

HUMAN IMPACTS by the numbers

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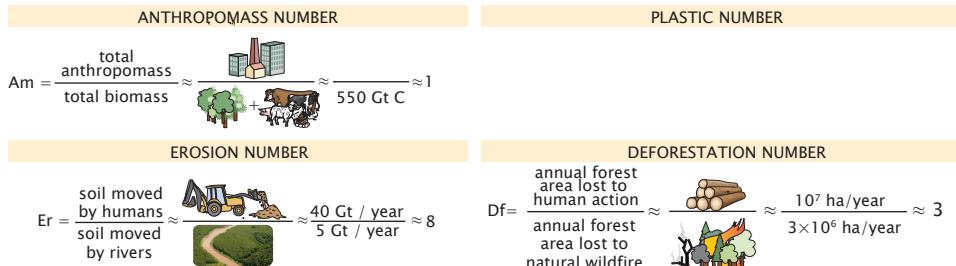
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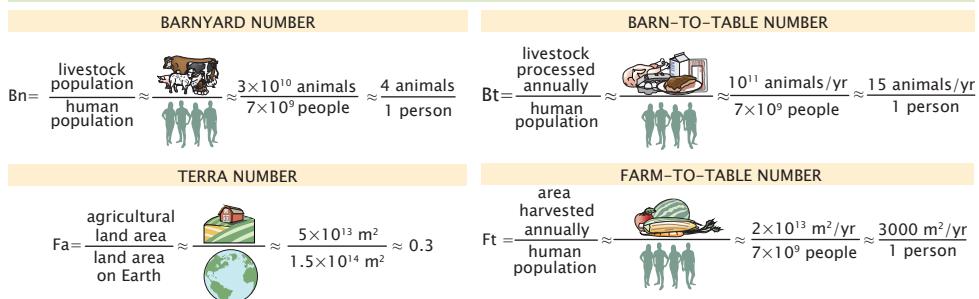
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THE ANTHROPOCENE BY THE NUMBERS



AGRICULTURE BY THE NUMBERS



SUMMARY

Total anthropomass (non-biological mass of human origin) is approximately equal to the planetary biomass.

Humans rival natural processes as the planets' most significant geomorphological agent, moving ≈ 40 Gt of soil annually.

Annual forest loss due to human activity (including agriculture, logging, and forestry) is ≈ 3 times larger than that due to wildfires of natural origin.

SUMMARY

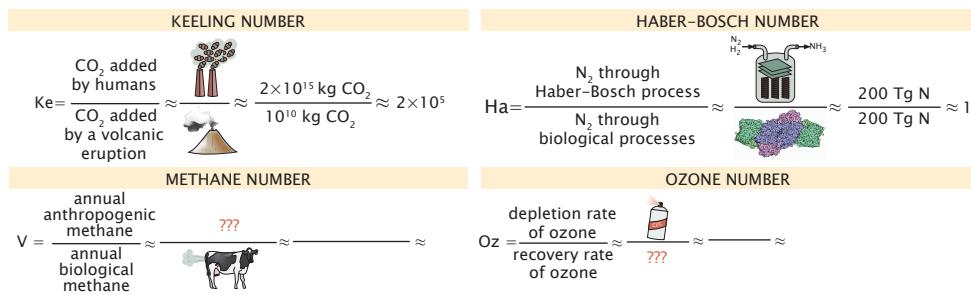
At a population of ≈ 30 billion, agricultural animals outnumber the human population by a factor of 4. Chickens alone account for $\approx 65\%$ of the livestock population.

The generation of animal products requires ≈ 15 animals per person per year.

Land used for agriculture, both in terms of harvest and animal husbandry, accounts for $\approx 30\%$ of Earth's total land area.

The plant-based diet of most humans requires $\approx 3000 \text{ m}^2$ or ≈ 1 acre of land per year. Harvests of cereals, wheat, and corn account for $\approx 50\%$ of harvested cropland.

ATMOSPHERIC EMISSIONS BY THE NUMBERS



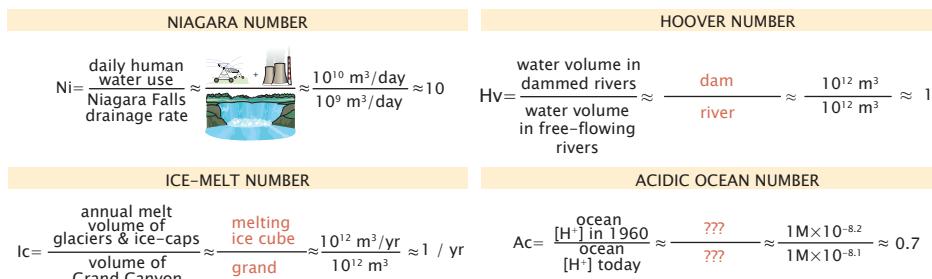
SUMMARY

Humans have released 1500 Gt of CO_2 , equal to $\approx 200,000$ large volcanic eruptions. Of this, 40% is absorbed by the ocean, leading to a net increase of $\approx 1000 \text{ Gt}$ of atmospheric CO_2 .

XX methane number description

Through synthetic means, humans convert as much nitrogen to ammonia as does the biosphere, but at much lower efficiency.

WATER BY THE NUMBERS



SUMMARY

Daily human fresh water usage is equivalent to the daily discharge of 10 Niagara Falls or 1 Amazon river.

Around half of the world river volume is used in the generation of hydroelectric power. The Amazon alone accounts for $\approx 25\%$ of the global free-flowing (undammed) river volume.

Increasing global temperature leads to a volume of $\approx 1000 \text{ km}^3$ of water released per year from glaciers, permafrost, and ice caps, a volume comparable to that of the Grand Canyon.

Over the past sixty years, increased CO_2 in the atmosphere has decreased the pH of the ocean by $\approx 0.1 \text{ pH units}$, corresponding to a $\approx 30\%$ increase in H^+ concentration.

SUMMARY

Total human energy usage is $\approx 0.01\%$ of the solar energy incident on the planet.

Fossil fuels (crude oil and natural gas) is responsible for XX% of the global energy usage. Mining produces XX m^3 per year, comparable to XX the volume of the Grand Canyon.

bag of fertilizer xx phosphorus number description

xx lithium number description

RESOURCE EXTRACTION BY THE NUMBERS

