

Higher education, science and the climate crisis

CGHE Webinar Series

The contributions of higher education 3: Global ecology and the common good

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“Historically, science was a rather marginal activity of human societies. Today, the future of humankind depends also on its insights and offers for solutions.”
(Renn, 2019)

- Which contributions to HE and science make to addressing climate change?
- Why is it so difficult for the sector to live up to its potential?
- What else can be done?

The challenge

▪ Urgency of climate crisis

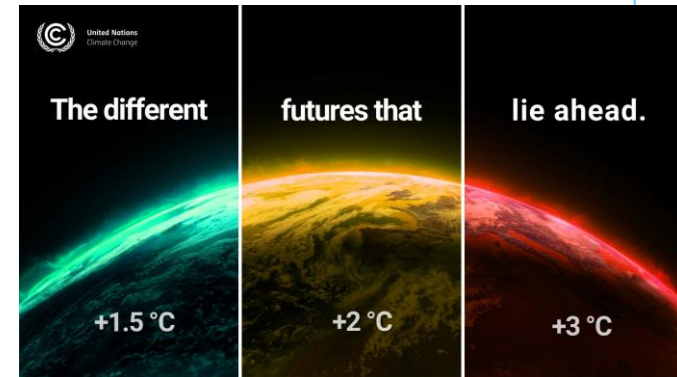
- Paris target most likely not kept (6th IPCC Assessment Report: Physical Science Basis)
 - > self-reinforcing feedback loops probable not avoidable any more
- Yet: Both preventing further and adapting to climate change

▪ Responsibility of HE

- Anthropocene: human impact upon (eco-)geological development of earth
- impact enabled by scientific progress

▪ **‘Meta-contribution’ of HE and science**

- transformative task, more than contribution to functioning of system
- leading encompassing transformation in production & consumption patterns, change of behaviours and attitudes



Theoretical departure points

▪ Global common/collective goods

- Both (stable) world climate and world science are global/collective common goods
- Key position of science to function as ‚world mind‘ in global public and political spheres

▪ Social embeddedness

- Janus-faced role of HE and science: part of the problem and of the solution
- Dependence & social acceleration: hamster wheel and “shrinking of the present”

-> Critical self-examination and functional autonomy as prerequisite for change



Source: Zoran Djordjijevic from Noun Project

Sources: Marginson, S. (2020). Public and common goods: Key concepts in mapping the contributions of higher education. In C. Callendar, W. Locke, & S. Marginson (Eds.), *Changing Higher Education for a Changing World*. Bloomsbury Publishing Plc.
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HE, science and climate change: Contributions & actors

■ Science/Research

- Measuring and explaining
- Mitigation
- Adaptation

■ Education

- Curriculum development
- Education for behaviour change
- Public education

■ Third mission & public debate

- Science and civil society
- Contested science and the public role of universities
- Science, COVID-19 and the climate crisis

■ Consumption and campus management

- Universities' climate footprint
- Travel for education and research
- Adapting campuses

■ Actors' roles

- University leaders and institutions
- Self-governing bodies
- Rankings
- Governments

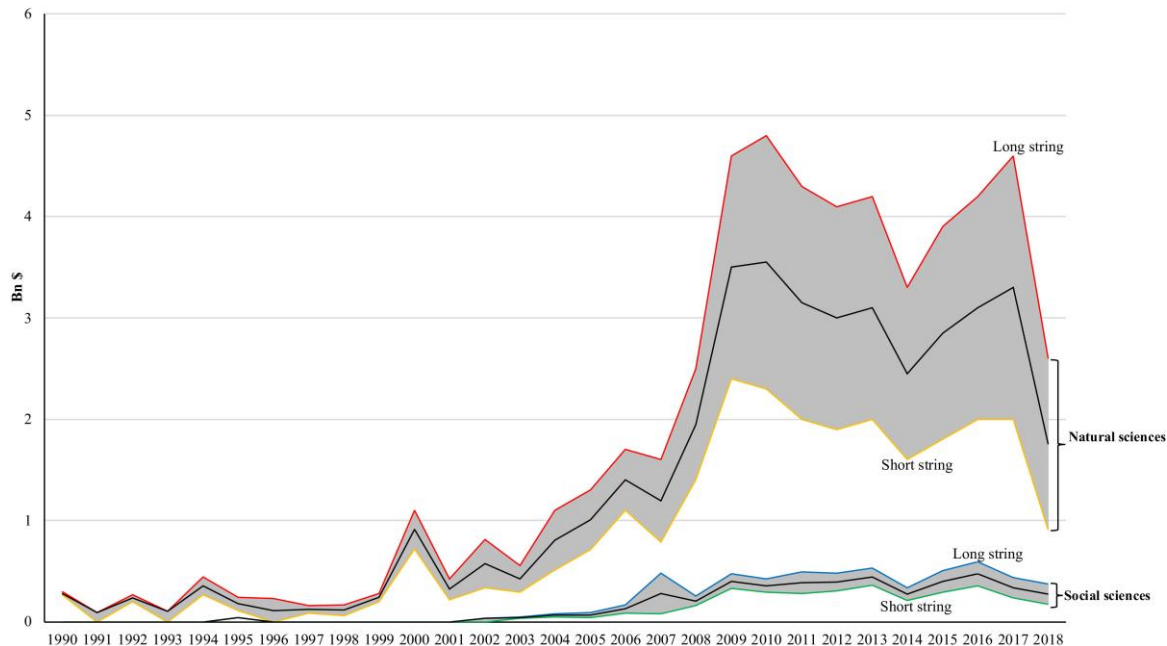
Example of contributions: Science/Research

- **3 major contributions of science and research towards climate crisis:**
 - Scientific assessment
 - Mitigation
 - Adaptation

- **Climate science and the global governance of the climate crisis**
 - IPCC (Intergovernmental Panel on Climate Change)
 - UNFCCC (United Nations Framework Convention on Climate Change)
 - > Dysfunctional nexus? Translation into national policies?

Example of contributions: Science/Research

Competitive funding for climate research, OECD, 1990-2018



Climate science heavily underfunded

- Only 2.4 - 4.6% of competitive research funding in the OECD was spent on research on climate change between 1990-2018.
- Of this, 10.3% to social sciences and
- 5.21% into social science research on mitigation

0.12% percent of all competitive research funding in the OECD went into social science research on how to mitigate the climate crisis.

Example of contributions: Science/Research

Table 1.
Top countries and funding bodies supporting social science climate research (based on the long search string, USD).

A. By country			B. By funding body		
Country	Projects	Bn \$	Organization	Projects	Bn \$
UK	1414	2.1	European Commission	1087	2.6
US	2979	1.8	US National Science Foundation, Directorate for Education & Human Resources	412	0.460
Germany	747	1.7	UK Engineering and Physical Sciences Research Council	197	0.38
France	464	1.6	Research Council of Norway	563	0.36
Spain	367	1.4	US National Science Foundation, Directorate for Social, Behavioral & Econ. Sciences	720	0.18
Netherlands	488	1.2	US National Science Foundation, Office of the Director	75	0.18
Italy	423	1.2	European Research Council	69	0.16
Belgium	448	1.1	US National Science Foundation, Directorate for Geosciences	347	0.15
Sweden	656	0.9	US National Science Foundation, Directorate for Engineering	225	0.13
Norway	700	0.85	US National Institute of Food and Agriculture	517	0.11

Source: Overland, I., & Sovacool, B. K. (2020). The misallocation of climate research funding. Energy Research & Social Science, 62, p. 3.

Challenges ahead/Discussion

- Address black spot: HE & science's own climate foot print
 - > (unify) documentation, race to zero
- Radically strengthen transformative & creative functions of HE
 - > realise expressive function (McCowan 2020)
 - > functional/financial autonomy and academic freedom
- Reconsider relationship science – politics of climate change
 - > UNFCCC-IPCC linkage, national-level interaction, self-image vis-à-vis public sphere
 - > need for more encompassing (not just individual) responsibility (Renn 2020)
- Strengthen global science & global HE and science community
 - > counteract isolationism wherever possible
 - > international (mapping of) climate action beyond ranking competition



Source: IStock