Austria from a socio-ecological economic perspective

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Austria 2018 Centenary Symposium - "Austria's place in the Europe of tomorrow“

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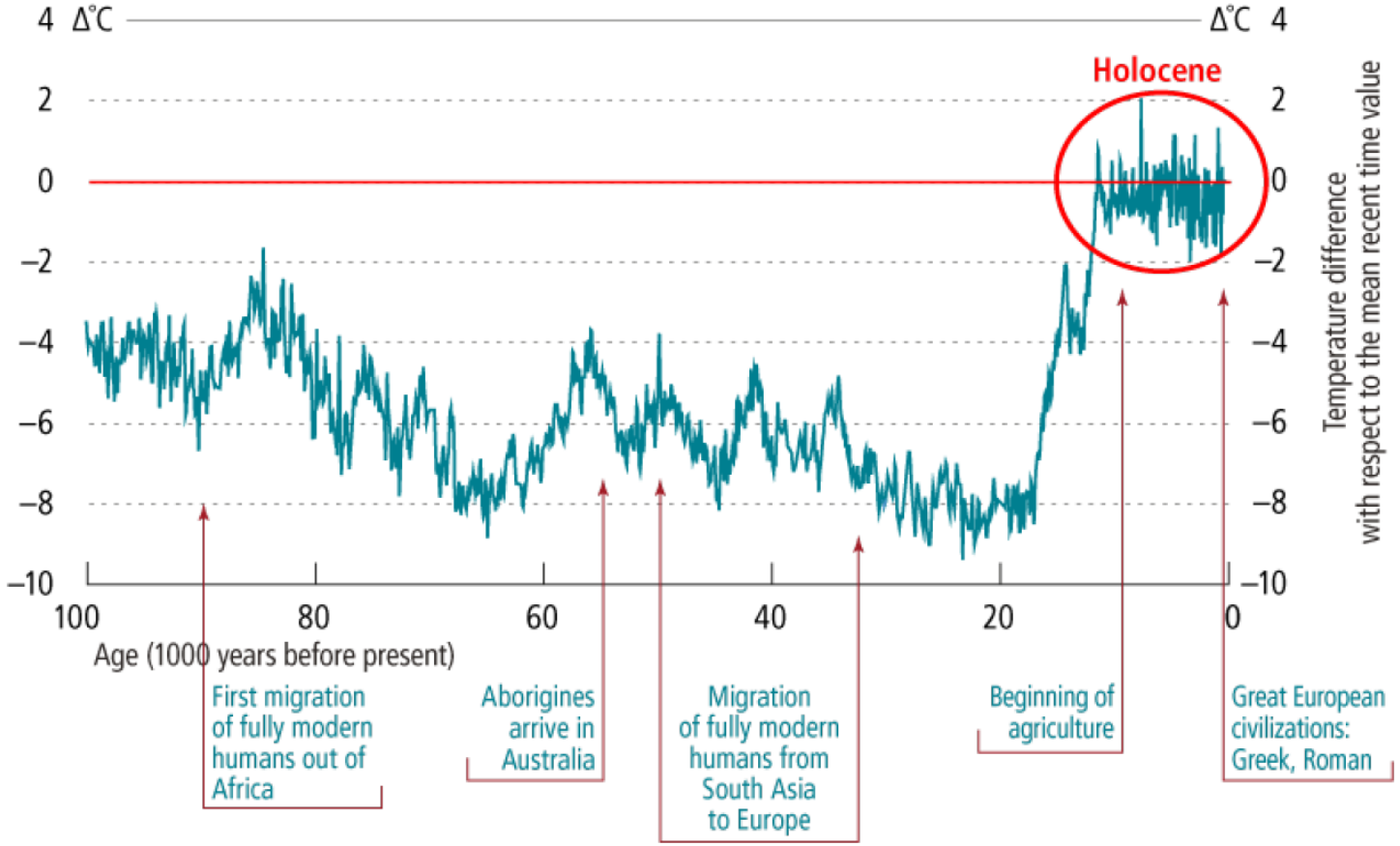
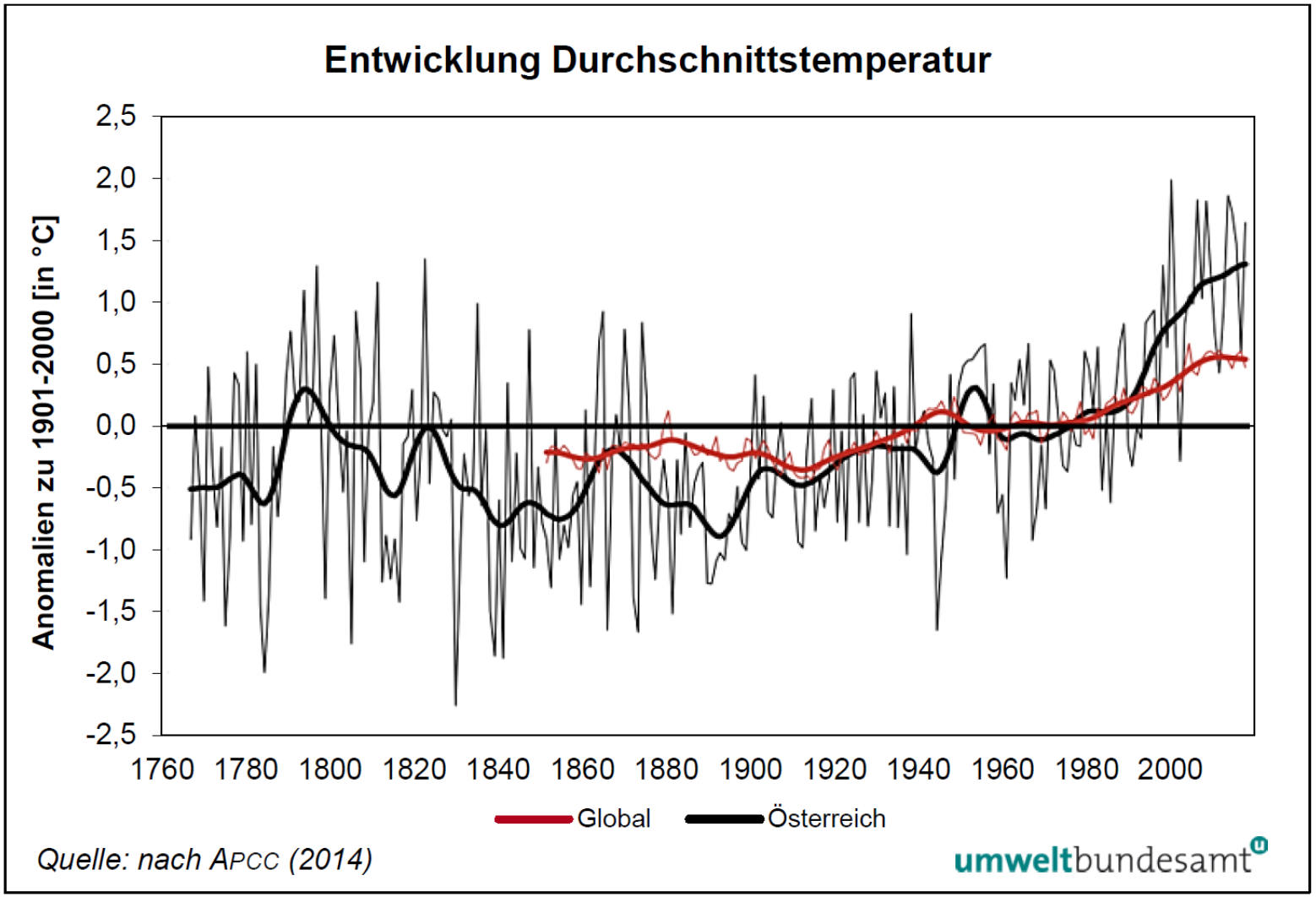


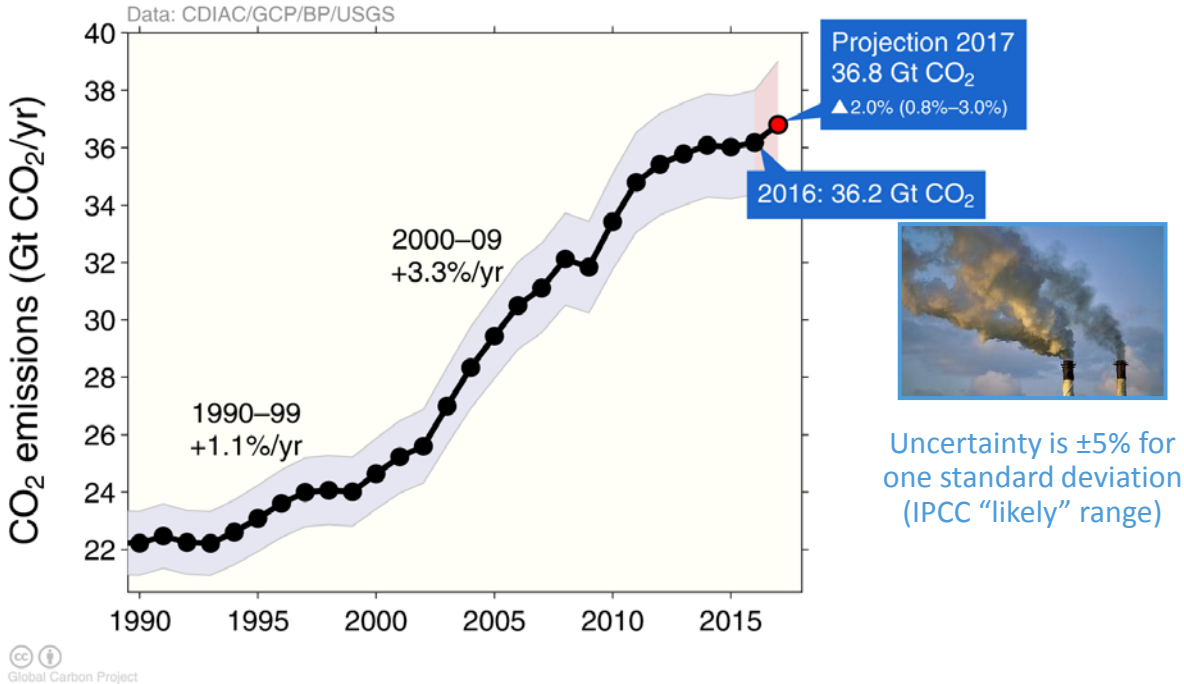
Figure 1 100,000-year-ice-core record and select events in early human history depicting the exceptional stable temperature conditions during the Holocene. Data from Petit et al., 1999, labeled as in Young and Steffen, 2009.


Entwicklung Durchschnittstemperatur
Anomalien zu 1901-2000 [in °C]
2,5
2,0
1,5
1,0
0,5
0,0
-0,5
-1,0
-1,5
-2,0
-2,5
1760
1780
1800
1820
1840
1860
1880
1900
1920
1940
1960
1980
2000
Global
Österreich
Quelle: nach APCC (2014)
umweltbundesamt

Emissions from fossil fuel use and industry

Global emissions from fossil fuel and industry: 36.2 ± 2 $GtCO_2$ in 2016, 62% over 1990

Projection for 2017: 36.8 ± 2 $GtCO_2$, 2.0% higher than 2016

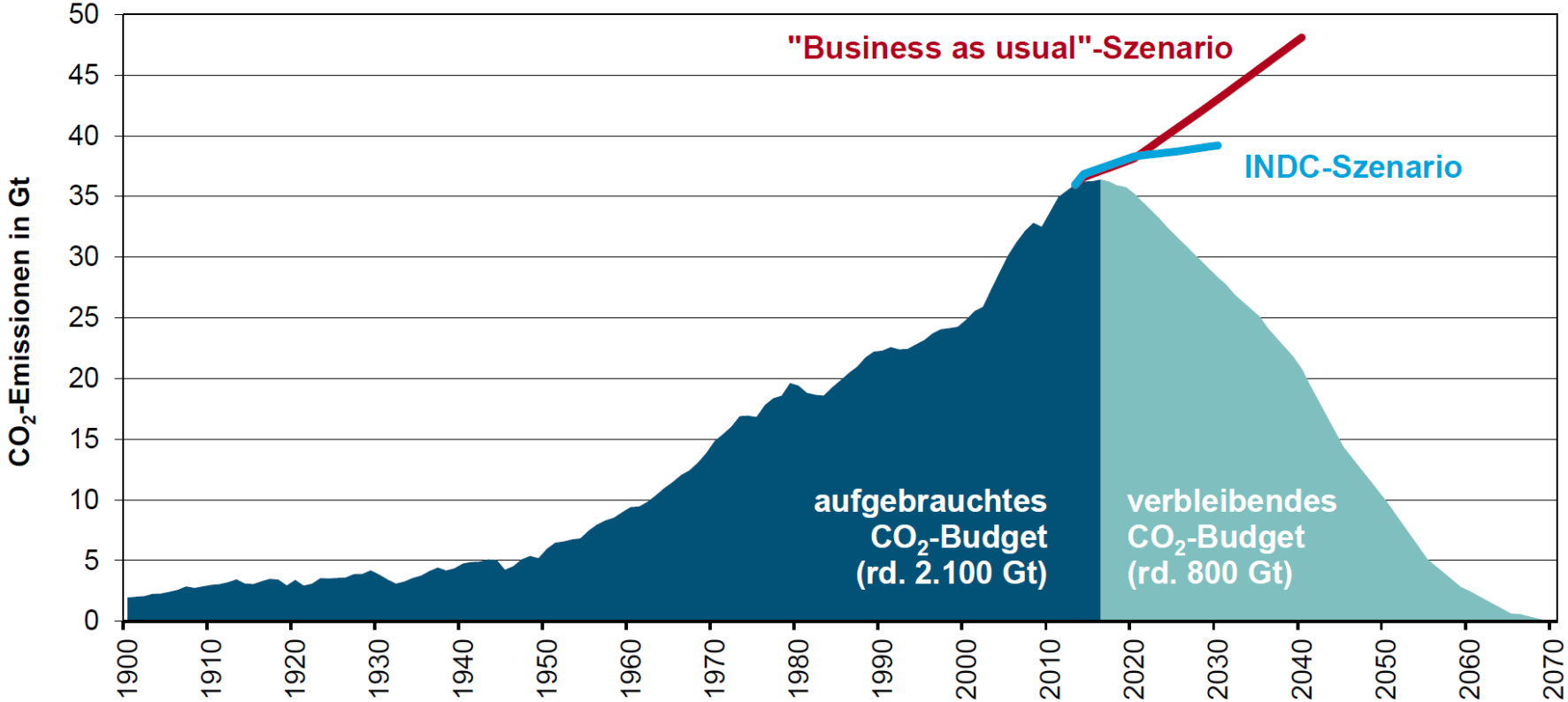


Uncertainty is ±5% for one standard deviation (IPCC "likely" range)

Estimates for 2015 and 2016 are preliminary. Growth rate is adjusted for the leap year in 2016.

Source: CDIAC; Le Quéré et al 2017; Global Carbon Budget 2017

Verlauf der globalen CO_2-Emissionen und Carbon Budget zur Erreichung des 2 °C-Ziels



Quellen: CARBON BUDGET PROJEKT (2016), CDIAC (2016), IEA (2015, 2016), eigene Berechnung

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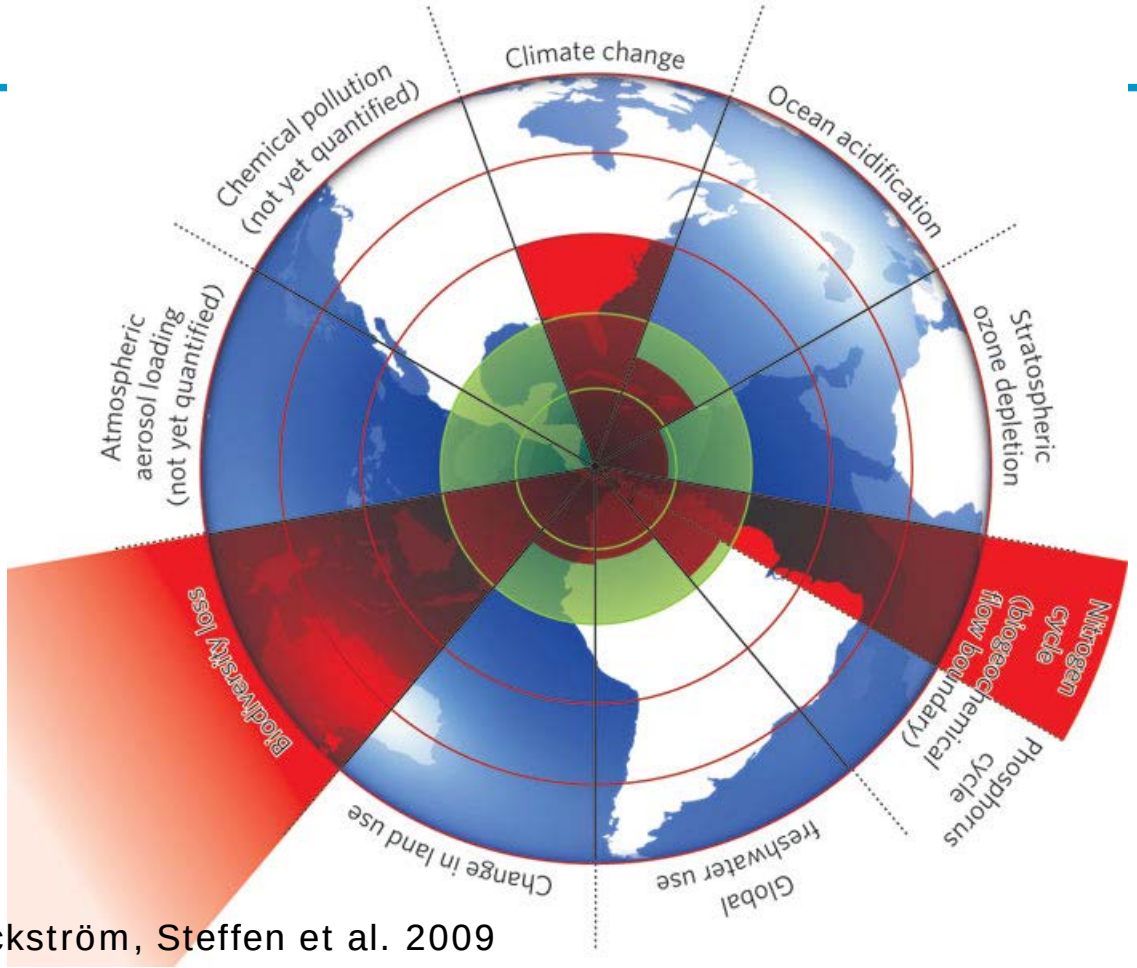
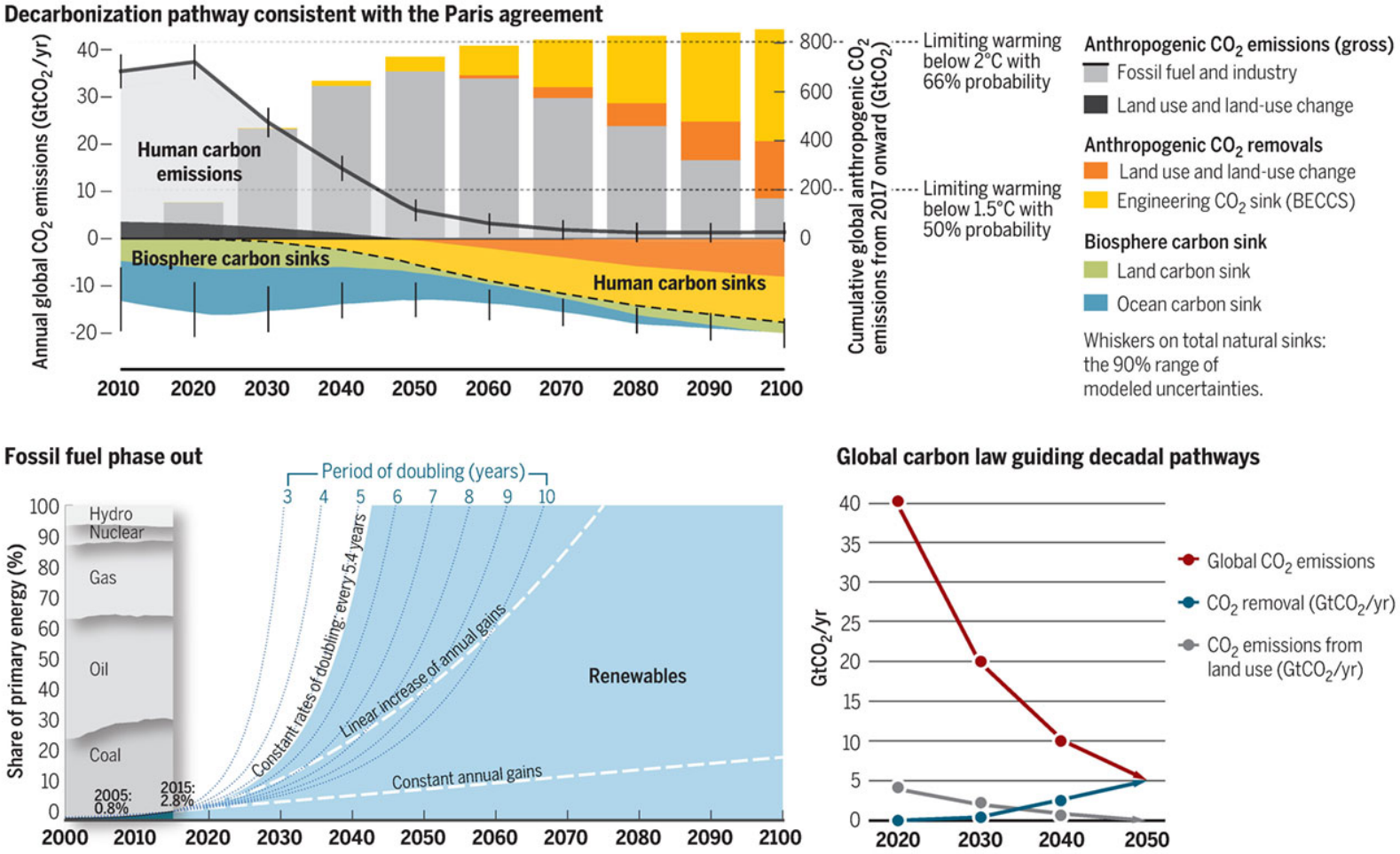
Earth system boundaries and human interference

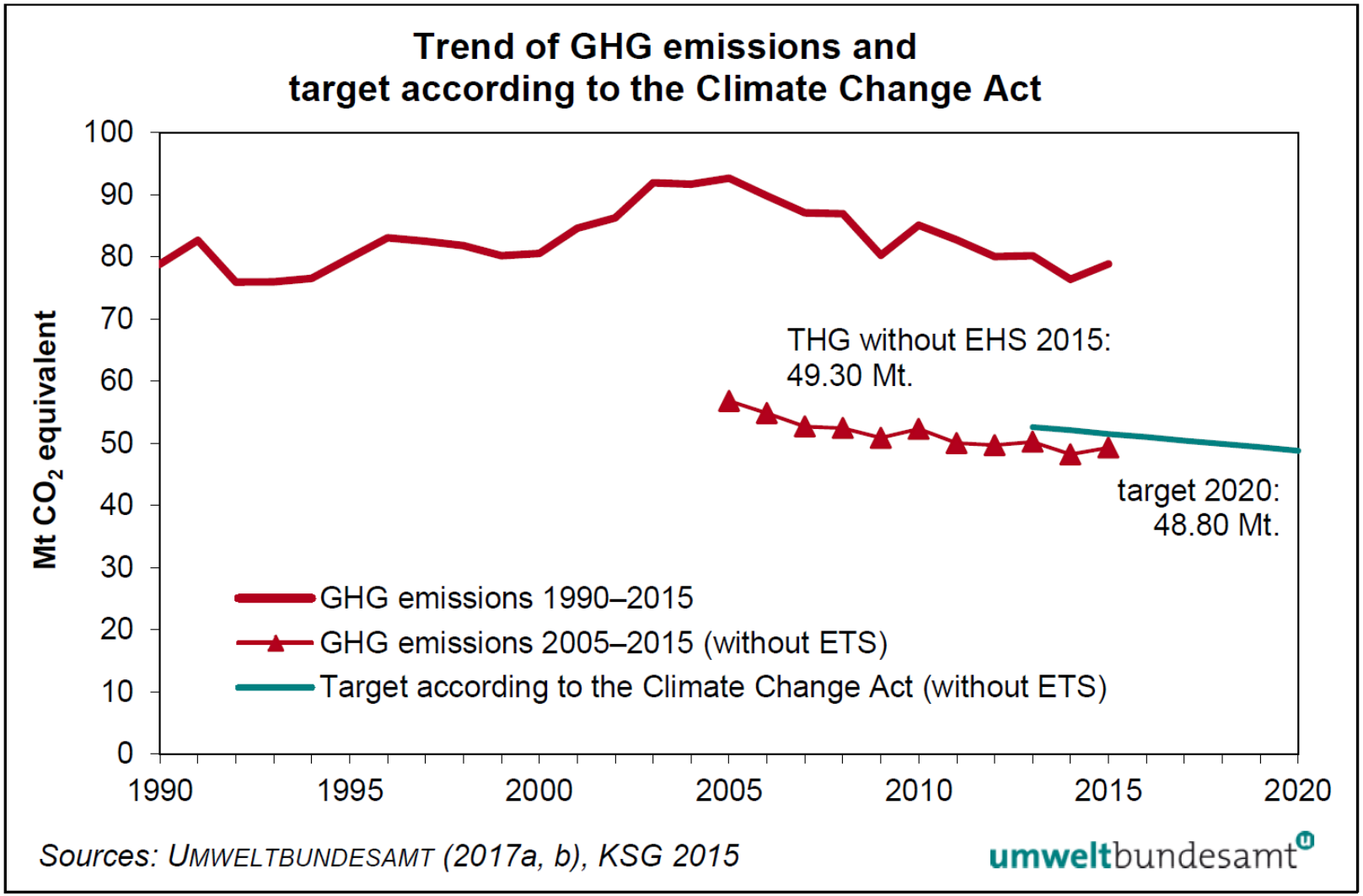


Source: Rockström, Steffen et al. 2009

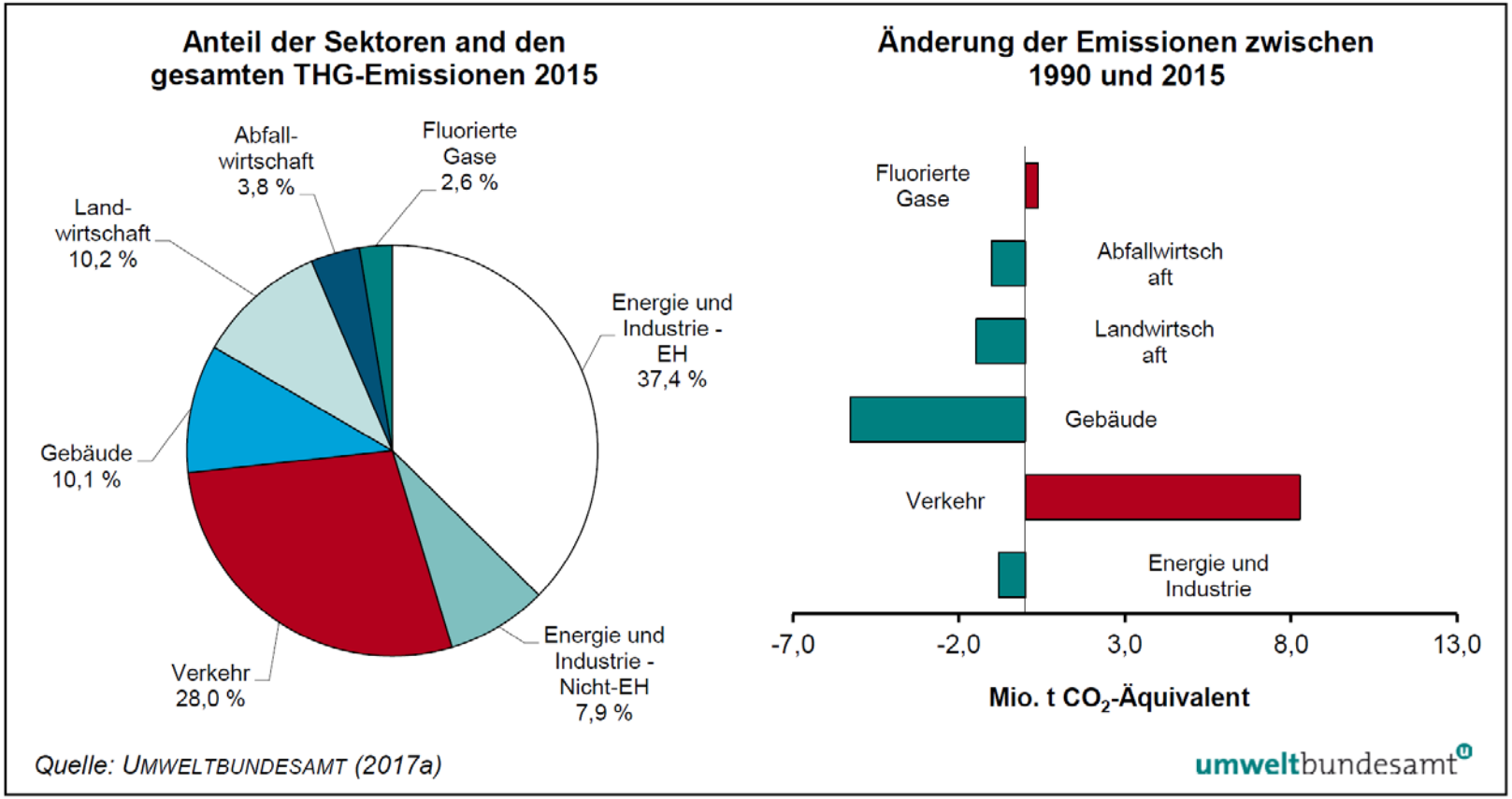
A global carbon law and roadmap to make Paris goals a reality



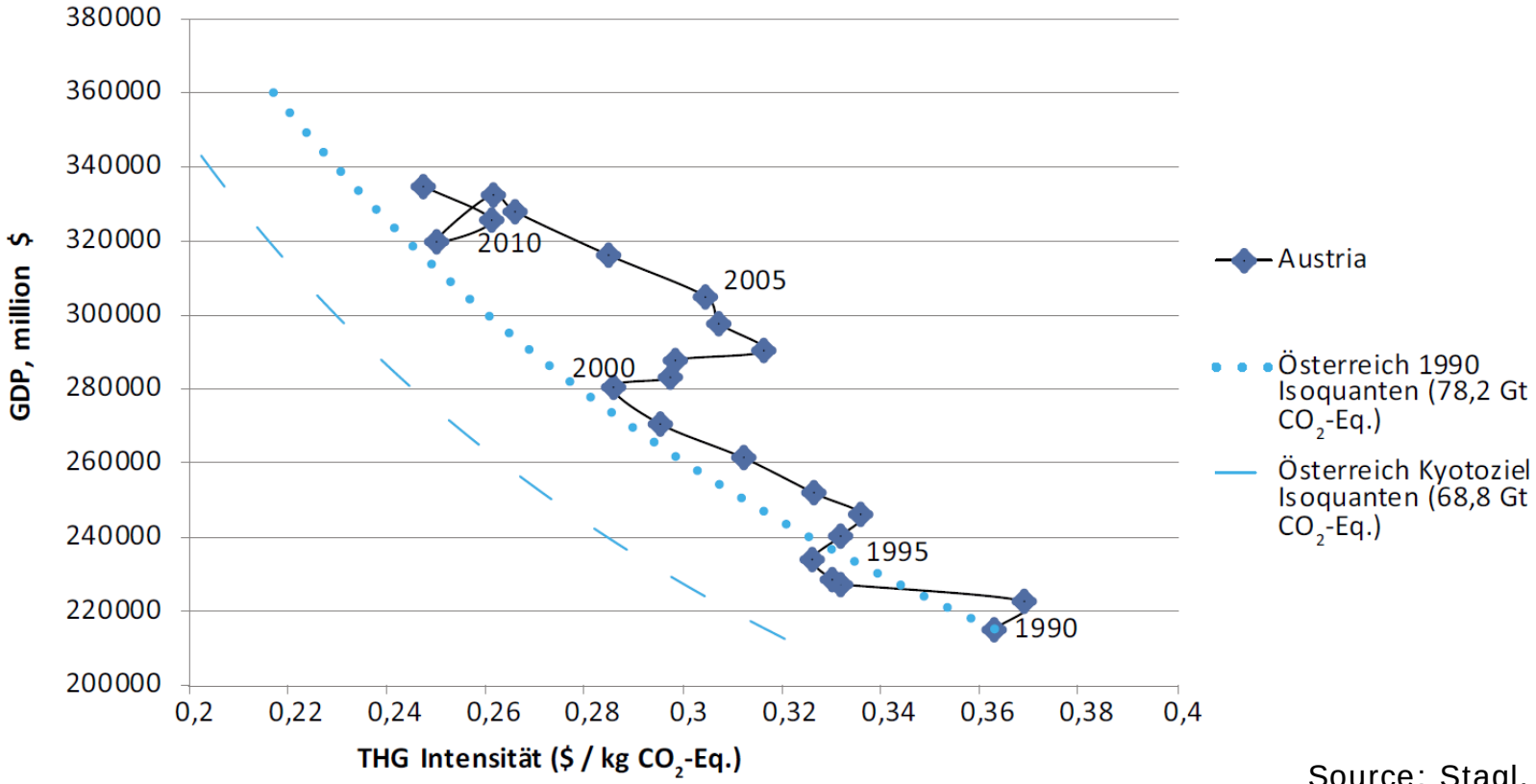
Source: Johan Rockström et al. Science 2017;355:1269-1271


Trend of GHG emissions and
target according to the Climate Change Act
Mt CO_2 equivalent
100
90
80
70
60
50
40
30
20
10
0
1990
1995
2000
2005
2010
2015
2020
THG without EHS 2015:
49.30 Mt.
target 2020:
48.80 Mt.
GHG emissions 1990–2015
GHG emissions 2005–2015 (without ETS)
Target according to the Climate Change Act (without ETS)
Sources: UMWELTBUNDESAMT (2017a, b), KSG 2015
umweltbundesamt

Main sources of greenhouse gas emissions in Austria

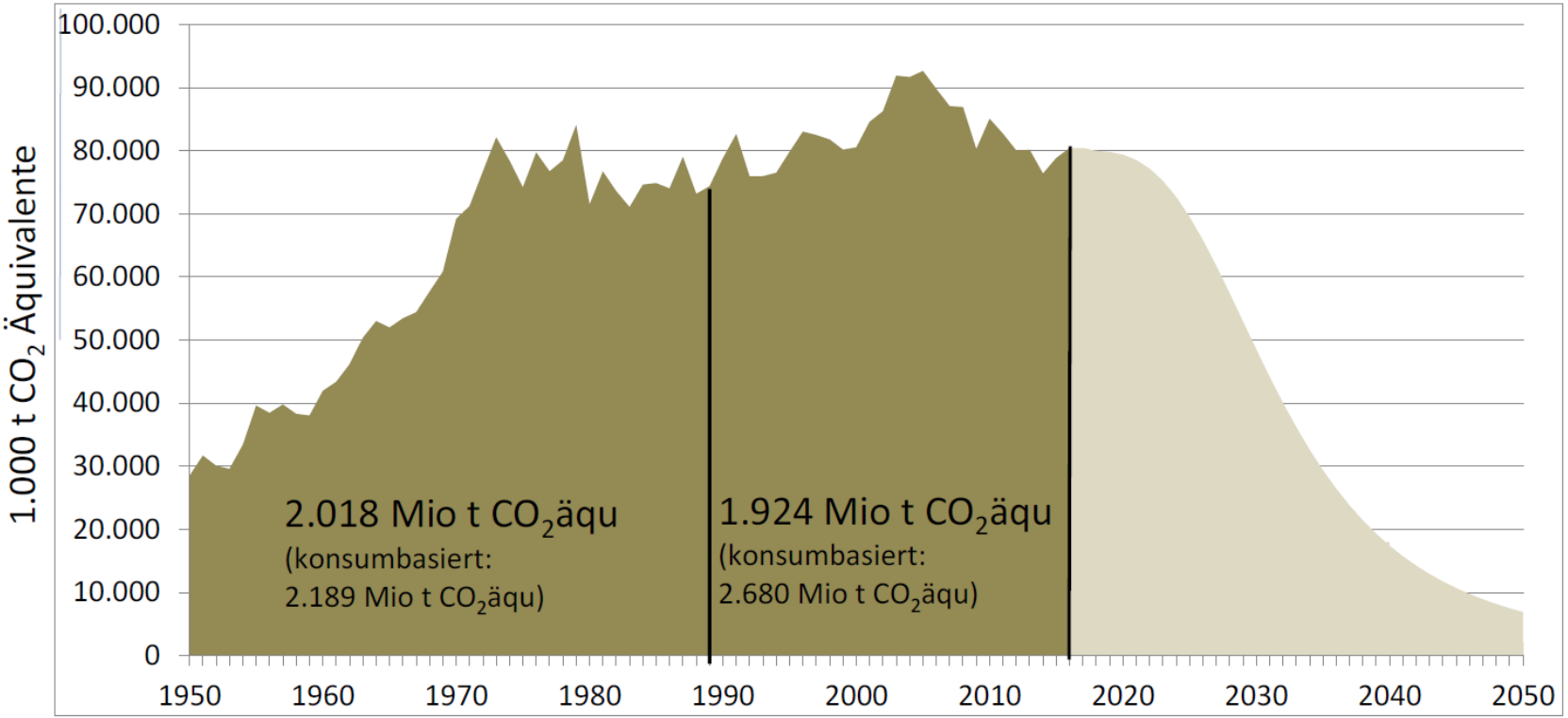


Economic growth and carbon intensity in AT

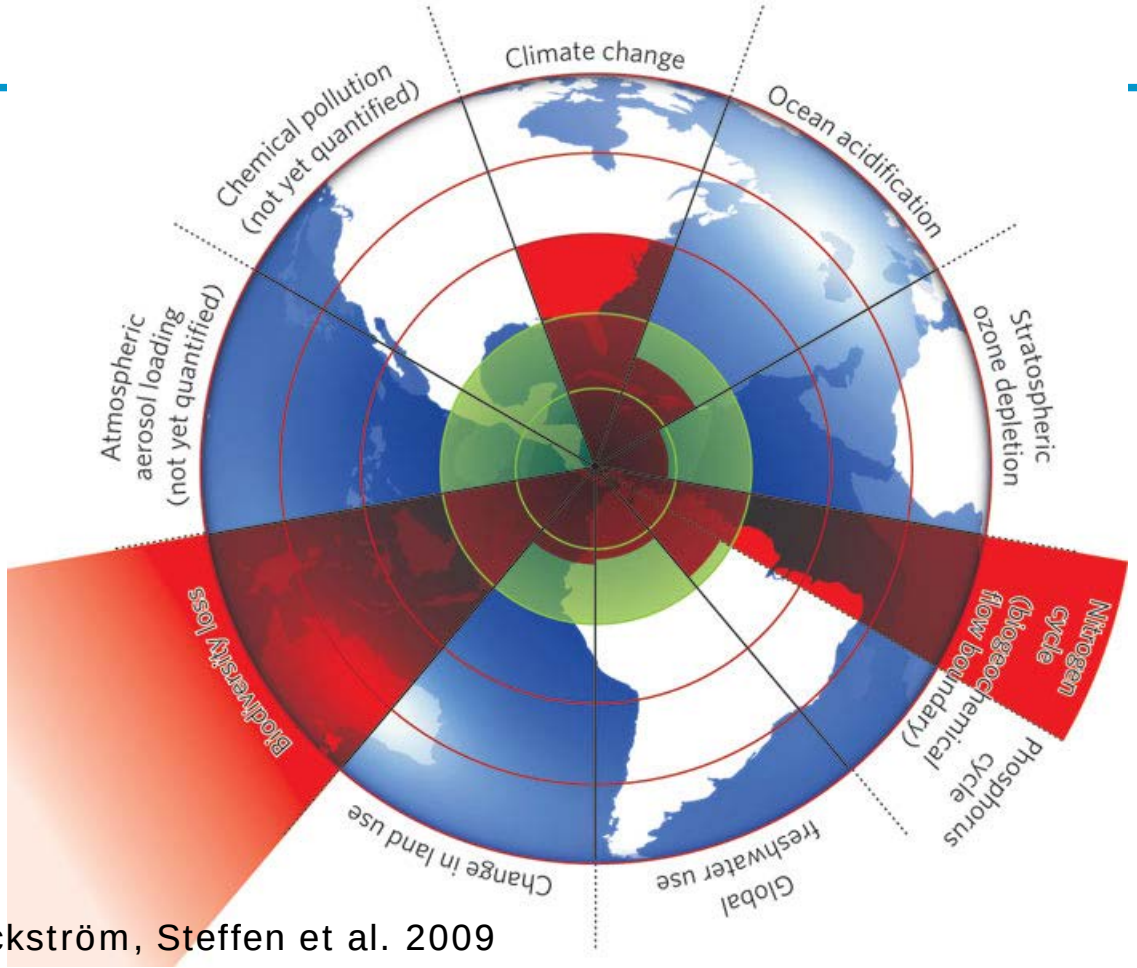


Source: Stagl, Rezai 2015

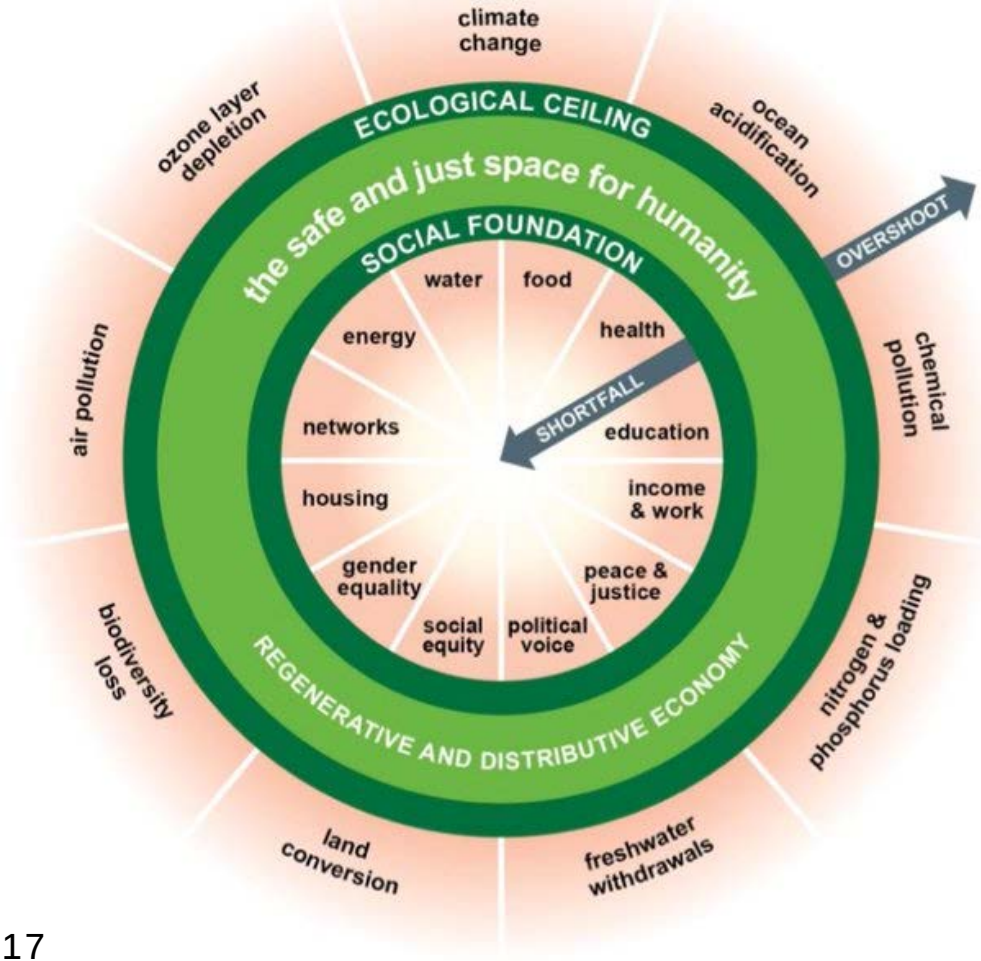
Carbon budget AT



Earth system boundaries and human interference



Source: Rockström, Steffen et al. 2009



Source: Raworth 2017

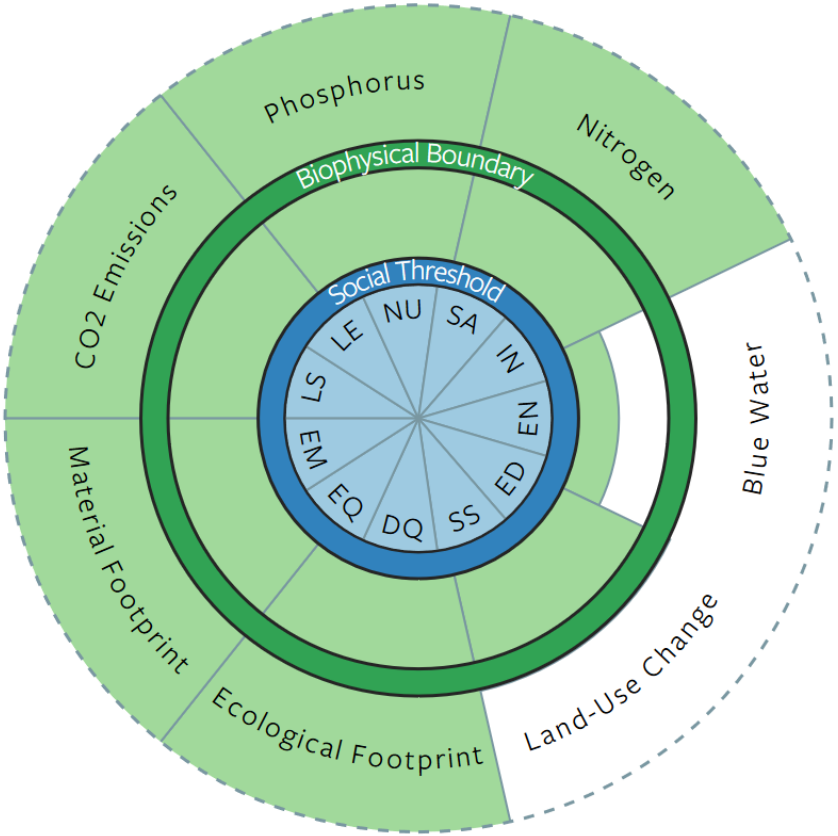
A Good Life For All Within Planetary Boundaries

No country in the world currently meets the basic needs of its citizens at a globally sustainable level of resource use.

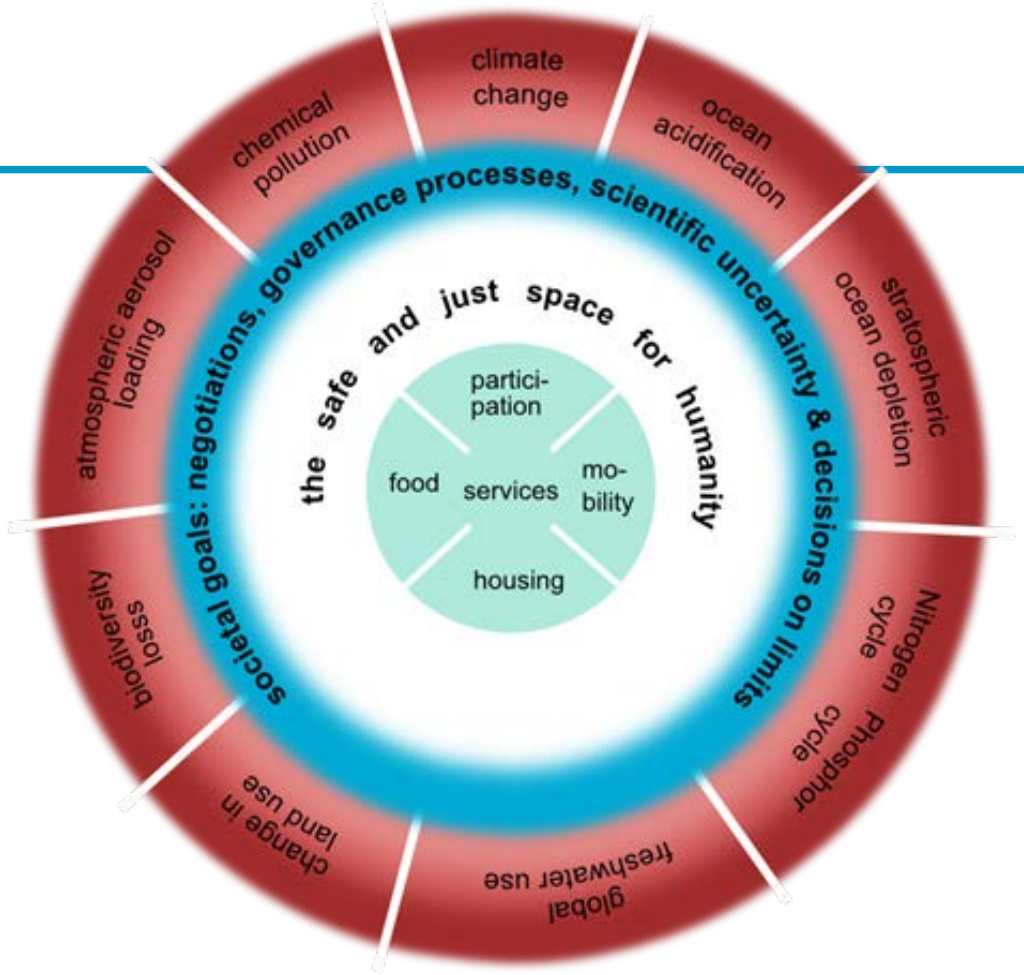
Research by the University of Leeds, recently published in Nature Sustainability (and summarised in The Conversation), is the first to quantify the national resource use associated with achieving a good life for over 150 countries.

It shows that meeting the basic needs of all people on the planet would result in humanity transgressing multiple environmental limits, based on current relationships between resource use and human well-being.

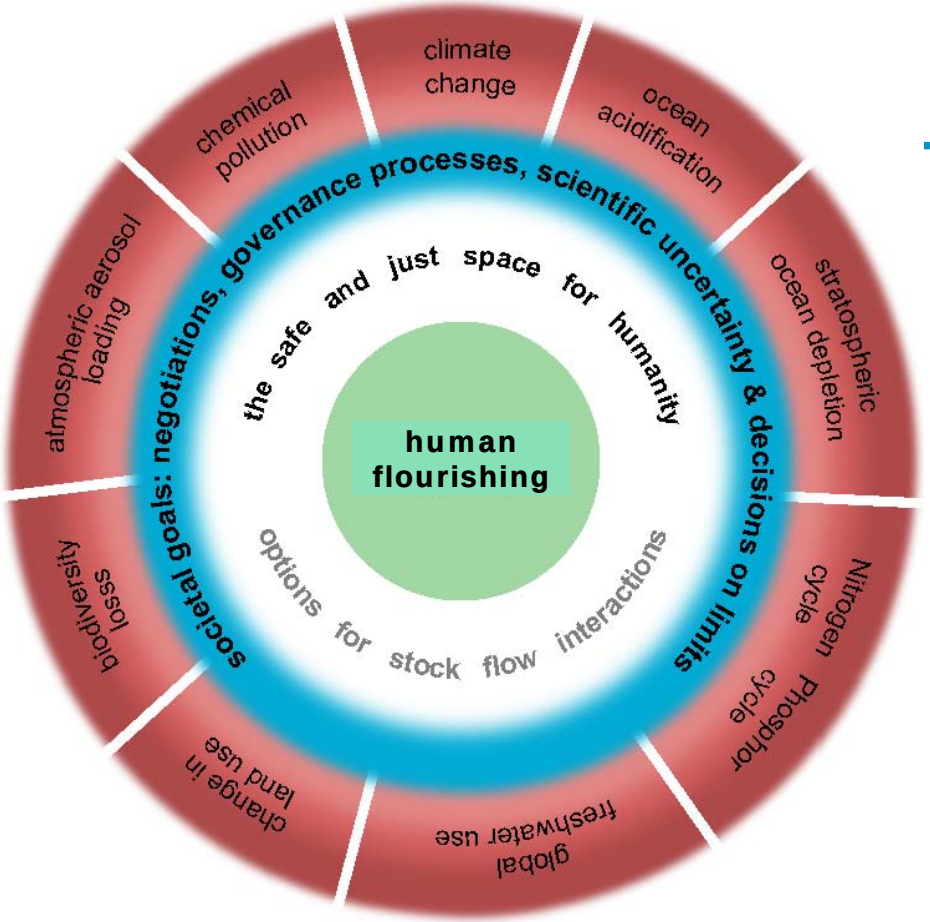
https://goodlife.leeds.ac.uk/countries/#Austria



LS - Life Satisfaction	ED - Education
LE - Healthy Life Expect.	SS - Social Support
NU - Nutrition	DQ - Democratic Quality
SA - Sanitation	EQ - Equality
IN - Income	EM - Employment
EN - Access to Energy	



Source: Kettner, Köppl, Stagl 2015



Source: Kettner, Köppl, Stagl 2015

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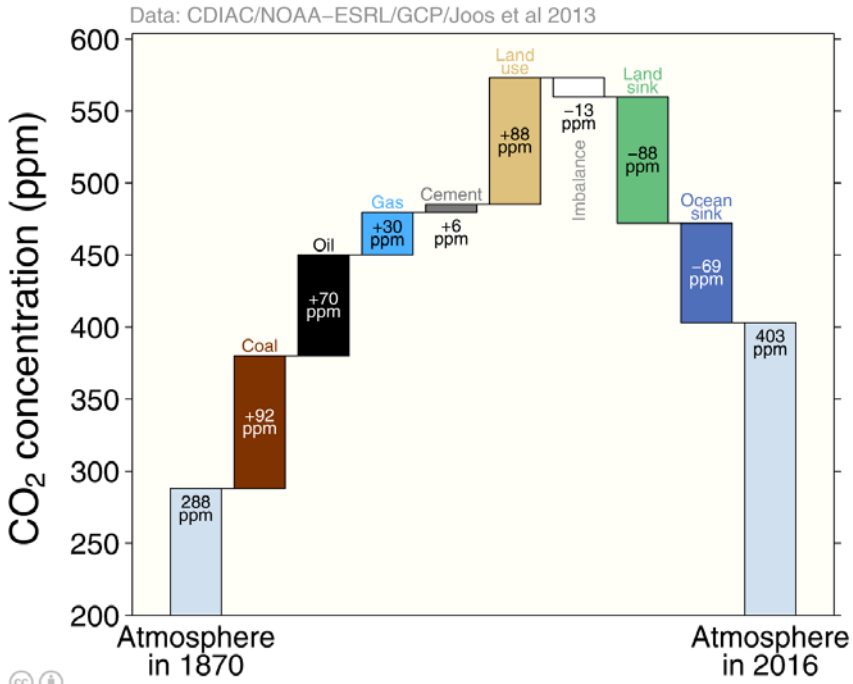
Global carbon budget

The cumulative contributions to the global carbon budget from 1870
The carbon imbalance represents the gap in our current understanding of sources and sinks



Source: CDIAC; NOAA-ESRL; Houghton and Nassikas 2017; Hansis et al 2015; Joos et al 2013; Khatiwala et al. 2013; DeVries 2014; Le Quéré et al 2017; Global Carbon Budget 2016