FYZIOLOGICKÝ ÚSTAV AV ČR

SUSTAINABLE BIO-MEDICAL INSTITUTES OF THE CZECH ACADEMY OF SCIENCES

Environmental sustainability of scientific research

Kamil Vlček

IPHYS Retreat, 20th May 2025, Špindlerův Mlýn

Scientific laboratory: input and output

Trends in
Biochemical Sciences

Scientific Life

Forging a path toward a more sustainable laboratory

Logan B. Leak [1,4,6,@], Janina Tamborski [2,6], Antony Commissaris [3,5] and Jennifer A.N. Brophy [2,*,@]

Scientific discovery has advanced human society in countless ways, but research requires the expenditure of energy and resources. This Scientific Life article details one laboratory's efforts to reduce the environmental impact of wet-lab research and provides a series of resources to improve lab sustainability.

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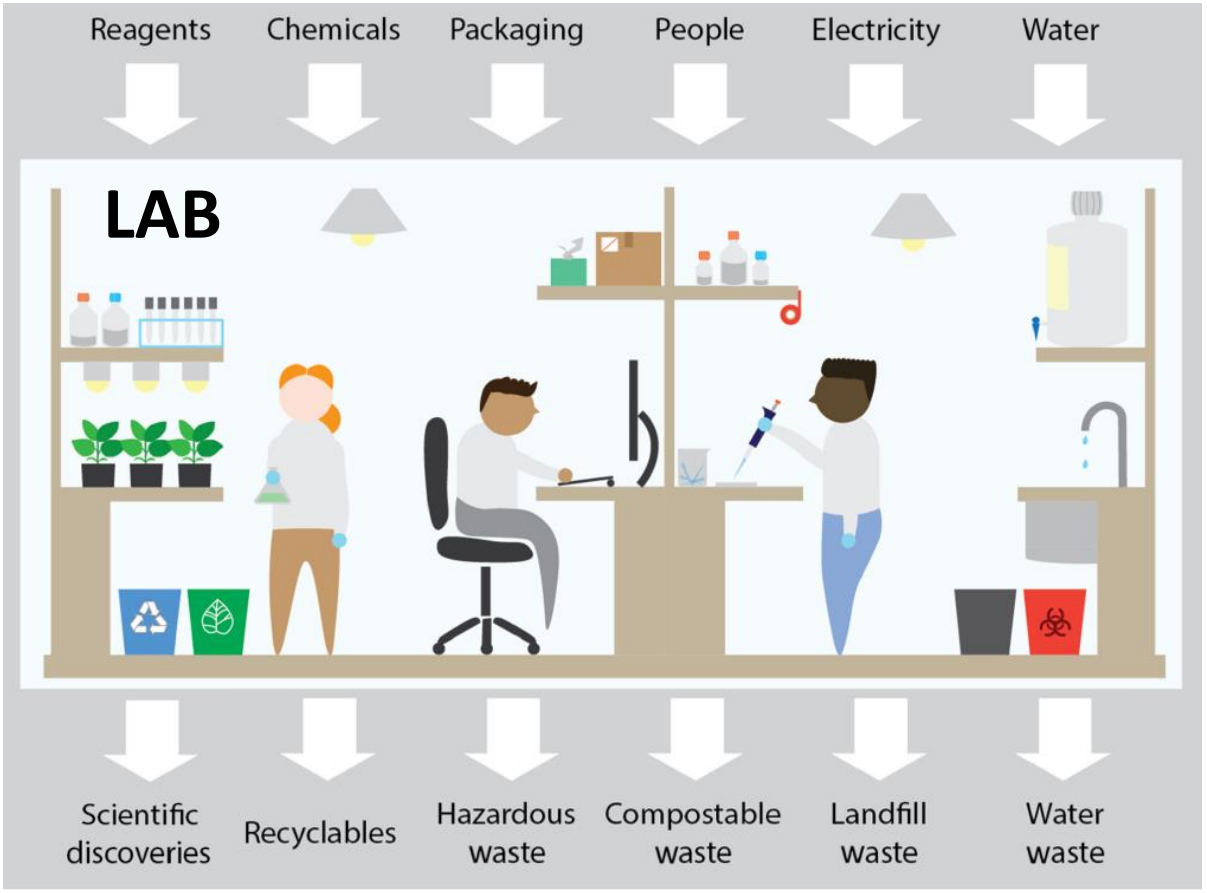


Health, technology, life quality ….

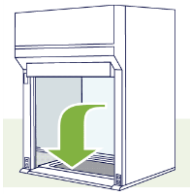
Leak et al 2023 TiBS

Tech News

BioTechniques
Vol. 66 | No. 1 | 2019

THE UNSUSTAINABLE LAB

Research laboratories have a huge impact on the environment in terms of resource requirements, energy use and w[illegible] eye increasingly [illegible] this feature looks [illegible] laboratories mor[illegible]



my green lab.

motion and sash height (MASH) alarm

DIY APPROACHES TO SUSTAINABLE SCIENCE

Research labs are huge producers of plastic waste, but scientists are becoming increasingly aware of their environmental footprint. **By Jyoti Madhusoodanan**

228 | Nature | Vol 581 | 14 May 2020 | Corrected 22 May 2020

A GREEN LAB IN THE MAKING

Leading a drive to lower our carbon f
Celebrating small successes is impor

Nature | Vol 621 | 7 September 20

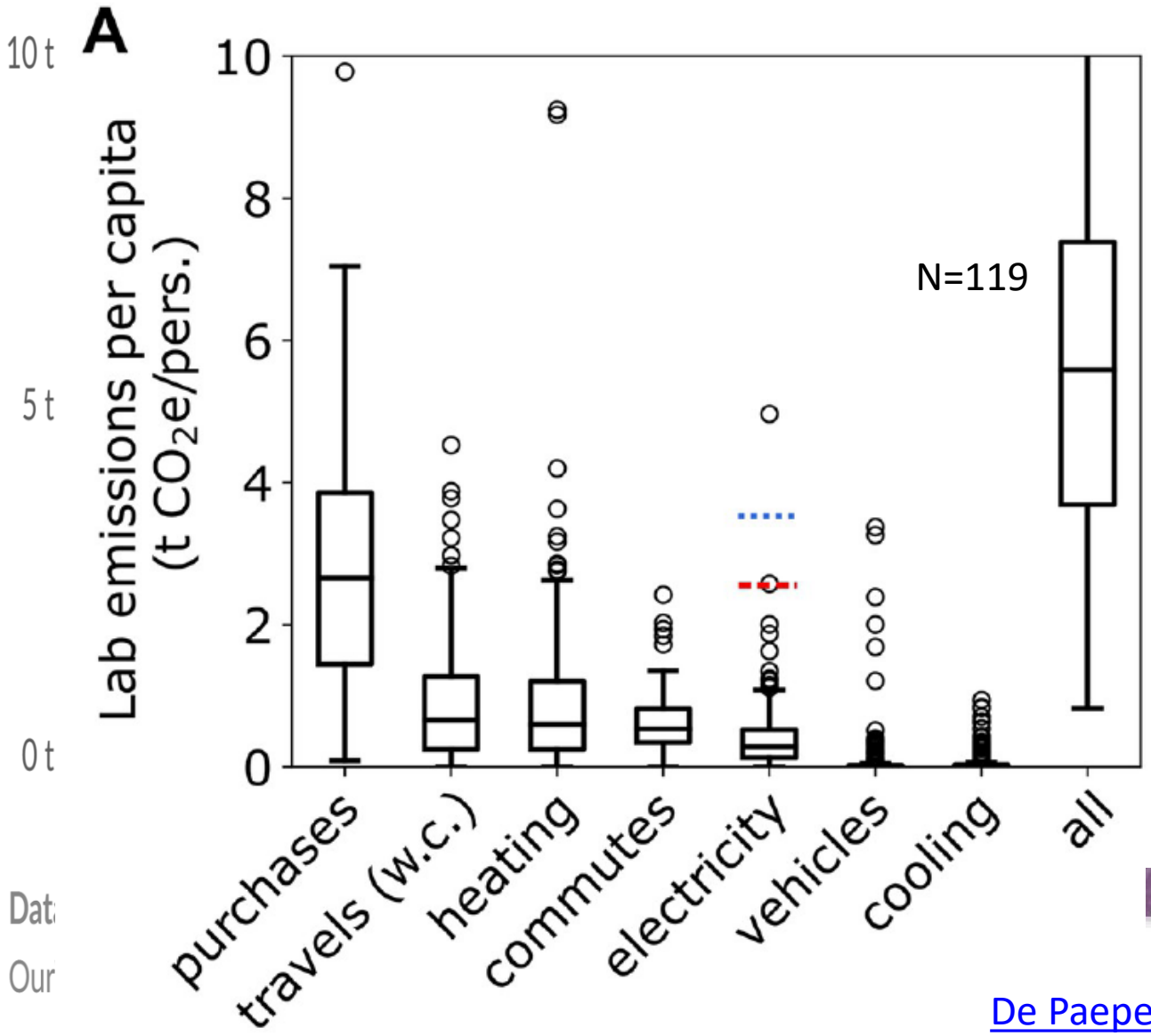
THE TRIALS AND TRIUMPHS OF SUSTAINABLE SCIENCE

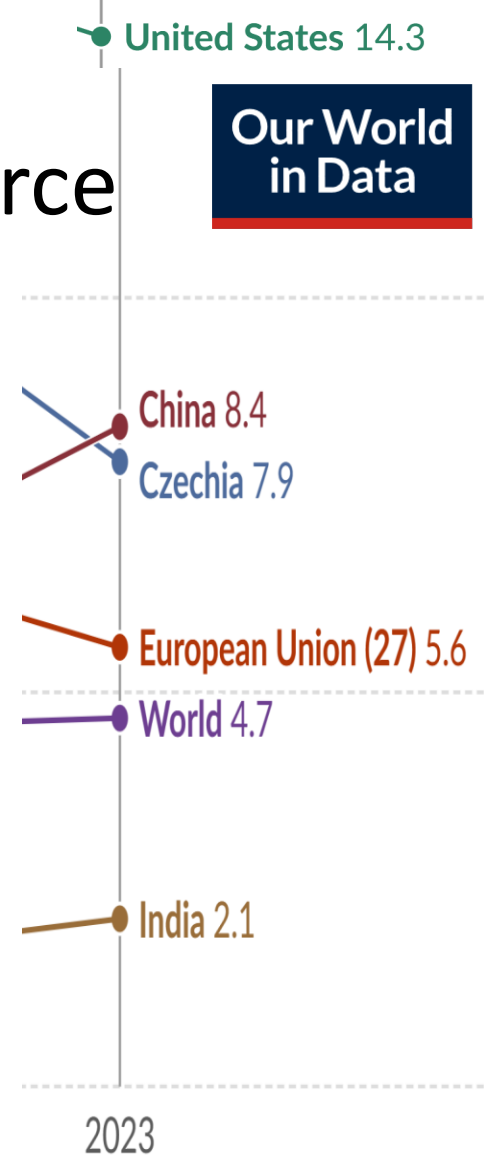
With efforts to promote sustainability on the rise, researchers are making gains – but doing science in a green way isn't always easy. **By Chris Woolston**

Nature | Vol 633 | 26 September 2024 | **S69**

https://www.zotero.org/groups/5941571/sustainable_academy

Laboratory emissions per capita per emission source



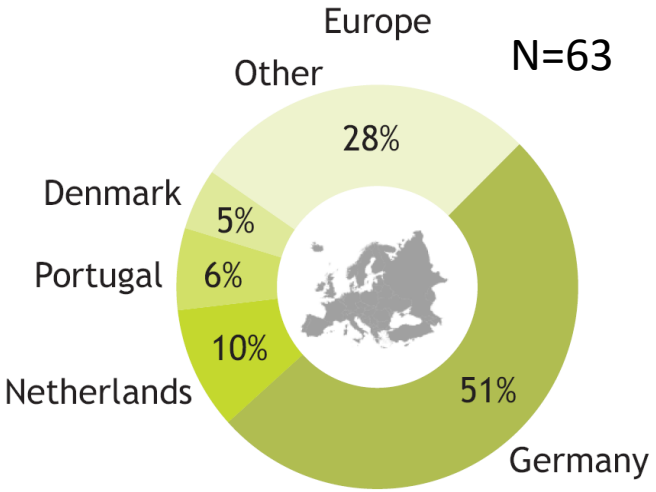


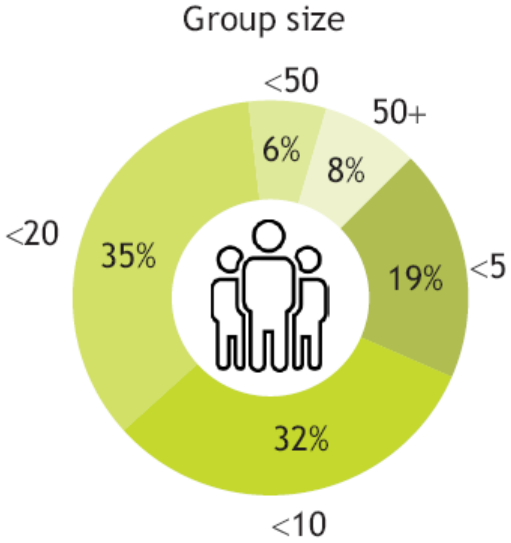
Our World in Data

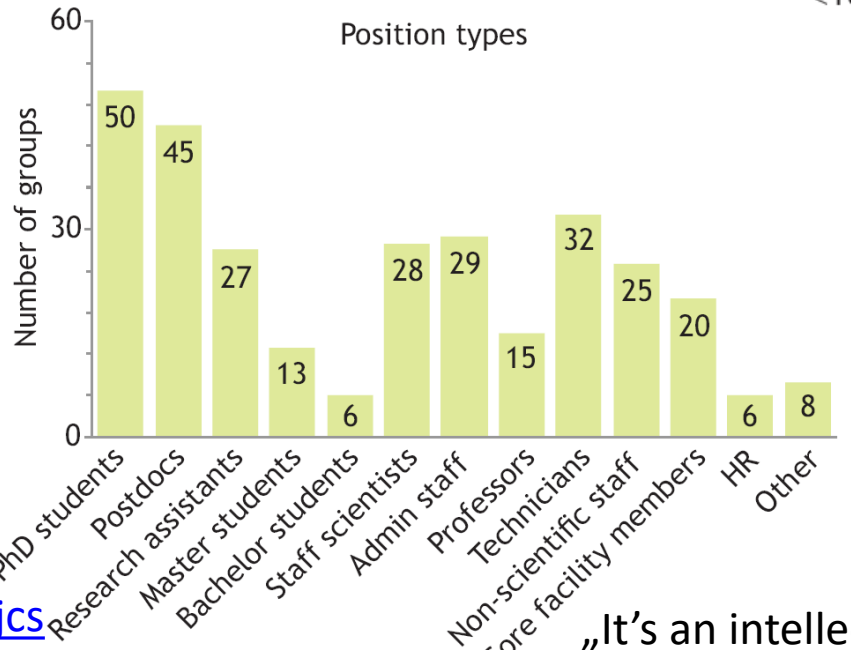
GES 1POINT5

[De Paepe et al 2024 plos sust]

Sustainability grassroot groups





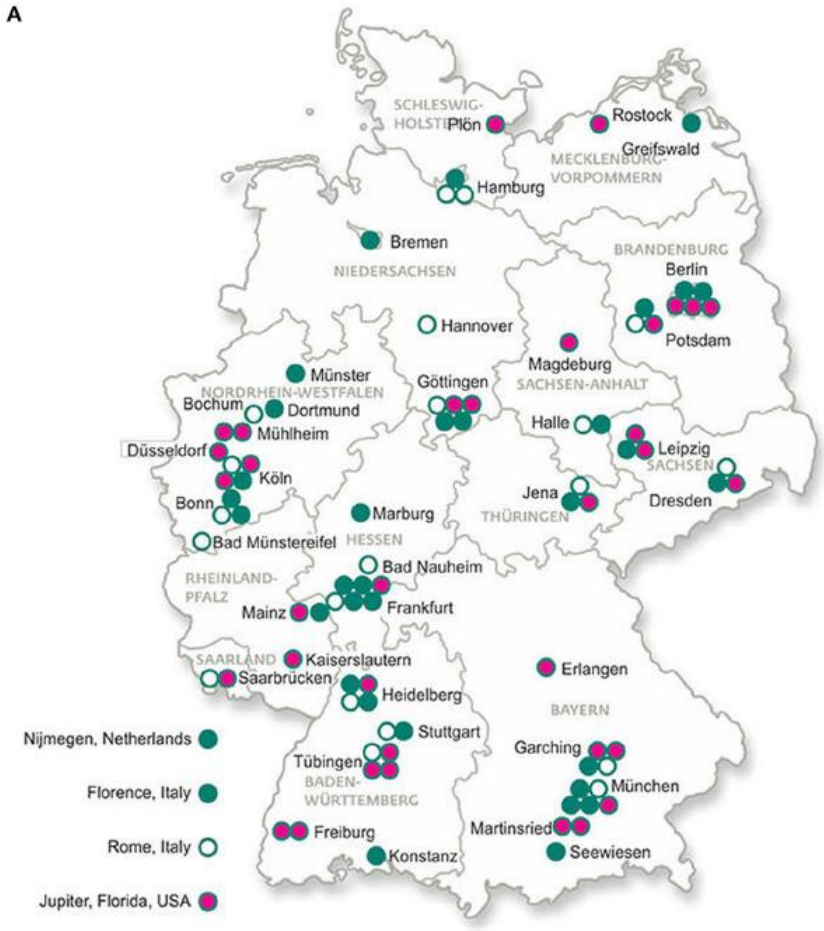


[dobbelare et al 2022 jcs]

„It's an intellectual grassroots movement"

Grassroot networks

MAX PLANCK
SUSTAINABILITY NETWORK

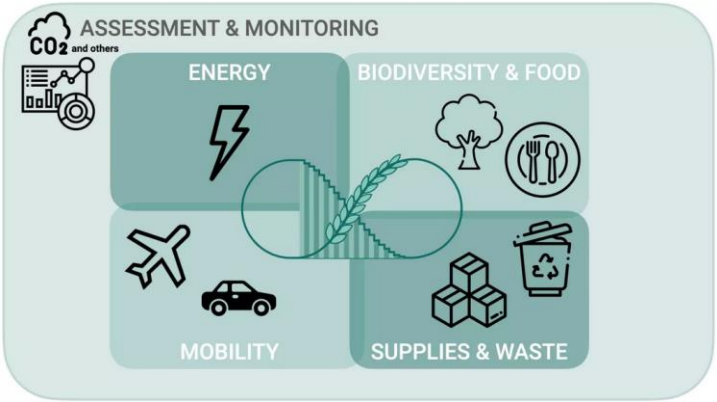


- MPSN Germany
  - more than 60 grassroot groups from the Max Planck Society, ~370 members
- LEAN – Laboratory Efficiency Action Network
- Sustainable European Laboratories network (SELs)
  - FENS Kavli Network of Excellence + Green Labs Netherlands + Laboratory Efficiency Action Network (LEAN)

SELS
Sustainable European Laboratories

How to decrease our carbon footprint?

- Energy
  - Shut the sash of fume cupboard
  - Increase freezer temperatures from -80 to -70 °C
  - Turn off shaking incubators
  - Turn off the computers, use efficient computing
  - Replace overhead lights with LED bulbs
- Supplies & Waste
  - Reduce single-use plastic
  - Share chemicals, reuse and repair instruments
  - Recycle
- Mobility
  - Switch to virtual attendance, bus or train whenever possible
- Biodiversity & Food
  - Reduce meat and diary in your food
- Engagement
  - Share knowledge



CaRe 2021

- Catalogue of Recommendations for Sustainability in the Max Planck Society

Tools and programmes

- My Green Lab
  - Certification programm
  - Competitions and Challenges
  - Database of environmental-impact scores fo lab supplies
- Labos 1point5
  - Collective of French Academics
  - GES 1point5 an open-source web application designed to estimate the carbon footprint of a research lab
- LEAF - Laboratory Efficiency Assessment Framework
  - A programm and online tool that guides users through sustainability actions to save plastics, water, energy and other resources in their laboratory.

CAS ČR

- CzechGlobe Institute
- Commission for the Environment

expert opinion

- Sustainability working group
  - Just being established by doc. Pivokonský, PhD.

- IOCB – GreenClub grassroot team from 2023

- IEM – Solar power plant

INSTITUTE OF PHYSIOLOGY CAS

MBU IMG

SUSTAINABLE
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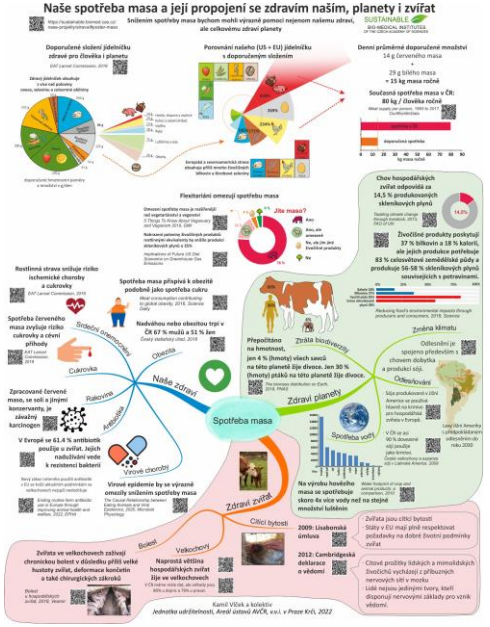
Sustainable biomed

DO PRÁCE NA KOLE
pěšky či poklusem



Instrument Builders Club

IMG/IPHYS/IEM
areal-diy@biomed.cas.cz

https://sustainable.biomed.cas.cz/

Thank you

- Join us !

SUSTAINABLE BIO-MEDICAL INSTITUTES OF THE CZECH ACADEMY OF SCIENCES

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MBU

IMG

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