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Impact Report for Kingdom of Saudi Arabia



Financial Market Chapter



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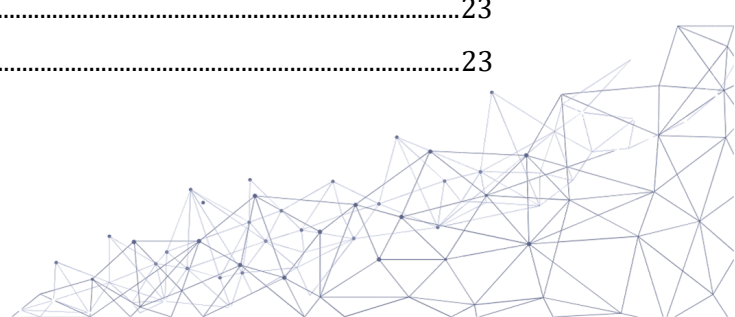
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Introduction

Understanding the societal impact of public policy in economic sectors is vital for fostering growth while achieving transition and other policy goals. To this end, the present report offers key insights into the performance of specific sectors.

This document presents impact statements for the Kingdom of Saudi Arabia's NACE sectors.¹ The tables show the *direct impact* of companies' own operations as well as the *upstream impact* along their supply chains.² Positive or negative impact values are quantified in monetary terms and divided by each sector's macroeconomic output. These 'Impact Intensities' (expressed in EUR of impact per EUR of output) enable comparability across countries, sectors, and companies. The output part of the formula is based on a macroeconomic assessment and reflects overall sector turnover volume.

Impact Intensities are provided for each impact driver across four stages of the value chain: Own operations, upstream tier 1, upstream tier 2, and upstream tier 3 to n.³ Results are shown for specific countries—Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Korea, Spain, Switzerland, Türkiye, the UK, and the USA—as well as a global average.

The tables provide a foundation for 'Type 4' sector-based benchmarks;⁴ companies can compare their reported or estimated impact with the table values. To ensure consistency, a company's impact must be monetized using the same value factor and scaled relative to revenue. In this way, company-specific Impact Intensity can be compared within the sector and across multiple sectors.

The comparison spans value chain stages within a company's control (own operations) and beyond (upstream). Impact Intensities are depicted for each upstream stage in the global supply chain, viewed from the perspective of the respective country. These stages are presented in tiers, enabling comparison with a company's global upstream supply chain. Note that these upstream impacts may not necessarily be located in the same country.

The values are modeled using input-output modeling, as outlined in the System of National Accounts.⁵ WifOR compiles the hybrid multi-regional model based on WIOD, EORA, and

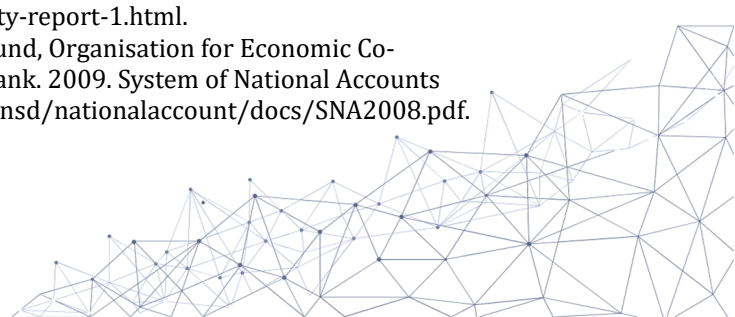
¹ Eurostat, NACE Rev. 2. Statistical classification of economic activities in the European Community, <https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.pdf>.

² VBA, VBA Impact Statement, 11.2024, https://www.value-balancing.com/_Resources/Persistent/6/b/e/c/6bec726b5e28d5f75e2e5f153db845a3bbb93f2e/VBA_Impact%20Statement_Final.pdf.

³ Tiers represent different levels of suppliers in the supply chain, where 'tier 1' refers to direct suppliers, 'tier 2' to the suppliers of those direct suppliers, and 'tier 3 to n' to all subsequent levels.

⁴ VBA et al., Valuing Impact Materiality 2025, 2025, <https://www.value-balancing.com/en/publications/valuing-impact-materiality-report-1.html>.

⁵ European Commission, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, and World Bank. 2009. System of National Accounts 2008. New York: United Nations. <https://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf>.



EXIOBASE,⁶ enhanced by estimates based on *satellite accounts*, as outlined in the System of Environmental-Economic Accounting.⁷ The modeled effects are then multiplied by publicly available context-specific value factors⁸ to capture their societal impact.⁹

The tables are complemented by bar charts showing each impact driver's effect (in EUR per EUR output) in all the four value chain stages.

Responsibility of States

States have a primary duty to protect human rights and fundamental rights under international law, in accordance with the primacy principle. This obligation extends to preventing human rights abuses by third parties (including businesses) within their jurisdiction. This duty is grounded in legal obligations and reinforced by policy rationales that ensure consistency in enforcement.

Responsibility of Business

Businesses, by contrast, have a responsibility (rather than a duty) to respect human rights. Their role is supportive of state obligations but remains distinct. While international law has yet to fully define the extent of corporate human rights responsibilities, the UNGPs establish that businesses, at minimum, must prevent and address human rights harms linked to their operations. Beyond compliance with legal obligations, involvement in adverse human rights impacts must be prevented or remedied. Human rights due diligence is required for this purpose; this due diligence process includes assessing risks, integrating findings into corporate decision-making, and mitigating or remedying any adverse impacts.

Interplay

The interplay between *state obligations* and *business responsibilities* reflects a layered system of accountability: While states bear legal obligations to regulate corporate behavior, businesses have a practical responsibility to prevent harm. These responsibilities arise in different forms—whether they cause, contribute to, or are linked to human rights abuses. The nature of corporate involvement in human rights impacts determines their level of responsibility, with leverage and mitigation playing a critical role in addressing violations. Thus, while business responsibilities complement state obligations, they remain distinct and non-parallel, ensuring a balanced but clear accountability framework.

⁶ Scholz, Richard; Dorndorf, Tabea; Tesch, Jasmin; Köster, Robert; Croner, Daniel; Kalamov, Zarko; Setzer, Jana. 2025. Impact measurement using WifOR's sustainability footprint method. Methodological report. Version February 2025. WifOR Institute.

⁷ United Nations, ed. 2014. *System of Environmental-Economic Accounting 2012: Central Framework*. New York, NY: United Nations.

⁸ WifOR, Value Factors, <https://www.wifor.com/en/value-factors/#:~:text=Value%20factors%20convert%20physical%20units,dimensions%20and%20with%20financial%20indicators>

⁹ Scholz, Richard; Albu, Nora; Croner, Daniel; Kalamov, Zarko; Mai, Lukas; Forin, Silvia; Tesch, Jasmin; Dorndorf, Tabea; Setzer, Jana. 2025. WifOR Impact Valuation. Methodological Report. Version February 2025. WifOR Institute.



Accountability

While global businesses in the main complement state efforts and uphold responsible practices, international law establishes the primacy of state responsibility. States must create robust legal frameworks to hold businesses accountable, while companies must conduct human rights due diligence to prevent, mitigate, and remediate adverse impacts. Together, these obligations form a layered system, where corporate responsibility reinforces (rather than replaces) state duties to address human rights risks. Impact accounting helps states and businesses alike understand their respective responsibilities in the context of human rights and broader social, environmental, and economic impacts. While companies must assess their roles within supply chains and address potential harms, it is the states that bear the primary responsibility to tackle these issues and implement policies that prevent extensive negative impacts. Regulatory frameworks should go beyond preventing harm. They should empower businesses to generate positive impacts throughout the value chain. Neither states nor businesses may evade their responsibilities. States cannot plead powerlessness given that international treaties and criminal law extend their reach beyond national boundaries. By the same token, businesses cannot excuse harmful actions by pointing to weak state enforcement of human rights protections.

Benchmarks

This document explores the impacts of the Kingdom of Saudi Arabia's economy, focusing on direct and upstream supply chain impacts on the economic, environmental, and social domains. The analysis is based on the NACE classification of economic activities. Positive and negative impact values are quantified in monetary terms per unit of macroeconomic output (hereinafter "*Impact Intensities*"). The tables display these Impact Intensities in EUR per EUR output for each impact driver across five stages of the sector's value chain: own operations, upstream tier 1, upstream tier 2, and upstream tier 3 to n. The output data is derived from a macroeconomic assessment and reflects the turnover of each sector.

Intensities

The tables help identify the domestic economic sectors with the largest impacts across the country-specific value chain serving the Saudi Arabian economy. By providing maximum transparency on where significant impacts occur throughout the value chain stages, our analysis enables policymakers and regulators to more effectively manage the impacts. It supports the crafting of regulatory frameworks to mitigate negative and enhance positive impacts..



Sector Intensity Benchmarks

Agriculture, Forestry and Fishing (A)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.2	-0.03	-0.01	-0.01	-0.24
Fair Wages	0.03	-0.09	-0.05	-0.06	-0.17
GHG	-0.13	-0.05	-0.02	-0.01	-0.21
GVA	0.56	0.25	0.08	0.06	0.94
Human Rights	-0.00	-0.00	-0.00	-0.00	-0.01
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.00	-0.00	-0.01
Occupational Health & Safety	-0.00	-0.01	-0.01	-0.01	-0.03
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.00	0.01	0.00	0.01	0.02
Waste	-0.02	-0.00	-0.00	-0.00	-0.03
Water	-0.85	-1.12	-0.52	-0.33	-2.82

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Agriculture, forestry and fishing (NACE Code A), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Agriculture, Forestry and Fishing sector of the Kingdom of Saudi Arabia, the impact intensity table reveals significant negative impacts primarily associated with water usage, which has the highest negative intensity of -2.824520 EUR per EUR output. Conversely, fair wages and air emissions also show negative impacts, but to a lesser extent, with intensities of -0.168143 and -0.244907, respectively. Positive impacts are minimal, with training showing a slight positive intensity of 0.016826, indicating that while there are some beneficial aspects, the overall impact is predominantly negative across various environmental and social dimensions.



Mining and Quarrying (B)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.14	-0.03	-0.01	-0.00	-0.18
Fair Wages	0.04	0.01	-0.01	-0.02	0.02
GHG	-0.39	-0.06	-0.01	-0.01	-0.47
GVA	0.73	0.15	0.05	0.03	0.95
Human Rights	-0.00	-0.00	-0.00	-0.00	-0.00
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.00	-0.00	-0.00
Occupational Health & Safety	-0.00	-0.00	-0.00	-0.00	-0.01
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.01	0.00	0.00	0.00	0.02
Waste	-0.02	-0.00	-0.00	-0.00	-0.02
Water	-0.00	-0.00	-0.01	-0.02	-0.04

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Mining and quarrying (NACE Code B), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Mining and Quarrying sector of the Kingdom of Saudi Arabia, the impact intensity table indicates substantial negative impacts from greenhouse gas emissions, with an intensity of -0.473780 EUR per EUR output, making it the most significant negative impact in this sector. Additionally, air emissions and waste also contribute to negative impacts, with intensities of -0.177311 and -0.019610, respectively, highlighting environmental concerns associated with mining activities. On a more positive note, fair wages and training show slight positive impacts of 0.021458 and 0.020296, respectively, suggesting some beneficial aspects in terms of social outcomes amidst the predominantly negative environmental impacts.



Manufacturing (C)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.08	-0.04	-0.01	-0.01	-0.15
Fair Wages	0.06	-0.05	-0.07	-0.1	-0.15
GHG	-0.11	-0.08	-0.02	-0.02	-0.24
GVA	0.4	0.33	0.12	0.11	0.96
Human Rights	-0.00	-0.00	-0.00	-0.00	-0.01
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.01	-0.01	-0.02
Occupational Health & Safety	-0.02	-0.02	-0.01	-0.01	-0.06
Ocean Plastic	-0.01	-0.00	-0.00	-0.00	-0.01
Training	0.01	0.01	0.00	0.01	0.03
Waste	-0.00	-0.00	-0.00	-0.00	-0.01
Water	-0.00	-0.52	-0.29	-0.19	-1.0

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Manufacturing (NACE Code C), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Manufacturing sector of the Kingdom of Saudi Arabia, the impact intensity table reveals significant negative impacts from water usage, with an intensity of -1.004900 EUR per EUR output, indicating a critical environmental concern. Additionally, air emissions and greenhouse gas emissions also contribute to negative impacts, with intensities of -0.147789 and -0.241434, respectively, highlighting the sector's environmental footprint. On the social side, fair wages show a notable negative impact of -0.153568, suggesting that labor conditions may be a significant issue within the manufacturing industry, despite a small positive impact from training at 0.028628.



Electricity, Gas, Steam and Air Conditioning Supply (D)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.64	-0.01	-0.00	-0.00	-0.66
Fair Wages	0.07	0.01	-0.01	-0.02	0.04
GHG	-1.53	-0.02	-0.01	-0.01	-1.57
GVA	0.78	0.13	0.04	0.03	0.98
Human Rights	0.00	-0.00	-0.00	-0.00	-0.00
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.00	-0.00	-0.00
Occupational Health & Safety	-0.00	-0.00	-0.00	-0.00	-0.01
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.01	0.00	0.00	0.00	0.02
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	-0.00	-0.00	-0.01	-0.02	-0.03

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Electricity, gas, steam and air conditioning supply (NACE Code D), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Electricity, Gas, Steam, and Air Conditioning Supply sector of the Kingdom of Saudi Arabia, the impact intensity table indicates a severe negative impact from greenhouse gas emissions, with an intensity of -1.566193 EUR per EUR output, making it the most significant environmental concern in this sector. Additionally, air emissions also show a substantial negative impact of -0.661179, further emphasizing the environmental challenges associated with energy production. While fair wages present a slight positive impact of 0.041047, the overall negative intensities in environmental categories overshadow this, indicating a pressing need for improvements in sustainability practices within the sector.



Water Supply; Sewerage, Waste Management and Remediation Activities (E)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.07	-0.09	-0.03	-0.01	-0.21
Fair Wages	0.04	0.04	-0.01	-0.08	-0.01
GHG	-0.95	-0.24	-0.05	-0.02	-1.26
GVA	0.32	0.32	0.2	0.12	0.97
Human Rights	0.00	-0.00	-0.00	-0.00	-0.01
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.00	-0.01	-0.01
Occupational Health & Safety	-0.00	-0.01	-0.01	-0.01	-0.03
Ocean Plastic	0.00	-0.01	-0.00	-0.00	-0.01
Training	0.01	0.01	0.01	0.00	0.03
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	-0.01	-0.00	-0.13	-0.14	-0.28

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Water supply; sewerage, waste management and remediation activities (NACE Code E), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Water Supply; Sewerage, Waste Management, and Remediation Activities sector of the Kingdom of Saudi Arabia, the impact intensity table highlights a significant negative impact from greenhouse gas emissions, with an intensity of -1.259160 EUR per EUR output, indicating serious environmental concerns. Additionally, the water impact also shows a notable negative intensity of -0.282437, reflecting challenges related to water management and sustainability. While fair wages present a slight positive impact of 0.041545, the overall negative impacts in environmental categories, particularly in greenhouse gases and water, suggest a critical need for improvements in operational practices within this sector.



Construction (F)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.01	-0.05	-0.02	-0.01	-0.09
Fair Wages	0.1	0.02	-0.03	-0.07	0.03
GHG	-0.02	-0.07	-0.03	-0.02	-0.14
GVA	0.38	0.36	0.14	0.1	0.98
Human Rights	-0.01	-0.00	-0.00	-0.00	-0.01
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.01	-0.01	-0.02
Occupational Health & Safety	-0.01	-0.01	-0.01	-0.01	-0.03
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.01	0.01	0.00	0.00	0.02
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	-0.00	-0.01	-0.08	-0.09	-0.18

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Construction (NACE Code F), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Construction sector of the Kingdom of Saudi Arabia, the impact intensity table reveals notable negative impacts from water usage, with an intensity of -0.181343 EUR per EUR output, indicating significant concerns regarding water management in construction activities. Additionally, air emissions and greenhouse gas emissions also contribute to negative impacts, with intensities of -0.092524 and -0.136072, respectively, highlighting the environmental footprint of construction processes. While fair wages show a slight positive impact of 0.027376, the overall negative intensities in environmental categories suggest a pressing need for enhanced sustainability practices within the sector.



Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles (G)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.00	-0.02	-0.00	-0.00	-0.03
Fair Wages	0.1	0.00	-0.01	-0.03	0.07
GHG	-0.07	-0.04	-0.01	-0.01	-0.12
GVA	0.61	0.28	0.06	0.04	0.98
Human Rights	-0.01	-0.00	-0.00	-0.00	-0.01
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.00	-0.00	-0.00
Occupational Health & Safety	-0.01	-0.00	-0.00	-0.00	-0.02
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.01	0.01	0.00	0.00	0.02
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	0.00	-0.01	-0.05	-0.06	-0.12

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Wholesale and retail trade; repair of motor vehicles and motorcycles (NACE Code G), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles sector of the Kingdom of Saudi Arabia, the impact intensity table indicates a significant negative impact from water usage, with an intensity of -0.117751 EUR per EUR output, highlighting concerns regarding water management in this sector. Additionally, greenhouse gas emissions and air emissions also contribute to negative impacts, with intensities of -0.121833 and -0.026962, respectively, reflecting the environmental challenges associated with vehicle trade and repair activities. While fair wages show a positive impact of 0.068116, the overall negative intensities in environmental categories suggest a need for improved sustainability practices within the sector.



Transportation and Storage (H)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.25	-0.02	-0.01	-0.01	-0.28
Fair Wages	0.1	0.01	-0.02	-0.04	0.05
GHG	-0.67	-0.03	-0.01	-0.01	-0.72
GVA	0.52	0.29	0.07	0.06	0.93
Human Rights	0.00	-0.00	-0.00	-0.00	-0.00
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.00	-0.00	-0.00
Occupational Health & Safety	-0.01	-0.01	-0.00	-0.01	-0.03
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.01	0.01	0.00	0.00	0.02
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	-0.00	-0.00	-0.02	-0.04	-0.06

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Transportation and storage (NACE Code H), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Transportation and Storage sector of the Kingdom of Saudi Arabia, the impact intensity table highlights a significant negative impact from greenhouse gas emissions, with an intensity of -0.718401 EUR per EUR output, indicating serious environmental concerns related to transportation activities. Additionally, air emissions also present a substantial negative impact of -0.281269, further emphasizing the environmental challenges faced by this sector. While fair wages show a positive impact of 0.054083, the overall negative intensities in environmental categories suggest a critical need for enhanced sustainability practices and emissions reduction strategies within the transportation and storage industry.



Accommodation and Food Service Activities (I)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.00	-0.03	-0.02	-0.01	-0.05
Fair Wages	0.1	-0.02	-0.1	-0.09	-0.11
GHG	-0.08	-0.06	-0.02	-0.02	-0.18
GVA	0.47	0.3	0.11	0.08	0.96
Human Rights	-0.01	-0.00	-0.00	-0.00	-0.02
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.01	-0.01	-0.01
Occupational Health & Safety	-0.01	-0.01	-0.01	-0.01	-0.04
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.01	0.01	0.01	0.01	0.03
Waste	-0.00	-0.00	-0.00	-0.00	-0.01
Water	-0.00	-0.34	-0.81	-0.54	-1.68

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Accommodation and food service activities (NACE Code I), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Accommodation and Food Service Activities sector of the Kingdom of Saudi Arabia, the impact intensity table reveals a critical negative impact from water usage, with an intensity of -1.684301 EUR per EUR output, indicating severe concerns regarding water management in this industry. Additionally, greenhouse gas emissions and air emissions also contribute to negative impacts, with intensities of -0.176836 and -0.054935, respectively, highlighting the environmental challenges associated with hospitality and food services. While fair wages show a positive impact of 0.102421, the overall negative intensities in environmental categories suggest a pressing need for improved sustainability practices and resource management within the sector.



Information and Communication (J)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.00	-0.01	-0.00	-0.00	-0.01
Fair Wages	0.07	0.00	-0.01	-0.02	0.05
GHG	-0.00	-0.01	-0.01	-0.00	-0.03
GVA	0.81	0.12	0.03	0.02	0.98
Human Rights	0.00	-0.00	-0.00	-0.00	-0.00
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.00	-0.00	-0.00
Occupational Health & Safety	-0.01	-0.00	-0.00	-0.00	-0.01
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.04	0.00	0.00	0.00	0.05
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	-0.00	-0.01	-0.02	-0.03	-0.06

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Information and communication (NACE Code J), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Information and Communication sector of the Kingdom of Saudi Arabia, the impact intensity table indicates minimal negative impacts from air emissions and greenhouse gas emissions, with intensities of -0.010968 and -0.026866 EUR per EUR output, respectively, suggesting that this sector has a relatively lower environmental footprint compared to others. However, water usage shows a more significant negative impact of -0.063467, indicating potential concerns regarding water resource management in this industry. While fair wages present a slight positive impact of 0.048192, the overall negative intensities in environmental categories highlight the need for continued focus on sustainability practices within the sector.



Financial and Insurance Activities (K)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.00	-0.00	-0.00	-0.00	-0.01
Fair Wages	0.09	-0.00	-0.01	-0.01	0.07
GHG	-0.00	-0.01	-0.00	-0.00	-0.02
GVA	0.9	0.04	0.02	0.02	0.98
Human Rights	0.00	-0.00	-0.00	-0.00	-0.00
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.00	-0.00	-0.00
Occupational Health & Safety	-0.00	-0.00	-0.00	-0.00	-0.01
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.04	0.00	0.00	0.00	0.05
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	-0.00	-0.03	-0.03	-0.02	-0.08

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Financial and insurance activities (NACE Code K), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Financial and Insurance Activities sector of the Kingdom of Saudi Arabia, the impact intensity table shows relatively low negative impacts from air emissions and greenhouse gas emissions, with intensities of -0.013018 and -0.023203 EUR per EUR output, respectively, indicating a smaller environmental footprint compared to other sectors. However, water usage presents a more significant negative impact of -0.075801, suggesting concerns regarding water resource management within this industry. While fair wages exhibit a positive impact of 0.071501, the overall negative intensities in environmental categories highlight the need for continued focus on sustainability practices and responsible resource management in the financial sector.



Real Estate Activities (L)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.00	-0.00	-0.00	-0.00	-0.01
Fair Wages	0.07	-0.00	-0.01	-0.01	0.05
GHG	-0.00	-0.01	-0.00	-0.00	-0.02
GVA	0.9	0.04	0.02	0.02	0.98
Human Rights	0.00	-0.00	-0.00	-0.00	-0.00
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	-0.00	-0.00	-0.00	-0.00	-0.00
Occupational Health & Safety	-0.00	-0.00	-0.00	-0.00	-0.01
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.02	0.00	0.00	0.00	0.02
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	-0.00	-0.03	-0.03	-0.02	-0.08

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Real estate activities (NACE Code L), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Real Estate Activities sector of the Kingdom of Saudi Arabia, the impact intensity table indicates low negative impacts from air emissions and greenhouse gas emissions, with intensities of -0.009405 and -0.022961 EUR per EUR output, respectively, suggesting a relatively minor environmental footprint in these areas. However, water usage presents a significant negative impact of -0.075800, highlighting concerns regarding water management practices within the sector. While fair wages show a positive impact of 0.054418, the overall negative intensities in environmental categories underscore the need for enhanced sustainability efforts and responsible resource management in real estate activities.



Professional, Scientific and Technical Activities (M)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.00	-0.00	-0.00	-0.00	-0.01
Fair Wages	0.07	-0.00	-0.01	-0.01	0.05
GHG	-0.00	-0.01	-0.00	-0.00	-0.02
GVA	0.9	0.04	0.02	0.02	0.98
Human Rights	0.00	-0.00	-0.00	-0.00	-0.00
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.00	-0.00	-0.00
Occupational Health & Safety	-0.01	-0.00	-0.00	-0.00	-0.01
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.02	0.00	0.00	0.00	0.03
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	-0.00	-0.03	-0.03	-0.02	-0.08

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Professional, scientific and technical activities (NACE Code M), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Professional, Scientific and Technical Activities sector of the Kingdom of Saudi Arabia, the impact intensity table shows low negative impacts from air emissions and greenhouse gas emissions, with intensities of -0.009074 and -0.023330 EUR per EUR output, respectively, indicating a relatively minor environmental footprint in these areas. However, water usage presents a significant negative impact of -0.075801, highlighting concerns regarding water management practices within this sector. While fair wages exhibit a positive impact of 0.050364, the overall negative intensities in environmental categories suggest a need for enhanced sustainability efforts and responsible resource management in professional and technical activities.



Administrative And Support Service Activities (N)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.00	-0.00	-0.00	-0.00	-0.01
Fair Wages	0.08	-0.00	-0.01	-0.01	0.06
GHG	-0.00	-0.01	-0.00	-0.00	-0.02
GVA	0.9	0.04	0.02	0.02	0.98
Human Rights	0.00	-0.00	-0.00	-0.00	-0.00
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.00	-0.00	-0.00
Occupational Health & Safety	-0.01	-0.00	-0.00	-0.00	-0.01
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.02	0.00	0.00	0.00	0.02
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	-0.00	-0.03	-0.03	-0.02	-0.08

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Administrative and support service activities (NACE Code N), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Administrative and Support Service Activities sector of the Kingdom of Saudi Arabia, the impact intensity table indicates low negative impacts from air emissions and greenhouse gas emissions, with intensities of -0.011198 and -0.022998 EUR per EUR output, respectively, suggesting a relatively minor environmental footprint in these areas. However, water usage presents a significant negative impact of -0.075800, highlighting concerns regarding water management practices within this sector. While fair wages show a positive impact of 0.061904, the overall negative intensities in environmental categories underscore the need for enhanced sustainability efforts and responsible resource management in administrative and support services.



Public Administration and Defense; Compulsory Social Security (O)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.00	-0.02	-0.01	-0.01	-0.04
Fair Wages	0.12	0.03	-0.02	-0.05	0.07
GHG	-0.00	-0.07	-0.02	-0.01	-0.1
GVA	0.44	0.35	0.11	0.08	0.98
Human Rights	0.00	-0.00	-0.00	-0.00	-0.00
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.00	-0.00	-0.01
Occupational Health & Safety	-0.03	-0.01	-0.01	-0.01	-0.05
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.01	0.01	0.00	0.00	0.03
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	0.00	-0.01	-0.09	-0.11	-0.21

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Public administration and defense; compulsory social security (NACE Code O), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Public Administration and Defense, Compulsory Social Security sector of the Kingdom of Saudi Arabia, the impact intensity table reveals a significant negative impact from water usage, with an intensity of -0.210118 EUR per EUR output, indicating serious concerns regarding water management practices in this sector. Additionally, air emissions and greenhouse gas emissions also contribute to negative impacts, with intensities of -0.043935 and -0.102175, respectively, highlighting the environmental challenges associated with public administration activities. While fair wages show a positive impact of 0.073589, the overall negative intensities in environmental categories suggest a pressing need for improved sustainability practices and resource management within this sector.



Education (P)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.00	-0.02	-0.01	-0.01	-0.03
Fair Wages	0.15	0.02	-0.02	-0.04	0.12
GHG	-0.02	-0.07	-0.01	-0.01	-0.11
GVA	0.56	0.3	0.07	0.05	0.98
Human Rights	0.00	-0.00	-0.00	-0.00	-0.00
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.00	-0.00	-0.00
Occupational Health & Safety	-0.02	-0.00	-0.00	-0.01	-0.04
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.01	0.01	0.00	0.00	0.03
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	-0.00	-0.02	-0.09	-0.1	-0.21

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Education (NACE Code P), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Education sector of the Kingdom of Saudi Arabia, the impact intensity table indicates a significant negative impact from water usage, with an intensity of -0.211356 EUR per EUR output, highlighting serious concerns regarding water management practices in educational institutions. Additionally, greenhouse gas emissions and air emissions also contribute to negative impacts, with intensities of -0.111576 and -0.034234, respectively, reflecting the environmental challenges associated with educational operations. While fair wages show a positive impact of 0.116193, the overall negative intensities in environmental categories suggest a pressing need for improved sustainability practices and resource management within the education sector.



Human Health and Social Work Activities (Q)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.00	-0.02	-0.01	-0.01	-0.04
Fair Wages	0.14	0.02	-0.02	-0.04	0.1
GHG	-0.02	-0.07	-0.01	-0.01	-0.11
GVA	0.56	0.3	0.07	0.05	0.98
Human Rights	0.00	-0.00	-0.00	-0.00	-0.00
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	-0.00	-0.00	-0.00	-0.00	-0.00
Occupational Health & Safety	-0.02	-0.00	-0.00	-0.01	-0.04
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.01	0.01	0.00	0.00	0.03
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	-0.00	-0.02	-0.09	-0.1	-0.21

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Human health and social work activities (NACE Code Q), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Human Health and Social Work Activities sector of the Kingdom of Saudi Arabia, the impact intensity table reveals a significant negative impact from water usage, with an intensity of -0.211357 EUR per EUR output, indicating serious concerns regarding water management practices in healthcare and social services. Additionally, greenhouse gas emissions and air emissions also contribute to negative impacts, with intensities of -0.111858 and -0.035539, respectively, reflecting the environmental challenges associated with health and social work operations. While fair wages show a positive impact of 0.102160, the overall negative intensities in environmental categories highlight the need for improved sustainability practices and resource management within this sector.



Arts, Entertainment and Recreation and Other Services and Activities (R&S)

Variable	direct	upstream tier 1	upstream tier 2	upstream rest	Total
Air Emission	-0.00	-0.02	-0.01	-0.01	-0.03
Fair Wages	0.13	0.02	-0.02	-0.04	0.1
GHG	-0.02	-0.07	-0.01	-0.01	-0.11
GVA	0.56	0.3	0.07	0.05	0.98
Human Rights	-0.01	-0.00	-0.00	-0.00	-0.01
Invasive Species	-0.00	-0.00	-0.00	-0.00	-0.00
Land Use	0.00	-0.00	-0.00	-0.00	-0.00
Occupational Health & Safety	-0.01	-0.00	-0.00	-0.01	-0.02
Ocean Plastic	0.00	-0.00	-0.00	-0.00	-0.00
Training	0.01	0.01	0.00	0.00	0.03
Waste	-0.00	-0.00	-0.00	-0.00	-0.00
Water	-0.00	-0.02	-0.09	-0.1	-0.21

Source: WifOR / VBA, Table for Kingdom of Saudi Arabia - Arts, entertainment and recreation and other services and activities (NACE Code R&S), 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025.

In the Arts, Entertainment and Recreation; Other Services sector of the Kingdom of Saudi Arabia, the impact intensity table indicates a significant negative impact from water usage, with an intensity of -0.211367 EUR per EUR output, highlighting serious concerns regarding water management practices in this sector. Additionally, greenhouse gas emissions and air emissions also contribute to negative impacts, with intensities of -0.113224 and -0.034672, respectively, reflecting the environmental challenges associated with arts and entertainment activities. While fair wages show a positive impact of 0.095407, the overall negative intensities in environmental categories suggest a pressing need for improved sustainability practices and resource management within this sector.

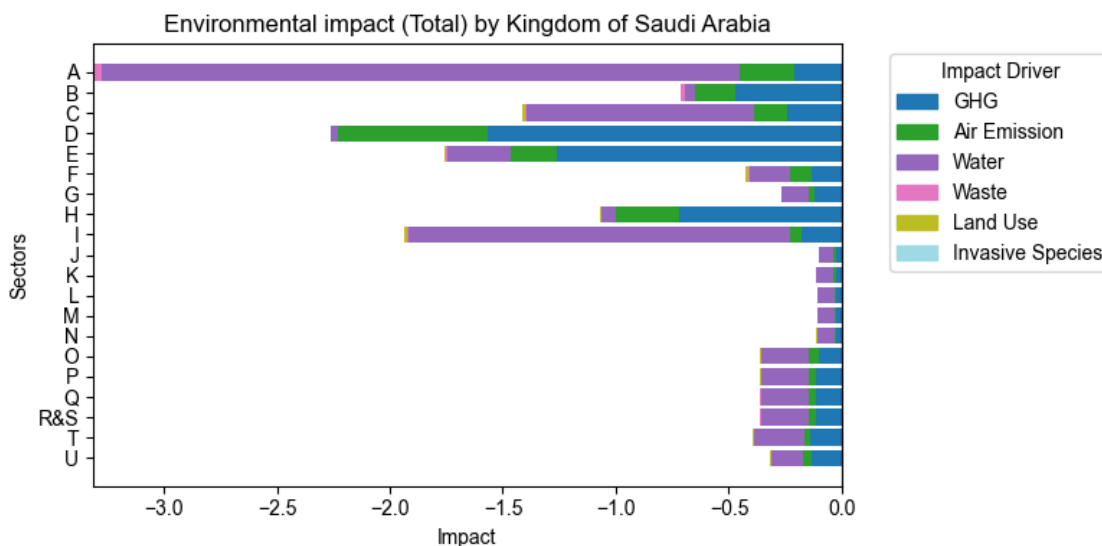


Overview

The overall assessment of the Kingdom of Saudi Arabia, utilizing the Value Balancing Alliance and WifOR methodologies, reveals significant environmental and social challenges across various sectors. Environmental impact intensities indicate that sectors such as Agriculture, Manufacturing, and Transportation contribute heavily to negative impacts, particularly in areas like water usage, greenhouse gas emissions, and air emissions, necessitating urgent sustainability measures. Socially, while fair wages show positive impacts in sectors like Education and Health, upstream activities often reveal concerning trends in occupational health and safety, highlighting the need for improved labor conditions. The data suggests that addressing these environmental and social impacts requires a comprehensive approach that integrates sustainability practices across all sectors and value chain stages. Overall, there is a critical need for strategic interventions to enhance both environmental stewardship and social responsibility in the Kingdom's economic activities.

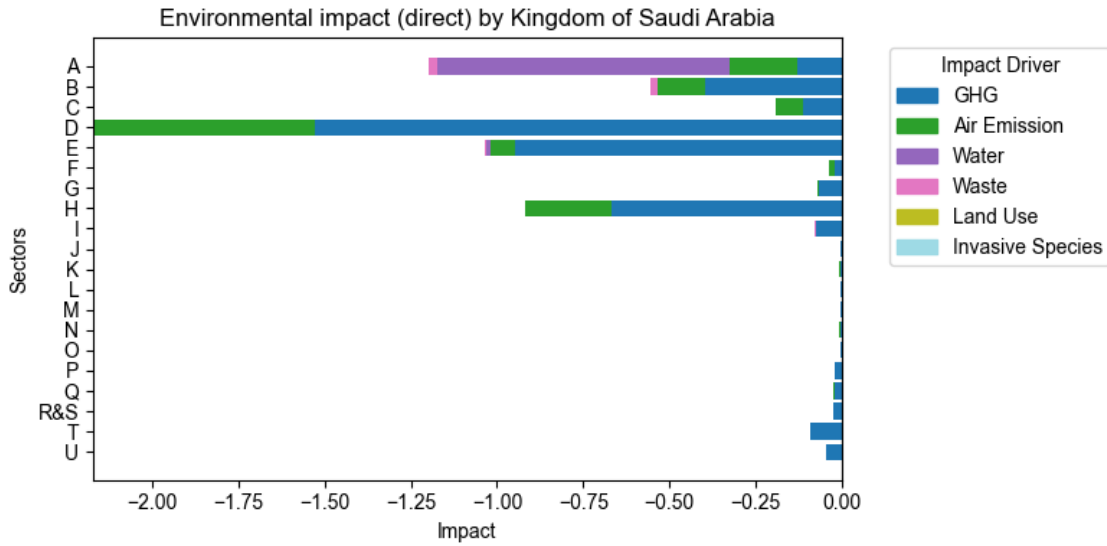
Environmental Impact SAU

Total



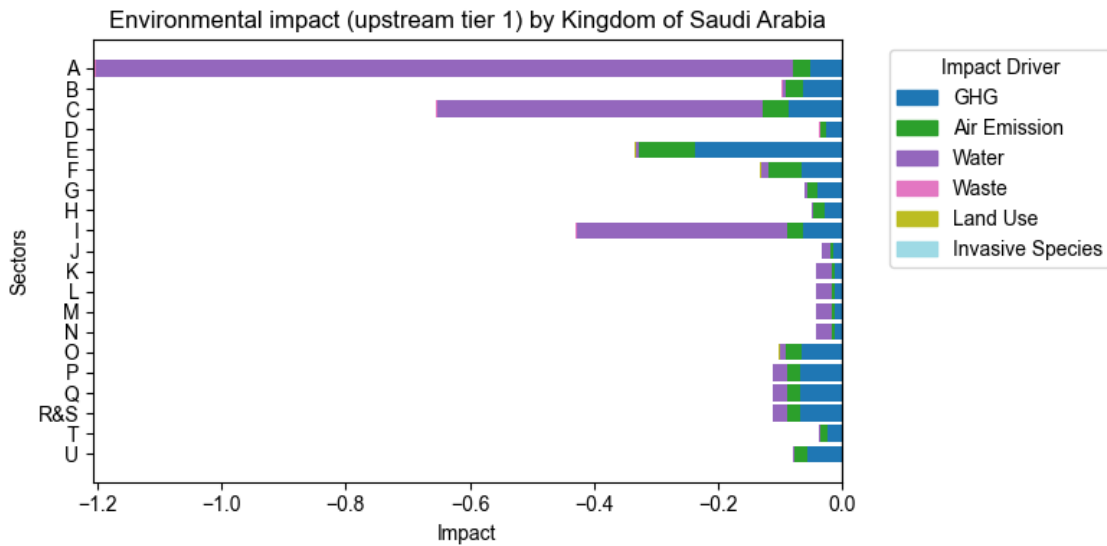
Source: VBA/WifOR, Overview of environmental impact, Total in Kingdom of Saudi Arabia, 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025

direct



Source: VBA/WifOR, Overview of environmental impact, direct in Kingdom of Saudi Arabia, 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025

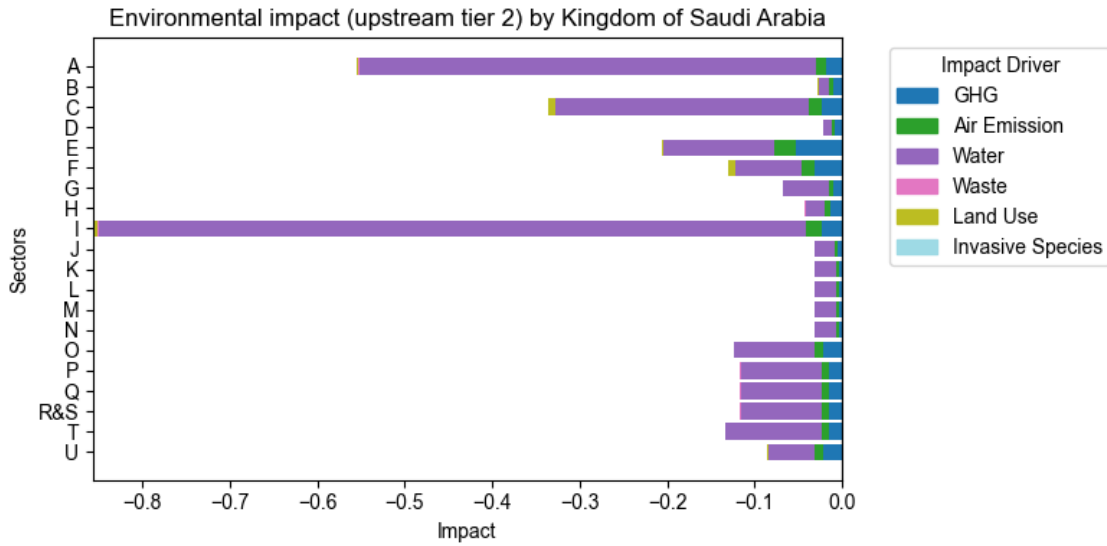
upstream tier 1



Source: VBA/WifOR, Overview of environmental impact, upstream tier 1 in Kingdom of Saudi Arabia, 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025

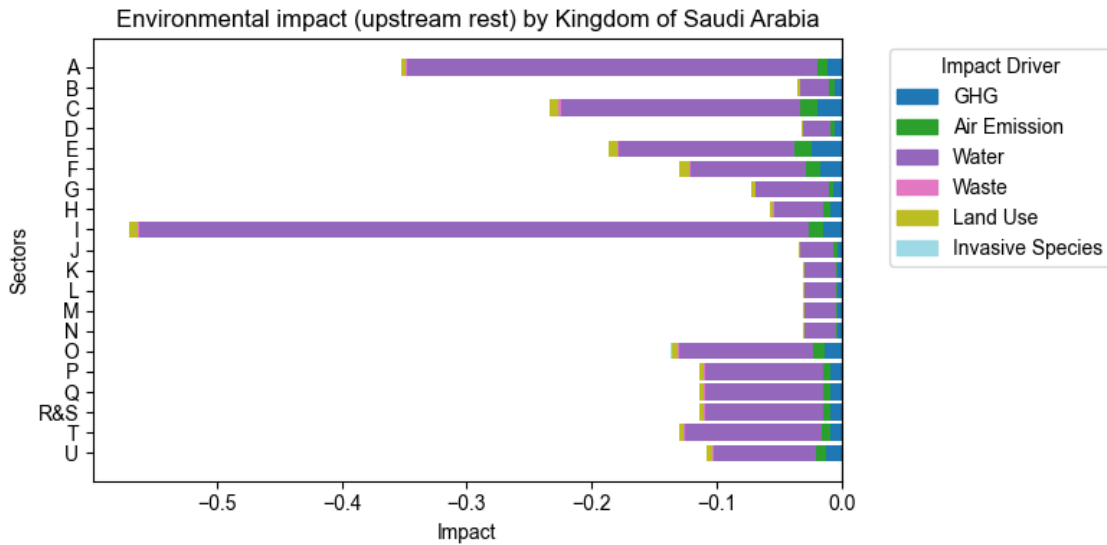


upstream tier 2



Source: VBA/WifOR, Overview of environmental impact, upstream tier 2 in Kingdom of Saudi Arabia, 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025

upstream rest



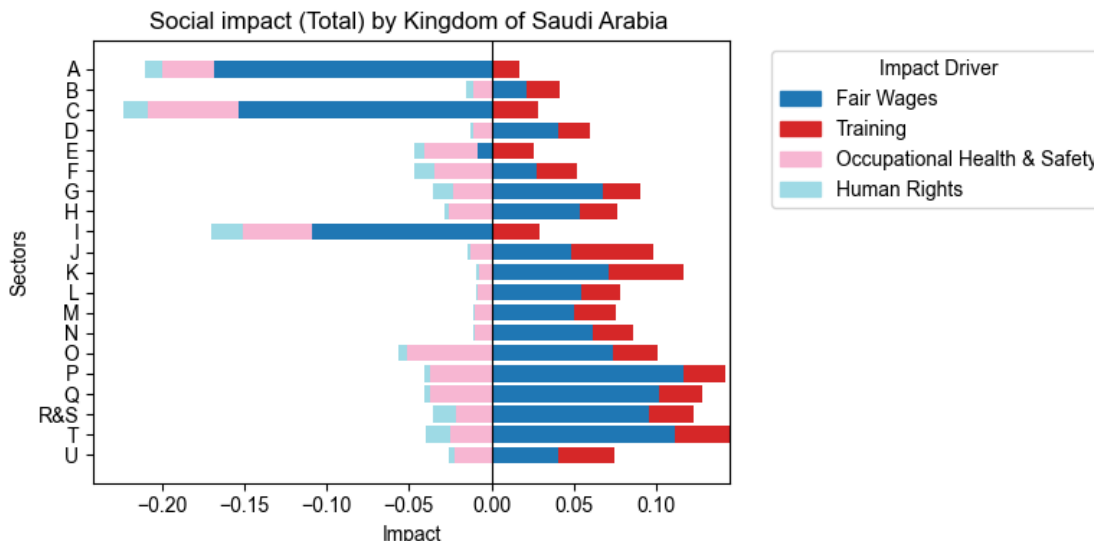
Source: VBA/WifOR, Overview of environmental impact, upstream rest in Kingdom of Saudi Arabia, 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025



The environmental impact intensities across various NACE sectors in the Kingdom of Saudi Arabia reveal significant differences in how each sector affects the environment at different stages of the value chain. Direct impacts tend to be lower compared to upstream impacts, particularly in sectors like Agriculture, Forestry, and Fishing, where upstream activities contribute heavily to greenhouse gas emissions and water usage. As we move through the upstream tiers, the intensity of negative impacts, especially from air emissions and waste, tends to increase, indicating that earlier stages in the value chain are often more environmentally detrimental. Sectors such as Manufacturing and Transportation show particularly high negative intensities in upstream tiers, reflecting their reliance on resource-intensive processes. Overall, the data suggests that addressing environmental impacts requires a comprehensive approach that considers both direct and upstream activities across all sectors.

Social Impact SAU

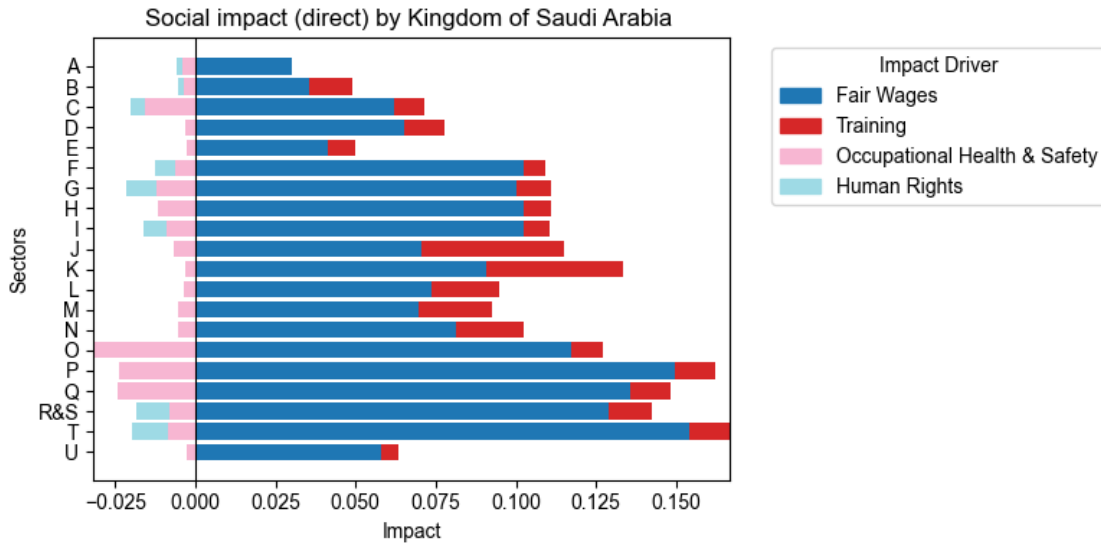
Total



Source: VBA/WifOR, Overview of social impact, Total in Kingdom of Saudi Arabia, 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025

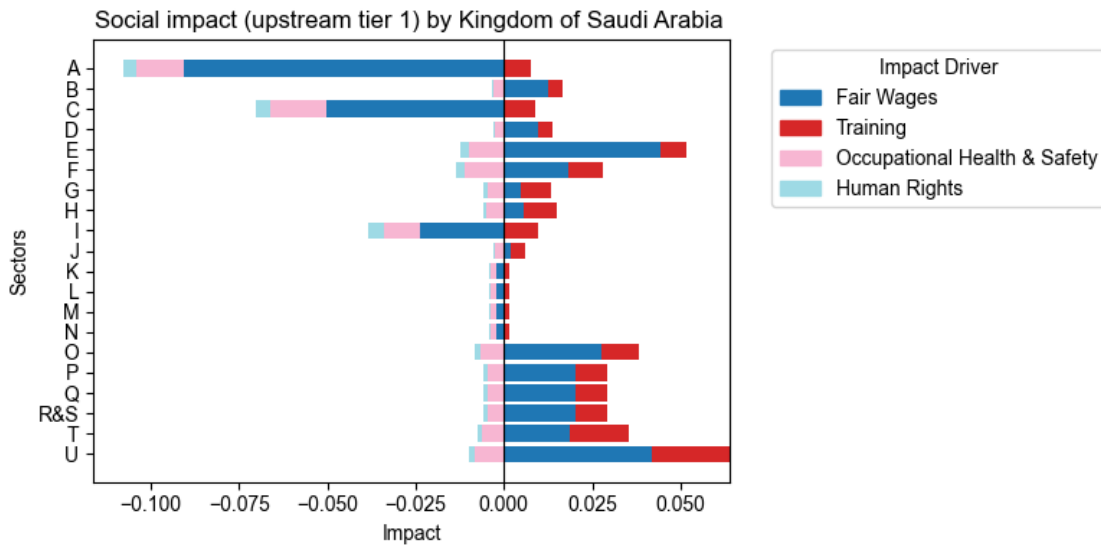


direct



Source: VBA/WifOR, Overview of social impact, direct in Kingdom of Saudi Arabia, 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025

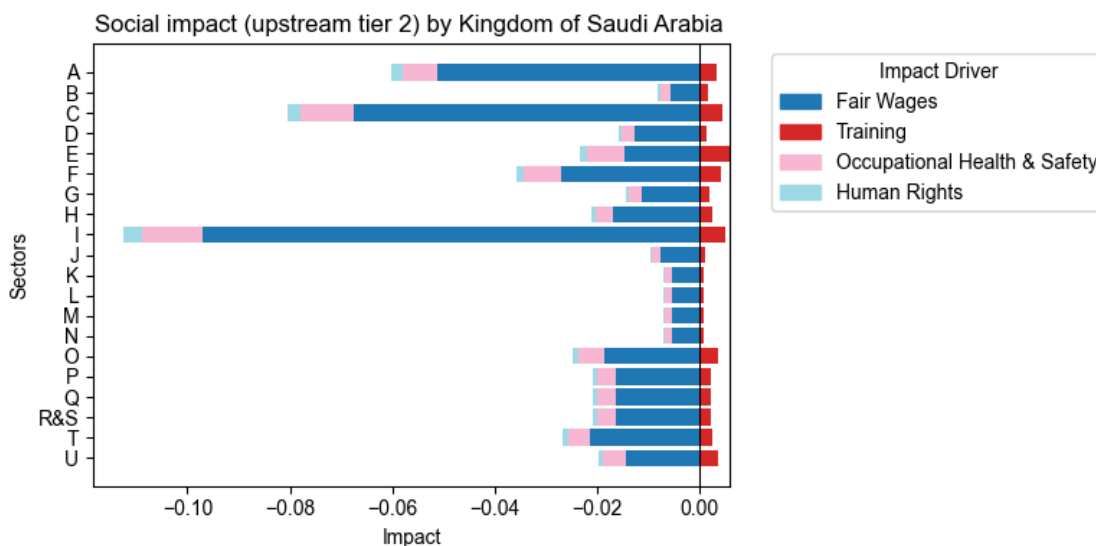
upstream tier 1



Source: VBA/WifOR, Overview of social impact, upstream tier 1 in Kingdom of Saudi Arabia, 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025

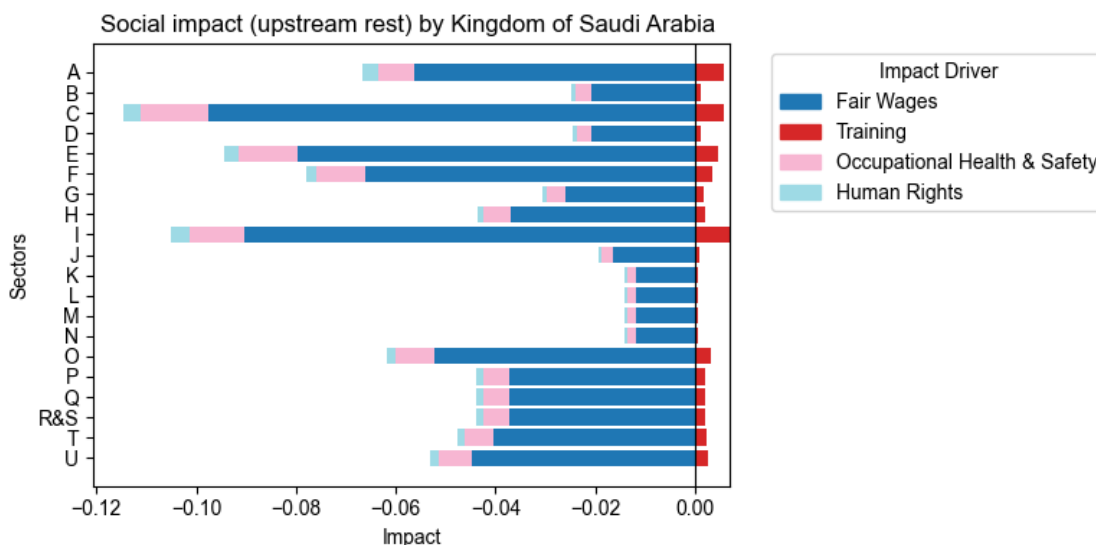


upstream tier 2



Source: VBA/WifOR, Overview of social impact, upstream tier 2 in Kingdom of Saudi Arabia, 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025

upstream rest



Source: VBA/WifOR, Overview of social impact, upstream rest in Kingdom of Saudi Arabia, 2024, Calculated based on WifOR Institute, WifOR Value Factors, Version February 2025

The impact intensities of social factors across various NACE sectors in the Kingdom of Saudi Arabia, as assessed by the VBA and WifOR methodologies, highlight significant variations in how social impacts manifest at different stages of the value chain. Direct impacts often show



positive contributions, particularly in fair wages, indicating that sectors like Education and Health have relatively favorable conditions for workers. However, as we examine upstream tiers, the intensity of negative impacts, especially concerning occupational health and safety, tends to increase, reflecting the challenges faced by workers in earlier stages of production. Sectors such as Manufacturing and Construction exhibit pronounced negative impacts in upstream activities, suggesting that improvements in labor conditions and training are essential for enhancing overall social outcomes. This analysis underscores the importance of addressing social impacts holistically, considering both direct benefits and upstream challenges to foster sustainable development in the region.



Application

Beyond comparing company and sector impacts, the data presented here can support various additional applications. This chapter highlights several such use cases.

Impact benchmarks can help state institutions assess risks, guide investments and funding strategies, inform procurement decisions, enforce compliance, and shape policies that promote human rights protection, environmental sustainability, and economic growth. By applying country-specific and industry-specific impact benchmarks, governments and regulatory bodies can reduce liabilities, such as pollution and labor exploitation, while ensuring fair competition.

Collection of ideas				
	Regulation & Compliance	Policy & Economic Planning	Investment & Development Finance	Risk Assessment
Institution	Ministries	Development Institutions	Development Banks	Insurance Entities
Vision of application	Benchmarks could support industry-specific sustainability target setting and provide valuable insights for cost-benefit analyses of regulations	Development institutions could use benchmarks to shape industry-specific sustainability goals like labour protection guidelines	Benchmarks could help guide funding decisions for large projects, ensuring proper risk mitigation, particularly in sectors such as agriculture	Insurers could assess risks using industry benchmarks, helping determine eligibility and pricing for political risk insurance
	Public Procurement & Infrastructure	International Trade & Market Access	Accountability & Consumer Protection	Supply Chain Management
Institution	Public-Private Partnerships	Trade Ministries	Consumer Protection Agencies	Export Credit Agencies
Vision of application	Governments could use country-specific impact benchmarks to compare and select private sector partners (e.g., Infrastructure projects)	Trade ministries could apply sustainability benchmarks to imported goods (e.g., carbon intensity benchmarks for minerals)	Transparency rules could be enforced, requiring companies to disclose their impacts relative to benchmarks to prevent false claims and ensure accountability	Export credit agencies could use environmental and social benchmarks in financing decisions to promote ethical and sustainable supply chains

Figure VBA, Policy Applications, 2025

Impact Intensities represent the average environmental, social, and economic impact per sector output across countries, regions, and globally. They serve as a reference point for assessing an organization’s sustainability performance in its own operations and supply chains across industries and geographies. By comparing their performance to sector averages, companies and other organizations can determine whether they meet or exceed benchmarks and set specific targets for improvement.¹⁰

¹⁰ VBA et al., Valuing Impact Materiality 2025, 2025, www.value-balancing.com.



Beyond internal assessments, Impact Intensities encourage collaboration with suppliers and partners, fostering sustainability improvements across shared supply chains. By identifying high-impact tiers or regions, companies can make informed decisions about production and sourcing. On a global scale, comparing benchmarks across countries highlights regions with critical sustainability challenges, enabling firms to focus efforts where they are most needed. These benchmarks also help organizations anticipate risks beyond production, such as regulatory pressures or resource availability constraints. By revealing industries and countries where unsustainable environmental or social challenges could lead to future restrictions, they support strategic decisions on production, sourcing, resource allocation, and diversification. Additionally, they help companies effectively communicate sustainability achievements across diverse markets.

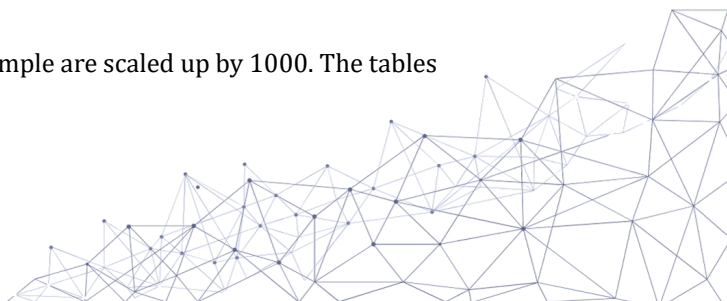
The benchmarks serve as a key reference for materiality assessments, helping companies prioritize impacts, allocate resources efficiently, and align with stakeholder and sustainability goals. They provide reliable data for transparent reporting, enabling companies to demonstrate their performance to investors, customers, and other stakeholders. This fosters trust, ensures compliance with standards, and enhances corporate reputation.

As sustainability becomes increasingly important and disclosure regulations evolve, assessment and reporting methodologies must keep pace. Impact Intensity benchmarks offer valuable guidance for improving practices, refining sustainability reporting, sharpening decision-making, and optimizing resource allocation. It is important to note that Impact Intensities are monetized using WifOR value factors, and meaningful comparisons require companies to calculate their impacts using the same methodology.

To illustrate how these benchmarks can be applied in practice, consider the following example: In Australia's Consumer Goods sector, an increase of EUR 1000¹¹ in production results in an average negative impact of EUR 6.98 from greenhouse gas (GHG) emissions within a company's own operations. Direct suppliers contribute another EUR 16.04, while suppliers' suppliers account for EUR 10.20 globally, and the remaining global supply chain adds EUR 15.77. Altogether, the total damage due to GHG emissions across the entire value chain amounts to approximately EUR 49 per EUR 1000 of output. This indicates that the majority of GHG emissions are driven by the upstream supply chain rather than the direct operations of Consumer Goods companies.

A company operating in this sector in Australia can compare these Impact Intensity benchmarks with its own data to evaluate its performance. To calculate its own GHG Impact Intensities, the company must take its environmental data per country and value chain stage, divide it by its output or turnover (own operations in the respective country), and multiply the result with the WifOR value factor:

¹¹ For ease of interpretation, the numbers in this example are scaled up by 1000. The tables show impact per EUR 1 of output.



$$GHG\ Intensity_{c,v} = \frac{GHG\ emissions_{c,v}}{Output_c} * WifOR\ value\ factor\ for\ GHG\ emissions^{12}$$

If the company's calculated GHG Intensity values are lower than the benchmark, this indicates a smaller GHG footprint relative to the sector average. Conversely, higher values suggest a larger-than-average impact.

For a materiality assessment, Impact Intensities at or above the sectoral benchmark can be considered material, signaling areas that may require targeted sustainability measures.

Caveats

Data Accuracy

The input-output model used to calculate the Impact Intensities integrates satellite accounts for various indicators, constructed using multiple data sources. These accounts aim to accurately portray industry effects across all countries based on the best available knowledge and data.¹³ However, varying data availability across indicators, countries, and sectors necessitates certain extrapolations and assumptions. WifOR is committed to continuously updating its data to improve accuracy and minimize errors or gaps. As such, the results here represent a snapshot, capturing current impacts as comprehensively as possible. Despite inherent limitations, this dataset remains, to the best of our knowledge, the most detailed, granular, and comprehensive source available for assessing industrial impacts.

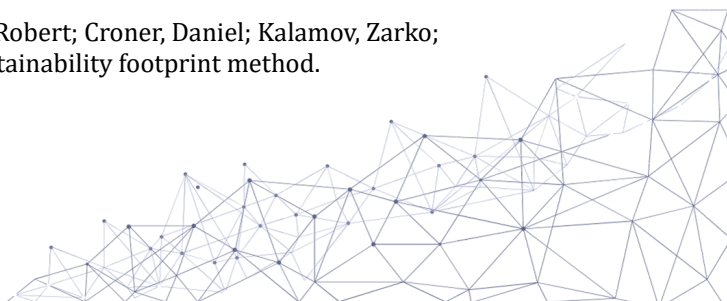
Impact Valuation

Impact Valuation advances traditional reporting beyond disclosure of companies' social and environmental effects in disparate units (e.g., GHG emissions in metric tons or occupational accidents in numbers of events). It captures the environmental and social changes caused by these outputs, tracks their broader impact on society, and conveys these effects in monetary terms—a unified metric that enables comparison across a diverse range of indicators.

Various approaches exist to quantify the societal value of indicators. In the present assessment, the indicators were monetized using the WifOR Impact Valuation methodology, with publicly available value factors. WifOR primarily focuses on damage costs to measure impacts. However, this is not feasible for all indicators, as some impact pathways and their consequences remain insufficiently understood. Each indicator therefore follows a specific valuation approach. For example, GHG emissions contribute to climate change regardless of their source and are thus valued using a 'social cost of carbon' approach and a global value factor. By contrast, water consumption is assessed based on economic damage and human

¹² c = country of operation; v = value chain level

¹³ Scholz, Richard; Dorndorf, Tabea; Tesch, Jasmin; Köster, Robert; Croner, Daniel; Kalamov, Zarko; Setzer, Jana. 2024. Impact measurement using WifOR's sustainability footprint method. Methodological report. 2024 WifOR Institute.



health impacts, yielding country-specific value factors that reflect local water scarcity. This means water consumption in highly water-stressed regions will generate a disproportionately higher impact, in some cases exceeding that of GHG emissions at global level. Given such methodological idiosyncrasies, comparisons between indicators should be interpreted cautiously, as differing valuation approaches limit direct comparability, especially on a worldwide level.

Double Counting

Impact Valuation carries the risk of *double counting*, as different impact drivers may share the same, or overlapping, impact pathways. This challenge is particularly relevant when analyzing multiple indicators together. For instance, waste incineration releases air pollutants that contribute to respiratory disease and health-related costs—accounted for in the value factor for *Waste*, but also included in the factor for *Air Emission*. Simply subtracting this impact from the waste coefficient would underestimate the true impact of waste, while summing both indicators would lead to double counting.

Economic Impact

Gross Value Added (GVA) is a key metric for assessing a company's economic contribution across value chains. It represents the economic value generated through company operations after deducting the cost of inputs and services used in production. Often, the total GVA across the entire value chain approximately matches the direct output of a company—if a company generates EUR 1,000 in direct output, the total GVA across its supply chain and internal operations typically also equals EUR 1,000. This equivalence is down to the fact that GVA encompasses all value-creation activities, from raw materials production to final goods and services, and is therefore distributed across all stages of the value chain. The distribution varies by industry and location: manufacturing or heavy engineering often rely on extensive supplier networks, resulting in significant upstream GVA contributions, while software development or advanced technology focus on highly integrated operations and tend to generate a substantial proportion of GVA internally.

Netting Impacts

Impact Valuation seeks to enhance transparency, an aim that cannot be achieved if results are overly aggregated. Expressing diverse impacts using a common monetary metric does reduce complexity, but it also risks obscuring critical nuances. And while simplification can be useful, it should not carry the implication that negative impacts can be offset by positive ones.

There are certain cases where netting impacts can be appropriate (e.g., aggregating an indicator across different locations). But practices such as netting across different indicators can lead to *greenwashing* and a misrepresentation of results. This risk is particularly relevant for economic impact (represented by GVA), which has therefore been intentionally excluded from the charts below.



In the current phase of Impact Valuation development, limitations remain, including overlapping indicators (double counting), divergent valuation approaches, and data gaps that hinder a fully comprehensive assessment. Moreover, different impacts affect different groups unevenly, meaning that a positive impact on one group does not necessarily compensate for a negative impact on another (for instance, extra vocational training for managers cannot offset agricultural losses caused by water scarcity).





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