4	43.9 ± 7.0
Costa Rica	100%	-0.3 ± 0.3	-0.1 ± 0.1	0.9 ± 1.4	-20.3 ± 7.5
Guatemala	100%	-0.3 ± 1.0	-0.0 ± 0.0	-0.0 ± 0.7	112.2 ± 8.2
Nicaragua	100%	-1.6 ± 5.2	-3.6 ± 3.1	4.0 ± 2.3	-0.1 ± 0.1
Panama	100%	-0.6 ± 0.4	-0.5 ± 0.4	0.3 ± 0.4	2.4 ± 0.4
Rest of Central America	100%	-3.8 ± 3.2	-0.9 ± 0.8	2.8 ± 1.6	-23.8 ± 9.8
Rest of Caribbean	81%	-3.0 ± 2.2	3.1 ± 5.4	-0.3 ± 0.4	10.8 ± 3.6
Austria	100%	-0.0 ± 0.0	0.1 ± 0.1	0.0 ± 0.0	162.4 ± 10.4
Belgium	100%	-0.2 ± 0.2	0.0 ± 0.0	0.0 ± 0.0	-8.1 ± 8.0
Cyprus	100%	-0.1 ± 0.1	-0.1 ± 0.1	0.0 ± 0.0	-0.2 ± 0.3
Denmark	100%	0.4 ± 0.5	0.7 ± 0.6	0.0 ± 0.0	0.1 ± 0.1
Finland	100%	-0.9 ± 0.0	-2.3 ± 1.8	0.0 ± 0.0	75.5 ± 60.8
France	100%	-0.0 ± 0.0	-2.5 ± 2.1	0.0 ± 0.0	-26.5 ± 52.2
Germany	100%	-0.4 ± 0.4	0.0 ± 0.1	0.0 ± 0.0	372.1 ± 431.8
Greece	100%	-0.0 ± 0.0	0.4 ± 0.3	0.0 ± 0.0	2.1 ± 1.8
Hungary	100%	0.2 ± 0.1	-0.0 ± 0.0	0.0 ± 0.0	8.9 ± 11.8
Ireland	100%	0.4 ± 0.3	-0.8 ± 0.5	0.0 ± 0.0	44.0 ± 1.0
Italy	100%	1.3 ± 1.2	-1.1 ± 1.0	0.0 ± 0.0	645.5 ± 155.7
Luxembourg	100%	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	4.4 ± 5.4
Malta	100%	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Netherlands	100%	-0.0 ± 0.1	0.2 ± 0.2	0.0 ± 0.0	-12.4 ± 18.7
Poland	100%	-0.0 ± 0.0	0.1 ± 0.2	0.0 ± 0.0	26.6 ± 31.4
Portugal	100%	-0.1 ± 0.1	-0.5 ± 0.6	0.0 ± 0.0	55.4 ± 4.7
Spain	100%	-3.0 ± 2.6	-1.5 ± 1.2	0.0 ± 0.0	215.0 ± 14.2
Sweden	100%	-1.0 ± 0.8	-0.6 ± 1.2	0.0 ± 0.0	126.0 ± 52.4

United Kingdom	100%	6.0 ± 4.7	-2.4 ± 1.4	0.0 ± 0.0	-8.0 ± 7.7
Switzerland	100%	-0.1 ± 0.1	-0.1 ± 0.0	0.0 ± 0.0	-33.0 ± 18.6
Norway	100%	-0.5 ± 0.4	-0.1 ± 0.2	0.0 ± 0.0	74.0 ± 12.8
Rest of European Free Trade Association	100%	-0.0 ± 0.0	0.2 ± 0.3	0.0 ± 0.0	540.3 ± 628.2
Albania	100%	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.5 ± 0.4
Bulgaria	100%	0.0 ± 0.0	-0.3 ± 0.3	0.0 ± 0.0	-9.1 ± 10.5
Romania	100%	-0.1 ± 0.0	-3.9 ± 5.8	0.0 ± 0.0	80.5 ± 15.8
Rest of Europe	100%	0.7 ± 0.1	-0.9 ± 0.3	0.0 ± 0.0	-27.0 ± 8.8
Rest of Former Soviet Union	99%	-186.8 ± 154.5	-21.6 ± 16.6	0.0 ± 0.0	561.0 ± 243.0
Iran	0%	0.2 ± 0.2	0.8 ± 0.9	0.0 ± 0.0	0.0 ± 0.0
Turkey	100%	-0.1 ± 0.0	-0.6 ± 1.1	0.0 ± 0.0	266.7 ± 40.2
Rest of Western Asia	31%	0.2 ± 0.2	-0.3 ± 0.4	0.0 ± 0.0	4.3 ± 4.9
Egypt	0%	0.1 ± 0.1	0.0 ± 0.0	0.0 ± 0.0	3.8 ± 4.5
Morocco	100%	0.0 ± 0.0	0.4 ± 0.5	0.0 ± 0.0	-2.7 ± 3.1
Tunisia	0%	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Rest of North Africa	0%	-1.8 ± 2.0	-2.0 ± 2.4	0.0 ± 0.0	7.8 ± 9.1
Nigeria	100%	-0.8 ± 0.6	-4.4 ± 3.8	1.8 ± 2.1	28.3 ± 55.8
Senegal	100%	-0.0 ± 0.0	0.0 ± 0.0	1.1 ± 1.3	0.9 ± 1.0
Rest of Western Africa	81%	-5.6 ± 4.9	-3.1 ± 5.5	8.5 ± 10.0	269.8 ± 111.5
Rest of Central Africa	100%	-8.4 ± 6.9	-8.2 ± 7.0	6.7 ± 7.1	84.6 ± 0.5
Rest of South Central Africa	100%	-15.6 ± 15.4	-30.5 ± 26.2	50.2 ± 32.3	429.5 ± 72.2
Ethiopia	0%	-2.4 ± 2.5	-1.0 ± 1.3	3.1 ± 2.7	-37.7 ± 352.1
Madagascar	100%	-4.8 ± 4.1	-6.8 ± 5.9	1.4 ± 0.4	97.4 ± 16.4
Malawi	100%	0.0 ± 0.0	-0.0 ± 0.0	1.1 ± 1.3	7.5 ± 9.3
Mauritius	100%	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Mozambique	100%	0.9 ± 2.0	-0.1 ± 0.1	2.8 ± 3.1	66.3 ± 57.1
Tanzania	100%	3.5 ± 5.3	-1.2 ± 1.0	13.3 ± 15.4	90.3 ± 17.0
Uganda	100%	-0.3 ± 0.2	-0.2 ± 0.2	1.1 ± 1.4	54.6 ± 64.8
Zambia	100%	-0.1 ± 0.1	-0.0 ± 0.0	5.6 ± 6.0	5.0 ± 5.8
Zimbabwe	100%	-0.0 ± 0.0	-0.1 ± 0.1	1.3 ± 1.5	14.0 ± 2.8
Rest of Eastern Africa	27%	-1.5 ± 0.9	0.2 ± 1.5	6.5 ± 7.7	67.0 ± 75.4
Botswana	100%	-0.0 ± 0.0	0.0 ± 0.0	3.3 ± 3.9	0.0 ± 0.0
South Africa	0%	-0.0 ± 0.1	-0.0 ± 0.0	1.0 ± 1.2	73.2 ± 87.5
Rest of South African Customs Union	7%	0.2 ± 0.2	-0.0 ± 0.0	2.0 ± 2.3	10.0 ± 35.5

(continued)

Region	Net LULCC emissions								
	2020			2030			2050		
	Historical (MtC yr ⁻¹)	BAU (MtC yr ⁻¹)	Gross (MtC yr ⁻¹)	Net (MtC yr ⁻¹)	Tree Loss (MtC yr ⁻¹)	BAU (MtC yr ⁻¹)	Gross (MtC yr ⁻¹)	Net (MtC yr ⁻¹)	Tree Loss (MtC yr ⁻¹)
Unknown	1.5 ± 2.0	6.6 ± 6.3	6.6 ± 6.3	6.6 ± 6.3	6.6 ± 6.3	3.8 ± 3.9	3.7 ± 3.8	3.8 ± 3.8	3.8 ± 3.9
Australia	-9.1 ± 35.5	-1.1 ± 51.1	-2.5 ± 51.4	-1.5 ± 51.2	-1.0 ± 51.1	4.5 ± 111.4	0.6 ± 111.5	3.7 ± 111.4	4.6 ± 111.4
New Zealand	-10.1 ± 6.6	-6.2 ± 7.8	-6.4 ± 7.9	-6.2 ± 7.8	-6.2 ± 7.8	-5.8 ± 10.6	-6.1 ± 10.8	-5.8 ± 10.6	-5.8 ± 10.6
Rest of Oceania	5.0 ± 2.4	4.4 ± 3.9	-2.2 ± 3.7	3.1 ± 2.3	4.7 ± 4.2	3.5 ± 3.3	-3.3 ± 2.4	1.8 ± 1.1	2.5 ± 3.9
China	-38.7 ± 214.2	189.4 ± 452.8	-26.7 ± 261.4	-15.2 ± 272.5	221.4 ± 471.3	346.6 ± 718.1	-58.5 ± 358.3	-52.9 ± 363.4	361.3 ± 682.3
Japan	-6.5 ± 5.6	-3.4 ± 5.1	-3.5 ± 4.9	-3.4 ± 5.1	-3.4 ± 5.1	-4.7 ± 5.6	-4.9 ± 5.3	-4.7 ± 5.6	-4.7 ± 5.6
South Korea	-3.3 ± 2.3	-3.4 ± 2.2	-3.6 ± 2.3	-3.6 ± 2.3	-3.3 ± 2.1	-3.2 ± 2.2	-3.5 ± 2.2	-3.4 ± 2.2	-3.4 ± 2.4
Taiwan	0.2 ± 0.5	0.0 ± 0.3	0.0 ± 0.3	0.0 ± 0.3	0.0 ± 0.3	-0.0 ± 0.1	-0.0 ± 0.1	-0.0 ± 0.1	-0.0 ± 0.1
Rest of East Asia	-6.2 ± 12.1	-9.7 ± 15.6	-10.2 ± 15.6	-9.9 ± 15.3	-9.7 ± 15.6	-20.5 ± 27.7	-21.7 ± 27.9	-21.0 ± 27.3	-20.4 ± 27.8
Cambodia	11.1 ± 12.8	8.4 ± 7.2	8.4 ± 7.2	8.4 ± 7.2	8.4 ± 7.2	6.6 ± 4.4	6.6 ± 4.4	6.6 ± 4.4	6.6 ± 4.4
Indonesia	120.9 ± 53.3	91.4 ± 49.7	-117.4 ± 114.9	81.4 ± 42.2	94.8 ± 51.6	79.3 ± 53.3	-88.5 ± 101.1	71.8 ± 48.8	76.2 ± 48.0
Laos	10.4 ± 4.1	11.3 ± 6.8	11.3 ± 6.8	11.3 ± 6.8	11.3 ± 6.8	7.3 ± 11.7	7.3 ± 11.7	7.3 ± 11.7	7.3 ± 11.7
Myanmar	34.0 ± 30.4	40.0 ± 38.9	40.0 ± 38.9	40.0 ± 38.9	40.0 ± 38.9	33.0 ± 38.9	33.0 ± 38.9	33.0 ± 38.9	33.0 ± 38.9
Malaysia	22.1 ± 14.2	35.2 ± 11.3	-6.2 ± 8.8	11.7 ± 8.8	46.3 ± 11.4	36.5 ± 16.6	-9.4 ± 8.0	4.8 ± 5.0	27.3 ± 27.2
Philippines	3.8 ± 5.3	3.6 ± 4.4	-45.0 ± 22.7	3.3 ± 4.3	3.9 ± 4.5	7.7 ± 7.9	-29.1 ± 17.4	7.2 ± 7.6	7.6 ± 8.0
Thailand	1.9 ± 3.9	3.2 ± 2.3	3.2 ± 2.3	3.2 ± 2.3	3.2 ± 2.3	4.7 ± 3.4	4.7 ± 3.4	4.7 ± 3.4	4.7 ± 3.4
Vietnam	44.3 ± 38.5	47.3 ± 44.5	0.2 ± 27.2	27.7 ± 26.7	53.5 ± 49.0	45.0 ± 44.8	-13.4 ± 16.2	11.3 ± 12.7	36.6 ± 39.7
Rest of Southeast Asia	0.1 ± 0.2	0.1 ± 0.1	-0.0 ± 0.1	0.0 ± 0.1	0.1 ± 0.1	0.0 ± 0.0	-0.0 ± 0.1	0.0 ± 0.0	0.0 ± 0.0
Bangladesh	0.3 ± 2.6	2.2 ± 7.3	-9.5 ± 16.6	1.3 ± 7.9	2.4 ± 7.2	5.5 ± 10.2	-1.2 ± 14.6	4.0 ± 10.9	4.9 ± 10.5
India	-1.0 ± 12.5	-12.1 ± 12.9	-12.1 ± 12.9	-12.1 ± 12.9	-12.1 ± 12.9	-8.0 ± 16.6	-8.0 ± 16.6	-8.0 ± 16.6	-8.0 ± 16.6
Pakistan	2.9 ± 2.6	2.2 ± 3.1	1.3 ± 1.8	1.5 ± 2.1	2.2 ± 3.1	2.5 ± 4.4	0.3 ± 1.9	0.5 ± 2.0	2.5 ± 4.4
Sri Lanka	0.3 ± 1.4	0.2 ± 1.3	-2.4 ± 1.7	-0.1 ± 1.0	0.3 ± 1.5	0.7 ± 1.2	-1.4 ± 1.4	0.2 ± 0.5	0.7 ± 1.2
Rest of South Asia	1.1 ± 1.8	0.4 ± 1.3	-0.5 ± 1.0	0.4 ± 1.3	0.4 ± 1.3	0.3 ± 1.0	-0.5 ± 0.7	0.2 ± 0.9	0.3 ± 0.9
Canada	11.4 ± 12.9	3.1 ± 13.3	-3.4 ± 11.7	1.7 ± 13.9	3.3 ± 13.0	0.7 ± 12.4	-10.2 ± 11.2	-3.5 ± 13.8	0.2 ± 11.7
United States of America	-31.6 ± 18.1	-15.8 ± 20.0	-25.7 ± 17.1	-22.0 ± 18.5	-15.3 ± 20.0	2.9 ± 20.2	-17.5 ± 14.4	-12.6 ± 15.6	0.1 ± 20.0
Mexico	12.5 ± 12.3	-6.5 ± 24.1	-15.1 ± 21.0	-9.1 ± 20.9	-6.2 ± 24.4	-43.9 ± 55.6	-54.0 ± 50.9	-49.3 ± 50.1	-44.4 ± 55.5
Rest of North America	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Argentina	3.3 ± 17.8	2.7 ± 14.2	1.4 ± 14.1	2.5 ± 14.0	2.8 ± 14.1	-0.3 ± 14.1	-1.4 ± 13.5	-0.7 ± 13.7	-0.2 ± 13.9
Bolivia	18.7 ± 22.6	20.2 ± 28.3	20.2 ± 28.3	20.2 ± 28.3	20.2 ± 28.3	19.0 ± 30.1	19.0 ± 30.1	19.0 ± 30.1	19.0 ± 30.1
Brazil	218.7 ± 224.1	195.5 ± 216.2	-106.2 ± 72.3	87.2 ± 148.1	206.2 ± 225.9	177.8 ± 151.5	-97.5 ± 51.8	24.3 ± 58.0	103.9 ± 151.1

Chile	2.4 ± 8.8	1.8 ± 8.7	1.8 ± 8.7	1.8 ± 8.7	1.8 ± 8.7	-2.0 ± 8.5	-2.0 ± 8.5	-2.0 ± 8.5	-2.0 ± 8.5
Colombia	5.3 ± 20.5	19.1 ± 19.5	-20.5 ± 15.1	3.6 ± 7.9	21.5 ± 21.4	27.8 ± 17.3	-14.5 ± 8.4	3.8 ± 4.3	14.2 ± 15.0
Ecuador	1.0 ± 10.0	1.5 ± 10.6	-16.5 ± 10.7	-3.9 ± 7.9	2.9 ± 11.4	2.1 ± 9.8	-15.2 ± 6.7	-4.9 ± 7.1	-2.8 ± 12.6
Paraguay	14.2 ± 20.3	15.9 ± 20.2	0.2 ± 8.8	7.9 ± 13.6	16.3 ± 21.0	10.9 ± 16.6	-4.8 ± 7.1	-0.2 ± 6.0	0.7 ± 21.6
Peru	17.2 ± 20.1	18.3 ± 35.3	0.0 ± 17.5	6.1 ± 20.8	18.3 ± 35.3	14.6 ± 42.2	-12.2 ± 12.7	-8.0 ± 14.9	8.4 ± 36.5
Uruguay	-0.7 ± 6.6	-0.2 ± 3.3	-0.3 ± 3.4	-0.2 ± 3.3	-0.2 ± 3.3	-0.8 ± 2.2	-0.8 ± 2.2	-0.8 ± 2.2	-0.8 ± 2.2
Venezuela	9.1 ± 17.6	5.0 ± 10.9	5.0 ± 10.9	5.0 ± 10.9	5.0 ± 10.9	1.9 ± 4.5	1.9 ± 4.5	1.9 ± 4.5	1.9 ± 4.5
Rest of South America	2.3 ± 2.1	3.7 ± 2.0	0.0 ± 1.2	1.9 ± 1.3	4.0 ± 2.1	3.9 ± 1.9	-0.4 ± 0.7	1.1 ± 0.8	2.6 ± 2.5
Costa Rica	-0.7 ± 1.0	0.8 ± 1.3	-4.9 ± 4.8	0.8 ± 1.3	0.8 ± 1.3	0.4 ± 2.6	-4.7 ± 4.5	0.4 ± 2.6	0.4 ± 2.6
Guatemala	0.1 ± 5.3	2.1 ± 6.7	-15.0 ± 10.4	-2.1 ± 5.2	3.4 ± 7.2	0.1 ± 8.6	-10.3 ± 8.8	-3.9 ± 7.0	-2.4 ± 8.8
Nicaragua	6.7 ± 14.3	12.1 ± 17.1	-14.7 ± 16.7	5.3 ± 8.8	13.4 ± 18.6	12.3 ± 15.5	-12.0 ± 9.9	3.1 ± 3.3	8.2 ± 13.8
Panama	0.5 ± 1.5	0.5 ± 1.5	-1.9 ± 1.5	-0.0 ± 1.0	0.7 ± 1.6	0.6 ± 1.0	-1.4 ± 1.0	0.1 ± 0.4	0.2 ± 1.2
Rest of Central America	1.8 ± 7.0	2.1 ± 9.1	-13.4 ± 13.7	-0.9 ± 8.2	2.5 ± 9.4	-2.4 ± 17.3	-10.7 ± 11.2	-5.7 ± 15.6	-4.0 ± 17.3
Rest of Caribbean	-1.9 ± 2.1	-1.4 ± 3.5	-1.8 ± 3.6	-1.4 ± 3.5	-1.4 ± 3.5	-1.1 ± 6.8	-1.4 ± 6.9	-1.1 ± 6.8	-1.1 ± 6.8
Austria	-0.7 ± 0.9	-0.1 ± 0.9	-0.1 ± 0.9	-0.1 ± 0.9	-0.1 ± 0.9	-0.8 ± 1.0	-0.8 ± 1.0	-0.8 ± 1.0	-0.8 ± 1.0
Belgium	-0.1 ± 0.2	0.0 ± 0.2	0.0 ± 0.2	0.0 ± 0.2	0.0 ± 0.2	0.2 ± 0.4	0.1 ± 0.4	0.1 ± 0.4	0.1 ± 0.4
Cyprus	-0.1 ± 0.1	-0.1 ± 0.2	-0.1 ± 0.2	-0.1 ± 0.2	-0.1 ± 0.2	-0.0 ± 0.3	-0.0 ± 0.3	-0.0 ± 0.3	-0.0 ± 0.3
Denmark	-0.1 ± 0.2	-0.0 ± 0.7	-0.2 ± 0.8	-0.0 ± 0.7	-0.0 ± 0.7	-0.6 ± 2.1	-1.0 ± 2.3	-0.6 ± 2.1	-0.6 ± 2.1
Finland	2.1 ± 2.5	2.4 ± 2.2	2.4 ± 2.2	2.4 ± 2.2	2.4 ± 2.2	1.7 ± 1.8	1.7 ± 1.8	1.7 ± 1.8	1.7 ± 1.8
France	-3.8 ± 2.8	-2.4 ± 3.4	-2.4 ± 3.5	-2.4 ± 3.5	-2.4 ± 3.4	-0.8 ± 6.4	-0.9 ± 6.4	-0.8 ± 6.4	-0.8 ± 6.4
Germany	-1.8 ± 3.0	0.5 ± 3.0	0.5 ± 3.0	0.5 ± 3.0	0.5 ± 3.0	-0.4 ± 4.3	-0.5 ± 4.3	-0.5 ± 4.3	-0.5 ± 4.3
Greece	-2.0 ± 2.1	-2.6 ± 3.1	-2.6 ± 3.1	-2.6 ± 3.1	-2.6 ± 3.1	-4.4 ± 5.7	-4.4 ± 5.7	-4.4 ± 5.7	-4.4 ± 5.7
Hungary	-1.0 ± 1.0	-0.2 ± 0.9	-0.2 ± 0.9	-0.2 ± 0.9	-0.1 ± 0.9	0.7 ± 1.5	0.5 ± 1.4	0.5 ± 1.4	0.7 ± 1.5
Ireland	-3.4 ± 2.5	-2.4 ± 2.5	-2.5 ± 2.8	-2.4 ± 2.5	-2.4 ± 2.5	-2.0 ± 2.8	-2.3 ± 3.5	-2.0 ± 2.8	-2.0 ± 2.8
Italy	-4.2 ± 4.2	3.8 ± 9.8	3.5 ± 9.8	3.7 ± 9.8	3.8 ± 9.8	5.8 ± 17.5	5.3 ± 17.1	5.6 ± 17.4	5.8 ± 17.4
Luxembourg	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Malta	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Netherlands	0.1 ± 0.4	-0.2 ± 0.5	-0.2 ± 0.5	-0.2 ± 0.5	-0.2 ± 0.5	-0.5 ± 0.8	-0.5 ± 0.8	-0.5 ± 0.8	-0.5 ± 0.8
Poland	-4.4 ± 3.9	-3.2 ± 2.8	-3.2 ± 2.8	-3.2 ± 2.8	-3.2 ± 2.8	-1.4 ± 1.5	-1.4 ± 1.5	-1.4 ± 1.5	-1.4 ± 1.5
Portugal	-0.6 ± 1.7	-0.6 ± 1.7	-0.6 ± 1.7	-0.6 ± 1.7	-0.6 ± 1.7	-1.2 ± 2.0	-1.2 ± 2.0	-1.2 ± 2.0	-1.2 ± 2.0
Spain	-5.3 ± 4.5	-3.4 ± 4.0	-3.5 ± 4.1	-3.4 ± 4.0	-3.4 ± 4.0	-2.9 ± 4.3	-3.0 ± 4.3	-2.9 ± 4.3	-2.9 ± 4.3
Sweden	1.0 ± 3.4	0.7 ± 3.7	0.4 ± 3.9	0.7 ± 3.7	0.7 ± 3.7	-0.1 ± 3.0	-0.5 ± 3.4	-0.1 ± 3.0	-0.1 ± 3.0
United Kingdom	-0.7 ± 1.5	2.0 ± 4.1	0.2 ± 4.1	0.3 ± 4.1	2.7 ± 4.2	3.9 ± 9.1	0.3 ± 7.8	0.5 ± 8.0	1.6 ± 10.2
Switzerland	-0.3 ± 0.3	-0.4 ± 0.3	-0.5 ± 0.3	-0.4 ± 0.3	-0.4 ± 0.3	-0.4 ± 0.4	-0.4 ± 0.3	-0.4 ± 0.4	-0.4 ± 0.4

Norway	0.2 ± 0.2	0.5 ± 0.3	0.5 ± 0.3	0.5 ± 0.3	0.5 ± 0.3	0.3 ± 0.4	0.2 ± 0.4	0.3 ± 0.4	0.2 ± 0.4
Rest of European Free Trade Association	-0.2 ± 1.5	1.9 ± 2.8	1.8 ± 2.8	1.9 ± 2.8	1.9 ± 2.8	1.3 ± 2.4	1.3 ± 2.3	1.3 ± 2.4	1.3 ± 2.4
Albania	-0.0 ± 0.2	-0.1 ± 0.1	-0.1 ± 0.1	-0.1 ± 0.1	-0.1 ± 0.1	-0.2 ± 0.1	-0.2 ± 0.1	-0.2 ± 0.1	-0.2 ± 0.1
Bulgaria	-0.6 ± 0.7	-0.5 ± 0.6	-0.6 ± 0.7	-0.5 ± 0.6	-0.5 ± 0.6	-0.1 ± 0.8	-0.2 ± 0.8	-0.1 ± 0.8	-0.1 ± 0.8
Romania	-1.9 ± 1.5	-1.3 ± 3.8	-1.4 ± 3.7	-1.4 ± 3.7	-1.3 ± 3.8	-1.7 ± 8.6	-1.9 ± 8.5	-1.8 ± 8.5	-1.8 ± 8.5
Rest of Europe	-2.6 ± 1.8	-2.1 ± 1.8	-2.5 ± 1.9	-2.3 ± 1.9	-2.0 ± 1.8	-1.1 ± 1.8	-1.9 ± 1.8	-1.6 ± 1.7	-1.3 ± 2.0
Rest of Former Soviet Union	25.5 ± 68.0	5.4 ± 50.4	5.3 ± 50.3	5.4 ± 50.4	5.4 ± 50.4	-25.8 ± 57.1	-26.1 ± 57.1	-25.8 ± 57.1	-25.8 ± 57.1
Iran	-0.1 ± 2.5	-0.3 ± 1.3	-0.3 ± 1.3	-0.3 ± 1.3	-0.3 ± 1.3	-0.3 ± 0.9	-0.3 ± 0.9	-0.3 ± 0.9	-0.3 ± 0.9
Turkey	-0.1 ± 2.2	-0.5 ± 3.8	-0.5 ± 3.8	-0.5 ± 3.8	-0.5 ± 3.8	-4.0 ± 6.9	-4.0 ± 6.9	-4.0 ± 6.9	-4.0 ± 6.9
Rest of Western Asia	-1.1 ± 2.6	-0.7 ± 1.6	-0.7 ± 1.6	-0.7 ± 1.6	-0.7 ± 1.6	-0.6 ± 1.1	-0.6 ± 1.1	-0.6 ± 1.1	-0.6 ± 1.1
Egypt	0.2 ± 0.7	0.1 ± 0.7	0.1 ± 0.7	0.1 ± 0.7	0.1 ± 0.7	0.1 ± 0.6	0.1 ± 0.6	0.1 ± 0.6	0.1 ± 0.6
Morocco	0.2 ± 0.7	1.7 ± 4.1	1.7 ± 4.1	1.7 ± 4.1	1.7 ± 4.1	4.4 ± 12.1	4.4 ± 12.1	4.4 ± 12.1	4.4 ± 12.1
Tunisia	0.3 ± 0.9	0.2 ± 0.7	0.2 ± 0.7	0.2 ± 0.7	0.2 ± 0.7	-0.0 ± 0.6	-0.0 ± 0.6	-0.0 ± 0.6	-0.0 ± 0.6
Rest of North Africa	-0.7 ± 1.3	0.1 ± 2.1	0.1 ± 2.1	0.1 ± 2.1	0.1 ± 2.1	0.1 ± 1.9	0.1 ± 1.9	0.1 ± 1.9	0.1 ± 1.9
Nigeria	7.2 ± 10.8	7.2 ± 10.6	-1.0 ± 6.3	3.8 ± 7.1	7.4 ± 10.5	7.2 ± 9.3	-0.7 ± 2.1	1.3 ± 2.3	5.6 ± 7.5
Senegal	0.4 ± 1.1	0.4 ± 1.6	0.1 ± 0.9	0.2 ± 1.1	0.3 ± 1.6	0.5 ± 2.7	0.0 ± 0.3	0.1 ± 0.5	0.2 ± 2.7
Rest of Western Africa	24.7 ± 32.9	28.9 ± 31.0	6.2 ± 21.3	22.7 ± 23.9	29.8 ± 31.7	24.0 ± 27.1	-0.6 ± 7.2	10.9 ± 11.7	25.7 ± 28.6
Rest of Central Africa	25.8 ± 30.5	28.1 ± 33.8	-6.1 ± 10.6	17.7 ± 21.1	28.5 ± 34.3	25.8 ± 29.6	-7.7 ± 5.7	7.8 ± 7.5	23.8 ± 27.5
Rest of South Central Africa	156.8 ± 110.1	163.7 ± 133.3	-6.9 ± 39.3	99.1 ± 57.7	168.1 ± 140.7	117.9 ± 118.1	-40.4 ± 27.6	33.5 ± 23.3	51.1 ± 96.9
Ethiopia	18.9 ± 12.2	20.8 ± 13.3	20.8 ± 13.3	20.8 ± 13.3	20.8 ± 13.3	20.6 ± 14.8	20.6 ± 14.8	20.6 ± 14.8	20.6 ± 14.8
Madagascar	5.4 ± 6.9	5.0 ± 4.4	-11.3 ± 13.8	4.6 ± 4.4	5.0 ± 4.5	2.9 ± 2.4	-8.2 ± 10.4	2.3 ± 2.4	2.6 ± 2.6
Malawi	3.5 ± 2.8	3.8 ± 2.7	2.3 ± 1.7	3.0 ± 1.9	3.9 ± 2.9	3.1 ± 2.4	1.7 ± 1.8	2.2 ± 1.7	2.4 ± 2.4
Mauritius	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Mozambique	4.8 ± 14.2	2.5 ± 24.0	-1.4 ± 22.4	-0.5 ± 22.5	1.3 ± 23.7	-10.2 ± 40.3	-14.5 ± 38.3	-14.0 ± 38.2	-20.0 ± 37.2
Tanzania	27.2 ± 15.2	20.8 ± 15.6	10.6 ± 8.6	15.5 ± 10.3	19.2 ± 14.5	13.7 ± 12.8	4.0 ± 4.4	6.8 ± 4.9	-1.0 ± 15.7
Uganda	5.1 ± 5.2	4.1 ± 3.9	1.9 ± 2.9	3.5 ± 3.3	4.4 ± 4.1	3.3 ± 2.8	1.4 ± 2.0	2.5 ± 2.2	3.1 ± 2.9
Zambia	10.7 ± 5.5	10.6 ± 6.2	6.4 ± 4.0	8.5 ± 4.5	10.0 ± 6.4	9.2 ± 5.6	5.1 ± 4.7	6.7 ± 4.5	3.7 ± 8.7
Zimbabwe	3.2 ± 2.2	2.5 ± 1.9	1.9 ± 1.5	2.2 ± 1.6	2.3 ± 1.8	1.4 ± 1.5	0.8 ± 0.7	1.0 ± 0.8	0.6 ± 1.7
Rest of Eastern Africa	13.0 ± 15.8	12.6 ± 15.9	10.9 ± 14.1	11.8 ± 14.9	12.6 ± 16.0	9.8 ± 14.1	7.3 ± 10.6	8.1 ± 11.5	9.9 ± 14.2
Botswana	0.4 ± 1.2	0.4 ± 1.4	0.3 ± 1.3	0.2 ± 1.1	-0.0 ± 1.5	0.4 ± 1.9	-0.0 ± 0.8	-0.1 ± 0.7	-0.9 ± 2.4
South Africa	3.2 ± 4.3	3.8 ± 3.8	3.8 ± 3.8	3.8 ± 3.8	3.8 ± 3.8	2.9 ± 3.4	2.9 ± 3.4	2.9 ± 3.4	2.9 ± 3.4
Rest of South African Customs Union	2.5 ± 4.2	2.5 ± 4.7	2.5 ± 4.7	2.5 ± 4.7	2.5 ± 4.8	2.0 ± 6.0	1.8 ± 5.7	1.8 ± 5.8	1.9 ± 6.0

(continued)

Cumulative LULCC emissions vs. BAU

2030

2050

Region	Gross (Gt CO2)	Net (Gt CO2)	Tree Loss (Gt CO2)	Gross (Gt CO2)	Net (Gt CO2)	Tree Loss (Gt CO2)
Unknown	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0
Australia	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.3 ± 0.3	0.1 ± 0.1	-0.0 ± 0.0
New Zealand	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Rest of Oceania	0.1 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.7 ± 0.2	0.1 ± 0.2	0.0 ± 0.2
China	3.6 ± 3.4	2.9 ± 2.7	-0.4 ± 0.6	29.9 ± 28.2	28.5 ± 26.9	-1.7 ± 5.5
Japan	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
South Korea	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Taiwan	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Rest of East Asia	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.1 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0
Cambodia	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Indonesia	3.5 ± 1.4	0.3 ± 0.2	-0.1 ± 0.1	19.9 ± 7.5	0.9 ± 1.0	-0.0 ± 0.5
Laos	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Myanmar	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Malaysia	0.7 ± 0.2	0.4 ± 0.1	-0.2 ± 0.1	4.4 ± 1.3	2.7 ± 0.9	-0.2 ± 1.3
Philippines	0.8 ± 0.4	0.0 ± 0.0	-0.0 ± 0.0	4.5 ± 2.3	0.0 ± 0.0	-0.0 ± 0.0
Thailand	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Vietnam	0.8 ± 0.4	0.3 ± 0.3	-0.1 ± 0.1	5.3 ± 3.0	2.6 ± 2.5	0.0 ± 1.1
Rest of Southeast Asia	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Bangladesh	0.2 ± 0.2	0.0 ± 0.0	-0.0 ± 0.0	1.0 ± 0.9	0.1 ± 0.1	0.0 ± 0.1
India	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Pakistan	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.1 ± 0.2	0.1 ± 0.2	-0.0 ± 0.0
Sri Lanka	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.3 ± 0.2	0.0 ± 0.1	-0.0 ± 0.0
Rest of South Asia	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.1 ± 0.1	0.0 ± 0.0	-0.0 ± 0.0
Canada	0.1 ± 0.1	0.0 ± 0.0	-0.0 ± 0.0	0.8 ± 0.5	0.3 ± 0.3	0.0 ± 0.1
United States of America	0.2 ± 0.1	0.1 ± 0.1	-0.0 ± 0.0	1.5 ± 0.8	1.0 ± 0.6	0.1 ± 0.2
Mexico	0.1 ± 0.1	0.0 ± 0.1	-0.0 ± 0.0	0.9 ± 0.7	0.4 ± 0.5	0.0 ± 0.1
Rest of North America	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Argentina	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.1 ± 0.2	0.0 ± 0.0	-0.0 ± 0.0
Bolivia	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Brazil	5.2 ± 3.7	1.7 ± 1.1	-0.3 ± 0.3	29.2 ± 20.3	12.4 ± 8.4	2.6 ± 3.1
Chile	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Colombia	0.7 ± 0.2	0.2 ± 0.2	-0.0 ± 0.1	4.1 ± 1.3	1.9 ± 1.5	0.5 ± 1.0

Ecuador	0.3 ± 0.1	0.1 ± 0.1	-0.0 ± 0.0	1.8 ± 0.5	0.6 ± 0.4	0.2 ± 0.2
Paraguay	0.3 ± 0.3	0.1 ± 0.1	-0.0 ± 0.0	1.6 ± 1.5	0.9 ± 0.9	0.4 ± 0.5
Peru	0.3 ± 0.3	0.2 ± 0.2	-0.0 ± 0.0	2.2 ± 2.5	1.6 ± 2.1	0.3 ± 0.4
Uruguay	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Venezuela	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Rest of South America	0.1 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.4 ± 0.1	0.2 ± 0.1	0.0 ± 0.1
Costa Rica	0.1 ± 0.1	-0.0 ± 0.0	-0.0 ± 0.0	0.6 ± 0.5	-0.0 ± 0.0	-0.0 ± 0.0
Guatemala	0.3 ± 0.1	0.1 ± 0.0	-0.0 ± 0.0	1.4 ± 0.8	0.3 ± 0.3	-0.0 ± 0.1
Nicaragua	0.5 ± 0.1	0.1 ± 0.1	-0.0 ± 0.0	2.6 ± 0.9	0.8 ± 1.0	0.1 ± 0.3
Panama	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.2 ± 0.1	0.1 ± 0.1	0.0 ± 0.0
Rest of Central America	0.3 ± 0.2	0.0 ± 0.0	-0.0 ± 0.0	1.2 ± 1.3	0.2 ± 0.3	-0.0 ± 0.1
Rest of Caribbean	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Austria	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Belgium	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Cyprus	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Denmark	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Finland	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
France	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0
Germany	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0
Greece	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0
Hungary	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0
Ireland	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.1	-0.0 ± 0.0	-0.0 ± 0.0
Italy	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.1	0.0 ± 0.0	-0.0 ± 0.0
Luxembourg	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Malta	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Netherlands	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Poland	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0
Portugal	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Spain	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Sweden	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
United Kingdom	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.3 ± 0.4	0.2 ± 0.4	0.1 ± 0.3
Switzerland	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Norway	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Rest of European Free Trade Association	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0

Albania	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Bulgaria	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Romania	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Rest of Europe	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.1 ± 0.0	0.0 ± 0.0	0.0 ± 0.0
Rest of Former Soviet Union	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Iran	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Turkey	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Rest of Western Asia	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0
Egypt	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Morocco	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Tunisia	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Rest of North Africa	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Nigeria	0.1 ± 0.1	0.0 ± 0.1	-0.0 ± 0.0	0.8 ± 0.8	0.4 ± 0.6	0.1 ± 0.2
Senegal	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.2	0.0 ± 0.2	0.0 ± 0.0
Rest of Western Africa	0.4 ± 0.2	0.1 ± 0.1	-0.0 ± 0.0	2.4 ± 1.8	0.9 ± 1.2	-0.1 ± 0.2
Rest of Central Africa	0.6 ± 0.5	0.2 ± 0.2	-0.0 ± 0.0	3.4 ± 3.0	1.4 ± 1.7	0.1 ± 0.2
Rest of South Central Africa	2.9 ± 1.8	1.0 ± 1.3	-0.1 ± 0.3	16.5 ± 12.0	7.1 ± 9.2	3.0 ± 4.9
Ethiopia	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Madagascar	0.3 ± 0.2	0.0 ± 0.0	-0.0 ± 0.0	1.4 ± 1.3	0.0 ± 0.1	0.0 ± 0.0
Malawi	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.1 ± 0.2	0.1 ± 0.1	0.0 ± 0.1
Mauritius	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Mozambique	0.1 ± 0.1	0.0 ± 0.1	0.0 ± 0.0	0.4 ± 0.5	0.3 ± 0.5	0.5 ± 0.8
Tanzania	0.2 ± 0.2	0.1 ± 0.1	0.0 ± 0.0	1.0 ± 1.3	0.6 ± 0.8	0.8 ± 1.2
Uganda	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.2 ± 0.2	0.1 ± 0.1	0.0 ± 0.1
Zambia	0.1 ± 0.1	0.0 ± 0.1	0.0 ± 0.0	0.4 ± 0.5	0.2 ± 0.3	0.3 ± 0.4
Zimbabwe	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.1 ± 0.1	0.0 ± 0.1	0.0 ± 0.1
Rest of Eastern Africa	0.0 ± 0.0	0.0 ± 0.0	-0.0 ± 0.0	0.2 ± 0.3	0.1 ± 0.2	-0.0 ± 0.1
Botswana	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.1	0.0 ± 0.1	0.1 ± 0.1
South Africa	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0	-0.0 ± 0.0
Rest of South African Customs Union	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0	0.0 ± 0.0