

Welcome to this week's presentation & conversation hosted by the **Canadian Association for the Club of Rome**, a Club dedicated to intelligent debate & action on global issues.

The views and opinions expressed in this presentation are those of the speaker & do not necessarily reflect the views or positions of CACOR.

Legislation for a Steady State Economy.

Our speaker today is Dr. Daniel Wortel-London, Policy Specialist at the Center for the Advancement of the Steady State Economy (CASSE). He has served as Knowledge Co-Lead for the Wellbeing Economy Alliance, and as Research Coordinator for the CivWorld project at Demos. He earned his Ph.D. in History from New York U, where he wrote numerous articles along with his dissertation, retitled "The Menace of Prosperity" for publication by the U Chicago Press. A native of Hoboken, New Jersey (USA), Daniel works out of West Orange, NJ, with periodic policy work in Washington, DC.

DESCRIPTION: How can we reduce humanity's economic footprint to be within our planet's carrying capacity? This is the defining question of our era, and one that is being taken up by a growing number of activists, thought-leaders, and policy-makers. In this talk, Daniel will discuss strategies for translating ecological principles into legislation. He will also discuss challenges and questions that will need to be resolved if we are to build a truly just and sustainable economy.

The presentation will be followed by a conversation, questions, & observations from the participants.

CACOR acknowledges that we all benefit from sharing the traditional territories of local Indigenous peoples (First Nations, Métis, & Inuit in Canada) and their descendants.



Website: canadiancor.com
Twitter: [@cacor1968](https://twitter.com/cacor1968)
YouTube: [Canadian Association for the Club of Rome](https://www.youtube.com/channel/UC...)
2023 Nov 29 Zoom #173

The Steady State Economy

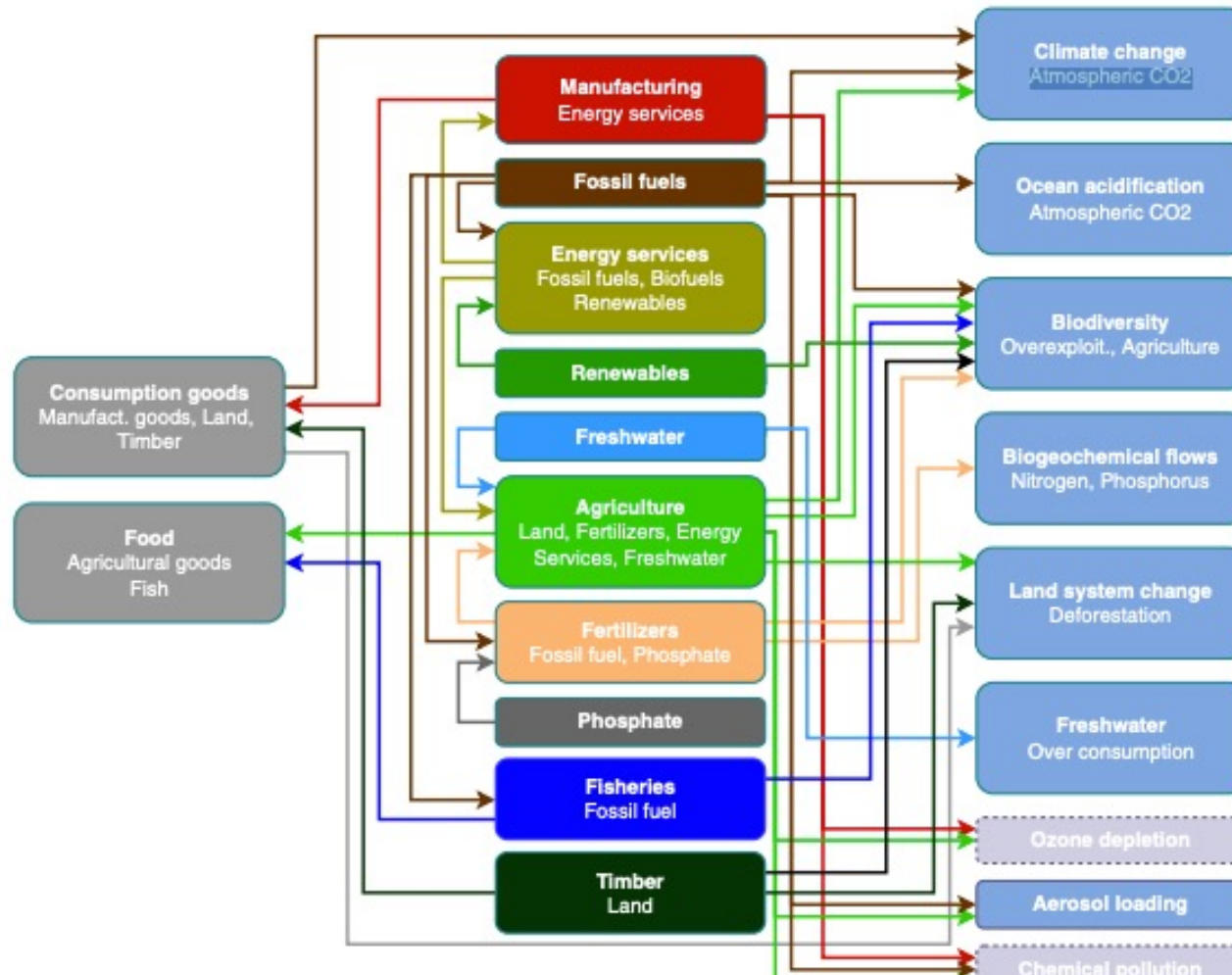
For Beginners

Policy Design: The conscious and deliberate effort to define policy aims and map them instrumentally to policy tools that aim to achieve those goals.

The Immediate Problem:

- Renewable resources are being harvested at rates exceeding their regenerative rates
- The rate of depletion of non-renewables are exceeding rate of creation of renewable substitutes
- Waste emissions are exceeding the natural assimilative capacities of environment.

The Immediate Culprits: Particular Economic Sectors



Sectoral contributions¹ toward each planetary boundary, % on relative scale

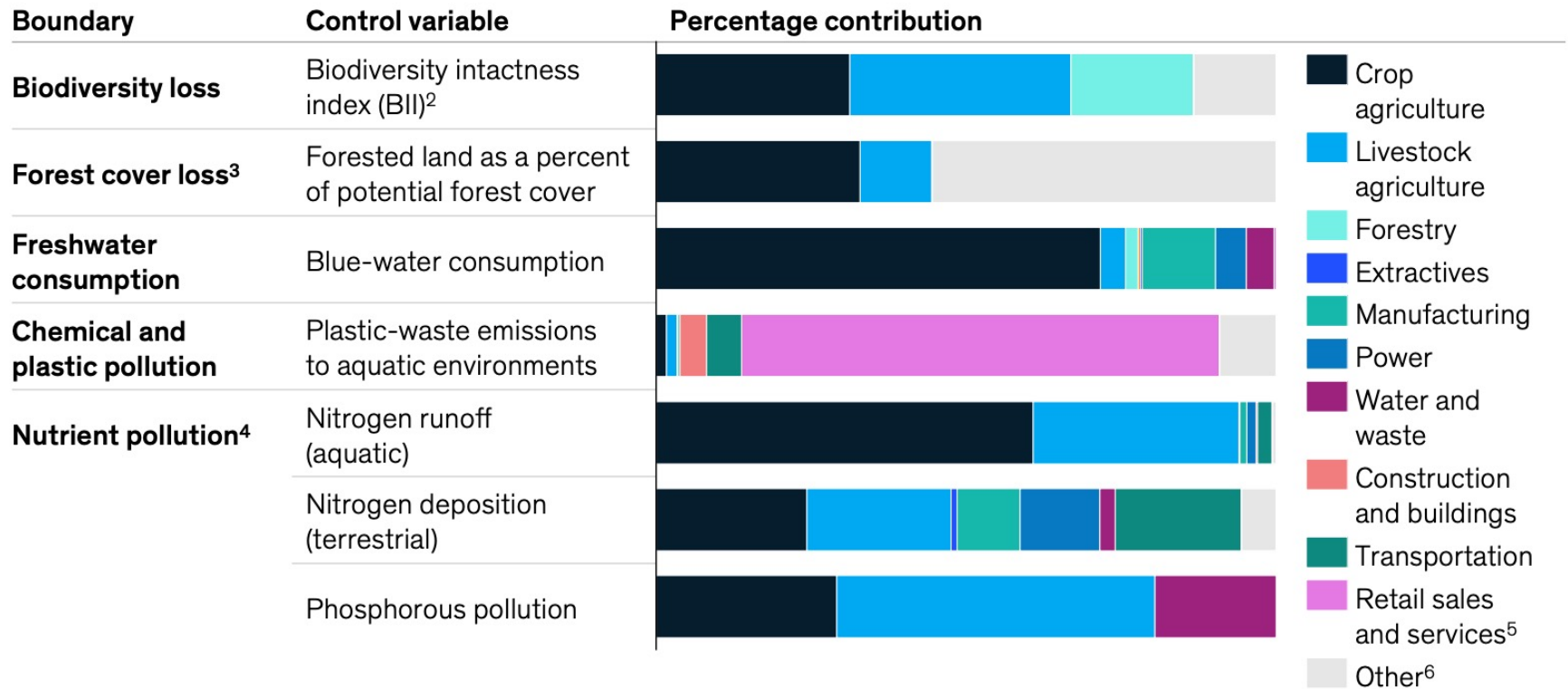
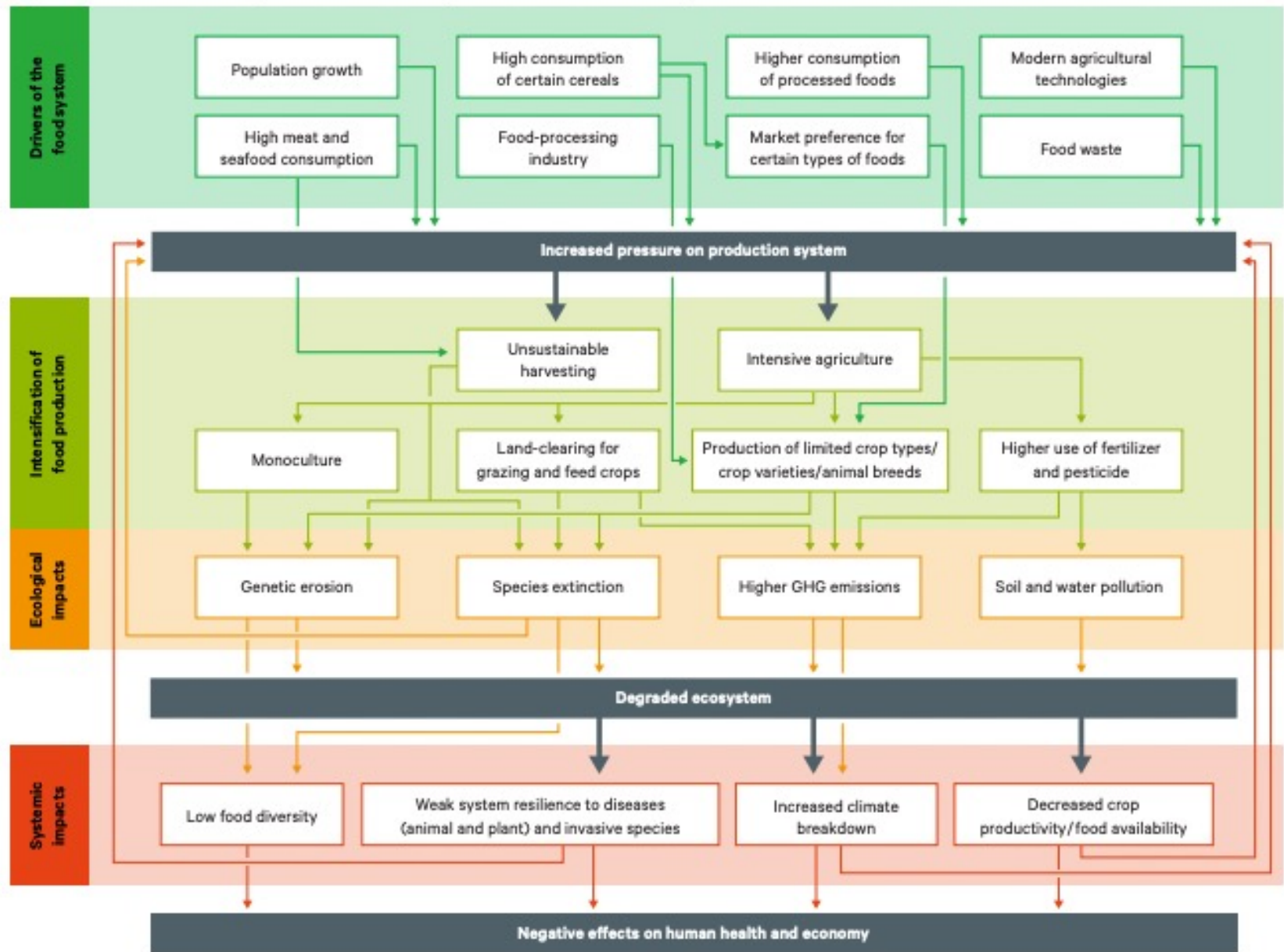


Figure 4. The food system and its impacts on biodiversity



Source: Authors' original diagram.

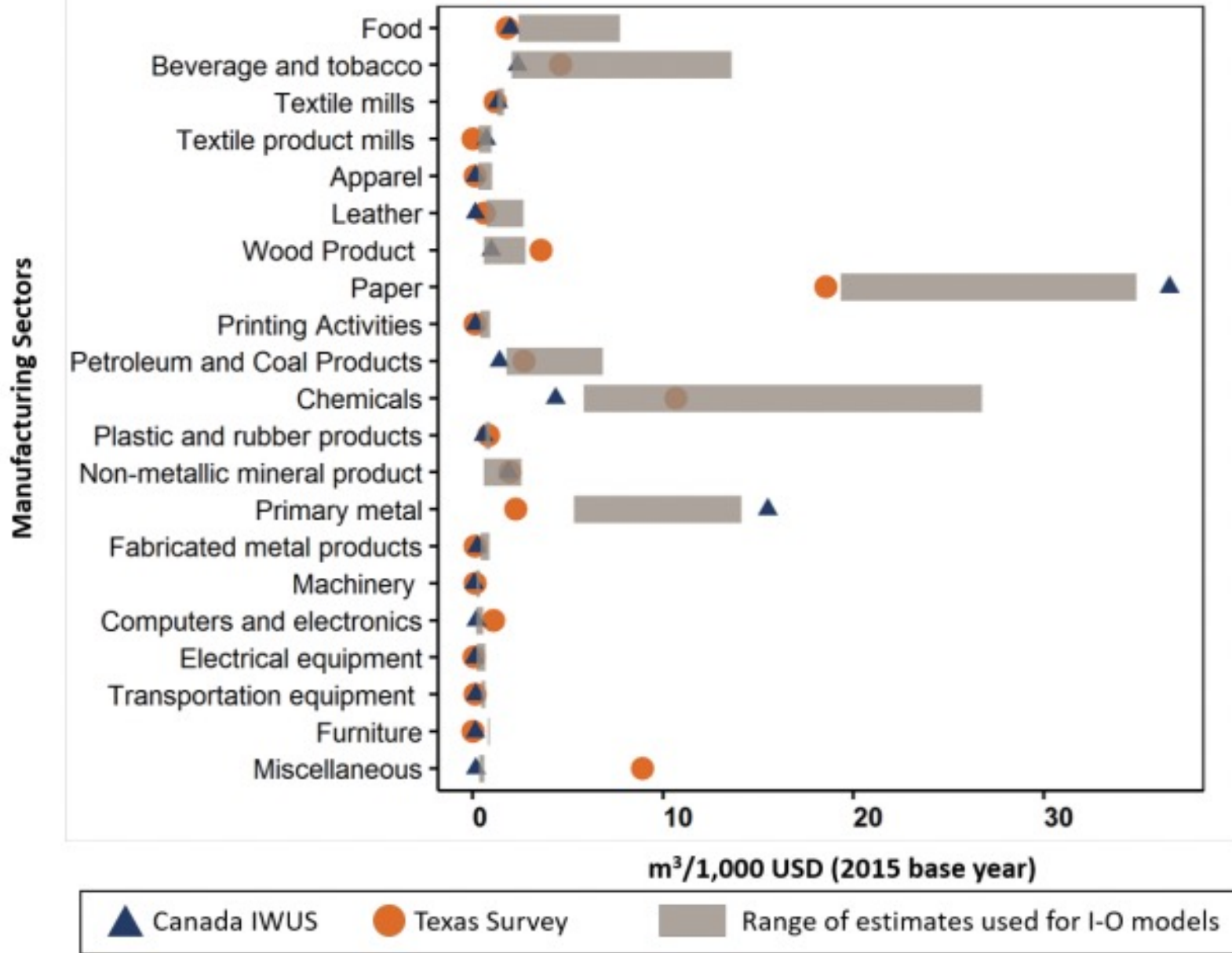


Figure 2: Comparative water withdrawal coefficient estimates

The Ultimate Problem: Growth

- Increase in the production and consumption of goods/services in the aggregate
 - Typically expressed in terms of GDP
 - Entails increasing population and/or per capita consumption.

Policy Goal: Steady State Economy

- An economy with a constant population and constant stock of capital, maintained by a low rate of throughput that is within the regenerative and assimilative capacities of the ecosystem.

Policy Means: Degrowth

- Decrease in the production and the consumption of goods and service in the aggregate.

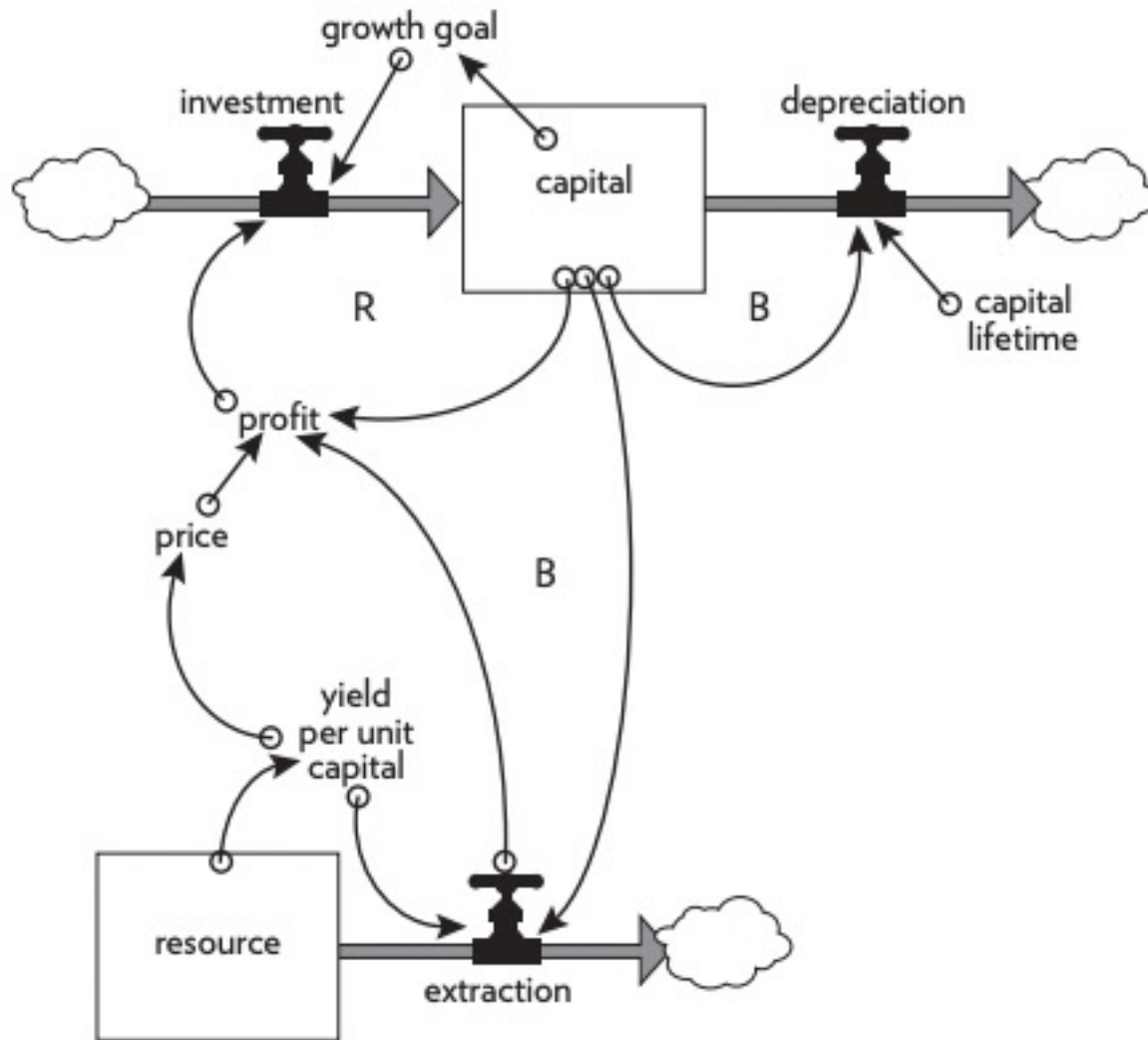


Figure 37. Economic capital, with its reinforcing growth loop constrained by a nonrenewable resource.

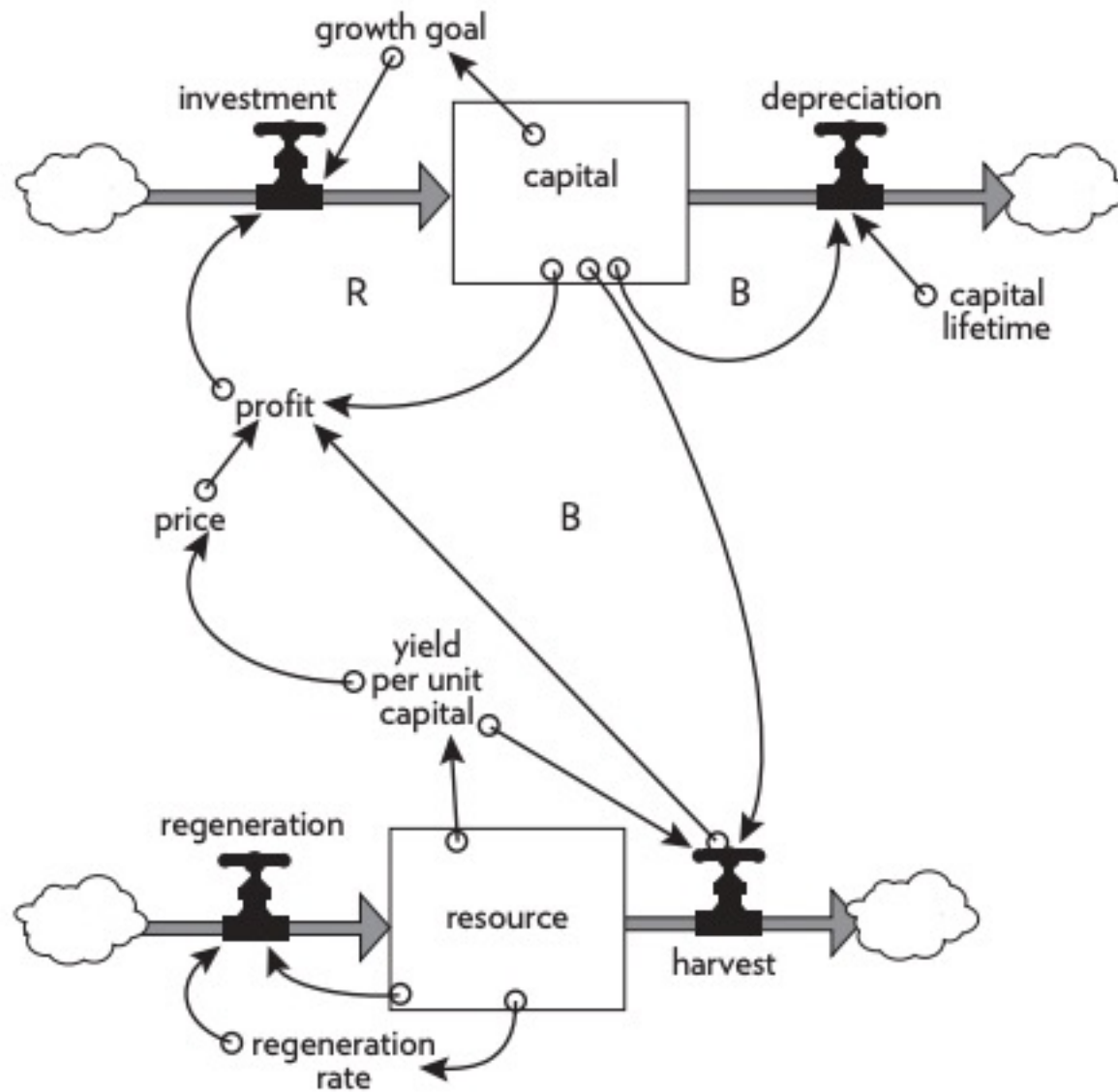


Figure 42. Economic capital with its reinforcing growth loop constrained by a renewable resource.

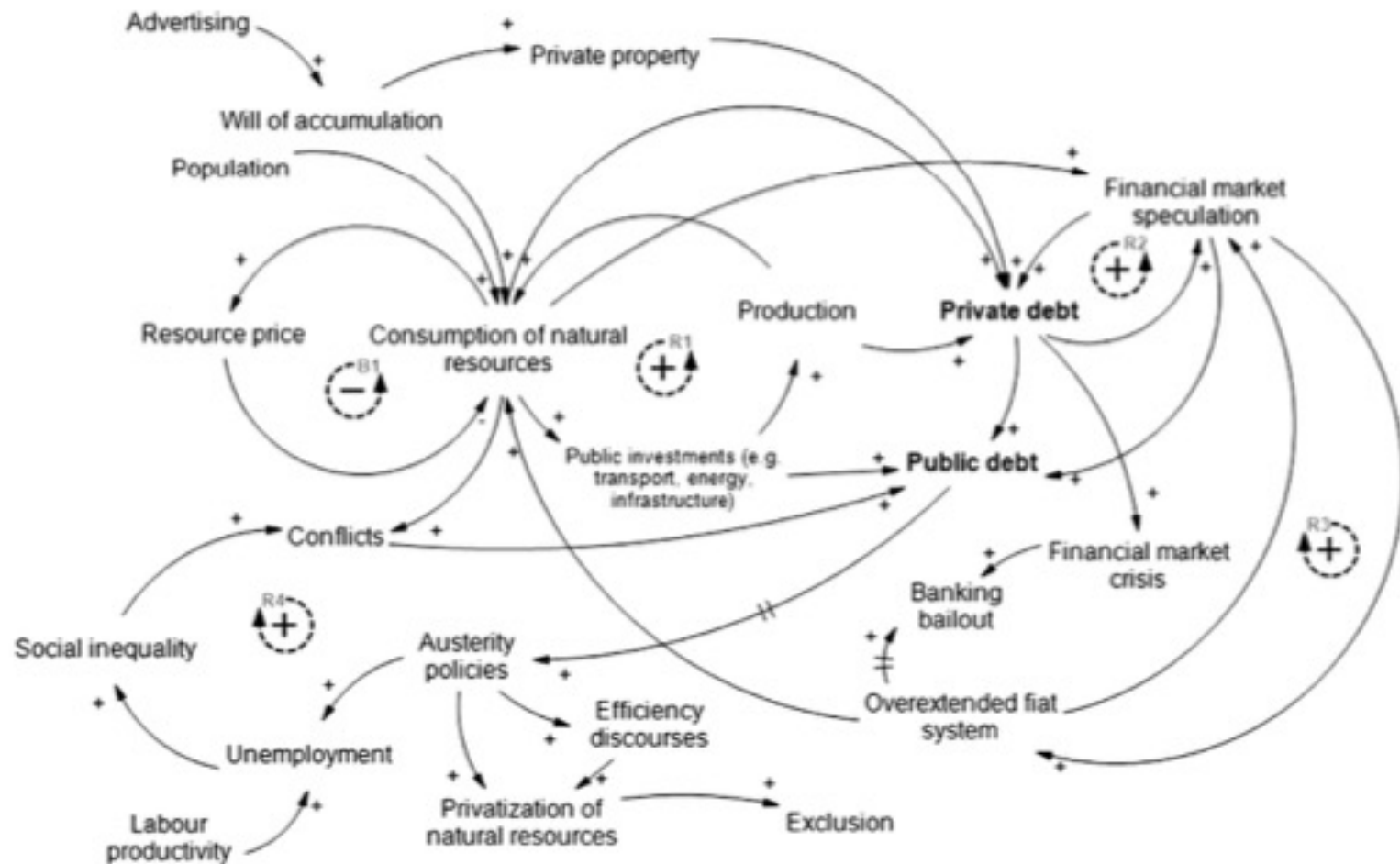
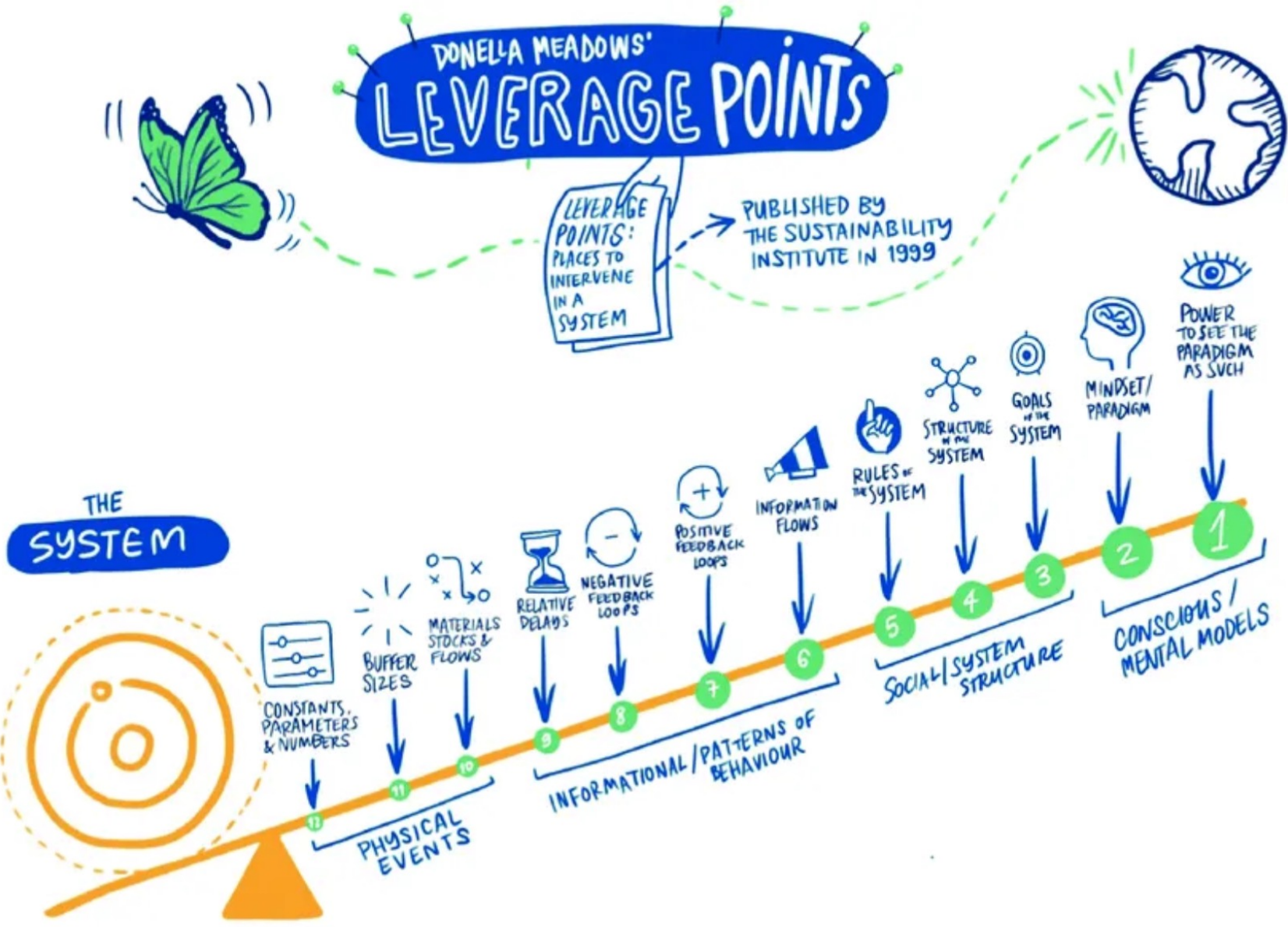


Fig. 4. Feedback loops in the 'economic sector' CLD (Reinforcing loops: **R1–R4**; Balancing loop B1).

POINTS THAT COULD BE ADDRESSED TO TACKLE THE CHALLENGE OF STOPPING CLIMATE



CASSE Top Policies

- Formally adopt the steady state economy as the overarching economic goal.
- Maintain a network of conservation areas sufficient in size and diversity to ensure the long-term provision of vital ecosystem services.
- Stabilize population and aim for a long-term population size that enables a high standard of living for everyone without undermining ecological systems and the life-support services they provide.
- Limit the range of inequality in income and wealth, including both a minimum and maximum allowable income. Implement tax reforms to tax “bads” (e.g., pollution and depletion of natural resources) rather than goods (e.g., income from wages).
- Employ cap-auction-trade systems in the commons sector for allocating basic resources.
- Gradually reset existing fiscal, monetary, and trade policy levers from growth toward a steady state.

- Establish a more flexible working day, week, and year.
- Overhaul banking regulations, starting with gradual elimination of fractional reserve banking, such that the monetary system moves away from a debt structure that requires continuous economic growth.
- Adjust zoning policies to limit sprawl and promote energy conservation.
- Continue to monitor GDP, but interpret it as a measure of the size of the economy and an indicator of environmental impact.
- Prevent unconstrained capital mobility so that financial resources are more directly tied to the real assets they represent.

- Work toward full internalization of costs in prices (e.g., costs associated with environmental protection and fair labor laws).
- Institute policies that move away from globalization and toward localization to conserve energy resources, provide high-quality local jobs, and maintain local decision-making authority.
- Limit the scope of advertising to prevent unnecessary demand stimulation and wasteful consumption.
- Establish a Bureau of Population and Consumption to replace the Council of Economic Advisers and to report on sustainability criteria.

Paradigm Shifts

Example: the “Rights of Nature”

Goal Shifts

- Economic Growth
- Economic Development
- Steady State as Goal

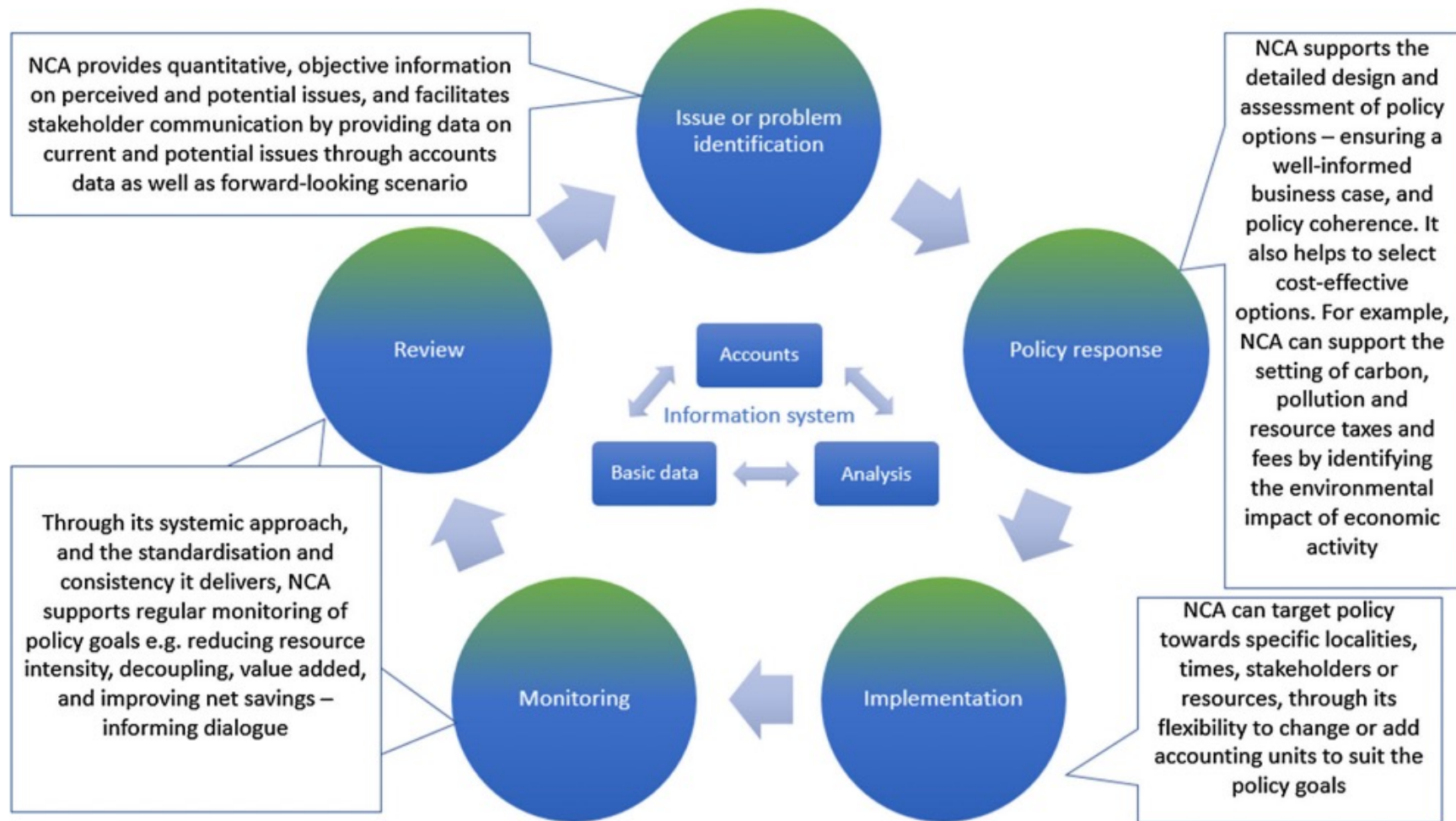
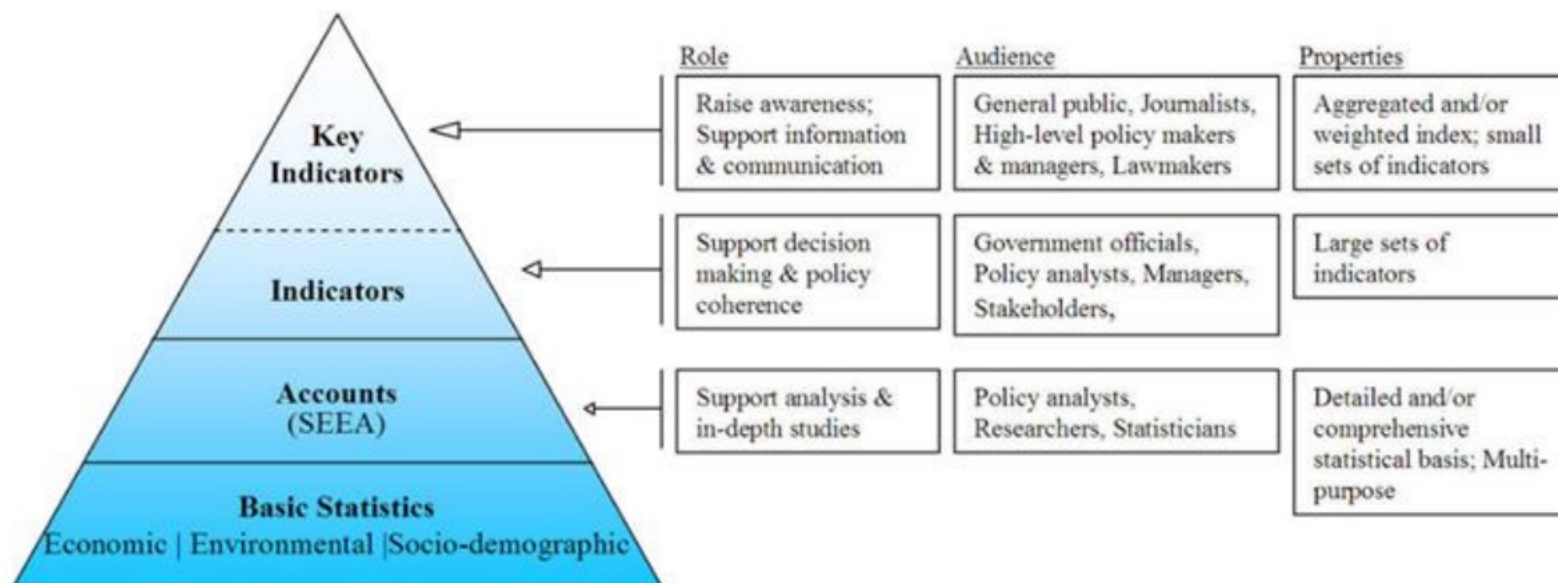


Fig. 2 The policy cycle and associated NCA uses. *Source* Adapted from Vardon et al. (2016a)

Table 1.1. Overview of the SEEA stocks and flows accounts

Thematic area	Name of account	What the account covers	OECD countries compiling (2022)
Energy (flows)	Physical Energy Flow Accounts (PEFAs)	Flows of energy between the environment and the economy.	EU countries, Australia, Canada, Colombia, Iceland, Norway, Switzerland, Türkiye, United Kingdom
Energy (stocks)	Mineral and energy resource asset accounts	Stocks of non-renewable energy resources and minerals.	Australia, Canada, Colombia, Denmark, Italy, Mexico, Netherlands, Norway, United Kingdom, United States
Greenhouse gas emissions and air pollution (flows)	Air Emission Accounts (AEAs)	Generation of emissions of CO ₂ , other greenhouse gases and pollutants.	EU countries, Canada, Colombia, Iceland, Israel, Japan, Mexico, New Zealand, Norway, Switzerland, Türkiye, United Kingdom, Australia (discontinued), Korea (discontinued)
Water (flows)	Physical water flow accounts; economic accounts.	Flows of water between the environment and the economy; information on income, costs, financing.	Australia, Canada, Colombia, Costa Rica, Denmark, Germany, Ireland, Israel, Luxembourg, Mexico, Netherlands, New Zealand, Slovenia, Sweden
Water (stocks)	Physical water asset accounts.	Water cycle; water stocks and consumption/ depletion by the economy.	
Land (stocks)	Physical and monetary land asset accounts	Land use and land cover, including changes in area, use and value of land.	Australia, Colombia, Denmark, Estonia, Iceland, Italy, Mexico, Norway, Sweden
Agriculture, forestry and fisheries (flows)	Agriculture, forestry and fisheries flow accounts	Flows of agriculture, forestry, and fishery products between the environment and the economy.	Austria, Canada, Colombia, Denmark, France, Germany, Italy, Luxembourg, Mexico, New Zealand, Norway, Slovenia, Slovakia
Agriculture, forestry and fisheries (stocks)	Agriculture, forestry and fisheries asset accounts	Stocks of agriculture, forestry and fishery resources.	
Material flows	Material Flow Accounts	Material inputs and outputs of an economy (brings together other SEEA stocks and flows accounts).	EU countries, Canada, Colombia, Costa Rica, Iceland, Israel, Mexico, Norway, Switzerland, Türkiye, United Kingdom
Ecosystem Accounts	Ecosystem Extent, Condition and Services Accounts; Monetary Ecosystem Asset Account	Provides information of all aspects of a country's ecosystem in both physical and monetary terms.	Australia, Austria, Belgium, Canada, Colombia, Czech Republic, Denmark, Estonia, Germany, Hungary, Ireland, Italy, Mexico, Netherlands, Norway, Spain, United Kingdom

Figure 2.1. SEEA and the information pyramid



Source: UN Statistical Division: Environmental Economic Accounts Section: <https://seea.un.org/>.

THE PLANETARY BOUNDARIES FRAMEWORK

Stratospheric ozone depletion

This means higher levels of UV radiation reach ground level. The appearance of the Antarctic ozone hole was proof that increased levels of man-made ozone-depleting chemical substances, interacting with polar stratospheric clouds, had passed a threshold. Fortunately, because of the actions taken as a result of the 1989 Montreal Protocol, we appear to be back on track to staying within this boundary.³⁸

Biodiversity loss

Loss of biosphere integrity results in the loss of local and regional biodiversity, which makes ecosystems more vulnerable to changes in climate and ocean acidity. Currently, the extinction rate is used as a boundary measure for loss of biosphere integrity. Today, the global extinction rate far exceeds the rate of speciation.³⁹ If the current extinction rate is sustained, an undesired system change is highly likely.

Chemical pollution and release of novel entities

This includes microplastics, pesticides, heavy metal compounds and radioactive materials. Persistent organic pollution, for example, has caused dramatic reductions in bird populations and impaired reproduction and development in marine mammals.⁴⁰

Climate change

This is measured by CO₂ concentration in the atmosphere, with a suggested boundary of 350 parts per million (ppm) above the pre-industrial level.⁴¹ We've now surpassed 390 ppm CO₂ in the atmosphere. The loss of summer polar sea-ice is almost certainly irreversible. This is one example of a well-defined threshold that, when breached, gravely impacts the Earth system.⁴²

Ocean acidification

This is a reduction in the ocean's PH due to CO₂ absorption: around one-quarter of our CO₂ emissions dissolve in the ocean.⁴³ This makes it difficult for essential marine life to survive. Unlike most other human impacts on the marine environment, which are often local in scale, this boundary has global ramifications. It is also an example of how tightly interconnected the boundaries are, as atmospheric CO₂ concentration is the underlying variable for both the climate change and ocean acidification boundaries.

Freshwater consumption

This is measured in terms of 'blue' and 'green' water. Blue water is the freshwater held in surface reservoirs. Green water is the fraction of rainfall that is absorbed by soil to feed plants. The freshwater cycle is closely linked to climate change and its boundary mirrors that of the climate boundary. A water boundary related to consumptive freshwater use and environmental flow requirements has been proposed to maintain the overall resilience of the Earth system.⁴⁴

Land system change

This is driven primarily by agricultural expansion and intensification. Humanity may be reaching a point where further agricultural land expansion at a global scale may seriously threaten biodiversity and undermine the regulatory capacities of the Earth system. The Planetary Boundaries framework proposes that no more than 15% of global usable land should be converted to cropland.⁴⁵




Biogeochemical flows: cycles of nitrogen and phosphorus

Nitrogen and phosphorus are both essential elements for plant growth, but activities like agriculture, poor wastewater management and fossil fuel use convert more atmospheric nitrogen into reactive forms than all of the Earth's terrestrial processes combined. A significant fraction of these nutrients make their way to the sea, and can push marine and aquatic systems across ecological thresholds of their own,⁴⁶ while impacting human health.

Atmospheric aerosol loading

This is impacted by GHG emissions and land-use change that releases dust and smoke into the air. Shifts in climate patterns and monsoon systems have already been seen in highly polluted environments, giving a quantifiable regional measure for an aerosol boundary.⁴⁷

Legend

-  Safe
-  Close to overshooting
-  Overshooting

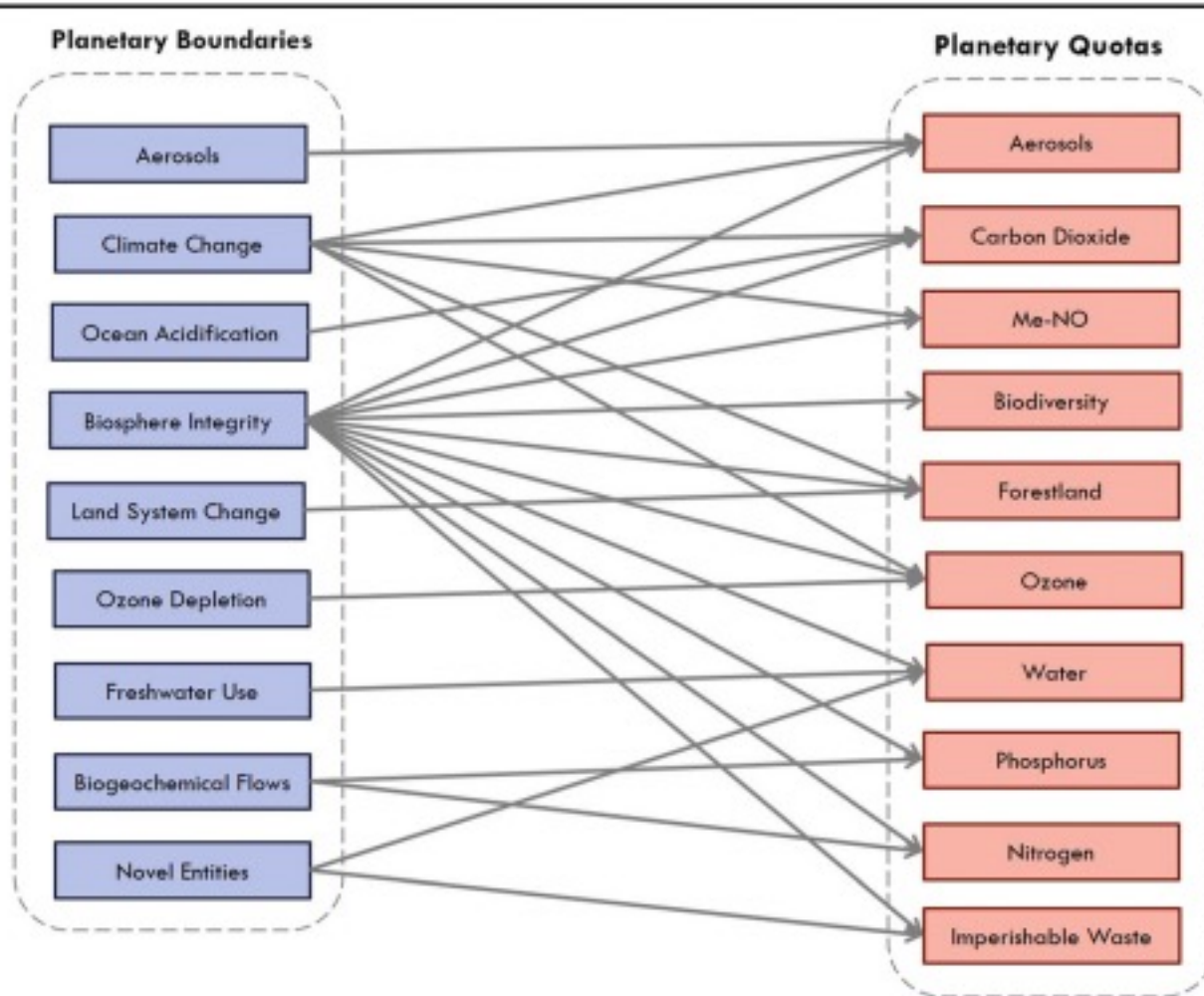


Fig. 6 The relationship between the Planetary Boundaries and Planetary Quotas

SEC 6. COUNCIL OF ECONOMIC ADVISERS AMENDMENT.

(a) DEFINITIONS.— In this section;

(1) “Council” means Council of Economic Advisers.

(b) GENERAL RULE.— Section 1023 of title 15, United States Code is amended by inserting after subsection (d) the following new paragraphs;

“(1) One chapter of the report shall analyze and interpret trends, both current and prospective, related to;

(A) physical measures of levels and changes in the stocks of natural capital;

(B) physical measures of the environmental footprint of the economy; and

(C) physical measures of the biocapacity of the United States.

(2) One chapter of the report shall analyze and interpret the chapter established by subparagraph (A) for the purpose of determining how such developments and trends are interfering, or are likely to interfere, with the achievement of policies established in (15 USC 1021).

(3) One chapter of the report shall appraise the various programs and activities of the Federal Government for the purpose of determining how they are interfering with trends as detailed in subparagraphs (A) through (C) so as to interfere, or are likely to interfere, with the achievement of policies established in (15 USC 1021).

(4) One chapter should develop and recommend to the President national economic policies that will affect the trends as detailed in paragraphs (1) through (3) so as to achieve the policies established in (15 USC 1021).”

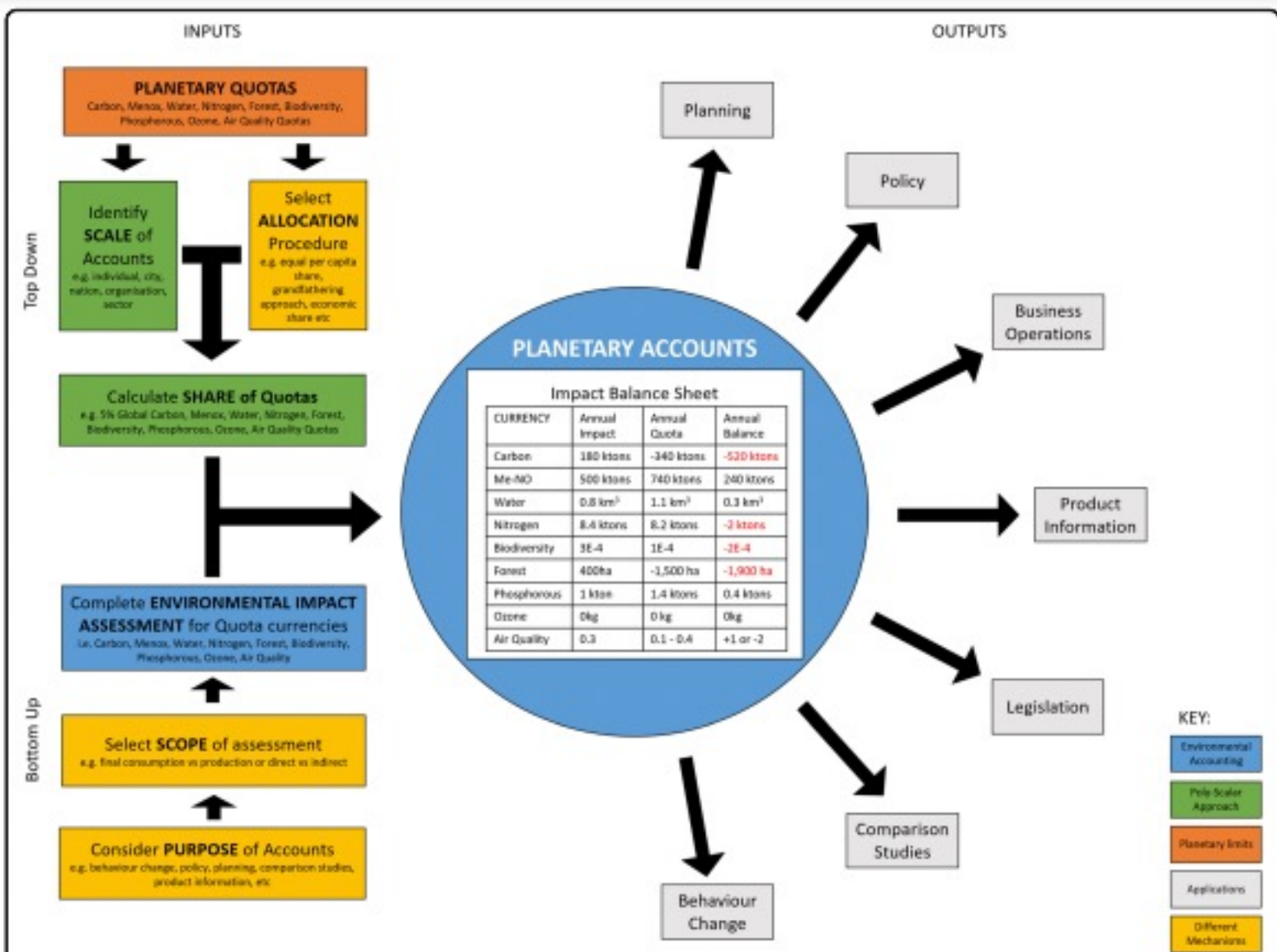


Fig. 7 The Planetary Accounting Framework (figures are for visualisation purpose only)



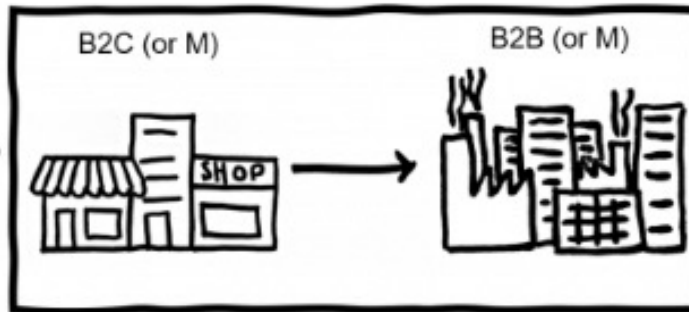
Planetary Boundaries
Safe operating Space (SOS)

Step 1:
Allocation



Individual level
 $SoSOS_{ind} = SOS \cdot AP$

Step 2:
Upscaling



Sector level
 $SoSOS_{sector} = SoSOS_{ind} \cdot UM$

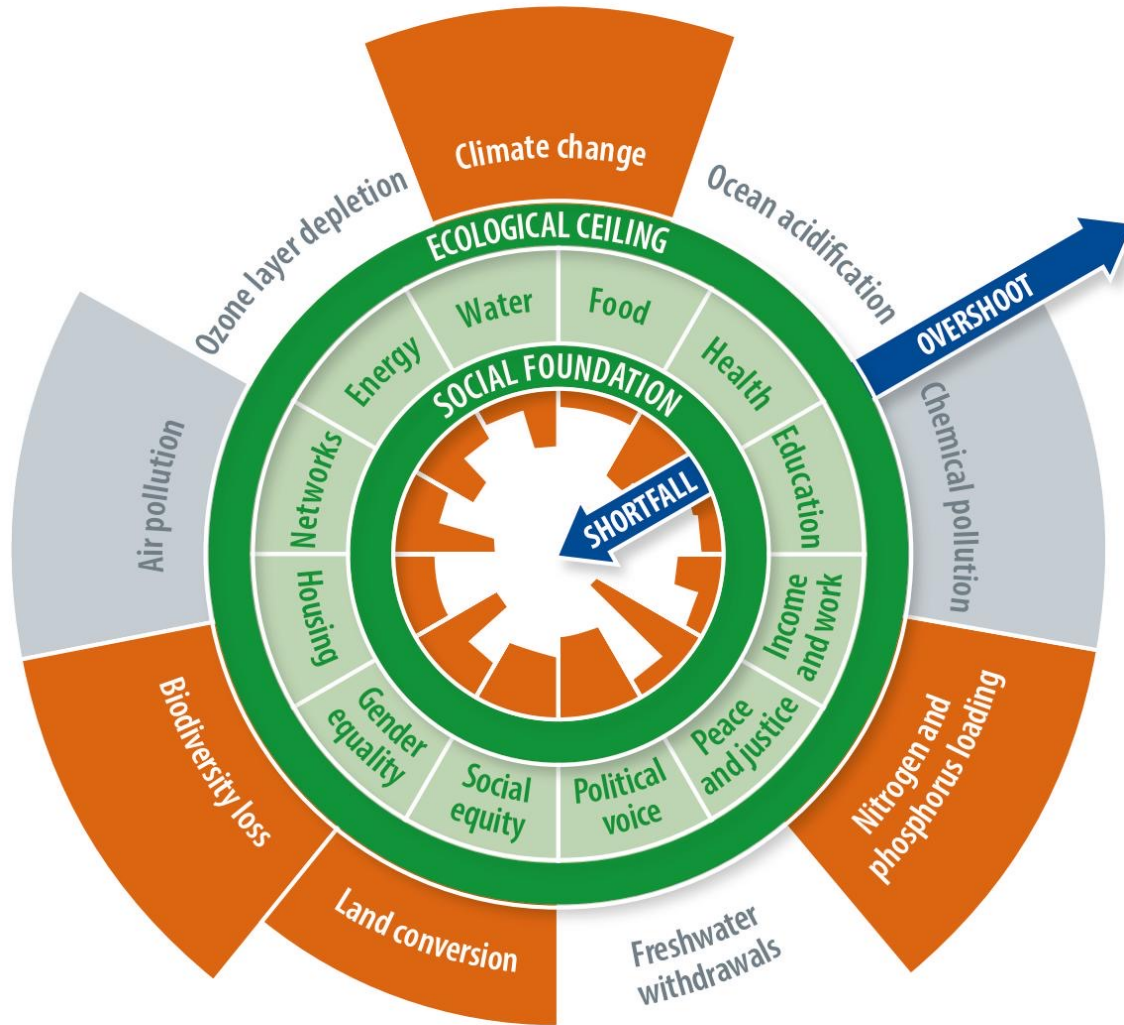
Step 3:
Downscaling



Company level
 $SoSOS_{company} = SoSOS_{sector} \cdot DM$



The doughnut of social and planetary boundaries



Source: Kate Raworth

(b) CAP ON OIL FIELD PRODUCTION.— The secretary shall establish a baseline annual rate of field production equal to that of calendar year 2020, or 4,142,277,000 barrels, for all annual onshore and offshore field production.

(1) The President and the Secretary shall:

(A) Identify each covered lease operating pursuant to this section in calendar year 2024; and

(B) Calculate the pro-rata share allocation for each covered lease enrolled in a common pool or unit plan no later than February 1, 2024.

(i) The pro-rata share for calendar year 2024 shall be the production volume of oil from a covered lease in year 2020 divided by the total production volume of oil or gas on all covered leases in year 2020.

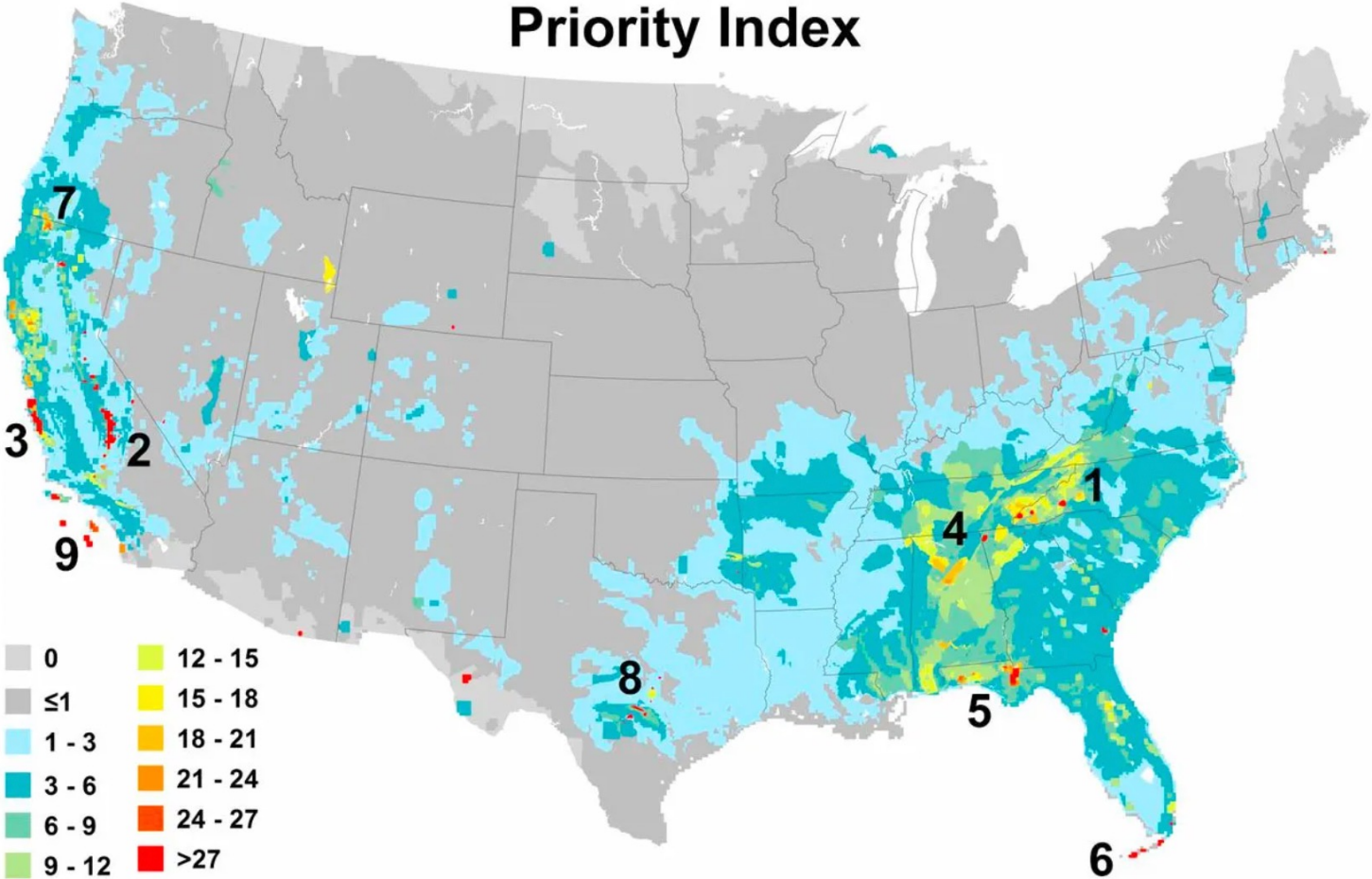
(ii) Obtain from each lessee the field production volume of barrels of oil from each lessee to determine the total volume of oil produced each calendar year no later than January 15 of each year

(iii) A lessee or covered lease shall not exceed its pro-rata share of production as set forth by the President and the Secretary under (iB3) for the current calendar year.

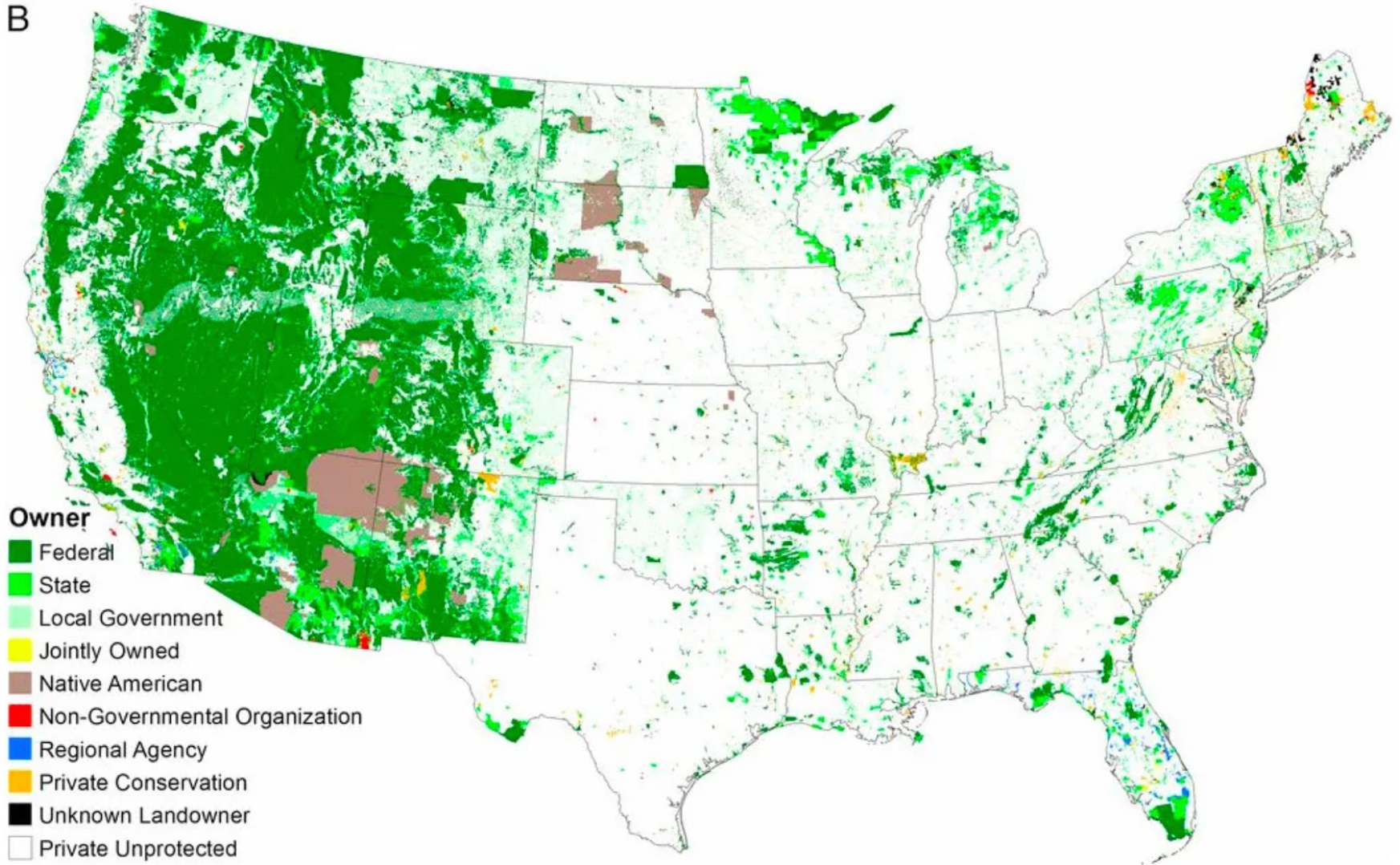
(iv) Where a covered lease exceeds its annual pro-rata share as established under subsection B of paragraph 1 by more than 1% of its total share, the President and the Secretary shall reduce the pro-rata share of such lease in the current year by an amount equivalent to the level of production in excess of its share.

Conservation

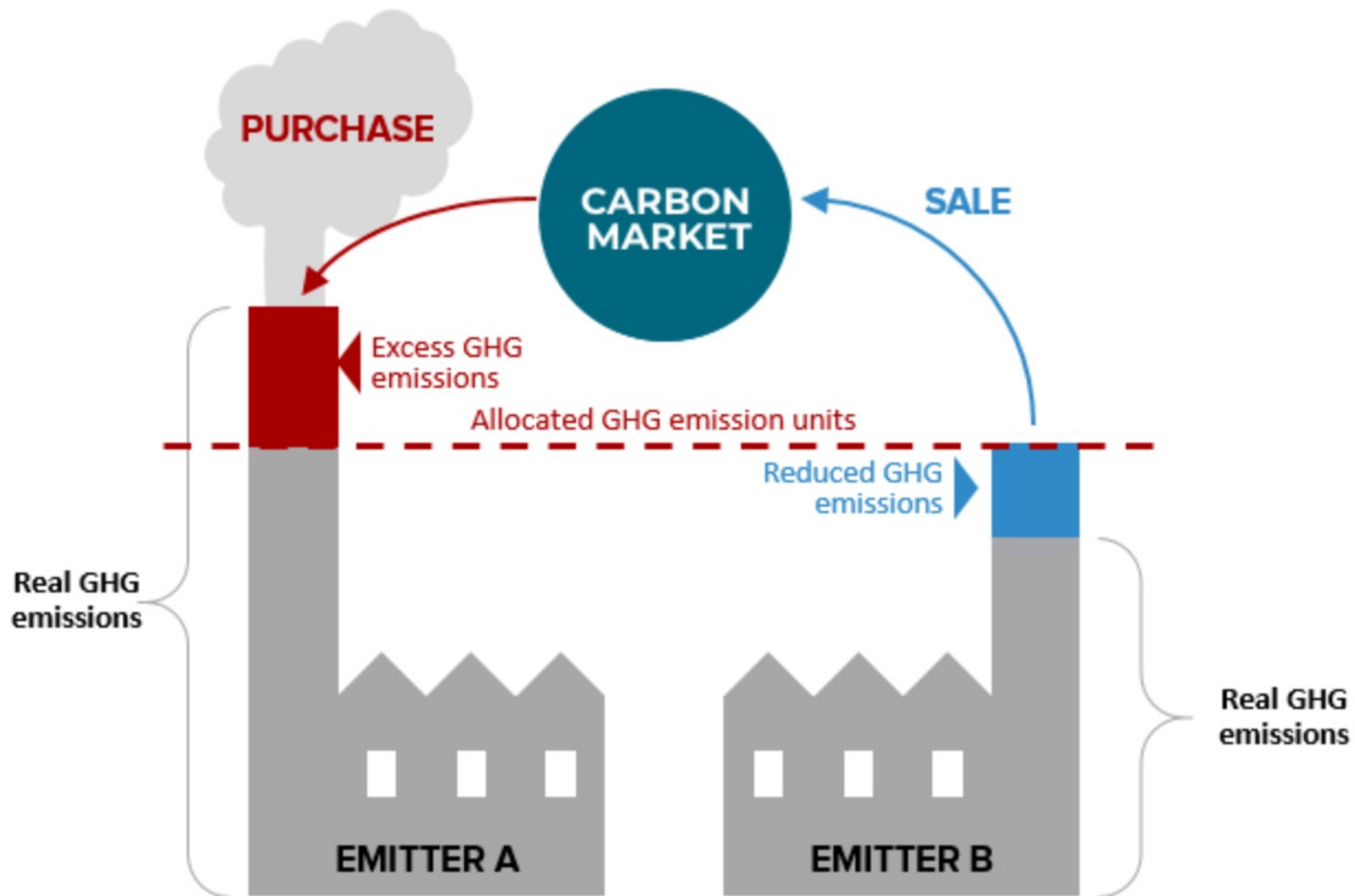
Priority Index



B



How an emission trading system works



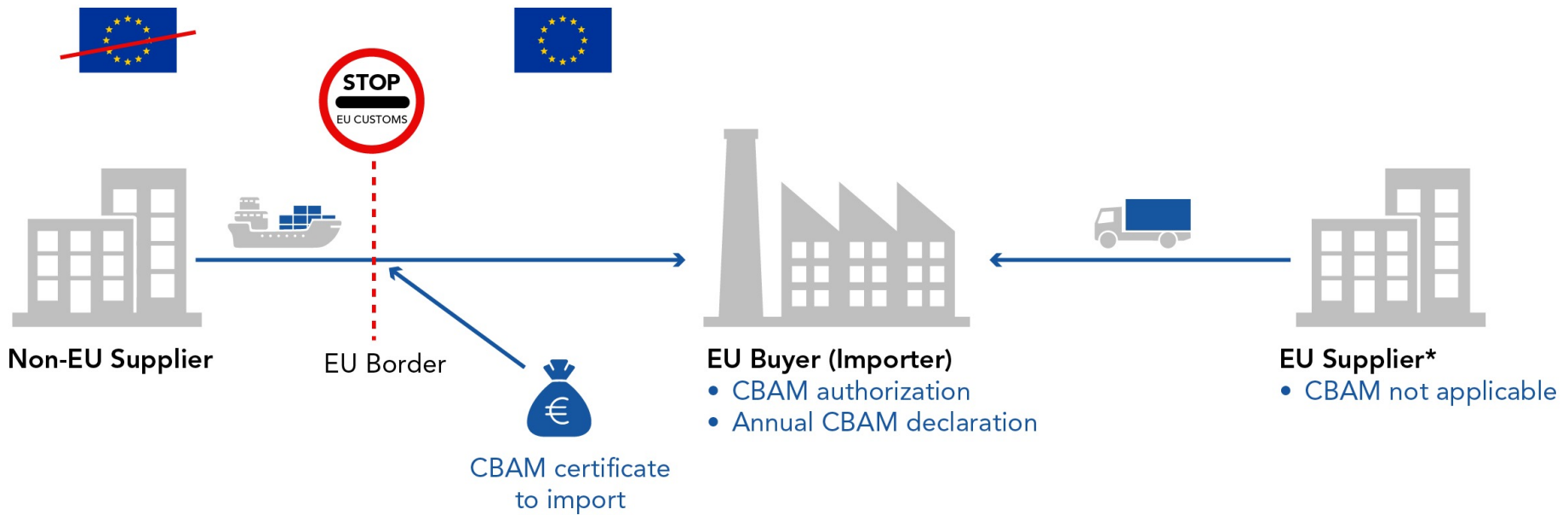
Boundary character	Processes with global scale thresholds	Slow processes without known global scale thresholds
Scale of process		
Systemic processes at planetary scale	Climate Change	
	Ocean Acidification	
	Stratospheric Ozone	
Aggregated processes from local/regional scale	Global P and N Cycles	
	Atmospheric Aerosol Loading	
	Freshwater Use	
	Land Use Change	
	Biodiversity Loss	
	Chemical Pollution	

Figure 4. Categories of planetary boundaries

Source: Rockström et al. (2009b).

	Waste water charge	Tax
Water scarcity	Externality pricing	Tax
	Cap and trade	Trading scheme
Waste	Landfill and incineration tax	Tax
	Pay as you throw	Tax
	Beverage container tax	Tax
Biodiversity	Market-based offsetting	Trading scheme
	Forest felling charge	Tax
	Intensive livestock charge	Tax
	Peat tax	Tax

EU Carbon Border Adjustment Mechanism simplified illustration



* Including goods originating from Iceland, Liechtenstein, Norway, and Switzerland
Source: The Conference Board, 2022

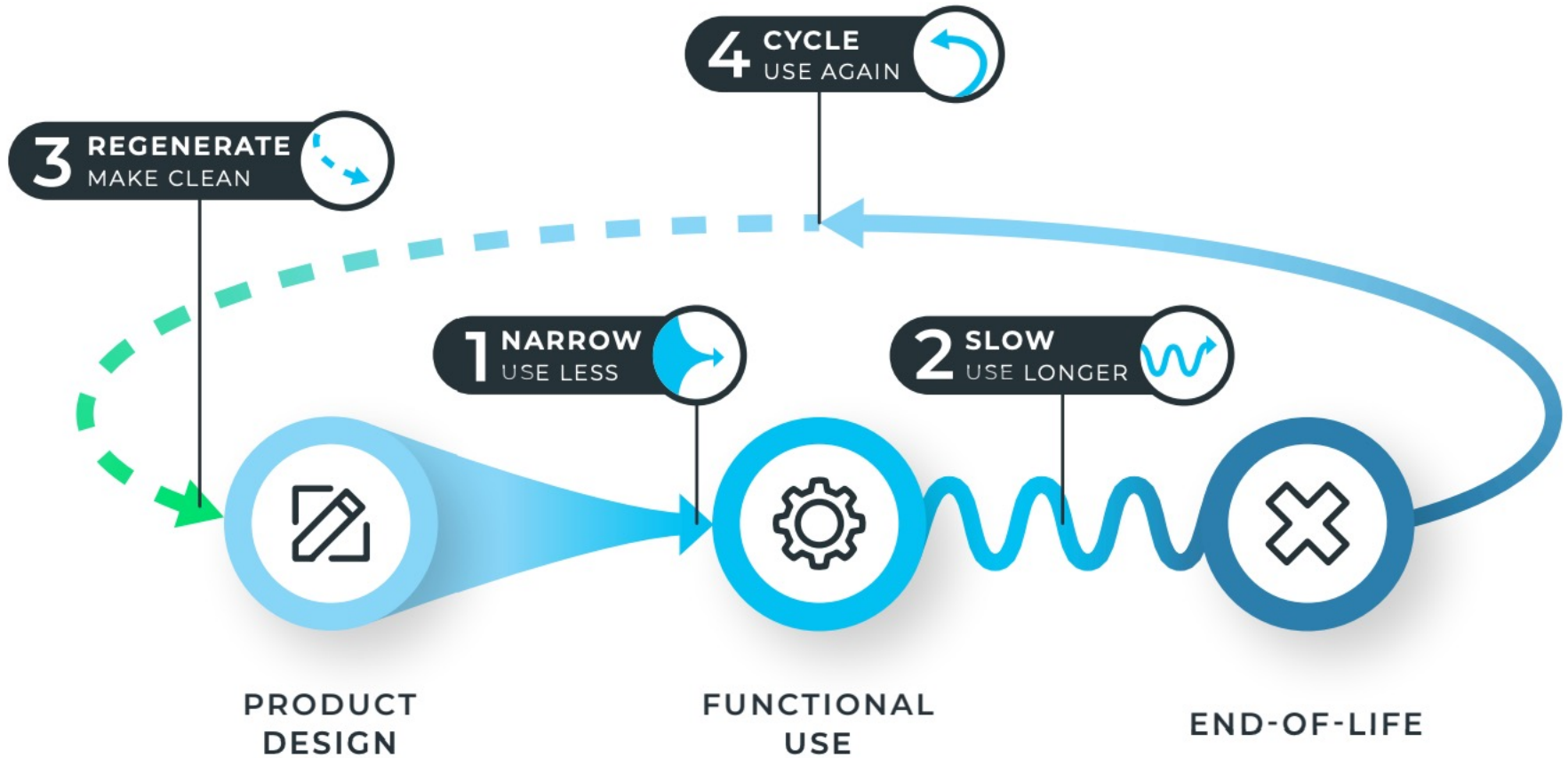
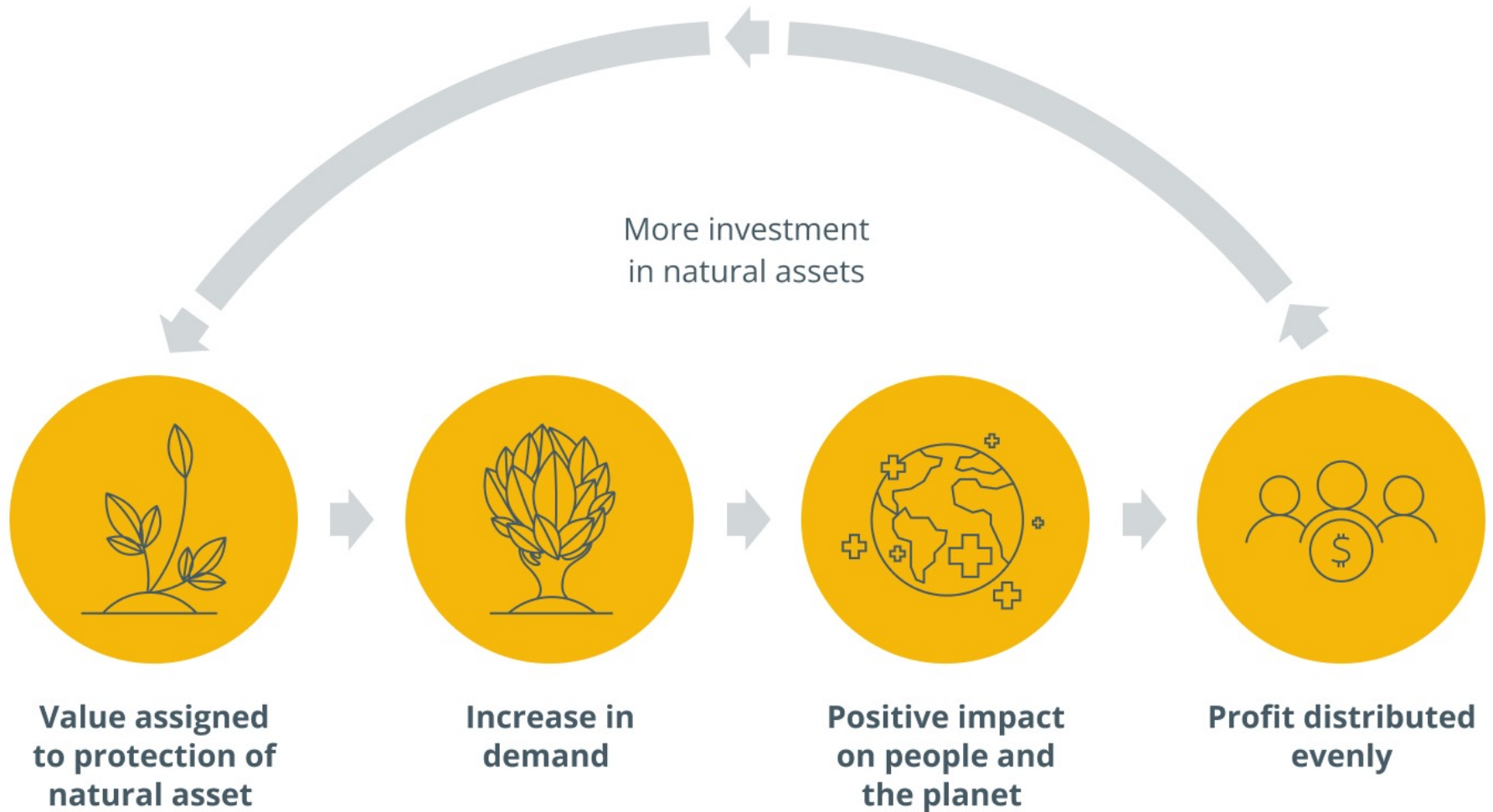


Figure two depicts the four flows to achieve circular objectives: narrow, slow, regenerate and cycle.

TABLE I: REGENERATIVE AGRICULTURE DECISION-MAKING FRAMEWORK²²

Philosophy	Principles	Practices	
<p>Farming and ranching in harmony with nature and the community</p>	<ul style="list-style-type: none"> ■ Nurture relationships within the ecosystem ■ Prioritize soil health ■ Reduce reliance on fossil fuel-produced inputs ■ Nurture communities and reimagine economies ■ Understand the social and environmental context 	<p>Cover cropping</p> <p>No-till farming</p> <p>Composting</p> <p>Use of perennial plants and diversified crops</p> <p>Crop rotation</p> <p>Reduction or elimination of chemical inputs</p> <p>Alternative pest management</p> <p>Agroforestry</p> <p>Silvopasture</p>	<p>Prairie strips</p> <p>Intensive rotational grazing</p> <p>Use of conservation buffers</p> <p>Animal integration</p> <p>Attention to animal welfare</p> <p>Contour planting</p> <p>Planting native species</p> <p>Use of solar panels</p> <p>Pasture cropping</p>

Regenerative economic systems



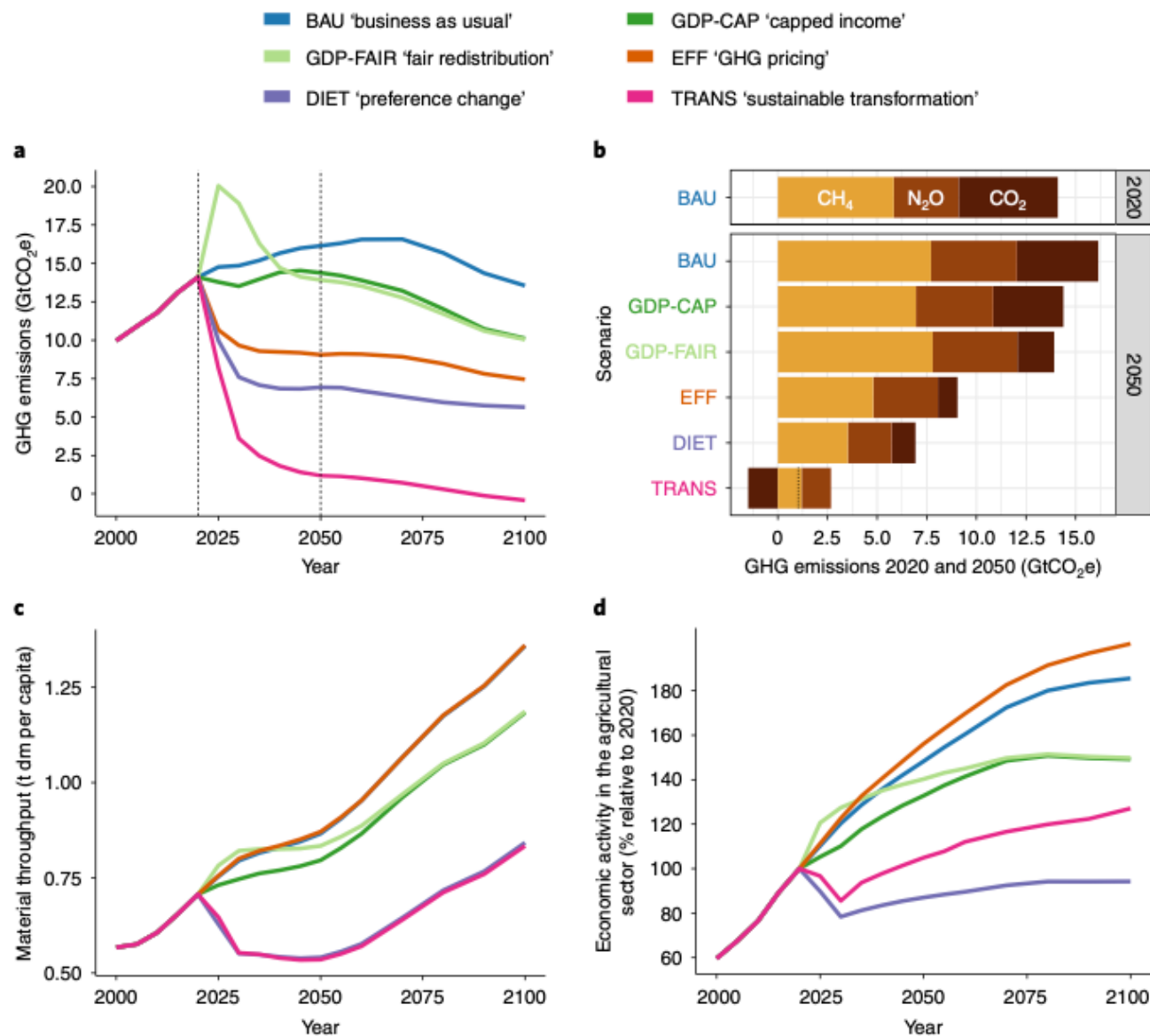


Fig. 1 | Development of emissions, material throughput and economic activity for six scenarios. a, GHG emissions for 2020–2100 in CO₂e GWP100. Dotted lines indicate years of comparison in **b**. **b**, The composition of GHG emissions in 2020 and 2050 as a stacked bar plot for CH₄, N₂O and CO₂ in GtCO₂e GWP100. Dotted line in TRANS shows net total. **c**, Cumulative material throughput of food consumption, calculated as the demand for crop products in tonnes of dry matter (t dm) per capita. **d**, Percentage change of the economic activity in the agricultural sector (expressed as the factor costs of production at constant factor prices excluding land rents, water rents and emission taxes) as a line chart taking the 2020 value as 100%.

Labor and Income



(b) AMENDING THE INTERNAL REVENUE CODE OF 1986. — Section 26 of title 1, United States Code (26 U.S.C. 1 et seq) is amended by:

- (1) striking “Over \$250,000” from subsections (a) through (c) and inserting “over \$600,000”;
- (2) striking “39.6% of the excess over 250,000” from subsections (a) through (c) and inserting “100.00% of the excess over \$600,000”;
- (3) striking “Over \$125,000” from subsection (d) and inserting “over 300,000”;
- (4) striking “39.6% of the excess over 125,000” from subsection (d) and inserting “100.00% of the excess over \$300,000”; and
- (5) striking “39.6%” from subsection (e) and inserting “100.00%” of the excess over \$300,000”;

(c) AMENDING THE FAIR LABOR STANDARDS ACT OF 1938.—Title 29 of the Fair Labor Standards Act is amended by:

(1) redesignating sections (208) through (219) as sections (209) through (220); and

(2) inserting after section (208) the following new section:

“(208). MAXIMUM WAGE ON FEDERAL CONTRACTS.

(a) Every employer providing any contract services under a contract with the United States or any subcontract thereunder shall compensate the employer’s highest paid executive equal to forty (40) times or less than the median compensation and/or salary paid to its non-executive employees.

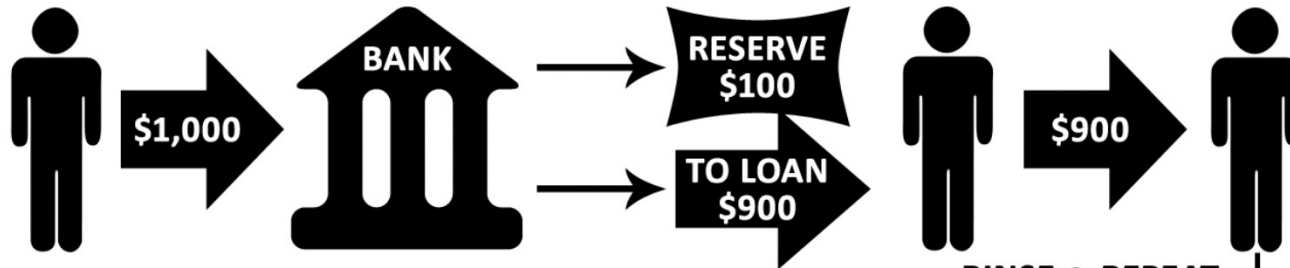
(b) The Secretary of the Treasury (or the Secretary’s delegate) shall issue regulations as necessary to prevent avoidance of the purposes of the amendments made by subsection (a), including regulations to prevent the manipulation of the compensation ratio under section 11(e) of the Internal Revenue Code of 1986 by changes to the composition of the workforce (including by using the services of contractors rather than employees).”

THE BASIC FRACTIONAL RESERVE BANKING CYCLE

1. DEPOSIT

2. LOAN

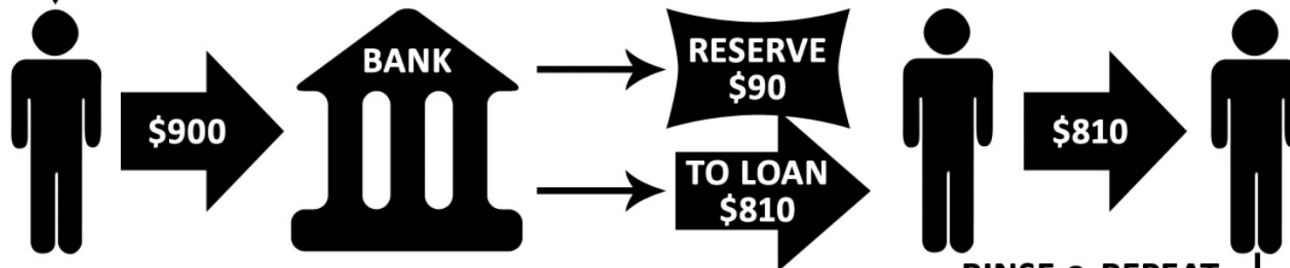
3. SPEND



AT THIS POINT THERE IS \$1,900 IN THE SYSTEM.

THE BANK HAS \$100.

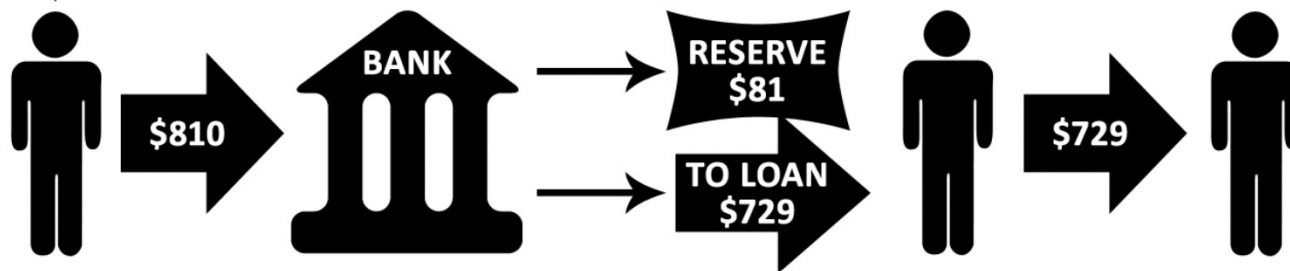
RINSE & REPEAT FROM STEP 1...



AT THIS POINT THERE IS \$2,710 IN THE SYSTEM.

THE BANK HAS \$190.

RINSE & REPEAT FROM STEP 1...



AT THIS POINT THERE IS \$3,439 IN THE SYSTEM.

THE BANK HAS \$271.

Optimizing policies

- Effectiveness
- Operability
- Political Viability

Legislature

Executive

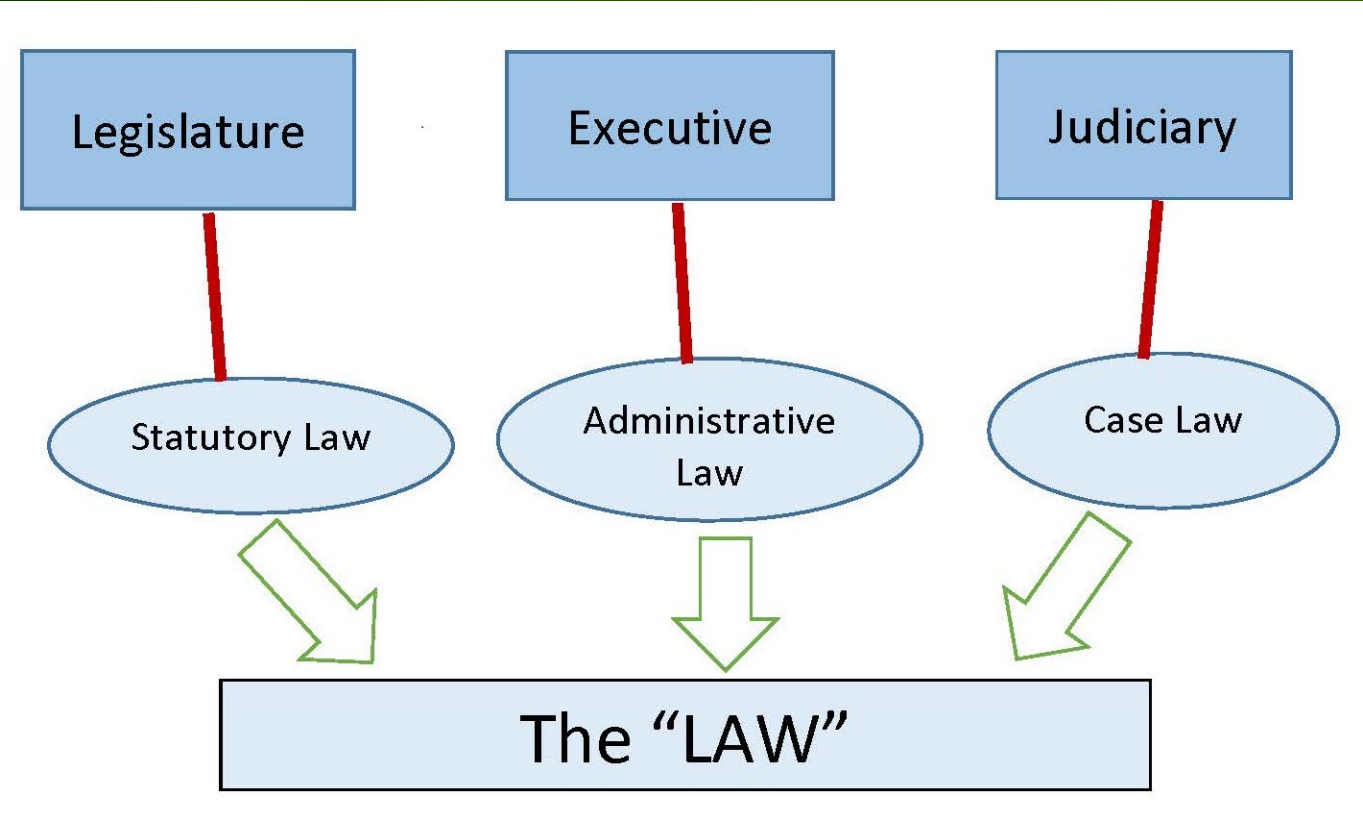
Judiciary

Statutory Law

Administrative Law

Case Law

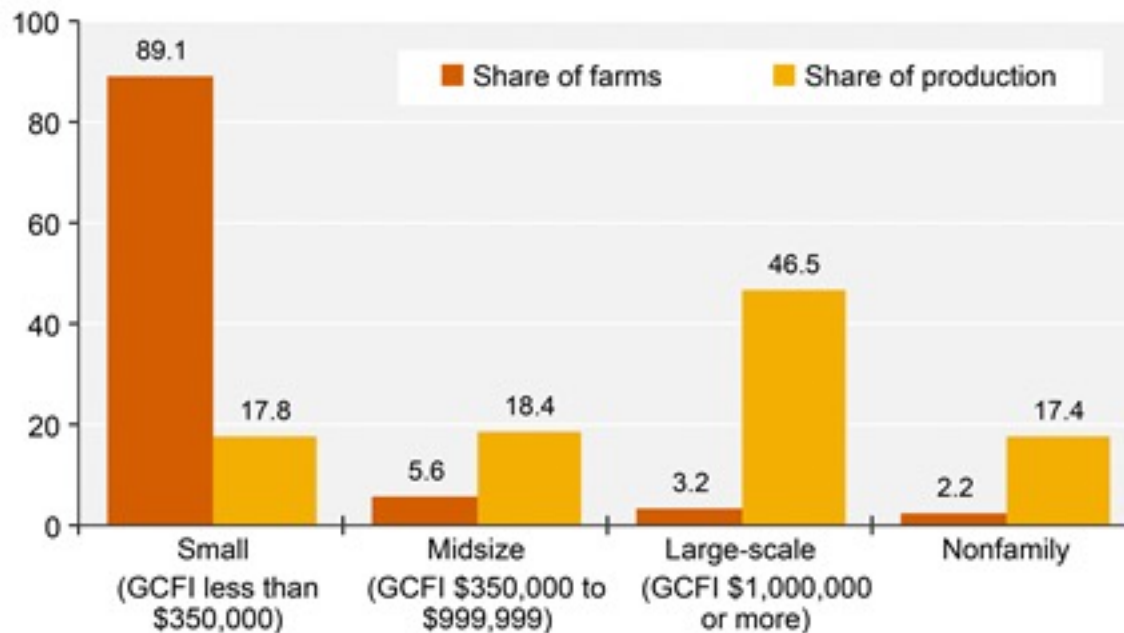
The "LAW"



Most farms are small, but the majority of production is on larger farms

Farms and their value of production by farm type, 2021

Percent of U.S. farms or production



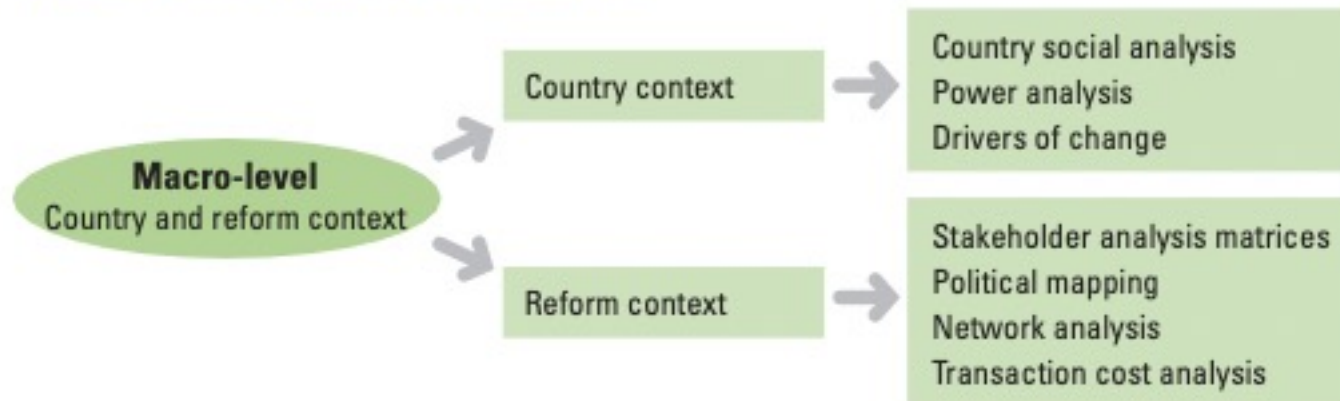
GCFI = annual gross cash farm income before expenses.

Note: Nonfamily farms are those where the majority of the operation is not owned by an operator and their relatives. Components may not sum to 100 percent because of rounding.

Source: USDA, Economic Research Service and USDA, National Agricultural Statistics Service, Agricultural Resource Management Survey. Data as of December 1, 2022.

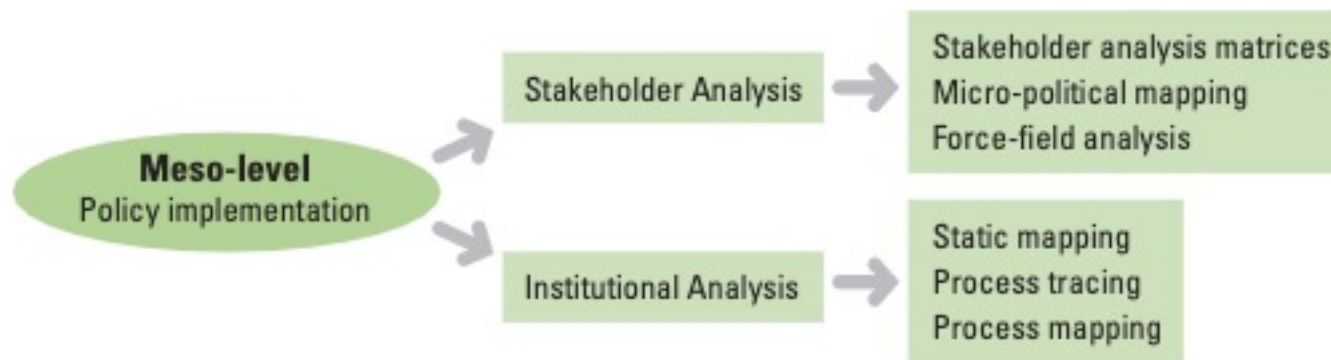
Gross ca
commod
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nearly 98
(less than
all U.S. fa
in GCFI) a
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Figure 3.2 Tools for Macro-Level Analysis



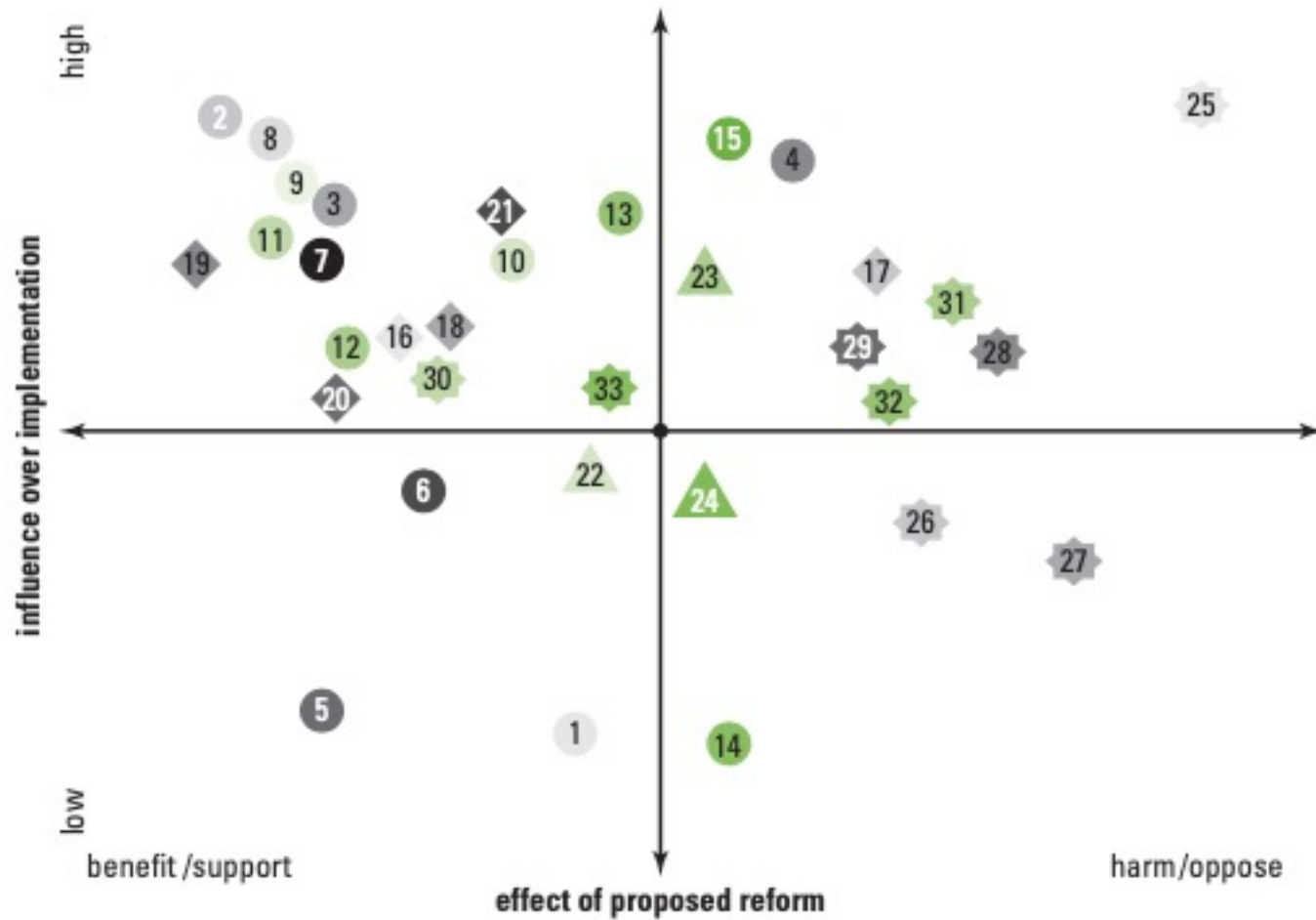
Source: Author.

Figure 3.3 Tools for Meso-Level Analysis



Source: Author.

Figure 8.3 Stakeholders' Interest and Influence over Implementation in Zambia Land Reform

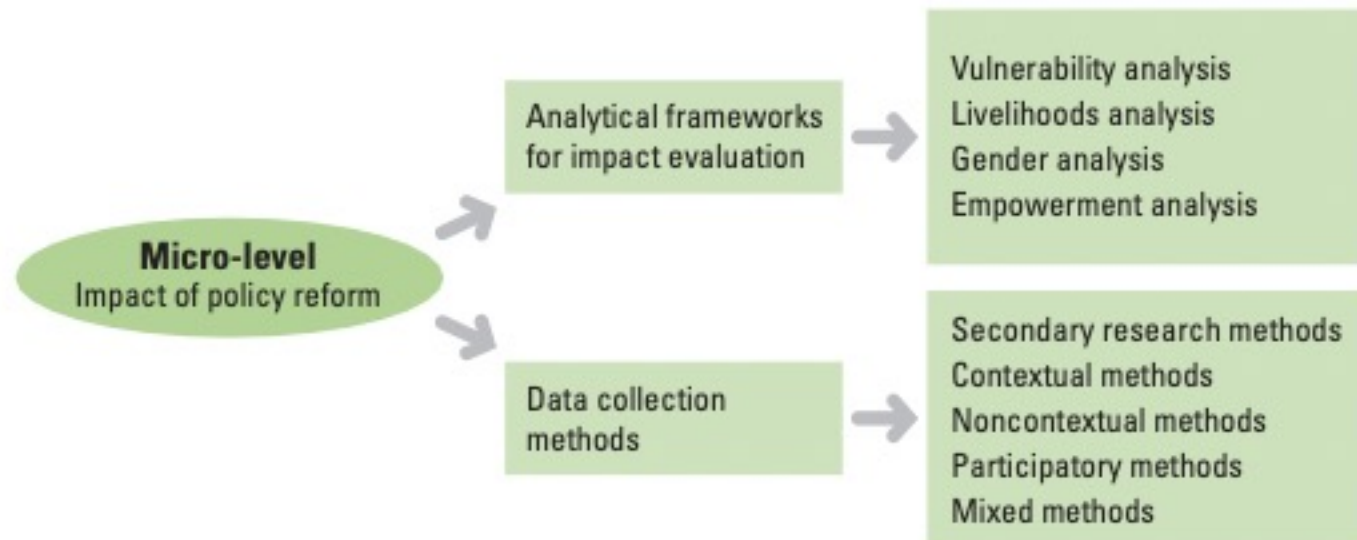


Source: Jorgensen and Loudjeva 2005.

Key Stakeholders

- **“Core” - Groups who are currently involved in post-growth, degrowth, and Steady State initiatives..**
 - **Our goal here should be to activate them, increase their capacity, and help them interface with “natural allies” and “potential allies.”**
- **“Natural Allies” - Groups currently involved in aspects of economic reform.**
 - These are groups who are involved in current areas of conservation/preservation but whose actions fall short of recognizing and pursuing Steady State measures.
 - **Our goal here is to help connect these efforts with other initiatives so as to facilitate system-wide changes.**
- **“Potential Allies” - Groups whom we need to create demand for a Steady State Economy**
 - environmental justice, racial justice, sustainability, etc.
 - **Our goal here is to help spark a demand amongst them for a steady-state economy by linking their goals with the outcomes of a Steady State Economy.**

Figure 3.4 Tools for Micro-Level Analysis



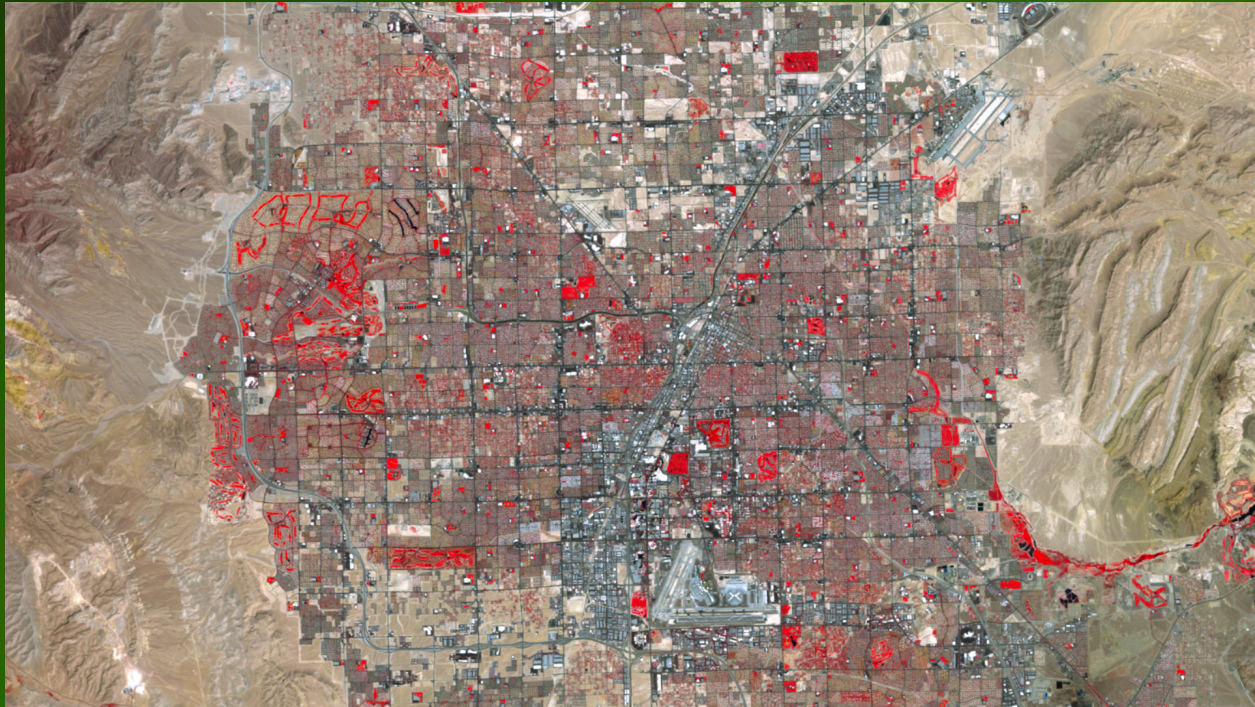
Source: Author.

	Post-growth Deal (D1)	Eco-socialist Green Deal (D2)	Liberal Green Deal (D3)
+4	S7 You cannot address climate change without addressing inequality	S8* Massive public investment is necessary to decarbonize energy and transport	S15* Economic growth is indispensable for lifting people out of poverty
	S10 Environmental justice should be at the centre of the Green New Deal	S38 Vulnerable communities will benefit from a Green New Deal	S21* You can't tell voters that you don't want growth
+3	S19* Work-time reduction is a good policy proposal	S10* Environmental justice should be at the centre of the Green New Deal	S6* Climate change is an externality that can be fixed with market
	S8 Massive public investment is necessary to decarbonize energy and transport	S7 You cannot address climate change without addressing inequality	S31 The European Green Deal is ambitious enough
	S38 Vulnerable communities will benefit from a Green New Deal	S19 Work-time reduction is a good policy proposal	S38 Vulnerable communities will benefit from a Green New Deal
+2	S16* Policy makers' focus on growth is an obstacle to strong environmental policy	S5* Climate change is the result of unbridled capitalism	—
	S23* The EU should limit energy consumption to reduce extractivism in the Global South	—	—
+1	S9* It's not enough to replace GDP with better socio-economic indicators to reduce environmental impacts	S27* Energy production should be socialized in state-owned companies and small-scale local coops	S25* Without growth, unemployment will inevitably increase
	—	—	S33* People are not willing to give up their energy intensive lifestyle
-3	S1* Absolute decoupling between growth and environmental impacts is possible	S3* Carbon taxation is essential for reducing emissions	S5 Climate change is the result of unbridled capitalism
	S25* Without growth, unemployment will inevitably increase	S28 The EU energy liberalization agenda will help with climate change mitigation	S11 The EU must compensate the Global South for its climate debt
	S15 Economic growth is indispensable for lifting people out of poverty	S31 The European Green Deal is ambitious enough	S36 We should pursue strong environmental and social policies independent of their impact on growth
-4	S31 The European Green Deal is ambitious enough	S6 Climate change is an externality that can be fixed with market	S4 We need a wartime-like mobilization to rapidly decarbonize the economy
	S33 People are not willing to give up their energy intensive lifestyle	S37 Citizens are unlikely to vote in favour of carbon taxation	S27 Energy production should be socialized in state-owned companies and small-scale local coops

Fig. 2 | Salient statements for each of the three discourses. Salient statements include both one-sided statistically distinguishing statements at $P < 0.01$ (indicated with asterisk) and those at the extremes of agreement and disagreement ($\pm 3, \pm 4$). These statements are denoted by 'S'.

Case Study: Las Vegas





Questions

- Goals
- Policy
- Strategy

Thank you!

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