



**University of
Zurich^{UZH}**

The Anthropocene Learning Lab

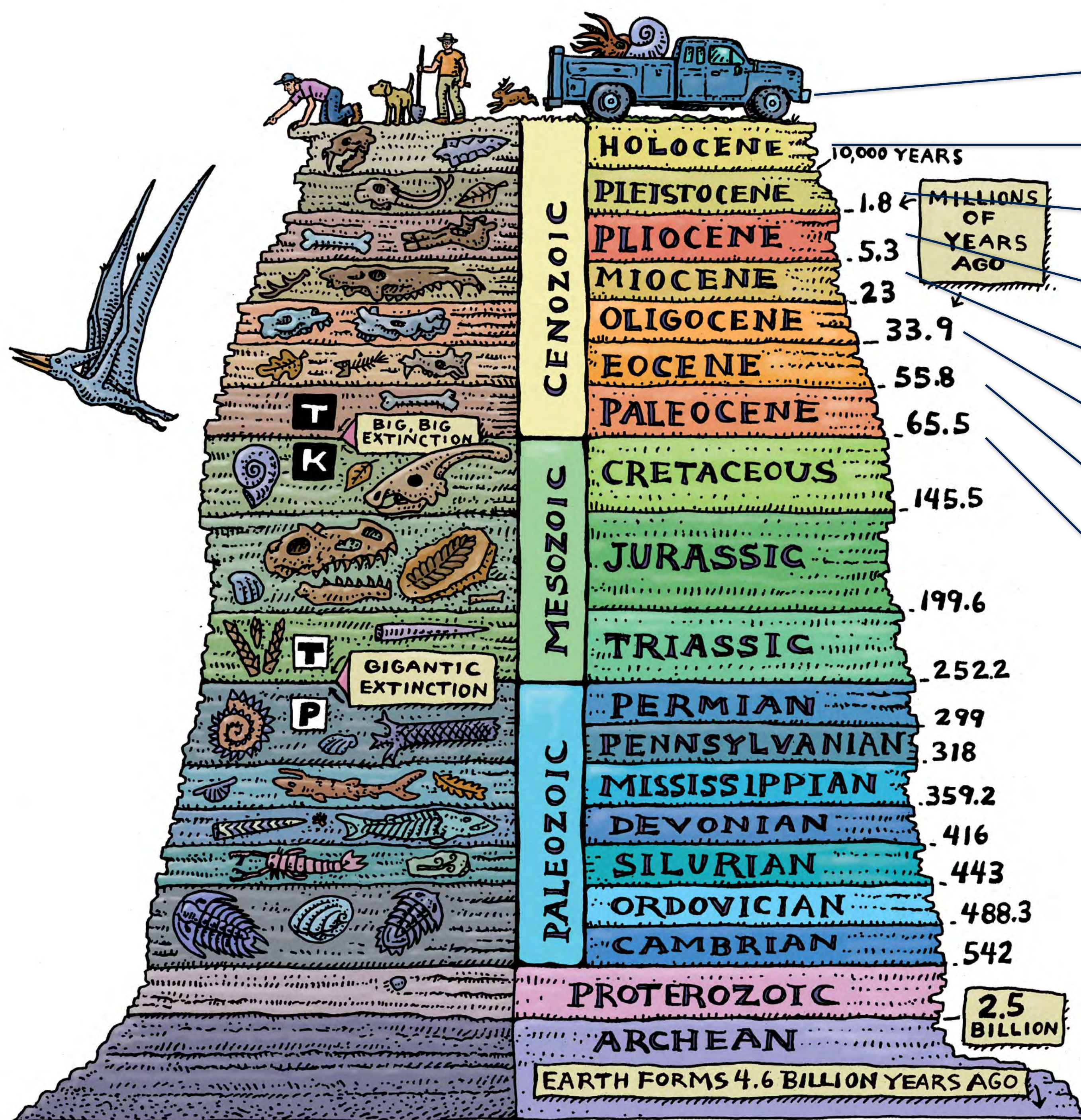
EDUCATION IN THE ANTHROPOCENE

KAI NIEBERT

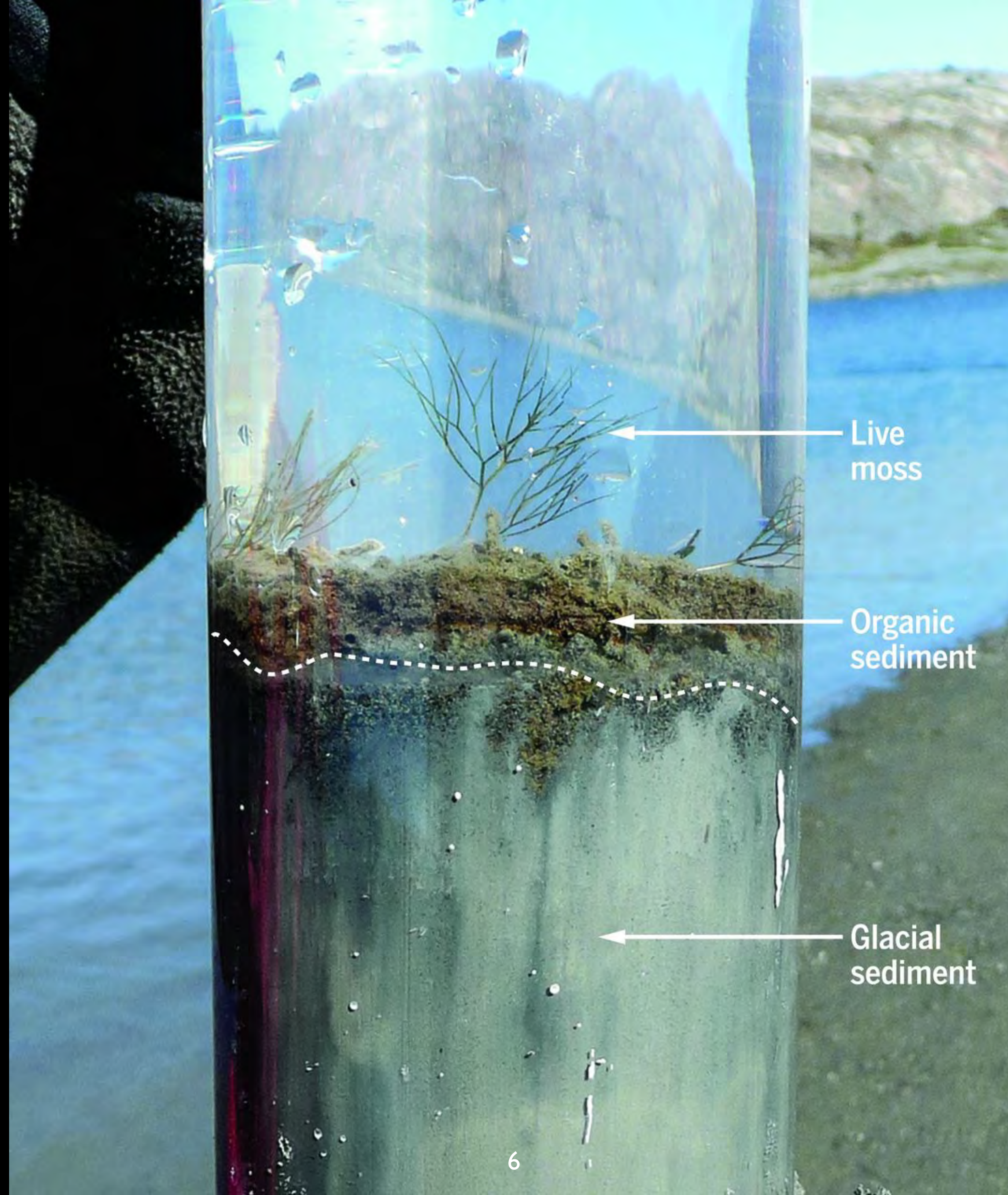








The man-made New
The absolute New
The mostly New
The bigger New
The small New
The less New
The rising New
The old New



Live
moss

Organic
sediment

Glacial
sediment



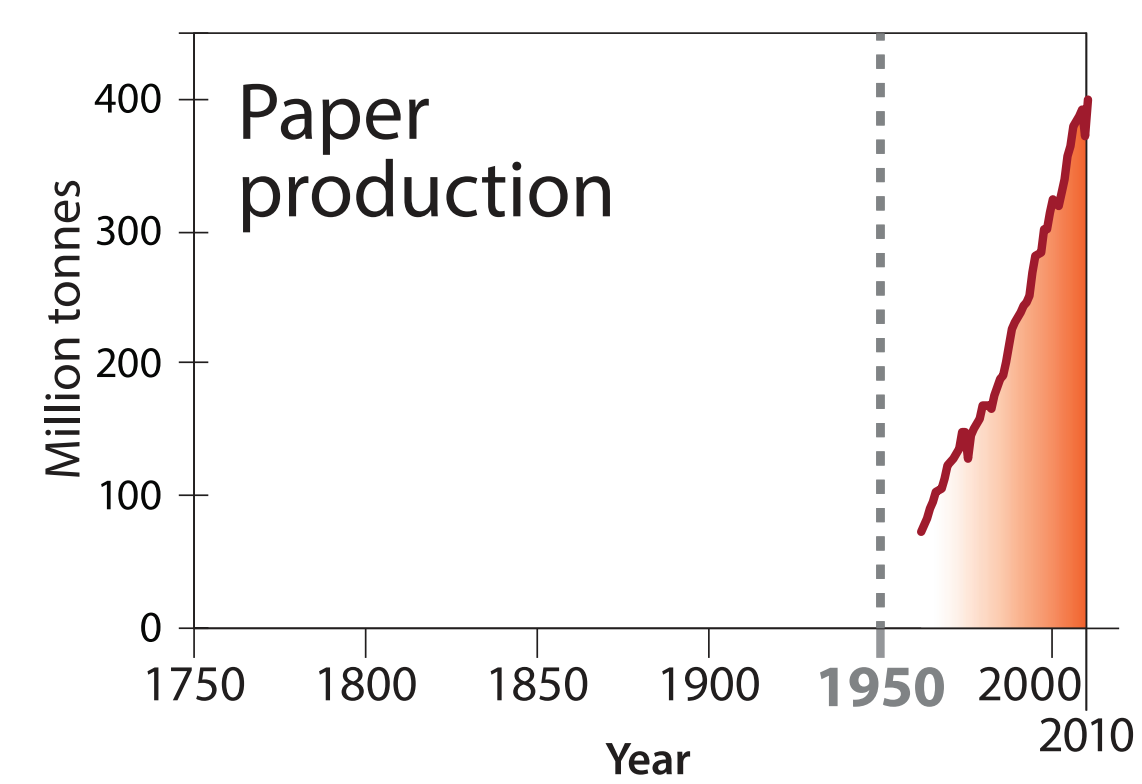
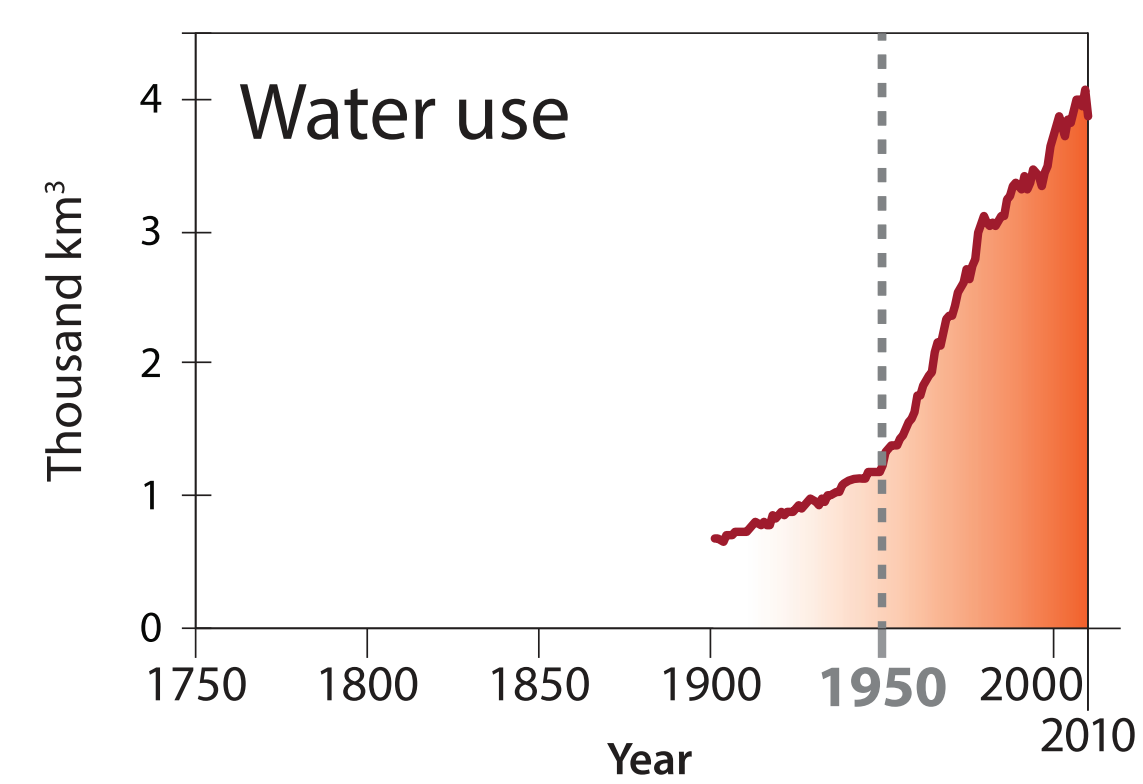
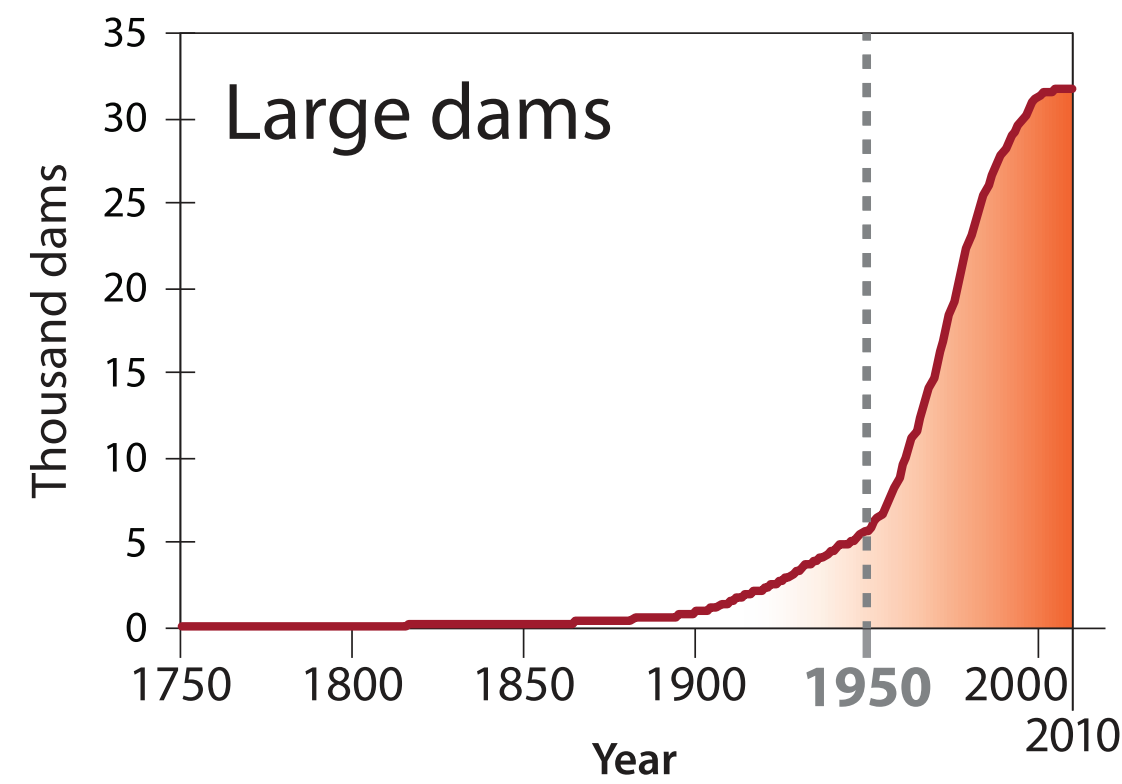
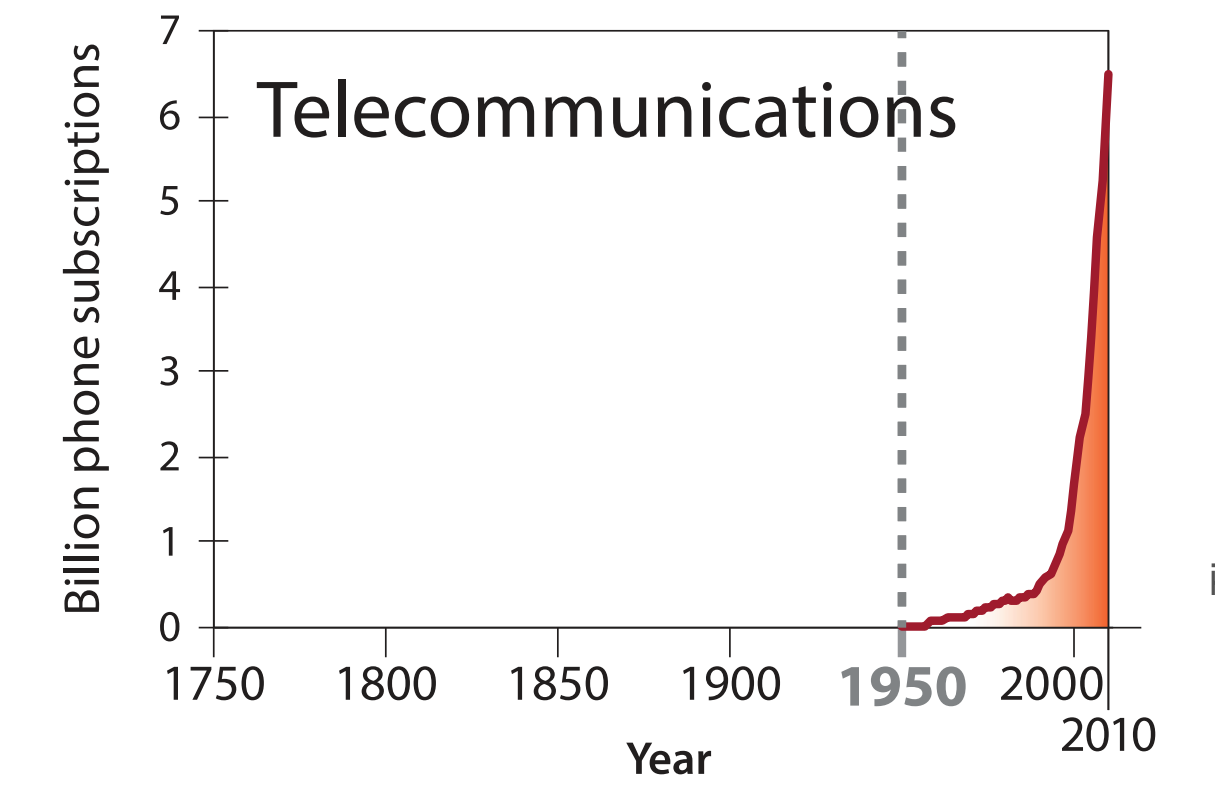
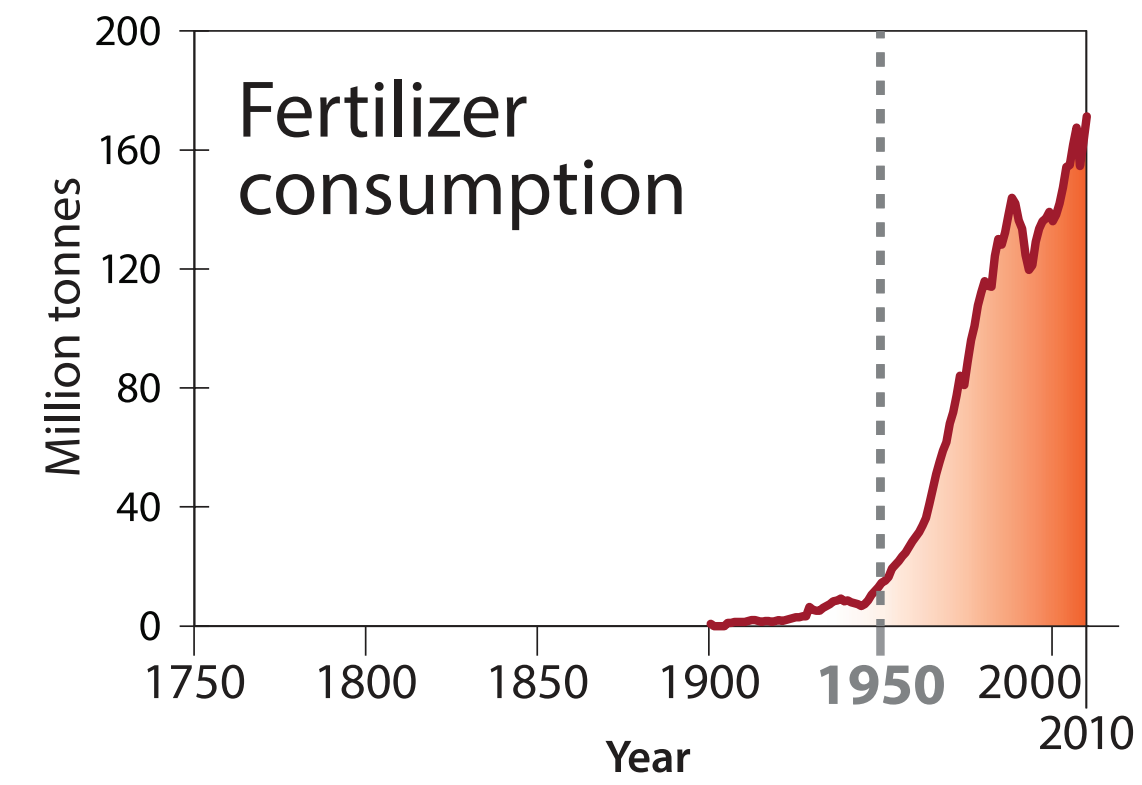
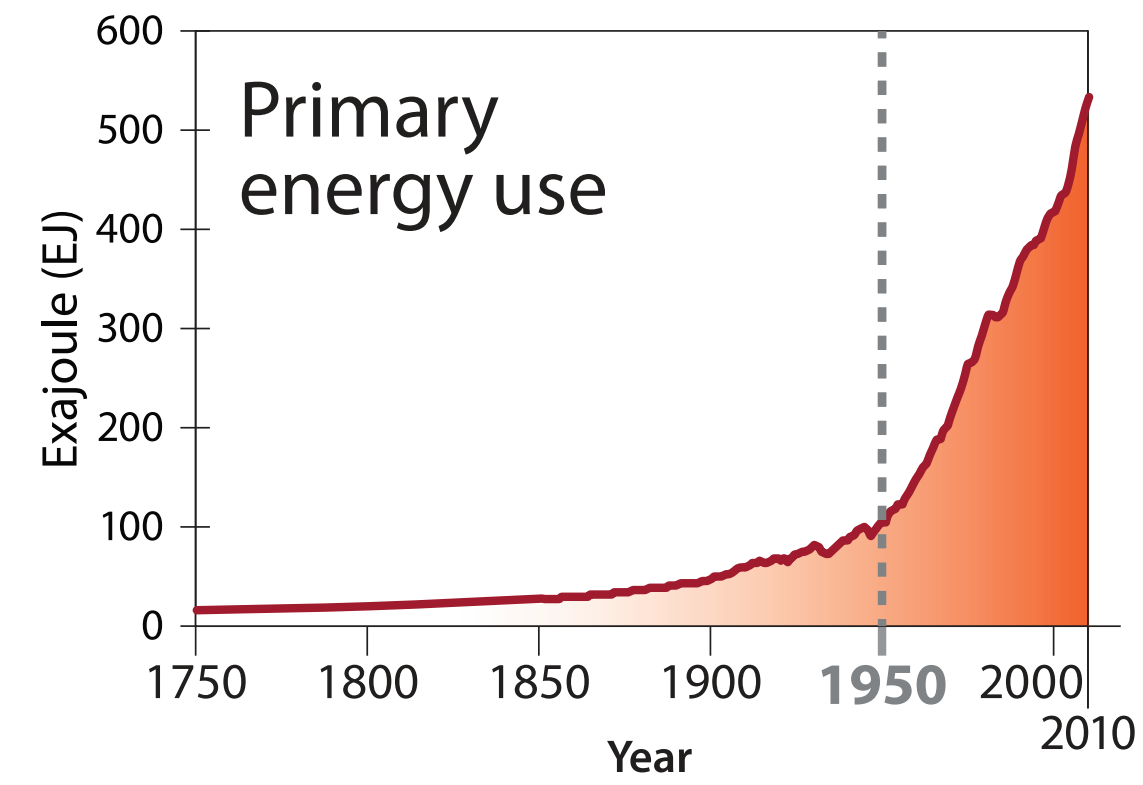
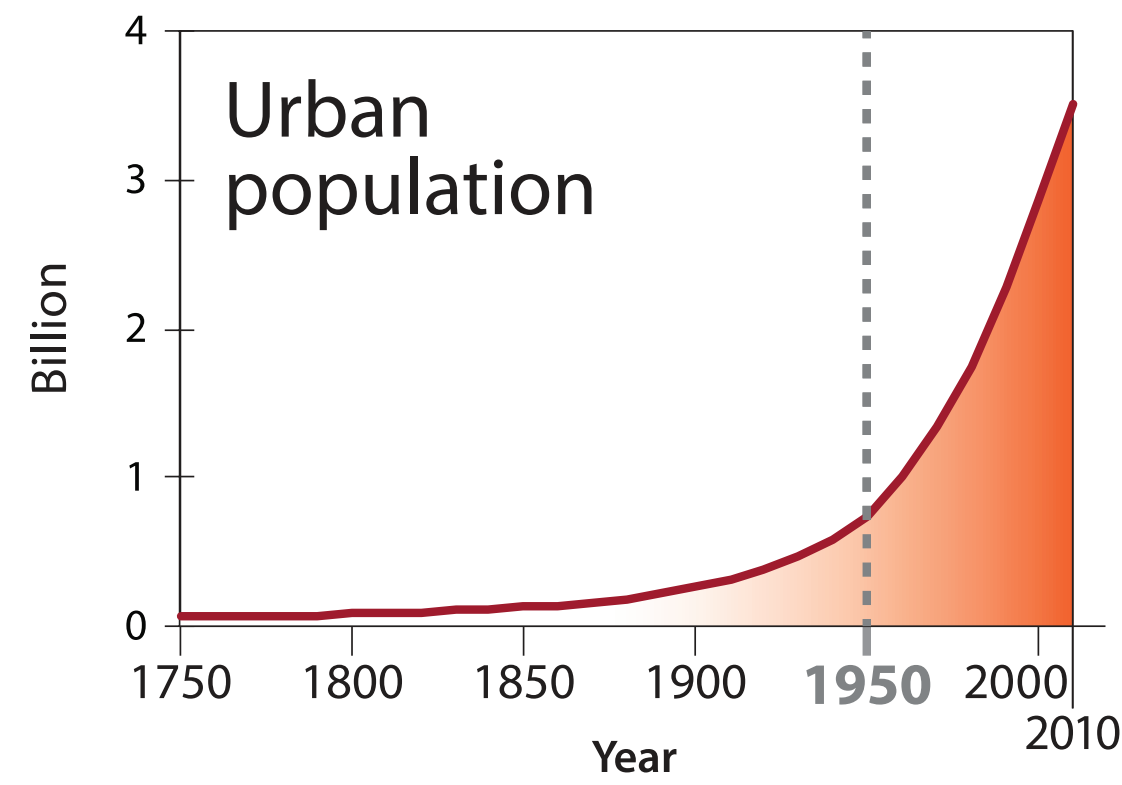
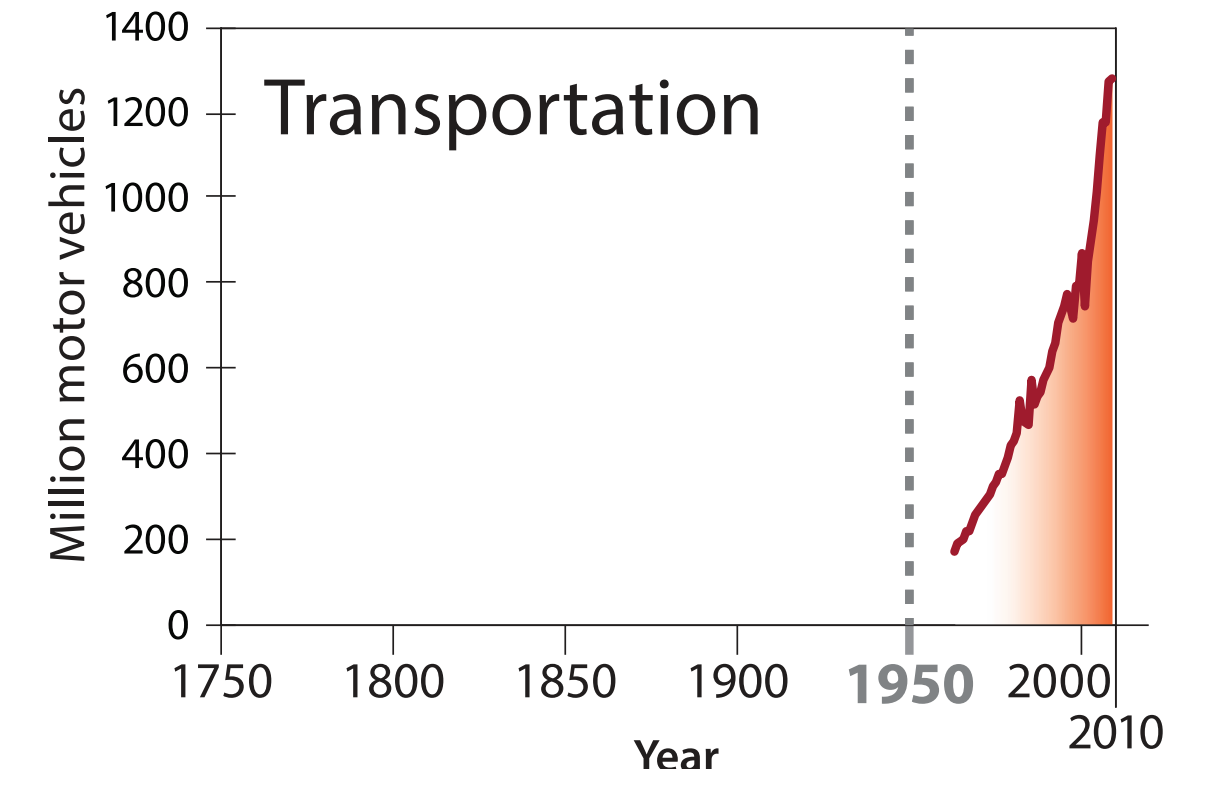
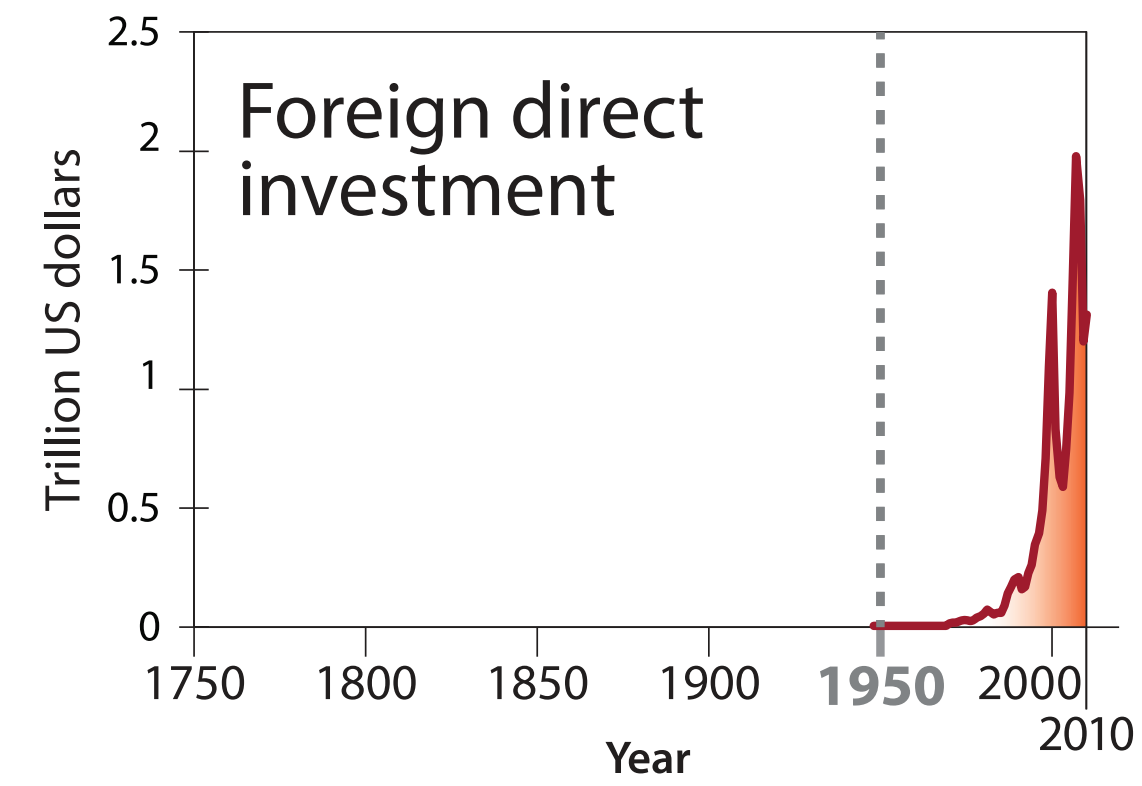
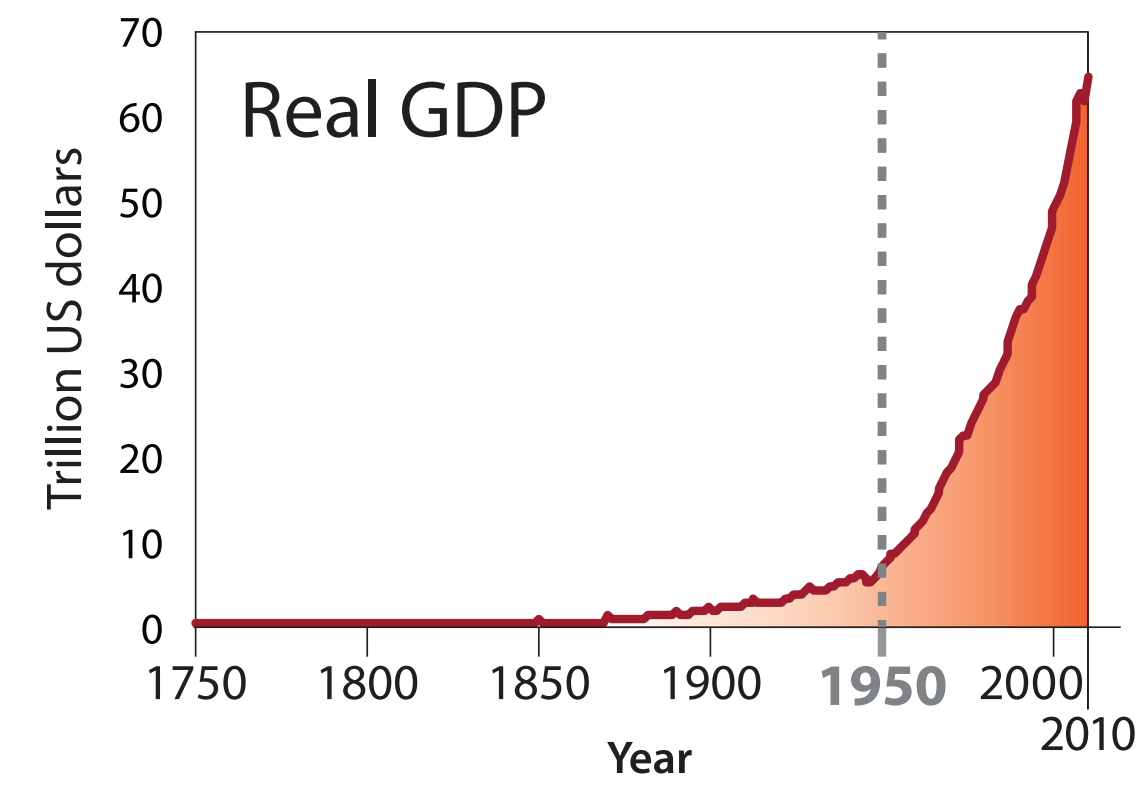
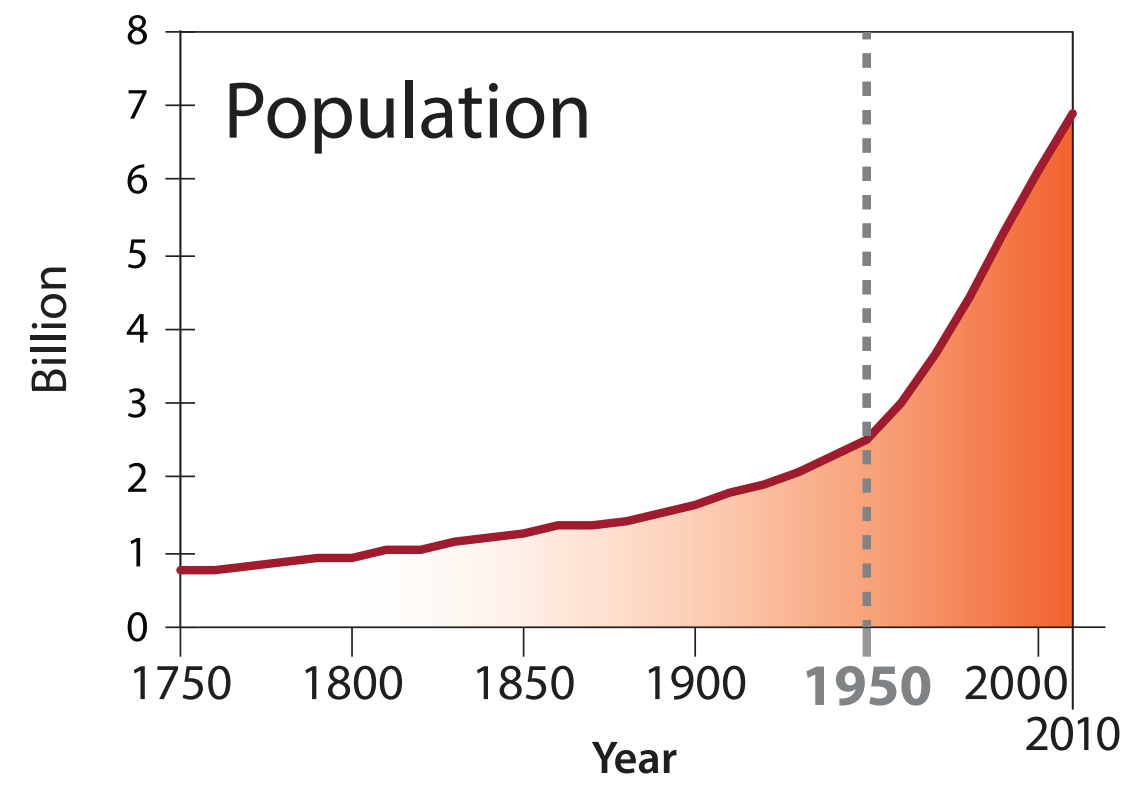
Defining the Anthropocene

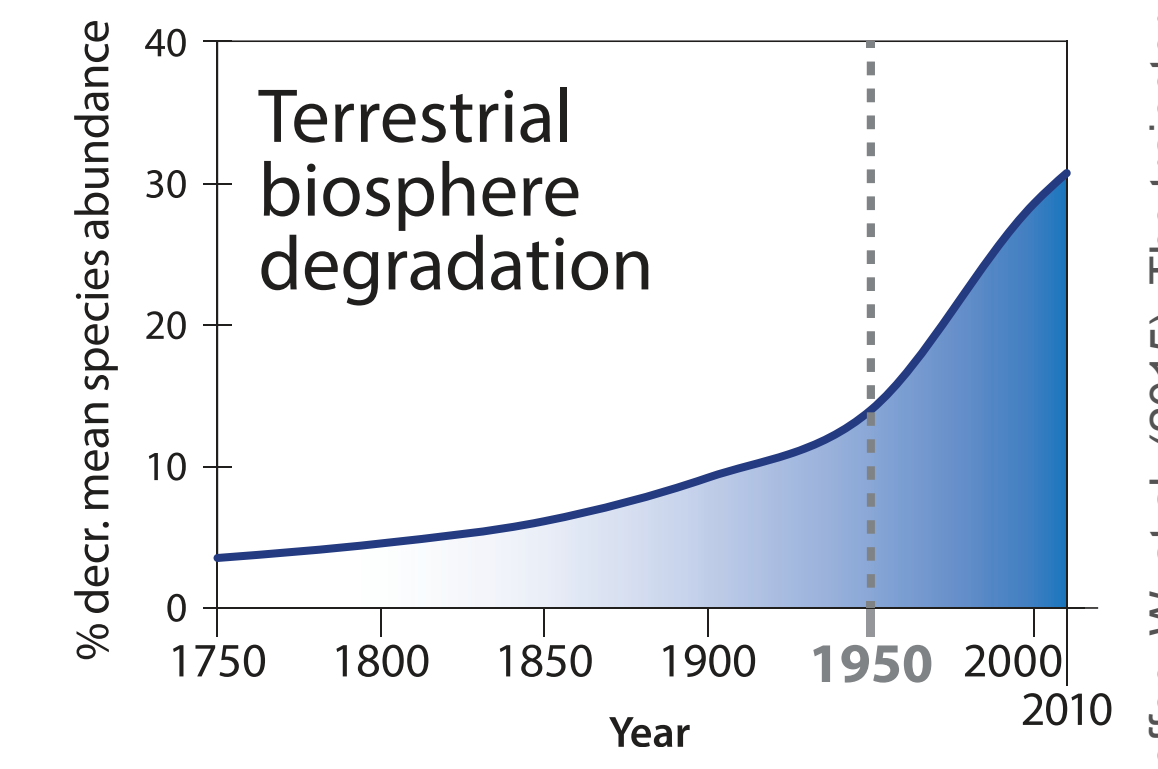
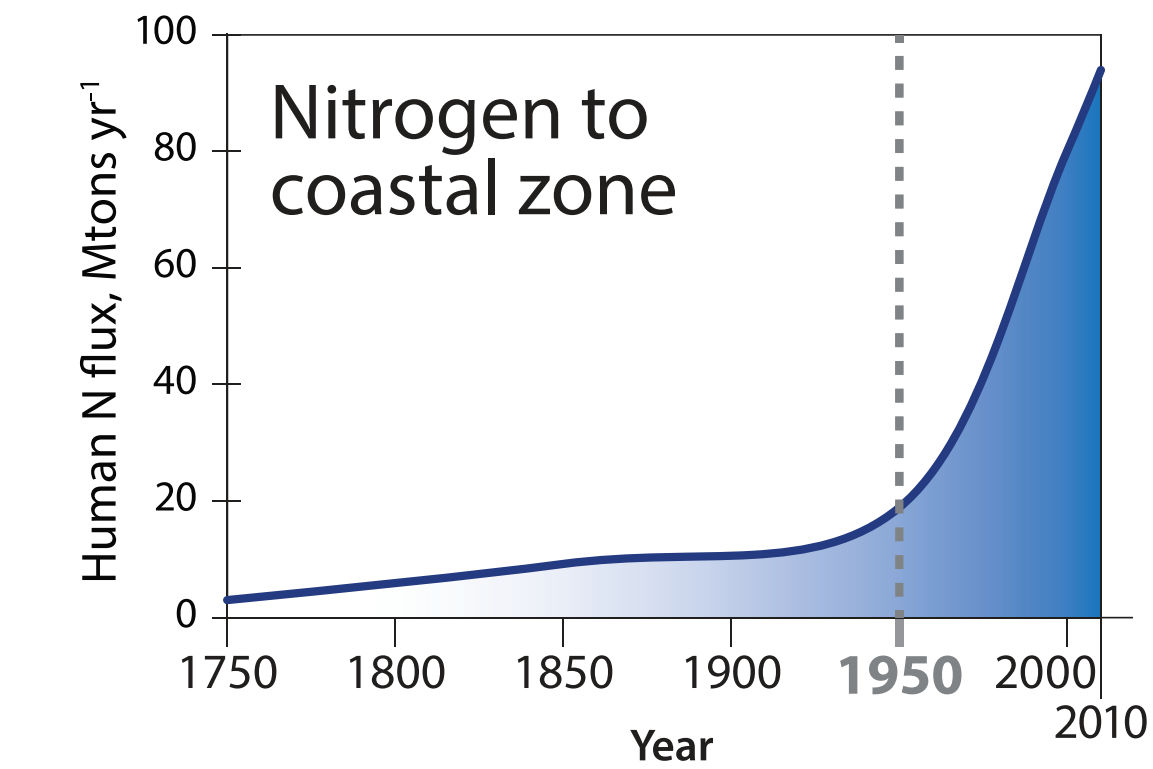
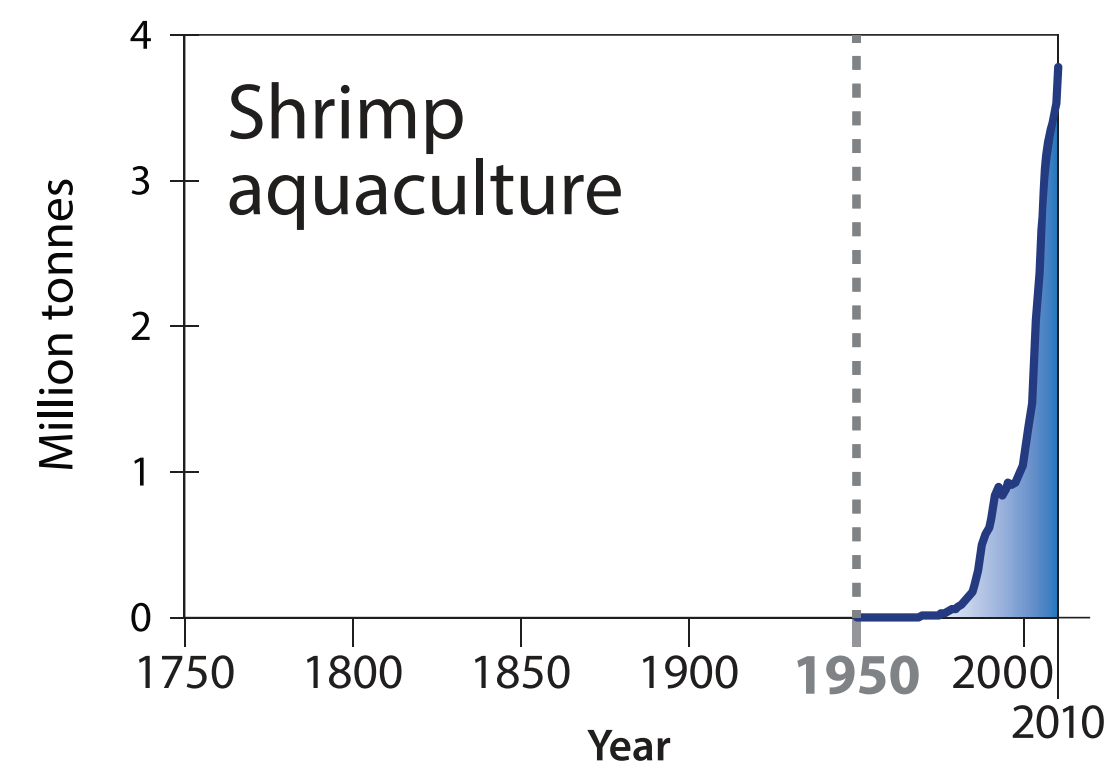
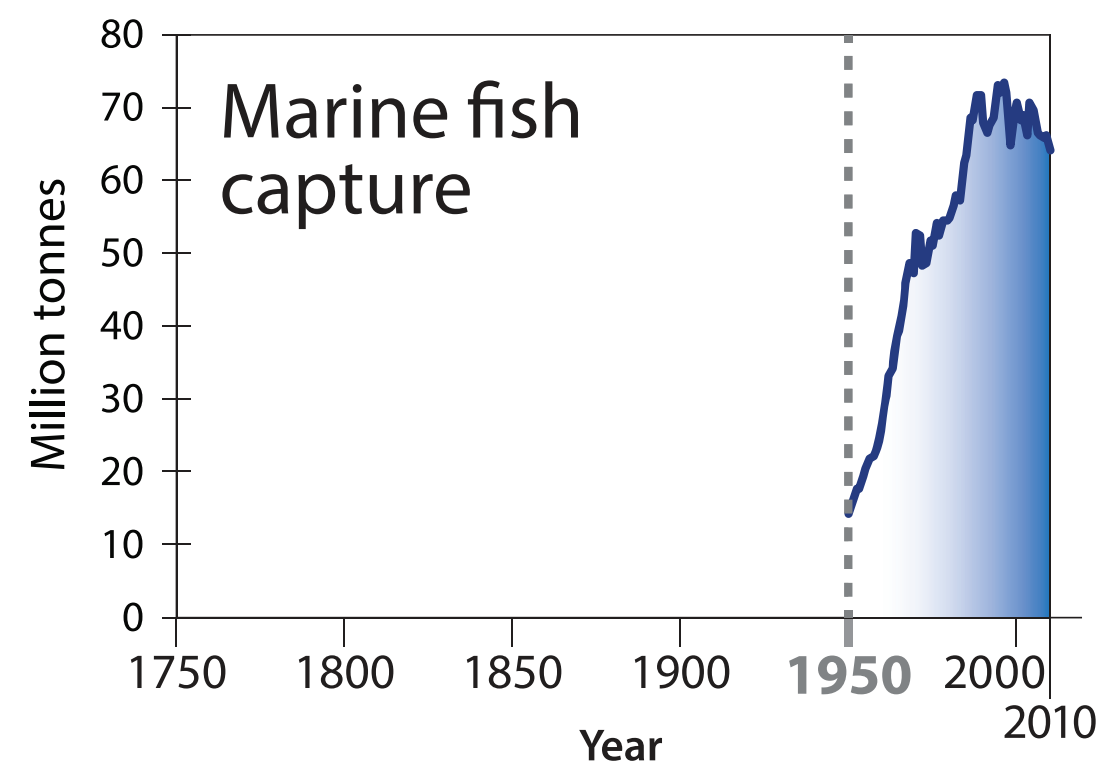
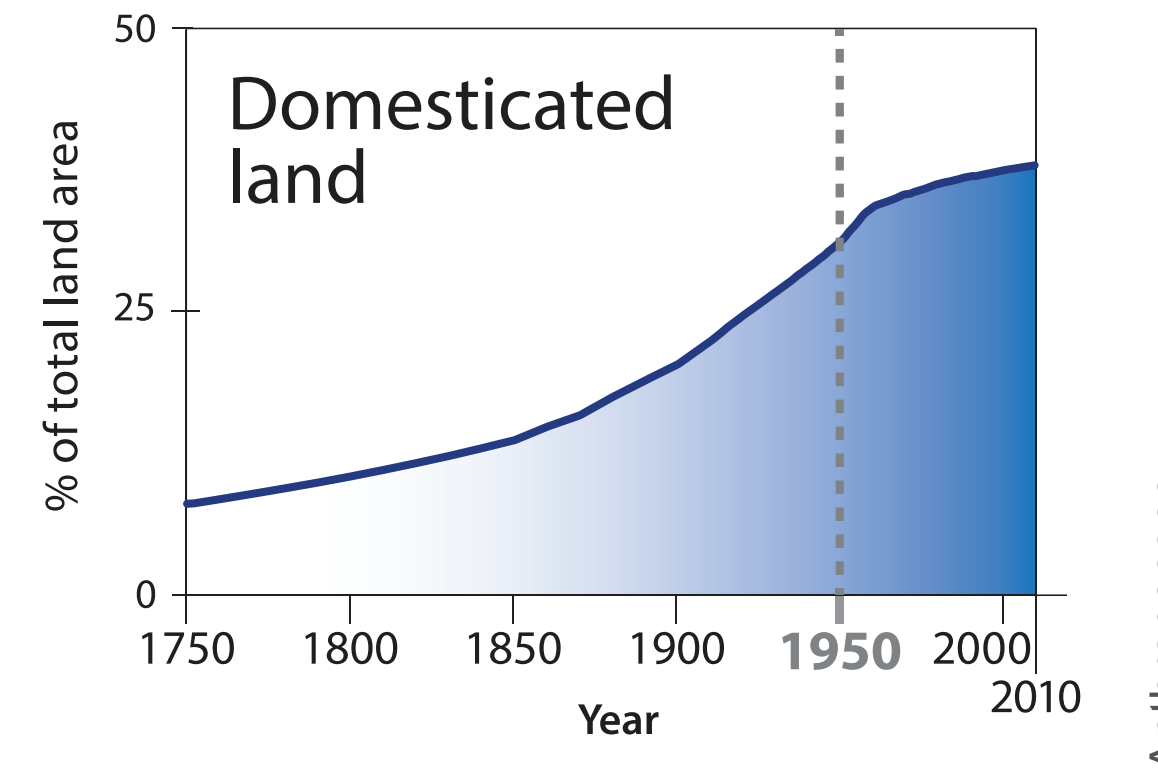
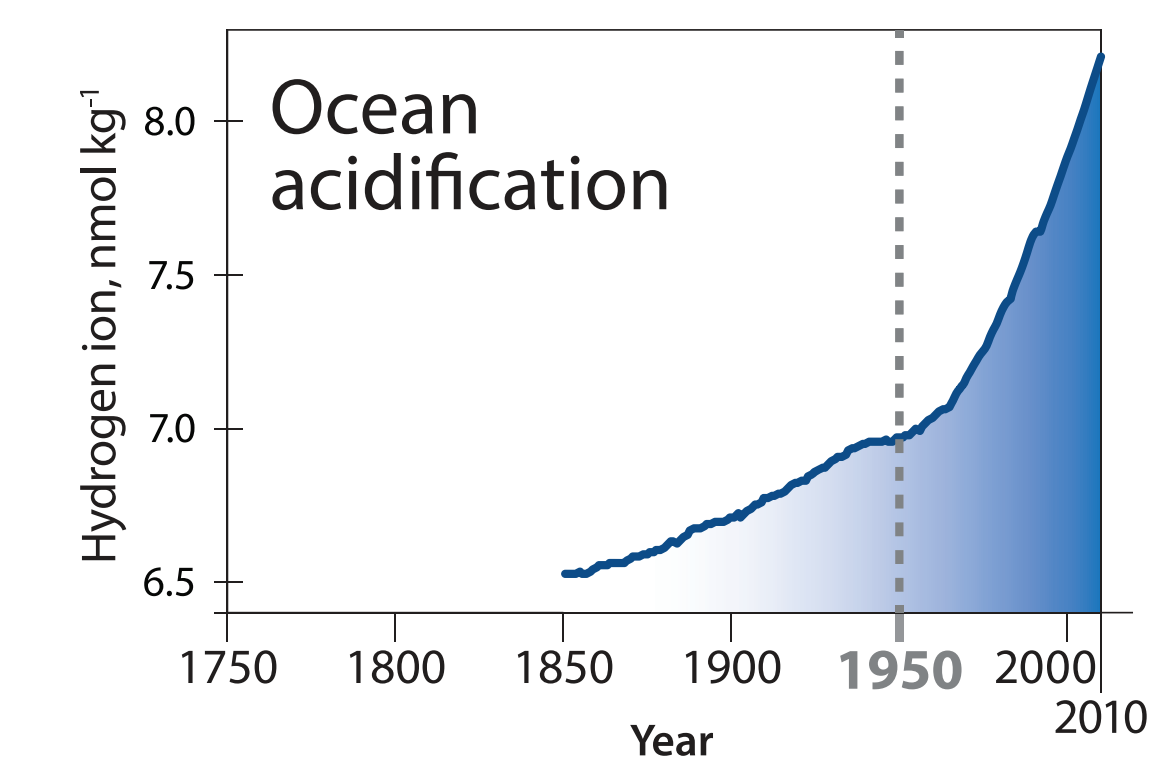
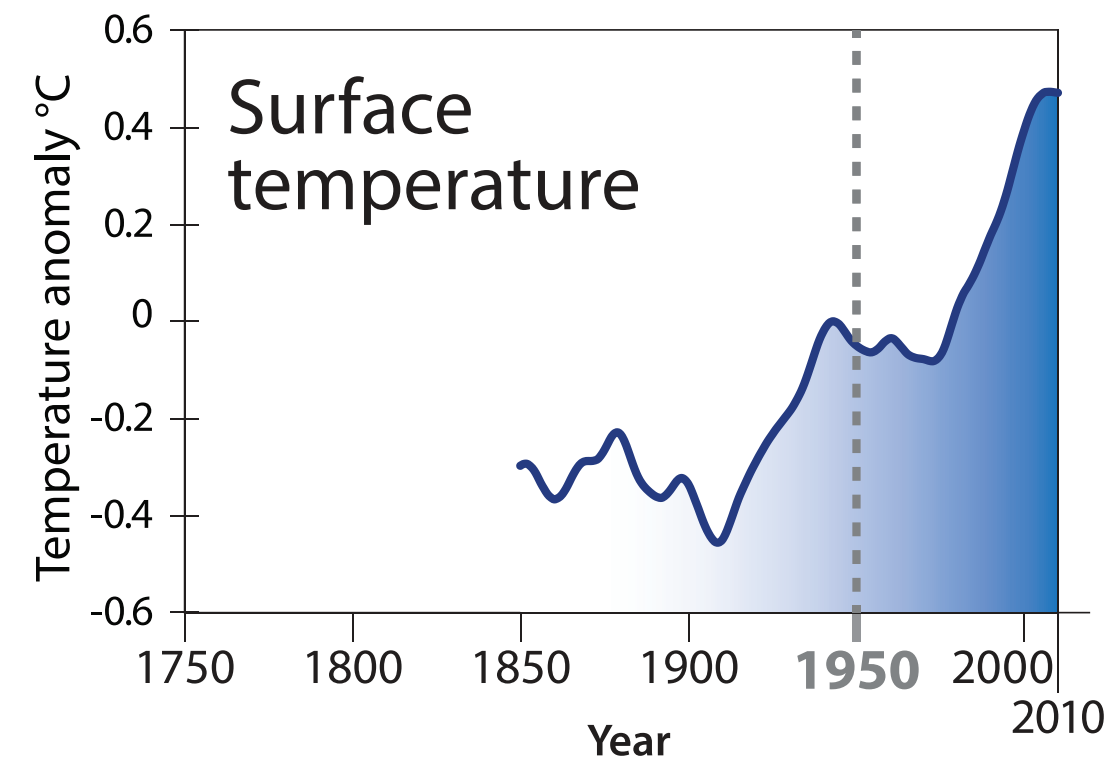
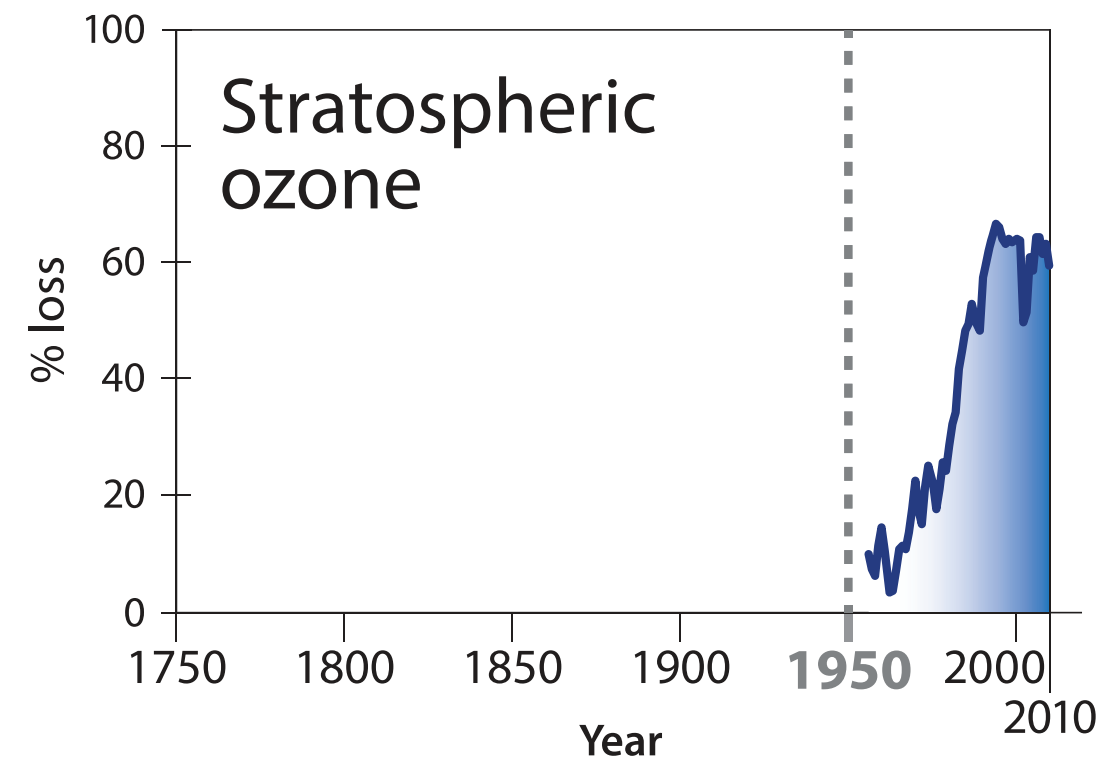
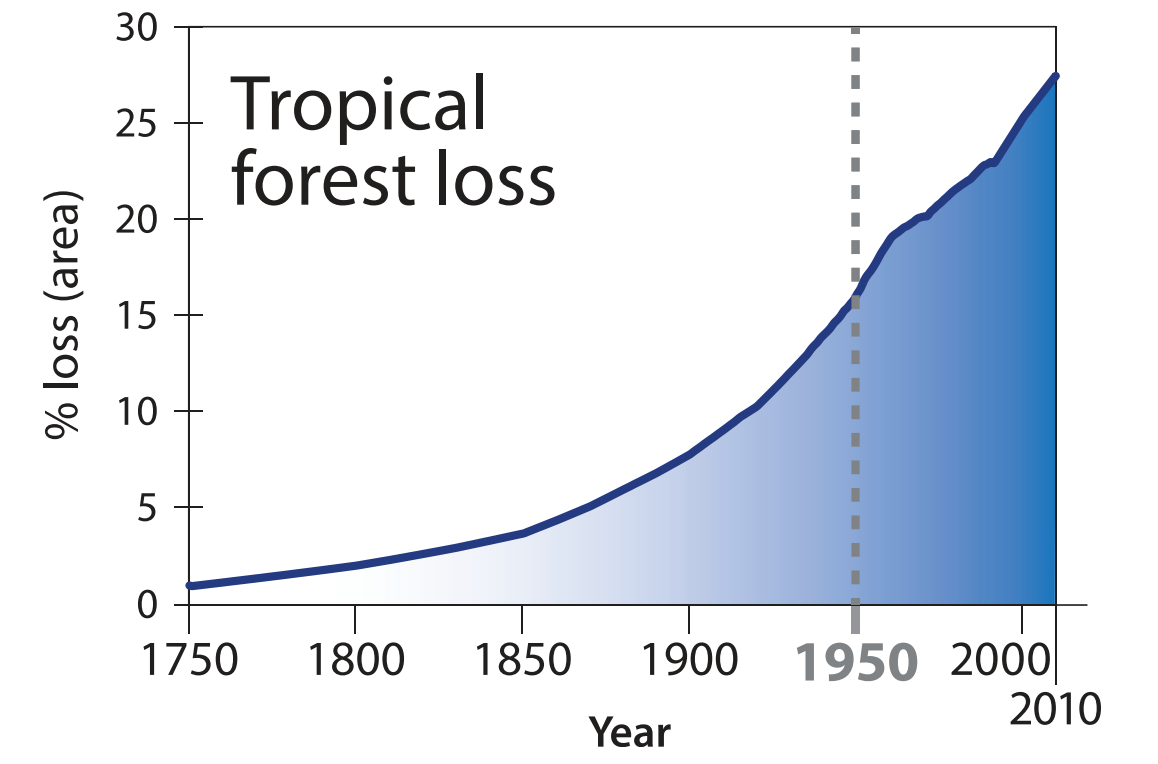
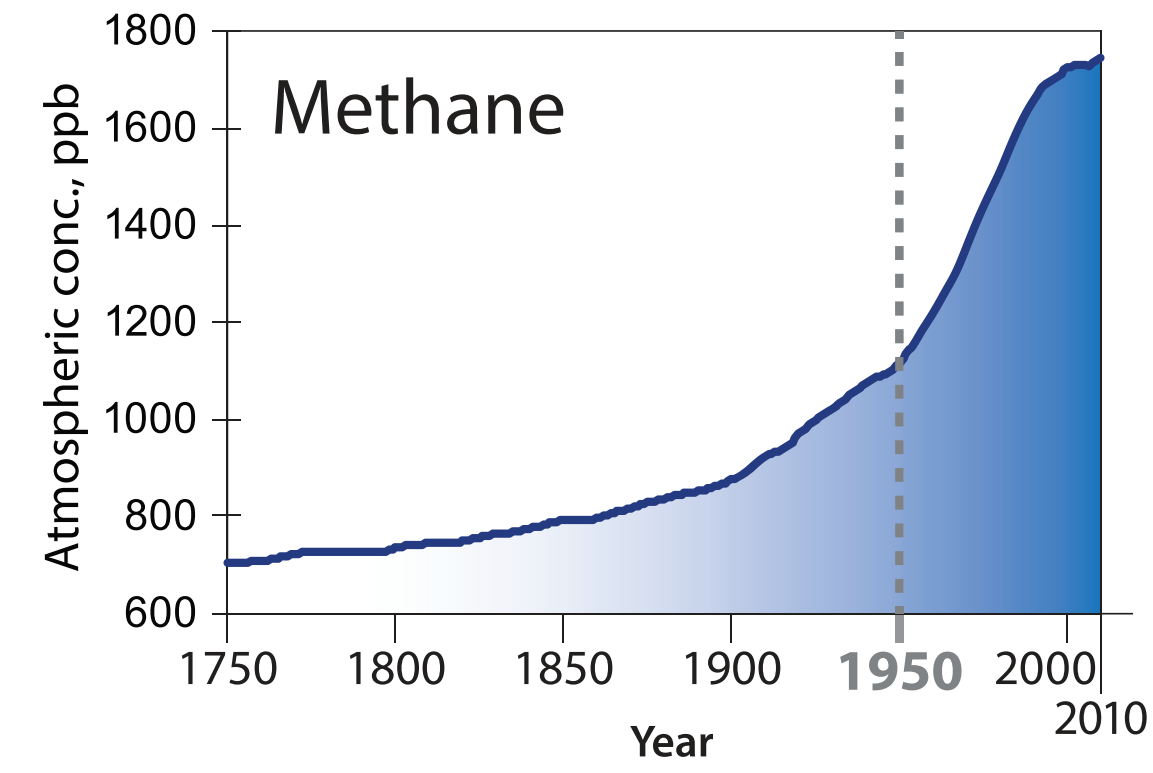
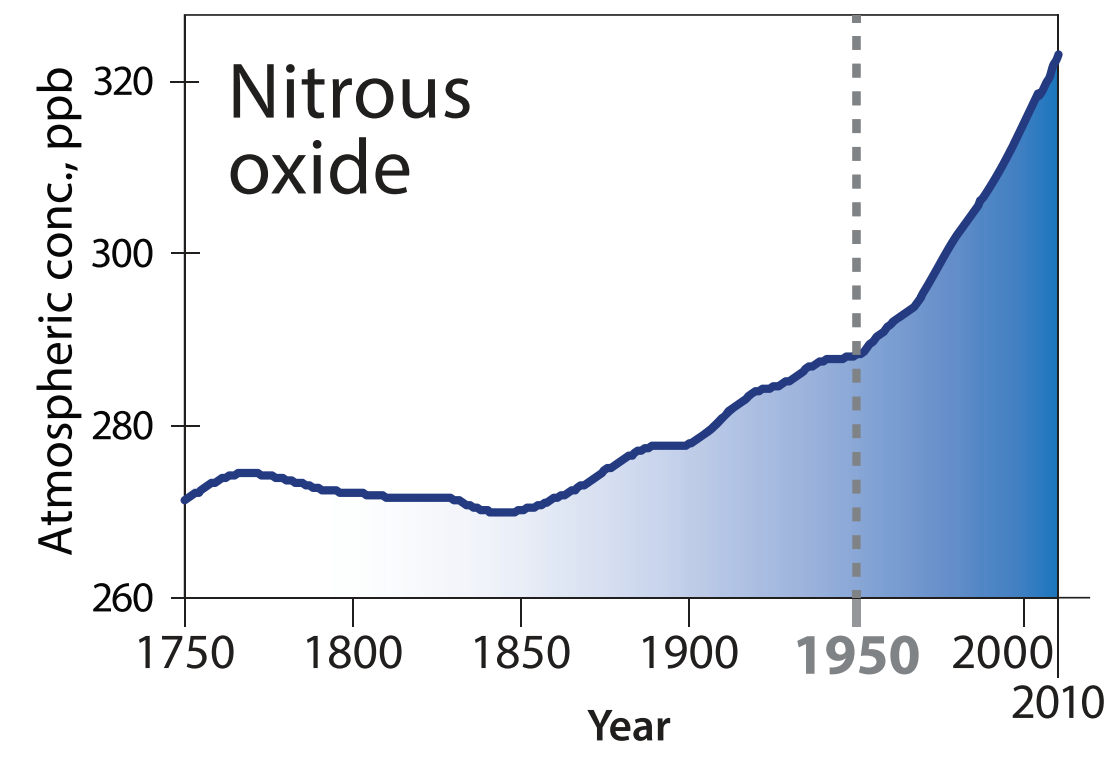
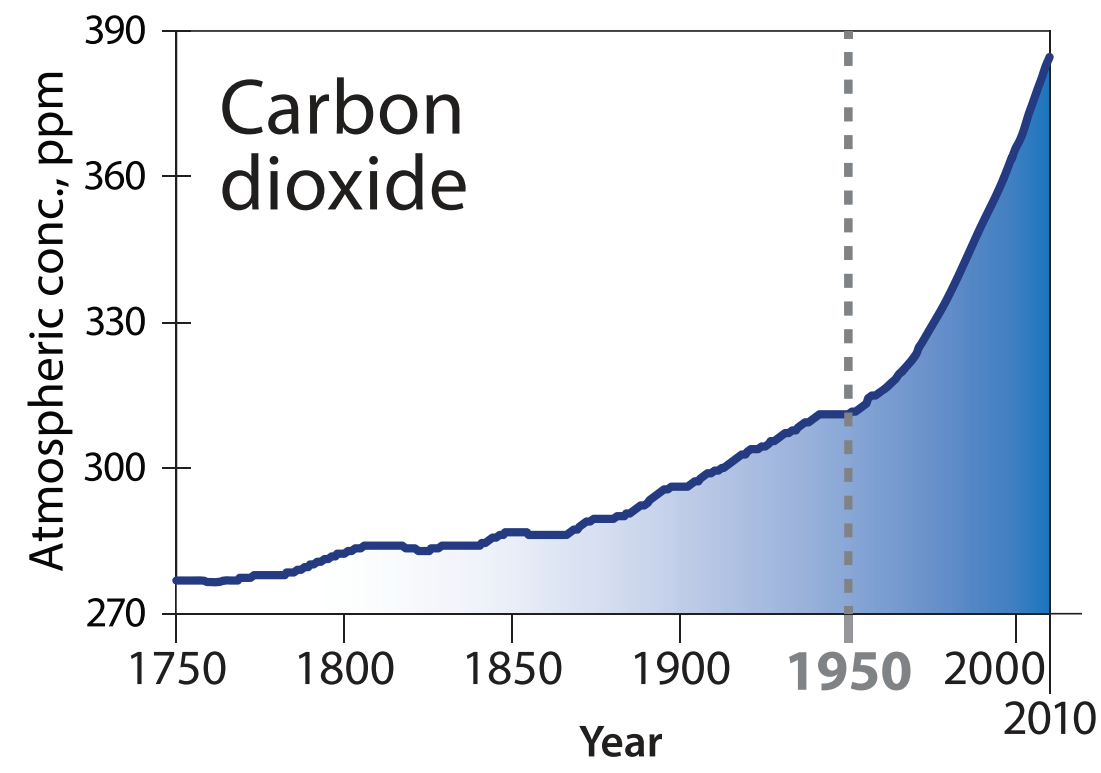
Simon L. Lewis^{1,2} & Mark A. Maslin¹

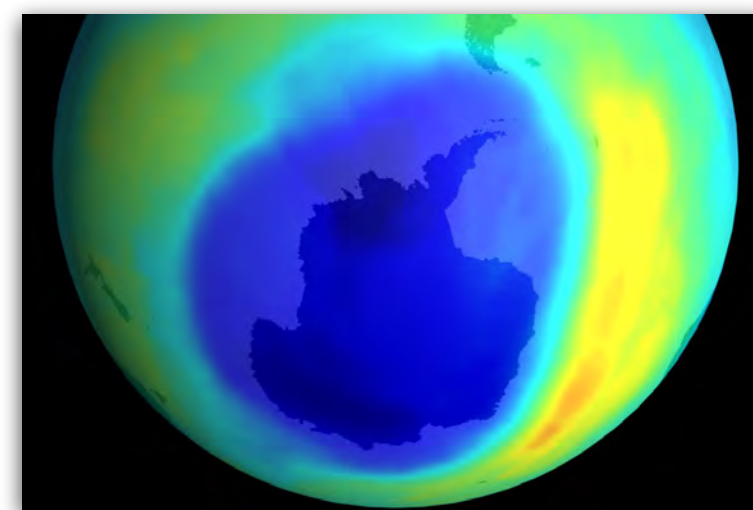
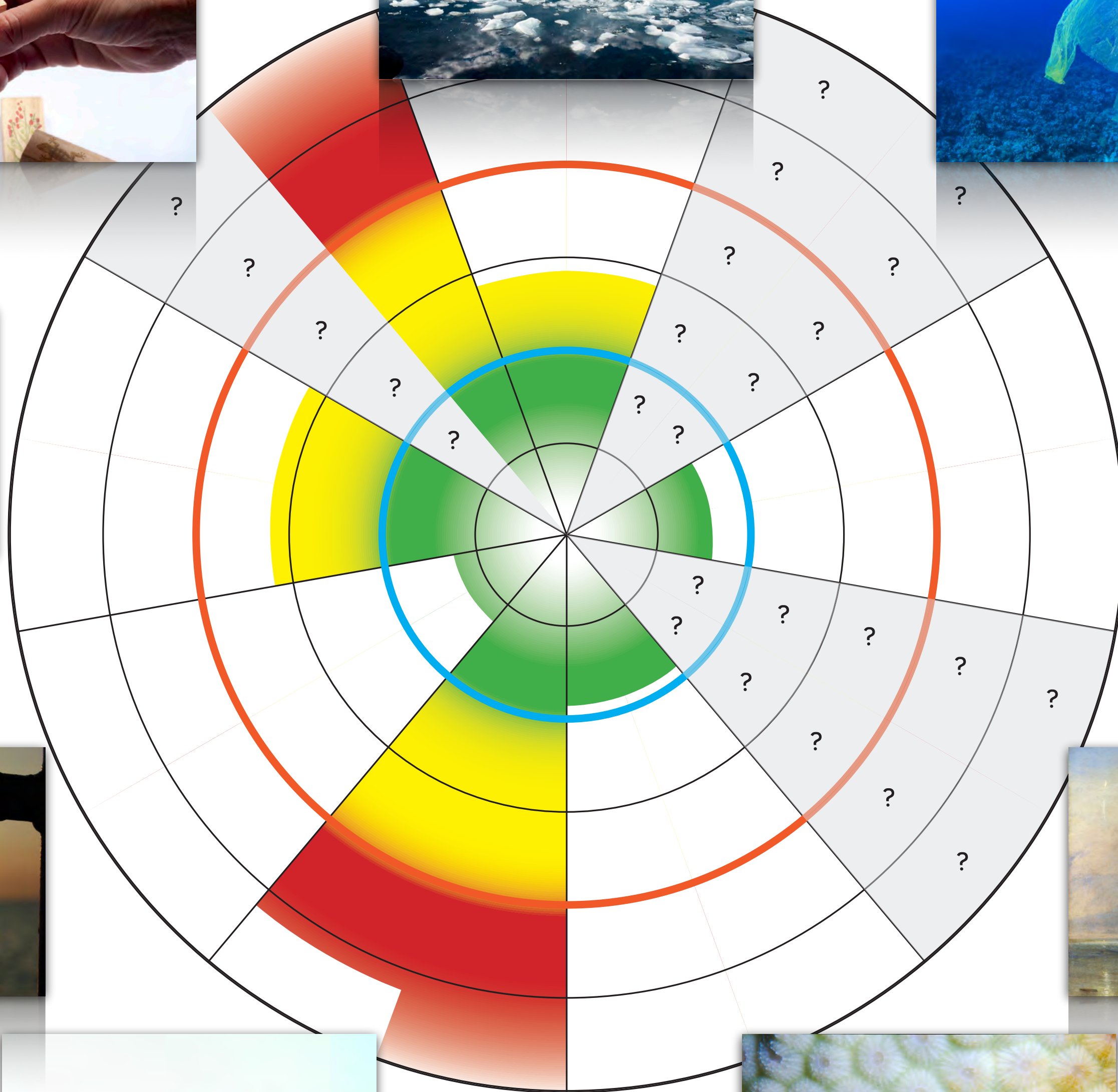
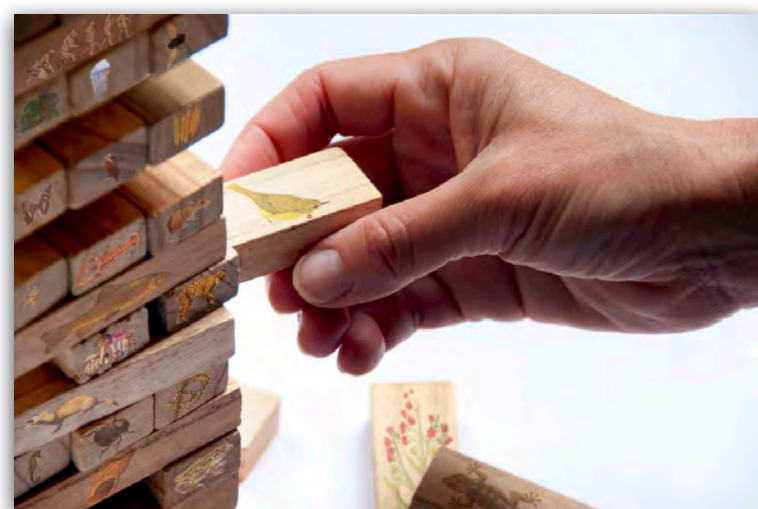


Table 1 | Potential start dates for a formal

Event	Date	Primary stratigraphic marker
Megafauna extinction	50,000–10,000 yr BP	Fossil megafauna
Origin of farming	~11,000 yr BP	Fossil pollen or phytoliths
Extensive farming	~8,000 yr BP to present	CO ₂ inflection in glacier ice
Rice production	6,500 yr BP to present	CH ₄ inflection in glacier ice
Anthropogenic soils	~3,000–500 yr BP	Dark high organic matter soil
New–Old World collision	1492–1800	Low point of CO ₂ in glacier ice
Industrial Revolution	1760 to present	Fly ash from coal burning
Nuclear weapon detonation	1945 to present	Radionuclides (¹⁴ C) in tree-rings
Persistent industrial chemicals	~1950 to present	For example, SF ₆ peak in glacier ice







1 KEINE
ARMUT



2 KEIN
HUNGER



3 GESUNDHEIT UND
WOHLERGEHEN



4 HOCHWERTIGE
BILDUNG



5 GESCHLECHTER-
GLEICHSTELLUNG



6 SAUBERES WASSER
UND SANITÄRVER-
SORGUNG



7 BEZAHLBARE UND
SAUBERE ENERGIE



8 MENSCHENWÜRDIGE
ARBEIT UND WIRTSCHAFTS-
WACHSTUM



9 INDUSTRIE, INNOVATION
UND INFRASTRUKTUR



10 WENIGER
UNGLEICHHEITEN



11 NACHHALTIGE STÄDTE
UND GEMEINDEN



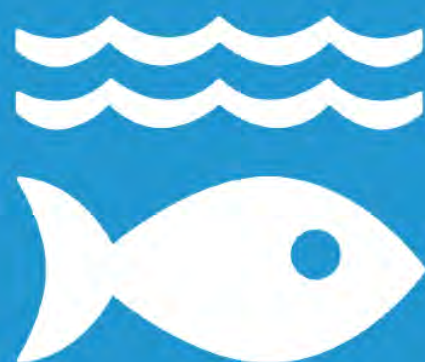
12 VERANTWORTUNGS-
VOLLE KONSUM- UND
PRODUKTIONSMUSTER



13 MASSNAHMEN ZUM
KLIMASCHUTZ



14 LEBEN UNTER
WASSER



15 LEBEN AN
LAND



16 FRIEDEN,
GERECHTIGKEIT UND
STARKE INSTITUTIONEN



17 PARTNERSCHAFTEN
ZUR ERREICHUNG
DER ZIELE



ZIELE
FÜR NACHHALTIGE
ENTWICKLUNG

Club of Rome

Forscher fordern Belohnung für kinderlose Frauen

Seit Jahrzehnten warnt der Club of Rome vor ungebremstem Wachstum. Ein neuer Bericht versammelt nun Forderungen zum politischen Umsteuern. Eine davon: Kinderlose Frauen sollen mit 50 eine Prämie von 80.000 Dollar erhalten.





PROF. DR. GERD DE HAAN
INSTITUT FUTUR

OECD (2005)

- ability to use language, symbols and text interactively
- ability to use knowledge and information interactively
- ability to use technologies interactively

Gestaltungskompetenz and the twelve part-competencies (Transfer-21 2008)

Interactive use of media and methods (tools)

- gather knowledge with an openness to the world and integrating new perspectives
- think and act in a forward-looking manner
- acquire knowledge and act in an interdisciplinary manner



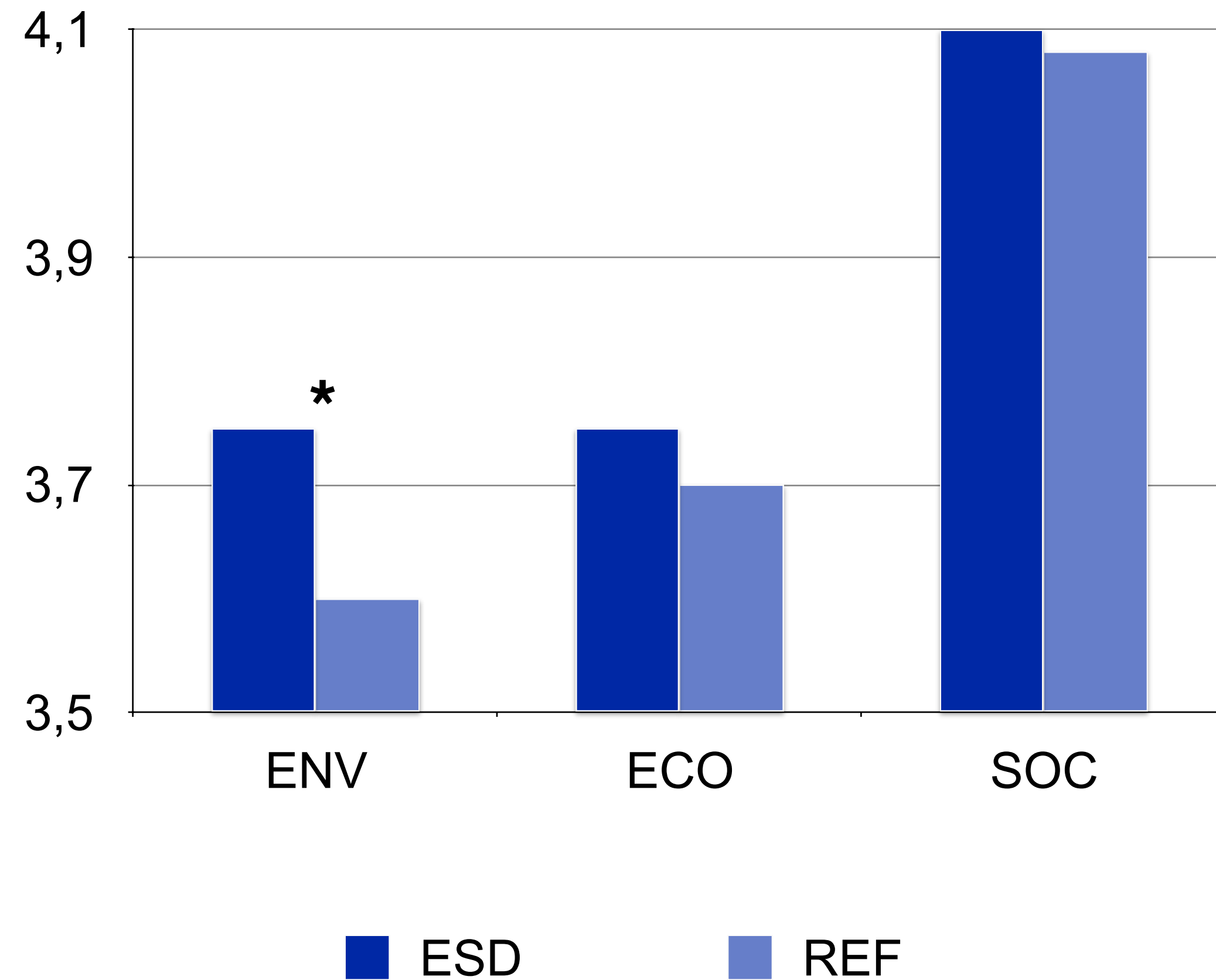
PROF. DR. ARNIM WIEK

ARIZONA STATE UNIVERSITY

	Systems Thinking	Anticipatory	Normative	Strategic	Interpersonal
1	PS2 Understanding and knowledge of natural processes and resources	PS11 Participatory elicitation competence; "desirable future states"	PS3 Concern for justice	PS18 Adaptation	PS1 Civic engagement
2	PS4 Integrated Assessment	PS16 Fairness and equity; "future generations"	PS16 Fairness and equity	PS19 Green materials design	PS6 Integrate across disciplinary lines
3	PS6 integrate across disciplinary lines	PS13 Ability to use triple bottom line concepts consider "future"	PS30 Diversity of knowing and learning; "problems based on worldviews"	PS22 Community development	PS16 Interdisciplinarity
4	PS11 Resilience competence	PS16 Decisionmaking under uncertainty	PS30 Awareness of values	PS13 Ability to use triple bottom line concepts effectively	PS30 Interdisciplinary collaborative inquiry
5	PS13 Life cycle competency	PS11 Resilience competence; "long range planning"	PS7 Measuring and modeling sustainability	PS19 Green infrastructure design	PS10 Communication about sustainability
6	PS14 Resilience competency		PS30 Analysis; "assessing sustainability"	PS13 Ability to apply the principles of green chemistry and green	PS21 Humility
7	PS16 Interdisciplinarity and interconnectivity			PS9 Practical skills	PS11 Participatory elicitation competence
8	PS1 Ecological resilience			PS30 Synthesize information on alternatives and draw implications	PS9 Communicative skills
9	PS11 Systems thinking competence				PS9 Social teamwork
10	PS25 Theory of complexity				PS9 Networking and convincing
11	PS25 System dynamics modeling				PS9 Interdisciplinary attitude
12	PS26 Systems thinking				
13	PS26 Temporal and spatial scaling				
14	PS28 Systemic thinking				
15	PS31 Land change, human dimensions				
16	PS7 Measuring and modeling sustainability				
17	PS17 Ecological footprint, biocapacity, resource accounting				
18	PS24 Competence in harnessing and integrating knowledge to address				
19	PS21 Interpreting social systems as information processing systems				
20	PS16 Understanding of legal structures				

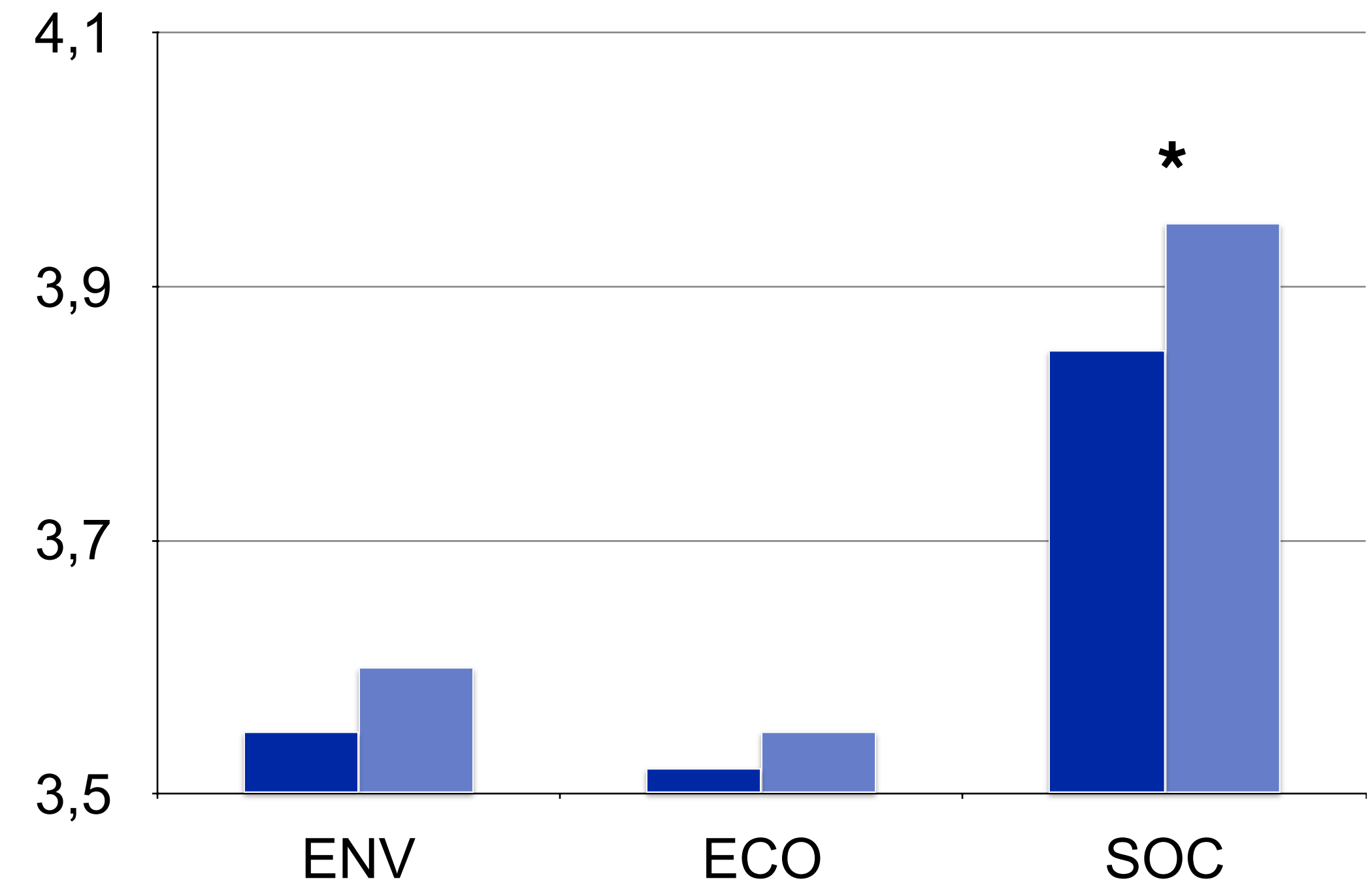


Klasse 6




N: 1773

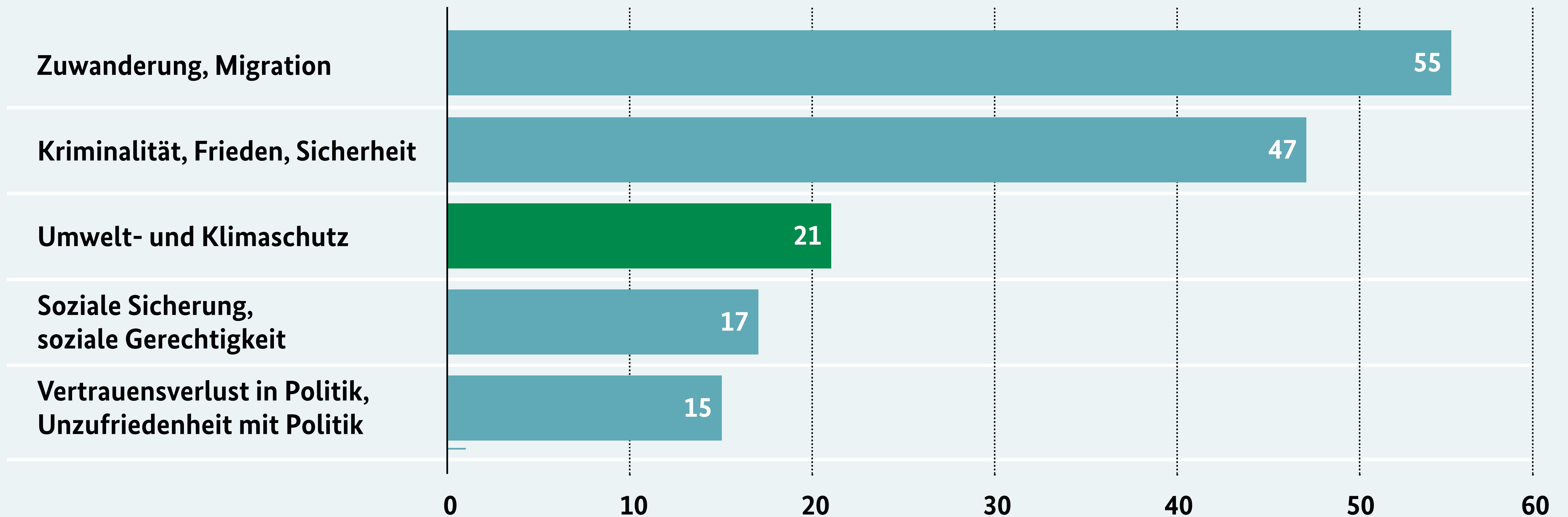
Klasse 9



The effect of implementation of education for sustainable development in Swedish compulsory schools – assessing pupils' sustainability consciousness

D. Olsson^{a*} , N. Gericke^a and S.-N. Chang Rundgren^b

Eco-school programs
do not impact students'
attitudes and routines.



Frage: Was, glauben Sie, sind die wichtigsten Probleme, denen sich unser Land heute gegenüber sieht?

Bitte tragen Sie hier die zwei aus Ihrer Sicht wichtigsten Probleme ein. (Offene Frage, maximal zwei Nennungen möglich)

*N=2.026, Onlinebefragung, 1. Befragungswelle, Stichprobe ab 14 Jahren, Nennungen ohne „Entwicklung städtischer und ländlicher Räume“, „Sonstiges“, „weiß nicht“ und „keine Angabe“
(Angaben in Prozent)*

We must only use nature, so that the diversity of plants, animals and their environment is

We must only use nature in such a way that the diversity of animals, plants and their habitats is preserved in the long term.

We must only use nature in such a way that future generations can use it likewise.

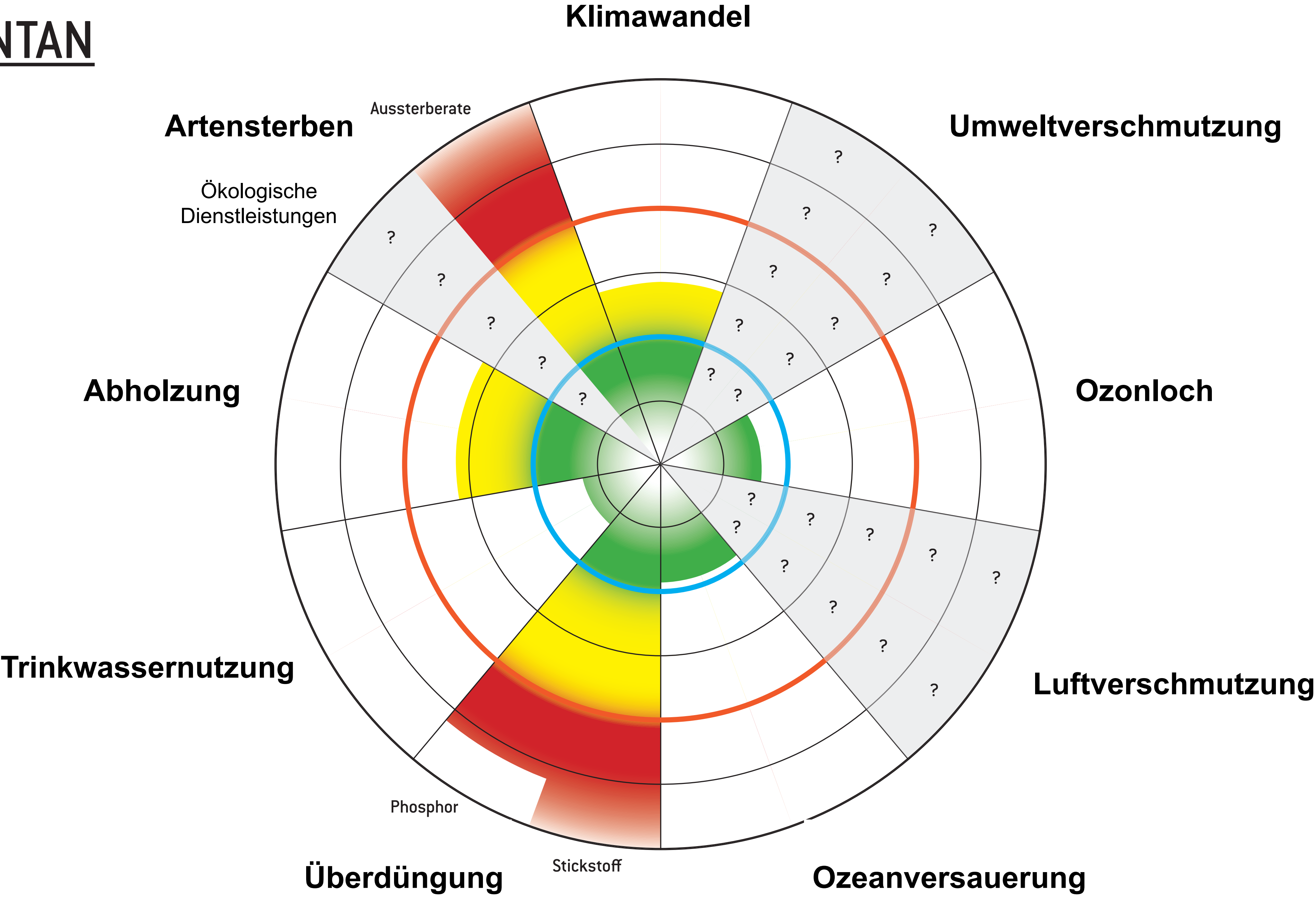


- trifft voll und ganz zu
- trifft eher zu
- trifft eher nicht zu
- trifft überhaupt nicht zu
- weiß nicht/keine Angabe

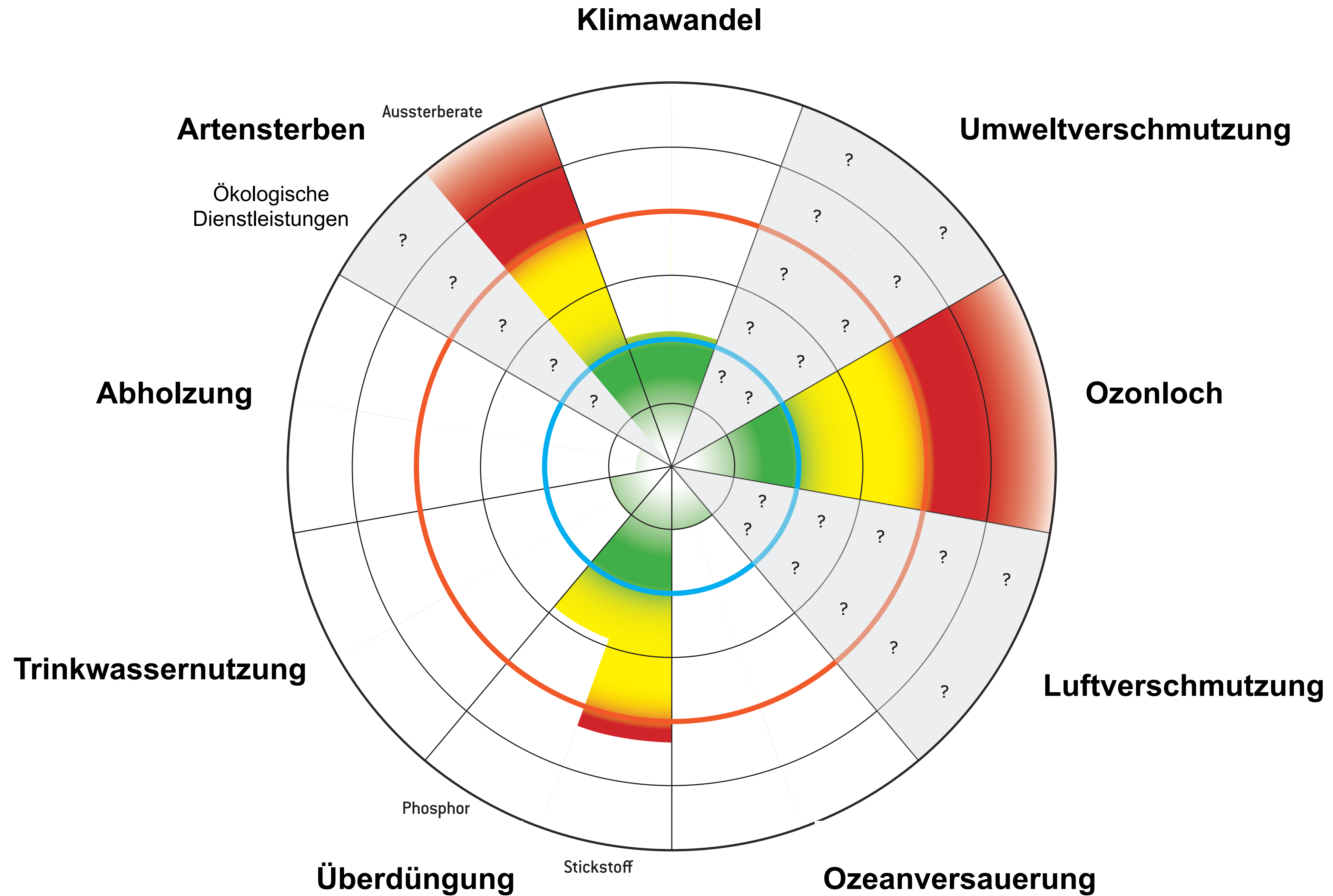
Angaben in Prozent

	Mainstream	Critical-creative	Precarious
positive attitudes to nature	0,92	1,20	0,87
Resource-consumption	1,01	1,11	0,82

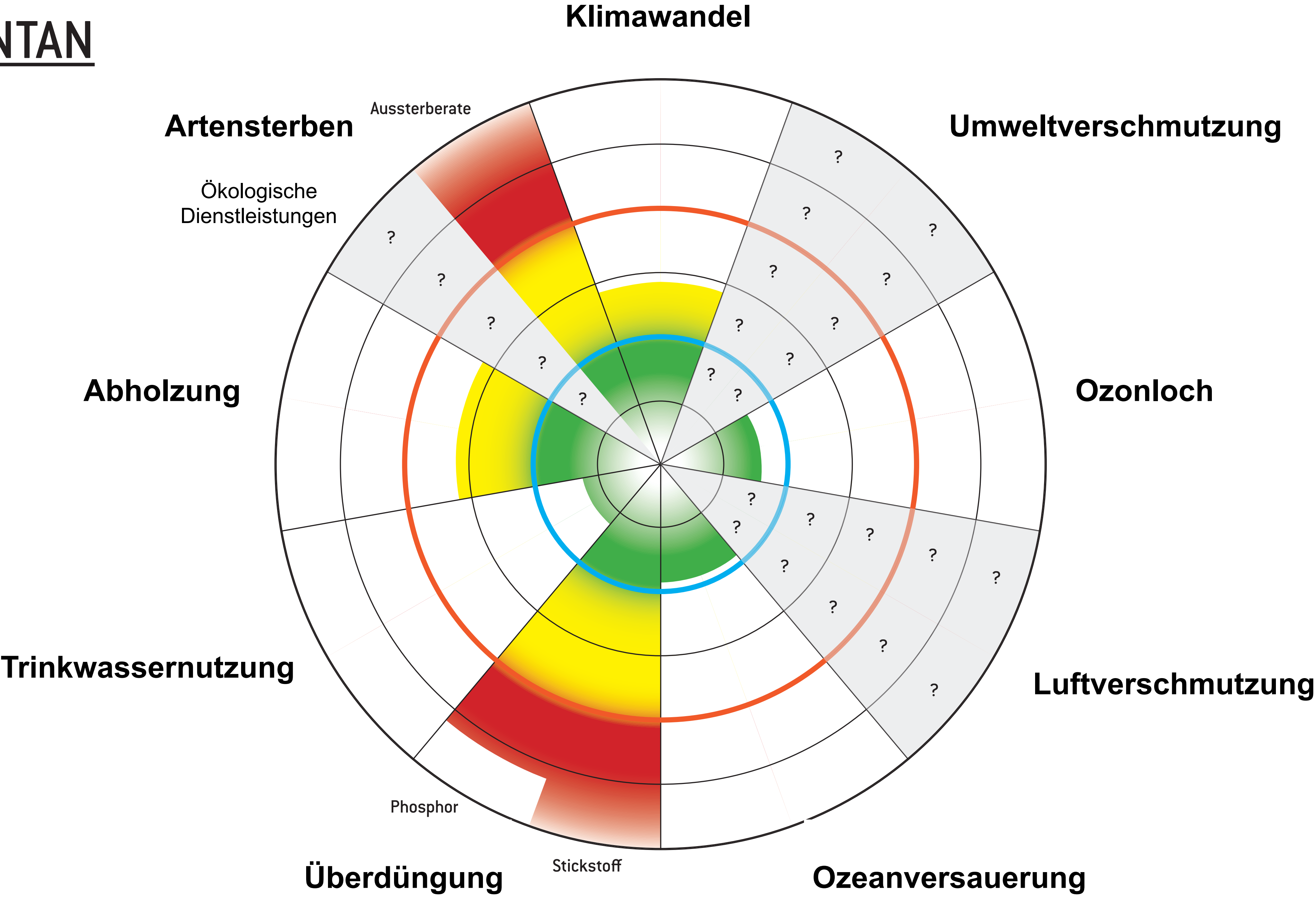
MOMENTAN



1990



MOMENTAN





28th Meeting of the Parties to the Montreal Protocol
10 - 14 October 2016, Kigali, Rwanda

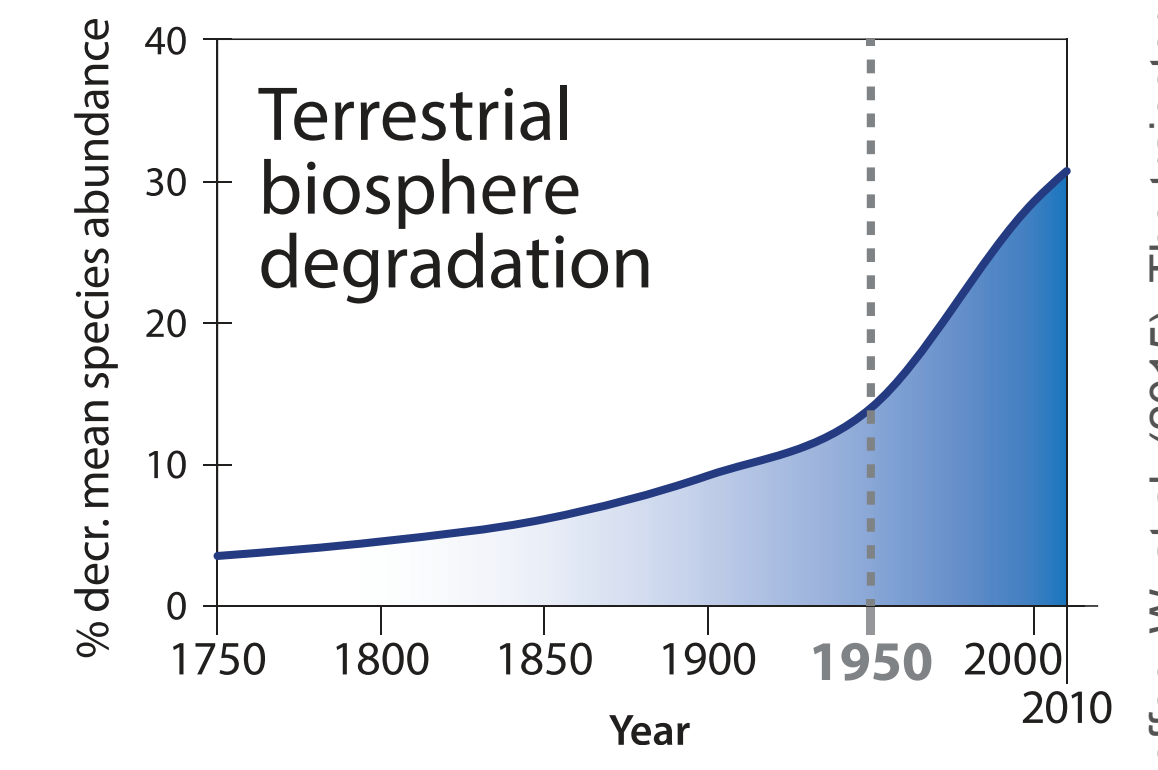
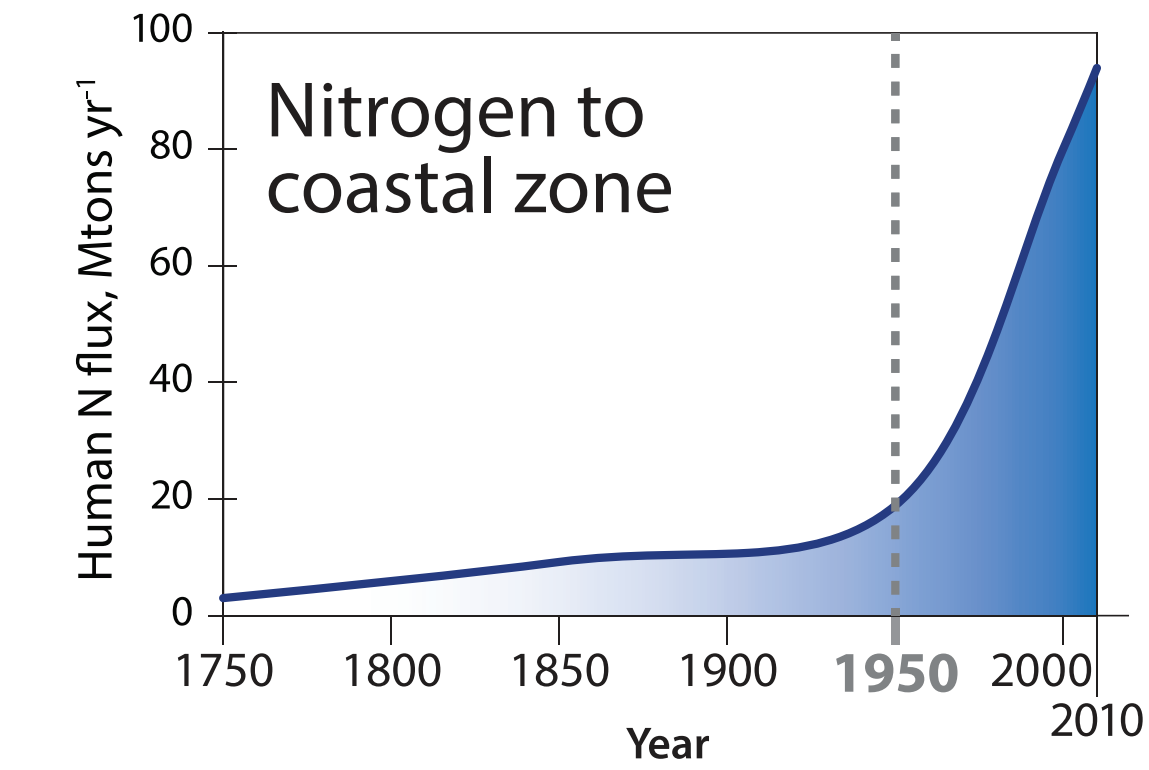
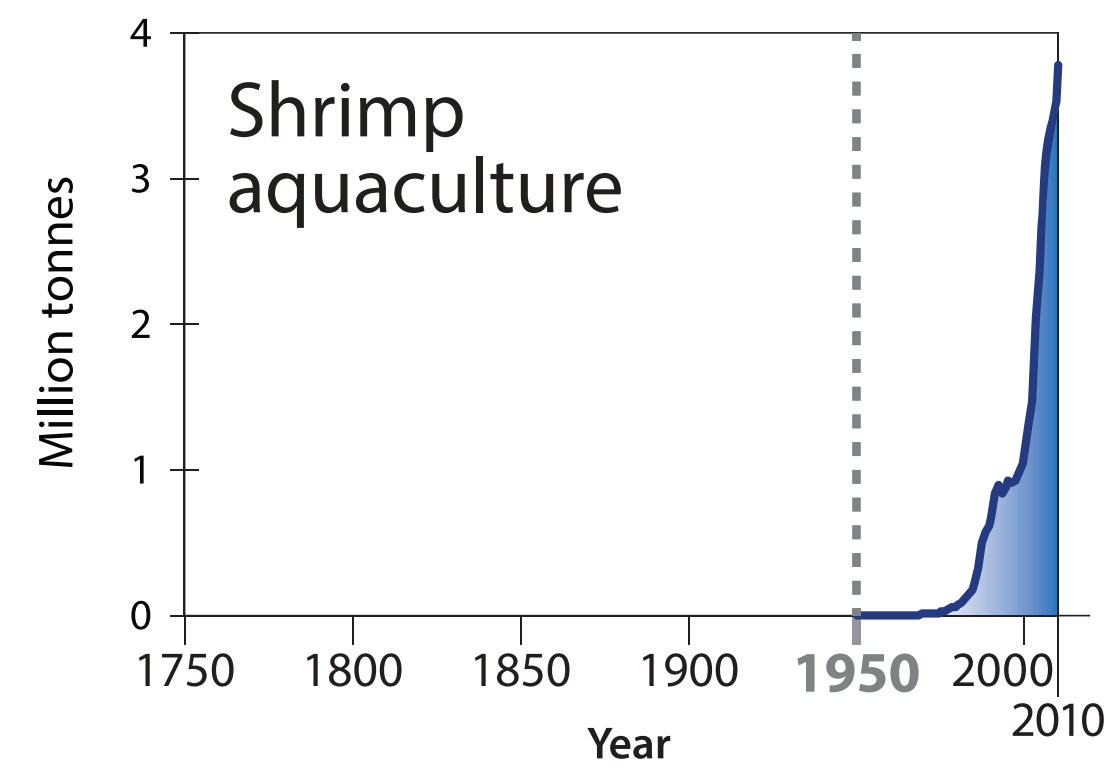
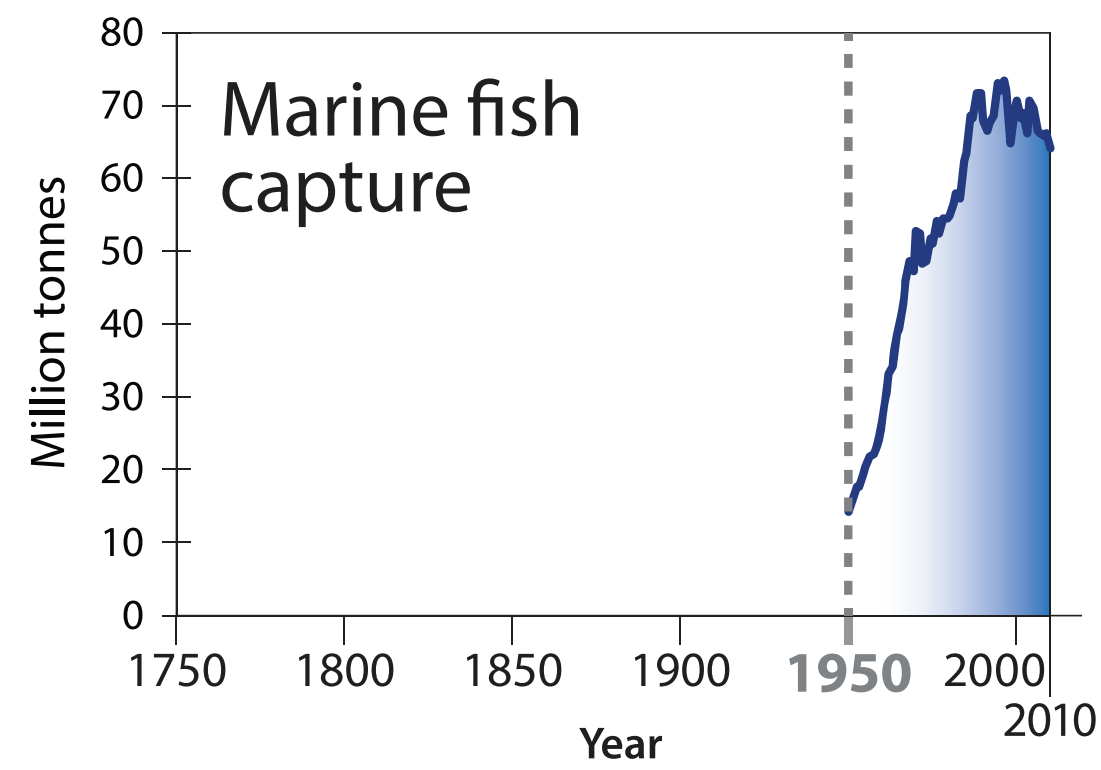
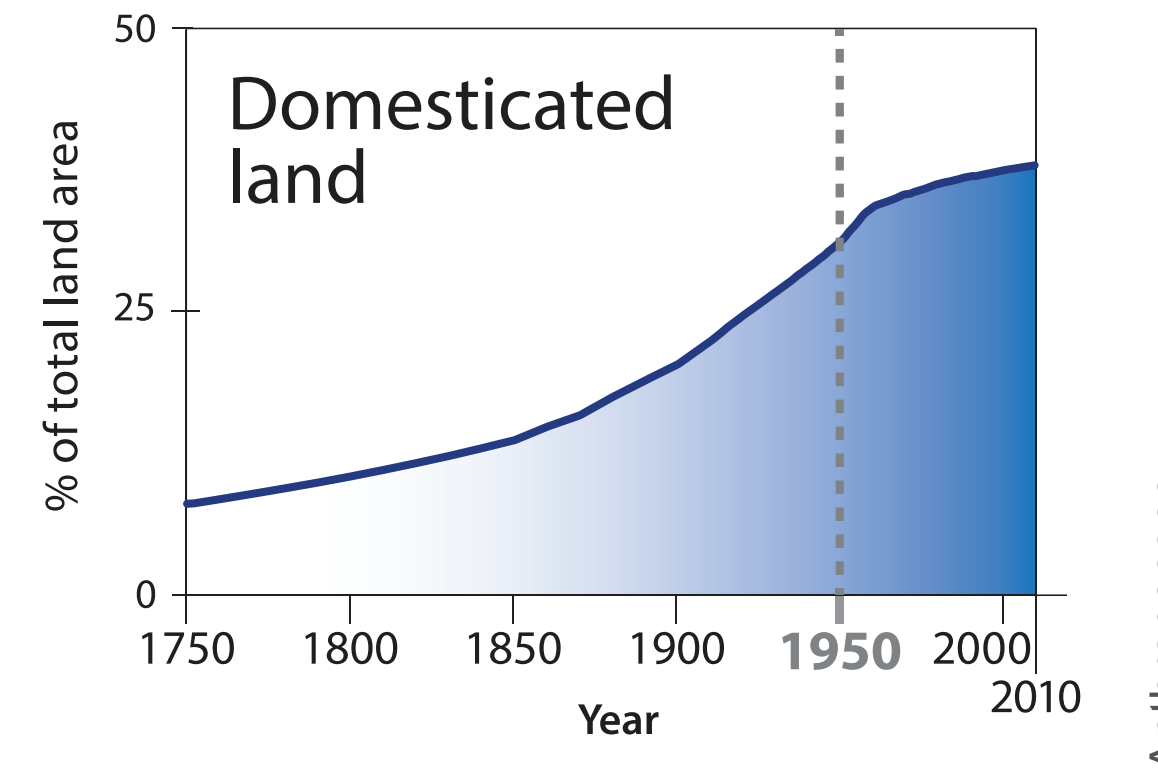
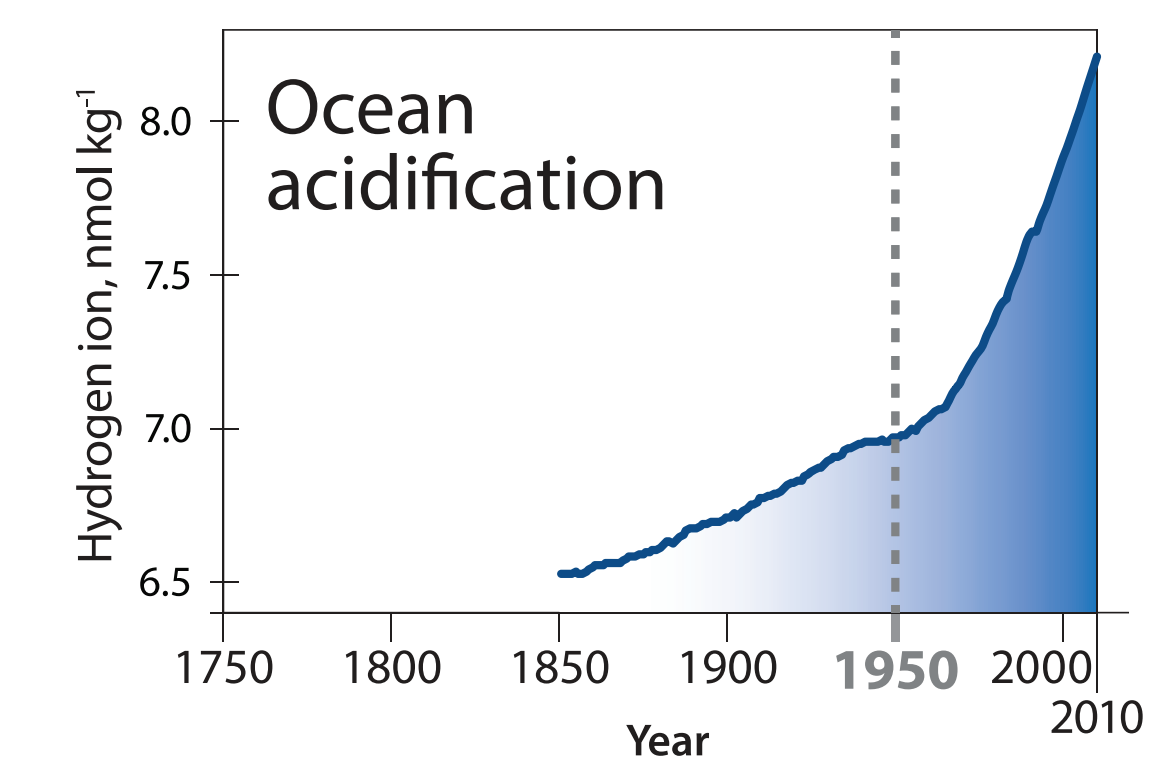
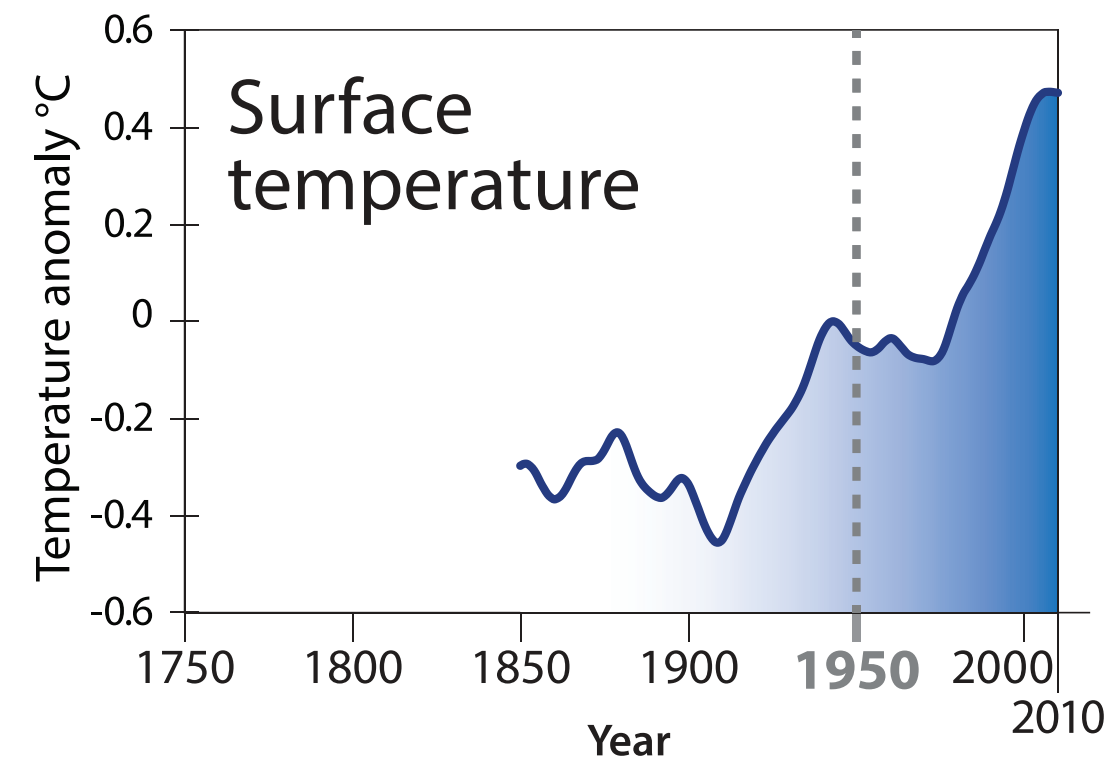
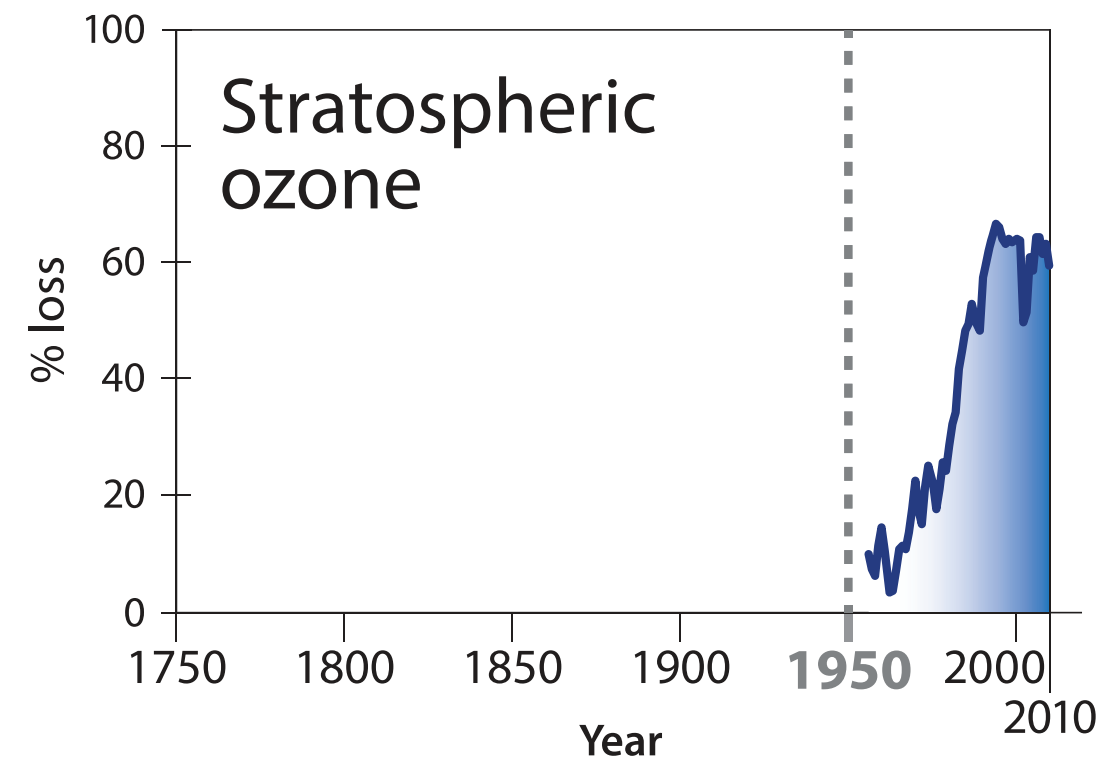
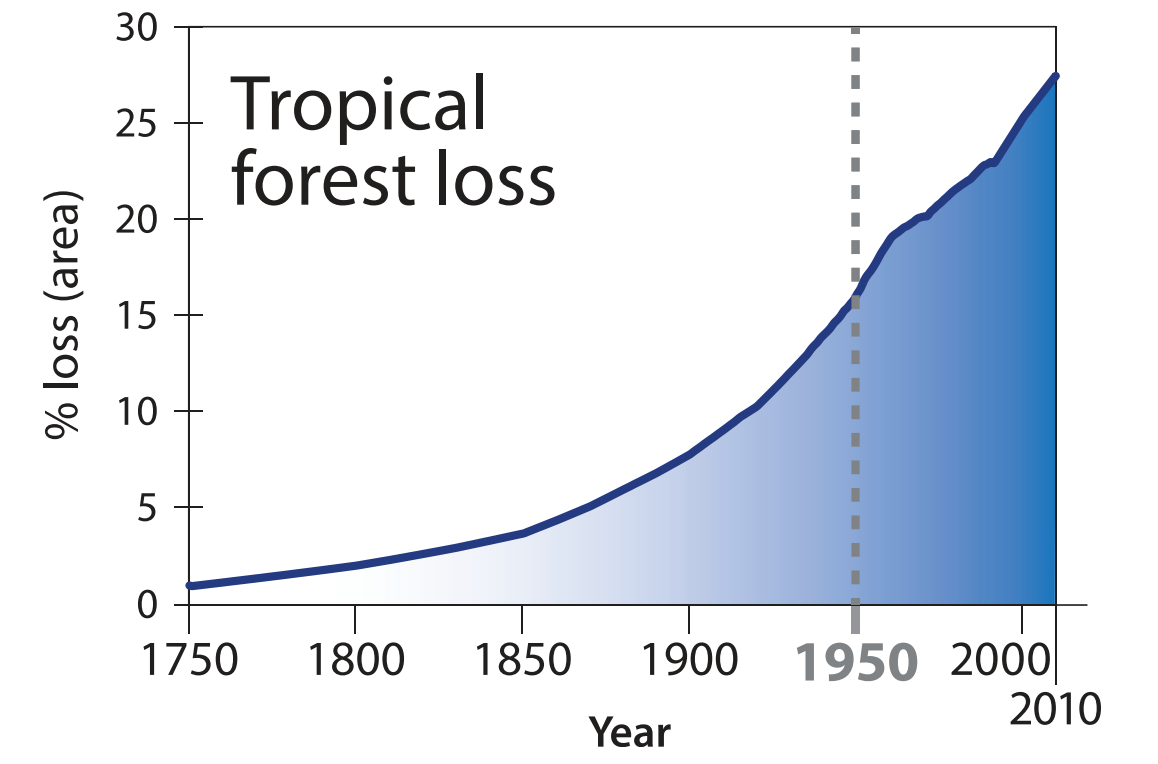
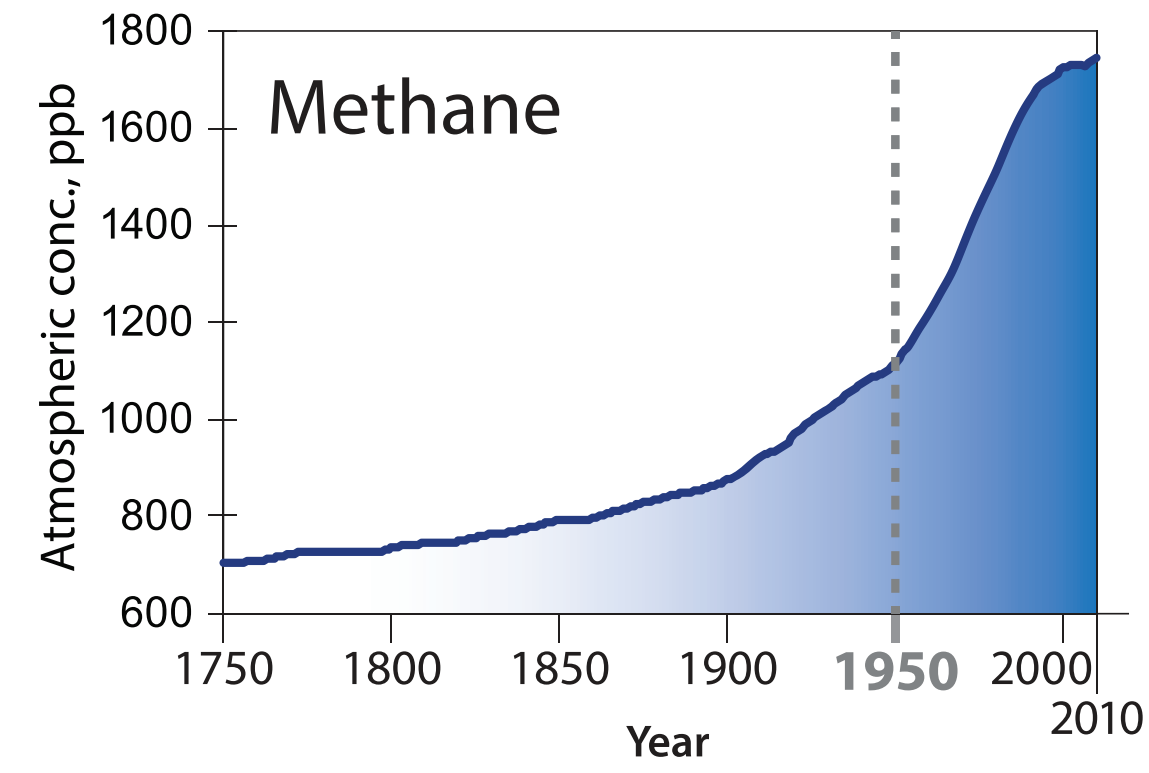
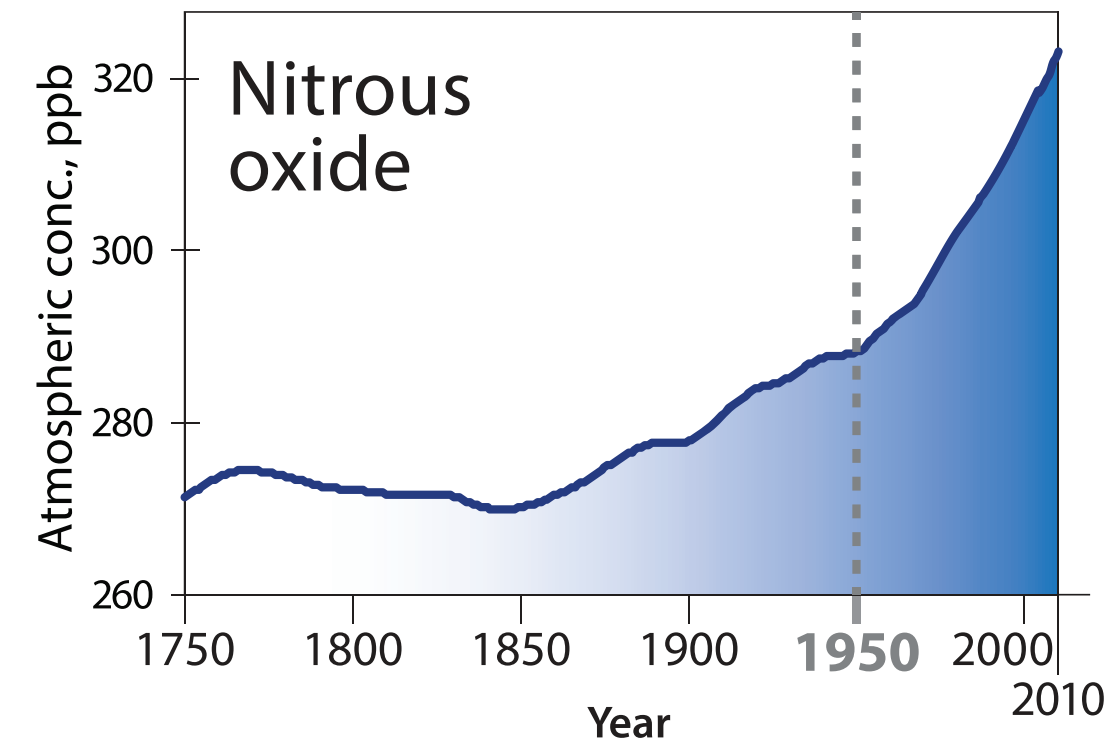
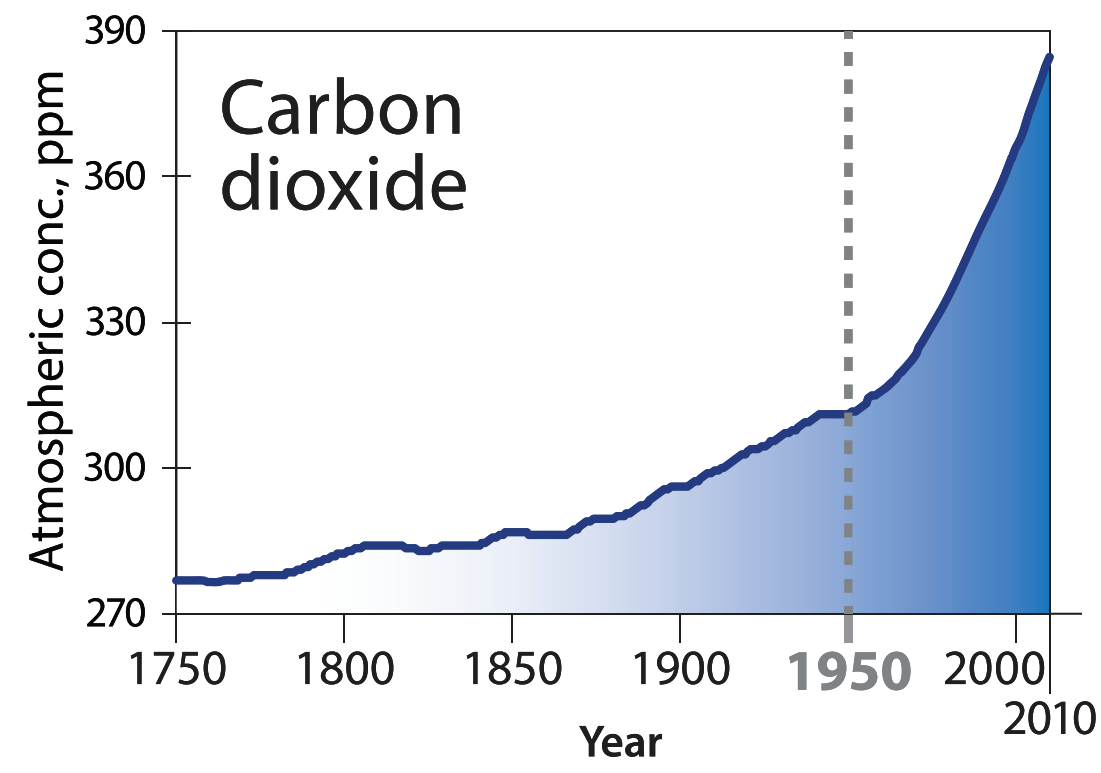
DUBAI PATHWAY
CFCs HFCs

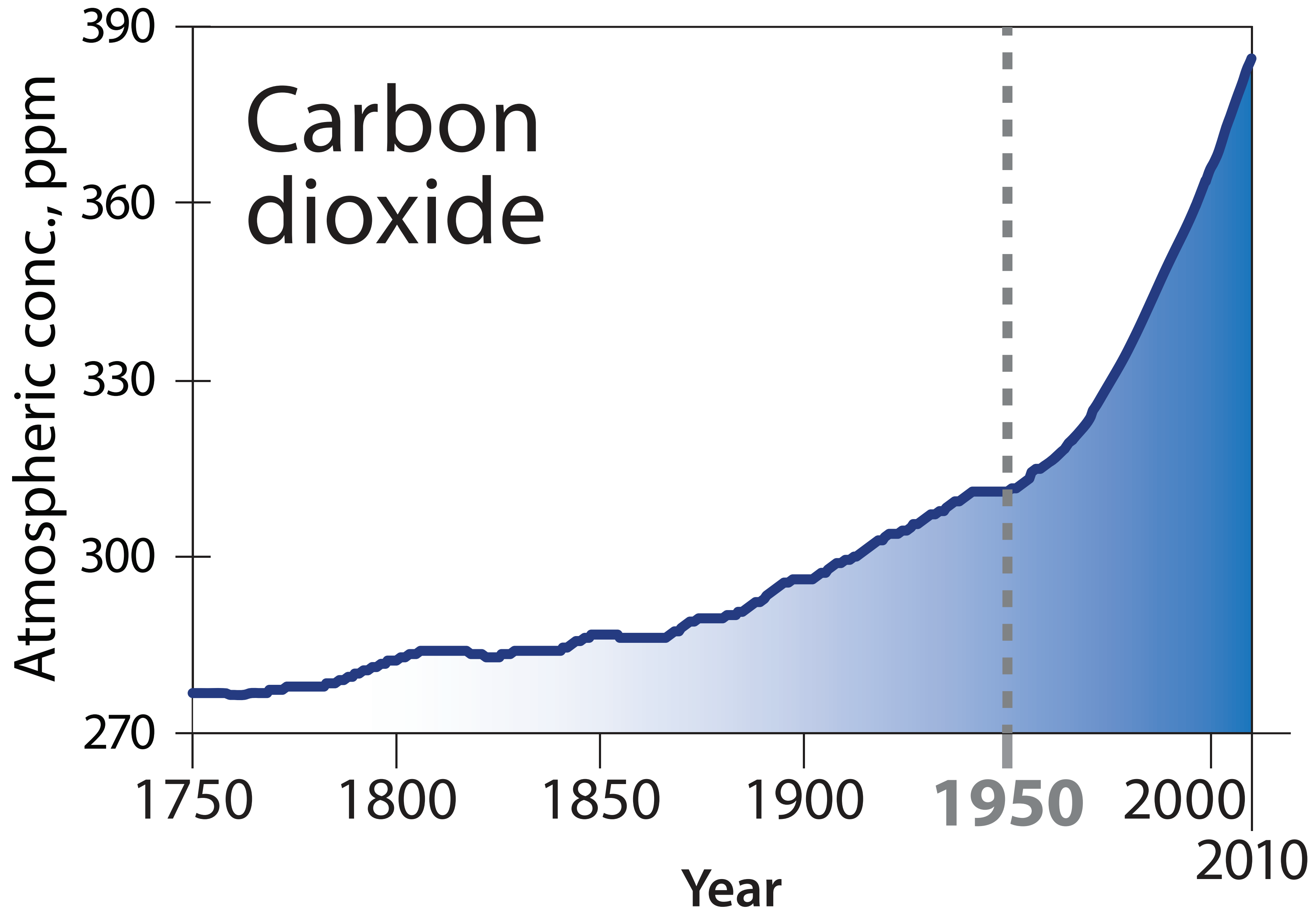


UNDP

WORLD

ZAMBIA





Nations Unies

Conférence sur les Changements Climatiques 2015

COP21/CMP11

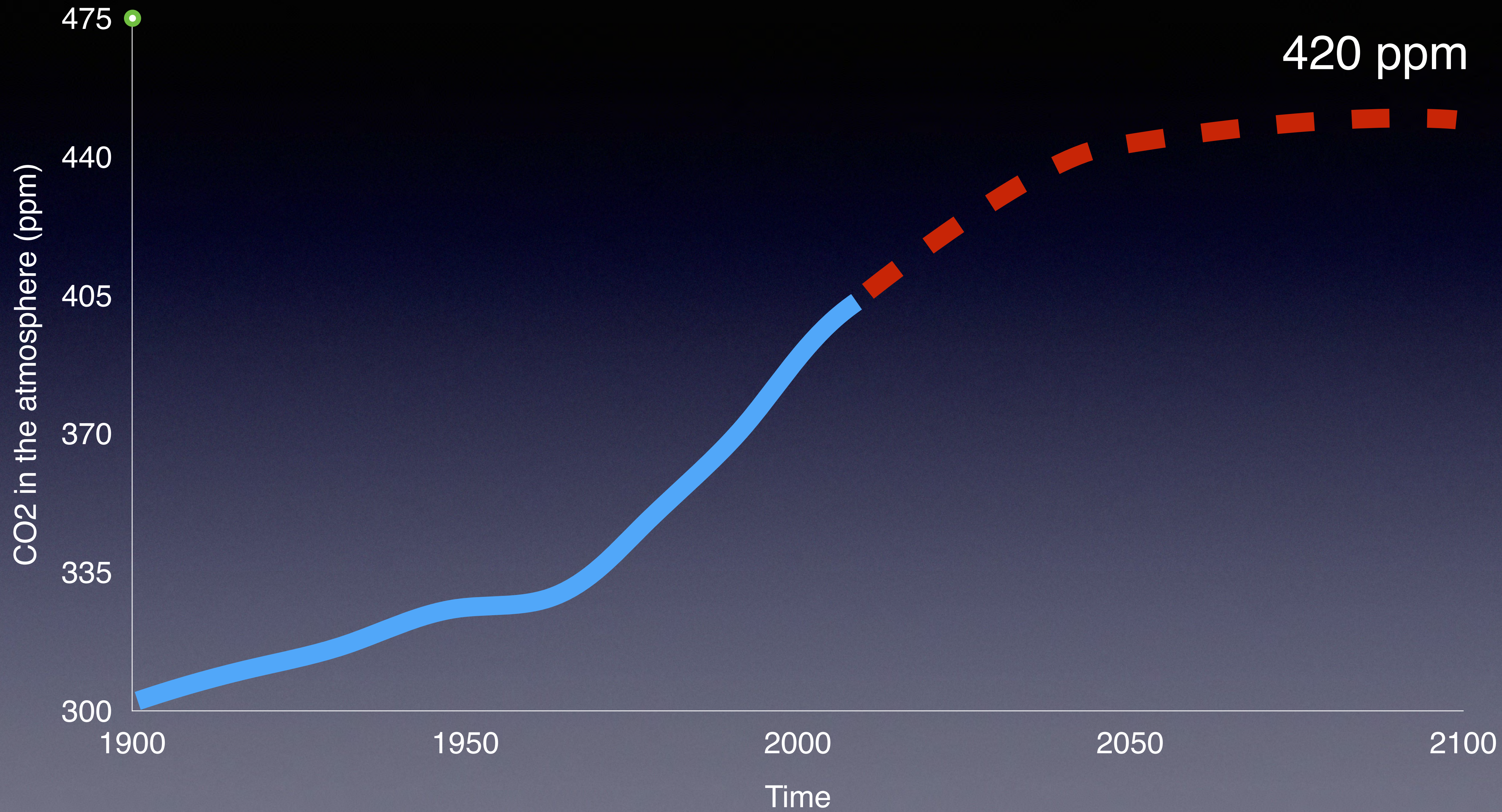
Paris France

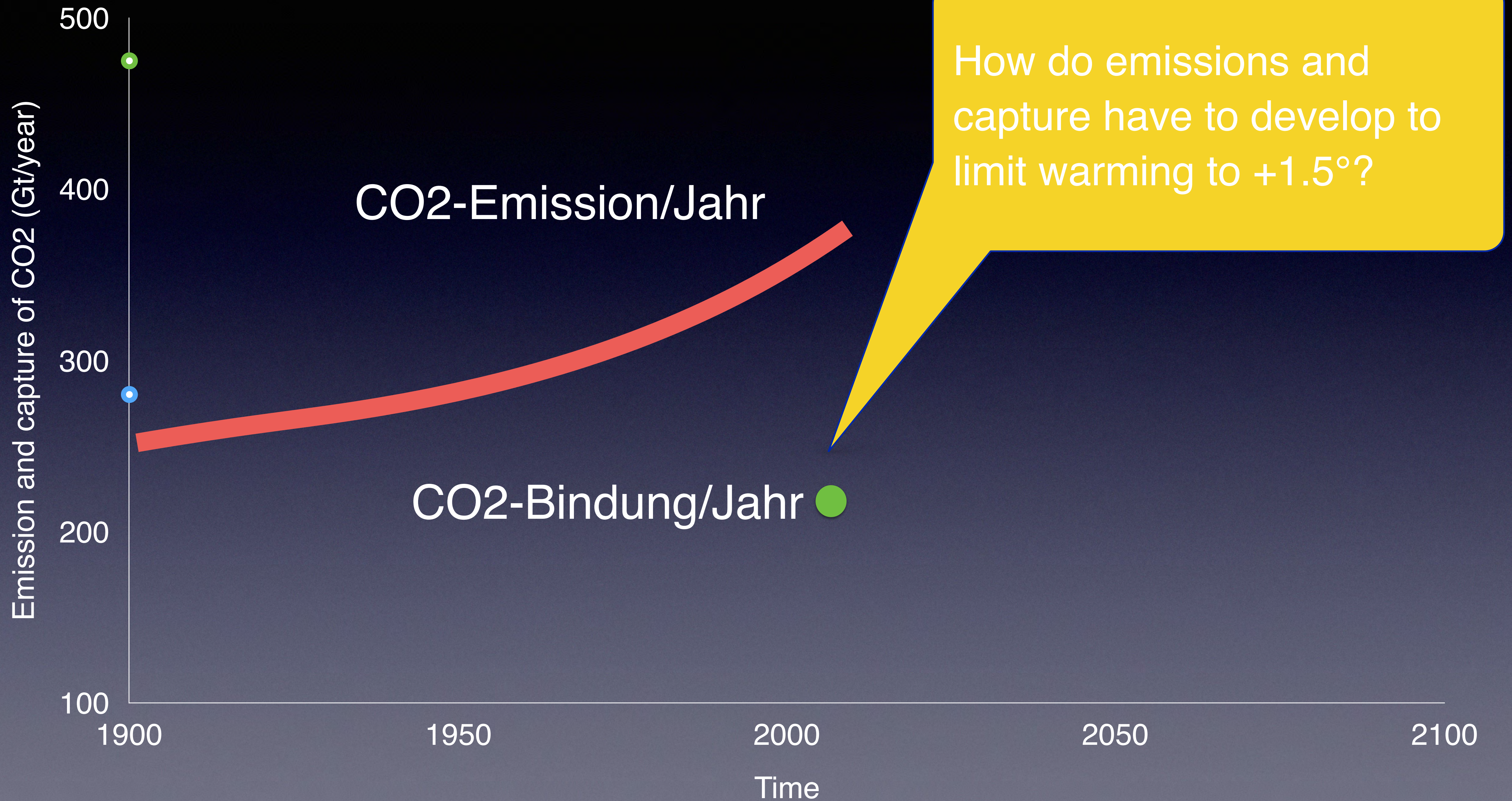


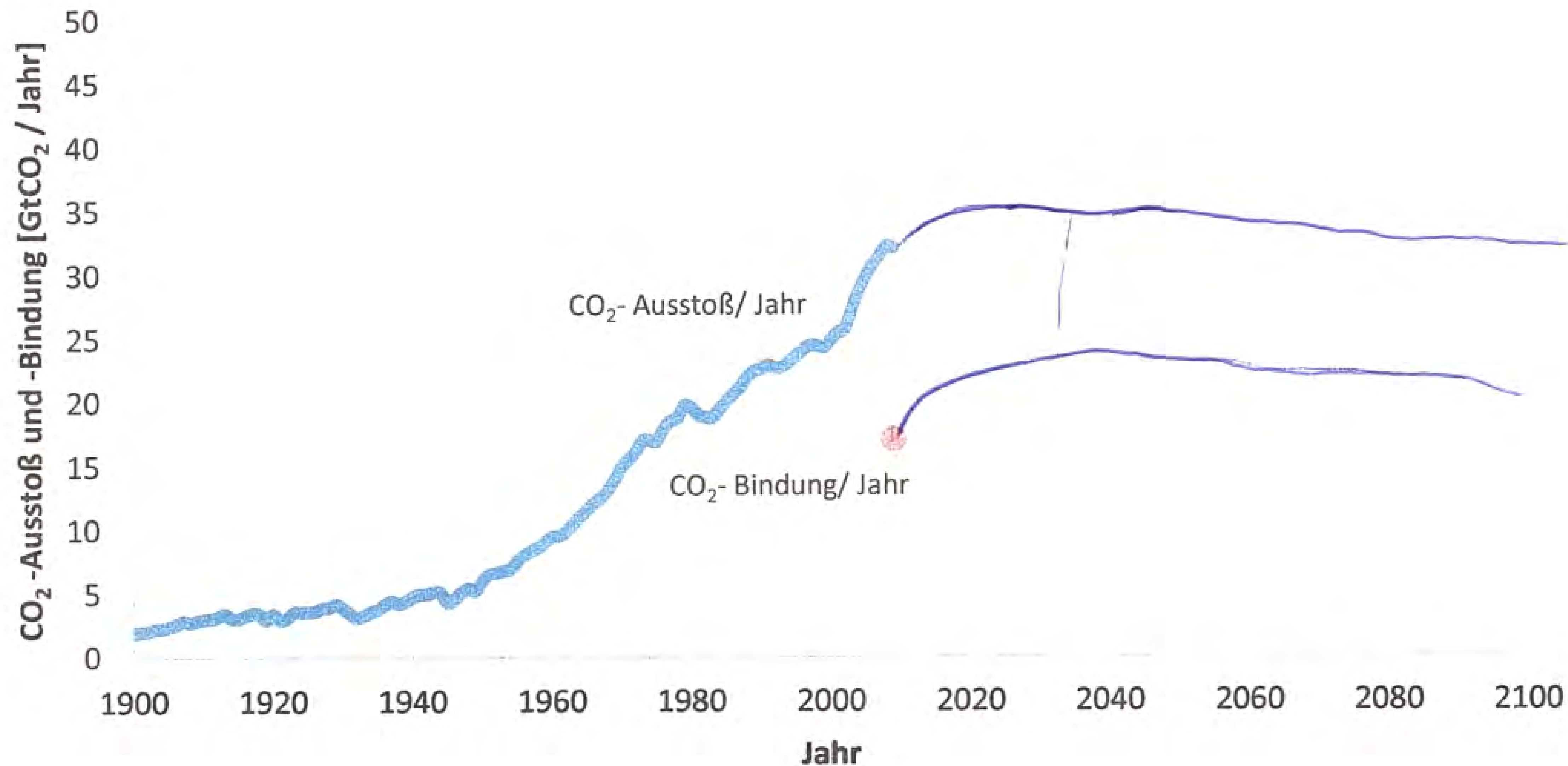
SECRETAIRE EXECUTIVE CCNUCC

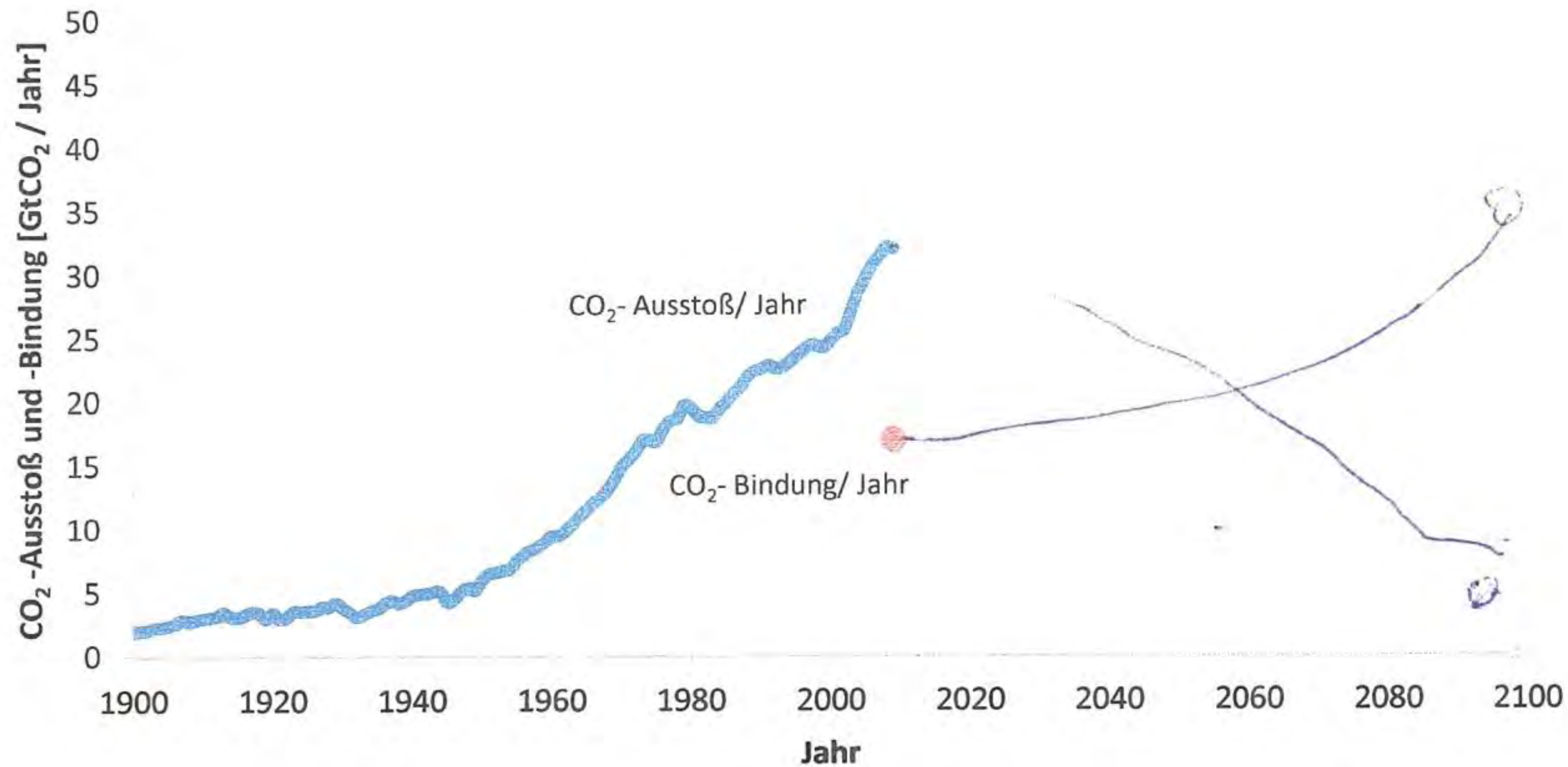
PRESIDENT

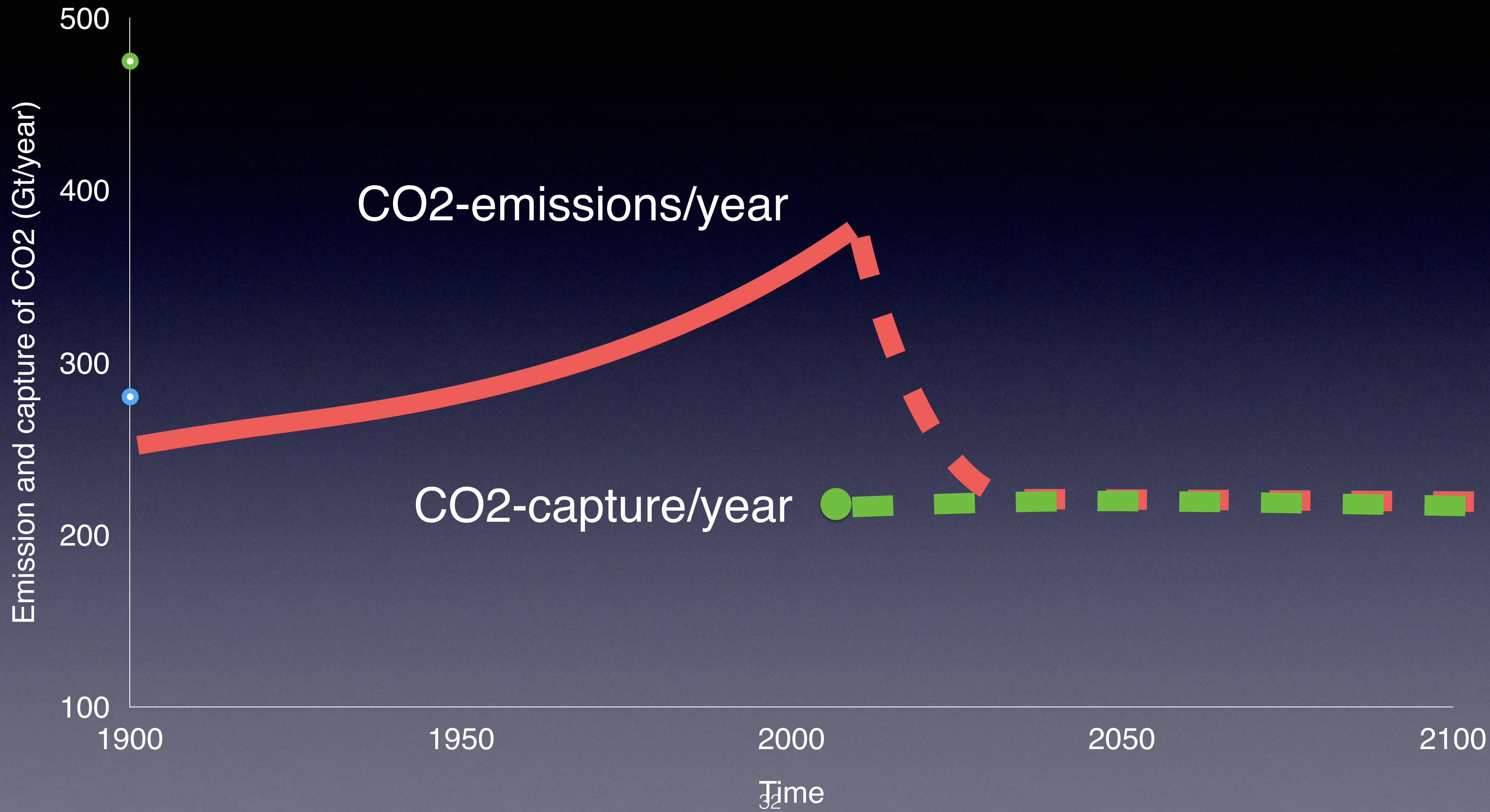
SECRETAIRE





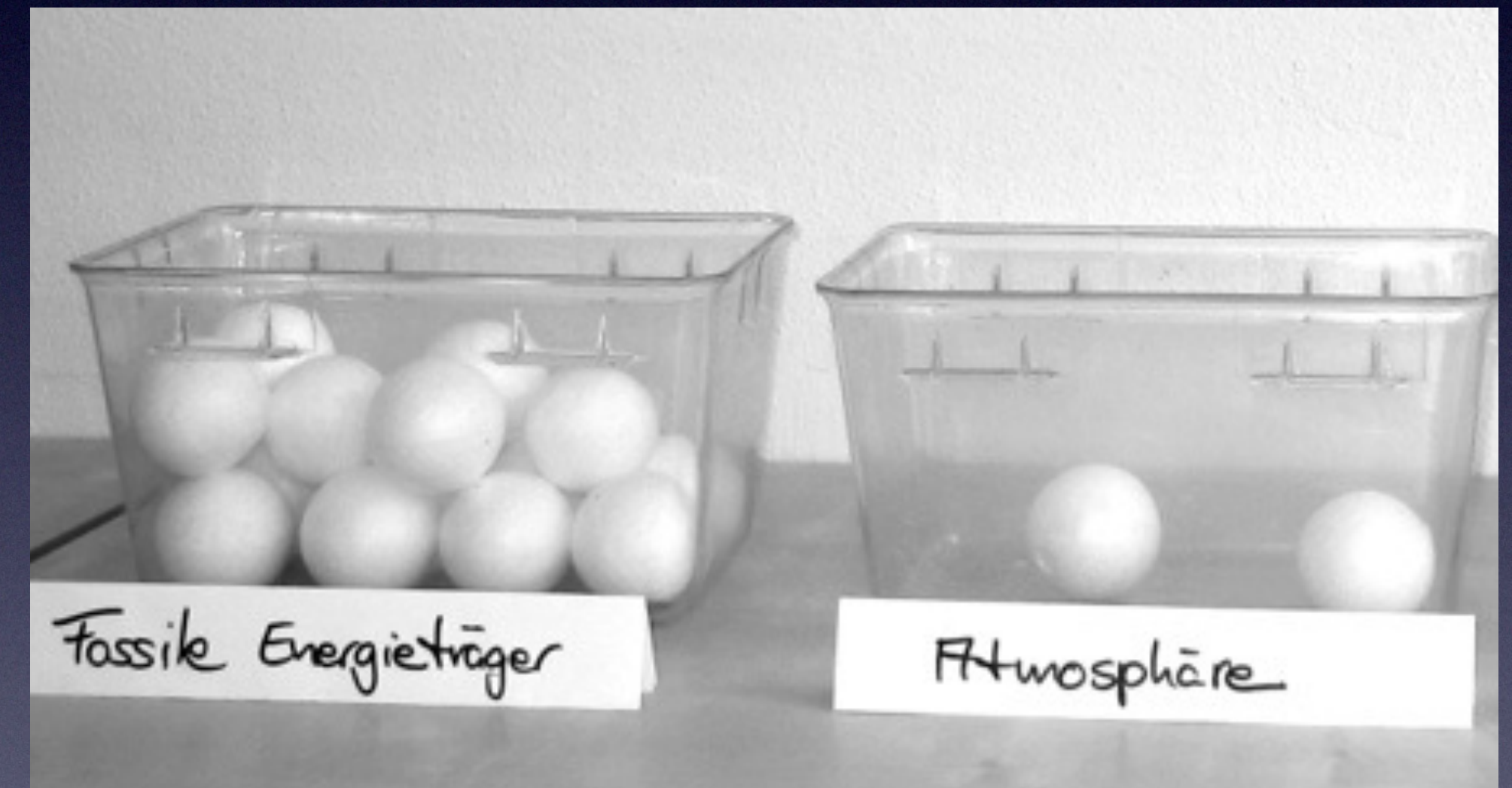
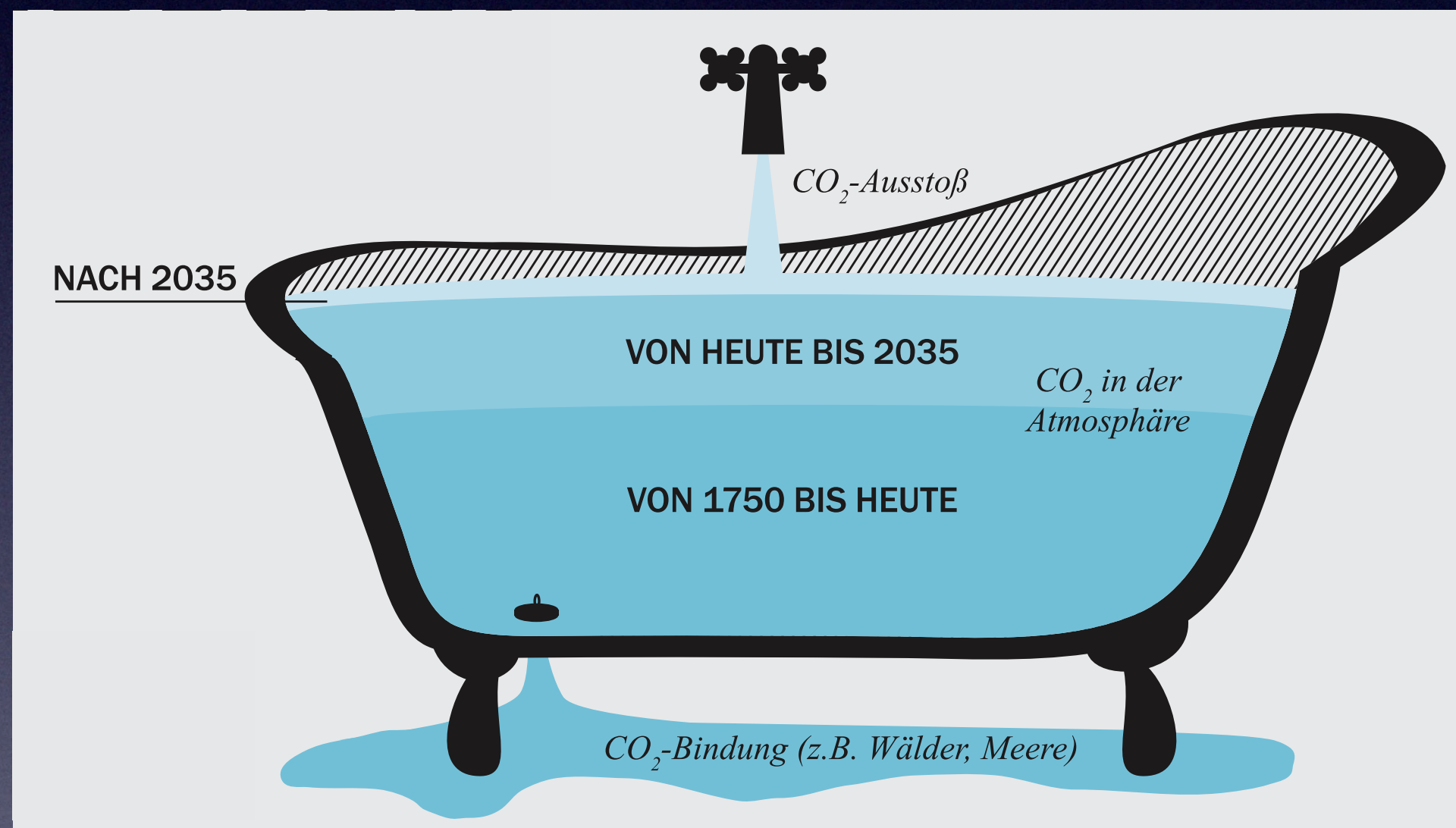


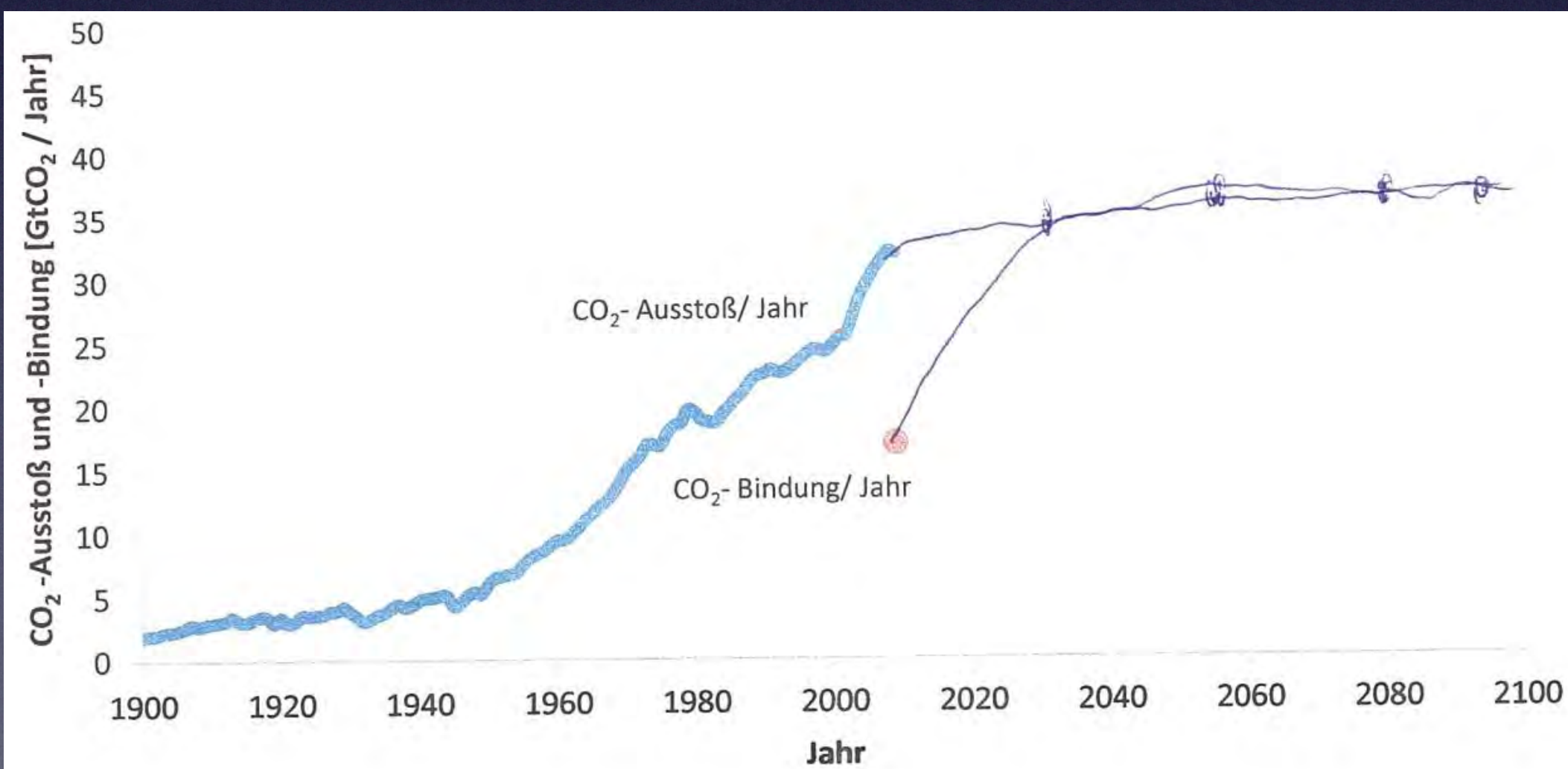
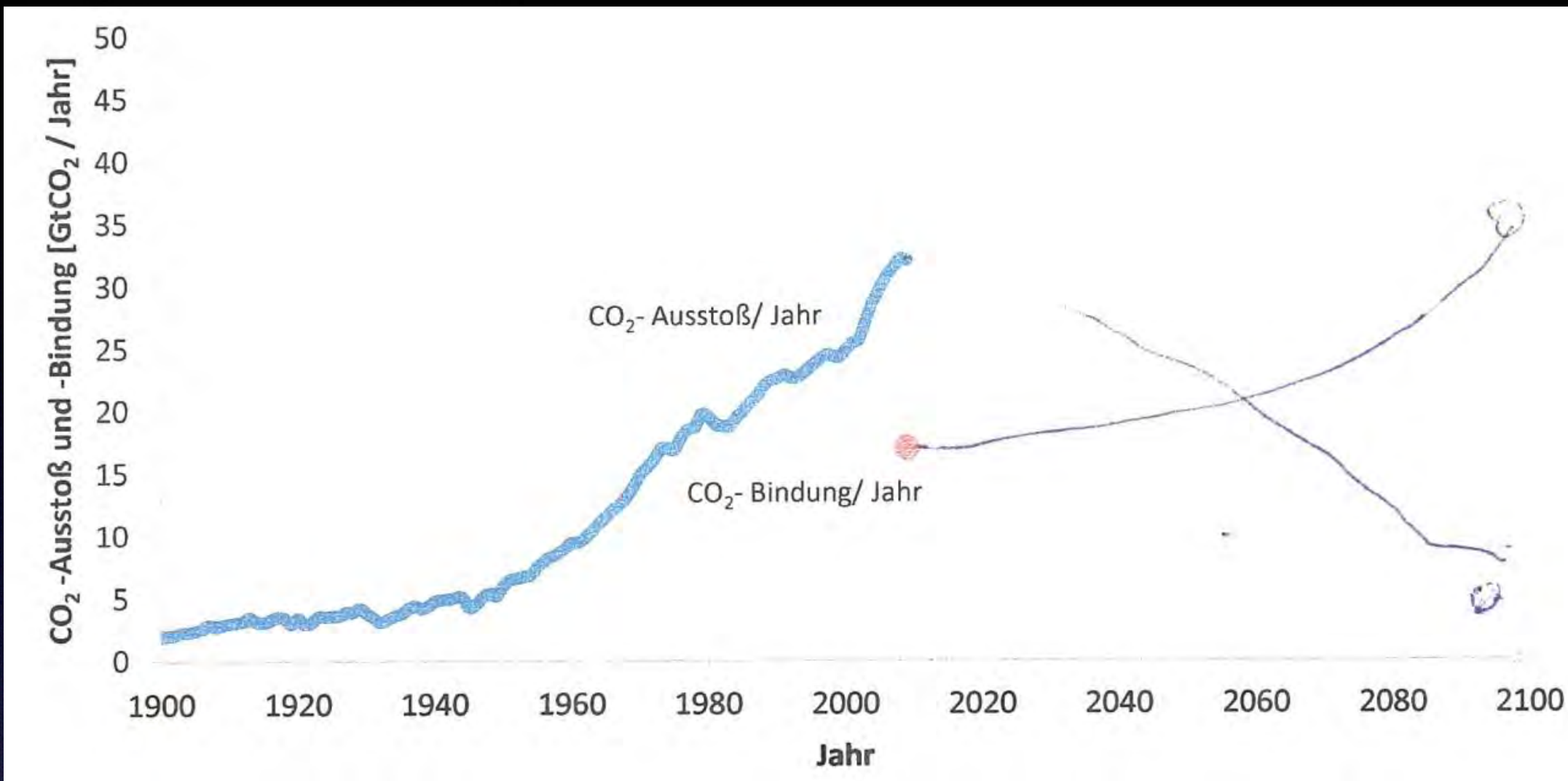




84 %

of highly qualified students violate
the principle of mass conservation





before

74%

24,7%

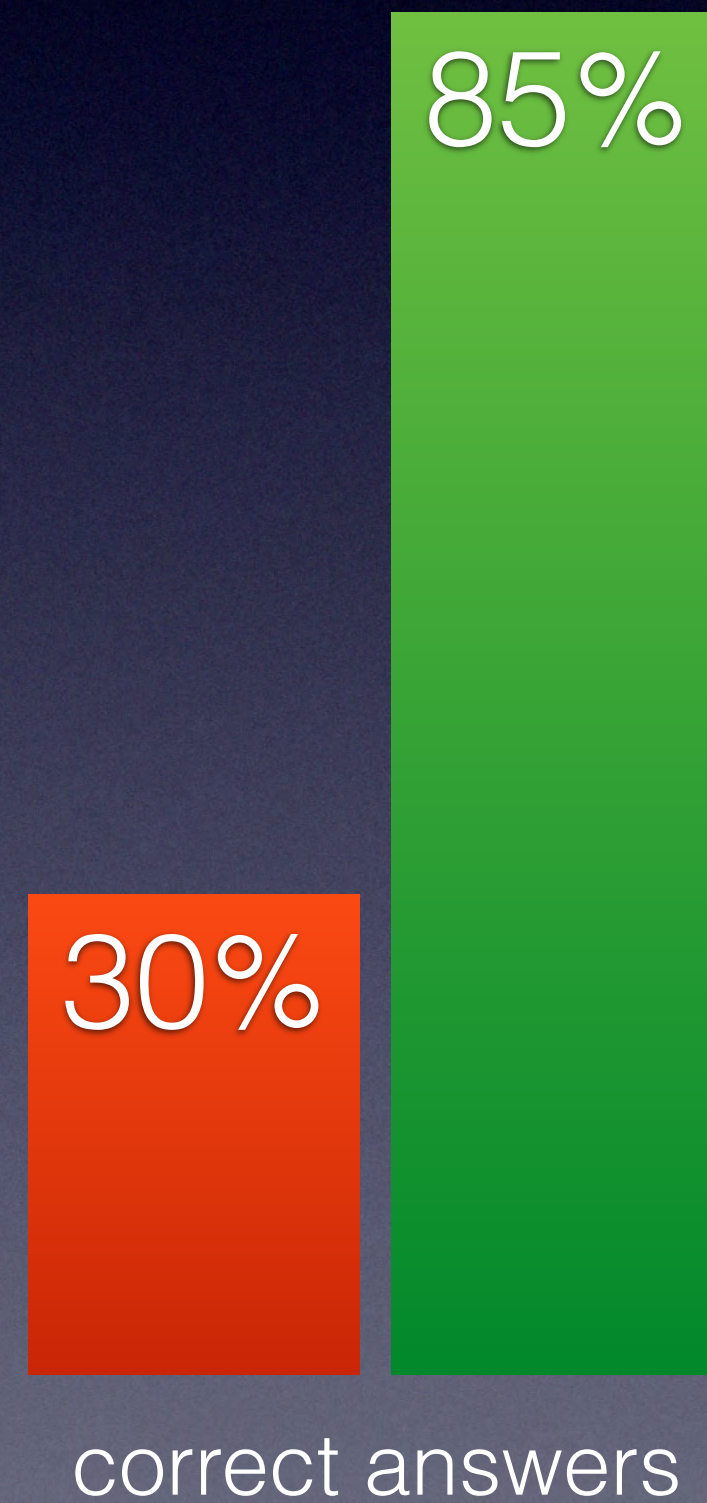
correct answers

n=472

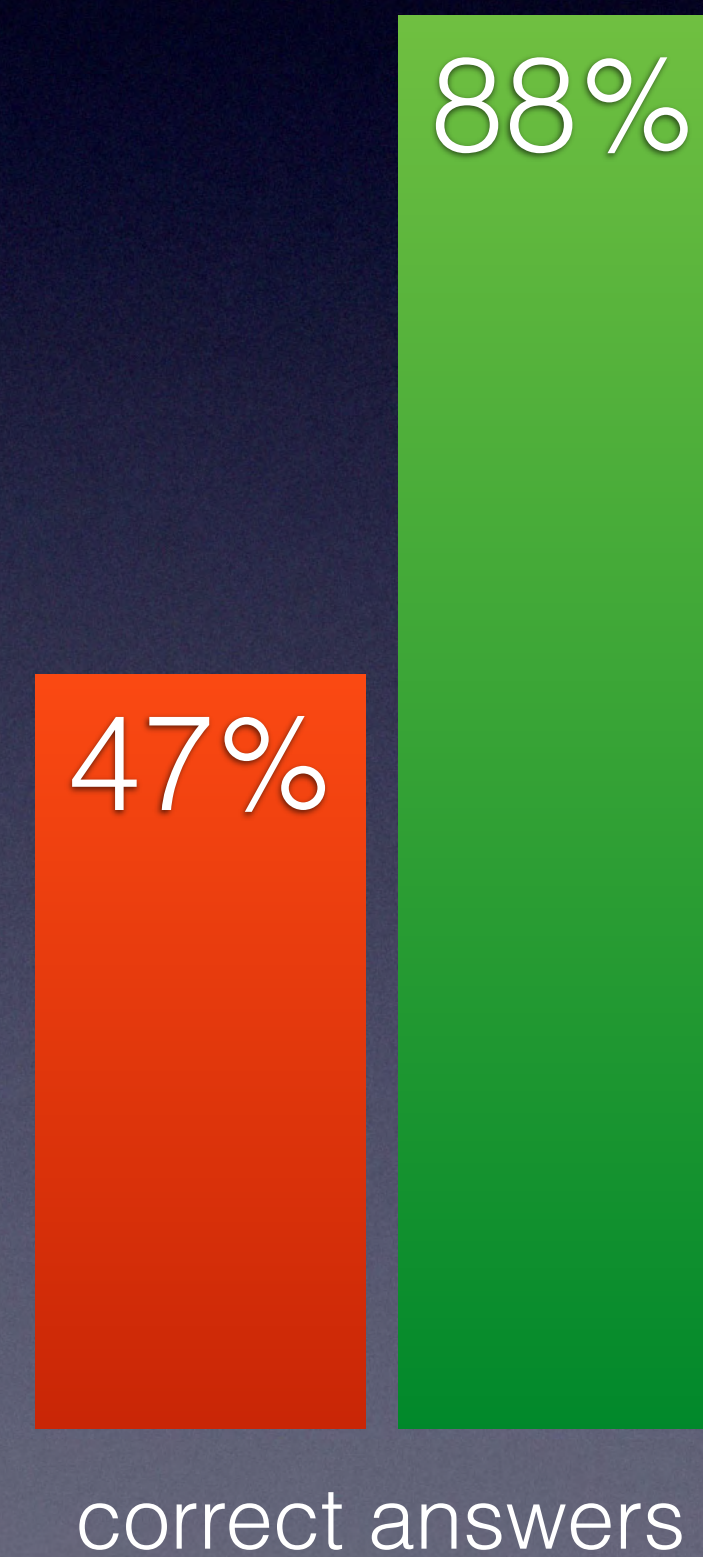
science



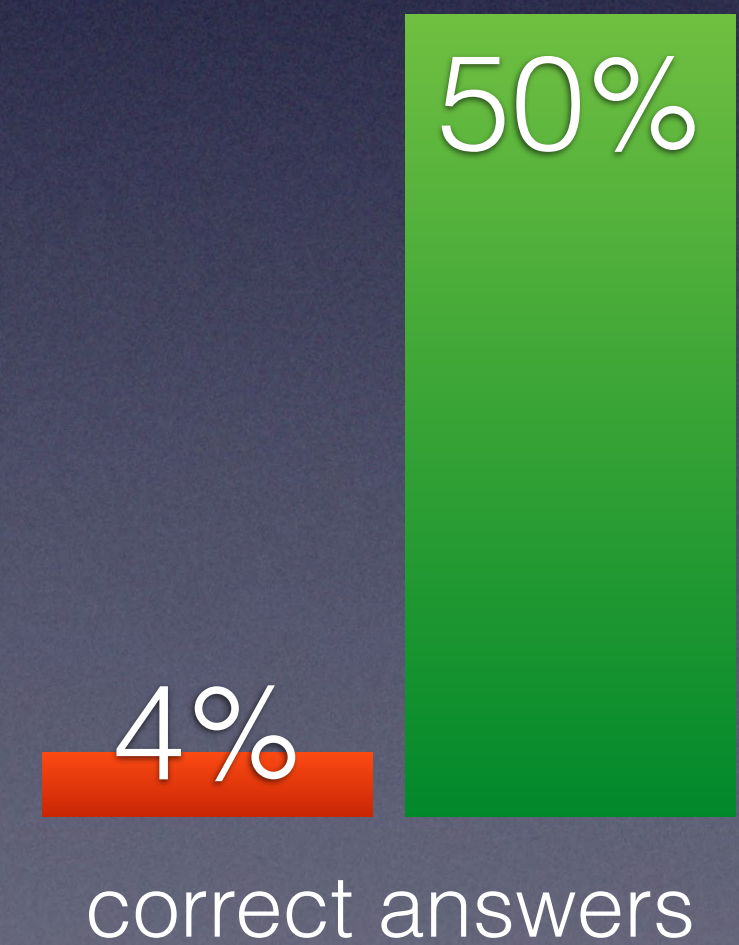
arts



music



economy



EMBODIED COGNITION AND SSI

„The transport of food from countries far away causes CO₂. And this causes the greenhouse effect. [...]

I will always buy strawberries out of season, because the import and export of food is natural: Strawberries are imported from Spain to Germany. And the economy lives upon the import and export. Thats no problem.“



EMBODIED COGNITION AND SSI

„The transport of food from countries far away causes CO₂. And this causes the greenhouse effect. [...]

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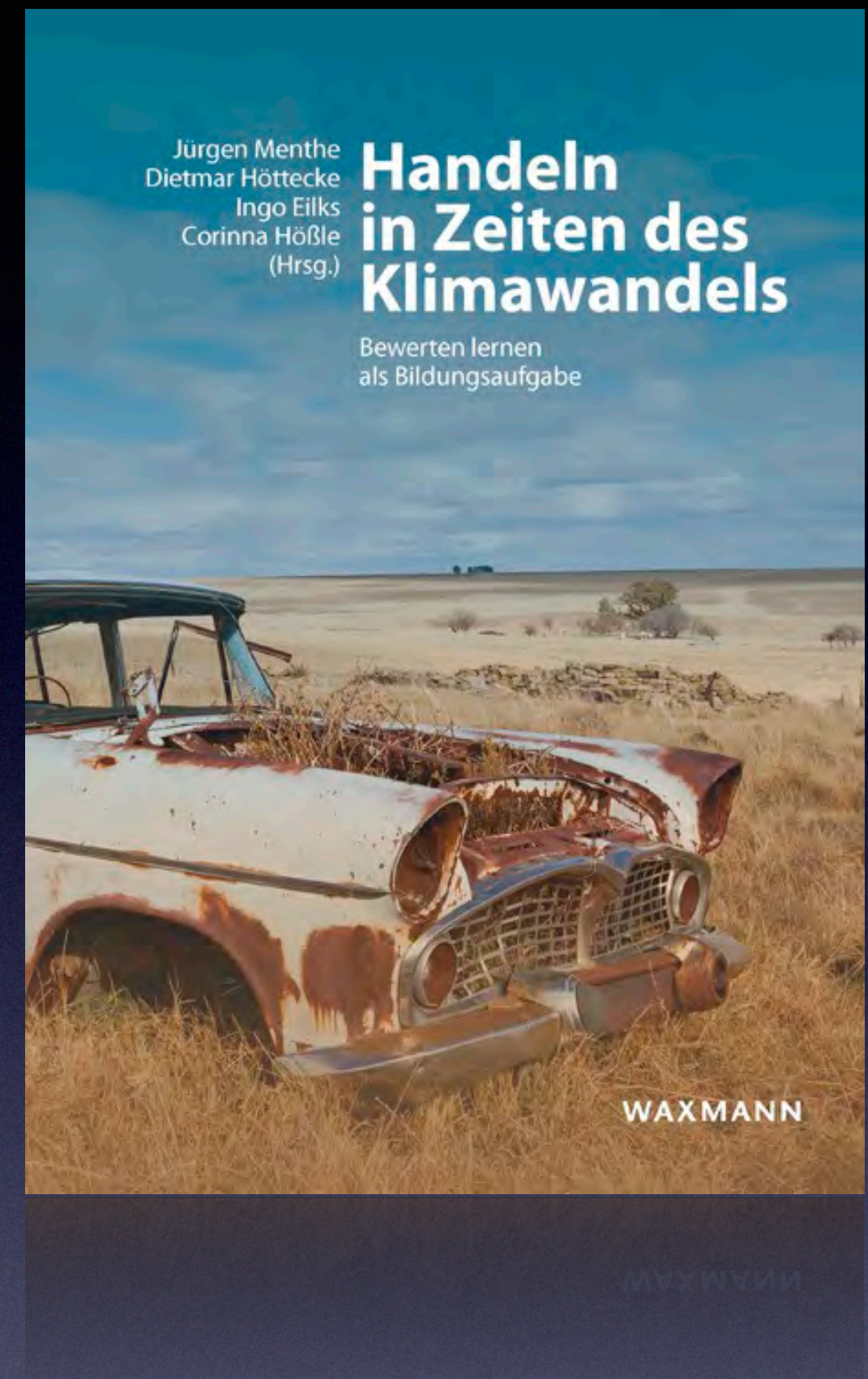


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Economy Is Organism

Import	Is	Nutrition
No import	Is	Starving
Import	Is	Natural



DOW JONES, S&P 500, NASDAQ
Dow Jones springt wieder über 25.000 Punkte

Der US-Leitindex erobert am Donnerstag die psychologisch wichtige Tausendermarke zurück. Bei den Einzelwerten stand Cisco im Fokus. [mehr...](#)

Teilen Merken



Neue Zürcher Zeitung

Menü Startseite > Finanzen

Hilfe Kontakt Abonnemente

Meine NZZ

ERKLÄRT

Der Bitcoin steigt nach dem Absturz wieder auf 10'000 Dollar – 14 Antworten zum Hype

TECHNIK VON GESTERN

Banken droht der Infarkt

Viele Geldhäuser arbeiten Finanzexperten zufolge mit veralteter Technik. Mit Fintechs und Internetgiganten wie Amazon bringt sich die Konkurrenz bereits in Stellung. Den Banken bleibt wenig Zeit, sich zu modernisieren. [mehr...](#)



28.12.2017

ANLEGEN 2018 - TEIL 3 ANLEIHEN INDUSTRIELÄNDER

Nur noch Magerkost

Es wird immer schwieriger, Geld mit Anleihen aus Europa und den USA zu verdienen. Im Handel drohen leichte Kursverluste. Kaufen und Halten bis zur Fälligkeit lohnt sich aber noch nicht. Was Anleger 2018 erwartet. [mehr...](#) Von Andrea Cünnen



23.12.2017

RÜCKVERSICHERER

Wieso Hannover Rück die Munich Re schlägt

Der MDax-Konzern aus Niedersachsen überrascht im Naturkatastrophen-Jahr 2017 positiv und häuft mehr Gewinn als der größere Rivale aus München an. Der Rückversicherer hilft seinem Glück allerdings auch nach. [mehr...](#) Von Carsten Herz



ANZEIGE Finanzmarkt Aktienmarkt: Dax erholt sich wieder

Entdecken Sie Ihr Geld neu. Lesen Sie mehr zu aktuellen Themen.

F.A.Z.-INDEX 2.485,32 +0,95 % DAX 12.451,96 +0,45 % EUR/USD 1,2409 -0,73 % DOW JONES 25.200,37

Frankfurter Allgemeine Finanzen

AKTIENMARKT

Dax erholt sich wieder

AKTUALISIERT AM 12.02.2018 - 19:58

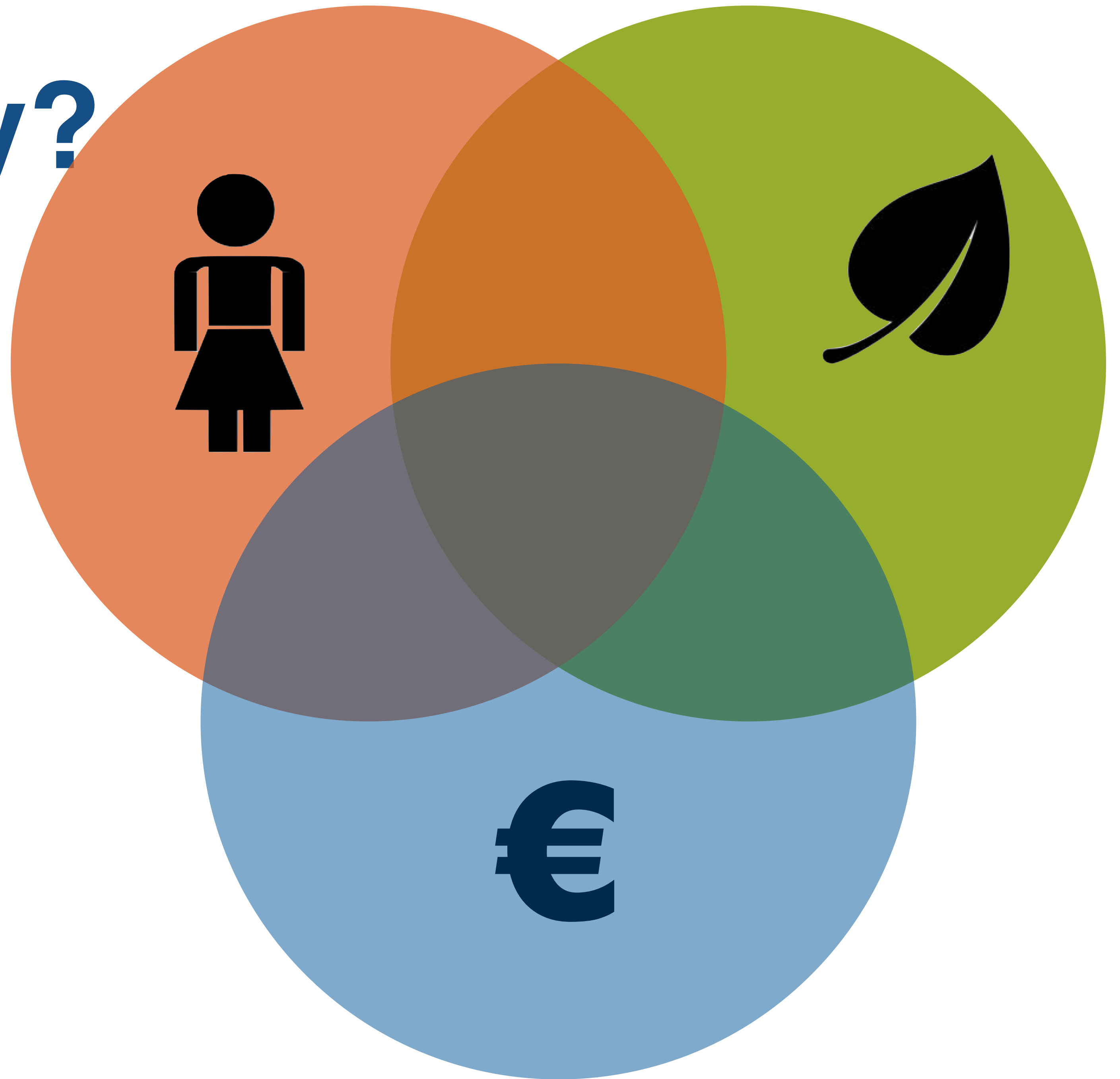




Sustainability?

„...development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

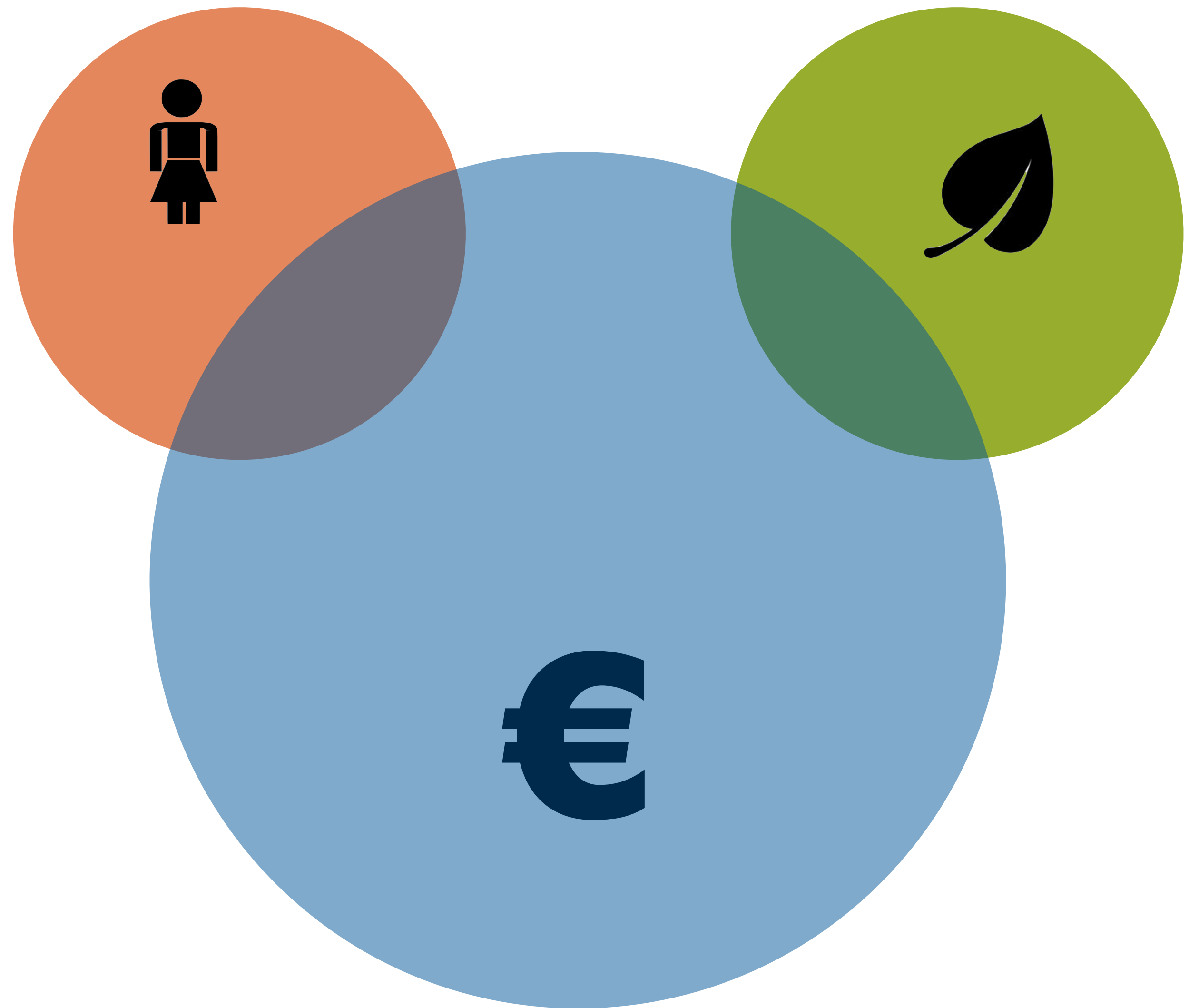
Brundtland commission (1987)



Sustainability?

„...development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Brundtland commission (1987)



Sustainability!

„...development that
meets the needs of the
present while
safeguarding Earth's
systems, on which the
welfare of current and
future generations depend

