Outline

- The need for Natural Capital Accounting and the SEEA, and policy applications

- The SEEA as an international statistical standard

- The SEEA and the GBF monitoring framework

- Why is an accounting approach useful for these indicators

- Examples of ecosystem extent and ecosystem services flow accounts from South Africa

SEEA

The need to account for the Environment

- Nature and the services it provides support almost every aspect of human well-being

- But headline indicators like GDP, the unemployment rate and inflation do not capture the full economic contributions of nature

- Traditional accounts don't help us understand how the depletion of natural resources and degradation of the environment affect the economy and wellbeing

- The System of Environmental Economic Accounts (SEEA) fills that gap

- SEEA integrates information on the economy and the environment showing their interrelationship complementing the System of National Accounts

SEEA

Growing interest in Natural Capital Accounting

> **"**
> A *historic step* towards transforming the way how we view and value nature.
>
> António Guterres
> UN Secretary General

> **"**
> this new statistical framework moves *beyond GDP* and takes better account of biodiversity and ecosystems *in national economic planning.*
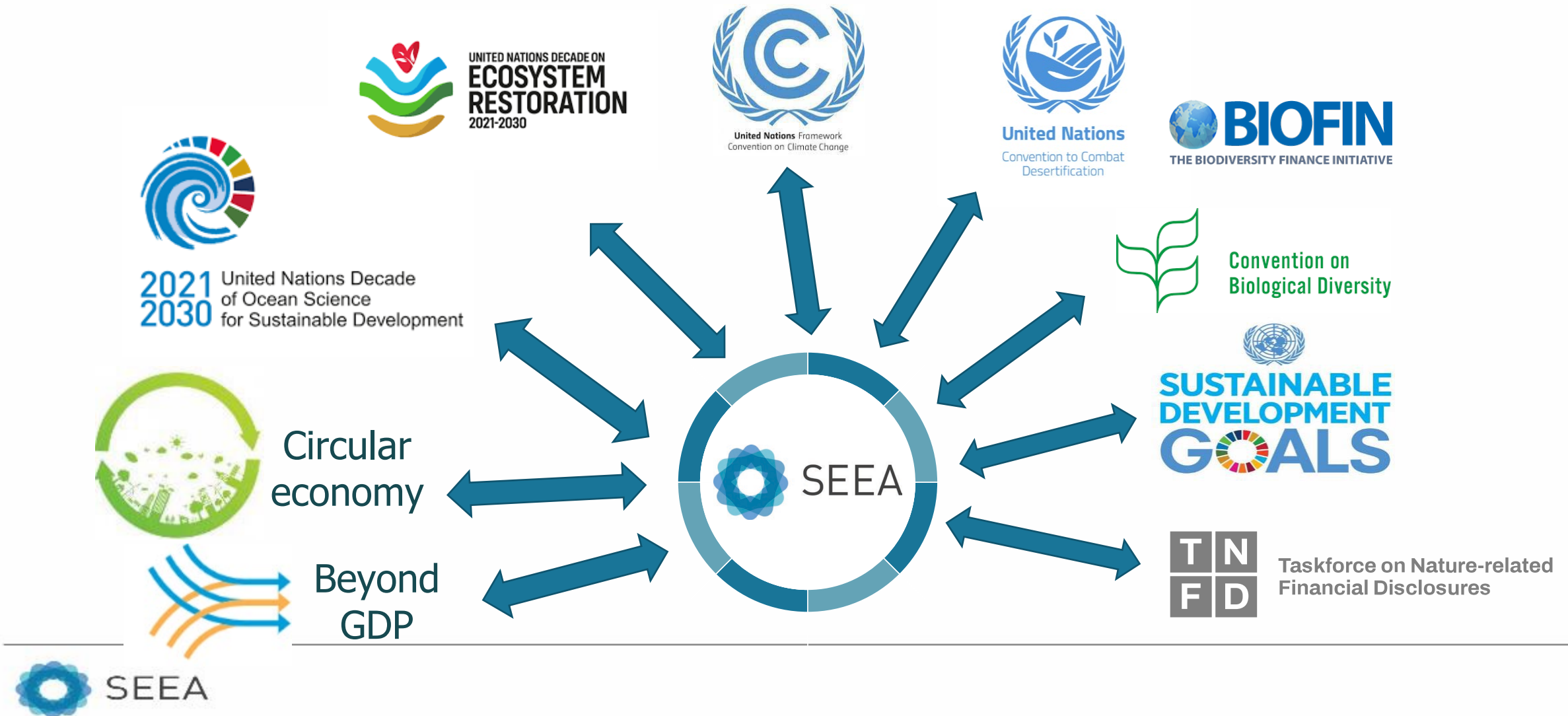>
> Frans Timmermans
> VP European Commission

Monitoring framework for the GBF (COP 15 decision 15/5) :

- "Notes the value of aligning national monitoring with the United Nations **System of Environmental-Economic Accounting statistical standard** in order to mainstream biodiversity in national statistical systems and to strengthen national monitoring systems and reporting as appropriate and according to their national priorities and circumstances;"

- "Invites the Statistical Commission,…….. and other relevant organizations to **support the operationalization of the monitoring framework** for the Kunming-Montreal global biodiversity framework;"

- "When possible, **indicators are aligned with existing intergovernmental processes under the Statistical Commission,** such as the SDGs, the FDES or the SEEA"

SEEA

The SEEA supports multiple ongoing initiatives

SEEA – a statistical standard for the environment

System of
Environmental-Economic
Accounting 2012
Central Framework

System of
Environmental-Economic
Accounting
Ecosystem Accounting

United Nations

Adopted in 2012

Adopted in 2021

Brings together environmental and economic data using the same accounting principles of the SNA

Credibility, reliability, replicability of data
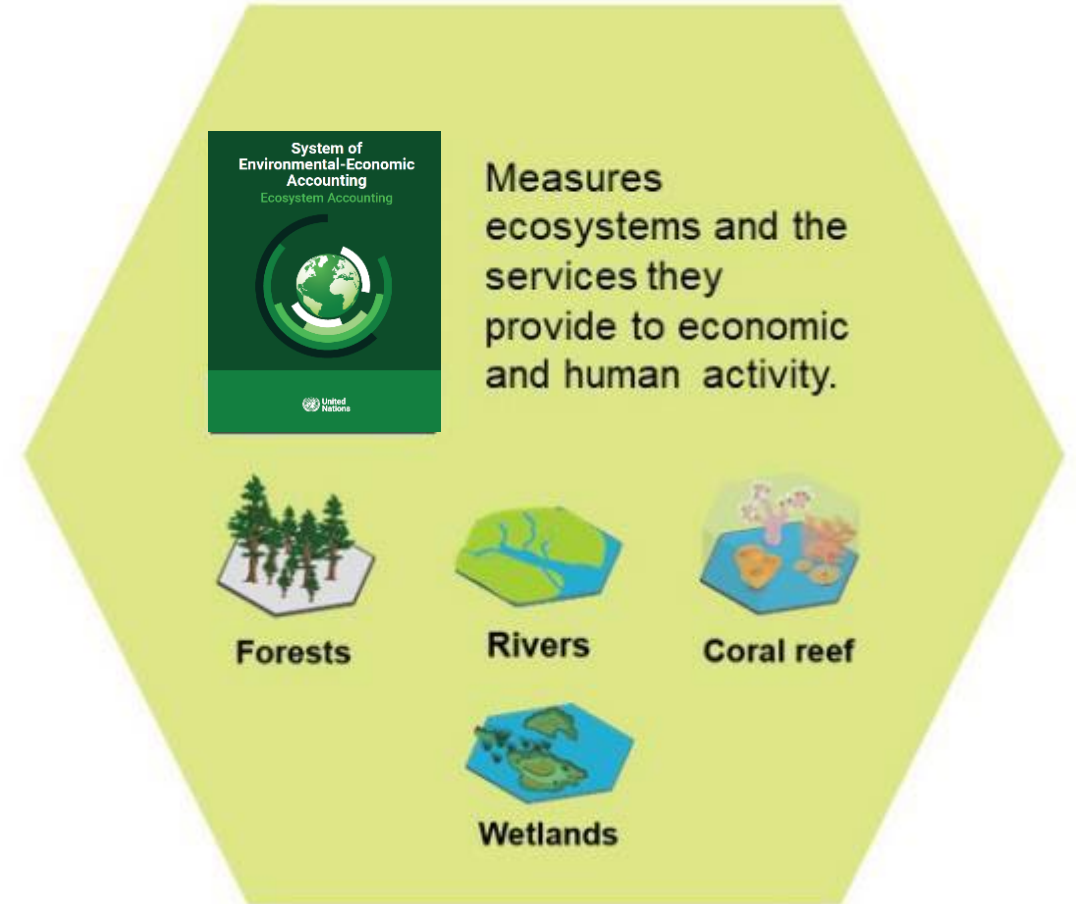
Consistency over time and space

Common language between different communities

Breaks down silos and fosters collaboration

SEEA

SEEA Central Framework and SEEA Ecosystem Accounting – Two sides of the same coin

SEEA

SEEA-related indicators in the GBF

Headline indicators were adopted to monitor each Goal and Target. Indicators related to the SEEA:

- **Extent of natural ecosystems (Goal A)**

- **Services provided by ecosystems (Goal B and Target 11)**

- Sustainable Management of Wild Species (Target 9)

- [Integrating Biodiversity in Decision-Making (Target 14)]

- Domestic public funding, and private funding on conservation and sustainable use of biodiversity and ecosystems (Goal D and Target 19)
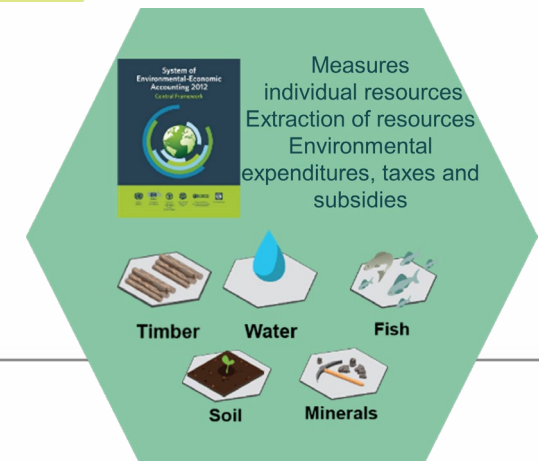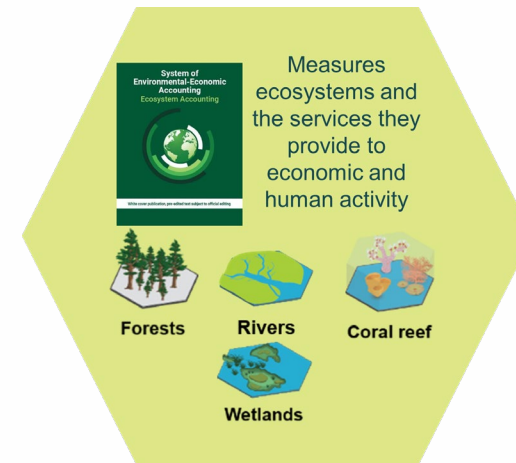
GBF Goal A: Protect and Restore

Three elements:

Headline indicators:

Ecosystems

The integrity, connectivity and resilience of all **ecosystems** are maintained, enhanced, or restored, *substantially increasing the area of natural ecosystems by 2050*;

A.1 Red List of Ecosystems

A.2 Extent of natural ecosystems (based on SEEA Ecosystem Accounting)

Species

Human induced extinction of known threatened **species** is halted, and, by 2050, the extinction rate and risk of all species are reduced tenfold and the abundance of native wild species is increased to healthy and resilient levels;

A.3 Red List Index for Species

Genetic diversity

The **genetic diversity** within populations of wild and domesticated species, is maintained, safeguarding their adaptive potential.

A.4 The proportion of populations within species with an effective population size > 500

SEEA

GBF Goal B: Prosper with Nature

Biodiversity is sustainably used and managed and nature's contributions to people, including ecosystem functions and services, are valued, *maintained and enhanced, with those currently in decline being restored*, supporting the achievement of sustainable development for the benefit of present and future generations by 2050.

Headline indicator
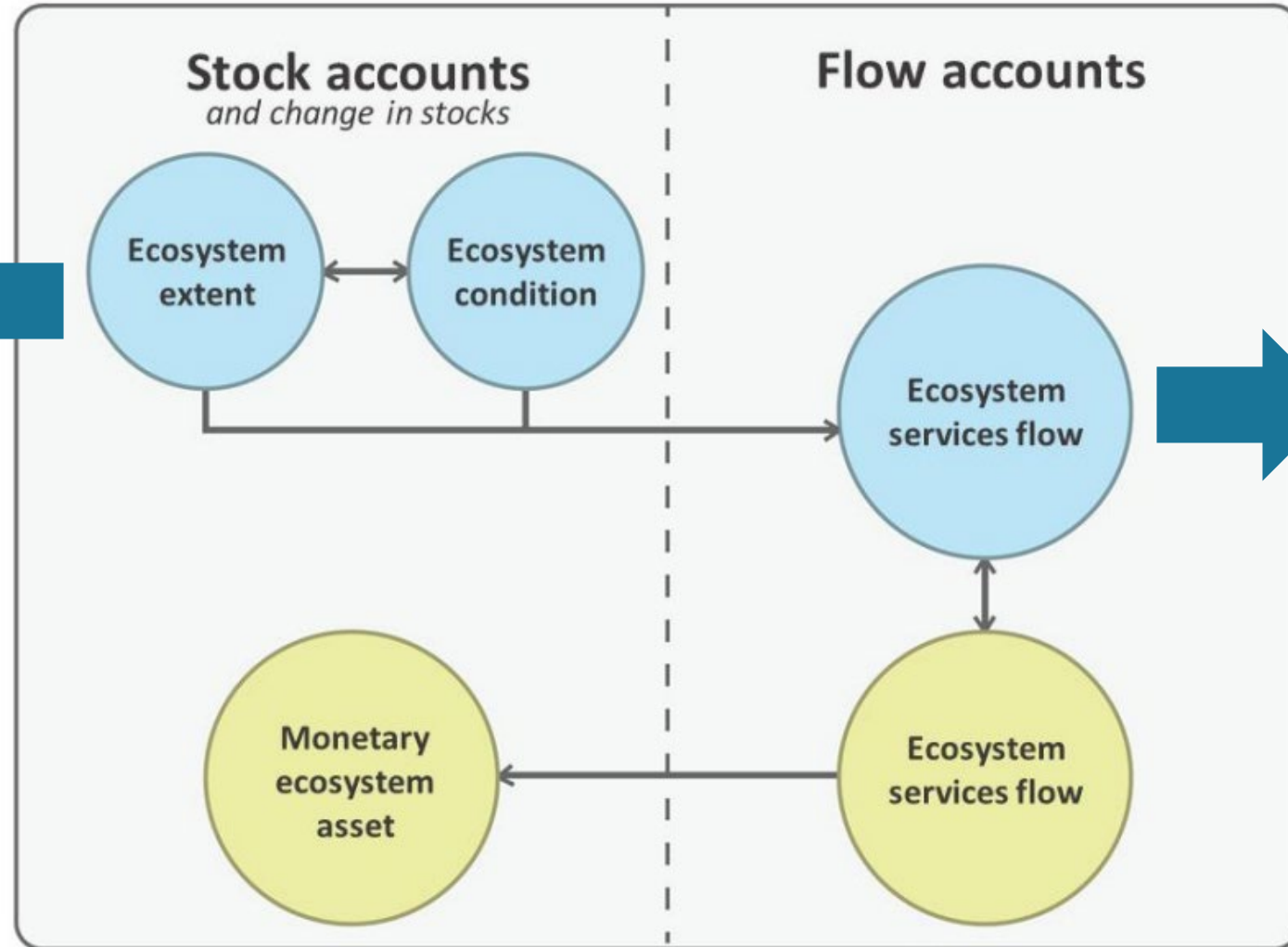
B.1 Services provided by ecosystems

(based on SEEA Ecosystem Accounting)

SEEA

SEEA Ecosystem Accounting – core accounts and the GBF

Ecosystem extent account provides the basis for **Indicator A.2 Extent of natural ecosystems**

Ecosystem services account (physical) provides the basis for **Indicator B.1 Services from ecosystems**

Figure 2.2 from SEEA Ecosystem Accounting

Why is an accounting approach useful for these indicators?

- Accounting tables have a standard **structure** and are based on standard **definitions** and **classifications**

  - Provides consistent information that allows for comparison across time periods and between countries

  - Use of IUCN Global Ecosystem Typology and other relevant classifications

- **Consistency** between measurement of ecosystems and ecosystem services

- Organising **spatial data in an accounting framework** allows consistency from local to national to global levels

  > Supports coherence in planning and decision-making across different scales

- Allows for **integration** of information about ecosystems with information about the economy

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Ecosystem extent account example: South Africa's terrestrial ecosystems, summarized by biome

Natural or semi-natural biomes **Intensively modified biomes**

| Biomes	Albany Thicket	Desert	Forest	Fynbos	Grassland	IOCB	Nama-Karoo	Savanna	Succulent Karoo	Azonal vegetation	Cultivated*	Built-up*	Water-bodies**	TOTAL
Historical extent	3 531 231	626 207	462 518	8 165 366	33 090 325	1 171 284	24 936 548	39 418 522	7 821 579	2 742 873	-	-	-	121 966 453
Additions to extent	0	0	0	0	0	0	0	0	0	0	16 156 026	3 003 883	2 096 528	21 256 437
Reductions in extent	230 091	8 237	70 673	2 253 375	11 330 606	619 656	420 995	5 396 119	251 373	675 312	-	-	-	21 256 437
Net change in extent	(230 091)	(8 237)	(70 673)	(2 253 375)	(11 330 606)	(619 656)	(420 995)	(5 396 119)	(251 373)	(675 312)	-	-	-	
Net change as % of historical	-6,5%	-1,3%	-15,3%	-27,6%	-34,2%	-52,9%	-1,7%	-13,7%	-3,2%	-24,6%	-	-	-	
Closing extent 1990	3 301 140	617 970	391 845	5 911 991	21 759 719	551 628	24 515 553	34 022 403	7 570 206	2 067 561	16 156 026	3 003 883	2 096 528	121 966 453
Opening extent 1990	3 301 140	617 970	391 845	5 911 991	21 759 719	551 628	24 515 553	34 022 403	7 570 206	2 067 561	16 156 026	3 003 883	2 096 528	121 966 453
Additions to extent	44 432	1 142	24 900	241 184	1 444 446	75 114	146 910	1 160 055	38 422	189 954	1 991 959	597 238	288 754	6 244 510
Reductions in extent	36 008	1 260	7 689	196 035	1 180 183	63 783	78 038	885 303	33 631	58 021	2 339 226	400 503	964 606	6 244 286
Net change in extent	8 424	(118)	17 211	45 149	264 263	11 331	68 872	274 752	4 791	131 933	(347 267)	196 735	(675 852)	
Net change as % of opening	0,3%	0,0%	4,4%	0,8%	1,2%	2,1%	0,3%	0,8%	0,1%	6,4%	-2,1%	6,5%	-32,2%	
Net change in relation to historical extent	(221 667)	(8 355)	(53 462)	(2 208 226)	(11 066 343)	(608 325)	(352 123)	(5 121 367)	(246 582)	(543 379)	-	-	-	
Net change as % of historical	-6,3%	-1,3%	-11,6%	-27,0%	-33,4%	-51,9%	-1,4%	-13,0%	-3,2%	-19,8%	-	-	-	
Closing extent 2014	3 309 564	617 852	409 056	5 957 140	22 023 982	562 959	24 584 425	34 297 155	7 574 997	2 199 270	15 808 759	3 200 618	1 420 676	121 966 453

* Cultivated areas, built-up areas and waterbodies are treated as biomes for the purpose of the ecosystem extent account table. There is no reliable spatial information on the historical extent of waterbodies, subsistence cultivation or habitation.

** The large net decrease in the extent of waterbodies reflects primarily that 1990 was a much wetter year than 2014. Waterbodies include both natural and artificial water bodies (such as dams).

Ecosystem services account example: South Africa (KwaZulu-Natal province)

Note range of **different units of measurement**, such as:
- Cubic metres (e.g. of wood, water)
- Tonnes (e.g. of sediment, crops)
- Tg Carbon
- Large Stock Units (number of animals)
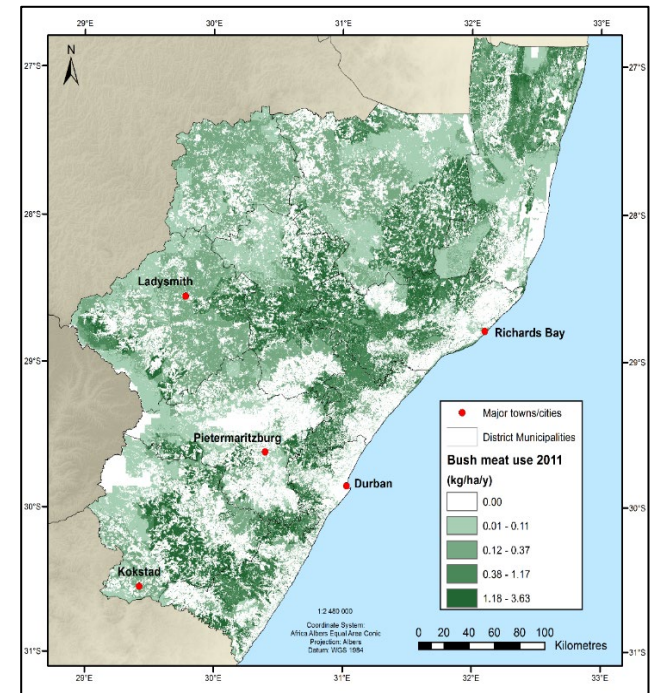
Supply table for 2005, summarised by biome (Use table not shown)

Resource \ Biome	Freshwater ecosystems	Grassland	Indian Ocean Coastal Belt	Savanna	Forests	Estuaries	Cultivated	Urban green space	Total
Wood products (m³)	3 523	695 638	235 125	787 294	267 047	169			1 988 796
Non-wood products (tonnes)	834	46 494	11 489	34 952	2 911	38			96 718
Livestock production (LSU)	1 716	684 698	52 162	289 663	2 010	340			1 030 589
Crop production (tonnes)							43 305 781		43 305 781
Experiential value (R millions)	14	237	179	218	55	24	85	885	1 698
Carbon storage (Tg C)	5	512	61	348	33	0	279		1 237
Pollination (R millions)	0	12	6	31	2	0			51
Flow regulation (million m³)	78	3 315	421	2 198	634	36			6 682
Flood attenuation (R millions)								31	31
Sediment retention (million tonnes)	2	45	6	27	18	2			99
Water quality amelioration (tonnes P)	-	3 829	525	5 394	97	6			9 850

Source: Turpie et al., 2021

THANK YOU

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