

Saving the World in Style: The Value Proposition of the New European Bauhaus

Hans Joachim Schellnhuber

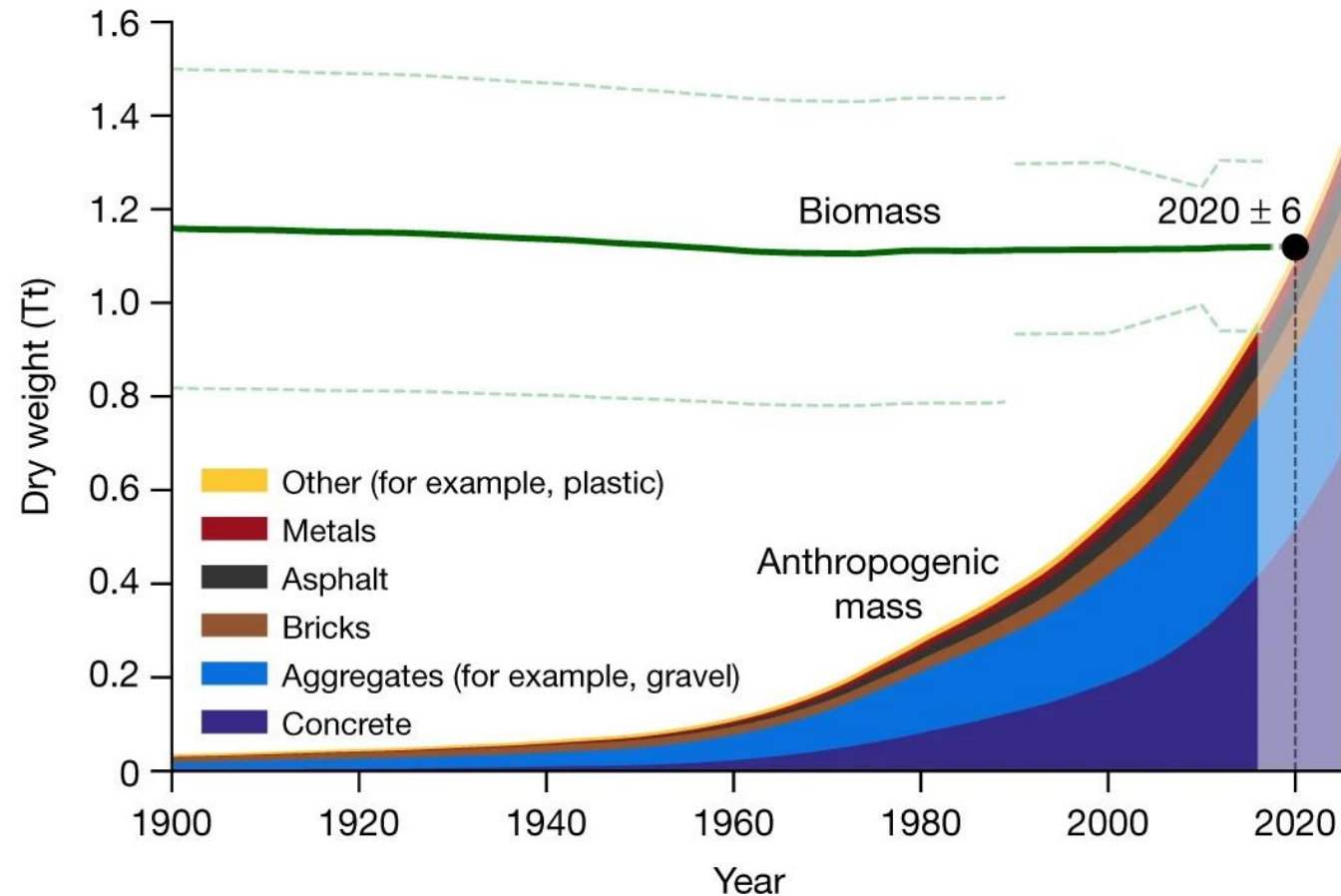
*Director General, International Institute for Applied System Analysis (IIASA);
Founder, Bauhaus Earth gGmbH*

Global human-made mass exceeds all living biomass









Emily Elhacham, Liad Ben-Uri, Jonathan Grozovski, Yinon M. Bar-On & Ron Milo

Abstract

Humanity has become a dominant force in shaping the face of Earth^{1,2,3,4,5,6,7,8,9}. An emerging question is how the overall material output of human activities compares to the overall natural biomass. Here we quantify the human-made mass, referred to as ‘anthropogenic mass’, and compare it to the overall living biomass on Earth, which currently equals approximately 1.1 teratonnes^{10,11}. We find that Earth is exactly at the crossover point; in the year 2020 (± 6), the anthropogenic mass, which has recently doubled roughly every 20 years, will surpass all global living biomass. On average, for each person on the globe, anthropogenic mass equal to more than his or her bodyweight is produced every week. This quantification of the human enterprise gives a mass-based quantitative and symbolic characterization of the human-induced epoch of the Anthropocene.



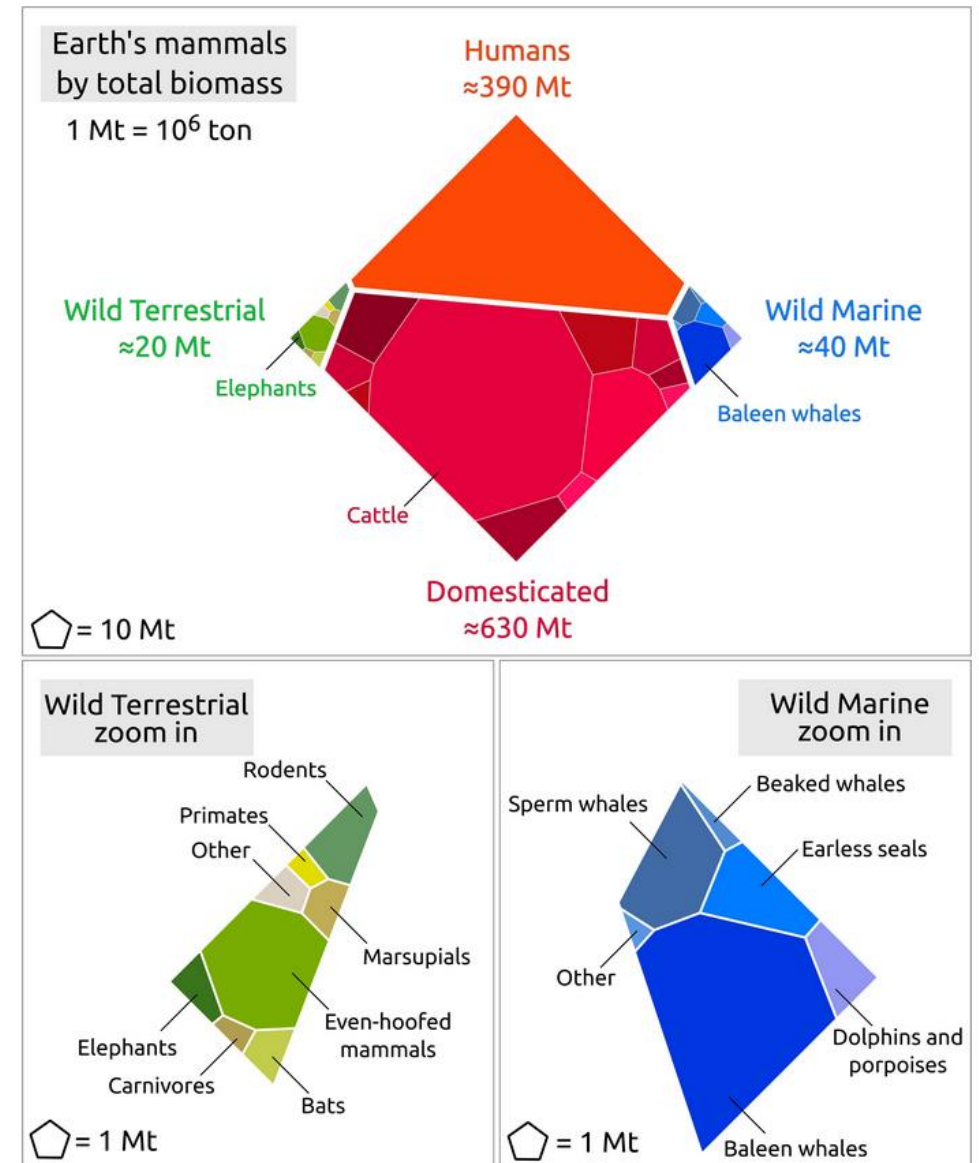
The global biomass of wild mammals

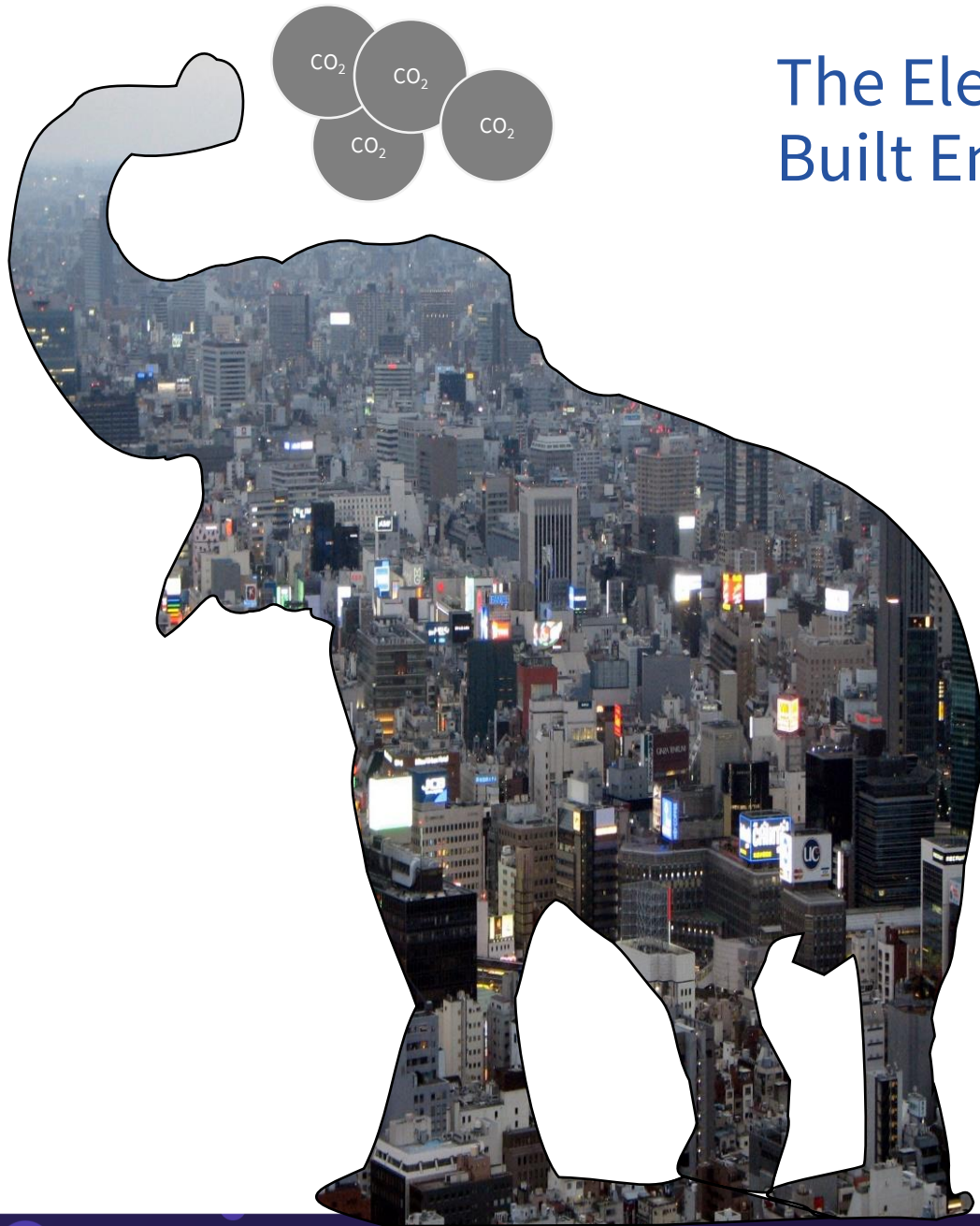
Lior Greenspoon , Eyal Krieger, Ron Sender , Yuval Rosenberg , Yinon M. Bar-On , Uri Moran, Tomer Antman, Shai Meiri , Uri Roll , Elad Noor , and Ron Milo  Full paper: [here](#)

February 27, 2023 | 120 (10) e2204892120 | <https://doi.org/10.1073/pnas.2204892120>

Significance

Mammals include some of the best-known species of animals, and are icons of conservation efforts. Despite their status, there is no rigorous estimate available for their overall global biomass. We quantified absolute wild mammalian biomass and its distribution across different taxa and continents. Such data can serve as a holistic benchmark to analyze temporal trends. This quantitative global view of wildlife, when contrasted for example to the mass of humanity and its livestock, can help dispel notions about the seemingly endless ubiquity of wildlife and provide a quantitative argument for the urgency of nature conservation efforts.





The Elephant in the Sustainability Room: Built Environment

- ~ 40 %
of global GHG emissions;
- ~ 55 %
of developed-countries waste;
- ~ 90 %
of mineral resources in Germany

Daide Ponzini
Michele Nastasi

Starchitecture

SCENES, ACTORS AND SPECTACLES IN CONTEMPORARY CITIES

THE MONACELLI PRESS

How and why do spectacular buildings get commissioned and procured? What are their visible urban effects? What can urban planners, architects, and policymakers learn in order to engage in more successful citymaking?

In recent years, media and critical attention has been lavished on famous architects, and the contributions of their designs to the branding of cities. The post-“Bilbao effect” global landscape is one where cities compete for the highest-profile skyscrapers, cultural projects, and high-profile developments designed by star architects whom even casual readers know by first name: Frank Gehry, Bjarke Ingels, Jean Nouvel, Zaha Hadid, Norman Foster, Rem Koolhaas.

Far less is known about the decision-making processes behind these projects and their subsequent urban effects. A unique combination of urban studies and photography, Starchitecture investigates projects designed by star architects in cities including Paris, New York, Abu Dhabi, Bilbao, and the architectural microcosm of the Vitra campus in Weil am Rhein, Germany. Author Davide Ponzini and photographer Michele Nastasi seek to explain and critique a growing global condition by revealing how starchitecture has been and continues to be deployed in cities around the world. The arguments they raise are vital to understanding the urban landscapes of today, and tomorrow.

Christ Church, Oxford

Michelson House, Potsdam

Laxenburg Castle



Privileged Beauty

CC BY-SA-NC

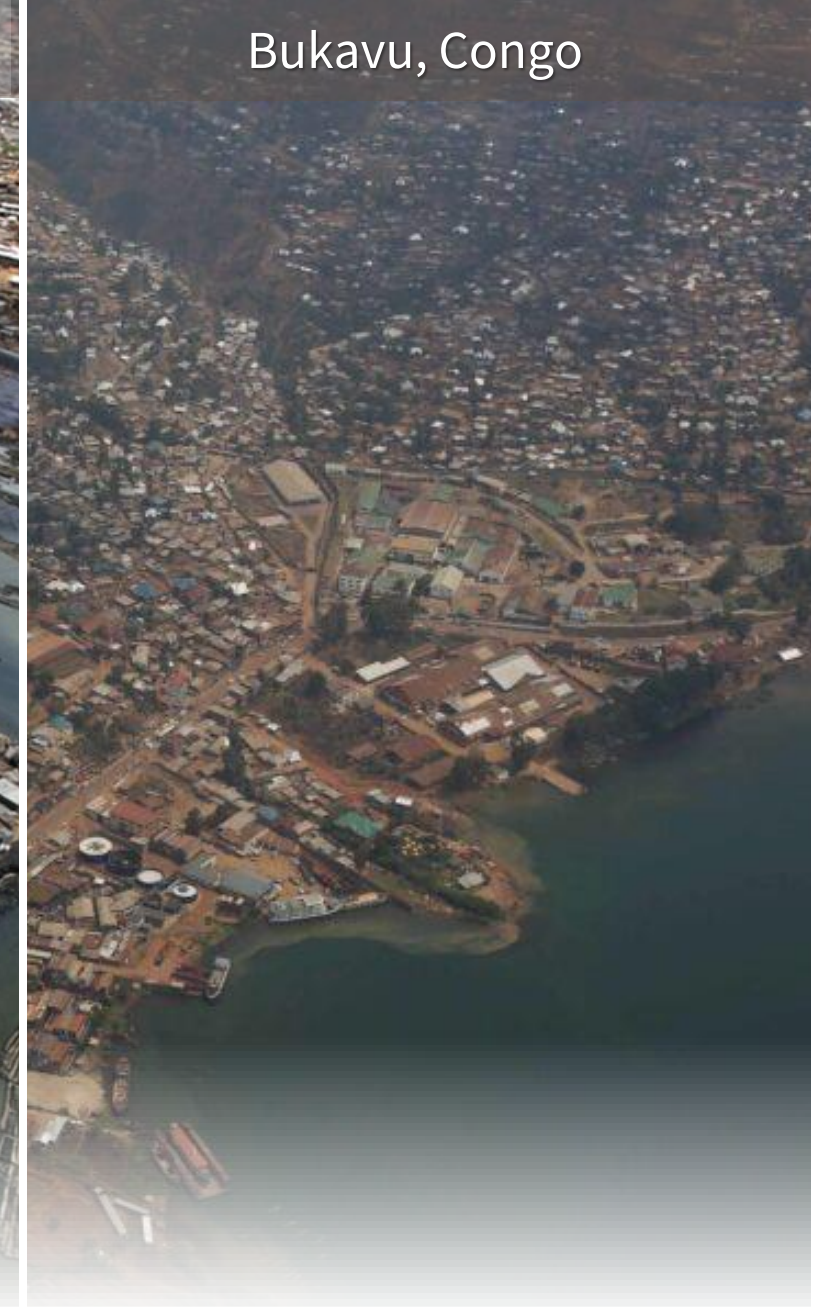
Cairo, Egypt



Lagos, Nigeria



Bukavu, Congo



Precarious Ugliness

The Great Demographic Roller-Coaster: Shrink and Grow

Global fertility in 204 countries and territories, 1950–2021, with forecasts to 2100: a comprehensive demographic analysis for the Global Burden of Disease Study 2021

GBD 2021 Fertility and Forecasting Collaborators*

Summary

Background Accurate assessments of current and future fertility—including overall trends and changing population age structures across countries and regions—are essential to help plan for the profound social, economic, environmental, and geopolitical challenges that these changes will bring. Estimates and projections of fertility are necessary to inform policies involving resource and health-care needs, labour supply, education, gender equality, and family planning and support. The Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) 2021 produced up-to-date and comprehensive demographic assessments of key fertility indicators at global, regional, and national levels from 1950 to 2021 and forecast fertility metrics to 2100 based on a reference scenario and key policy-dependent alternative scenarios.

Methods To estimate fertility indicators from 1950 to 2021, mixed-effects regression models and spatiotemporal Gaussian process regression were used to synthesise data from 8709 country-years of vital and sample registrations, 1455 surveys and censuses, and 150 other sources, and to generate age-specific fertility rates (ASFRs) for 5-year age groups from age 10 years to 54 years. ASFRs were summed across age groups to produce estimates of total fertility rate (TFR). Livebirths were calculated by multiplying ASFR and age-specific female population, then summing across ages 10–54 years. To forecast future fertility up to 2100, our Institute for Health Metrics and Evaluation (IHME) forecasting model was based on projections of completed cohort fertility at age 50 years (CCF50; the average number of children born over time to females from a specified birth cohort), which yields more stable and accurate measures of fertility than directly modelling TFR. CCF50 was modelled using an ensemble approach in which three sub-models (with two, three, and four covariates variously consisting of female educational attainment, contraceptive met need, population density in habitable areas, and under-5 mortality) were given equal weights, and analyses were conducted utilising the MR-BRT (meta-regression—Bayesian, regularised, trimmed) tool. To capture time-series trends in CCF50 not explained by these covariates, we used a first-order autoregressive model on the residual term. CCF50 as a proportion of each 5-year ASFR was predicted using a linear mixed-effects model with fixed-effects covariates (female educational attainment and contraceptive met need) and random intercepts for geographical regions. Projected TFRs were then computed for each calendar year as the sum of single-year ASFRs across age groups. The reference forecast is our estimate of the most likely fertility future given the model, past fertility, forecasts of covariates, and historical relationships between covariates and fertility. We additionally produced forecasts for multiple alternative scenarios in each location: the UN Sustainable Development Goal (SDG) for education is achieved by 2030; the contraceptive met need SDG is achieved by 2030; pro-natal policies are enacted to create supportive environments for those who give birth; and the previous three scenarios combined. Uncertainty from past data inputs and model estimation was propagated throughout analyses by taking 1000 draws for past and present fertility estimates and 500 draws for future forecasts from the estimated distribution for each metric, with 95% uncertainty intervals (UIs) given as the 2.5 and 97.5 percentiles of the draws. To evaluate the forecasting performance of our model and others, we computed skill values—a metric assessing gain in forecasting accuracy—by comparing predicted versus observed ASFRs from the past 15 years (2007–21). A positive skill metric indicates that the model being evaluated performs better than the baseline model (here, a simplified model holding 2007 values constant in the future), and a negative metric indicates that the evaluated model performs worse than baseline.

Findings During the period from 1950 to 2021, global TFR more than halved, from 4.84 (95% UI 4.63–5.06) to 2.23 (2.09–2.38). Global annual livebirths peaked in 2016 at 142 million (95% UI 137–147), declining to 129 million (121–138) in 2021. Fertility rates declined in all countries and territories since 1950, with TFR remaining above 2.1—canonically considered replacement-level fertility—in 94 (46.1%) countries and territories in 2021. This included 44 of 46 countries in sub-Saharan Africa, which was the super-region with the largest share of livebirths in 2021 (29.2% [28.7–29.6]). 47 countries and territories in which lowest estimated fertility between 1950 and 2021 was below replacement experienced one or more subsequent years with higher fertility; only three of these locations rebounded above replacement levels. Future fertility rates were projected to continue to decline worldwide, reaching a global TFR of 1.83 (1.59–2.08) in 2050 and 1.59 (1.25–1.96) in 2100 under the reference scenario. The number of countries and territories with fertility rates remaining above replacement was forecast to be 49 (24.0%) in 2050 and

www.thelancet.com Published online March 20, 2024 [https://doi.org/10.1016/S0140-6736\(24\)00550-6](https://doi.org/10.1016/S0140-6736(24)00550-6)

Full paper: [here](#)

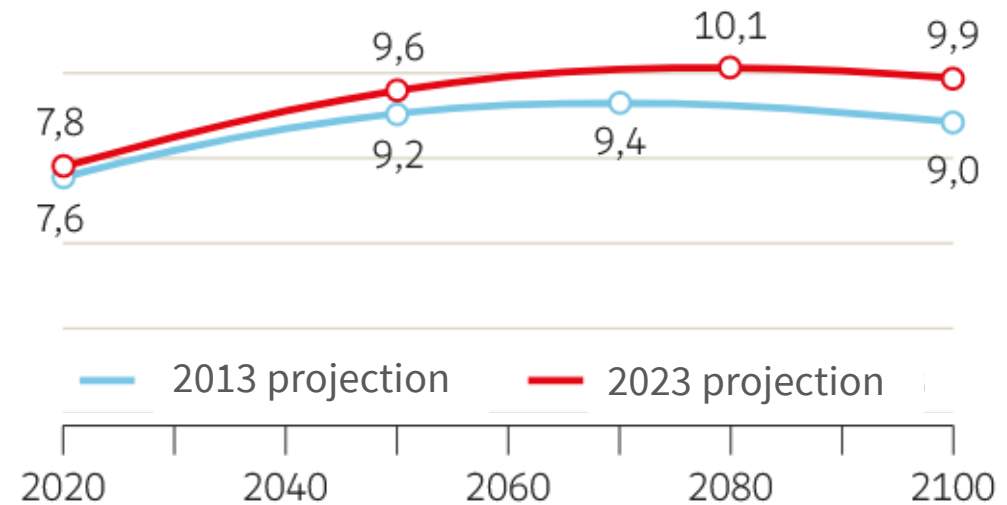
Articles



Published Online
March 20, 2024
[https://doi.org/10.1016/S0140-6736\(24\)00550-6](https://doi.org/10.1016/S0140-6736(24)00550-6)
See Online/Comment
[https://doi.org/10.1016/S0140-6736\(24\)00490-2](https://doi.org/10.1016/S0140-6736(24)00490-2)
*Collaborators are listed at the end of the Article

Correspondence to:
Prof Simon Hay, Institute for Health Metrics and Evaluation, University of Washington, Seattle, WA 98195, USA
shay@uw.edu

Population Development (global)
Medium Scenario (SSP2*), Population in billion



* Continuation of previous development

Quantifying the human cost of global warming

Timothy M. Lenton [✉](#), Chi Xu [✉](#), Jesse F. Abrams, Ashish Ghadiali, Sina Loriani, Boris Sakschewski, Caroline Zimm, Kristie L. Ebi, Robert R. Dunn, Jens-Christian Svenning & Marten Scheffer

The Guardian

warming

2.7 °C global warming could leave one-third (22–39%) of people outside the niche!

would mean **2 billion people** experiencing average annual temperatures above 29°C by 2030, a level at which very few communities have lived in the past.

Up to 1 billion people could choose to migrate to cooler places, the scientists said, although those areas remaining within the climate niche would still experience more frequent heatwaves and droughts.

However, urgent action to lower carbon emissions: a global average temperature rise to 1.5°C would cut the number of people pushed outside the climate niche by 80%, to **400 million**.

Full article: [here](#)



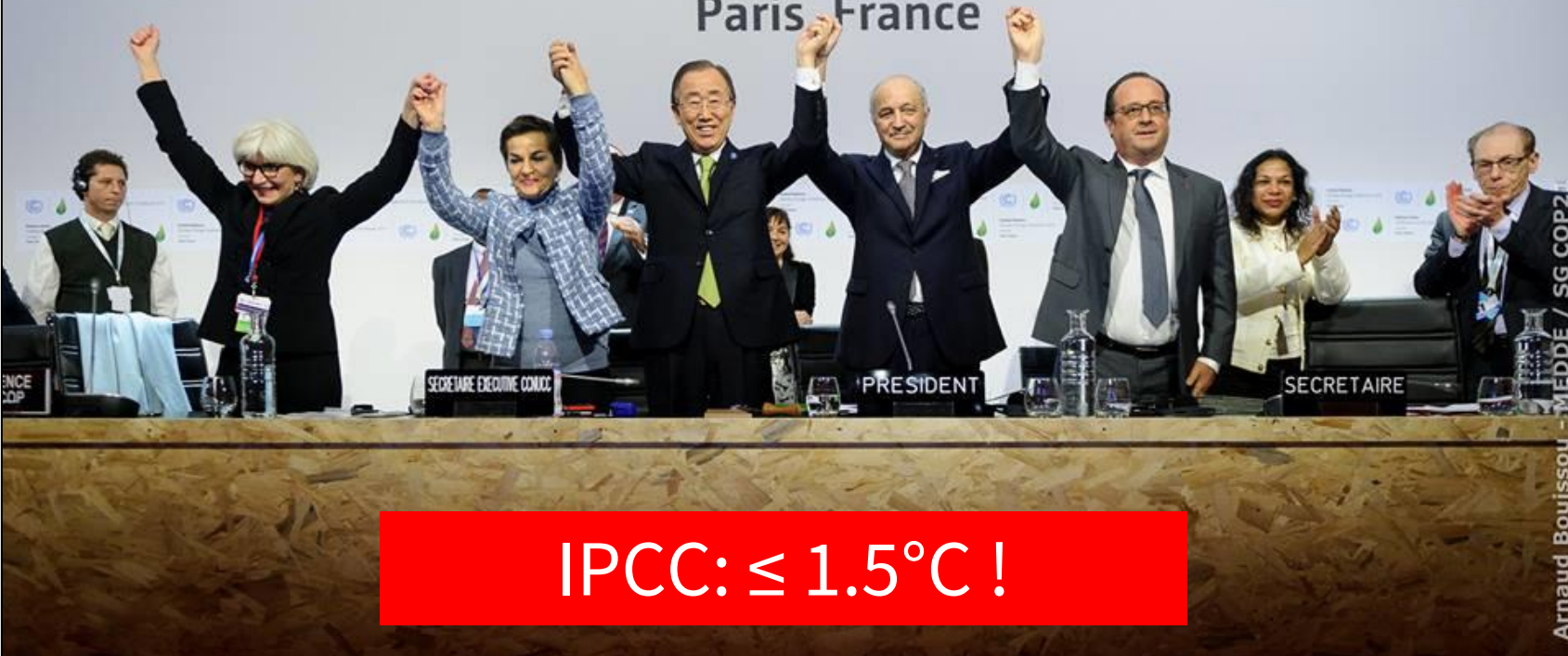
This is the projected result of current climate policies across the globe!

The Paris Agreement

Nations Unies Conférence sur les Changements Climatiques 2015

COP21/CMP11

Paris France



Limiting global warming to "well below" the 2 degrees Celsius

Net zero emissions of greenhouse gases after the middle of the 21st century

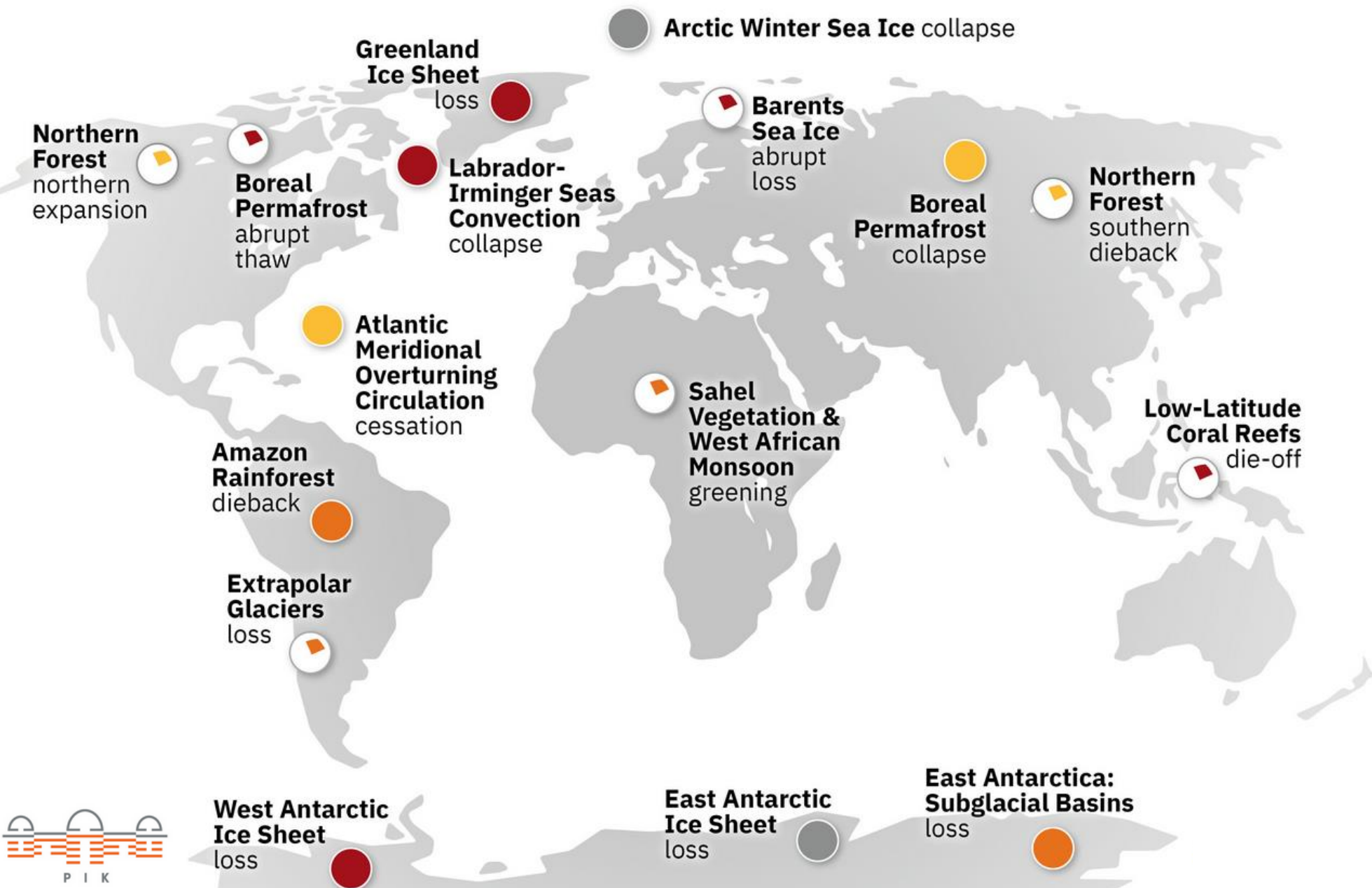
National emission targets regularly reviewed and tightened

Developed countries provide 100 billion USD annually from 2020-2025

IPCC: $\leq 1.5^{\circ}\text{C}$!

Bildquelle: <https://www.wmo.int/media/>

Tipping Elements in the Earth System



- Regional elements
- Global elements

Tipping becomes likely within

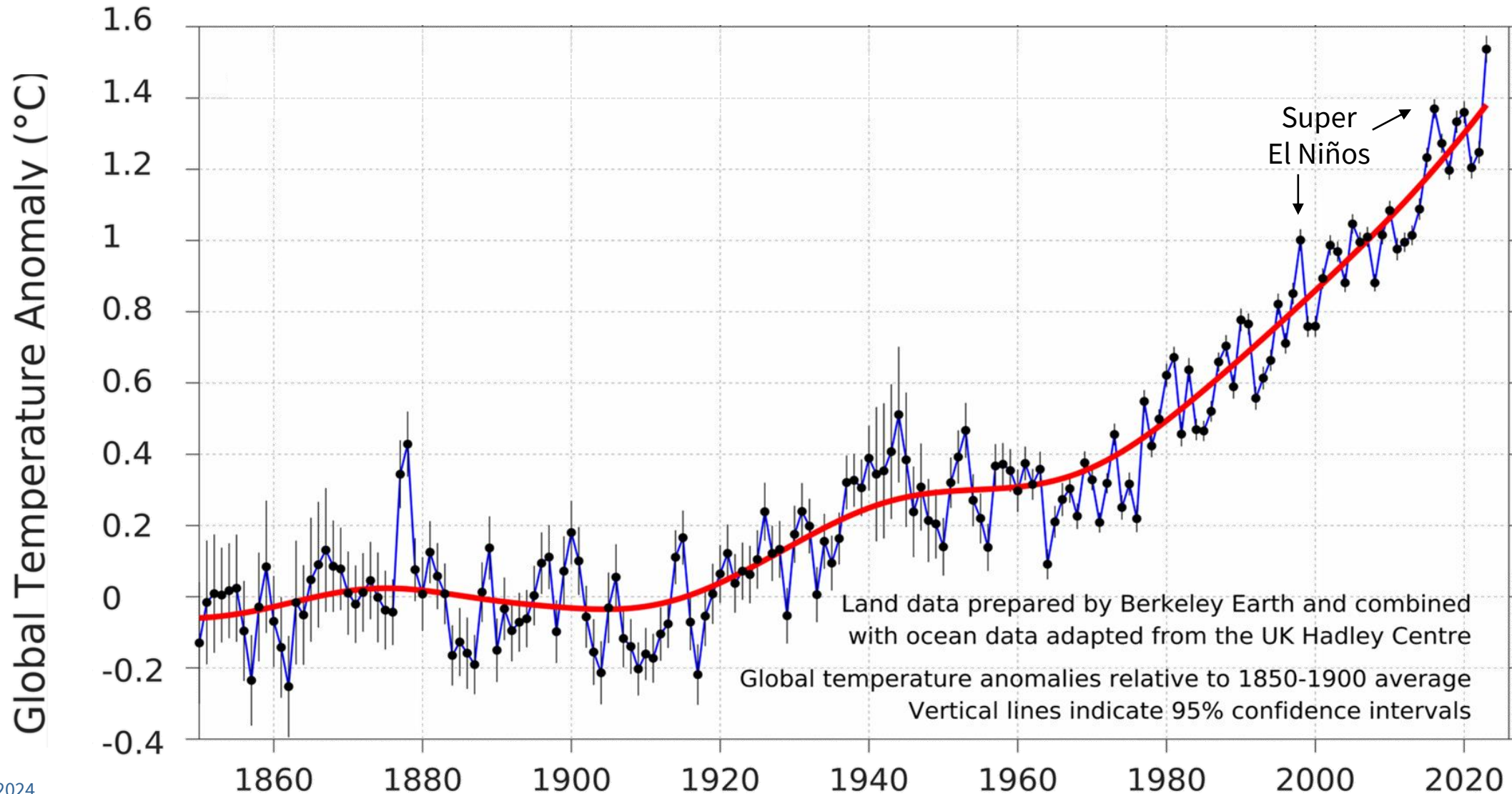
- 1,5- < 2,0**
- 2,0-3,7**
- 3,7-6,0**
- > 6°C**

of global warming.



Global Average Temperature

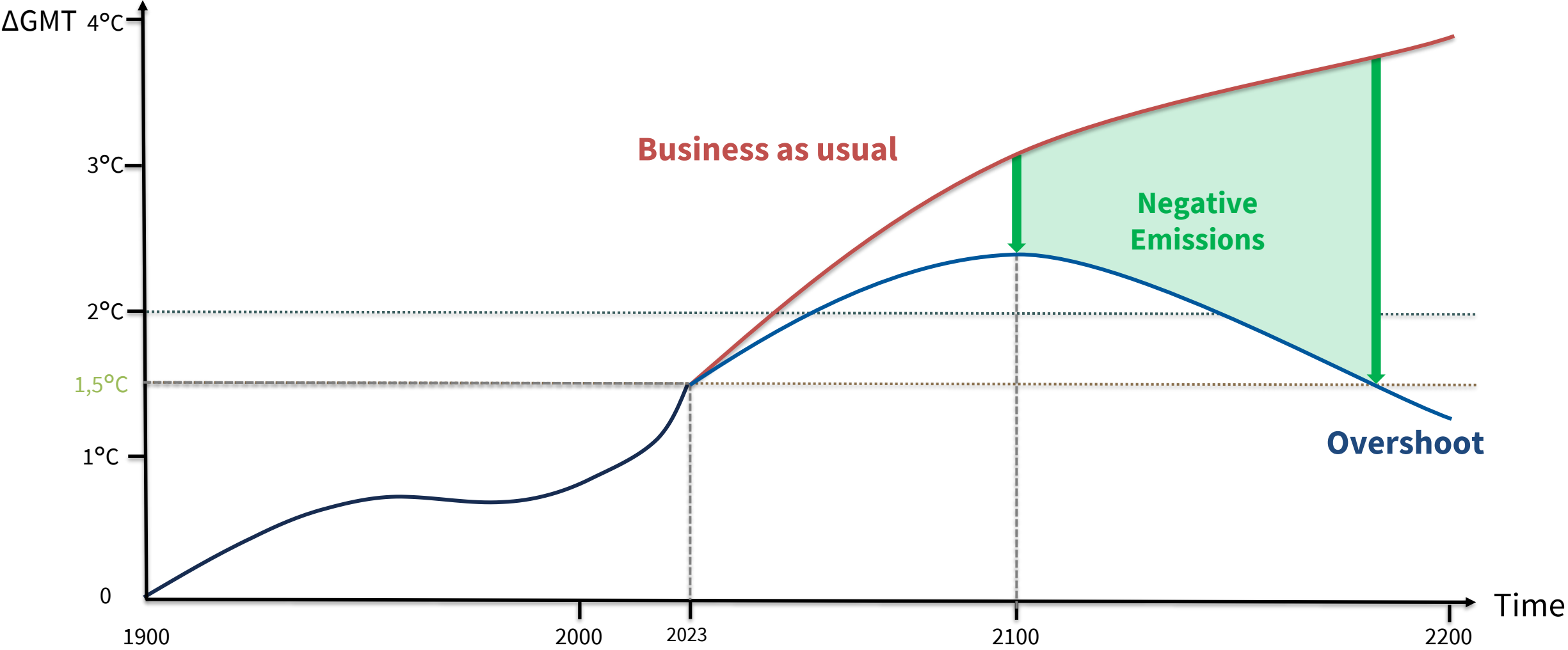
(compared to the average 1850-1900)



Don't
Look

DOWN

Climate Overshoot and Restoration: Negative Emissions



Schellnhuber & Köllner 2022 (unpublished)

**Wood4Bauhaus Virtual Conference,
8 April 2021**

**Reforesting the Planet,
Retimbering the City**

Professor H. J. Schellnhuber CBE
Director Emeritus, Potsdam Institute for Climate Impact Research




Cities in the Evolution of the Carbon Cycle

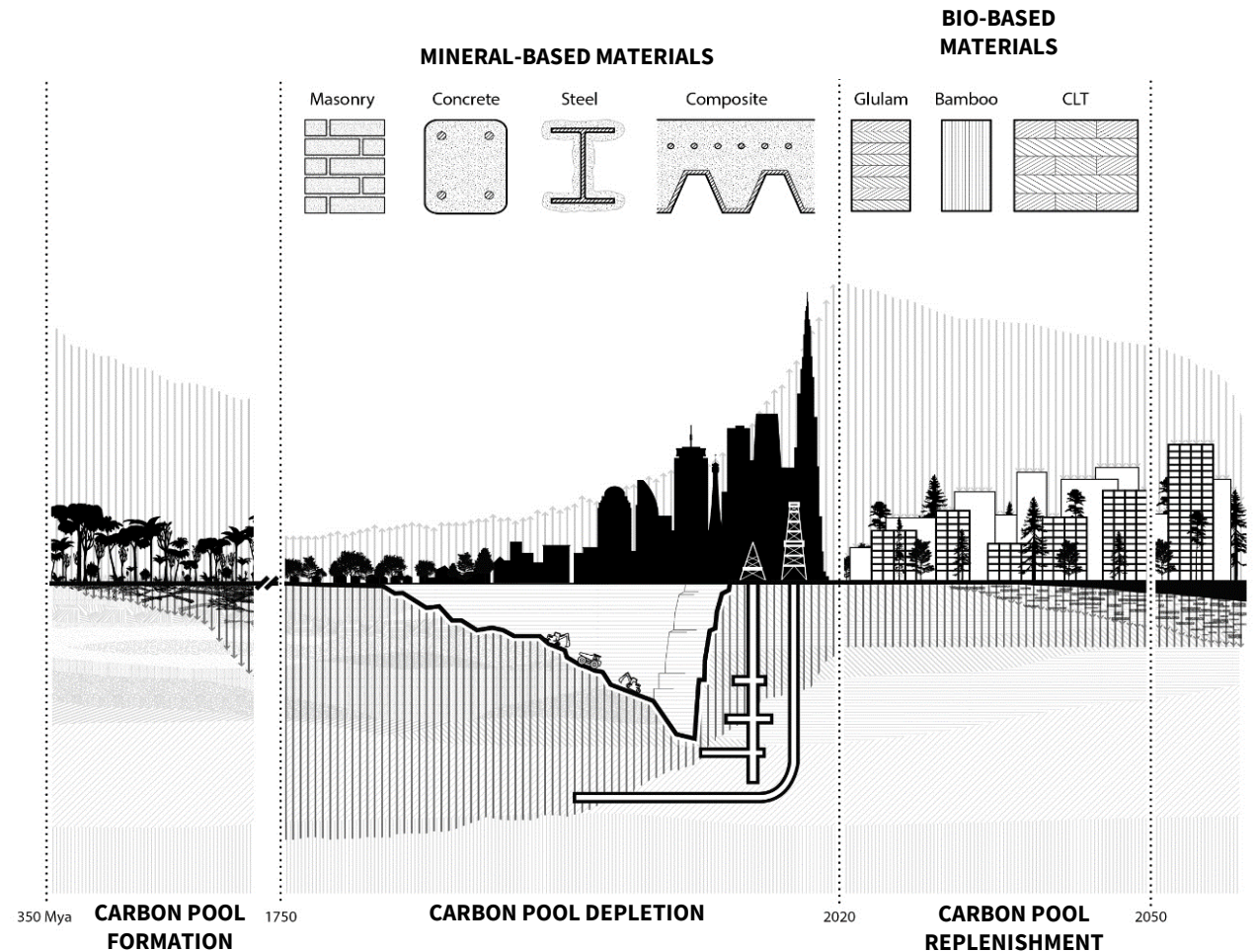
nature
sustainability

Perspective | Published: 27 January 2020

Buildings as a global carbon sink

Galina Churkina , Alan Organschi, Christopher P. O. Reyer, Andrew Ruff, Kira Vinke, Zhu Liu, Barbara K. Reck, T. E. Graedel & Hans Joachim Schellnhuber

<https://doi.org/10.1038/s41893-019-0462-4>



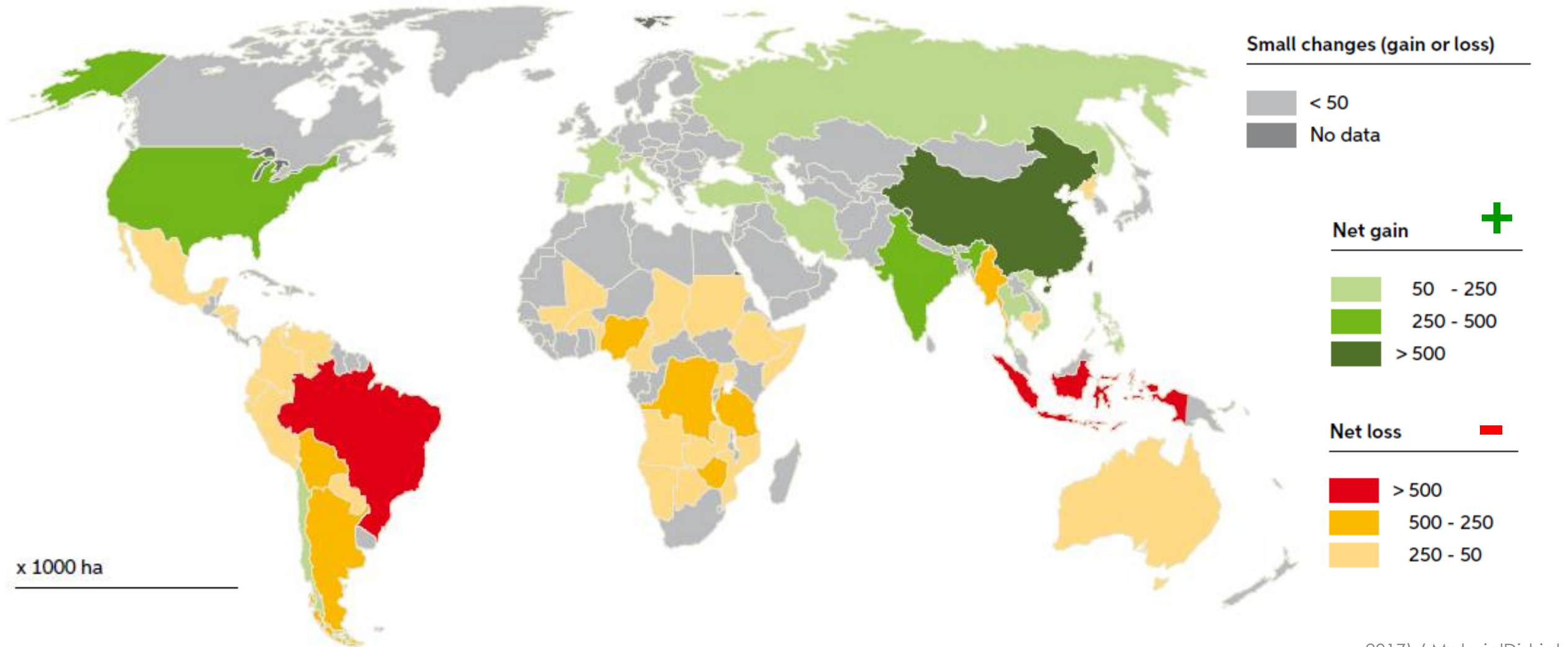


ATLASSIAN TOWER

Sydney

Courtesy of WIEHAG

Annual change in forest area (1990-2015)








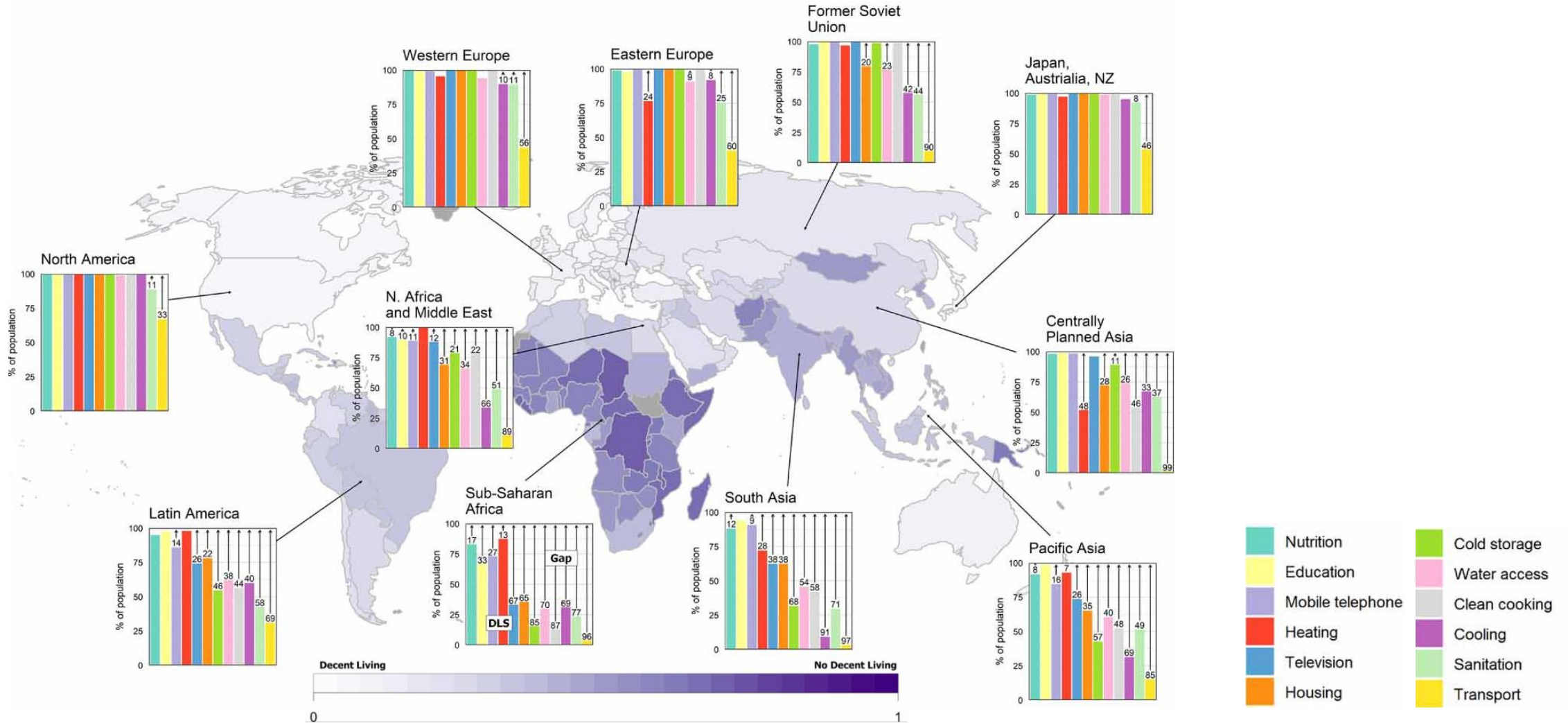
BOONING BAMBOO (2017) / MaterialDistrict

Social Exclusion by Construction



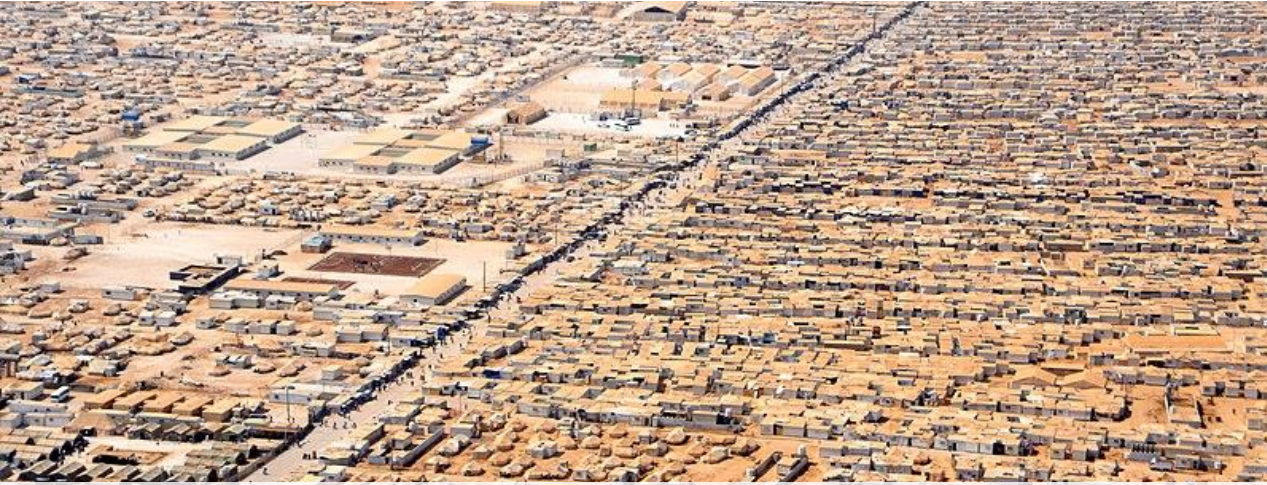
Decent living gaps and energy needs around the world

Jarmo S Kikstra^{6,1,2,3} , Alessio Mastrucci² , Jihoon Min² ,
Keywan Riahi^{2,4}  and Narasimha D Rao^{2,5} 



Full paper: [here](#)

Accommodation for Refugees



Za'Atari, Jordan



Moria, Greece



New European Bauhaus presents *Radical yet possible future space solutions*,
Venice, 25 May 2023

Vernacular Living in the Anthropocene: New Sedentism or New Nomadism?

Professor H. J. Schellnhuber CBE;
Director Emeritus, Potsdam Institute for Climate Impact Research PIK e.V.;
Founder and Managing Director, Bauhaus der Erde gGmbH

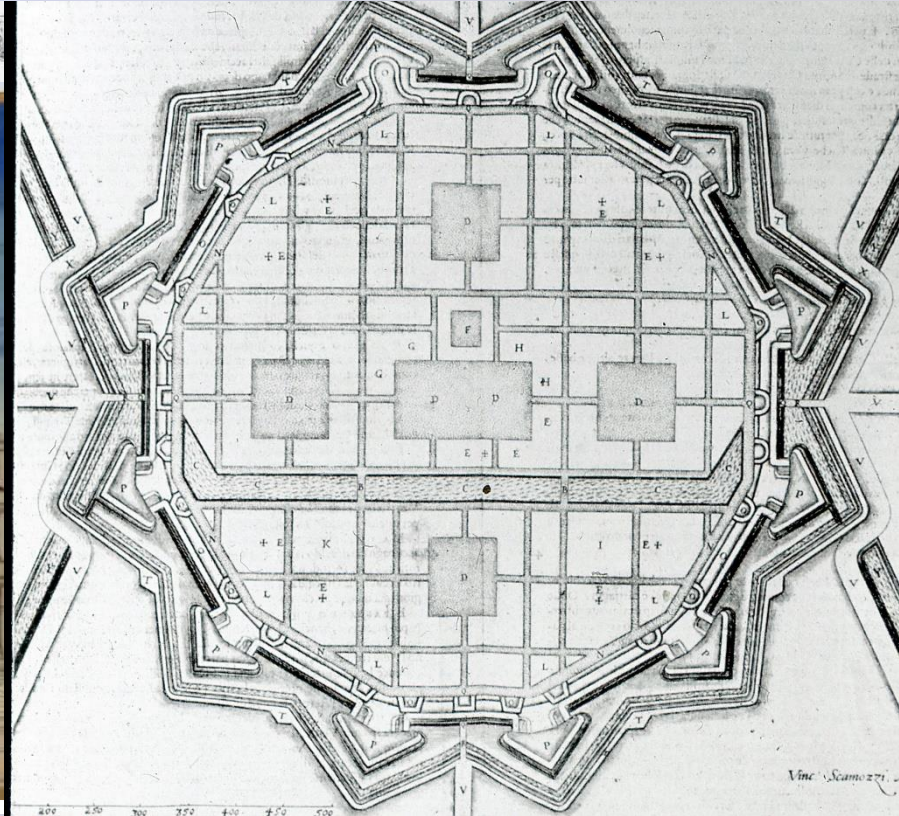


BAUHAUS ● EARTH

The Ideal City: An Eternal Obsession



© public domain

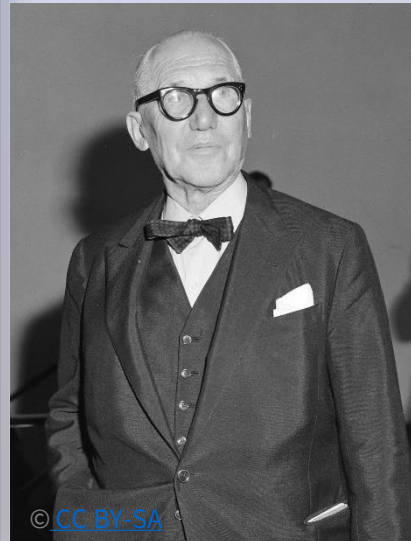
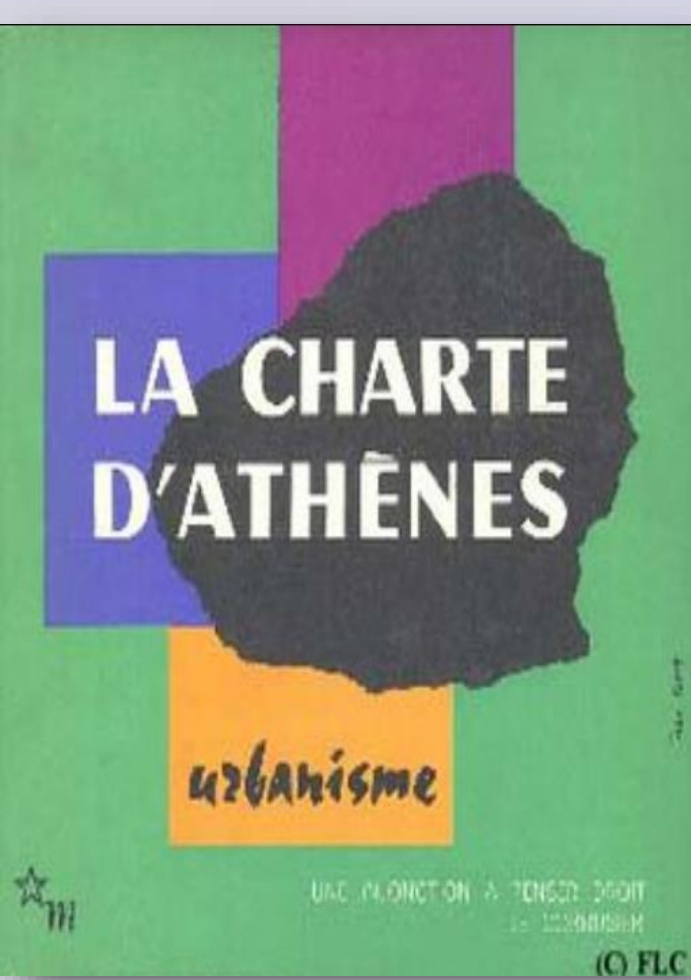


Pienza, Rossellino, 1459

Plan of an Ideal City, Scamozzi, 1615

Highrise of Homes, 1972

The Ideal Renaissance City, Laurana, 1470



The Athens Charter (1933)

Why has the '15-minute city' taken off in Paris but become a controversial idea in the UK?

Helena Horton

Full article: [here](#)



Creative Green Edo Tokyo scenario

Happiness Tokyo



Marunouchi 2015



Marunouchi Future

<The world view focusing on the happiness and mature local culture>

- In this world, sophisticated urban amenity and stimulating curiosity become keys for structuring urban space. At the same time, Tokyo local cultural context can be emphasised that leads to building a confident identity of Tokyo.
- Tokyo can be identified as a beautiful and sophisticated cultural city in the world.
- The main industry in this world is the tertiary industry, people can obtain divers of educations and trainings.
- A variety of community can be developed and people become very open-minded.
- The environmental awareness can be emphasized by the community cooperation. Although the environmental policies are not very strong, the individual action can be promoted owing to the civic pride.
- The urban form is organised by the diverse of clusters that have different identities, however, all the clusters have tempting urban amenity. Therefore, the relationship between each cluster can be the equal.

Super High-tech Odyssey Tokyo scenario

Advanced
Technology Tokyo



Shinjyuku 2015



Shinjyuku Future

<The worldview focusing on the progress of technology and highest functional effectiveness >

- The improvement of technologies has significant influences on the economy and urban life, that leads to highly technology-oriented society incorporating with the latest advanced technology.
- The economic growth can be accelerated by the further development of IT and new technology, so that Tokyo becomes a leader of these fields in the world.
- The market is opened to the world, Tokyo also takes a role of the latest technology show-case.
- The community is relatively closed, because of the reason that technical solutions are prioritised. However, on the other hand, the security is high.
- The urban form is organised as monocentric compact city that realises intensive functions.

3

Cultivate Tokyo ! scenario

Resource Self-sufficient Tokyo



Asakusa 2015



Asakusa Future

<The world view focusing on self-sufficiency and resilience>

- The essential resources such as food and energy can be produced increased amount within Tokyo area. The area has also effective recycling system inside.
- The growth of urban agriculture.
- The economic growth will decline, however, the expenditures will also decline owing to the effects of self-sufficiency.
- The community can be effectively developed through the local agricultural and recycling activities. The sharing market without monetary exchange can also be developed.
- The urban form is organised by community based clusters that have different characteristics under different industrial and social activities.

4

The Ultimate Clash of Paradigms

Whole Urban Systems

Scattered Building Parts

Palio di Siena



Typical Western Cities with a Patchwork of Functional Buildings

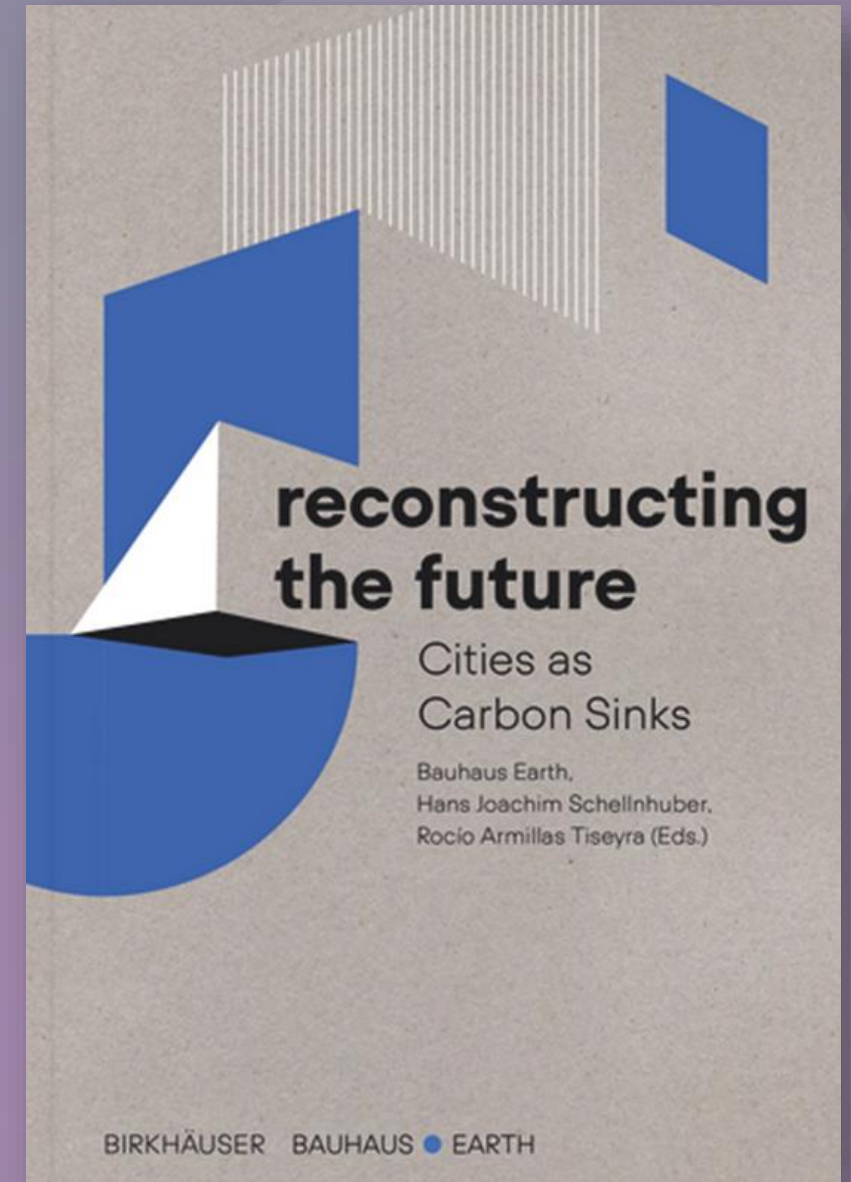


Reconstructing the Future for People and Planet – a New Bauhaus Initiative

PAS Conference, 9-10 June 2022



© Gabriella Clare Marino





Full report: [here](#)

Independent
Expert
Report

Horizon Europe-New European Bauhaus Nexus Report

Conclusions of the High-Level Workshop on
'Research and Innovation for the New European Bauhaus',
jointly organised by DG Research and Innovation and
the Joint Research Centre

Authors of the Report:

Hans Joachim Schellnhuber (rapporteur); Barbara Widera (rapporteur); Andreja Kutnar (rapporteur); Alan Organschi (rapporteur); Annette Hafner; Annette Hillebrandt; Orla Murphy; Nebojsa Nakicenovic



Research and
Innovation