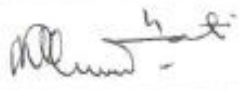
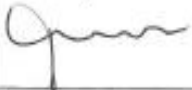




**METADATA SPECIFICATION FOR CAPTURING AND PUBLISHING METADATA FOR SPATIAL DATA
AND SERVICES IN NAMIBIA
SPECIFICATION 3 OF 2016**

VERSION 1.0

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1. NSDI SPECIFICATIONS CONTEXT

STATISTICS ACT, 2011

In terms of the Statistics Act, No. 9 of 2011,

Under section 36 (1) b and subject to section 49(3) of that act read in conjunction with Schedule 1 of the NSDI policy made regulations and specifications relating to the NSDI, in particular -

- (i) the manner and specification for the capturing of spatial data, including any application for exemption from such manner or specification;
- (ii) measures relating to the avoidance of duplication of capture and safeguarding the integrity of captured spatial information;
- (iii) the sharing and integration of spatial data;
- (iv) the capture and publishing of metadata;
- (v) manner and refusal of access to and dissemination of spatial data;
- (vi) supply of and accountability for spatial data;
- (vii) agreements on the utilization of spatial data;
- (viii) maintenance of and reporting on spatial data; and
- (ix) security of spatial data.

1.1 Definitions

1.1.1. Dedicated, specialised geospatial data

These are geospatial data that serve a specific purpose or a limited number of purposes that are highly specialised, collected and only used by a limited number of professions or experts.

1.1.2. Common, multi-purpose geospatial data

These are geospatial data that serve or can serve a multitude of purposes and includes data from which a number of specific datasets can be derived. All imagery including orthoimagery belongs to this data type, as well as those considered to be fundamental data.

1.1.3. New geospatial data

New geospatial data are any geospatial data that were previously not acquired and for which no clearly identified custodian/owner exists or for which the custodian/owner is unknown in Namibia. It

also includes geospatial data for which only incomplete data are available and a new initiative is required to fill the spatial or attribute data gaps not part of an ongoing initiative.

1.1.4. National Spatial Data Infrastructure

The Statistics Act No. 9 of 2011 establishes the NSDI as the national technical and institutional framework to facilitate the capture, management, maintenance, integration, distribution and use of spatial data.

1.1.5. Geospatial data requiring frequent updating

Under geospatial data requiring frequent updating is understood:

Geospatial data that was previously acquired but is part of a program requiring frequent updating, i.e. at less than five year time intervals.

1.1.6. Existing geospatial data

Under existing geospatial data is understood: Geospatial data that was previously purchased, collected or captured as a one off activity and that is not part of a program requiring frequent updating.

1.1.7. Public geospatial data

All geospatial data collected by government bodies that do not contain confidential data or contains security issues or contain data belonging to indigenous knowledge rights, or data that if published may pose risks to endangered or valuable animal and plant species or other natural resources, belongs to the public domain. Public domain data are freely usable without legal restrictions but as any other source should be properly cited when used.

1.2. Objectives

All government bodies purchasing, capturing, collecting, producing and disseminating geospatial data either directly or indirectly must ensure, prior to obtaining funding for such data, that they will be purchased, captured, collected, produced and disseminated in a manner that meets all relevant specifications adopted through the NSDI standardisation process according to the Statistics Act 2011, 36 (1) b.

The objective is not to centralize all geospatial data in a central database but to enable and promote access to such data through networking with data producers, custodians or providers in Namibia. All

government bodies purchasing, capturing, collecting, producing or disseminating geospatial data either directly or indirectly are encouraged to set up internet portals providing access to available geospatial data and information.

The objectives are:

- a) promoting and improving efficiency of geospatial data purchase, capture, collection or production
- b) promoting and improving data sharing
- c) promoting and improving integration of geospatial data
- d) avoiding duplication in geospatial data collection and dissemination
- e) promote funding of acquisition of geospatial data by raising awareness of the importance of such data to achieve the national development vision, plans and goals
- f) respecting confidentiality of spatial features and/or attributes that are confidential with respect to the Statistics Act or any other Namibian Act
- g) facilitating geospatial data compatibility
- h) increasing the use of geospatial data and avoiding dissemination of geospatial data without metadata
- i) ensuring data security and longevity

1.3. Custodianship

1.3.1 Custodianship assigns to an agency or government body certain rights and responsibilities for the acquisition of spatial data and information and the management of this information on behalf of the government of Namibia.

1.3.2 The rights include the right to determine how the information will be managed and any access constraints, respecting the specifications and recommendation of this regulation for wider dissemination with accompanying responsibilities towards the maintenance, quality and enabling appropriate access to this data and information.

1.3.3 Successful management and dissemination of the Namibian government spatial data depends on the identification of custodians and the effective operation of custodianship.

1.3.4 This regulation does not apply to custodianship recognition to already recognized custodians by law. Any government body who wishing to be a custodian of spatial data and is not

recognized as such needs to apply to the NSA who will seek advice from the Committee for Spatial Data before allocating custodianship which will not be unreasonably withheld.

1.3.5 Individual agencies involved in the management of spatial data act as custodians on behalf of government and will exercise the delegated responsibility in a manner which maximizes the government's investment.

1.3.6 The NSA, after consulting the Committee for Spatial Data, can identify custodians of spatial data. The ultimate responsibility for custodianship lies with government.

1.3.7 A custodian has various rights and responsibilities with respect to a particular dataset, including:

- a) determining priorities for data capture
- b) managing and operating data acquisition and integration processes
- c) complying with specifications
- d) storing the data
- e) maintaining and revising the data
- f) ensuring data security
- g) providing metadata
- h) promoting data use
- i) facilitating data access
- j) administering data distribution
- k) charging for data or recovering costs associated with data supply, consistent with agency and jurisdictional policies
- l) consulting with users
- m) preserving the data over time
- n) complying with legislation, policies and guidelines

1.4. General principles of specifications for geospatial data in Namibia

- a) The NSDI specifications for Namibia must relate to geospatial data, cover topical areas and standardise either data or processes to advance data sharing and avoid duplication of effort;

- b) The NSDI specifications for Namibia are future focused, intended to remove impedances to sharing information rather than changing existing successful data sharing agreements;
- c) The NSDI specifications for Namibia are technology independent, they will not be implemented in a way that limits the use of new and emerging technologies;
- d) The NSDI specifications for Namibia will evolve as technology and institutional mandates change and will accommodate backward compatibility for information gathered under previously known specifications;
- e) The NSDI specifications for Namibia must be supported by the geospatial vendor community and industries in general;
- f) The NSDI specifications for Namibia must be publicly available, they will not be developed from copyrighted or proprietary specifications;
- g) The NSDI specifications for Namibia are inspired by the international ISO/TC 211 range of specifications that are still under development. However, rather than immediately aiming for full adherence, a minimum set of specifications and requirements are proposed considered to be initially sufficient to fulfil the purpose of the Statistics Act of 2011 and at the same time aiming for compatibility with all those international specifications. It is important not to deviate from those international specifications;
- h) In principle all geospatial data purchased, collected, captured or produced by a government body needs to be available to all other government bodies. Exemption to this principle is geospatial data that is:
 - i. confidential according to any Namibian legislation,
 - ii. geospatial data that contain security risks, or contain data belonging to indigenous knowledge rights, or

- iii. geospatial data that if published, may pose risks to endangered or valuable animal and plant species, or other natural resources.
- j) Government bodies in possession or having commissioned or being custodians of such geospatial data should strive to share the portions of the datasets that are not confidential;
- k) Confidential geospatial data collected for security purposes do not fall under this regulation.
- l) A differentiation is made between a regulation for the manner of acquisition of geospatial data and a specification for the manner of dissemination of geospatial data;
- m) The regulation respects existing agreements for data acquisition or sharing, but the NSDI secretariat of the Namibia Statistics Agency (NSA) reserves the right for agreements up for renewal to revise Regulations, and recommend changes after positive advice from the Committee for Spatial Data.
- n) Data sets that meet agreed upon quality specifications will be certified while users will be notified when quality levels of a spatial dataset are deemed as not meeting the specifications set.
- o) All spatial data being produced in English as Namibia's official language with translations into other local languages being undertaken on a needs basis or as identified by the Committee for Spatial Data.

1.5 Avoidance of duplication of capture of spatial data

- 1.5.1 Public geospatial data requiring updating at a regular interval must be registered in the NSDI advance release calendar at the NSA. This include common, multi-purpose geospatial data in the public domain.

- 1.5.2 All geospatial data recorded in the advance release calendar shall not require NSDI application as per the NSDI specification on the manner of capturing of spatial data. This is because the process and requirements for such data acquisition shall already be known to all other data custodians within the NSDI environment.
- 1.5.3 All new geospatial data acquisition plans shall comply with the NSDI specification on the manner of capturing of spatial data in order to avoid duplication and wasteful of government resources.
- 1.5.4 The acquisition of geospatial data by any government body shall be done in a collaborative manner within the collaborative framework approved for the NSDI.
- 1.5.5 The NSDI secretariat shall ensure that the list of fundamental datasets is updated periodically in consultation with the Committee for Spatial Data and NSDI stakeholders in light of national needs surveys, and published.
- 1.5.6 Spatial data shall be disseminated as soon as the final data is ready in accordance with an advance release calendar indicating the planned date when spatial datasets are to become available and accessible.
- 1.6 **Safeguarding the integrity of captured spatial data**
- 1.6.1 Confidential data or data containing security issues or containing data belonging to indigenous knowledge rights, or data that if published may pose risks to endangered or valuable animal and plant species, or other natural resources, do not belong to the public domain. *Refer to the Specification on Refusal of Access to and Dissemination of Spatial Data.*
- 1.6.2 Public domain data are freely usable without legal restrictions but as any other source should be properly cited when used.

2. SPECIFICATION SCOPE

Metadata defines the schema required for describing geographic information, services or any data. Metadata allows users to locate and evaluate data without each person having to discover it anew with every use. Its basic elements are a structured format and a controlled vocabulary, which together allow for a precise and comprehensible description of content, location and value (Frank

and Kunde, 2006). For users of geospatial data and services to be well informed as to whether such meet their requirements, it is important for organisations to describe their services and data holdings. Metadata aids in answering questions such as:

- Who owns or is responsible for the particular data?
- Who or what is responsible for the origin of the data?
- When was the geospatial data or service created?
- Who has rights to access the geospatial data or service?
- Who owns or developed the data or service?
- When was the geospatial data or service last updated?
- What quality control was performed on the geospatial data?

The objective of the metadata specification for Namibia is to provide a structure for describing digital geographic data and services. It must be in alignment to the ISO 19115-1:2014 and ISO 19119:2016 specifications. The metadata should be distributed in GML, Text, or XML compatible formats. Four (4) categories of metadata elements have been specified in this document.

- **Mandatory** elements are described as per ISO and Namibia requirements. These elements must be supplied.
- **Conditional** metadata elements are those elements which are required for specific datasets while not required on others. For instance some datasets might require statements on generalisations done on the data such as data classifications. Most further processed and classified datasets will required these element e.g. flood maps.
- **Optional** metadata element are those elements which are not required but can provide more insight to a dataset.
- **Namibia required only** metadata elements are those extra elements specific for evaluating metadata in Namibia. These elements are mandatory but may not be ISO required.

Metadata for Namibia is used primarily for discovery and evaluation of spatial datasets to determine their fitness for use. However, in the context of Namibia metadata profile, the full spectrum of the purpose of metadata shall be considered as follows:

Metadata-element	Discover	Evaluation	Access	Use
Title, Abstract	x	X	X	X
Publication date	x	X	X	X
Place	x	x	X	X
Keywords	x	x	X	X
Contacts		X	X	X
Quality		X	X	X
Format			X	X
Feature types			X	X
Spat Ref. system			x	X
URL				X

3. METADATA PROFILE

Metadata is data that describes other data. Metadata make it easier for users to discover, evaluate and use data. In the case of this specification, metadata profiles are provided as descriptive metadata. Descriptive metadata describes a data or information resource for identification, retrieval, evaluation through elements such as title, author, and abstract. Frank and Kunde (2006) provided the two foundation of metadata as categorisation and indexing.

Categorisation is the process of associating a document with one or more subject categories. Cataloguing and classification are two terms that tend to be used interchangeably with categorisation. Metadata associating information or data to categories helps provide context. On the other hand, indexing involves analysing the data to determine terms that can be used to describe the data. Indexing terms are then used as pointers to a possible solution to a search. The more specific the index term, such as a unique identification number, the better the chances are of locating and retrieving data or information quickly and easily.

Both categorisation and indexing have been used in this document. Fundamental datasets as described by the NSDI Policy have been categorised into general associated themes. Codes have also been used to quickly fill in metadata elements.

3.1 Metadata Profiles

There are two metadata profiles in this document based on the scope of the resource being described.

3.1.1 Metadata profile for geospatial data in Namibia

The metadata describing geospatial data in Namibia (Table 2) provides a benchmark for discovering, evaluating and utilising geospatial datasets. Data custodians are required to document all government geospatial datasets in their custodianship using this profile. The private sector and individuals are encouraged to also follow the provisions of this specification.

3.2.2 *Metadata profile for geospatial services in Namibia*

This profile (Table 3) is for geospatial services rendered by an organisation. These services can be offering data download facilities, web maps, data visualisation, metadata or data transformation, etc.

Notice that it is important to distinguish the two profiles because ISO assumes the metadata is for a dataset unless otherwise specified. A comprehensive description of each metadata element is provided in the two tables (Tables 2 and 3).

3.2 Metadata Data Types

There two main data types used in the two metadata profiles. Free text data types allows free entry of text to describe a resource. Users shall study the descriptions provided for each element and evaluate if such data meet their requirements. It is important that custodians are required to be precise in their detailing.

A date data type is written in a format starting with the YYYY-MM-DD. Also notice that you can provide date ranges or series of dates. Dates can be publication, creation, completion, revision, etc. In addition URL data type provides a link to an online resource. It is advisable that the URL must point directly to a resource if available.

To minimise categorisation errors, a predefined code-set data type is created for some elements including dates. This is provided in Table 1.

3.3 Topic Categorisation for Namibia

The topic category in metadata ensures correct classification of datasets thus making it easier to develop web services that enable timely access to the resource. The Namibia metadata editor tool to be developed by the NSDI secretariat shall enforce correct categorisation of data in the generated metadata files. A total of 26 themes or categories

have been identified. Each category is assigned a unique code. The category code is of text data type and must have a maximum length of 5 characters.

It is highly recommended to the data custodians to affix the topic category code to each dataset or metadata file submitted to the NSDI secretariat *e.g. BDR_National_Boundary.xml*. Data custodians can also adopt the same naming convention where possible in their databases.

Table 1 lists all the categories as identified. The categories are not exclusive and can be amended by the Committee for Spatial Data.

TABLE 1: GEOSPATIAL DATA CLASSIFICATION /TOPIC CATEGORY FOR NAMIBIA

TOPIC CATEGORY	CATEGORY CODE	DATASETS
Addresses	ADR	<i>E.g. street address, building address, etc.</i>
Administrative Boundaries	ADMIN	<i>E.g. national boundaries, regional boundaries, constituency boundaries, townlands, etc.</i>
Agriculture and Aquaculture	AGR	<i>Farms, irrigation schemes, fish farms, etc.</i>
Business and Economy	BUS	<i>E.g. banks, ATMs, manufacturing industries, retail, etc.</i>
Cadastral	CAD	<i>Cadastral parcels</i>
Climate and Weather	CLM	<i>E.g. average rainfall, average temperature, humidity, etc.</i>
Demography	POP	<i>Population, dwelling units, EA's, statistical units/frames, etc.</i>
Disaster Risk Management	DRM	<i>E.g. time series flood maps, drought maps, food security maps, etc.</i>
Education	EDU	<i>Schools, clusters, circuits, etc.</i>
Elevation	DTM	<i>E.g. contours, spot heights, DEM, etc.</i>
Environment and Conservation	ENV	<i>E.g. parks, protected sites, environmental sensitive areas, waste management sites, etc.</i>
Geographic Names	GNAM	<i>E.g. localities</i>
Geoscientific Information	GEO	<i>E.g. geophysics, geology, geotechnical, EPLs, mines, soils, etc.</i>
Health	HLTH	<i>E.g. clinics, centres, hospitals, etc.</i>
Hydrology and Inland Water	HYDRO	<i>E.g. aquifers, rivers, dams, boreholes, water points, etc.</i>
Imagery	IMG	<i>E.g. ortho photos, satellite imagery, etc.</i>
Land Cover	LDC	<i>E.g. vegetation, land cover maps, land degradation, bush encroachment, etc.</i>
Oceanography and Marine	MRN	<i>E.g. coastline, tidal, sea temperature, bathymetry, etc.</i>
Society, Culture, Art and Heritage	SCAH	<i>E.g. museum, historical sites, attraction sites, churches, digitized buildings, settlements, towns, cities, etc.</i>
Spatial Plans	SPL	<i>E.g. electricity distribution national master plan, land use plans, etc.</i>
Tourism	TOUR	<i>E.g. accommodation, bays, canyons, dunes, mountain ranges, etc.</i>
Transportation Networks	TRANS	<i>E.g. roads, railway, airports, etc.</i>
Urban Plans	URB	<i>E.g. town zoning maps</i>
Utilities	UTL	<i>E.g. water pipe lines, electricity, drainage, telecommunication, etc.</i>
Topographic Maps / National Maps	TOP	<i>Base maps e.g. scanned 1:50,000, 1:1,000,000</i>

TABLE 2: DRAFT METADATA PROFILE FOR DESCRIBING GEOSPATIAL DATA IN NAMIBIA

Legend:

STATUS	DESCRIPTION
M	Mandatory These metadata elements are either required by either Namibia or ISO.
C	Conditional These metadata might not be relevant on some datasets, but they are required on other data. For example, pixel information is required on gridded data only.
O	Optional These metadata elements are neither mandatory nor conditional. In order for users to understand the provided spatial data in more detail, producers are encouraged to provide more description of their datasets.
N	Namibia Required These metadata elements are those extra elements specific for evaluating metadata in Namibia.

METADATA ELEMENT	DATA TYPE	DESCRIPTION	STATUS
Title	Free Text	Provide a descriptive, unique name to convey the nature of the geo spatial data. At a minimum, address the “what” and “where” questions. Avoid acronyms and abbreviations that are not commonly understood. <i>Example 1: Agricultural Carrying Capacity in Namibia in 2015 (AGR_Carrying_capacity_Namibia)</i> <i>Example 2: Hydrological Productivity of Aquifers in Namibia (HYDRO_Productivity_of_aquifers_Namibia).</i>	M
Publication Date	Date	Provide the date that the data was published or otherwise finalised. <i>Date Type Code</i> described below: Format = YYYY-MM-DD. If the day is not known, use YYYY-MM. If the month is not known, use YYYY. If the date is not known, use ‘UNKNOWN’ Do not specify a range of dates for the publication date, e.g. YYYY-YYYY. Note that the “-” between the character sets are mandatory.	M
Date Type	<u>Date Type Code</u> = ‘Publication’	Used to designate the type of each Date listed A ‘publication’ date is required	M

METADATA ELEMENT	DATA TYPE	DESCRIPTION	STATUS
Online Linkage	URL	Provide a URL address that provides access, preferably direct access, to the data Geoportal_Namibia requires an online linkage to the data. If dataset is not available online indicate 'NONE'	M
Responsible Party/ Originator	Free text	Provide the <i>Organization Name</i> of the agency that serves as <u>legal</u> custodian of the data Additional, optional, responsible parties can be included to specify: - Collaborating organizations/agencies, vendors who created the data, entities that distribute the data, individuals or agencies that have processed the data, and other responsible parties. Spell out acronyms and include sufficient information, e.g. parent organizations or region, to uniquely identify the <i>responsible party</i> .	M
Contact Person	Free Text	Provide the name of a more specific staff, position that serves as a point of contact for questions about the data	M
Responsible Party Role	<u>Role Code</u> ='Custodian' or 'PointOfContact' or 'Distributor'	Used to designate the specific role of each <i>responsible party</i> listed. A "custodian" or "PointOfContact" is required	M
Abstract	Free text	Provide a description of the data content and features including geographic coverage, time period of content, and methods of data creation, limitations or other information that will aid data consumers in determining if the data is relevant to their intended application. List most important information first as some applications will display only first 150-200 characters of the abstract.	M
Metadata Scope	Scope Code ='Service' or 'Geospatial Data'	Indicate that the metadata record applies to a 'service' (ISO assumes the metadata is for a dataset unless otherwise specified)	M

METADATA ELEMENT	DATA TYPE	DESCRIPTION	STATUS
Purpose	Free text	Provide an explanation as to why the data was created. This element can provide critical context for data that was created for a specific use and may not be appropriate for other, or more general use.	M
Status	<u>Progress Code:</u> 'Completed' 'Ongoing' 'Planned' 'Undetermined'	Provide the status of the data, e.g. completed, ongoing, planned as specified by the <i>Progress Code List</i> Indicate 'completed' if the data is finalized not continually updated. Indicate 'ongoing' if the data is being actively and continuously updated.	M
Maintenance and Update Frequency	<u>Maintenance Frequency Code List:</u> Periodic 1 – 3 years 3 – 5 years 5 – 10 years AsNeeded	Indicate the value in the code list that best describes how often the data is updated. If the status of the data is 'Undetermined': - Indicate 'AsNeeded' and provide justification to the NSDI Secretariat. If the status of the data is "Ongoing": - Indicate the most applicable value to describe the known frequency of planned updates - If the frequency of updates is not amongst the code-set values, e.g. every two months, indicate 'Periodic'	M
Theme Keywords	Free text	Provide robust set of descriptive theme-related keywords Include broad and specific-terms, e.g. "wetland", "rivers", "Oshana" Select terms from relevant standardised vocabularies/thesauri when possible	M
Place Keyword	Free text	Provide a robust set of descriptive place-related keywords Include broad and specific-terms, e.g. "Mukwe", "Divundu" Include relevant regional references, e.g. "Kavango East"	M
Access and Use Constraints	Free text	Indicate any restrictions and legal prerequisite for accessing the data, e.g. environment sensitive information, personal data, intellectual property Indicate any restrictions associated with using the data	M
Dataset Language	Language Code = default "EN"	"EN" = default/template value unless other Default for Namibia	M
Character Encoding	Character Set Code = "utf8"	"utf8" = default/template value Default for Namibia	M

METADATA ELEMENT	DATA TYPE	DESCRIPTION	STATUS
Topic Category	<u>Topic Category Code</u>	Give one or more high-level subjects, as specified by the <i>Topic Category Code</i> list provided by the NSDI Secretariat	M
Geographic Extent: Easternmost coordinate	26.0 < degrees longitude	Format = decimal degrees, longitude If using the Namibia Modified Transverse Mercator Projection : Format = metres	M
Geographic Extent: Westernmost coordinate	(confirm coastal extent) > degrees longitude	Format = decimal degrees, longitude If using the Namibia Modified Transverse Mercator Projection: Format = metres	M
Geographic Extent: Northernmost coordinate	-16.0< degrees latitude	Format = decimal degrees, latitude If using the Namibia Modified Transverse Mercator Projection: Format = metres	M
Geographic Extent: Southernmost coordinate	-29.0 > degrees latitude	Format = decimal degrees, latitude If using the Namibia Modified Transverse Mercator Projection: Format = metres	M
Temporal Extent of Data Content	Date	Indicate the date(s) for the content of the data. Temporal extent primarily refers to the data collection period. Example 1: If a data resource refers to a historical period, such as the geological period, then temporal extent refers to the moment when data were found or collected. Temporal extent is defined by the start and end dates of data, or either of these. If the start date is not known, it is dropped and only the end date is used. If data is still added to the data resource, the end date is dropped, while the start date is indicated, which is also reflected in data status, as being “on-going”. This may be a: - Single date, e.g. YYYY-MM-DD, YYYY-MM, or YYYY) - Range of dates, e.g. YYYY-YYYY	M
Entity/Attribute Description	Free text	At a minimum, provide a detailed text description of the features and attributes included within the data including definitions of feature and attribute labels	M

Sub elements are represented by *

METADATA ELEMENT	DATA TYPE	DESCRIPTION	STATUS
Completeness	Free Text	Provide a description of the omissions and selection criteria used to develop or generalize the data examples: "Municipalities are defined as having populations >30,000". Describe any presence or absence of features, their attributes and relationships	
* Commission		Excess data present in dataset (sub element of completeness)	M
*Omission		Data absent from a dataset (sub element of completeness)	M
Logical consistency	Free Text	Degree of achieved reliability of logical rules and connections in data structures that indicates structural integrity of such data.	
*Conceptual consistency		Adherence to rules of the conceptual scheme (sub element of logical consistency)	O
*Domain consistency		Adherence of values to the value domains (sub element of logical consistency)	O
*Format consistency		Degree to which data is stored in accordance with the physical structure of the dataset (sub element of logical consistency)	M
*Topological consistency		Correctness of the explicitly encoded topological characteristics of a dataset (sub element of logical consistency)	M
Positional accuracy	Free Text	Accuracy of the position of features.	
*Absolute accuracy		Mandatory for all vector datasets (<i>see the spatial data quality specification</i>)	C
*Relative accuracy		Optional for all vectors	C
*Gridded raw data position accuracy		Closeness of gridded data position values to values accepted	M
*Gridded raw data spatial resolution		Provide the ground dimensions of the picture elements (pixel) making up the digital image	M
Temporal quality	Free Text	Accuracy of the temporal attributes and temporal relationships of features	
*Temporal measurement		Correctness of reported time measurements in the data (provide percentage of correctness)	M
*Temporal consistency		For ordered events, report percentage of correctness of the order of events in dataset e.g. what occurred first, second, etc.	C
*Temporal validity		Check if data was captured on the date specified in the lineage. Report the number or percentage of items failing the check.	M
Thematic accuracy	Free Text	Accuracy of thematic attributes and correctness of quantitative and non-quantitative attributes and of the classifications of features and their relationships. This includes gridded classified dataset e.g. national land cover maps.	M
*Non-quantitative attribute accuracy		Accuracy of categorical attributes in percentage. Compulsory for main theme attributes	C
*Quantitative attribute accuracy		Accuracy of quantitative attributes in percentage. Compulsory for main theme attributes	C

Lineage	Free Text	Describe the history of the dataset including any analytical processing conducted on the dataset	M
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METADATA ELEMENT	DATA TYPE	DESCRIPTION	STATUS
Process Description	Free text	Provide a description of how the data were created and indicate source data used, where applicable This is a repeatable element so can be used to provide a single, compiled description or a series of process step descriptions	M
Distribution format	Free text	Specify the format in which the dataset is distributed e.g. shapefile, geoTIFF, etc.	M
Logical Consistency Report	Free text	Provide a description of any assessment performed to test the fidelity of the data attributes (database QA/QC) or the data structure (topological checks, i.e. RMS error)	O
Spatial Reference Information	<i>SRS Code: (see spatial data quality specification for accepted SRS)</i>	Provide a Spatial Reference System as specified in the SRS code list. More information at http://spatialreference.org/ E.g. GCS_WGS 1984	M
Metadata Creation Date	YYYY-MM-DD	Indicate the date that the metadata record was created	M
Metadata Date Type	Date Type Code = 'creation'	Used to designate the type of each date listed The metadata record 'creation' date is required	M
Metadata Contact: Name	Free text	Provide the Organization Name of the agency that serves as the point of contact for the metadata record.	M
Metadata Contact Role: Code	Role Code = 'pointOfContact'	Used to designate the specific role of each responsible party listed A metadata contact 'pointOfContact' is required.	M
Metadata Contact: Person	Free Text	Provide the name of a more specific staff, position that serves as a point of contact for questions about the metadata	Contact Person
Metadata Contact: Address Postal Code	Free text	Indicate the postal address of the agency in which the metadata contact is located	M
Metadata Contact: Telephone	Free text	Indicate the phone number at which the metadata contact can be reached.	M
Metadata Standard Name	Free text	Indicate the metadata specification to which the metadata record is in compliance. Examples: "ISO 19115", "ISO 19115-1", or "ISO 19115-2"	M
Metadata Standard Version	Free text	Indicate the version of the metadata specification used examples: "2014/NAMS-1:2016 Version"	M
Metadata Format	Format Code = 'gml' or 'text' or 'xml'	Specify the metadata format for distribution. GML format is preferred for Namibia.	M

TABLE 3: DRAFT METADATA PROFILE FOR DESCRIBING GEOSPATIAL SERVICES IN NAMIBIA

METADATA ELEMENT	DATA TYPE	DESCRIPTION	STATUS
Title	Free text	Provide a descriptive, unique, name to convey the nature of the data. At a minimum, address: what, where, and when. Avoid acronyms and abbreviations that are not commonly understood though a filename can be included in addition to descriptive content.	M
Publication Date	Date	Provide the date that the geospatial service was published or otherwise finalized. Additional, optional, dates can be included to specify the date when the geospatial service was first created, a revision date or the other <i>date type code</i> described below. Format = YYYY-MM-DD "-" separator is mandatory between characters	M
Date Type	<u>Date Type Code</u> = publication	Do not specify a range of dates for the publication date, e.g. YYYY-YYYY. Do not use YYYYMM, which because it is indistinguishable from the incorrect, but still used, YYMMDD. Used to designate the type of each date listed A 'publication' date is required	M

METADATA ELEMENT	DATA TYPE	DESCRIPTION	STATUS
Responsible Party /Originator	Free text	Provide the Organization Name of the agency that serves as legal custodian of the geospatial service Additional, optional, Responsible Parties can be included to specify: - a secondary or more specific office or staff position that serves as a point of contact for questions about the geospatial service - collaborating organizations/agencies, vendors who created the geospatial service , entities that distribute the geospatial service, individuals, agencies or any other responsible parties. Spell out acronyms and include sufficient information, e.g. parent organizations or region, to uniquely identify the responsible party.	M
Responsible Party Role	Role Code = “custodian or PointOfContact”	Used to designate the specific role of each responsible party listed A ‘custodian’ or ‘pointOfContact’ is responsible party required.	M
Online Linkage	URL	Provide a URL address that provides access, preferably direct access, to the service Geoportal_Namibia requires an online linkage to the data	M
Abstract	Free text	Provide a description of the geospatial service content and features including application, geographic coverage of content, audience and special data characteristics, limitations or other information that will aid service users in determining if the service is relevant to their intended application. List most important information first as some applications will display only first 150 – 200 characters of the abstract.	M
Purpose	Free text	Explain why the geospatial service was created. This element can provide critical context for service that was created for a specific use and may not be appropriate for other or more general, use.	M
Theme Keywords	Free text	Provide a robust set of descriptive theme-related keywords Include broad and specific-terms, e.g. ‘marine’, ‘bathymetry’	M
Access Constraints	Free text	Indicate any restrictions and legal prerequisites for accessing the data, e.g. environmentally sensitive information, personal data, intellectual property	M

METADATA ELEMENT	DATA TYPE	DESCRIPTION	STATUS
Use constraints	Free text	Indicate any restrictions associated with using the data. Examples: 'Building structure data in this service were roughly digitized and should not be referenced for legal purposes' users are required to read the complete metadata for a specific data element of interest contained in this service' 'Some data cannot be accessed or downloaded and users must contact the responsible data custodians or point of contact'	M
Geographic Extent: Easternmost Coordinate	26.0 < degrees longitude	Format = decimal degrees, longitude If using the new Namibia Transverse Mercator Projection: Format = metres	M
Geographic Extent: Westernmost Coordinate	(confirm coastal extent) > degrees longitude	Format = decimal degrees, longitude If using the new Namibia Transverse Mercator Projection: Format = metres	M
Geographic Extent: Northernmost Coordinate	-16.0< degrees latitude	Format = decimal degrees, latitude If using the new Namibia Transverse Mercator Projection: Format = metres	M
Geographic Extent: Southernmost Coordinate	-29.0 > degrees latitude	- Format = decimal degrees, latitude - If using the new Namibia Transverse Mercator Projection: Format = metres	M
Metadata Creation Date	MMMMYYDD	Indicate the date that the metadata record was created	M
Metadata Date Type	Date Type Code = 'creation'	Used to designate the type of each date listed The metadata record 'creation' date is required	M
Metadata Contact Name	Free text	Provide the organization name of the agency that serves as the point of contact for the metadata record.	M
Metadata Scope (Add to	Scope Code ='Service' or 'GeospatialData'	Indicate that the metadata record applies to a 'service' (ISO assumes the metadata is for a dataset unless otherwise specified)	M
Service Type	Free text	The type of service that is being documented, e.g. data catalogue, web map, data download, data visualization/exploration, metadata transformation, metadata creation and edit	M
Distribution format	Free text	Specify the format in which the geospatial service disseminate the products e.g. web maps, images, tables, etc.	M

METADATA ELEMENT	DATA TYPE	DESCRIPTION	STATUS
Metadata Contact Role: Code	Free text	Used to designate the specific role of each responsible party listed A metadata Contact 'pointOfContact' is required.	M
Metadata Contact Address: Postal Code	Free text	Indicate the zip code in which the metadata contact is located	M
Metadata Contact: Telephone	Free text	Indicate the ten digit code in which the metadata contact can be reached	M
Metadata Standard Name	Free text	Indicate the metadata specification to which the metadata record is in compliance. Examples: "ISO 19115", 'ISO 19115-1", or "ISO 19115-2"	M
Metadata Standard Version	Free text	Indicate the version of the metadata specification used Examples: "2014/NAMS.1:2016	M
Metadata Format	Format Code = 'gml' or 'text' or 'xml'	Specify the metadata format for distribution. GML or XML formats is preferred for Namibia.	C

