Antilles: information on national emissions, population and GDP, and mitigation targets

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TODO

- Table with info on target (main and reclass; emissions from NDC; target quantis + plot).
- GWP: NDC emissions coverted from AR2 to AR4 by national conversion factor (2010–2017, PRIMAP-hist v2.1).
- References!

1 Non-LULUCF emissions and socio-economic data

With national emissions of 7.5 Mt CO_2eq, Antilles contributed 0.01% to global emissions in 2017, and in 2030 its share is estimated to stay at a similar level (Table **??**). The estimates for 2030 are based on the downscaled SSP2[1] Middle of the Road marker scenario (dmSSP2), in which Antilles is estimated to emit 7.2 Mt CO_2eq in 2030. That change in emissions would constitute a decrease of -3.7% compared to 2017. The pathways dmSSP1–5 show a range of 7.2–7.2 Mt CO_2eq in 2030, and 7.2–7.2 Mt CO_2eq in 2050. The country's global rank in terms of total emissions per unit of GDP[2] was 8 in 2017, and 4 regarding the per-capita emissions (5 and 4 in 2030). In terms of accumulated historical emissions, Antilles contributed to the global 1850–2017 emissions by 0.07%. When only accounting for the years 1990–2017, its contribution decreases to 0.01%. All of the emissions are presented following GWP AR4[3], and exclude

[1] **SSPs**: Shared Socio-economic Pathways. Narratives and challenges to mitigation and adaptation: SSP1: Sustainability, Taking the Green Road (low / low); SSP2: Middle of the Road (medium / medium); SSP3: Regional Rivalry, A Rocky Road (high / high); SSP4: Inequality, A Road Divided (low / high); and SSP5: Fossio-fuelled Development, Taking the Highway (high / low).

[2] **GDP**: Gross Domestic Product. Throughout this document the GDP is given as GDP PPP, with PPP being the Purchasing Power Parity.

[3] **Global Warming Potential (GWP)**: we use GWP values from the IPCC 4^{th} Assessment Report (AR4). They reflect the forcing potential of one kilogram of a gas' emissions in comparison to one kilogram of CO_2 ($GWP_{CO2} = 1$). The GWPs correspond to a 100-yr period and are for CH_4: 25, for N_2O: 298, for SF_6: 22800, and for NF_3: 17200. For the basket of HFC-gases the GWPs from AR4 are in the range 4–14800, and for PFCs 7190–12200. To assess emissions of several GHGs, their emissions are weighted by their respective GWPs and presented in CO_2 equivalents (CO_2eq).

emissions from LULUCF[4] (exclLU), and bunkers fuels[5] emissions (exclBunkers).

Table 1: National emissions (dmSSP2), GDP and population for Antilles, together with the emissions per unit of GDP and per capita emissions (all for 2017 and 2030). Additionally, the global share and its rank are displayed.

	Year	Total	Unit	Glob. share	Rank
Emissions	2017	7.5	Mt CO_2eq	0.01%	151
	2030	7.2	Mt CO_2eq	0.01%	154
GDP	2017	5.1	Billion 2011 GK$	0.004%	166
	2030	5.3	Billion 2011 GK$	0.002%	173
Emissions per GDP	2017	1.5	t CO_2eq / Thousand 2011 GK$	1.3%	8
	2030	1.4	t CO_2eq / Thousand 2011 GK$	1.8%	5
Population	2017	228.8	Thousand Pers	0.003%	177
	2030	222.2	Thousand Pers	0.002%	177
Emissions per capita	2017	32.7	t CO_2eq / Pers	2.2%	4
	2030	32.5	t CO_2eq / Pers	2.2%	4

For Antilles, in 2017 the main emissions share on sectoral level (Fig. **??**) came from the Energy sector (97.7%), followed by IPPU (1.5%), and Other (0.6%). The Kyoto GHG[6] with the highest emissions in 2017 was CO_2, constituting as much as 98.2% of the national emissions. Second largest contributor was CH_4 (0.9%), followed by N_2O (0.9%). The total of F-gases[7] only represented 0.0%. The total CO_2 emissions are expected to be 98.1% of the national Kyoto GHG emissions in 2030 (dmSSP2).

The national GDP decreased in recent years, and the emissions per unit of GDP had a similar trend (Fig. **??**). The population increased, and the per capita emissions were on the rise. Following dmSSP2, the GDP is projected to increase after 2017 but to drop again before 2050. The emissions per GDP are estimated to decrease towars 2050. Antilles's population is assumed to diminish towars 2050, and the per capita emissions are expected to decline towars 2050.

2 LULUCF emissions

LULUCF emissions data for Antilles are available from the following sources (Fig. **??**): FAO (2019).

High fluctuations? Data gaps? Difference between sources?

3 Mitigation targets (NDC)

Give the %cov for the base and target year (and 2017). Global share for 2030 for the mitigated pathways and % reduction relative to 1990 and 2017. Table with the 'input' data and the resulting targets (like ndcs_targets.csv). Antilles does not have

[4]**LULUCF**: Land Use, Land-Use Change and Forestry. Emissions from LULUCF are excluded throughout the document, unless stated otherwise.

[5]**Bunkers fuels**: emissions from international aviation and shipping.

[6]**Kyoto GHG** (Greenhouse Gas) basket: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

[7]**F-gases** (fluorinated gases): basket of HFCs, PFCs, and the gases SF_6 and NF_3. Some F-gases have very long atmospheric lifetimes and high Global Warming Potentials.

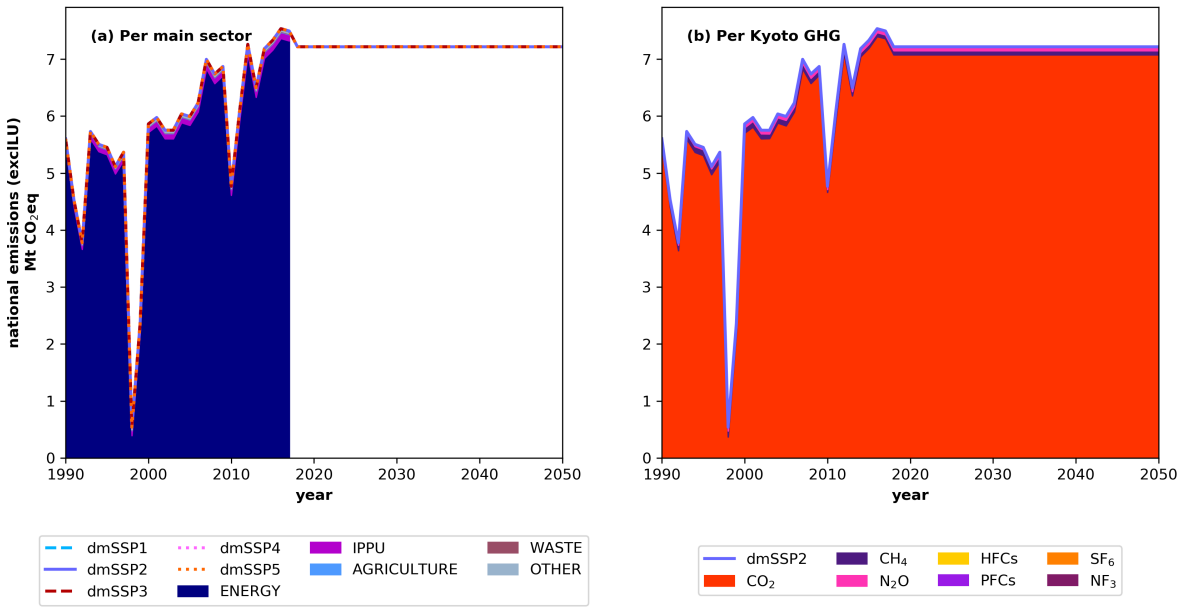

Figure 1: 'Stacked' timeseries of national emissions (exclLU) per main-sector (a) and Kyoto GHG (b). No information available on the sectoral contributions after 2017.

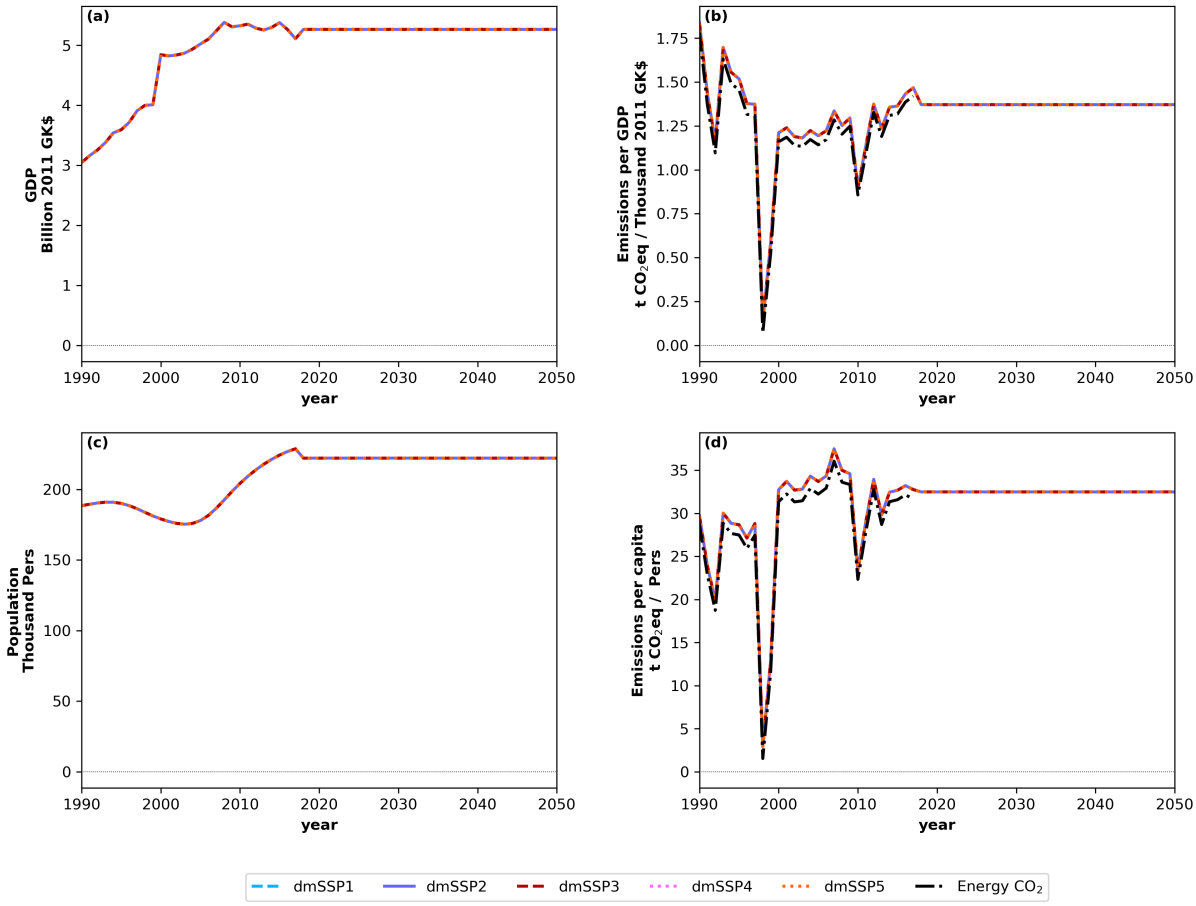

Figure 2: Timeseries of national GDP (a) and population (c), and Kyoto GHG emissions (exclLU, exclBunkers) per unit of GDP (b) or per capita (d).

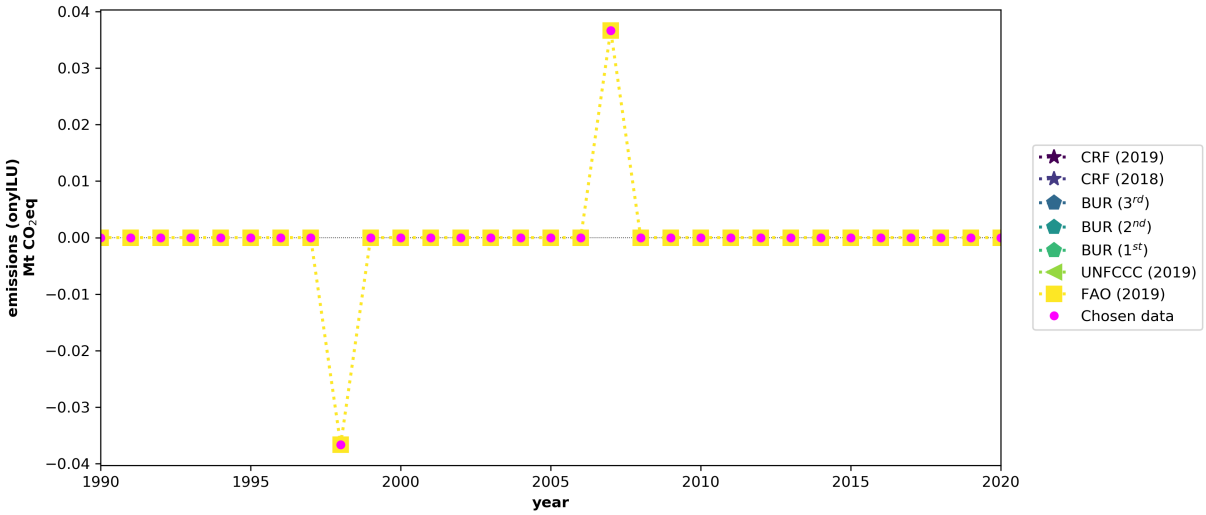

Figure 3: Timeseries of emissions from LULUCF (CO_2 plus CH_4 and N_2O) as available from different data-sources. Indicated in pink are the 'chosen' data, as used in our assessment of Antilles's NDC (if needed). The pink timeseries was inter- and / or extrapolated (interpolation: linear, extrapolation: constant).

an (I)NDC. Therefore the assumed 'mitigated' emissions pathways used for global aggregates equal the baseline emissions (dmSSP1–5).

4 Data sources and references

PRIMAP-hist v2.1: emissions from PRIMAP-hist are data from the country reported data priority scenario (HISTCR).