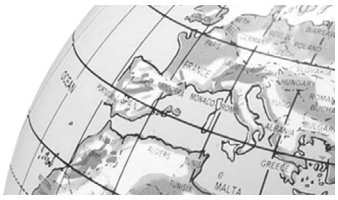
GEODECISION 2019
for Sustainable Communities
9-11 October
Porto | Portugal



The Role of Data Harmonization in the Implementation of Environmental Framework Directives

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Key words:: Environmental Directives, INSPIRE Directive, Data Harmonization, Geodata Specifications

1 ABSTRACT

The implementation of EU environmental Framework Directives by the member states needs reliable data (with sufficient accuracy and resolution), updated at intervals that enable the detection of change, supporting comparable analysis, including indicators, and accomplishing regular reporting obligations, from different member states, across Europe. One strategy to achieve comparability between data from different countries is the adoption of ISO and similar international standards as well as standard common data specifications (e.g. INSPIRE data specifications)by different countries and, based on that data, the creation of the respective indicators for reporting obligations.

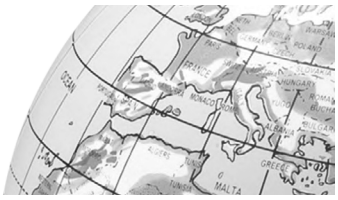
The present work combines the experience acquired within the EU funded research projects: eENVPlus, SmartOpenData and, more recently, NitroPortugal. The same approach was also applied in the FCT (Fundação para a Ciência e Tecnologia) funded project Forland. These projects have demonstrated the relevance of the approach to enable the comparison of results involving data from different origins and point out the relevance of data quality and its documentation to progressively assess knowledge.

The performed data quality analysis includes the experience of integrating different existing data sources from official data providers using official Data Specifications in order to monitor the compliance to the Water Framework Directive. On a second stage this also involves the creation of demonstration examples whose purpose is to enable the general community to perceive the relevance of understanding data quality and data constraints in supporting governance.

One objective of the project Forland is to create hydro-geomorphological risk profiles within Portuguese municipalities in order to promote disaster risk management involving stakeholders, adaptation strategies to disaster risk reduction and guidelines for spatial planning.LULC and Forest Fires risk assessment is one of the issues addressed. The project NitroPortugal has the goal to promote innovation related to the study of ways to deal with excess reactive nitrogen, namely regarding excessive nitrate concentration in water including drinking water catchments.

The case study used was based on the hydrographic basin of the Castelo de Bode dam. First, the hydrographic network, was modeled, according to the INSPIRE data specifications, and the recent work of restructuring Portuguese base geodata specifications was also included in the approach. Harmonized data were combined by integrating time series, covering different subjects. These datasets were integrated and constraints such as data quality and fit for purpose, where explored to better understand pollution impact over time and water contamination risk considering territorial policies and territorial changes, and costs involved.

The rationale for the restructuring process, and to all the analysis performed, consisted of adapting existing technical specifications and promote data quality increase according to current needs of existing public and private users(E.g. government, municipalities and water supply companies) and to incorporate the developments that took place in recent years, namely with the publication of the INSPIRE data specifications and the restructuring of Portuguese, large scale, geodata specifications.



The process used involves mapping the objects in the former specifications and structures requiredto model the objects according to new ISO based data structures.

This communication presents the results of implementing these data structures, and further data quality evaluation, in the context risk of contamination in sensitive areas, namely studying nitrate increase in drinking waters,using,among others, the new modeling of hydrography adopted in the recently published Portuguese large scale geodata specifications.

The results of these data specifications implementation, leads to a data quality evaluation taken in different contexts, that clearly demonstrates the relevance of understanding existing data quality, and efforts that have to be made, including the necessary funding to increase relevant and accurate data gathering to support reporting and legal framework discussion and implementation among different states.

This work points out that, in order to progress in true knowledge, available data has to be well documented, quality well described, and efforts to increase fit for purpose of existing data in line with the information quality requirements needed to properly address complex problems, namely risk analysis within environmental protection and costs and benefits allocation to achieve effective socioeconomic growth.

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