more different framework data and corresponding results at: http://results-espm.save-the-climate.info

| **framework data** (input values here: yellow fields) | | | |
|---|---|---|---|
| | | Gt | determination |
| **global CO2 budget 2020 - 2100** | | **550** | global budget |
| land-use change (LUC) emissions 2020 - 2100 | | **0** | |
| international shipping and aviation (ISA) emissions 2020 - 2100 | 3% | -17 | |
| global CO2 budget 2020 - 2100 to distribute here | | 533 | |
| **weighting population** key in the weighted key | **100%** | | national budget |
| | | | |
| scenario type used for the reference values | **RM-5-abs** | | paths |

Calculation **global budget** to distribute here:

LUC and ISA emissions are not considered here. Global LUC and ISA budgets are therefore offset against the global budget.

A value of **zero** for **LUC** means that by 2100, in total, net positive LUC emissions are offset by net negative LUC emissions.

| **reference values for the countries with the highest emissions** | | | | | emissions 2019 in Gt | per capita 2019 in t | share in global emissions 2019 | accu-mulated share | year emissions neutrality | normalised change rate 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| target year: | 2030 | | 2050 | | | | | | | |
| reference year: | 1990 | 2010 | 1990 | 2010 | | | | | | |
| China | 44% | -62% | -100% | -100% | 11.5 | 8 | 31% | 31% | 2041 | 2.2% |
| United States | -96% | -96% | -100% | -100% | 5.0 | 15 | 14% | 45% | 2032 | -2.4% |
| EU27 | -68% | -65% | -97% | -97% | 2.9 | 7 | 8% | 53% | 2056 | -4.5% |
| India | 312% | 41% | 141% | -18% | 2.6 | 2 | 7% | 60% | - | 1.5% |
| Russia | -92% | -89% | -100% | -100% | 1.8 | 12 | 5% | 65% | 2035 | -0.7% |
| Japan | -74% | -75% | -100% | -100% | 1.1 | 9 | 3% | 68% | 2043 | -3.0% |

| **largest national budgets 2020 - 2100** | national budget | weighted key | emissions 2019 | scope years |
|---|---|---|---|---|
| | Gt | | Gt | |
| China | 99.1 | 18.6% | 11.50 | 9 |
| India | 94.4 | 17.7% | 2.56 | 37 |
| EU27 | 30.7 | 5.8% | 2.93 | 10 |
| United States | 22.7 | 4.3% | 5.04 | 5 |
| Indonesia | 18.7 | 3.5% | 0.65 | 29 |
| Pakistan | 15.0 | 2.8% | 0.22 | 69 |
| Brazil | 14.6 | 2.7% | 0.48 | 31 |
| Nigeria | 13.9 | 2.6% | 0.13 | 104 |
| Bangladesh | 11.3 | 2.1% | 0.11 | 102 |
| Russia | 10.1 | 1.9% | 1.78 | 6 |
| Mexico | 8.8 | 1.7% | 0.49 | 18 |
| Japan | 8.8 | 1.6% | 1.14 | 8 |
| Ethiopia | 7.7 | 1.5% | 0.02 | 406 |
| Philippines | 7.5 | 1.4% | 0.15 | 50 |
| Egypt | 6.9 | 1.3% | 0.28 | 25 |
| Vietnam | 6.7 | 1.3% | 0.33 | 20 |
| Democratic Republic of the Congo | 6.0 | 1.1% | 0.00 | 1,725 |
| Germany | 5.8 | 1.1% | 0.70 | 8 |
| Turkey | 5.8 | 1.1% | 0.41 | 14 |
| Iran | 5.7 | 1.1% | 0.69 | 8 |
| Thailand | 4.8 | 0.9% | 0.27 | 18 |
| United Kingdom | 4.7 | 0.9% | 0.36 | 13 |
| France and Monaco | 4.5 | 0.8% | 0.32 | 14 |
| Italy, San Marino and the Holy See | 4.2 | 0.8% | 0.33 | 13 |
| South Africa | 4.0 | 0.8% | 0.47 | 9 |
| Tanzania | 4.0 | 0.8% | 0.01 | 314 |
| Myanmar/Burma | 3.7 | 0.7% | 0.04 | 99 |
| Sudan and South Sudan | 3.7 | 0.7% | 0.02 | 158 |
| Kenya | 3.6 | 0.7% | 0.02 | 191 |
| South Korea | 3.5 | 0.7% | 0.66 | 5 |
| Colombia | 3.5 | 0.7% | 0.09 | 38 |
| Spain and Andorra | 3.2 | 0.6% | 0.26 | 13 |
| Argentina | 3.1 | 0.6% | 0.19 | 16 |
| Uganda | 3.1 | 0.6% | 0.01 | 493 |
| Ukraine | 3.0 | 0.6% | 0.20 | 15 |
| Algeria | 3.0 | 0.6% | 0.18 | 17 |
| Iraq | 2.7 | 0.5% | 0.21 | 13 |
| Afghanistan | 2.6 | 0.5% | 0.01 | 218 |
| Poland | 2.6 | 0.5% | 0.31 | 8 |
| Canada | 2.6 | 0.5% | 0.60 | 4 |
| Morocco | 2.5 | 0.5% | 0.07 | 35 |
| Saudi Arabia | 2.4 | 0.4% | 0.59 | 4 |
| Uzbekistan | 2.3 | 0.4% | 0.09 | 25 |
| Peru | 2.2 | 0.4% | 0.06 | 41 |
| sum without EU | 449 | | 32 | |
| sum across all countries | 533 | | 37 | 15 |

**Basic idea behind the ESPM**

The ESPM consists of two steps:

(1) **National budgets**: A predefined global CO2 budget is distributed to countries. The ESPM tool offers the use of a **weighted distribution key** that includes the '**population**' and the '**emissions**' in a base year (here: 2019).

(2) **National paths**: The ESPM tool offers the Regensburg Model Scenario Types to derive plausible national paths that adhere to a national budget.

**Basic idea behind the Regensburg Model Scenario Types RM 1 - 6**

With the help of the RM Scenario Types, emission paths can be determined that meet a given budget. The scenario types differ in the **assumption** about the **property** of the **annual reductions**. This approach is particularly useful when it comes to making **political decisions** about emission **paths**.

Brief description of the ESPM:
https://www.klima-retten.info/PDF/ESPM_Background.pdf

Brief description of the RM Scenario Types:
https://www.klima-retten.info/Downloads/RM-Scenario-Types_short.pdf

Published paper for the six largest emitters:
https://doi.org/10.5281/zenodo.4764408