

Defining the biodiversity economy with a view to developing a Biodiversity Economy Satellite Account: progress from South Africa

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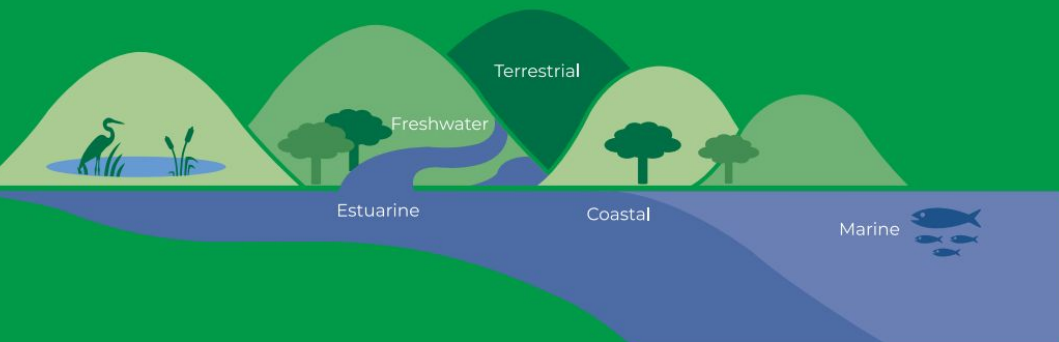
Overview

- Why measure the biodiversity economy?
- Why take a satellite account approach?
- Definition and conceptual framework for the biodiversity economy
- Linking to industry and product classifications
 - Some principles
 - Initial results
- Next steps
- Lessons



Why measure the biodiversity economy?

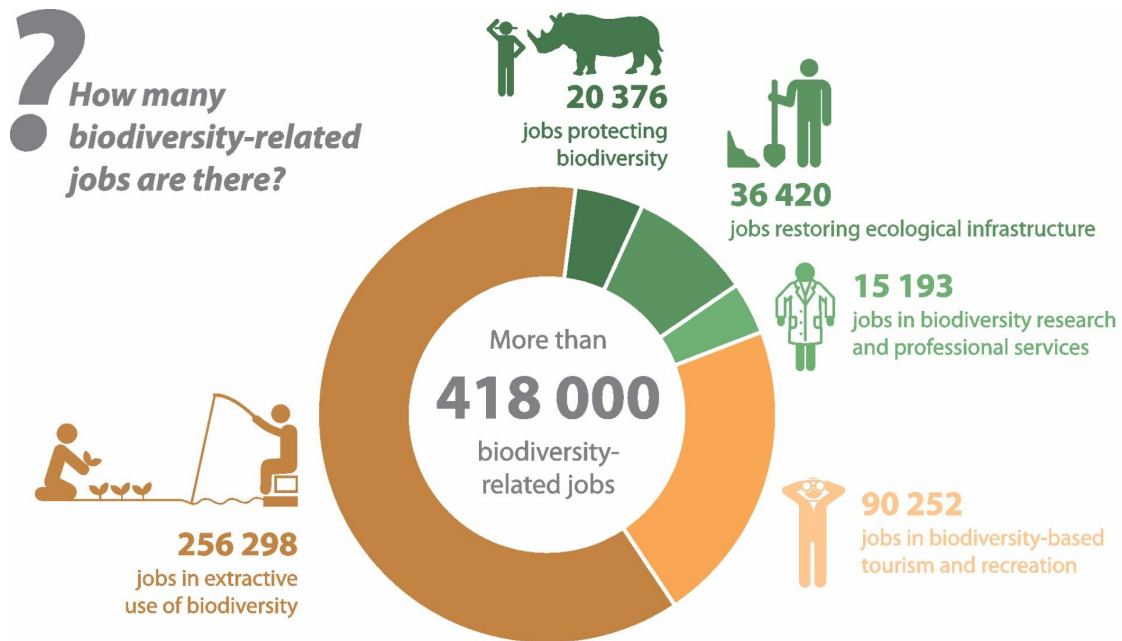
- South Africa has a wealth of biodiversity assets and ecological infrastructure that can contribute to inclusive growth and development
 - Policy interest and relevance, including National Biodiversity Economy Strategy
- Helps to make the case for investment in biodiversity
 - Including in managing and conserving the biodiversity and ecosystem assets that underpin the biodiversity economy



1.2 million km² land ■ 9 biomes ■ 485 terrestrial ecosystem types
1.1 million km² sea ■ 3 oceans ■ 150 marine ecosystem types
222 river ecosystem types ■ 290 estuaries ■ 2 sub-Antarctic islands
1 of 17 megadiverse countries ■ 3 of 36 global biodiversity hotspots
67 000 animal species ■ 20 400 plant species
6 transfrontier conservation areas ■ 26 Ramsar wetlands ■ 10 World Heritage Sites



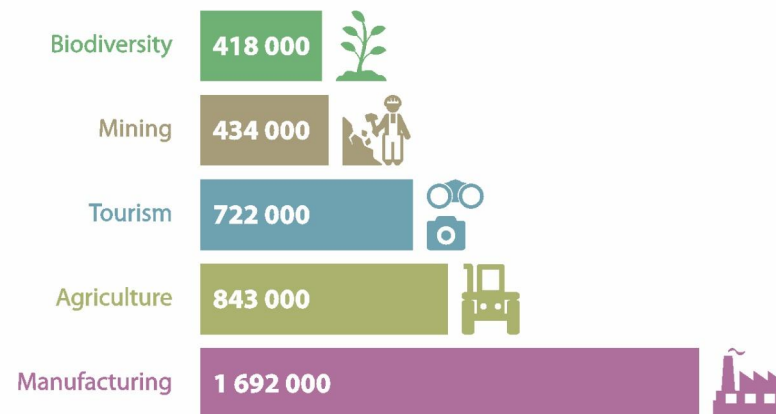
Building on previous work on quantifying biodiversity related employment



For each job dedicated to protecting biodiversity... **1:5** ... there are 5 jobs that depend directly on using biodiversity.

Based on combination of administrative data, existing research on particular sub-sectors, and extracting data from annualized Quarterly Labour Force Survey data

? How do biodiversity-related jobs compare to other sectors?



Only 1% of government spending goes to biodiversity. But this expenditure, with contributions from NGOs and the private sector, makes substantial biodiversity-related employment possible.

Finding from BIOFIN Phase 1: Only 1% of government spending goes to biodiversity

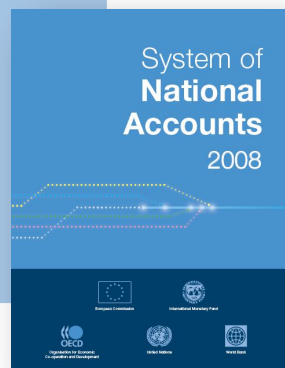


Why take a satellite account approach?

- Based on the traditional set of national accounts data
 - Enables direct links to be drawn to economic growth, employment, government debt and deficit, foreign trade, etc
 - Compelling for policy makers
- Complements SEEA Ecosystem Accounting

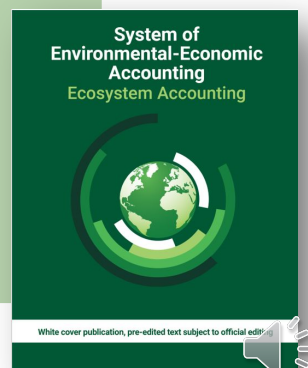
Satellite accounts

- Provide **economic** statistics and indicators
- Focus **inside** the SNA production boundary



Ecosystem accounts

- Provide **environmental** statistics and indicators
- Focus **outside** the SNA production boundary



Defining the biodiversity economy

From South Africa's **National Biodiversity Economy Strategy**:

The biodiversity economy consists of businesses and other economic activities that either *directly depend* on biodiversity for their core business or that *contribute* to conservation of biodiversity through their activities

Adapted from a WWF definition proposed in 2012



Conceptual framework for the biodiversity economy

Biodiversity-related economic activity

A. Conserving biodiversity
(sectors/activities that contribute directly to conserving or managing biodiversity)

A1. Protecting and managing biodiversity assets

A2. Maintaining and restoring ecological infrastructure

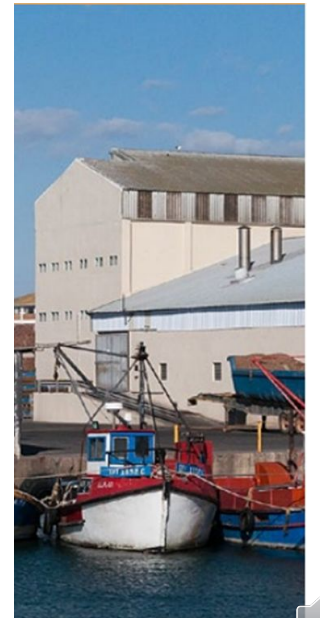
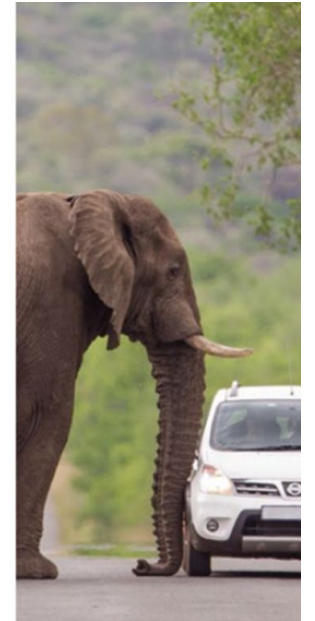
A3. Research and professional services

B. Using biodiversity
(sectors/activities that depend directly on utilising biodiversity)

B1. Non-consumptive use of biodiversity

B2. Extractive use of biodiversity

Focus is on natural or semi-natural ecosystems and indigenous species



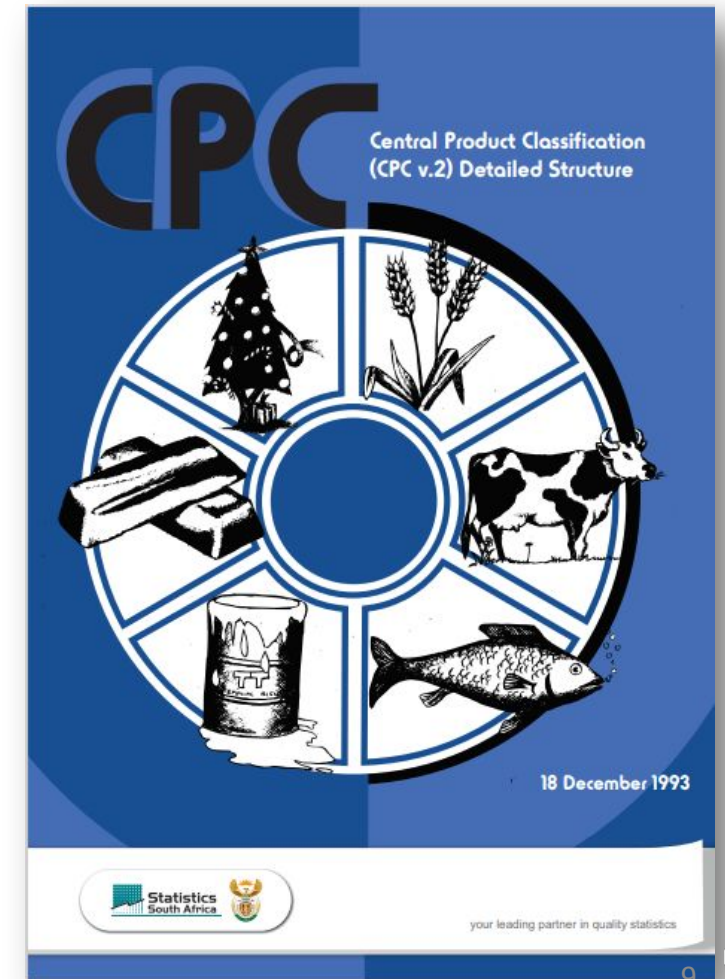
How does this differ from related concepts?

- Narrower than **green economy**
 - Which includes e.g. renewable energy, recycling, green buildings, sustainable transport
- Overlaps with the **Classification of Environmental Activities** in SEEA Central Framework (used to define the Environmental Goods and Services Sector)
 - **Group I Class 6 Protection of biodiversity and landscapes** links closely to Subcategory A1 Protecting and managing biodiversity assets
 - **Group II Resource Management** could be expanded to include Subcategory A2 Maintaining and restoring ecological infrastructure
- **Not all ecosystem services** are related to the biodiversity economy
 - Ecosystem services from (most) intensively modified ecosystem types aren't considered part of the biodiversity economy based on our definition



Linking to industry and product classifications

Supply and Use Tables
from the national
accounts cover
118 products and services
across
213 industries



Approach

For each industry and product code at the 3-digit level, we assessed:

- Included in the biodiversity economy? (yes or no)
- Degree of inclusion (indicated as a percentage range)
- Rationale for inclusion, with examples
- Category and sub-category of the biodiversity economy into which is best fits
- Areas of research for further refinement or increased certainty



Approach

Each code assigned to one of four groups based on an estimate of the proportion of activities/products related to biodiversity:

- All or most (> 80%)
- Some (between 20% and 80%)
- Few (< 20%)
- None (0%)

Broad bands reflect uncertainty

- not possible to be precise
- can refine over time with targeted research

Similar to the approach used in
Eurostat's EGSS accounts



Principles

1. Use the definition of the biodiversity economy, and keep coming back to it!
2. Where an activity is considered part of the biodiversity economy, no part of that activity is excluded because it has a negative environmental impact
3. All economic activities related to indigenous species are included
4. All economic activities that depend on natural ecosystems are included
5. Non observed activities in the biodiversity economy are included (inclusive of subsistence, informal and illegal activities)
6. Activities are included even where the proportion related to biodiversity is currently estimated to be negligible (less than 5%)
7. Activities that may be considered to be part of the green economy more broadly, but that are not directly related to biodiversity, are excluded



In Category B Using biodiversity:

- Activities or products that depend **either on natural ecosystem types or on indigenous species, or both**, are considered part of the biodiversity economy.
- Activities or products that depend on **exotic species in intensively managed ecosystem types** are not considered part of the biodiversity economy.

Indigenous species	Indigenous species in intensively modified ecosystems e.g. intensive ostrich farming, rooibos tea cultivation	Indigenous species in natural ecosystems e.g. wild harvesting of medicinal plants
	Exotic species in intensively managed ecosystems e.g. intensive livestock farming, timber plantations	Exotic species in natural ecosystems e.g. grass-fed livestock in natural rangelands
Exotic species	Intensively managed ecosystem type	Natural ecosystem type



Initial results from linking to industry and product classifications

Table 3: Summary of results for industry codes

Proportion related to biodiversity	Number of SIC codes	% of total number of codes
All or most (>80%)	2	0.9%
Some (20-80%)	1	0.5%
Few (<20%)	36	16.9%
None	174	81.7%
Total	213	100%

Very few codes fall in “All or most” or “Some”

“Few” is the most challenging group – further research needed to firm up judgement calls

Table 4: Summary of results for product codes

Proportion related to biodiversity	Number of CPC codes	% of total number of codes
All or most (>80%)	3	2.5%
Some (20-80%)	1	0.8%
Few (<20%)	35	29.7%
None	79	66.9%
Total	118	100%



□ Industries

SIC code (3-digit level)	Industry description	Estimated proportion related to biodiversity			BDE category (<u>majority</u> fit)
		All or most (>80%)	Some (20-80%)	Few (<20%)	
115	Game hunting, trapping and game propagation, including related services	✓			B2
131	Ocean and coastal fishing	✓			B2
963	Library, archives, <u>museums</u> and other cultural activities		✓		A3

Products □

CPC code (3-digit level)	CPC group name	CPC group description	Estimated proportion related to biodiversity			BDE category (majority fit)
			All or most (>80%)	Some (20-80%)	Few (<20%)	
041-042, 049	Fish and other fishing products	Fish, crustaceans, oysters, other molluscs and aquatic, other aquatic plants	✓			B2
180	Natural water	Natural water	✓			B1
212	Prepared and preserved fish	Fish, frozen; dried; crustaceans, <u>molluscs</u> and other aquatic invertebrates	✓			B2
961-966, 969	Recreational, <u>cultural</u> and sporting services	Museum and preservation services, Botanical, zoological and nature reserve <u>services</u> , Sports and recreational sports services		✓		B1



Next steps

- Extract data from SUTs to compile the satellite account
 - first draft of the account
- Requires choosing a particular proportion from within the range for each code

Table 8: Proposed proportions to be used to calculate the economic contribution of the industries and products identified as biodiversity-related to GDP and employment

Group to which industry/product code allocated	Proposed proportion to be used to extract data from SUTs	Alternative proportions that could be used for sensitivity testing	
		Conservative	Generous
All or most (estimate >80% related to biodiversity)	85%	80%	90%
Some (estimate 20-80% related to biodiversity)	40%	30%	50%
Few (estimate <20% related to biodiversity)	3.5%	1%	5%

First draft will help to inform research priorities



Lessons

1. Defining the biodiversity economy is a novel and complex task that should be guided by principles developed in consultation with key national experts
2. Having a small core technical working group is essential
3. Hold multiple shorter meetings to avoid fatigue
4. Involve additional experts as needed to help get better estimates
5. Allow time in the process for unpacking concepts (even repeatedly) to get to common understanding
6. Make assumptions based on best available knowledge or expert judgement, take note of gaps and areas for future research but don't get stuck



Questions for the London Group

- Is a Biodiversity Economy Satellite Account likely to be a useful tool in contexts other than South Africa?
- Is the proposed conceptual framework for the biodiversity economy, including the distinction between the green economy and the biodiversity economy, useful?
- Is this work relevant to classifications or approaches in the context of the SEEA or the Environmental Goods and Services Sector?



THE BIODIVERSITY ECONOMY

BUILDING BUSINESS FROM BIODIVERSITY

