



Allocating capital within planetary boundaries

Blunomy position paper

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Planetary boundaries are now part of the operating environment of every large company. Most capital-allocation methods have been built in a context where climate- and nature-related risks and dependencies were not sufficiently material to be embedded in business planning. This paper sets out how to extend them: start from what each business activity depends on and what it affects, then quantify that exposure and integrate it into financial steering.

The economy depends on systems it does not price

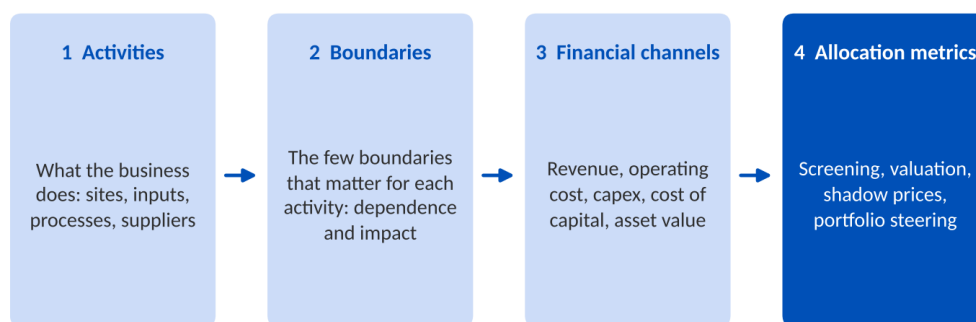
Seven of the nine planetary boundaries are now breached [1][2]. The financial relevance is direct. Between \$42 and \$44 trillion of global GDP, about half, depends moderately or highly on nature [3][4]. That dependence sits in the portfolios that finance the economy: 85% of the companies in the S&P Global 1200 show significant dependence on nature, and nearly 75% of euro-area bank loans go to companies highly dependent on at least one ecosystem service [5][6].

These figures measure vulnerability, meaning how far activities and portfolios rely on nature. Losses are the consequence of that vulnerability, and their size depends on how it is managed. For a company, vulnerability shows up in three places: operating cost, credit terms and insurance cover. Insured natural-catastrophe losses reached \$107 billion in 2025, 92% of them from secondary perils such as floods, storms and wildfires, and the protection gap stands at \$424 billion [7][8]. Disclosure is moving in the same direction: more than 1,000 organisations now report against the TNFD framework, and the ISSB is preparing a nature-related standard, likely in 2027 [9][10].

Start from what the business does

A single company-wide materiality score does not show which site, activity or project is exposed, so it cannot guide a capital decision. Activity-based materiality works at the level where capital decisions are taken, in three steps.

- **Decompose.** Break the business into activities: sites, processes, inputs and suppliers.
- **Map.** For each activity, identify the few boundaries it materially depends on or affects, after a quick screen of all nine, and where several of them meet on the same site or supplier.
- **Size.** Translate exposure into dollars on the five financial channels: revenue, operating cost, capex, cost of capital and asset value.



Start from the activity, then follow the exposure to the financial line it affects

Exhibit 1. From activity to allocation metric. Source: Blunomy analysis.

Illustrative examples of what the mapping produces:

Activity	Boundaries concerned	Financial channel
Irrigated crop sourcing	Freshwater, climate, land-system change	Yield and input cost
Chemical or semiconductor site	Freshwater, climate	Production continuity, capex for cooling or recycling
Fertiliser-intensive supply chain	Biogeochemical flows, freshwater	Input cost and regulatory exposure

Decision-grade granularity

Detailed life-cycle assessments serve product design and reporting well. For decision makers they are too granular: decision makers need a ranked view of the few activities and sites where the numbers move. The test is decision-grade: detailed enough to change a ranking or a budget line, and no more. In practice this means tens of activities rather than thousands of data points, with further detail added only where a ranking is close or the amount at stake is large.

Four evolutions of capital-allocation methods

Activity-level materiality changes four steps of the allocation process, without adding a new process.

- **Screen.** Add activity-level exposure as a gate before the investment committee, so that a project in a stressed catchment or on a threshold input is flagged early.
- **Value.** Restate cash flows for expected disruption, compounding and impact charges.
- **Price.** Set internal shadow prices on material impacts, by activity, as many companies already do for carbon.
- **Steer.** Allocate across the portfolio on three levers: protect activities with high dependence, transform those with high impact, and capture the opportunities the boundaries create.

Illustration: where the analysis raises strategic questions. Two recent public episodes show the kind of question that activity-level analysis puts in front of decision makers before an event rather than after it.

- **Chip manufacturing and water, Taiwan, 2021.** Authorities called it the worst drought in the island's history and said that, if rain stayed short, companies in the Hsinchu and Taichung science parks would have to cut water use by 17%. TSMC reported no impact on production, trimmed its water use and bought water by tanker truck for some foundries [16]. The strategic questions (Blunomy analysis): how much water security should weigh in choosing a site, what recycling investment is justified, and what continuity of supply is worth.
- **Shipping and the Panama Canal, 2023.** The canal capped the draft of Neopanamax ships at 44 feet and reduced daily transits to about 30, from 36 to 37 on a good day, so some carriers had to lighten their loads [17]. The strategic questions (Blunomy analysis): how exposed route, port and fleet investments are to a single chokepoint, and what alternative routes or inventory buffers are worth.

In both cases the exposure could be read from where each activity sits and what it depends on. The analysis turns it into a decision on site, route or capital expenditure.

Public precedents and what they teach

Several public initiatives provide foundations. Each also shows where implementation is demanding.

Initiative	What it provides	Implementation lesson (Blunomy analysis)
ENCORE (UNEP FI, 2018) [11]	Maps 167 economic sectors to 21 ecosystem services, a common starting point for dependence	Sector-level: it shows where to look, not company or site exposure
Kering Environmental P&L (first published 2015) [12][13]	Monetises environmental impacts across the value chain; 93% of the impact sat in the supply chain	Retrospective and data-intensive, and strongest where data is weakest, in the supply chain; not designed to feed single investment decisions
Science Based Targets for Nature (first validated targets, October 2024) [14]	Science-based targets for freshwater and land, validated for GSK, Kering and Holcim	Needs site-level baselines and a long validation path; sets direction but is not a valuation
Internal water pricing (269 companies reported one to CDP in 2021) [15]	A price per unit of water used in decisions	Prices are local to a catchment; practice differs on which activities the price covers and how it enters capex review

The common lesson is to keep the method simple enough to run inside existing processes, and to apply detail where it changes a decision.

Roles and responsibilities

Each function owns one part of the adjusted view, so that it enters decisions through existing processes.

Function	Responsibility	Output
Finance (CFO)	Owns the metric, the materiality threshold and the allocation rules; integrates adjusted returns into budget, capex guidelines and valuation	Adjusted figures used in allocation decisions
Sustainability (CSO)	Owns the boundary data and the dependency and impact mapping, and the evidence behind interaction effects	Activity map and shadow prices by boundary

Function	Responsibility	Output
Business lines	Own the activity map, validate site and supplier data, act on the results	Actions to protect, transform or capture
Risk, Treasury and Investor Relations	Translate expected loss into risk appetite and cover; use the adjusted view with lenders, insurers and investors	Loss estimates, cover and financing terms
Procurement	Apply screens on threshold inputs and supplier sites	Sourcing decisions

Conclusion

Planetary boundaries turn nature from an externality into a financial variable. The companies best placed will be those that quantify it at the level of activities and carry it into the numbers that steer capital.

Takeaways for action

- **Scope.** The CFO and the CSO choose the one or two business lines where dependence on nature is highest and map their activities.
- **Quantify.** Express the exposure of those activities in dollars on the five financial channels, and rank sites and projects on it.
- **Embed.** Bring the ranked view into the next budget or capex review, as a screen first and as an adjustment to valuation later.

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