INSPIRE

Infrastructure for Spatial Information in Europe

MIWP Action 2016.5: Priority list of data sets for eReporting

Progress status

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Description	This document sets the scene for the activities of the 2016.5 subgroup and presents the progress made.
Actions:	MIG to: • Take note of the document and the progress of work; • Discuss at the 10th meeting of the MIG.

Contents

1. INSPIRE MIG MIWP Action 2016.5

The scope of this action under "Working area 2: End user applications" of the Maintenance and Implementation Work Programme 2017-2020 is to further develop a list of data sets related to environmental reporting and support Member States with making these data sets accessible through the European Spatial Data Infrastructure. The list also reflects the data gaps identified during the evaluation of the state-of-implementation and the fitness of the Directive for its intended purpose (a so-called REFIT evaluation).

The 5th meeting of the MIG in December 2016 has endorsed a mandate for this action further detailing the scope, tasks, expected outcomes and timeline. A subgroup was set up under the MIG to execute the tasks and the further maintenance of the list in collaboration with experts from the environmental thematic and reporting communities.

The action 2016.5[1] has following main tasks:
- Task 1: Manage and update the priority list
- Task 2: Make data available as is
- Task 3: Common and interoperable European data models
- Task 4: Monitoring the availability of pan-European data sets

The Work programme 2019-2020 is focused on:
- Make all data on the priority list of data sets for e-reporting available as-is: identify data sets, document metadata, make metadata and data available on the EU geoportal by providing network services
- Development of common and interoperable European data models for reporting obligations/data flows in collaboration with the thematic and reporting communities.
- Monitoring the availability of pan-European data sets.

2. Priority list of data sets for eReporting

The priority list of data sets for eReporting has been finalised as version 2.0. The priority list covers seven environmental domains, 22 EU environmental legal acts, 47 reporting obligations and identifies 87 different spatial data sets.

The priority list together with the correlated INSPIRE Priority data sets code list[2] are used to properly identify and describe the existing spatial data sets (provided "as is") that are available through the INSPIRE Geoportal. Such data sets are required to be tagged in

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[1] https://webgate.ec.europa.eu/fpfis/wikis/display/InspireMIG/Action+2016.5%3A+Priority+list+of+data sets+for+e-Reporting
[2] http://inspire.ec.europa.eu/metadata-codelist/PriorityDataset

metadata with the dedicated keywords available in the INSPIRE Registry. Further guidance is available from the priority dataset WIKI[3].

On the request of the MIG an update of a more detailed version of the list that includes a mapping of spatial reporting data to INSPIRE themes and application schemas has been prepared and will be made available on the WIKI.

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[3] https://ies-svn.jrc.ec.europa.eu/projects/2016-5/wiki/

3. Availability of the data sets for eReporting through the INSPIRE Geoportal

The overviews of downloadable spatial data sets that have been identified as data sets for eReporting are available from the INSPIRE Geoportal Priority Data sets Viewer by:

- Countries
- Environmental domains or
- Environmental legislation.

In addition to this pre-selection functionalities, the INSPIRE Geoportal includes the possibility to search in the Resource Browser on all metadata available through the discovery services.

3.1. Status and progress

The list of data sets that are a priority under environmental legislation was communicated to Member States by two letters and was also made available on the WIKI. The first letter was sent to all Member States on 21 December 2017 (ARES(2017)6316317) requesting them to allow access and download of priority data sets by 15 May 2018. The second letter was sent to all Member States on 25 July 2018 (Ares(2018)3946754) requesting them to inform the Commission of their priority data sets and where these data sets are accessible (i.e. a link to the respective view and download services) by 15 October 2018. The Commission based its assessment of the fulfilment of the requirements of data accessibility by using the INSPIRE Dashboard and the INSPIRE EU-geoportal (established under Article 15(2) of the INSPIRE Directive). Those tools ensure a precise and clear overview of the status of implementation on the main obligations under the Directive and related Regulations by each Member State. The available information on INSPIRE EU-geoportal showed that in begin of 2019 many Member States where still lagging behind with the implementation of the priority list of data sets and that some Member States showed no progress at all. Therefore, the Commission decided to issue letters of formal notice for those Member States that have shown no progress at all, in which it takes the view that the concerned Member States have failed to implement several provisions of the INSPIRE Directive and of the Metadata and Network Services Regulations in relation to the priority list of data sets for eReporting.

3.2. Country overview of downloadable priority data sets

Comparing the available downloadable priority datasets through the INSPIRE Geoportal between November 2018 and May 2019 shows a stable amount of metadata and a light increase in download services. This changes the trend comparing November to June 2018 figures, a period in which download services had slightly dropped. Since November 2018, four Member States have started to provide metadata; three of them also download services.

The detailed overview shows that two groups of countries are still lagging behind.

The group that not succeeded to provide neither metadata nor download services has become smaller and consists now of two EU countries (Lithuania and United Kingdom) and wo EFTA countries (Liechtenstein and Switzerland).

A second group has either not provided download services or the download services do not have a proper service–data linking and thus are not discoverable in the EU Geoportal: Bulgaria, France, Hungary, Ireland and Italy.

Country	27/05/2019		Trends since 12/11/2018*	12/11/2018	
	Metadata	Download services	Download services	Metadata	Download services
Austria	74	62	↓	76	66
Belgium	113	42	↑	104	33
Bulgaria	146	0	–	0	0
Croatia	15	1	–	6	0
Cyprus	5	5	–	5	5
Czech Republic	38	10	↑	39	4
Denmark	49	7	↑	38	1
Estonia	21	2	–	21	1
Finland	20	19	↑	19	7
France	117	0	–	105	0
Germany	64	27	↓	65	40
Greece	54	2	↑	0	0
Hungary	13	0	–	12	0
Iceland	2	2	–	2	2
Ireland	9	0	–	9	0
Italy	17	0	–	12	0
Latvia	20	1	–	0	0
Liechtenstein	0	0	–	0	0
Lithuania	0	0	–	0	0
Luxembourg	61	59	–	67	58
Malta	54	52	–	54	50
Netherlands	51	29	↑	41	12
Norway	16	1	–	9	1
Poland	5	2	–	0	0
Portugal	125	27	↑	223	21
Romania	21	10	–	21	9
Slovakia	34	9	↑	12	2
Slovenia	4	1	–	4	1
Spain	81	80	–	81	79
Sweden	33	8	↑	24	0

	27/05/2019		Trends since 12/11/2018*	12/11/2018	
Country	Metadata	Download services	Download services	Metadata	Download services
Switzerland	0	0	–	0	0
United Kingdom	0	0	–	0	0
Total	*1043*	*434*		*1049*	*392*

Metadata – number of metadata

Download services – number of download services with proper service-data linking

*trend: ↑ increasing   – stable (difference up to 2)   ↓ decreasing – *Please note: The trend may be due to internal re-organisation of datasets or services*

Figure 1: Progress in metadata and download service delivery

3.3.   Overview of priority data sets by legislation

The overview of provided metadata for the priority datasets according to the EU environmental legislation shows that only for the latest Regulation 2017/852/EU (Mercury Regulation) download services for the datasets are not yet available.

Legislation	#Metadata 27.5.2019	#Metadata 12.11.2018	#Download services 27.5.2019	#Download services 12.11.2018	Key directive popular name
directive 1999/31/ec	5	2	1	1	
directive 2000/60/ec	359	311	128	106	Water Framework Directive
directive 2002/49/ec	250	145	89	82	Noise Directive
directive 2006/21/ec	2	1	0	0	
directive 2006/7/ec	20	12	10	7	
directive 2007/60/ec	208	173	71	63	Floods Directive
directive 2008/50/ec	76	64	19	13	Ambient Air Quality Directive
directive 2008/56/ec	24	21	13	11	
directive 2009/147/ec	58	64	38	29	Birds Directive
directive 2010/75/eu	15	13	2	4	
directive 2012/18/eu	12	8	4	2	
directive 86/278/eec	5	1	0	0	
directive 91/271/eec	67	43	18	17	Urban

Legislation	#Metadata 27.5.2019	#Metadata 12.11.2018	#Download services 27.5.2019	#Download services 12.11.2018	Key directive popular name
					Waste Water Treatment Directive
directive 91/676/eec	29	26	13	12	
directive 92/43/eec	102	99	60	49	Habitats Directive
directive 98/83/ec	11	6	3	2	
EEA annual work programme	61	98	25	16	Largely Nationally Designated Areas CDDA
national legislation	15	12	7	5	
recommendation 2014/70/EU	4	3	1	1	
regulation (EC) 166/2006	21	20	6	7	
regulation (EU) 1143/2014	7	6	1	1	
regulation (EU) 2017/852	2	0	0	0	

Figure 2: Metadata and download services per Member State and by legislation

The majority of the data is provided based on the legislation on nature and biodiversity, water, air and noise. There is an overall increase on metadata and a moderate increase on download services.

3.4. Example: Priority data sets related to the Habitats and Birds Directives

The MIG had agreed to focus the initial provision of (as-is) data on nature and biodiversity related reporting – in particular data that is needed to describe the Natura 2000 situation. The downloadable priority datasets established according to the Directive 92/43/EEC (Habitats Directive) and Directive 209/147/EC (Birds Directive) are listed below. The status form November 2018 is compared to May 2019.

Country	Habitats Directive 27.5.2019	Habitats Directive 12.11.2018	Birds Directive 27.5.2019	Birds Directive 12.11.2018
Austria	**10**	10	**9**	8
Belgium	**7**	7	**2**	2
Cyprus	**1**	1		
Czech Republic	**4**	2	**2**	2
Denmark			**2**	

Country	Habitats Directive 27.5.2019	Habitats Directive 12.11.2018	Birds Directive 27.5.2019	Birds Directive 12.11.2018
Estonia			**1**	
Finland	**4**	1	**3**	1
Germany	**2**	3	**2**	2
Iceland	**1**	1		
Italy		2		
Latvia	**1**			
Lithuania	**1**		**1**	
Luxembourg	**7**	7	**3**	3
Malta	**5**	5	**3**	3
Netherlands	**6**	3	**4**	2
Portugal	**4**	4	**2**	2
Romania	**1**	1	**1**	1
Slovenia			**1**	1
Spain	**4**	4	**2**	2
Total	**60**	51	**38**	29

Figure 3: Natura 2000 related datasets for download (excluding WfD reporting on habitats)

In summary, by May 2019 16 Member States (2 more than in 2018) have provided download services for the Habitats Directive and 12 (3 more) for the Birds Directive. This is still only around half of the Member States.

Technical recommendation: In providing this analysis, we discovered that further spatial datasets of Natura 2000 sites (part of datasets related to Habitats and Birds Directives) may be already available in the INSPIRE infrastructure but are not easily discoverable due to the quality of the applied metadata keywords from the INSPIRE Priority data set code list.

Therefore, we strongly recommend that:

- The most precise metadata keyword(s), indicating the content and purpose of the dataset, is applied, instead of more general keywords, e.g. legislation, and
- The identified priority datasets are indeed those that include authoritative data for the reporting obligation used in the reporting data flow.

4. Implementation Targets for the priority data sets (EEA)

A common methodology for monitoring progress of implementation of the list of priority datasets for e-Reporting would provide a basis for comparative and up-to-date information about the accessibility and readiness of INSPIRE datasets and services to be used in environmental reporting data flows and in the creation of pan-European spatial data sets. The proposed methodology relies on the harvested metadata records from the national discovery services which are available through the INSPIRE Geoportal to evaluate the progress towards a set of implementation targets. To do so, a series of proposed indicators provide information on the progress at different disaggregation levels, e.g. at EU level, by country, by legislation or by priority dataset keyword. These build on the regulatory INSPIRE monitoring indicators, and could be regularly updated and presented on a dashboard.

The document "Methodology for evaluation of progress of INSPIRE priority list of datasets for e-Reporting"[4] discussed in the 2016.5 MIG subgroup already set the scene for this common methodology. This document is now updated with additional criteria that include some country specific considerations when defining implementation progress targets. This section summarises the proposed implementation targets, while the draft document in Annex 1 "INSPIRE priority list of datasets for e-Reporting targets" provides detailed information on the analysis of possible criteria to be considered.

The following implementation targets are proposed for further discussion:

- Geographic coverage,
- Time reference, and
- INSPIRE data model harmonisation.

In addition, the provision of INSPIRE priority datasets can be further supported and improved through guidelines or best practice documents (e.g. metadata tagging, i.e. use of priority dataset keywords, organisation of datasets suitable for e-Reporting purpose, improving quality of INSPIRE metadata for datasets).

4.1. Target 1: Geographic coverage

Target 1: Per each reporting obligation, their corresponding priority datasets should be made fully available through the INSPIRE Geoportal (i.e. with metadata and view and download services) **for all relevant Member States**.

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[4] https://webgate.ec.europa.eu/fpfis/wikis/download/attachments/299729499/MIWP2016.5-PDS-Methodology-V0.3.docx?version=1&modificationDate=1552309930603&api=v2

The analysis of the geographic scope (i.e. countries) per reporting obligation, flagging existing exceptions (i.e. exempted countries), will provide the basis to assess the degree of achievement of this target. Therefore, the target will be evaluated by comparing the provision of priority datasets by country with regard to the expected geographic scope of the relevant reporting obligation. Exceptions in the reporting obligations can be established and synchronised with the Reporting Obligations Database (ROD)[5].

Not all countries report on all entries of the list of priority datasets. The most obvious example is the Marine Strategy Framework Directive, which does not apply to landlocked countries. Some specific entries may not be either relevant for some countries (e.g. some countries do not report on the distribution of sensitive species, exception with regard the nitrate vulnerable zones under NiD).

To ensure the completeness of the geographic scope, it will be necessary to build on the content of the INSPIRE metadata for the datasets, including the analysis of the priority dataset and spatial scope keywords.

Additional information about how to calculate the degree of achievement of this target is provided in the first section of Annex 1.

4.2. Target 2: Temporal reference

> **Target 2:** Per each reporting obligation, all relevant Member States will ensure that the **most up-to-date** priority datasets are made fully available through the INSPIRE Geoportal (i.e. with metadata and view and download services).

Each reporting obligation has a well-defined frequency that determines when the relevant data (typically the most up-to-date) should be reported. The frequency can be continuous, annual, every 48 months or even every six years. The reporting deadline could therefore serve to evaluate the adequate provision of the priority datasets. The INSPIRE IR on interoperability establishes that the updates shall be made at the latest six months after the change was applied in the source data set (unless specified differently for INSPIRE spatial data themes). At the same time, the updates of the priority datasets should correlate with the reporting deadlines.

This target can be evaluated by using the (mandatory) temporal reference of the dataset encoded in the INSPIRE metadata (and displayed in the INSPIRE Geoportal) to evaluate it against the reporting obligation deadline. The source of reporting deadlines should be the Reporting Obligations Database (ROD).

Additional information is provided in the second section of Annex 1.

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[5] https://rod.eionet.europa.eu/

4.3. Target 3: INSPIRE data model harmonisation

Target 3: All priority datasets should be made available **under harmonised conditions** (including relevant applications schemas and spatial object types).

By the upcoming deadline of the INSPIRE IR on interoperability, it is expected that all INSPIRE datasets will be provided under harmonised conditions, including the requirements corresponding to the applicable INSPIRE spatial data themes, using the corresponding application schemas and relevant spatial object types.

In most of the priority datasets, the mapping with the INSPIRE spatial data themes is carried out as a joint effort of reporting/thematic community and INSPIRE, since this need to be considered in the overall reporting data flow modelling process. Therefore, this target will be first focused on those datasets that are already provided according to INSPIRE aligned reporting data models (e.g. CDDA, EU Registry of Industrial Sites, Water Framework Directive).

For each priority dataset in scope it is then possible to extract the themes, spatial object types and application schemas used and compare them with those included in the INSPIRE IR. An indicator could show a percentage of priority datasets (per country or legislation) that are provided according to the expected INSPIRE spatial data themes.

Additional information is provided in the third section of Annex 1.

4.4. Guidelines and good practice documents

In order to ensure a proper implementation of priority datasets and facilitating tracking progress, further guidelines and good practice documents could be provided. This additional support could also include further clarification on the following issues:

1) Actually reported vs referenced datasets

Not all the entries in the list of priority datasets correspond to an actually reported file. In some cases, and as a result of a previous streamlining exercise, the reporting file only includes a reference to a geospatial data reported under other obligations (e.g. protected areas associated with water bodies). Other datasets are just used to create the reporting file, but are not effectively reported (e.g. biogeographical regions). Therefore, a case-by-case analysis may be necessary to clarify which entries in the list of priority datasets should correspond to a separate dataset available through the INSPIRE infrastructure.

2) Country-specific data organisation and management practice

The organisation of the same dataset may vary according to its final purpose, e.g. publishing data in the INSPIRE infrastructure might require a different approach than preparing the dataset to be officially submitted as part of a reporting obligation. Furthermore, the INSPIRE

harmonised datasets might include several feature types from diverse applications schemas, or several thematic categories.

> **The MIG is invited to take note of the document in this chapter (4) and in Annex 1 and provide feedback and comments for further discussion in the 10th meeting of the**

Additional information is provided in the fourth section of Annex 1.

5. Actions taken by the Commission to support the implementation

The Commission is supporting MS with implementation in several ways:

1) Maintaining and developing the **Geoportal Priority Data sets Viewer** – the single access point to PDS data sets - http://inspire-geoportal.ec.europa.eu/

- Recent relevant development:
    - o Provision of MD of data sets not limited to individual countries, but the whole Europe (e.g. all data sets for individual env. legislation or env. Domain)
    - o Deployment of the EU translation service (English) for titles and abstracts of MD of MS data sets

2) Maintaining and developing **the controlled vocabulary** (multilingual) for identifying the PDS data sets – https://inspire.ec.europa.eu/metadata-codelist/PriorityDataset/

3) Providing and **on-line Help to MS via Geoportal Helpdesk** –

 https://ies-svn.jrc.ec.europa.eu/projects/geoportal/issues

or general **help on the use of INSPIRE Registry** –

jrc-inspire-support@ec.europa.eu

4) Technical Guidance – documentation: How to tag PDS data sets

 https://ies-svn.jrc.ec.europa.eu/projects/2016-5/wiki/Implementation

Annex 1 - INSPIRE priority list of datasets for e-Reporting targets (draft)

Abbreviations

Abbreviation	Name	Reference
AM	Area management/restriction/regulation zones and reporting units	https://inspire.ec.europa.eu/Themes/139/2892
BR	Bio-geographical regions	https://inspire.ec.europa.eu/Themes/145/2892
CDR	Central Data Repository	https://cdr.eionet.europa.eu/
EF	Environmental monitoring facilities	https://inspire.ec.europa.eu/Themes/120/2892
GCM	Generic Conceptual Model	
HH	Human health and safety	https://inspire.ec.europa.eu/Themes/119/2892
HY	Hydrography	https://inspire.ec.europa.eu/Themes/116/2892
IR	Implementing rules	
MIG	Maintenance and Implementation Group	
MIWP	Maintenance and Implementation Work Programme	
MS	Member State of the EU	
PDS	Priority dataset for eReporting	
PF	Production and industrial facilities	https://inspire.ec.europa.eu/Themes/121/2892
PS	Protected sites	https://inspire.ec.europa.eu/Themes/117/2892
REFIT	Regulatory fitness and performance (programme)	https://ec.europa.eu/info/law/law-making-process/evaluating-and-improving-existing-laws/refit-making-eu-law-simpler-and-less-costly_en
ROD	Reporting Obligations Database	https://rod.eionet.europa.eu/
TG	Technical guidelines	
TN	Transport networks	https://inspire.ec.europa.eu/Themes/115/2892
XML	Extensible Markup Language	

1. Geographic coverage

As indicated, not all obligations affect all MS (although this is just a minority of cases). The main reasons are as following:

- Legislation and reporting obligations are not applicable to all MS, e.g. MSFD does not apply in landlocked EU countries (Austria, Czechia, Hungary, Luxembourg, Slovakia). The main source for this information is Reporting Obligation Database (ROD).
- Legislation might define exceptions in the reporting obligation, according to which the spatial data might not be requested nor reported, e.g. Nitrates Directive, Article 3(5): Member States shall be exempt from the obligation to identify specific vulnerable zones, if they establish and apply action programmes referred to in Article 5 in accordance with this Directive throughout their national territory.
- There are reporting obligations which are of voluntary nature which may also have an impact on the availability of the corresponding geospatial datasets.

To properly capture such conditions, it is necessary to analyse and understand individual reporting data flow and individual MS situation with regard to the applicable exceptions that might also change between the reporting frequencies. The initial source of this information is the Reporting Obligation Database (ROD), which includes detailed information about the legislative instruments and reporting data flows. However, country specific information will need to be verified in addition, and information might be known only after the reporting cycle. Table 1 includes a few examples.

Table 1: Example of reporting obligation exceptions

Legislation	Abbr.	ROD link	Reporting obligation	EU MS exceptions	Comment
Directive 91/676/EEC	NiD	https://rod.eionet.europa.eu/instruments/257	Nitrates Directive - Report	AT, DE, DK, FI, IE, LT, LU, NL, RO, SI	nitrate vulnerable zones are not required to report if the total country (national territory) is designated as sensitive area; Article 3(5) applicable by: AT, DE, DK, FI, IE, LT, LU, NL, RO, SI Viewer (JRC): https://water.jrc.ec.europa.eu/portal/apps/webappviewer/index.html?id=d651ecd9f5774080aad738958906b51b
Directive 2008/56/EC	MSFD	https://rod.eionet.europa.eu/instruments/631	MSFD - Article 4 - Spatial data	AT, CZ, HU, LU, SK	Exception: landlocked MS

Proposed indicators:

- The regulatory INSPIRE monitoring indicator "DSi1,3", which defines: "the number of spatial data sets for which the metadata contains a keyword from a register provided by the Commission indicating that the spatial data set is used for reporting under the environmental legislation" could be used for evaluating geographic coverage, as following:
  - o Legislation overview: number of priority datasets per country compared to the expected geographical scope in the reporting obligations (exceptions),

o Country overview: number of priority datasets per legislation compared to the expected geographical scope in the reporting obligations (exceptions).

- Further on, the regulatory INSPIRE monitoring indicators related to spatial coverage could be used in combination with applied reporting exceptions, as following:
- the number of spatial data sets for which the metadata contains a keyword from a register provided by the Commission indicating that the spatial data set covers regional territory ("DSi1,4");
- the number of spatial data sets for which the metadata contains a keyword from a register provided by the Commission indicating that the spatial data set covers the national territory ("DSi1,5").

2. Temporal reference

Per each reporting obligation, it should be possible to establish the frequency by which MS need to report, as well as to flag the last and next reporting deadlines, which can help in an eventual prioritisation. The main source for this information is Reporting Obligation Database (ROD).

For example, reporting under the IAS regulation has yet not started and its deadline lies only in the future, so this dataset should not be yet taken into consideration in any target setting. In the same line, there are some reporting data flows, which are currently under review or have undergone a big streamlining process (IED, E-PRTR and the EU Registry) and therefore datasets are only to be expected in the mid-term future. Table 2 includes a few examples.

Table 2: Example of reporting obligation frequency and deadlines

Legislation	Abbr.	ROD link	Reporting obligation	Reporting frequency	Last reporting	Next reporting
Directive 91/676/EEC	NiD	https://rod.eionet.europa.eu/instruments/257	Nitrates Directive - Report	Every 48 months	2016	30/06/2020
Directive 92/43/EEC	HD	https://rod.eionet.europa.eu/instruments/560	Information on Natura 2000 sites (SCIs/SACs, Habitats Directive) [Art. 4]	Continuous reporting	2018	2019
Directive 2000/60/EC	WFD	https://rod.eionet.europa.eu/instruments/516	Water Framework Directive - River Basin Management Plans - 2016 Spatial data	Every 72 months	2016	22/03/2022
Directive 2002/49/EC	END	https://rod.eionet.europa.eu/instruments/585	Report on all major roads, railways, airports and agglomerations (DF1 and DF5)	Every 60 months	2015	30/06/2020
Directive 2002/49/EC	END	https://rod.eionet.europa.eu/instruments/585	Strategic noise maps (DF 4 and DF 8)	Every 60 months	2017	31/12/2022
Regulation 1143/2014	ALIEN SPECIES	https://rod.eionet.europa.eu/instruments/660	Report on invasive alien species	Every 72 months	N/A	01/06/2019
EEA Annual Work Porgramme	CDDA	https://rod.eionet.europa.eu/obligations/32	Nationally designated areas (CDDA)	Annual reporting	15/03/2019	15/03/2020

Legislation	Abbr.	ROD link	Reporting obligation	Reporting frequency	Last reporting	Next reporting
Nationally designated areas						

The temporal reference of INSPIRE metadata for the priority datasets can be used in addition to the reporting obligations deadlines to evalute if the priority datasets have been updated in the proximity of the reporting deadlines. The INSPIRE Implementing Rules for interoperability (Article 8)[6] defines "all updates shall be made at the latest 6 months after the change was applied in the source data set, unless a different period is specified for a specific spatial data theme". Up-to-date priority datasets are expected to be available in the reporting period, therefore the temporal reference (metadata) of the INSPIRE priority datasets could be monitored around the reporting deadline.

The INSPIRE Metadata Regulation[7] includes four metadata elements to describe a temporal reference, as follows: temporal extent, date of publication, date of last revision and date of creation, where at least one of them has to be provided.

The latest datasets should be provided for the reporting data flow, therefore the suitable and recommended metadata elements would be date of publication or date of last revision.

However, as the following example of a sample of drinking water protected areas in the WFD (INSPIRE priority dataset keyword: DrinkingWaterProtectionAreas-dir-2000-60) shows, the temporal reference is provided in metadata of the priority datasets in diverse ways (Table 3).

Table 3 Example of temporal reference in metadata for datasets with keyword DrinkingWaterProtectionAreas-dir-2000-60

Country	Temporal extent	Date of publication	Date of last revision	Date of creation	Title
ES	2017-07-01 ->	01/07/2017		01/07/2017	(ES) - Zonas protegidas aguas potables (polígonos) PHC 2015-2021
AT		25/06/2010		04/05/2012	(AT) - Wasserschutzgebiete Wien
LU		27/05/2016			(LU) - INSPIRE - Annex III Theme Area Management/Restriction/Regulation Zones and Reporting Units - DrinkingWaterProtectionAreasBeingReglemented_WFD
BE	2008-06-18 -> 2024-01-01	18/06/2008	24/04/2009	18/06/2008	(BE) - Zones 2 et 3 de protection de captage
HR	2013-01-01 ->		01/07/2017		(HR) - Registar zaštićenih područja - područja posebne zaštite voda
SE				2006	(SE) - Skyddade områden, vattenskyddsområden

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[6] https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:323:0011:0102:EN:PDF
[7] https://inspire.ec.europa.eu/Legislation/Metadata/6541

Proposed indicator:

-   The indicator could present a number of priority datasets which latest temporal reference corresponds with the period around the reporting deadline. The period around the reporting deadline could be presented by categories, e.g. 3 months before deadline, 6 months before deadline, more than 6 months before deadline, or even a (short) period after deadline (taking into account that the priority dataset still corresponds to already past reporting obligation).
-   The proposed indicator could be provided per legislation, considering also exceptions in the reporting obligation.

3. INSPIRE data model harmonisation

One of the targets could also focus on analysing the spatial object types (feature types) included in the priority datasets. This presents some difficulties associated to the fact that for many datasets there is still not an INSPIRE aligned reporting data model. Furthermore, most of the datasets included in the list belong in principle to themes corresponding to Annex II and III, which deadline for harmonisation lies still in the future. A proper mapping between the priority datasets and the INSPIRE themes and feature types can only be done by a joint work of INSPIRE and thematic experts.

Hence, the analysis by feature type could focus on those datasets having already an INSPIRE aligned data model and which harmonisation has already taken place (i.e. harmonised datasets have already been reported: this is the current case for Nationally designated areas (CDDA), Air Quality Directive, Water Framework Directive; or the harmonised datasets are going to be reported soon: in case of EU-Registry or Invasive Alien Species).

The harmonisation with INSPIRE data specifications for the purpose of e-Reporting might also involve several feature types from diverse INSIRE applications schemas or spatial data themes, that can be provided by one or more priority datasets. These multiple relationships will need to be properly addressed by the mapping between the priority datasets and INSPIRE spatial object types (e.g. EU-Registry).

Table 4: Example of priority dataset mapping to INSPIRE themes and spatial object types (feature types) following harmonisation

Legislation	Data set no.	Identified specific data sets	INSPIRE theme	Application schema	Feature types	Comment
AQD	1.01	AQ management zones & agglomerations	AM	[Area Management Restriction and Regulation Zones](#)	ManagementRestrictionOrRegulationZone	
AQD	3.01	AQ monitoring stations (incl. assessment methods - measurements)	EF	EnvironmentalMonitoringFacilities	EnvironmentalMonitoringFacility	
WFD	9.01	River basin district	AM	[Area Management Restriction and Regulation Zones](#)	ManagementRestrictionOrRegulationZone	
WFD	9.02	River basin district sub-units	AM	[Area Management Restriction and Regulation Zones](#)	ManagementRestrictionOrRegulationZone	

Legisla tion	Data set no.	Identified specific data sets	INSPIRE theme	Application schema	Feature types	Comment
WFD	10.01	WFD surface water body lake	AM	Area Management Restriction and Regulation Zones	ManagementRestrictionO rRegulationZone	
WFD	10.02	WFD surface water body river	AM	Area Management Restriction and Regulation Zones	ManagementRestrictionO rRegulationZone	
WFD	10.03	WFD surface water body transitional water	AM	Area Management Restriction and Regulation Zones	ManagementRestrictionO rRegulationZone	
WFD	10.04	WFD surface water body coastal water	AM	Area Management Restriction and Regulation Zones	ManagementRestrictionO rRegulationZone	
WFD	10.05	WFD groundwater body	AM	Area Management Restriction and Regulation Zones	ManagementRestrictionO rRegulationZone	
WFD	11.02	WFD protected areas not reported under other directives - shellfish designated waters	AM	Area Management Restriction and Regulation Zones	ManagementRestrictionO rRegulationZone	
WFD	11.03	WFD protected areas not reported under other directives - freswater fish designated waters	AM	Area Management Restriction and Regulation Zones	ManagementRestrictionO rRegulationZone	
WFD	11.04	WFD protected areas not reported under other directives - other protected areas	AM	Area Management Restriction and Regulation Zones	ManagementRestrictionO rRegulationZone	
WFD	12.01	WFD monitoring stations	EF	EnvironmentalMon itoringFacilities	EnvironmentalMonitoring Facility	
CDDA	45.01	Nationally designated areas (CDDA)	PS	Protected Sites Simple	ProtectedSite	
E-PRTR	27.01	E-PRTR sites & facilities	PF	ProductionAndInd ustrialFacilities	ProductionSite, ProductionFacility, ProductionInstallation, ProductionInstallationPart	Part of common EU-Registry of industrial sites, E-PRTR data related to facilities
			GCM	Activity Complex	ActivityComplex	
IED	29.01	IED installations	PF	ProductionAndInd ustrialFacilities	ProductionSite, ProductionFacility, ProductionInstallation, ProductionInstallationPart	Part of common EU-Registry of industrial sites
			GCM	Activity Complex	ActivityComplex	

Legislation	Data set no.	Identified specific data sets	INSPIRE theme	Application schema	Feature types	Comment
IED	30.01	Combustion plants	PF	ProductionAndIndustrialFacilities	ProductionSite, ProductionFacility, ProductionInstallation, ProductionInstallationPart	Part of common EU-Registry of industrial sites, LCP data related to installation part
			GCM	Activity Complex	ActivityComplex	
IAS	26.01	Alien species distribution	SD	SpeciesDistribution	SpeciesDistributionUnit	

Proposed indicator:
- The proposed indicator could show an overview of mapping between the priority datasets and expected INSPIRE spatial data themes and spatial objects types.
- In addition, the indicator could provide the number or percentage of priority datasets that match the INSPIRE spatial data themes and spatial object types (with regard to all provided priority data sets).
- The indicator could be provided per country, legislation or the priority dataset keyword.

4. Guidelines and good practice documents

Guidelines and good practice documents would contribute to a more complete and uniform provision of priority datasets for e-Reporting. Certainly, new issues will appear with more in-depth work on priority datasets. A few issues, currently detected, are presented below.

1) Actually reported vs referenced datasets

Focusing now on the actual datasets, an important analysis that could help in prioritising the provision of priority dataset is whether the data is expected to be reported or the entry in the list of priority datasets only refers to another dataset (reported under another obligation or not). A very useful classification of the entries in the list of priority data sets in relation to the reporting data flows is the following:

- Reported data, being roughly 80% of the entries in the list. This could constitute a priority in the target setting.
- Referenced data, where spatial data is reported under other obligations.

This approach would further clarify the content and type of expected data in each priority dataset and it could be used to set priorities for the provision of INSPIRE priority datasets. However, it would also require to additionally categorise the priority datasets for e-Reporting. It is also not always clear in what cases the dataset is a reference to another dataset. A first analysis of the list shows that only around 20% are clearly referenced data (this might also vary from country to country). For example: the priority dataset with location of protected areas (Art 6 and 7 of WFD) refers to Natura 2000 sites (reported under Habitats and Birds Directive), or the pan-European dataset of Biogeographical regions, established under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, that is used (referenced) in provision of several datasets under Habitats and Birds Directives.

2) Country-specific data organisation and management practice

The organisation of datasets depends on many variables (e.g. whether the reporting obligation is handled at national or at regional level, the number of topics covered by the dataset) and ultimately, there is no obligation for a Member State to aggregate datasets belonging to a reporting data flow in just one single file. For the same reporting obligation, one country may just submit one dataset, while other may produce a number of files, which may, or not, coincide with the number of sub-national administrative divisions involved in the reporting process. This also can completely change when the MS publishes the reported dataset in the INSPIRE infrastructure (e.g. aggregates may only exist for reporting purposes, but not for publication and vice-versa). One single file including all required data might become too big to be handled properly, while on the other side, if the reported data are organised in several files, all files will have to be available for the reporting data flow.

The lack of a fixed number of datasets is due to each country applying a different policy with regard to how the dataset is produced and disseminated (e.g. by region, by theme).

The following table demonstrates one example of reported datasets AQ management zones & agglomerations under Air Quality Directive (source: Reportnet CDR) that are organised in diverse ways.

Table 5: Example of reported datasets organisation

Country	Number of reported datasets	Description
EE	4	each management zone could be provided as a separate dataset / zones geometry could be provided as a separate dataset / number of zones = 4
FI	18	each management zone could be provided as a separate dataset / zones geometry could be provided as a separate dataset / number of zones = 18
HU	11	each management zone could be provided as a separate dataset / zones geometry could be provided as a separate dataset / number of zones = 11
LT	3	each management zone could be provided as a separate dataset / zones geometry could be provided as a separate dataset / number of zones = 3
PT	23	each management zone could be provided as a separate dataset / zones geometry could be provided as a separate dataset / number of zones = 23
RO	54	each management zone could be provided as a separate dataset / zones geometry could be provided as a separate dataset / number of zones = 54
Other MS / countries	1	