



RIPE NCC
RIPE NETWORK COORDINATION CENTRE

Environmental Impact of Internet: *Urgency, De-Growth, Rebellion*

Follow-up on IAB Workshop on e-impact

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Name | Date | Event

IAB / IETF / RIPE e-impact Timeline



- **IAB Workshop: December 2022**
 - 30 papers 40 presentations and 50 knowledgeable & opinionated participants
 - <https://www.iab.org/activities/workshops/e-impact/>
 - <https://labs.ripe.net/author/becha/a-plea-for-climate-justice-report-from-the-iab-workshop-on-e-impact>
- **Draft report published: February 2023**
 - <https://datatracker.ietf.org/doc/draft-iab-ws-environmental-impacts-report/>
- **IETF 116: March 2023**
- **RIPE 86: May 2023**
- **Future: IETF 117 & IETF 118 (Prague); RIPE87; etc...**

Workshop Summary & Further Conversations



- **Goals for IETF include:**

- “Full understanding of Internet's environmental impact
- Continuous improvement of our technology.
- Launching research relevant activities”

- **IETF mailing list:**

- <https://www.ietf.org/mailman/listinfo/e-impact>

- **RIPE: forum.ripe.net**



This calls for immediate discussion!

“Life of Brian”, Monty Python (1979)

My Recommendations for RIPE



- **Urgency**

- this is an emergency!
- we have to act now

- **De-Growth**

- decreasing consumption & emissions, decelerating growth, decide together

- **Rebellion**

- reject fossil fuels
- re-think existing power structures
- take responsibility for global impact & systemic changes

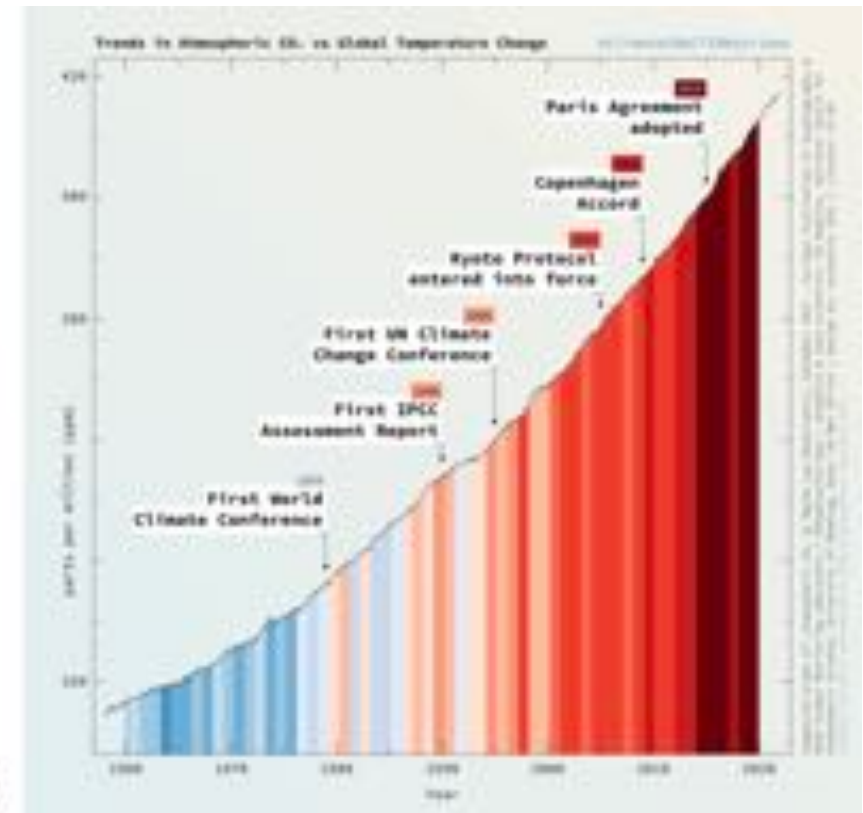
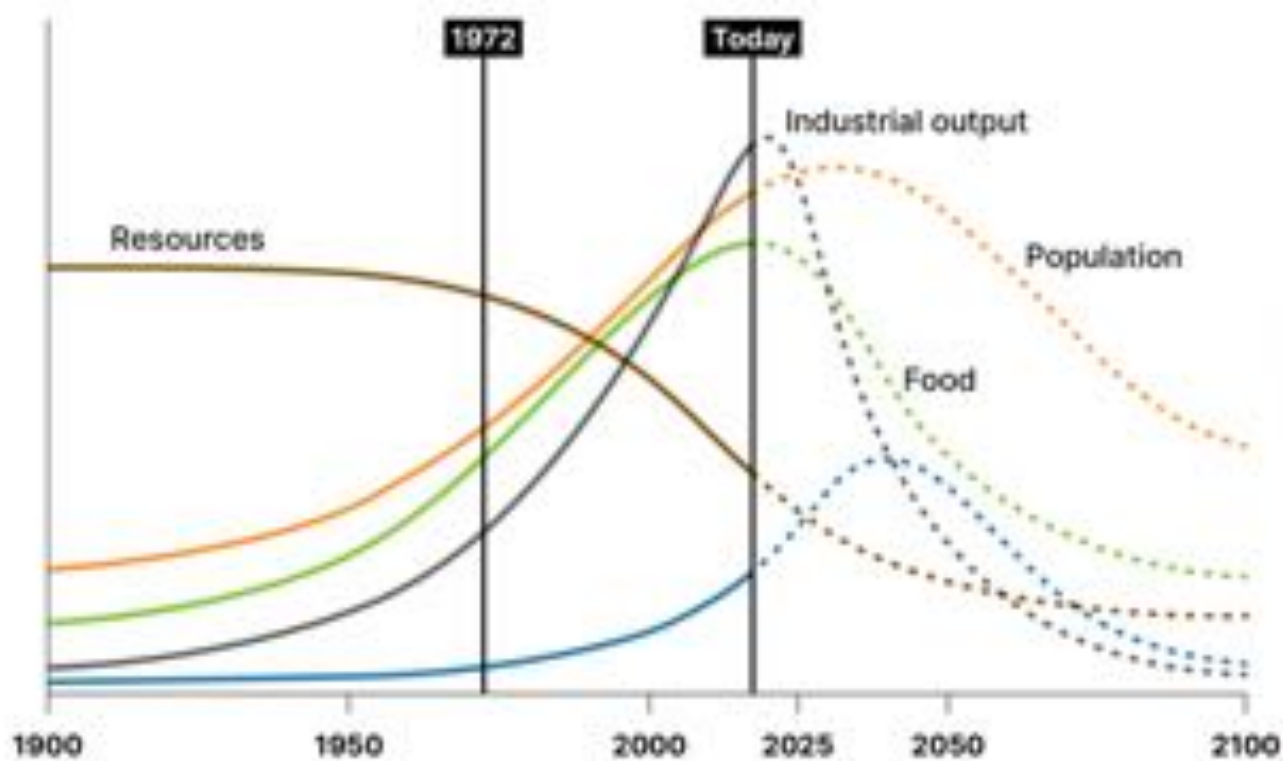


Urgency

Problem Statement: Science View



- “Limits to Growth” (1972) & IPCC (1979-today / COP 37)

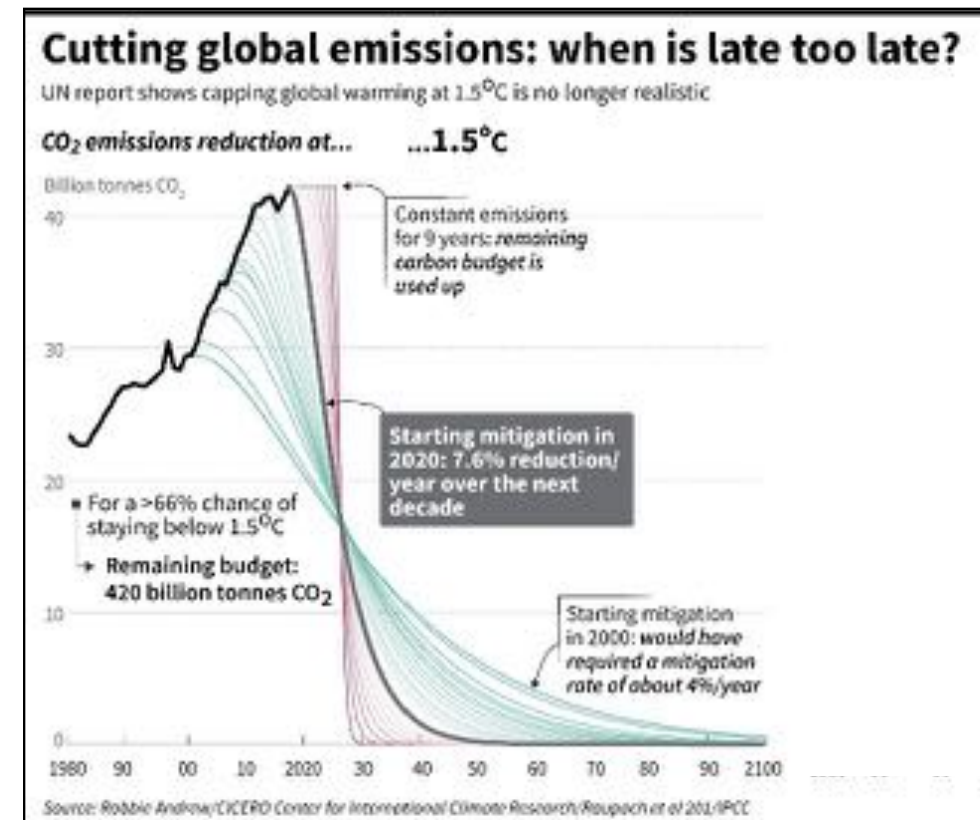
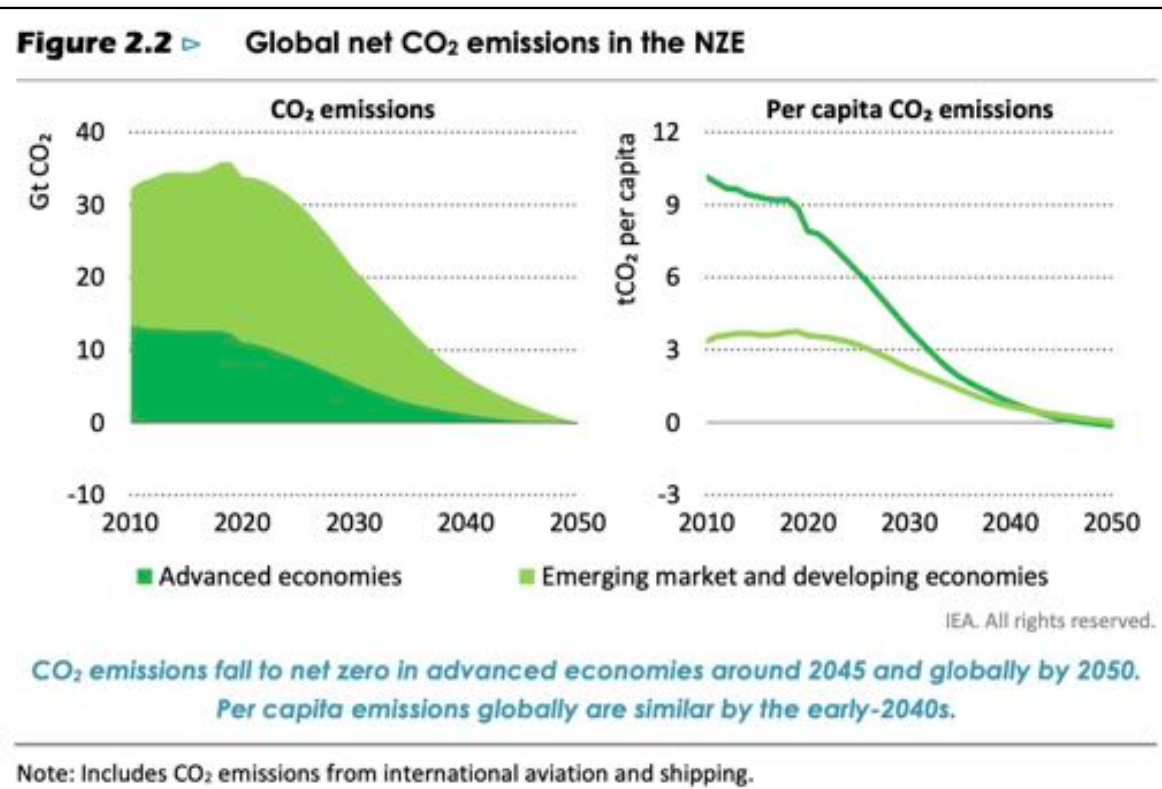


CO2 Emission Decrease We Need

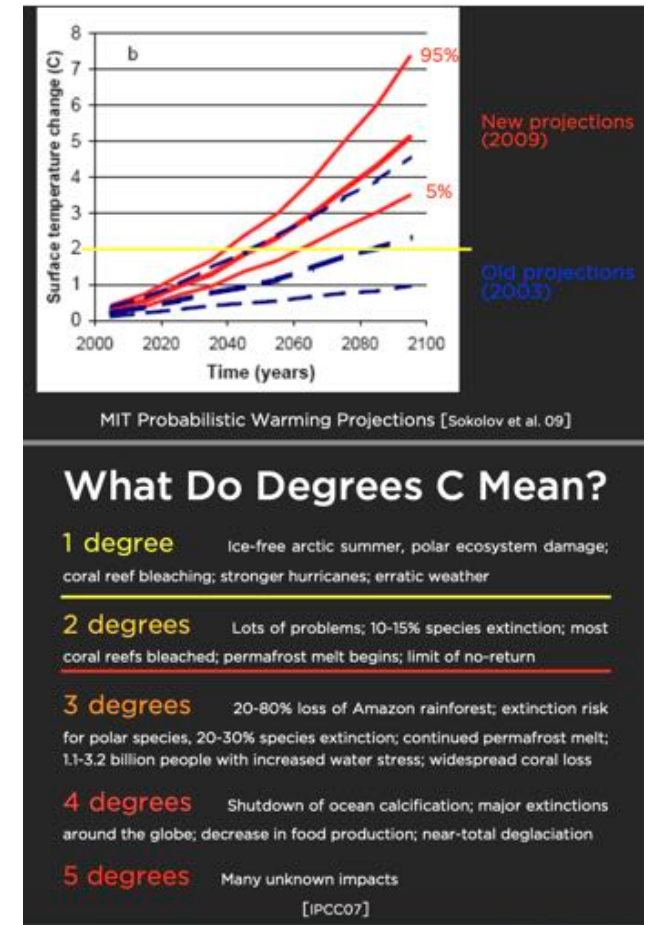
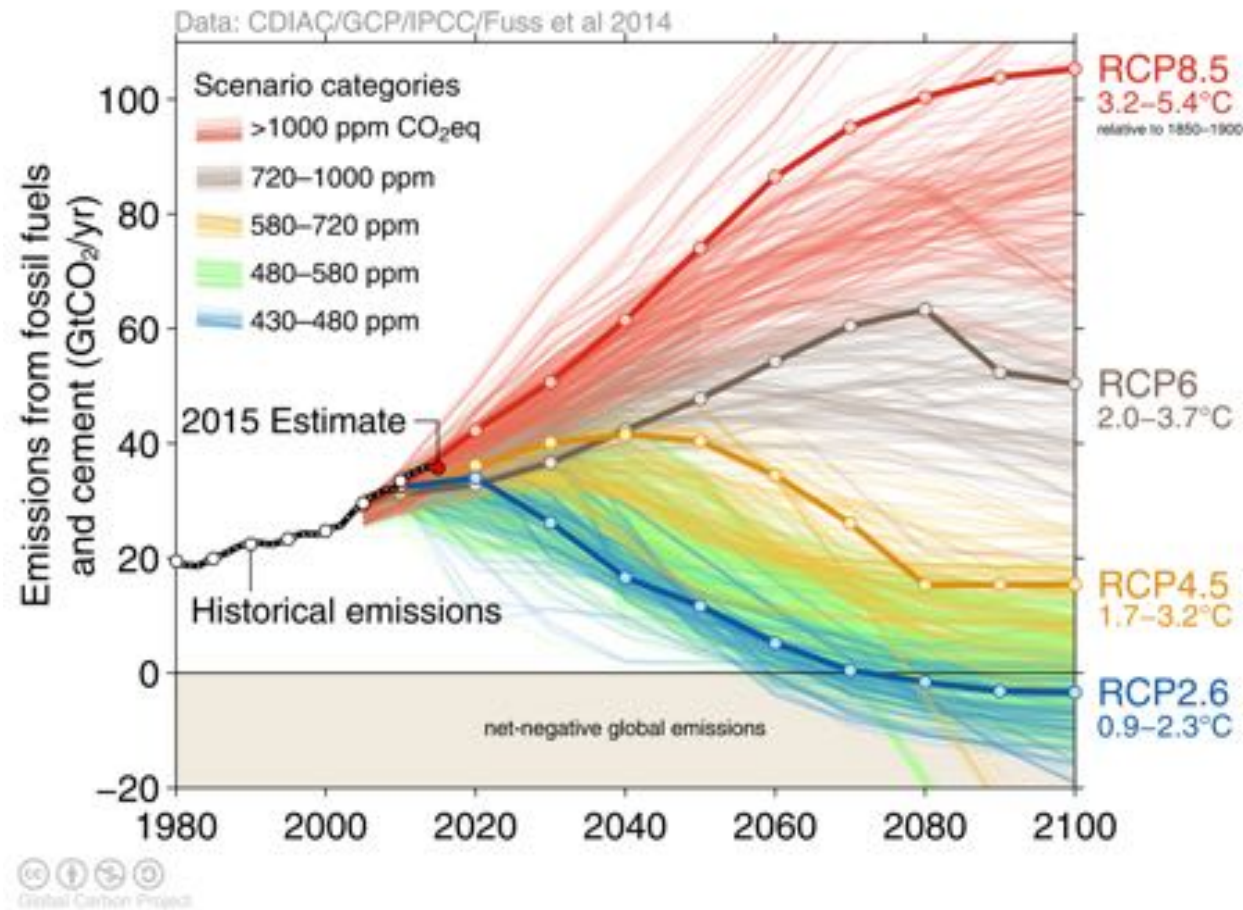


- International Energy Agency: Net Zero Emissions (NZE) by 2050

- <https://trid.trb.org/view/1856381>



Emissions & Extinctions



Problems Statement: ICT Death Cycle



- 1.** Materials are extracted in violent & polluting ways
- 2.** Shipping (materials & equipment) is using fossil fuels
- 3.** Equipment is produced by using fossil fuel energy



- 4.** Operating network & data storage uses electricity sourced by burning fossil fuels
- 5.** Disposing old equipment is wasteful & polluting & unjust
- 6.** Flying to conferences ;-)

Extinction is forever. - Laura Uselis

Minimal Solutions: the Opposite of Death-cycle!



1. **Re-Use** existing materials

- 1. or **re-source** materials in sustainable & just ways

2. Use **renewable** energy sources

- 1. (refuse fossil fuels)

3. Produce locally (**reduce** shipping)

4. **Decrease** energy usage

5. **Reduce** new equipment needs: **Repair; Repurpose; Recycle**

6. Do Not Fly! (**take a train, or use email**)



My suggestions at IAB workshop:



Structural Problems // Towards Climate Justice

- **Inequality of "e-impact"**
 - digital colonialism ("digital divide")
 - economic exploitation & externalising costs / harms
 - extractivism, pollution, e-waste
- **Fallacy on Endless Growth**
 - Consumerism / Luxury / "Innovation"
 - Short-term thinking & convenience
- **Addiction to Fossil Fuels**
 - and wasteful over-consumption of water, land, minerals, energy
- **Solidarity, Respect, Reparations**
 - Stopping the harms
- **Sufficiency & Modesty/Frugalism**
 - Limiting Extractivism
 - Decreasing Growth
 - Focus on Commons/Common Good/FLOSS
- **Abandon Fossil Fuels**
 - use small amounts of renewable energy;
 - reparability, circularity, efficiency, durability

Suggestions for this workshop

- **Session 2: What do we (not) know**
 - consider water & materials (over)usage, rather than "just" energy & CO2: "DATA IS THE NEW OIL"
 - put efforts in actual actions, not more measurements: "perfect is the enemy of the good (enough)"
- **Session 3: Improvements**
 - consider conservation/decrease/reduction/limitation as a criteria for success (10% less per year!)
 - consider "disaster scenarios", emergency situations & extreme climate as baseline requirements
 - beware of techno-optimism, efficiency paradox (<https://www.oxfam.org/en/policy/briefing/2021/05/12/efficiency-paradox>) & power-differentials
- **Session 4: Next steps**
 - working in solidarity with "frontline communities" (RFC8890) & activists (e.g. <https://clj.org/gaia/>)
 - working together with existing organisations in Climate Justice fields (APC, SIOGAS, D4S, SOC, CCC...)
 - small step: adding "Sustainability & Climate Justice Considerations" to each IETF draft!

- ... have been not practical enough. Now: practical tips for each Working Group



De-Growth

Connect-WG: Operating De-Growth



- **"Kilowatt hour per Gigabyte - How hungry is your network?"**
 - <https://wiki.geant.org/display/SIGNOC/17th+SIG-NOC+meeting+-+Paris%2C+France>
 - How to best perform on energy optimisation of the network infrastructure? how could we reduce power consumption?
- **Carbon-neutral self-hosting & software development:**
 - <https://codeberg.org/Codeberg/Community/issues/856>
 - <https://github.blog/2021-04-22-environmental-sustainability-github/>
- **Orange: Deep Sleep Mode for WiFi**
 - slashes gateway power consumption to under 1W: "Sustainability in Broadband" webinar: <https://app.livestorm.co/rethink-technology-research/faultline-webinar->

Cooperation-WG: Politics of De-Growth



- **Redirecting Technologies for the Deep Sustainability Transformation, TU Berlin**
 - <https://doi.org/10.14279/depositonce-16187.2>
 - <https://digitalization-for-sustainability.com/digital-reset/>
- **A Telco Sustainability Reality Check: December 2022**
 - <https://go.abiresearch.com/lp-telco-sustainability-reality-check>
 - human-centered decision-making will continue to evaluate the challenges and opportunities of addressing the climate crisis, working together with technology to drive reductions of global carbon emissions, water use, and waste.

Regulating De-Growth: UN, OECD & EU



- **UN:** <https://www.un.org/en/climatechange/climate-adaptation>
- **OECD report on “Climate Tipping Points”, December 2022**
 - <https://www.oecd.org/environment/climate-tipping-points-abc5a69e-en.htm>
 - recommended that we should “drastically reduce emissions within this decade”
- **EU Commission’s proposal to cut greenhouse gas emissions by at least 55% by 2030 ... & becoming climate neutral by 2050**
 - https://climate.ec.europa.eu/eu-action/european-green-deal/2030-climate-target-plan_en
- ***Aligned with my proposal to IAB:***
 - *“consider decrease/ reduction/ limitation as a criteria for success (10% less per year, every year!)”*

NCC-Services WG (Members' De-Growth)



- **“Ranking of ten leading telecom operators for sustainability.”**
 - Sustainability Index by ABI Research (Q1 2022)
 - <https://www.abiresearch.com/press/deutsche-telekom-telefonica-vodafone-and-kpn-are-leaders-in-abi-researchs-telco-operators-sustainability-index/>
- **“How five of the world’s biggest telecom operators deal with their greenhouse gas emissions” (February 2023)**
 - * AT&T, Verizon, NTT, China Mobile and Deutsche Telekom.
 - <https://telecoms.com/opinion/how-five-of-the-worlds-biggest-operators-deal-with-their-greenhouse-gas-emissions/>

BCOP for (business / telco) DeGrowth



- **Set the NZE targets** <https://sciencebasedtargets.org/net-zero/>
- **Use ITU standards:** <https://www.itu.int/rec/T-REC-L/en>

L.1460	Connect 2020 greenhouse gases emissions - Guidelines
L.1470	Greenhouse gas emissions trajectories for the information and communication technology sector compatible v
L.1471	Guidance and criteria for information and communication technology organizations on setting Net Zero target
L.1480	Enabling the Net Zero transition: Assessing how the use of information and communication technology solutio emissions of other sectors
L.1481	Guidance on how to address Connect2030 targets on net abatement
L.1500	Framework for information and communication technologies and adaptation to the effects of climate change
L.1501	Best practices on how countries can utilize ICTs to adapt to the effects of climate change
L.1502	Adapting information and communication technology infrastructure to the effects of climate change

IoT-WG (Building & Disposing Less “Things”)



- **"The Rare Metals War: The Dark Side of Clean Energy and Digital Technologies", book by Guillaume Pitron**
 - <https://www.nhbs.com/the-rare-metals-war-book>
- **“An Ontology Of Electronic Waste“ Maurits Fennis**
 - <https://theanarchistlibrary.org/library/an-ontology-of-electronic-waste>
- **((TBD))**



MAT-WG: Measuring De-Growth



- **“Big business climate pledges must be measured” (audited)**
 - <https://genevasolutions.news/climate-environment/peter-bakker-big-business-climate-pledges-must-be-measured>
- **Quantum Internet hackathon 2022: measuring sustainability**
 - <https://github.com/becha42/ClimateJustice/blob/main/ReportHackathon2022.md>
- **Degrowth can work — here’s how science can help:**
 - <https://www.nature.com/articles/d41586-022-04412-x>
- **Ultimate measure of staying within planetary boundaries: 2000-Watt Society**
 - Swiss example <https://newrepublic.com/article/168750/switzerland-cop27-2000-watt-society>



Rebellion

Rapid & Radical Changes, or Chaos & Collapse



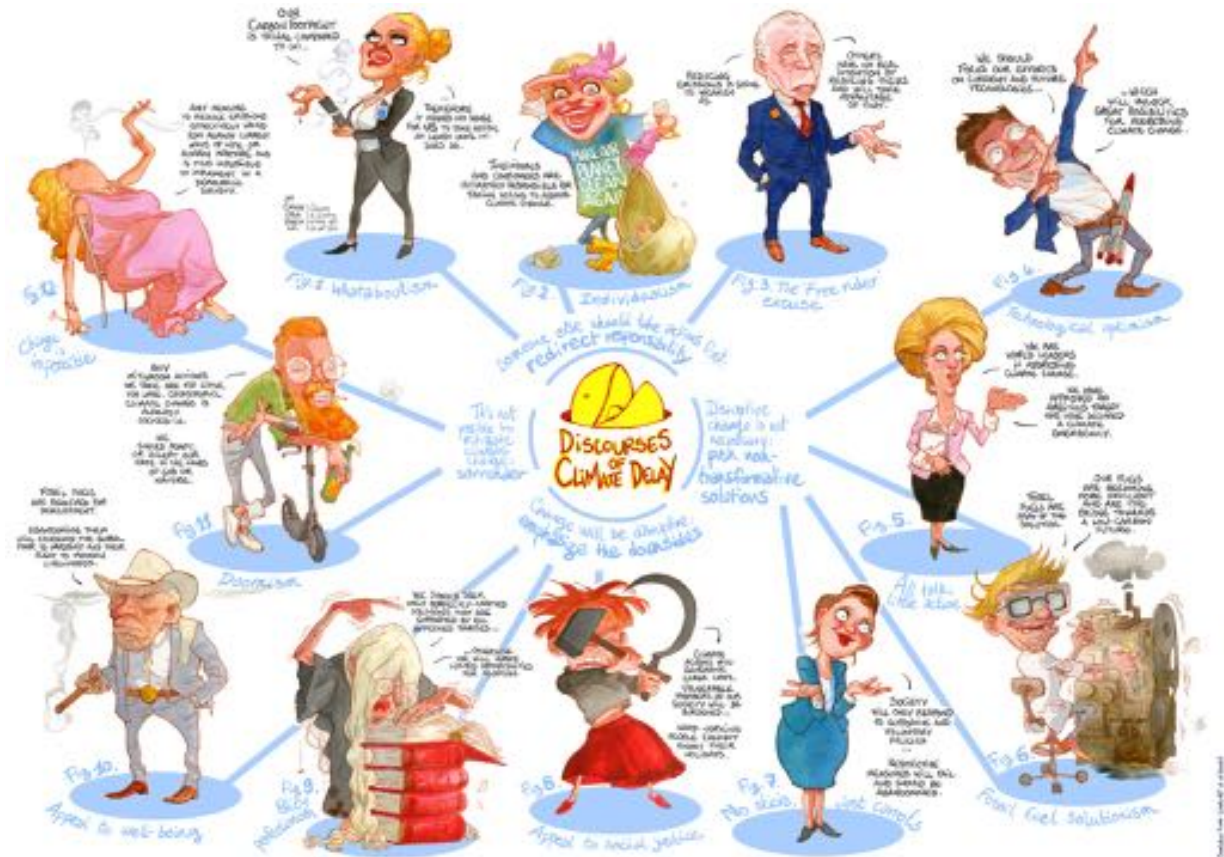
- **“Why Haven't We Bent the Global Emissions Curve?”
 (“In Three Decades of Climate Mitigation”)**
 - “Annual Review of Environment and Resources” (October 2021)
 - <https://www.annualreviews.org/doi/full/10.1146/annurev-environ-012220-011104>
 - “...the centralization of power and the privileges that accompany [it] have coalesced around a particular worldview”
 - “inequities in economic and political power have allowed those who benefit from the status quo to protect their interests”

the scale and rapidity of change now required of human societies, can no longer be reconciled with a massaged form of the status quo. In a real sense, a critical tipping point has emerged. Whatever direction is chosen, the future will be a radical departure from the present. Societies may decide to instigate rapid and radical changes in their emissions at rates and in ways incompatible with the Zeitgeist, or climate change will impose sufficiently chaotic impacts that are also beyond the stability of the Zeitgeist. Within both of these futures, the existing power structures and paradigm associated with the Davos cluster are simply unfit for purpose.

Beware of Myths & Biases & Excuses



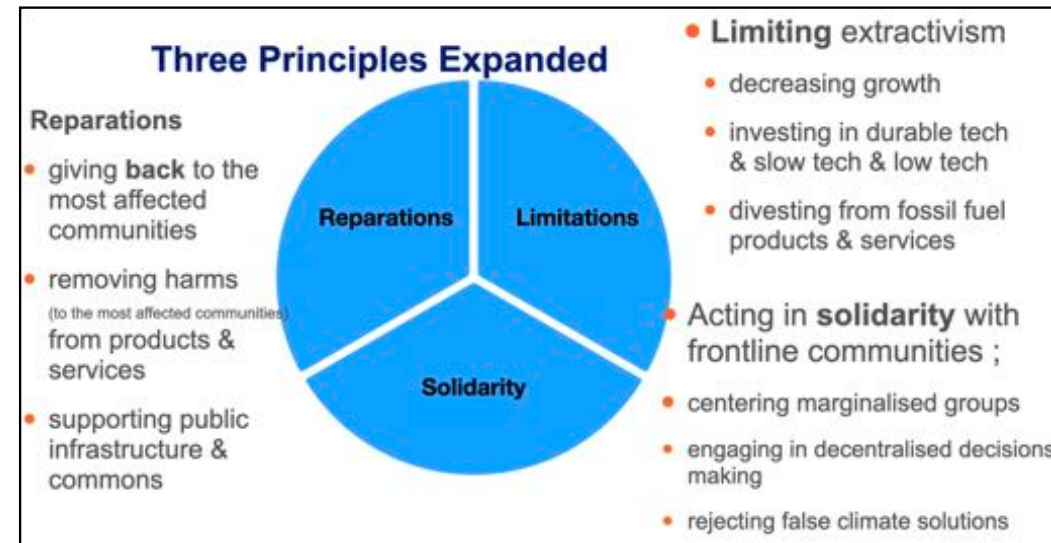
- focused on growth
- efficiency myth (Jevons paradox)
- aligned with dominant power structures
- **Beliefs:**
 - “tech is neutral”
 - “we are the good guys” bias
 - techno-optimism



Digital Rights & Climate Justice

● Join Existing Communities

- <https://labs.ripe.net/author/becha/towards-climate-justice-in-tech/>
- [APC.org](https://apc.org/)
- [RightsCon.org](https://rightscon.org/)
- [Bits und Bäume](https://bitsundbae.de/)
- [Scientists Rebellion](https://scientistsrebellion.org/)
- DeGrowth Conference:
 - 29.8. Zagreb <http://odrast.hr/>
 - digital-rights-climate-justice@groups.io
 - COP28, UAE <https://www.cop28.com/en/>



(pictured: 11 March 2023)



Political Demands, Bits & Bäume 2022

1. Digitisation within the planetary boundaries
2. Global justice and regional self-determination
3. Redistribution of technological design power, democracy and participation
4. Fair digitisation, sustainable technology design and social issues
5. Protection of digital infrastructure and IT security



<https://bits-und-baeume.org/konferenz-2022/forderungen/#heading>

Alternatives to Growth

- Decentralisation, federation, self-hosting, "Computing Within Limits", Divestment, "Green Tech", "Right To Repair" Movement, Permacomputing,
- Community-owned & community-run networks (GAIA)
- Decolonising The Internet, Feminist Internet,
- Intersectional Environmentalism,...



My Top 10 21st-Century Alternative Economic Theory Books:

- Giving Economy, Heather Marsh (in "Binding Chaos", 2013)
- Post-carbon Economy, Naomi Klein (in "On Fire", 2021)
- Caring Economy, Riane Eisler (2007) : <http://caringeconomy.org/>
- Decolonising Economics, Nonhlanhla Makuyana (2021) <https://decolonisingeconomics.org/>
- Ecofeminism, Maria Mies and Vandana Shiva (2014) <https://www.environmentandurbanization.org/ecofeminism>
- Mutualism, Sara Horowitz (2021)
- Doughnut Economics, Kate Raworth (2017) <https://doughnuteconomics.org/>
- Mission Economy, Mariana Mazzucato (2021)
- The Support Economy: Shoshana Zuboff (2002) <http://www.thesupporteconomy.com/>
- Enlightenment Economics, Diane Coyle (in "The Economics of Enough", 2011)

<https://labs.ripe.net/author/becha/ripe-community-resilience-economy-of-care/>

My Personal Rebel !

- Alisa in January 2004, RIPE 47, Amsterdam
- Alisa in 2022, XR action against private Jets





Conclusions

Conclusions & Summary

- **Urgency**

- this is an emergency!
- focus on action: **act now**

- **De-Growth**

- decreasing consumption & emissions, decelerating growth, **decide together**

- **Rebellion.Global**

- reject fossil fuels
- re-think existing power structures
- take responsibility for global impact & systemic changes : join us!



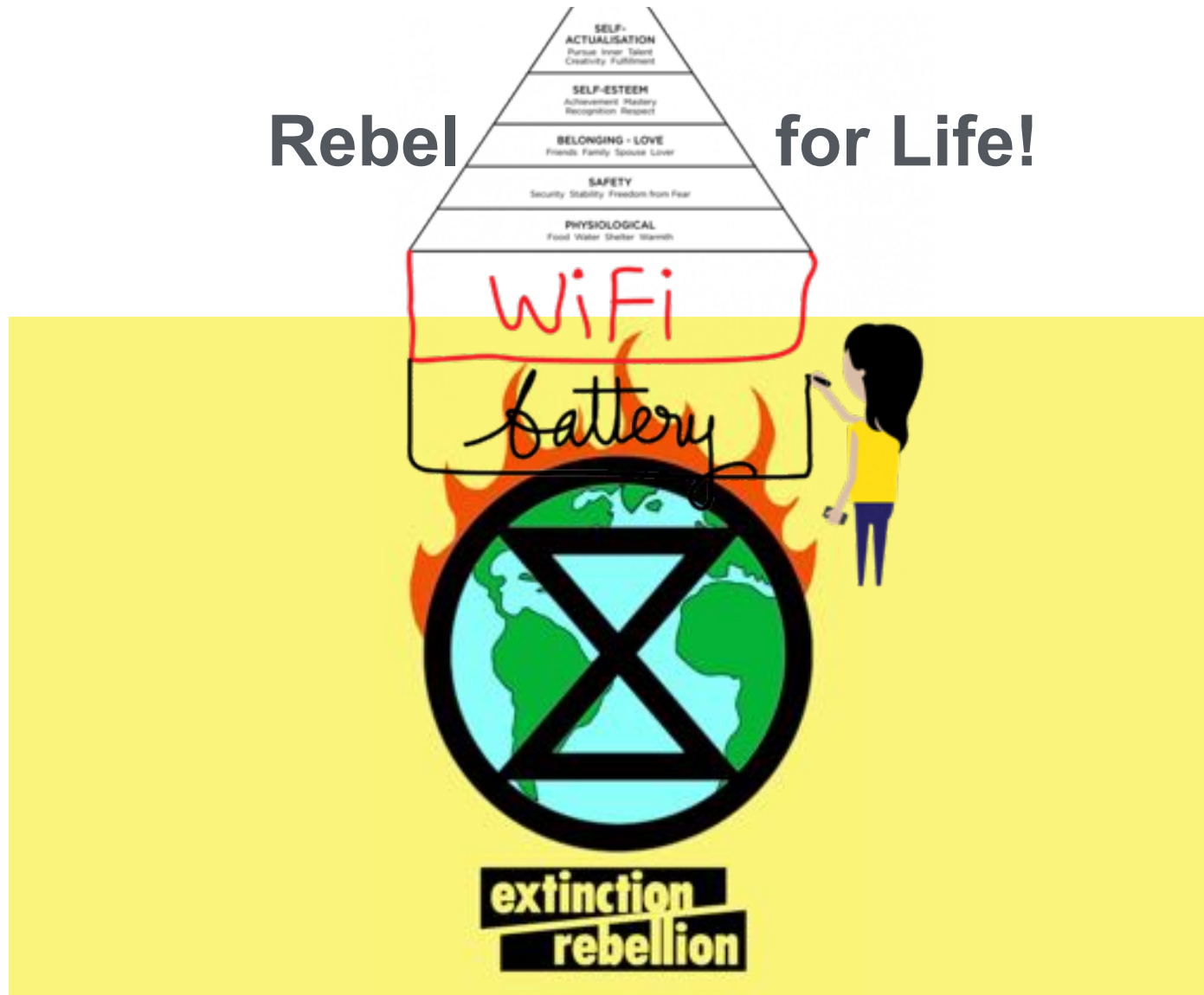


Questions



Email address
@Twitter handle

Rebel for Life!





Extra Slides

Table 2.1: From data ethics to data justice

Concepts That Secure Power	Concepts That Challenge Power
Because they locate the source of the problem in individuals or technical systems	Because they acknowledge structural power differentials and work toward dismantling them
Ethics	Justice
Bias	Oppression
Fairness	Equity
Accountability	Co-liberation
Transparency	Reflexivity
Understanding algorithms	Understanding history, culture, and context

Science & Ethics of De-Growth



- **‘Better knowledge is possible’ inaugural address as Chair of Science, Technology & Society, University of Twente**
 - <https://vimeo.com/760282599> & <https://www.utwente.nl/en/academic-ceremonies/inaugural-lectures/booklets/booklets-2022-2023/inaugural-booklet-professor-esther-turnhout-14-october-2022.pdf>
- **“Resplendent care-full climate revolutions”, Farhana Sultana**
 - <https://www.farhanasultana.com/wp-content/uploads/Sultana-Resplendent-Climate-Revolutions-2022.pdf>
- **“Handbook of Critical Environmental Politics”**
 - <https://www.e-elgar.com/shop/gbp/handbook-of-critical-environmental-politics-9781839100666.html>

Additional Links



- <https://labs.ripe.net/author/becha/ripe-community-resilience-economy-of-care/>
- <https://labs.ripe.net/author/becha/data-feminism-from-data-ethics-to-data-justice/>
- <https://labs.ripe.net/author/becha/computing-within-limits-2022-event-wrap/>
- <https://labs.ripe.net/author/becha/ripe-community-resilience-every-society-has-the-internet-they-deserve/>
- <https://labs.ripe.net/author/becha/ripe-community-resilience-nature-is-healing/>
- <https://zenodo.org/record/7047049#.YzGNcy0RqgA> (The Role of Life Scientists in the Biospheric Emergency)
- https://wiki.techinc.nl/Hackers_tribes#Other_animals_against_Technology
- https://en.m.wikipedia.org/wiki/Jevons_paradox
- <https://archive.org/details/being-genuine-stop-being-nice-start-being-real-2/page/n11/mode/2up>
- <https://UnCiv.nl>