Last class' results from your Stakeholder mapping

You collectively identified 57 Stakeholders

Market & Corporate	19
Non-Human & Future Beings	13
Institutional & Governance	13
Civil Society & Human Communities	12

"AI" > placed it in **Market & Corporate** (as tech owned by corporations), but it could be its own ontological category… *is **AI** a stakeholder or a tool?*

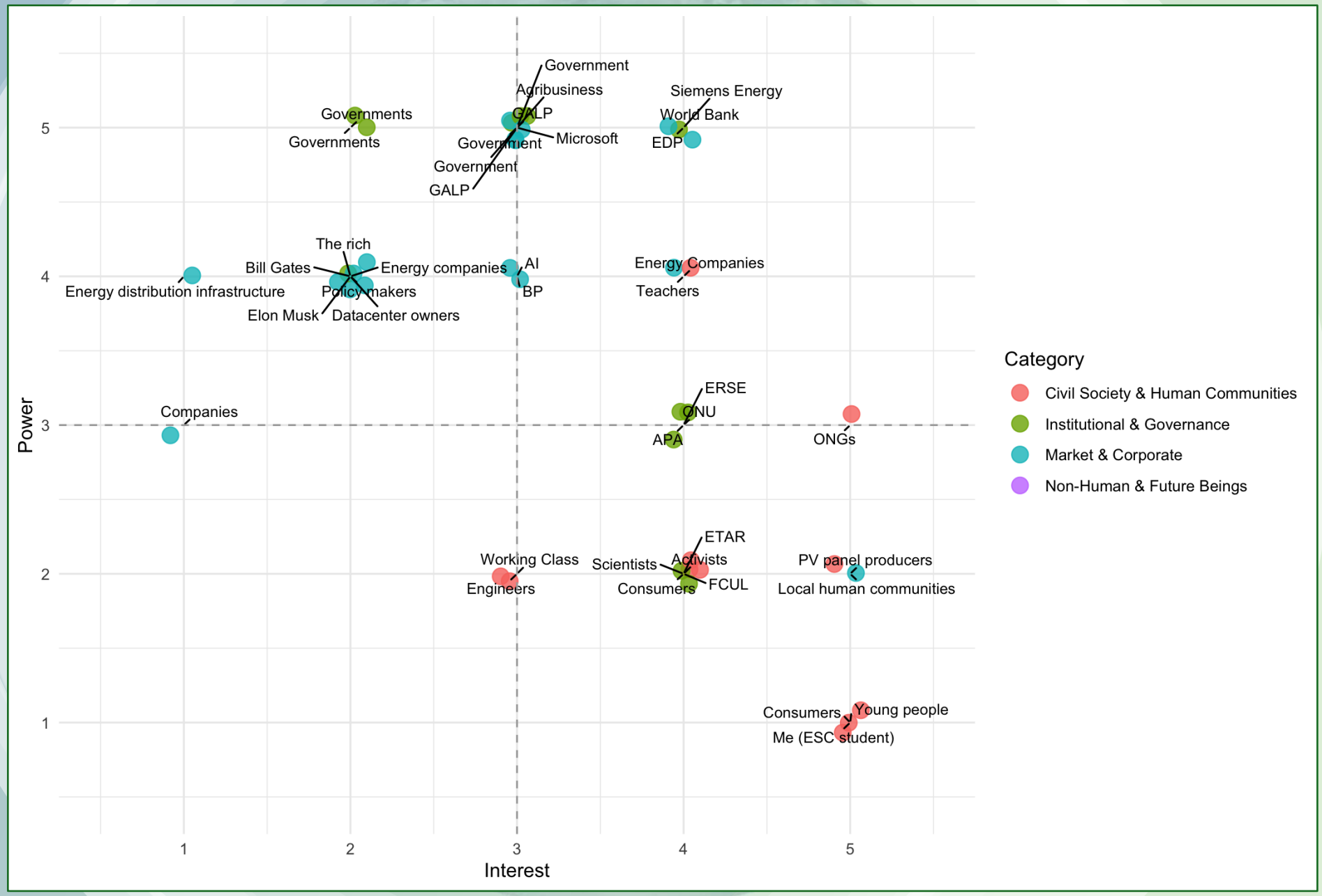
Careful with blurry categories! *"Companies", "AI," "The Market"…*

A **stakeholder you can't hold accountable becomes a liability to transition**: You can't negotiate with it, or demand it to change or hold it responsible through policy or action…

Follow the power (and the money) to find who actually decides!

tslaurentino@ciencias.ulisboa.pt

Power/Interest across Stakeholders



tslaurentino@ciencias.ulisboa.pt

Power/Interest across Stakeholders

Thinking about Earth's / Climate high Power (over collective survival) and low "Interest" (as geo/organic indiference) is important because it reveals something…

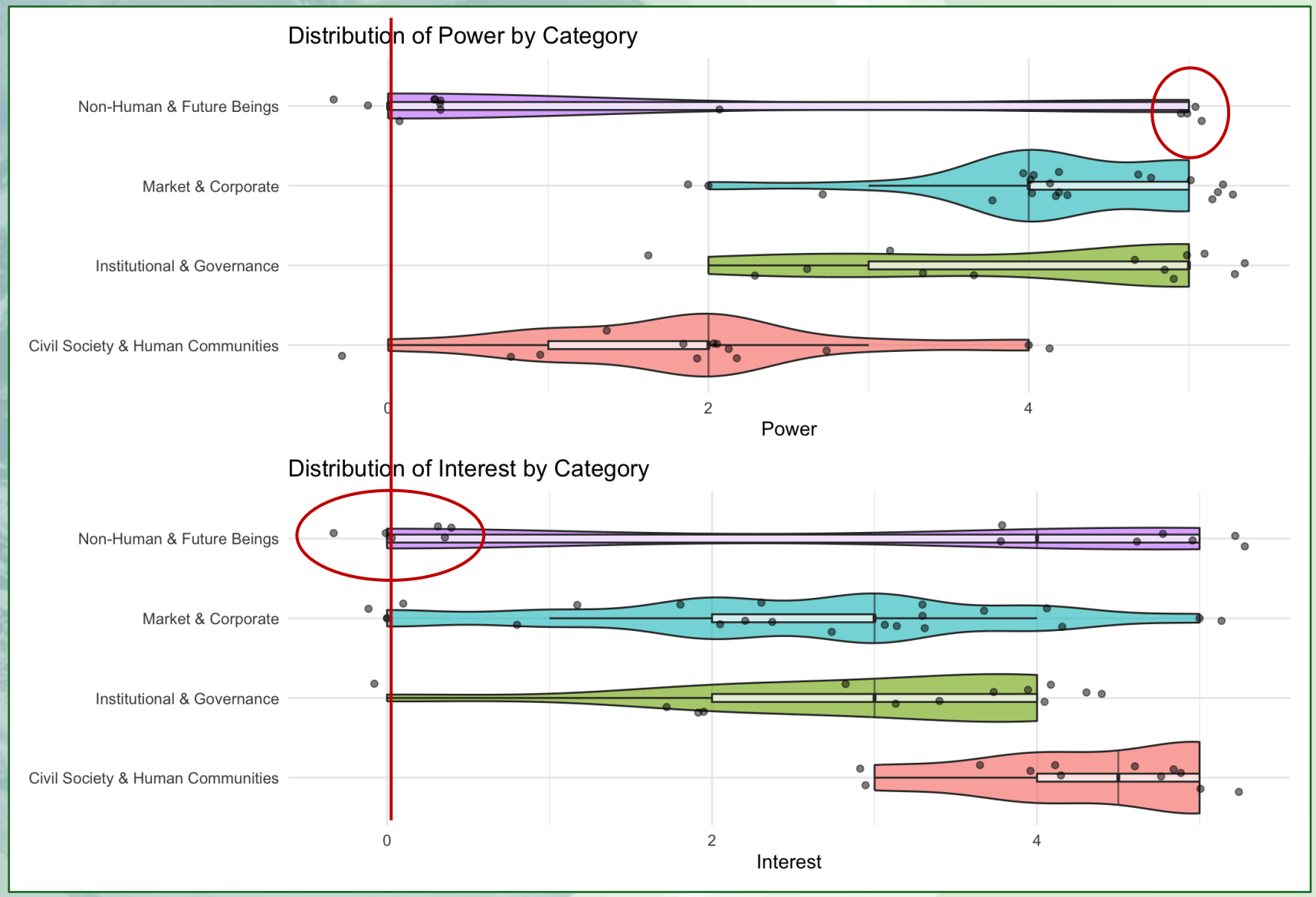
↓

When a glaciar falls & a river floods killing thousands of vulnerable people in minutes, all human-made systems have failed.

↓

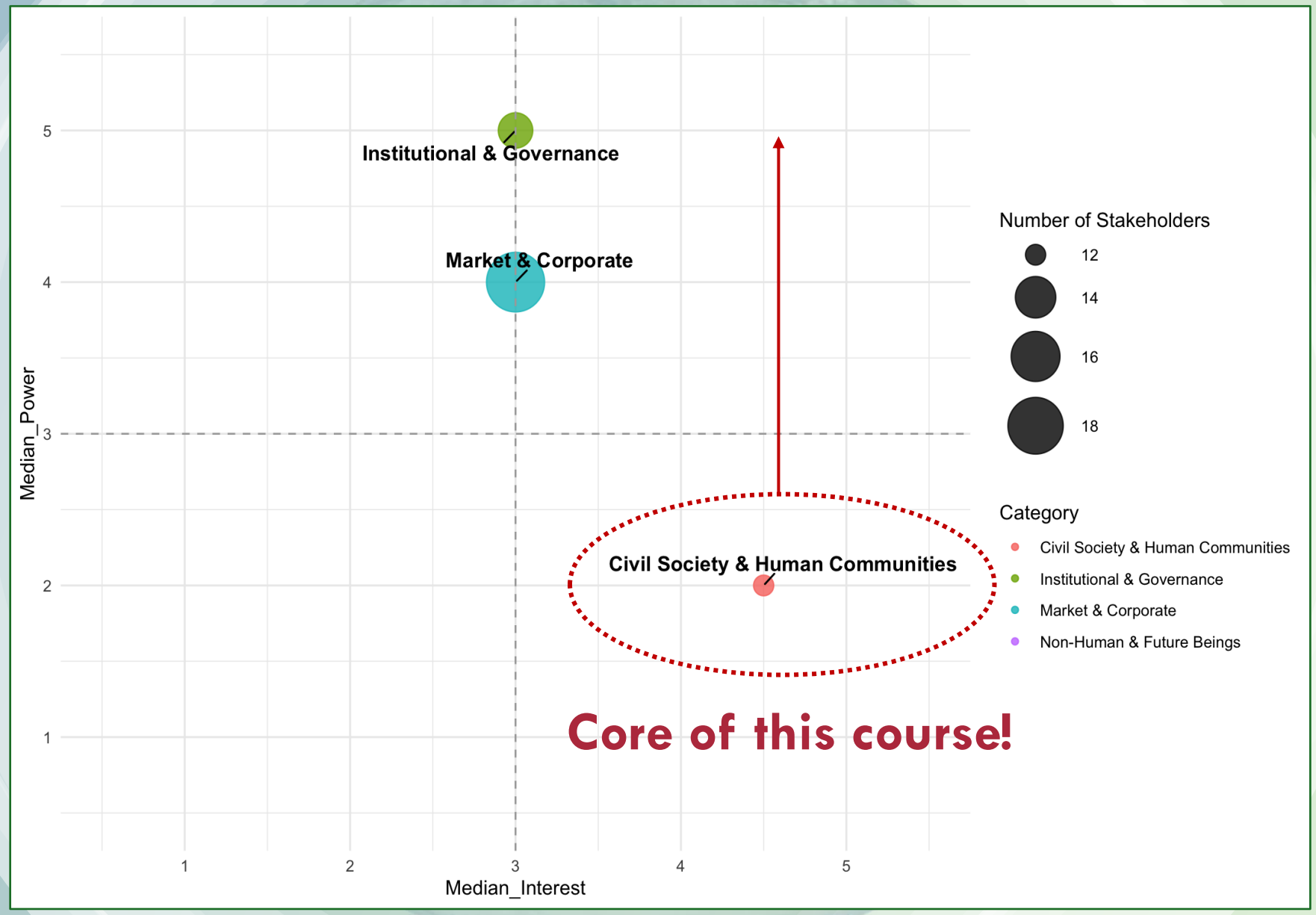
The cause & the consequences are structurally separated but remain in physical and ecological relationship with the same planet!
Thus, it reveals the violent and structural injustice that must be corrected:

Those who profit do not flood, and those who flood do/did not profit.



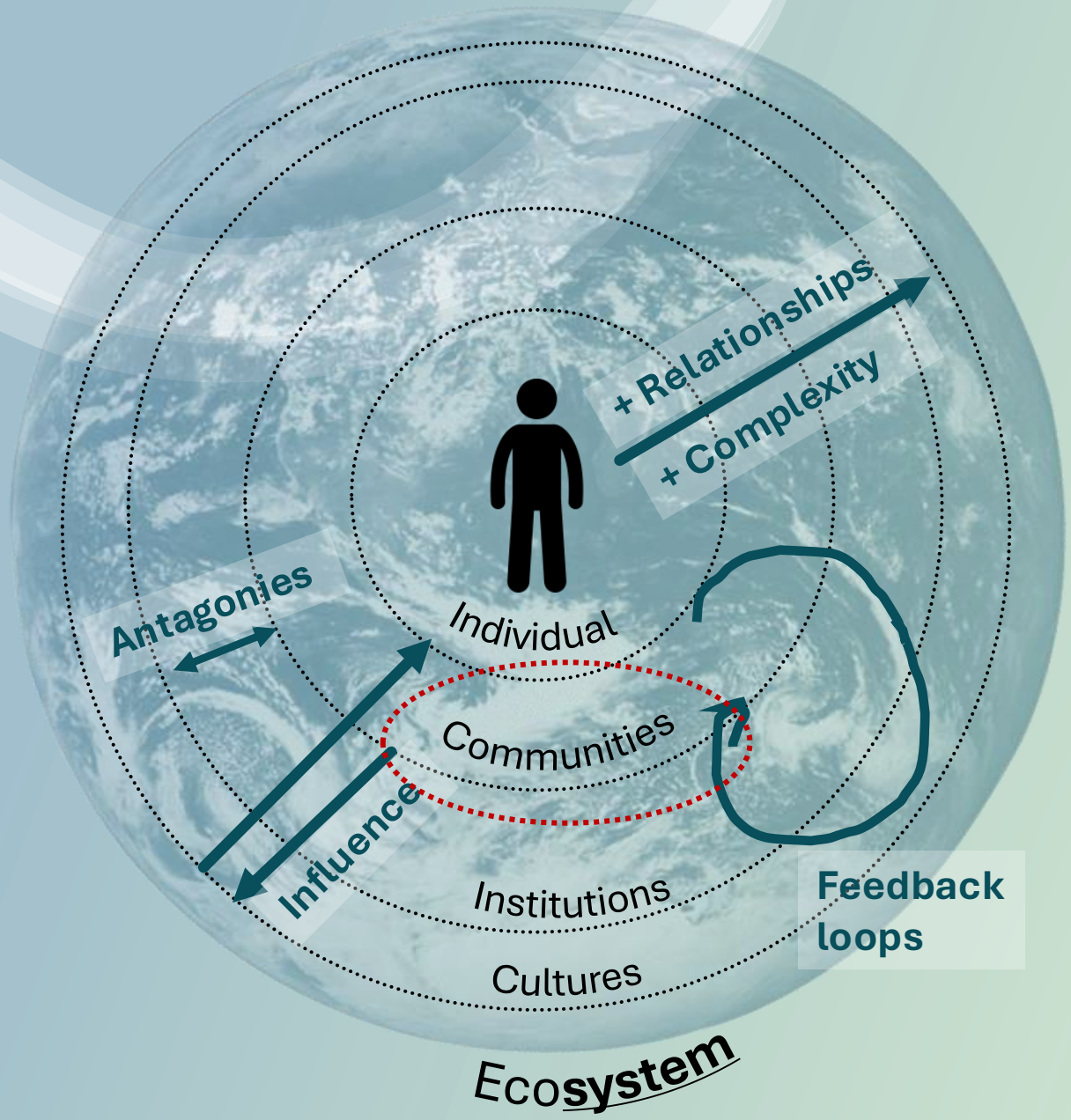
tslaurentino@ciencias.ulisboa.pt

Power/Interest across Stakeholders



tslaurentino@ciencias.ulisboa.pt

Socio-Ecological framework

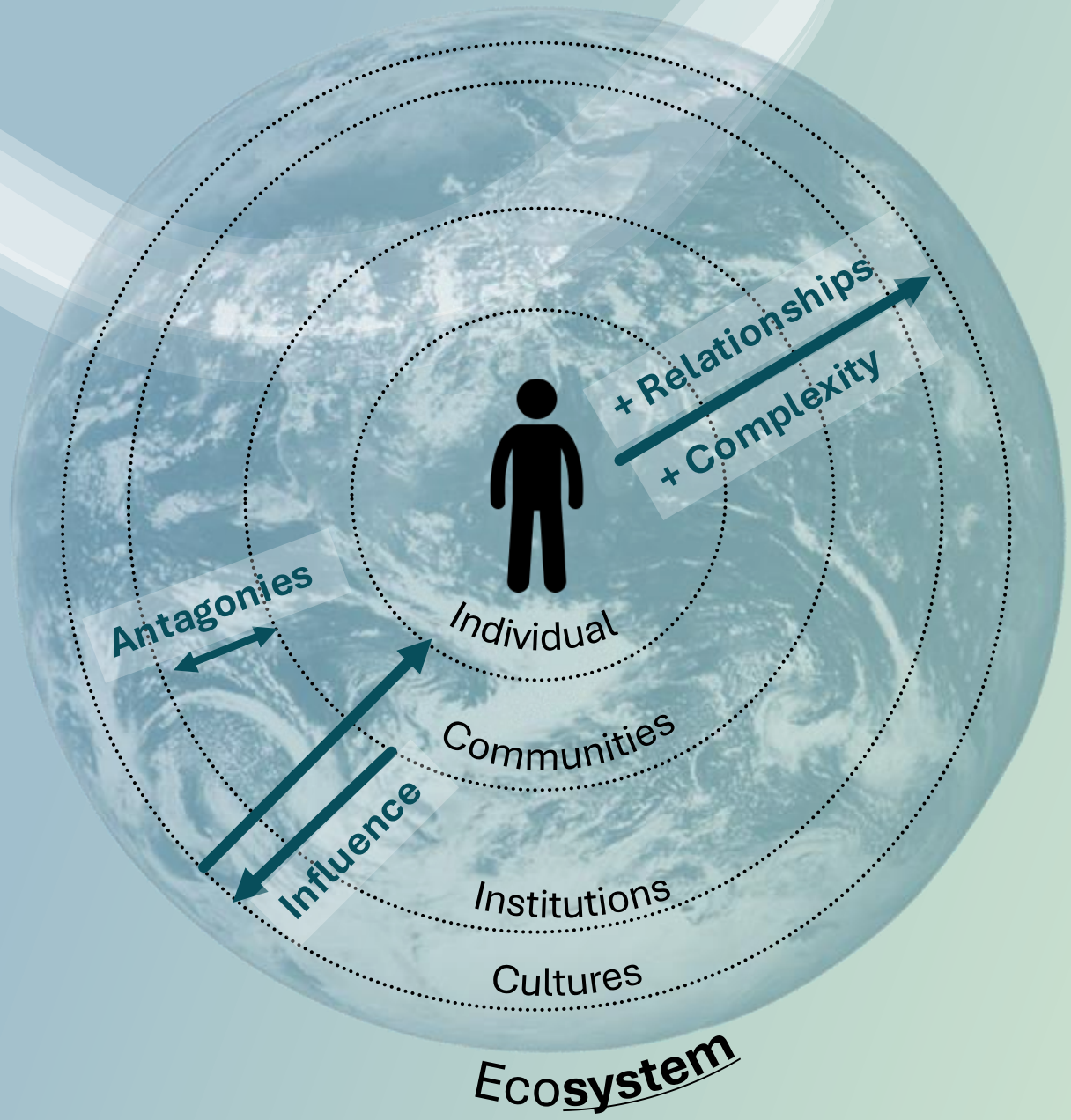


- **Belonging interdependence:**
  Humans are part of nature

- **Crisis Interdependence:**
  Ecological crisis have reciprocal roots in social crisis

Socio-ecological issues of justice demand **systemic analysis of power.**

Socio-Ecological framework



This is must be in the **graphical abstract** of your final project report!

Think your project's impacts multi-level, & socio-ecologically.

Abandoning inescapable trilemmas towards energy justice, belonging & planetary health

tslaurentino@ciencias.ulisboa.pt

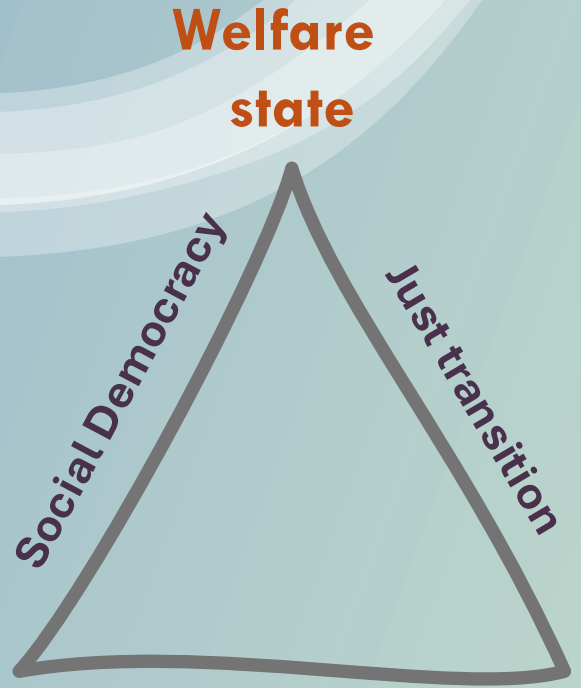
Socio-Ecological Transitions, ce3c, FCUL

We're working on a documentary!
Join the network mailing list
@ https://wisehorizons.world/

Ciências ULisboa
ce3c centre for ecology, evolution and environmental changes
WISE HORIZONS
Funded by the European Union
WISE Horizons #101095219

Where we are:

"*the impossible trilemma*"



Government system where the state plays a key role in protecting and promoting the economic and social well-being of its citizens

Gross Domestic Product: the total monetary value of all final goods and services produced within a country's borders during a specific time period (does not account for wealth distribution, income inequality, non-market production or environmental degradation

Move from extractivism-intensive, polluting models to sustainable, low-carbon, and within regenerative planetary boundaries (big energy focus)

Pick only 2!

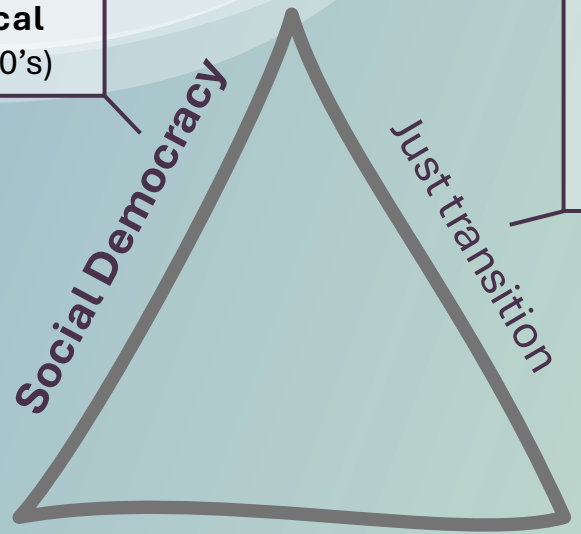
E. Laurent (2021) *From welfare to farewell: the European social-ecological state beyond economic growth*

Where we are:
"the impossible trilemma"

Post-WWII socio-economic alliance **social policy + economic growth** at the expense of **ecological degradation** (until 70's)

Welfare state

Power of welfare state at the **service of ecological** transition
Socio-ecological transition
=
sustainability + justice
must **abandon GDP** as collective horizon



Growth of GDP

Green growth

Ecological transition

Ecological transition is a **means of increasing GDP Extraction** beyond planetary **boundaries continues**, **welfare** states become **overburden** with human health toll.

E. Laurent (2021) *From welfare to farewell: the European social-ecological state beyond economic growth*

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Pick only 2!

As sweet as a *pastel de nata*

OECD countries, Q3 2025



Ranking*		GDP† % change on a year earlier	Share prices‡ % change on a year earlier
1	Portugal	2.4	20.9
2	Ireland	3.2	20.1
3	Israel	3.5	53.3
4=	Colombia	3.4	43.8
4=	Spain	2.8	35.0
6=	Czech Republic	2.8	46.2
6=	Greece	1.7	44.0
8	Canada	1.4	24.0
9	Slovenia	1.6	52.8
10	Poland	3.8	33.5
27	Britain	1.3	15.2
28	Sweden	2.5	1.7
29	Norway	-1.3	13.5
30	Mexico	-0.2	18.3
31	New Zealand	-0.6	3.0
32	Lithuania	2.1	20.8
33	Austria	0.6	28.6
34	Estonia	0.9	11.0
35	Finland	-0.7	12.6
36	Slovakia	0.9	-12.7

The Economist (Finance and Economics) Which economy did best in 2025?

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As sweet as a *pastel de nata*

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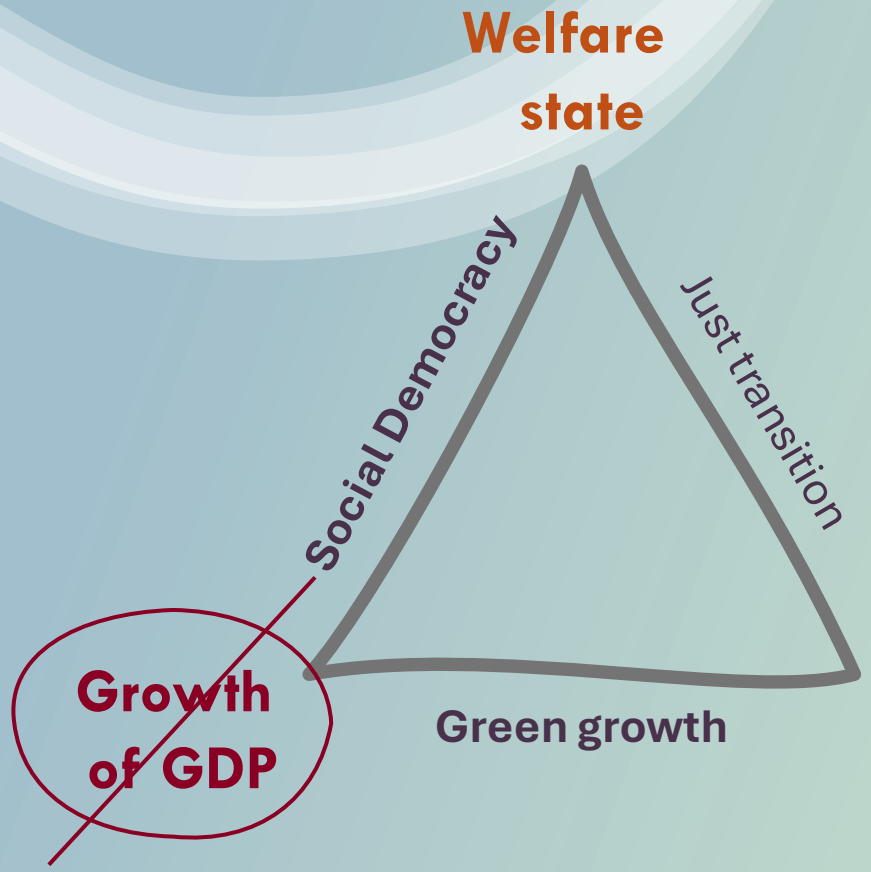


- Rent in Portugal often consumes **70% to 90% of** a single person's **average wage for a one-bedroom** apartment (Lisbon being particularly critical: **average rent can consume 82% of the family budget**).
- 16.6% of residents (~ 1.7 million people) at **risk of poverty,** meaning they lived on a **net income below €723 per month** per adult.
- 8.6% of the **employed** population considered at risk of **poverty.**

SWEET? Add the climate disasters....

Where we are:

"the impossible trilemma"



Structural power shift

Ecological & Energetic transition

Where we wanna go:

Wellbeing
Average wellbeing of the current generation

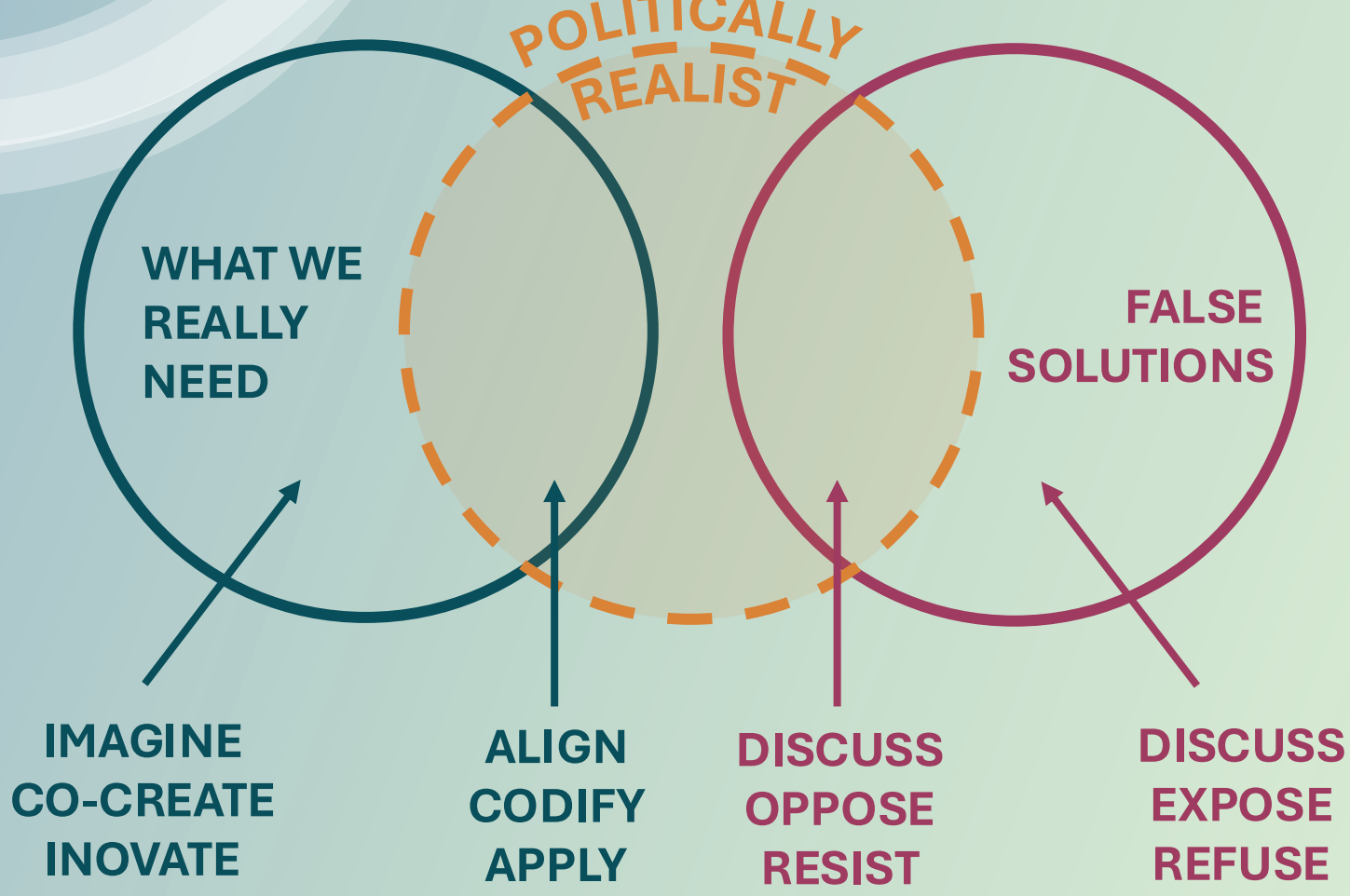
Inclusion
Distribution of wellbeing within and between countries

Sustainability
Wellbeing of future generations

Beyond-GDP Economy

E. Laurent (2021) *From welfare to farewell: the European social-ecological state beyond economic growth*

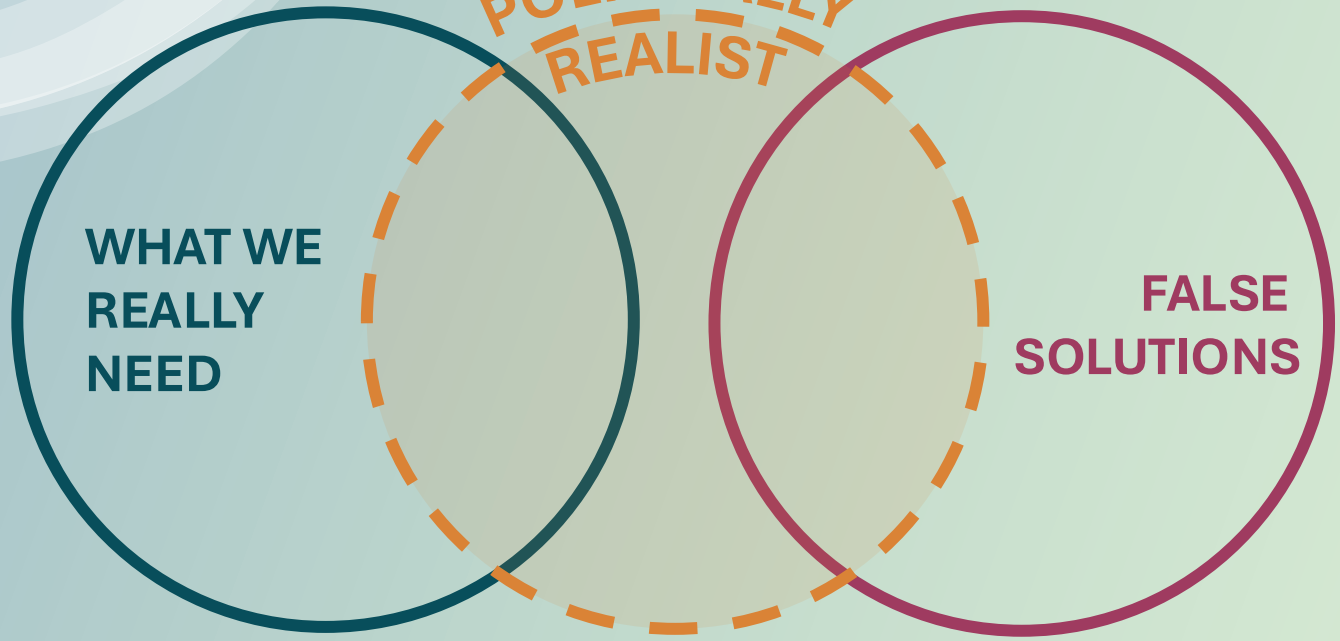
How does structural power shift?



Nubeo, Mateo et al. Frameworks for movement generation in Justice & ecology - https://movementgeneration.org/shocks-slides-and-shifts/

How did we come to "*easier to imagine the end of the world than the end of capitalism*" ?

See:
Stolz (2024) *Journal of Political Ecology* 31(1), 759–767



Narrative

What the electorate agrees

What the electorate disagrees

- News
- Political manifestos
- Electoral programs

(what we vote for)

Time records



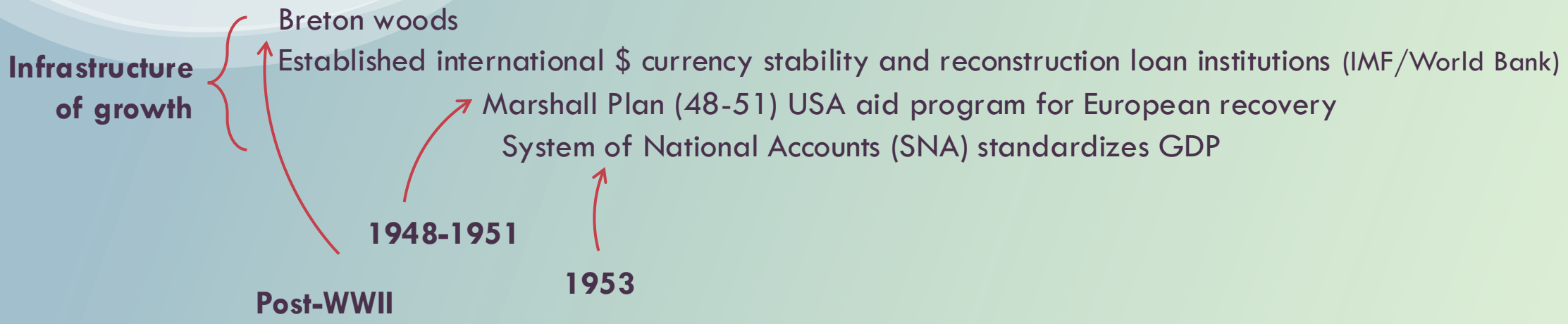
Allows us to study power dynamics: how the narrative evolved, who disseminates it & how, etc…

Note on data-sharing

Manifesto data cannot be shared publicly yet, sorry!
It's in preparation to be published & I will send the publication to all of you once its out!

I recorded the more important facts we discussed in class on every slide, so you can still access them.

Historic context of growth-centric economy system

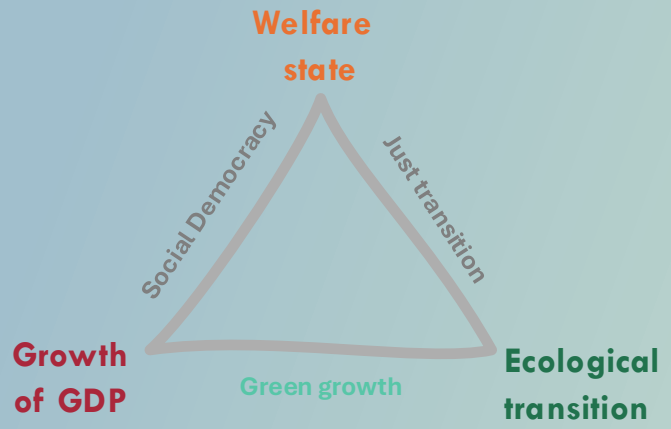


Growth's infrastructure is not that old to be inescapable…
(but the culture leading to it is centuries old = Imperialism…)

Welfare is the most salient cross-party and global issue in political discourse

since forever…followed by tech in the last decades.

However, tech has been the main tool of green-growth instead of just, inclusive and sustainable ecological transitions



E. Laurent (2021) *From welfare to farewell: the European social-ecological state beyond economic growth*

What must we address for sustainable futures?

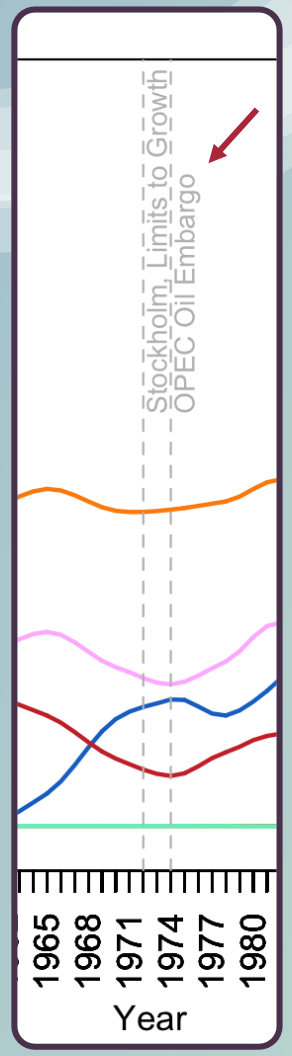
Sustainability & Environmental protection policy priorities are diametrically opposed to Growth & ProMilitary policies.

There is a cluster in geopolitical discourse of Growth and Pro-military and Free-Market narratives that reflects a

War-Energy-Economy nexus

That shapes global energy policy and energy transition political will

War-Energy-Economy nexus



1967 Six-Day War: Israel invaded and occupied the Sinai Peninsula and Gaza Strip (Egypt military admin.), the West Bank and East Jerusalem (Jordan annexation), and the Golan Heights (sovereign Syrian territory).

1973 Yom Kippur War: Egypt and Siria coalition move to recover land

Israel , supported by **USA** > Portugal, Netherlands, South Africa, Rhodesia (UK, Canada, Japan)
Arab coalition, supported by **Soviet union**
= Cold War tension (Nixon DEFCON3 in 1973) several wars interlacing!

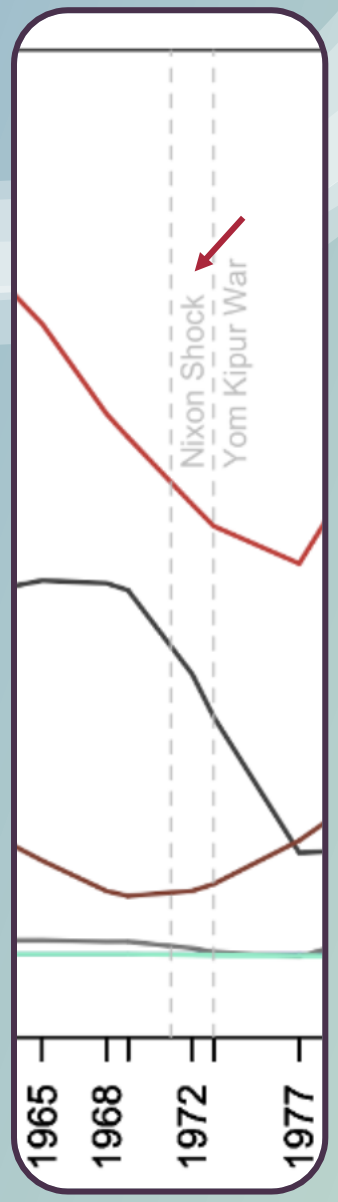
1973-74 OPEC (*Org. Petroleum Exporting Countries*) oil embargo to aggressor & allies (industrialised nations dependent on OPEC oil)

= **Global energy crisis + huge economic recession**

= Energy undeniably a Growth-strategic resource & military defense priority…

Note: (over)simplified resume

War-Energy-Economy nexus



1971 Nixon shock:
the U.S. had printed too many dollars to **fund the Vietnam War** & domestic programs. Foreign central banks realized the U.S. didn't have enough physical gold to back the printed paper bills, started demanding their gold back.

To prevent emptying U.S. gold vaults, Nixon abruptly ended the dollar's convertibility to gold.

Overnight, global monetary system lost physical/Earth valuable resource.

Dollar **needed a new, universally required commodity to back the dollar's value** to ensure global demand wouldn't collapse.

Note: (over)simplified resume

War-Energy-Economy nexus



PostWWII - 1971

Bretton Woods
Dollar = gold

1974 USA – Saudi Arabia agreement (later all OPEC):

Every barrel of oil exported globally must be priced and sold exclusively in U.S. Dollars.
In exchange: U.S. provides Saudi Arabia with military protection and weapons.



Post-1974

Petrodollar
Dollar = **oil**

1971 Nixon shock:
the U.S. had printed too many dollars to **fund the Vietnam War** & domestic programs. Foreign central banks realized the U.S. didn't have enough physical gold to back the printed paper bills, started demanding their gold back.

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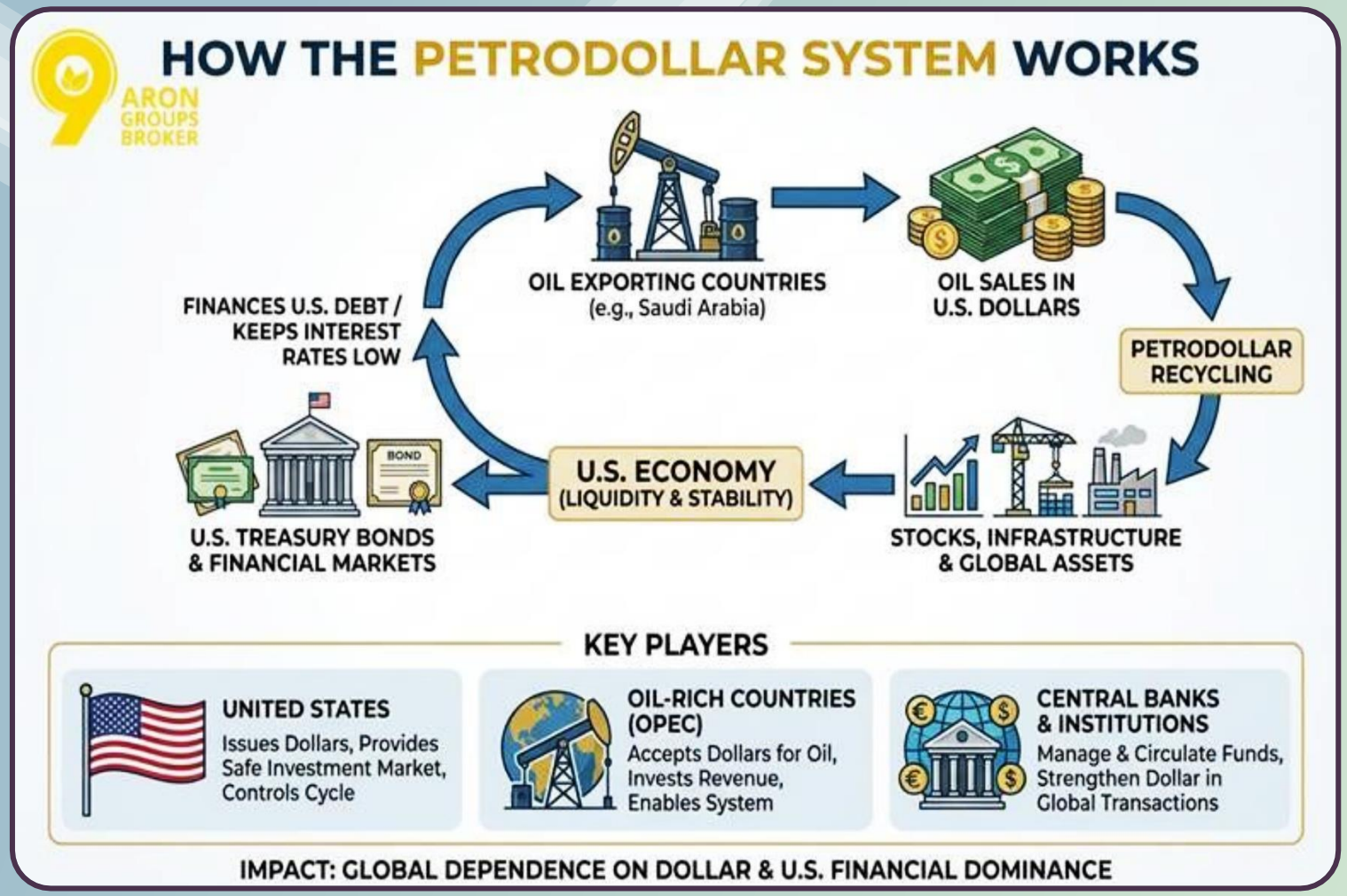
Overnight, global monetary system lost physical/Earth valuable resource.

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Note: (over)simplified resume

“Synthetic” global demand for $

> Every industrialized nation *needs* energy > *must* accumulate reserves of $ just to buy oil.

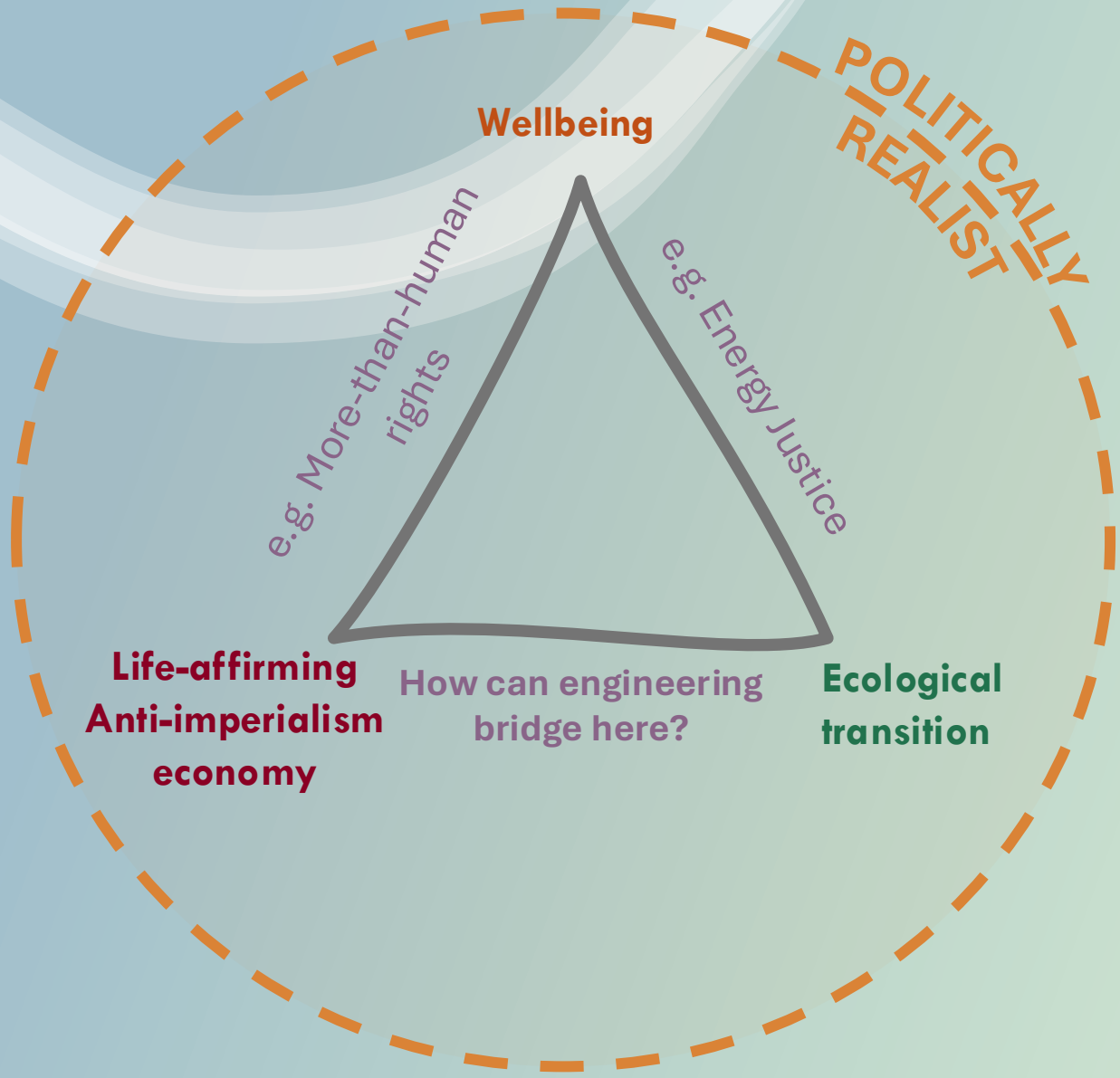


1. If **Portugal** wants to **buy oil** from Algeria, first must **€ > $ (USA)**

2. **Algeria receives $,** which they have massive surplus beyond needed (Petrodollars)

3. Algeria invests Petrodollars back into **Western financial markets** = loans back to **USA** cheaply > USA spends & **can inject into economy for GDP-growth** e.g through further defense contracts…)

If the petrodollar system changes (some states are trying), it can radically shift how international energy projects are financed and how global energy inflation behaves!



5 min. break

Then we discuss how we can have the 3!

What must we bridge for sustainable futures?

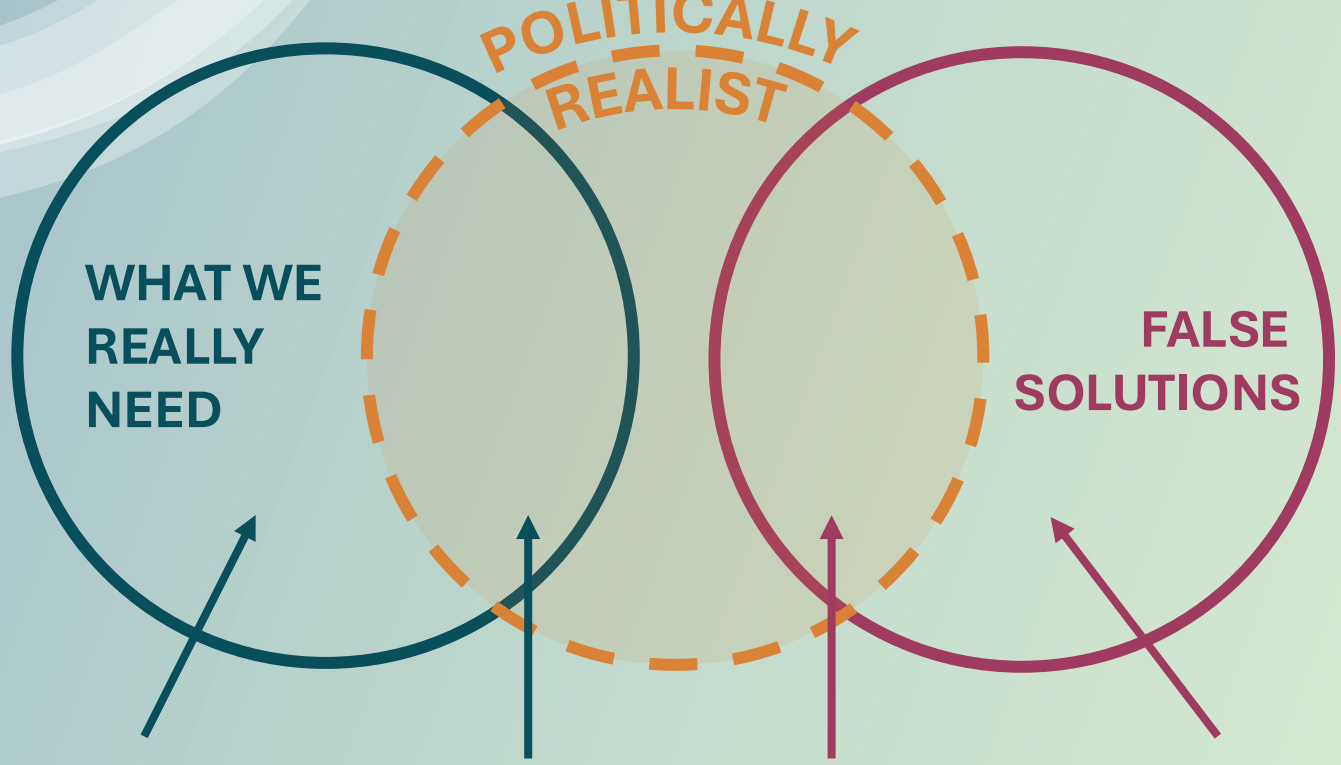
We need to
bridge variables
ecossystemically!

Definitions of sustainability that include justice and human & planetary wellbeing, distribution of wealth and insuring human rights and energy sovereignty…

Remember that sovereignty **does not mean "independence" in isolation, but more "collective responsibility free from oppression and imperialistic/colonial dynamics"…**

How can engineering contribute to political realism towards sustainable possibilities? Watch for traps!





Democratic & life-affirming tech towards planetary (people+nature) health

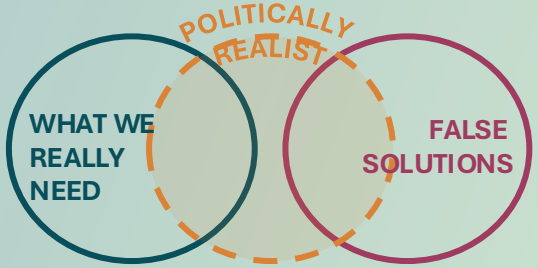
Anti-democratic and exclusionary "green" growth/ Tech-solutionism/ Neo-colonialisms

Same old violently extractive doughnuts with green sprinkles...



How can engineering contribute to political realism towards truly sustainable possibilities?

Democratic & life-affirming tech towards planetary health



Anti-democratic and exclusionary "green" growth/ Tech-solucionism / Neo-colonialisms



Distributed responsibility & benefits

⇩

Systemic & Planet-centered (distributed resilience)



Centralized control with old imperialistic dynamics

⇩

(some) Human –centered (inequal distribution of benefits & costs)

"We need multiple solutions towards collective goals free from oppression."

Narratives

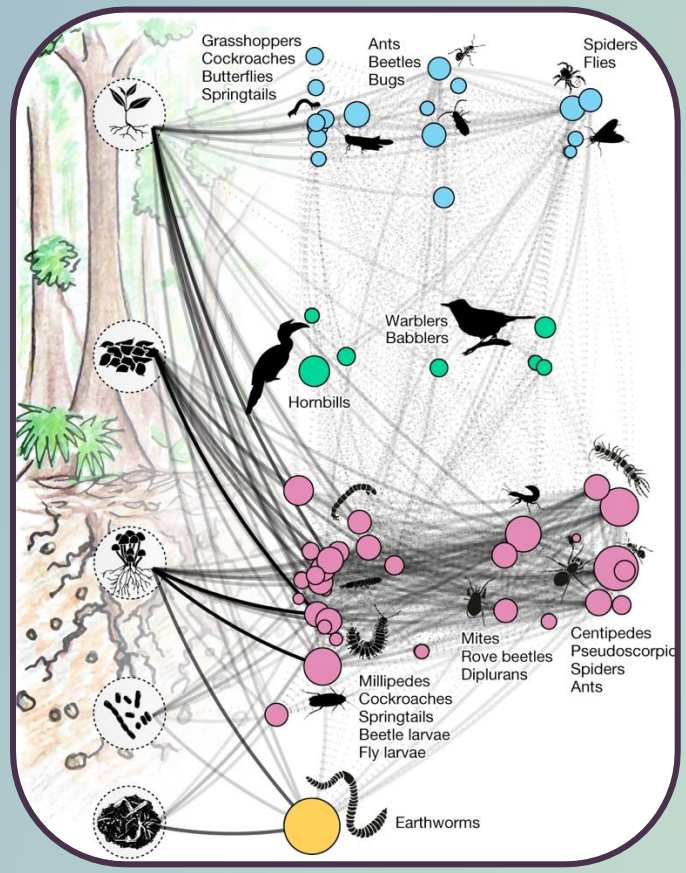
"All we need is more tech made & controlled by certain people."

How does this look like?

Tech as narrative innovation for sustainable futures beyond impossibility

Go beyond hierarchical competition

Mutualism
Predation
Herbivory
Commensalism
Parasitism
Amensalism
Competition
Symbiosis
Cooperation
Solidarity
...



Tech as liberatory harmonization with planetary health



see https://clusters.eunic.eu/projects/namibia-cluster-fund-2024

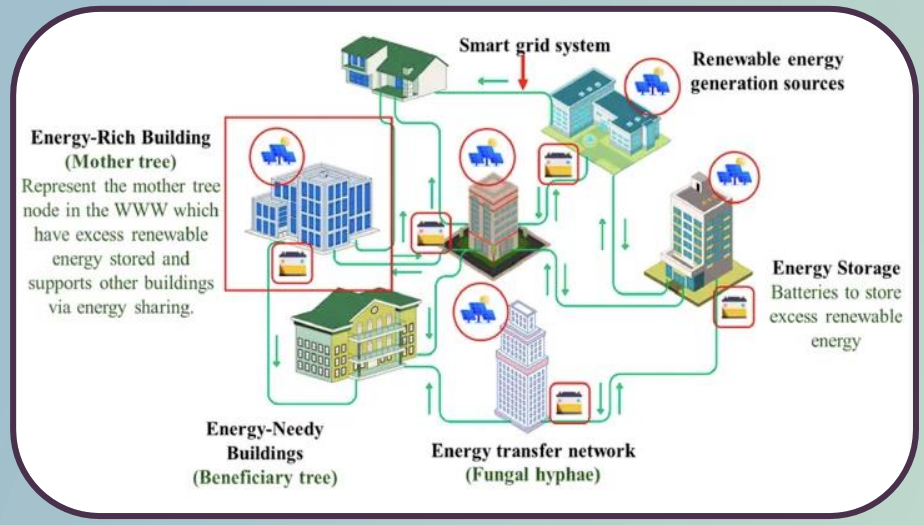
How does this look like?



Learning with nature (very efficient 6 billion-year-old teachers)

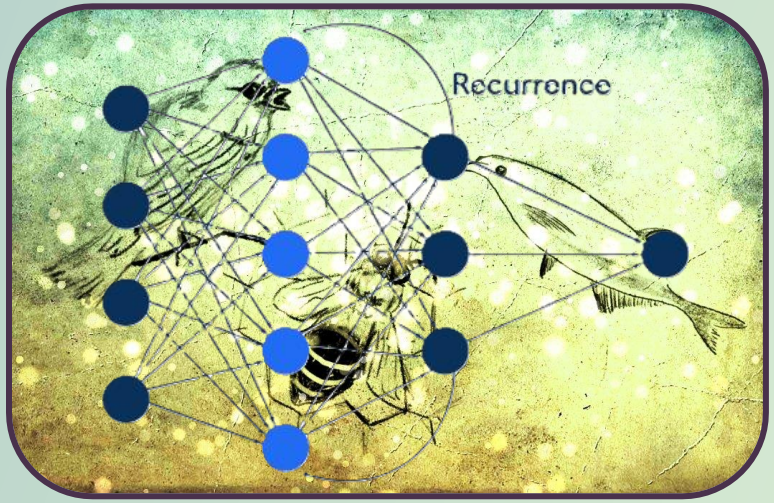
Biomimicry
Nature-Inspired computing / algorithms

Mycelium-inspired energy model



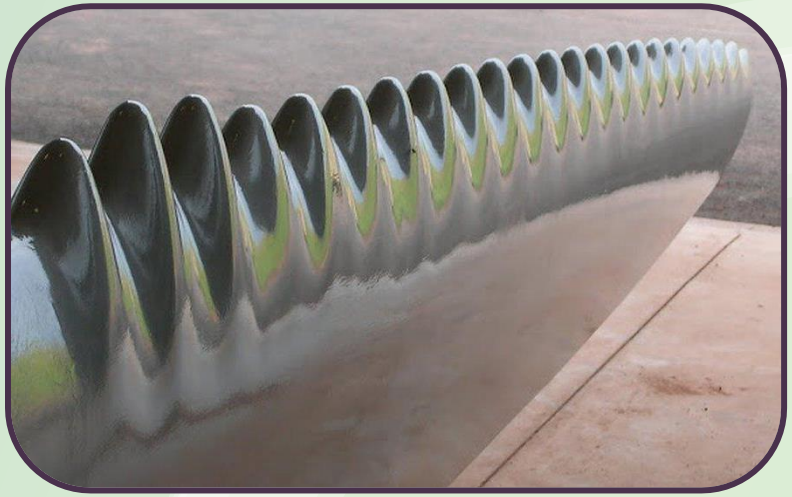
Rahudabba et al., 2025

Animal-inspired coding



e.g. Zhang & Wang, 2024

Whale-inspired efficient wind turbines

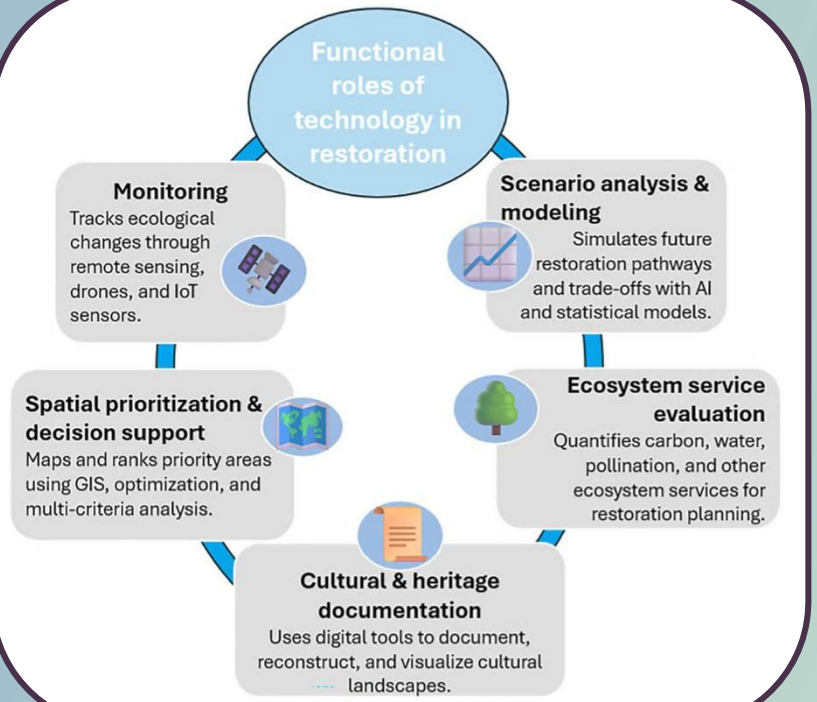


Whalepower Corporation

How does this look like?

Applying life-affirming values

Socio-ecological restoration



e.g. Sahle & Melaku, 2025

Making AI inclusive, democratic & low-impact

If built on people & Earth's resources why don't people & Earth have empowered decision-making?



e.g. Lalrinmawia et al., 2025

Ontological democracy

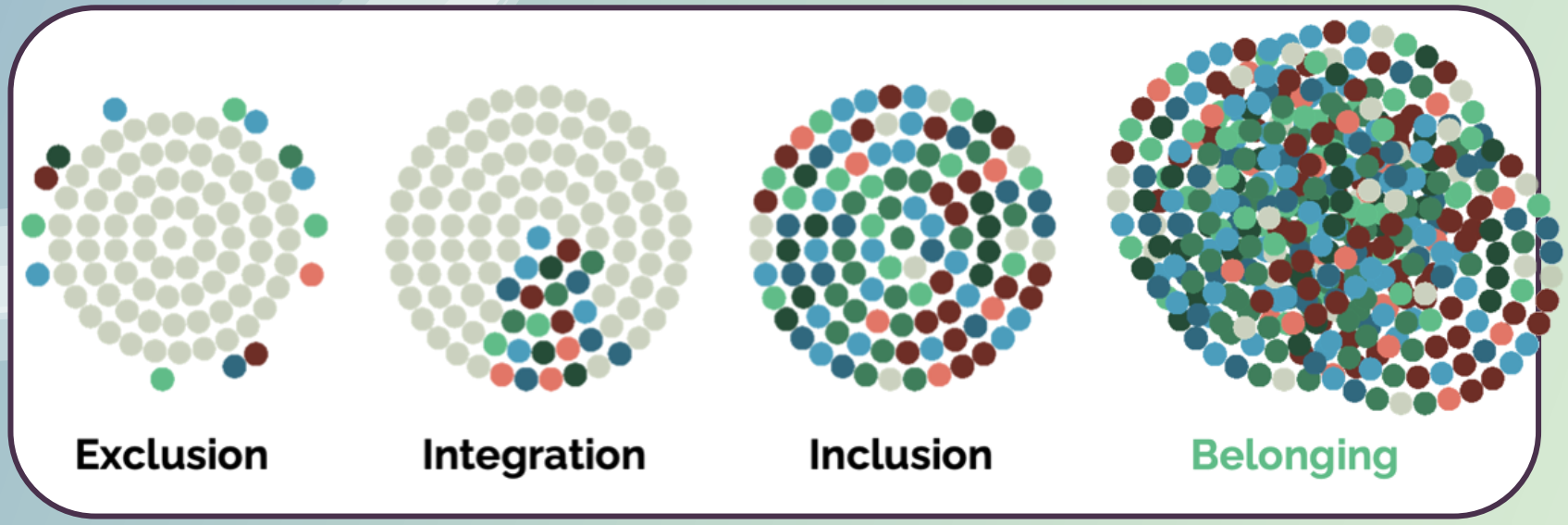


Barandiaran et al., 2024

How do we make it happen?

Root-up

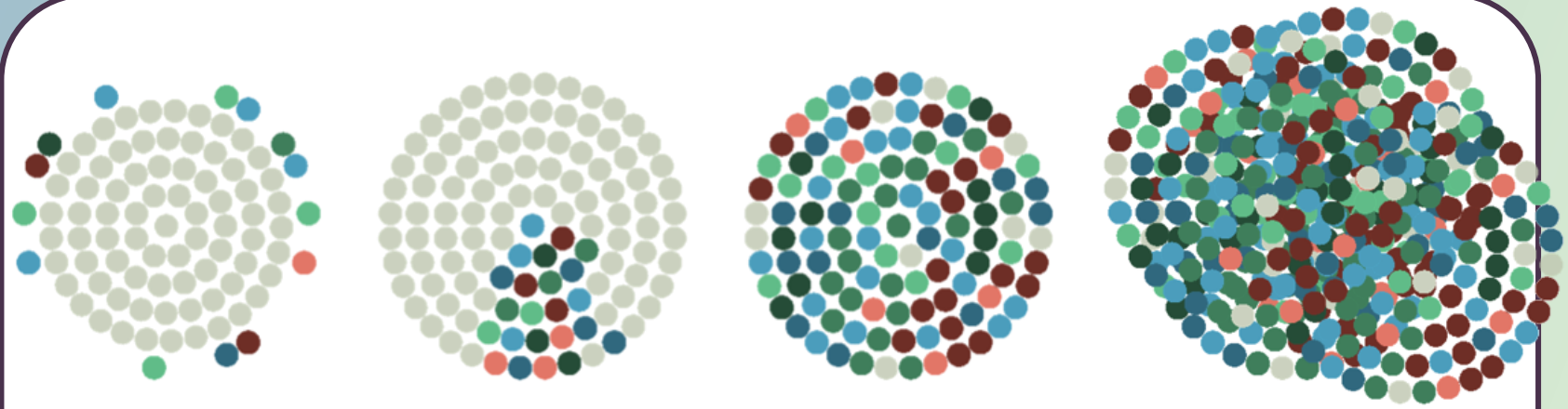
Communities
Co-create



How do we make it happen?

Root-up

Communities
Co-create



Top-down

Towards shared
desirable futures

Five Steps of Targeted Universalism

1	2	3	4	5
Set universal goal based upon broadly shared recognition of a societal problem and collective aspirations	Assess general population performance relative to the universal goal	Identify groups and places that are performing differently with respect to the goal	Assess and understand the structures that support or impede each group or community from achieving the universal goal	Develop and implement targeted strategies for each group to reach the universal goal

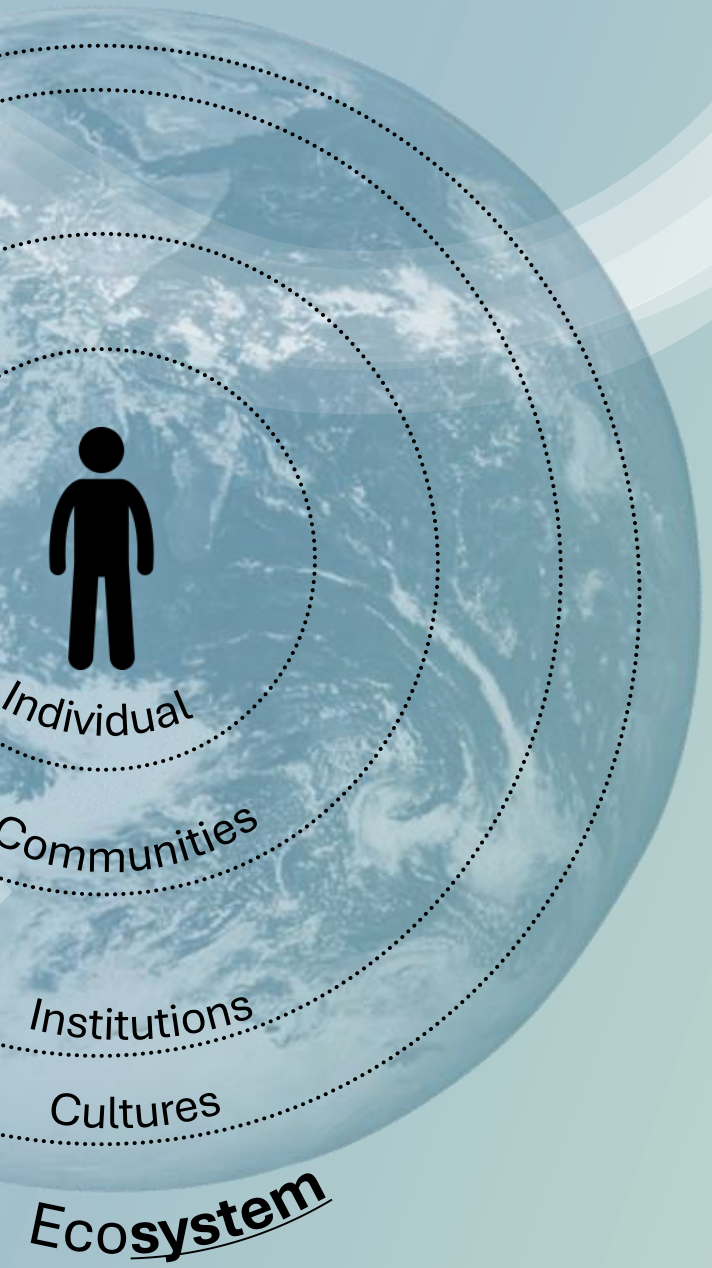
Effective policy methodology to Codify & Apply

See:
powell et al. (2019)
Targeted universalism:
police & Practice

Wanna go deeper?

Some recommended literature:

- E. Laurent (2021) ***From welfare to farewell: the European social-ecological state beyond economic growth.***
- Iñigo del Guayo et al. (2020) ***Energy Justice and Energy Law.***
- Arturo Escobar (2018) ***Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds.***
- powell, john a., Stephen Menendian (2024) ***Belonging Without Othering: How We Save Ourselves and the World.***
- Shiva, V. (1993) ***Monocultures of the mind: Perspectives on biodiversity and biotechnology.***
- Wright, B. (2024) ***Environmental Colonialism, the Root Cause of Our Planet's Crisis***



Let's play targeted universalism!

Group work



WHAT WE REALLY NEED

A region of Portugal is struggling with having reliable, affordable, and clean energy

1. How do you describe your UNIVERSAL VALUE for policy guidance?

10 min.

What does everyone in this region need/deserve (policy-wise)

2. How are you gonna do it <u>including</u> all communities below without creating sacrifice (TARGETED APPROACHES):

25 min.

Urban energy-poor renters (can't install solar, can't control their bills, because landlords)

Post-industrial coal workers (energy transition = losing their jobs)

Farmers (energy projects on their territory will impact land & livelihood)

Endangered migratory birds (energy projects on their reproduction territory will cause extinction)