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CHAPTER I - SUBJECT MATTER AND SCOPE

1 - Objective

- The purpose of the implementing rules on monitoring and reporting is to lay down detailed rules on how Member States shall monitor and report the implementation of the Directive, and the use of their infrastructures for spatial information. A consistent framework for monitoring and reporting is required. This is required as input for decisions concerning the implementation of the Directive and for the future evolution of INSPIRE.
- 2. The implementing rules for monitoring and reporting are in accordance with the general rules laid down in the Directive, Article 21.
- 3. These implementing rules are addressed to the Member States.

2 - Scope

- These implementing rules set out the implementing rules for monitoring in line with Article 21(1) of the Directive, on the implementation of the Directive and use of the major components of the infrastructures for spatial information. The following components of the infrastructures for spatial information will be considered: metadata, harmonisation and interoperability of spatial data sets, spatial data services.
- 2. These implementing rules set out the implementing rules for reporting, in line with Article 21(2) of the Directive, on how public sector providers and users of the infrastructure are coordinated, the relationship with third parties, the organisation of quality assurance; the contribution made by public authorities or third parties to the coordination and functioning; information on the use of the infrastructure; data-sharing arrangements between public authorities; and costs and benefits of the implementation of the Directive.
- 3. These implementing rules define the methodology used to define the indicators which shall be used by Member States to monitor the implementation of the Directive, as well as the raw data needed and the way to calculate these indicators.
- 4. The monitoring and reporting by the Member States will be used by the Commission to prepare and present to the European Parliament and to the Council a report on the implementation of the Directive in the European Union in accordance with Article 23 of the Directive. The results of the monitoring process shall also be made available to the public by the Member States. How this should be done, is not defined in this Implementing Rule.

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CHAPTER II - DEFINITIONS AND CONCEPTS RELATED TO MONITORING AND REPORTING

3 - Definitions

The definitions of Article 3 of the Directive apply to these implementing rules.

For the purpose of these implementing rules, the following definitions shall apply.

Accessibility	The quality of being accessible i.e. able to be reached, entered, influenced of understood which may typically be prior to use. Accessibility is used in the sense of something being accessible over the web.		
Actual area	Is that part of the territory of the Member State for which the Member State has and/or exercises jurisdictional rights (land, sea or land & sea) and for which a spatial data set is currently providing coverage.		
Arrangement A settlement of mutual relations or claims between parties, a disposi measures for the accomplishment of a purpose. An arrangement could be in a law, a license, framework agreements.			
Conformant	In conformity with		
Conformity	An object, environment or set of conditions exists in accordance with the requirements described in the Directive implementing rules.		
Existence	The fact that spatial data sets, metadata or spatial data services exist.		
Indicator	Measurement of the distance to target for a well defined objective		
Raw data	Information collected by any stakeholder in view of calculating indicators		
Relevant Area Is that part of the territory of the Member State for which the Member and/or exercises jurisdictional rights (land, sea or land & sea) and for foreseen that a spatial data set will provide coverage in the future.			
Service request	Operation specified by a service		

4 - Concepts and methodology

- 1. A monitoring mechanism shall be set-up by the Member States to collect raw data from all the appropriate stakeholders at various levels of public authority. The raw data collected shall be used to calculate the indicators of these implementing rules for each Member State at the national level.
- 2. The basis for monitoring at Member State level is a list of spatial data sets grouped per theme and by Annex as defined in the Directive, and a list of spatial data services grouped by service type as defined in Article 11(1)(a) of the Directive. These lists shall be established and updated annually by the Member State.
- 3. The indicators described in these implementing rules have been chosen in order to be clear to Member States, measurable, capable of showing progress of the main elements and goals of the Directive and of practical use, particularly to the Member States and the Commission.
- 4. Each indicator is described in the following way:
 - a. Reference to the objective in accordance with the Articles of the Directive

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- b. Definition of the indicator and code used to refer to it in a short way
- c. List of supplemented sub-indicators where appropriate, with the codes used to refer to them
- d. Raw data to be collected to calculate the sub-indicators and the indicator
- e. Calculation method for the sub-indicators and the indicator

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CHAPTER III - MONITORING THE IMPLEMENTATION OF METADATA REQUIREMENTS

5 - Monitoring the existence of metadata

- 1. In accordance with Article 5(1) of the Directive, Member States shall ensure that metadata are created for each of the spatial data sets corresponding to the themes listed in the Annexes of the Directive, and for all the spatial data services listed in the Directive. Metadata shall be kept up to date.
- 2. Member States shall monitor the existence of metadata (MDi1). This indicator measures the extent to which metadata for the spatial data services and the spatial data sets of the themes corresponding to the themes listed in the Annexes of the Directive exist.
- 3. The indicator MDi1 is supplemented by the following sub-indicators.
 - a) Existence of metadata for the spatial data sets of the themes in Annex I of the Directive (MDi11)
 - b) Existence of metadata for the spatial data sets of the themes in Annex II of the Directive (MDi12)
 - c) Existence of metadata for the spatial data sets of the themes in Annex III of the Directive (MDi13)
 - d) Existence of metadata for the spatial data services (MDi14)
- 4. Member States shall collect the following raw data for the spatial data sets and services of the list as defined in section 4(2) of these implementing rules:
 - a) For each spatial data set whether (value 1) or not (value 0) metadata exist.
 - b) For each spatial data service whether (value 1) or not (value 0) metadata exist.
- 5. Member States shall calculate the sub-indicators and the indicator as follows:

Sub-indicators:

- a) Count of the spatial data sets for Annex I that have metadata, divided by the number of spatial data sets for that Annex (MDi11).
- b) Count of the spatial data sets for Annex II that have metadata, divided by the number of spatial data sets for that Annex (MDi12).
- c) Count of the spatial data sets for Annex III that have metadata, divided by the number of spatial data sets for that Annex (MDi13).
- d) Count of the spatial data services that have metadata, divided by the number of spatial data services (MDi14).

Indicator:

e) Count of all the spatial data services and spatial data sets that have metadata, divided by the number of all spatial data sets and services (MDi1).

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6 - Monitoring the conformity of metadata

- 1. In accordance with Articles 5(2), 5(3) and 5(4) of the Directive, Member States shall ensure that the metadata for the spatial data sets and for the spatial data services are conformant with the requirements of the implementing rules for metadata.
- 2. Member States shall monitor the conformity of metadata for spatial data and services (MDi2) by verifying that they contain the necessary information according to the specifications as defined in the implementing rules for metadata.
- 3. The indicator MDi2 is supplemented by the following sub-indicators.
 - a) Conformity of metadata for the spatial data sets of the themes in Annex I of the Directive (MDi21)
 - b) Conformity of metadata for the spatial data sets of the themes in Annex II of the Directive (MDi22)
 - c) Conformity of metadata for the spatial data sets of the themes in Annex III of the Directive (MDi23)
 - d) Conformity of metadata for spatial data services (MDi24)
- 4. Member States shall collect the following raw data for the spatial data sets and services of the list as defined in section 4(2) of these implementing rules:
 - a) For each spatial data set whether (value 1) or not (value 0) metadata are conformant with the implementing rules for metadata.
 - b) For each spatial data service whether (value 1) or not (value 0) metadata are conformant with the implementing rules for metadata.
- 5. Member States shall calculate the sub-indicators and the indicator as follows:

Sub-indicators:

- a) Count of the spatial data sets for Annex I that have conformant metadata, divided by the number of spatial data sets for that Annex (MDi21).
- b) Count of the spatial data sets for Annex II that have conformant metadata, divided by the number of spatial data sets for that Annex (MDi22).
- c) Count of the spatial data sets for Annex III that have conformant metadata, divided by the number of spatial data sets for that Annex (MDi23).
- d) Count of the spatial data services that have conformant metadata, divided by the number of spatial data services (MDi24).

Indicator:

e) Count of all the spatial data sets and services that have conformant metadata, divided by the number of spatial data sets and services (MDi2).

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CHAPTER IV - MONITORING THE IMPLEMENTATION OF THE REQUIREMENTS FOR INTEROPERABILITY OF SPATIAL DATA SETS

7 - Monitoring the extent of spatial data sets

- 1. In accordance with Articles 1, 4(1) and 4(4) of the Directive, Member States shall ensure that their existing spatial data sets contribute to the European infrastructure for spatial information.
- 2. Member States shall monitor the existence of the spatial data sets (DS i1). This indicator measures the extent of the Member States territory covered by the existing spatial data sets.
- 3. The indicator (DS i1) is supplemented by the following sub-indicators.
 - a) Existence of the spatial data sets for the themes in Annex I of the Directive (DSi11)
 - b) Existence of the spatial data sets for the themes in Annex II of the Directive (DSi12)
 - c) Existence of the spatial data sets for the themes in Annex III of the Directive (DSi13)
- 4. Member States shall collect the following raw data for the spatial data sets of the list as defined in section 4(2) of these implementing rules:
 - a) The actual area, expressed in km2
 - b) The relevant area, expressed in km2
- 5. Member States shall calculate the sub-indicators and the indicator as follows:

Sub-indicators:

- a) Sum of the actual areas covered by spatial data sets for Annex I, divided by the sum of the relevant areas of all the spatial data sets of Annex I (DSi11).
- b) Sum of the actual areas covered by spatial data sets for Annex II, divided by the sum of the relevant areas of all the spatial data sets of Annex II (DSi12).
- c) Sum of the actual areas covered by spatial data sets for Annex III, divided by the sum of the relevant areas of the spatial data sets of Annex III (DSi13).

Indicator:

d) Sum of the actual areas covered by all the spatial data sets, divided by the sum of the relevant areas of all the spatial data sets (DSi1).

8 - Monitoring the conformity of spatial data sets

1. In accordance with Articles 7(1), 7(3), 7(4) and 8 of the Directive, Member States shall ensure that spatial data sets are available in conformity with the implementing rules on data specifications, either through the adaptation of existing spatial data sets themselves or through the intermediary solution of transformation services according to the Directives implementing rules.

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- 2. Member States shall monitor the conformity of spatial data sets (DS i2). This indicator measures the conformity of existing spatial data sets with the implementing rules on data specifications.
- 3. The indicator (DS i2) is supplemented by the following sub-indicators.
 - a) Conformity of the spatial data sets for the themes in Annex I (DSi21)
 - b) Conformity of the spatial data sets for the themes in Annex II (DSi22)
 - c) Conformity of the spatial data sets for the themes in Annex III (DSi23)
- 4. Member States shall collect the following raw data for the spatial data sets of the list as defined in section 4(2) of these implementing rules:

For each data set whether (value 1) or not (value 0) data are conformant with the implementing rules for data specifications.

5. Member States shall calculate the sub-indicators and the indicator as follows:

Sub-indicators:

- a) Count of the spatial data sets for Annex I that are conformant, divided by the number of spatial data sets for that Annex (DSi21).
- b) Count of the spatial data sets for Annex II that are conformant, divided by the number of spatial data sets for that Annex (DSi22).
- c) Count of the spatial data sets for Annex III that are conformant, divided by the number of spatial data sets for that Annex (DSi23).

Indicator:

d) Count of the spatial data sets for all the Annexes that are conformant, divided by the number of spatial data sets (DSi2).

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CHAPTER V - MONITORING THE IMPLEMENTATION OF SPATIAL DATA SERVICES REQUIREMENTS

9 - Monitoring the accessibility of metadata

- 1. In accordance with Article 11(1)(a) and 11(2) of the Directive, Member States shall establish and operate discovery services making it possible to search for spatial data sets and services on the basis of the content of the corresponding metadata, and to display its content.
- 2. Member States shall monitor the accessibility of metadata (NSi1). This indicator measures the extent to which it is possible to search for spatial data sets and services on the basis of the corresponding metadata.
- 3. The indicator NSi1 is supplemented by the following sub-indicators:
 - a) Accessibility of metadata about spatial data sets (NSi11).
 - b) Accessibility of metadata about spatial data services (NSi12).
- 4. Member States shall collect the following raw data for the spatial data sets and services of the list as defined in section 4(2) of these implementing rules:
 - a) For each spatial data set with conformant metadata, a conformant discovery service exists (value 1) or doesn't (value 0).
 - b) For each spatial data service with conformant metadata, a conformant discovery service exists (value 1) or doesn't (value 0)
- 5. Member States shall calculate the sub-indicators and the indicator as follows:

Sub-indicators:

- a) Count of spatial data sets with conformant metadata for which a conformant discovery service exists, divided by the number of spatial data sets with conformant metadata (NSi11).
- b) Count of spatial data services with conformant metadata for which a conformant discovery service exists, divided by the number of spatial data services with conformant metadata (NSi12).

Indicator:

 c) Count of spatial data sets and services with conformant metadata for which a conformant discovery service exists, divided by the number of spatial data sets and services with conformant metadata (NSi1).

10 - Monitoring the existence and conformance of spatial data services

1. In accordance with Articles 7(1), 11(1)(b) and 11(1)(c) of the Directive, Member States shall establish and operate a network of view and download services.

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- 2. Member States shall monitor the existence and conformance of view and download services in compliance with the implementing rules for services for each data set (NSi2).
- 3. The indicator (NSi2) is supplemented by the following sub-indicators.
 - a) Existence and conformance of view services (NSi21).
 - b) Existence and conformance of download services (NSi22).
- 4. Member States shall collect the following raw data for the spatial data sets of the list as defined in section 4(2) of these implementing rules:
 - a) For each data set with conformant metadata, a conformant view service exists (value 1) or doesn't (value 0).
 - b) For each data set with conformant metadata, a conformant download service exists (value 1) or doesn't (value 0).
- 5. Member States shall calculate the sub-indicators and the indicator as follows:

Sub-indicators:

- a) Count of spatial data sets with conformant metadata for which a conformant view service exists, divided by the number of spatial data sets with conformant metadata (NSi21).
- b) Count of spatial data sets with conformant metadata for which a conformant download service exists, divided by the number of spatial data sets with conformant metadata (NSi22).

Indicator:

c) Count of spatial data sets with conformant metadata for which both a conformant view and download service exists, divided by the number of spatial data sets with conformant metadata (NSi2).

11 - Monitoring the performance of spatial data services

- 1. In accordance with Article 16(a) of the Directive, Member States shall ensure that spatial data services perform at or above the minimum requirement specified in the implementation rules for services.
- 2. Member States shall monitor the performance of spatial data services (NSi3). This indicator measures the degree to which the spatial data services are performing.
- 3. The indicator (NSi3) is supplemented by the following sub-indicators.
 - a) Performance of discovery services (NSi31).
 - b) Performance of view services (NSi32).
 - c) Performance of download services (NSi33).
 - d) Performance of transformation services (NSi34).

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4. Member States shall collect the following raw data for the spatial data services of the list as defined in section 4(2) of these implementing rules:

For each spatial data service, whether it reaches minimum performance requirements (value 1) or not (value 0).

5. Member States shall calculate the sub-indicators and the indicator as follows:

Sub-indicators:

- a) Count of all the discovery services that perform at or above the minimum requirement specified in the implementation rules for services, divided by the number of all the discovery services (NSi31).
- b) Count of all the view services that perform at or above the minimum requirement specified in the implementation rules for services, divided by the number of all the view services (NSi32).
- c) Count of all the download services that perform at or above the minimum requirement specified in the implementation rules for services, divided by the number of all the download services (NSi33).
- d) Count of all the transformation services that perform at or above the minimum requirement specified in the implementation rules for services, divided by the number of all the transformation services (NSi34).

Indicator:

e) Count of all the spatial data services that perform at or above the minimum requirements specified in the implementation rules for services, divided by all the spatial data services (NSi3).

12 - Monitoring the use of spatial data services

- 1. In accordance with Articles 21(1), (2.c) of the Directive, Member States shall collect information on the use of the infrastructure.
- 2. Member States shall monitor the use of spatial data services (NSi4). This indicator measures the use of the different types of services that have been implemented by the Member States.
- 3. The indicator (NSi4) is supplemented by the following sub-indicators:
 - a) Use of discovery services (NSi41).
 - b) Use of view services (NSi42).
 - c) Use of download services (NSi43).
 - d) Use of transformation services (NSi44).
- 4. Member States shall collect the following raw data for the spatial data services of the list as defined in article 4(2) of these implementing rules:
 - a) For each discovery service, the annual number of service requests.
 - b) For each view service, the annual number of service requests.

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- c) For each download service, the annual number of service requests.
- d) For each transformation service, the annual number of service requests.
- 5. Member States shall calculate the sub-indicators and the indicator as follows:

Sub-indicators:

- a) The sum of the annual number of service requests for all the discovery services, divided by the number of discovery services (NSi41).
- b) The sum of the annual number of service requests for all the view services, divided by the number of view services (NSi42).
- c) The sum of the annual number of service requests for all the download services, divided by the number of download services (NSi43).
- d) The sum of the annual number of service requests for all the transformation services, divided by the number of transformation services (NSi44).

Indicator:

e) The sum of the annual number of service requests for all the services, divided by the number of services (NSi4).

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CHAPTER VI - REPORTING

13 - Organisation, coordination and quality assurance

1. In accordance with Article 21(2)(a) of the Directive, Member States shall report the organisation of the stakeholders involved in the implementation of the Directive.

The report shall comprise:

- The name, contact information, and role and responsibilities of the national contact point;
- The name, contact information, role and responsibilities, organisation chart of the coordinating structure supporting the national contact point.
- A description of the relationship with third parties
- An overview of the working methods
- 2. Member States shall report on the organisation of the quality assurance processes within their infrastructures for spatial information.

The report shall comprise:

- A description of the quality assurance procedures including the maintenance of the infrastructure for spatial information
- An analysis of the quality assurance problems related to development of the infrastructure for spatial information based, inter alia, on the results of the monitoring indicators
- Measures taken to improve the quality assurance of the infrastructure
- If available, a description of the setup of a certification mechanism

14 - Contribution to the functioning and coordination of the infrastructure

In accordance with Article 21 (2)(b) of the Directive, Member States shall report on the contribution of the stakeholders involved in the implementation of the Directive. The report shall comprise:

- a) An overview of the various stakeholders actively contributing to the implementation of the infrastructure for spatial information according to the following typology: users, data producers, service providers, coordinating bodies.
- b) A description of their role in the development and maintenance of the infrastructure for spatial information (inter alia, in the coordination, data and metadata provision, management, development and hosting of services).
- c) A list of measures taken to facilitate the sharing of spatial data sets and services between public authorities and a description (with examples) of how sharing has improved as a result.
- d) Description of how the stakeholders cooperate including the existence of a written framework for action, a timetable and distribution of tasks.

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15 - Usage of the infrastructure for spatial information

In accordance with Article 21 (2)(c) of the Directive, Member States shall report on the usage of the infrastructure for spatial information. The report shall comprise:

- a) Comment on the use of the spatial data services of the infrastructure for spatial information based, inter alia, on the results of the monitoring indicators
- b) Comment on the use of spatial data sets of the three Annexes by public authorities, including what and how, with particular attention to good examples in the field of environmental policy
- c) An overview of the usage of the infrastructure for spatial information by the broader public.

16 - Data sharing arrangements

In accordance with Article 17 and 21 (2)(d) of the Directive, Member States shall report on the setup of data sharing arrangements between public authorities, and with the institutions and bodies of the Community. The report shall comprise:

- a) A description of the mechanisms (what has to be done) to obtain access to spatial data sets and services of the infrastructure for spatial information.
- An overview of data sharing arrangements between public authorities that have been created (who's participating and which spatial data sets and services are covered in the arrangement)
- c) A list of comments on, inter alia, the licensing (inter alia, unique model license), accessibility of data, quality of data, metadata and the pricing model(s) being applied (inter alia, cost recovery, yearly subscription, marginal cost, free) within data sharing arrangements between public authorities.
- d) A list of known issues that still inhibits fluent spatial data sets and services sharing, and that deserve specific attention.

The first report only will provide an overview of sharing arrangements that existed before the entry into force of the Directive as the starting point for the reporting on the evolution of sharing.

17 - Cost and benefit aspects

In accordance with Article 21 (2)(e) of the Directive, Member States shall report on key costs for the setup and running of the infrastructure for spatial information related directly to the implementation of the Directive. This implies that costs related to tasks which are being performed based on legal mandates which existed already outside the Directive legal framework shall not be reported. Where possible costs shall be described for any national, regional and, where practicable, an overview of local initiatives as well;

- a) An overview of the annual financial contributions budgeted for the functioning of the infrastructure for spatial information
- b) An overview of any "once-only" financial contributions budgeted for the initial setting up of the infrastructure for spatial information
- c) A description of any cost sharing arrangements between public / private sector organisations
- d) A subdivision of costs according to the various components of the infrastructure for spatial information
 - metadata
 - data harmonisation
 - network of spatial data services

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- monitoring and reporting
- coordination and horizontal measures
- e) A description of benefits observed e.g. examples of the positive effects on policy preparation / implementation / evaluation within an administration, as well as examples of improved service to the citizen.
- f) Examples of cross-border cooperation, inter alia agreements

18 - Other issues

Description of efforts made to improve cross-border consistency. Description of the degree to which themes integrate with each other

Information on transformation services being developed. Explanation on how data interoperability is achieved (harmonisation or use of transformation services)

List and descriptions of spatial data sets that contain optional/recommended elements beyond those fulfilling the mandatory conformance for harmonised data.

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CHAPTER VII - PHASED IMPLEMENTATION

19 - Implementation of monitoring

Member States shall provide the Commission with information on monitoring as defined in articles 5 to 12 of these implementing rules.

Member States shall provide the first results of monitoring one year after the adoption of these implementing rules, and thereafter update the results every year. Member States shall make the results of this monitoring accessible to the public and the Commission on a permanent basis.

Member States shall rely on the coordination structure referred to in Article 19(2) of the Directive to collect raw data. The Member States National Contact Point shall provide the monitoring information to the Commission. If the Commission provides tools or templates to do so, they shall be used.

20 - Implementation of reporting

Member States shall provide the Commission with information on reporting as defined in articles 13 to 18 of these implementing rules.

Member States shall provide the first report no later than the 15th of May 2010 and there after every three years.

Member States shall rely on the coordination structure referred to in Article 19(2) of the Directive to collect information for reporting. The Member States National Contact Point shall provide the report to the Commission. If the Commission provides tools or templates to do so, they shall be used.

The Member State reports submitted to the Commission shall be made available to the public. All reports shall at least be made available via a specific section on monitoring and reporting in the geoportal at Community level and via any other means internally to each Member State.

CHAPTER VIII - FINAL PROVISIONS

21 - Final provisions

This Regulation shall enter into force on the day of its publication in the Official Journal of the European Union.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at ...