

Towards a Directive Establishing an Infrastructure for Spatial Information in Europe (INSPIRE)

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SUMMARY

The paper describes the background to, the key objectives, and the current process being established for the development of a European Spatial Data Infrastructure to support environmental policies and policies or activities which may have a direct or indirect impact on the environment. This infrastructure (INSPIRE) has been the subject of an intense collaborative process over the last three years, leading to a proposal for a legislative framework adopted by the European Commission in June 2004. This proposal, which foresees an infrastructure based upon those established and operated by the Member States, is currently being discussed by the European Parliament and the Council. During the co-decision-making process to approve this proposal, the European Commission has already launched a series of initiatives aimed at drafting the rules that will be required to guide the implementation of this legislative framework. The paper describes the key components of INSPIRE: metadata, spatial data themes and services; technology, policy agreements, coordination and monitoring procedures, as well as the process being established to include wide sectors of the GI community across Europe.

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1. INTRODUCTION

1.1 Statement of the Problem

There is an increasing recognition that some of the main challenges of modern society such as protecting human health and well-being and the environment, increasing security, improving transport, socially just development, and enhanced services to citizens require decision-makers to identify where need is most pressing, and means to effectively target intervention, monitor outcomes, and assess impacts. For all these tasks, geographic information is crucial. Such information must not only exist, but it must be easy to identify who has it, whether it is fit for the purpose at hand, how it can be accessed and integrated with other information. It is therefore necessary to have in place *a framework of policies, institutional arrangements, technologies, data and people, that enables sharing and effective usage of geographic information*. The term Spatial Data Infrastructure (SDI) encapsulates such framework. The importance of an SDI for good governance, economic, and social development, has lead most countries in the world to engage in the process of developing such infrastructures. A survey completed in December 2001, indicates that 120 of the 192 nations in the world are working on their national spatial data infrastructure, with half having already established catalogues of key data resources searchable on the Web (Crompvoets and Bregt 2002). Whilst there is clearly a lot of variability on the extent and quality of such endeavours, this finding indicates that SDIs are not just a luxury of wealthy nations, but a perceived strategic development for both developed and developing countries. The establishment of GSDI as an organization, and the convening of this 8th Conference in Cairo are further evidence of the global nature of the needs underpinning the development of SDIs worldwide.

In Europe, most countries are in the process of developing SDIs at national and/or regional/local levels (see Craglia et al. 2003, and Van Horshoven 2004). There are world-class examples of best practice, side by side with very patchy developments that have only recently started to make some visible progress. These variations are partly a function of the institutional and cultural heterogeneity of Europe, but also of the varying levels of awareness and political support that exist across the continent. As Europe becomes economically and socially more integrated, there is also a growing recognition that some of the processes that need to be addressed at a Europe-wide scale, such as environmental change, security, transport, and social cohesion, require Europe-wide frameworks of spatial data with at least some minimum common denominator across all countries. It is with these considerations in mind, that the INSPIRE initiative was launched in 2001 by the European Commission.

1.2 The INSPIRE Initiative

INSPIRE aims at overcoming the following main barriers inhibiting the widespread use of spatial information to support governance in Europe:

- inconsistencies in spatial data collection: spatial data are often missing or incomplete or vice versa the same data are collected twice by different organisations,
- lacking documentation: description of available spatial data is often incomplete,
- spatial data sets not compatible: spatial data sets can often not be combined with other spatial data sets,
- incompatible geographic information initiatives: the infrastructures to find, access and use spatial data often function in isolation only,
- barriers to sharing and re-use: cultural, institutional, financial and legal barriers prevent or delay the use of existing spatial data.

The overall objective of INSPIRE is to make harmonized and quality spatial information readily available to support environmental policies and policies or activities which may have a direct or indirect impact on the environment in Europe.

From the outset of this initiative it was recognized that to overcome some of the barriers highlighted above it would be necessary to develop a legislative framework requiring Member States to coordinate their activities and agree on a minimum set of common standards and processes. This in turn requires the wide support of the Member States to the objectives of INSPIRE. Therefore, a very collaborative process was put in place to formulate the INSPIRE proposal. This process in particular involved the establishment of an Expert Group with official representatives of all the Member States, and Working Groups with expertise in the fields of environmental policy and geographic information to formulate proposals and forge consensus. From this process, it was agreed that the key principles of INSPIRE are:

- that spatial data should be collected once and maintained at the level where this can be done most effectively,
- that it must be possible to combine seamlessly spatial data from different sources across the EU and share it between many users and applications,
- that it must be possible for spatial data collected at one level of government to be shared between all the different levels of government
- that spatial data needed for good governance should be available at conditions that are not restricting its extensive use,
- that it should be easy to discover which spatial data is available, to evaluate its fitness for purpose and to know which conditions apply for its use.

Following three years of intensive consultation among the Member States and their experts, a stakeholders consultation, and the assessment of the likely impacts of INSPIRE (see <http://inspire.jrc.it>), the European Commission adopted the INSPIRE proposed Directive in July 2004 (CEC, 2004). This proposal is currently going through the co-decision procedure of

the European Union which requires the joint approval of the European Parliament, which is directly elected by European citizens, and the Council, which represents the Member States. It is envisaged that this process will take up to two years, and that therefore the INSPIRE proposal might come into force in 2007. Once INSPIRE will enter into force, each Member State will have two years to adopt the national legislation necessary to achieve its objectives, the so-called Transposition phase. Hence, to become a fully implemented Community Directive, INSPIRE will pass through three distinct phases: Preparatory (2005-2006), Transposition (2007-2008) and Implementation (2009-2013).

The INSPIRE proposal lays down general rules for the establishment of an infrastructure for spatial information in Europe based on infrastructures for spatial information established and operated by the Member States. The component elements of those infrastructures include:

- metadata,
- key spatial data themes (see Table 1) and spatial data services;
- network services and technologies;
- agreements on sharing, access and use;
- co-ordination and monitoring mechanisms,
- process and procedures.

Table 1 - INSPIRE spatial data themes

<p>Annex I</p> <ol style="list-style-type: none"> 1. Coordinate reference systems 2. Geographical grid systems 3. Geographical names 4. Administrative units 5. Transport networks 6. Hydrography 7. Protected sites <p>Annex II</p> <ol style="list-style-type: none"> 1. Elevation 2. Identifiers of properties 3. Cadastral parcels 4. Land cover 5. Orthoimagery 	<p>Annex III</p> <ol style="list-style-type: none"> 1. Statistical units 2. Buildings 3. Soil 4. Geology 5. Land use 6. Human health and safety 7. Government service and environmental monitoring facilities 8. Production and industrial facilities 9. Agricultural and aquaculture facilities 10. Population distribution – demography 11. Area management/restriction /regulation zones & reporting units 12. Natural risk zones 13. Atmospheric conditions 14. Meteorological geographical features 15. Oceanographic geographical features 16. Sea regions 17. Bio-geographical regions 18. Habitats and biotopes 19. Species distribution
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Member States will have to implement different measures to have these components into place. Some of these measures will be implemented directly by the Member States, while others require more detail which will be formulated in so called ‘Implementing Rules’. INSPIRE requires the formal adoption of those Implementing Rules by the Commission following the “Comitology Procedure”¹. The regulatory nature of the Implementing Rules requires the Commission to present them to a Regulatory Committee of Member States representatives, referred to as the INSPIRE Committee, which will officially start its activities at the beginning of the Transposition Phase. In order for Member States to be able to respect the roadmap for the implementation of INSPIRE, those Implementing Rules must be available in due time. Hence, in parallel to the Co-Decision Procedure started in 2004, the Commission has initiated a series of actions to prepare the draft Implementing Rules.

2. THE INSPIRE REQUIREMENTS

On the basis of the INSPIRE Roadmap, first priority should be given to Implementing Rules expected to be adopted in 2007 and in addition priority is also given to Implementing Rules expected to be adopted in 2009 but requiring significant efforts. Table 2 below summarizes the INSPIRE Milestones (based on the entry into force of INSPIRE in 2007).

Table 2 - INSPIRE Milestones

Milestone	Milestone	Description
2007	X	Entry into force of INSPIRE Directive
2007+3m	X+3months	Establishment of the INSPIRE Committee
2007	X+1 years at the latest	Adoption of Implementing Rules for the creation and up-dating of the metadata Adoption of Implementing Rules for network services Adoption of Implementing Rules on third parties use of the upload services Adoption of Implementing Rules for monitoring and reporting Adoption of Implementing Rules governing access and rights of use to spatial data and services for Community institutions and bodies
2009	X+2 years at the latest	Adoption of Implementing Rules for the use of spatial data sets and services by third parties
2009	X+2 years	Adoption of Implementing Rules for harmonised spatial data specifications and for the exchange of Annex I spatial data
2009	X+2 years	Provisions of Directive are brought into force in MS (transposition date)
2009	X+2 years	Designation of responsible public authorities for spatial data sets and services
2009	X+2 years	Implementation of sharing framework of spatial data sets and services between public bodies

¹ Council Decision (1999/468/EC) Official Journal L 184/23, 17.7.1999, “laying down the procedures for the exercise of implementing powers conferred on the Commission”.

2009	X+2 years	Implementation of provisions on monitoring
2009	X+2 years	Network services are operational
2010	X+3 years	Metadata available for spatial data corresponding to Annex I and Annex II spatial data
2010	X+3 years	Member States' First Report to the Commission. From then onwards MS have to present reports every 3 years
2011	X+4	New or updated spatial data sets available in accordance with Implementing Rules for harmonised spatial data specifications and exchange for Annex I spatial data
2012	X+5	Adoption of Implementing Rules for harmonised spatial data specifications and for the exchange of Annex II and Annex III spatial data
2013	X+6	Metadata available for Annex III spatial data
2014	X+7	New or updated spatial data sets available in accordance with Implementing Rules for harmonised spatial data specifications and exchange for Annex II and Annex III spatial data
2014	X+7	Commission's report to the EP and the Council. From then onwards the Commission has to present reports every 6 years

The following sections describe the INSPIRE requirements for each of these key components, and the participative process envisaged for their preparation.

2.1 Metadata Requirements

INSPIRE will require the Member States to create comprehensive metadata of a defined quality for spatial data sets and services, and to keep them up-to-date. The metadata will have to be created by the Member States within 3 years from the entry into force of INSPIRE for the Annex I and II spatial data themes and within 6 years for the data themes listed in Annex III. To meet this timetable, it will be necessary to agree on the following:

- Rules for the creation, maintenance and updating of metadata
- Multilingual issues in the creation and maintenance of metadata
- Certification, Quality, Accuracy for the described resources, (Multilingual) thesauri to be used as a common vocabulary for metadata content (e.g. GEMET, EuroDicAutom)
- Standards to be followed for publishing metadata.

2.2 Spatial Data Harmonisation Requirements

Implementing Rules regarding the interoperability of spatial data sets and services will take the form of:

- Harmonised data specifications
- Arrangements for the exchange of spatial data.

For all spatial data in Annex I, II, III the harmonised data specifications will cover the definition and classification of the spatial objects relevant to the spatial data and the way in which they are geo-referenced. In particular for Annex I, and II data, the Implementing Rules need to address the following harmonisation and exchange aspects of spatial data:

- a common system of unique identifiers for spatial objects;
- the relationship between spatial objects;
- the key attributes and the corresponding multilingual thesauri commonly required for a wide range of thematic policies;
- the way in which information on the temporal dimension of the data is to be exchanged;
- the way in which updates of the data are to be exchanged.

2.3 Network Services and Interoperability Requirements

The Directive will require Member States to establish and operate a network of the following services for the spatial data sets and metadata:

- Upload services;
- Discovery services;
- View services;
- Download services;
- Transformation services,
- “Invoke spatial data services” services.

Those services must be easy to use and accessible via the Internet or any other appropriate means of telecommunication available to the public. To facilitate this process, the Commission will develop an EU geo-portal, a prototype of which is already being tested (see Bernard et al. 2005).

2.4 Data Sharing and Re-Use Requirements

INSPIRE requires Member States to adopt measures for the sharing of spatial data sets and services between Public Authorities two years after the entry into force of the Directive. The Implementing Rules therefore will have to address the following:

- Requirements of Community institutions and bodies, requirements of third parties
- Current types of rights, such as rights of ownership, rights of use, copyright
- Types of access, such as retaining, sharing and trading
- Types of use, such as discover, view, download
- Current best practices and models for data policies.

It is also envisaged that the Implementing Rules will need to address the requirements on third parties wishing to contribute to the INSPIRE infrastructure with their own data and services as well as the rules necessary to enable access and re-use of the INSPIRE services by third parties.

2.5 Co-Ordination and Complementary Measures (Monitoring, Reporting)

Because INSPIRE builds on the spatial data infrastructures at national and regional level established by the Member States, the Directive requires Member States to designate a public authority responsible for contact with the Commission, and appropriate structures and mechanisms for coordinating the contributions of all stakeholders, including identification of needs, provision of information on practices and feedback on the implementation of INSPIRE.

3. ORGANISATIONAL STRUCTURES AND PROCESS

The development of the INSPIRE Implementing Rules requires the participation of many stakeholders across Europe. In some cases this is made easier by the existence of well organised groups representing particular constituencies. In other cases however this is not the case and it is more difficult to identify who to engage and how. For this purpose, the concept of Spatial Data Interest Communities (SDIC) has been introduced.

3.1 The Concept of Spatial Data Interest Communities

The process of developing the INSPIRE Implementing Rules, can be approached as a network of Spatial Data Interest Communities, organised by region, by societal sector and thematic issue, each with participating data providers and users exploiting spatial data.

Spatial Data Interest Communities bundle the human expertise of users, producers and transformers of spatial information, technical competence, financial resources and policies, with an interest to better use these resources for spatial data management and the development and operation of spatial information services. Through their activities they drive the demand for spatial data and spatial information services.

Stakeholders form specific Spatial Data Interest Communities through their common interest on one or more of the following aspects:

- data themes (see Table 1))
- spatial information services
- legal and procedural issues (data policy, monitoring, ...)
- sectors in society (public services, private sector, research institutions ...)
- role in the processing chain (legal mandates concerning data management, users, providers, interdisciplinary GI-associations, umbrella organisations ...)
- status and approach in the Member States SDI development (according to the typology from the State of Play study)
- geographic extent / authority level (EU-25 +EFTA, national, regional...).

Spatial Data Interest Communities naturally form strategic partnerships: public-public, public-private and private-private partnerships, aligning their demand for spatial data and services, together with their investments.

Environmental monitoring, reporting and development of applications and services for environmental management in the context of European regulatory obligations and international conventions are among the main driving forces behind the natural formation of Spatial Data Interest Communities. These activities make users, producers and custodians of spatial data jointly engaged in the development of rules for metadata, common data models and content standards, exchange and use policies, and service architectures.

At national and regional (i.e., sub-national) levels spatial data infrastructures, including strategies and organisational structures are being put in place to tackle similar issues, with a growing recognition that agreements should preferably cross administrative and juridical boundaries.

For particular themes, such as meteorology, hydrography, oceanography, bathymetry, navigation etc., Spatial Data Interest Communities already exist, with often a long standing history in the development of agreed common data formats, standards, use agreements, etc. applicable in some instances far beyond the boundaries of the European Union.

It should however be recognized that not one single of the above Spatial Data Interest Communities can claim to be the single source for INSPIRE Implementing Rules which must satisfy the needs of many different uses of spatial data in applications where typically several different types of spatial data are combined. Each Spatial Data Interest Community will therefore have its role to play in the collaborative framework leading to these rules.

3.2 The Role of Spatial Data Interest Communities

The INSPIRE Implementing Rules will have an impact on the way Spatial Data Interest Communities will manage their spatial data and associated services. Through the Spatial Data Interest Communities, INSPIRE offers a unique opportunity to tune all stakeholders to a more consistent sharing of GI resources. The Spatial Data Interest Communities support is therefore paramount and such support can only be gained if the Spatial Data Interest Communities are involved in the design, review, testing and implementation of the draft Implementing Rules relevant to their community.

The design of the more technical Implementing Rules, both for spatial data and services requires expert knowledge and extensive testing and validation. Such expertise is available in the different Spatial Data Interest Communities, and needs structuring in a comprehensive and pragmatic organisational and procedural framework. Such a framework should allow experts from different Spatial Data Interest Communities to work together on draft Implementing Rules for spatial data themes in which they have a common interest, while equally they should foster the interoperability of services across the borders of their community, as what they have to offer may equally be of interest to others.

The roadmap for the development and implementation of the INSPIRE Implementing Rules is clear in setting a number of priorities and deadlines. However, as the timing set forward by

the INSPIRE proposal is to a large extent driven by feasibility constraints for developing Implementing Rules for a number of Spatial Data themes and services, it seems unavoidable that at the launch of the development of the Implementing Rules, the majority of the Spatial Data themes and services will have to be addressed, albeit with different milestones. Furthermore, it must be considered that the development of Spatial Data standards, metadata profiles etc. does not start from scratch. Many Spatial Data Interest Communities already engage in such activities and it is consequently of paramount importance to associate them as early as possible in the process.

The different roles of the Spatial Data Interest Communities in the drafting, reviewing and testing of the Implementing Rules can therefore be summarized as follows:

- to identify and describe user requirements (to be understood as in line with environmental policy needs, as opposed to “maximum” requirements beyond the scope INSPIRE and beyond realistically available resources.);
- to provide expertise to INSPIRE Drafting Teams;
- to participate in the review process of the draft Implementing Rules;
- to develop, operate and evaluate implementation pilot;
- to develop initiatives for guidance, awareness raising and training in relation with the INSPIRE implementation.

3.3 Organising the Interaction with the Spatial Data Interest Communities

A generic procedure in a number of phases, co-ordinated by the Commission services and in regular consultation with the INSPIRE Expert Group, is adopted allowing for the participation of the Spatial Data Interest Communities in the drafting and review of the Implementing Rules. The process envisages three distinct phases:

The Association Phase is the phase in which the European Commission will organise a *call for expression of interest to Spatial Data Interest Communities*. The Spatial Data Interest Communities will be invited to state their level of interest to the development process. Various options are open: allocation of experts to the drafting, submission of reference material as an input to the drafting, participation to the review process. On the basis of the inputs received, and in function of the INSPIRE requirements an organisational structure of technical and procedural Drafting Teams will be set up. In addition, it is important to identify relevant research and development projects in an early stage to profit from existing work. For this purpose a specific *call for expression of interest for projects* will be launched.

A Drafting Phase, in which Drafting Teams composed of a limited number of selected, highly qualified experts from the Spatial Data Interest Communities, will prepare draft Implementing Rules under the co-ordination of the Commission services. The experts will benefit from the reference material received from the Spatial Data Interest Communities in the Association Phase. The activities and outputs of the Drafting Teams will be co-ordinated by the Commission through a Consolidation Team where each Drafting Team will be represented. The Consolidation Team will cross-check interdependencies between the draft

Implementing Rules and assure the necessary co-ordination to maintain coherence. Interaction with projects to provide further input and pilots for validation of the draft Implementing Rules is foreseen. International and national standardisation bodies, and similar organisations, will be closely associated.

A Review Phase, in which the produced draft Implementing Rules will be submitted firstly to those Spatial Data Interest Communities associated to the development process. The results of this review may lead to a number of iterations of the drafting and review cycle. Following review by the Spatial Data Interest Communities the organisations which are legally mandated in the Member States to conduct Spatial Data Infrastructure activities are invited to verify the implications and impact of the draft Implementing Rules on their organisations and the feasibility of the implementation as an integrated part of their operational public tasks. Such may involve direct interaction at the level of legally mandated steering committees for national/regional SDI development initiatives to avoid duplication of efforts while ensuring compatibility of the various initiatives already in an early stage. Note however that the Legally Mandated Organisations, through the nature of their activities, should normally be part of the Spatial Data Interest Communities and therefore closely involved already in the Drafting Phase.

A Public Consultation Phase, allowing for a public review of the draft Implementing Rules, giving the opportunity to all stakeholders, not necessarily organised within one of the Spatial Data Interest Communities to express their views. In function of the result of the public review further fine-tuning of the draft Implementing Rules can be envisaged whereby an accelerated iteration of drafting and review phases is possible. In case the participative approach as described above leads to conflicting interests between different SDICs, which would not get solved within the drafting and review process, it will be up to the Commission to propose a draft Implementing Rule. The Member States will then decide on the proposed draft Implementing Rule through their representation in the future INSPIRE Committee.

3.4 INSPIRE and GI Standardization Initiatives

The interoperable spatial data and spatial services envisaged by the INSPIRE proposal are achieved by all stakeholders adopting and implementing common standards and specifications detailed in the Implementing Rules. It is recognized that the more the software industry supports these standards in its products, the easier it will be for those responsible for the implementation of INSPIRE to make systems in the Member States comply with the standards, thus improving the cost-effectiveness of the implementation of the Directive. In addition to the generic information and communication technology standardisation efforts, there are currently three consensus building organisations dealing with GI and GIS interoperability that have the industry's attention: the International Organization for Standardisation (ISO), dealing with GI in ISO/TC211; the European Committee for Standardisation (CEN) with TC287, working in close collaboration with ISO/TC211; and the OpenGeospatial Consortium (OGC). The value of the contribution of the above-mentioned organisations is recognized, and the standards and specifications that they produce will be considered as reference material in the drafting process.

4. IMPLEMENTING INSPIRE IN THE BROADER CONTEXT

The implementation of INSPIRE needs to be considered in the broader context of two major initiatives, the Global Monitoring for Environment and Security, GMES² initiative of the European Commission and European Space Agency, and the initiative of the international Group on Earth Observations, GEO³, launched in 2003. Both initiatives are important to the INSPIRE implementation as they emphasise the need for improved data integration and information management in the context of the development of operational Earth monitoring through observations from space and in-situ networks. GMES and GEO have received the highest political backing and the resources made available already contribute to the financing of several INSPIRE related development activities.

INSPIRE will therefore constitute the EU's co-ordinated contribution both to GMES and GEO and close collaboration between the management structures of INSPIRE and those of the different programmes needs to be assured in order to avoid duplication of efforts and steer efficiently the deployment of the resources. The GMES and GEO programmes will facilitate exchanges of best practices and information and the collaboration on standards and specifications with other regional initiatives such as the US National Spatial Data Infrastructure, NSDI⁴, the Canadian Geo-Connection programme, CGDI⁵, Australia – New-Zealand ANZLIC⁶ SDI, etc...

The development of Spatial Data Infrastructures, SDI allowing the sharing and exchanging of data and information across thematic, administrative and juridical boundaries using interoperable networked services, is indeed recognised by a wide range of communities active on a global scale in application domains ranging from natural risk management, to biodiversity conservation, to climate change monitoring. The implementation of INSPIRE needs therefore to consider this broader context of global initiatives which aim to foster the development of a local to global SDI capacity in support of sustainable development goals. Especially where such initiatives have established, or are developing, network services, harmonised data specifications, and data exchange and sharing agreements, an interaction with the INSPIRE implementation will be necessary.

The need for global action is illustrated by the “The Second Report on the Adequacy of the Global Observing Systems for Climate in Support of the UNFCCC”⁷ published in April 2003. This report points out repeatedly that with respect to almost all of the variables, the record of many Parties in providing full access to their data is poor. Indeed, most Parties appear to be unaware of their performance in this respect and this despite of the binding nature of Decision

² <http://www.gmes.info/>

³ <http://earthobservations.org/>

⁴ <http://www.fgdc.gov/index.html>

⁵ <http://www.geoconnections.org/>

⁶ <http://www.anzlic.org.au/>

⁷ http://www.wmo.ch/web/gcos/Executive_Summary.pdf - prepared by the Global Climate Observing System (GCOS) Secretariat .

14/CP.4⁸ of the Conference of the Parties to the Kyoto Protocol which urges parties to undertake free and unrestricted exchange of data to meet the needs of the Convention. INSPIRE can be seen on a global scale as a regional (i.e. a supra-national) initiative responding to the criticism raised in the UNFCCC adequacy report, as both the technical and procedural dimensions of how the data under the scope of INSPIRE, and identified also in the UNFCCC adequacy report, will be shared between public sector organisations and third parties in the European Union.

It is important to recognise that already a wide variety of organisations both in the EU and at a global level (such as GSDI) have been establishing more or less binding agreements and partnerships on data exchange, sharing, formats and specifications, with varying degrees of success. In many cases networked services are being put in place or are under development. To these organisations, of which various EU Member States are member, the proposal for a Directive can either be seen as a threat, as it may interfere with their activities or, as the opportunity to bring their agreements under a binding legal framework hereby breaking down any remaining barriers still impeding the most efficient use of the spatial data under their custodianship. The association of those organisations to the development of both the technical and more procedural Implementing Rules will be necessary to avoid duplication and confusion, while at the same time building upon and strengthening what has been already achieved. The European Commission Services which are tasked with the co-ordination of the implementation of INSPIRE will seek through the procedures described in the previous sections to associate these organisations to the development of INSPIRE.

5. CONCLUSIONS

Building and sustaining a SDI is not an easy task in any setting, requiring a combination of technical, financial, human, and above political resources. The richness and diversity of Europe make this task all the more challenging, and the only way forward is to involve as much as possible all the relevant stakeholders so that the process of building and maintaining the infrastructure is shared and “owned” across all the constituencies. INSPIRE is attempting to develop an infrastructure from the bottom up base on the many efforts already being made at national and regional level across Europe and the common awareness that the stewardship of the European environment is a common endeavour which transcends national boundaries. Learning for others and sharing experience is the second main pillar of the INSPIRE initiative, and for this reason we are particularly happy to participate in GSDI8 in Cairo.

⁸ <http://unfccc.int/resource/docs/cop4/16a01.pdf>

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