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Does the Anthropocene context change the way we write articles?

LIRSA

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When my colleagues gave me this task

Ups and downs: from questions to questions



Agenda

Part 1

- Context? What is specific to Anthropocene?
- Write papers?
 - Research object?
 - Point of view?
 - Research method?
 - To be published in which journal?
 - For which impact? Who are the readers?

Context

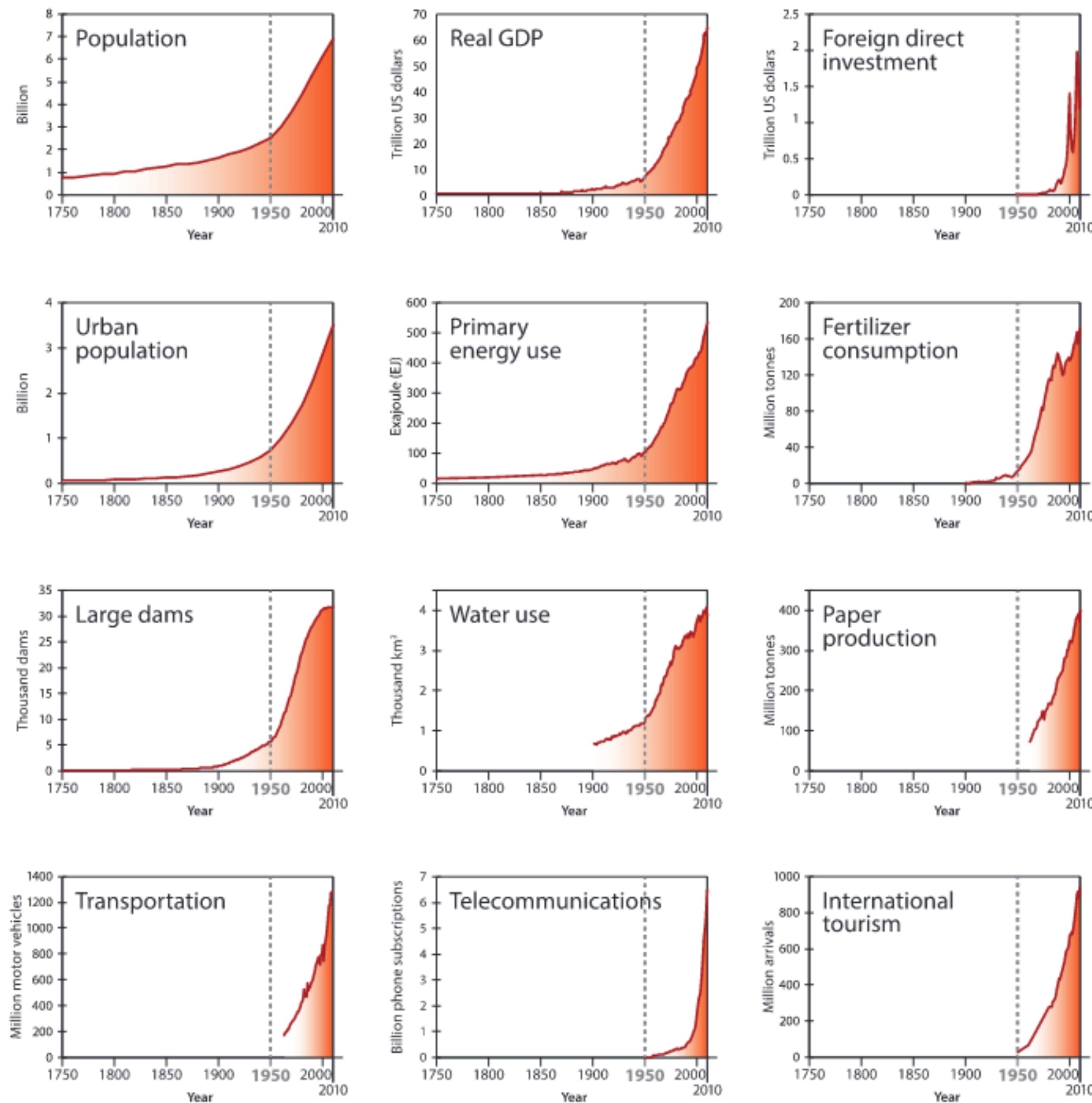
What is specific to Anthropocene?

- Anthropocene: « Anthropogenic system (period) or Anthropocene » (1922)
- Anthropocene definition: « ...Earth may have entered a new human-dominated geological epoch, the Anthropocene. » (Lewis & Maslin, 2015)
- When?
 - End of glaciation 1610?
 - Beginning of industrial revolution (steam engine Watt)1784?
 - First atomic bomb test (1945) ?
 - Great acceleration 1964 (Steffen et al., 2015)?

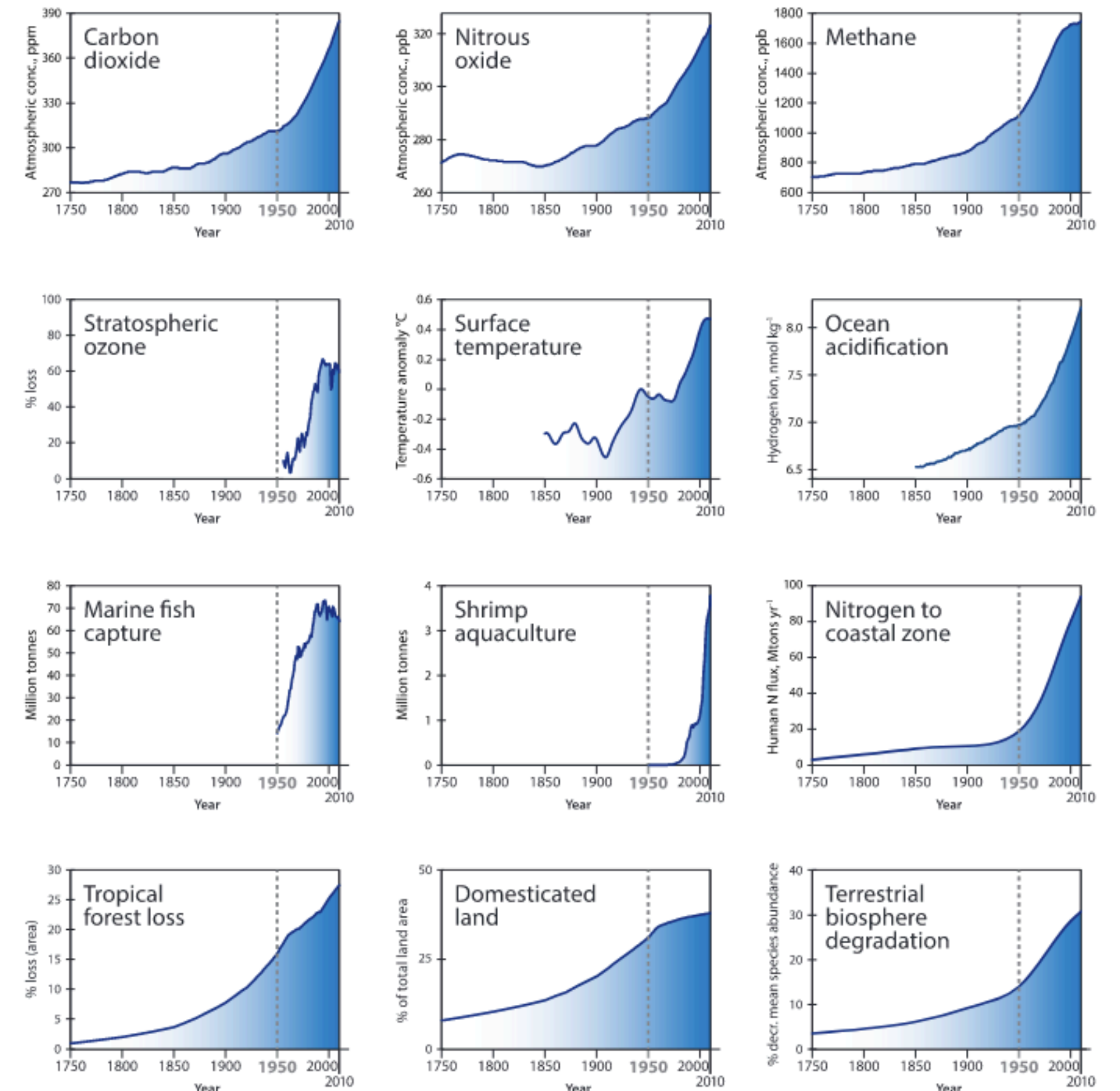
Context

What is specific to Anthropocene? Great acceleration (Steffen et al., 2015)

Socio-economic trends



Earth system trends



Research method?

Sustainable?

- Research impact on environment?
 - Labo1point5 (GDR CNRS): Greenhouse Gaz only?

Which journal?

Object = sustainable approach in ...

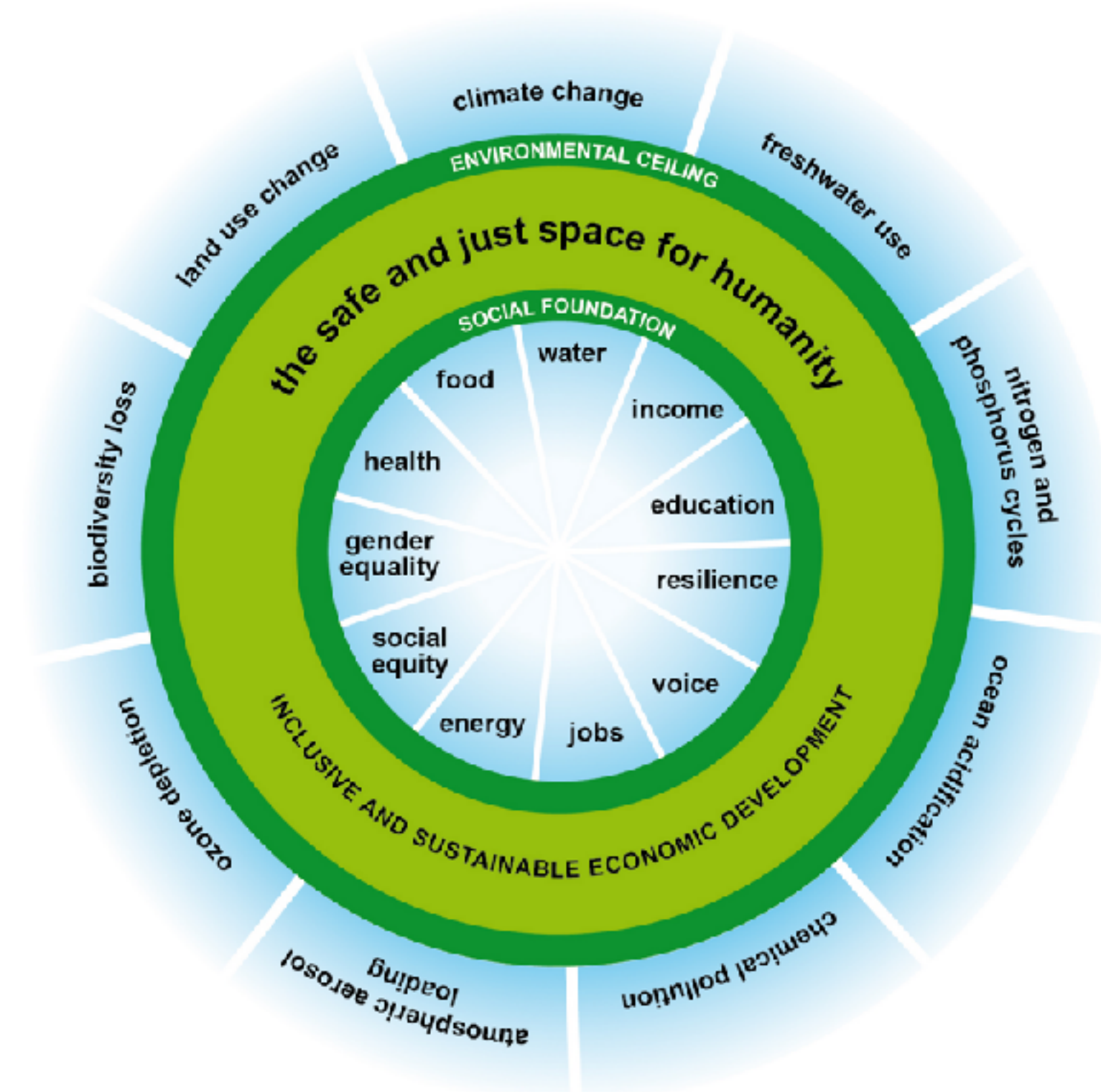
- Engineering design : « For all types of research, we have to address two issues: what is the impact of the research activities themselves on the environment, and what is the impact of the outcome of the research? » In « Research in Engineering design » (Reich & Finkbeiner, 2021)

	Guiding question	Research process	Research outcome
1	What are your submission's intended positive impacts on environmental, economic, and social sustainability?	Reduced material consumption for prototypes...	Greenhouse gas reduction, high qualified jobs
2	Are you aware of potential negative impacts on global environmental, economic, and social sustainability that could result from the further development of your research?	Solvent emissions	High water demand, use of special materials that are produced under critical working conditions
3	What is the basis for your answers? How confident are you that they are correct?	Personal intuition, personal knowledge, survey, evidence from the literature, measurements, ... Confidence is fair	Example A: LCA study performed, confidence high Example B: Qualitative expert judgment based on literature, confidence low due to knowledge gaps
4	How would you recommend your research be developed and improved upon in the future?	Reduce solvent emissions or replace the solvent, study the research process impact quantitatively	Example A: Perform a social LCA to better understand the social impact of the critical materials used Example B: Perform an environmental LCA or another form of quantitative screening

Which journal?

Object = sustainability ...

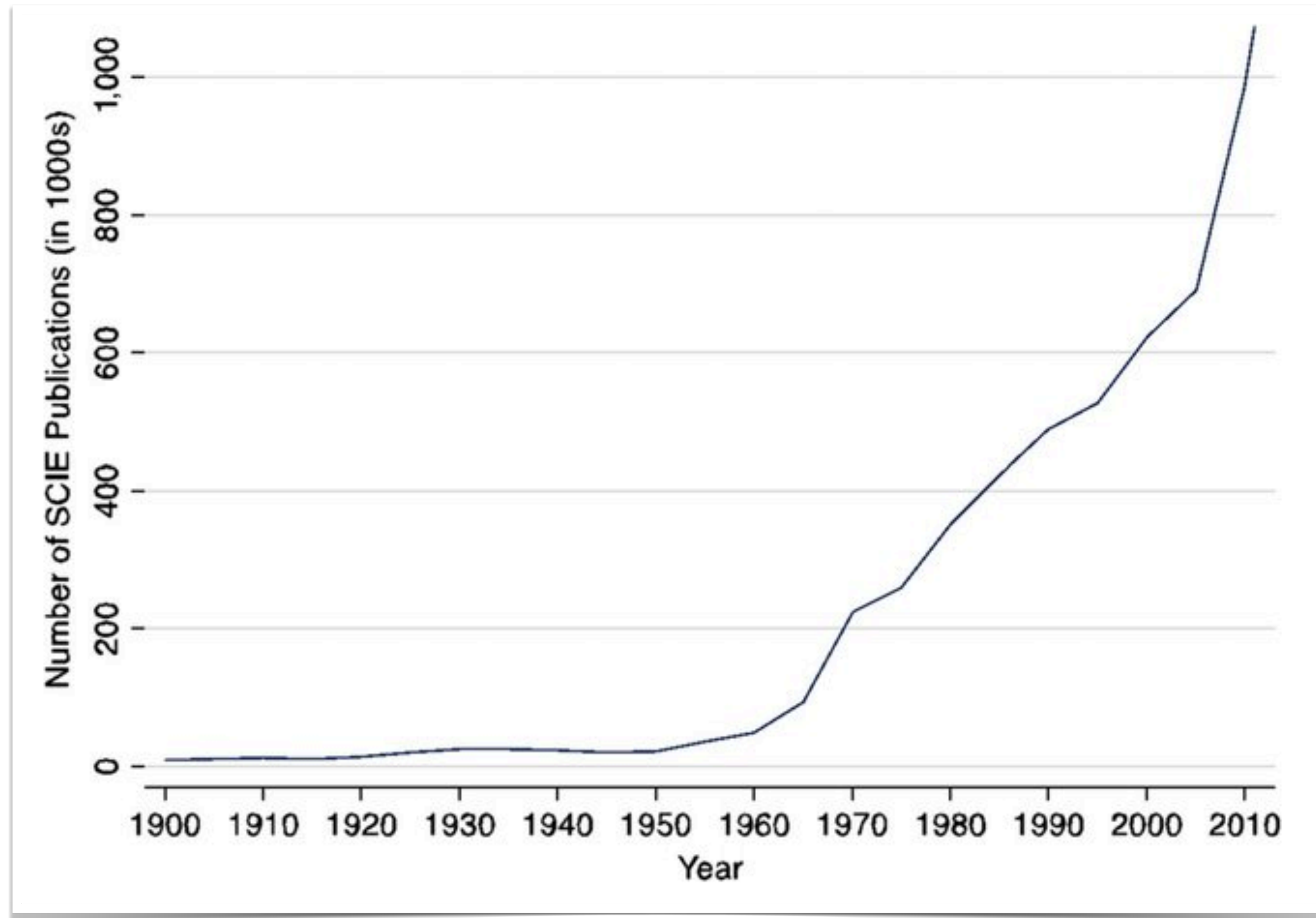
- Strong sustainability / weak sustainability?
- Is the objective to maximize the economic variable under ecological and social constraints?
- Is the objective to respect the planet limits?
- Is the objective to respect the UN objectives for sustainable development?



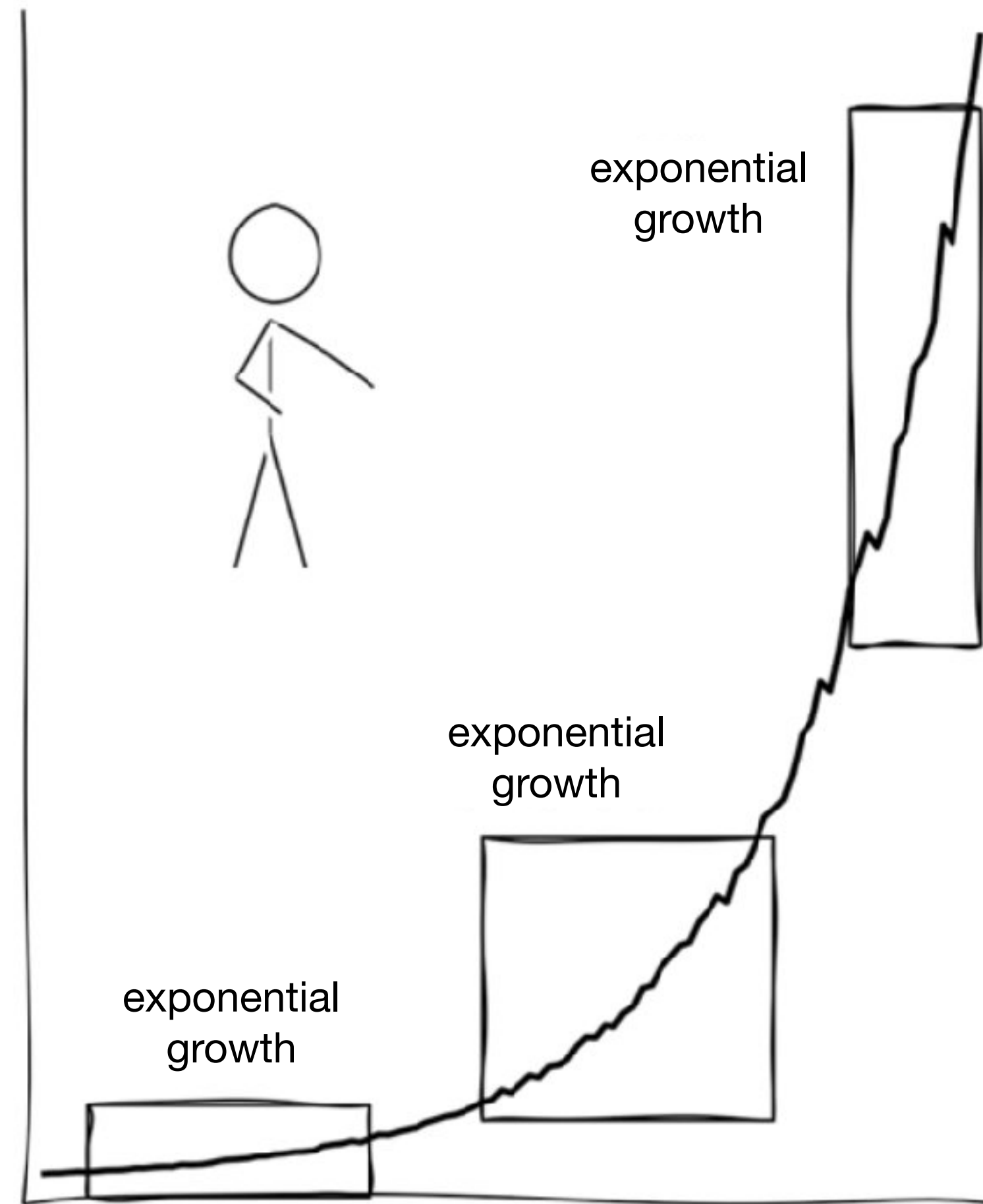
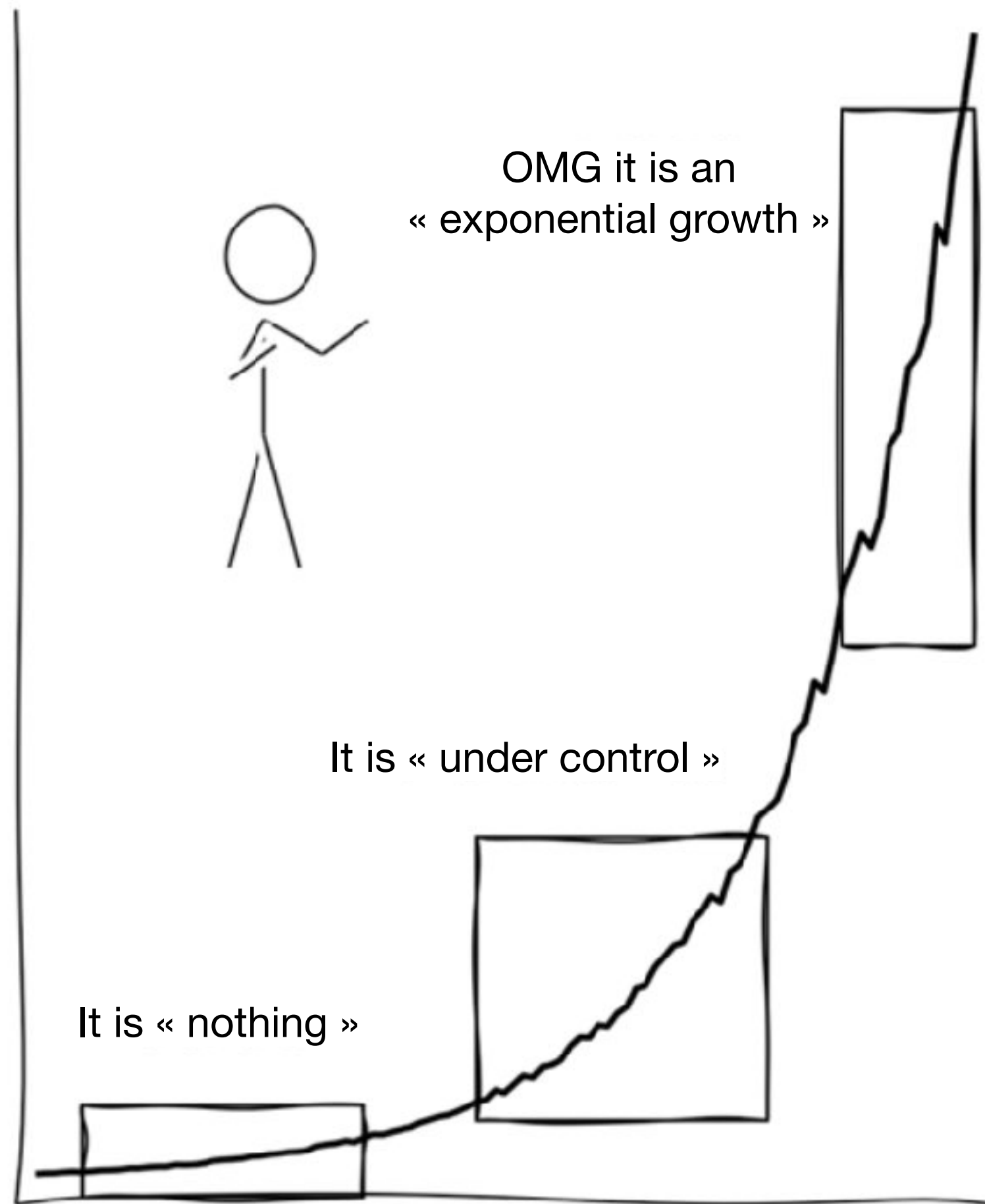
Part 2

Publications

Great acceleration: more papers, more journals, more citations,...



Exponential growth?



Is the research activity sustainable ?

Social foundation for research

- Researcher without fundings: poverty, hunger, health
- Problems of gender equality and diversity
- Not enough permanent jobs for researchers (impossible to work on long term problems and to have an academic freedom)
- Increasing inequalities among universities
- Sustainable development for communication only
- Academic freedom: researchers in jail or not allowed to express their research
- Evaluation: not only quantitative (DORA agreement)
- ...



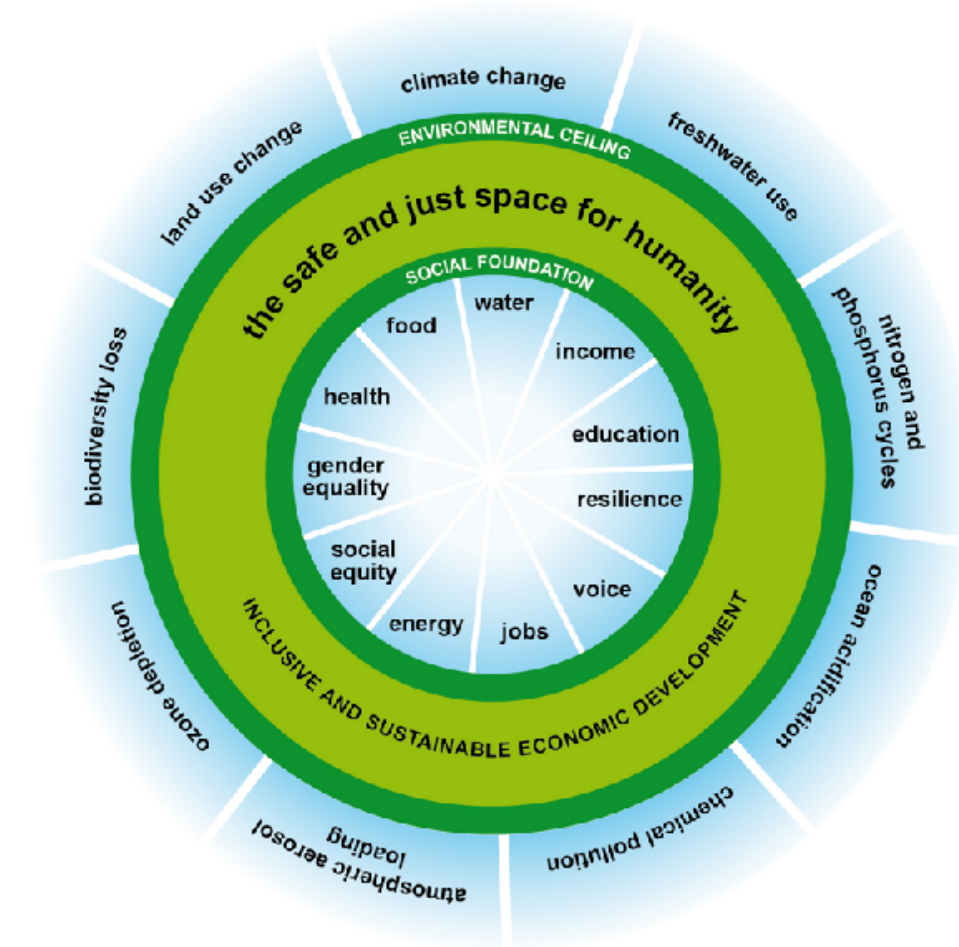
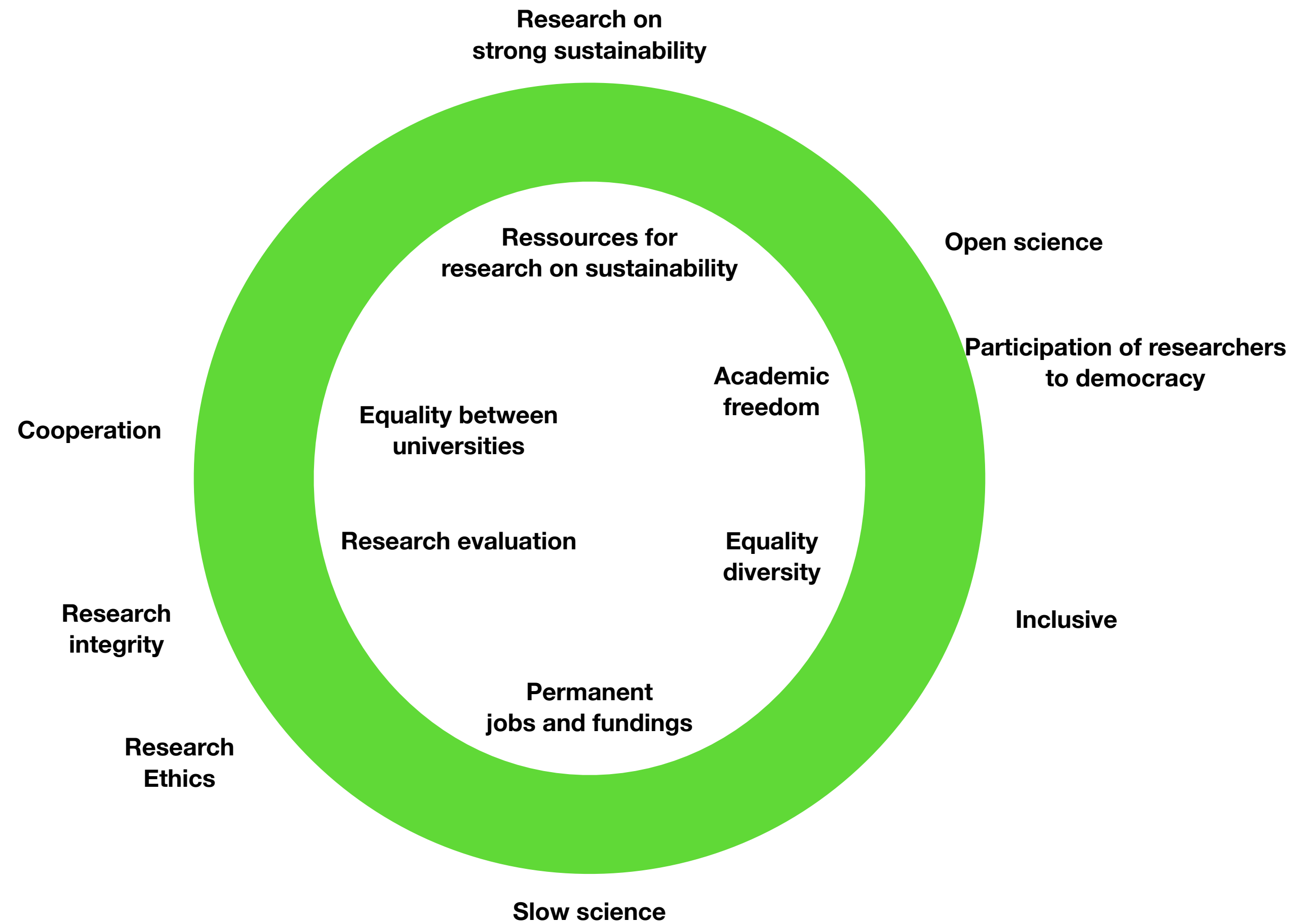
Research values

Research ceiling

- Research integrity
- Research ethics
- Research focused on strong sustainability
- Sustainable research methods
- Research results (data and papers) opened for citizens
- Participation of researchers to democracy
- ...

Towards a safe and just place for research

A doughnut for sustainable research ?



Conclusions and questions

- Is it sustainable to continue to do research and to publish as we used to?
- What must we change?
- Will we be able to change fast enough?
- Towards a doughnut of sustainable research... *To be continued*

« Chaque génération, sans doute, se croit vouée à refaire le monde. La mienne sait pourtant qu'elle ne le refera pas. Mais sa tâche est peut-être plus grande. Elle consiste à empêcher que le monde se défasse. »

« Each generation doubtless feels called upon to reform the world. Mine knows that it will not reform it, but its task is perhaps even greater. It consists in preventing the world from destroying itself. »

Albert Camus. Discours Nobel, 1957.

References

- Lewis, S. L., & Maslin, M. A. (2015). Defining the Anthropocene. *Nature*, 519(7542), 171-180. <https://doi.org/10.1038/nature14258>
- Raworth, K. (2017). *Doughnut economics: Seven ways to think like a 21st century economist*. Chelsea Green Publishing
- Reich, Y., & Finkbeiner, M. (2021). The research environmental impact disclosure. *Research in Engineering Design*. <https://doi.org/10.1007/s00163-021-00379-4>
- Smith, R. (2006). The trouble with medical journals. *Journal of the Royal Society of Medicine*, 99(3), 115-119. <https://doi.org/10.1258/jrsm.99.3.115>
- Steffen, W., Broadgate, W., Deutsch, L., Gaffney, O., & Ludwig, C. (2015). The trajectory of the Anthropocene: The Great Acceleration. *Anthropocene Review*, 2(1), 81-98. <https://doi.org/10.1177/2053019614564785>

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Towards a doughnut for sustainable research...