stats sa
Department:
Statistics South Africa
REPUBLIC OF SOUTH AFRICA

Private Bag X44, Pretoria, 0001, South Africa, ISIbalo House, Koch Street, Salvokop, Pretoria, 0002 www.statssa.gov.za, info@statssa.gov.za, Tel +27 12 310 8911

REPORT
04-01-00

National Natural Capital Accounting Strategy

A ten-year strategy for advancing Natural Capital Accounting in South Africa

June 2021

Embargoed until:
3 June 2021
11:30

Dipalopalo tsa Aforikaborwa • Dipalopalo tsa Aforika Borwa • Ezezibalo zaseNingizimu Afrika • Tshitatistika Afrika Tshipembe • Tinhlayo Afrika-Dzonga
Statistieke Suid-Afrika • Dipalopalo tša Aforika Borwa • Telubalo zaseNingizimu Afrika • EzeeNkcukacha maNani zoMzantsi Afrika • Iimbalobalo zeSewula Afrika

IMPROVING LIVES THROUGH DATA ECOSYSTEMS

National Natural Capital Accounting Strategy

A ten-year strategy for advancing Natural Capital Accounting in South Africa

Statistics South Africa

Risenga Maluleke
Statistician-General

Report No. 04-01-00 (June 2021)

National Natural Capital Accounting Strategy, A ten-year strategy for advancing Natural Capital Accounting in South Africa / Statistics South Africa

Published by Statistics South Africa, Private Bag X44, Pretoria 0001

Stats SA Library Cataloguing-in-Publication (CIP) Data
National Natural Capital Accounting Strategy, A ten-year strategy for advancing Natural Capital Accounting in South Africa / Statistics South Africa. Pretoria: Statistics South Africa, 2021

National Natural Capital Accounting Strategy
Report no. 04-01-00. Statistics South Africa.
Pretoria: Statistics South Africa, June 2021
Title continuous in English only

Report no. 04-01-00
96 pp

ISBN: 978-0-621-49493-8

A complete set of Stats SA publications is available at Stats SA Library and the following libraries:

National Library of South Africa, Pretoria Division
National Library of South Africa, Cape Town Division
Library of Parliament, Cape Town
Bloemfontein Public Library
Natal Society Library, Pietermaritzburg
Johannesburg Public Library
Eastern Cape Library Services, King William's Town
Central Regional Library, Polokwane
Central Reference Library, Mbombela
Central Reference Collection, Kimberley
Central Reference Library, Mmabatho

This report is available on the Stats SA website: www.statssa.gov.za

For technical enquiries, please contact:
Name: Riaan Grobler
Tel.: 012 310 3474
Email: RiaanG@statssa.gov.za

Recommended citation: Statistics South Africa. 2021. *National Natural Capital Accounting Strategy, A ten-year strategy for advancing Natural Capital Accounting in South Africa*. Report 04-01-00. The National Natural Capital Accounting Strategy is, owned and published by Stats SA as the national statistics office (NSO), but it is co-developed with the South African National Biodiversity Institute (SANBI) and guided by the various institutions represented on the NCA Strategic Advisory Group.

Preface

Natural capital accounting (NCA) is an emerging area of work that aims to provide credible evidence for integrated planning and decision-making in support of the development needs of the country. The purpose of the *National Natural Capital Accounting (NCA) Strategy: A ten-year strategy for advancing NCA* is to respond to the need to focus the efforts of Statistics South Africa (Stats SA) and other institutions engaged in NCA on developing priority natural capital accounts and effective statistical systems and institutional mechanisms to inform South Africa's sustainable development policy objectives. It is a culmination of many years of Stats SA's involvement at national and international levels, and strengthens Stats SA's Strategic Plan to harness statistics through collaboration with other data producers in the data ecosystem. It also strengthens the environmental subsystem of Stats SA's South African National Statistics System (SANSS), and will support South Africa's country reporting on the Sustainable Development Goals (SDGs) and the Post-2020 Global Biodiversity Framework. Not least, the National NCA Strategy responds to the need for national environmental indicators identified in South Africa's National Development Plan (NDP) 2030.

The Strategy is an example of cross-sectoral coproduction and collaboration that is ever more important in times of resource constraints and in tackling the complex challenges of the future. The National NCA Strategy is owned and published by Stats SA as the national statistics office (NSO), but was co-developed with the South African National Biodiversity Institute (SANBI) and guided by the following institutions represented on the NCA Strategic Advisory Group (listed in alphabetical order): Department of Forestry, Fisheries and the Environment (DFFE), Department of Planning, Monitoring and Evaluation (DPME), Department of Science and Innovation (DSI), Department of Water and Sanitation (DWS), National Business Initiative (NBI), National Treasury (NT), South African National Parks (SANParks) and the Water Research Commission (WRC). The Strategy is already building partnerships with strategic entities in the state, private sector, in Africa and internationally to further advance NCA in SA.

The National NCA Strategy has a 10-year time frame with a 5-year review. The focus is on national-level natural capital accounts, and meets Stats SA's standards through application of the System of Environmental-Economic Accounting (SEEA) and national classification systems. These have helped place South Africa at the forefront of a global movement on NCA.

Risenga Maluleke
Statistician-General
Pretoria

June 2021

Background to this document

The *National Natural Capital Accounting Strategy: A ten-year strategy for advancing Natural Capital Accounting in South Africa* is compiled by Statistics South Africa (Stats SA) in partnership with the South African National Biodiversity Institute (SANBI).

Stats SA and SANBI appreciate the support provided by:

- The **Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES) Project**, funded by the European Union (EU), and led globally by the United Nations Statistics Division (UNSD) and United Nations Environment Programme (UN Environment), including the Projects' Reference Group members from the Delegation of the European Union to South Africa, UNSD, UN Environment, and Department of Forestry, Fisheries and the Environment (DFFE). The National NCA Strategy is an output of the NCAVES Project.

- **Members of the NCA Strategic Advisory Group** in guiding the development of the National NCA Strategy and supporting the process of development, including the stakeholder workshop. Institutions represented on the NCA SAG are DFFE, Department of Planning, Monitoring and Evaluation (DPME), Department of Science and Innovation (DSI), Department of Water and Sanitation (DWS), National Business Initiative (NBI), National Treasury (NT), South African National Parks (SANParks) and the Water Research Commission (WRC).

- **Individuals from a range of institutions** who provided input on drafts, supported the successful execution of national events through which inputs from stakeholders were gathered, and participated in those events.

- The **Ecological Infrastructure for Water Security (EI4WS) Project**, which is funded by the Global Environment Facility (GEF), implemented by the Development Bank of Southern Africa (DBSA) and executed by SANBI in partnership with a range of private and public partners. The project's support is most directly through funding for the NCA Project Manager (Aimee Ginsburg) in the planning, coordination and execution stakeholder engagement events around this strategy, and in developing the National NCA Strategy.

Contents

Preface ..... *iii*

Background to this document ..... *iv*

Abbreviations ..... *vii*

1. Introduction *1*

1.1. What is the purpose of the strategy? **1**

1.2. How was the strategy developed? **1**

1.3. Who is the strategy for? **2**

1.4. How is this strategy document structured? **3**

2. Background *3*

2.1. NCA – what is it and what is it not? **3**

2.2. NCA in South Africa **4**

2.3. Policy and institutional context **6**

3. Vision and principles *9*

3.1. Vision **9**

3.2. Principles **10**

4. Goals and strategic objectives *11*

GOAL 1. NCA is used for integrated planning, decision-making, monitoring and evaluation across a range of sectors **15**

GOAL 2. NCA offers credible evidence of how nature supports people and the economy **17**

GOAL 3. An integrated suite of natural capital accounts are produced based on best-available methods **20**

GOAL 4. Capacity and data for accounts are well developed and robust **23**

GOAL 5. NCA is well resourced, underpinned by effective and collaborative institutional arrangements **25**

5. Implementation mechanisms *27*

6. References *29*

7. Appendices *30*

7.1. Appendix A. Record of stakeholder engagement in the development of the strategy **30**

7.2. Appendix B. Statistical Value Chain **34**

7.3. Appendix C: List of role players (data providers, account compilers, users of accounts or other) **37**

Indicative Implementation Plan and Draft Monitoring and Evaluation Framework 49

1. Introduction 49

2. Indicative Implementation Plan 49

GOAL 1. NCA is used for integrated planning, decision-making, monitoring and evaluation across a range of sectors 51

GOAL 2. NCA offers credible evidence of how nature supports people and the economy 57

GOAL 3. An integrated suite of natural capital accounts is produced based on best-available methods 63

GOAL 4. Capacity and data for accounts are well developed and robust 73

GOAL 5. NCA is well resourced, underpinned by effective and collaborative institutional arrangements 79

3. Draft Monitoring and Evaluation Framework 83

Abbreviations

Acronym	Description
AfDB	African Development Bank
AMCEN	African Ministerial Conference on the Environment
ANCA	Advancing Natural Capital Accounting
ARC	Agricultural Research Council
ASB	Accounting Standards Board
BASA	The Banking Association South Africa
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CoGTA	Department of Cooperative Governance and Traditional Affairs
CSI	Committee for Spatial Information
CSIR	Council for Scientific and Industrial Research
CWRR	Centre for Water Resources Research at the University of KwaZulu-Natal (UKZN)
DALRRD	Department of Agriculture, Land Reform and Rural Development
DBSA	Development Bank of Southern Africa
DESTEA	Free State Development, Tourism and Environmental Affairs
DFFE	Department of Forestry, Fisheries and the Environment
DIRCO	Department of International Relations and Cooperation
DMRE	Department of Mineral Resources and Energy
DPME	Department of Planning, Monitoring and Evaluation
DSI	Department of Science and Innovation
DWS	Department of Water and Sanitation
EPCPD	Environmental Planning and Climate Protection Department
EU	European Union
FDES	The Framework for the Development of Environment Statistics
GDP	Gross domestic product
GDARD	Gauteng Department of Agriculture and Rural Development
GDSA	Gaborone Declaration on Sustainability in Africa
GEF	Global Environment Facility
GRAP	Generally Recognised Accounting Practice
GWM&ES	Government-wide Monitoring and Evaluation System
ICLEI	International Council for Local Environmental Initiatives
IIF	Integrated Indicator Framework
INR	Institute of Natural Resources
KZN	KwaZulu-Natal
MTEF	Medium Term Expenditure Framework
MTSF	Medium Term Strategic Framework
NBF	National Biodiversity Framework
NBI	National Business Initiative
NBSAP	National Biodiversity Strategy and Action Plan
NCA	Natural capital accounting
NCAVES	Natural Capital Accounting and Valuation of Ecosystem Services
NDP	National Development Plan
NGI	National Geo-spatial Information
NGO	Non-governmental organisations
NSDS	National Strategy for Development of Statistics
OECD	Organisation for Economic Cooperation and Development
PMU	Project Management Unit
NPAES	National Protected Area Expansion Strategy
NPC	National Planning Commission
NSDF	National Spatial Development Framework
NSDS	National Strategy for the Development of Statistics
NT	National Treasury

Acronym	Description
OECD	Organisation for Economic Cooperation and Development
PMU	Project Management Unit
SA	South Africa
SAEON	South African Environmental Observation Network
SAG	Strategic Advisory Group
SALGA	South African Local Government Association
SANBI	South African National Biodiversity Institute
SANSS	South African National Statistical System
SANParks	South African National Parks
SASDI	South African Spatial Data Infrastructure
SASQAF	South African Statistical Quality Assessment Framework
SAWS	South African Weather Service
SDG	Sustainable Development Goal
SDI	Spatial Data Infrastructure
SEEA	System of Environmental-Economic Accounting
SEEA EA	System of Environmental-Economic Accounting Ecosystem Accounting
SHaSA	Strategy for Harmonising Statistics in Africa
SNA	System of National Accounts
SPLUMA	Spatial Planning and Land Use Management Act (Act No. 16 of 2013)
Stats SA	Statistics South Africa
SWPN	Strategic Water Partners Network
SWSA	Strategic Water Source Area
TCTA	Trans-Caledon Tunnel Authority
UKZN	University of KwaZulu-Natal
UN Environment	United Nations Environment Programme
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNCS	United Nations Commission for Statistics
UNSD	United Nations Statistics Division
WRC	Water Research Commission
WWF	World Wildlife Fund

1. Introduction

This section provides a brief introduction to the *National Natural Capital Accounting (NCA) Strategy: A ten-year strategy for advancing NCA in South Africa* (hereafter referred to as 'the National NCA Strategy').

1.1. What is the purpose of the strategy?

Natural capital accounts for South Africa (SA) to date have been produced on an ad hoc basis, and most often through donor-funded projects. If we are to build and strengthen the statistical and institutional mechanisms, systems and production processes required to consistently and regularly produce natural capital accounts, an integrated and more holistic approach is needed to advance NCA in South Africa.

The purpose of the strategy is to respond to the need to focus the efforts of Statistics South Africa (Stats SA) and other institutions engaged in NCA on developing priority natural capital accounts and effective statistical systems and institutional mechanisms to inform South Africa's sustainable development policy objectives. This was the recommendation of the *Assessment report towards the development of a national strategy for advancing environmental-economic and ecosystem accounting in South Africa* (SANBI & Stats SA 2018).

The National NCA Strategy is intended to support:

1. Coordination of an integrated body of NCA work in SA;
2. Development of statistics from natural capital accounts within and outside of the national statistical office through agreed standards, delivering reliable and comparable results that can also be integrated with socio-economic statistics;
3. Derivation and use of relevant indicators for statistical purposes from NCA in measurement of national indicators in South Africa (as called for in the National Development Plan (NDP), Medium Term Strategic Framework (MTSF), and continental and international sustainable development agendas), such as those contained in the Stats SA integrated indicator framework (IIF); and
4. Collaboration between institutions in such a way as to strengthen investment and commitment to the production of natural capital accounts that provide credible and useful evidence for integrated planning, monitoring and decision-making.

It has a 10-year time frame with a 5-year review. The focus is on national-level natural capital accounts, but is not exclusively so.

1.2. How was the strategy developed?

The National NCA Strategy has evolved over the course of the past two years and has been informed by:

1. The completion of an *Assessment report towards the development of a national strategy for advancing environmental-economic and ecosystem accounting in South Africa* (SANBI & Stats SA 2018);
2. Stakeholder engagement through: the National NCA Stakeholder Workshop in March 2018, the National NCA Forum in June 2019, and the National NCA Strategy Stakeholder Workshop in November 2020;
3. Numerous tri- and multi-lateral engagements (listed in Appendix A);
4. The advice of the NCA Strategic Advisory Group (SAG); and

5. Guidance from a Project Reference Group (PRG) for the NCA and Valuation of Ecosystem Services (NCAVES) Project.[1]

The development of the document was led by the NCA Project Management Unit (PMU) in Stats SA and the South African National Biodiversity Institute (SANBI).

1.3. Who is the strategy for?

NCA is inherently multi-disciplinary, requiring expertise, data and information from various organisations, and NCA information is or could be used by a wide range of organisations. It discourages the traditional "silo approach" to the development of statistics and requires that different organisations collaborate to produce statistics beyond their respective thematic areas.

It is critical for Stats SA as the national statistics office (NSO) to build partnerships with strategic entities in the state, the private sector, in Africa and internationally in implementing this strategy. There is an opportunity for Stats SA to embrace partners as data providers, compilers of accounts or users of information from accounts to drive advancement of NCA and help build distributed and diverse capacity/expertise. There is opportunity for partners to contribute to the advancement of NCA and benefit from Stats SA's mandate as the:

- *National statistical authority*, to inform stakeholders on the economy, society and environment, by, amongst other things:
    - designating statistics produced by other organs of state as official; and
    - liaising with other countries and statistical agencies, as well as representing Stats SA and South Africa in statistical activities internationally.
- *National statistical coordinator*, to promote coordination among producers of official and other statistics in order to advance quality, comparability and optimum use of official statistics and to avoid duplication by, amongst other things:
    - Formulating quality criteria and establishing standards, classifications and procedures;
    - Providing statistical advice; and
    - Advancing the quality, consistency, comparability and optimum use of official statistics and avoid unnecessary duplication.

Recognising this, the National NCA Strategy is owned and published by Stats SA as the national statistics office (NSO), but it is co-developed with SANBI and guided by the following institutions represented on the NCA SAG (listed in alphabetical order):

- Department of Forestry, Fisheries and the Environment (DFFE)
- Department of Planning, Monitoring and Evaluation (DPME)
- Department of Science and Innovation (DSI)
- Department of Water and Sanitation (DWS)
- National Business Initiative (NBI)
- National Treasury (NT)
- South African National Biodiversity Institute (SANBI)

[1] The Natural Capital Accounting and Valuation of Ecosystem Services (NCAVES) Project is a global project in which South Africa is one of five participating partner countries (Brazil, China, India, Mexico and South Africa). It is funded by the EU, and led globally by the United Nations Statistics Division (UNSD) and United Nations Environment Programme (UN Environment). The following institutions are represented on the Project Reference Group: the Delegation of the European Union to South Africa, UNSD, UN Environment, and Department of Forestry, Fisheries and the Environment (DFFE).

- South African National Parks (SANParks)
- Statistics South Africa (Stats SA)
- Water Research Commission (WRC).

Additionally, at the time of writing the DFFE were in the process of developing a Policy Framework for NCA through a parallel process. The combined interests of both the Policy Framework and the National NCA Strategy are to promote the advancement of NCA in South Africa. The two project teams thus sought alignment between the products, in particular in relation to the vision and principles (explained further in Section 3).

1.4. How is this strategy document structured?

The remainder of the National NCA Strategy provides:

- A brief **background** to NCA, its implementation in South Africa, and policy context (Section 2);
- The **vision and principles** for advancing NCA (Section 3);
- **Goals and strategic objectives** towards achieving the vision, and their associated outputs and indicative activities have been drafted (Section 4);
- The overarching **institutional mechanisms** that are envisaged to support implementation of the strategy (Section 5); and
- A set of appendices with useful information (Section 7).

2. Background

2.1. NCA – what is it and what is it not?

Natural Capital Accounting refers to the systematic, reliable and regular measurement of stocks and flows of natural resources and ecosystems, so that their state as well as the benefits they provide to society can be recognised, understood and integrated into policy, planning and decision-making. Just as we have a system of national (economic) accounts to measure Gross Domestic Product (GDP) and track the performance of the economy, and the population census to track progress in social outcomes, we also need a system to track the natural environment, including how it's improving or declining and what that means for people and the economy.

NCA is thus an organising framework for environmental information using an accounting approach. It allows a link with the System of National Accounts (SNA) from which we draw indicators such as the GDP. NCA is a broad term that includes accounting for individual environmental assets or resources, both biotic and abiotic (such as water, minerals, energy, timber, fish), as well as accounting for ecosystem assets and ecosystem services.

A measurement framework and global standard for NCA, called the System of Environmental-Economic Accounting (SEEA) has been developed by the United Nations Statistics Division (UNSD) through a global expert-driven process. South Africa is using this to develop our natural capital accounts. The SEEA provides NCA with a rigorous, internationally accepted methodology. The SEEA covers a wide range of environmental assets, such as water, energy, fisheries and timber. It also covers ecosystems.

Quantifying natural capital and its benefits using the SEEA is always done in physical terms, and may be translated into monetary values in cases where this is useful and appropriate. Regular production of natural capital accounts using the SEEA can provide standardised statistical information (comparable between countries or between administrative units within a country, and over time) that

is regularly spatially explicit. This information is critical for tracking and reporting on progress towards sustainable development, including goals and targets set out in policies, frameworks and plans at international, continental, national, provincial or local levels.

NCA is NOT the same as natural capital assessment or natural capital inventory/audit. Table 1 shows some of the differences between these. NCA can serve as input into assessments and audits that are more analytical studies and may draw on other data sources. NCA, like the SNA, accounts for what has passed and is produced by or with statistical offices. It provides the basis for additional analysis, which is often included in assessments such as forecasting, scenario or trade-off analysis, and that are usually beyond the domain of the statistical offices.

Table 1. Differences between natural capital accounting, assessments and inventories/audits

Criteria for comparison	NC ACCOUNTING	NC ASSESSMENT	NC INVENTORY / AUDIT
Replicability	Regular and repeatable	Ad hoc studies	Ad hoc studies
Methodology	Agreed definitions, classifications, data sharing agreements, part of regular statistical production process	Use any data available, including information from natural capital accounts.	Use any data available, including information from natural capital accounts.
Driven by	Belong to the statistical domain – need interpretation to answer particular policy questions	Driven by policy demand	Driven by project-specific needs
Undertaken by	NSO in collaboration with line ministries	Ministry of environment or academia	Various entities
Nature of statistics	Official (or semi-official in the case of SEEA EA) statistics	Analytical studies	Analytical studies

Source: Developed by SANBI & Stats SA in consultation with UNSD (2020)

2.2. NCA in South Africa

South Africa has a relatively long history of producing natural capital accounts following the SEEA Central Framework, and more recent experience with SEEA Experimental Ecosystem Accounting (EEA).

Stats SA has been undertaking NCA for many years, producing accounts for water, energy, fisheries and minerals since as early as 2000 (available from the Stats SA website: www.statssa.gov.za). Stats SA is a key enabler of NCA, with a mandate to promote the use of official statistics in policy development, policy monitoring and evaluation as well as decision-making efforts. Stats SA's mandate is also to elevate and sustain the elevation of official statistics throughout the organs of state and civil society, and provide a framework for the development of South Africa's National Strategy for Development of Statistics (NSDS). Stats SA has convened the compilation of South Africa's Sustainable Development Goals (SDGs) reporting and currently maintains a small unit that has produced environmental accounts.

Since 2014, Stats SA has been co-leading projects with SANBI on ecosystem accounting as a subset of natural capital accounting. These projects include implementing a country pilot project on ecosystem accounts as part of a global initiative called Advancing Natural Capital Accounting (ANCA)[2] (2014–2015), and the NCAVES Project that began in 2017 scheduled to be completed by June 2020.

In 2018, SANBI began the implementation of another project – the Ecological Infrastructure for Water Security (EI4WS) Project – that includes an outcome on developing natural capital accounts to enable

[2] In the ANCA Project, South Africa was one of seven pilot countries. The project was led by the UNSD in partnership with UN Environment and the Convention on Biodiversity, with funding from the Government of Norway. In this project, Stats SA and SANBI worked in partnership with the CSIR, Ezemvelo KZN Wildlife, DWS and DEA (now DFFE).

policy, planning and decision-making in favour of ecological infrastructure. The EI4WS Project is a five-year project that is funded by the Global Environment Facility (GEF), implemented by the Development Bank of Southern Africa (DBSA), and executed by SANBI in partnership with others, including DWS, WWF and Stats SA. The accounts that will be developed in the EI4WS Project will be accounts for strategic water source areas (SWSAs), ecological infrastructure asset accounts and water resource accounts at a catchment level in the project's Greater uMngeni and Berg-Breede demonstration catchments.

The WRC has funded research projects related to water accounts over the past several years, including a project on National Water Accounts (in partnership with Stats SA) and two projects on the development of a methodology for compiling catchment-level water resource accounts (in partnership with the Centre for Water Resources Research at the University of KwaZulu-Natal). These projects align well with the natural capital component of the EI4WS project.

Foundations that have enabled relatively rapid progress in NCA include years (in some cases decades) of public sector investment in ecosystem, water and land cover data, as well as human capacity, inter-personal relationships and other resources. South Africa has substantial amounts of geospatial and non-geospatial data available to enable the production of accounts.

Table 2 provides a list of natural capital accounts that Stats SA has been involved in producing and those that are in production or planned. There is a range of policy applications for accounts, and some examples of relevant policies are included in the table. Recently, there are a growing number and range of initiatives related to NCA that are taking place in the country, not all of which involve Stats SA (see Section 7).

Table 2. List of current natural capital accounting work in South Africa that Stats SA has been involved in

Account	Lead organisation	Date of publication	Examples of policy links
Water accounts	Stats SA & WRC	2000, 2002, 2007, 2018	National Water Act, NWRS, National Water and Sanitation Master Plan, NBSAP, SDG targets
Energy accounts	Stats SA	2002, 2009, 2012, 2014-2017	Department of Energy's Post-2015 National Energy Efficiency Strategy, Energy Efficiency Targets
Mineral accounts	Stats SA	2010-2017	Department of Mineral Resources planning
Fisheries accounts	Stats SA	2010, 2012-2017	Fisheries Management, Agriculture, Forestry and Fisheries Market and Trade Development Strategy
KZN land and ecosystem accounts	Stats SA & SANBI in ANCA Project	2015	Provincial SDF, Provincial Protected Area Expansion Strategy
National river ecosystem accounts		2015	NWRS, National Water and Sanitation Master Plan, NBSAP, Catchment Management Strategies
KZN ecosystem service accounts	Stats SA & SANBI in NCA&VES Project	2020	SDFs, Provincial Growth and Development Strategy, municipal planning, NBSAP
Land and terrestrial ecosystem accounts		2020	NDP, NSDF, Sustainable Land Reform, NBSAP, SDGs and Aichi targets
Accounts for protected areas		2021*	NPAES, biodiversity stewardship programmes, Biodiversity Finance Plan, NBSAP, SDG targets
Land accounts for metropolitan municipalities		2021*	Integrated Development Plans, SDFs (for cities and their peri-urban and rural hinterlands), NBSAP
Accounts for species: rhinoceros and cycad plant group		2021*	National Strategy for Plant Conservation, Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), managing wildlife trade and poaching, NBSAP, SDG targets

Account	Lead organisation	Date of publication	Examples of policy links
Marine ecosystem accounts		2021/22*	Marine Spatial Planning, NPAES, fisheries management, NBSAP, SDG targets
Accounts for strategic water source areas	SANBI through EI4WS Project	>2021*	NWRS, National Water and Sanitation Master Plan, city-level water management, Catchment Management Strategies, NBSAP, Aichi and SDG targets
Accounts for ecological infrastructure assets		>2022*	NBSAP, National Water and Sanitation Master Plan, Framework for Investing in Ecological Infrastructure, Natural Resource Management programmes
Detailed catchment-level water resource accounts	CWRR	2015, 2019, 2021-2022*	NWRS, National Water and Sanitation Master Plan, Catchment Management Strategies
Estuary accounts	CSIR	2020	Estuary Management Plans, National Water and Sanitation Master Plan
Biodiversity tourism	Stats SA	Unspecified	
Satellite account for biodiversity economy	DFFE & Stats SA	Unspecified	National Biodiversity Economy Strategy
Ocean accounts	NMU	Under development	

Source: SANBI & Stats SA 2018

* Intended year of publication.

2.3. Policy and institutional context

South Africa has a rich policy context that supports both the use of information from natural capital accounts as evidence for policy and decision-making, and has policies and frameworks that provide for the systems and institutional mechanisms through which the production of accounts would be supported. A more comprehensive review of the policy context is provided in Section 3 of the Assessment Report (SANBI & Stats SA 2018).

An important policy entry point for NCA is the Presidency and the DPME evaluation-related policy frameworks that emphasise the importance of data to support evidence-based decision-making. NCA should provide another source of statistical information relevant to the evaluation and consideration of policies and add to the richness of evidence available to policy and decision-makers.

Various calls for evidence, including to meet the need for national environmental targets and indicators to support decision- and policy-making, are contained in policies that set the country's national priorities related to sustainable development, involving the integrated management of environment, society and economy. The management, conservation and sustainable use of South Africa's natural resource base, including ecosystems and biodiversity assets, are embedded in South Africa's policy and seen as part of sustainable development. Relevant national policies include, but are not limited to:

- **National Environmental Management Act (NEMA) (Act No. 107 of 1998, Section 2) Principles**, which guide all environmental management decision-making and apply to the actions of all organs of state that may significantly affect the environment.
- **National Development Plan 2030 (NDP),** which requires a set of national indicators for natural resources to inform policy through which specific and increased needs for official statistics are defined. DFFE is playing a lead role in developing national indicators for natural resources.

- **Medium Term Strategic Framework (MTSF),** is government's strategic plan (latest being 2019–2024) to achieve the vision of the NDP for South Africa to transition to an environmentally sustainable, climate-change resilient, low-carbon economy.
- **National Biodiversity Strategy and Action Plan (NBSAP),** in which *Integrating the value of biodiversity into national accounting and reporting systems* is a high priority activity (NBSAP Activity 3.6.2).
- **National Biodiversity Framework (NBF),** developed in fulfilment of the requirements of the National Environment Management: Biodiversity Act (Act No. 10 of 2004), section 38(2), which recommends the development of a National Strategy for Ecosystem Accounting as a step towards the integration of the value of biodiversity into national accounting and reporting systems (NBSAP Activity 3.6.2).
- **National Biodiversity Economy Strategy (NBES),** which provides an implementation framework to achieve economic benefits from the commercialisation of biodiversity, targeting the wildlife and bio-prospecting economies.
- **National Protected Area Expansion Strategy (NPAES),** which sets national-level protected area expansion targets (for ecosystems).
- **National Framework for Marine Spatial Planning in South Africa,** which provides high-level direction for marine spatial planning in South Africa's ocean space and lays the basis for the development of Marine Spatial Plans.
- **National Water and Sanitation Master Plan,** which sets out a schedule of key and urgent actions needed for the period up to 2030 to create a water sector that can meet national objectives as set out in the NDP and the SDGs.
- **Spatial development planning policies such as Spatial Development Frameworks (SDFs) and National Spatial Development Frameworks (NSDFs),** which need to track changes over time in a spatially explicit manner by evaluating social, economic and environmental implications of decisions.
- **District Development Model** launched in September 2019 by the President, which will have new demands for statistical information.
- **Climate change-related policies such as the National Climate Change Adaptation Strategy (NCCAS), Ecosystem-based Adaptation Strategy, and Biodiversity Sector Climate Change Response Strategy (BSCCRS).**
- **Relevant regional or international policies to which South Africa is a signatory** include the Sustainable Development Goals (SDGs), UN Convention on Biological Diversity (CBD), UN Convention to Combat Desertification (UNCCD), Agenda 2063, Gaborone Declaration on Sustainability in Africa (GDSA), and the Paris Agreement.
- Policies relevant to the financial sector.

The South African government's policies and frameworks that relate to strengthening national statistics and improving information on sustainable development for evidence-based policy and decision-making provide for the systems and institutional mechanisms to support the production of natural capital accounts. These include:

- **Evaluation-related policy frameworks** that emphasise the importance of data to support evidence-based decision-making, such as the Policy Framework for the Government-wide Monitoring and Evaluation System (GWM&ES).

- **National Treasury's performance information-related policy and frameworks** that require the inclusion of financial, economic and environmental sustainability performance information concepts.
- **Stats SA's policy and frameworks** through which official statistics are coordinated, produced, certified and disseminated, including:
    - Stats SA's Strategic Plan (2020/21–2024/25) and Work Programme, which state that 'to ensure that the statistics produced by South Africa remain on par with international practice… [Stats SA will]… adopt and/or adapt the Global Statistical Geospatial Framework (GSGF), International Standard Industrial Classification of All Economic Activities (ISIC), Revision 4 (ISIC 4) and SEEA prescripts to improve statistical practices.'
    - South African National Statistical System (SANSS)
    - National Strategy for Development of Statistics (NSDS)
    - South African Statistical Quality Assessment Framework (SASQAF)
    - The Integrated Indicator Framework (IIF)
    - The Framework for the Development of Environment Statistics (FDES), which provides guidance on a core set of environmental indicators proven to be beneficial to inform policy and used to organise statistical publications and integrate themes of indicators into SEEA accounts.
    - Statistics is governed at the global level by the United Nations Commission for Statistics (UNCS) and the Special Data Dissemination Standard, and at a continental level by the African Charter on Statistics, through which fundamental global and continental principles safeguard official statistics and guide national statistics offices.
- **Policy on spatial data infrastructure** administered by the Department of Agriculture, Land Reform and Rural Development (DALRRD) that is important to the compilation of ecosystem accounts in particular, such as South African Spatial Data Infrastructure (SASDI).

Stats SA's mandate to coordinate the development of statistics, as laid out in the Statistics Act (Act No. 6 of 1999), underpins its role in "assisting organs of state, business, other organisations or the public in planning, monitoring or assessment of policies, decision-making or other actions". Stats SA coordinates the compilation of information and statistics for the SDG reporting. Reporting on SDGs requires coordination and integrative work across departments and other entities. Similar coordination would be required in producing natural capital accounts and could build on the institutional mechanisms that have been established for SDG reporting.

There are a number of multi-sectoral institutional mechanisms that enable coordination across the breadth of stakeholders involved in NCA, which could play a role in supporting the production and/or uptake of natural capital accounts. They include national and international mechanisms:

- **National institutional mechanisms focused on implementing policies and plans related to sustainable development** such as the National Planning Commission (NPC), the national intergovernmental structures for coordinating environmental management convened by DFFE, and the Interdepartmental Committee on Inland Water Ecosystems convened by DWS.
- **Multi-sectoral institutional mechanisms focused on strengthening statistical systems to produce reliable statistics and coordinate compilation of information on sustainable development**, such as the National Coordinating Committee and Working Group structure to

address information needs for the SDGs coordinated by Stats SA, and the Committee for Spatial Information (CSI) convened by DALRRD in which Stats SA already has an important role.

- **Relevant regional platforms** such as the African Ministerial Conference on the Environment (AMCEN) and UN Economic Commission for Africa (UNECA).
- **Multi-stakeholder institutional mechanisms that bridge public, non-governmental organisations, civil society and private sectors** such as The Natural Capital Coalition, The National Business and Biodiversity Network (NBBN), and Strategic Water Partners Network (SWPN).

The collection and compilation of environmental or natural capital data and statistics in South Africa are currently 'spread' across many different organisations. Historically, the collection and release of these data and statistics have been done in isolation with limited co-ordination between different role-players. Given the importance of statistics relating to natural capital, the current situation in South Africa is neither desirable, feasible nor sustainable for the future, given the limited financial and human resources available within government.

Stats SA has the mandate to influence the nature and quality of data collected by other agencies. It also has convening power and could provide an important co-ordination role towards developing environmental statistics. This is reflected in ownership of the National NCA Strategy by Stats SA.

3. Vision and principles

This section provides the collaboratively developed vision and principles for NCA. The vision statement is a summation of many components and concepts, which are briefly described in the section below the vision statement.

3.1. Vision

Natural capital accounting (NCA) is widely used to provide credible evidence for integrated planning and decision-making in support of the development needs of the country.

Natural capital accounting (NCA): refers to the use of an accounting framework to provide a systematic way to measure and report on stocks and flows of natural capital, analogous to accounts for other forms of capital. It is a broad term that includes accounting for individual environmental assets or resources, both biotic and abiotic (such as water, minerals, energy, timber, fish), as well as accounting for ecosystem assets and ecosystem services.

is widely used: refers to NCA as a tool, as well as the information derived from NCA, that is widely used by organs of state, businesses, other organisations or the public to elevate the value of natural assets, and make links between environment and economy well known.

to provide credible evidence: referring to improvement and development of natural capital accounts that result in coordinated development of well-accepted, broadly based and nationally and globally consistent statistics and other information, in the same way that information generated through the System of National Accounts is trusted as credible and used for evidence-based decision-making.

***for integrated planning and decision-making*:** referring broadly to planning and decision-making informed by good monitoring and evaluation, and to both fiscal and strategic planning. Where integrated refers to coordinated development of social, economic and environmental statistics using agreed standards, and delivering reliable and comparable results and more regular consideration of environmental and integrated information in planning, monitoring and evaluation, and decision-

making. Such integration is considered integral to decision-making for the transition to a greener (low-carbon) economy.

in support of the development needs of the country: referring to information from NCA that broadens our view of social and economic opportunities/options to support the development needs of the country. This includes information that enables consideration of: the contribution of ecosystems to the economy, social wellbeing, jobs and livelihoods; how these can best be managed to ensure continued services such as energy, food supply, water supply, flood control and carbon storage; what the implications are of trade-offs in terms of long-term sustainability and equity; and restructuring of the financial sector to be held more accountable for resource efficiencies, externalities and life cycle impacts of investment decisions.

3.2. Principles

The National NCA Strategy is guided by the following principles that natural capital accounting should be:

(a) relevant;
(b) credible;
(c) compiled, reported and documented in a scientific, replicable and transparent manner;
(d) based on best available data;
(e) comparable and coherent;
(f) integrative;
(g) disseminated impartially;
(h) accessible to all users at the same time;
(i) in accordance with appropriate national and international standards and classifications; and
(j) sensitive to distribution by gender, disability, region, intergenerational equity and similar socio-economic features.

These principles are informed by the Statistics Act (Act No. 6 of 1999), and the NCA Strategic Advisory Group.

4. Goals and strategic objectives

This section details the goals and strategic objectives towards realising the NCA vision. The section also sets out the outputs, indicative activities, institutions and resources available for each goal and strategic objective.

The National NCA Strategy is developed for the next 10 years, but it is envisaged that it will be reviewed and revised after 5 years.

The strategy identifies five areas of work that will contribute towards achieving the vision. These are structured into five goals listed in Table 3, to which more than one strategic objective is linked.

These goals and strategic objectives were identified through a facilitated workshop exercise with the NCA Strategic Advisory Group. The exercise resulted in the identification of several broad areas of work with a number of potential activities or descriptors under each one. These were used to develop a strategy map (following a UN guide for strategic planning), which is depicted in Figure 1. The strategy map was further verified against inputs given by stakeholders during several stakeholder engagements over the past two years (see Appendix A). The strategy map highlights the interlinkages between the different parts of the strategy and, in essence, depicts the story of change the strategy seeks. Interconnections between goals and strategic objectives are mentioned in the description of the strategy, and the reader can also refer back to the strategy map.

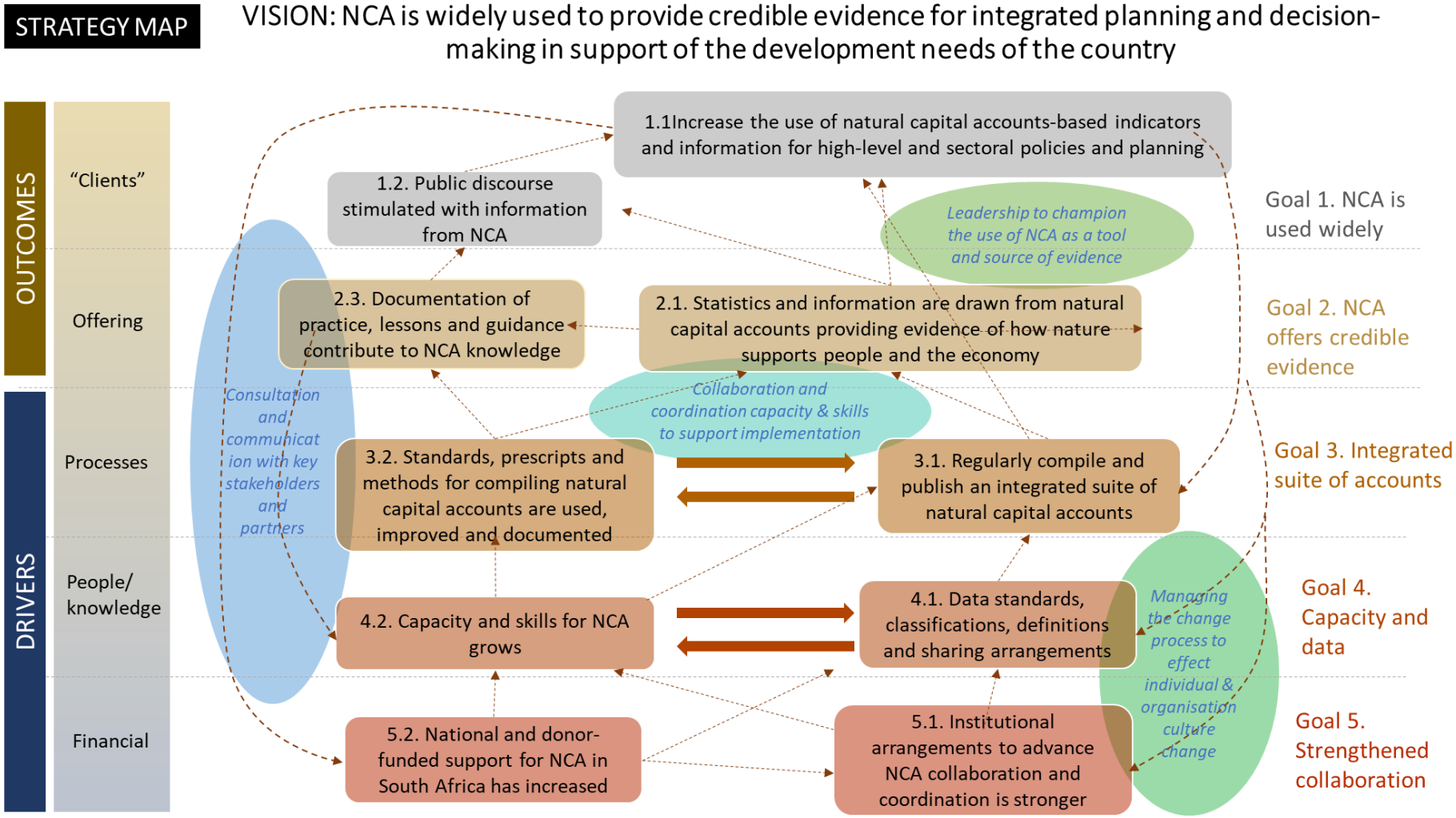
In the process of developing the strategy map, four cross-cutting levers of change were identified. Coordination, collaboration, communication and the role of champions from a range of sectors are seen as integral to the effective implementation of the strategy.

Table 3. Summary of goals and strategic objectives of the NCA Strategy

GOALS	Strategic objectives
GOAL 1. NCA is used for integrated planning, decision-making, monitoring and evaluation across a range of sectors	1.1. Increased use of natural capital accounts-based indicators and information for high-level and sectoral policies and planning
	1.2. Public discourse stimulated with information from NCA
GOAL 2. NCA offers credible evidence of how nature supports people and the economy	2.1. Statistics and information are drawn from natural capital accounts, providing evidence of how nature supports people and the economy
	2.2. Documentation of practice, lessons and guidance contribute to NCA knowledge
GOAL 3. An integrated suite of natural capital accounts is produced based on best-available methods	3.1. Regularly compile and publish an integrated suite of natural capital accounts
	3.2. Standards, prescripts and methods for compiling natural capital accounts are used, improved and documented
GOAL 4. Capacity and data for advancing NCA are well developed and robust	4.1. Data standards, classifications, definitions and sharing are strengthened for regular compilation of integrated suite of accounts
	4.2. Capacity and skills for NCA grow
GOAL 5. NCA is well resourced, underpinned by effective and collaborative institutional arrangements	5.1. Institutional arrangements to advance NCA collaboration and coordination are stronger
	5.2. National and donor-funded support for NCA in South Africa have increased

Source: Developed by the SANBI & Stats SA, in consultation with stakeholders, for the National NCA Strategy (2021)

Figure 1. Strategy map illustrating the core areas of work, how they relate to each other, and how they became grouped into five goals



Source: Developed by the SANBI & Stats SA, in consultation with stakeholders, for the National NCA Strategy (2021)

The four key levers of change for advancing NCA are explained in more detail:

- **Leadership to <u>champion</u> the use of NCA as a tool and source of evidence:** There is a need to develop a group of NCA champions in relevant institutions (as identified in relation to accounts) who have an in-depth knowledge of NCA and who are capable of sustaining the transformation process in their areas of influence. This is enabled through learning and sharing, building networks and engaging tensions.

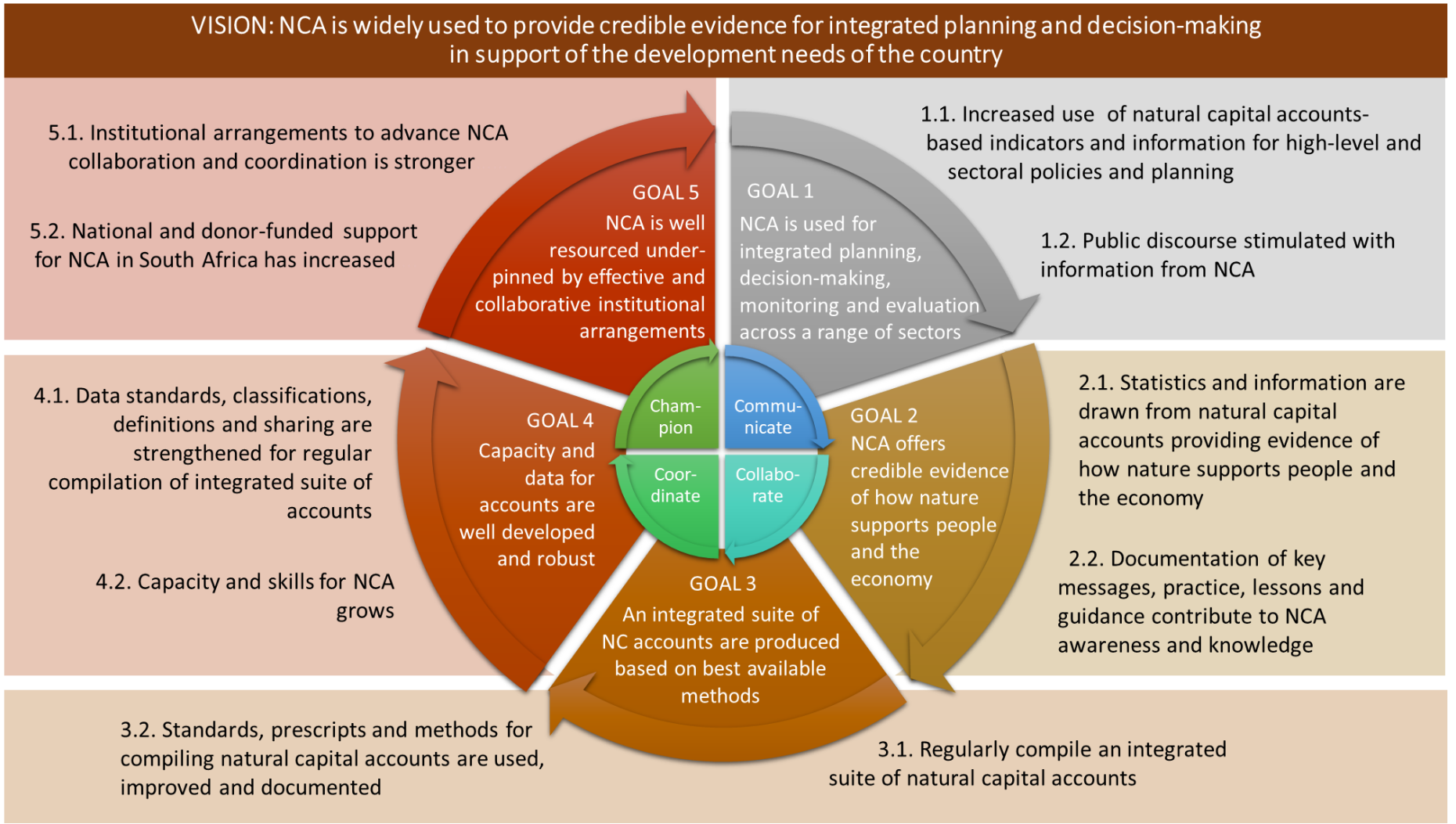
- **<u>Communication</u> between key stakeholders and partners:** Effective consultation and communication need to be part of how we work, recognizing the social change process involved in an emerging, multi-disciplinary area of work and implementing this strategy. This will be supported by clarifying context and ideas, openly engaging tensions, e.g. around terms or concepts, and building networks. There are already communities of practice operating across a range of scales as well as a range of institutional mechanisms available across the NCA value chain (SANBI and Stats SA 2018) that can support the implementation of the NCA Strategy.

- **<u>Co-create and collaborate</u> in the improvement and development of natural capital accounts:** Historically, the collection and the release of environmental data and statistics have been done in isolation with limited co-ordination between different role-players. Given the importance of statistics relating to natural capital and the reality of limited financial and human resources available within government, collaboration and co-creation are key to improving data, agreeing on the use of standard concepts and definitions, collecting the right variables in line with international requirements, and developing natural capital accounts that meet user needs. Co-creation and collaboration provide new opportunities to harness growing data capabilities and develop beneficial partnerships across private and public sectors. Co-creation and collaboration around accounts, standards, classifications and definitions are crucial to developing outputs of mutual benefit (co-creating value), problem-solving complex transdisciplinary issues, and best ensuring relevance to users and policy.

- **<u>Coordinate</u> and manage the change process to effect individual and organisational change:** For NCA to be sustainable, there has to be a shift in the individual and organisational arrangements to support the production of accounts-ready data and accounts, both within and outside the national statistics office. Similar shifts will also be required to support the use of evidence to make decisions and for continuous improvement, innovation and learning. 'Learn and share' must be the way of working, and this is built into the strategy as a whole. So there must be outputs or activities that allocate time and attention to this. Additionally, 'evaluate and change' is also important to achieving the vision. The evaluation of implementation and impact of the National NCA Strategy by Stats SA is also built in.

These levers are depicted in the centre of Figure 2, which represents an alternative visual summary of the vision, goals and strategic objectives of the National NCA Strategy. This depiction as a wheel is intentional as there are indeed several ways of ordering the goals of the strategy. The numbering of the goals should not be understood as order of importance. The strategy can be 'picked up' by any wedge of the pie depicted in Figure 2.

Figure 2. An overview of the NCA Strategy vision, goals and strategic objectives



Source: Developed by the SANBI & Stats SA, in consultation with stakeholders, for the National NCA Strategy (2021)

GOAL 1. NCA is used for integrated planning, decision-making, monitoring and evaluation across a range of sectors

Goal 1 is about the uptake and application of information from NCA for various planning, decision-making, monitoring and evaluation processes across a range of sectors. The underlying premise for NCA is that since the environment is important to society and the economy, it should be recognised as an asset that must be maintained and managed, and its contributions better integrated into decision-making.

The compilation of natural capital accounts (Goal 3) using a common framework for measuring and tracking over time the contribution of ecosystems and natural resources to social and economic goals – such as water security, food security and job creation – will make available more information about natural capital that can be used. The interpretation of this information with social and economic data and integration into social and economic reporting (Goal 2) will enable recognition of the importance of natural resources by governments, businesses and individuals, revealing the economic and social benefits of investing in natural capital, for example through managing, conserving and restoring natural environments.

As highlighted in Stats SA's Strategic Plan (2020–2025), the need for statistics has never been more apparent, with data requests covering a wide range of aspects of the economy, society and environment. The demand for natural capital accounts too has grown with calls for national environmental indicators in the context of a range of different policies. Examples include development policy such as the NDP, reporting on MTSF indicators, SDGs, the District Development Model, NSDF and land-use planning. NCA responds directly to NBSAP Outcome 3.6, which states that biodiversity considerations are integrated into the development and implementation of policy, legislative and other tools. Calls for evidence and indicators that can be supported by NCA also stem from: integrated environment-related policy, such as making the case for investing in ecological infrastructure, natural resource management, environmental management, ecosystem-based adaptation and ecosystem-based approaches to disaster risk reduction; economic policy and initiatives, such as circular economy, the biodiversity economy, and financing a sustainable economy; and fiscal integration of natural capital in planning processes such as the MTSF (which informs the Medium Term Expenditure Framework [MTEF]).

In addition to policy hooks, use of NCA is supported through broadening the range of audiences that see information from natural capital accounts as being valuable and relevant, and demanding its integration into planning and decision-making. NCA may nurture a common language that can be used across sectors.

The strategic objectives (SO) under this goal are to see:

SO 1.1. Increased use of natural capital accounts-based indicators and information for high-level and sectoral policies and planning.

SO 1.2. Public discourse stimulated with information from NCA (note the link to SO 2.1, in which communication products are produced that would be used in this SO).

This is about ***uptake and application*** **of the NCA *offer* (which is developed in Goal 2 based on accounts compiled in Goal 3) and understanding the user's needs**. There is a feedback loop with Goals 4 and 5, in that as the value of NCA is demonstrated, a case needs to be made for investing in the data foundations that underpin accounts, as well as in NCA capacity (human and financial).

GOAL 1. NCA is used for integrated planning, decision-making, monitoring and evaluation across a range of sectors			
SO 1.1. Increased use of natural capital accounts-based indicators and information for high-level and sectoral policies and planning		**SO 1.2. Public discourse stimulated with information from NCA**	
OUTPUTS	**INDICATIVE ACTIVITIES**	**OUTPUTS**	**INDICATIVE ACTIVITIES**
1.1.1. Strategic engagement and dialogue report	• Present indicators from available natural capital accounts at strategically important meetings (e.g. National Planning Commission, MINMEC) • Organise strategic dialogues • Stakeholder and network mapping • Present on NCA at regional and international events	**1.2.1. Communication and advocacy plan to create and use opportunities to share information from natural capital accounts**	• Cooperate with communications staff from Stats SA to identify opportunities to share NCA information • Create standing agenda item on NCA-based indicators and information in the annual State of Environment Reporting Community of Practice workshops • Develop and roll out a communication and advocacy plan for NCA
1.1.2. NCA value proposition statements for public sector	• Outreach of existing accounts through engagement with key stakeholders • Include NCA-based indicators and information in the annual updates of the web-based South African environment • Develop the NCA value proposition statement for public sector to share with national and global audiences • Explore use of NCA: in National Treasury's budget transparency programme/initiative; to inform policy and planning, including the MTSF	**1.2.2. Communication channels for NCA information**	• Maintain a list of NCA stakeholders with whom information can be regularly shared • Update and maintain website content on NCA • Send a bi-annual email to NCA stakeholders with updates on NCA in South Africa • Establish and maintain a social media group to communicate with the South African NCA community of practice • Explore ways to include NCA information in interactive and online dissemination platforms and tools maintained by Stats SA • Give presentations about NCA and natural capital accounts for more opportunistic outreach in South Africa with a broad range of audiences (requires identifying likely audiences, collaborative development of presentations, and storing and updating them)
1.1.3. NCA value proposition statement for private sector	• Outreach of existing accounts through engagement with key stakeholders • Develop the NCA value proposition statement for private sector to share with national and global audiences • Explore with private sector stakeholders how NCA can be used by the private sector in assessment of risk, opportunities, and financial exposure, for trade-off or scenario analysis, forecasting and footprint measures, and how private sector can support advancement of NCA		
1.1.4. Uptake and use of NC accounts synthesis report	• Track use of NCA publications and indicators in the IIF that draw information from natural capital accounts • Evaluate value created through implementation of NCA • Capture stories of change		

GOAL 2. NCA offers credible evidence of how nature supports people and the economy

Sound policy decisions matter for everyone. Statistics must provide a firm evidence base for these decisions, as well as for decision-making and debate outside government. NCA provides another credible source of statistical information that adds to the richness of evidence available to policy and decision-makers of how nature supports people and the economy.

The credibility is supported by the application of an accounting approach to organising large quantities of environmental data, and numerically describing and analysing that data in a consistent way to provide insightful and reliable indicators or statistics. In other words, translating data from accounts into information and indicators that are suitable for assessing sustainability and development concerns 'at a level that is within the grasp of the nation's people and global citizens' (Stats SA Strategic Plan).

The application of an accounting approach to produce accounts is the work covered in Goal 3. The work under Goal 2 is about the 'NCA offer' that can be used. Users of information stemming from natural capital accounts should be involved in co-creating this value offering (i.e. in addition to the role players who are data providers and/or co-producers of accounts). As highlighted in the Stats SA Strategic Plan, the building blocks of co-creation include:

- ensuring 'the application of uniform, acceptable standards and principles which will produce statistics that meet a wide variety of user needs' (addressed in Goal 3);
- appropriate integration of different data sources and statistical systems; and
- facilitating proper interpretation of results, particularly when making linkages with economic and social statistics and indicators, to provide insightful data that can be used as credible evidence for particular purposes (this is a step beyond compiling an account and is addressed here in Goal 2).

An example of this is integrating economic and environmental information to give insight into sustainability aspects of our economic behaviour. These insights or the 'NCA offer' might be portrayed in a variety of ways: maps, infographics and other visualisation tools, policy briefs, amongst others.

Information and statistics from accounts are neutral. Analysis and interpretation of information and statistics from accounts, with other economic and social information, translate these into evidence[3] that has a particular objective in mind. Integrated interpretation of information from natural capital accounts with social and economic information takes time and consideration. Interpretation is influenced by who does the interpretation, what other data is integrated or interpreted alongside data from natural capital accounts and so on. Acknowledging this, credibility in relation to the interpretation is important and it is recommended that representatives of the Technical Working Group involved in the compilation of the accounts, NCA champions as boundary actors, policy and decision-makers interested in engaging with the detail be involved in the co-creation of insightful interpreted products to provide credible evidence.

Documentation of practice, lessons and guidance will not only contribute to the global knowledge agenda on NCA, but would also contribute to the credibility of evidence drawn from accounts.

The strategic objectives under this goal thus seek to ensure that:

SO 2.1. Statistics and information are drawn from natural capital accounts, providing evidence of how nature supports people and the economy (feedback loop: supports making the case for natural capital accounts).

SO 2.2. Documentation of practice, lessons and guidance contribute to NCA knowledge.

[3] Evidence: being a body of facts or information indicating whether a particular belief or proposition is true; and there being different types of evidence based on different types of information.

Box 1. Indicators derived from accounts that are relevant to policy in SA

Using an accounting approach translates data on the present ecological state of rivers into information that can be used as credible evidence of change in river ecosystems that is relevant to SA's development and water policy. The river ecosystem accounts used data from two national assessments undertaken by the Department of Water and Sanitation (DWS) in 1999 and 2011 to develop an overall picture of the health of the country's rivers. The key headline finding from the river ecosystem accounts was that the ecological condition of South Africa's rivers declined by 10% between 1999 and 2011 – a period of just over a decade. The accounts provide an Ecosystem Condition Index that summarises detailed information about the state of each river reach in the country's 8 500 sub-quaternary catchments based on four underlying indicators (water flow, water quality, instream habitat and riparian or stream bank habitat). Although the overall Ecosystem Condition Index for rivers was still around 70% in 2011, the steep decline is a concern, especially if it continues into the future.

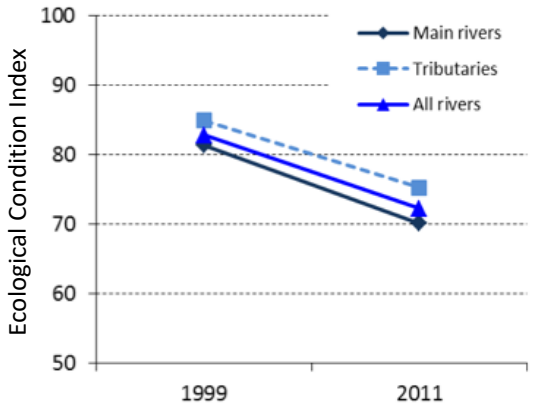
How have the results influenced policy and decision-making? The finding that the health of rivers has declined has helped to inform the National Water and Sanitation Master Plan developed by DWS, and highlights the importance of maintaining the integrity of freshwater ecosystems as part of the water value chain. The accounts also highlight places where the decline in the health of rivers has been most marked, in order that attention can be focused on them, and solutions can be found to better manage catchments and rivers and in support of development. The largest decline in the health of rivers took place in the Limpopo Water Management Area, where challenges include failing waste water infrastructure and pressure on rivers from intensive agriculture and mining. The smallest decline took place in the Mzimvubu-Tsitsikamma Water Management Area.

South Africa's national river ecosystem accounts have been highlighted as international best practice in a recent review of ecosystem condition accounts (Maes et al. 2020). Lessons learnt from our experience are feeding into global standards for ecosystem accounting through Stats SA and SANBI's participation in the revision of the UN's System of Environmental-Economic Accounting (SEEA), specifically the component that deals with ecosystem accounting. Using an accounting approach translates data on present ecological state of rivers into information that can be used as credible evidence of change in river ecosystems that is relevant to South Africa's development and water policy, and can also be used for national reporting on global commitments. For example, DHSWS may use river accounts for reporting on Sustainable Development Goal (SDG) Indicator 6.6.2A: Change in the condition of water-related ecosystems over time.

Using accounts to quantify natural capital and its benefits is always done in biophysical terms, such as the extent of an ecosystem remaining in its natural condition, amount of water produced by a catchment, the volume of fish harvested from the marine environment, and the number of people visiting protected areas. This may, where it is useful and appropriate, be translated into monetary values. Yet as this example illustrates, natural capital accounting does not mean that we have to reduce natural resources and ecosystems to rands and cents.

Table and graph: Ecological Condition Index (ECI) of South African rivers, 1999 to 2011

	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

Source: Nel, J.L. & Driver, A. 2015

GOAL 2. NCA offers credible evidence of how nature supports people and the economy			
SO 2.1. Statistics and information are drawn from natural capital accounts, providing evidence of how nature supports people and the economy		**SO 2.2. Documentation of practice, lessons and guidance contribute to NCA knowledge**	
OUTPUTS	**INDICATIVE ACTIVITIES**	**OUTPUTS**	**INDICATIVE ACTIVITIES**
2.1.1. NCA communication materials	• Identify tensions and areas requiring clarification • Develop key messages from natural capital accounts, and maintain and promote their use • Produce fact sheets that help to clarify and communicate NCA and its relevance • Develop short messages and content (including photos or graphics) for social media • Produce data stories with key findings • Produce localised stories/case studies and popular articles for public audience	**2.2.1. Written contributions to development of global, regional and national standards and methodology**	• Document results of pilot studies • Review and give written contributions/inputs into global, regional or national NCA standards and guidelines under development (e.g. the SEEA) • Participate in testing of SEEA methods where possible • Participate in regional and global forums (e.g. webinars, forums or meetings) related to development, refinement or improvement of methods and provide presentations on South Africa's experience
2.1.2. Interpreted products from natural capital accounts that communicate their relevance and content	• Co-creation of interpreted products for accounts compiled in strategic objective 3.1 • Demonstrate how natural capital accounts link to: major company operations or industrial clusters; initiatives to make banks more accountable over time		
2.1.3. A set of natural resource headline indicators drawn from natural capital accounts	• Identify core set of environmental indicators that will be beneficial to inform policy • Identify indicators that will be drawn from accounts to support reporting on indicators in the Integrated Indicator Framework (IIF) • Annual publication of headline indicators, disaggregating statistical information to district level to inform the District Development Model (DDM) where possible	**2.2.2. Best-practice note and/or peer-reviewed literature**	• Best-practice note on how to apply and interpret natural capital accounts • Write peer-reviewed papers or articles about South Africa's natural capital accounts
2.1.4. Reports that integrate information from more than one account	• Develop integrative reports integrating natural capital accounts with socio-economic data • Explore integrated reports of more than one natural capital account • Explore inclusion of NCA information in Stats SA geo-enabled products		

GOAL 3. An integrated suite of natural capital accounts are produced based on best-available methods

The strategic objectives and outputs in this goal will deliver an integrated suite of natural capital accounts produced based on best available methods. An integrated suite is accounts that can be integrated with each other (using comparable methods and spatial frameworks) and that enable integration with social and economic information (some integration with economic and social information happens in the type of account produced, some happens with analysis and interpretation, i.e. in Goal 2 activities). Integration is enabled by: the application of an internationally accepted system for NCA, such as the SEEA (ensuring comparability between countries, or between administrative units within a country, and over time); and by the production of spatially explicit accounts (e.g. drawing information from a range of different accounts to create an integrated suite of accounts for particular reporting areas, such as district municipalities or reporting areas like Strategic Water Source Areas (SWSAs) that are important to South Africa's water security).

There is demand for accounts from a range of policy areas (see Goal 1) as well as interest from the private sector. The first strategic objective in Goal 3 seeks the regular production of existing accounts (which is not ensured at the moment and is reliant on data and capacity addressed in Goal 4), and enlarging the suite of accounts compiled (in line with need and where they meet needs for information and statistics for integrated planning and decision-making in support of the development needs of the country). Accounts to be compiled will be guided by a Technical Working Group (refer to Institutional Mechanisms), explored through Stats SA's broad process of developing accounts (see Figure 3) in line with the statistical value chain (see Appendix B), informed by the SEEA framework of accounts, and influenced by what is useful for South Africa (feedback loop to Goal 1).

This goal also seeks the production of accounts based on best available methods. As highlighted in the Stats SA Strategic Plan, ensuring the application of uniform, acceptable standards and principles in the production of accounts through co-creation is important to develop statistics that meet a wide variety of user needs and to ensure appropriate integration of different data sources and statistical systems. This speaks to improvement and development of natural capital accounts that result in coordinated development of statistics on natural capital, both inside and outside of Stats SA. This is important in an emergent area of work such as NCA, and requires allocating time and resources to further develop and document agreed standards and methods, and deliver reliable accounts. This will involve collaboration and sometimes research, guided by needs/demands and based on available resources, institutional arrangements and capacity (feedback loop to Goals 4 and 5). The accounts compiled provide the foundational base of the robust evidence that underpins the 'NCA offering' in Goal 2.

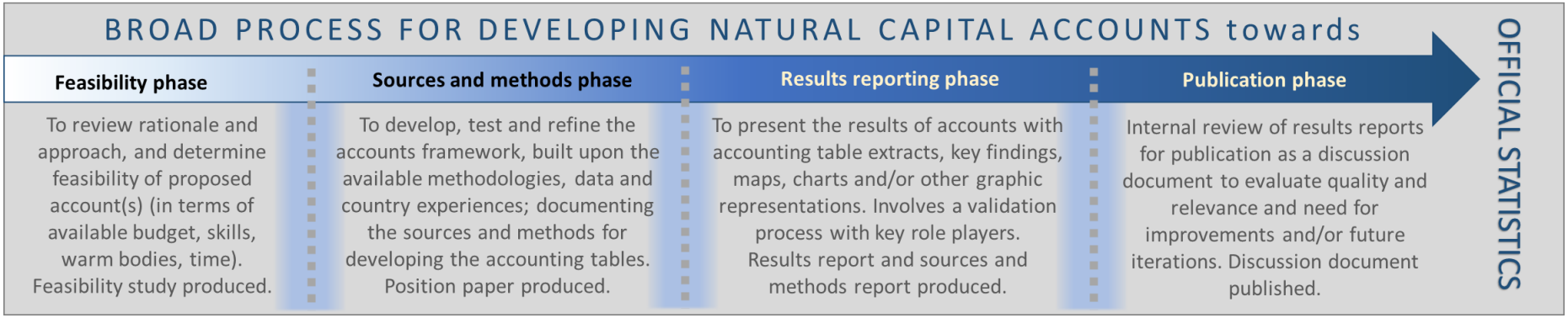
The strategic objectives under this goal seek to:

SO 3.1. Regularly compile and publish an integrated suite of natural capital accounts (where accounts include the tables, spreadsheets, results report, and sources and methods documents).

SO 3.2. Standards, prescripts and methods for compiling natural capital accounts are used, improved and documented and ensure reliable, regular and standardised statistics and indicators for natural capital.

There are a number of outputs in the first strategic objective. The outputs speak to accounts or sets of accounts related to a particular focus area. Focus areas were identified through stakeholder-driven prioritisation exercises and informed by government priorities.

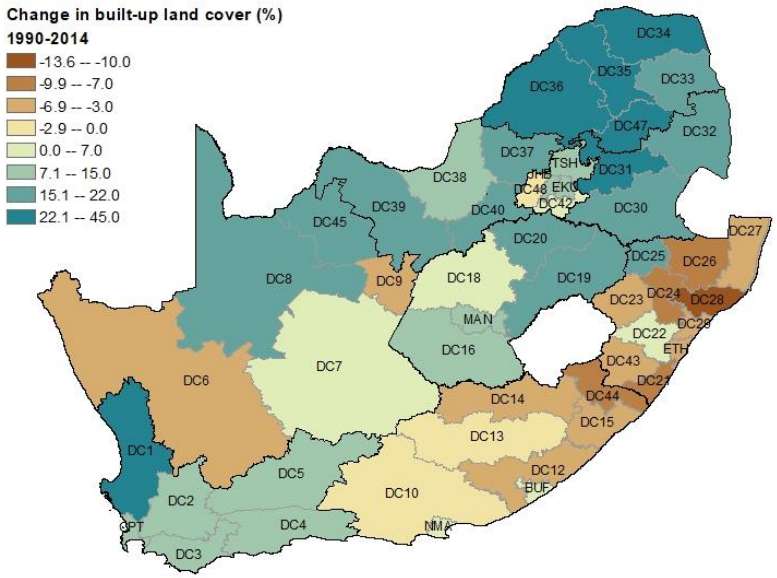
Figure 3. Stats SA Environmental Economic Accounting Division broad process for developing natural capital accounts in line with the statistical value chain (see Appendix B)



Box 2. District municipality summaries of integrated information

Spatial accounting means that information about natural capital can be disaggregated at different spatial scales and integrated with other spatially explicit data (such as demographic data from the population census), for instance at the scale of the district municipality. The map shown here is an example from the Land and Terrestrial Ecosystem Accounts (Stats SA 2020) and shows net percentage change in built-up land cover (tier 1) by district municipality from 1990 to2014. Built-up land showed a net percentage increase in two-thirds of South Africa's districts. The greatest percentage increases were in the Nkangala district (DC31; 45%) in Mpumalanga and the Sekhukhune district (DC47; 34%) in Limpopo. Six of the ten districts with the largest net decreases in built-up land cover were in KwaZulu-Natal. eThekwini (ETH) was the only metro where a net decrease in built-up land cover was recorded. All districts in the Eastern Cape had a decrease in built-up land cover, with only two metros in the province showing an increase in built-up land.

District-level summaries of integrated information could support implementation of the District Development Model. The map shows the net change in built-up land at district municipality level.



Source: Statistics South Africa, 2020

GOAL 3. An integrated suite of natural capital accounts is produced based on best-available methods			
SO 3.1. Regularly compile and publish an integrated suite of natural capital accounts		**SO 3.2. Standards, prescripts and methods for compiling natural capital accounts are used, improved and documented**	
OUTPUTS	INDICATIVE ACTIVITIES	OUTPUTS	INDICATIVE ACTIVITIES
3.1.1. Accounts related to surface and groundwater **3.1.2. Accounts related to energy** **3.1.3. Accounts related to carbon and greenhouse gas emissions** **3.1.4. Accounts related to mineral resources** **3.1.5. Accounts related to ecosystems across all realms** **3.1.6. Land accounts** **3.1.7. Accounts related to protection of natural environment** **3.1.8 Accounts related to ecological infrastructure** **3.1.9 Accounts for species of special concern** **3.1.10 Accounts related to the biodiversity economy** **3.1.11. Ocean accounts** **3.1.12. Accounts related to agriculture and food security**	• Indicative activities for the compilation of all accounts are informed by the broad process of developing accounts (see Figure 3) in line with the statistical value chain (see Appendix B). • In most cases there are a number of different types of accounts that can be developed in relation to each of the outputs (e.g. asset accounts, flow accounts, activity/purpose accounts that explicitly identify environmental transactions already existing in the System of National Accounts, combined physical and monetary accounts). • Accounts to be compiled will be guided by a Technical Working Group (refer to Institutional Mechanisms), evaluated against principles of the statistical value chain, informed by the SEEA framework of accounts, and influenced by what is useful for South Africa (feedback loop to Goal 1). • Some account-specific indicative activities are captured in the indicative implementation plan.	**3.2.1. Internationally approved/agreed standards, principles and recommendations for compiling accounts**	• Stats SA to adopt the System of Environmental Economic Accounting Ecosystem Accounts • Promote the adoption of the System of Environmental Economic Accounting Central Framework and Ecosystem Accounts • Application of other standards, principles and recommendations as appropriate based on expert advice
		3.2.2. Sources and methods for compiling accounts	• Ensure sources and methods reports are completed for all accounts and stored in a repository of sources and methods documents • Investigate estimates of confidence and how to responsibly address levels of confidence and data limitations with implications for interpretation • Develop guidance for producing quality sources and methods reports for spatially explicit accounts and promote its use • Collaborate to test, refine and evolve software to support compilation of accounts
		3.2.3. Ad hoc technical reference groups to guide NCA methods, prescripts and standards	• To review and guide methodological development of accounts to ensure their credibility. Convened as needed.
3.1.13. Natural Capital Series publications of accounts	• Publish natural capital accounts in the Natural Capital Series • Natural capital accounts publications and associated spreadsheets are available and accessible • Explore serving of users' basic demands from natural capital accounts on Stats SA's online self-service platforms	**3.2.4. Official statistics**	• Explore certification of priority indicators based on natural capital accounts as official statistics in terms of SASQAF • Indicators from natural capital accounts are published as official statistics

GOAL 4. Capacity and data for accounts are well developed and robust

Insightful, credible evidence requires statistics that are comparable and relevant, and this is inherently tied to the quality of data (inputs into the accounts) and capacity to prepare the data for accounts, compile them and integrate with other information. This goal therefore speaks broadly to the capability (data, people, technology) to compile accounts. It also emphasizes that foundational statistical subsystems are connected based on common production practices, principles, and standards and that building capacity includes formal, non-formal and informal ways (community and practice).

NCA requires the integration of comprehensive geospatially referenced national (on the whole) data that is comparable over multiple time periods. Location is a link between the economy, society and the environment, which makes spatial infrastructure for accounts crucial to an integrated suite of natural capital accounts (Goal 3). Stats SA's Strategic Plan identifies opportunities in integrating statistical and geospatial information, including deriving new relevant metrics and indicators. Primary data for natural capital accounts are held by ministries, state council, agencies and other institutions (e.g. universities), and integrating statistical and geospatial information requires collaboration between geospatial experts and statisticians. Thus the key role players in this goal may be a slightly different suite to those in Goals 1, 2 and 3.

Natural capital accounts do not generally require new data collection, but create additional uses for existing datasets such as national accounts data, environmental data and population census data. There is, however, a need for consistent time series data produced to a minimum standard, coherence of spatial frameworks and resolution of datasets, and consistent administrative records at local, provincial and national level. This speaks to the need for quality assessment and standardisation (including of classification systems), more regular production of some data, and validation processes. For instance, there is the need for regular release of land cover datasets produced to a minimum standard to be able to produce land accounts, accounts on ecosystem extent and condition. Also, as regular data production of some of the data (e.g. land cover) becomes automated and routine, efficiency gains are possible. However, ground-truthing work to verify imagery data is needed and requires coordination and investment. There will be different examples for different accounts or sets of accounts.

Capability to prepare data, compile and analyse accounts includes various types of capacity, including:

- Technical capacity to condition data to be 'accounts-ready' and compile accounts.
- Capacity to integrate, which requires building a common conceptual base and vocabulary among a varied group of participants (supported by a co-created lexicon as in Goal 2).
- Convening and partnership skills necessary to develop a culture and way of working required to successfully compile natural capital accounts.
- Interpretation and analysis capacity (with skills in conceptualising effective visualisation tools) also need to be enhanced.

Formal and informal means of building individual capacity are recommended, such as through:

- Influencing formal continuing education and/or skills programmes.
- Influencing research initiatives.
- Less formal training workshops to enhance technical capacity.
- Community of practice to share learning and build networks.

Capacity is also strengthened through how we work together, through collaboration and co-creation. Social learning processes to support this are important. Maintenance and improvement in capacity and data require investment and are best enabled through collaboration and layering of investments. This goal is thus closely linked with Goal 5. There should also be positive feedback from increased uptake and demand for accounts.

The strategic objectives under this goal seek to:

SO 4.1. Strengthen data standards, classifications, definitions and sharing for regular compilation of integrated suite of accounts.

SO 4.2. Grow capacity and skills for NCA.

GOAL 4. Capacity and data for accounts are well developed and robust

SO 4.1. Data standards, classifications, definitions and sharing are strengthened for regular compilation of integrated suite of accounts

OUTPUTS	INDICATIVE ACTIVITIES
4.1.1. Spatial data infrastructure for NCA is developed and expanded	• Further develop and maintain the Basic Spatial Unit (BSU) grids and primary master layers for South Africa in consultation with the Committee for Spatial Information data sub-committee and other stakeholders • Maintain a geographic information archive of spatial data used as primary and secondary ecosystem accounting area • Develop, maintain and serve supporting material (metadata and semantics framework) for NCA spatial data infrastructure
4.1.2. Data standards, classifications, definitions and quality assurance for NCA amended or developed	• Define data format and quality criteria for account-ready data • Metadata guidelines, standards, and prescripts • Expand South African Statistical Quality Assessment Framework (SASQAF) to consider spatial and environmental data quality • Influence geospatial information standards and prescriptions through SDI Regulations and/or SASDI Compliance Guidelines • Standard for National Ecosystem Classification System
4.1.3. Data sharing arrangements in place to improve synchronisation and collaboration to increase data offering and frequency of accounts	• Identify essential datasets and their minimum requirements for priority accounts (refer to Goal 3), and create a data catalogue • Collaborate with data producers to produce and continue to produce time series data to support more updated accounts • Explore the use and value of alternative data sources (integration of datasets, combining data from different sources, big data) to fill data gaps for priority accounts • Improve data on condition across all realms • Land cover dataset is regularly produced at a national level and aligned to the census cycle of Stats SA • Explore SASQAF-type standards for data modelling, visualisation and analysis options

SO 4.2. Capacity and skills for NCA grow

OUTPUTS	INDICATIVE ACTIVITIES
4.2.1. Review of capacity requirements and availability	• Regularly review the capacity requirements needed to develop natural capital accounts • Review and identify the capacity factors (skills, technology and resources) that promote and/or inhibit the growth and expansion of accounts • Review the technology landscape and requirements (proprietary vs open source; solutions orientation rather than software dependent)
4.2.2. Formal, non-formal and informal learning events	• Organise learning events to increase capacity to produce and interpret accounts (e.g. online webinars, learning exchanges) • Develop NCA capacity building materials for learning events • Maintain an online repository of recorded events and materials • Organise courses to develop NCA-related skills such as spatial data representation, visualisation and presentation, raster training (in appropriate software), data science • Knowledge / learning exchange with other countries
4.2.3 National NCA Forum	• Conceptualise programme and content to enhance information sharing, learning and gathering of knowledge to support advancing NCA in SA • Coordinate programme development, stakeholder liaison, event management and logistics • Consolidate materials before and after event • Support the Africa NCA Community of Practice • Host an Africa NCA Community of Practice Forum
4.2.4. Research and innovation hub to drive advancements in NCA and support a pipeline of expertise	• Work with tertiary institutions to influence formal continuing education and/or skills programmes • Supplement existing formal education/skills programmes through guest lectures, internship opportunities and the like • Actively engage with tertiary institutions to influence research initiatives to support advancements in NCA • Nurture a high-end skills pipeline for NCA in SA, including bursaries, centres of excellence and research chairs • Engage DSI about development of NCA research and innovation hub

GOAL 5. NCA is well resourced, underpinned by effective and collaborative institutional arrangements

Stats SA alone cannot meet the statistical demand in the country. Collaboration and building strategic partnerships with strategic entities in the state, the private sector, and internationally are critical to remain relevant and responsive to the increasing demand for NCA statistics that are relevant to users, and to building distributed and diverse capacity/expertise and enabling access (Stats SA Strategic Plan 2020/21–2024/25). Advancing NCA requires Stats SA to embrace partnerships with stakeholders not least because this is an emergent area of work that requires innovation, but also to maximise available resources in the current resource-constrained environment.

Resources requirements for current accounts are a mixture of government funding and donor funding. The initial investment made supports limited continuation of current accounts. Further investment in NCA will be required to maintain and expand the production and publication of an integrated suite of natural capital accounts. Meeting new user needs and building capacity to produce and interpret accounts, and recognition of value and relevance of accounts require more collaborative and innovative institutional arrangements.

Collaborative institutional arrangements and strategic partnerships that layer investments of available resources over multiple years are required to enhance the sustainable production, and true value offering, of NCA. Arrangements are needed that see users of evidence based on natural capital accounts committing resources to strengthen the foundational data and capacity that underpin accounts that add to the richness of evidence that is available. As many natural capital accounts are still under development and will be explored, a coherent future institutional landscape is still to emerge. This should thus be actively and opportunistically explored and adaptively managed.

Institutional arrangements within Stats SA are also important to ensure coordination and production of reliable environmental statistics, and overseeing the work involved in ensuring consistency in terms of environmental concepts, definitions, standards and methodology used in the collection and development of environmental data and environmental statistics for South Africa.

Stats SA, as the NSO, is also a very important link or interface with the United Nations Statistical Division (UNSD). Currently the South African National Statistics System (SANSS) cluster within Stats SA has economic and social subsystems and they perform coordination work through the SDG process, as well as part of the SANSS. It is the intention of the SANSS cluster to have four statistical subsystems (Economic, Social, Environment and Governance) to underpin the SANSS. The SANSS is about coordinating statistical production so that all disparate users can move forward as one. SANSS has an important role to play in the coordination of statistics in South Africa. This coordination is equally needed in the environmental sector.

Thus this goal seeks the following:

SO 5.1. Institutional arrangements to advance NCA collaboration and coordination are stronger.
SO 5.2. National and donor-funded support for NCA in South Africa has increased.

GOAL 5. NCA is well resourced, underpinned by effective and collaborative institutional arrangements			
SO 5.1. Institutional arrangements to advance NCA collaboration and coordination are stronger		**SO 5.2. National and donor-funded support for NCA in South Africa has increased**	
OUTPUTS	**INDICATIVE ACTIVITIES**	**OUTPUTS**	**INDICATIVE ACTIVITIES**
5.1.1 NCA Strategic Advisory Group	• NCA Strategic Advisory Group guides the implementation of the National NCA Strategy • Review progress on the implementation of the strategy, give advice on scheduling and priorities for publication, reflect on institutional cooperation and coordination, and consider the need for additional institutional mechanisms	**5.2.1. Expanded Environmental-Economic Accounts directorate within Stats SA**	• Active participation in the development of the National Strategy for the Development of Statistics (NSDS) to strengthen environmental subsystem • Actively seek to integrate NCA into the revision of Stats SA's Strategic Plan for 2025/26 to 2029/30 • Environmental-Economic Accounts directorate within Stats SA is expanded
5.1.2. Formal and informal strategic partnerships	• Do network analysis annually as a means of identifying emerging partnerships and monitoring institutional involvement • Develop a theory of change to help stakeholders locate themselves in the work • Establish formal and informal partnerships with strategic data providers, co-producers and users (national and international) to increase stock of data sources and compile accounts • Explore public-private collaborations (national and international) to produce and apply accounts	**5.2.2. Expanded capacity in Stats SA Geography Division**	• Identify officials with technical expertise to undertake NCA-related spatial work
		5.2.3. Increased commitment of national resources to NCA in a range of departments	• Explore opportunity to allocate government funding to NCA (e.g. within DPME akin to funding the SDGs) • Identify officials for NCA-related work and realign job descriptions to include NCA-related activities
5.1.3. Coordination of the National NCA Strategy	• NCA Coordination Unit coordinates available resources and tracks progress on implementation • Identify and resource a National NCA Strategy manager to oversee the implementation of the strategy • Further develop the National NCA Strategy indicative implementation plan with draft monitoring and evaluation framework	**5.2.4. Increased donor funding in NCA**	• Identify funding opportunities in relation to specific priority accounts (e.g. Green Climate Fund, linking to build back better stimulus package, GEF 8) • Co-develop and submit funding proposals • Engage with potential donors around the National NCA Strategy and priority accounts that require additional resources to compile

5. Implementation mechanisms

Stats SA Environmental-Economic Accounts directorate will coordinate the implementation and monitoring of this strategy. It will work through the NCA Coordination Unit and with the NCA Strategic Advisory Group to implement and further develop the indicative implementation plan (that distinguishes between a low-road and a high-road funding scenario), and draft a monitoring and evaluation framework (see annexure to the strategy).

Institutional mechanisms to support the implementation of the National NCA Strategy are essential to advancing collaboration and coordination. These are described in the table below including their purpose, current institutional participation and the goal to which they are most directly linked.

GROUP	PURPOSE	PARTICIPANTS	GOAL
NCA Strategic Advisory Group	Convened by Stats SA. Meets once or twice a year. Translates the strategy and priorities, giving strategic guidance on principles to guide priorities, scheduling of accounts, strategic engagements, dialogues and events to support and linkages to policies. May make recommendations that go to the NCA Community of Practice.	DFFE, DPME, DSI, DWS, NBI, National Treasury, SANBI, SANParks, Stats SA, WRC	5
NCA Coordination Unit	Coordination of the National NCA Strategy will be supported by the NCA Coordination Unit, convened by Stats SA and SANBI with the two contact points being Stats SA Deputy Director: Environmental Economic Accounts, Robert Parry (robertp@statssa.gov.za) and SANBI NCA Project Manager, Aimee Ginsburg (a.ginsburg@sanbi.org.za). Meets 6-12 times a year. Provides the liaison point, including for relevant international agencies such as UNSD and UNEP. Will maintain low-road implementation of the strategy within constraints of available capacity and adaptively manage capacity spread across accounts and working groups.	Stats SA, SANBI	5
Technical Working Groups (WG) (specific to an account or set of accounts under development)	A Technical Working Group will only be established when accounts are being developed, and will meet as regularly as needed (can be as regularly as monthly or quarterly). Stats SA could convene the Working Group or delegate this responsibility to another institution with the required capability. The role would be to give consideration to the NCA value chain for the accounts in question (i.e. consider data and capacity available, types of accounts, desired indicators, policies and plans these might inform), promote collaboration and ensure validation of the results. There will also be a role in drawing out key findings to support co-creation of interpreted products in Goal 2. Technical WGs may also be asked to provide reports/feedback to the NCA Strategic Advisory Group. A subset of the Technical WG will be responsible for compiling the accounts and will meet more regularly. Examples of Technical WGs include for marine ecosystem accounts, or set of ecosystem service accounts or thematic accounts for protected areas, or the Biodiversity Economy Satellite Account.	Participants will depend on the account or set of accounts under development. Participants will be technical people from Stats SA and other relevant organisations, including data providers and compilers of accounts.	3
Ad hoc technical reference groups	Review and guide NCA methods, prescripts, standards, recommendations and principles for the community of practice and/or methodological development of accounts to ensure their credibility. Convened as needed.	Experts from any of the role players, including experts from tertiary institutions, regional and international experts	3

NCA as an emerging field of work, methodologies, and application thereof, is still evolving. Additional needs in terms of institutional mechanisms may emerge. These may be raised to and by the NCA Coordination Unit and will be considered and guided by the NCA Strategic Advisory Group. Examples of other institutional mechanisms that could be considered in the future are:

- A high-level NCA Steering Committee involving, for example, the Stats SA Statistician-General, DFFE Director-General, SANBI CEO and other high-level individuals as relevant.
- Groups around co-creation of interpreted products in Goal 2 for use in Goal 1 that would involve technical experts, NCA champions as boundary actors, policy and decision-makers interested in engaging with the detail to develop insightful, credible evidence (ensuring users of information are partners in co-creating value).

Each of the institutional mechanisms may be involved in giving feedback or making contributions to the NCA Community of Practice. Stats SA will convene, with partners, the National NCA Forum as the main platform for the NCA Community of Practice in South Africa to convene, communicate and share. This will focus on updates on national-level work, but will also provide an opportunity to make linkages with regional and global initiatives.

6. References

Department of Environmental Affairs (DEA) . 2017. Draft Science Policy Interface Brief on Natural Capital Accounting. Unpublished document prepared in March 2017.

Department of planning, monitoring and evaluation (DPME) (undated). Performance Monitoring and Evaluation Capacity Development Strategy.

Nel, J.L. & Driver, A. 2015. National River Ecosystem Accounts for South Africa. Discussion document for Advancing SEEA Experimental Ecosystem Accounting Project, October 2015. South African National Biodiversity Institute, Pretoria.

South African National Biodiversity Institute (SANBI) & Statistics South Africa (Stats SA). 2018. Assessment report towards the development of a national strategy for advancing environmental-economic and ecosystem accounting in South Africa. Developed as part of the Natural Capital Accounting & Valuation of Ecosystem Services Project in South Africa. Compiled by Ginsburg, A., Driver, A., Bouwer, G., Parry, R. & Nel, J.L. South African National Biodiversity Institute, Pretoria. 85 pp.

Statistics South Africa (Stats SA). 2020. Natural Capital Series 1: Land and Terrestrial Ecosystem Accounts, 1990 to 2014. Discussion document (D0401.1). Produced in collaboration with the South African National Biodiversity Institute and the Department of Environment, Forestry and Fisheries. Statistics South Africa, Pretoria.

United Nations (UN). 2019. The Global Statistical Geospatial Framework. Department of Economic and Social Affairs. Statistics Division. Global Geospatial Information Management Secretariat United Nations. New York, 2019

United Nations (UN). UN Guide for Strategic Planning.

7. Appendices

7.1. Appendix A. Record of stakeholder engagement in the development of the strategy

Stakeholder engagement in the development of the National NCA Strategy has taken place through numerous engagements over 3 years, from March 2018 to March 2021.

Broad engagements happened through four national-level events:

- The National NCA Stakeholder Workshop on 19 March 2018 (71 participants from 30 institutions)
- The National NCA Training Workshop (21–22 May 2019) (participants from 14 institutions)
- The National NCA Forum (10–11 June 2019) (131 participants from 27 institutions)
- The National NCA Strategy Stakeholder Workshop (10–11 November 2020) (50 participants from 19 institutions)

The first draft of the National NCA Strategy was developed with guidance from the NCA Strategic Advisory Group (SAG), which involves representatives from (listed in alphabetical order):

- Department of Forestry, Fisheries and Environment (DFFE)
- Department of Planning, Monitoring and Evaluation (DPME)
- Department of Science and Innovation (DSI)
- Department of Water and Sanitation (DWS)
- National Business Initiative (NBI)
- National Treasury (NT)
- South African National Biodiversity Institute (SANBI)
- South African National Parks (SANParks)
- Statistics South Africa (Stats SA)
- Water Research Commission (WRC)

NCA Strategic Advisory Group meetings were held:

- 11 December 2019
- 11 February 2020
- 22 April 2020
- NCA SAG members participated in the National NCA Strategy Stakeholder Workshop

The first draft of the National NCA Strategy was distributed to the full NCA stakeholder distribution list maintained by Stats SA. Comments were received from:

- Development Bank of Southern Africa (DBSA)
- UKZN Centre for Water Resources Research (CWRR)
- National Biodiversity Institute (NBI)
- National Treasury (NT)
- South African National Biodiversity Institute (SANBI)
- Statistics South Africa (Stats SA)
- Department of Forestry, Fisheries and Environment (DFFE)

Consideration and integration of these comments as well as inputs from key role players engaged through trilaterals were taken up in the second draft of the National NCA Strategy. Trilateral engagements between Stats SA, SANBI and the following institutions took place:

- December 2019: DFFE

- October 2020: National Treasury
- October 2020: DWS
- October 2020: DPME

Additionally, guidance was received from a Project Reference Group (PRG) for the NCA and Valuation of Ecosystem Services (NCAVES) Project who gave input on the Assessment Report and the National NCA Strategy, and which includes representatives from the following institutions:

- The Delegation of the European Union to South Africa
- United Nations Statistics Division (UNSD)
- United Nations Environment Programme (UN Environment)
- Department of Forestry, Fisheries and Environment (DFFE)

A second draft of the National NCA Strategy was distributed in November 2020 to the full NCA stakeholder distribution list maintained by Stats SA, in advance of the National NCA Strategy stakeholder workshop. The workshop was attended by 50 individuals from 19 institutions and was designed specifically around getting direct input on the strategy and the indicative implementation plan. This was well achieved as evidenced by a Mentimeter poll that was taken by 25 participants (see word cloud below).

Following the National NCA Strategy stakeholder workshop, another trilateral engagement between DFFE, Stats SA and SANBI was held in March 2021 to specifically review the results chain logic of the strategy.

A record of institutional support across these events is summarised in the table below.

Event	National NCA Stakeholder Workshop	National NCA Training Workshop	National NCA Forum	National NCA Strategy Stakeholder Workshop	Trilaterals held	NCA Strategic Advisory Group
Date	Mar 2018	May 2019	Jun 2019	Nov 2020	Various times	Three times
TOTAL Institutions	**30**	**14**	**27**	**19**	**10**	**10**
TOTAL Individuals	71	14	131	50		18
Accounting Standards Board			Yes		Yes	
Anchor Environmental Consultants	Yes	Yes	Yes	Yes		
Cape Peninsular University of Technology			Yes			
Cashan Environmental Services				Yes		
Centre for Environmental Economics & Policy in Africa	Yes					
Council of Scientific and Industrial Research	Yes		Yes	Yes	Yes	
Development Bank of Southern Africa			Yes			
Dept of Forestry, Fisheries and the Environment	Yes	Yes	Yes	Yes	Yes	Yes
Dept of Planning, Monitoring and Evaluation	Yes		Yes	Yes	Yes	Yes
Dept of Agriculture, Land Reform and Rural Development	Yes		Yes			
Dept of Science and Innovation			Yes			Yes
Dept of Water and Sanitation	Yes	Yes	Yes	Yes	Yes	Yes
Endangered Wildlife Trust/National Business and Biodiversity Network	Yes					
Environmental Planning and Climate Protection Department			Yes			
eThekwini Municipality	Yes			Yes		
European Union Delegation to South Africa	Yes		Yes			
Ezemvelo KZN Wildlife	Yes		Yes			
Free State Development, Tourism and Environmental Affairs		Yes				
Gaborone Declaration / Conservation International				Yes		
Gauteng Department of Agriculture and Rural Development	Yes		Yes	Yes		
Gauteng City Region Observatory			Yes			
GeoTerraImage	Yes			Yes		
IDEEA Group		Yes				
Institute of Natural Resources	Yes					
International Union for Conservation of Nature	Yes					
Kruger to Canyons Biosphere Reserve	Yes					
Mogale's Gate	Yes		Yes			
Mpumalanga Parks and Tourism Agency		Yes				

Event	National NCA Stakeholder Workshop	National NCA Training Workshop	National NCA Forum	National NCA Strategy Stakeholder Workshop	Trilaterals held	NCA Strategic Advisory Group
Date	Mar 2018	May 2019	Jun 2019	Nov 2020	Various times	Three times
National Business Initiative				Yes		Yes
National Capital Finance Alliance / EARTH.INC				Yes		
National Treasury	Yes		Yes		Yes	Yes
National Planning Commission			Yes			
Nelson Mandela University				Yes		
North West Provincial Government		Yes				
Office the Auditor-General of South Africa	Yes				Yes	
Prime Africa Consultants	Yes					
Resilience Environmental Advice	Yes					
South African Earth Observation Network			Yes	Yes		
South African Institute of Chartered Accountants	Yes					
South African National Biodiversity Institute	Yes	Yes	Yes	Yes	Yes	Yes
South African National Parks	Yes	Yes	Yes		Yes	Yes
Statistics South Africa	Yes	Yes	Yes	Yes	Yes	Yes
Trans-Caledon Tunnel Authority			Yes	Yes		
UN Development Programme	Yes					
UN Statistical Division		Yes	Yes			
UN Environment	Yes	Yes	Yes	Yes		
University of KwaZulu-Natal, Centre for Water Resources Research	Yes	Yes	Yes			
University of Pretoria	Yes					
Wageningen Environmental Research		Yes				
Water Research Commission	Yes		Yes	Yes		Yes

7.2. Appendix B. Statistical Value Chain

The statistical value chain is described in the SASQAF. Stats SA has adapted what was developed by the Joint UNECE/Eurostat/OECD Work Session on Statistical Metadata (METIS) in 2008. The statistical value chain is the statistical process of developing national statistics and involves a range of statistical operations, which are enabled by various support functions.

Table 4. Phases and sub-processes in the statistical value chain, and quality dimensions and indicators that accompany them

Statistical value chain		SASQAF quality dimensions and indicators	
#	Phase	Sub-process	Quality indicators
1	**Need**	This first phase involves all the necessary planning when a need for new statistics is identified, or feedback about current statistics initiates a review. It determines whether there is a presently unmet demand, externally and/or internally, for the identified statistics and whether the statistical organisation can produce them.	**Prerequisites of quality** e.g. responsibility for producing statistics is clearly specified, standards and policies are in place to promote consistency of methods and results, data sharing and coordination among data-producing agencies are clearly specified. **Relevance** e.g. have both internal and external users of the data been identified? Are user needs and the usage of statistical information analysed? **Timeliness** e.g. periodicity of release. **Accessibility** e.g. legal arrangements are in place to allow access to administrative records. **Methodological soundness** e.g. the scope of study is consistent with accepted standards, guidelines and good practices. **Integrity** e.g. choice of source data, techniques and dissemination decisions are informed solely by statistical considerations.
2	**Design**	This phase describes the development and design activities and any associated practical research work needed to define the statistical outputs, concepts, methodologies, collection instruments and operational processes. This occurs in the first iteration or whenever improvement actions are identified (e.g. in phase 9 [evaluate]).	**Prerequisites of quality** e.g. resources are commensurate with the needs of the statistical programme (staff, facilities, computing resources, financing). **Accuracy** e.g. register/frame maintenance procedures are adequate (updates, quality assurance), data collection systems are sufficiently open and flexible to cater. **Comparability and coherence** e.g. data across comparable series or source data are based on common frames, identifiers, concepts, etc. **Methodological soundness** e.g. concepts, definitions, and classifications or methodologies used follow accepted standards, guidelines or good practices (national, international, peer-aligned).
3	**Build**	This phase builds and tests the production systems to the point where they are ready to use in the 'live' environment. This generally occurs in the first iteration.	

Statistical value chain		SASQAF quality dimensions and indicators	
#	Phase	Sub-process	Quality indicators
4	**Collect**	This phase collects all necessary data, using different collection modes and loads them into the appropriate data environment.	
5	**Process**	This phase describes the cleaning of data records and their preparation for analysis. It is made up of sub-processes that check, clean, and transform the collected data, and may be repeated several times. Applies to data from both statistical and non-statistical sources.	**Comparability and coherence** e.g. a common set of identifiers (for the purpose of record matching) exist and have been agreed upon by data producers.
6	**Analyse**	In this phase, statistics are produced, examined in detail, interpreted, and made ready for dissemination. Sub-processes and activities include those that enable statistical analysts to understand the statistics produced, and are generic for all statistical outputs regardless of how the data were sourced.	**Accuracy** e.g. measures of sampling errors for key variables are calculated. Among others these are: standard error; coefficient of variation (CV); confidence interval; mean square error; design effect, or measures of non-sampling errors are calculated (e.g. frame coverage errors, systematic errors, measurement errors, processing or model assumption errors). **Comparability and coherence** e.g. statistics are consistent or reconcilable over time, statistics are checked for consistency with those obtained through other data sources.
7	**Disseminate**	This phase manages the release of the statistical products to customers. The sub-processes can occur sequentially, in parallel and be interactive. They include updating output systems, producing products and quality statements, and managing the release of products.	**Accuracy** e.g. data from the primary source have been quality assessed. **Timeliness** e.g. average time between the end of reference period and the date of the final preliminary results (and of the final results). **Accessibility** e.g. are statistical products available to the public? Rules governing the restricted availability of administrative records. Types of media and/or channels used for sharing data amongst stakeholders are adequate and preserve confidentiality. **Interpretability** e.g. documented metadata are sufficient to understand data, statistics are presented in a clear and understandable manner. **Methodological soundness** e.g. are revisions schedules followed? Studies of revisions made public. **Integrity** e.g. terms of conditions under which statistics are produced are publicly available and follow UN principles of official statistics.
8	**Archive**	This phase manages the archiving and disposal of statistical data and metadata. This may include disposal of intermediate files from previous iterations.	

Statistical value chain		SASQAF quality dimensions and indicators	
#	Phase	Sub-process	Quality indicators
9	**Evaluate**	This phase manages the evaluation of a specific instance of a statistical business process. It takes place at the end of the instance of the process, but relies on inputs gathered across the phases. For statistical outputs that are produced regularly, it should occur with each iteration, assessing the need for improvements and/or future iterations.	**Prerequisites of quality** e.g. measures to oblige response are ensured through law. **Relevance** e.g. is there a process to determine the satisfaction of users with the statistical information?

7.3. Appendix C: List of role players (data providers, account compilers, users of accounts or other)

Includes organisations that are providers of data used in natural capital accounts, and/or organisations that are producers of accounts, users of accounts, and/or (supporters of) interested parties and potential users of accounts.

Table 5. Summary of role players involved in strengthening statistical systems and/or producing, using and/or supporting information for sustainable development in South Africa. Users include current and future potential users; 'Other' includes roles such as funder, setting standards, doing research, etc.

Name	Description of role with regard to production or use of NCA	Data provider	Compilers of accounts	Users	Other
SOUTH AFRICAN ENTITIES					
Accounting Standards Board (ASB)	The ASB, overseen by National Treasury, is required by the Public Finance Management Act, Act No. 1 of 1999 (PFMA), to serve the public interest by setting standards of Generally Recognised Accounting Practice (GRAP) (ASB 2014) and providing guidance for financial and other performance information reported by the public sector. The Standards of GRAP that the Board develops include standards, interpretations and directives. The PFMA also allows the Board to prepare and publish guidelines concerning these standards. The Board has the following responsibilities: determine the work programme and approve the appointment of members of project groups; approve the standards to be issued as standards of GRAP for the preparation of annual financial statements of all spheres of government; prepare and publish directives, interpretations and guidelines concerning the standards of GRAP; recommend to the Minister of Finance effective dates for the implementation of these standards by different categories of institutions to which these standards apply; perform any other function incidental to advancing financial reporting in the public sector; and issue and publish recommended practices on its own authority, if satisfied as to need, usefulness and practicality, following a process of consultation with stakeholders.	No	No	No	Potentially supporters of standardised approaches to accounts.
Agricultural Research Council (ARC)	The ARC conducts research in support of the development of the agricultural sector. In collaboration with DAFF and provincial agriculture departments, they have developed AGIS, an online, integrated spatial database of selected agricultural, climate, soil and demographic data. The platform could serve as an example of integrated web mapping and as an input to testing the SEEA EA.	Yes	No	Yes	
African Development Bank (AfDB)	The overarching objective of the African Development Bank (AfDB) Group is to spur sustainable economic development and social progress in its regional member countries, thus contributing	No	No	Yes	Possible funder

Name	Description of role with regard to production or use of NCA	Data provider	Compilers of accounts	Users	Other
	to poverty reduction. The AfDB are potential users of accounts and supportive of expansion of accounting on the African continent.				
The Banking Association South Africa (BASA)	The Banking Association South Africa (BASA) advances the interests of the industry with its regulators, legislators and stakeholders, to make banking sustainable, profitable and better able to contribute to the social and economic development and transformation of the country. Would be relevant in relation to application of natural capital accounts by the private sector.	Unclear	No	Possibly	
Council for Scientific and Industrial Research (CSIR)	The CSIR is a world-class African research and development organisation established through an Act of Parliament in 1945. The CSIR undertakes directed, multidisciplinary research and technological innovation that contributes to the improved quality of life of South Africans. The organisation plays a key role in supporting government's programmes through directed research that is aligned with the country's priorities, the organisation's mandate and its science, engineering and technology competencies. The CSIR undertakes advanced spatial analysis and modelling work that is useful in the production of NCA, has advanced spatial analysis and modelling capacity and expertise in national freshwater and estuarine aquatic ecosystem assessment, and was a key partner in the ANCA Project. CSIR could play a key role in supporting the development of accounts going forward, both through links with the Geospatial Analysis Platform (a meso-scale geospatial platform for the assembly, analysis and sharing of strategic geospatial information) and through the Natural Resources and Environment division, which would contribute especially to ecosystem accounting.	Yes	Yes	Yes	
Department of Agriculture, Land Reform and Rural Development (DALRRD)	DALRRD is responsible for equitable access to land, integrated rural development, sustainable agriculture and food security for all. The Department's mission is to accelerate land reform, catalyse rural development and improve agricultural production to stimulate economic development and food security through: transformed land ownership patterns; agrarian reform; implementation of an effective land administration system; sustainable livelihoods; innovative sustainable agriculture; promotion of access to opportunities for youth, women and other vulnerable groups; and integrated rural development. The Department is responsible for spatial information in South Africa through the Spatial Data Infrastructure Act (Act No. 54 of 2003) and spatial planning and land use management through the Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA). The Director-General of DALRRD administers the SA Spatial Data Infrastructure (SASDI). DALRRD is responsible for cadastral surveying, deeds registration, and land reform. DALRRD are important data providers, coordinating spatial data custodianship, data users and potentially data compilers..	Yes	Potentially	Yes (e.g. Spatial Planning and Land Use Management)	Setting standards through CSI

Name	Description of role with regard to production or use of NCA	Data provider	Compilers of accounts	Users	Other
	Note: Prior to June 2019, the agriculture function was incorporated into the Department of Agriculture, Forestry and Fisheries, while the rural development and land reform functions were incorporated into the Department of Rural Development and Land Reform (DRDLR).				
Department of Cooperative Governance and Traditional Affairs (CoGTA)	CoGTA supports a functional and developmental local government system that delivers on its constitutional and legislative mandates within a system of cooperative governance. It works to ensure that all municipalities perform their basic responsibilities and functions consistently by, amongst other things, ensuring sound financial management and accounting. CoGTA coordinates the Integrated Urban Development Framework, and manages and transfers the Municipal Infrastructure Grant (MIG), which aims to eradicate municipal infrastructure backlogs to poor communities. It supports local economic development and the community work programme.	No	No	Yes	
Department of Forestry, Fisheries and the Environment (DFFE)	DFFE is mandated to give effect to the right of citizens to an environment that is not harmful to their health or wellbeing, and to have the environment protected for the benefit of present and future generations. To this end, the department provides leadership in environmental management, conservation and protection towards sustainability for the benefit of South Africans and the global community. DFFE is the National Focal Point for the CBD and UNCCD, and hosts IPBES. It is responsible for reporting on and publishing general environmental statistics through a range of publications, and has developed a Delivery Agreement around the MTSF Outcome 10, which identifies the partnerships necessary and targets for specific outputs: - Output 1: Enhanced quality and quantity of water resources - Output 2: Reduced greenhouse gas emissions, climate change impacts and improved air/atmospheric quality - Output 3: Sustainable environmental management - Output 4: Protected biodiversity o Sub-output 4.4: Valuing the ecosystem services ▪ 4.4.1 Environmental costs related to the provision of resource-based services. DFFE acts as the lead organisation in the development of the National Strategy for Sustainable Development and Action Plan (NSSD1 and NSSD2), the National Biodiversity Strategy and Action Plan (NBSAP), and the National Biodiversity Economy Strategies (NBES). It also collaborates with other institutions to produce reports such as a Green Economy Modelling Report (with UN Environment), focussing on the employment-generation potential	Yes	Potentially	Yes (e.g. in State of the Environment Reporting and the Environmental Outlook, or Environmental Sustainability Indicators.)	

Name	Description of role with regard to production or use of NCA	Data provider	Compilers of accounts	Users	Other
	in natural resources management, agriculture, transport and energy sectors. It leads the implementation of BIOFIN, in collaboration with National Treasury, for the UNDP. DFFE is a key partner in terms of providing data and using outputs from testing the SEEA EA. Links to CBD and TEEB will enhance use of SEEA EA in international reporting. SEEA EA would provide an underlying measurement framework and quantitative data to streamline many of their reporting activities. Activities to address Aichi Targets could be linked to SEEA EA testing Programme of Work. The department has proposed a TEEB Country Study for South Africa that would focus on addressing Sub-output 4.4 (as mentioned above) by: collating existing valuation studies, reporting on biodiversity values, identifying valuation research gaps, and conducting additional research on valuation and decision-making in selected landscapes.				
Department of Energy (DoE) – now combined with DMR as DMRE	With respect to environmental issues in the MTSF, the Department of Energy is responsible for indicators on (1) an effective climate change mitigation and adaptation response, and (2) sustainable human communities (in terms of renewable energy). The DoE could be a partner in testing the SEEA EA through providing data (e.g. on energy infrastructure, biofuel consumption) for ecosystem asset and production accounts, as well as a user of an integrated spatial framework.	Yes	No	Yes	
Department of International Relations and Cooperation (DIRCO)	DIRCO is responsible for reporting internationally on progress towards the MDGs and SDGs. Under the MTSF, this is included in terms of enhancing global cooperation through governance systems and capacity. Since there is a clear linkage between the SDGs and the testing of the SEEA EA, DIRCO could be engaged as a partner in the testing of the SEEA EA as a supporter and user of high-level indicators on biodiversity values, ecosystem protection and degradation.	No	No	Yes (e.g. reporting on SDGs)	
Department of Mineral Resources (DMR) – now combined with DoE as DMRE	DMR oversees the mining industry in South Africa. It sets as its vision "To enable a globally competitive, sustainable and meaningfully transformed minerals and mining sector." Under the MTSF, they are responsible for reporting on: (1) increasing mining exploration and investment; (2) a national coal policy; and (3) mitigating negative environmental impacts in the exploitation of mineral resources. They also maintain an inventory of large land owners.	Yes (e.g. data on mining)	No	Yes (e.g. DMR could benefit from a broad framework for assessing its impacts.)	
Department of Mineral	The DMRE was established in June 2019 by the merger of the Department of Energy and the Department of Mineral Resources (see DoE and DMR above).	Yes	No	Yes	

Name	Description of role with regard to production or use of NCA	Data provider	Compilers of accounts	Users	Other
Resources and Energy (DMRE)					
Department of Planning, Monitoring and Evaluation (DPME)	DPME is under the Minister of the Presidency and is responsible for setting governmental priorities, monitoring and evaluation. The main instrument for setting priorities is the National Development Plan and the approach used is to define 14 high-level outcomes. The National Planning Commission is an independent agency, answering to the President. It is responsible for developing a long-term vision and strategic plan for South Africa. The commission will also advise on cross-cutting issues that impact on South Africa's long-term development. As a supporter and user of the results of testing the SEEA EA, DPME would benefit from having access to a coherent and coordinated measurement and reporting framework for selected MTSF indicators.	No	No	Yes (e.g. NCA information for NSDF)	
Department of Science and Innovation (DSI) – formerly Department of Science and Technology	DSI provides leadership, an enabling environment, and resources for science, technology and innovation in support of South Africa's development. Much of the scientific research and work it undertakes is carried out by the following public entities: National Research Foundation (NRF), Council for Scientific and Industrial Research (CSIR), Technology Innovation Agency, South African National Space Agency, and the Human Sciences Research Council. DSI implements the Global Change Challenge and Research Plan in partnership with other stakeholders. NCA could support this plan through providing information relevant to planning and decision-making towards sustainable futures.	No	No	Yes	Allocate funds to data providers & support capacity building in this field.
Department of Water and Sanitation[4] (DWS)	DWS's primary responsibility is to formulate and implement water policy. It has an overriding responsibility for water services provided by local government. DWS has worked with CSIR to produce State of Rivers Reports as part of the River Health Programme. They maintain an ecological status database for rivers (by subscription). According to the MTSF, DWS is responsible for providing information on strategies for water conservation, protecting water resources and maintaining and improving watershed services in key rural areas. DWS holds substantial data on the ecological status of rivers and would also benefit from linkage to economic and social priorities as part of testing the SEEA EA's land, water, ecosystem asset and ecosystem service accounts.	Yes (e.g. State of Rivers Reports)	Potentially	Yes	

[4] The department was known as the Department of Water Affairs (DWA) prior to May 2014 and as the Department of Water Affairs and Forestry (DWAF) prior to May 2009.

Name	Description of role with regard to production or use of NCA	Data provider	Compilers of accounts	Users	Other
Delegation of the European Union to SA	Based in Pretoria and is the focal point for the EU in South Africa. The EU has funded work on the NCA&VES Project.	No	No	No	Yes
Development Bank of Southern Africa (DBSA)	DBSA's purpose is to 'Build Africa's Prosperity' by driving inclusive growth and securing innovative solutions that drive socio-economic development in emerging economies in sub-Saharan Africa. DBSA are potential users of accounts, particularly in relation to informing investment of funding resources in built and ecological infrastructure. DBSA is implementing the Ecological Infrastructure for Water Security project, funded by GEF and being executed by SANBI and which includes an outcome on NCA.	Yes	No	Yes	Possibly funding support
Ezemvelo KZN Wildlife	KZN Wildlife is a provincial governmental organisation responsible for maintaining protected areas and biodiversity in the KwaZulu-Natal province. The organisation is actively involved in biodiversity planning and has produced case studies on valuing ecosystem goods and services in the province. KZN Wildlife, as a partner in testing the SEEA EA, could both provide data (on species, ecosystems, ecological condition and ecosystem services) and benefit from integrated spatial data and standard classifications	Yes (e.g. KZN land cover)	Yes	Yes	
National Geo-spatial Information (NGI)	NGI, known as South Africa's national mapping organisation, is a component of DRDLR whose functions are mandated by section 3(A) of the Land Survey Act (Act No. 8 of 1997). It manages an integrated survey system, which expedites and facilitates orderly development, and provision of extensive topographic mapping, land cover and aerial imagery coverage of the country, which facilitate sustainable development. NGI established, manages and controls an active control survey network of continuously operating GNSS base stations covering South Africa. It is a key contributor to the SASDI as well as being the largest custodian of geospatial information.	Yes (e.g. mapping and aerial imagery coverage of the country)	No	No	
National Treasury (NT)	The National Treasury, under the Ministry of Finance, is responsible for macro-economic policy and manages the government's budget preparation process and implementation. The National Treasury is considering a national carbon tax and has been conducting modelling and forecasting in preparation. As with DPME, the National Treasury is a potential supporter of testing the SEEA EA, since a streamlined environmental data collection and reporting process would have potential cost savings for government.	No	No	Yes	
Nelson Mandela University	Institute for Coastal and Marine Research (CMR) – a research entity of the Nelson Mandela University involved in the Ocean Accounts Framework. Involved in convening the Ocean Accounting WG.	Yes	Yes	No	Undertaking research contributing to

Name	Description of role with regard to production or use of NCA	Data provider	Compilers of accounts	Users	Other
					best practices, accessing funding.
South African Environmental Observation Network (SAEON)	Funded by NRF through the DST, its vision is to establish a South African observation and research facility that provides understanding, based on long-term information, needed to address environmental issues. The core of SAEON is to create a framework that permits collection, transmission and interpretation of data on long-term ecological changes. New understanding brought about through SAEON will inform suitable policies and appropriate procedures (actions) for dealing with the inevitability of environmental change and its consequences for the livelihoods of South Africa's people.[5]	Yes	No	No	
South African Local Government Authority (SALGA)	South African Local Government Association (SALGA) is an autonomous association of all 257 South African local governments, comprising of a national association, with one national office and nine provincial offices. It is listed as a Schedule 3A public entity. SALGA has a clear strategic role to play in representing the interests of local government within the system of government as a whole and supporting its members to fulfil their developmental obligations, on the other. As a full partner in government, SALGA is expected to be an active participant in the intergovernmental relations (IGR) system, to provide common policy positions on numerous issues and to voice local government interests, as well as provide solutions to the challenges facing local government more generally. SALGA maintains a Knowledge hub to support municipalities making informed and reliable decisions. This includes the Municipal Barometer, which includes a range of municipal data such as: Demographics trends, Economic Growth and Development, Access to Basic Services, Access to Social Services, Environmental resilience, municipal finance, good governance and accountability, coherent municipal planning and municipal capacity building, HR and Labour Relations.	Yes	Unclear	Yes	
South African National Biodiversity Institute (SANBI)	SANBI derives its mandate from the National Environmental Management: Biodiversity Act (Act No. 10 or 2004) and "leads and coordinates research, and monitors and reports on the state of biodiversity in South Africa". In 2004 and 2011, SANBI published a National Biodiversity Assessment (NBA), which focused on terrestrial, freshwater, coastal and marine ecosystems. The NBA 2018 is currently underway and will be published in 2019.	Yes (e.g. through National Biodiversity Assessment)	Yes (e.g. developed National River Ecosystem Accounts in	User	

[5] P. 35 of Environment Sector Research, Development and Evidence (R,D&E) framework (approved by MINMEC in 2012) available at http://www.sagreenfund.org.za/wordpress/wp-content/uploads/2015/04/DEA-Research-Document.pdf

Name	Description of role with regard to production or use of NCA	Data provider	Compilers of accounts	Users	Other
	SANBI is the custodian of the National Ecosystem Classification System, which provides foundational information for the development of ecosystem accounts, including maps and classification systems for terrestrial, river, wetland, estuarine, inshore and offshore ecosystems. SANBI collaborates closely with other related departments and is often the convenor of relevant initiatives and communities of practice.		partnership with Stats SA, DWS and CSIR)		
South African National Energy Development Institute (SANEDI)	SANEDI is an energy research institute which can provide data on energy types (SOE attached to DMRE). SANEDI was established in 2011 under the National Energy Act, 2008 (Act No. 34 of 2008). The Act provides for SANEDI to direct, monitor and conduct energy research and development, promote energy research and technology innovation as well as undertake measures to promote energy efficiency throughout the economy. In terms Of SANEDI's mandate, two programmes have been established: • applied energy research, development and innovation: includes renewable energy, cleaner fossil fuels, energy data and knowledge, cleaner mobility, smart grids, working for energy • energy efficiency	Yes	Unclear	Yes	Unclear
South African Weather Service (SAWS)	Public entity under DEA. Provides weather data and forecasting.	Yes	No	No	No
Statistics South Africa (Stats SA)	Stats SA is South Africa's national statistics office (NSO). The Statistician-General of South Africa is responsible for both the operations of Stats SA and the National Statistics System. That is, the position includes the mandate to influence the nature and quality of data collected by other agencies. Stats SA implemented the System of National Accounts in 2008 (SNA 2008), which includes an enhanced focus on natural resources, their valuation, and their depletion. The government of South Africa has adopted a South African Statistical Quality Assessment Framework (SASQAF), which a framework for quality assessment across the statistical value chain.. Stats SA engages with its stakeholders internationally, regionally and nationally. Their role in environment statistics is concentrated in environmental-economic accounting (established in 1999). They do not have a general environmental statistics programme. They have been asked to assess the quality of selected government environmental datasets, but are unable to keep up with the demand.	Yes (e.g. general household survey data)	Yes (e.g. Integrated Report on Environmental-Economic Accounts covering energy, fisheries, mining and selected socio-economic indicators; and a Water Quality	Producer	Sets standards for statistics. Builds capacity (e.g. pilot training programme for the SEEA Central Framework Accounts in 2014.)

Name	Description of role with regard to production or use of NCA	Data provider	Compilers of accounts	Users	Other
	Stats SA accesses data from other government departments for statistical purposes through establishing general Memoranda of Understanding (MoUs), and then specific Service Level Agreements for individual projects. Stats SA has established a core environmental-economic accounting capacity, a pilot SEEA training programme and institutional relationships that could all be expanded to incorporate ecosystem accounting by testing the SEEA EA. The need for improved quality assurance services are opportunities to integrate specific environmental indicators with SEEA EA, and to ensure environment sector data comply with minimum quality standards.		Account published in 2006.)		
Water Research Commission (WRC)	The WRC was established in terms of the Water Research Act (Act No. 34 of 1971), and is a statutory body under DWS. It is a global water knowledge node and South Africa's premier water knowledge hub active across the Innovation Value Chain that: informs policy and decision-making; creates new products, innovation and services for socio-economic development; develops human capital in the water science sector; supports the national transformation and redress project; and develops sustainable solutions and deepens water research and development in South Africa, Africa and the developing world. It has funded the Water Research Accounts.	Yes (e.g. through funding research that provides data useful in water accounts and freshwater ecosystem accounts)	Yes (e.g. through funding projects that generate accounts such as water accounts and agricultural water accounts)	No	Funds and publishes
INTERNATIONAL ENTITIES					
FAO Country Office	The FAO Country Office works with DAFF to "provide technical support to ensure food security and rural development". This includes institutional strengthening and technical capacity development. The office could advise testing the SEEA EA on the use of FAO global land cover and soil data at a national level.	No	No	Yes	Works with DAFF
Gaborone Declaration for Sustainability in Africa (GDSA) Secretariat	The GDSA is a transformative action platform for achieving sustainable development in Africa. It was initiated as a regional policy framework in May 2012 and announced at Rio +20 by the ten African countries to take action towards sustainable development. The functions of the GDSA Secretariat have been delegated to Conservation International (CI) until December 2018. As such, CI is working on NCA in Africa under the mandate of the Declaration's stated	No	No	Yes	Supports NCA (e.g. through coordination and producing publications on

Name	Description of role with regard to production or use of NCA	Data provider	Compilers of accounts	Users	Other
	commitments. They work with the 12 member countries to move the GDSA initiative forward. A team of experts based in Gaborone provides members with technical and policy support and facilitates a platform for learning, capacity building, promoting national and global dialogues and linkages, identifying partnerships and mobilising financial resources to achieve the sustainable development goals.				NCA in Africa, case studies, information sheets, progress reports, etc.).
International Council for Local Environmental Initiatives (ICLEI) Africa	ICLEI is a global network committed to building a sustainable future through supporting local government. It supports technical, organisational, financial and social solutions to transition to a more sustainable future. ICLEI Africa's Secretariat both contributes to, and taps into, the organisation's international network of local government leaders and professional staff who share tools, strategies and good practices for promoting the overall goal of sustainable development through the 17 SDGs.	No	No	Yes	Capacity building and tool production
Organisation for Economic Cooperation and Development (OECD)	In 2013, the OECD released its Environmental Performance Review of South Africa: "… the Review recommends to broaden and deepen initiatives to integrate biodiversity into economic and social development." This recommendation could be addressed by testing the SEEA EA.	No	No	Yes (e.g. in Environmental Performance Review of South Africa)	
Statistics Division of the African Union	Coordinates the Strategy for Harmonising Statistics in Africa (SHaSA). South Africa has proposed the creation of a theme on Environmental-Economic Accounting, but this has not yet been agreed on by the organisations that would need to sponsor such an activity (UN-Economic Commission for Africa, African Union Commission, and the African Development Bank). Testing the SEEA EA would be an opportunity to engage other African nations in developing programmes on ecosystem accounting.	No	No	Yes	Supports through standardisation / setting statistic standards
United Nations Development Programme (UNDP)	UNDP: "South Africa Country Programme is guided by national policy as stated in the MTSF, draft National Development Plan: Vision 2030, the Joint Evaluation Report, the Partnership Framework Agreement and the UNDAF (2013-17)." The UNDP manages the implementation of the Biodiversity Finance Initiative (BIOFIN), in partnership with the European Commission and the Governments of Germany and Switzerland. One of 29 countries participating in BIOFIN, BIOFIN is implemented in SA by DEA in collaboration with the National Treasury. BIOFIN aims to develop a comprehensive national resource mobilising strategy, improve cost effectiveness through the mainstreaming of biodiversity into	No	No	Yes	Supporter

Name	Description of role with regard to production or use of NCA	Data provider	Compilers of accounts	Users	Other
	national development and sectoral planning, and develop a methodology for quantifying the biodiversity finance gap at national level.				
United Nations Environment Programme (UN Environment) South Africa Liaison Office	The UN Environment South Africa Liaison Office is also the Regional Coordination Office for Southern Africa. They have collaborated with DEA in producing the Green Economy Modelling Report. UN Environment is also linked with regional organisations such as the African Environment Ministers and the African Environmental Information Network.	No	No	Yes (e.g. in Green Economy Modelling Report [with DEA])	Supporter

Annexure to the National Natural Capital Accounting Strategy

Indicative Implementation Plan and Draft Monitoring and Evaluation Framework

Indicative Implementation Plan and Draft Monitoring and Evaluation Framework

1. Introduction

The *National Natural Capital Accounting Strategy (NCA): A ten-year strategy for advancing NCA in South Africa* (hereafter referred to as 'the National NCA Strategy') was developed collaboratively with a wide range of stakeholders (as evidenced in Appendix A of the strategy). The process of developing the strategy involved broad thinking about priorities, processes, products, platforms, people and planning involved in the broad and emerging area of work that is NCA in South Africa (and globally). These inputs were then organised into a results chain logic as it was clarified what would be steps towards outputs (i.e. the activities), what would be outputs towards achieving strategic objectives, which have intended longer-term impacts. This information was invaluable in arriving at the strategy and has been captured in an indicative implementation plan for the National NCA Strategy.

Further, in the process of checking the logic of the strategy, how the strategy would be monitored and evaluated was considered. This has been captured in a draft monitoring and evaluation framework that can be further developed in the implementation of the strategy.

This annexure captures both the Indicative Implementation Plan and the draft Monitoring and Evaluation Framework. There are a range of role players who will be involved in the implementation of the National NCA Strategy, many of whom will find themselves in the Indicative Implementation Plan below.

2. Indicative Implementation Plan

The Indicative Implementation Plan is structured per goal and strategic objective, and includes a table specifying per output the indicative activities towards arriving at those outputs and information important to implementation:

- **Funding scenario**: The NCA strategy has been developed so that it can be implemented under two different funding scenarios:
    - **Low-road activities**: can be undertaken with existing human and financial resources.
    - **High-road activities**: are only possible with additional resources.
- **Key role players**: include both lead and support role players.
- **Timeframes**: in the case of low-road activities these may be known, in the case of high-road activities these might be estimated or unknown.
- **Resources**: refer to human or financial resources. There may be existing resources that are known or resources required may be estimated, i.e. can provide an estimation of budget required.

The table below summarises the information captured in the tables.

Output	Indicative activities	Funding scenario	Key role players	Timeframe	Resources
1.1.1. Output (easily verifiable/ measurable, being a product/deliverable or the like)	1.1.1.1. Indicative activities	The NCA strategy has been developed so that it can be implemented under two different funding scenarios: • **Low-road activities**: can be undertaken with existing human and financial resources. • **High-road activities**: are only possible with additional resources.	Lead or supporting institutions	Has this already started? When should it begin?	Refers to human or financial resources. Existing or estimated, i.e. can also provide an estimation of budget required.

The Indicative Implementation Plan requires further development. Additional activities and role players should still be added to the plan. In some cases, further progress on low-road activities is still required for greater clarity as to indicative activities. Activities will also be clarified through the processes lead by the institutional mechanisms for implementation of the strategy. The Indicative Implementation Plan could be used as a rolling plan that is improved upon over time.

GOAL 1. NCA is used for integrated planning, decision-making, monitoring and evaluation across a range of sectors

SO 1.1. Increased use of natural capital accounts-based indicators and information for high-level and sectoral policies and planning

There are four outputs towards this strategic objective.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources (human and financial)
1.1.1. Strategic engagement and dialogue report	1.1.1.1	Present indicators from available natural capital accounts to SDG Working Group leads, present NCA to National Planning Commission, regularly present NCA to MINMEC, MINTech & WGs	Low road	Stats SA, DFFE, SANBI,	2020 ongoing	Two SANBI staff until 2023. Two Stats SA staff.
	1.1.1.2	Organise strategic dialogues on NCA	Low road	SANBI, Stats SA, DFFE, NBI	2021 ongoing	Two SANBI staff until 2023. Stats SA staff, supported by communication and events management teams.
	1.1.1.3	Stakeholder and network mapping exercise to identify and prioritise stakeholders and platforms for strategic engagement and dialogue	High road	NCA Strategic Advisory Group		
	1.2.2.4	Present on NCA at regional events in Africa (e.g. AMCEN, GDSA)	Low road	DFFE, Stats SA		
	1.2.2.5	Make presentations and inputs on NCA at international deliberation/negotiations (e.g. Post-2020 GBF)	Low road	DFFE, SANBI, Stats SA	2020 ongoing	

The purpose of the strategic engagements and dialogues is to grow awareness and understanding of natural capital accounts and indicators at strategic levels, with the intention to increase their use and consideration for high-level and sectoral policies and planning. The intention is to expand the stakeholders with which strategic engagements and dialogues are held beyond the environmental sector. A stakeholder and network mapping exercise is included to identify and prioritise stakeholders and platforms for strategic engagement and dialogue to meet this intention. This exercise would address a number of questions held by participants of the national stakeholder workshop, such as: How do we identify and prioritise stakeholders for strategic dialogues? Can we identify the forums where NCA should be introduced? How about other stakeholders, economic users and social users? There are existing resources/opportunities that can be drawn from in this exercise, such as SANBI & Stats SA (2018), the NCA Stakeholder list, and future National NCA Forums could present an opportunity for gathering additional information. The identification of stakeholders will be influenced by the accounts that are being produced.

What we learned through engagement that will be useful for implementation:

- It is important to note that NCA does not replace existing tools developed for specific purposes.
- NCA is also not the most appropriate tool in all circumstances.
- Clarifying the differences between natural capital accounting, natural capital assessments and natural capital audits was necessary.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources (human and financial)
1.1.2. NCA value proposition statements for public sector	1.1.2.1	Outreach of existing accounts through engagement with key stakeholders (including using the strategic engagements in 1.1.1) to promote the application/uptake/integration of information generated by natural capital accounts	Low road	Stats SA, NCA Strategic Advisory Group and CoP	2020-2023	EI4WS funds for operational expenses SANBI & Stats SA staff
	1.1.2.2	Include NCA-based indicators and information in the annual updates of the web-based South African Environment (SAE) public state of environment information access system	Low road	DFFE, SAE Drafting Team (provinces and SANBI)	2020 ongoing	Existing DFFE SAE compilation and maintenance resources
	1.1.2.3	Develop the NCA value proposition statement for public sector to share with national and global audiences	High road			
	1.1.2.4	Explore use of information from natural capital accounts for trade-off or scenario analysis,[6] and forecasting	High road			
	1.1.2.5	Explore natural capital accounting as a tool to inform policy and planning, including the MTSF (which informs the MTEF)	High road	DPME/National Treasury		
	1.1.2.6	Explore links between NCA and National Treasury's budget transparency programme/initiative	High road	National Treasury, Stats SA, SANBI		

The output of an NCA value proposition statement for the public sector that is being developed is seen as important to making the case for the use and uptake of NCA information and indicators. The value proposition statement should include linkages between different types of accounts and examples of application or use of information from accounts. Statements should include both the value of such information (where information from accounts can be best used for good decision-making), as well as what the constraints/limitations are. The latter is important to avoid misinterpretation and includes understanding the limits of what the accounts might be used for, at what spatial resolution, and in what contexts (e.g. roadmap on how certain tools can be used). NCA should not replace existing tools that are fit for purpose. The value proposition could illustrate the use of accounts to track big environmental and sustainable development issues. Select priority national issues and illustrate how accounts can be used to track trends and impacts of decision-making (e.g. pick up impact of death by a thousand cuts). Indicative activities include exploring how NCA information could be used by a range of provincial and municipal committees and working groups, e.g. disaster resilience working groups in metropolitan municipalities (as part of NT's Cities Support Programme).

[6] Refer back to key issues to explore through scenario analysis that were discussed during the National Stakeholder Workshop in March 2018. These included: population densification in peri-urban areas; water quality; land degradation through different farming practices, bush encroachment and invasive alien plants.

There is not existing capacity to support this in full, but there are activities that could take place with existing resources and would contribute to the value statement over time. These are indicated as being low-road indicative activities and include outreach of existing accounts to key stakeholders. This will include:

- Attention to key stakeholders and platforms identified in Output 1.1.1.
- Data providers, account compilers and users of information as national stakeholder workshop participants emphasized the need to feed back to data providers and add to the value of monitoring and other data used in the compilation of accounts.
- Use of existing platforms where possible.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources (human and financial)
1.1.3. NCA value proposition statement for private sector	1.1.3.1	Outreach of existing accounts through engagement with key stakeholders to promote the application/uptake/integration of information generated by natural capital accounts	High road	NBI, Stats SA, SANBI		Stats SA and SANBI staff, but with limited time, could support with content/advice but capacity needed to organise information sharing events (time and space), create presentations that meet their target audience, respond to inquiries from potential users at different levels.
	1.1.3.2	Explore with private sector stakeholders how NCA can be used by the private sector and how private sector can support advancement of NCA (e.g. through case studies and workshops)	High road	NBI, WWF, WRC, SANBI, Stats SA	2021-2023	EI4WS Project
	1.1.3.3	Explore use of information from natural capital accounts in assessment of risk, opportunities, and financial exposure in the private sector	High road	DBSA, UNEP, IDFC, Natural Capital Finance Initiative (NCFI)		
	1.1.3.4	Develop the NCA value proposition statement for private sector to share with national and global audiences	High road	NBI, Natural Capital Coalition (NCC), Science-based Targets Initiative, WWF, World Resources Institute		NBI can disseminate through existing member capacity building sessions
	1.1.3.5	Explore use of information from natural capital accounts for trade-off or scenario analysis, forecasting, and footprint measures	High road			

The output of an NCA value proposition statements for the private sector being developed is seen as important to making the case for the use and uptake of NCA information and indicators. The value proposition statement should include linkages between different types of accounts and examples of application or use of information from accounts and how these might be further developed for use by the private sector. Statements should include both the value of such information (where information from accounts can be best used for good decision-making), as well as what the limitations constraints/limitations are. The latter is important to avoid misinterpretation and includes understanding the limits of what the

accounts might be used for, at what spatial resolution, and in what contexts (e.g. roadmap on how certain tools can be used). NCA should not replace existing tools that are fit for purpose. This output speaks to developing the value proposition statement that will help point to where additional investment would be worthwhile to, for example, develop evidence-based insights through conducting deeper analytical studies and statistical modelling (interpreting information and statistics from accounts under Goal 2) and may necessitate the compilation of additional accounts (Goal 3), or expansion of data and capacity (Goal 4), and formal and informal collaboration arrangements and investment (Goal 5). Building value of statistics with and for the private sector is supported by the Stats SA Strategic Plan, but Stats SA has limited capacity to support this. The NCA value proposition statement(s) for the private sector will be important outputs for clarifying needs, opportunities, constraints and risks.

Stakeholders highlighted exploring use of information from natural capital accounts in assessment of risk, opportunities, and exposure in the financial sector with the banking sector as a key role player. DBSA is linked with global banking movements to transition the finance sector to be more transparent and accountable for biodiversity and water security impacts – these include the UNEP Task Force for Biodiversity Accountability, IDFC Making Finance Work for Biodiversity, and UNEP-ENCORE tools. An example was given in relation to ensuring consideration of environmental impacts and dependencies by banks when considering loans for mining or developments. Stakeholders also highlighted exploring the use of information from natural capital accounts in exploring financial exposure, dependencies, risks, etc. of commercial entities/corporates broadly.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources (human and financial)
1.1.4. Uptake and use of natural capital accounts synthesis report	1.1.4.1	Track use of NCA publications and indicators in the IIF that draw information from natural capital accounts	Low road	Stats SA	2021-2030	
	1.1.4.2	Evaluate value created through implementation of NCA in South Africa	Low road	WRC, SANBI	2020-2023	EI4WS funded WRC Knowledge Coordinator
	1.1.4.3	Capture stories of change that make the most of current NCA successes to help make the case for further funding or collaboration	Low road	Stats SA, WRC, WWF, key private entities	Annually	WRC

A synthesis of uptake and use of natural capital accounts is important to measuring progress and to motivating greater interest and uptake. Core indicators of uptake and use of natural capital accounts could include uptake of NCA information in frameworks, strategies or policies developed by Stats SA, DFFE, DWS, DPME, National Treasury or other institutions or initiatives. In due course, the synthesis should include results of the monitoring and evaluation of the strategy as a whole (see draft M&E framework). The synthesis report should remain a simple collation of monitoring information aimed at showing mobilisation, implementation, uptake and use of NCA. Sources of the full detail of some of the indicators may well be held by other entities, and Stats SA only coordinates the collation of the information.

The value creation evaluation is being piloted through the EI4WS Project. This should be explored to build into a simple survey that could be part of future National NCA Forums to bring together information from different stakeholders.

*SO 1.2. **Public discourse** stimulated with information from NCA*

Public discourse can be an important driver of what policy- and decision-makers pay attention to, and can help to advocate for consideration of information from natural capital accounts in integrated planning and decision-making in support of the development needs of the country. There are two outputs in this strategic objective.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources (human and financial)
1.2.1. Communication and advocacy plan to create and use opportunities to share information from natural capital accounts	1.2.1.1	Cooperate with communications staff from Stats SA to identify opportunities to share NCA information	Low road	Stats SA, SANBI	2020 ongoing	Limited: 1% of Stats SA and SANBI staff time
	1.2.1.2	Create standing agenda item on NCA-based indicators and information in the annual State of Environment Reporting Community of Practice workshops	Low road	DFFE, SAE Drafting Team (provinces and SANBI)	2020 ongoing	Existing DFFE SAE compilation and maintenance resources
	1.2.1.3	Develop and roll out a communication and advocacy plan for NCA, including stimulating debates on different platforms about NCA and its outcomes	High road	Stats SA, DFFE, SANBI, DPME		

The need for a communication and advocacy plan was identified in SANBI and Stats SA (2018). The plan should seek to support the outcome of increased use of natural capital accounts-based indicators and information for high-level and sectoral policies and planning (SO 1.1), support raising awareness and improve understanding about the contribution of ecosystems to society and the economy in the public broadly, demonstrate the value and usefulness of NCA work (motivating for continued/greater investment and strengthened capacity in monitoring and accounting), and encourage and enable communication channels that promote social learning (beyond push-pull communications). All role players have a role to play in stimulating public discourse around NCA and its findings in their sectors; the communication and advocacy plan can help to clarify what could help enable this, what NCA champions need to support this, and what the priorities and opportunities are in relation to the goals and objectives of the strategy. Additional resources and the right sort of capacity are needed to see this output achieved.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources (human and financial)
1.2.2. **Communication channels for NCA** information and products	1.2.2.1	Maintain a list of NCA stakeholders with whom information can be regularly shared	Low road	Stats SA	Ongoing	Stats SA DD: Economic Analysis
	1.2.2.2	Update and maintain website content on NCA	Low road	Stats SA, SANBI DFFE	Ongoing	Limited: 1% of Stats SA and SANBI staff time
	1.2.2.3	Send a bi-annual email to NCA stakeholders with updates on NCA in South Africa	Low road	Stats SA		Limited: 1% of Stats SA and SANBI staff time

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources (human and financial)
	1.2.2.4	Establish and maintain a social media group to communicate with the South African NCA community of practice	Low road	Stats SA, SANBI, others		Limited: 1% of Stats SA and SANBI staff time
	1.2.2.5	Explore ways to include NCA information in interactive and online dissemination platforms and tools maintained by Stats SA	High road	Stats SA		Potentially Stats SA Dir /Geog / SANSS
	1.2.2.6	Give presentations about NCA and natural capital accounts for more opportunistic outreach in South Africa with a broad range of audiences (requires identifying likely audiences, collaborative development of presentations, and storing and updating them)	High road			

Communication channels for NCA are the output required through which NCA-related information can be disseminated or shared. Communication channels are ways in which information/messages can be shared with an intended audience. Relevant examples of different types of communication channels include text messages (e.g. WhatsApp), emails, video, conferencing (face-to-face, audio or video conferencing) and social media platforms (e.g. Twitter).

The communication channels for NCA, once developed, should be informed by a Communication and Advocacy Plan (Output 1.2.1) to ensure they are used appropriately to reach intended audiences and to achieve agreed objectives. However, activities' use of communication channels for NCA information and products is possible with existing resources (on the low road) and will include those established through the NCAVES Project, namely emails to the NCA Stakeholder List, maintenance of website content about NCA on Stats SA and SANBI websites, and episodic social media around national NCA events convened by Stats SA.

High-road activities should ideally be informed by the Communication and Advocacy Plan (Output 1.2.1) and/or the NCA Strategic Advisory Group.

GOAL 2. NCA offers credible evidence of how nature supports people and the economy

Ensuring that natural capital accounts provide evidence of how nature supports people and the economy requires an additional step of interpretation and integration with other information, as well as contributing more broadly to the NCA knowledge. The 'NCA offer' might be portrayed in a variety of ways: reports, maps, infographics and other visualisation tools, and policy briefs, to name a few. Information and statistics from accounts are neutral. Analysis and interpretation of information and statistics from accounts, with other economic and social information, translate these into evidence that has a particular objective in mind, evidence being a body of facts or information indicating whether a particular belief or proposition is true; and there being different types of evidence based on different types of information.

SO 2.1. Statistics and information are drawn from natural capital accounts, providing evidence of how nature supports people and the economy

This strategic objective seeks to provide statistics and information drawn from natural capital accounts (SO 3.1) that offer credible evidence of how nature supports people and the economy for use in integrated planning, decision-making, monitoring and evaluation across a range of sectors (Goal 1). This strategic objective involves the interpretation of statistics and information into evidence of what is happening with nature and how it supports society and the economy. Users of information stemming from natural capital accounts should be involved in co-creating this value offering (i.e. in addition to the role players who are data providers and/or co-producers of accounts). It is also noted that a number of accounts have already been compiled in South Africa, and their value and impact can be further developed through communication materials and co-creation of interpreted products. Building on what we have, we want to increase use and improve on what we have (add and expand). Stats SA's role in this process is limited as their mandate pertains to provision of value neutral accounts and statistics. There should, however, be a feedback loop to compiling accounts as information needs by users can also inform the compilation of future accounts. This strategic objective has four outputs.

Output	Indicative activities		Funding Scenario	Key role players	Timeframe	Resources (human and financial)
2.1.2. **NCA communication materials**	2.1.2.1	Use national, African and international NCA communities of practice to identify tensions and areas requiring clarification	Low road	Stats SA, SANBI	2020-2023	Two SANBI staff until 2023. Two Stats SA staff.
	2.1.2.2	Develop **key messages** from natural capital accounts, and maintain and promote their use by those communicating about NCA	Low road	Stats SA, SANBI, other producers and users	2020 ongoing	Limited: 2% of SANBI & Stats SA Staff time
	2.1.2.3	Produce **fact sheets** that help to clarify and communicate NCA and its relevance to general audience	Low road	SANBI	2020-2021	SANBI existing resources
	2.1.2.4	Develop **products to grow NCA literacy** to increase use of information from NCA (e.g. NCA glossary / lexicon of terms, frequently asked questions,	Low-high road	Stats SA, DFFE, SANBI, other producers and users	2020 ongoing	Limited: 2% of SANBI & Stats SA Staff time

Output	Indicative activities		Funding Scenario	Key role players	Timeframe	Resources (human and financial)
		presentations about NCA and natural capital accounts for use in South Africa)				
	2.1.2.5	Develop **short messages and content** (including photos or graphics) about NCA events or releases in South Africa to share on social media platforms	Low-high road	Stats SA, SANBI DFFE, others	Ongoing	Dependent on communication staff and approval processes in government entities
	2.1.2.6	**Multi-media videos** (e.g. of what NCA is, relevance, etc.)	High road	Stats SA, SANBI		Stats SA communications team
	2.1.2.7	Produce **data stories** for Stats SA website about natural capital accounts published by Stats SA	Low road	Stats SA	ongoing	Stats SA communications specialist
	2.1.2.8	Produce **localised stories/case studies** that show impact and application of natural capital accounts at local scales or in relation to real people (link to stories of change in Output 1.1.4)	Low road	WRC, potentially NBI		Limited capacity through EI4WS project
	2.1.2.9	Produce **popular articles** for broader society (targeted towards the general public) with links to local contexts and case studies	High road			

The output of NCA communication materials is intended to generally demystify and clarify NCA and enable discourse and sharing about NCA at relevant participatory events. These materials should directly meet the needs of a Communication and Advocacy Plan (Output 1.2.1) once developed. Development of NCA communication materials involves the interpretation of information and statistics from accounts for particular audiences using various forms of communication. Communication materials can be produced with existing resources (on the low road) and will include those developed around NCA-related projects, natural capital accounts published, or as guided by the NCA Strategic Advisory Group. Additional capacity would increase the capacity to review and support co-development of such material, and existing capacity is constrained. A National NCA Strategy manager would be beneficial in this.

NCA communication materials should be made available through one or more communication channel(s) for NCA (Output 1.2.3).

South Africa has numerous successes in relation to NCA and several examples of communication materials developed around these now exist. However, their reach is still limited and more is needed to further mobilise investment, collaboration and interest in NCA and uptake of information from natural capital accounts (Output 1.2.1). Stakeholders gave an example of how the WWF Strategic Water Source Area Journey of Water initiative has changed the insurance industry's attitude to water risks. This also served as a reminder that local-level or catchment-level examples can provide compelling narratives.

Output	Indicative activities		Funding Scenario	Key role players	Timeframe	Resources (human and financial)
2.1.2. Interpreted products from natural capital accounts that communicate their relevance and content	2.1.2.1	Co-creation of interpreted products for **accounts related to surface water and groundwater**	Low road	DWS, WRC, SANBI, Stats SA, CMAs, Water Boards	2020ongoing	Internal capacity at DWS and Stats SA; limited capacity of staff at SANBI until 2023 in WI4WS Project
	2.1.2.2	Co-creation of interpreted products for **accounts related to energy**	High road	Stats SA, DMRE, DFFE, National Treasury, private sector role players		
	2.1.2.3	Co-creation of interpreted products for **accounts related to carbon and greenhouse gas emissions**	Low road	DFFE, DMRE, National Treasury	2021 ongoing	Existing climate change monitoring and evaluation team
	2.1.2.4	Co-creation of interpreted products for **accounts related to ecosystems across all realms**	Low-high road	SANBI, DFFE, CSIR		
	2.1.2.5	Co-creation of interpreted products for **land accounts**	High road	DFFE, DALRRD, SANBI, COGTA, SALGA and or District Municipalities		
	2.1.2.6	Co-creation of interpreted products for **accounts related to protection of natural environment**	Low-high road	DFFE, SANBI, National Treasury		
	2.1.2.7	Co-creation of interpreted products for **accounts related to ecological infrastructure**	Low-high road	SANBI, DFFE, DWS, WRC, National Treasury	2020-2023	EI4WS Project
	2.1.2.8	Co-creation of interpreted products for **accounts related to species of special concern**	Low-high road	DFFE, SANBI, primary data providers (NGOs, associations, etc.) relevant to the species in question	2020 ongoing	SANBI & DFFE staff using existing accounts
	2.1.2.9	Co-creation of interpreted products for **accounts related to biodiversity economy**	Low road	DFFE, SANBI	2021-2022	DFFE staff. Two Stats SA staff. Two SANBI staff until 2023.
	2.1.2.10	Co-creation of interpreted products for **accounts related to mineral resources**	High road	DMRE, DFFE, DWS		
	2.1.2.11	Co-creation of interpreted products for **ocean accounts**	Low road	NMU, Oceans Accounting WG		NRF
	2.1.2.12	**Demonstrate how natural capital accounts (particularly accounts for EI assets) link to major company operations or industrial clusters** (i.e. draw the link between businesses and their natural capital dependencies)	High road	NBI, DBSA		
	2.1.2.13	**Demonstrate how natural capital accounts link to initiatives to make banks more accountable over time** (linking to the Recommendations of the Task-force on Climate-related Disclosures)	High road	DBSA, BASA, African Development Bank (related to expansion of accounting on the African continent)		

The output of 'interpreted products' from natural capital accounts that communicate their relevance and content is distinguished as a separate step from the compilation and publication of accounts. This is because it involves a broader group of stakeholders beyond data providers and compilers of accounts, and includes users of information from accounts. This is a step removed from what Stats SA has control over. Users of information from accounts may respond to strategic or national priorities or particular issues of concern that can change over time – so the nature of interpreted products might change but the accounts remain stable and value neutral. The methods of compiling accounts and the indicators drawn from accounts stay largely the same over time (Goal 3), but interpretation and integration with other socio-economic data is influenced by who does the interpretation, what other data is integrated or interpreted alongside data from natural capital accounts and so on. Acknowledging this, credibility in relation to the interpretation is important and it is recommended that representatives from data providers, account compilers, users and other interested parties are involved in the co-creation of interpreted products (also see Output 2.2.2).

The activities in this output reflect the accounts as identified in Goal 3. This is because the availability of the account affects whether the activity is on low or high road to some degree, and because the role players involved will vary. Key role players must include not only data providers and account compilers, but also users of accounts. Users of accounts should be involved in co-creation to ensure that their likely application is considered in the interpretation, visualisation and representation of interpreted products.

Application of natural capital accounts by the private sector is still an emergent area in South Africa. Activities and key role players will need to be expanded upon during implementation. Voluntary exploration of extensions and application of statistics and indicators from accounts is encouraged.

Output	Indicative activities		Funding Scenario	Key role players	Timeframe	Resources (human and financial)
2.1.3. **A set of natural resource headline indicators** drawn from natural capital accounts	2.1.3.1	Identify indicators that will be drawn from accounts to support reporting on indicators in the Integrated Indicator Framework (IIF)[7]	Low-high road	Stats SA, technical leads on accounts being produced, leads on Sectoral Working Groups for SDG indicators	Ongoing	Could be achieved with existing Stats SA staff, but may require additional capacity as it adds to the work of either EEA Division or SANSS.
	2.1.3.2	Annual publication of headline indicators, disaggregating statistical information to district level to inform the District Development Model (DDM) where possible	High road	Stats SA, DFFE, CoGTA, SALGA		

[7] The Integrated Indicator Framework (IIF) captures performance indicators outlined in the SDGs, Agenda 2063 and NDP, and will in future include indicators from other relevant sectors' governing frameworks globally. Stats SA produces around 270 publications annually, contributing to a minimal percentage of the indicators in the IIF. Stats SA's Strategic Plan sets out to harness other statistics through collaboration with other data producers in the data ecosystem to increase response to the IIF.

The output here is a set of natural resource headline indicators that are drawn from the integrated range of accounts compiled under Goal 3. Such a product may be a product of the DFFE or Stats SA, or a collaborative effort, or both. This still needs to be determined and strategic guidance sought through the NCA Strategic Advisory Group.

Indicative activities that contribute to this output are the identification of indicators that will be drawn from accounts to support reporting on indicators in the Integrated Indicator Framework (IIF). The IIF captures performance indicators outlined in the SDGs, Agenda 2063 and NDP, and will in future include indicators from other relevant sectors' governing frameworks globally. Stats SA produces around 270 publications annually, contributing to a minimal percentage of the indicators in the IIF. Stats SA's Strategic Plan sets out to harness other statistics through collaboration with other data producers in the data ecosystem to increase response to the IIF. Some of this should be achieved through NCA. This should contribute to the case for greater investment in NCA and regular production of priority accounts. The identification could build on an initial assessment through the NCAVES Project in 2019.

Disaggregation of statistical information from natural capital accounts to the district municipality level was highlighted several times as important, particularly in the context of the District Development Model launched in September 2019 by the President, which will have new demands for statistical information. This should inform reporting units for all natural capital accounts produced.

Output	Indicative activities		Funding Scenario	Key role players	Timeframe	Resources (human and financial)
2.1.4. **Reports that integrate information from more than one account**	2.1.4.1	Develop integrative reports integrating natural capital accounts with socio-economic data	High road	Stats SA, DFFE, DPME, National Treasury, potentially CoGTA		
	2.1.4.2	Explore integrated reports of more than one natural capital account	High road	Stats SA, DFFE, DPME, DSI		
	2.1.4.3	Explore inclusion of NCA information in Stats SA geo-enabled products	High road	Stats SA		

This output is about reports that add value to any one set of accounts by integrating information from more than one account, and/or integrating information from an account with social or economic information.

Such integrated information could explore providing information relevant to cross-cutting concepts or policies, such as the circular economy. Stakeholders in the national stakeholder workshop highlighted that value added to other sectors who might use information from the accounts is possible, and that the integrated reports might be used to answer or respond to specific questions. They highlighted the connection to mapping stakeholders (see Output 1.1) and the importance of this in identifying who should be involved in the development of such reports.

SO 2.2. Documentation of practice, lessons and guidance contribute to available knowledge

There are two outputs in this strategic objective.

Output	Indicative activities		Funding Scenario	Key role players	Timeframe	Resources (human and financial)
2.2.1. **Written contributions to development of global and regional standards and methodology**	2.2.1.1	Capture results of pilot studies	High road			
	2.2.1.2	Review and give written contributions/inputs into global or regional NCA standards and guidelines under development (e.g. the SEEA)	Low road	SANBI, Stats SA	Ongoing as possible	Two Stats SA staff. Two SANBI staff until 2023.
	2.2.1.3	Participate in testing of SEEA methods where possible	Low-high road	SANBI, Stats SA	Ad hoc	Two Stats SA staff. Two SANBI staff until 2023.
	2.2.1.4	Participate in regional and global forums (e.g. webinars, forums or meetings) related to development, refinement or improvement of methods and provide presentations on South Africa's experience	Low road	DFFE, SANBI, Stats SA, others compiling accounts	Ongoing	Limited: 2% of SANBI & Stats SA Staff time

Written contributions to development of standards and methodology at global and regional levels based on experience, case studies and lessons learned in South Africa will strengthen South Africa's standing and expose and test South Africa's approaches in a global and regional arena. Participation in global and regional forums is included in this output.

Output	Indicative activities		Funding Scenario	Key role players	Timeframe	Resources (human and financial)
2.2.2. **Best-practice note and/or peer-reviewed literature**	2.2.2.1	Best practice note on how to apply and interpret natural capital accounts	High road	Co-creators of interpreted products	Once off	
	2.2.2.2	Write peer-reviewed papers or articles about South Africa's natural capital accounts	High road	Co-producers of accounts	Ongoing	Limited: 2% of SANBI & Stats SA Staff time

Stakeholders highlighted concerns around the interpretation of information from accounts and integration with other socio-economic data being influenced by who does the interpretation, what other data is integrated or interpreted alongside data from natural capital accounts of information from accounts. The recommendation was for gathering of best practice on how to avoid unintended consequences of misinformation, misinterpretation or lack of understanding of the limits of what accounts can do and how they can be used. In addition, peer-reviewed literature on South Africa's natural capital accounts would not only contribute to the global knowledge agenda on NCA, but would also contribute to the credibility of evidence drawn from accounts.

GOAL 3. An integrated suite of natural capital accounts is produced based on best-available methods

SO 3.1. Regularly compile and publish an integrated suite of natural capital accounts

Stats SA has historically produced most of its economic and demographic statistics in-house. However, the trend globally is for national statistics offices to be seen as co-ordinators and custodians of statistics, and to work in partnership with other organs of state. NCA is inherently multi-disciplinary and cross-sectoral, and Stats SA does not have the capacity or expertise required to produce the full range of natural capital accounts in-house. This means that collaboration and partnerships with departments and entities are essential for taking forward the production of natural capital accounts, with clear setting out of roles and responsibilities.

There are a number of outputs in this strategic objective. The outputs speak to accounts or sets of accounts related to a particular focus area. Focus areas were identified through stakeholder-driven prioritisation exercises and informed by government priorities. There is no order of priority in the order of the outputs. Depending on whether any accounts have already been produced, there may be low-road activities but most activities require additional resources. Indicative activities for the compilation of all accounts in the outputs below will be informed by the broad process of developing accounts (see Figure 3 in the National NCA Strategy) in line with the statistical value chain (see Appendix B in the National NCA Strategy). In most cases there are a number of different types of accounts that can be developed in relation to each of the outputs (e.g. asset accounts, flow accounts, activity/purpose accounts that explicitly identify environmental transactions already existing in the System of National Accounts, combined physical and monetary accounts). Accounts to be compiled will be guided by a Technical Working Group (refer to Section 5 of the strategy on Institutional Mechanisms), evaluated against principles of the statistical value chain, informed by the SEEA framework of accounts, and influenced by what is useful for South Africa (feedback loop to Goal 1). Some account-specific indicative activities are captured in the indicative implementation plan per output below.

Note that key role players in Goal 3 are the role players who have a role in co-producing accounts. Users of information from accounts should be listed as role players in Goal 2.

Accounts compiled under one focus area may also be relevant to another focus area. For example: there will be links between accounts related to energy, carbon and greenhouse gas emissions and mineral resources; marine and coastal ecosystem accounts are useful in their own right and are part of ocean accounts (e.g. ecosystems are integrated assets whose extent and condition influence not only fish as assets, but also flow of services such as coastal protection, carbon sequestration, and recreation, among others).

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.1.1. Accounts related to **surface and groundwater**	3.1.1.1	National water accounts are updated	Low road	DWS, Stats SA, WRC	Annually	Stats SA 2020/2021 financial year
	3.1.1.2	Water resource accounts (linking catchments to provision of water) produced for more than one time period in two demonstration catchments	Low road	CWRR, SANBI, DWS, WRC	2020-2023	DWS CD: Water Ecosystems EI4WS

	3.1.1.3	Water resource accounts for all Strategic Water Source Areas (SWSA) catchments	High road	DFFE, DWS, WRC, CWRR		
	3.1.1.4	Water resource accounts for all catchments	High road	DWS, WRC, CWRR		
	3.1.1.5	Compile accounts related to surface water and groundwater quality	High road	DWS, Stats SA		DWS Resource Quality Services unit
	3.1.1.6	Explore application and relevance of global datasets and models to produce water accounts	Low road	CWRR,		IHE Delft Project
	3.1.1.7	Compile groundwater resource accounts	High road	DWS, Stats SA		

There are high levels of interest by a wide range of stakeholders in water-related accounts. The compilation of accounts cannot be separated from discussion of data availability and quality, as well as capacity to prepare accounts-ready data and accounts, particularly if this will include work to report at finer scales (e.g. catchments). Although data and capacity are the subject of Goal 4, the process of determining the feasibility for compiling an expanded range of water-related accounts will include assessing the available data and capacity to compile them. Formal partnerships should be explored (Goal 5) to prioritise, realign capacity and further invest in these accounts.

Strategic Water Source Areas (SWSAs) should be seen as a specific accounting area within South Africa for which many different types of accounts could be compiled. As a strategic focus for DFFE and DWS, this would include accounts related to surface and groundwater in SWSAs (or catchments with SWSAs), accounts related to protection of natural environment in SWSAs (see output 3.1.7), or accounts related to ecological infrastructure in SWSAs (output 3.1.8). SWSAs may provide a pilot for creating an integrated suite of natural capital accounts that could provide information of how nature supports society and economy through addressing water security for South Africa.

Output	High level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.1.2. Accounts related to **energy**	3.1.2.1	Regularly produce national energy supply and use tables	High road	Stats SA, DMRE, Eskom, SANEDI, relevant NGOs		
	3.1.2.2	Explore production of energy supply and use tables at finer spatial resolutions, e.g. district municipality level	High road	Stats SA, DMRE, local and district municipalities		

Stakeholder discussion around this output highlighted that stakeholders are interested in more detail in relation to the type of energy. It was suggested that what is included with respect to 'energy' needed to be unpacked to clarify whether it included: bioprospecting, electricity generation, petroleum and gas; government and independent power suppliers. This will also influence the key role players involved in co-

creating interpreted products in Goal 2. Stakeholders are interested in more disaggregated reporting in national energy accounts. DMRE is the primary data provider on the energy balance for SA, but the data provided is only at national level and does not get further disaggregated. Stakeholders saw value in exploring whether accounts could be produced at municipal level.

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.1.3. Accounts related to **carbon and greenhouse gas emissions**	3.1.3.1	Compile and publish the biennial South African Greenhouse Gas (GHG) Emission Report and GHG inventory for submission under the UNFCCC	Low road	DFFE	Biennially	Existing climate change monitoring and evaluation team
	3.1.3.2	Produce spatially explicit accounts of carbon and greenhouse gas emissions (including feasibility study of what type of accounts and resolution most relevant to carbon taxes, carbon trading)	Low road	DFFE, National Treasury, Stats SA, DMRE		Existing climate change monitoring and evaluation and carbon tax teams
	3.1.3.3	Regularly produce selected accounts of carbon and greenhouse gas emissions	High road	DFFE, Stats SA, relevant NGOs, potentially SAWS, Dept of Health		

Stakeholder engagement highlighted that there is considerable research, attention and interest in carbon and greenhouse gas emissions globally and nationally, and so there are a number of role players that could be included beyond traditional national government departments. Role players to include are NGOs, non-profits, municipalities, universities, South African Weather Service (SAWS) and other national departments such as the Department of Health. DFFE compiles data and publishes in the biennial South African Greenhouse Gas (GHG) Emission Report and GHG inventory for submission under the UNFCCC using the existing climate change monitoring and evaluation team. This presents several opportunities/connection points such as: the same data being used to compile accounts of carbon and greenhouse gas emissions; that there is capacity that could be realigned to also compile accounts; and the report could present an avenue through which information and statistics from these accounts could be used.

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.1.4. Accounts related to **mineral resources**	3.1.4.1	Regularly produce mineral accounts for selected minerals	High road	Stats SA, DMRE		
	3.1.4.2	Explore production of mineral supply and use tables at finer spatial resolutions, e.g. district municipality level	High road			

Stats SA has compiled mineral accounts over the past decade. The value and future production of these accounts should be explored with potential users in Goal 1 and could be supported by the production of co-created products in Goal 2. Integration with other accounts such as energy and carbon and greenhouse gas emission accounts should be explored and will be enabled by reporting of the accounts at smaller reporting units. Data availability will need to be explored.

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.1.5. Accounts related to **ecosystems across all realms**	3.1.5.1	Marine ecosystem asset accounts	Low road	SANBI, DFFE, Stats SA, NMU (Ken Findlay)		One SANBI staff member
	3.1.5.2	Coastal ecosystem asset accounts	High road	CSIR, SANBI, DFFE, Stats SA		
	3.1.5.3	River ecosystem asset accounts	High road	SANBI, DWS, DFFE, Stats SA		
	3.1.5.4	Wetland ecosystem asset accounts	High road	SANBI, DWS, DFFE, Stats SA		
	3.1.5.5	Estuary ecosystem asset accounts	Low road	CSIR, SANBI, DFFE, Stats SA, DWS		CSIR has produced experimental estuarine ecosystem asset accounts.
	3.1.5.6	Terrestrial ecosystem asset accounts	High road	SANBI, DFFE, Stats SA		

This includes all accounts associated with SEEA Ecosystem Accounts, covering accounting for ecosystem assets and ecosystem services. Asset accounts include extent and condition accounts, although one may be produced without the other where data are not available for both (e.g. the Land and Terrestrial Ecosystem Accounts, 1990 to 2014 only present terrestrial ecosystem extent accounts). Ecosystem service accounts include flow accounts (supply and use tables). These accounts are compiled in biophysical terms. Where useful and appropriate, this may be translated into monetary values, but often that is not necessary. There are many examples of issues that are important to society that are measured in non-monetary terms, like literacy rates, matric pass rates, infant mortality, unemployment levels, life expectancy and other health and education outcomes. The same is true for natural resources and ecosystems – their importance and value to society can be captured in a range of statistics and indicators, many of which are non-monetary. There are a number of national and global initiatives and tools related to the quantification and valuation of ecosystem services that are relevant here (e.g. WAVES, ENCORE, TEEB, amongst others).

Regular production of ecosystem accounts needs to be secured with additional funding, and/or built into KPAs.

Stakeholders suggested that provincial environmental departments might be key role players in ecosystem accounts. This should be assessed in each case as, for example, while some delegations of Estuarine Management Plans go down to local government and involve provincial environmental departments, these entities may not be key role players in the compilation of accounts but in their use and development of interpreted products (Goal 2), using the information from such accounts.

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.1.6. Land accounts	3.1.6.1	Update and regularly produce land accounts at national, provincial and municipal level	Low-high road	DFFE, SANBI, Stats SA		Land accounts between 1990 and 2014 compiled with NCAVES Project resources. Further resources required to be updated with 2018 NLC data and updates thereafter.
	3.1.6.2	Produce and regularly update land accounts for strategic water source areas (SWSAs), including of protection a) Produce discussion document b) Regular updates	a) Low road b) High road	DFFE, SANBI, Stats SA		Baseline set through EI4WS Project
	3.1.6.3	Explore improvements to land accounts, e.g. through supplementing with local-level data in pilot district or metropolitan municipalities	High road	DFFE, SANBI, DALRRD, COGTA, DMs		

Land accounts can provide information relevant to spatial development. District is a strategic level to work at as there is a drive in government to implement the District Development Model, and metropolitan municipalities would be included in this. Activities to increase the data offering and frequency of land accounts are included in Goal 4.

Output	High level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.1.7. Accounts related to **protection of natural environment**	3.1.7.1	Update and regularly produce accounts related to protection of terrestrial natural environment	High road	DFFE, SANParks, SANBI, Stats SA		Baseline through NCAVES, will need update
	3.1.7.2	Produce and regularly update accounts related to protection of marine ecosystems	High road	DFFE, SANBI, Stats SA	2020-2021	Baseline with SANBI staff member
	3.1.7.3	Compile and regularly update accounts related to protection of other ecosystem realms (coastal, wetlands, rivers, estuaries)	High road	DFFE, DWS, SANBI, CSIR, Stats SA		
	3.1.7.4	Produce and regularly update accounts related to protection of strategic water source areas (SWSAs)	Low road	DFFE, DWS, SANBI, Stats SA		Baseline set through EI4WS Project
	3.1.7.5	Expand protected area accounts with information of land ownership, and a broad range of conservation types to be relevant to a wider range of policies	High road	DFFE, DALRRD, SANBI,		
	3.1.7.6	Expand protected area accounts with environmental protection expenditure accounts	High road	DFFE, NT, SANBI		Proof of concept through EI4WS project

Accounts related to protection of the natural environment are intended to relate to meeting protected area and biodiversity targets across all realms, and to a broad range of mechanisms for protecting natural environments. This includes all categories of protected areas in the Protected Areas Act

(including national parks, nature reserves, protected environments, and World Heritage sites, amongst others), the full range of biodiversity stewardship sites and areas secured through Other Effective Conservation Measures. Accounts should include accounts linked to an activity/purpose accounts that explicitly identify environmental transactions already existing in the System of National Accounts, in particular environmental protection expenditure accounts that will provide a way of tracking public sector expenditure on protecting and managing the natural environment.

Output	High level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.1.8. Accounts related to **ecological infrastructure**	3.1.8.1	Produce accounts related to ecological infrastructure assets for demonstration catchments	Low road	SANBI, DFFE, Stats SA, DWS	2020-2023	EI4WS Project
	3.1.8.2	Expand the range of accounts for ecological infrastructure (nationally and/or for prioritised areas or areas of strategic importance such as SWSAs)	High road	DFFE, SANBI		

Accounts related to ecological infrastructure will include a range of accounts such as ecosystem asset accounts, ecosystem service accounts, and supplementary accounts related to investment in ecological infrastructure. The application of these accounts in monitoring and reporting on investment in ecological infrastructure should be explored. This is part of the work being undertaken in the Ecological Infrastructure for Water Security Project being executed by SANBI, implemented by DBSA and funded by GEF. That project focuses on water-related ecological infrastructure. There are other types of ecological infrastructure important to deliver on, for example disaster risk reduction or food security (such as coastal ecosystems and grasslands for food production).

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.1.9. Accounts for **species of special concern**	3.1.9.1	Prioritise species of special concern for which data are available and would most benefit from production of accounts	Low road	Scientific Authority		
	3.1.9.2	Update and regularly produce existing accounts for species	High road	DFFE, SANBI, Stats SA		
	3.1.9.3	Produce and regularly update accounts for prioritised species	High road	DFFE, SANBI, Stats SA		

SEEA EA guidelines identify three high-level species accounting concerns: species important for ecosystem services, species of conservation concern, and species important for ecosystem condition. The accounts developed in SA through the NCAVES project focused on species of special concern, namely black and white rhino, and the cycad plant group. These three categories are obviously not always mutually exclusive. Rhinos, for example, are of conservation concern and are also important to ecosystem functioning as megaherbivores, have enormous cultural significance and are a massive drawcard in South Africa's tourism sector. These have

provided a useful pilot and role players are keen to see them regularly updated.

In deciding which species to focus on, species experts at the national Scientific Authority were consulted. The Scientific Authority is convened by SANBI to assist with regulating trade in species, including CITES-listed species. The Scientific Authority was involved in the validation process of the accounts, and institutions represented on the Scientific Authority will co-create interpreted products from the accounts once published. The Scientific Authority is active nationally in all nine provinces of South Africa, and is also represented on delegations to international meetings such as the CITES Plants and Animals Committees and the Conference of Parties to CITES. The members of the Scientific Authority include one representative from each of the nine provincial conservation agencies of South Africa, together with representatives from the Department of Forestry, Fisheries and the Environment, SANBI, SANParks, and the National Zoological Garden.

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.1.10. Accounts related to the **biodiversity economy**	3.1.10.1	Clarify a biodiversity economy framework	Low road	DFFE, Stats SA, SANBI, UNEP		
	3.1.10.2	Produce a satellite account for the biodiversity economy	Low road	DFFE, Stats SA, SANBI		
	3.1.10.3	Regularly produce and update accounts related to the biodiversity economy	High road	DFFE, Stats SA, SANBI, SANParks		

The biodiversity economy encompasses 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. Accounts related to the biodiversity economy will provide credible evidence of the contribution of the biodiversity sector to jobs, economic growth and development. Clarifying the framework for the biodiversity economy is an important activity.

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.1.11. Ocean accounts	3.1.11.1	Ocean Accounts Framework that adapts and extends the concepts of the SNA, SEEA-CF and SEEA-EA to apply better to the ocean applied	Low road	DFFE, CPUT, NRF, Global Ocean Accounts Partnership, SAEON		
	3.1.11.2	Compilation of ocean accounts	Low road			

Ocean accounts relate to ocean assets as natural capital and as defined by the Global Ocean Accounts Partnership (GOAP): “Recording the physical status and condition, and monetary value, of marine and coastal environmental assets including minerals and energy, land and soil, coastal timber, aquatic resources, other biological resources, water, and ecosystems including biodiversity. Ocean Accounts are fundamentally a collection of accounts (or modules) that are organised in terms of a conceptual framework. These accounts may be implemented selectively

depending on national priorities, data availability and technical capacity. Overall, the framework describes: interactions between the economy and the environment, the stocks and changes in stocks of environmental assets (natural capital) that provide benefits to people, and social and governance factors affecting the status and condition of environmental assets and associated benefits."

Stakeholder engagement highlighted links between ocean economy and food and cultural services and questions around how species fit into the biodiversity economy and ocean economy.

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.1.12 Accounts **related to agriculture and food security**	3.1.12.1	Explore accounts related to agriculture and food security	High road	DFFE, DALRRD		
	3.1.12.2	Explore accounts of Strategic Agricultural Areas	High road	DFFE, DALRRD		

Accounts related to agriculture and food security would be new accounts and their compilation guided by a Technical Working Group (refer to Institutional Mechanisms), evaluated against principles of the statistical value chain, informed by the SEEA framework of accounts, and influenced by what is useful for South Africa (feedback loop to Goal 1).

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.1.13. **Natural Capital Series publications of accounts**	3.1.13.1	Publish natural capital accounts in the Natural Capital Series	Low road	Stats SA		
	3.1.13.2	Natural capital accounts publications and associated spreadsheets are available and accessible	Low road	Stats SA		
	3.1.13.3	Explore serving of users' basic demands from natural capital accounts on Stats SA's online self-service platforms	High road	Stats SA		

Publication of accounts in the Natural Capital Series is possible with existing resources in Stats SA but is constrained by available capacity to be involved in Technical Working Groups and manage the publication process.

SO 3.2. Standards, prescripts and methods for compiling natural capital accounts are used, improved and documented to ensure reliable, regular and standardised statistics and indicators for natural capital

Current environmental statistics are characterised by a variety of independent producers that produce statistics of variable quality, not bound by accepted principles, standards and frameworks in the compilation processes. Insightful, credible evidence requires statistics that are comparable and relevant. The outputs in this strategic objective will contribute to achieving this strategic objective.

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.2.1. Internationally approved/agreed standards, principles and recommendations for compiling accounts	3.2.1.1	Stats SA adopts the System of Environmental Economic Accounting Ecosystem Accounts	Low road	Stats SA		Requires no additional resources
	3.2.1.2	Promote the adoption of the System of Environmental Economic Accounting Central Framework and Ecosystem Accounts	Low-high road	Stats SA, DFFE, , UNSD		Could require additional time in Stats SA capacity

Adoption of the SEEA CF and SEEA EA by other co-implementing entities could be advantageous. The Ocean Accounts Framework has adopted the SEEA. Engagement around the SEEA and what it is would be needed to build the readiness in these entities, and Stats SA would need to think about their role in the SEEA being adopted by partners. The SEEA is an example of an internationally approved or agreed standard and recommendations. It is not the only one.

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.2.2. Sources and methods for compiling accounts	3.2.1.1	Investigate estimates of confidence and how to responsibly address levels of confidence and data limitations with implications for interpretation	High road	Stats SA, universities		
	3.2.2.2	Develop guidance for producing quality sources and methods reports for spatially explicit accounts and ensure it is used by any institution compiling accounts	High road	Stats SA, SANBI		
	3.2.2.3	Ensure sources and methods reports are completed for all accounts and stored in a repository of sources and methods documents	Low road	Stats SA		Constrained by available capacity. More capacity will be needed as the number of accounts increases.
	3.2.2.4	Collaborate to test, refine and evolve software to support compilation of accounts	Low-high road	Stats SA, SANBI, UKZN CWRR, potentially DFFE, WRC		Some capacity in SANBI and Stats SA through donor-funded projects. Not sustainable.

As described in the broad process for developing accounts (see Figure 3 in the strategy), the development of sources and methods reports for compiling accounts is essential. With a growing number of entities involved in compiling accounts, guidance for producing quality sources and methods reports would be advantageous. The sources and methods reports would refer to data used and a data catalogue of spatial data (see Strategic Objective 4.1). Quality assurance of sources and methods reports will require capacity in Stats SA and of experts in relation to the account or sets of accounts.

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.2.3. Ad hoc technical reference groups to guide NCA methods, prescripts and standards	3.2.3.1	Ad hoc technical reference groups to guide NCA methods, prescripts and standards established or convened as needed	High road	Stats SA, DFFE, SANBI		
	3.2.3.2	Ad hoc technical reference groups to guide NCA methods, prescripts and standards established or convened as needed, e.g. to ensure credibility of methods involved in developing monetary accounts	High road	Stats SA, DFFE, SANBI		

This output contributes to the strategic objective of standards, prescripts and methods for compiling natural capital accounts being adopted, improved and documented to ensure reliable, regular and standardised statistics and indicators for natural capital. This speaks to review and guide methodological development of certain types or sets of accounts that are very new, and have wide-ranging implications (e.g. supply and use accounts in monetary terms for ecosystem services) or towards development of guidance for the NCA community.

Output	High-level indicative activities		Funding scenario	Key role players	Timeframe	Resources
3.2.4. Official statistics	3.2.4.1	Explore certification of priority indicators based on natural capital accounts as “official statistics” in terms of SASQAF.		Stats SA		

This output will provide indicators from natural capital accounts being published as official statistics, which means that they have met all the requirements for ‘official statistics’ in terms of SASQAF, including that they can be published regularly.

GOAL 4. Capacity and data for accounts are well developed and robust

SO 4.1. Data standards, classifications, definitions and sharing are strengthened for regular compilation of an integrated suite of accounts

An integrated suite of natural capital accounts relies on integrating spatial data from multiple sources inside and outside governments. "Put simply, linking data about people and businesses to a place or geographic location, and its integration with geospatial information through the medium of location, can result in an improved understanding of social, economic, and environmental issues; much greater than is possible if viewing statistical or geospatial information in isolation." (United Nations 2019). This strategic objective has three outputs.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
4.1.1. Spatial data infrastructure for NCA are developed and expanded	4.1.1.1	Further develop and maintain the Basic Spatial Unit (BSU) grids and primary master layers for South Africa in consultation with the Committee for Spatial Information data sub-committee and other stakeholders.	Low road	Stats SA, DARRLD NGI, SANBI		
	4.1.1.2	Maintain a geographic information archive of spatial data used as primary and secondary ecosystem accounting area in the compilation of natural capital accounts published by Stats SA (would not apply to spatial data of accounts not published by Stats SA).	Low road	Stats SA, data providers		Stats SA Geography Division
	4.1.1.3	Develop, maintain and serve supporting material (metadata and semantics framework) on the spatial data infrastructure for NCA.	Low-high road	Stats SA, SAEON, SANBI		

As highlighted in the Global Statistical Geospatial Framework (UN 2019), a national spatial data infrastructure that provides principles and processes for harmonising spatial data is important. The spatial data infrastructure for NCA needs to be developed and expanded to support accounts beyond the SA mainland ecosystem accounting area, to the SA marine and ultimately also the Prince Edward Islands mainland and marine ecosystem accounting areas. It is important that this is done in consultation with the Committee for Spatial Information (CSI) convened by DALRRD and in which Stats SA already has a role. 'Other stakeholders' refers to the need, in some cases, to facilitate processes towards agreement by custodians of various datasets as to the boundaries used to define ecosystem accounting areas (e.g. in the case of the coastline, there are multiple boundaries driven by different purposes/interests).

The spatial data infrastructure should be in line with a geo-enabled statistical system for SA, for which there is a need to maintain the geo-spatial archives of data, following geo-data regulations and standards. Stakeholders added that a library of scripts, code and processes was also important. Stakeholders also raised the need to focus on metadata as well as the data itself. A central repository of metadata is needed, which would indicate what data are publicly available from the source or not.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
4.1.2. **Data standards, classifications, definitions and quality assurance** for NCA amended or developed	4.1.2.1	Define data format and quality criteria for account-ready data	Low-high road	Stats SA, NGI, SAEON, CSIR		Possibly with existing capacity
	4.1.2.2	Metadata guidelines, standards, and prescripts	High road	Stats SA, NGI, SAEON		
	4.1.2.3	Expand South African Statistical Quality Assessment Framework (SASQAF) to consider spatial and environmental data quality	High road	Stats SA (SANSS)		
	4.1.2.4	Develop and maintain guidelines, standards and/or prescripts for metadata and for data providers to improve the account-readiness of data	High road	Stats SA, SANBI, CSIR		
	4.1.2.5	Influencing geospatial information standards and prescriptions through SDI Regulations and/or SASDI Compliance Guidelines (published in terms of the SDI Act, 2003) to facilitate sharing, integration and standardisation of spatial information relevant to natural capital accounts	High road	Stats SA, Committee for Spatial Information (CSI)		
	4.1.2.6	Develop a Standard for National Ecosystem Classification System	Low road	Stats SA, SANBI	2020-2021	Existing Stats SA and SANBI staff

The quality of the accounts starts at the data provider. The data in question will depend on the accounts in question. There will be some data standards, classification, definitions and quality criteria that will be specific to specific data but general principles, recommendations will be possible. It is important that this is captured to build knowledge and guidance available, support standardisation, reduce effort over time and further develop the data, capacity and community able to service the needs for NCA in South Africa.

What we learnt through engagement that is useful for implementation:

- There is a need to focus on metadata as well as the data itself.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
4.1.3. **Data sharing arrangements** in place to improve synchronisation and collaboration to increase data offering and frequency accounts	4.1.3.1	Identify essential datasets and their minimum requirements for priority accounts (refer to Goal 3), and create a data catalogue with linkages to CSI data sub-committee and data custodians	Low road	Stats SA, SANBI, NMU, DWS, DFFE, CSIR		
	4.1.3.2	Collaborate with data producers to produce and continue to produce time series data to support more updated accounts at appropriate frequency (will be enabled by activities in 4.1.2)	Low-high road	Stats SA, various data providers		
	4.1.3.3	Explore the use and value of alternative data sources (integration of datasets, combining data from different sources, big data) to fill data gaps for priority accounts	High road	SAEON, CSIR		
	4.1.3.4	Improve data on condition across all realms	High road	DFFE, SANBI, DALRRD, DWS		

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
	4.1.3.5	Land cover dataset is regularly produced at a national level and aligned to the census cycle of Stats SA	Low-high road	DFFE	Basic LC change report every year, new SANLC dataset, every 3-5 years	DFFE
	4.1.3.6	Explore SASQAF-type standards for data modelling, visualisation and analysis options to facilitate credible linkages with natural capital accounts	Low-high road	SAEON		
	4.1.3.7	Strategically review and explore opportunities to improve Stats SA data to improve linkages with natural capital accounts	High road			

Data sharing arrangements are important to clarify roles and responsibilities in relation to data important to regular production of accounts (with priority on those on the low-road funding scenario). This output is not only about data sharing arrangements to share available data for compiling accounts, but also speaks to increasing the data offering. Activities towards this include identifying essential datasets and their minimum requirements for priority accounts (those in Goal 3), identifying and developing collaborations to produce and update time series data, and explore alternative data sources to fill gaps, including exploring opportunities to draw from or get more from Stats SA data. Some of the indicative activities in this strategic objective speak to known priorities for accounts (such as around ecosystem condition data across all realms, or land cover dataset). SAEON was an active participant at the national stakeholder workshop. They highlighted that big data have several issues, and that exploring big data for NCA needs to be on the high road and they would be a role player.

SO 4.2. Capacity and skills for NCA grow

Formal, non-formal and informal ways of building capacity and skills are recommended in this strategic objective, such as through influencing formal continuing education and/or skills programmes, influencing research initiatives, less formal training workshops or learning exchanges to enhance technical capacity, and events that bring together a community of practice to share learning and build networks. Stats SA has limited capacity and expertise to support this strategic objective, and collaboration with relevant partners and role players will be essential to see progress against outputs in this strategic objective. This strategic objective has four outputs.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
4.2.1. **Review of capacity requirements and availability**	4.2.1.1	Regularly review the capacity requirements needed to develop natural capital accounts	High road			
	4.2.1.2	Review and identify the capacity factors (skills, technology and resources) that promote and/or inhibit the growth and expansion of accounts	High road	Stats SA, SAEON, SANBI, CSIR, DSI		
	4.2.1.3	Review the technology landscape and requirements (proprietary vs open source; solutions orientation rather than software dependent)	High road			

The output is a high-road output to understand the capacity requirements and availability as the NCA body of work grows. The indicative activities are to regularly review the capacity requirements needed to develop natural capital accounts. Using the National NCA Forum as an opportunity to survey needs should be considered. Another activity is to review and identify the capacity factors (skills, technology and resources) that promote and/or inhibit the growth and expansion of accounts and review the technology landscape and requirements (proprietary vs open source; solutions orientation rather than software dependent). Stakeholders highlighted that the technological landscape and requirements were important to include in this review as proprietary GIS software is becoming very expensive. Most government departments have stopped using ESRI due to the cost, and/or are moved towards QGIS. It will be important to look at the technology that will be reliable in the future, and decide on which to invest in and teach people how to use.

The review should also highlight where there are already learning events/courses/platforms that can be used. For example, SAEON offers GIS courses.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
4.2.2. Formal, non-formal and informal learning events	4.2.2.1	Learning events held to increase capacity to produce and interpret accounts (e.g. online webinars, learning exchanges)	Low-high road	SAEON, SANBI		
	4.2.2.2	Develop NCA capacity building materials for learning events	Low-high road	Stats SA, SANBI	2021-2023	Limited capacity through EI4WS Project
	4.2.2.3	Maintain an online repository of recorded training events and materials	High road	SAEON, Stats SA, SANBI, UNSD, UNEP		
	4.2.2.4	Spatial data representation, visualisation and presentation courses to make the information from accounts more accessible.	High road			
	4.2.2.5	Formal raster training (in appropriate software) to enable production of accounts is developed and rolled out	High road			
	4.2.2.6	Develop skills in data science to create data ecosystems that improve lives	High road	Stats SA, others		
	4.2.2.7	Knowledge / learning exchange with other countries	High road			

Formal, non-formal and informal learning events should ideally address capacity needs identified in the review of output 4.2.1. However, learning events are still possible and valuable to address needs identified by the NCA Coordination Unit or NCA Strategic Advisory Group (i.e. on the low-road funding scenario without the capacity review, which will only be achieved with additional funding).

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
4.2.3 **National NCA Forum**	4.2.3.1	Conceptualise programme, schedule and content to enhance information sharing, learning and gathering of knowledge to support advancing NCA in South Africa	Low road	Stats SA, DFFE, SANBI, WRC	Bi-annually	Stats SA SANBI and WRC support through the EI4WS until 2023 Additional capacity would be beneficial
	4.2.3.2	Coordinate programme development, stakeholder liaison, event management and logistics	Low-high road	Stats SA, DFFE, SANBI, WRC		
	4.2.3.3	Consolidate materials before and after event for information sharing and management	Low-high road	Stats SA, DFFE, SANBI, WRC		
	4.2.3.4	Support the Africa NCA Community of Practice	Low road	Stats SA, DFFE, SANBI		Stats SA & SANBI
	4.2.3.5	Host an Africa NCA Community of Practice Forum	High road	Stats SA, DFFE, SANBI		

The National NCA Forum is an important event in bringing together the NCA community of practice to share, learn and build networks. Forum participation is not limited to national NCA stakeholders and participants, but could include key international or regional participants. Support to the Africa NCA community of practice is included here and includes being an active member of the Steering Committee of the recently established Africa NCA Community of Practice convened by the World Bank. With further resources, South Africa could also host an African NCA Forum. NCA has been a focus of discussion at the African Ministerial Conference on the Environment (AMCEN), and South Africa currently holds the AMCEN Presidency.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
4.2.4. Research and innovation hub to drive advancements in NCA and support a pipeline of expertise	4.2.4.1	Work with tertiary institutions to influence formal continuing education and/or skills programmes to improve the quality and relevance of skills produced for NCA	High road	WRC, SANBI, CSIR, DSI		
	4.2.4.2	Supplement existing formal education/skills programmes through guest lectures, internship opportunities and the like	High road			
	4.2.4.3	Actively engage with tertiary institutions to influence research initiatives to support advancements in NCA methodologies in South Africa	High road	[Universities]		
	4.2.4.4	Nurture a high-end skills pipeline for NCA in SA, including bursaries, Centres of Excellence and research chairs	High road	[DSI, NRF]		
	4.2.4.5	Engage DSI about development of research and innovation hub for NCA	High road	NMU, SAEON, DSI		
	4.2.4.6	Identify research areas/questions that research institutions can help to address	High road	DFFE, SANBI, Stats SA		

This is a high-road output of a research hub at a university(ies) to drive advancements in NCA and support a pipeline of expertise. An example of such a hub was given of the Institute for Coastal and Marine Research (CMR) – a research entity of the Nelson Mandela University involved in the Ocean Accounts Framework. Additional capacity will be needed to see progress in this output. A suggestion is that expertise at institutions such as CSIR or DSI might exist to help identify/clarify what research capacity to invest in and use. While one or more research hub is the output that would make a large contribution to the strategic objective, there are several of the indicative activities that do not need to be limited to a particular research hub, namely:

- Formal continuing education and/or skills programmes to improve skills relevant to NCA do not need to be limited to a particular research hub.
- Influencing research initiatives to support advancements in NCA methodologies.
- Identifying research areas/questions to feed into the research community.

GOAL 5. NCA is well resourced, underpinned by effective and collaborative institutional arrangements

SO 5.1. Institutional arrangements to advance NCA collaboration and coordination is stronger

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
5.1.1 NCA Strategic Advisory Group	5.1.1.1	NCA Strategic Advisory Group meets regularly to guide the implementation of the National NCA Strategy, including to explore and improve institutional cooperation and coordination for NCA	Low road	Stats SA, SANBI, DFFE, DWS, National Treasury, DSI, WRC, DPME, DARRLD, NBI	1-2 times a year	Stats SA, EI4WS Project 2020-2023
	5.1.1.2	Review progress on the implementation of the strategy, give advice on scheduling and priorities for publication, reflect on institutional cooperation and coordination, and consider the need for additional institutional mechanisms				

The NCA Strategic Advisory Group is an essential institutional mechanism to advance collaboration and coordination for NCA and provide multi-sectoral guidance in the implementation of the National NCA Strategy.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
5.1.2. Formal and informal **strategic partnerships**	5.1.2.1	Do network analysis annually as a means of identifying emerging partnerships and monitoring institutional involvement (links to indicative activity in Output 1.1.1)	Low road	Stats SA, WRC, SANBI	Annually	Stats SA DD EI4WS support
	5.1.2.2	Develop a theory of change to help stakeholders locate themselves in the work	Low road	SANBI	Once-off	SANBI Policy Advisor & EI4WS-funded NCA project manager
	5.1.2.3	Establish formal and informal partnerships with strategic data providers, co-producers and users (national and international) to increase stock of data sources and compile accounts	Low road	Stats SA	As required	Stats SA
	5.1.2.4	Explore public-private collaborations (national and international) to produce and apply accounts	High road	NBI, SIACA, SWPN, WWF, BASA: Sustainability subcommittee, Chamber of Mines, SALGA, AgriSA. Stats SA, SANBI, DFFE, DWS, NT, DSI, WRC, DPME, DARRLD, CSIR	As required	

Stats SA has historically produced most of its economic and demographic statistics in-house. However, the trend globally is for national statistics offices to be seen as co-ordinators and custodians of statistics, and to work in partnership with other organs of state. NCA is inherently multi-disciplinary and cross-sectoral, and Stats SA does not have the capacity or expertise required to produce the full range of natural capital accounts in-house. This means that collaboration and partnerships with departments and entities are essential for taking forward the production of natural capital accounts, with clear setting out of roles and responsibilities.
Formal and informal strategic partnerships may be formed around specific priority accounts or sets of accounts that contribute to a broader area of interest. Examples of formal and informal strategic partnerships include:

- A *formal service level agreement* between Stats SA and DWS around water-related accounts.
- An *informal partnership* between Stats SA, DFFE and SANBI to collaborate around satellite accounts for the biodiversity economy.
- A formal memorandum of understanding.
- Public-private partnerships.

Stakeholders provided a number of recommendations of private sector institutions and/or industry bodies that represent major drivers of change in natural capital with whom to explore public-private collaborations.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
5.1.3. Coordination of the National NCA Strategy	5.1.3.1	NCA Coordination Unit coordinates available resources and tracks progress on implementation	Low road	SANBI, Stats SA	Ongoing	SANBI NCA Project Manager (2021-2023), Stats SA thereafter
	5.1.3.2	Identify and resource a National NCA Strategy manager to oversee the implementation of the strategy	High road	Stats SA, SANBI	2021-ongoing	Requires funding
	5.1.3.3	Further develop the National NCA Strategy's implementation plan with monitoring and evaluation framework	Low road	Stats SA, SANBI, DFFE	2021/2022	Could be achieved with available capacity

Coordination of the National NCA Strategy will be supported by the NCA Coordination Unit, convened by Stats SA and SANBI with the two contact points being Stats SA Deputy Director: Environmental Economic Accounts, Robert Parry (robertp@statssa.gov.za) and SANBI NCA Project Manager, Aimee Ginsburg (a.ginsburg@sanbi.org.za). However, capacity to coordinate the full breadth of the strategy, even the low-road activities, is heavily constrained. In addition to expanding the Environmental-Economic Accounts directorate in Stats SA and realigning existing capacity where possible, a National NCA Strategy manager is needed to coordinate and champion the implementation of the strategy. This person should have interpersonal experience and skills to facilitate partnerships, convene processes, and technical ability to successfully manage and advance NCA.

SO 5.2. National and donor-funded support for NCA in South Africa has increased

Support is interpreted both in terms of financial support (national and international) and capacity of national officials with NCA-related work in their job descriptions. NCA should be seen as needing continuous funding as an ongoing initiative funded by government, because of the usefulness of accounts for all line ministries. While funding opportunities through funding proposals and donors should be sought, long-term ongoing support within government should also be sought. This strategic objective has four outputs.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
5.2.1. **Expanded Environmental-Economic Accounts directorate** within Stats SA	5.2.1.1	Active participation in the development of the National Strategy for the Development of Statistics (NSDS) to strengthen environmental subsystem	Low road	Stats SA		Three Stats SA staff
	5.2.1.2	Actively seek to integrate NCA into the revision of Stats SA Strategic Plan for 2025/26 to 2029/30	Low road	Stats SA		
	5.2.1.3	Environmental division within Stats SA is expanded	High road	Stats SA		Additional resources required

Stats SA currently maintains a small team that has produced environmental-economic accounts. Even in the context of more collaboration and partnerships to compile natural capital accounts, this division needs to be expanded to ensure Stats SA is able to play important roles as the statistical authority and engage in a growing number of internal and external processes. An expanded Environmental-Economic Accounts directorate within Stats SA is a critical output and would indicate national support for NCA in South Africa. Strengthening the environmental subsystem in the National Strategy for the Development of Statistics (NSDS) and in future versions of the Stats SA Strategic Plan are also indicative activities that will support this output. Inter-departmental arrangements in which people are seconded from different departments was raised during stakeholder engagement, and could be further explored in the further development of this indicative implementation plan.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
5.2.2. **Expanded capacity in Stats SA Geography division**	5.2.2.1	Identify officials with technical expertise to undertake NCA-related spatial work	Low road	Stats SA	2021-2022	
	5.2.2.2	Amend KPAs to include activities supportive of the spatial data infrastructure for NCA and other activities in Goal 4	Low road	Stats SA	>2022	Existing capacity

Stats SA has capacity in the Geography division that is necessary to support the implementation of the strategy under Goal 4. There are low-road activities that could be undertaken with existing capacity and built into job descriptions in upcoming years.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
5.2.3. Increased commitment of national resources to NCA in a range of departments	5.2.3.1	Explore opportunity to allocate government funding for NCA (e.g. within DPME akin to funding the SDGs)	Low road	Stats SA, DPME		
	5.2.3.2	Identify officials for NCA-related work and realign job descriptions to include NCA-related activities	Low-high road	Depends on the accounts in question; DFFE, DWS, SANBI, others		

As highlighted in Strategic Objective 5.1, collaboration and partnerships with departments and entities are essential for taking forward the production of natural capital accounts. Part of having NCA being well resourced will therefore also involve increased commitment of national resources in a range of departments. For example, the regular production of water accounts over the long term will likely require officials in DWS responsible for ensuring and/or preparing accounts-ready data, and building capacity to compile accounts, which can then be assessed and approved by Stats SA for quality assurance. This commitment could come at various levels and will be specific to the department and accounts in question.

Output	Indicative activities		Funding scenario	Key role players	Timeframe	Resources
5.2.4. Increased donor-funding in NCA	5.2.4.1	Identify funding opportunities in relation to specific priority accounts (e.g. Green Climate Fund, linking to build back better stimulus package, GEF 8)	Low-high road	Stats SA, SANBI, DFFE, DBSA	Ongoing, ad hoc	Possible with existing capacity but could be supported by dedicated capacity, especially in develop funding proposals. National NCA Strategy manager could support this.
	5.2.4.2	Co-develop and submit funding proposals	Low-high road	Stats SA, SANBI, WRC,WWF (any other relevant entity)		
	5.2.4.3	Engage with potential donors around the National NCA Strategy and priority accounts that require additional resources to compile	Low-high road	Stats SA, SANBI DFFE, P4G, others		

Donor funding has played an important enabling role in the development of natural capital accounts, especially ecosystem accounts, over the past seven years. While the first three outputs address expansion and realignment of job descriptions of existing officials to make progress initially on low-road activities, increased donor funding will further enable implementation of high-road activities. The strategy helps to identify a range of funding priorities, which can be further expanded upon by the NCA Coordination Unit with guidance from the NCA Strategic Advisory Group if necessary. Further, it identifies key role players to engage in relation to a specific account or set of accounts (to unpack more detail with respect to types of accounts tables, key datasets, update frequency, available capacity, etc.).

3. Draft Monitoring and Evaluation Framework

GOAL 1. NCA is used for integrated planning, decision-making, monitoring and evaluation across a range of sectors

SO 1.1. Increased use of natural capital accounts-based indicators and information for high-level and sectoral policies and planning

Strategic objective indicator:

- Natural capital accounts referred to in priority policies and plans influenced by the strategic engagements held and identified in the value propositions

OUTPUTS	INDICATORS
1.1.1. Strategic engagement and dialogue report	• Report produced regularly
1.1.2. NCA value proposition statements for public sector	• Value proposition statement developed
1.1.3. NCA value proposition statement for private sector	• Value proposition statement developed
1.1.4. Uptake and use of NCA accounts synthesis report	• Track use of NCA publications and indicators in the IIF that draw information from natural capital accounts • Evaluate value created through implementation of NCA • Capture stories of change

SO 1.2. Public discourse stimulated with information from NCA

Strategic objective indicator:

- Increased uptake of NCA in the media

OUTPUTS	INDICATORS
1.2.1. Communication and advocacy plan to create and use opportunities to share information from natural capital accounts	• Cooperate with communications staff from Stats SA to identify opportunities to share NCA information • Create standing agenda item on NCA-based indicators and information in the annual State of Environment Reporting Community of Practice workshops • Develop and roll out a communication and advocacy plan for NCA
1.2.2. Communication channels for NCA information	• Number of communication channels used • Number of people on NCA list of stakeholders • Number of partner websites serving information about NCA • Number of products and downloads from Stats SA website

GOAL 2. NCA offers credible evidence of how nature supports people and the economy			
SO 2.1. Statistics and information are drawn from natural capital accounts, providing evidence of how nature supports people and the economy		**SO 2.2. Documentation of practice, lessons and guidance contribute to NCA knowledge**	
Strategic objective indicator: • Number of accounts from which interpreted products are developed		Strategic objective indicator: • Knowledge products cited	
OUTPUTS	INDICATORS	OUTPUTS	INDICATORS
2.1.1. NCA communication materials	• Number of communication materials (disaggregated by type)	**2.2.1. Written contributions to development of global, regional and national standards and methodology**	• Number of written contributions by Stats SA (or others)
2.1.2. Interpreted products from natural capital accounts that communicate their relevance and content	• Number of interpreted products		
2.1.3. A set of natural resource headline indicators drawn from natural capital accounts	• Number of headline indicators from accounts • Number of indicators in the IIF that draw information from natural capital accounts	**2.2.2. Best-practice note and/or peer-reviewed literature**	• Number of best practice notes • Number of peer-reviewed literature related to natural capital accounts in South Africa
2.1.4. Reports that integrate information from more than one account	• Number of reports		

GOAL 3. An integrated suite of natural capital accounts is produced based on best-available methods			
SO 3.1. Regularly compile and publish an integrated suite of natural capital accounts		**SO 3.2. Standards, prescripts and methods for compiling natural capital accounts are used, improved and documented**	
Strategic objective indicator: • Number of accounts regularly compiled and published		Strategic objective indicator: • Number of downloads/requests for standards, prescripts or methods	
OUTPUTS	INDICATORS	OUTPUTS	INDICATORS
3.1.1. Accounts related to surface and groundwater	• Number of accounts compiled (distinguish those compiled as a once-off and those compiled regularly) • Number of technical working groups	**3.2.1. Internationally approved/agreed standards, principles and recommendations for compiling accounts**	• Number of institutions adopting the SEEA
3.1.2. Accounts related to energy			
3.1.3. Accounts related to carbon and greenhouse gas emissions			
3.1.4. Accounts related to mineral resources			
3.1.5. Accounts related to ecosystems across all realms		**3.2.2. Sources and methods for compiling accounts**	• Number of sources and methods reports
3.1.6. Land accounts			
3.1.7. Accounts related to protection of natural environment			
3.1.8 Accounts related to ecological infrastructure		**3.2.3. Ad hoc technical reference groups to guide NCA methods, prescripts and standards**	• Ad hoc technical reference group established (as needed)
3.1.9 Accounts for species of special concern			
3.1.10 Accounts related to the biodiversity economy			
3.1.11. Ocean accounts			
3.1.12. Accounts related to agriculture and food security			
3.1.13. Natural Capital Series publications of accounts	• Number of Natural Capital Series publications	**3.2.4. Official statistics**	• Number of official statistics drawn from accounts

GOAL 4. NCA offers credible evidence of how nature supports people and the economy

SO 4.1. Data standards, classifications, definitions and sharing are strengthened for regular compilation of integrated suite of accounts

Strategic objective indicator:

- Increased collaboration around data for accounts

OUTPUTS	INDICATORS
4.1.1. Spatial data infrastructure for NCA is developed and expanded	• Technical document for BSU • Technical documents for primary master layers • Geographic information archive of spatial data
4.1.2. Data standards, classifications, definitions and quality assurance for NCA amended or developed	• Number of data standards, classifications, definitions amended/developed
4.1.3. Data sharing arrangements in place to improve synchronisation and collaboration to increase data offering and frequency accounts	• List of essential datasets and their minimum requirements • Number of data sharing arrangements

SO 4.2. Capacity and skills for NCA grow

Strategic objective indicator:

- Number of people compiling or interpreting accounts (survey at NCA Forum)

OUTPUTS	INDICATORS
4.2.1. Review of capacity requirements and availability	• Review completed • Review updated (every 5 years
4.2.2. Formal, non-formal and informal learning events	• Number of learning events
4.2.3 National NCA Forum	• Number of forums held
4.2.4. Research and innovation hub to drive advancements in NCA and support a pipeline of expertise	• Formal continuing education and/or skills programmes influenced • Research and innovation hub influenced

GOAL 5. NCA is well resourced, underpinned by effective and collaborative institutional arrangements

SO 5.1. Institutional arrangements to advance NCA collaboration and coordination are stronger

Strategic objective indicator:

- Multi-year Memorandum of Understanding or service level agreements to regularly produce national-level natural capital accounts in line with best practice

OUTPUTS	INDICATORS
5.1.1 NCA Strategic Advisory Group	• NCA Strategic Advisory Group established (terms of reference) • NCA Strategic Advisory Group meets at least once a year (evidenced by minutes)
5.1.2. Formal and informal strategic partnerships	• Network analysis report • Service level agreements • Informal partnerships (minutes of meetings) • Public-private partnership (contract)
5.1.3. Coordination of the National NCA Strategy	• NCA Coordination Unit minutes • National NCA Strategy manager • National NCA Strategy implementation plan • National NCA Strategy monitoring and evaluation framework

SO 5.2. National and donor-funded support for NCA in South Africa has increased

Strategic objective indicator:

- Value of national and donor-funded support

OUTPUTS	INDICATORS
5.2.1. Expanded Environmental-Economic Accounts directorate within Stats SA	• Number of staff in Environmental-Economic Accounts directorate • Mention of NCA / Environmental-Economic Accounts in Stats SA Strategic Plan for 2025/26–2029/30
5.2.2. Expanded capacity in Stats SA Geography division	• NCA-related activities included in job descriptions of existing officials
5.2.3. Increased commitment of national resources to NCA in a range of departments	• National resources committed • NCA-related activities included in job descriptions of existing officials • Value of resources committed
5.2.4. Increased donor funding in NCA	• Number of funding proposals • Value of donor funding