

# Establishing South Africa's Marine and Coastal Spatial Data Infrastructure (SDI)

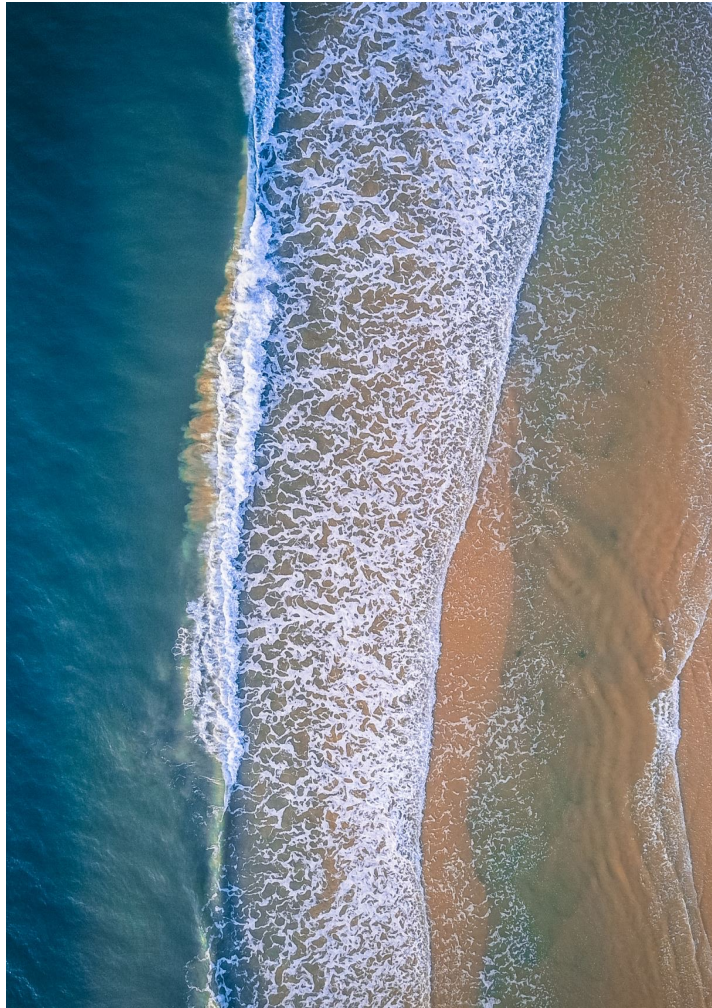
Prepared by: Clinton Heimann, M. Chauke, N. Ntshabele & N Fourie (CSI)



agriculture, land reform  
& rural development

Department:  
Agriculture, Land Reform and Rural Development  
REPUBLIC OF SOUTH AFRICA





# Overview

# 2

## Significance of Marine and Coastal Environments

- **Exclusive Economic Zone (EEZ):**

- *South Africa's EEZ extends 200 nautical miles from the coastline, covering an area of 1.54 million km<sup>2</sup>, including Indian and Atlantic Ocean islands.*
- *Over 30,000 vessels navigate South African waters annually, indicating high maritime activity.*
- *40% of South Africa's population resides within 60 km of the coast, emphasizing the socio-economic significance of coastal regions.*

- **Economic Contribution:**

- *The marine and coastal environments contribute approximately R20 billion annually to South Africa's economy.*
- *This sector holds the potential to create over 1 million jobs through various industries such as fishing, tourism, and maritime trade.*
- *Projections for 2024 estimate a GDP contribution of R143.4 billion and the creation of 779,213 jobs.*

- **International Hydrographic Organization (IHO) Membership:**

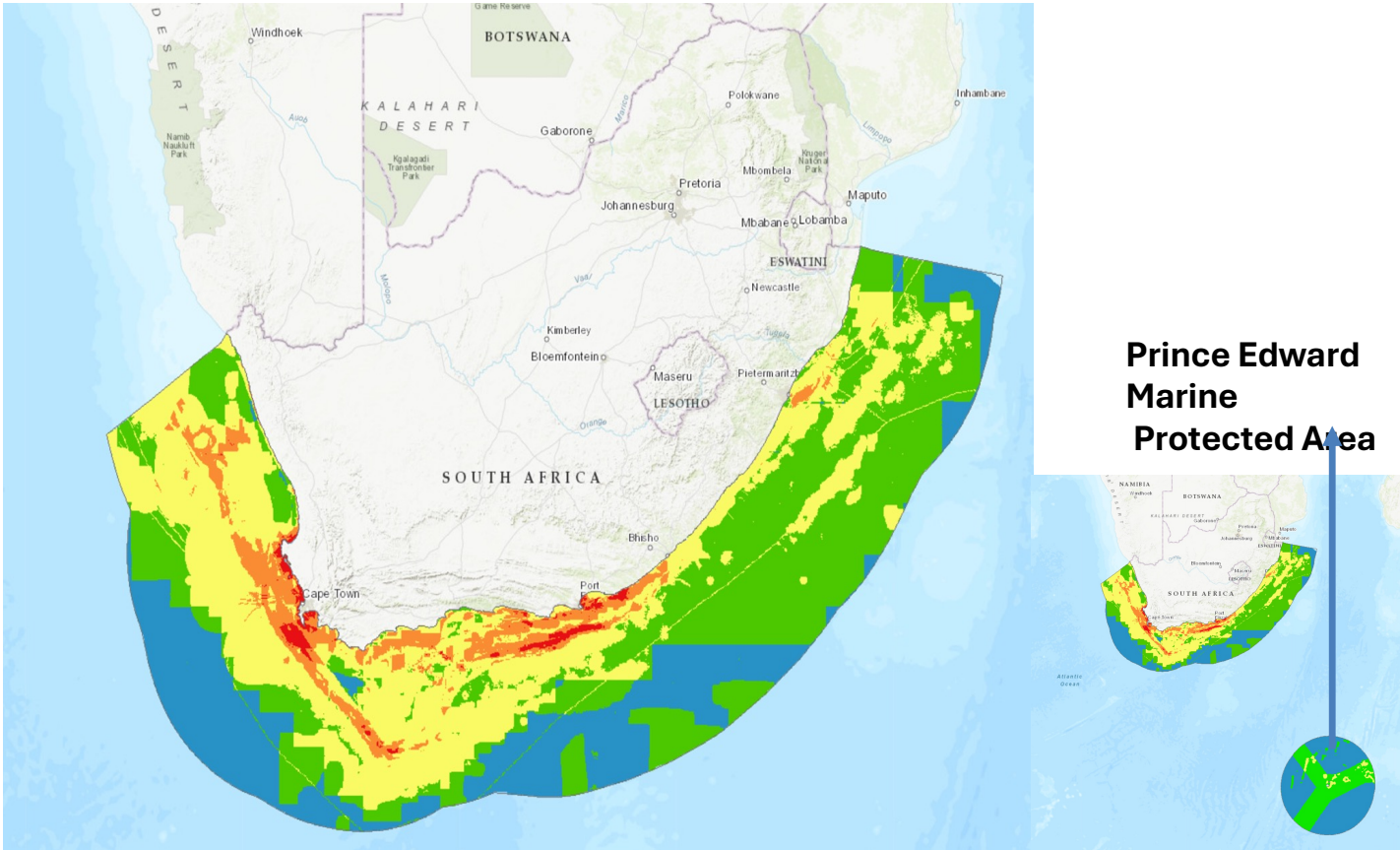
- *South Africa is a member of the IHO, an intergovernmental organization that ensures all the world's seas, oceans, and navigable waters are adequately surveyed and charted. This membership highlights South Africa's commitment to maintaining high standards in marine and coastal data management.*



agriculture, land reform  
& rural development

Department:  
Agriculture, Land Reform and Rural Development  
REPUBLIC OF SOUTH AFRICA

# Overview: South Africa's Marine landscape



agriculture, land reform  
& rural development

Department:  
Agriculture, Land Reform and Rural Development  
REPUBLIC OF SOUTH AFRICA

# Overview: The need for Marine and Coastal Spatial Data Infrastructure (MCSDI) (1)

4



## Chart a Sustainable future for Oceans with through MCSDI

The marine sphere is an important component of the global economy as it supports various industries such as fishing, shipping, tourism, and energy production. However, the sector also threatens the health of marine ecosystems due to activities such as overfishing, pollution, and carbon emissions. To address these challenges, the United Nations has set several Sustainable Development Goals (SDGs).



## MARINE resources management integrated within UNSDG

One of the key SDGs related to the marine sector is SDG 14: Life Below Water. This goal aims to conserve and sustainably use the oceans, seas, and marine resources for sustainable development. Some of the targets under SDG 14 include reducing marine pollution, ending overfishing, protecting and restoring marine ecosystems, and addressing ocean acidification.



## SA as signatory to United Nations Convention on the Law of the Sea (UNCLOS)

The ocean area is governed in terms of South Africa Maritime Zones Act of 1994 and the United Nations Convention on the Law of the Sea (UNCLOS), agreed to in 1982.



## MCSDI : “ A Geospatial heart “of Marine Conservation

MCSDI plays an important role in achieving SDG 14 by providing geospatial data and tools to support the planning, management, and monitoring of marine resources and activities. This data infrastructure provides a platform for stakeholders to access and share accurate and up-to-date information about the marine environment.



agriculture, land reform  
& rural development

Department:  
Agriculture, Land Reform and Rural Development  
REPUBLIC OF SOUTH AFRICA

# Overview: The need for Marine and Coastal Spatial Data Infrastructure (MCSDI) (2)

5



## Enabling Legislation and policies, data for Marine Data Spatial tools

South Africa is well endowed with relevant legislation, data, and information management systems in the marine and coastal spheres with initiatives being implemented in the marine and coastal environment and providing sophistication

SDI Act Section 6.2: Basedata custodian identification.



## Enabling environment

Oceans Economy Master Plan : 2035

The Operation Phakisa: Oceans Economy target initiative has a target to create 1 million jobs by 2030.

10 Marine Sectors Spatial plans developed

There is an established Marine Spatial planning and coastal Management Working Group led by the Department of Forestry, Fisheries and Environment (DFFE) since 2004



## Marine & Coastal Spatial Tools to support marine Sector planning

Include the Oceans and Coasts Information Management System (OCIMS), the Coastal Viewer of the Department of Forestry, Fisheries and Environment (DFFE) and the Biodiversity GIS portal (BGIS) of the South African National Biodiversity Institute (SANBI).



## Towards Marine & Coastal Spatial Data Infrastructure

There is a need for these portals to be networked into a federated system in the marine and coastal spheres.



agriculture, land reform  
& rural development

Department:  
Agriculture, Land Reform and Rural Development  
REPUBLIC OF SOUTH AFRICA

# Geospatial Data and Sustainable Management - Key Insights:

6

## Importance of Comprehensive Data:

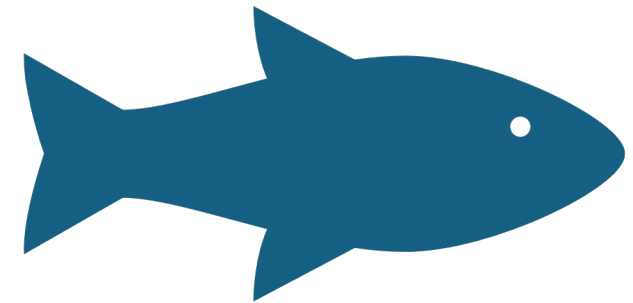
- *Access to comprehensive and relevant geospatial data is crucial for the sustainable management of coastal and marine resources. This data enables informed decision-making and effective resource management.*

## Existing Frameworks:

- *South Africa is well-endowed with relevant legislation, data, and information management systems in the marine and coastal spheres. However, there is a need for standardization and coordination to maximize their effectiveness.*

## Commissioned Study:

- *The Department of Agriculture, Land Reform, and Rural Development (DALRRD) has commissioned a study to develop the Spatial Data Infrastructure (SDI) for marine and coastal spheres. This initiative aims to enhance data capture, storage, maintenance, and dissemination.*



**agriculture, land reform  
& rural development**

Department:  
Agriculture, Land Reform and Rural Development  
**REPUBLIC OF SOUTH AFRICA**

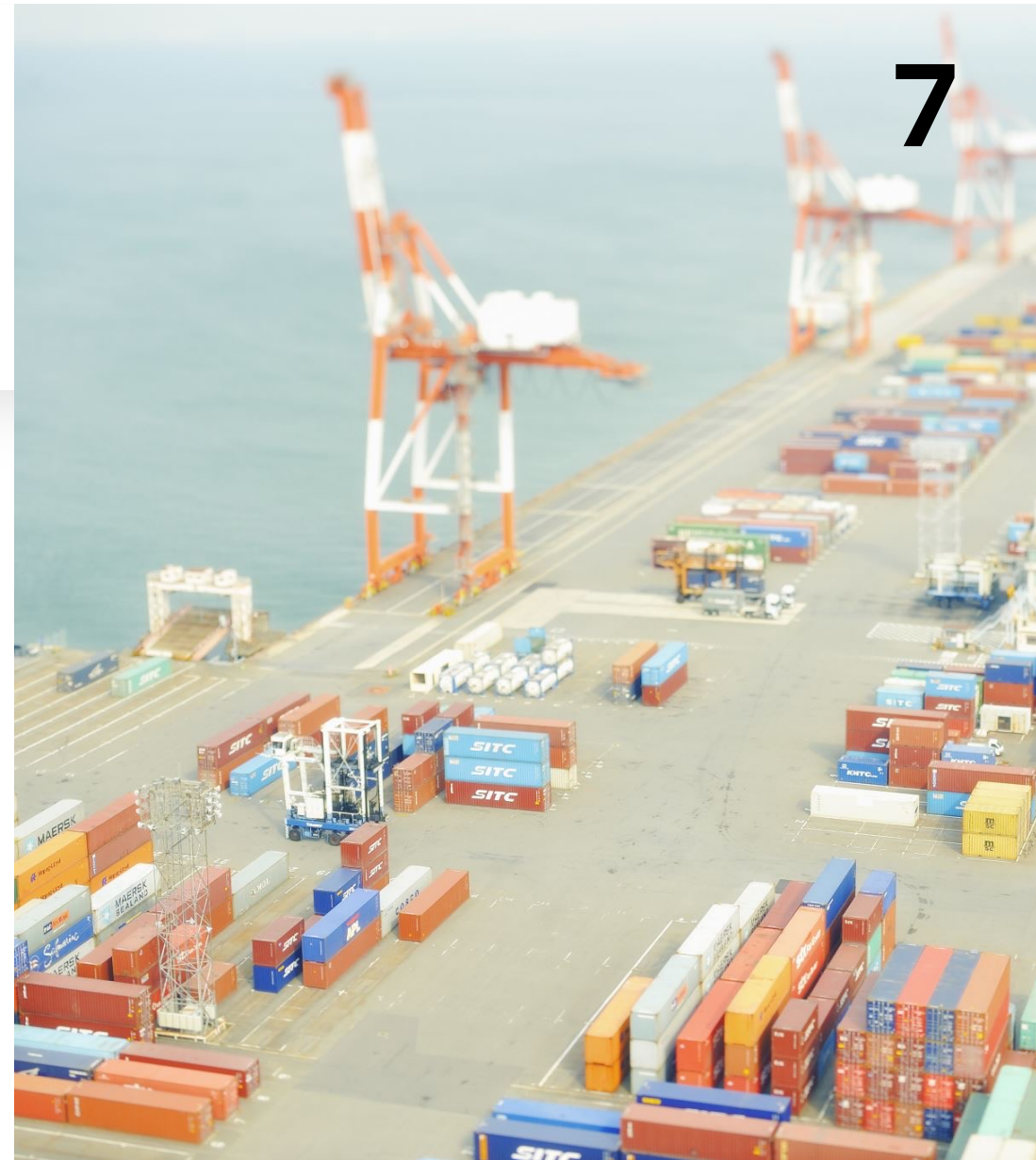
# Objective:

- The primary objective was to integrate marine and coastal geospatial data into the South African Spatial Data Infrastructure (SASDI).
- This integration facilitated better resource management and policy-making.



agriculture, land reform  
& rural development

Department:  
Agriculture, Land Reform and Rural Development  
REPUBLIC OF SOUTH AFRICA





# Integration and Governance - Key Strategies:

## 1. Operation Phakisa:

- *Leverage initiatives like Operation Phakisa, which aimed to unlock the economic potential of South Africa's oceans through enhanced planning and decision support systems.*

## 2. Integrated Coastal Management (ICM) and Marine Spatial Planning (MSP):

- *These concepts promotes the sustainable use and conservation of marine and coastal resources, and provides a framework for integrating various legislative and policy initiatives.*

## 3. SDI Act:

- *The Spatial Data Infrastructure Act serves as a catalyst for integrating interconnected legislation in the terrestrial, marine, and coastal spheres. It provides a legal foundation for the coordination of geospatial data management.*



**agriculture, land reform  
& rural development**

Department:  
Agriculture, Land Reform and Rural Development  
**REPUBLIC OF SOUTH AFRICA**



# Governance Framework:

## Institutional Components:

- Developed a governance structure that includes institutional, policy, and management components. This structure facilitates the integration and management of marine and coastal geospatial data within SASDI.

## International Standards:

- Modernize governance by adopting international initiatives, such as the UN Integrated Geospatial Information Framework (IGIF) principles. This approach ensure best practices and enhance governance effectiveness.



agriculture, land reform  
& rural development

Department:  
Agriculture, Land Reform and Rural Development  
REPUBLIC OF SOUTH AFRICA

# Stakeholder Engagement and Implementation

- **Literature Review:**
  - *Conducted a comprehensive global, regional, and national literature review of marine and coastal initiatives. This review provided a foundation for understanding current practices and identifying gaps.*
- **Stakeholder Involvement:**
  - *Engaged a wide range of stakeholders, including national, provincial, and local government entities, statutory organizations, science councils, industry associations, research institutions, and civil society. This engagement ensured diverse input and buy-in.*

10



agriculture, land reform  
& rural development

Department:  
Agriculture, Land Reform and Rural Development  
REPUBLIC OF SOUTH AFRICA

# Implementation Strategy:

## Phased Approach:

- Implemented the strategy in three phases, each with short, medium, and long-term objectives. This phased approach allowed for manageable and achievable milestones.

## Flexibility:

- Ensured the strategy is flexible to accommodate reordering of objectives and overlapping timelines. This flexibility was crucial for adapting to changing circumstances and priorities.

11



agriculture, land reform  
& rural development

Department:  
Agriculture, Land Reform and Rural Development  
REPUBLIC OF SOUTH AFRICA

# Base Data Sets and Standards

## Identification Process:

- *Identified base data sets through a collaborative process involving defined criteria and stakeholder input. This ensures that the most relevant and essential data sets are prioritized.*

## Priority Data Sets:

- *Key priority base data sets included high-water mark, low-water mark, coastal management line, and others critical for marine and coastal management. These data sets are essential for accurate mapping and decision-making.*

## Data Custodians:

- *Established a register of base data sets along with their associated themes and designated data custodians. This register facilitates accountability and ensures proper data management.*

12



# Standards:

## Data Standardization:

- Data custodians must standardize data formats and metadata to ensure interoperability. This standardization is essential for integrating data from various sources and making it discoverable.

## Metadata Standards:

- Adhere to South African (SANS 1878) and international (ISO 19115) metadata standards. These standards ensure consistency and quality in data documentation and usage.



agriculture, land reform  
& rural development

Department:  
Agriculture, Land Reform and Rural Development  
REPUBLIC OF SOUTH AFRICA

# Communication and Engagement

## Effective Communication:

- Developed a comprehensive communication strategy to ensure effective internal and external communication. This strategy utilizes multiple platforms to reach diverse stakeholders.

## Stakeholder Coordination:

- Engage stakeholders through a Working Group on Communication and Engagement. This group will develop and implement the communication strategy, ensuring alignment and coordination.



# Key Takeaways

## SDI Establishment:

- Establishing a marine and coastal SDI was crucial for the sustainable management of these environments. It provides a structured approach to data integration and utilization.

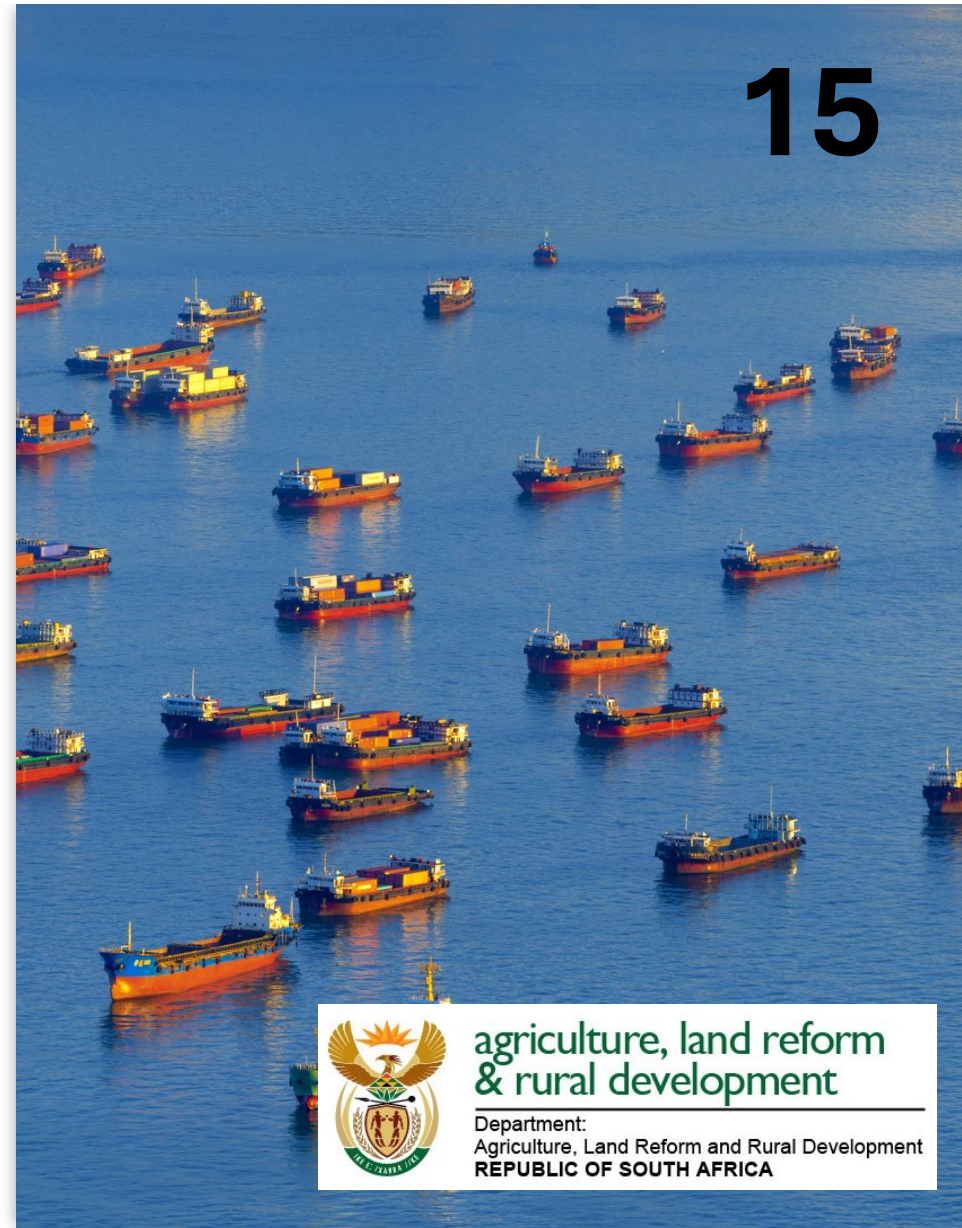
## Integration with Terrestrial SDI:

- Integrating marine and coastal data with terrestrial SDI ensures a holistic approach to spatial data management. This integration facilitates comprehensive planning and policy-making.

## Governance and Engagement:

- Effective governance, stakeholder engagement, and communication are critical for the successful implementation of the SDI. These elements ensure alignment, accountability, and stakeholder buy-in.

15



---

# THANK YOU



agriculture, land reform  
& rural development

Department:  
Agriculture, Land Reform and Rural Development  
REPUBLIC OF SOUTH AFRICA

