

MARINE AND COASTAL SPATIAL DATA INFRASTRUCTURE

STAKEHOLDER INTERVIEW QUESTIONNAIRE

1 INTRODUCTION

The marine and coastal environments form a large and important part of the area that falls under South Africa's jurisdiction. South Africa's Exclusive Economic Zone (EEZ) stretches 200 nautical miles into the sea from the coastline and around the Indian and Atlantic islands under its authority. This equates to an area of 1.54 million km², which is rich in marine and coastal resources¹. Managing and preserving the marine and coastal environments requires access to base geospatial datasets. Geospatial data are key to achieving the Sustainable Development Goals, Agenda 2063, and the National Development Plan (NDP).

In order to provide a comprehensive and accessible platform for key Marine and Coastal Spatial Data, the Department for Agriculture, Land Reform and Rural Development embarked on a comprehensive analysis of the marine and coastal spatial data infrastructure (MCSDI) environment, investigate and define a South African spatial data infrastructure with a fit-for-purpose support base for a MCSDI.

The mandate to conduct this study comes from a resolution of the Committee for Spatial Information (CSI) established under the Spatial Data Infrastructure Act (Act No. 54 of 2003). More specifically, the mandate comes from Section 6.2 of the Base Data Set Custodian Policy, which is to identify base datasets in the marine and coastal environment and appoint responsible data custodians.

The National Spatial Information Framework (NSIF) Directorate within the Department of Agriculture, Land Reform and Rural Development (DALRRD) is responsible for implementing and monitoring the Spatial Data Infrastructure Act. The SDI Act provides for establishing the South African Spatial Data Infrastructure (SASDI). The Department has appointed a consortium led by GeoScope SA to conduct a comprehensive analysis of the marine and coastal domain in South Africa. The outcome of the project includes inter alia:

- a) Approved criteria for identifying marine and coastal base data sets;
- b) Approved list of base data sets, their associated data custodians and themes;
- c) A proposed method of integrating the Marine and Coastal Spatial Data Infrastructure (MCSDI) into the South African Spatial Data Infrastructure (SASDI) framework; and
- d) Recommend a fit-for-purpose structure for the MCSDI within the SASDI framework.

The DALRRD has mandated the consortium to identify key marine and coastal environment stakeholders and interview them. The focus of the interviews is to solicit input towards compiling the criteria for base datasets and custodians within the marine and coastal domain. Furthermore, to identify base datasets and their associated data custodians. It will also discuss methods for integrating MCSDI into SASDI and a fit for purpose structure and best practices. The stakeholders not participating in the interviews will be given the opportunity to complete an emailed or online questionnaire.

The consortium has conducted a comprehensive literature review of marine and coastal initiatives internationally, continentally, and nationally to define an initial set of criteria, base datasets, data custodians and themes. Approaches used to incorporate MCSDI into national SDI were reviewed as were the governance structures and best practices. Through the literature review key stakeholders associated with marine and coastal geospatial data sets were also identified. **You and your organization have been identified as a key stakeholder to be interviewed.** The interview will not be more than one hour.

Having completed the stakeholder interviews, the findings will be synthesised into a final set of recommendations that will be presented back to stakeholders for their feedback. The workshops will be held in the four coastal provinces as well as nationally in June 2022. From the research, recommendations will be made to Department on the effective establishment of the MCSDI.

¹ For comparison, South Africa's terrestrial area is about 1.22 million km².

Your opinion is important to this study as we need to obtain reliable, user-oriented information. We therefore request that you answer the questions that follow as candidly and as fully as possible. We would also ask that you inform other departments and organizations within the marine and coastal domains about the study so that they will also have an opportunity to complete the questionnaire.

The Department appreciates your support and looks forward to partnering with you in this process. Should you wish to make further enquiries regarding this matter, please do not hesitate to contact Ms Maroale Chauke, Director: National Spatial Information Framework, at telephone number (012) 312 9643 or at the email address: Maroale.chauke@dalrrd.gov.za. Alternatively, contact the project manager Craig Schwabe at (082) 904 0955 or at craig@geoscope-sa.com.

2 Particulars of interview

- 2.1 Date:
2.2 Name of interviewer:

3 Contact Details

INSTRUCTION: This is a reminder to ensure that the interview is being recorded.

- 3.1 Name, title and position of person being interviewed: (Prof./Dr./Mr./Mrs./Ms.) _____
3.2 Name and acronym of organisation. _____
3.3 Name directorate / department / division in organisation. _____
3.4 Type of organisation? (Tick the option that applies)

National government department	
Provincial government department	
Local authority	
Academic / research institution	
Non-government (NGO) / Community Based Organization (CBO)	
Para-statal / Semi-governmental	
Private company	
Other (please specify):	

- 3.5 At what levels does your organisation operate? (Tick all that may apply.)

Local municipality	
District municipality	
Provincial	
National	
International	
Other (please specify):	

- 3.6 What activities does your organization perform with respect to marine and coastal spatial information? (Tick all that may apply.)

Data collection (systematic process of gathering and measuring information)	
Creation (construction of new data not already contained in a database)	
Data collation (bring together different data and storing them in ordered system/database)	
Data archiving (transferring data to a systems for long-term storage)	
Data interpretation and analysis (using geospatial, statistical and other techniques to give meaning to the data)	
Reporting (providing a written or verbal account of data and its interpretation)	
Research (investigate and study a topic or problem to create data, establish facts and reach new conclusions).	
Data warehousing (storage and management of data in an electronic system).	

Data Dissemination (distributing or transmitting data to users using various media)	
Planning (planning activities through the collation and interpretation of data to achieve a goal)	
Policy and Decision-Support (development of policies and use of data & information systems to make decisions)	
Operational applications (practical mechanisms to achieve a goal)	
Other (please specify):	

- 3.7 What international treaties or government legislation, regulations and policies define your responsibilities or are important in regulating your operations in relation to the marine and coastal domains (please specify)?
- 3.8 What is the mandate or goal of your organisation (please specify)?

4 Criteria for marine and coastal base dataset

INSTRUCTION: Please read. In the following sections you will be asked questions on the following topics:

- i. criteria for defining marine and coastal base data sets,
- ii. identification of marine and coastal base data sets and their data custodians;
- iii. themes used to categorize marine and coastal base data sets;
- iv. incorporating, structuring and managing of Marine and Coastal Spatial Data Infrastructure within the South African Spatial Data Infrastructure;
- v. current & future trends in the marine and coastal environment;
- vi. Identification of other stakeholders to participate in the study.

INSTRUCTION: Please read. Criteria are the standards or principles that are used in evaluating a geospatial dataset and deciding if it should be identified as a base dataset.

- 4.1 Are you willing to give us input on the criteria to be used in defining marine and coastal base data sets (Y/N)? [If No, skip to Q5.1]
- 4.2 In October 2012, the criteria for a base dataset were presented and adopted by the Committee for Spatial Information. Which of the criteria do you agree with - using a scale from 1 to 5, where 1 is very important and 5 is not important at all, indicate the importance of each criteria?

	Importance
• Diversity of users from different sectors who derive significant benefit from its use (compulsory)	
• Cannot be substituted easily or generally (compulsory)	
• Has sufficient detail and accuracy for widespread use (compulsory)	
• Complete coverage of an area of interest (compulsory)	
• Produced as a result of the core mandate of the custodian (conditional)	
• Source for accurately referencing other datasets or for displaying the results of an analysis (conditional)	

- 4.3 A review of international initiatives for marine and coastal SDI development identifies several other criteria that are listed below. Which of the criteria do you agree with using a scale from 1 to 5, where 1 is very important and 5 is not important at all, indicate the importance of each criteria?

	Importance
• Standardisation of data and associated activities (UN-GGIM White paper)	
• Mechanisms to ensure availability of data (UN-GGIM White paper)	
• Data are fit-for-purpose (UN-GGIM White paper)	
• Few or no restrictions on usage	
• Free or low cost	
• Mandatory requirement in legislation	

- 4.4 What additional criteria for marine and coastal base data sets should be used (please specify). Indicate their importance using a scale from 1 to 5, where 1 is very important and 5 is not important at all?

New criteria	Importance

5 Marine and coastal base dataset

INSTRUCTION: Please read. The Committee for Spatial Information defines base geospatial datasets as the minimum set of essential datasets that are widely used as a reference base at various administrative levels to accomplish South Africa's national and international priorities.

5.1 Are you willing to give us input on the marine and coastal base data sets that fall into themes that are of relevance to your organization (Y/N)? [If No, skip to Q7.1]

5.2 Select the themes below that are relevant to your organization (multi-select).

Global Geodetic Reference Frame - The models and coordinate systems needed to precisely locate physical positions on the Earth's surface.	
Addresses - The number, street and geographic place where someone lives, or where an organization is situated.	
Building and Settlements - Are the structures and places where people live and conduct economic activity (eg tourist accommodation, geographic places lighthouses, sea rescue stations, other buildings)	
Elevation and Depths - It is the height above or below a point or line of reference (eg contours, aspect, slope, bathymetry, beach morphology, channels, elevation, isobath,	
Functional Areas - These are the geographical extent of administrative, legislative, regulatory, electoral, statistical, governance, service delivery, and activity management areas	
Geographical Names - The location of cultural and physical features and places in the world.	
Geology and Soils - Describes the earth below its surface on land and in marine environments.	
Land Cover and Use - Land cover represents the physical and biological coverage of the Earth's surface. Land use is the current / or planned use of the Earth's surface.	
Land Parcels - Geographic areas under common rights (eg ownership or easements), claims (such as minerals or Indigenous land) or use.	
Ortho-imagery - Is geo-referenced rectified satellite or airborne sensor imagery of data of the Earth's surface.	
Physical Infrastructure - Includes industrial and utility facilities and service delivery facilities.	
Population Distribution - Geographical distribution of people, including population characteristics.	
Transport Networks - Road, rail, air, cable and water transport routes and their connectivity.	
Water - Extent and conditions of all water features including rivers, lakes, and marine features.	

5.3 On a scale from 1 to 5, where 1 is very important and 5 is not important at all, indicate the importance of each base dataset forming part of the selected theme(s) **(See Annexure 1 for themes and associated base datasets)**

5.4 What do you use the selected base datasets for (please specify)?

5.5 Which marine and coastal base data sets does your organization have (please specify)?

5.6 Who are the main users of your base data sets, both within and outside of your organization (please specify)?

5.7 What additional marine and coastal base data sets do you think should be considered and why (please specify)?

5.8 Who would you say are the leaders globally and nationally in providing base data sets in the marine and coastal domains (please specify)?

6 Marine and coastal data custodians

INSTRUCTION: Please read. A data custodian is defined as an organ of state, or an independent contractor or person engaged in the exercise of a public power or performance of a public function that captures, maintains, manages, integrates, distributes, or uses spatial information.

6.1 Are you willing to give us input on the who the data custodians of marine and coastal base data sets should be that fall into themes that are relevant to your organization? [If No, skip to Q8.1] **[NOTE: Inputs will only be possible for previously selected themes and their associated base datasets]**

6.2 For each of the base data sets below **(See Annexure 1 for themes and associated base datasets)**, indicate who should be the data custodian or just say 'I don't know'.

6.3 What other data custodians are there that are responsible for spatial information that were not listed in the previous question (please specify)?

7 Marine and coastal data themes

INSTRUCTION: Please read. A theme is defined as a high level categorization of spatial datasets with features that have common characteristics.

7.1 Are you willing to give us input on the themes that can be used in categorizing marine and coastal base data sets (Y/N)? [If No, skip to Q6.1]

7.2 The UN GGIM identified 14 data themes that are listed below. On a scale from 1 to 5, where 1 is very important and 5 is not important at all, indicate the importance of each of these themes.

		Importance
Global Geodetic Reference Frame	The models and coordinate systems needed to precisely locate physical positions on the Earth's surface.	
Addresses	The number, street and geographic place where someone lives, or where an organization is situated.	
Building and Settlements	Are the structures and places where people live and conduct economic activity.	
Elevation and Depths	It is the height above or below a point or line of reference (eg sea level).	
Functional Areas	These are the geographical extent of administrative, legislative, regulatory, electoral, statistical, governance, service delivery, and activity management areas?	
Geographical Names	The location of cultural and physical features and places in the world.	
Geology and Soils	Describes the earth below its surface on land and in marine environments.	
Land Cover and Use	Land cover represents the physical and biological coverage of the Earth's surface. Land use is the current / or planned use of the Earth's surface.	
Land Parcels	Geographic areas under common rights (eg ownership or easements), claims (such as minerals or Indigenous land) or use.	
Ortho-imagery	Is geo-referenced rectified satellite or airborne sensor imagery of data of the Earth's surface.	
Physical Infrastructure	Includes industrial and utility facilities and service delivery facilities.	
Population Distribution	Geographical distribution of people, including population characteristics.	
Transport Networks	Road, rail, air, cable and water transport routes and their connectivity..	
Water	Extent and conditions of all water features including rivers, lakes, and marine features.	

7.3 For each theme indicate why you have given it that level of importance (please specify).

Global Geodetic Reference Frame	
Addresses	
Building and Settlements	
Elevation and Depths	
Functional Areas	
Geographical Names	
Geology and Soils	
Land Cover and Use	
Land Parcels	
Ortho-imagery	
Physical Infrastructure	
Population Distribution	
Transport Networks	
Water	

7.4 What other data themes are there that should be used as part of the MCSDI? Indicate their importance using a scale from 1 to 5, where 1 is very important and 5 is not important at all?

New themes	Importance

8 Integration, structure, and management of the MCSDI in SASDI

8.1 South African Spatial Data Infrastructure (SASDI) was established through Spatial Data Infrastructure Act 54 of 2003 as the national technical, institutional and policy framework to facilitate the capture, management, maintenance, integration, distribution, and use of spatial information. How knowledgeable are you with the South African Spatial Data Infrastructure (SASDI)? Indicate on a scale from 1 to 5, where 1 is very knowledgeable and 5 has no knowledge of SASD at all (please specify) [If select 5, skip to Q8.3]?

8.2 How can/should the MCSDI be incorporated into SASDI?

	Importance
• By adopting the standards, frameworks, and architecture of the SASDI	
• By integrating the standards and architecture of the MCSDI into SASDI	
• By defining scenarios for the integration and conducting impact assessment of each scenario	
• By establishing an integration office to oversee the incorporation of MCSDI into SASDI	
• By develop policy to facilitate integrating the marine and coastal SDI into SASDI	
• Other (please specify)	

8.3 What are some of the key elements required in the governance/management structure to ensure the sustainability of the MCSDI (please specify)?

8.4 Which organisations should be involved in the management of MCSDI and why (please specify)?

8.5 Why is it important for private sector companies and NGOs/CBOs be involved in the management of MCSDI (please specify)? For each reason, indicate its level of importance on a scale from 1 to 5, where 1 is very important and 5 is not important at all, indicate the importance of them being involved(s).

8.6 Where should the funding for the MCSDI come from (please specify)?

8.7 How should the funding for the MCSDI be managed (please specify)?

9 Current & future trends in the marine and coastal environment

9.1 From the list below, what do you see as key current and future trends that should be considered when designing and implementing the MCSDI (Tick all that may apply)?

• Moves to provide more open data;	
• Easier access and sharing of public data;	
• Use of disruptive technologies;	
• Increased user expectations regarding use of base datasets;	
• The emergence of e-Navigation;	
• The increasing importance of promoting the 'blue economy';	
• Involvement of major companies such as Google and Microsoft in the provision of geospatial data and services;	
• 'Radical' drop in the cost of collecting geospatial data;	
• Monitoring the state of the marine & coastal environment and relevant trends affecting that environment;	
• Rapid development of the of the aquaculture industry;	
• Integrated use of terrestrial, marine and coastal resources;	
• Collective management of shared resources by countries;	
• Improvements in the collection, collation and comprehension of data;	
• Access to more geoportals;	
• Decentralised management of coastal and marine resources;	
• A system of web services of different technologies at different tiers of government to share data;	
• Harmonisation of data to enable the integration and effective use of geospatial data of different scales, resolutions and formats.	
• Other (please specify)	

9.2 What other current and future trends are there that are not listed above (please specify)?

10 Additional stakeholders

10.1 Which additional stakeholders in the marine and coastal environments should be engaged with in this study and why? Please specify the organisations name and a contact person – their email and telephone number would be appreciated.

THANK YOU FOR YOUR COOPERATION

ANNEXURE 1

THEMES AND BASE DATASETS

Buildings and Settlements
Accommodation - Tourism
Coastal pollution sources
Human geography - places
Lighthouse
Sea Rescue Station

Elevation and Depth
20m contours
5m contours
Aspect
Bathymetry
Bathymetry - gridded
Beach morphology
Channel
Digital elevation model
Digital Surface Model
Geomorphology
Isobath
Landforms
Seamount
Slope
Tide gauge
Underwater hazard

Functional Areas
Baseline
Biodiversity Conservation Plan
Biodiversity Spatial Plan
Blue flag beach
Coastal conservation plans
Coastal management line
Coastal protected area
Coastal set-back line
Coastal waters
Coastal zone
Coastline
Conservation Areas
Contiguous zone
Continental shelf
Critical Biodiversity Area
District Municipality
Economic / Development Zone - Aquaculture
Ecosystems - coastal
Ecosystems - estuarine
Ecosystems - inland aquatic
Ecosystems - terrestrial

Functional Areas
Ecosystems Threat Status
Exclusive economic zone (EEZ)
Heritage - graded site
Heritage - shipwreck
Heritage site
International waters
Local Municipality
Low water mark
Marine Protected Areas
Maritime international boundaries
Metropolitan Municipality
Offshore waters
Offshore zone
Outer continental shelf
Protected areas - conservation
Protected areas - marine
Protected areas - SAPAD
Public place
RSA Mozambique Median
RSA Namibia Median
Sandy shore assessment and conservation plan
Territorial waters
Tribal authority area

Functional Areas
Marine area name

Geology and Soils
Coastal types
Geological Lines
Geology
Palaeontology
Seafloor sediment
Sediments
Seismic: 3D Survey (Post 2009)
Seismic: 3D Survey (Pre 2009)
Seismic: Line
Seismology

Geology and Soils
Alien invasive species
Aquaculture Development zones
Biomes (fishing)
Biomes (Low Rebelo)
Coastal climate change vulnerability - erosion risk
Coastal climate change vulnerability - flood risk
Coastal Ecosystems
Coastal land
Coastal public property
Coastal vegetation & habitats

Geology and Soils
Current land use
Diving sites - tourism
Ecological Support Areas
Ecological Support Areas (Restore)
Floodplains
Hiking - Eco Tourism
Intertidal habitat maps and intertidal species data
Land cover
Mangroves
Mining
Mudflats
Oil & gas
Recreational beaches
Sand bar
Sand dunes
Sandbanks
Shore line sandy/rocky
Vegetation Map
Veld Types (Acocks)
Vlok Vegmap
Wetlands

Land Parcels
Admiralty reserve
Coastal Access land
Coastal erven
Farm portions
High water mark
Lease: Deep Open Acreage
Lease: Offshore
Lease: Onshore
Lease: Open Acreage
Mining concession
Offshore mining licenses: ore type and permit duration
Onshore mining licenses: ore type and permit duration
Parent farms
Servitude
Unalienated State Land

Orthoimagery
Imagery

Physical Infrastructure
Aquaculture
Breakwater
Bridge
Dam
Electricity network - transmission lines
Electricity network - transmission station
Groyne

Physical Infrastructure
Intake points
Landing strip
Launch sites
Munitions dump
Outfall points
Pier/jetty
Pipeline
Retaining walls
Undersea internet infrastructure
Undersea telecommunication cables
Waste outfall / disposal
Waste outfall / disposal site
Well (marine)
Wharf

Population Distribution
Birding - Eco Tourism
Fishing - fishing communities
Human geography - socio-economic
Important Bird Area (IBA)
Important Marine Mammal Areas (IMMA)
Marine benthic habitat
Marine pelagic habitat
Seal colony
Species - threatened
Turtle nesting grounds
Vulnerable sea animals (birds, seals, turtles etc.)
Whale

Transport Networks
4X4 Routes - Eco Tourism
Aviation
Chart datum
Dredging
Fishing - harbours
Fishing - small harbours
Harbour approach
Long Range Identification and Tracking of Ships
Marine navigation
Nautical chart
Navigational aid
Parking
Ports/harbours
Railway lines
Railway stations
Roads
Shipping - density
Shipping - traffic
Shipping lanes
Vessel monitoring systems data

Water
Chlorophyll-A, Ocean colour
Dissolved nitrate
Dissolved oxygen
Dissolved phosphate
Dive sites
Ecosystems - marine
Ecosystems - marine cold-water corals
Estuary
Fishing
Fishing - commercial
Fishing - Eco Tourism
Flood masks
Marine pressures
Mean Wind Speed (m/s)
Ocean currents
Ocean turbidity
Oilspill locations
Reefs(e.g. coral ect.)
Reservoir
Rivers
Salinity
Sea level rise scenarios
Sea state, Significant wave height
Sea surface temperature
Significant Wave Height Direction
Tides
Water quality
Wave climate
Wave Data
Wave Data: Wave peak period
Wave energy
Wave run up scenarios
Waves
WAVEWATCH III - Significant wave height
WAVEWATCH III - Wave peak period
Wind resource