

The Great Urban Transformation

WBGU – ICLEI Side Event COP22

The Paris Agreement

Nations Unies

Conférence sur les Changements Climatiques 2015

COP21/CMP11

Paris France



Limiting global warming “well below”

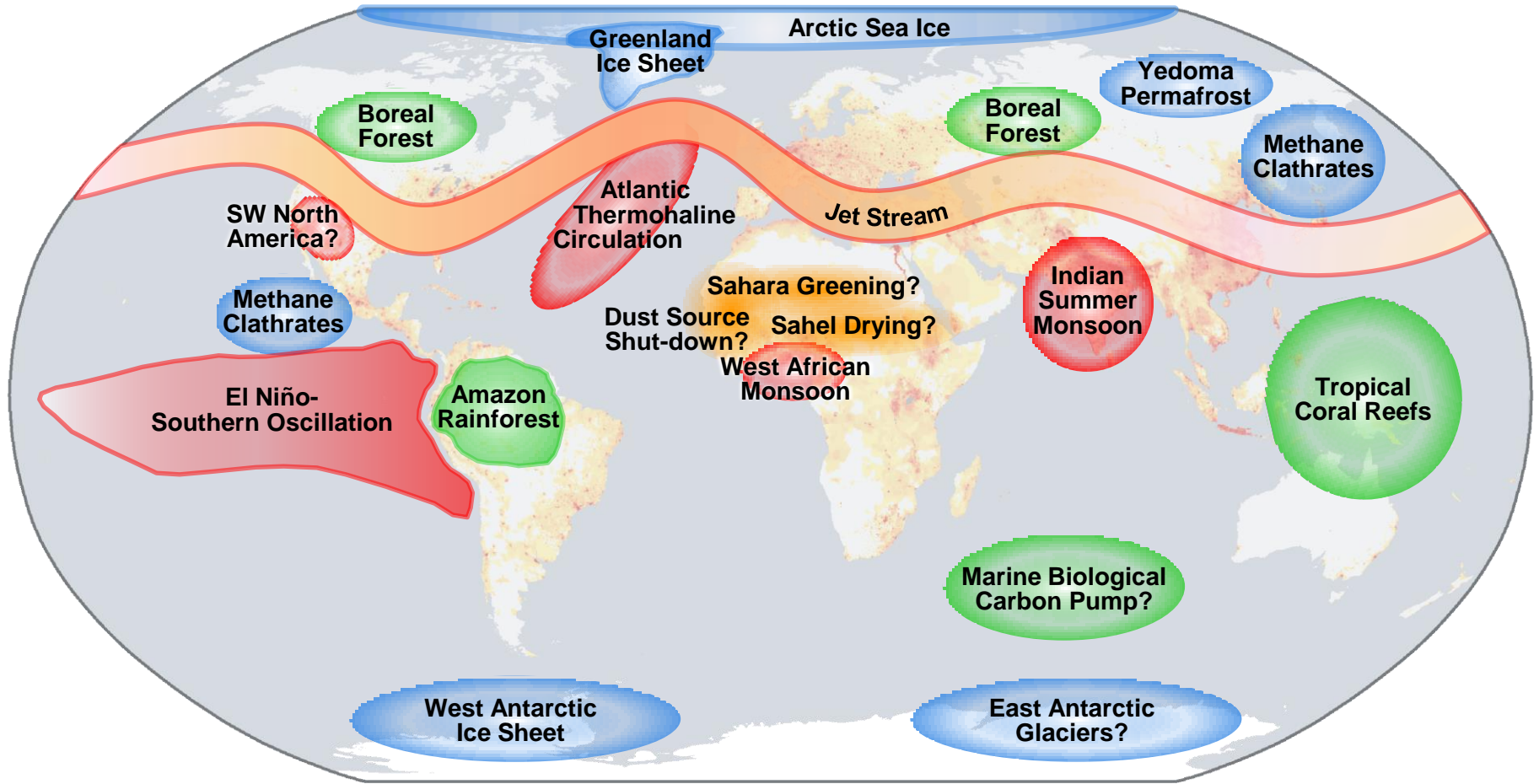
2 degrees Celsius

Net-zero emissions of greenhouse gases by mid-21st century

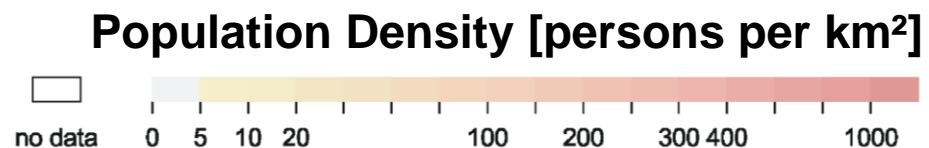
National emission targets regularly reviewed and tightened

Developed countries provide 100 billion USD per year between 2020-2025

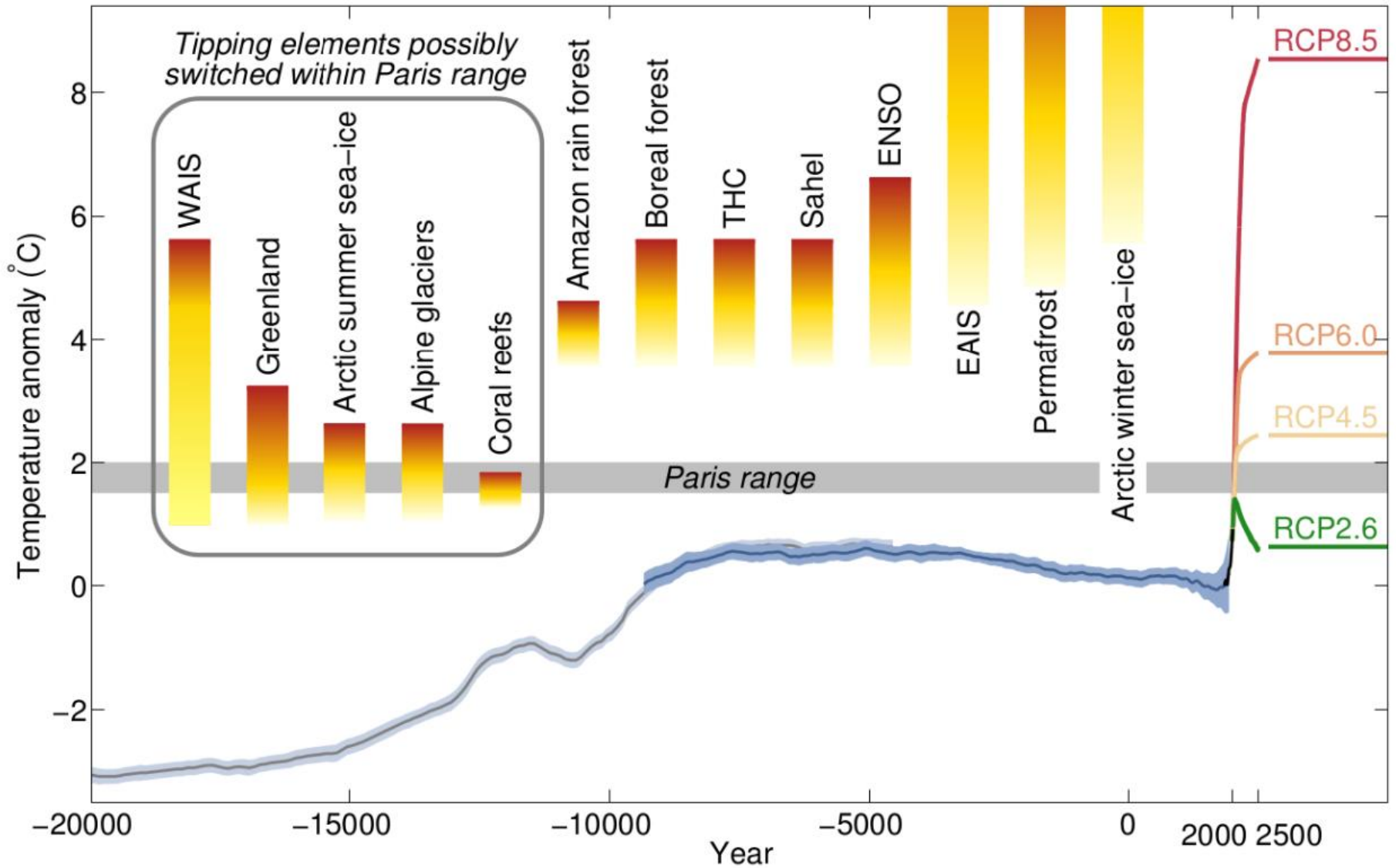
Looming Risks: Tipping Elements in the Earth System



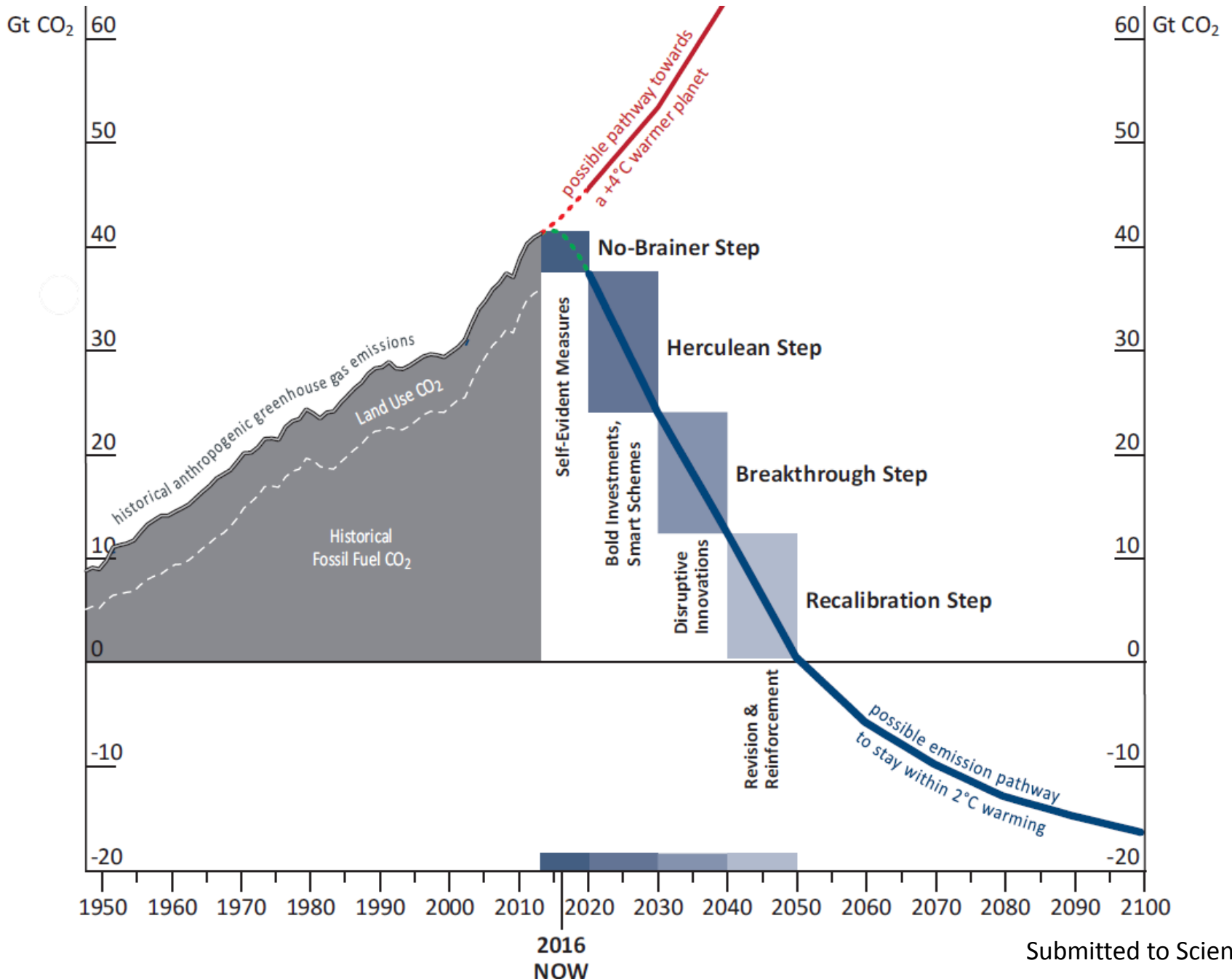
- Cryosphere Entities
- Circulation Patterns
- Biosphere Components



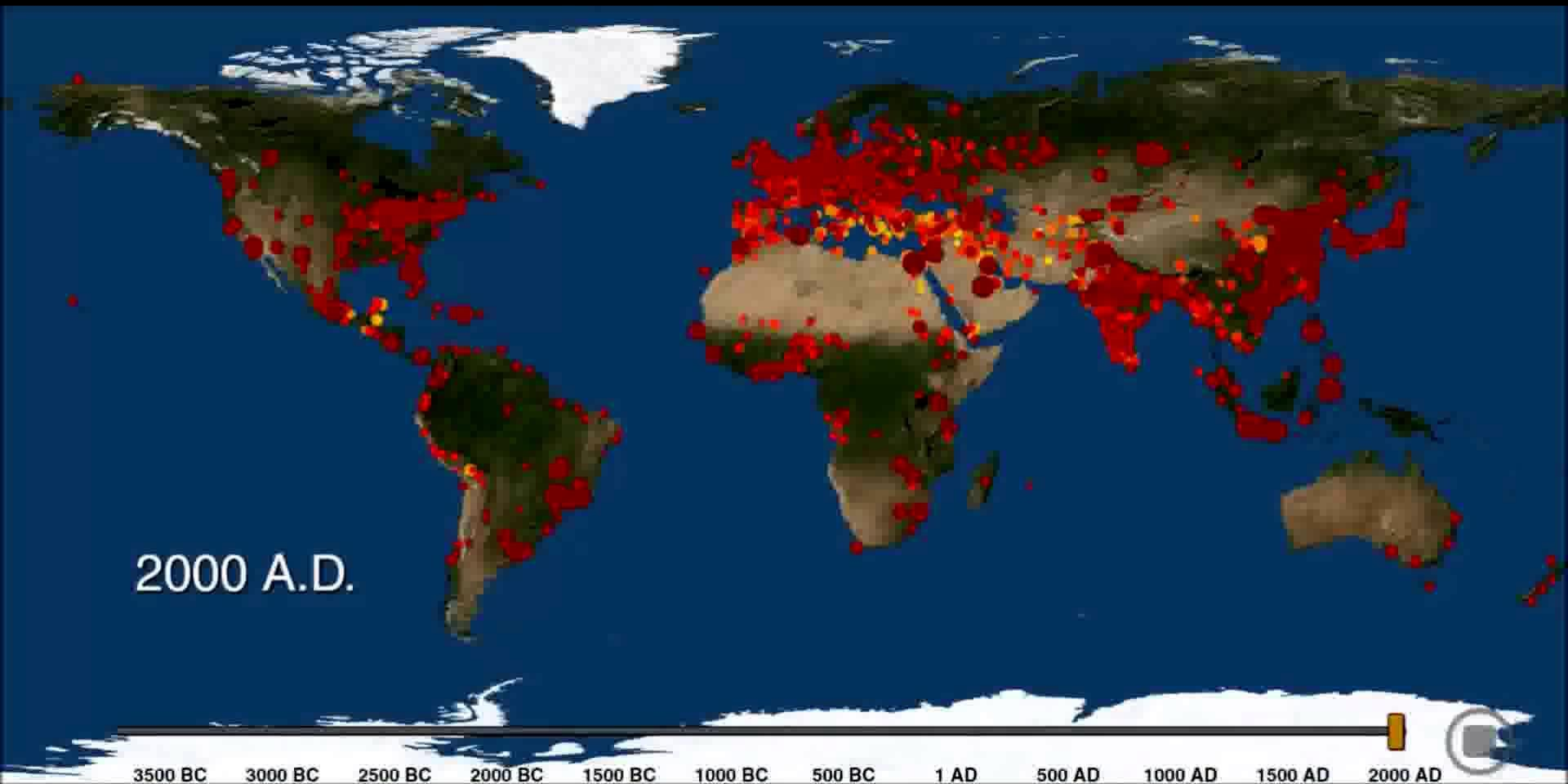
Tipping Points Related to 2°C-Guardrail



Down the Carbon Staircase!?



The rise and fall of great world cities



The History of Urbanization, 3700 BC - 2000 AD



53 % of the world's population live
in cities (2012)...

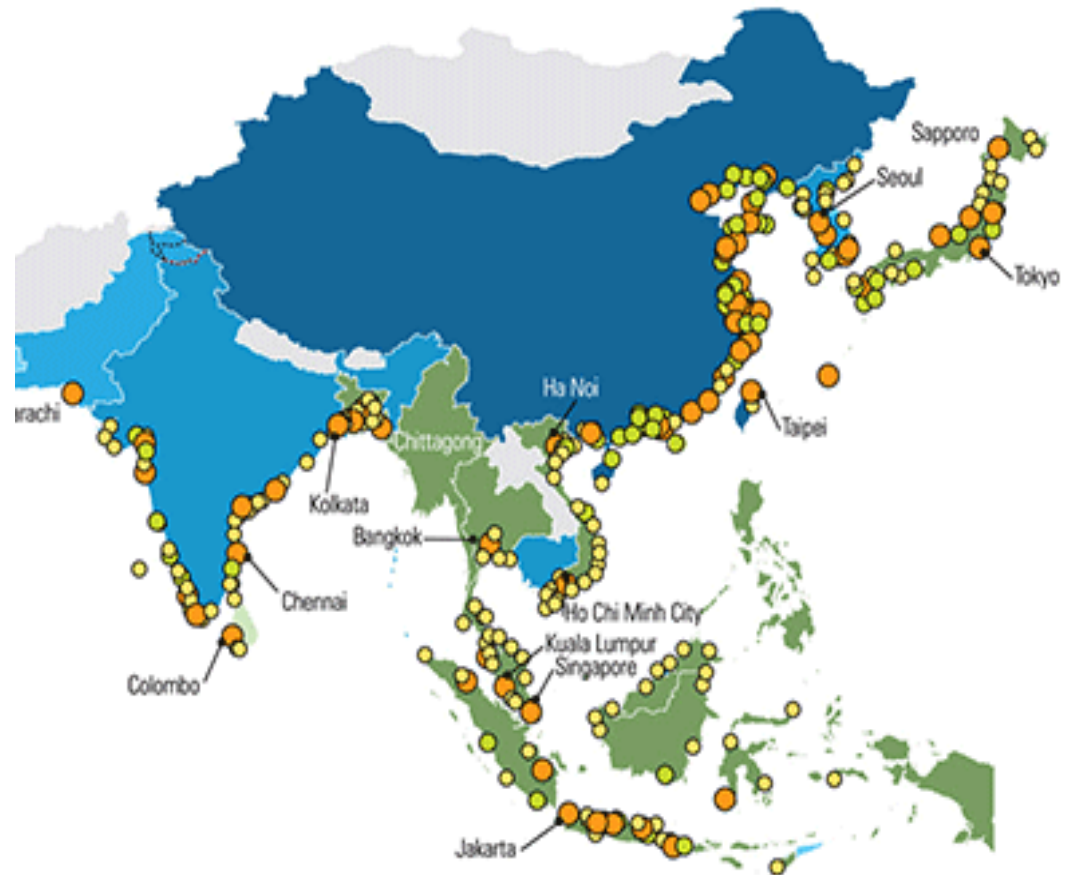
...until 2050 it will
be at least 70 %

70% of the global CO₂ emissions
arise in the cities (2011)...

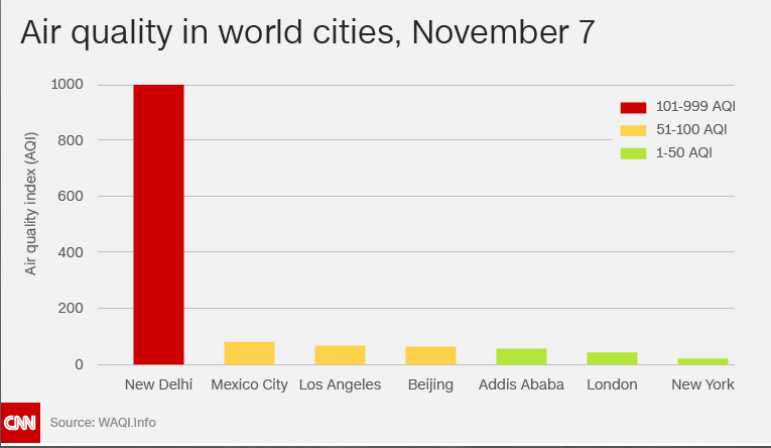
...urban CO₂ efficiency varies
substantially

Cities in coastal zones:

Sea level rise of 0.5 m will triple number of people at risk



New Delhi is currently the most air polluted City on Earth





NOBEL CAUSE

SYMPOSIA SERIES ON GLOBAL SUSTAINABILITY

4. NOBELPREISTRÄGER-SYMPOSIUM ZU GLOBAL SUSTAINABILITY 22 – 25 APRIL 2015, HONG KONG: 4C: Changing Climate, Changing Cities



Archetypes of Urban Challenges throughout the 21st Century

1
Greening
Mature Cities



2
Building
Sustainable
New Settlements



news.panasonic.net

3
Managing
Informal Dwellings

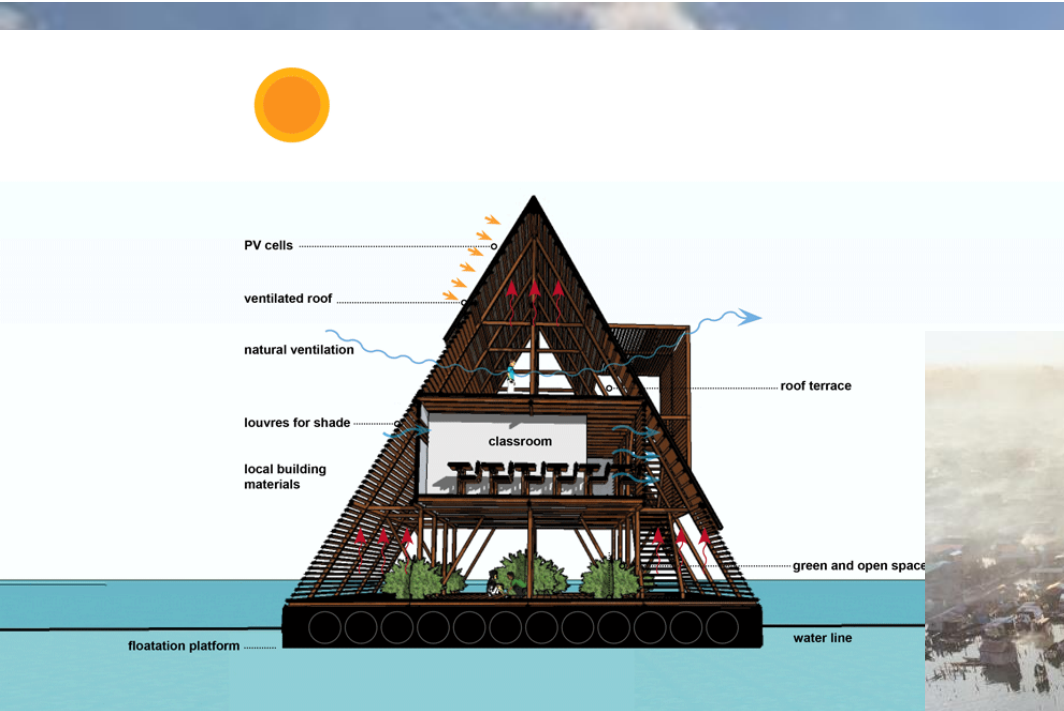


***Functional slums,
instead of ideal cities?***



www.flickr.com

Functional Slum Architecture: The Swimming School



The Big Solution? Jakarta's Titanic Sea Wall



Flooded streets in Jakarta
Source: The Wall Street Journal, 2013



Proposed sea wall project "Garuda", 32km long x 22m tall
& 17 artificial Islands

Source: National Geographic, 2015

Woodoo: “Just as Resistant as Concrete”

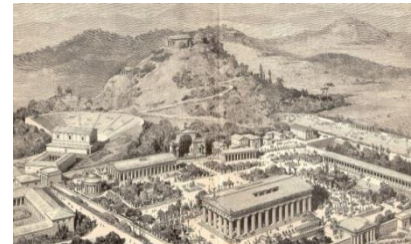
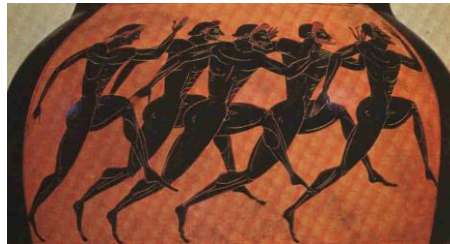


Beyond the aesthetic property of translucency, the wood is a resistant and sustainable building material
Source: <http://woodoo.fr/home/>

Enlightment Weimar / Jena



Renaissance Northern Italy



Greek Polis



City-states Mesopotamia

Flagship Report

Humanity on the move: Unlocking the transformative power of cities



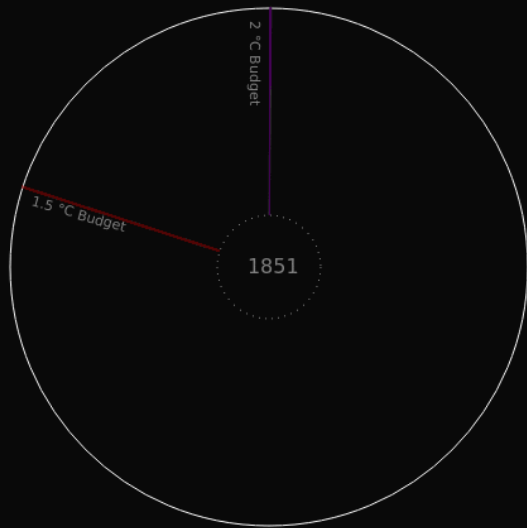
25 April 2016:

**WBGU report on urbanization
submitted to the
German Government**

Input for Habitat III

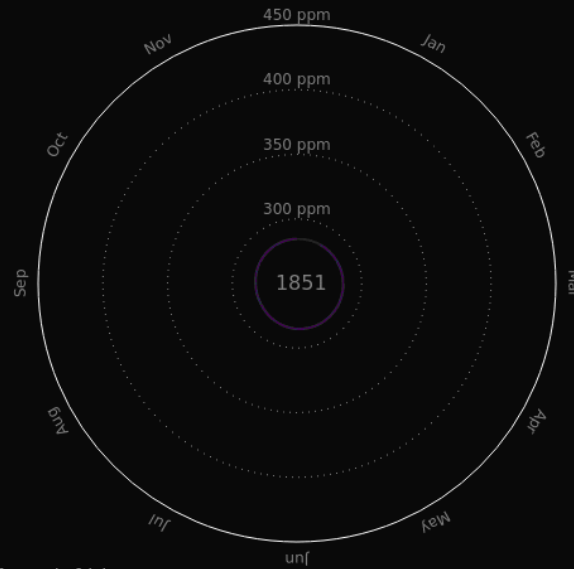
The Climate Spirals

Carbon Budget



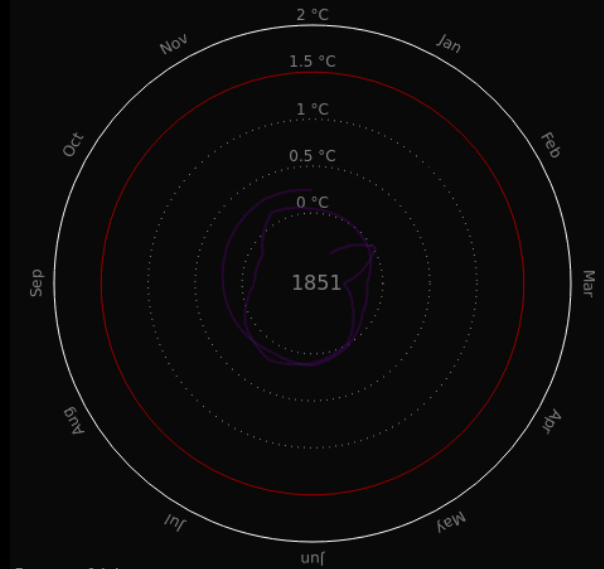
The Carbon Budget. pik-potsdam.de/primap-live/ & climatecollege.unimelb.edu.au, Gieseke, Meinshausen. Thx to Ed Hawkins

CO₂ Concentration



Concentration Spiral pik-potsdam.de/primap-live/ & climatecollege.unimelb.edu.au, Gieseke, Meinshausen. Thx to Ed Hawkins

Global Warming



Temperature Spiral pik-potsdam.de/primap-live/ & climatecollege.unimelb.edu.au, Gieseke, Meinshausen. Thx to Ed Hawkins