



INSPIRE

Infrastructure for Spatial Information in Europe

MIWP 2016.5: Methodology for evaluation of progress of INSPIRE priority list of datasets for e-Reporting (draft)

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Description	<p>The scope of INSPIRE action MIWP 2016.5 under "Working area 2: End user applications" of the Maintenance and Implementation Work Programme 2017-2020 is to further develop a list of datasets related to environmental reporting and support Member States with making these datasets accessible through the European Spatial Data Infrastructure in a stepwise manner. The priority list of datasets for e-Reporting is a living inventory of environmental information needs. 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 the creation of pan-European spatial data sets. After several discussions in MIWP 2016.5 and MIG-T, the methodology is updated and restructuring of the priority list of datasets for e-Reporting is proposed.</p>
Actions	<ul style="list-style-type: none"> • Discussion in MIWP 2016.5

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Terms and abbreviations

Terms

Abbreviations

Abbreviation	Name	Reference
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	
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	
XML	Extensible Markup Language	

Introduction

The scope of INSPIRE action MIWP 2016.5 under "Working area 2: End user applications"¹ of the Maintenance and Implementation Work Programme 2017-2020 is to further develop a list of datasets related to environmental reporting and support Member States with making these datasets accessible through the European Spatial Data Infrastructure in a stepwise manner. 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 priority list of datasets for e-Reporting continues to be an important driver in the next INSPIRE Maintenance and Implementation Work Programme to improve access to environmental data through the European Spatial Data Infrastructure (INSPIRE). To keep this role, the priority list will be restructured to improve understanding and use, corrected and regularly updated to address new requirements in environmental policies and legislation.

The priority list of datasets for e-Reporting is a living inventory of environmental information needs and as such provides an instrument to:

- incrementally build comparable INSPIRE maturity across Member States for all INSPIRE components (metadata, services, interoperability, data sharing) based on a common setting;
- plan tangible and usable INSPIRE deliverables for e-Reporting;
- monitor progress on INSPIRE implementation in general and for the reporting use case in specific;
- promote the reuse of the INSPIRE infrastructure for reporting purposes.

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 the creation of pan-European spatial data sets. The methodology is focused on the implementing targets proposed at the INSPIRE MIG meeting in June 2019², considering also indicators under the Commission Implementing Decision (EU) 2019/1372 of 19 August 2019 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting³.

The realisation of the proposal for possible streamlining of reporting obligations and if applicable INSPIRE IRs/TGs is out of scope since this role is attributed to the Committee or the co-legislator if reporting obligations have to be amended in EU law. However, as a result of this work, suggestions can be made which will be transmitted to the relevant units in the Commission dealing with these issues.

¹ <https://webgate.ec.europa.eu/fpfis/wikis/display/InspireMIG/Action+2016.5%3A+Priority+list+of+datasets+for+e-Reporting>

² <https://webgate.ec.europa.eu/fpfis/wikis/display/InspireMIG/10th+MIG+meeting+2019-06-20?preview=/356262712/358257262/%5BDOC5%5D+MIG10+2016.5+Priority+%20list+data+sets.pdf>

³ http://data.europa.eu/eli/dec_impl/2019/1372/oj

1 Priority list of datasets for e-Reporting implementing targets - overview

A common methodology for monitoring progress of implementation of priority list of datasets for e-Reporting provides a basis for comparative and up-to-date information about the accessibility and readiness of INSPIRE datasets and services 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. It considers also the regulatory INSPIRE monitoring indicators that are 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. Further on the implementing targets have been presented at the INSPIRE MIG meeting on June 2019⁵. In parallel with these activities, the members of the MIWP 2016.5 raised several issues (e.g. unclear requirements, inconsistent statistics, and lack of reporting year information) and recommendations that would improve the discovery and usability of the datasets in environmental reporting data flows. These led to the proposal to reconstruct the priority list of datasets for e-Reporting and update the methodology for monitoring the progress towards the implementing targets.

The following implementation targets are proposed:

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

1.1 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.**

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

⁵ https://webgate.ec.europa.eu/fpfis/wikis/display/InspireMIG/10th+MIG+meeting+2019-06-20?preview=/356262712/358257262/%5BDOC5%5D_MIG10_2016.5_Priority_%20list_data_sets.pdf

Geographic coverage includes two aspects that have to be evaluated together for a reliable evaluation of this target:

- Information on spatial scope of dataset in terms of the new INSPIRE monitoring indicators used to measure the number of the spatial data sets that respectively cover regional or national territory⁶; and
- Information on legal derogations in providing datasets in environmental reporting obligations.

1.1.1 Geographic coverage – national or regional territory

The Commission Implementing Decision (EU) 2019/1372 of 19 August 2019 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting⁷ includes two new indicators to measure the number of the spatial data sets that respectively cover regional or national territory:

- a) 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');
- b) 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').

The spatial scope, i.e. national or regional territory, aspect will be monitored and measured by those two new indicators. They have been already implemented in the INSPIRE Geoportal (e.g. Thematic Viewer of priority dataset, Country view, Spatial scope coverage under each country overview) and will be visible in the INSPIRE indicators dashboard.

As outcome, datasets related to the priority list of datasets for e-Reporting will include information (keywords) of spatial scope, i.e. regional or national territory, that will be easy to detect in the INSPIRE Geoportal based on information in metadata harvested from the national discovery services.

1.1.2 Derogations

The second aspect of geographic scope target is related to the applicable derogations in reporting obligations of environmental legislation. 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).

⁶ http://data.europa.eu/eli/dec_impl/2019/1372/oj

⁷ http://data.europa.eu/eli/dec_impl/2019/1372/oj

This aspect will be evaluated by comparing the provision of priority datasets by country with regard to the expected geographic scope of the relevant reporting obligation.

The European Commission proposed that the Member States, initially, provide information of applicable derogations with regard to the datasets in the scope of e-Reporting. Derogation information can be reported by the common template⁸ to the European Commission. The collected information will complement priority list of datasets for e-Reporting for each Member State and could be used in the INSPIRE Geoportal presentation and statistics.

Later on, this information can be synchronised with the Reporting Obligations Database (ROD)⁹.

1.1.3 Reported data or reference data in the priority list of datasets

Not all the entries in the priority list of datasets for e-Reporting correspond to an actually reported dataset. In some cases, and as a result of a previous streamlining exercise, the reporting dataset 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 dataset, but are not effectively reported (e.g. biogeographical regions). Therefore, a case-by-case analysis may be necessary to clarify which entries in the priority list of datasets for e-Reporting should correspond to a separate dataset available through the INSPIRE infrastructure. These modifications have been supported at the MIWP 2016.5 meeting in November 2019 and will be considered for restructuring of the priority list of datasets for e-Reporting.

1.1.4 Proposed measures

The following measures are proposed:

- 1) Number of spatial datasets related to the priority list of datasets for e-Reporting:
 - According to the implementing act¹⁰, the INSPIRE monitoring indicator to measure the number of spatial data sets that are already used by the Member State for reporting to the Commission under the environmental legislation: 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 ('DSi1,3').
- 2) The number of the spatial data sets that respectively cover regional or national territory¹¹:

⁸ https://webgate.ec.europa.eu/fpfis/wikis/download/attachments/420743455/PDS_Template.docx?version=2&modificationDate=1574781970377&api=v2

⁹ <https://rod.eionet.europa.eu/>

¹⁰ http://data.europa.eu/eli/dec_impl/2019/1372/oj

¹¹ http://data.europa.eu/eli/dec_impl/2019/1372/oj

- 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').
- 3) Another potential measure could be completeness for creation of pan-European dataset. Such measure would consider priority dataset, spatial scope (national, regional) and derogation information. The measure can show a percentage of countries with available data with regard to the number of countries expected in the complete geographic coverage including derogations. However, this measure doesn't consider if the content of datasets is appropriate or complete to create harmonised pan-European datasets.

Those measures have to be adjusted with information on applied derogations, especially the third proposed measure.

1.2 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.

Temporal reference includes several aspects for identifying and using datasets related to e-Reporting:

- Indication of the reporting year for which the dataset has been prepared, and
- Availability of datasets provided for reporting obligations in different reporting cycles (reporting years) and thus allowing time series assessments.

The following proposals have been discussed:

- (a) Temporal information according to the INSPIRE Metadata Regulation can be provided in different ways by providing at least one of the following elements: temporal extent, date of publication, date of last revision or date of creation. Heterogeneous implementation of

temporal references in metadata shows this information is not suitable to indicate the latest dataset related to the specific reporting obligation.

- (b) Another proposed approach was to extend the INSPIRE priority data set code list - keywords with the exact number of the reporting year. This approach includes exact information, however it will create additional burden on management of the code list (constant update of keywords based on deadlines of reporting obligations). Therefore, it was not considered as a final solution.
- (c) The INSPIRE IR on interoperability is specific on regular updates of datasets (Article 8, “1. Member States shall make available updates of data on a regular basis. 2. 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 ...”), however many environmental assessments and policy evaluations rely on spatio-temporal series of data including datasets provided in different reporting cycles. This would require additional promotion of keeping datasets from previous reporting years accessible in the INSPIRE infrastructure and not removing or replacing them with the latest datasets.

Discussion clearly revealed that several implementation solutions will co-exist, however they could be supported by guidelines specific for the e-Reporting use case. Such guidelines would be a useful instrument for experts preparing reported data and those providing data and metadata in the national spatial data infrastructures (INSPIRE), by addressing the above-described issues:

- Metadata:
 - Applicability of all relevant keywords of priority datasets for e-Reporting, including those representing content of the dataset and its known use in reporting obligations,
 - Temporal reference by promoting use of temporal extent. This appears as the most plausible candidate since this is the criteria addressed by the legislation and could cover time series of data covering different reporting years.
 - Indicating reporting year in other metadata elements, e.g.:
 - Resource title
 - Resource abstract
 - Keyword (potential synergies with information on reporting obligations and deadlines in ROD),
- Mapping between the priority list of datasets and corresponding INSPIRE spatial data themes:
 - The mapping will be useful for providing metadata, and it could be extended to reflect more detailed information about expected INSPIRE application schemas or spatial object types in cases, where the harmonisation with INSPIRE data models has been concluded.

1.2.1 Proposed measures

The heterogeneity of ways how temporal references are provided in INSPIRE metadata for datasets and possibility to update datasets before or after the reporting deadlines show difficulties to define a measure that could accurately monitor availability of datasets used in the reporting obligation. On the other side, the reporting data flow process keeps time information of reported or resubmitted data.

Therefore, forming appropriate measures for temporal information needs further discussion.

However, it would be useful to develop guidelines (mentioned above) how to provide information about the reporting obligations and years in the INSPIRE metadata, and mapping between the priority datasets for e-Reporting and the INSPIRE spatial data themes. Such guidelines would be useful support to experts preparing reporting guidelines, reported data or making datasets available according to INSPIRE.

1.3 Target 3: INSPIRE data model harmonisation

Target 3: Priority datasets should be made available under harmonised conditions (including relevant application 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.

1.3.1 Proposed measures

Forming appropriate measures for monitoring INSPIRE data model harmonisation progress requires further discussion.

One way of monitoring the progress of this target is through the proposed new functionalities of the INSPIRE Geoportal which could present such information on the level of spatial objects types included in the datasets and compared with the requirements of the IR on Interoperability. However, this task might become more demanding with implementation of different alternative encodings.

2 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/>
 - 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)
 - Deployment of the EU translation service (English) for titles and abstracts of MD of MS data sets
 - Including spatial scope coverage (national or regional territory) at country information level

- 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>