PEOPLE Ecosystem Accounting
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Potential Use of SEEA data in Corporate Applications

Environmental Impact Measurement and Valuation
Natural Capital Management Accounting

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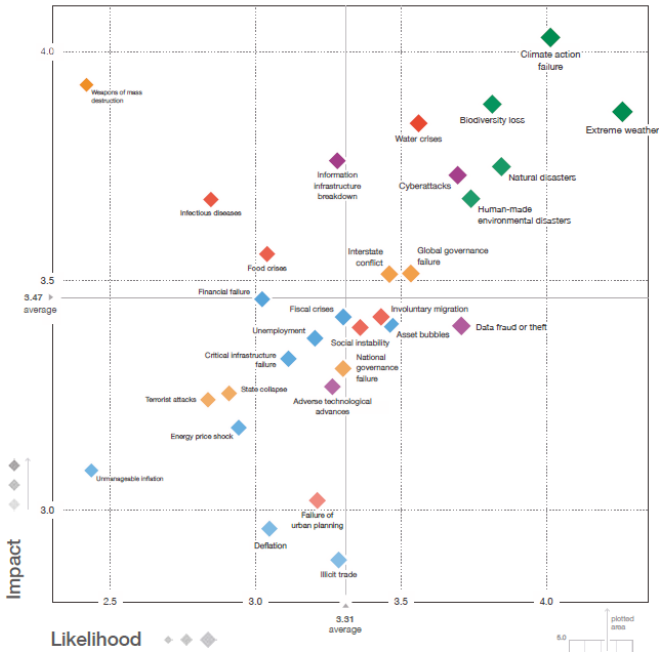
Natural Capital Management Accounting Policy

Inspiration & Focus To Date



Environmental degradation poses significant risk to business continuity (WEF, …)

Natural Capital Accounting …

System of Economic Environmental Accounts

…

Corporate Sustainability Reporting, Due Dilligence, …

…

Corporate Natural Capital Management Accounting

…

Natural Capital Management Accounting Policy

Inspiration & Focus Going Forward

Stakeholder Feedback

Ongoing support for green transition

But…

Business (notably SMEs) and local authorities are struggling with complexity, multiple metrics, data requirements, (reporting) compliance costs,…

'I should be working 80% on strategic positioning for the green transition and 20% on compliance; currently it is 80% compliance and 20% strategy ' (Sustainability Manager)

Future Policy Direction (TBC)

From regulation to supporting implementation …

Promoting competitiveness, resilience, …

Consolidation, simplification, public-private partnerships, …

Natural Capital Management Accounting Policy

Transparent Project (2020-23)

European Green Deal
The EC will support business' efforts to standardize natural capital management accounting practices in the EU and globally (EGD, 2019)

Transparent Project (2020-23)
- Value Balancing Alliance
- Capitals Coalition
- World Business Council for Sustainable Development

Standardized NCMA Method –Version 1.0
- Air: GHG, Pollution [Ozone, …]
- Water: Pollution
- Land: Land use, Solid Waste
- [Biodiversity] [Align]

Methods
- Bottom up ('LCA' type of assessments)
- Top down (EE-MRIOTs)

Follow-up (TBD)
- Biodiversity (?)
- Dependencies (?)
- Reference Data (?)
- SME Applicability (?)

Natural Capital Management Accounting Policy

ESIMP (2022-24)

Context

European Investment Fund's commitment to **transition from a volume to an impact oriented financial instititution** guided by the green & digital policy priorities…

What

An **integrated environmental** & social **impact measurement and valuation method** and **data sets** to **support** (executive) **management** with:

- **Awareness & understanding of E&S impacts associated with its** (SME financing) **business model,**
- Extending **environmental risk assessment** beyond climate (incl. air, water, land, and biodiversity), and
- Enabling sustainability-related **strategic orientation** and **business development** (as part of the **green transition**);
- [Meeting **sustainability reporting** obligations]

Outputs include **environmental** (& social) **impact data & KPIs, dashboards,** and analysis for **EU27** (MS & non-EU regions)**, sectors, portfolios, mandates**, and **SMEs**;

Impacts refer to **externalities** associated with economic activities of the resp. entities for **all key environmental areas** (climate, air, water, land, and biodiversity) **alongside global supply chains**.

Monetization facilitates **consolidating, contextualizing and integrating sustainability impacts in financial decision making**, notably at executive level.

ESIMP is to strengthen **internal environmental management information systems** whilst duly considering the **lacking or limited availability of SME-specific data**.

How

ESIMP **builds** on **'natural capital accounting'** or equivalent impact measurement methods developed for national, sectoral, and corporate applications as well as the **climate risk assessment methods** developed at the EIB Group. It draws on **the UN System of Environmental Economic Accounts,** EU's Transparent Project supporting industry efforts to standardize corporate **EP&L accounting,** and similar efforts by other parties (e.g. HBS, the Impact Valuation Foundation, etc.)

Because of **lacking impact data for SMEs**, ESIMP primarily **draws on established environmentally extended multi-regional input-output tables (EE-MRIOT)** and related statistical data sets, including also social satellite data.

ESIMP was initiated by the EIF with support from ENV and WiFOR . **After the pilot ends in 2024 a follow-up public-private partnership is to ensure continuation.**

Why

Despite the need for public and private organisations to integrate environmental (and social) impacts in traditional decision making, **many (but largest) companies are struggling** to do so. Low uptake is partly due to lacking standardized methods **and data for measuring and valuing total environmental impact** of a corporate or other economic entity in a way that is transparent..

The adoption of sustainability reporting standards is expected to drive change albeit **many stakeholders expressed concerns that data collection efforts are beyond their means, notably for SMEs** and (local) public authorities**.**

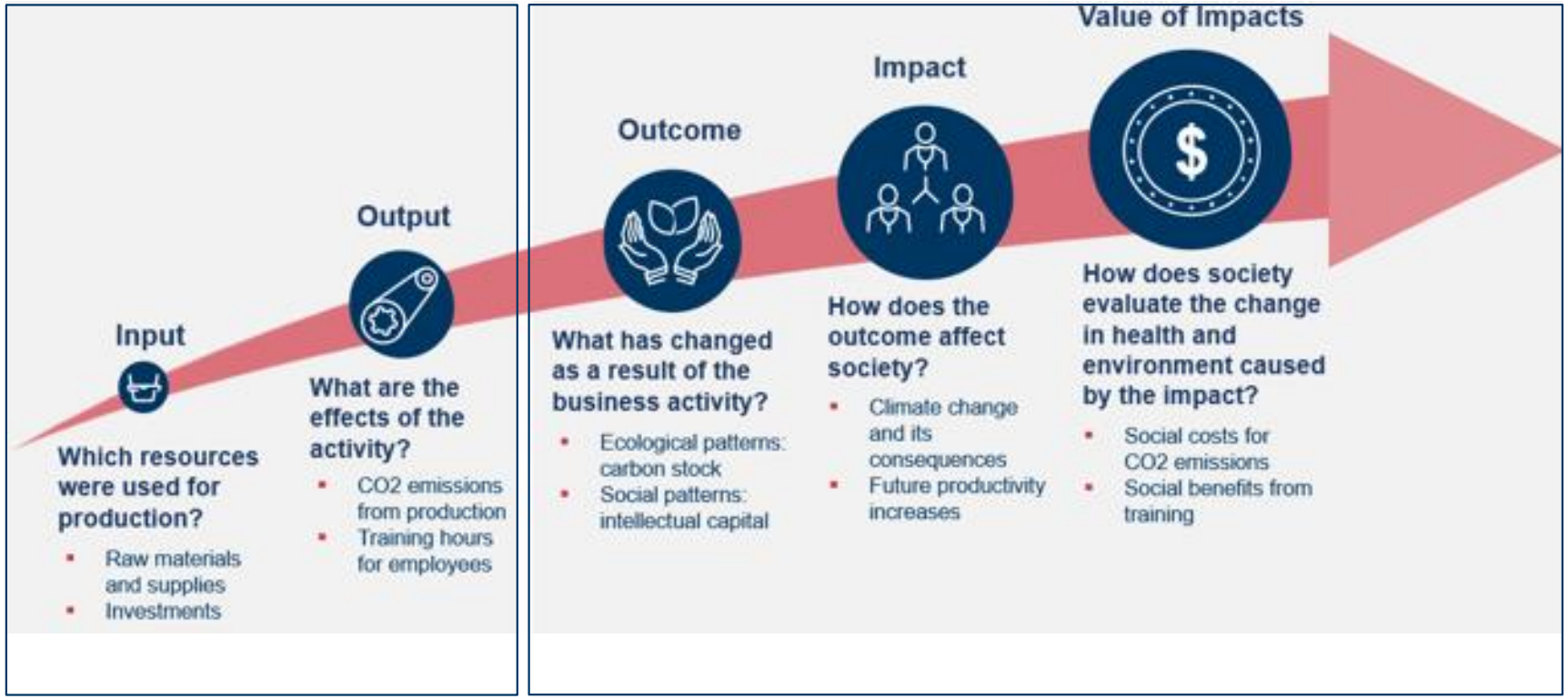
ESIMP addresses the obstacles for obtaining (harmonized) environmental (and social) impact measurement and valuation methods and data suitable for companies and (SME) financing organisations (cf. also EU SFAP'21, EIB Climate Bank Roadmap**).**

ESIMP Scope

Economic Impacts
Gross Value Added (GVA), in million EUR
Output (production value), in million EUR
Total persons employed (EMP), in thousand
Natural Capital Impact
Air related impacts
Climate (GHG Emissions)
Air Pollution (Total Air Emissions)
Water related impacts
Water Consumption
Water Pollution
Landuse related impacts
Agriculture
Forestry
Paved
Biodiversity related impacts
Plant & Animal Species*
Social Capital Impact
Health and Safety
Injury (cases of short/long absence, partial/full incapacity, fatality)
Disease/illness (cases of short/long absence, partial/full incapacity, fatality)
Forced Labor and Working Children
Risk of Working Children (children)
Risk of Forced Labor (persons)
Quality of Wages
Gender Pay-Gap (Euro)
Positive Employee Effects
Training (hours)

ESIMP
Scope

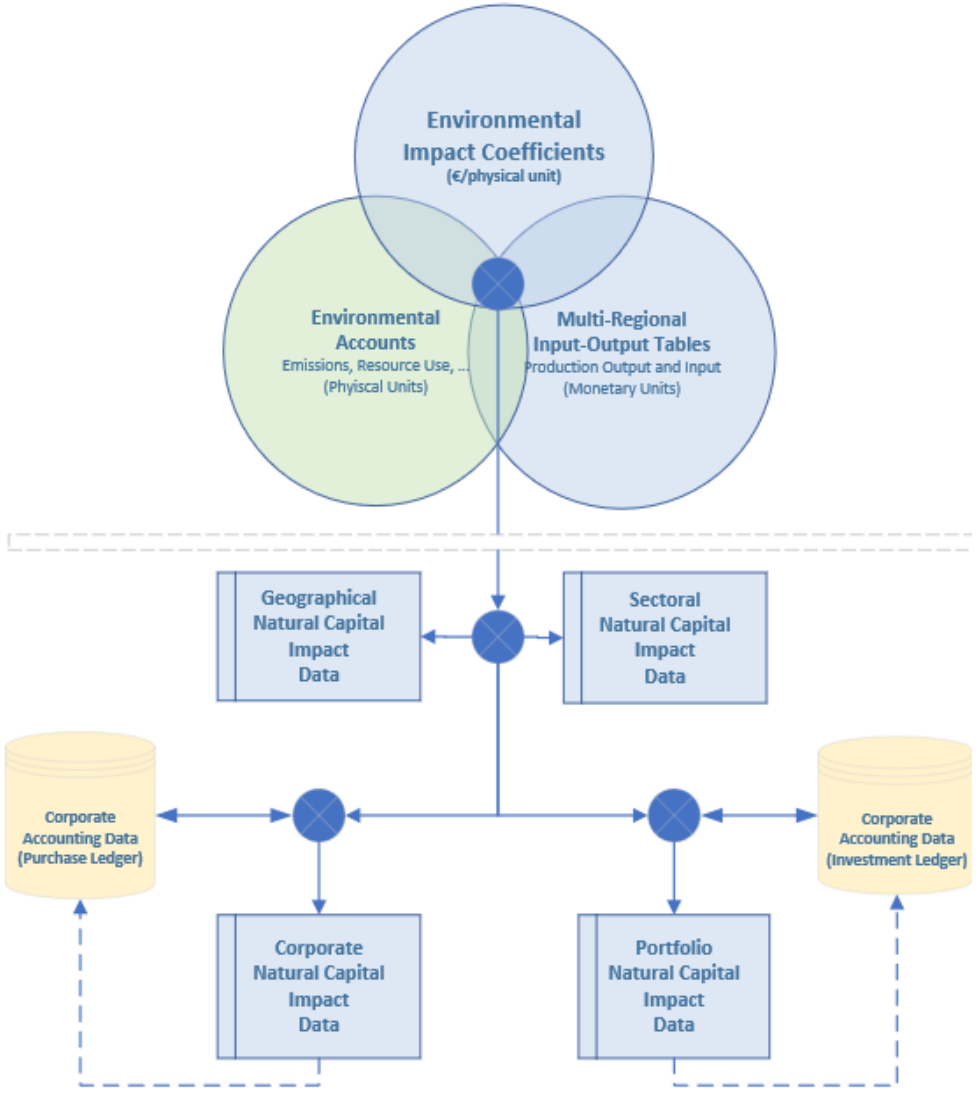
ESIMP Impact Measurement & Valuation



Traditional ESG Reporting …

Based on the logical framework related to the 'Theory Change'

ESIMP
Method
Outputs
Use Cases

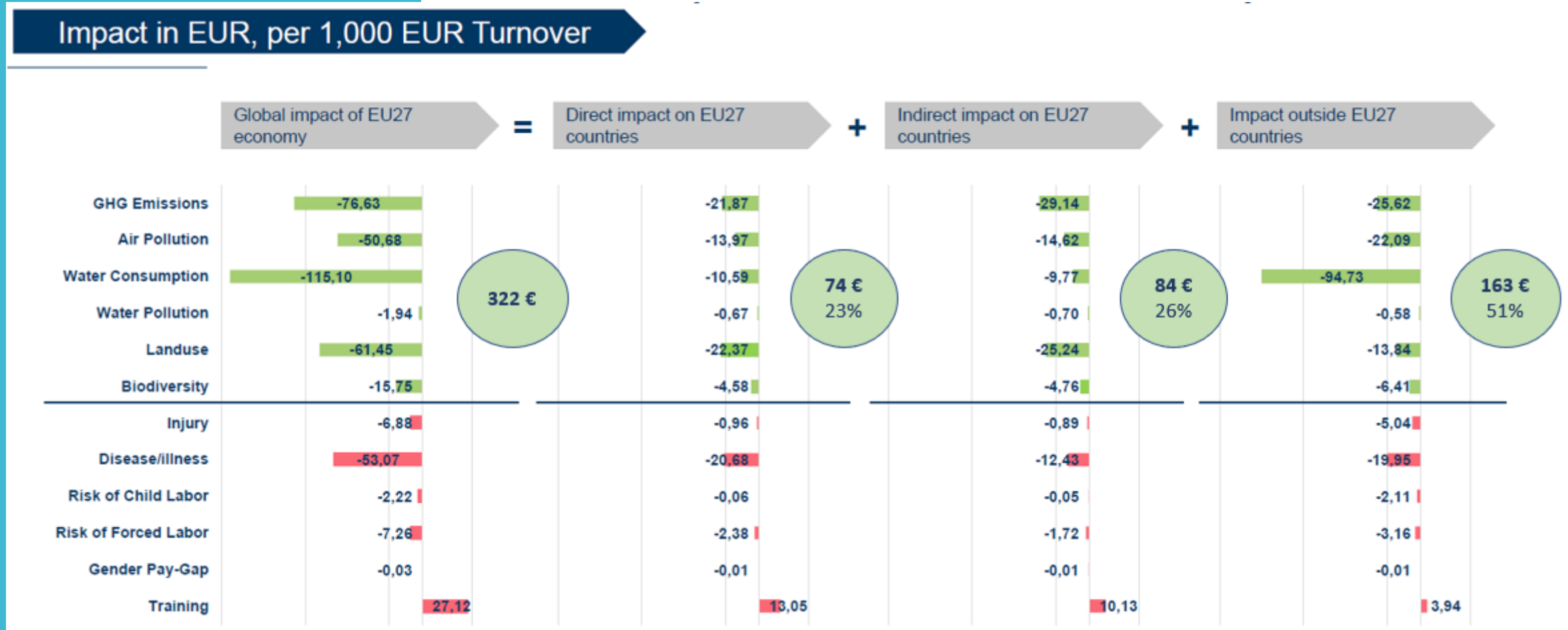


Method
Environmentally-Extended
Multi-Regional
Input-Output Tables
(EE-MRIOT)

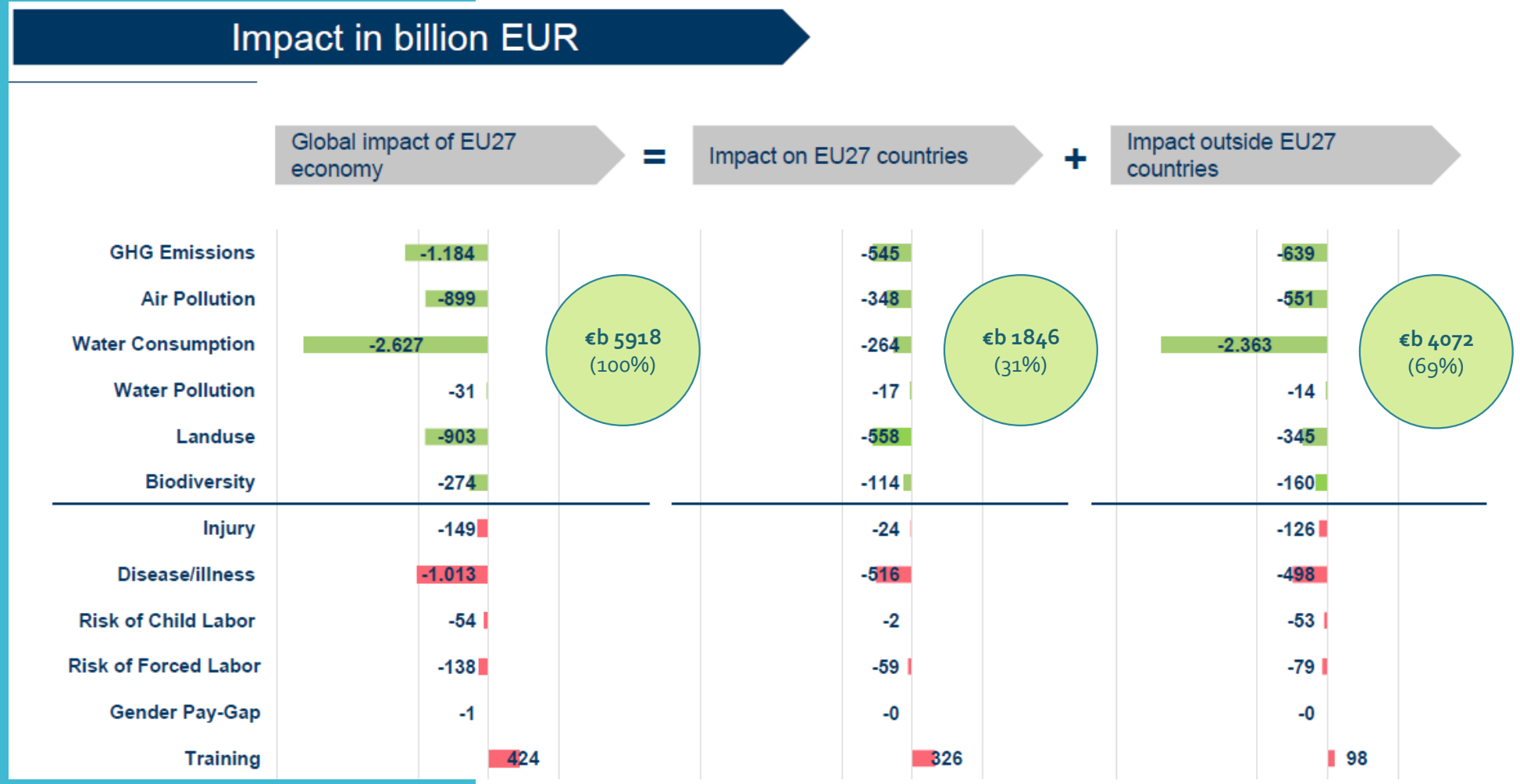
Outputs
Geographical & Sectoral Impact Data
Corporate Impact Data (Interface)
Portfolio Impact Data (Interface)

Use Cases
Strategic Impact Assessment
Strategic Risk Assessment
Business Development
[Sustainability Reporting]

Relative Environmental and Social Impacts of the EU Economy – Summary Dashboard (2020, € per 1000 € TO)



Absolute Environmental and Social Impacts of the EU Economy – Summary Dashboard (2020, €)

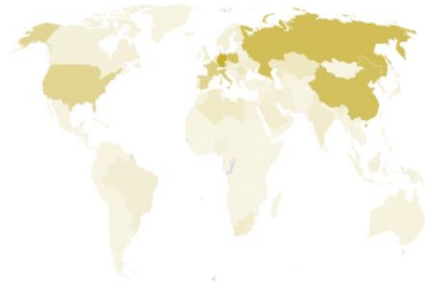


Environmental Impacts of the EU Economy –Hot Spot Analysis (2020, € mio, % physical)

Regional impact on			Global impact of EU27 countries (€ mio)	Total impact** on EU27 countries (physical)			Total impact*** outside EU27 countries (physical)		
Economic sectors			Total economy	Resources****	Industry	Services	Resources	Industry	Services
Air related impacts*		Greenhouse Gas Emissions	-1,184,379	9%	27%	10%	2%	35%	17%
		Air Pollution	-899,215	9%	15%	29%	1%	30%	16%
Water related impacts*		Water Consumption	-2,626,716	41%	8%	1%	4%	32%	13%
		Water Pollution	-30,951	64%	7%		3%	18%	7%
Landuse related impacts*		Land Use (Agriculture)	-46,910	34%	0%	0%	7%	43%	16%
		Land Use (Forestry)	-179,064	39%	0%	1%	8%	37%	15%
		Land Use (paved)	-676,924	59%	0%	0%	6%	25%	10%
Bio-diversity related impacts*		Biodiversity (plant & animal species)	-274,166	-	-	-	-	-	-
			-5,918,325						

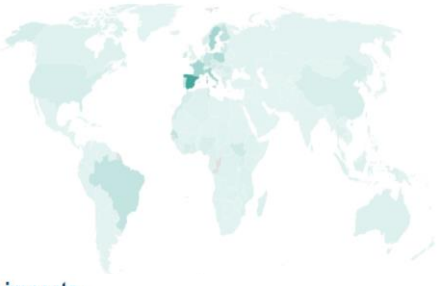
Global Distribution of the EU27 Economy's Environmental Impacts & Dependencies (Geo Map 1/1)

Climate (GHG Emissions)

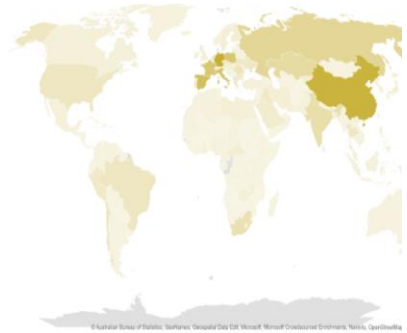


Water Consumption

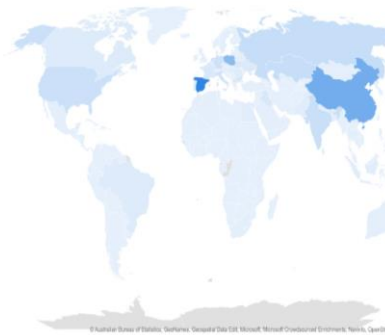
Landuse



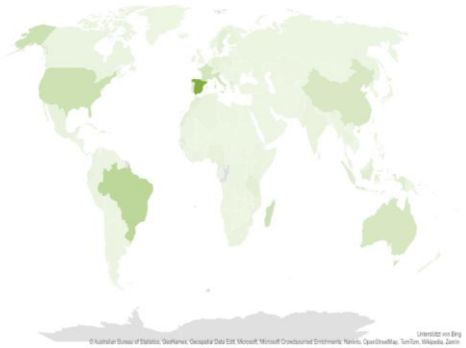
Air Pollution (Total Air Emissions)



Water Pollution



Biodiversity related impacts



Global Environmental Impact of the EU Economy (2020, €) by World-Region, EU Member States, Sector (Nace level 1 & 2)

Region	Global Impact of The EU27 Economy (production)	Impact in the European Union	European Union Candidate Countries	European Free Trade Association and United Kingdom	Eastern Europe and Central Asia	Middle East and Africa	North America	Central and South America	Asia and Oceania	Rest of the World
Region										
Total Natural C										
Air related in										
Climate (GH										
Air Pollution										
Water related										
Water Consu										
Water Polluti										
Landuse rela										
Agriculture										
Forestry										
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Air Pollution										
Water related										
Water Consu										
Water Polluti										
Landuse rela										
Agriculture										
Forestry										
Paved										
Biodiversity										
NCI Intensity c										

Region / Country	European Union	Austria	Belgium	Bulgaria	Cyprus	Czechia	Germany	Denmark	Spain	Estonia	Finland	France	Greece	Croatia
Socio-Economic Data														
Gross Value Adc														
Output (productic														
Total persons en														
Total Natural Cap														
Air related impa														
Climate (GHG														
Air Pollution (To														
Water related in														
Water Consum														
Water Pollution														
Landuse related														
Agriculture														
Forestry														
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Air related impa														
Climate (GHG														
Air Pollution (To														
Water related in														
Water Consum														
Water Pollution														
Landuse related														
Agriculture														
Forestry														
Paved														
Biodiversity relat														
NCI Intensity of G														

Country/Sector	European Union	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas, steam and air conditioning supply	Water supply; sewerage, waste management and remediation activities	Construction	Wholesale and retail trade; repair of motor vehicles and motorcycles	Transportation and storage	Accommodation and food service activities	Information and communication
Country/NACE Code A20	EU	A	B	C	D	E	F	G	H	I	J
Socio-Economic Data											
Gross Value Added (GVA), in million EUR	12.094.341	221.207	33.983	1.973.718	249.765	118.086	659.804	1.377.252	552.713	215.617	655.467
Output (production value), in million EUR	24.940.638	496.382	71.962	6.315.353	632.294	286.949	1.745.322	2.577.046	1.389.765	452.244	1.379.079
Total persons employed (EMP), in thousand	206.447	9.362	509	29.676	1.131	1.701	13.497	29.382	10.922	9.411	6.276
Total Natural Capital Impact (in €, per €'000 turnover)	**- 322**	**- 3.502**	**- 377**	**- 588**	**- 575**	**- 307**	**- 206**	**- 128**	**- 256**	**- 473**	**- 102**
Air related impacts	**- 127**	**- 667**	**- 323**	**- 206**	**- 492**	**- 248**	**- 120**	**- 65**	**- 212**	**- 99**	**- 50**
Climate (GHG Emissions)	- 77	- 300	- 234	- 122	- 369	- 195	- 72	- 41	- 115	- 56	- 29
Air Pollution (Total Air Emissions)	- 51	- 367	- 89	- 83	- 123	- 53	- 48	- 24	- 97	- 43	- 21
Water related impacts	**- 117**	**- 1.165**	**- 27**	**- 271**	**- 55**	**- 34**	**- 34**	**- 42**	**- 27**	**- 292**	**- 24**
Water Consumption	- 115	- 1.133	- 26	- 267	- 54	- 34	- 33	- 41	- 26	- 290	- 24
Water Pollution	- 2	- 32	- 1	- 3	- 1	- 1	- 1	- 1	- 1	- 2	- 1
Landuse related impacts	**- 61**	**- 1.379**	**- 21**	**- 86**	**- 22**	**- 19**	**- 40**	**- 16**	**- 12**	**- 62**	**- 21**
Agriculture	- 3	- 69	- 1	- 5	- 1	- 1	- 1	- 1	- 0	- 5	- 1
Forestry	- 12	- 218	- 6	- 17	- 6	- 5	- 13	- 4	- 3	- 5	- 5
Paved	- 47	- 1.092	- 15	- 65	- 16	- 13	- 26	- 12	- 9	- 52	- 16
Biodiversity related impacts	**- 16**	**- 291**	**- 6**	**- 25**	**- 6**	**- 6**	**- 11**	**- 5**	**- 4**	**- 20**	**- 6**
Total Natural Capital Impact (in million)	**- 5.921.278**	**-1.540.845**	**-21.394**	**-2.596.903**	**-286.081**	**- 65.105**	**- 220.585**	**- 208.413**	**- 277.133**	**-145.159**	**- 99.500**
Air related impacts	**- 2.084.633**	**- 272.708**	**-18.569**	**- 795.063**	**-247.050**	**- 52.851**	**- 119.790**	**- 88.897**	**- 230.394**	**- 19.360**	**- 43.488**
Climate (GHG Emissions)	- 1.184.970	- 116.914	-13.444	- 449.382	-184.460	- 41.762	- 61.476	- 53.101	- 115.887	- 10.788	- 22.397
Air Pollution (Total Air Emissions)	- 899.663	- 155.794	- 5.124	- 345.681	- 62.590	- 11.089	- 58.314	- 35.797	- 114.507	- 8.572	- 21.091
Water related impacts	**- 2.658.993**	**- 545.910**	**- 1.776**	**-1.541.879**	**- 30.678**	**- 8.872**	**- 53.965**	**- 94.918**	**- 34.713**	**-115.841**	**- 31.441**
Water Consumption	- 2.628.027	- 532.216	- 1.732	-1.530.899	- 29.983	- 8.739	- 52.845	- 94.090	- 34.134	-115.576	- 30.881
Water Pollution	- 30.967	- 13.694	- 44	- 10.980	- 694	- 133	- 1.120	- 828	- 579	- 266	- 560
Landuse related impacts	**- 903.349**	**- 593.097**	**- 751**	**- 176.508**	**- 5.817**	**- 2.286**	**- 32.754**	**- 16.867**	**- 8.090**	**- 6.118**	**- 17.521**
Agriculture	- 46.934	- 29.188	- 19	- 11.965	- 288	- 90	- 607	- 929	- 366	- 953	- 433
Forestry	- 179.153	- 90.498	- 225	- 48.551	- 1.717	- 696	- 10.264	- 5.308	- 2.434	- 1.364	- 5.271
Paved	- 677.262	- 473.412	- 508	- 115.991	- 3.812	- 1.500	- 21.883	- 10.631	- 5.290	- 3.802	- 11.816
Biodiversity related impacts	**- 274.303**	**- 129.130**	**- 298**	**- 83.453**	**- 2.536**	**- 1.096**	**- 14.076**	**- 7.731**	**- 3.936**	**- 3.840**	**- 7.050**
NCI Intensity of GVA (€NCI/€GVA)	**- 0,49**	**- 6,97**	**- 0,63**	**- 1,32**	**- 1,15**	**- 0,55**	**- 0,33**	**- 0,15**	**- 0,50**	**- 0,67**	**- 0,15**
vs EU avg (in percentage)	100	1.423	129	269	234	113	68	31	102	138	31

Total Environmental Impact Intensity –Heatmap Benchmarked against EU average (2020, €)

(Climate – Air – Water – Land – Biodiversity –Global Supply Chain)

NCI Intensity of GVA (€NCI/€GVA)		European Union	Austria	Belgium	Bulgaria	Cyprus	Czechia	Germany	Denmark	Spain	Estonia	Finland	France	Greece	Croatia	Hungary	Ireland	Italy	Lithuania	Luxembourg	Latvia	Malta	Netherlands	Poland	Portugal	Romania	Slovakia	Slovenia	Sweden
		EU	AUT	BEL	BGR	CYP	CZE	DEU	DNK	ESP	EST	FIN	FRA	GRC	HRV	HUN	IRL	ITA	LTU	LUX	LVA	MLT	NLD	POL	PRT	ROU	SVK	SVN	SWE
Total	Total	- 0,49	-0,29	-0,63	-0,81	- 1,09	-0,50	-0,34	-0,41	- 0,79	- 1,23	-0,38	-0,25	- 1,29	-0,54	- 0,52	- 0,42	-0,56	- 1,10	- 0,33	- 1,05	-0,50	- 0,98	- 0,61	- 0,75	-0,70	-0,64	-0,52	- 0,32
Agriculture, forestry and fishing	A	- 6,97	-4,66	-6,47	-3,80	-20,32	-3,78	-3,82	-3,82	-14,71	-23,04	-4,38	-3,92	-11,48	-2,51	- 3,52	-10,68	-4,83	-14,88	- 5,17	-11,93	-2,40	- 9,22	- 5,36	-11,98	-4,00	-6,09	-5,02	-10,06
Mining and quarrying	B	- 0,63	-0,59	-0,94	-0,42	- 1,22	-1,63	-0,58	-0,28	- 0,44	- 0,44	-0,54	-0,49	- 0,58	-1,36	- 0,98	- 0,83	-0,57	- 0,60	- 0,35	- 0,67	-4,25	- 0,29	- 0,90	- 0,74	-0,99	-0,63	-0,94	- 0,26
Manufacturing	C	- 1,32	-0,66	-2,65	-1,78	- 4,66	-0,96	-0,98	-0,65	- 1,72	- 2,79	-0,78	-0,86	- 3,19	-1,58	- 1,02	- 0,37	-1,79	- 1,77	- 1,51	- 1,88	-1,30	- 4,61	- 1,17	- 2,11	-1,50	-1,60	-0,89	- 0,60
Electricity, gas, steam and air conditioning supply	D	- 1,15	-1,52	-0,87	-5,48	- 4,68	-1,85	-1,04	-0,61	- 0,78	- 2,57	-0,88	-0,49	- 4,05	-1,62	- 1,92	- 0,87	-1,14	- 1,29	- 0,65	- 1,40	-6,03	- 0,99	- 2,29	- 1,11	-2,47	-1,35	-1,32	- 0,28
Water supply; sewerage, waste management and remediation activities	E	- 0,55	-0,28	-0,84	-1,48	- 0,97	-1,04	-0,25	-0,53	- 0,50	- 1,00	-0,43	-0,58	- 0,98	-1,13	- 1,16	- 0,53	-0,63	- 0,85	- 0,26	- 0,77	-0,54	- 1,23	- 0,78	- 0,93	-1,18	-1,10	-0,87	- 0,30
Construction	F	- 0,33	-0,24	-0,78	-1,02	- 0,68	-0,34	-0,22	-0,38	- 0,21	- 0,52	-0,29	-0,27	- 0,61	-0,65	- 0,46	- 0,69	-0,30	- 0,19	- 0,32	- 0,71	-0,76	- 0,71	- 0,42	- 0,44	-0,54	-0,55	-0,56	- 0,22
Wholesale and retail trade; repair of motor vehicles and motorcycles	G	- 0,15	-0,09	-0,31	-0,39	- 0,13	-0,18	-0,08	-0,13	- 0,12	- 0,18	-0,10	-0,11	- 0,13	-0,16	- 0,21	- 0,15	-0,29	- 0,09	- 0,17	- 0,13	-0,13	- 0,20	- 0,17	- 0,10	-0,31	-0,19	-0,26	- 0,08
Transportation and storage	H	- 0,50	-0,18	-0,42	-1,05	- 1,31	-0,42	-0,37	-2,76	- 0,42	- 0,83	-0,51	-0,26	- 2,03	-0,53	- 0,46	- 1,02	-0,45	- 0,71	- 0,44	- 0,79	-1,79	- 0,63	- 0,47	- 0,52	-0,46	-0,38	-0,44	- 0,31
Accommodation and food service activities	I	- 0,67	-0,17	-1,65	-0,31	- 2,39	-0,56	-0,74	-0,73	- 0,45	- 1,48	-0,54	-0,32	- 1,33	-0,54	- 0,63	- 0,19	-0,90	- 0,40	- 0,25	- 0,69	-0,54	- 2,26	- 0,39	- 0,72	-0,53	-0,35	-0,50	- 0,42
Information and communication	J	- 0,15	-0,09	-0,16	-0,08	- 0,66	-0,08	-0,06	-0,11	- 0,10	- 0,09	-0,10	-0,10	- 0,08	-0,09	- 0,09	- 0,60	-0,12	- 0,10	- 0,60	- 0,08	-0,25	- 0,19	- 0,16	- 0,09	-0,15	-0,10	-0,12	- 0,09
Financial and insurance activities	K	- 0,07	-0,05	-0,11	-0,04	- 0,15	-0,07	-0,06	-0,03	- 0,04	- 0,06	-0,12	-0,07	- 0,03	-0,06	- 0,06	- 0,17	-0,04	- 0,10	- 0,35	- 0,06	-0,50	- 0,09	- 0,09	- 0,04	-0,07	-0,07	-0,09	- 0,03
Real estate activities	L	- 0,03	-0,04	-0,08	-0,05	- 0,03	-0,15	-0,02	-0,03	- 0,01	- 0,07	-0,05	-0,01	- 0,01	-0,03	- 0,06	- 0,02	-0,01	- 0,21	- 0,06	- 0,07	-0,04	- 0,11	- 0,11	- 0,01	-0,04	-0,07	-0,06	- 0,07
Professional, scientific and technical activities	M	- 0,10	-0,08	-0,14	-0,12	- 0,09	-0,16	-0,06	-0,10	- 0,07	- 0,22	-0,11	-0,09	- 0,09	-0,14	- 0,11	- 0,06	-0,09	- 0,17	- 0,21	- 0,13	-0,17	- 0,18	- 0,13	- 0,09	-0,20	-0,19	-0,17	- 0,08
Administrative and support service activities	N	- 0,12	-0,07	-0,22	-0,25	- 0,19	-0,30	-0,05	-0,20	- 0,10	- 0,21	-0,13	-0,08	- 0,12	-0,21	- 0,17	- 0,05	-0,24	- 0,32	- 0,17	- 0,21	-0,38	- 0,22	- 0,18	- 0,09	-0,19	-0,37	-0,18	- 0,10
Public administration and defence; compulsory social security	O	- 0,08	-0,06	-0,08	-0,08	- 0,10	-0,06	-0,10	-0,06	- 0,10	- 0,11	-0,11	-0,04	- 0,04	-0,19	- 0,08	- 0,13	-0,04	- 0,11	- 0,07	- 0,11	-0,11	- 0,20	- 0,08	- 0,06	-0,07	-0,09	-0,08	- 0,07
Education	P	- 0,04	-0,03	-0,03	-0,08	- 0,06	-0,05	-0,03	-0,04	- 0,03	- 0,13	-0,04	-0,04	- 0,01	-0,06	- 0,05	- 0,05	-0,02	- 0,09	- 0,02	- 0,11	-0,04	- 0,06	- 0,05	- 0,03	-0,07	-0,10	-0,09	- 0,04

Physical Data Sets Related to the Impacts of EU27 Economy Distributed by World Region, Countries, Sectors

Region	Impact	Global	European Union	European Union Candidate Countries	European Free Trade Association and United Kingdom	Eastern Europe and Central Asia	Middle East and Africa	North America	Central and South America	Asia and Oceania	Rest of the World
Region	Impact	Global	EU	EU Cand	EFTA & UK	EE & CA	ME & A	NA	CSA	A & O	RoW
Natural Capital Impacts (physical units, absolute)											
Air related impacts											
GHG, in '000 tonnes CO2e	Direct	2.772.088,72	2.772.088,72	-	-	-	-	-	-	-	-
GHG, in '000 tonnes CO2e	Supply Chain	6.944.757,48	3.693.473,70	116.198,64	125.368,44	788.303,39	760.126,41	372.722,28	134.123,19	930.870,30	23.571,13

Country/Sector		European Union	Austria	Belgium	Bulgaria	Cyprus	Czechia	Germany	Denmark	Spain	Estonia
Country/NACE Code A20	Impact	EU	AT	BE	BG	CY	CZ	DE	DK	ES	EE
Natural Capital Impacts (physical units, absolute)											
Air related impacts											
GHG, in '000 tonnes CO2e	Direct	2.772.088,72	51.897,19	86.367,18	48.123,51	6.777,77	89.334,36	612.896,79	73.683,99	217.494,33	11.062,62
GHG, in '000 tonnes CO2e	Supply Chain	6.944.757,48	203.391,82	309.142,46	86.583,09	18.130,10	220.470,82	1.397.999,20	138.792,59	562.298,02	25.629,78

Country/Sector		European Union	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas, steam and air conditioning supply	Water supply; sewerage, waste management and remediation activities	Construction	Wholesale and retail trade; repair of motor vehicles and motorcycles	Transportation and storage
Country/NACE Code A20	Impact	EU	A	B	C	D	E	F	G	H
GHG, in '000 tonnes CO2e	Supply Chain	6.945.284,54	254.986,16	30.610,83	3.215.524,74	468.249,49	125.467,89	591.051,41	475.440,76	440.363,78
GHG, in '000 tonnes CO2e	**Total**	**9.717.583,64**	**755.532,83**	**85.581,45**	**3.920.024,45**	**1.186.305,39**	**284.890,86**	**641.816,53**	**540.390,27**	**812.629,47**
CO2, in '000 tonnes	Direct	2.167.895,59	105.914,04	23.341,60	685.540,13	696.319,97	35.880,60	49.830,71	64.162,04	363.642,19
CO2, in '000 tonnes	Supply Chain	4.995.314,58	130.552,22	23.067,41	2.214.701,18	350.515,73	84.141,78	473.961,34	366.166,36	345.129,29
CO2, in '000 tonnes	**Total**	**7.163.210,17**	**236.466,26**	**46.409,01**	**2.900.241,31**	**1.046.835,70**	**120.022,38**	**523.792,05**	**430.328,41**	**708.771,48**
CH4, in '000 tonnes	Direct	14.823,62	8.439,83	1.111,95	342,71	620,56	4.087,77	5,88	8,85	170,20
CH4, in '000 tonnes	Supply Chain	54.124,94	2.945,58	231,33	27.320,81	3.824,80	1.295,75	3.446,71	3.081,65	2.812,83
CH4, in '000 tonnes	**Total**	**68.948,56**	**11.385,41**	**1.343,28**	**27.663,51**	**4.445,37**	**5.383,53**	**3.452,59**	**3.090,50**	**2.983,03**
N2O, in '000 tonnes	Direct	714,50	597,42	1,87	35,34	16,45	34,28	2,90	2,04	14,56
N2O, in '000 tonnes	Supply Chain	1.639,52	158,33	4,02	889,97	40,15	19,04	77,67	86,75	62,17
N2O, in '000 tonnes	**Total**	**2.354,01**	**755,76**	**5,89**	**925,30**	**56,60**	**53,32**	**80,57**	**88,78**	**76,73**
NOx Emissions, in '000 tonnes	Direct	6.782,24	1.058,94	41,15	932,95	767,28	79,39	163,37	195,95	3.192,07
NOx Emissions, in '000 tonnes	Supply Chain	12.492,72	448,61	53,50	5.527,51	692,47	156,35	1.062,88	1.003,38	1.057,68
NOx Emissions, in '000 tonnes	**Total**	**19.274,96**	**1.507,55**	**94,65**	**6.460,47**	**1.459,75**	**235,74**	**1.226,25**	**1.199,34**	**4.249,75**
CO Emissions, in '000 tonnes	Direct	7.172,83	1.390,47	24,54	3.334,72	385,95	144,77	242,94	192,47	853,04
CO Emissions, in '000 tonnes	Supply Chain	66.433,79	3.967,82	212,89	34.958,65	2.118,88	650,07	4.560,71	4.005,23	3.661,46
CO Emissions, in '000 tonnes	**Total**	**73.606,62**	**5.358,29**	**237,43**	**38.293,38**	**2.504,83**	**794,84**	**4.803,65**	**4.197,71**	**4.514,51**
PM2.5 Emissions, in '000 tonnes	Direct	543,21	127,06	12,75	123,66	25,17	21,84	28,13	10,86	172,25
PM2.5 Emissions, in '000 tonnes	Supply Chain	2.319,85	61,88	7,91	1.213,44	122,45	27,68	228,51	143,36	136,74
PM2.5 Emissions, in '000 tonnes	**Total**	**2.863,06**	**188,94**	**20,66**	**1.337,10**	**147,62**	**49,52**	**256,64**	**154,22**	**308,99**
PM10 Emissions, in '000 tonnes	Direct	1.028,26	337,02	69,52	172,13	38,54	24,11	120,58	15,17	221,97
PM10 Emissions, in '000 tonnes	Supply Chain	3.753,91	124,74	15,16	1.960,66	152,92	44,27	379,40	228,75	212,79
PM10 Emissions, in '000 tonnes	**Total**	**4.782,18**	**461,77**	**84,68**	**2.132,80**	**191,47**	**68,37**	**499,98**	**243,92**	**434,76**
NH3 Emissions, in '000 tonnes	Direct	2.997,74	2.892,76	0,38	47,00	7,05	38,82	0,95	2,11	3,61
NH3 Emissions, in '000 tonnes	Supply Chain	7.525,55	865,69	10,78	4.438,18	115,53	57,16	301,96	336,27	146,67
NH3 Emissions, in '000 tonnes	**Total**	**10.523,29**	**3.758,45**	**11,16**	**4.485,18**	**122,57**	**95,98**	**302,91**	**338,37**	**150,28**
NMVOC Emissions, in '000 tonnes	Direct	3.935,38	1.476,89	98,94	1.538,12	65,53	91,64	195,10	135,11	171,36
NMVOC Emissions, in '000 tonnes	Supply Chain	8.752,16	461,62	31,86	4.421,96	439,31	101,69	636,72	541,28	538,28
NMVOC Emissions, in '000 tonnes	**Total**	**12.687,54**	**1.938,51**	**130,80**	**5.960,08**	**504,84**	**193,34**	**831,82**	**676,39**	**709,65**
SOx Emissions, in '000 tonnes	Direct	5.644,88	56,97	59,66	1.903,18	1.784,77	49,66	16,93	19,51	1.670,40
SOx Emissions, in '000 tonnes	Supply Chain	17.056,47	360,69	86,72	8.618,34	1.033,97	227,24	1.623,58	1.117,48	1.026,97
SOx Emissions, in '000 tonnes	**Total**	**22.701,35**	**417,66**	**146,37**	**10.521,53**	**2.818,74**	**276,90**	**1.640,51**	**1.136,99**	**2.697,37**
Water related impacts										
Water Consumption, in '000 m3	Direct	43.731.995,34	35.541.227,14	17.876,51	4.640.458,34	2.299.893,18	37.794,16	18.077,04	999.711,21	7.648,77
Water Consumption, in '000 m3	Supply Chain	86.264.823,45	8.928.563,98	108.673,18	51.514.173,91	1.784.977,00	463.193,50	3.315.442,59	4.249.291,38	1.749.464,31
Water Consumption, in '000 m3	**Total**	**129.996.818,79**	**44.469.791,12**	**126.549,69**	**56.154.632,25**	**4.084.870,18**	**500.987,66**	**3.333.519,63**	**5.249.002,60**	**1.757.113,07**
Water Pollution Nitrogen, in '000 tonnes	Direct	5.718,87	5.131,27	-	-	-	587,61	-	-	-
Water Pollution Nitrogen, in '000 tonnes	Supply Chain	8.925,40	1.130,05	9,45	5.357,13	92,79	189,11	237,79	371,36	133,63
Water Pollution Nitrogen, in '000 tonnes	**Total**	**14.644,27**	**6.261,32**	**9,45**	**5.357,13**	**92,79**	**776,72**	**237,79**	**371,36**	**133,63**
Landuse related impacts										
Landuse related impacts, in 1000 ha	Direct	362.069,09	356.094,32	0,60	2.287,01	1,72	30,06	271,63	1.723,02	109,58

Further Work & Workshop Interests ?

Partnering opportunities for reviewing / improving

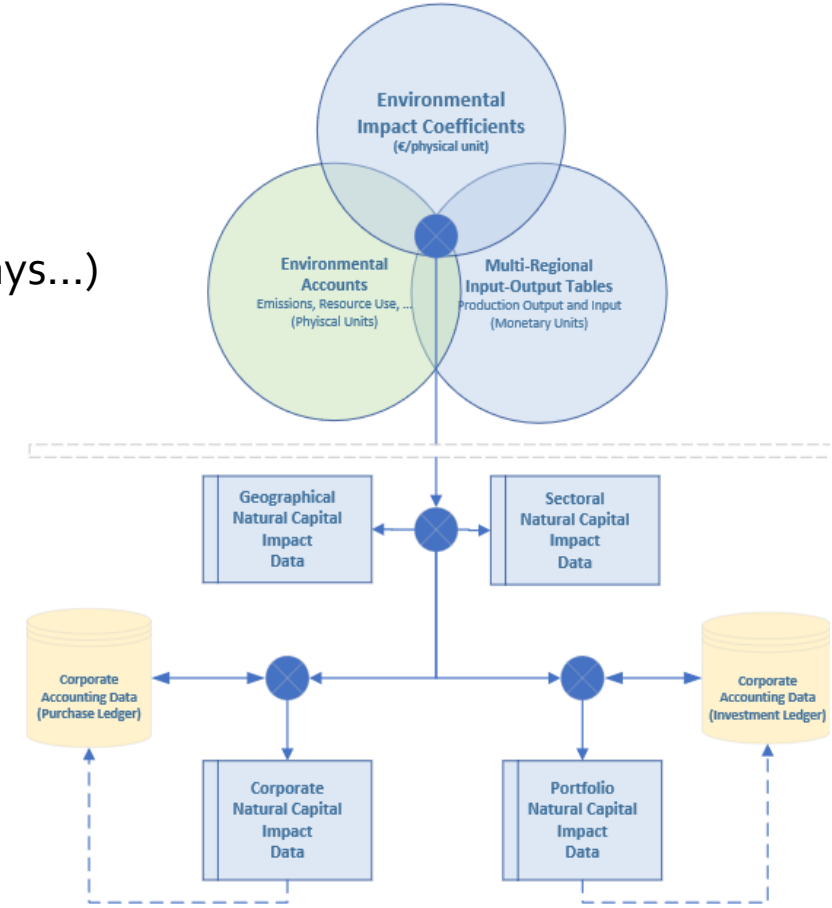
Emission data (Country-Sector Matrices)

- Air (GHG, Pollution,…)
- Water (Pollution, Use, …
- Land (Use, Degradation,
- Biodiversity (species)

Other relevant data (Impact Pathways…)
- concentrations …
- depositions …
- exposure …

Digital Solutions
- Methods & Tools
- Data
- Interfaces

Other areas of mutual interest
- projected impacts?
- use cases (risk dimension…)



Thank you

Comments and Questions Anytime

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