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RESEARCH ARTICLE

Assessing company sustainability impact

Status quo and way ahead

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Abstract

The transition to a sustainable economy requires investments in companies capable of driving real-world transformations. Impact assessments are central to this, yet existing company impact assessment tools for impact investing lack the necessary methods and data to determine the significance of environmental and social impacts. This paper addresses this gap by first exploring the life cycle assessment (LCA) literature on LCA logics and their application in company impact assessment tools. Second, we examine the conceptual and practical availability of absolute sustainability indicators for investment purposes. Our findings show that while LCA logics provide a valuable foundation for assessing the significance of company impacts, important gaps remain in allocating macro-level thresholds to the company level. Moreover, while environmental absolute sustainability indicators are conceptually advanced, their practical application is hindered by data limitations, restricting their usability for investors. Social absolute sustainability indicators lack clear impact pathways for translating macro-level issues into actionable company-level indicators, which is further constrained by data gaps. In light of these findings, we emphasize the distinct requirements of the environmental and social dimensions in advancing the assessment of the significance of company impacts. To effectively address these needs and enhance impact investment practices, we highlight the importance of interdisciplinary research, the regulatory and practical adoption of absolute sustainability approaches, and improved data integration.

KEYWORDS

absolute sustainability indicators, company impact assessment, ESG data providers, impact investing, industrial ecology, science-based targets

1 | INTRODUCTION

The transition to a sustainable economy necessitates investing in companies capable of driving tangible changes in the real world. Assessing positive and negative impacts at the company level, that is, "the change that company activities achieve in social and environmental parameters" (Kölbel et al., 2020, p. 555), is central for impact investors. These investors seek—besides financial return—to actively contribute to the transition with their investment activities (e.g., Hehenberger et al., 2019; Höchstädter & Scheck, 2015; Schlütter et al., 2023). Motivated by standard setters and practitioners, various company impact assessment tools have been developed, introducing impact categories and metrics (Global Impact Investing Network [GIIN], 2023a; Impact Frontiers, n.d.–a; Impact Management Project [IMP], 2020). However, yet, these tools lack precise methods and reliable information for assessing the significance of company impacts, that is, whether company impacts adequately address global environmental and social challenges (Popescu et al., 2021; Yi et al., 2022). Therefore, determining the significance of company impacts poses a major challenge for investors (Popescu et al., 2021; Strömmer & Ormiston, 2022; Yi et al., 2022).

To tackle this challenge, research at the intersection of sustainable finance and industrial ecology highlights the value of life cycle assessment (LCA) (Kulionis et al., 2024; Popescu et al., 2021; Schlütter et al., 2023). LCA, particularly through life cycle impact assessment (LCIA), builds on established logics that provide structured guidance for assessing the significance of impacts at the product or process level (International Organization for Standardization [ISO], 2006; Kim et al., 2013; Liu et al., 2013). These LCA logics underpin various assessment methods, including social life cycle assessment (S-LCA), life cycle sustainability assessment (LCSA), organizational LCA (O-LCA), and absolute environmental sustainability assessment (AESA). The latter method, AESA, assesses environmental impacts against predetermined thresholds, a practice widely recommended for determining the significance of an impact (Bjørn et al., 2019; Borucke et al., 2013; Clausen et al., 2024; Haffar & Searcy, 2018b; Hjalsted et al., 2021; McElroy & van Engelen, 2012; Ryberg et al., 2021; Searcy, 2016; Yi et al., 2022).[1]

Building on the ISO's (2006) definition of LCA and Bjørn et al.'s (2019) AESA framework, we identify three essential LCA logics for assessing the significance of company impacts: (i) identifying relevant impact categories, (ii) quantifying company impacts, and (iii) incorporating macro-level thresholds. Applied to company-level indicators, these logics enable the use of "absolute sustainability indicators," which "express organizational performance in terms of impacts on vital capitals, relative to norms, standards or thresholds for what such impacts ought to be (for specific periods of time) in order to be sustainable" (McElroy & van Engelen, 2012, p. 65). A common example is the ratio of a company's greenhouse gas emissions to its allocated share, typically determined in accordance with the Science Based Targets initiative (SBTi) (Andersen et al., 2021; Bendig et al., 2023; Haffar & Searcy, 2018a, 2018b; Rekker et al., 2022). As such, we consider a company impact significant if it goes above an adequate threshold required to achieve a specific sustainability goal.

Extant research on LCA logics in impact investing has remained largely conceptual. Studies argue that LCA can help investors identify and assess sustainability hot spots (Schlütter et al., 2023), highlighting its potential to assess company impacts on biodiversity (Kulionis et al., 2024). However, assessment tools in impact investing rarely incorporate life cycle considerations at the product level (Popescu et al., 2021).

Substantial research gaps remain in assessing the significance of company impacts. First, no studies have examined whether, and to what extent, LCA logics are or should be applied in company impact assessment tools for impact investing. Second, while scholars frequently highlight the lack of absolute sustainability indicators (Bjørn et al., 2017; Haffar & Searcy, 2018a, 2018b; Popescu et al., 2021; Strömmer & Ormiston, 2022; Yi et al., 2022), these critiques are largely anecdotal and do not address the needs of impact investors. Thus, we ask: (1) Which LCA logics for determining the significance of impacts are applied in company impact assessment tools for impact investing? and (2) Which absolute sustainability indicators have been conceptually proposed and what data is practically available for investors?

In order to address these questions, this paper is organized as follows. First, we explore the literature on LCA logics for determining the significance of company impacts and their application in major company impact assessment tools (GIIN, 2023a; IMP, 2020; Impact Frontiers, n.d.–a). Second, we examine the conceptual availability of absolute sustainability indicators in relevant standards, guidelines, and frameworks and conduct an in-depth analysis of proprietary data from nine major environmental, social, and governance (ESG) data providers. Third, we discuss our findings and how they advance understanding in the field. Finally, we derive implications for academic research, policy, and practice regarding the application of LCA logics in company impact assessment for impact investing.

This study makes three interrelated contributions. First, we show that LCA logics provide a valuable foundation for assessing the significance of company impacts, but important gaps remain in allocating macro-level thresholds to the company level. Second, while environmental absolute sustainability indicators are conceptually advanced, their practical application is hindered by data limitations, whereas social absolute sustainability indicators lack clear pathways to translate macro-level issues into actionable company-level indicators. Third, this study highlights the distinct needs for environmental and social absolute sustainability indicators, calling for interdisciplinary research to refine methodologies, for policymakers to mandate and incentivize the adoption of absolute sustainability approaches, and for ESG data providers to integrate absolute sustainability indicators.

2 | EXPLORING LCA LOGICS AND THEIR APPLICATION IN COMPANY IMPACT ASSESSMENT TOOLS FOR IMPACT INVESTING

2.1 | Identifying relevant impact categories

The LCA logic of identifying relevant impact categories is the first step in LCIA. It involves selecting and defining impact categories that capture key issues of concern throughout a product's or organization's value chain (ISO, 2006). Comprehensive guidance on good practice of this LCA logic has been developed, tested, and implemented by academics and practitioners (e.g., European Commission's Joint Research Centre [JRC], 2010; United Nations Environment Programme [UNEP] & Society of Environmental Toxicology & Chemistry [SETAC], 2019).

For environmental impacts, the International Reference Life Cycle Data System Handbook—based on ISO 14040/44—advocates a consistent and comprehensive selection of impact categories to ensure alignment with study goals and coverage of key environmental issues (JRC, 2010). It distinguishes between impact categories at midpoint and endpoint level, recommending their inclusion unless explicitly justified otherwise (JRC, 2010). Midpoint categories cover indicators situated midway along the impact pathway, addressing issues such as climate change, ozone depletion, and human toxicity, while endpoint categories include areas of protection at the end of the impact pathway, namely, damage to human health, damage to ecosystem, and depletion of natural resources (ISO, 2006; JRC, 2010).

For social impacts, guidance on LCA remains mixed and evolving (Huang et al., 2025). While some guiding documents reference the environmental ISO 14040/44 (e.g., UNEP, 2020; UNEP & SETAC, 2009), there is no consensus on prioritizing impact categories (Hannouf et al., 2023; Huang et al., 2025; Kühnen & Hahn, 2017), and updates to guidelines have introduced significant changes (UNEP, 2020; UNEP & SETAC, 2009). The recent "Guidelines for Social Life Cycle Assessment" (UNEP, 2020) define six stakeholder categories—workers, local community, value chain actors, consumers, children, and society—linked to 40 impact subcategories, such as child labor, sexual harassment, and corruption. These subcategories are not prioritized and are typically grouped into impact categories like human rights, working conditions, and governance. Alternatively, the guidelines propose an impact pathway assessment approach that, like environmental LCA, distinguishes between midpoint and endpoint categories without specifying midpoint categories. Furthermore, many social impact categories lack clear connections to internationally accepted macro-level frameworks, such as the United Nations Sustainable Development Goals (SDGs) (Agusdinata et al., 2023; Backes & Traverso, 2022; Cordella et al., 2023; Hannouf et al., 2023; Yao et al., 2024).

In impact investing, company impact assessment tools define impact categories across environmental and social dimensions. However, a lack of standardization leads to variations between tools. For instance, IRIS+ includes 17 impact categories, such as agriculture, energy, and biodiversity (GIIN, 2023b), while the Global Reporting Initiative (2024) outlines 33 topic standards covering areas like child labor, public policy, and biodiversity. This variation persists despite tools like IRIS+ (GIIN, 2023b) and the Impact Management Norms (Impact Frontiers, n.d.–c) aligning their categories with the same macro-level framework, the SDGs. The relevance of an impact category for a company is typically determined through stakeholder engagement (e.g., GRI, 2023; Impact Frontiers, n.d.–c) or sector-specific guidance (e.g., GRI, 2024), with many tools referencing established frameworks for further methodological direction (e.g., Impact Frontiers, n.d.–c).

Thus, the LCA logic of identifying relevant impact categories through defined sets of impact categories and a structured selection process is used by company impact assessment tools.

2.2 | Quantifying company impacts

The LCA logic of quantifying company impacts extends traditional product-based LCA to the company level, accounting for all impacts associated with the company's product portfolio and its provision (ISO, 2014). Although this represents a shift from LCA's traditional product focus, company-level assessments are not new (e.g., Clift & Wright, 2000; Finkbeiner et al., 1998; Taylor & Postlethwaite, 1996). They are further specified in an ISO standard (ISO, 2014), and detailed guidance has been discussed and tested by academics and practitioners (UNEP & SETAC, 2015).

An important aspect of quantifying company impacts is selecting covered products and unit processes, as well as defining the system boundary (ISO, 2014). The "Guidance on Organizational Life Cycle Assessment" outlines four levels of coverage, namely, the whole organization, a brand, a business division, or a region (UNEP & SETAC, 2015). Based on this selection, the guidelines establish system boundary rules, including consideration of the full product life cycle and the definition of cut-off criteria, drawing on traditional LCA principles. Additionally, the guidelines introduce specifications that account for different coverage levels, influencing the selection of facilities, products, and activities as well as the choice between cradle-to-gate and cradle-to-grave assessment (UNEP & SETAC, 2015).

Since the LCA logic of quantifying company impacts builds on product-level assessments, O-LCA results align with product-based LCA (Manzardo et al., 2018). Similarly, social O-LCA (SO-LCA) shares methodological similarities with S-LCA (D'Eusanio et al., 2022; Martínez-Blanco et al., 2015; UNEP, 2020). However, O-LCA is not recommended for company comparison due to the limited number of studies (Cimprich & Young, 2023; Manzardo et al., 2018) and the resulting lack of a consistent data basis (UNEP & SETAC, 2015).

In impact investing, company impact assessment tools have traditionally focused on the company level. Given the investor perspective, these tools often rely on company-reported data (e.g., GIIN & CDC Group, 2020) or reference impact assessment methods (e.g., Impact Frontiers, n.d.–c; United Nations Development Programme [UNDP], 2021). As a result, depending on the selected method, these tools rarely consider the whole product life cycle, omitting aspects such as scope 3 greenhouse gas emissions (Popescu et al., 2021), and apply varying methodological approaches to setting system boundaries (e.g., GIIN & CDC Group, 2020; GRI, 2023).

Thus, while the LCA logic of quantifying company impacts is used in company impact assessment tools, these tools remain methodologically inconsistent and do not assess a company's total impacts. Integrating LCA's methodological requirements, such as system boundaries and full life cycle consideration, could enhance the rigor, comparability, and comprehensiveness of company impact assessment tools.

2.3 | Incorporating macro-level thresholds

The LCA logic of incorporating macro-level thresholds is embedded in multiple LCA approaches (ISO, 2006; Paulillo & Sanyé-Mengual, 2024). One of these is distance-to-target weighting, an optional LCIA step that assigns weight to an impact based on its distance from a defined macro-level target (ISO, 2006; Pizzol et al., 2017). These targets should be scientifically grounded, aligned with regional regulations, and transparently documented (JRC, 2010). In the environmental dimension, several established distance-to-target tools offer predefined indicators and weighting factors (Pennington et al., 2004; Weidema, 2015), while in the social dimension, this approach is less common and typically applied qualitatively at impact pathway assessments (UNEP, 2020). However, the method faces challenges due to underlying assumptions, varying regional contexts (Verones et al., 2020; Wulf et al., 2017), and differences between science-based and policy-based target setting (Muhl et al., 2023) which hinders its effectiveness for decision-making (Grubert, 2017; Kalbar et al., 2017; Pizzol et al., 2017).

An alternative approach to incorporating macro-level thresholds is AESA, which compares an activity's estimated environmental pressure to the environment's carrying capacity and considers it sustainable if it stays within its allocated share (Bjørn et al., 2019; Fang et al., 2015; Rees, 1996). A comparable approach exists in the social dimension, where sustainability is assessed against thresholds, a broader term that also includes carrying capacity (Bjørn et al., 2019; McElroy & van Engelen, 2012). Defining such thresholds to assess absolute sustainability indicators follows a two-step approach that combines scientific knowledge and/or normative assumptions (e.g., Bjørn et al., 2019; Heide et al., 2023; Hjalsted et al., 2021; McElroy & van Engelen, 2012). First, a macro-level threshold is established, typically at the global level, such as a 1.5°C threshold for global warming or the goal of zero hunger. Second, this threshold is allocated to the micro level, in this case, the company level.

For the first step, the planetary boundaries concept (Rockström et al., 2009) provides environmental macro-level thresholds and is widely used in the AESA literature (e.g., Bjørn et al., 2019; Guinée et al., 2022; Hauschild et al., 2020; Ryberg et al., 2020, 2021). It defines nine impact categories with corresponding indicators and thresholds that must not be transgressed to maintain environmental stability (see Table 1).[2] For social impacts, the doughnut model (Raworth, 2012, 2017) has been proposed in AESA research (Bjørn et al., 2019; Hauschild et al., 2020; Hjalsted et al., 2021). Extending the planetary boundaries concept to the social dimension, it identifies 12 social foundations based on government priorities for the United Nations Rio+20 conference (Raworth, 2012, 2017). Unlike the closely related SDGs, the doughnut model provides quantified macro-level thresholds for each category (see Table 1).

For the second step, principles for allocating macro-level thresholds to the company level are central (Bjørn et al., 2019; Heide et al., 2023; Hjalsted et al., 2021). These include the egalitarian principle (equal per capita), grandfathering (proportional to current share of total impacts), ability to pay (proportional to economic activity) (Hjalsted et al., 2021), and sufficientarianism (fulfilment of human needs) (Bjørn et al., 2020; Heide & Gjerris, 2024; Heide et al., 2023). The choice of principles is debated, as resulting company-level thresholds can vary significantly due to differing underlying values (Bjørn et al., 2020; Heide & Gjerris, 2024; Heide et al., 2023; Hjalsted et al., 2021). For instance, under egalitarianism, a company's freshwater use budget would be allocated per capita. Grandfathering, by contrast, would allocate thresholds proportional to the company's historical water use, favoring firms with larger past withdrawals. These discrepancies may lead to a company being considered sustainable under one principle while exceeding thresholds under another (Clausen et al., 2024).

In impact investing, company impact assessment tools often reference macro-level frameworks such as the planetary boundaries, SDGs, and the doughnut model (GIIN, 2023a; IMP, 2020). However, these references are typically anecdotal and the frameworks are not used to determine the significance of company impacts (GIIN, 2023a; IMP, 2020). Instead, company impact assessment tools rely on established allocation methods for further guidance (e.g., Impact Frontiers, n.d.–c; UNDP, 2021). In the environmental dimension, the SBTi is a widely adopted allocation method for climate impacts (Andersen et al., 2021; Bendig et al., 2023; Haffar & Searcy, 2018a, 2018b; Rekker et al., 2022; Science Based Targets initiative [SBTi], 2024).[3] For other impact categories, the Science Based Targets Network, 2023c, 2024) has introduced science-based targets for freshwater and land, building on established methods and datasets such as the WRI Aqueduct water risk atlas to assess water-related risks (SBTN, 2023b; World Resources Institute [WRI], n.d.). For biodiversity, only initial guidance exists (SBTN, 2023c).

In the social dimension, allocation methods are largely absent from company impact assessment tools (GIIN, 2023a; IMP, 2020). This gap could be partially addressed by Yi et al.'s (2022) manual, which compiles 61 indicators, including 23 for social issues, to assess company impacts in relation to the SDGs. However, most social indicators focus on workers' issues, with limited consideration of other stakeholders and social issues, while only nine include company-level thresholds to assess the significance of these impacts.

Thus, the LCA logic of incorporating macro-level thresholds is rarely used in company impact assessment tools and remains largely qualitative. At best, these tools reference SBTi, while progress in the environmental (e.g., SBTN, 2024) and social dimensions (e.g., Yi et al., 2022) has yet to be integrated into mainstream practices. Expanding this LCA logic could provide a systematic, quantitative approach for assessing the significance of a company impact.

Overall, the first two LCA logics, identifying relevant impact categories and quantifying company impacts, are well used in company impact assessment tools but remain methodologically inconsistent. In contrast, the third LCA logic, incorporating macro-level thresholds, is largely absent, with the major exception of climate-related thresholds. A better reflection of this logic in the tools could provide a structured, quantitative foundation for assessing the significance of company impacts.

TABLE 1 Impact categories, macro-level indicators, and macro-level thresholds of the planetary boundaries (Richardson et al., 2023) and social foundations of the doughnut (Raworth, 2017).

Dimension	Impact Category	Macro-Level Indicator	Macro-level threshold
Environmental	**Atmospheric aerosol loading**	Interhemispheric difference (AOD: aerosol optical depth)	0.1 AOD
	Biogeochemical flows: P and N cycles	P Global: P flow from freshwater systems into the ocean	11 Tg P yr^{-1}
		P Regional: P flow from fertilizers to erodible soils	6.2 Tg P yr^{-1}
		N Global: Industrial and intentional biological fixation of N	62 Tg N yr^{-1}
	Change in biosphere integrity	Genetic diversity: Extinction rate (E/MSY: extinctions per million species-years)	10 E/MSY
		Functional diversity: Energy available to ecosystems (HANPP: Human Approp. of Net Primary Prod.)	10% HANPP
	Climate change	Atmospheric CO_2 concentration	350 ppm CO_2
		Total anthropogenic radiative forcing at top-of-atmosphere	1.0 W m^{-2}
	Freshwater change	Blue water: human induced disturbance of blue water flow	10.2%
		Green water: human induced disturbance of water available to plants	11.1%
	Land-system change	Global: Area of forested land as % of original forest	75%
	Introduction of novel entities	Percentage of synthetic chemicals released to the environment without adequate safety testing	0
	Ocean acidification	Average global surface ocean saturation state with respect to aragonite	2.75 Ω_{arag}
	Stratospheric ozone depletion	Stratospheric O3 concentration (DU: Dobson unit)	276 DU
Social	**Gender equality**	Representation gap between women and men in national parliaments	0%
		Worldwide earnings gap between women and men	0%
	Income and work	Population living on less than the international poverty limit of $3.10 a day	0%
		Proportion of young people (aged 15-24) seeking but not able to find work	0%
	Social equity	Population living in countries with a Palma ratio of ≥ 2	0%
	Water and sanitation	Population without access to improved drinking water	0%
		Population without access to improved sanitation	0%
	Education	Adult population (aged 15+) who are illiterate	0%
		Children aged 12-15 out of school	0%
	Energy	Population lacking access to clean cooking facilities	0%
		Population lacking access to electricity	0%
	Food	Population undernourished	0%
	Health	Population living in countries with life expectancy at birth <70 years	0%
		Population living in countries with under-five mortality rate >25/1,000 live births	0%
	Housing	Global urban population living in slum housing in developing countries	0%
	Networks	Population stating that they are without someone to count on for help in times of trouble	0%
		Population without access to the Internet	0%
	Peace and justice	Population living in countries scoring ≤ 50 of 100 in the Corruption Perceptions Index	0%
		Population living in countries with a homicide rate of ≥ 10 per 10,000	0%
	Political voice	Population living in countries scoring ≤ 0.5 (of 1.0) in Voice & Accountability Index	0%

3 | STATUS QUO ANALYSIS

3.1 | CONCEPTUAL AVAILABILITY OF ABSOLUTE SUSTAINABILITY INDICATORS

The first part of the status quo analysis explores the conceptual availability of absolute sustainability indicators. To identify a collectively exhaustive and mutually exclusive set, the analysis builds on a corresponding macro-level framework. Given the widespread adoption in LCA, we utilize the impact categories, indicators, and thresholds of the latest planetary boundaries (Richardson et al., 2023) combined with the social foundations of the doughnut model (Raworth, 2012).

To identify existing absolute sustainability indicators, we examined metrics provided by market-driven standards, guidelines, and frameworks (e.g., IRIS+, GRI, UN Global Compact, TCFD, and ESG data providers), as well as policy- and regulation-driven frameworks (e.g., EU taxonomy and SDGs). We identified metrics through a snowballing strategy, starting with those from members of the Impact Management Project[4] and the latest EU corporate disclosure regulation. In total, we collected 10,023 metrics from 75 sources (see Supporting Information S1). We then mapped these metrics to macro-level categories (e.g., climate change and health) and assessed for each category the availability of absolute sustainability indicators, underlying assessment methods, and company-level thresholds (see Supporting Information S2 and S5).

Our analysis reveals that out of 10,023 metrics collected, only 17 unique absolute sustainability indicators can be mapped to the macro-level indicators of the planetary boundaries and doughnut model. Of these, 10 belong to the environmental dimension (E1–E10) and seven to the social dimension (S1–S7) (see Table 2). For instance, the environmental indicator E5 ("ratio of greenhouse gas emissions to its permitted share") directly links a company's emissions to its allocated share of the macro-level threshold for climate change. Similarly, the social indicator S6 ("percentage of people within the company's sphere of influence with access to clean water") aligns with SDG 6, applying a 100% access by 2030 threshold. The vast majority of collected metrics are excluded due to a lack of macro-level threshold integration or company-level allocation. Many of these excluded metrics focus on processes (e.g., implementation of environmental policies), outputs (e.g., number of trainings conducted), or relation to revenue (e.g., greenhouse gas emission per USD revenue) without assessing the significance of their impact.

The 17 identified absolute sustainability indicators represent one approach to assessing the significance of the corresponding company impacts without excluding other possible indicators (see Supporting Information S2). Indicator E5 ("ratio of greenhouse gas emissions to its permitted share") is the only one that appears twice, for climate change and for ocean acidification, as both share greenhouse gas emissions as a common driver. Most indicators are expressed as ratios, combining the company-level threshold with the company's actual impact. However, some indicators, such as E7 ("area of deforestation"), E8 ("area of converted natural habitats"), or E10 ("ozone-depleting substances and chemicals"), are not calculated as ratios because their assessed impacts are entirely restricted under Richardson et al. (2023) or the Montreal Protocol (1987).

The mapped assessment methods offer ways to calculate absolute sustainability indicators while allowing for different allocation principles. Most methods apply to a single macro-level category (e.g., Accountability Framework initiative [AFi] and Montreal Protocol), others cover multiple categories (e.g., SBTi's Net Zero Standard, United Nations Global Compact CEO Water Mandate, and so on). The latter occurs when macro-level indicators share common drivers (e.g., climate change and ocean acidification both stem from greenhouse gas emissions) or when a method addresses multiple sustainability issues (e.g., GRI).

Where feasible, we derived science-based or policy-based company-level thresholds. While some absolute sustainability indicators have fixed thresholds (e.g., E7: "area of deforestation"), others vary by region (e.g., E6: "naturally replenished freshwater withdrawals") or values (e.g., S5: "ratio of CEO remuneration to lowest-paid worker remuneration"). Additionally, some thresholds are time bound, such as S6 ("percentage of people within sphere of influence with access to clean water"), which targets 100% access by 2030 in line with SDG 6 and requires assessment based on the planned path to the threshold.

Table 3 illustrates the relationship between absolute sustainability indicators and macro-level indicators, showing their alignment and correlation. Specifically, it distinguishes between direct and indirect causal links (column "Causal Link to Macro-Level Indicator") and whether macro-level thresholds can be completely or incompletely allocated to the company level (column "Degree of Allocation"). Our analysis reveals notable differences between the environmental and social dimensions. In the environmental dimension, an absolute sustainability indicator exists for each macro-level indicator, with most indicators having direct causal links and completely allocated thresholds. The only exceptions are E1 ("ratio of air emissions to its permitted share") and E4 ("ratio of ecological focus areas to arable land"), which have indirect links and incomplete threshold allocations. While absolute sustainability indicators exist for every environmental macro-level indicator, challenges remain. For instance, E4 ("ratio of ecological focus areas to arable land") relies on land-use models that vary regionally, limiting standardization and comparability. Similarly, E1 ("ratio of air emissions to its permitted share") depends on region-specific thresholds, reflecting the heterogeneity of aerosol sources and their impacts (Richardson et al., 2023).

In the social dimension, only seven absolute sustainability indicators are mapped, compared to 20 macro-level indicators. Metrics with limited influence on macro-level indicators are excluded (e.g., "incident rate of occupational injuries" omits key health-related factors like stress, nutrition, or work conditions). As a result, 13 conceptual gaps remain (marked as "to be developed"). Furthermore, only three indicators have a direct causal link to the macro-level indicator (e.g., S6: "percentage of people within sphere of influence with access to clean water"), while others cover only

TABLE 2 Overview of absolute sustainability indicators, assessment methods, and company-level thresholds.

Dimension	Impact Category	Absolute sustainability indicator	Assessment Method	Company-Level Threshold	Threshold Source
Environmental	**Atmospheric aerosol loading**	(E1) Ratio of air emissions to its permitted share (for NOx, SOx, POP, VOC, HAP, PM, and other standard categories of air emissions)	e.g., GRI, 2016a	1	Regional regulations; Richardson et al., 2023
	Biogeochemical flows: P and N cycles	(E2) Ratio of phosphorus used per hectare of utilized arable area to its permitted share	e.g., SBTN, 2023c	1	Regional regulations; Richardson et al., 2023
		(E3) Ratio of reactive nitrogen used per hectare of utilized arable area to its permitted share	e.g., SBTN, 2023c	1	Regional regulations; Richardson et al., 2023
	Change in biosphere integrity	(E4) Ratio of ecological focus areas to arable land[5]	e.g., Loudjani et al., 2015	10-20 %/km^2	European Parliament, 2021; SBTN, n.d., 2023a
	Climate change	(E5) Ratio of greenhouse gas emissions to its permitted share	SBTi, 2024	1	Richardson et al., 2023; Paris Agreement, 2015
	Freshwater change	(E6) Naturally replenished freshwater withdrawals	SBTN, 2023b; CEO Water Mandate et al., 2019	1	Regional situation; Richardson et al., 2023; SBTN, 2023b
	Land-system change	(E7) Area of deforestation	AFi, 2024; SBTN, 2023c	0 m^2	AFi, 2024; Richardson et al., 2023; SBTN, 2023c
		(E8) Area of conversed natural habitats	AFi, 2024; SBTN, 2023c	0 m^2	AFi, 2024; Richardson et al., 2023; SBTN, 2023c
	Introduction of novel entities	(E9) Recycling rate of novel entities (e.g., chemicals, engineered substances, natural occurring substances mobilized by anthropogenic activities)	e.g., GRI, 2020	1	Richardson et al., 2023
	Ocean acidification	(E5) Ratio of greenhouse gas emissions to its permitted share	SBTi, 2024	1	Richardson et al., 2023; Paris Agreement, 2015
	Stratospheric ozone depletion	(E10) Ozone-depleting substances and chemicals	Montreal Protocol, 1987	0 kg	Richardson et al., 2023; Montreal Protocol, 1987
Social	**Gender equality**	(S1) Female share of employment in senior and middle management	e.g., GRI, 2016c	0,4	Raworth, 2017; United Nations, 2015; Yi et al., 2022
		(S2) Gender pay gap by occupational category	e.g., GRI, 2016c	0,03	Raworth, 2017; United Nations, 2015; Yi et al., 2022
	Income and work	(S3) Percentage of employees earning below the living wage	e.g., IRIS, 2022a	0	Raworth, 2017; United Nations, 2015; Yi et al., 2022
		(S4) Ratio of net employment growth rate to employable population growth rate per country	e.g., GRI, 2016b	Regional targets	Regional statistics; Raworth, 2017
	Social equity	(S5) Ratio of CEO remuneration to lowest-paid worker remuneration	e.g., IRIS, 2022b	10-50	Raworth, 2017; Utting & O'Neill, 2020
	Water and sanitation	(S6) Percentage of people within sphere of influence with access to clean water	CEO Water Mandate et al., 2019	100% in 2030	Raworth, 2017; United Nations, 2015
		(S7) Percentage of people within sphere of influence with access to improved sanitation	CEO Water Mandate et al., 2019	100% in 2030	Raworth, 2017; United Nations, 2015

TABLE 3 Comparison between macro-level indicators and absolute sustainability indicators.

Dimension	Impact Category	Macro-Level Indicator	Absolute sustainability indicator	Causal Link to Macro-Level Indicator	Degree of Allocation
Environmental	**Atmospheric aerosol loading**	Interhemispheric difference	(E1) Ratio of air emissions t its permitted share (for NOx, SOx, POP, VOC, HAP, PM, and other standard categories of air emissions)	Direct	Incomplete
	Biogeochemical flows: P and N cycles	P Global: P flow from freshwater systems into the ocean	(E2) Ratio of phosphorus used per hectare of utilized arable area to its	Direct	Complete
		P Regional: P flow from fertilizers to erodible soils	permitted share		
		N Global: Industrial and intentional biological fixation of N	(E3) Ratio of reactive nitrogen used per hectare of utilized arable area to its permitted share	Direct	Complete
	Change in biosphere integrity	Genetic diversity: Extinction rate	(E4) Ratio of ecological focus areas to arable land	Indirect	Incomplete
		Functional diversity: Energy available to ecosystems			
	Climate change	Atmospheric CO_2 concentration	(E5) Ratio of greenhouse gas emissions to its permitted share	Direct	Complete
		Total anthropogenic radiative forcing at top-of-atmosphere			
	Freshwater change	Blue water: human induced disturbance of blue water flow	(E6) Naturally replenished freshwater withdrawals	Direct	Complete
		Green water: human induced disturbance of water available to plants			
	Land-system change	Global: Area of forested land as % of original forest	(E7) Area of deforestation	Direct	Complete
			(E8) Area of conversed natural habitats	Direct	Complete
	Introduction of novel entities	Percentage of synthetic chemicals released to the environment without adequate safety testing	(E9) Recycling rate of novel entities (e.g., chemicals, engineered substances, natural occurring substances mobilized by anthropogenic activities)		
	Ocean acidification	Average global surface ocean saturation state with respect to aragonite	(E5) Ratio of greenhouse gas emissions to its permitted share	Direct	Complete
	Stratospheric ozone depletion	Stratospheric O3 concentration	(E10) Ozone-depleting substances and chemicals	Direct	Complete

(Continues)

TABLE 3 (Continued)

Dimension	Impact Category	Macro-Level Indicator	Absolute sustainability indicator	Causal Link to Macro-Level Indicator	Degree of Allocation
Social	**Gender equality**	Representation gap between women and men in national parliaments	(S1) Female share of employment in senior and middle management	Indirect	Incomplete
		Worldwide earnings gap between women and men	(S2) Gender pay gap by occupational category	Direct	Incomplete
	Income and work	Population living on less than the international poverty limit of $3.10 a day	(S3) Percentage of employees earning below the living wage	Indirect	Incomplete
		Proportion of young people (aged 15-24) seeking but not able to find work	(S4) Ratio of net employment growth rate to employable population growth rate per country	Indirect	Incomplete
	Social equity	Population living in countries with a Palma ratio of ≥ 2	(S5) Ratio of CEO remuneration to lowest-paid worker remuneration	Direct	Incomplete
	Water and sanitation	Population without access to improved drinking water	(S6) Percentage of people within sphere of influence with access to clean water	Direct	Complete
	Education	Population without access to improved sanitation	(S7) Percentage of people within sphere of influence with access to improved sanitation	Direct	Complete
		Adult population (aged 15+) who are illiterate	to be developed		
	Energy	Children aged 12-15 out of school	to be developed		
		Population lacking access to clean cooking facilities	to be developed		
	Food	Population lacking access to electricity	to be developed		
	Health	Population undernourished	to be developed		
		Population living in countries with life expectancy at birth <70 years	to be developed		
	Housing	Population living in countries with under-five mortality rate >25/1,000 live births	to be developed		
	Networks	Global urban population living in slum housing in developing countries	to be developed		
		Population stating that they are without someone to count on for help in times of trouble	to be developed		
	Peace and justice	Population without access to the Internet	to be developed		
		Population living in countries scoring ≤ 50 of 100 in the Corruption Perceptions Index	to be developed		
	Political voice	Population living in countries with a homicide rate of ≥ 10 per 10,000	to be developed		
		Population living in countries scoring ≤ 0.5 (of 1.0) in Voice & Accountability Index	to be developed		

TABLE 4 Overview of ESG data providers.

Data provider	Coverage of companies	Practices for data processing	Macro-level framework
A	~9100	• Weighting • Benchmarking	• -
B	~13,000–14,000*	• Revenue exposure	• SDGs
C	~27,000	• Revenue exposure • Benchmarking • Monetization	• SDGs
D	~7300	• Revenue exposure • Weighting • Benchmarking • Monetization	• SDGs • Individual framework
E	~5000–10,000*	• Revenue exposure • Weighting • Benchmarking • Ranking • Monetization	• SDGs
F	~13,000	• Revenue exposure	• SDGs • Individual framework
G	~10,300	• Revenue exposure	• SDGs • Individual framework
H	~7000	• Revenue exposure • Weighting • Benchmarking • Ranking	• SDGs
I	~11,500–22,000*	• Revenue exposure • Weighting • Benchmarking • Ranking • Monetization	• SDGs • Individual framework

*Coverage of companies depends on the selected data product.

subsets of broader social goals. For example, S5 (“ratio of CEO remuneration to lowest-paid worker remuneration”) reflects equity but does not capture income distribution or social justice.

Overall, our analysis reveals gaps and inconsistencies in absolute sustainability indicators, with the environmental dimension being more developed than the social dimension. While environmental indicators are more established, challenges in standardization and regional applicability remain. In contrast, social indicators lack sufficient coverage, causal impact pathways, and complete allocation of macro-level issues.

3.2 | PRACTICAL AVAILABILITY OF COMPANY IMPACT DATA

As for the second step of the status quo analysis, we examine the data availability for absolute sustainability indicators using proprietary datasets from a large German asset manager. These datasets were collected through a questionnaire sent to 13 leading ESG data providers, selected in collaboration with the asset manager to represent major providers in Europe and North America. Nine providers responded, who are anonymized in this study to maintain confidentiality.

The questionnaire covered 47 questions on the availability of absolute sustainability indicators, assessment methods, company coverage, and update frequency (see Supporting Information S3). In addition to their responses (see Supporting Information S4), most ESG data providers submitted internal documents, including 133 Excel files with raw data metrics and 75 PDFs detailing data dictionaries, calculation methodologies, and barometers aligned with regulatory requirements or reporting frameworks. A full description of our methodological approach is provided in Supporting Information 5.

ESG data providers offer different data products on companies' sustainability metrics and ratings with coverages ranging from 5000 to 27,000 companies (see Table 4). Most providers structure their assessments around the SDGs, with four developing proprietary frameworks inspired by the SDGs to sort, weigh, and aggregate their metrics. Notably, none of the data providers uses the planetary boundaries or the doughnut model. For processing data, the providers typically apply revenue analysis, weighting, monetization, benchmarking, and ranking.

Our analysis of the ESG data providers' responses reveals that available data only partially covers the identified absolute sustainability indicators (see Table 5). Of the 17 indicators, data is available for only five: three environmental indicators (E5: "ratio of greenhouse gas emissions to its permitted share," E9: "recycling rate of novel entities," and E10: "ozone-depleting substances and chemicals") and two social (S1: "female share of employment in senior and middle management" and S2: "gender pay gap by occupational category"). E5 is the most widely available, covered by six providers, followed by E10 and S1 with four providers each, while E9 and S2 were reported by only one provider each.

Where data is incomplete, sparse, or lacks necessary details for a company-level threshold, we classify it as "partly available." For instance, while seven providers collect data on freshwater withdrawals, they lack information on naturally replenished freshwater withdrawals, making E6 ("naturally replenished freshwater withdrawals") only partly available. Similarly, missing data on the growth rate of employable population, lowest-paid worker wages, and regionally permitted air emissions hinders assessments of S4, S5, and E1. No data is available for five environmental and three social absolute sustainability indicators (E2, E3, E4, E7, E8, S3, S6, and S7).

We identify five key reasons for the limited data coverage from ESG data providers. First, providers focus on company processes (e.g., existence of policies, commitments, or teams) rather than data needed to assess the significance of company impacts. Second, company-specific data often concentrates on company issues (e.g., freshwater withdrawal) but tends to overlook environmental and social issues in relevant impact categories (e.g., improved drinking water and sanitation for underserved populations). Third, available data lacks context for company-level thresholds, for instance, freshwater withdrawals are tracked, but data on naturally replenished freshwater is missing. Fourth, many metrics, methodologies, and thresholds are neither science based nor policy based, with some assessment methodologies even remaining undisclosed. Finally, data often fails to align with macro-level frameworks, with providers reporting on minimum wage payment but ignoring living wage payment, despite its promotion by the United Nations Global Compact.

Overall, our study reveals the limited practical availability of company impact data from ESG data providers. Coverage is partial and inconsistent, with data available for only 5 of the 17 absolute sustainability indicators. Key gaps stem from a focus on company processes rather than impact, a lack of alignment with macro-level frameworks, and missing contextual data for thresholds.

4 | DISCUSSION

We find that, first, LCA logics offer a valuable foundation for assessing the significance of company impacts, yet important gaps remain. While the LCA logics of identifying relevant impact categories and quantifying company impacts are used in company impact assessment tools, methodological inconsistencies persist, and the logic of incorporating macro-level thresholds is largely absent, except for the climate context. Building on these findings, this study contributes to the literature on LCA in sustainable finance (Kulionis et al., 2024; Popescu et al., 2021; Schlütter et al., 2023) by addressing the research gap on whether, and to what extent, LCA logics are applied in company impact assessment tools.

Second, we show that environmental absolute sustainability indicators are conceptually well developed, with assessment methods such as the Science Based Targets initiative (2024) or Science Based Targets for Nature (SBTN) (2023a, 2023b, 2023c) providing guidance on setting adequate company-level thresholds while a lack of available data hinders their practical application. In contrast, social absolute sustainability indicators, apart from Yi et al.'s (2022) SDG-based indicator manual, are considerably less advanced conceptually, lack clear pathways to translate macro-level issues into actionable indicators, and are compounded by significant data limitations. By demonstrating these gaps, we build on and extend the work of scholars in the field (Bjørn et al., 2017; Haffar & Searcy, 2018a, 2018b; Popescu et al., 2021; Strömmer & Ormiston, 2022; Yi et al., 2022). Furthermore, we help bridge the gap between macro-level sustainability frameworks and company-level decision-making in sustainable finance by providing an approach to determine the significance of company impacts, addressing the needs of impact investors.

5 | IMPLICATIONS FOR RESEARCH, POLICY, AND PRACTICE

As our findings highlight distinct challenges in the environmental and social dimensions, advancing the assessment of the significance of company impacts requires dimension-specific steps for research, policy, and practice. Environmental absolute sustainability indicators are conceptually well developed and already usable for assessing the significance of company impacts within planetary boundaries, as demonstrated by the first pilot groups for SBTN (2024). However, their integration into company impact assessment tools remains limited, and their robustness is still evolving due to their recent emergence.

Thus, researchers should critically examine how to advance these assessment methods, particularly the use of the LCA logic of incorporating macro-level thresholds. They should also investigate how sector- and region-specific conditions influence company-level thresholds to enhance their practical relevance. Furthermore, scholars could take inspiration from methodologies from science-based targets such as scenario planning and risk assessments to further advance the accuracy of these assessment methods. Policymakers should mandate and incentivize the integration of environmental absolute sustainability indicators into regulatory reporting to address the lack of information on the significance of company impacts. Meanwhile, investors should encourage companies to adopt these indicators across all environmental impact categories and integrate

TABLE 5 Availability of company impact data from ESG data providers.

Dimension	Impact Category	Absolute sustainability indicator	Aggregated Availability	A	B	C	D	E	F	G	H	I
Environmental	Atmospheric aerosol loading	(E1) Ratio of air emissions to its permitted share (for NOx, SOx, POP, VOC, HAP, PM, and other standard categories of air emissions)	Incomplete	pA	pA	-	-	-	-	-	-	-
	Biogeochemical flows: P and N cycles	(E2) Ratio of phosphorus used per hectare of utilized arable area to its permitted share	Not available	-	-	-	-	-	-	-	-	-
		(E3) Ratio of reactive nitrogen used per hectare of utilized arable area to its permitted share	Not available	-	-	-	-	-	-	-	-	-
	Change in biosphere integrity	(E4) Ratio of ecological focus areas to arable land	Not available	-	-	-	-	-	-	-	-	-
	Climate change	(E5) Ratio of greenhouse gas emissions to its permitted share	Available	A	A	A	-	A	-	A	-	A
	Freshwater change	(E6) Naturally replenished freshwater withdrawals	Incomplete	pA	pA	pA	pA	-	pA	pA	-	pA
	Land-system change	(E7) Area of deforestation	Not available	-	-	-	-	-	-	-	-	-
		(E8) Area of conversed natural habitats	Not available	-	-	-	-	-	-	-	-	-
	Introduction of novel entities	(E9) Recycling rate of novel entities (e.g., chemicals, engineered substances, natural occurring substances mobilized by anthropogenic activities)	Available	-	-	-	pA	-	-	A	-	-
	Ocean acidification	(E5) Ratio of greenhouse gas emissions to its permitted share	Available	A	A	A	-	A	-	A	-	A
	Stratospheric ozone depletion	(E10) Ozone-depleting substances and chemicals	Available	-	A	-	-	A	-	A	A	-
Social	Gender equality	(S1) Female share of employment in senior and middle management	Available	A	A	pA	A	-	pA	-	-	A
		(S2) Gender pay gap by occupational category	Available	pA	A	-	-	-	-	-	-	A
	Income and work	(S3) Percentage of employees earning below the living wage	Not available	-	-	-	-	-	-	-	-	-
		(S4) Ratio of net employment growth rate to employable population growth rate per country	Incomplete	pA	pA	pA	pA	-	pA	-	-	pA
	Social equity	(S5) Ratio of CEO remuneration to lowest-paid worker remuneration	Incomplete	pA	pA	pA	pA	-	-	-	-	-
	Water and sanitation	(S6) Percentage of people within sphere of influence with access to clean water	Not available	-	-	-	-	-	-	-	-	-
		(S7) Percentage of people within sphere of influence with access to improved sanitation	Not available	-	-	-	-	-	-	-	-	-

Abbreviations: A, available; pA, partly available.

them into company impact assessment tools. Similarly, ESG data providers should expand their data collection to include planetary boundaries and gather contextual information on company impacts to deliver absolute environmental sustainability indicators for investors. We believe these efforts to be valuable, even in times of increasing ESG criticism, since addressing global sustainability challenges by incorporating company data in decision-making will remain very important.

Social absolute sustainability indicators are less advanced conceptually, lacking clear pathways to translate macro-level issues into actionable indicators. Addressing this gap requires scholars to resolve key questions: Should company impacts be limited to regulatory compliance and taxation, or should they encompass broader distributive efforts aligned with Raworth's principles of distributive economics? How can regional responsibility approaches, as seen in the indicators S6 and S7 ("percentage of people within sphere of influence with access to clean water/improved sanitation"), be adapted to other social contexts? What are the economic and social implications of different allocation approaches for companies, investors, and communities?

Thus, we propose that transdisciplinary researchers from industrial ecology, social sciences, and economics use scenario analysis to explore the implications of different scenarios of the above-mentioned questions in real-world cases across sectors, regions, and social issues. This requires combining publicly available data, such as regional hunger statistics or national equity tables, with company-specific information on operations, revenues, and social impacts. Policymakers could facilitate inclusive stakeholder processes to establish regional company-level thresholds. For example, the outcome of such a process could be that a community decides to eliminate its slum housing by 2030 and allocate responsibilities among local authorities, companies, and organizations based on a collectively chosen allocation principle. Meanwhile, socially ambitious companies, investors, and ESG data providers could take an iterative and experimental approach by assessing company impacts using multiple allocation principles. This could offer actionable starting points for early adopters, while in the long term, it could foster public debate, build consensus, and drive collective action.

6 | CONCLUSION

Achieving a sustainable economy requires investing in companies that can drive tangible change, yet, without robust company impact assessment, investors cannot determine the true significance of their investments. This study contributes to the evolving discourse on company impact assessment in sustainable finance by showing that while LCA logics provide a valuable foundation for assessing the significance of company impacts, important gaps remain in allocating macro-level thresholds to the company level. Moreover, we find that while environmental absolute sustainability indicators are conceptually advanced, their practical application is hindered by data limitations, restricting their usability for investors. Social absolute sustainability indicators lack clear impact pathways for translating macro-level issues into actionable company-level indicators, further constrained by data gaps.

By bridging the gap between macro-level sustainability frameworks and the practical needs of investors, we highlight the different requirements in the environmental and social dimensions to advance the assessment of the significance of company impacts. While challenges remain, particularly in the social dimension, our findings highlight the importance of interdisciplinary research in strengthening the use of LCA logics in impact investment practices and, ultimately, driving a just and sustainable transformation of the real economy.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Notes

[1] In addition to LCA-related methods, other approaches such as risk assessment and scenario analysis, also provide valuable and relevant information for company impact assessments. Since they do not primarily focus on assessing the significance of impacts (Liu et al., 2013; Socolof & Geibig, 2006), we do not include them in further analysis.

[2] Unlike LCAs, the planetary boundaries concept lacks certain impact categories such as non-renewable resource scarcity and ionization radiation. This omission is explained by their irrelevance to protecting the Earth System (Bjørn et al., 2019).

[3] For a critical reflection, please see, for example, Chandrakumar et al. (2019); Hadziosmanovic et al. (2022); Trexler and Schendler (2015).

[4] The Impact Management Project was an initiative of more than 3000 enterprises and investors that developed a global standard on how to measure, improve, and disclose impacts in impact investing (Impact Frontiers, n.d.–b).

[5] There is a growing and ongoing debate on how to measure biodiversity properly without an established consensus yet (e.g., Hoban et al., 2020; Magurran, 2021; Science Based Targets Network [SBTN], 2023a). See Supporting Information S2 for further details.

REFERENCES

Accountability Framework initiative. (2024). *Accountability framework*. https://accountability-framework.org/use-the-accountability-framework/download-the-full-framework/

Agusdinata, D. B., Liu, W., Sulistyo, S., LeBillon, P., & Wegner, J. (2023). Evaluating sustainability impacts of critical mineral extractions: Integration of life cycle sustainability assessment and SDGs frameworks. *Journal of Industrial Ecology*, *27*(3), 746–759. https://doi.org/10.1111/jiec.13317

Andersen, I., Ishii, N., Brooks, T., Cummis, C., Fonseca, G., Hillers, A., Macfarlane, N., Nakicenovic, N., Moss, K., Rockström, J., Steer, A., Waughray, D., & Zimm, C. (2021). Defining 'science-based targets'. *National Science Review*, *8*(7), nwaa186. https://doi.org/10.1093/nsr/nwaa186

Backes, J. G., & Traverso, M. (2022). Life cycle sustainability assessment as a metrics towards SDGs agenda 2030. *Current Opinion in Green and Sustainable Chemistry*, *38*, 100683. https://doi.org/10.1016/j.cogsc.2022.100683

Bendig, D., Wagner, A., & Lau, K. (2023). Does it pay to be science-based green? The impact of science-based emission-reduction targets on corporate financial performance. *Journal of Industrial Ecology*, *27*(1), 125–140. https://doi.org/10.1111/JIEC.13341

Bjørn, A., Bey, N., Georg, S., Røpke, I., & Hauschild, M. Z. (2017). Is Earth recognized as a finite system in corporate responsibility reporting? *Journal of Cleaner Production*, *163*, 106–117. https://doi.org/10.1016/J.JCLEPRO.2015.12.095

Bjørn, A., Chandrakumar, C., Boulay, A.-M., Doka, G., Fang, K., Gondran, N., Hauschild, M. Z., Kerkhof, A., King, H., Margni, M., McLaren, S., Mueller, C., Owsianiak, M., Peters, G., Roos, S., Sala, S., Sandin, G., Sim, S., Vargas-Gonzalez, M., & Ryberg, M. (2020). Review of life-cycle based methods for absolute environmental sustainability assessment and their applications. *Environmental Research Letters*, *15*(8), 83001. https://doi.org/10.1088/1748-9326/ab89d7

Bjørn, A., Richardson, K., & Hauschild, M. Z. (2019). A framework for development and communication of absolute environmental sustainability assessment methods. *Journal of Industrial Ecology*, *23*(4), 838–854. https://doi.org/10.1111/jiec.12820

Borucke, M., Moore, D., Cranston, G., Gracey, K., Iha, K., Larson, J., Lazarus, E., Morales, J. C., Wackernagel, M., & Galli, A. (2013). Accounting for demand and supply of the biosphere's regenerative capacity: The National Footprint Accounts' underlying methodology and framework. *Ecological Indicators*, *24*, 518–533. https://doi.org/10.1016/j.ecolind.2012.08.005

Chandrakumar, C., McLaren, S. J., Jayamaha, N. P., & Ramilan, T. (2019). Absolute Sustainability-Based Life Cycle Assessment (ASLCA): A benchmarking approach to operate agri-food systems within the 2°C global carbon budget. *Journal of Industrial Ecology*, *23*(4), 906–917. https://doi.org/10.1111/jiec.12830

Cimprich, A., & Young, S. B. (2023). Environmental footprinting of hospitals: Organizational life cycle assessment of a Canadian hospital. *Journal of Industrial Ecology*, *27*(5), 1335–1353. https://doi.org/10.1111/jiec.13425

Clausen, C. A., Bjørn, A., Sanyé-Mengual, E., & Ryberg, M. (2024). Applying environmental sustainability boundaries for climate change in life cycle assessment: A review of approaches and implications for policymaking. *Journal of Industrial Ecology*, *28*(3), 617–630. https://doi.org/10.1111/jiec.13481

Clift, R., & Wright, L. (2000). Relationships between environmental impacts and added value along the supply chain. *Technological Forecasting and Social Change*, *65*(3), 281–295. https://doi.org/10.1016/S0040-1625(99)00055-4

Cordella, M., Horn, R., Hong, S. H., Bianchi, M., Isasa, M., Harmens, R., Sonderegger, T., & Pihkola, H. (2023). Addressing sustainable development goals in life cycle sustainability assessment: Synergies, challenges and needs. *Journal of Cleaner Production*, *415*, 137719. https://doi.org/10.1016/j.jclepro.2023.137719

D'Eusanio, M., Tragnone, B. M., & Petti, L. (2022). Social organisational life cycle assessment and social life cycle assessment: Different twins? Correlations from a case study. *The International Journal of Life Cycle Assessment*, *27*(1), 173–187. https://doi.org/10.1007/s11367-021-01996-w

European Commission's Joint Research Centre. (2010). *International Reference Life Cycle Data System (ILCD) handbook: General guide for life cycle assessment—Detailed guidance*. https://eplca.jrc.ec.europa.eu/uploads/ILCD-Handbook-General-guide-for-LCA-DETAILED-GUIDANCE-12March2010-ISBN-fin-v1.0-EN.pdf

European Parliament. (2021). *EU biodiversity strategy for 2030: Bringing nature back into our lives*. https://www.europarl.europa.eu/doceo/document/TA-9-2021-0277_EN.pdf

Fang, K., Heijungs, R., & De Snoo, G. R. (2015). Understanding the complementary linkages between environmental footprints and planetary boundaries in a footprint–boundary environmental sustainability assessment framework. *Ecological Economics*, *114*, 218–226. https://doi.org/10.1016/j.ecolecon.2015.04.008

Finkbeiner, M., Wiedemann, M., & Saur, K. (1998). A comprehensive approach towards product and organisation related environmental management tools. *The International Journal of Life Cycle Assessment*, *3*, 169–178. https://doi.org/10.1007/BF02978825

Global Impact Investing Network, & CDC Group. (2020). *Using IRIS+ for Data Collection*.

Global Impact Investing Network. (2023a). *GIINSIGHT 2023: Impact measurement & management practice*. https://s3.amazonaws.com/giin-web-assets/giin/assets/publication/research/2023-giinsight-%E2%80%93-impact-measurement-and-management-practice.pdf

Global Impact Investing Network. (2023b). *IRIS+ Thematic taxonomy*. https://s3.amazonaws.com/giin-web-assets/iris/assets/files/iris/2023-08-26_IRIS_FND_Taxonomy-DRAFT.pdf

Global Reporting Initiative. (2016a). *GRI 305: Emissions*. https://www.globalreporting.org/pdf.ashx?id=12510

Global Reporting Initiative. (2016b). *GRI 401: Employment*. https://www.globalreporting.org/pdf.ashx?id=12543

Global Reporting Initiative. (2016c). *GRI 405: Diversity and equal opportunity*. https://www.globalreporting.org/pdf.ashx?id=12587

Global Reporting Initiative. (2020). *GRI 306: Waste*. https://www.globalreporting.org/pdf.ashx?id=12521

Global Reporting Initiative. (2023). *GRI 1: Foundation 2021: Universal standard*. https://globalreporting.org/pdf.ashx?id=12334

Global Reporting Initiative. (2024). *Consolidated set of the GRI standards*. https://www.globalreporting.org/how-to-use-the-gri-standards/resource-center/?g=48cf7c8a-0b07-4905-9d30-46a3d1f67676&id=12024

Grubert, E. (2017). The need for a preference-based multicriteria prioritization framework in life cycle sustainability assessment. *Journal of Industrial Ecology*, *21*(6), 1522–1535. https://doi.org/10.1111/jiec.12631

Guinée, J. B., Koning, A. d., & Heijungs, R. (2022). Life cycle assessment-based absolute environmental sustainability assessment is also relative. *Journal of Industrial Ecology*, *26*(3), 673–682. https://doi.org/10.1111/jiec.13260

Hadziosmanovic, M., Lloyd, S. M., Bjørn, A., Paquin, R. L., Mengis, N., & Matthews, H. D. (2022). Using cumulative carbon budgets and corporate carbon disclosure to inform ambitious corporate emissions targets and long-term mitigation pathways. *Journal of Industrial Ecology*, *26*(5), 1747–1759. https://doi.org/10.1111/jiec.13322

Haffar, M., & Searcy, C. (2018a). Target-setting for ecological resilience: Are companies setting environmental sustainability targets in line with planetary thresholds? *Business Strategy and the Environment*, *27*(7), 1079–1092. https://doi.org/10.1002/bse.2053

Haffar, M., & Searcy, C. (2018b). The use of context-based environmental indicators in corporate reporting. *Journal of Cleaner Production*, *192*, 496–513. https://doi.org/10.1016/j.jclepro.2018.04.202

Hannouf, M. B., Padilla-Rivera, A., Assefa, G., & Gates, I. (2023). Methodological framework to find links between life cycle sustainability assessment categories and the UN Sustainable Development Goals based on literature. *Journal of Industrial Ecology*, *27*(3), 707–725. https://doi.org/10.1111/jiec.13283

Hauschild, M. Z., Kara, S., & Røpke, I. (2020). Absolute sustainability: Challenges to life cycle engineering. *CIRP Annals*, *69*(2), 533–553. https://doi.org/10.1016/j.cirp.2020.05.004

Hehenberger, L., Mair, J., & Metz, A. (2019). The assembly of a field ideology: An idea-centric perspective on systemic power in impact investing. *Academy of Management Journal*, *62*(6), 1672–1704. https://doi.org/10.5465/amj.2017.1402

Heide, M., & Gjerris, M. (2024). Embedded but overlooked values: Ethical aspects of absolute environmental sustainability assessments. *Journal of Industrial Ecology*, *28*(3), 386–396. https://doi.org/10.1111/jiec.13472

Heide, M., Hauschild, M. Z., & Ryberg, M. (2023). Reflecting the importance of human needs fulfilment in absolute sustainability assessments: Development of a sharing principle. *Journal of Industrial Ecology*, *27*(4), 1151–1164. https://doi.org/10.1111/jiec.13405

Hjalsted, A. W., Laurent, A., Andersen, M. M., Olsen, K. H., Ryberg, M., & Hauschild, M. Z. (2021). Sharing the safe operating space: Exploring ethical allocation principles to operationalize the planetary boundaries and assess absolute sustainability at individual and industrial sector levels. *Journal of Industrial Ecology*, *25*(1), 6–19. https://doi.org/10.1111/jiec.13050

Hoban, S., Bruford, M., D'Urban Jackson, J., Lopes-Fernandes, M., Heuertz, M., Hohenlohe, P. A., Paz-Vinas, I., Sjögren-Gulve, P., Segelbacher, G., Vernesi, C., Aitken, S., Bertola, L. D., Bloomer, P., Breed, M., Rodríguez-Correa, H., Funk, W. C., Grueber, C. E., Hunter, M. E., Jaffe, R., … Laikre, L. (2020). Genetic diversity targets and indicators in the CBD post-2020 Global Biodiversity Framework must be improved. *Biological Conservation*, *248*, 108654. https://doi.org/10.1016/j.biocon.2020.108654

Höchstädter, A. K., & Scheck, B. (2015). What's in a name: An analysis of impact investing understandings by academics and practitioners. *Journal of Business Ethics*, *132*(2), 449–475. https://doi.org/10.1007/S10551-014-2327-0

Huang, Q., Sun, Y., Guo, Q., Li, Q., Zhang, Y., Li, X., & Wang, L. (2025). Social life cycle assessment and its methodological challenges: A bibliometric and content analysis. *Journal of Industrial Ecology*, *29*(1), 264–278. https://doi.org/10.1111/jiec.13605

Impact Frontiers. (n.d.–a). *Evaluating impact performance*. https://impactfrontiers.org/norms/abc-of-enterprise-impact/comparing-impact-performance/

Impact Frontiers. (n.d.–b). *Impact management norms*. https://impactfrontiers.org/norms/

Impact Frontiers. (n.d.–c). *What—Five dimensions of impact*. https://impactfrontiers.org/norms/five-dimensions-of-impact/what/

Impact Management Project. (2020). *A guide to classifying the impact of an investment*. https://impactfrontiers.org/wp-content/uploads/2022/05/A-Guide-to-Classifying-the-Impact-of-an-Investment-2021.pdf

International Organization for Standardization (ISO). (2006). *ISO 14040:2006: Environmental management—Life cycle assessment—Principles and framework*. https://www.iso.org/standard/37456.html

International Organization for Standardization (ISO). (2014). *ISO/TS 14072:2014: Environmental management—Life cycle assessment—Requirements and guidelines for organizational life cycle assessment*. https://www.iso.org/standard/61104.html

IRIS. (2022a). *Employees earning a living wage or higher (OI4724)*. https://iris.thegiin.org/metric/5.3/OI4724/

IRIS. (2022b). *Wage equity (OI1582)*. https://iris.thegiin.org/metric/5.3/OI1582/

Kalbar, P. P., Birkved, M., Nygaard, S. E., & Hauschild, M. Z. (2017). Weighting and aggregation in life cycle assessment: Do present aggregated single scores provide correct decision support? *Journal of Industrial Ecology*, *21*(6), 1591–1600. https://doi.org/10.1111/jiec.12520

Kim, J., Yang, Y., Bae, J., & Suh, S. (2013). The importance of normalization references in interpreting life cycle assessment results. *Journal of Industrial Ecology*, *17*(3), 385–395. https://doi.org/10.1111/j.1530-9290.2012.00535.x

Kölbel, J. F., Heeb, F., Paetzold, F., & Busch, T. (2020). Can sustainable investing save the world? Reviewing the mechanisms of investor impact. *Organization & Environment*, *33*(4), 554–574. https://doi.org/10.1177/1086026620919202

Kühnen, M., & Hahn, R. (2017). Indicators in social life cycle assessment: A review of frameworks, theories, and empirical experience. *Journal of Industrial Ecology*, *21*(6), 1547–1565. https://doi.org/10.1111/jiec.12663

Kulionis, V., Pfister, S., & Fernandez, J. (2024). Biodiversity impact assessment for finance. *Journal of Industrial Ecology*, *28*(5), 1321–1335. https://doi.org/10.1111/jiec.13515

Liu, K. F.-R., Ko, C.-Y., Fan, C., & Chen, C.-W. (2013). Incorporating the LCIA concept into fuzzy risk assessment as a tool for environmental impact assessment. *Stochastic Environmental Research and Risk Assessment*, *27*(4), 849–866. https://doi.org/10.1007/s00477-012-0621-x

Loudjani, P., Angileri, V., Milenov, P., Fasbender, F., & Devos, W. (2015). *Technical guidance for the On-The-Spot check of Ecological Focus Areas (EFA) requirements: JRC validated methods, reference methods and measurements report*. European Commission Joint Research Centre. https://wikis.ec.europa.eu/download/attachments/86968590/efa_technical_guidance.pdf

Magurran, A. E. (2021). Measuring biological diversity. *Current Biology*, *31*(19), R1174–R1177. https://doi.org/10.1016/j.cub.2021.07.049

Manzardo, A., Loss, A., Jingzheng, R., Zuliani, F., & Scipioni, A. (2018). Definition and application of activity portfolio and control/influence approaches in organizational life cycle assessment. *Journal of Cleaner Production*, *184*, 264–273. https://doi.org/10.1016/j.jclepro.2018.02.262

Martínez-Blanco, J., Lehmann, A., Chang, Y.-J., & Finkbeiner, M. (2015). Social organizational LCA (SOLCA)—A new approach for implementing social LCA. *The International Journal of Life Cycle Assessment*, *20*(11), 1586–1599. https://doi.org/10.1007/s11367-015-0960-1

McElroy, M. W., & van Engelen, J. M. L. (2012). *Corporate sustainability management: The art and science of managing non-financial performance*. Routledge. https://doi.org/10.4324/9780203121818

Muhl, M., Bach, V., Czapla, J., & Finkbeiner, M. (2023). Comparison of science-based and policy-based distance-to-target weighting in life cycle assessment—Using the example of Europe. *Journal of Cleaner Production*, *383*, 135239. https://doi.org/10.1016/j.jclepro.2022.135239

Paulillo, A., & Sanyé-Mengual, E. (2024). Approaches to incorporate planetary boundaries in life cycle assessment: A critical review. *Resources, Environment and Sustainability*, *17*, 100169. https://doi.org/10.1016/j.resenv.2024.100169

Pennington, D. W., Potting, J., Finnveden, G., Lindeijer, E., Jolliet, O., Rydberg, T., & Rebitzer, G. (2004). Life cycle assessment part 2: Current impact assessment practice. *Environment International*, *30*(5), 721–739. https://doi.org/10.1016/j.envint.2003.12.009

Pizzol, M., Laurent, A., Sala, S., Weidema, B., Verones, F., & Koffler, C. (2017). Normalisation and weighting in life cycle assessment: Quo vadis? *The International Journal of Life Cycle Assessment*, *22*(6), 853–866. https://doi.org/10.1007/s11367-016-1199-1

Popescu, I.-S., Hitaj, C., & Benetto, E. (2021). Measuring the sustainability of investment funds: A critical review of methods and frameworks in sustainable finance. *Journal of Cleaner Production*, *314*, 128016. https://doi.org/10.1016/j.jclepro.2021.128016

Raworth, K. (2012). *A safe and just space for humanity: Can we live within the doughnut?* (Oxfam Discussion Papers). Oxfam. https://www-cdn.oxfam.org/s3fs-public/file_attachments/dp-a-safe-and-just-space-for-humanity-130212-en_5.pdf

Raworth, K. (2017). *Doughnut economics: Seven ways to think like a 21st-century economist*. Random House Business Books.

Rees, W. E. (1996). Revisiting carrying capacity: Area-based indicators of sustainability. *Population and Environment*, *17*(3), 195–215. https://doi.org/10.1007/BF02208489

Rekker, S., Ives, M. C., Wade, B., Webb, L., & Greig, C. (2022). Measuring corporate Paris compliance using a strict science-based approach. *Nature Communications*, *13*, 4441. https://doi.org/10.1038/s41467-022-31143-4

Richardson, K., Steffen, W., Lucht, W., Bendtsen, J., Cornell, S. E., Donges, J. F., Drüke, M., Fetzer, I., Bala, G., Bloh, W., von Feulner, G., Fiedler, S., Gerten, D., Gleeson, T., Hofmann, M., Huiskamp, W., Kummu, M., Mohan, C., Nogués-Bravo, D., … Rockström, J. (2023). Earth beyond six of nine planetary boundaries. *Science Advances*, *9*(37), eadh2458. https://doi.org/10.1126/sciadv.adh2458

Rockström, J., Steffen, W., Noone, K., Persson, A., Chapin, III, F. S., Lambin, E. F., Lenton, T. M., Scheffer, M., Folke, C., Schellnhuber, H. J., Nykvist, B., Wit, C. A. d., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P. K., Costanza, R., Svedin, U., … Foley, J. A. (2009). A safe operating space for humanity. *Nature*, *461*, 472–475. https://doi.org/10.1038/461472a

Ryberg, M. W., Andersen, M. M., Owsianiak, M., & Hauschild, M. Z. (2020). Downscaling the planetary boundaries in absolute environmental sustainability assessments—A review. *Journal of Cleaner Production*, *276*, 123287. https://doi.org/10.1016/j.jclepro.2020.123287

Ryberg, M. W., Bjerre, T. K., Nielsen, P. H., & Hauschild, M. (2021). Absolute environmental sustainability assessment of a Danish utility company relative to the Planetary Boundaries. *Journal of Industrial Ecology*, *25*(3), 765–777. https://doi.org/10.1111/jiec.13075

Schlütter, D., Schätzlein, L., Hahn, R., & Waldner, C. (2023). Missing the impact in impact investing research—A systematic review and critical reflection of the literature. *Journal of Management Studies*, *61*, 2694–2718. https://doi.org/10.1111/joms.12978

Science Based Targets initiative. (2024). *SBTi corporate net-zero standard* (version 1.2). https://sciencebasedtargets.org/resources/files/Net-Zero-Standard.pdf

Science Based Targets Network. (2023a). *Biodiversity in the first release of SBTs for nature and an approach for future methods*. https://sciencebasedtargetsnetwork.org/wp-content/uploads/2023/05/Technical-Guidance-2023-Biodiversity-Overview.pdf

Science Based Targets Network. (2023b). *Technical guidance: Step 3 freshwater: Measure, set & disclose*. https://sciencebasedtargetsnetwork.org/wp-content/uploads/2023/05/Technical-Guidance-2023-Step3-Freshwater-v1.pdf

Science Based Targets Network. (2023c). *Technical guidance: Step 3 land: Measure, set & disclose*. https://sciencebasedtargetsnetwork.org/wp-content/uploads/2023/05/Technical-Guidance-2023-Step3-Land-v0.3.pdf

Science Based Targets Network. (2024). *SBTN validation pilot summary report*. https://sciencebasedtargetsnetwork.org/wp-content/uploads/2024/09/Initial-Target-Validation-Pilot-Summary-Report-v1-1.pdf

Science Based Targets Network. (n.d.). *SBTN interim targets*. https://sciencebasedtargetsnetwork.org/take-action-now/take-action-as-a-company/what-you-can-do-now/interim-targets/

Searcy, C. (2016). Measuring enterprise sustainability. *Business Strategy and the Environment*, *25*(2), 120–133. https://doi.org/10.1002/bse.1861

Socolof, M. L., & Geibig, J. R. (2006). Evaluating human and ecological impacts of a product life cycle: The complementary roles of life-cycle assessment and risk assessment. *Human and Ecological Risk Assessment: An International Journal*, *12*(3), 510–527. https://doi.org/10.1080/10807030600582796

Strömmer, K., & Ormiston, J. (2022). Forward-looking impact assessment—An interdisciplinary systematic review and research agenda. *Journal of Cleaner Production*, *377*, 134322. https://doi.org/10.1016/j.jclepro.2022.134322

Taylor, A. P., & Postlethwaite, D. (1996). Overall business impact assessment (OBIA). *Proceedings of the 4th SETAC Case Study Symposium*.

Trexler, M., & Schendler, A. (2015). Science-based carbon targets for the corporate world: The ultimate sustainability commitment, or a costly distraction? *Journal of Industrial Ecology*, *19*(6), 931–933. https://doi.org/10.1111/jiec.12311

United Nations Development Programme. (2021). *SDG impact standards: Enterprises*. https://sdgprivatefinance.undp.org/sites/default/files/resource-documents/SDG-Impact-Standards-for-Enterprises-Version1-EN.pdf

United Nations Environment Programme, & Society of Environmental Toxicology and Chemistry. (2009). *Guidelines for social life cycle assessment of products*. https://www.unep.org/resources/report/guidelines-social-life-cycle-assessment-products

United Nations Environment Programme, & Society of Environmental Toxicology and Chemistry. (2015). *Guidance on organizational life cycle assessment*. https://wedocs.unep.org/20.500.11822/32072

United Nations Environment Programme, & Society of Environmental Toxicology and Chemistry. (2019). *Global guidance on environmental life cycle impact assessment indicators Volume 2*. https://www.lifecycleinitiative.org/training-resources/global-guidance-for-life-cycle-impact-assessment-indicators-volume-2/

United Nations Environment Programme. (2020). *Guidelines for social life cycle assessment of products and organizations 2020*. https://www.lifecycleinitiative.org/library/guidelines-for-social-life-cycle-assessment-of-products-and-organisations-2020/

United Nations Global Compact CEO Water Mandate, Pacific Institute, Carbon Disclosure Project, The Nature Conservancy, World Resources Institute, WWF, & UNEP-DHI Partnership Centre for Water and Environment. (2019). *Setting site water targets informed by catchment context: A guide for companies*. https://files.wri.org/d8/s3fs-public/setting-site-water-targets-guide-2019.pdf

United Nations Montreal Protocol on Substances that Deplete the Ozone Layer. (1987). https://treaties.un.org/doc/Treaties/1989/01/19890101%2003-25%20AM/Ch_XXVII_02_ap.pdf

United Nations Paris Agreement. (2015). https://treaties.un.org/doc/Treaties/2016/02/20160215%2006-03%20PM/Ch_XXVII-7-d.pdf

United Nations. (2015). *United Nations 2030 agenda for sustainable development: SDGs*. https://undocs.org/en/A/RES/70/1

Utting, P., & O'Neill, K. (2020). *Corporate sustainability accounting: What can and should corporations be doing?* United Nations Research Institute for Social Development (UNRISD). https://cdn.unrisd.org/assets/library/books/pdf-files/report-corporate-sustainability-accounting-2020.pdf

Verones, F., Hellweg, S., Antón, A., Azevedo, L. B., Chaudhary, A., Cosme, N., Cucurachi, S., Baan, L. d., Dong, Y., Fantke, P., Golsteijn, L., Hauschild, M. Z., Heijungs, R., Jolliet, O., Juraske, R., Larsen, H., Laurent, A., Mutel, C. L., Margni, M., … Huijbregts, M. A. J. (2020). LC-IMPACT: A regionalized life cycle damage assessment method. *Journal of Industrial Ecology*, *24*(6), 1201–1219. https://doi.org/10.1111/jiec.13018

Weidema, B. P. (2015). Comparing three life cycle impact assessment methods from an endpoint perspective. *Journal of Industrial Ecology*, *19*(1), 20–26. https://doi.org/10.1111/jiec.12162

World Resources Institute. (n.d.). *Aqueduct tools*. https://www.wri.org/aqueduct/tools

Wulf, C., Zapp, P., Schreiber, A., Marx, J., & Schlör, H. (2017). Lessons learned from a life cycle sustainability assessment of rare earth permanent magnets. *Journal of Industrial Ecology*, *21*(6), 1578–1590. https://doi.org/10.1111/jiec.12575

Yao, Y., Schaubroeck, T., Feng, H., Arodudu, O., & Gloria, T. P. (2024). Life cycle sustainability assessment for sustainable development goals. *Journal of Industrial Ecology*, *28*, 1347–1354. https://doi.org/10.1111/jiec.13490

Yi, I., Bruelisauer, S., Utting, P., McElroy, M., Mendell, M., Novkovic, S., & Lee, Z. (2022). *Authentic sustainability assessment: A user manual for the sustainable development performance indicators*. United Nations Research Institute for Social Development (UNRISD). https://cdn.unrisd.org/assets/library/reports/2022/manual-sdpi-2022.pdf

SUPPORTING INFORMATION

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