

Integrating natural capital accounts into the SNA

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Natural Capital

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Beyond GDP

“The Beyond GDP initiative is about developing indicators that are as clear and appealing as GDP, but more inclusive of environmental and social aspects of progress.”

Economic capital

Social capital

Natural capital

Human capital

Our Natural Capital accounts

Extent



Condition



Physical



Monetary



8 broad habitats

15 ecosystem services

Supply and use tables (SUTs)

“Describe the relationship between components of value added, industry inputs and outputs, and product supply and demand.”

Within SUTs



Provisioning

Regulating

Cultural

Aims of this project

- 1** Link our existing natural capital accounts with supply and use tables
- 2** Understand the flow of nature-based products through supply and use tables
- 3** Estimate the gross value added by nature to our economy

Traditional supply and use tables

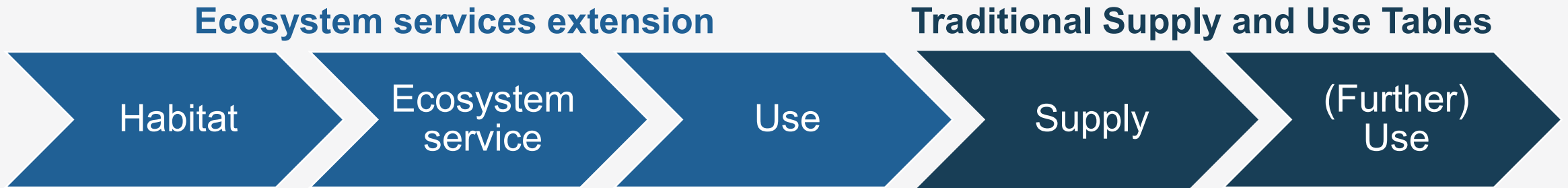
Traditional Supply and Use Tables



Timber production example

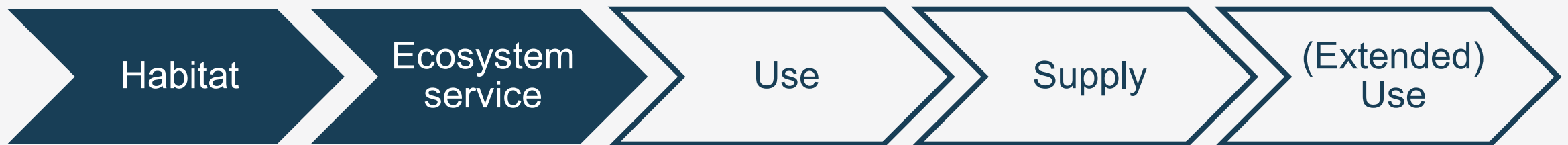


Extending our supply and use tables



Linking habitats to ecosystem services

Ecosystem service	Timber Removals (£ millions)	Air Pollution Removal (£ millions)
Total	373	2,394
Woodland	373	1,250
Enclosed farmland	0	329
Semi-Natural Grassland	0	0
Freshwater, Wetlands, and Floodplain	0	0
Mountain, Moorland and Heath	0	8
Marine	0	0
Coastal Margins	0	16
Urban	0	791



Link to industry

Woodland

Timber Removals

**A02: Forestry
and Logging**

Marine

Fish Capture

**A03: Fishing &
Aquaculture**

Habitat

Ecosystem
service

Use

Supply

(Extended)
Use

Extending supply and use tables example

Extended supply table

Natural capital supply and use tables, 2023: Extended supply table [Note 1, 10, 14]

		A01	A02	A03	B05	B06	B08	D351	E36														
Service type	Ecosystem service	Crop And Animal Production, Hunting And Related Service Activities	Forestry and Logging	Fishing And Aquaculture	Mining Of Coal And Lignite	Extraction Of Crude Petroleum And Natural Gas	Other Mining And Quarrying	Electric power generation, transmission and distribution	Water Collection, Treatment And Supply	Ecosystem Product Supply	Proportion of Industry Supply Total	Blue Book Industry Supply Total	Woodland	Enclosed farmland	Semi-Natural Grassland	Freshwater, Wetlands, Floodplain	Mountain, Moorland and Heath	Marine	Coastal Margins	Urban	Total Ecosystem Service Supply		
Provisioning Services	Timber Removals	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	372.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	372.7		
Provisioning Services	Renewable Energy Generation	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	0.0	367.3	378.9	142.9	189.2	847.6	0.0	60.9	1,986.8			
Provisioning Services	Agricultural Biomass	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	0.0	7,301.6	0.0	0.0	0.0	0.0	0.0	0.0	7,301.6			
Provisioning Services	Fish Capture	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	0.0	0.0	0.0	0.0	0.0	302.1	0.0	0.0	302.1			
Provisioning Services	Water Abstraction	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	0.0	0.0	0.0	6,818.2	0.0	0.0	0.0	0.0	6,818.2			
Provisioning Services	Mineral Extraction	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	0.0	0.0	0.0	0.0	689.4	274.4	0.0	0.0	963.8			
Provisioning Services	Fossil Fuels Production [Note 12]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	0.0	0.0	0.0	0.0	0.0	6,901.8	0.0	0.0	6,901.8			
Regulating Services	Carbon Sequestration [Note 13]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	4,373.9	-3,794.3	247.2	-834.4	0.0	0.0	0.0	-1,404.2	-1,411.8			
Regulating Services	Noise Mitigation	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.6	16.6			
Regulating Services	Urban cooling	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	429.9	429.9			
Regulating Services	Air Pollution Removal	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	1,250.4	328.6	0.0	0.0	7.7	0.0	16.2	790.7	2,393.6			
Cultural Services	Amenity Value	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2,816.4	2,816.4			
Cultural Services	Tourism & Recreation	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	1,159.5	1,118.5	618.2	680.5	277.5	0.0	2,014.8	9,703.6	15,572.6			
Cultural Services	Health benefits from recreation	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	1,071.5	1,253.5	131.0	869.7	330.4	0.0	706.3	2,463.6	6,826.0			
Ecosystem product	Timber Removals	0.0	372.7	0.0	0.0	0.0	0.0	0.0	0.0	372.7	0.2	1,650.0	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]
Ecosystem product	Renewable Energy Generation	0.0	0.0	0.0	0.0	0.0	0.0	1,986.8	0.0	1,986.8	0.0	93,290.0	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]
Ecosystem product	Agricultural Biomass	7,301.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7,301.6	0.2	30,767.0	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]
Ecosystem product	Fish Capture	0.0	0.0	302.1	0.0	0.0	0.0	0.0	0.0	302.1	0.2	1,803.0	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]
Ecosystem product	Water Abstraction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6,818.2	6,818.2	0.6	11,041.0	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]
Ecosystem product	Mineral Extraction	0.0	0.0	0.0	0.0	0.0	963.8	0.0	0.0	963.8	0.2	5,762.0	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]
Ecosystem product	Fossil Fuels - Coal [Note 11]	0.0	0.0	0.0	-110.7	0.0	0.0	0.0	0.0	-110.7	-0.5	222.0	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]
Ecosystem product	Fossil Fuels - Oil and Gas	0.0	0.0	0.0	0.0	7,012.5	0.0	0.0	0.0	7,012.5	0.3	21,053.0	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]	[z]

[z] = not applicable

Extending use tables

Monetary use table for timber removals, £ million and percentage (%), UK, 2022

Industry or sector	Industry code	Use (Percentage)	Redistributed use (Percentage)	Intermediate consumption (£ millions)
Crop And Animal Production, Hunting And Related Service Activities	A01	8.6	0.0	0.0
Forestry And Logging	A02	14.5	15.9	59.4
Manufacture Of Wood and Products Of Wood and Cork, Except Furniture; Manuf. Of Articles Of Straw	C16	23.7	26.0	97.0
Manufacture Of Paper And Paper Products	C17	10.2	11.2	41.8
Electric power generation, transmission and distribution	D351	34.6	38.0	141.6
Buying and selling, renting and operating of own or leased real estate, excluding imputed rent	L68BXL683	0.3	0.0	0.0
Repair Of Computers And Personal And Household Goods	S95	0.1	0.0	0.0
Households		8.0	8.8	32.8
Total		100.0	100.0	372.7

Estimating gross value added (GVA)

$$\text{GVA} = \text{Output} - \text{Intermediate consumption}$$

**System of
National Accounts**

**Ecosystem
Accounting**

**Natural Capital Supply
and Use Tables**

Gross Value Added – National accounts

Proportion of industry supply that can currently be attributed to natural capital, UK, 2020

Ecosystem service	Industry	Ecosystem service annual value (£ millions)	SUT Industry Supply (£ millions)	Ecosystem service percentage of supply
Agricultural Biomass	A01	7,307	30,767	24.0
Timber Removals	A02	373	1,650	23.0
Fish Capture	A03	302	1,803	17.0
Mineral Extraction	B05	965	5,762	17.0
Fossil Fuel Production - Oil and Gas	B06	7,018	21,053	33.0
Fossil Fuel Production - Coal	B08	-111	222	-50.0
Renewable Energy Generation	D351	1,988	93,290	2.0
Water Abstraction	E36	6,823	11,041	62.0

Gross Value Added – National accounts

Proportion of industry intermediate consumption that can currently be attributed to Natural Capital timber removals, UK, 2020

Industry	Industry code	Ecosystem service consumption (£ millions)	SUT Industry Consumption (£ millions)	Ecosystem service percentage of consumption
Forestry And Logging	A02	59	854	7.0
Manufacture Of Wood and Products Of Wood and Cork, Except Furniture; Manuf. Of Articles Of Straw	C16	97	5,345	2.0
Manufacture Of Paper And Paper Products	C17	42	7,189	1.0
Electric power generation, transmission and distribution	D351	142	70,156	0.0

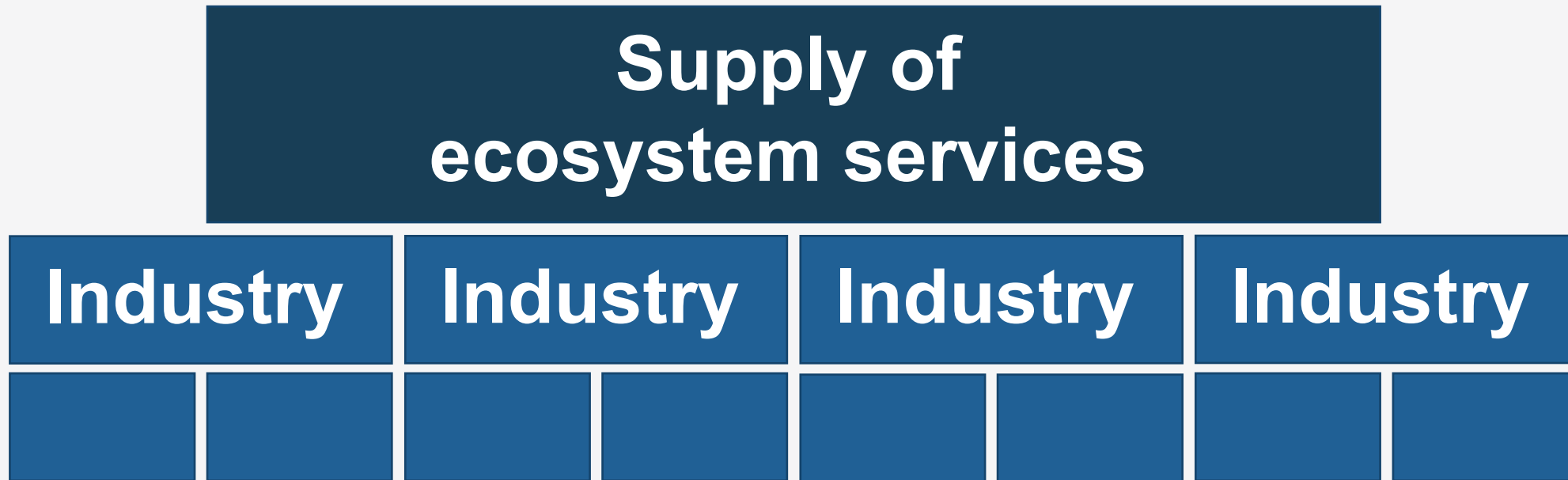
Gross Value Added – National accounts

Provisioning ecosystem service	Output approach GVA (£ millions)	Intermediate consumption approach GVA (£ millions)
Agricultural Biomass	2,890	725
Timber Removals	180	188
Fish Capture	101	121
Fossil Fuel Production – Coal	-44	-17
Fossil Fuel Production – Oil and gas	3,813	1,996
Mineral Extraction	332	574
Renewable Energy Generation	493	1,118
Water Abstraction	5,027	4,878
Total	12,792	9,582

Gross Value Added – Ecosystem Accounting

Service type	Ecosystem service	GVA (£ millions)
Provisioning	Agricultural Biomass	7,302
	Timber Removals	373
	Fish Capture	302
	Mineral Extraction	964
	Fossil Fuel Production - Coal	-111
	Fossil Fuel Production - Oil and Gas	7,012
	Renewable Energy Generation	1,987
	Water Abstraction	6,818
Regulating	Air Pollution Removal	2,392
	Carbon Sequestration	-1,412
	Noise Mitigation	17
	Urban cooling	430
Cultural	Amenity Value	2,816
	Health benefits from Recreation	6,826
	Tourism and Recreation	15,573
	Total	51,289

Additional Gross Value Added



Value added through the supply chain

These are first steps

1

Link our existing natural capital accounts with supply and use tables

2

Understand the flow of nature-based products through supply and use tables

Physical flows?

Time series?

More data?

Imports & exports?

These are first steps

3

Estimate the gross value added by nature to our economy

Degradation

**Supply chain
impacts?**

Questions?

Email us: natural.capital.team@ons.gov.uk

Beyond GDP: what matters to measuring progress
ONS seminars throughout September and October on Eventbrite