

Natural Capital Accounting

What is it and how can it add value?

Mandy Driver

National NCA Forum

10-11 July 2019

Statistics South Africa Auditorium, Pretoria



stats sa
Department:
Statistics South Africa
REPUBLIC OF SOUTH AFRICA



environmental affairs
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SANBI 
Biodiversity for Life
South African National Biodiversity Institute



United Nations



UN
environment



System of
Environmental
Economic
Accounting

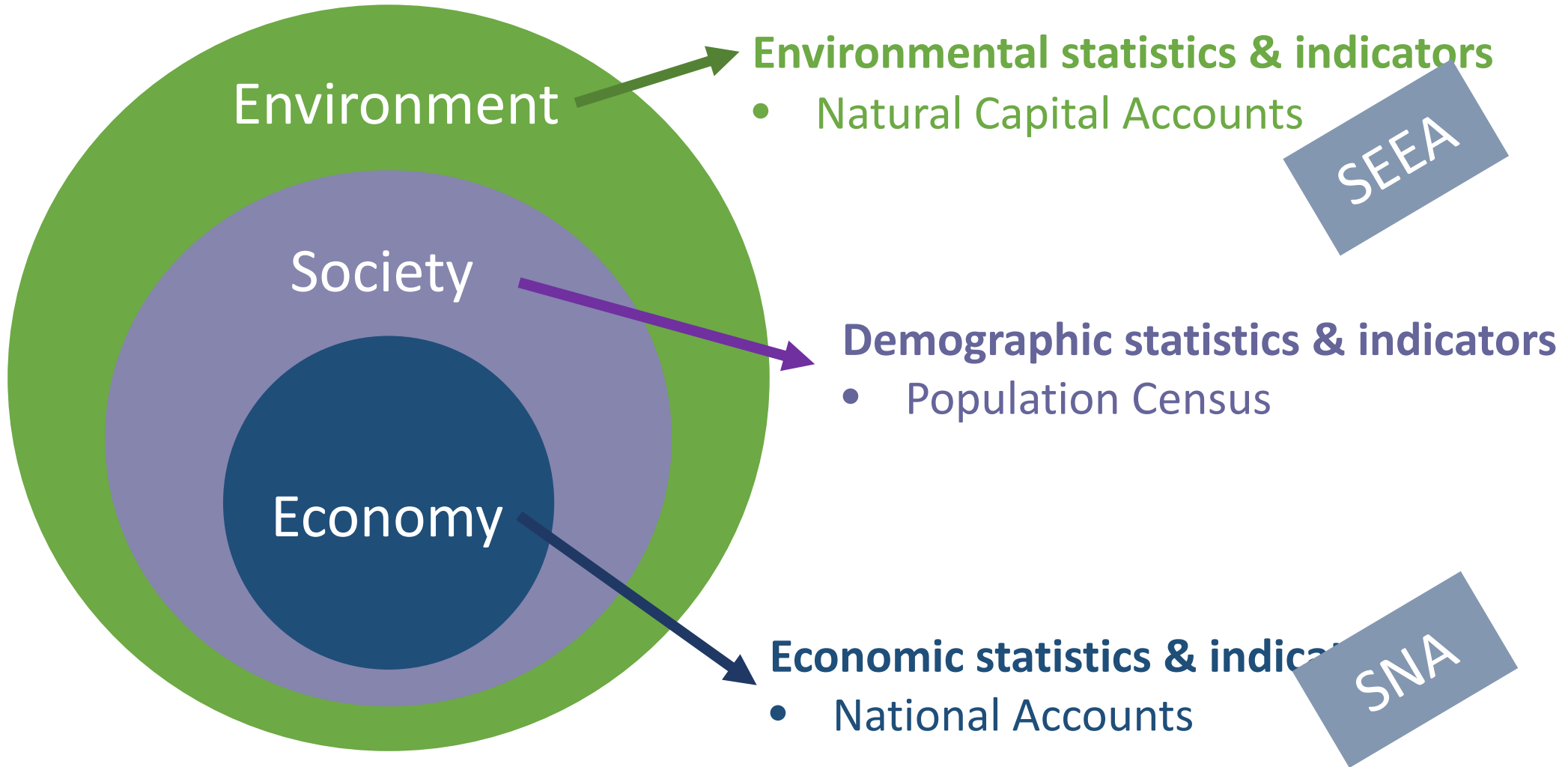


NDP

Overview

- What is Natural Capital Accounting and why does it matter?
- How does NCA link to the national policy context?
- Why is South Africa considered a global leader in NCA?

Sustainable Development



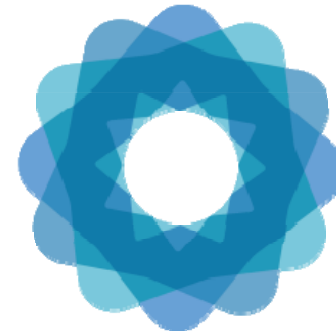
NCA is also known as “**environmental-economic accounting**”.
It includes...

e.g. minerals,
water, timber,
fisheries



The scope of SEEA is broad

- Water, minerals, energy, carbon, timber, fisheries, ecosystems, environmental expenditure...



**System of
Environmental
Economic
Accounting**

SEEA is a measurement framework

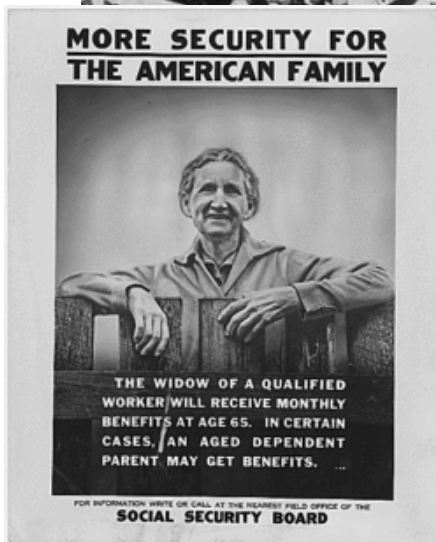
Using SEEA does not necessarily imply monetary valuation

What is the “accounting approach”?

How do accounts add value?

- Standardised concepts and definitions
- Systematic regular measurement and recording, comparable over time
 - BUT don't have to wait for perfect data
- Provides info that can be used in many contexts
 - e.g. policy, research (think of the many ways population census data is used)
- NCA translates scientific information about natural resources and ecosystems into a language that reaches a wide range of audiences

National accounts developed in response to the Great Depression in 1930s
Global economic crisis → need to understand what's happening in the economy



Alabama Family 1935 or 1936

National Product

since

1869

First estimates of economic production at national level
Published 1946

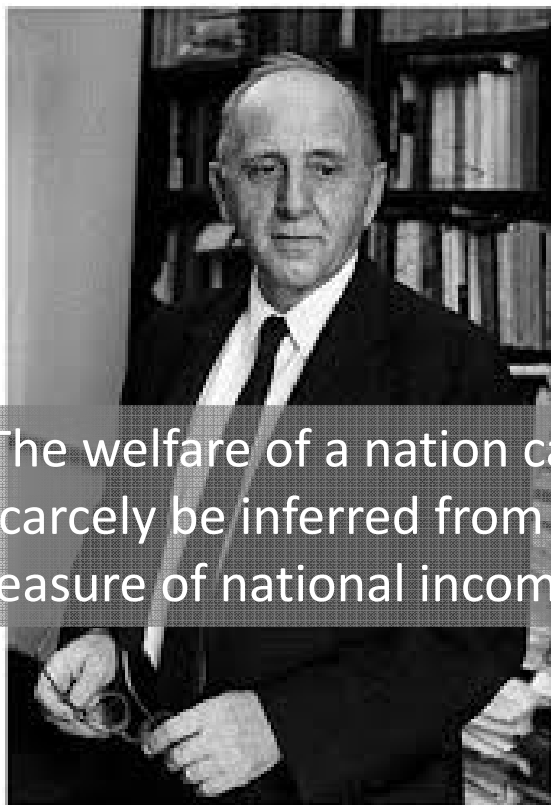
System of
National
Accounts
2008

(first version published early 1950s)

Headline indicator: GDP
Also lots of detailed info about structure of the economy



Organisation for Economic Co-operation and Development



“The welfare of a nation can scarcely be inferred from a measure of national income”

Simon Kuznets

Born 1901, Belarus

Moved to US in early 1920s

Developed first official national accounts for US



Founders of national accounts were strongly aware of limitations e.g. not a measure of well-being

Nevertheless, GDP gained momentum as **THE** measure of economic performance

Richard Stone

Born 1913, London

Developed first official national accounts for UK

Won Nobel Prize in Economics for this work

Limitations of GDP are drawing increasing attention – measures mainly what is transacted in markets

NATURE | VOL 505 | 16 JANUARY 2014

“GDP is dangerously inadequate as a measure of quality of life.”



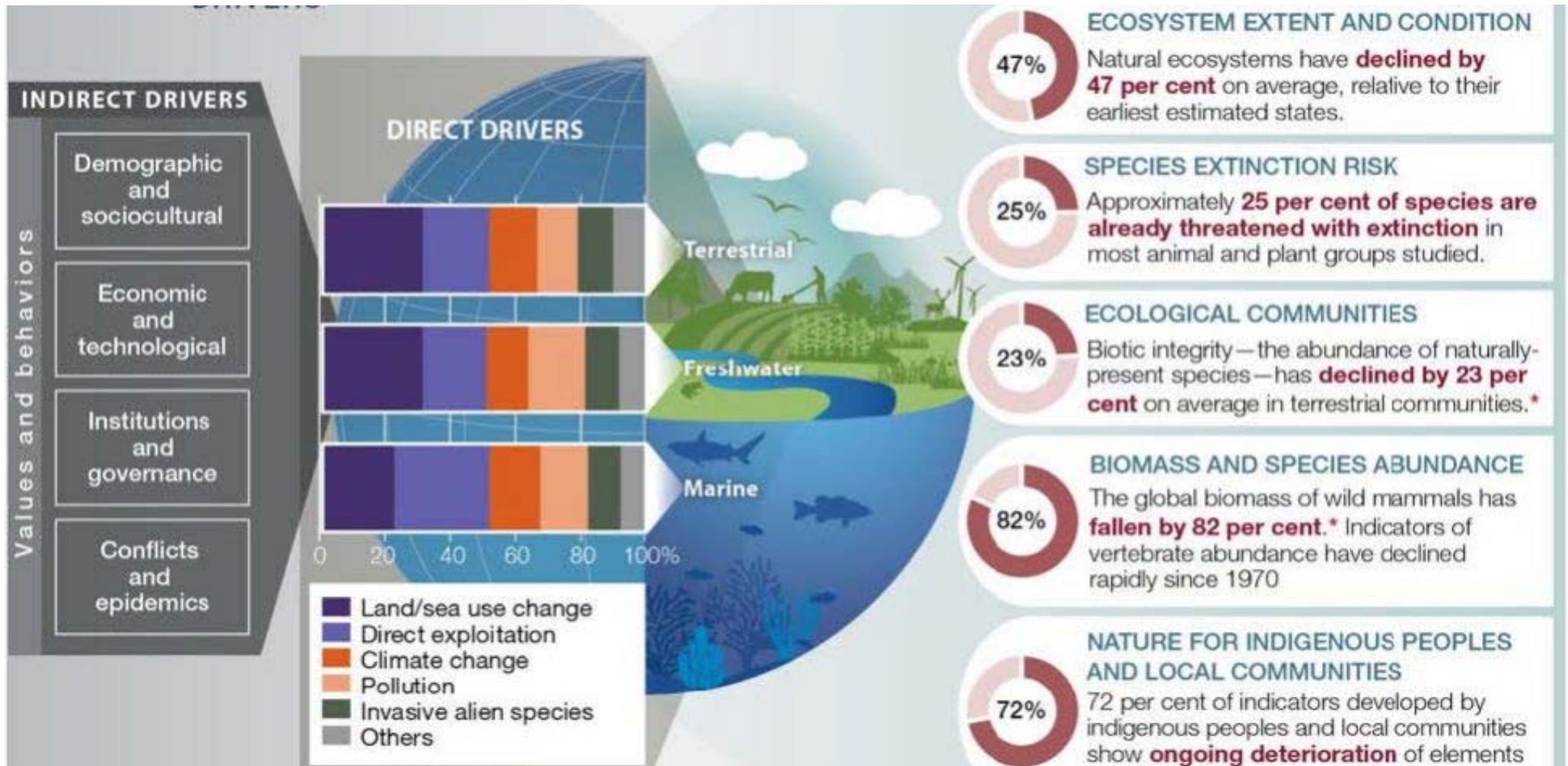
*“We are degrading natural capital at an unsustainable rate because accounting for economic output (**GDP**) does not include the costs of degradation to the natural capital on which much of our economic activity is based”*

Time to leave GDP behind

Gross domestic product is a misleading measure of national success. Countries should act now to embrace new metrics, urge Robert Costanza and colleagues.



First global assessment of biodiversity & ecosystems has highlighted pressures on nature and consequences



Natural Capital Accounts

→ Response to **global environmental crisis**

- Need to understand what's happening in the natural environment and its implications for the economy and society
- Can't plan and make evidence-based decisions without credible information



How does NCA link to the national policy context in South Africa?

- Calls for evidence-based policy making
- Need for national environmental indicators
- National Spatial Development Framework
- Land-use planning
- Natural resource management

Calls for evidence-based policy making

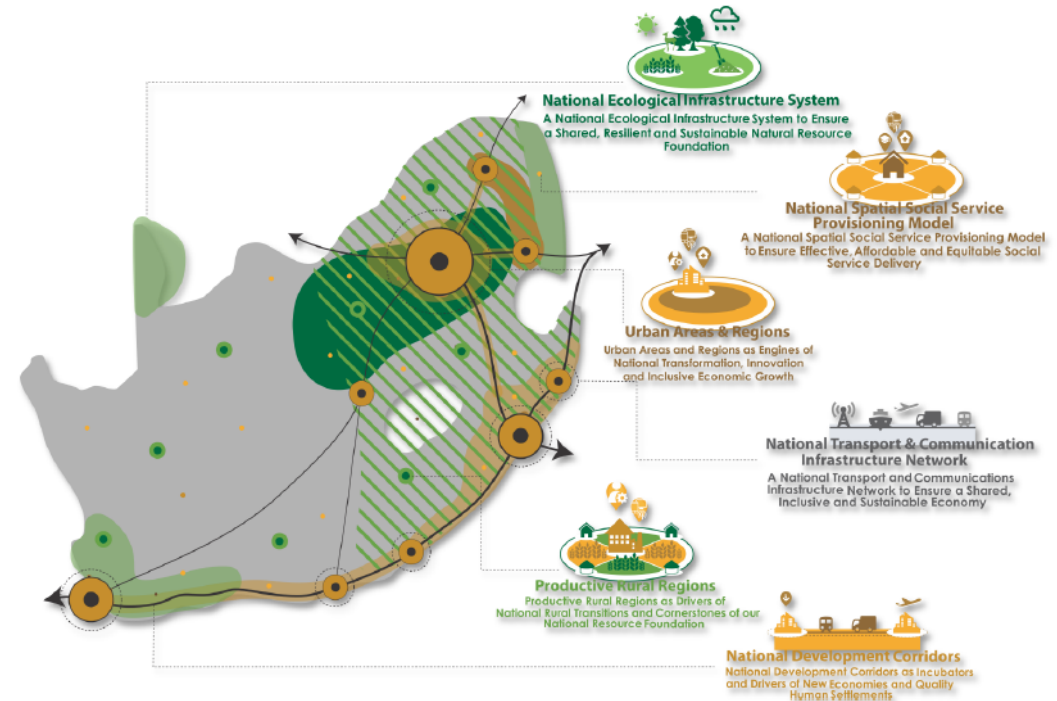
- **Presidency's** policy framework for the **Government-wide Monitoring and Evaluation System (GWM&ES)**
 - emphasises the importance of data to support evidence-based decision-making
- **National Treasury's** Framework for Managing Programme Performance Information
 - Requires inclusion of financial, economic and environmental sustainability performance information, including 'accounting for sustainability'
- **NDP** calls for environmental indicators to inform decision-making



Recently completed NSDF...



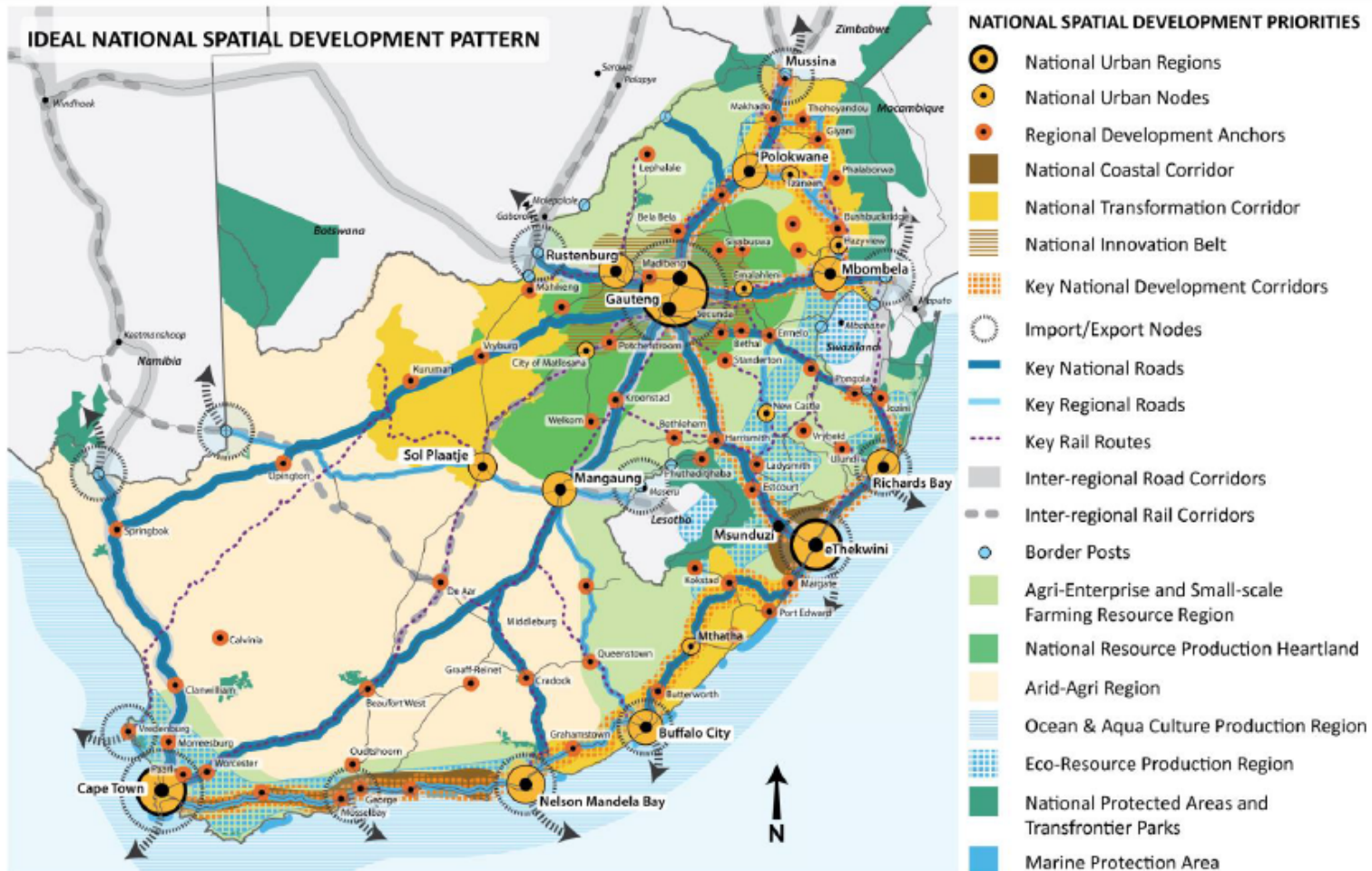
National Spatial Development Levels



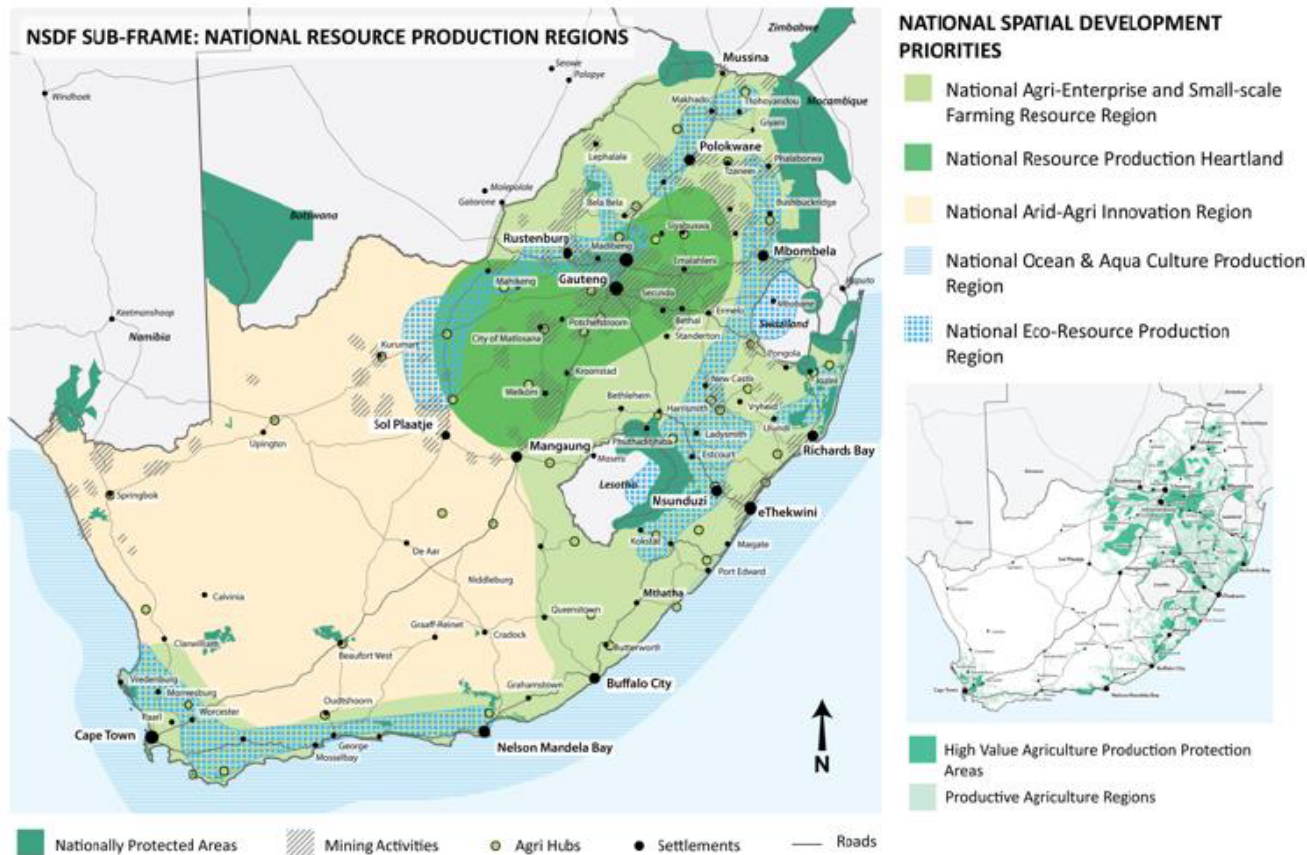
- Introduces concept of **National Ecological Infrastructure System** as a national spatial development lever to support spatial transformation

NSDF Ideal national spatial development pattern

NSDF: The Ideal Post-Apartheid Spatial Development Pattern



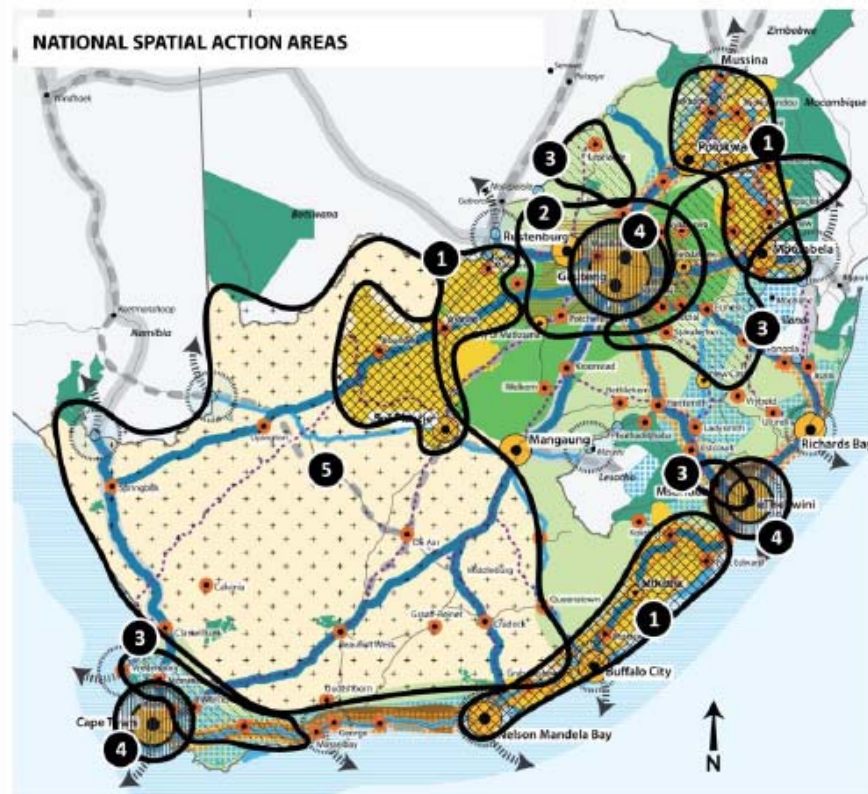
NSDF Sub-frame 3 of 5: National ecological infrastructure and natural resource base



Includes:

- Strategic Water Source Areas
- Critical Biodiversity Areas
- Protected areas
- Rivers and dams

NSDF National Spatial Action Areas



NATIONAL SPATIAL DEVELOPMENT PRIORITIES

- National Urban Regions
- National Urban Nodes
- Regional Development Anchors
- National Coastal Corridor
- National Transformation Corridor
- National Innovation Belt
- Key National Development Corridors
- Import/Export Nodes
- Key National Roads
- Key Regional Roads
- Key Rail Route
- Inter-regional Road
- Inter-regional Rail
- Border Posts
- Agri-Enterprise Farming Resources
- National Resource Risk Area
- Arid-Agri Region
- Ocean & Aquatic Resources
- Eco-Resource
- National Protected Areas and Transfrontier Parks
- Marine Protection Area

Includes:

- Natural Resource Risk Areas

NCA can provide systematic evidence of progress in implementing the NSDF over time

- 1 National Transformation Corridors:**
(1) Coastal Transformation Corridor; (2) Escarpment Transformation Corridor; and (3) Northwestern Transformation Corridor
- 2 Central Innovation Belt:** Emalahleni – Siyabuswa – Rustenburg – City of Matlosana - Sasolburg

- 3 National Resource Risk Area:** (1) Upper Vaal, (2) Olifants, (3) Waterberg, (4) uMngeni, and (5) Berg and Breede
- 4 National Urban Regions**
- 5 Arid Innovation Region**

Municipal land-use planning

Supporting implementation of the Spatial Planning & Land Use Management Act (SPLUMA)

→ Including Spatial Development Frameworks

NCA can provide detailed spatial information to support municipalities



Investment in ecosystem restoration

Environmental public works programmes in South Africa create thousands of work opportunities every year

NCA can help answer key questions:

- Which ecosystems are priorities for intervention?
- What is the return on investment?



e.g. Wetland restoration through Working for Wetlands Programme

Photo: Ellen Elmendorp

Why is South Africa considered a leader in NCA, specifically ecosystem accounting?



We are building on a firm base...

NCA in South Africa

A timeline

2000

WATER ACCOUNTS



South Africa's water accounts were first developed for nine Water Management Areas and have been updated since then to conform to the System of Environmental Economic Accounts (SEEA) international standard.

New accounts have been finalised and were released by Water Research Commission in partnership with Stats SA.

2010

FISHERY ACCOUNTS

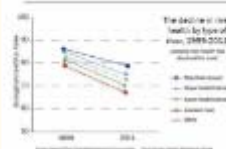
These accounts cover hake, west and south coast rock lobster, abalone and cape horse mackerel for the period 1990-2015. The accounts were published in the form of a discussion document.



2015

RIVER ACCOUNTS

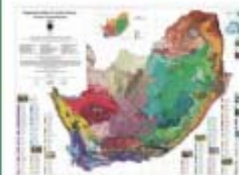
South Africa joins six other countries in the Advancing Natural Capital Accounting (ANCA) project jointly implemented by the UN Statistics Division and UN Environment in partnership with the Secretariat of the Convention on Biodiversity.



The project, funded by the Government of Norway, produced national river ecosystem accounts showing an overall 10% decline in river health from 1999-2011.

2017

TERRESTRIAL AND MARINE ACCOUNTS



Building on the success of ANCA, South Africa joins four other countries in the European Union-funded Natural Capital Accounting and Valuation of Ecosystem Services (NCA&VES) project.

Work is underway to develop a range of national-level ecosystem asset accounts.

2018

WATER SECURITY

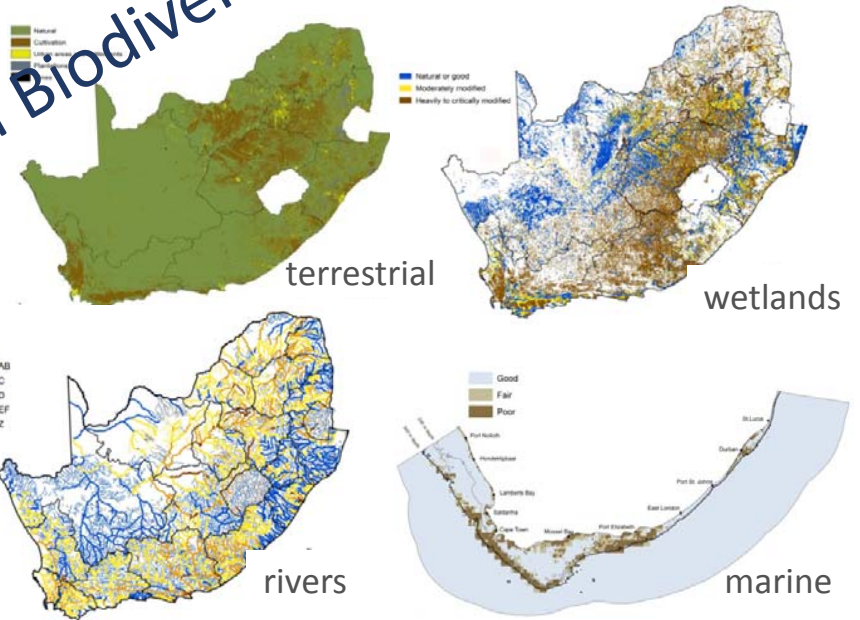
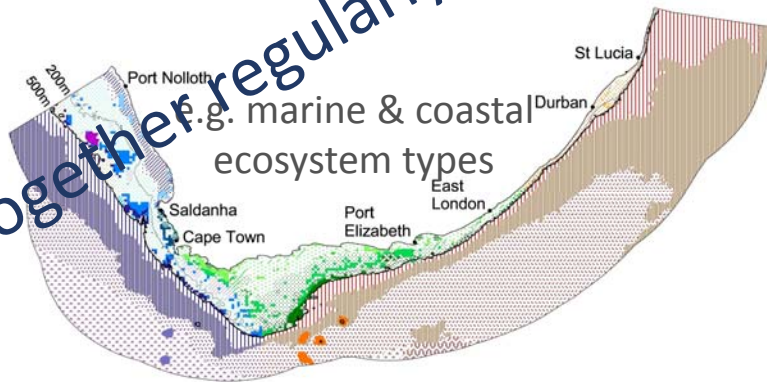
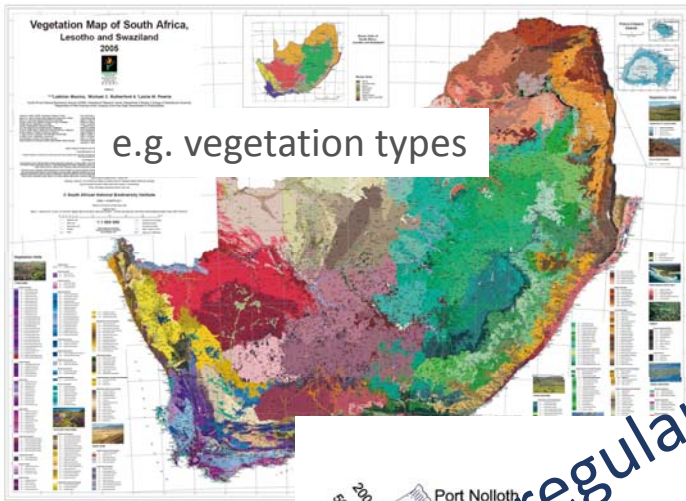
Funded by the Global Environment Facility, implemented by the Development Bank of Southern Africa, and executed by SANBI in partnership with others, including the Department of Water and Sanitation, World Wildlife Fund and Stats SA, the Ecological Infrastructure for Water Security project will develop new water and other ecological infrastructure accounts.



Ecosystem accounting work draws on decades of biodiversity science

→ Classification & mapping of ecosystem types

→ Maps of ecological condition



Pulled together regularly for the National Biodiversity Assessment

Also now have *time series* land cover for the first time
→ 1990 and 2014 available, 2018 coming soon

New National Land Cover datasets for South Africa

brought to you by



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



rural development
& land reform

Department:
Rural Development and Land Reform
REPUBLIC OF SOUTH AFRICA

The new **2018** South African National Land Cover (NLC) dataset, with 73 information classes, will be available soon from **DEA** and **DRDLR**.

The new 2018 NLC data is comparable to the 1990 and 2013/14 NLC's, providing a consistent time series for landscape change detection.

The 2018 NLC dataset is generated from 20m resolution satellite imagery and contains 73 land-cover/use classes.

Access details will be posted shortly

marketing@geoterraimage.com

www.geoterraimage.com



Commitment from DEA to produce National Land Cover every two years



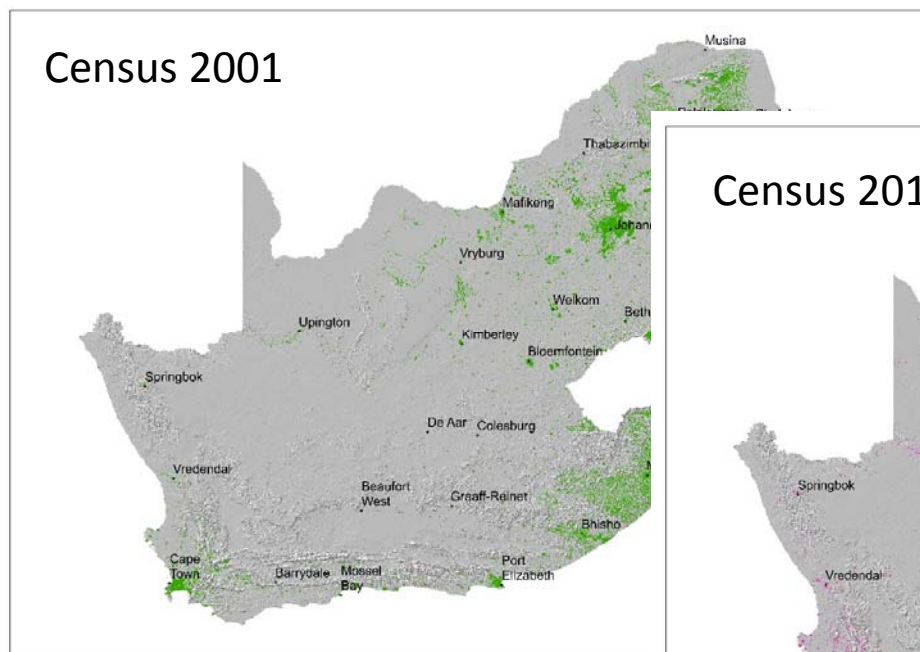
SA has a long history of spatially detailed population census data

Census 1996

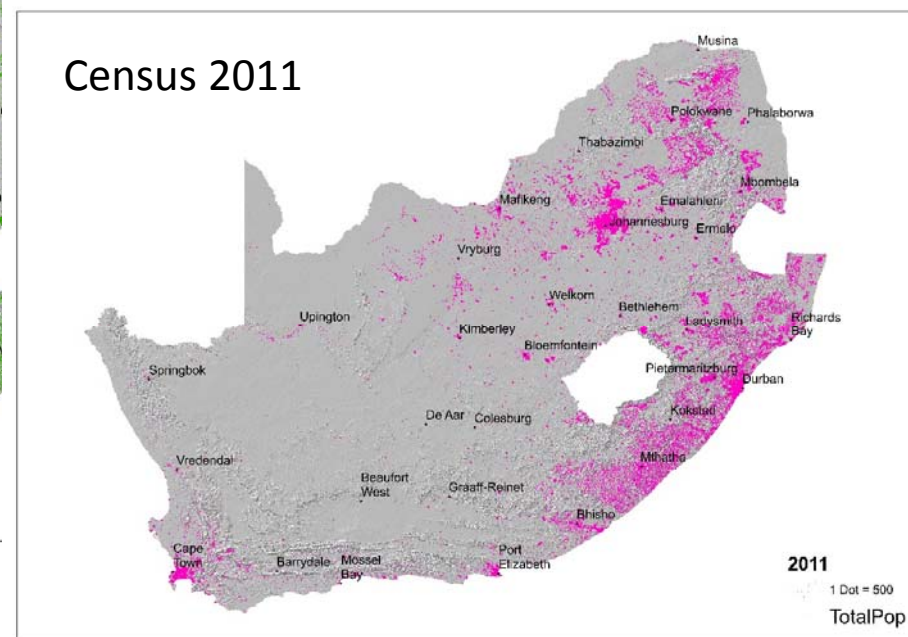


1 dot = 500 people

Census 2001



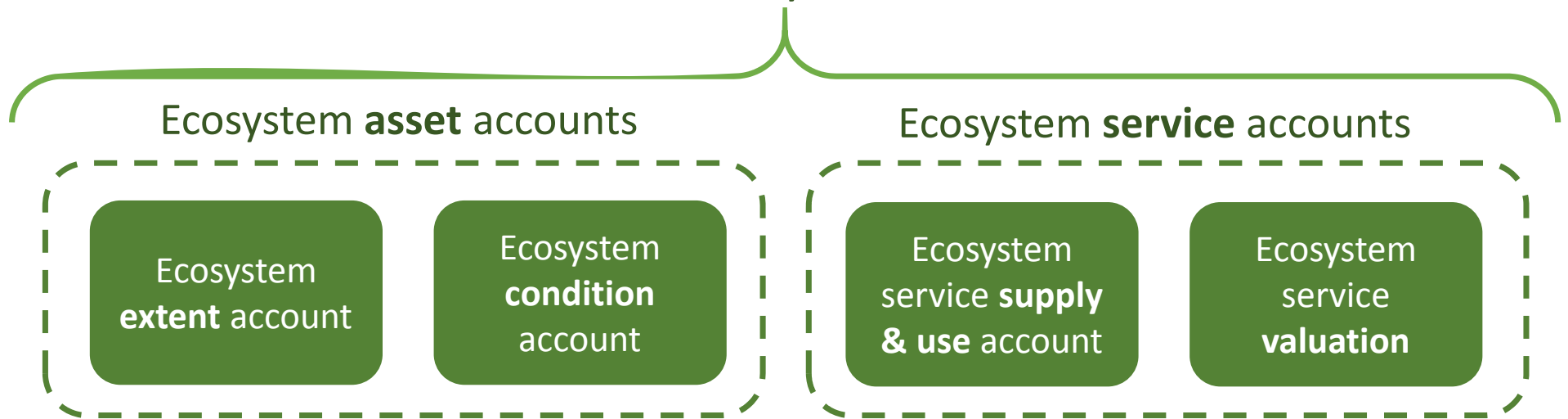
Census 2011



→ Powerful basis for making links between environment and people

Overview of ecosystem accounts

Core set of ecosystem accounts



	Eco type 1		Eco type 2		
	ha	cond	ha	cond	ha	cond
Opening balance						
Increases						
Decreases						
Reappraisals						
Closing balance						

Possible supplementary accounts



Initial ecosystem accounts as part of Advancing Natural Capital Accounting (ANCA), 2014-2015



Seven pilot countries:

Bhutan, Chile, Indonesia, Mauritius, Mexico, **South Africa**, Vietnam

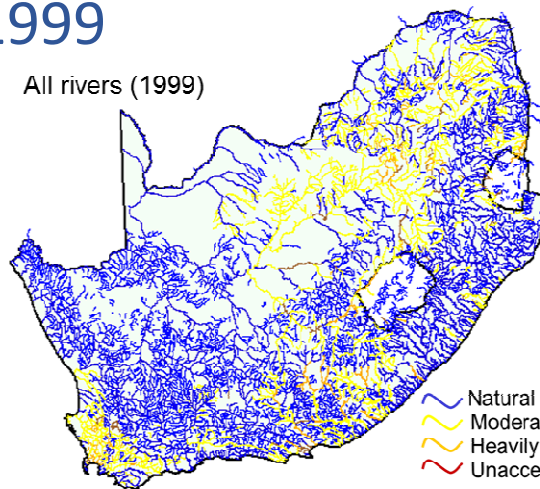
ANCA project: National River Ecosystem Accounts: Extent and condition of river ecosystem assets

Based on data from two
detailed national
assessments by
Department of Water
& Sanitation



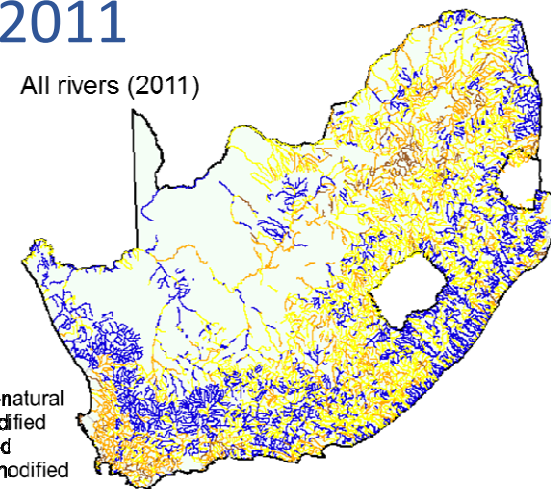
1999

All rivers (1999)



2011

All rivers (2011)



- ~ Natural or near-natural
- ~ Moderately modified
- ~ Heavily modified
- ~ Unacceptably modified

Ecological condition
indicators

- Flow
- Water quality
- Instream habitat
- Riparian habitat

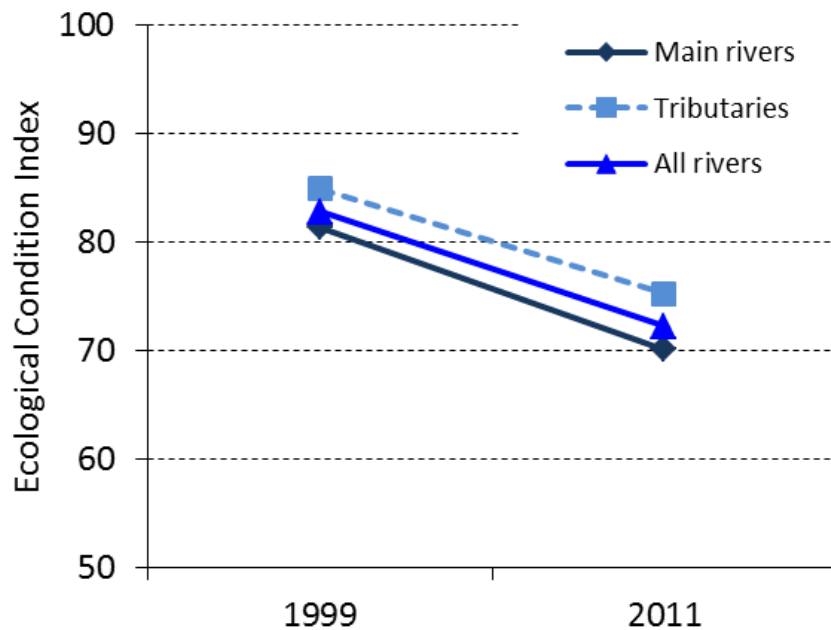
Aggregated
ecological
condition
category

Ecological
Condition
Index



Highest level summary of the Ecological Condition Account:

	Main rivers	Tributaries	All rivers
1999	81.3	84.9	82.8
2011	70.1	75.2	72.2
Change between 1999 and 2011	-11.2	-9.7	-10.6



Overall
10% decline in
ecological condition
of rivers
1999 - 2011

Information for
national policies,
such as
**National Water
& Sanitation
Master Plan**

Now building on this with Natural Capital Accounting & Valuation of Ecosystem Services (NCA&VES) project

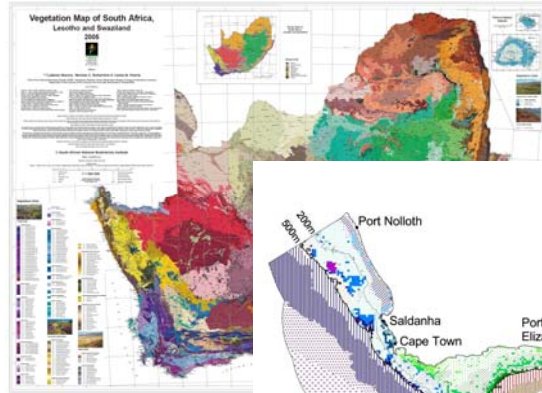


Five pilot countries: Brazil, China, India, Mexico, South Africa

Accounts to be produced in NCA&VES Project in South Africa

National

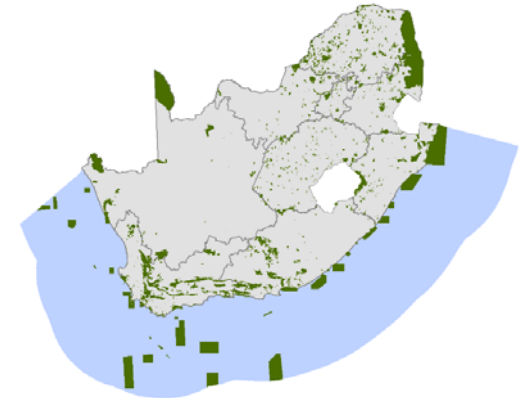
National ecosystem asset accounts – terrestrial & marine, extent & condition



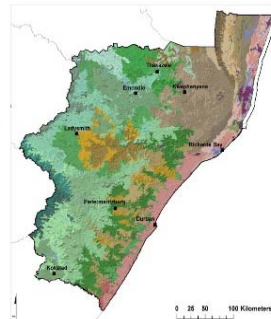
Species accounts – rhino, cycads



Protected area accounts – terrestrial & marine



Sub-national



KZN: Full suite of ecosystem asset and ecosystem service accounts

City-regions: land and ecosystem accounts for selected metros





ECOLOGICAL INFRASTRUCTURE FOR
WATER SECURITY

Unlocking development finance to secure ecological infrastructure for water security in critical water catchments



...and Ecological Infrastructure for Water Security (EI4WS) project (2018 – 2022)

Includes a component on natural capital accounting



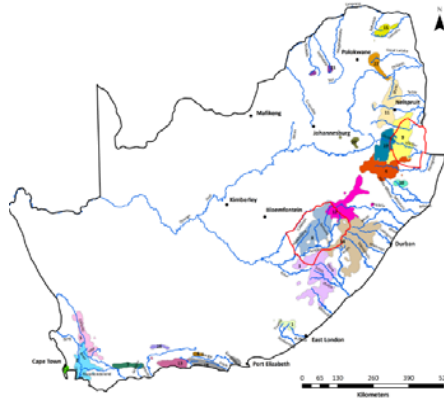
Environmental Affairs
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Water and Sanitation



Accounts to be produced in Ecological Infrastructure for Water Security (EI4WS) project

National

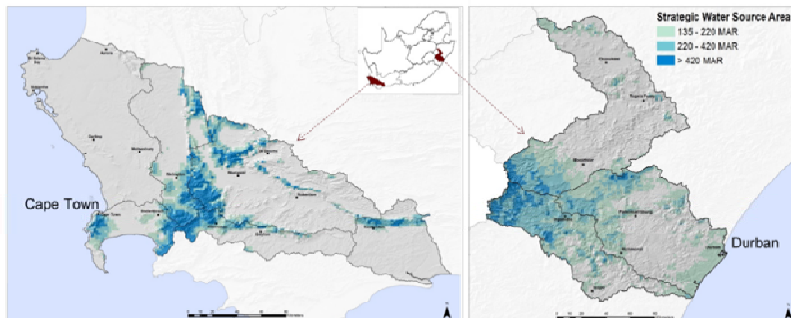
Accounts for **Strategic Water Source Areas** – the 10% of land that delivers 50% of water



Sub-national

Demo catchments:

- Catchment-level **water resource** accounts
- Accounts for **ecological infrastructure assets**



Specifically aimed to support policy and decision making throughout the **water value chain**, in which ecological infrastructure supports and enhances built infrastructure

→ Accounts can enable analysis of **return on investment** in water-related ecological infrastructure



Environmental Affairs
Science and Technology
Water and Sanitation

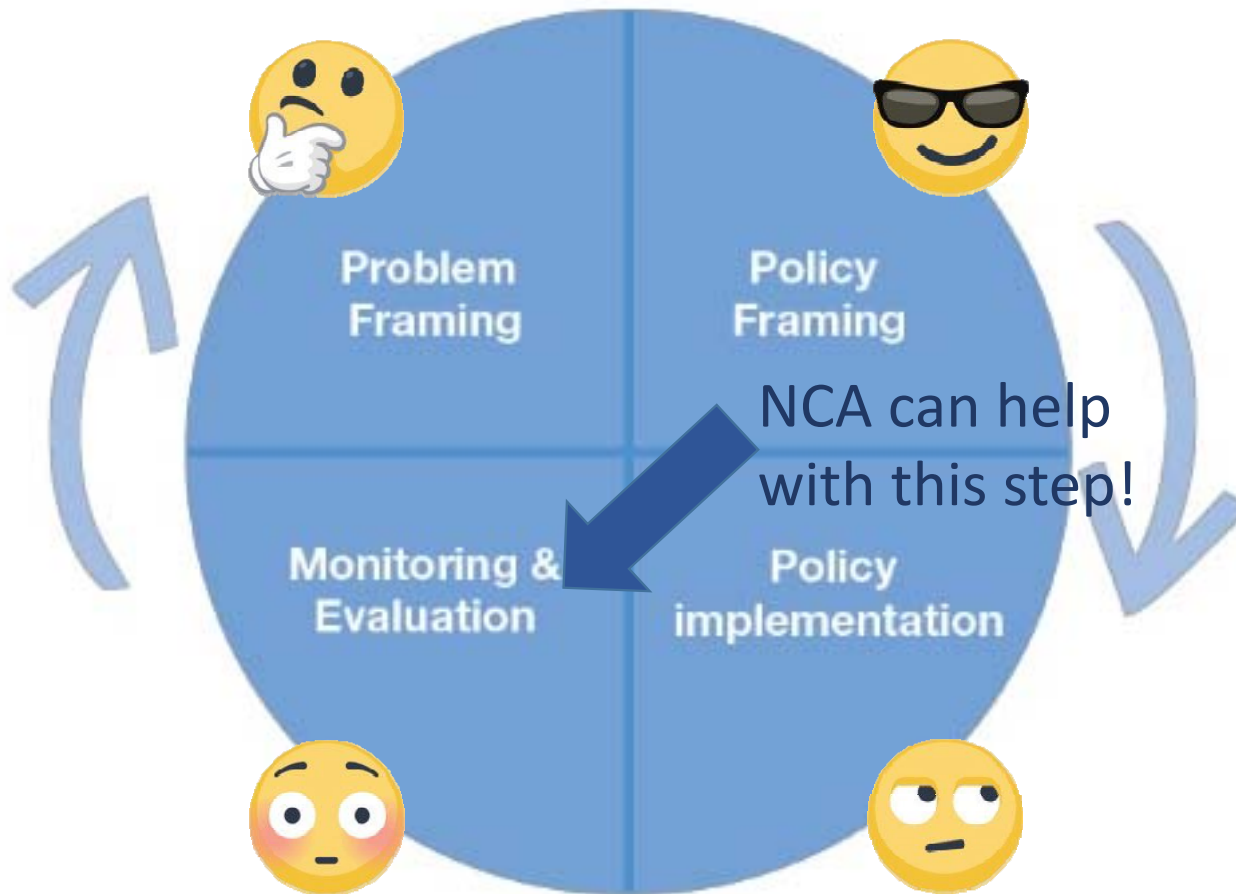


Added benefits of NCA

- NCA unlocks **collaboration** between non-traditional partners
- Stats SA has strong **convening power**
- Snowball effect: more and more interested and enthusiastic people...
building a **network of NCA champions**
- Virtuous circle: accounts help to make the case for **investing in regular data collection**, which further strengthens the value of the accounts

So what?

Policy cycle



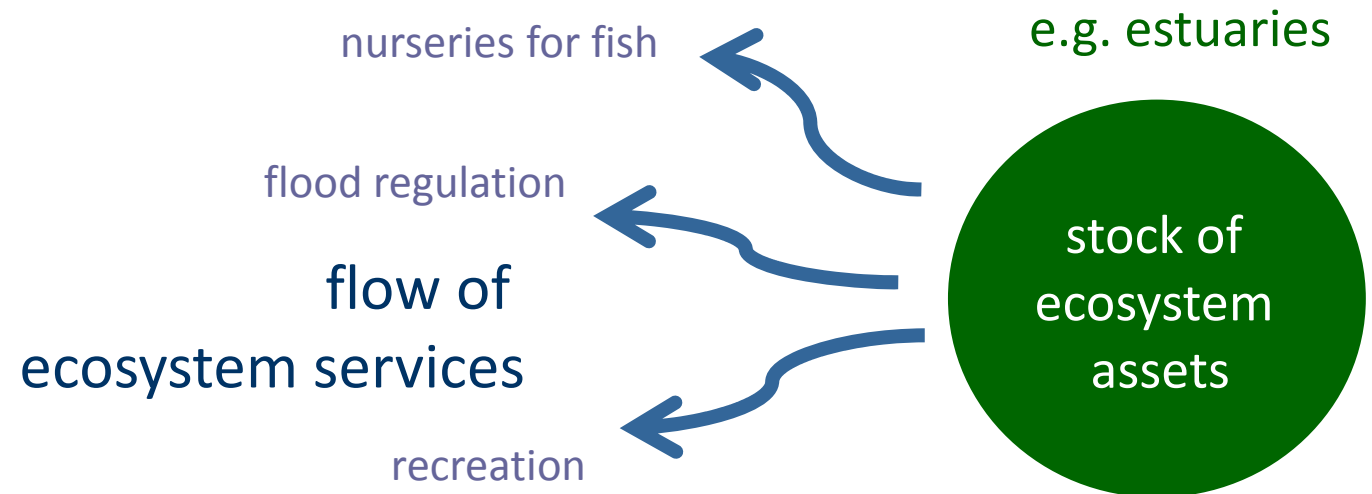
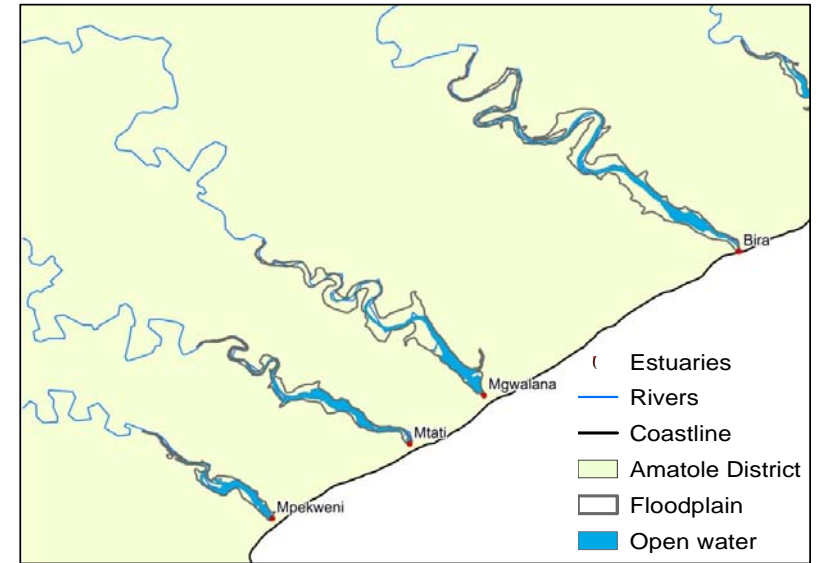
- ...especially if we link info about natural environment to social and economic info
 - Not a silver bullet, but a systematic credible tool to measure impacts of policy interventions
- Helps us to redirect public investment where it's needed most

Join us on the NCA journey as we innovate!

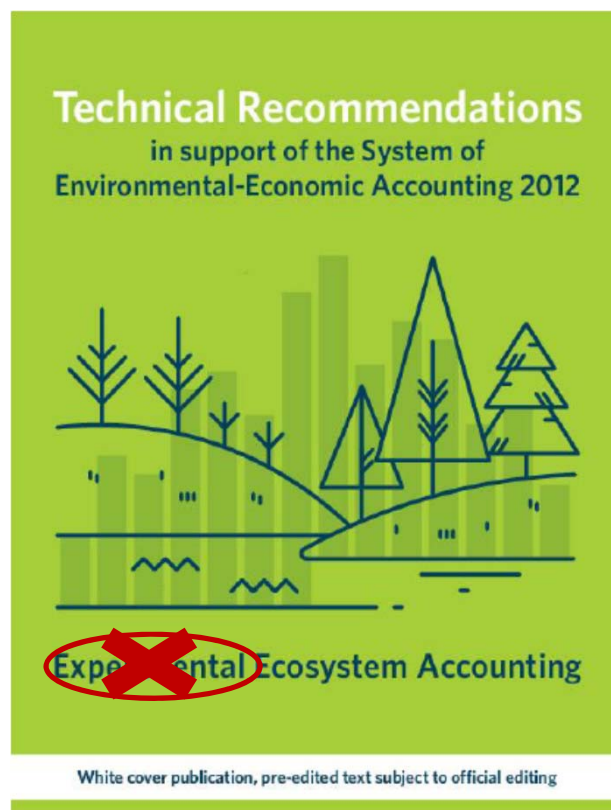
Additional slides for possible questions

Ecosystem accounting

- Inherently spatial
- Distinguishes between
 - Ecosystem assets
 - Ecosystem services



SA's experience is feeding directly into the revision of the global standards for ecosystem accounting



Aim is to adopt
SEEA Ecosystem Accounting
as a global standard
in 2020

More detailed look at the ecological infrastructure accounts in demo catchments

