



INSPIRE  
Infrastructure for Spatial Information in Europe

## **Member State report: Greece, 2013**

---

<b>Title</b>	Member State report: Greece, 2013
<b>Creator</b>	Eleni Grigoriou
<b>Date</b>	
<b>Subject</b>	Three-year progress report on the implementation of Directive 2007/2/EC (INSPIRE) for reference years 2010-2012
<b>Status</b>	
<b>Publisher</b>	Hellenic Mapping and Cadastral Organisation
<b>Type</b>	
<b>Description</b>	
<b>Contributor</b>	Olga Vlachou, Asimina Peleki
<b>Format</b>	
<b>Source</b>	
<b>Rights</b>	
<b>Identifier</b>	
<b>Language</b>	Greek
<b>Relation</b>	
<b>Coverage</b>	

---

These are Dublin Core metadata elements. See for more details and examples <http://www.dublincore.org/>

Version number	Date	Modified by	Comments
0.1	10.4.2013	Elena Grigoriou	Shaping the structure of the report, writing the first modules.
0.2	8.5.2013	Elena Grigoriou	Completion of the first version of the report.
0.3	12.5.2013	Mina Peleki	Comments and corrections to the text
0.4	13.5.2013	Olga Vlachou	Addition of statistical data, comments.
1.0	14.5.2013	Elena Grigoriou	Final version.



7.2.4	<i>Negative results from the implementation of Law No 3882/2010 and of the INSPIRE Directive</i> .....	52
<b>8</b>	<b>CONCLUSIONS AND PROPOSALS FOR IMPROVING PRACTICES</b> .....	<b>54</b>
8.1	PROPOSALS FOR THE IMPROVEMENT OF NGII COORDINATION AND MANAGEMENT .....	54
8.2	PROPOSALS FOR THE EFFECTIVE DEVELOPMENT AND OPERATION OF THE NGII.....	56
8.3	PROPOSALS FOR THE IMPLEMENTATION OF SHARED USE AND THE FACILITATION OF SPATIAL INFORMATION SHARING, IN THE CONTEXT OF THE NGII.....	57
8.4	ANALYSIS OF THE PROCESS OF MONITORING AND REPORTING AND IMPROVEMENT PROPOSALS .....	57
<b>9</b>	<b>ANNEX</b> .....	<b>59</b>
9.1	PROJECT DATA, DESCRIPTION AND TIME SCHEDULE “NATIONAL GEOSPATIAL INFORMATION INFRASTRUCTURE” .....	59
9.2	ESTABLISHING A FCP NETWORK, INFORMING, AWARENESS-RAISING AND TRAINING OF INVOLVED PARTIES.....	60
9.3	Establishment and operation of the NCG .....	63
9.4	NATIONAL LIST OF GEOINFORMATION AND MONITORING OF THE IMPLEMENTATION OF THE INSPIRE DIRECTIVE (MONITORING).....	64

## Executive summary

This report concerns the implementation of Directive 2007/2/EC (INSPIRE) by the Greek government, after its transposition into national law with the adoption of Law 3882/2010, and relates to the period 2010 - 2013.

It was prepared in accordance with the provisions of the Directive and of Commission Decision 2009/442/EC. The reporting template proposed by the EU INSPIRE team and the instructions and guidelines provided during workshops and meetings at European level were used as much as possible.

Regarding the implementation of the INSPIRE Directive, it should be noted that there is a particularity in the case of Greece; to date, no national infrastructure for spatial information, which should comply with the specifications issued under the INSPIRE Directive for achieving interoperability at European level, has been developed. The first efforts to develop and operate the National Geospatial Information Infrastructure started from 2010 onwards, with the adoption of Law 3882/2010. Therefore, regarding the period covered by this report, in many cases it is not easy to refer to actions and operations relating only to the implementation of the Directive. Our national infrastructure is developed during this period and all necessary measures are taken so that we achieve interoperability and full compliance with the provisions and technical specifications issued for the development of the relevant European infrastructure.

## 1 Abbreviations & Acronyms

Decision 2009/442/EC	Commission Decision 442 of 5 June 2009 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting.
API	Application Programming Interface
PAs	Public Authorities
PA	Public Administration
MB	Management Board
EU	European Union
NCG	National Committee for Geoinformation
EKDDA	National Centre for Public Administration and Local Government
FS/OSS	Free Software / Open-Source Software
NGP	National Geoinformation Policy
EPDGY	National Framework for Geoinformation and Services Interoperability
NGII	National Geospatial Information Infrastructure
INEP	Training Institute
Regulation No 1205/2008	Commission Regulation (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata (and the relevant Corrigendum issued on 15.12.2009).
Regulation No 268/2010	Commission Regulation (EU) No 268/2010 of 29 March 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards the access to spatial data sets and services of the Member States by Community institutions and bodies under harmonised conditions.
Operation regulation	
NCG	Decision of the Minister for the Environment, Energy and Climate Change, No 15044, on the Approval of the Operation Regulation of the National Committee for Geoinformation (NCG), Government Gazette, Series II, No 832/2011
IOC TF	Initial Operation Capability Task Force
FCP	Focal Contact Point
JMD	Joint Ministerial Decision

---

Law 1647/1986	Law No 1647 “Hellenic Mapping and Cadastral Organisation (HEMCO) and other relevant provisions” Government Gazette, Series I, No 141/1986
Law 3852/2010	Law No 3852 “New architecture of Local Authorities and Decentralised Administration – Kallikratis plan”, (Government Gazette, Series I, No 87/2010
Law 3882/2010 or law	Law No 3882 “National Geospatial Information Infrastructure - Compliance with Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 and other provisions. Amendment of Law 1647/1986 “Hellenic Mapping and Cadastral Organisation (HEMCO) and other relevant provisions” (Government Gazette, Series I, No 141).”, Government Gazette, Series I, No 166/2010
Law 3979/2011	Law No 3979 “On eGovernment and other Provisions”, Government Gazette, Series I, No 138/2011
PLP	Legal Person governed by Public Law
WG	Working Group
INSPIRE Directive or Directive	Directive 2007/2/EC
HEMCO	Hellenic Mapping and Cadastral Organisation
ICT	Information and Communications Technologies
YEA	Ministry of Defence
YPEKA	Ministry of Environment, Energy and Climate Change
Minister for PEKA	Minister for Environment, Energy and Climate Change
YPESAID	Ministry of Interior, Decentralisation and Electronic Governance

## 2 Introduction

### 2.1 Background

The INSPIRE Directive was transposed into national law with the adoption of Law 3882 on September 22, 2010 (Government Gazette, Series I, No 166). The particularity of Greece, as compared with other countries - EU Member States, was that, until that moment, no national infrastructure for geospatial information had been developed. The Greek government would have to ensure the compliance of this infrastructure with the requirements of the Directive at a technological, administrative and institutional level.

Until 2010, the geoinformation produced in the country was based on *ad hoc* requirements, thus creating geoinformation to cover the individual needs of each agency. This led to the production of significantly heterogeneous geospatial data, mostly on a technological (different patterns, shapes, data formats, etc.), spatial (different projection systems, different reference backgrounds, etc.) and legal (different rules for disposal and reuse or complete absence of rules) level.

Moreover, the informal practice that a military, i.e. the Hellenic Military Geographical Service (HMGS) of the Ministry of National Defence (YEA), and not a civilian service, would undertake the mapping of the country, has created major obstacles to sharing and to the access to important cartographic information that has been produced.

In 1986, the Greek government acknowledged the need for a public civilian body which would be competent for preparing, keeping and updating the single cadastre, for the geodetic coverage and mapping of the country, the inventory and mapping of natural resources and the creation of a land and environment database. On these grounds, the Hellenic Mapping and Cadastral Organisation (HEMCO) was established, with the adoption of Law 1647/1986.

The lack of appropriate information infrastructure for space, as defined in international bibliography, i.e. of a system of technologies, data, documentation, rules and requirements for the production, preservation, sharing and disposal of public geoinformation produced in the country, in combination with the obligation to transpose the Directive, was transformed from a disadvantage into an important opportunity. With the adoption of Law 3882/2010, Greece acquired the institutional tool for the creation of the National Geospatial Information Infrastructure (NGII). The scope of the INSPIRE Directive was extended, so as to include all the information directly or indirectly associated with space and in digital or analogue form.

Law 3882/2010 also enhanced and expanded HEMCO's role, which currently, approximately 30 years after the organisation was established, becomes more relevant and, with today's technological means, can be performed effectively.

The development of the NGII requires careful planning and coordination, as the creation and functional operation of such infrastructure takes time, as demonstrated by international experience. On the other hand, the creation of the European INSPIRE Infrastructure follows a strict schedule. This must be taken into account for the development of the NGII.



The whole operation coincides with the radical reorganisation of the Greek public administration (PA). Considering that the NGII is a horizontal infrastructure related to all levels of government, this situation plays a key role in the planning and implementation.

Another condition which must be ensured is the availability of sufficient financial resources for the development of all the components of the system. After acquiring managerial competence, HEMCO has requested and received a relevant approval for the implementation of the entire project, regarding the development of the key components of the related infrastructure, through co-financing from national and EU funds. The co-financed project for the NGII is in progress. Some useful data is available in paragraph 9.1 of the Annex.

These correlations require the implementation of short and long-term actions. The short-term objectives concern compliance with the INSPIRE requirements according to the schedule of developing the European Infrastructure and are met with the implementation of pilot actions by HEMCO, with its own resources. The long-term objectives will be met through the co-financed project. All pilot short-term actions are implemented in full consistency with the planned project of the business infrastructure and will be exploited in their entirety.

The actions for the NGII in the last three years are impressive, considering the complete lack of uniform treatment of geoinformation production in the country before 2010. Nevertheless, the NGII is still very new. The steps planned for its development and full operation require time, participation and the political decisions which will remove the malfunctions that have prevailed. This report, besides meeting the obligation arising from the INSPIRE Directive and the relevant Commission Decision No 2009/442/EC, adopted for its implementation, will also be a tool for assessing and correcting the course and planning to date.

## 2.2 Reporting methodology

According to the above, this report includes the relevant actions which were implemented over the period 2010-2013. Supplementary reference is made to the planned actions and the way in which they are expected to solve whichever problems are currently arising.

The sources used for the elaboration of the report are:

- Collection of data on the geospatial data and the services maintained by the public authorities (PAs) of the country and which fall within the scope of Law 3882/2010 and the INSPIRE Directive. This data includes all the INSPIRE metadata and the additional data required for monitoring the implementation of the Directive, as described in Decision 2009/442/EC.
- Collection of information through annual reports sent by suitable committees, the Focal Contact Points (FCP), the role of which is described in detail in section 4.2. The content of the annual report was planned<sup>1</sup> in such a way that all the information required for the elaboration of this three-year report be collected.

---

<sup>1</sup> Annual report template: [http://www.inspire.okxe.gr/images/Files/KOSE\\_YPOURG/et\\_anafora.doc](http://www.inspire.okxe.gr/images/Files/KOSE_YPOURG/et_anafora.doc)

- Collection of information through specially elaborated questionnaires.<sup>2</sup>
- Annual reports on the development progress of the NGII, submitted by HEMCO to the National Committee for Geoinformation (NCG).

More detailed data on the procedures for collecting the appropriate information are included in section 3.1.3.

---

<sup>2</sup> Standard questionnaire for completion: [http://www.inspire.okxe.gr/images/Files/KOSE\\_YPOURG/erwtimalologio.doc](http://www.inspire.okxe.gr/images/Files/KOSE_YPOURG/erwtimalologio.doc)  
On-line questionnaire:  
[https://docs.google.com/forms/d/1Fo66tE5WUmTKWG6BexQnUU7U7Ai\\_s4IA0ej7qfNSaY/viewform?pli=1](https://docs.google.com/forms/d/1Fo66tE5WUmTKWG6BexQnUU7U7Ai_s4IA0ej7qfNSaY/viewform?pli=1)

### 3 Coordination and quality assurance (No 12)

#### 3.1 Coordination (No 12.1.)

##### 3.1.1 Member State Contact Point

According to Article 18 of Law 3882/2010, the public authority competent for communicating with the European Union (EU) regarding the implementation of the INSPIRE Directive, is the Hellenic Mapping and Cadastral Organisation (HEMCO).

HEMCO's role and responsibilities are described below.

##### 3.1.1.1 Contact with the Contact Point

<b>Member State Contact Point</b>	
Name of Public Authority	Hellenic Mapping and Cadastral Organisation
Contact:	
Postal Address:	11-13 Timoleonos Vassou, 11521, Athens
Tel.	(+30) 211 10 44 600
Fax	(+30) 211 10 44 790
Email	<a href="mailto:support@okxe.gr">support@okxe.gr</a> , <a href="mailto:info@okxe.gr">info@okxe.gr</a>
URL of the Organisation's webpage	<a href="http://www.okxe.gr">www.okxe.gr</a> , <a href="http://www.inspire.okxe.gr">www.inspire.okxe.gr</a>
Contact Persons:	Giorgos Moutevelis, HEMCO President Aliko Fatourou, HEMCO Director Eleni Grigoriou, HEMCO Directorate of Geomatics, representative on the INSPIRE Committee)
Tel.	(+30) 211 10 44 600, (+30) 211 10 44 611, (+30) 211 10 44 712
Email	<a href="mailto:gmoutevelis@okxe.gr">gmoutevelis@okxe.gr</a> , <a href="mailto:a.fatourou@okxe.gr">a.fatourou@okxe.gr</a> , <a href="mailto:elgrigoriou@okxe.gr">elgrigoriou@okxe.gr</a>

##### 3.1.1.2 Role and responsibilities

HEMCO is a Legal Person governed by Public Law (LPPL) supervised by the Ministry of Environment, Energy and Climate Change (YPEKA). The purpose of HEMCO is the preparation, keeping and updating of the single cadastre, the geodetic coverage and mapping of the country, the inventory and mapping of natural resources and the creation and preservation of digital geospatial data and environmental data and the operation of a system for the coordination and diffusion of spatial information.

HEMCO's responsibilities and operation are analysed in Law 1647/1986, as amended by Law 3882/2010. The development of the NGII, its compliance with the provisions of the INSPIRE Directive and the relevant communication with the EU, were added to HEMCO's responsibilities.

More specifically, HEMCO's responsibilities regarding the NGII include:

- Requirements, Rules, Frameworks
  - Drafting the National Geoinformation Policy (NGP) and the National Framework for Geoinformation and Services Interoperability, i.e. the frameworks of the legal and technical standards and rules regarding the entire life cycle of the produced public geospatial information, as well as the updates and amendments thereof.
  - Determining the quality assurance framework for the geospatial data, metadata and web services of the PAs which participate in the NGII and the framework for compliance with the technical requirements that will be set out according to the EPDGY.
  - Recommending the approval by the NCG of the original geospatial sets and their owners, and the conversion of the major geospatial data from analogue to digital form, by determining the specifications relevant to the conversion and the PA that will undertake it.
  - Recommendation on the definition of the National Reference Sets & Services.
- National Committee for Geoinformation (NCG)
  - Supporting the NCG's work, by submitting proposals, giving advice etc.
  - Carrying out the necessary actions for the transposition and implementation of the NCG's decisions, by specifying and implementing them in a practical manner.
  - Recommendation to the Minister for PEKA or the NCG, regarding the necessary legislative measures for the implementation of Law 3882/2010 and the implementing provisions adopted pursuant to the INSPIRE Directive.
- Information System, Registers, National Geoportal - Development and Operation
  - Planning, development and operation of the NGII technological infrastructure.
  - Planning, organisation, development, management, maintenance and supervision of the National Geoportal.
  - Providing, through the Geoportal, the technical means for the automated control of the compliance of the metadata, the geospatial data and the relevant Internet services with the requirements of the implementing provisions of the INSPIRE Directive and the EPDGY.
  - Assisting PAs, through the Geoportal, to produce metadata and transform data, and, depending on the case, to accommodate geospatial metadata and data in a HEMCO geospatial database.
  - Fulfilling requests of EU actors to access the geospatial data.
  - Providing support to the FCP for the continuous and systematic recording, in the form of a list, of metadata, geospatial data sets and services (digital, analogue, data indirectly containing geospatial information), the number, cost and type of licences for the use of geographic information software systems, for geospatial data management and the diffusion of geospatial data on the Internet.
  - Keeping an updated list of geospatial data sets and their owners and making it available to all PAs via the NGII.

- Ensuring the ability of third parties to participate in the NGII (technologically, institutionally, legally).
- Granting of approval to third parties who produce, manage, maintain and update geospatial data and services, and wish to join the NGII, continuous control for maintaining compliance of their data with the EPDGY and the NGP and withdrawal of the approval by reasoned decision.
- Support, Management, Information, Training, Communication with the Network of Involved Parties
  - Providing the PAs and third parties with information, instructions, data, codes and technical classifications, required to ensure interoperability and harmonisation, and with geospatial data sets and services.
  - Coordination of the PAs competent for the production, management, updating and maintenance of the geospatial data sets and services, via the FCP network.
  - Organisation of the updating process and diffusion of the information to PAs and third parties, concerning rights of access and use of geospatial data and services provided by PAs of the EU Member States.
  - Formulation of training and information programmes regarding the NGII.
  - Communication, as a contact point, with the EU and its competent bodies, on matters concerning the implementation of the INSPIRE Directive.
  - Collaboration with relevant authorities of other EU Member-States, to exchange experience, good practices and information in the context of the NGII,
  - Establishing Working Groups to support its work,
- Monitoring of the Implementation of the National and EU Legislation and Reporting
  - Monitoring of the development and operation of the NGII and granting access to the EU, the PAs and third parties to the results of the monitoring, on a permanent basis.
  - Transmission to the NCG of an annual report, regarding the manner of coordinating public sector providers, the users of geospatial data sets and services and intermediaries, including a description of the organisation for quality assurance, the contribution of PAs or third parties to NGII operation and coordination, information related to the use of the NGII, data-exchange agreements among PAs and the cost and benefits from the NGII.
  - Transmission of the aforementioned report, approved by the NCG, to the EU, every three years.
  - Collection of cost - benefit data by the FCP, for law enforcement,

HEMCO's responsibilities also include the task of drafting basic and derived topographic maps of the country and topographical charts, and the updating, keeping and reviewing of maps and charts which are being prepared or already exist. HEMCO is responsible for coordinating, approving and monitoring the implementation of all kinds of mapping and cadastral programmes of all the bodies of the public sector, as this was re-determined with Article 51 of Law 1892/1990 (Government Gazette, Series I, No 101), without prejudice to the maps approved of by other PAs, within their powers, thus implementing provisions of Community Law or international treaties and provided that these maps are compatible with the NGII. Moreover, HEMCO is responsible for planning, executing and controlling photogrammetric and telescopic work, from aerial photography and providing satellite images to the final performance in order to meet its needs, and for the development programmes of government

agencies, public organisations, LPPL, local authorities and other PAs. It must also develop research, technology and informatics for matters relevant to its purpose.

HEMCO has elaborated a new organisational plan, according to which it will adequately perform its new role and meet the requirements set out in Law 3882/2010. The new organisational plan has been voted by HEMCO's Management Board (MB) and is expected to be approved in accordance with the planned procedure. In the context of reorganising the entire public sector, an attempt was made to design a small and flexible structure that adequately satisfies current needs and HEMCO's roles. The draft of the proposed new organisational plan is presented below.

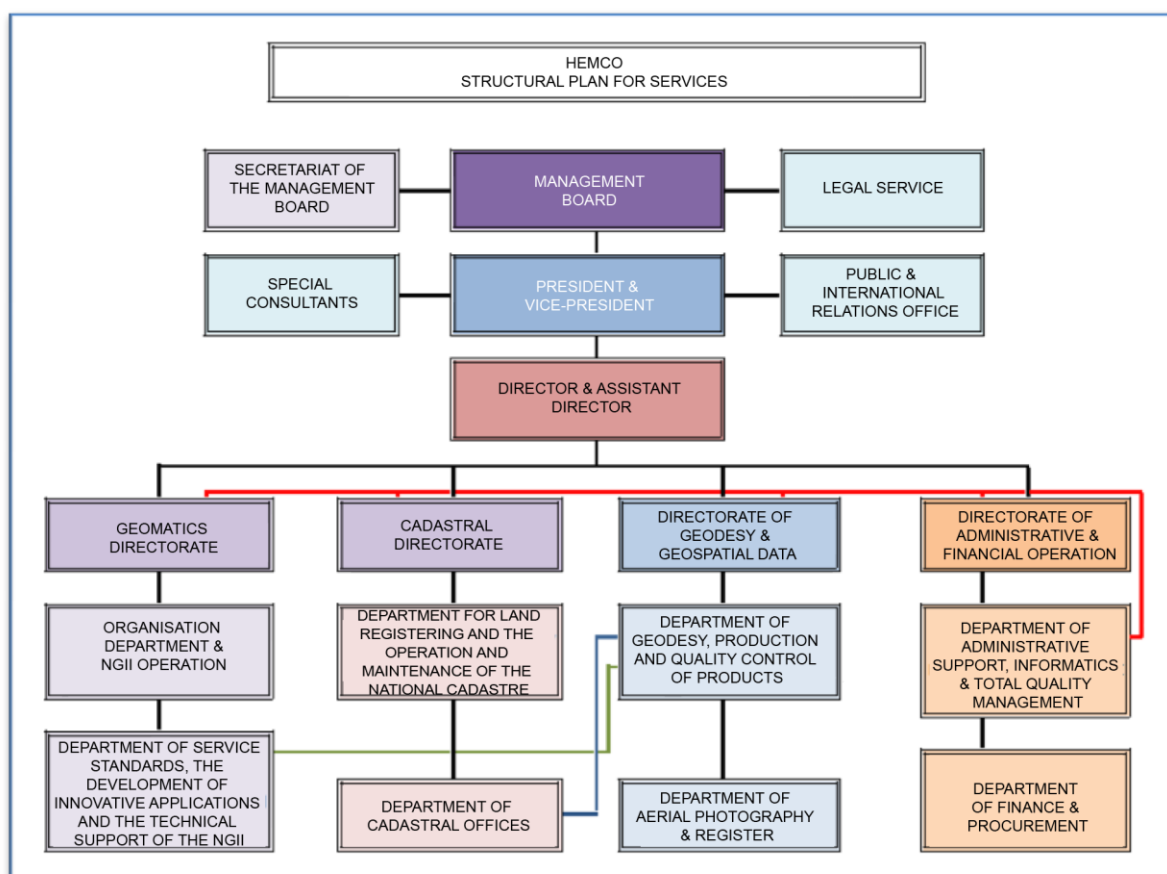


Figure 1: Draft of a new proposed HEMCO organisational plan

### 3.1.2 NGII administration and coordination structure

Considering that the NGII is an intertemporal horizontal State infrastructure engaging all the PAs that produce and use geoinformation, an appropriate administrative structuring is required to ensure communication and collaboration with them, as well as their active participation in the development and operation of the NGII.

At a political level, policymaking for the production and management of geoinformation, in terms of technological, administrative and legal interoperability, is undertaken by the NCG. The NCG is asked to give opinions and take decisions, upon recommendations by HEMCO, and to monitor the implementation of these decisions.

Regarding the administration and coordination for the NGII, HEMCO is asked to coordinate and provide all the necessary technological instruments and information that PAs - data producers need, in order to participate in the NGII and the INSPIRE. Because of the large number of PAs, it is not possible that they be coordinated directly by HEMCO. For the coordination of PAs by HEMCO to become functional, FCP have been established in each Ministry and at all levels of local government (Municipalities, Regions and Decentralised Administration<sup>3</sup>). These are Standing Coordinating Committees which undertake the representation of a distinct number of PAs on issues related to the implementation of Law 3882/2010 and ensure that the latter comply with the provisions of the Law and the Directive.

Finally, as to the actions of the European Union (EU), HEMCO is the National Contact Point for communication on the implementation of the INSPIRE, it participates with a specific representative to the INSPIRE Committee and other expert groups -where provided for- and suggests measures and implements the actions which fall under its competence and concern ensuring the participation of Greece in the INSPIRE European Infrastructure.

### 3.1.2.1 Names and contact details of agencies responsible for the management and coordination of the NGII and the INSPIRE

<b>NGII administrative structures</b>	
<b>National Committee for Geoinformation</b>	
Name	National Committee for Geoinformation
Contact:	
Postal Address:	11-13 Timoleonos Vassou, 11521, Athens (Secretariat)
Tel.	(+30) 211 10 44 600, 211 10 44 712, 211 10 44 707
Fax	(+30) 211 10 44 790
Email	<a href="mailto:grammateiaethea@okxe.ar">grammateiaethea@okxe.ar</a>
URL of the Organisation's webpage	<a href="http://www.inspire.okxe.ar">www.inspire.okxe.ar</a>
Contact Persons:	Panagiotis Mattheou, NCG Secretary
Tel.	1. (+30) 211 10 44 707, (+30) 211 10 44 712
Email	<a href="mailto:Dmathaiou@okxe.ar">Dmathaiou@okxe.ar</a>
Date and duration of the delegated responsibility	Institutionalisation: September 2010 (Law No 3882/2010) Operation Regulation: May 2011 (Decision No 15044, Government Gazette, Series II, No 832/2011) First constitution: December 2012 (YPEKA Decision No 57880) Last reorganisation: Expected from the YPEKA
<b>Hellenic Mapping and Cadastral Organisation</b>	
Name	Hellenic Mapping and Cadastral Organisation

<sup>3</sup> More information on the regional administration of the country is available on the relevant webpage of the Ministry of Interior: <http://www.ypes.gr/en/Regions/>

Contact:	
Postal Address:	11-13 Timoleontos Vassou, 11521, Athens
Tel.	+30 211 10 44 600
Fax	+30 211 10 44 790
Email	<a href="mailto:support@okxe.gr">support@okxe.gr</a> , <a href="mailto:info@okxe.gr">info@okxe.gr</a>
URL of the Organisation's webpage	<a href="http://www.okxe.gr">www.okxe.gr</a> , <a href="http://www.inspire.okxe.gr">www.inspire.okxe.gr</a>
Contact Persons:	Giorgos Moutevelis, HEMCO President Aliko Fatourou, HEMCO Director Eleni Grigoriou, HEMCO Directorate of Geomatics, representative to the INSPIRE Committee
Tel.	(+30) 211 10 44 600, (+30) 211 10 44 611, (+30) 211 10 44 712
Email	<a href="mailto:gmoutevelis@okxe.gr">gmoutevelis@okxe.gr</a> , <a href="mailto:a.fatourou@okxe.gr">a.fatourou@okxe.gr</a> , <a href="mailto:elgrigoriou@okxe.gr">elgrigoriou@okxe.gr</a>
Date and duration of the delegated responsibility	HEMCO establishment: September 1986 (Law 1647/1986) Delegation of responsibility for the NGII and the INSPIRE: September 2010 (Law No 3882/2010)

### 3.1.2.2 Role and responsibilities

The NCG's and HEMCO's responsibilities regarding the management and coordination of all the activities related to the development and operation of the NGII and the participation in the INSPIRE European Infrastructure are described below.

- National Committee for Geoinformation

Law 3882/2010, defines the NCG as the highest political body competent to decide, recommend and express opinions, to which it is assigned to plan and form the national geoinformation policy and ensure, at a higher political level, the necessary coordination of the entire public sector, for achieving the objectives of the Law. Due to the proliferation of geospatial data in the wider PA and the need of all the Ministries and their supervised bodies to produce and use them, the NCG is defined as an interministerial body, directly under the jurisdiction of the Prime Minister.

One of the main responsibilities of the NCG is the evaluation, approval and monitoring of the implementation of the EPDGY and the NGP. Upon approval by the Cabinet, these two texts will become legally binding for the entire PA. This means that PAs will have to adapt their legislation, when and where necessary, to the rules, guidelines and measures set out in the texts. Other important responsibilities of the NCG are the following:

- adopting measures and procedures for the coordinated implementation of Law 3882/2010 by the MAs
- adopting technical standards for the harmonisation of the existing and produced geospatial data and services with the requirements of Law 3882/2010



- promoting the policy for developing harmonised structures, processes, agreements and licences for accessing and using geospatial data and services
- approving standards for the shared use of geospatial data sets and services
- adopting measures to adjust the policy for geospatial information to the new scientific developments in combination with the development needs of the country
- the possibility of establishing rules and procedures for the organisation and operation of the FCP, aiming to achieve flexibility, when malfunctions are noticed, in order to resolve operational issues and enable the FCP to carry out their work more efficiently
- ensuring the promotion of the necessary legal regulations and measures for achieving the objectives of the NGII
- approving of annual reports on the implementation, evaluation and control of the implementation of the policy for the disposal of geospatial data and services, which are submitted by the NCG Chairman to the Prime Minister, the President of the Parliament and the members of the Cabinet

The NCG is assisted in its work by HEMCO, which is entrusted with the operational - executive part of creating and operating the NGII and with the responsibility to recommend to the NCG the approval of the EPDGY, the NGP and other measures that must be taken at central level.

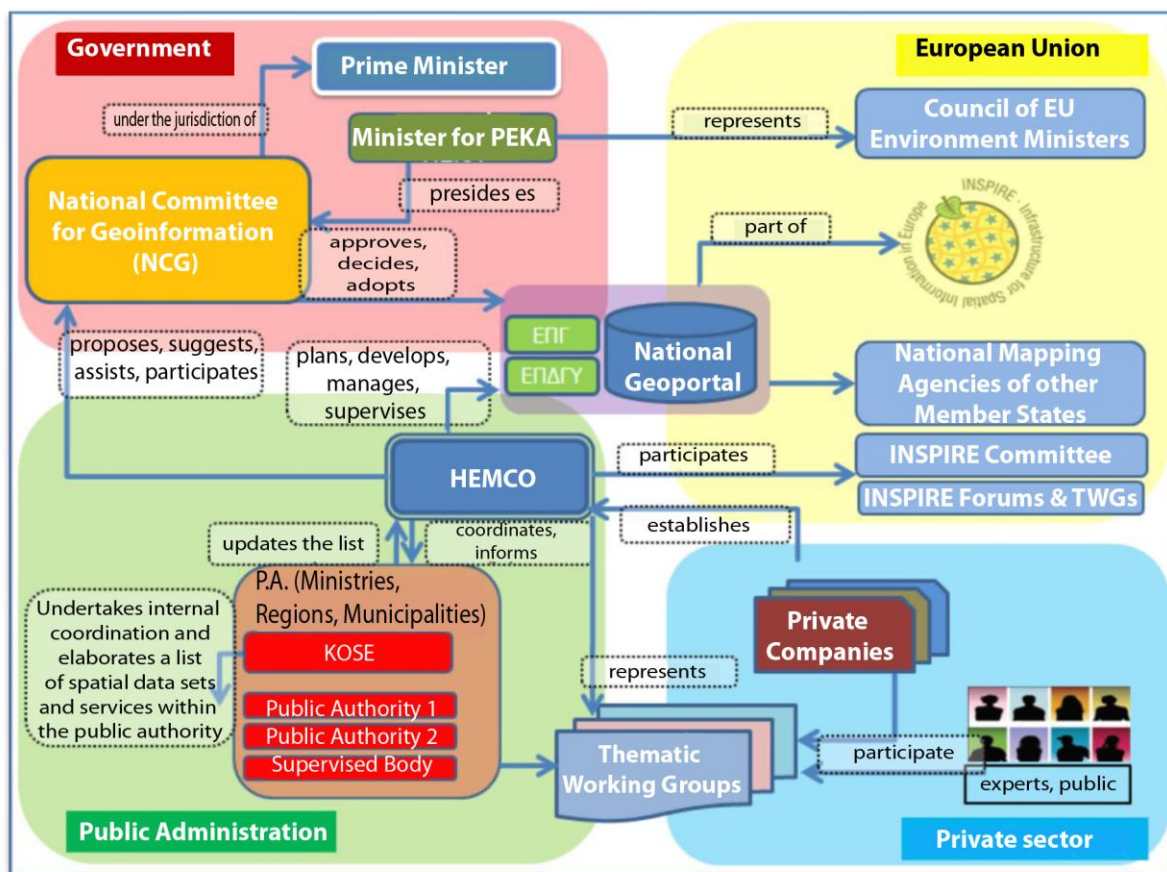
- Hellenic Mapping and Cadastral Organisation

HEMCO's responsibilities regarding the NGII management and coordination are the following:

- coordination, operation and support to the network of FCP and PAs which fall within the scope of Law 3882/2010
- drafting of the EPDGY, the NGP and other legal and administrative regulations and proper functioning of the NGII
- monitoring and evaluating the implementation of Law 3882/2010 and of the INSPIRE Directive
- establishing of working groups to support its work
- formulation of training and information programmes regarding the NGII

### **3.1.2.3 Organisational chart**

The following diagram outlines the correlations of all the stakeholders in the development and operation of the NGII, also in relation to the obligation of the country to participate in the corresponding INSPIRE European Infrastructure.



**Figure 2: Diagrammatic representation of the NGII and its association with the INSPIRE.**

More specifically, cooperation between HEMCO and the NCG, as it results from the relevant legislation (Law 3882/2010 and NCG Operation Regulation), takes place as follows:

- HEMCO prepares and recommends to the Minister of PEKA the agenda of the meetings.
- The Minister of PEKA approves and adopts the agenda, which includes the names of the speakers and other persons invited to attend the meetings of the Committee, with or without voting rights (Article 2 of the NCG Operation Regulation). NCG members may also suggest other topics to be included in the agenda. The topics to be discussed on the day of the meeting are examined upon assent of the Committee.
- At the same time, HEMCO prepares and recommends to the NCG relevant measures, draft decisions and statutes to be considered by the Committee.
- The NCG decides on the topics after considering the HEMCO suggestions.
- HEMCO also offers secretarial support to the NCG, keeps transcripts of the recordings of meetings, issues, with the President of the NCG, the minutes and decisions of the Committee and ensures that they are posted on the HEMCO website for the NGII ([www.inspire.okxe.gr](http://www.inspire.okxe.gr)) .

#### 3.1.2.4 Relation to other agencies

According to the provisions of Law 3882/2010, the PAs that produce, maintain, update and provide geospatial data and services, must comply with Law 3882/2010, the INSPIRE Directive and the provisions issued regarding their implementation or following their authorisation.

In this work, PAs are assisted by the FCP committees and, through the FCP, HEMCO as well. The FCP, except for the responsibility to assist the PAs that they represent, also undertake other actions, described in detail below, in section 4.3.

The NCG makes decisions, which the PAs are asked to implement with the support of the FCP and HEMCO, which also monitors their implementation and makes a relevant report to the NCG and the EU.

The practices and procedures followed to date for the coordination, administration, communication and cooperation among all the stakeholders are described in detail in section 3.1.2.5.

#### 3.1.2.5 Overview of the practices and procedures followed for the administration and coordination of the NGII

The administrative and coordinating actions undertaken by HEMCO and almost the entire public administration are described below in detail, per field of interest:

- Establishing of a FCP network, Information, Awareness-Raising and Training

The FCP are established by decision of the competent bodies of the PAs that they represent. The establishment of the FCP of the central and local administration started in two phases.

In the first phase, the network of the people who participated in the first contacts of HEMCO with the central PA during the drafting of the bill for incorporating the INSPIRE Directive in 2010 and the political leadership of the Ministries both responded immediately. As a result, 6 months after the adoption of the Law, FCP were established within the Ministries (depending on the structure of government at the time), starting with the Greek Statistical Authority on 21 October 2010. The network is active and operates continuously in response to the structure of government, as applicable.

The second phase began on 1 January 2011 and involved Municipalities, Regions and the Decentralised Administrations. This starting point was provided for in Joint Ministerial Decision (JMD) 53136/3.12.2010 of the YPEKA and the (former) Ministry of Interior, Decentralisation and Electronic Governance (YPESAID) (Government Gazette, Series II, No 1917), in order to coincide with the assumption of duties by the bodies of the Local Government and the Decentralised Administration of the KALLIKRATIS reform (Law 3852/2010).

The issuing of the JMD followed the establishment of FCP in about 40% of the Municipalities and more than 50% of the Regions and Decentralised Administrations until the summer of 2011. HEMCO and the YPESAID supported the establishment of the FCP by issuing circulars, by telephone communication, with emails and by sending informative material.

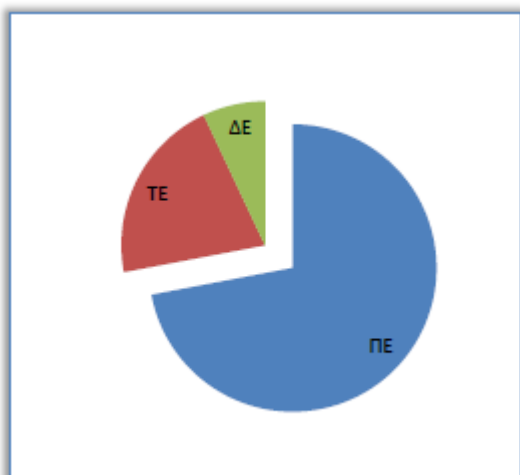
HEMCO organised presentations - training sessions for the members of the FCP of the Ministries for the period March - April 2011, in collaboration with the Training Institute (INEP) of the National Centre for Public Administration and Local Government (EKDDA). The presentations - training were related to Law 3882/2010 and the requirements of the INSPIRE Directive (recording of the geospatial data sets and services of public authorities, metadata generation, new terms and conditions for carrying out and undertaking new projects etc). In addition to the presentations - training sessions, more than 40 meetings with FCP representatives have taken place regarding more specific issues, either in the premises of HEMCO or of the operators.

Apart from the information provided to operators, which generate or use geoinformation, an information meeting with officials of the Special Managing Authorities of the co-financed programmes was also organised. The meeting concerned the new terms for the implementation and monitoring of projects and studies related directly or indirectly to the generation, supply or use of geospatial data and services.

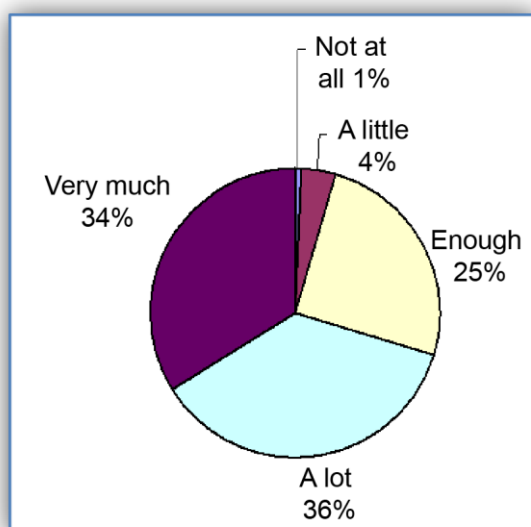
In November and December 2011, relevant information seminars took place, intended for the Members of the FCP of the Local Government and the Decentralised Administrations. The seminars were organised by HEMCO in collaboration with the INEP and were aiming to provide information on the NGII, to present the benefits and obligations of all the Public Authorities, as well as HEMCO instruments and actions for the support of all the parties that participated in the development of the Structure. More than 750 FCP members attended the seminars.

In view of the seminars, HEMCO took the initiative to support the establishment of the FCP through continuous communication with the local authorities. The result was to accelerate the establishment of FCP, amounting to 62% in November (202 out of 325) for Municipalities. By the end of October FCP had been established in 9 out of the 13 Regions and in 6 out of the 7 Decentralised Administrations. In March 2012, after the end of the information seminars, the establishment rate in the Municipalities amounted to 90% (292 out of the 325 Local Government Organisations). The establishment of the committees in the Regions and the Decentralised Administrations has been completed. Today (April 2013) FCP committees have been established in 299 out of the 325 Municipalities.

The FCP network currently consists of more than 2500 government officials, the vast majority of whom have a university and technical training (Figure 1). Figure 2 presents the answers of FCP members regarding the suitability of the persons selected to staff the committees, in accordance with HEMCO instructions and guidelines.



**Figure 1: Level of education of the members of Decentralised Administration and Local Government FCP** (Source: "Evaluation results report on the current implementation of Law 3882/2010 in the Municipalities, Regions and Decentralised Administrations of the country and suggestions of FCP members for improvement.", [http://www.inspire.okxe.gr/images/Files/KOSE\\_OTA/report2012.pdf](http://www.inspire.okxe.gr/images/Files/KOSE_OTA/report2012.pdf))



**Figure 2: Answer to the question "To what extent do you think that seminar participants represent the producers and managers of geoinformation in your agency?"** (Source: "Evaluation results report on the current implementation of Law 3882/2010 in the Municipalities, Regions and Decentralised Administrations of the country and suggestions of FCP members for improvement." [http://www.inspire.okxe.gr/images/Files/KOSE\\_OTA/report2012.pdf](http://www.inspire.okxe.gr/images/Files/KOSE_OTA/report2012.pdf))

Regarding the central government FCP (Ministries and independent authorities), after the repeated changes in the structure of public administration and taking into account the following:

- HEMCO proceeded to the development of the first pilot web search and map services according to the requirements of the INSPIRE Directive,

- progress has been made regarding the course of co-financed projects for the implementation of all the NGII components and PAs should be ready to connect their geospatial data and services to the NGII,
- the technical requirements regarding the interoperability of the geospatial data sets of Annexes I, II & III of the INSPIRE Directive were completed, consequently, their implementation will have to begin soon. Therefore, communication with the PAs should be smooth and effective,

HEMCO acknowledged the need to establish the committees anew and to draw up a detailed list of the PAs that they represent.

In January 2013, letters were sent to the offices of all the Ministers of the Greek government, which included a brief updating regarding the NGII and the INSPIRE, as well as a relevant request for the evaluation of the operation of the FCP of each Ministry and the identification of the needs to establish or re-establish them. The letters also included a relevant request for a detailed listing of the PAs represented by each FCP which is established. The letters were followed by telephone communication, for better cooperation and information on the matter.

The relevant letters were delivered to the offices of 16 Ministers of the Greek government on 30 January 2013. To date (May 2013), we have received responses from 6 Ministries.

Section 9.2 of the Annex outlines the relevant actions in chronological order and with a brief commentary.

- Establishment and operation of the NCG

HEMCO, in collaboration with the YPEKA, fulfils effectively its role regarding the operation of the NCG and the elaboration of suggestions and proposals for approval by the Committee.

The NCG was constituted by decision of the Minister for PEKA on 31 December 2010. During the first meeting of the Committee, held on 24 January 2011, HEMCO provided brief information on the subject matter of the Committee and its Operation Regulation was approved. It was published in the Government Gazette, Series II, No 832/2011.

The second meeting of the Commission, and the most important to date, took place on 2 April 2012. The main item on the agenda was the approval of a HEMCO recommendation regarding taking measures to promote shared use and further use of geospatial data of the public administration, in accordance with the requirements of Laws 3882/2010 and 3979/2011. The NCG, having considered the fully documented HEMCO recommendation, made a positive decision, published in accordance with the planned procedures. More information on the content of this Decision is provided in section 6.1.

Currently (May 2013), after repeated changes in governmental structure, the decision for the reorganisation of the NCG by the office of the Minister for PEKA with the support of HEMCO is being prepared and the organisation of the next meeting will follow.

Section 9.3 of the Annex outlines the relevant actions in chronological order and with a brief commentary.

### 3.1.3 Procedures for monitoring the implementation of the INSPIRE Directive and for reporting

To monitor the implementation of the INSPIRE Directive and Law 3882/2010 and to draft reports, HEMCO makes use of the following:

- Monitoring of the implementation of the INSPIRE Directive
  - List (Registry) of the Geospatial Resources of the PA: This List contains information about the sets of geospatial data and the geospatial services, which is generated and maintained by the PAs of the country. The information contained in the List includes all the search metadata set out in the INSPIRE Directive and Regulation 1205/2008 and the information set out in Decision 2009/442/EC regarding monitoring.  
  
The List is created by HEMCO and supplemented with the responsibility of PAs and the FCP that represent them. It is updated annually.
- Reporting
  - Annual reports drafted by HEMCO and submitted to the NCH annually, in accordance with Article 13 of Law 3882/2010.
  - Annual reports sent by the FCP to HEMCO. For the drafting of the FCP reports, an appropriate template established by HEMCO is used and aims to facilitate the collection of the information required by Law 3882/2010, the INSPIRE Directive and Decision 2009/442/EC.

For the evaluation of HEMCO actions and of the responsiveness and compliance of the PA with the provisions of the Law and the Directive, HEMCO also conducts further surveys with the use of properly elaborated questionnaires. The first survey of this kind was conducted during the information - training seminars for Decentralised Administration and Local Government officials in the autumn of 2011. About 800 seminar participants evaluated the implementation of Law 3882/2010 and of the INSPIRE Directive by answering specially selected questions. The result of the survey was processed by HEMCO and posted on the website of the Organisation.<sup>4</sup>

Except for the FCP of the former Ministry of Infrastructure, Transport and Networks which did send a relevant report, the majority of FCP did not send the annual reports of 2012 (reference year 2011). Therefore, in 2013, they were asked to complete the relevant standards for all three reference years. The relevant letters were addressed to 30 FCP committees which we know to be currently operating in central administration. We received completed annual reports from 10 of them.

The actions carried out regarding each of the above cases are analysed in the following paragraphs.

---

<sup>4</sup> "Report on the results of the evaluation of the current implementation of Law 3882/2010 in Municipalities, Regions and Decentralised Administrations of the country and suggestions of FCP members for improvement.", [http://www.inspire.okxe.gr/images/Files/FCP\\_ÓTA/report2012.pdf](http://www.inspire.okxe.gr/images/Files/FCP_ÓTA/report2012.pdf)

### 3.1.3.1 Procedures and measures for the monitoring of the implementation of the INSPIRE Directive

- National List of Geoinformation

One of the major problems observed in Greece because of the lack of a national geospatial information infrastructure was the absence of an integrated recording of the generated geoinformation. The creation of this list was one of the first actions undertaken by HEMCO on a technical level, in collaboration with the YPEKA and officials representing the entire PA, during the preparation of the draft law on the NGII. The need to elaborate a first list arose, on the one hand, from the need to have a picture of the issues that the Law will have to tackle and, on the other hand, because a first deadline had been set in relation to the implementation of the INSPIRE, for sending reports and calculating monitoring indicators regarding its implementation. This action resulted in the creation of the initial List of geospatial data and services in 2010, which contained more than 1000 data sets. The appropriate processing of this List resulted in the new list, as well as the monitoring indicators regarding the implementation of the Directive, under Decision 2007/442/EC which accompanied the report of our country and was sent in time.

In the period February - March 2011, HEMCO developed the structure of the initial 2010 List by expanding it with many new features and possibilities, thus combining the needs for a wider recording, with the obligation to send reports and indicators for the monitoring of the implementation of the INSPIRE Directive in 2011 as well. In particular, an Excel application was developed with an embedded macro code in Visual Basic for Applications (VBA) language. The new List contains a great number of new features and includes all the necessary metadata according to Regulation 1205/2008, which are provided for in Decision 2009/442/EC on monitoring, cost data etc.

In addition to the geospatial data and services sets, this List offers the possibility of recording other resources related to infrastructure equipment and applications used by PA for geospatial data, as well as many automated features, along with a much more manageable environment for the user (integrated help, price lists, possibility for mass data entries, automated syntactic checks, etc.). For the convenience of users, HEMCO also posted a detailed User Manual, appropriate videos, a list of completed examples and answers to frequently asked questions.

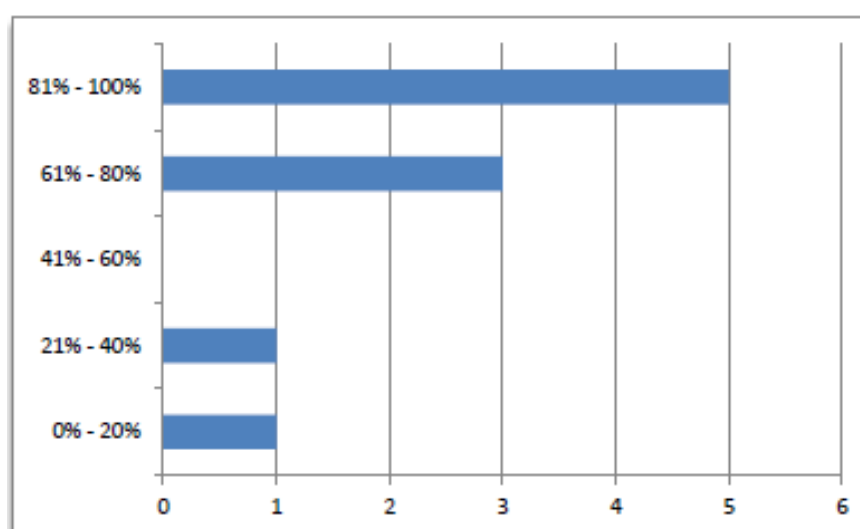
For the syntactic and semantic correctness of List entries, HEMCO officials made the necessary corrections and, on several occasions, contacted the persons competent for completing them in the period May - September 2011. This action was particularly successful since, in 2011, the National List of geospatial data and services of the central government was published, including information on more than 1600 data sets and 60 web services.



In 2012, after the seminars and one-day conferences on Decentralised Administration and Local Government in the winter of 2011, a relevant List was created for the data generated by these PAs.

The National Geospatial Resources List of the PA and the local government List are updated annually. Soon (in 2014), the development of a single electronic registry, which will include the information collected by that time, will be completed through the co-financed action for the NGII project (see section 2.1 and Annex).

Until the NGII electronic registry started operating, an attempt was made to assess the completeness of the recording by the FCP, which are responsible for it. It was requested that, through the annual reports, they fill in an appropriate form the percentage of the geospatial data sets which they estimate that they have managed to record. The replies that we have received are shown in the Figure below. 5 out of the 10 FCP committees that replied believe that they have already recorded 81% - 100% of the total geospatial data they generate and have at their disposal.



**Figure 3: Assessment of central government FCP on the completeness of the recording of geospatial data in the National List.**

- List of data that fall within the scope of the INSPIRE Directive and monitoring of their implementation

Every year, the sets of data and the corresponding services within the scope of the INSPIRE Directive, are selected from the National List of the central administration. The procedure is carried out manually. For the selection of the data sets, the delivery D2.3 Drafting Team "Data Specifications Definition of Annex Themes and Scope (v.3.0)" is used, as well as the interoperability specifications for each thematic category of Annexes I, II & III which are available at a given time. The information required for the calculation of the indicators provided for in the technical assistance texts issued in implementation of Decision 2009/442/EC, shall be transferred to the monitoring template manually. These procedures will be automatized with the creation of the electronic registry for the NGII in 2014.

Given that the development of the NGII computer system has not been completed, discrepancies are observed among the monitoring indicators regarding the implementation of the Directive every year. These discrepancies are mainly due to the fact that public authorities - data generators find it difficult to understand and classify the data that they produce into the thematic categories set out by the INSPIRE Directive. Therefore, HEMCO detects errors during processing. It is expected that these problems will be solved with the development of the NGII computer system, when much of the data required for the monitoring will result in an automated or semi-automated way (drawing metadata from appropriate Lists kept by the MAs, drawing information from web services, checking compliance with standards, etc.). Another way of eliminating errors are the training programmes that HEMCO is about to include to the planning of its actions for the NGII.

This year (2013), with the completion of the technical interoperability requirements for the datasets of Annexes II and III, the content of the list of sets that fall within the INSPIRE will be quite different and we expect that it will better meet the purpose and provisions of the Directive.

- Online list and INSPIRE search service

In December 2012, HEMCO developed by its own means the first national service for discovering geospatial data, as provided for, for the implementation of the INSPIRE Directive. The developed directory service was based on FS/OSS and applies OGC and INSPIRE standards for metadata and web services. Via the directory service, the user can also access the appropriate web service that displays a limited set of geospatial data, which also complies with the INSPIRE requirements. For the technical implementation and customisation of web services, the technical guidance texts issued by the Initial Operation Capability Task Force (IOC TF), Technical Guidance for the implementation of INSPIRE View & Discovery Services (v. 3.1), were used.

The discovery and visualisation pilot services have already been registered in the relevant services INSPIRE Registry and the necessary audits have been conducted. The pilot services, combined with control tools provided by the EU, could support the monitoring procedures for the data sets of other data producers. Unfortunately, other producers do not participate to the pilot services with their own services, which is probably due to lack of appropriate decisions by the competent bodies, regarding mandatory participation in the NGII and INSPIRE (see section 8). More information on the development of pilot web services is presented in section 4.1.

The registering template for completing the National List, from which data is drawn to monitor the implementation of the INSPIRE Directive until and during 2013 (reference year 2012) is available [here](#).

Section 9.4 of the Annex presents the above actions related to drafting the List and preparing and sending the list for the monitoring of the implementation of the INSPIRE Directive, from 2010 to date.

### 3.1.3.2 Procedures and measures for reporting on the implementation of the INSPIRE Directive

According to Article 11 of Law 3882/2010, HEMCO must monitor the implementation progress of Law 3882/2010 and of the INSPIRE Directive and prepare appropriate reports, according to the following:

- Every year, starting no later than 15 May 2011, HEMCO sends to the NCG a report including brief descriptions of:
  - the mode of coordination of public sector providers, users of geospatial data sets and services and intermediaries, as well as a description of the relationship with the third parties and the organisation of quality assurance,
  - the contribution of public authorities or third parties to the operation and coordination of the NGII,
  - the information regarding the use of the NGII,
  - data-exchange agreements among public authorities,
  - the cost and benefit from the implementation of this Law.
- Every three years, starting no later than 15 May 2013, HEMCO forwards to the EU Commission a report approved by the NCG with the contents of paragraph 2 and in accordance with Decision 442/2009/EK.

In May 2010, and since Law 3882/2010, which would incorporate the INSPIRE Directive, had not yet been adopted, HEMCO drew a relevant report, which gave a detailed description of the situation at the time and of the measures that the draft law was required to put into force.

In May 2011, no annual report to be submitted to the NCG was drafted, as Law 3882/2010 had entered into force only a few months before (9/2010). Therefore, it made no sense to monitor its implementation and the PAs had not yet been sufficiently informed in order to collect the necessary data for drafting the report.

In 2012, a relevant report which included all the HEMCO actions for the NGII and the INSPIRE Directive for the years 2010 and 2011, was drafted and submitted to the NCG<sup>5</sup>.

In 2013, an appropriate report is submitted to the European Commission, drafted in accordance with the provisions of the INSPIRE Directive and Decision 2009/442/EC for reference years 2010 - 2013. For reference year 2012, no annual report will be submitted to the NCG, as the content of the annual and three-year reports is the same.

The three-year report was elaborated based on the following:

- The annual progress report on the development of the NGII, as submitted and approved by the NCG in 2012 for reference years 2010 and 2011
- Progress reports on the implementation of Law 3882/2010 and the INSPIRE Directive, submitted by the FCP that represent the PAs. FCP reports were based on a template drafted by HEMCO, based on information which is expected to be collected for the

---

<sup>5</sup> Progress report for the development of the National Spatial Data Infrastructure (Law 3882/2010, Government Gazette, Series I, No 166/2010) for reference years 2010 & 2011, <http://www.inspire.okxe.gr/images/Files/Nea/anaforaprodou v1.0.pdf>

monitoring of the INSPIRE Directive in accordance with Decision 2009/442/EC.

Because of the extreme heterogeneity observed in the processes of production, maintenance and disposal of geospatial data and services and, also, in the degree of implementation of Law 3882/2010 to the Decentralised Administration and the Local Government, the data collected by the central government was used, this time as well, for drafting the report which is sent to the EU. The reports of the local government will be used to plan its participation in the NGII and training activities and capacity building, for the universal participation in the NGII and the actual implementation of Law 3882/2010 at all levels of the PA. The involvement of the local government in the European INSPIRE infrastructure is planned for the future.

An important problem to be addressed is the reestablishment of the FCP committees, following the recent major changes in governmental structure, as described in paragraph 3.1.2.5. Despite informing the political central government leaderships of the need to re-establish the FCP, the response was not the one expected. As a result of this malfunction, the reports were drafted and the National List (which indicates the monitoring of the INSPIRE Directive) was updated according to data provided by the existing FCP committees, which do not, however, correspond to the current governmental structure. It might not be possible for all the PAs within the scope of Law 3882/2010 and the INSPIRE Directive, to participate, as many of these PAs are not represented by FCP committees.

## **3.2 Quality assurance (No. 12.2.)**

### **3.2.1 Quality assurance procedures**

Currently, no system is implemented regarding the quality assurance of the processes required for the operation and maintenance of the NGII. Also, there are no national standards for ensuring the quality of geospatial information, of the relevant geospatial services and their metadata, generated and maintained by MAs.

The system of quality assurance of procedures and quality standards of geoinformation and services shall be determined in the EPDGY and the NGP.

### **3.2.2 Analysis of quality assurance problems**

It is not possible to identify problems related to quality assurance procedures, as the relevant procedures are not yet implemented.

### **3.2.3 Measures to improve quality assurance**

Because of the non-implementation of the quality assurance system yet, there are no measures for its improvement.

### **3.2.4 Quality certification mechanisms**

No quality assurance system has been implemented yet, so there are no mechanisms for quality certification.

## 4 NGII operation and coordination (No 13)

### 4.1 General description of the NGII

The creation and operation of the NGII under Law 3882/2010, which is the institutional tool for the development of a technological, legal and administrative framework, according to which the geoinformation produced in the country is based on the principle of interoperability, is common among public authorities and distributed to third parties (the public, entrepreneurs, the academia, etc.) under a single known framework.

The provisions of Law 3882/2010 to develop the NGII and also the rules that will be established with the adoption of other statutes to be issued in implementation of the Law or under its authority, shall ensure the creation of an infrastructure that meets the basic principles of geospatial information infrastructure. This means that:

- the data is generated, maintained and made available at the most appropriate level,
- the possibility to use, in a combined manner, geospatial data and services from different systems and different users (people or applications) in a coherent way, is ensured,
- the data generated by PAs at any government level is shared among all levels of the Public Administration,
- the geospatial data is made available under conditions that do not restrict its further use in an unjustifiable manner,
- the geospatial data is easily searchable, it becomes possible to assess its suitability for a particular use and
- the terms in force regarding its use are known.

HEMCO is the body responsible for the development and operation of the NGII, the coordination of all the involved parties and for providing tools, guidelines and technologies that will facilitate participation and interoperability, as well as communication with the EU regarding the participation of Greece to the European INSPIRE infrastructure.

The NGII covers all the information generated in the country by public authorities, as defined in Law 3882/2010, which relates directly or indirectly to space and is in analogue or digital form.

A subset of the NGII data sets and the corresponding services falls within the scope of the INSPIRE Directive. This data, as defined in Article 4 of the Directive, is related to a geographical location in the jurisdiction of a EU Member State, is kept by or on behalf of a MA, is in digital form and refers to one or more thematic categories of Annexes I, II & III of the INSPIRE Directive. Law 3882/2010 incorporates the INSPIRE Directive in its entirety and has national coverage (at institutional and territorial level), as recognised by a study conducted on behalf of the EU in 2011<sup>6</sup>.

---

<sup>6</sup> Spatial Data Infrastructures in Greece: State of play 2011, D. Vandenbroucke & D. Biliouris (SADL), K. U. Leuven (SADL & ICRI), 2011, <http://inspire.jrc.ec.europa.eu/reports/stateofplay2011/rcr11GRv101.pdf>

Data will be accessed via interoperable web services, that HEMCO develops and provides access to, so that PAs link their geospatial data and services. Access to NGII data and services for the final user will be ensured via the National Geoportal and the corresponding European portal. To make better use of the current web technologies, the services will have standardised interfaces, they will be self-defined and searchable, so that they can also be discovered and exploited by other applications and Internet services.

The technological interoperability standards that will be implemented for the sharing of NGII geospatial data sets and corresponding services, will be included in the EPDGY. EPDGY standards will ensure compliance with the standards adopted pursuant to the INSPIRE Directive. The rules governing the production, maintenance, quality assurance, shared use, sharing, further use, and - where applicable- the pricing of public geoinformation, will be determined in the NGP. The NGP, on its part, will ensure compliance with the relevant rules governing the sharing and reuse of geoinformation, which falls within the scope of INSPIRE.

The drafting of the EPDGY and the NGP, the development and initialisation of the NGII information system and the National Geoportal, and the creation of general use maps, will all be carried out through a co-financed operation (see sections 2.1 and 9.1 of the Annex).

The first versions of the EPDGY and the NGP are expected to be ready in 2014. The NGII information system will enter in full operation in 2015. Until then, HEMCO has taken measures for gradual compliance with the provisions of the INSPIRE Directive. Some of these measures are:

- Create and keep a list of geoinformation, which reveals the indicators from the monitoring of the implementation of the INSPIRE Directive
- Create pilot national discovery and map web services for geospatial data sets, according to the INSPIRE specifications. For the technical implementation and customisation of web services, the technical guidance texts issued by the Initial Operation Capability Task Force (IOC TF), Technical Guidance for the implementation of INSPIRE View & Discovery Services (v. 3.1), were used. The services have already been connected to the INSPIRE infrastructure (INSPIRE Geoportal). New data is scheduled to be added in the next months, so that the majority of the sets that fall within the scope of the Directive and included in the list used for the monitoring of the implementation, is soon included there.
- Create a geoportal, so that final users can access the aforementioned pilot national search and map services<sup>7</sup>. The portal will be functional at a basic level, until the development of the National Geoportal in 2015.
- Issue a NCG decision, upon a HEMCO recommendation, on the measures to be taken for the implementation of shared use and further use of public geospatial data, until the NGP is issued. The NCG decision included, *inter alia*, standardised licences and instructions for creating a commercial licence.
- Continuously support, monitor and evaluate the operation of the FCP network and the responsiveness of PAs regarding the implementation of the Law and the Directive.

The involvement of PAs - data producers in the first pilot HEMCO web services is extremely limited.

---

<sup>7</sup> [www1.okxe.gr/geonetwork/srv/en/main.home](http://www1.okxe.gr/geonetwork/srv/en/main.home)

16 data sets, out of the 27 currently available through the pilot system, are from the HEMCO archives, 8 of them involve data already freely available but included in the system to make the best use of the interoperability benefits, while only 5 sets are from other data producers who participated in the action.

According to what was stated by the FCP in their reports, the reasons for non-participation are the following:

- Staff shortages
- Refusal of data producers to participate - Failure of the bodies responsible for the data to make appropriate decisions on the policy regarding their disposal
- Protection of sensitive data which may pose a threat to national security
- No quality / updated data
- Uncertainty regarding the disposal policy
- Obligation to pay the cost of data acquisition
- Data disposal through other Internet services operated by the data producer

Regarding the last two points listed above, they are mentioned for reasons of consistency with the FCP reports, although they do not correspond to reality. Regarding the penultimate point of the list, the data producers were able to make their data available only to other MAs, by implementing shared use only by the public sector and the EU institutions. Therefore, they do not have a right to annuities from data that will be used by other MAs. The reason for non-participation in the INSPIRE referred to in the last point of the list, is related to a FCP representing a significant data producer (the HMGS) and implies the disposal of the geospatial data produced through an online retailer. Given that the HMGS is a PA with significant expertise in geospatial information infrastructure, therefore, there is no question of not understanding the standards set for the implementation of INSPIRE regarding map services; we believe that the data was not made available through the HEMCO infrastructure because the PA in question refuses to implement shared use, as required.

## 4.2 Parties involved in the implementation of the INSPIRE Directive

- NGII management and coordination

As already described above, HEMCO provides infrastructure, specifications, support and coordination, it develops and operates the NGII and the NCG defines and monitors the implementation of policies on geoinformation.

- Data production and provision of services

The PAs of the country which produce data and provide geospatial services must adjust their procedures for the production, preservation and disposal of the geospatial data and services that they produce and preserve, to Law 3882/2010, the INSPIRE Directive and the provisions issued for their implementation.

Until the EPDGY and the NGP are issued, the PAs which produce data that falls within the scope of the INSPIRE should implement at least what is specified in the Regulations and Decisions issued for the implementation of the INSPIRE, according to the timetable for the implementation of the Directive<sup>8</sup>.

HEMCO has a dual role in the NGII. Besides being responsible for its development and operation, it is a major data producer. The HEMCO management makes sure that it makes appropriate decisions and develops appropriate technologies, so that the data it generates due to its role (orthoimagery, administrative boundaries, land coverage, etc.) and the data it generates on behalf of other actors (e.g. small island wetlands on behalf of the YPEKA), are made available in an interoperable manner and in accordance with the INSPIRE, both legally and technologically.

Law 3882/2010 provides for the possibility of third parties to participate in the NGII. "Third parties" are defined as natural and legal persons which are not MAs, as described in Article 3 of the Law. Third parties can contribute to the NGII and, by extension, to INSPIRE, with the data and services they produce, if these comply with the rules governing the NGII. The participation of third parties is constantly supervised by HEMCO and their participation licence may be withdrawn by a reasoned justification, in case of infringement of the rules of participation.

- NGII and INSPIRE users

NGII users are the PAs, the FCP, the PAs of EU Member States, EU institutions and bodies, the functions and purpose of which may have an impact on the environment, on citizens and businesses.

The various stakeholders will gain graded access to the NGII, according to the rights, terms and conditions which will be finalised with the NGP approval.

### 4.3 Roles of the parties involved

The role of stakeholders for each of the NGII and INSPIRE components is described below.

- Interoperability of geospatial data sets and services

The data producers involved in the NGII have to make the geospatial data that they generate and the services they provide, interoperable, as set out in the EPDGY and INSPIRE.

HEMCO supports the implementation of technical specifications, arranges for the issuing and updating of the EPDGY and will provide, through the National Geoportal, the suitable

---

<sup>8</sup> <http://inspire.jrc.ec.europa.eu/index.cfm/pageid/44>



tools for reviewing the compliance of infrastructure resources.

- Internet services

It is envisaged that web services, as defined in INSPIRE, will be developed under the centralised scenario. This means that data producers (PAs and third parties involved in the infrastructure) will develop appropriate web services for searching and accessing the data that they generate and will link these services with the HEMCO channel of services. Participation in the European INSPIRE portal will be achieved via the national Internet services that will be developed and maintained by HEMCO.

As for the PAs which do not have the expertise and infrastructure to make the data they produce available with Internet geospatial services that they develop themselves, HEMCO can provide its own infrastructure for hosting the data and making it available. This practice can be implemented only in the cases when no regular and frequent updating of data is provided for. For example, this practice cannot be implemented for the data of the currently functioning cadastre, but it can be implemented very effectively for transport networks data or environmental data, which are not updated frequently.

This approach ensures the creation of data by the appropriate entity, and their sharing by HEMCO, who has the expertise and infrastructure for this purpose.

This is how the developed pilot system functions and so was also designed the NGII information system to be developed.

- Implementation monitoring and reporting

Data producers must provide HEMCO with the appropriate information for monitoring the enforcement of the Law and of the Directive and for drafting the progress reports, as required by the law.

Data producers will use the tools and instructions provided by HEMCO. To date, the procedure described in sections 3.1.3 is implemented, whereas, with the development of the NGII information system, these procedures will be automated to a large extent.

- NGII maintenance and expansion

According to Law 3882/2010, the interoperability specifications and the rules governing the lifecycle of NGII data and services may be redetermined with proposals for the updating of the NGII and the NGP by HEMCO and upon approval by the NCG.

Moreover, the procedures concerning the NGII coordination and administration can be assessed and HEMCO is given the possibility to propose measures to the NCG regarding the operation of FCP etc.

Also, HEMCO will be involved, by appointing a suitable representative, in the expert group which will be set up by the EU, replacing the IOC TF, for the implementation and maintenance of the European INSPIRE infrastructure (Maintenance and Implementation Group of Experts).

#### 4.4 Measures to ensure and facilitate the distribution of spatial information

Under Law 3882/2010, all geospatial data, the associated services and their metadata, are shared by the PAs of Greece and EU Member States, as well as by EU institutions and bodies, the responsibilities and purpose of which may have an impact on the environment. Search and map services and metadata are made available to third parties free of charge and with an appropriate licence of use, whereas transformation, invocation and transfer services are provided to third parties under licences of use that include a fee, depending on the purpose of their use and the requested level of service. These are fees paid by way of duties and must be kept as low as required for ensuring the necessary quality. The general provisions of Law 3882/2010 will become more specific with the issuing of the NGP, which will comply with Regulation 268/2010, issued pursuant to the INSPIRE Directive.

The lack of a single geoinformation licensing framework was, until the issuing of the NGP, one of the reasons for the limited implementation of the Law and the Directive. HEMCO identified this problem and decided to propose to the NCG transitional provisions for taking measures to implement shared use and further use of public geospatial information, in accordance with the provisions of Laws 3882/2010 and 3979/2011.

The NCG decision does not establish new rules. It only specifies the relevant provisions of Law 3882/2010 and aims to provide the foundation for its implementation, until the issue is dealt with in its entirety with the issuing of the NGP. The key points of the decision are described in detail in section 6.1.

#### 4.5 Cooperation of the parties involved

All the actions for the NGII are carried out based on the open and active participation of all stakeholders. The practices adopted so far are the following:

- Publishing the contact details of the FCP of all the levels of PA for communication and the exchange of good practices and experience<sup>9</sup>.
- Informing NCG members on actions relating to their responsibilities
- Timely updating of the FCP and, through them, of the PAs that they represent, regarding HEMCO actions for the NGII and their obligations in the context of the development of the NGII and the INSPIRE. The updating is ensured with HEMCO documents via Email. The documents always include detailed instructions and steps, as well as forms and templates for use, to facilitate stakeholders and achieve uniformity in responses.
- Organising daily meetings, posting press releases and announcements on the HEMCO websites regarding any new developments on the NGII and the INSPIRE.
- Consultations on the technical specifications regarding the works carried out by HEMCO for the development of the NGII.

---

<sup>9</sup> Links to webpages where the FCP contact details are published: [http://www.inspire.okxe.gr/index.php?option=com\\_content&view=article&id=2&Itemid=14](http://www.inspire.okxe.gr/index.php?option=com_content&view=article&id=2&Itemid=14)

- In the context of publicity and awareness-raising on actions for the NGII and INSPIRE, in the autumn of 2012, HEMCO published a special issue<sup>10</sup> including all the actions of the last 3 years. The issue was addressed to all stakeholders (PA officials, professionals, the public, etc) and was distributed during open information one-day seminars organised by HEMCO and as an insert in the prospectus issued by the Hellenic Association of Rural and Surveying Engineering.

#### 4.5.1 Partnerships and agreements

HEMCO, within its competence and aiming to better cooperation, supports other PAs and mainly YPEKA services in actions relevant to mapping and geomatics. These partnerships are mainly related to providing geospatial data, mediating to solve problems arising during the sharing and shared use of data, providing specialised geomatics services, geospatial data management services and providing expertise. Some of these actions are summarised below:

- Signing of a memorandum of cooperation for the exchange of geospatial data, ICT infrastructure and expertise among the Ministry of Interior, Decentralisation and Electronic Governance (at the time), the YPEKA, the Ministry of Rural Development, the Ministry of Citizen Protection, the Hellenic Statistical Authority, HEMCO, Ktimatologio SA and Kinonia tis Pliroforias (Information Society) SA. The memorandum of cooperation was signed before the adoption of Law 3882/2010 and it mainly aimed to communicate the purposes of the Law and support the initial action for its implementation. The memorandum is currently outdated, since, after the adoption of Law 3882/2010, all geospatial data must be shared by the PAs (June 2010).
- Support to the YPEKA for the creation of the polygons of the limits of small island wetlands and the relevant maps accompanying the Presidential Decree on their protection (Government Gazette, ΑΑΠ No 229/19.06.2012 (2010, 2011))
- Support to the Directorate of Environmental Planning of the YPEKA in various mapping actions
- Creation of a geographic database for property owned by the Municipality of Athens, in the context of a pilot application. The database also included other places of interest, as well as sources of difficulty (e.g. areas with high delinquency rates). The pilot was implemented exclusively with FS/OSS and free and open data was used. (2011)
- Creation of a geospatial database with the new administrative boundaries of the country (2010). The relevant application of the Ministry of Interior is based on this application.
- Cooperation with the NGO “Diazoma” which aims to support mapping, so that it achieves its objectives.
- A large number of photointerpretations for the needs of a great number of public bodies

---

<sup>10</sup> Special HEMCO issue: <http://www.okxe.gr/images/eidikiekdosi/book.swf>

- Collaboration with the Municipality of Kalamata and the Messinia Real Estate Service, in order to solve problems that had arisen for 1,000 property owners because of the poor functioning of the national cadastre<sup>11</sup>. (2013)
- Cooperation with the Technical Chamber of Greece and the Peloponnese Region, for the approval of a programme contract regarding the implementation of the project that will address the needs for land consolidation in the Region, with modern digital geomatics applications.

In addition to the national actions for the NGII, during the last three years, some operators have jointly signed memoranda of cooperation, in order to facilitate cooperation among them. Such memoranda are mainly associated to the exchanging of geospatial data, providing ICT infrastructure and exchanging expertise and good practices. Some of these agreements are the following:

- Memorandum of cooperation between the YPEKA and the YEA on joint actions and efforts for the implementation of environmental actions within the YEA competence. The agreement set out *inter alia* to provide the YPEKA with geospatial and meteorological information for the needs of environmental protection and so that it fulfils its international obligations. (2010)<sup>12</sup>
- Memorandum of cooperation between the Ministry of Culture and Tourism and the Hellenic Statistical Authority in order to create a modern statistical information system in the tourism sector to support the establishment, monitoring and evaluation of the country's tourism policy. At the same time, it will be used to fulfil the country's obligations to provide statistical information to the European Union, national institutions and international organisations, and to provide reliable and timely information to stakeholders directly or indirectly related to tourism.
- Memorandum of cooperation between the Ministry of Rural Development and Ktimatologio SA. The annual report does not include more relevant details.

Based on the deficiencies in the annual reports, we conclude that the list is so limited because of the small number of annual reports that we have received and not because there is no actual collaboration among PA institutions.

The issuing of the NGP is expected to facilitate the shared use of geospatial information in the public sector, within a clear and uniform framework.

#### **4.5.2 Technologies that facilitate collaboration and participation**

The above actions to facilitate cooperation should be supported by the development of technologies that will facilitate interoperability, hence, reduce the resources consumed for carrying out any work required.

The development of the NGII information system and of the National Geoportal will provide all the technologies that will ensure the fulfilment of the essential requirements of the national infrastructure

---

<sup>11</sup> Relevant press release: [http://www.okxe.gr/el/nea-anakoinoseis/deltia-typou/2013/114-dt-01\\_-2013](http://www.okxe.gr/el/nea-anakoinoseis/deltia-typou/2013/114-dt-01_-2013)

<sup>12</sup> We were informed neither by the FCP of the Ministry of Environment, Energy and Climate Change nor by the Ministry of National Defence that the memorandum had been signed. This information comes from another source.

and the participation of Greece in INSPIRE. Until then, HEMCO pilot actions are aimed in this direction.

The most important action is the creation of a national geoinformation list, in order to enable all interested parties to discover geospatial resources, access them through interoperable web services and know the terms and conditions so as to make good use of them.

To date, a number of information systems have been developed. These systems gather valuable information about the environment, energy, natural assets, land uses and coverage, the sea, etc. To take note of this information, users should refer to the websites of the entities within which these information systems operate. Once users have discovered them, they can only see the data, because the developed network services are only consumed by the applications themselves, i.e. there are no suitable programming interfaces (APIs) so that data could be integrated into other applications. Of course, there are also some good practices. A limited number of operators make their data available through interoperable web services. For example:

- The YPEKA Regulatory Authority for Energy (<http://www.rae.gr/geol/>)
- The YPEKA Special Secretariat for Water (<http://thyamis.itia.ntua.gr:8080/geonetwork/srv/en/main.home>)

It should be noted that a major Community-funded programme for the development of electronic services (NSRF 2007-2013) is currently being completed. Many bodies are carrying out or will carry out projects through the “Digital Convergence” Operational Programme. These may involve the creation or procurement of geospatial data and services.

For this reason, the first electronic HEMCO list of geospatial resources<sup>13</sup> was developed, providing a search service according to the INSPIRE Directive requirements and the technical instructions issued for its implementation. The list enables entities which have developed and operate web directory and map services to link their data and make them searchable and available from a central point, at national and European level. Moreover, the data are also provided via a web map service (WMS & WMTS) and, for some of them, it is allowed to upload a copy on the user's computer.

This first registry includes a very small part of the data sets within the scope of the INSPIRE Directive, as declared by the data producers themselves to the National List, which is updated annually. Section 4.1 includes comments on the low participation.

---

<sup>13</sup> <http://www1.okxe.gr/geonetwork/srv/en/main.home>

## **5 Use of the NGII (No 14)**

### **5.1 Use of the NGII geospatial services**

Information on the use of infrastructure is collected by filling in the appropriate field of the National List of geoinformation of the number of users of the geospatial services declared by the PAs and the FCP.

Unfortunately, since 2010, when the National List of geoinformation was created, but also in all the subsequent updates, the FCP did not submit data on the use of the declared web services (see general indicator NSi3= 0 and specific indicators NSi3,1 = NSi3,2 = NSi3,3 = NSi3,4 = NSi3,5 = 0). The complete lack of this information is probably due to the absence of a suitable process for counting the users of the geospatial services of MAs. It is expected that the problem will be solved with the development of the NGII information system, since such functionality has been provided for.

### **5.2 Examples of use of geospatial data sets**

It had been required to include in the annual reports submitted by the FCP for the years 2010 - 2013, examples of the use of geospatial data provided to the country's PAs by other PAs. Most of the FCP did not respond to the demand. The few responses that we received concerned the following uses:

- Spatial planning
- Environmental studies
- Updating of mapping databases
- Developing web applications for the presentation of thematic data
- Performing administrative acts which require spatial information (e.g. information contained in the database of cadastral parcels)
- Spatial analysis

### **5.3 Use of the NGII by the public**

At present, no such data is available. After the NGII development has been completed, information on the use of geospatial data and the corresponding services will be collected in an automated manner and with special forms that users will be asked to complete, also providing information on the possible uses of the data.

It should be noted that, in order for the data to be used by the public, appropriate information and awareness-raising campaigns should be organised and services and added value applications should be developed for non-specialised users.

In this context, in December 2012, HEMCO organised a one-day event to announce the launch of the pilot national services and map services. HEMCO offices were open to the public until late in the afternoon, citizens and professionals had the opportunity to use the web services in practice on computers that HEMCO put at their disposal for this purpose. During the day, HEMCO officials guided visitors on how to use the Internet services and informed them on the benefits of using the system in their daily work.

#### **5.4 Cross-border use of the NGII**

To date, there have been no relevant partnerships with other EU Member States bordering Greece, either to provide data or to jointly develop data sets regarding areas of competence of more than one country.

Nevertheless, some of the country's PAs participate in international organisations, such as Eurogeographics and it seems that other entities are involved in international projects on maritime areas, like the Hellenic Centre for Marine Research. Relevant information is drawn from the names of data sets and the relative and actual areas declared during the monitoring process for the implementation of the Directive (see fields D, H, & I of the monitoring template).

Moreover, since some of the data sets produced by Greek public authorities are made available through the European geoportal, we are expecting the creation of tools for the monitoring of the use through this portal.

#### **5.5 Use of transformation services**

Transformation services, as defined in the context of the INSPIRE Directive, are not available yet.

After the development of the NGII information system, more data will be made available with the use of various online and other geospatial services.

## 6 Arrangements for sharing geoinformation (No 15)

### 6.1 Arrangements for sharing among public authorities (shared use)

The rules laid down for the shared use of geospatial data and services by PAs and the sharing and access of third parties under a single licensing framework, are described in Law 3882/2010 and will be specified when the NGP is issued.

For the implementation of the Law and the Directive until the issuing of the NGP, the NCG took a relevant decision in its second meeting, in April 2012. The key points of the decision are:

1. PAs are obliged to ensure everyone's access to the public data that they manage or possess, with regard to the restrictions set out in Article 10 of Law 3882/2010 (e.g. confidential data).
2. Regardless of the availability of data to other public authorities or third parties, public authorities should make a distinction between:
  - i. Data which they want or must make available completely freely, free of charge and openly, for all uses, and
  - ii. data from which they should keep earning some revenue.

For both cases of geoinformation disposal, public authorities may use the first standard open licences<sup>14</sup> drafted by HEMCO. In this way, we achieve the implementation of the first single licensing framework for public geoinformation, which will be supplemented and then specialised with the adoption of the NGP.

3. There are charges only when the data is made available to third parties. In any case, and in accordance with Article 27 (1) (2) of Law 3882/2010, the disposal of geospatial data to PAs and entities with judicial or legislative power must be free of charge.

HEMCO contacts in the last two years and systematic research conducted through questionnaires showed that there is a frequent and repeated need to access and use some data sets produced by public authorities. Regarding this data, the NCG decided that the provisions of Law 3882/2010, of Directive 2007/2/EC (INSPIRE) and of the rest of the national and Community legislation, should be implemented immediately.

Regarding the data for which there are prior agreements that prohibit the implementation of Law 3882/2010 and of the NCG decision, the NCG decided to immediately withdraw the conditions that prohibit the implementation of the Law.

---

<sup>14</sup> The standard licences are available in:  
[http://www.inspire.okxe.gr/index.php?option=com\\_content&view=article&id=95&Itemid=108](http://www.inspire.okxe.gr/index.php?option=com_content&view=article&id=95&Itemid=108)



In this context, the tight deadlines for the implementation of the INSPIRE Directive should be taken into consideration. According to the Directive, the provisions adopted for its implementation should start being implemented in new contracts on geoinformation from October 2011 and until April 2013, relevant issues that arise with regard to existing contracts, must have been harmonised.

For the most effective use of already produced geoinformation, public authorities should facilitate its widest possible exploitation. For example, logos, which are incorporated in digital geospatial data and alter the primary geospatial information, should not be used. With regard to the authenticity of products, instead of degrading the quality of their data and hindering their use, operators can use digital signatures which preserve the source of the data, ensure the preservation of their quality and allow easy control in order to identify any changes or alterations in the information by third parties. Another way is to add appropriate terms to refer producers to the licences with which they make their data available.

The NCG decision should be incorporated to relevant decisions by the entities responsible for the production, maintenance and distribution of geospatial data and services. Unfortunately, to date, no relevant decision has been issued. For more information about the non-implementation of the NCG decision and suggested remedies, see section 8.

On its part, the HEMCO management, as one of the best examples of good practice by a public body that produces significant and contemporary geospatial information, has already made relevant decisions on the data produced by the organisation<sup>15</sup>. Most of the HEMCO data is available free of charge for all uses via Internet technologies (web mapping and uploading services, ftp servers).

The licences used for the disposal of the HEMCO data and those proposed to be used by other PAs are:

- Creative Commons Creator's report 3.0 Greece
- Open Licence for the Use of Public Geospatial Information (Version 1.0)
- Non-commercial Licence for the Use of Public Geospatial Information (Version 1.0)

Electronic licensing is not used yet. For the development of the NGII information system, the electronic licensing functionality has been provided for and, for this purpose, it is suggested to use the OGC specification, Abstract Specification - Topic 18 - Geospatial Digital Rights Management Reference Model, according to the proposals contained in the delivery of Network Services Drafting Team with code D3.5, called "Network Services Architecture v3.0".

## 6.2 Arrangements for sharing among public authorities and EU institutions

According to Article 27 of Law 3882/2010, the provisions relating to the shared use of geospatial data and of the corresponding services by the PAs of Greece apply in the same way for the PAs of other

---

<sup>15</sup> HEMCO MB Decision on the free disclosure of all the spatial data of the organisation to agencies with which a relevant cooperation memorandum has been signed:

[http://www.okxe.gr/images/DocPaths/Praktika/%CE%A0%CE%A1%CE%91%CE%9A%CE%A4%CE%99%CE%9A%CE%9F\\_500.pdf](http://www.okxe.gr/images/DocPaths/Praktika/%CE%A0%CE%A1%CE%91%CE%9A%CE%A4%CE%99%CE%9A%CE%9F_500.pdf)

HEMCO MB Decision on the free distribution of orthophotomaps without charge:

[http://www.okxe.gr/images/DocPaths/Praktika/%CE%A0%CE%A1%CE%91%CE%9A%CE%A4%CE%99%CE%9A%CE%9F\\_535.pdf](http://www.okxe.gr/images/DocPaths/Praktika/%CE%A0%CE%A1%CE%91%CE%9A%CE%A4%CE%99%CE%9A%CE%9F_535.pdf)

EU Member States, for EU institutions and agencies and entities established by international agreements and to which the EU and its Member States are members, solely for the purpose of exercising functions within their competence and which may have an impact on the environment.

Currently, all the geospatial data available through the HEMCO pilot web service for the NGII and the INSPIRE and drawn by the INSPIRE Geoportal, can be used by all the PAs of EU Member States, EU institutions and the public, free of charge. The data is provided with the Creative Commons Creator's report 3.0 Greece licence or the Open Licence for the Use of Public Geospatial Information (Version 1.0). The terms of use<sup>16</sup> of the discovery and mapping services are posted on the HEMCO website.

Upon the issuing of the NGP, new licences will be issued based on the provisions of the Law and the Directive and will also be harmonised with the licences proposed following Regulation No 268/2010.

### 6.3 Obstacles to sharing and actions to overcome them

Three years after the adoption of Law 3882/2010 and the transposition of the INSPIRE Directive, in some cases their implementation is problematic.

Lack of Law enforcement is observed in the case of public limited liability companies. Establishing such companies with the Greek government being the only shareholder is a common practice which aims at the simplification of procedures and the faster completion of the projects assigned to these companies. These companies are financed by the Greek government to generate data, which is not easily shared with other public authorities, and they do not intend to make this data available to citizens and entrepreneurs if this does not entail some revenue for them.

Another issue regarding the implementation of Law 3882/2010 is raised by YEA services and concerns the protection of data that can jeopardise the country's security. It is clear that this data is protected both within the scope of Law 3882/2010 (Article 10) and by the INSPIRE Directive (Article 13). The fact that these graded data are sold at an extremely high price, so access to them is not prohibited, may lead to the conclusion that these entities do not aim to protect national security, which is already ensured, but to keep earning a lot from selling them. The protection of the information that YEA services have at their disposal is an issue that should be updated on the basis of international practice and experience. The practice of billing data to which access is not prohibited, but, instead, is allowed with a fee, is totally inconsistent with the provisions of national and Community Law.

The fact that some public authorities that generate data sell them even to other public authorities, have significant revenues and use this activity as an advantage and reason to be preserved as organisational units, in view of the radical reorganisation of the public sector, might also create a problem.

---

<sup>16</sup> Terms of use of HEMCO Internet services:

[http://www.okxe.gr/images/DocPaths/%CE%9F%CE%9A%CE%A7%CE%95\\_%CE%9F%CF%81%CE%BF%CE%B9\\_%CE%A7%CF%81%CE%B7%CF%83%CE%B7%CF%82\\_%CE%A5%CF%80%CE%B7%CF%81%CE%B5%CF%83%CE%B9%CE%B1%CF%82\\_v1.0.pdf](http://www.okxe.gr/images/DocPaths/%CE%9F%CE%9A%CE%A7%CE%95_%CE%9F%CF%81%CE%BF%CE%B9_%CE%A7%CF%81%CE%B7%CF%83%CE%B7%CF%82_%CE%A5%CF%80%CE%B7%CF%81%CE%B5%CF%83%CE%B9%CE%B1%CF%82_v1.0.pdf)

According to the 2011 survey on Decentralised Administration and Local Government, 65% of participants believe that their entity possesses data, which is produced by co-funded geomatics projects, but not freely available.

The problems identified regarding shared use and the sharing of geospatial data and services can be classified as follows:

- Incomplete or fragmentary implementation of the rules laid down by the Law and the Directive on shared use of geospatial data sets and services. This is mainly due to the fact that some PAs wish to charge high prices for their products, even when they are to allocate them to other public authorities. Another small percentage of PAs has doubts about how to use the provisions of the Law and the new technological possibilities to allocate their data for shared use and/or to allocate them freely to third parties.
- Non-interoperable information systems for storing and managing the geospatial data of PAs. Consequently, resources are required to harmonise them with the technical requirements of the INSPIRE Directive.
- Lack of know-how among the staff of the PAs on modern geomatics technologies.
- Incomplete Law enforcement when violations are identified in national and Community Law. Usually, even when problems are identified, Public Administration does not impose sanctions.
- Lengthy procedures for issuing the EPDGY and the NGP, which, according to the provisions of the Law, are going to be issued as acts of the Cabinet. This is expected to facilitate their implementation.

Consequently, although we currently know that the PAs of the country, which, as the FCP that represent them have informed us, fall within the scope of the Law and the Directive, produce about 4,000 data sets (in accordance with the perception of the meaning of “dataset” by the PAs that complete the National List), 600 of which are related to central government services and listed in Annexes I, II & III of the Directive, only 30 of these are available by the HEMCO pilot web services and, thus, by the INSPIRE portal.

Unfortunately, the disposal policy of the majority of data producers has not complied so far with the provisions of Law. According to what was stated by the central administration FCP in the reports for the years 2010-2013, the disposal policy is as follows:

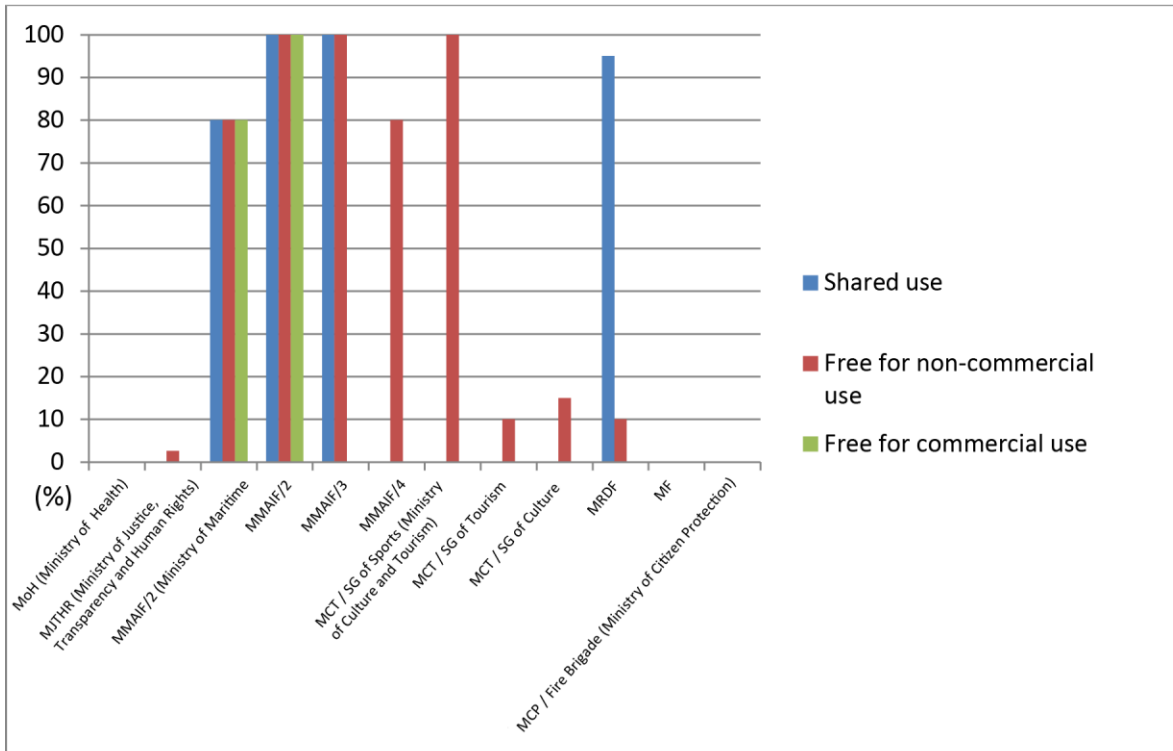


Figure 4: Percentage of the geospatial data of central administration PAs, freely available for non-commercial and commercial use.

The disposal policy in the decentralised administration and local government services, according to a questionnaire survey conducted at the end of 2011 (a few months after the establishment of FCP at this level of Public Administration), is shown in Figure 5.

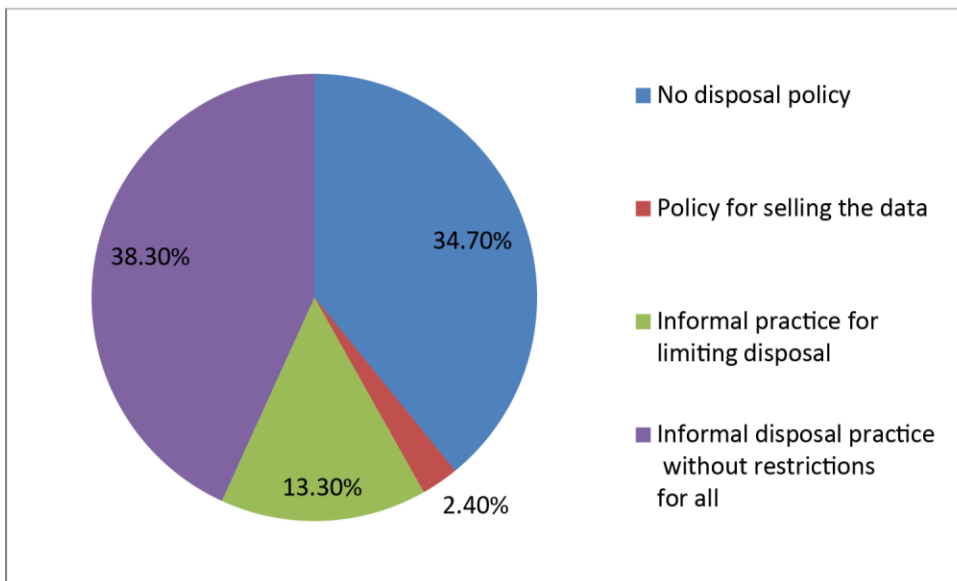


Figure 5: Percentage of the geospatial data of central disposal PAs, shared with other PAs, freely available for non-commercial and commercial use. (Source: "Report on the results of the evaluation of the

current implementation of Law 3882/2010 in Municipalities, Regions and the Decentralised Administrations in the country and suggestions by FCP members for improvement.”, [http://www.inspire.okxe.gr/images/Files/FCP\\_OTA/report.2012.pdf](http://www.inspire.okxe.gr/images/Files/FCP_OTA/report.2012.pdf)

HEMCO has undertaken numerous publicity, communication, awareness-raising and support actions, aimed at PA and FCP executives, civil servants, as well as politicians, who have the final responsibility for the proper functioning of the entities that they manage. Some of these people have responded and, on their part, tried to contribute to the creation of the NGII and the implementation of INSPIRE. However, a significant part of the PA ignores the provisions of the legislation, thus jeopardising the success of the project at national and European level.

The drafting and adoption of the NGP is expected to eliminate distortions, create obligations for Law enforcement in the public authorities which insist on implementing restrictive policies for the allocation of the geospatial data they produce and support the PAs that wish to make their data available for all but need a clear framework of licences and rules.

## 7 Cost / benefit valuation (No 16)

### 7.1 Cost of the implementation of the INSPIRE Directive

The NGII development, currently taking place in Greece, is designed in such a way so as to meet the standards set for the implementation of the INSPIRE Directive. Consequently, since all these years there was no national geoinformation infrastructure which would currently need to be appropriately transformed to comply with European standards, the cost that this purpose would entail cannot be estimated. However, the scope of the NGII implementation is wider than that of INSPIRE, because it includes all the geospatial information produced in the country (see section 2.1), as well as additional geospatial services. Therefore, it is not possible to determine the cost related only to incorporating the INSPIRE standards to the designing of the system.

The following analysis concerns the cost of developing the NGII, which will be fully in line with European standards and ensure the participation of Greece in the INSPIRE infrastructure.

The amounts required for the development of the NGII can be divided into three categories:

- **NGII development costs:** These costs are related to the development of infrastructures and web services and applications and the establishment of frameworks of standards (EPDGY) and rules for the sharing and shared use of the system and the data.
- **Costs of production of basic geospatial reference data:** These costs are related to the homogenisation of existing geospatial data, in order to create the background to be used for the presentation and dissemination of geospatial data through the NGII information system.
- **Compliance costs for data producers:** These costs are related to the transformation of geospatial data and the development and maintenance of appropriate web services by PAs that produce geospatial data and have to participate in the NGII.

The cost for the development of the NGII will be borne by HEMCO. The information system will be created through a co-financed operation and national and Community funds will be used (see section 2.1. and 9.1 of the Annex). The cost of operating the system after the completion of the project will be covered by the funds available for the operation of HEMCO.

The basic geospatial reference data is going to be produced in the framework of the above co-financed operation by HEMCO. This is not all the geospatial reference data, in which thematic information may also be included. The exact list of National Reference Sets will be determined during the drafting of the NGP. The geospatial data that will probably be included in it and not created under this operation, are considered to have been produced by other public authorities within their competence. Therefore, the production and maintenance costs are related to the third point in the aforementioned list.

The third cost category is related to the resources that must be allocated by the public authorities legally responsible for the production of geospatial data and their disposal through the NGII. In the context of the creation of the National List of geoinformation, which is updated annually, and of the annual report, it has been requested that such cost data be provided. Unfortunately, there is still no complete picture of this cost, mainly because:

- Most PAs have not yet taken action exclusively aiming at compliance with INSPIRE and the NGII. In some of these cases, staff and infrastructure of these entities has been used.
- Some geospatial data sets are produced in the context of studies and it is not possible to isolate only the cost for their production.

An estimation of the cost for each of the NGII components is attempted below. The cost is estimated in working months/working effort or currency units, wherever possible.

### 7.1.1 National List of Geoinformation

Perhaps one of the most important actions that ensured the success of the next steps for the NGII was the recording of all the geoinformation produced in the country, for the first time by HEMCO initiative and in collaboration with the YPEKA in 2010.

The procedures followed are described in detail in section 3.1.3.1. The cost is analysed below in man-years.

- Building the structure of the National List:  
Employing 2 employees of the Directorate of Geomatics and one member of the HEMCO Management Board and a special adviser to the Minister for PEKA for 4 months.
- Developing a code (VB scripts):  
Employing one member of the HEMCO Management Board and special adviser to the Minister for PEKA for one month.
- Elaboration of a guide of use and completed examples:  
Employing 2 employees of the Directorate of Geomatics and one member of the HEMCO Management Board and a special adviser of the Minister for PEKA, for 2 weeks.

### 7.1.2 Pilot discovery and mapping web services for the INSPIRE.

- HEMCO
  - Coordination of public authorities for the collection of geospatial data sets to be made available through the pilot services:
  - Employing 5 people for about two months. Telephone communication with data producers, working meetings, etc.
  - Creating search metadata for 30 data sets and 3 web services, compliance testing:
  - Employing one employee for one week.
  - Preparing 30 sets of geospatial data:

Employing 5 employees for 2 months. The data was not transformed in accordance with the interoperability standards of INSPIRE, as it existed at the time when the relevant regulations for interoperability and harmonisation were put into effect, so there is no obligation to comply with the relevant standards yet.

- Software procurement:

Free, open source software was used to organise geospatial data, create and control metadata and develop the list and the web discovery and mapping services. The licence of the software allowed customisation and use free of charge. Therefore, there was zero cost for the procurement of the software.

- Customisation and operation of applications and web services:

Employing 2 employees for 3 months.

- Equipment:

Procurement of two SSD hard drives for EUR 400

- Internet infrastructure:

Upgrading of the Internet-providing services from 8Mbps to 24Mbps by increasing the monthly cost from EUR 1,000 to EUR 1,400.

- Other PAs

The PAs involved in the pilot infrastructure with their geospatial data took no action. HEMCO undertook the necessary preparation of the geospatial data and the metadata.

### **7.1.3 Information system for the National Infrastructure of Geospatial Services and National Geoportal (budget)**

A bidding process is underway for the NGII information system and the setting of the necessary standards, as well as for the mechanisms and tools for the cooperation of the network of involved parties. The budgeted expenditure is analysed below. The final cost will arise from the financial bidding of the candidates to whom the projects will be assigned.

**Some of the budgeted amounts, which, however, have not been spent in the 2010-2013 period, which this report concerns, are listed below.**

- HEMCO
  - Drafting of the EPDGY and updating during the development of the information system: EUR 430,000
  - Drafting the NGP: EUR 370,000
  - Drafting generalisation specifications: EUR 98,400
  - Framework for cooperation among stakeholders and development of appropriate applications and tools: EUR 70,000



- NGII registers, metadata and application development: EUR 200,000
- Designing, development of the NGII: EUR 144,000
- Development of web services and of an information system: EUR 540,000
- National Geoportal: EUR 300,000
- Training of administrators and users: EUR 38,000
- Transformation of geospatial data sets and creation of metadata:

In the context of the implementation of the project, NGII initialisation works will take place, i.e. an adequate preparation and transformation of geospatial data, for their integration into the system and the creation of the corresponding metadata. It has been estimated that the budgeting of these works will require the work of five employees for a 14-month period. Their work will cost EUR 350,000.

- Publicity: EUR 58,300
  - IT infrastructure: The system will be developed and initially operate on virtual machines that will be provided by the contractor. Subsequently, there is going to be a transition from the virtual machines to public administration infrastructures or private infrastructures, which will be managed by HEMCO. It is not possible to estimate the cost, as it is not currently possible to measure the dimensions of the system.
  - Operation: After the development of the system, its 4-month pilot operation will be undertaken by the contractor and has been estimated at EUR 15,000. Subsequently, HEMCO will undertake the operation of the system. The operation cost will be covered by the funds available for the operation of HEMCO and it cannot be estimated at the time being.
  - Maintenance (equipment, applications, updating of specifications etc.): It is not possible to determine the maintenance cost of all the components of the system before the beginning of its production operation.
- Other PAs

Several projects, possibly related directly or indirectly to geospatial information, are being implemented during the National Strategic Reference Framework (NSRF) funding period. HEMCO has not received any relevant quantitative data.

#### **7.1.4 Implementation monitoring and reporting**

As detailed in section 3.1.3, the processing of the data collected for drafting the progress reports and the calculation of the indicators for monitoring the implementation of the INSPIRE Directive are done manually. For this purpose, the HEMCO staff is employed without additional cost.

Employees from the competent entities are used for the collection of the data from the FCP and the PAs that they represent. In these cases as well, all procedures are carried out manually. As emphasised by several FCP officials through their annual reports, this is very time-consuming and

detrimental to the rest of their responsibilities. This problem is expected to be dealt with by operating the NGII information system and automatising many of these procedures.

#### **7.1.5 Coordination of the network of involved parties and implementation of horizontal measures**

The works related to the coordination of the network of stakeholders are undertaken by HEMCO and are they following:

- Communicating with and supporting the network of the about 350 FCP committees operating at all the levels of the PA.

These actions are included in the duties of the employees of the HEMCO Directorate of Geomatics.

- NCG operation (recommendations, preparation of meetings, secretarial support, dissemination of information about the meetings and the decisions of the committee).

No financial compensation to members is provided for within the scope of the operation of the NCG.

The preparation of the meetings and the elaboration of the recommendations are undertaken by the HEMCO Directorate of Geomatics, with no additional cost besides staff salaries. The meetings take place in HEMCO or YPEKA premises.

The only cost resulting from the operation of the committee is the cost of recording and transcribing the recordings of the meetings, which amounts to approximately EUR 400.00 per meeting.

- Training, awareness-raising, information actions (see paragraph 3.1.2.5)

Regarding training activities, the cost of conducting seminars, the travelling and accommodation expenses for the HEMCO employees that spoke at the seminars and the cost of participation for the PA officials who attended them, were covered by NSPF funds exploited by the Training Institute of the National Centre for Public Administration.

Regarding the cost of the actions for informing the public and raising awareness with one-day conferences taking place in various Greek cities of Greece, from 2010 until the end of 2012, the following amounts were spent:

<b>Expenses to cover the cost of organising one-day conferences and events for informing and raising-awareness among the public regarding the NGII and INSPIRE.</b>		
Two-day HEMCO seminar on the development of the NGII	19-20/11/2010	EUR 18,700.00
Evening events for the NGII and the FCP in Thessaloniki, Kalamata and Iraklio, Crete	23/11/2011, 6/12/2011 and 14/12/2011	EUR 3,100.00
Open HEMCO event to present the INSPIRE pilot web services	20/12/2012	EUR 7,600.00
Special HEMCO edition (see section 4.5)	December 2012	EUR 4,300.00

- Participation in EU working groups for the development of INSPIRE

The HEMCO officials who are responsible for communication with the EU and the implementation of the INSPIRE Directive, participate in working groups, meetings of the INSPIRE Committee and the annual conferences organised on the European infrastructure.

The travel expenses for their attendance at the INSPIRE committee meetings are covered by the EU. The cost of the above actions for the period 2010 - 2012 can be analysed as follows:

<b>Expenses to cover the cost of participation in meetings and conferences on the implementation of the INSPIRE Directive.</b>		
Participation in the 6th meeting of the INSPIRE Committee (1 person)	17/6/2010	EUR 515.00 (does not include the cost of the air ticket, which is covered by the EU)
Attending the 2010 annual conference for INSPIRE (1 person)	22-25/6/2010	EUR 1,464.00
Participation in the 7th meeting of the INSPIRE Committee (1 person)	16/12/2010	EUR 308.00 (does not include the cost of the air ticket, which is covered by the EU)
Participation in the 2011 annual conference for INSPIRE (2 persons)	27/6/2011 - 1/7/2011	EUR 4,900.00
Participation in the 8th meeting of the INSPIRE Committee (1 person)	9/12/2011	EUR 434.00 (does not include the cost of the air ticket, which is covered by the EU)
Participation in a meeting for inspecting the functionality of the new INSPIRE geo-portal (1 person)	13-15/2/2012	EUR 580.00

Participation in the 9th INSPIRE committee meeting (1 person) and in a workshop on monitoring the implementation and the drafting of reports regarding the implementation of the INSPIRE Directive (1 person)	13-14/11/2012	EUR 480.00 (does not include the cost of the air ticket, which is covered by the EU)
Participation in the 10th meeting of the INSPIRE Committee (1 person)	8/4/2013	EUR 240.00 (does not include the cost of the air ticket, which is covered by the EU)

## 7.2 Benefits from the implementation of Law No 3882/2010 and of the INSPIRE Directive

Given that the NGII information system is not yet productively operating, it is difficult to quantify the benefits resulting from its operation.

During the elaboration of the FCP annual reports, it was requested that an estimate be made regarding the benefits for the PAs that they represent, from the implementation of the NGII and the INSPIRE. The replies are shown in the Figure below.

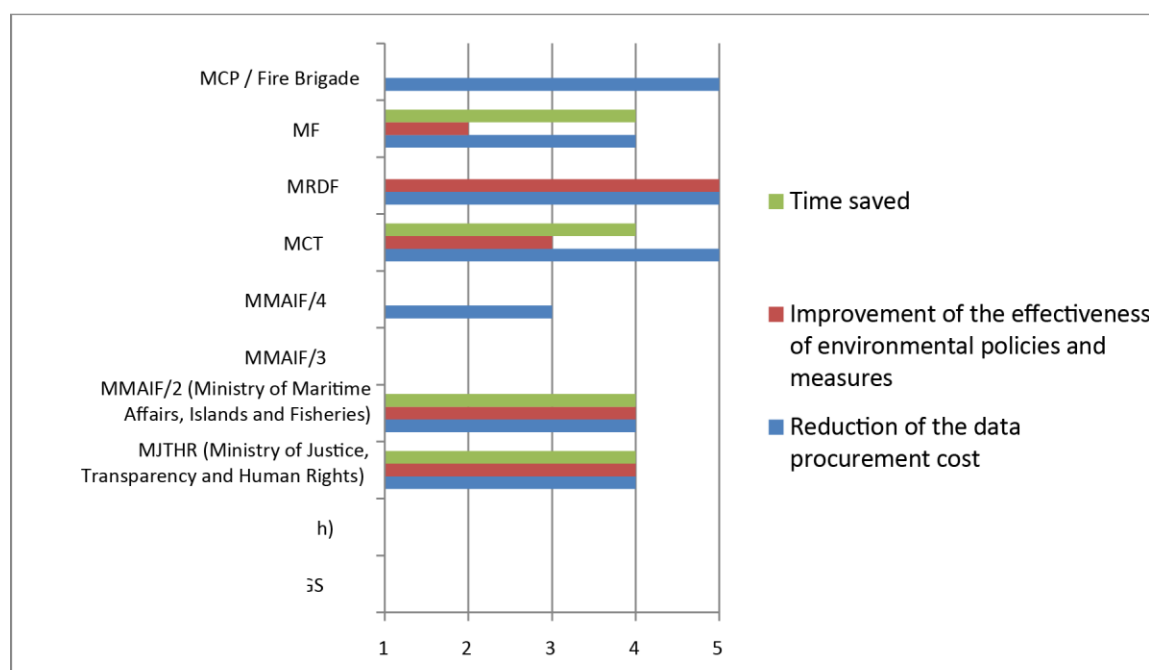
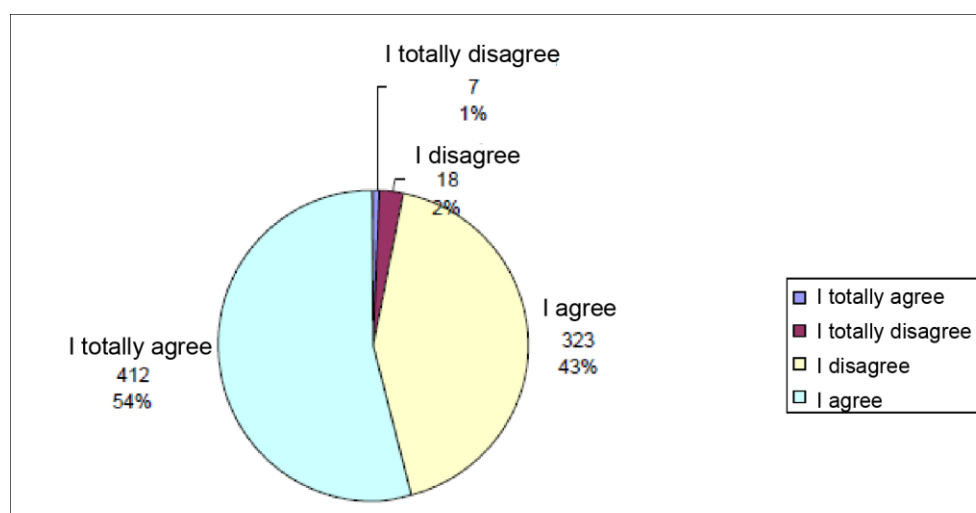


Figure 6: Assessment of the benefit for the PAs represented by the FCP that complete the annual report, in relation to the categories shown in the Figure (grading 1 - 5)

The questionnaire survey to the members of FCP of the Decentralised Administration and the Local Government in 2011 revealed the following interesting result:



**Figure 7: Answer to the question "Should geospatial data be freely available, without charges and restrictions to all the citizens of the country?"** (Source: "Report on the results of the evaluation of the current implementation of Law 3882/2010 in Municipalities, Regions and Decentralised Administrations of the country and suggestions of FCP members for improvement.", [http://www.inspire.okxe.gr/images/Files/FCP\\_0TA/report2012.pdf](http://www.inspire.okxe.gr/images/Files/FCP_0TA/report2012.pdf))

In the following paragraphs, an attempt is made to evaluate the benefits to date, before the full operation of the NGII information system, as well as the benefits that we believe will result and based on which the actions that will lead to the full development of the system will be designed.

### 7.2.1 Efficiency

The efficiency of the investment for the development of an interoperable system for the production and sharing of the geoinformation generated by the Greek public administration, is indisputable.

Even before the productive operation of the system, the National List of geoinformation is an excellent tool, although its completion and updating is very time-consuming for civil servants. Today, when one searches for geospatial information, they do not have to make time-consuming research. They only need to find in the National List all the required geospatial data, evaluate their suitability and contact the competent body. The creation of the electronic registry and of the relevant discovery services will greatly reduce the search time due to the automatization of the process.

Unfortunately, for the process of accessing the data and for their use, modern Internet technologies are still not used. The functioning of interoperable services is very limited and the data is shared by exchanging storage media and emails. Very few PAs make their data available through interoperable web services (e.g. HEMCO pilot services, the RAE information system). Nevertheless, the publicity and awareness-raising campaign on the benefits of operating the NGII and INSPIRE has generated an increased demand for geospatial data created with public funds. Consequently, the bodies that used to prevent the dissemination of geoinformation, without providing a fully reasoned justification, now have to slowly start complying with the Law.

A major problem that used to impede the diffusion of geospatial data, even by bodies that did want to implement the Law, was the delay in issuing the NPG, which is going to include a single licensing frame, pricing rules and standard licences. In order to provide a solution until the NPG is issued, HEMCO suggested to the NCG to take appropriate measures (see section 6.1).

Upon the completion of the project for the development of the NGII and the full participation in INSPIRE, impressive benefits are expected regarding the efficiency of the effort and they can be summarised as follows:

- Reduction of the geoinformation production costs, as the data will be generated once and then reused.
- Reduction of the excessive bureaucracy for the data producer, since web services will be exploited for handling requests.
- Reduction of the time required for the interested party to discover and acquire geoinformation that has already been produced, since web services will be exploited.
- Better and more updated designing of spatial actions, as the competent bodies will have at their disposal the most updated geoinformation and will be aware of the rules for accessing and using it.

### 7.2.2 Effectiveness

The effectiveness of the effort is examined from the aspect of achieving the goals set during project planning. Unfortunately, it is not possible to assess the effectiveness of the effort before its completion. Nonetheless, some examples that demonstrate the effectiveness of specific actions that have been implemented so far can be identified.

<b>Examples of the effectiveness of specific actions</b>		
<b>Objective</b>	<b>Action</b>	<b>Result</b>
Establishment of a network of FCP committees throughout public administration.	Information and awareness-raising actions and on-site cooperation.	Establishment of FCP in all the Ministries in 2010 and in the biggest part of the decentralised administration and local government in 2011 (see section 3.1.2.5).
Training and informing FCP members	Organising information and training one-day seminars throughout Greece.	Training of around 1,000 FCP members throughout public administration.
Valuation of the operation of the FCP.	Carrying out surveys through questionnaires during the one-day training seminars	Gathering completed questionnaires from approximately 800 FCP members FCP, performing a statistical analysis and drafting an appropriate report (see section 3.1.3)

Recording of the geoinformation generated and managed by the PAs of the country.	Creation of a standard list of tools for checking the correctness of entries, accompanied by a user manual, instructional videos and support via telephone and email, and seminars.	Creation of a National List for geoinformation and annual updating thereof.
Need for interim measures to implement the shared use and the free dissemination of public geospatial data, prior to the issuing of the NGP.	Drafting of appropriate recommendation by HEMCO.	Issuing of a NCG decision. Waiting for corrective actions and the implementation of the decision.
Operation of the web services provided for in the implementing provisions of the INSPIRE Directive.	Development of pilot web services by HEMCO and request that the public authorities for which an obligation arises can participate and receive support.	Web services have been successfully developed and connected with the European geoportal. Large data producers, especially the YPEKA, which generates the largest amount of data that falls within the scope of the implementation of the Directive, did not participate.

### 7.2.3 Wider socio-economic benefits

Many benefits result from open access to public geospatial information and they should be considered beyond the limits of compliance with the Law. The uses for the generated geospatial information cannot be predicted until this information is freely available to everyone and new products and value added services start being developed.

Some examples of the use of geospatial data and new geomatics technologies are mentioned below:

- Exploitation of the data set of urban transport connections, so that it is used for other purposes, apart from the scheduling of transportation by citizens:

During a one-day seminar about the NGII, a fire brigade employee was thrilled to hear that the Athens Urban Transport Organisation was going to post the city bus connections. The reason was that, if the fire brigade is aware of the routes that large vehicles like city buses can use, it can better schedule the itinerary of fire engines, which is extremely important in emergency cases. By extending the use of this geoinformation, for example to the National Emergency Centre (ambulance fleet), we can say that geospatial information can even save lives.

- Transparency and actual participation of citizens in governmental decisions:

In recent years, it is common practice to consult on draft laws and presidential decrees, aiming to achieve the actual participation of citizens in governmental decisions.

In 2011, the draft presidential decree on the protection of small island wetlands by the YPEKA was set in consultation. The draft decree was accompanied by about 380 maps of the wetlands for which regulations were to be set out (the maps were elaborated by HEMCO within the context of supporting the YPEKA). These maps were published in PDF form. It is easily understood that citizens, who were invited to participate in the consultation, would have great difficulty in identifying the area around each wetland, especially if this wetland was depicted in an A4-dimensions map, on a 1:2500 scale and covers an area of about 0.5 hectares.

For this reason, HEMCO upgraded the consultation process even more. It set in consultation the digital file (shapefile) of the wetlands' polygons and posted it on an appropriate web application for the mapping of geospatial data, which provides the possibility to download a copy. In this way, the interested parties could navigate the broader area, identify their property, if any, combine the file in their disposal with other data and, thus, be able to actively participate in the consultation.

#### **7.2.4 Negative results from the implementation of Law No 3882/2010 and of the INSPIRE Directive**

In HEMCO, we believe that the development of the NGII and the corresponding European INSPIRE infrastructure can only have positive results. Nevertheless, there are still many obstacles to overcome, many bad practices to correct and it should become a common belief that the geospatial data created with the money of Greek and European taxpayers are not the property of specific data producers. On the contrary, they are a national capital that the Greek government should make maximum use of, by making it available among public authorities and to society, in order to add value to it and create a financial product.

However, all this requires finding the resources to develop the infrastructure and ensure its sustainability and to create and guarantee the viability of data. The HEMCO planning for the NGII is based on the belief that the final user should not have to pay for the data. The Greek state will have to provide the necessary resources for the production of data and the provision of services. Subsequently, with the free dissemination to citizens and entrepreneurs, the creation of economic value products and the provision of services, this investment will yield, through entrepreneurship and savings, much more significant benefits for the State. This is what has been shown by relevant international studies, which have already been examined by HEMCO and presented to the NCG.<sup>17</sup>

---

<sup>17</sup> HEMCO proposal to the NCG - April 2012: [http://www.inspire.okxe.gr/images/Files/ETHEG/eisigisietheg2\\_v1.0.pdf](http://www.inspire.okxe.gr/images/Files/ETHEG/eisigisietheg2_v1.0.pdf)



It may be difficult to implement the above standard in this particular economic situation for Greece. In a period of cuts in public spending, it may be difficult to allocate funds to create and preserve geoinformation and to operate the NGII.

The replies of FCP, in their annual reports, when asked to “Indicate potential negative consequences by the implementation of the NGII and INSPIRE for the PAs that you represent”, are listed below:

1. The procedure of updating the metadata and the National List of geoinformation, in its present form, is time consuming.
2. Some data producers already have contracts with international bodies, which do not allow them to implement shared use and the open, free of charge disposal of the data they produce.
3. Some services are unable to bear the cost of digitising analogue data.
4. The legal framework on the terms and procedures of providing geoinformation and on pricing is not clear.
5. There is a need for a clear and safe framework for the protection of sensitive data.

The above replies lead to the following conclusions:

- The creation of the electronic registry in the context of implementing the project for the development of the NGII information system will facilitate participation and save productive time (point 1).
- The issue of international agreements and their compatibility with the INSPIRE Directive should be addressed centrally on an international level by the relevant bodies (point 2).
- The issuing of the NPG will provide a single framework for accessing and pricing information and for licensing. HEMCO should expedite procedures, to the extent that it is involved in them. On the other hand, the competent bodies involved in the procedures for the implementation of co-financed projects, must pay the attention required for the implementation of such an important e-Government project and it is certainly necessary that this effort receives political support which, in many cases, sets the priorities (points 4 and 5).
- Regarding point 3, neither the Law nor the Directive requires the collection of new sets of geospatial data. Even the expansion of the scope of the implementation of Law 3882/2010 to analogue data means cataloguing and integrating them to a single registry, not mandatorily digitising them. The conversion of data sets from analogue to digital form should be considered to address the need of public bodies to carry out their duties, it should be performed based on the standards set for the NGII and the INSPIRE Directive but not be caused by them.

## 8 Conclusions and proposals for improving practices

During the last three years, there was a spectacular revival of actions by HEMCO and a large part of the Greek public administration for the creation of the NGII and participation in the European INSPIRE infrastructure.

The first and largest inventory of the geospatial information produced in the country has been completed, appropriate committees (the FCP) were set up, representing the majority of the public authorities competent to enforce the Law and the Directive, more than 1,000 PA officials have been updated at dozens of one-day seminars across the country, the public, the academic community and entrepreneurs have attended and participated in relevant open days organised since 2010, the political body responsible for determining geoinformation policy (NCG) has been established, has already met twice and, at its second meeting, took a significant decision regarding the sharing of geospatial data. Moreover, the large co-funded project for the development of all the NGII components has been designed. All the above has been achieved by a small group of people of a cadastral and mapping organisation, staffed, in its entirety, by only 30 employees.

Three years after the transposition of the INSPIRE Directive, this report is the appropriate tool to evaluate operations to date and design the measures to be taken for the better enforcement of the Law and the Directive, in order to create a modern geospatial information infrastructure for Greece and Europe.

The previous chapters presented the actions undertaken and supported by HEMCO since 2010 and the results thereof. The following paragraphs present some proposals to improve the implemented practices.

### 8.1 Proposals for improving the NGII coordination and administration

The provision of Law 3882/2010 for setting up the FCP committees, so that the implementation of the Law is supported by all the PAs within the, very broad, NGII scope, is, in theory, the only way to coordinate such a large network of PAs and persons, considering that:

- the FCP are staffed by the most appropriate employees, and
- have direct contact with the conditions of producing and preserving the geoinformation produced by each PA

However, while in most cases, public officials - FCP members have done their best and have worked overtime to fulfil their new duties, very few FCP have not met their obligations. We believe that this is because FCP committees are not supervised by an official unit of the bodies they represent. As a result, there is no effective control of their operation.

Another risk that may arise from the provision of Law 3882/2010 for the establishment of one to five FCP in each Ministry is that some of the competent PAs might not be represented by a FCP committee. For example, a FCP committee set up by a Ministry might represent only part of the Ministry's PAs which produce geospatial data.

It becomes even more necessary to monitor the correct operation and staffing of FCP, considering that the governmental structure has changed at least 3 times in the last three years (Ministry mergers, transferring services from one operator to another, etc.).

These problems have been emphasised by the very FCP members in their annual reports. According to the data they transmitted to us, the problems faced during the operation of the committees are:

- a need for FCP reorganisation after the changes in governmental structure
- under-staffing of services
- a need to assign FCP secretarial support to an organisational unit of the entity
- a need for continuous training
- a need for further updating and raising awareness among the Directors of the competent PAs

The HEMCO proposal which we expect will deal with the above problems is the following:

- In view of the ongoing reorganisation of the public sector, provision should be made for the appropriate regular units of the Ministries to be responsible for the implementation of the Law and the Directive. This responsibility should be clearly described in the new, currently elaborated, organisational charts.
- In the same context, an appropriate service should be assigned to support and supervise the operation of the FCP committees. This service should keep a list of the PAs represented by each FCP, if more than one of these committees operates within the body.
- The above service, responsible for the operation of the FCP, should make sure that a suitable decision is taken for the reorganisation of the FCP after any change that may affect the implementation of Law 3882/2010, such as changes in the structure of the body, in the FCP composition (e.g. removal of a member), etc.
- Each FCP should keep a list of the PAs that it represents, as well as the details of their employees responsible for communication with the FCP.

This enables the implementation of the provisions of the Law and the Directive by the appropriate PAs, it becomes clear which FCP committee represents each PA, it is ensured that the FCP committee is integrated in the applicable organisational structure of the body and the operation of the FCP is supervised and coordinated by an organisational unit of the body.

Apart from the administrative and organisational measures for the improvement of the FCP operation, the matter of continuously training FCP members and the staff of PAs responsible for implementing the Law and the Directive should be a priority in planning the development of a sustainable infrastructure. After the very successful collaboration of HEMCO with the INEP and the EKDDA, the organisation is planning to begin appropriate consultations with the EKKDA, in order to integrate training on the NGII in the INEP planning for the upcoming period.

Regarding the coordination of the NGII development, some of the difficulties involved in operating the NCG should also be identified. The NCG is an entity intended to be composed of 15 members. Most of its members are politicians and this adds weight to the decisions of the committee and serves its purpose, which is to determine the policy on geoinformation and monitor its implementation, in addition to the issues related to the technical implementation of the NGII. At the same time, this feature also creates a certain delay.

During the last three years of the implementation of Law 3882/2010, the structure of the Greek government has changed several times. As a consequence, the NCG has to be reorganised before each meeting. The time required for communication with all the members, so that they are updated, provide the necessary information for the adoption of the reorganisation decision and for all the necessary legal controls to be carried out, is approximately 3 months.

The HEMCO proposal for addressing the problem is to change the NCG composition, so that it consists of fewer members. The relevant decision is taken by the Prime Minister, upon the recommendation of the Committee itself. The actual participation of the institutionally competent parties in Committee meetings, when issues within their competence are being discussed, is ensured by a relevant provision of Law 3882/2010 (Article 17(2 )) and the NCG Operation Regulation (Article 2( 2)).

For the implementation of the above, HEMCO has already taken some action and will take all the measures required, within its competence.

## **8.2 Proposals for the efficient NGII development and operation**

The creation of the most modern infrastructure and web applications without the participation of geospatial data producers, does not guarantee the success of the effort. Considering that the participation in the INSPIRE and the NGII development are simultaneous, HEMCO coordination and support is of crucial importance, but the participation of PAs and the opening of geospatial data by the relevant producers are even more important.

The matter of raising awareness among data producers regarding the benefits of creating the INSPIRE and national infrastructures has already been brought to the attention of the community by various relevant organisations and bodies, during conferences and international meetings and during INSPIRE Committee meetings.

For its part, HEMCO, even before the development of the integrated NGII system, takes the measures required for gradual compliance with the requirements of the INSPIRE Directive and can support the PAs which do not yet possess expertise and infrastructure.

The elaboration of the EPDGY and the NPG, as well as the development of the NGII information system, have already been initiated (see section 9.1 of the Annex). Guidelines and technical tools for the interval have already been provided by HEMCO (e.g. NCG decision of 2 April 2012, pilot discovery and mapping web services for INSPIRE. etc.). For the development and operation of the infrastructure, decisions are required by the bodies responsible for data producers that fall within the scope of the Law and the Directive, so that these producers are supported, guided or obliged, where necessary, to make their data available to the public sector and adjust their policy of disposal to third parties with the conditions in the relevant legislation.

### **8.3 Proposals for the implementation of shared use and the facilitation of geoinformation sharing, in the context of the NGII**

Until the issuing of the NPG, in order to facilitate data producers during the implementation of the legislation, HEMCO has already suggested relevant measures to the NCG. The HNC voted in favour of the suggestions, but the implementation of the measures is still problematic.

HEMCO plans to propose to the institutionally competent bodies that the situation of each data producer be assessed separately, in order to identify potential problems and start dealing with them, focusing on the particularities of each body.

### **8.4 Analysis of the process of monitoring and reporting and improvement proposals**

Section 3.1.3 described the procedures followed to monitor the implementation of the Law and the Directive and to elaborate the reports provided for.

Until the integrated NGII system starts operating, the results of the monitoring of the implementation and the elaboration of the reports may be problematic, mainly because the procedures today are manual and HEMCO does not have access to the data and management environments of the services as those are declared by the data producers.

This problem is also present in the monitoring procedures implemented by the European Commission. When the web services registry (INSPIRE Registry) started operating, inconsistencies were identified between the elements declared by Member States and the elements that resulted from drawing data from web services.

In HEMCO we face the same problem, which is expected to be solved with the operation of the NGII information system and of the tools for the automatic or semi-automatic monitoring of the implementation of the Directive.

Regarding the elaboration of the progress reports submitted annually to the NCG and every three years to the EU, the data collected by FCP is extremely incomplete. In 2012, the competent FCP, except for the FCP representing the General Secretariat of Public Works of the former Ministry of Infrastructure, Transport and Networks, did not send any annual reports to HEMCO. In 2013, the response was better, but, although officials of the HEMCO Directorate of Geomatics had telephone communication and appointments for cooperation with FCP members, aiming to raise awareness among them, it remained incomplete, the absence of the YPEKA being the most significant one. This malfunction makes the need for the operation of FCP to be monitored by an administrative unit of the

competent bodies, the need for a clear description of responsibilities and the high-level political support of the actions necessary to the NGII, even more urgent. Furthermore, training activities should be intensified and become a priority. These arrangements will improve the functioning of this very large network and will reveal and make use of the very good practices and the worthwhile effort of a very large part of colleagues - FCP members who fulfil their duties under difficult conditions.

## 9 Annex

### 9.1 Information on and description of the “National Geospatial Information Infrastructure” project

<p><b>National Framework for Geoinformation and Services Interoperability and National Geoinformation Policy</b></p>	<p>This project subsection includes:</p> <ul style="list-style-type: none"> <li>• the adoption of technical interoperability specifications for geospatial data sets and the corresponding services within the scope of Law 3882/2010 and the INSPIRE Directive</li> <li>• the adoption of the rules, the procedures, the licensing and pricing framework, the quality assurance framework that will define the entire life cycle of the geospatial data and services produced by public authorities.</li> </ul>
<p><b>NGII information system</b></p>	<p>This project subsection includes:</p> <ul style="list-style-type: none"> <li>• the creation of a national electronic spatial information registry</li> <li>• the development of the information and communications infrastructure, so that all public geospatial data be completed, in terms of interoperability, in a single access and use system</li> <li>• the development of the National Geoportal and the ensuring of participation through it in the European INSPIRE infrastructure</li> <li>• the development and provision of the appropriate infrastructure, so that all the PAs that produce geospatial data and make them available through interoperable web services can be connected with the NGII channel of services and, by extension, to that of INSPIRE.</li> <li>• the initialisation of the system by introducing to it sets of geospatial data, geospatial services and their metadata</li> </ul>
<p><b>Creating large-scale maps (1:25000) and generalising their use to produce maps medium and small-scale maps (1:50000, 1:100000, 1:200000)</b></p>	<p>Create backgrounds based on existing geospatial information, which will be completed in a single background that will form the basis on which all sets of the PA geospatial data will be presented, updated and produced.</p>

## 9.2 Establishing a FCP network, informing, awareness-raising and training of stakeholders

Date	Type of action	Action	Comments
2010 - 2013	Information, Training, Awareness-raising Management, Cooperation	Constant communication with the public administration regarding the implemented actions taken and the obligations arising from the PAs. Continuous support by all available means (letters, emails, user manuals, instructions and guidelines, videos, etc).	
3/2010 - 5/2010	Information, Training, Awareness-raising	Updating on INSPIRE & the NGII - Elaborating a draft law on transposing the INSPIRE Directive	Informational meetings with public authorities of the central administration regarding the INSPIRE Directive. Informing on the preparation of a NGII draft law. First recording of the available geospatial data sets and services.
22/9/2010	Legislation, Decisions	Adoption of Law No 3882/2010	Transposing the INSPIRE Directive and creating the NGII
10/2010 - 4/2011	Management, Cooperation	Establishing FCP of Ministries	Depending on the structure of the government at the time
19 & 20/11/2010	Information, Training, Awareness-raising	National one-day HEMCO conference on "The Creation of the National Geospatial Information Infrastructure"	Two-day conference with the participation of public bodies, professionals and the academic community. At the same time, workshops were organised for the development of applications with Free Software and Open Source Software (FS/OSS).



			Participation of approximately 1,000 people.
16/10/2010	Information, Training, Awareness-raising	7th meeting of the INSPIRE Committee in Brussels.	Presentation of the actions of Greece for the NGII and INSPIRE, in the 7th meeting of the INSPIRE Committee by Konstantinos A. Nedas.
17/12/2010	Information, Training, Awareness-raising	3rd National Conference of the Hellenic Association of Rural and Surveying Engineering with the subject: "From measuring to management and from management to intervention"	Presentation of HEMCO actions for the NGII and INSPIRE
16/2/2011	Information, Training, Awareness-raising	Informative one-day conference for executives of the Special Authorities for the Management of the Operational Programmes	The updating concerned the new terms and conditions for the projects and studies directly or indirectly related to the production, supply or use of geospatial data and services.
13/4/2011	Management, Cooperation	Meeting with representatives of mapping agencies of public administration and with academics, on issues regarding availability and protection of sensitive data in the country.	
3/2011 - 4/2011	Information, Training, Awareness-raising	Informational - Training one-day seminars on Law No 3882/2010 and the INSPIRE Directive	One -day training seminars to inform PA officials and FCP members. Participation of approximately 300 PA executives

6/2011	Information, Training, Awareness-raising	Oral presentation and poster at the annual INSPIRE conference “INSPIREd by 2020 - Contributing to smart, sustainable and inclusive growth”	
10/2011	Information, Training, Awareness-raising	Upgrading the HEMCO website on the NGII <a href="http://www.inspire.okxe.gr">www.inspire.okxe.gr</a>	The HEMCO website on the NGII was supplemented with all the necessary information for the FCP, all the public authorities and citizens, regarding Law 3882 and the INSPIRE, with useful tools and applications. The upgrading and daily updating is undertaken by officials of the HEMCO Directorate of Geomatics.
11.2011 - 12.2011	Information, Training, Awareness-raising	Informational - Training one-day seminars on Law No 3882/2010 and the INSPIRE Directive	One-day training seminars to inform PA officials and members of FCP on the Decentralised Administration and the Local Government. Participation of approximately 750 PA executives
13/10/2012	Information, Training, Awareness-raising	One-day seminar “The NGII and the FCP - Mapping and Geospatial Information in Local Administration” in Kozani	One-day seminar organised during the 12th Hellenic Mapping Society Convention (HCS, <a href="http://xeee.web.auth.gr/">http://xeee.web.auth.gr/</a> ) in Kozani
10-14/12/2012	Information, Training, Awareness-raising	Presentation on the NGII in the 3rd annual meeting of the FIG (International Federation of Surveyors) Committee 3 in Athens.	

20/12/2012	Information, Training, Awareness-raising	Open one-day HEMCO event, to present the launch of the first national online INSPIRE services.	
------------	--	--	--

### 9.3 Establishment and operation of the NCG

Date	Type of action	Action	Comments
31/12/2010	Management, Cooperation Legislation, Decisions	NCG composition	Issuing of Decision No 57880/31.12.2010 of the Minister for the Environment and Climate Change.
24/1/2011	Management, Cooperation Legislation, Decisions	First NCG meeting	Updating by HEMCO and adoption of Operating Regulation (Government Gazette, Series II, No 832/2011)
9/3/2012	Management, Cooperation Legislation, Decisions	NCG reorganisation	Issuing of Decision No 12444/9.3.2012 of the Minister for the Environment and Climate Change.
2/4/2012	Legislation, Decisions	Second NCG meeting	Positive decision regarding the HEMCO recommendation about sharing and shared use (see section 6.1)
4/2013	Management, Cooperation Legislation, Decisions	Preparation of the NGII reorganisation on behalf of the YPEKA. The preparation of the third meeting will follow	

#### 9.4 National List of Geoinformation and monitoring of the INSPIRE Directive

5/2010	<p>Completion of the first geoinformation recording by the central administration.</p> <p>Submission of a report on the implementation of the INSPIRE Directive in Greece, accompanied by monitoring indicators and a list of geospatial data sets and services, in accordance with Decision 2009/442/EC.</p>
3/2011	<p>Creation of a new template of a List of recording geospatial resources of the Public Administration, with multiple use and functionality.</p>
5/2011	<p>Publication of the first National List of geospatial resources of the central government.</p> <p>Send indicators of the monitoring of the implementation of the INSPIRE Directive and a list of geospatial data sets and services, in accordance with Decision 2009/442/EC, for reference year 2010.</p>
5/2012	<p>Updating of the National List.</p> <p>Send indicators of the monitoring of the implementation of the INSPIRE Directive and a list of geospatial data sets and services, in accordance with Decision 2009/442/EC, for reference year 2011.</p>
9/2012	<p>Publication of the List of geospatial resources of the Decentralised Administration and the Local Government.</p>
12/12	<p>Beginning of the operation of the first pilot web search and map services, according to the requirements of the INSPIRE Directive.</p>
5/2013	<p>Updating of the National List.</p> <p>Submission of a report on the implementation of the INSPIRE Directive in Greece (reference years 2010, 2013), accompanied by monitoring indicators and a list of geospatial data sets and services (reference year 2012), in accordance with Decision 2009/442/EC.</p>