PROJECT COFINANCED BY THE EUROPEAN REGIONAL DEVELOPMENT FUND

MED-IPPC-NET

Implementing Eco-Future

Network for strengthening and improving the implementation of the European IPPC Directive regarding Integrated Pollution Prevention and Control in the Mediterranean

Innovation and Technology

ARPA

euro bic Toscana Sud S.p.A.

Junta de Andalucía

ZRS Bistra P T U J

Generalitat Valenciana

kene

Scuola Superiore Sant'Anna di Studi Universitari e di Perfezionamento

Arpa Piemonte Agenzia Regionale per la Protezione Ambientale

PROJECT COFINANCED BY THE EUROPEAN REGIONAL DEVELOPMENT FUND

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SECTION 1: BACKGROUND

1.1. Introduction

The main objective of the Interregional Analysis is bring together the results of the seven Regional Analysis carried out by each Region involved in the project (Andalusia, Valencia, Slovenia, West Macedonia, Piedmont, Sicily, Tuscany), in order to identify common elements in the implementation of the IPPC.

The Analysis contains the main conclusions of the regional studies and highlights the best practices on the implementation of the IPPC in the MED space.

Conclusions of this report contain a set of recommendations for policy makers directly involved in the ongoing revision process of the IPPC Directive.

1.2. The MED IPPC NET project

The MED-IPPC-NET project, "Network for strengthening and improving the implementation of the IPPC European Directives regarding the Integrated Pollution Prevention and Control in the Mediterranean", answers to the Call for Proposals of the MED Programme, 2008 and is related to the Priority Axis 2 "Protection of the Environment and Promotion of the Territorial Sustainable Development", Objective 2.1. "Protecting and Strengthening Natural Resources and Heritage", which highlights the need of promoting the application of European and international policies through the unification of data, information and intervention strategies at a transnational scale.

The MED-IPPC-NET is a 30 month-project, co-financed by European Commission, whose main goal is the identification of principals aspects in the implementation of the IPPC Directive 96/61/EC -concerning Integrated Pollution Prevention and Control- within four countries of the Mediterranean (Greece, Italy, Slovenia, Spain) in order to establish a set of common criteria that should be taken into account by all Mediterranean regions wishing to enhance their implementation.

These common criteria will constitute the inputs for the development of a common methodology for the implementation of the IPPC Directives within the Mediterranean area and the all Europe.

The partners of the MED IPPC NET project are: Andalusian Institute of Technology (ES), who is the lead partner; ARPA Sicily (IT); ARPA Piemonte (IT); EUROBIC Toscana SUD (IT); Regional Government for Environment of Andalucia (ES); S. Anna School of Advanced Studies (IT); Scientific Research Centre Bistra Ptuj (SL); Valencian Government; Environmental Centre of Kozani (GR). They represented the seven regions involved in the project.

1.3. The methodological approach of the Analysis

One of the first objective of the project was the definition of a methodological approach in order to carry out an Analysis to identify the most important disparities about the implementation of the IPPC Directives among the different regions participating to the project. The evaluation of these different aspects is the starting point for the definition of a common criteria and methodology.

The methodological approach, necessary to evaluate the differences existing in each region about the IPPC implementation, should be proposed by the S. Anna School of Advanced Studies, partner of the project and responsible of the component 3 related to the Analysis. The researchers of S.Anna have identified some studies present in the literature in order to identify which aspects was able to be more interesting for the objective of the projects. From the beginning of the literature review has been identified some research studies and official reports of the EC where the implementation of the Directive was evaluated, but no one of these studies analyzed in deep the implementation, with particular reference to the content of the permits issued by the European Competent Authorities in according with the Directive.

During the Kick-off meeting of the project -held in Seville in May 21st and 22nd 2009- the S. Anna School showed to all partners the methodological approach proposal. Objective of this meeting was not only to start the project but also discuss about the methodological approach of the project analysis (Component 3), first activity foreseen by the project.

After the discussion during the kick off meeting, all partners have been invited –within the end of May- to propose any further suggestion, integration and modification in order to improve and better define the approach proposed by S.Anna. Moreover, during the Kick-off meeting S.Anna described some characteristics has been held in consideration during the elaboration of the proposed approach. In particular the methodology aims to be:

- clear, simple and easy-to-apply;
- have a same structure in order to obtain comparable results among the different regional analysis;
- consistent with what is indicated in the original IPPC project approved;
- useful for the development of the Guidelines of the project foreseen in the following phases of MED IPPC NET

On the basis of the final version of the approach, the School prepared operational tools (e.g questionnaires, guidelines, etc.) in order to carry out the Regional Analysis in each region participating to the project.

The methodological approach proposed and approved by the partners can be summarized in two parts:

a) Institutional-side analysis composed of four parts:

- Legislative Analysis
- Administrative Analysis
- Analysis of the Control and Inspection System
- Analysis of the Content of the Authorizations

b) Enterprise-side analysis.

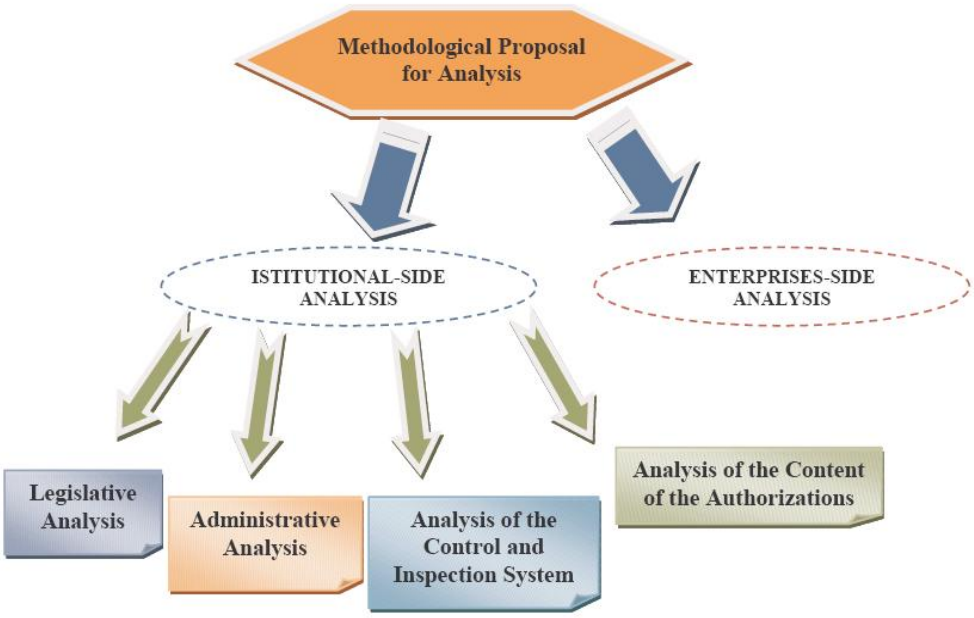

Figure 1 Methodological Approach for the IPPC-NET Analysis (Component 3)

1.4. The structure of the Report

The Interregional Analysis Report consists of more parts corresponding to each questionnaire and to each aspect of the methodological approach.

The main purpose is to realize a comparison about each aspect of the Analysis and among each Region involved in the project. In fact results obtained by each region through its own Regional Analysis are in this report re-considered in order to realize a single report in which all Regional Analysis are taking into account and commented with a comparison view.

The first chapter of the results concerns the Legislative Analysis, the second one is about the Administrative Analysis, the third one is about the Control and Inspection System Analysis, the fourth chapter concerns the Content of Authorizations, the fifth one is about the Enterprise side Analysis.

In some cases, and in particular in the first three chapters, tables have been inserted after the aspects described, in order to summarize the main answers collected by each participating Region.

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The sections of the Report about the Content of Authorizations and the Enterprise side Analysis contain graphics and tables that have been elaborated taking into account data collected by partners.

A statistical appendix is available at the end of the report.

SECTION 2: RESULTS

2.1 Legislative Analysis

2.1.1 Introduction

The *"Legislative Analysis"* aims at analyzing how the IPPC Directive has been implemented in the national, regional and local legislative framework. In particular, each partner must collect some information concerning the national and the local/regional laws that implemented the IPPC Directive, the typologies of Competent Authorities that are involved in the issuing of the Integrated Environmental Authorization, the BREFs introduction in the national, regional and local context and the role of the horizontal BREFs, some information concerning the procedures and the laws that guarantee the access to information and public participation in the permitting procedure.

2.1.2 Results

2.1.2.1 The implementation of the IPPC Directive in the seven Regions

❖ **Implementation of the IPPC Directive into national, regional and local laws.**

In the four States involved in the MED IPPC NET project, the IPPC Directive has been implemented by specific national laws. In some Regions also regional and local laws about specific aspects linked to the IPPC matter, have been emanated.

In Spain the IPPC Directive has been implemented through the national law 16/2002 about the Integrated Pollution Prevention and Control. Moreover also two real decrees have been emanated: the first one (the decree 508/2007) about the regulation for the information supply on emissions regarding the Pollutant Release and Transfer Register (PRTR) and the integrated environmental authorizations; the second one (decree 509/2007) about the regulation of development and execution of national law 16/2002.

The regional law 7/2007 implemented the Spanish national law about IPPC in Andalusia.

Also in Valencia, there is a regional law (2/2006), emanated by Generalitat Valenciana, about pollution prevention and environmental quality. In particular, the objective of this law, is to define and regulate the instruments of environmental administrative intervention for those activities likely to affect security, health or environment. It created an annex II for new categories of activities that must also obtain the Integrated Environmental Authorization (IEA). Moreover the regional decree 127/2006, from Valencia Council, concerns rules about the development and the execution of law 2/2006.

The IPPC Directive was implemented in Italy in August 4th 1999 with the national legislative decree n° 372 that disciplined, for the first time in Italy, the issue of the Integrated Environmental Authorization (IEA) according to IPPC criteria. Then the legislative decree 59/2005[1] replaced the first one. There are also other decrees in Italy, that discipline some aspects about the IPPC matter: as well as the redefinition of the National Competent Authorities about the IEA issue; the technical and administrative documents to submit for the permitting procedure; the institution of a national IPPC Commission with the function to supply support to the definition, the updating and the integration of BAT national guidelines; the modalities – also accounting – and the fares to apply in connection with preliminary inquires and controls provided by the national legislative decree n. 59/05 (established by the ministerial decree 24/4/2008).

As regards regional laws, in Piedmont the deliberation of the Regional Council (July 29, 2002) confirmed in the provinces the Competent Authorities to grant, renewal and review IEA.

Also in Tuscany the Regional deliberation n. 61 adopted in December 22nd 2003, identified as IPPC Competent Authorities the 10 Tuscan Provinces (Firenze, Prato, Pistoia, Pisa, Massa Carrara, Livorno, Siena, Arezzo, Grosseto, Lucca) and 1 Circondario (Circondario Empolese Valdelsa).

As regards the ministerial decree 24/4/2008, both in Piedmont and Tuscany there are more regional deliberations regarding it. They contain a general decrease of national rates; the advances determination for preliminary inquiry charges about the IEA application; the adaption and the integration of fares to apply according to the ministerial decree.

In Tuscany also other regional deliberations exist, as for example the n. 151 of February 23rd 2004 that created the Coordination Technical Committee and the decree n. 1285 of March 10th 2004 concerning the Coordination Technical Committee members appointment.

In Sicily there is the "Guideline" document for the drafting of the monitoring and control plan for installations subject to IEA in Sicily (reference document with the minimum information to be included into the Control and Monitoring Plan), and the ARTA Sicily Decree 12/08/2004 (GURS 36/04) approving the procedures for IEA apply.

In West Macedonia the IPPC Directive has been implemented, at national level, by law 3010/2002 with whom the basic Environmental Greek Law (L.1650/1986) is amended in order to be assorted with the European Directives 96/61 and 97/11. Also two ministerial decisions have been adopted (CMD.15393/2332/2002 and CMD 11014/703/Φ104/2003). The object of these two decisions is the adjustment of issues about environmental authorization procedure of activities included in Annex 1 of the directive. Moreover, these activities are being categorized in relation with their impact towards the environment.

Finally, Slovenia has implemented the IPPC Directive with two acts: the Environmental Protection Act (ZVO-1; Official Gazette of the RS, no. 41/04) and the decree on activities and installations causing large-scale environmental pollution

[1] The decree n. 59/2005 has been repealed in June 29th 2010 by the legislative decree n. 128/2010. This latter integrates IPPC topic within the legislative decree n. 152/2006.

(IPPC Decree; Official Gazette of the RS, no. 97/04). Moreover there are also the following regulation: the two Decrees amending the Decree on activities and installations causing large-scale environmental pollution (Official Gazette of the RS, n. 71/07 and n. 122/07). There are also two regulations on reporting to the European Pollutant Release and Transfer Register (PRTR).

❖ Competent authorities in the granting of IEAs

As regards the Competent Authorities in charge of the issue of the Integrated Environmental Authorizations, in some regions the competent bodies are provincial or regional authorities, while in other are ministerial or national authorities.

In the case of Andalusia for example, the competent bodies are Provincial Delegations of the Department of Environment (Provincial Delegations are in Seville, Huelva, Cádiz, Córdoba, Málaga, Granada, Jaén y Almería). Territorial jurisdiction is determined by where the affected installation is situated. When the installation affects more than one province, the competent Directorate General, with competence in Environmental Prevention and Control within the Department of Environment, will instruct and follow through with the proceedings, except when it delegates such competencies to one of the affected Provincial Delegations.

In Tuscany and Piedmont, the region government has delegated to the provinces the competence for the IEA issue. The 10 Tuscan Provinces are Firenze, Prato, Pistoia, Pisa, Massa Carrara, Livorno, Siena, Arezzo, Grosseto, Lucca; and also 1 Circondario is a Competent Authority (Circondario Empolese Valdelsa; for Piedmont the 8 provinces are Alessandria, Asti, Biella, Cuneo, Novara, Torino, Verbano-Cusio-Ossola, Vercelli. For both regions (and also for Sicily), in some cases foreseen by the national decree 59/05, the Ministry of environment is the Competent Authority instead of the provinces (or instead of the Region in the case of Sicily). In fact in Sicily, the IEA process and the release of the permits, are under the responsibility of Service II SEA-IEA (Regional department of Territory and Environment). The Italian Regional Agencies for the Environmental Protection (ARPA) are involved in IEA process, specially referring to the evaluation of the control and monitoring plan (PMC), included in every IEA's application.

In Valencia, the Competent Authorities in charge of the issue of the IEA depend by the activities typologies:

- For those activities included in the annex I of a regional law[2] (annex I of IPPC Directive) the CA is Environment, Water, Town Planning and Housing Department of the Valencia Government (Conselleria de Medio Ambiente, Agua, Urbanismo y Vivienda de la Generalitat Valenciana), through its General Office of Climate Change (Dirección General para el Cambio Climático).
- For those activities included in the annex II of the same regional law, the CAs are the provincial Offices (Direcciones Territoriales for the 3 provinces: Alicante, Castellón, Valencia) of Environment, Water, Town Planning and Housing Department of the Valencia Government. The activities included in this annex II are similar to those included in the annex I of the law, but with lower production capacity.

[2] Regional law n. 2/2006.

In the case of West Macedonia, the law establishes that the Competent Authrorities are the Ministry of Environment Energy and Climate Change and the Direction of Environment and Development, Department of Environment and Land-Planning of the Region of West Macedonia (Prefectures of Kozani, Kastoria, Grevena and Florina). In reality, the permits analysed for the projects, have all issued from the Ministry, because the region did not until today authorised any IPPC installation. Jurisdiction between Ministry and Region is determined by the production ability of the installation[3].

In Slovenia, the Competent Authorities are national: the Ministry of Environment and Spatial Planning and the Environmental Agency of the Republic of Slovenia (ARSO). ARSO performs professional, analytical, regulatory and administrative tasks in the field of environment on the national level. ARSO contributes to solving environmental problems as far as possible with the implementation of environmental legislation. ARSO keeps records of emissions, manages and monitors the implementation of remedial programs and seeks comprehensive solutions to the problems regarding climate change. ARSO pays particular attention to raising public awareness about the environment and environmental issues. Moreover, also on a national level, a special expert group was established under the IPPC Directive (Directive on integrated pollution prevention and control of industrial pollution); which consists of acting inspectors depending on the technological processes. The Environmental Agency of the Republic of Slovenia (ARSO) cooperates with the Inspectorate of the Republic of Slovenia for Environment and Spatial Planning (IRSOP) in the area of control of administrative decisions, since the IRSOP is responsible for the supervision of all environmental legislation adopted by the Parliament, the Government or the Ministry.

The table below indicates the kind of legislation that implemented the IPPC Directive in each of the participant regions.

IMPLEMENTATION OF THE IPPC DIRECTIVE IN THE SEVEN REGIONS								
State	**Spain**		**Slovenia**	**Greece**	**Italy**			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
National laws and/or other national regulations/acts	X	X	X	X	X	X	X	7
Regional law and/or other local laws	X	X	-	-	X	X	X	5

Table 1 Implementation of the IPPC Directive in the seven regions

The following table-summary contains the main legislative acts that implemented the IPPC Directive in the seven regions involved in the project.

[3] CMD 15393/2332/2002 and CMD11014/703/Φ104/2003.

MAIN LEGISLATIVE ACTS FOR THE IMPLEMENTATION OF THE IPPC DIRECTIVE							
State	**Spain**		**Slovenia**	**Greece**	**Italy**		
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
National acts	Law 16/2002; decrees 508/2007 and 509/2007		Act ZVO- no. 41/04; decree no. 97/04, Regulations n. 71/07 and n. 122/07, two regulations on reporting to the European Pollutant Release and Transfer Register	X Law's 1650/1986 3010/2002; Ministerial Decisions CMD.15393/2 332/2002 and CMD 11014/703/Φ 104/2003	Decree 372/99; decree 59/05; decree 24/12/2008		
Regional/local acts	Law 7/2007	Law 2/2006; decree 127/2006	-	-	Regional deliberation of 29 July 2002; regional deliberation no. 85-10404.	ARTA Decree 12/08/2004 (GURS 36/04); "Guideline" document	Regional law 61/2003; regional deliberations n. 229/2004, n. 495/2009, n. 631/2009, n. 841/2002, n. 151/2004

Table 2 Main legislative acts for the implementation of the IPPC Directive

The table below indicates the Competent Authorities for the permitting procedure of the IEA, in each participating region.

COMPETENT AUTHORITY/IES FOR THE PERMITTING PROCEDURE OF THE INTEGRATED ENVIRONMENTAL AUTHORIZATION								
State	**Spain**		**Slovenia**	**Greece**	**Italy**			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
National Competent Authority			X	X	X	X	X	5
Regional Competent Authority		X		X		X		3
Provincial Competent Authority	X	X			X		X	4

Table 3 Competent Authority/ies for the permitting procedure of the integrated environmental authorization

2.1.2.2 The introduction of BREFs in the national and local context

In some States, **national guidelines about BAT** (Best Available Techniques) have been emanated.

This is the case of Spain, where the Ministry of Environment, has enacted 23 national BAT guide and 27 technical guidelines[4]. These documents describe the situation, processes and limitations in the sectors affected by the IPPC Directive, and facilitate the adoption of clean technologies. Some of the European BREF has been also translated from English into Spanish.

Also in the case of Slovenia, even if BAT national guidelines does not exist, BREF documents are available in the Slovenian language as a summary.

In Italy, some national guidelines have been realized in order to identify and use BAT. There are national guidelines for 1.3; 2.1; 2.2; 2.3; 2.4; 2.5 and 6.1 annex I activities of the 59/05 national decree[5]; and also for 1.2; 3.3; 3.4; 3.5; 5.1; 5.2; 5.3; 6.4 a; 6.5 and 6.6 annex I activities of the 59/05 national decree[6]. Moreover, national guidelines for 1.1; 2.6; 4.1; 4.2; 6.4 b and 6.4 c annex I activities of the 59/05 national decree, were enacted in October 1st 2008.

At regional level, in Tuscany, Sicily and Piedmont there are no guidelines for the application of the BREFs, but in general the regions consider national guidelines.

Also in West Macedonia, there are national guidelines for the determination of BAT per sector of activity. These guidelines are mainly based on the Texts of Report of BAT - BREFs, published by European IPPC Bureau.

In Valencia the Clean Technologies Centre (CTC), depending on the Environment, Water, Town Planning and Housing Department of the Valencia Government, is elaborating BAT regional guides in order to adopt the existing the characteristics of the local environment more accurately. At the moment, the CTC has published the BAT regional guides for the ceramic, intensive rearing of poultry and pigs sectors.

In Andalusia, there are sectorial plans of Environmental Inspections (planning of inspections to the sectors affected by a national law[7] and sectorial report that collect the characterization of the installations affected by the same law and the comparison with BAT.

As regards **horizontal BREFs**, in Piedmont and Tuscany, they are generally taken into account in permitting procedure.

In Slovenia some horizontal BREFs have been poorly implemented (e.g. BREF about Waste water treatment); the BREF about monitoring has been completely

[4] List of documents dated August 31st, 2010.
[5] enacted in January 31st 2005.
[6] emanated in January 29th 2007.
[7] National law n. 16/2002.

implemented; those referred to Energy Efficiency is in government procedure; and those regulation of storage for smaller packaging units has been made, while the regulation of fixed storage tanks is in government procedure. Finally, the BREF about economic and cross media is not yet implemented in Slovenian regulation.

In West Macedonia horizontal BREFs were translated in Greek language.

In Andalusia horizontal BREFs were translated in Spanish language. In particular, the horizontal BREF Documents on Emissions Monitoring, have been taken into account in establishing the procedures for monitoring and measuring of the Control and Surveillance Plans. Moreover the Methodology of Calculation of the ELV used takes into account, among other aspects, the BAT-AEL obtained from horizontal BREF Documents.

As regards the Competent Authority's information about the development of BAT, in Italy the IPPC Observatory – founded at Ministry of Environment- has also the task to ensure that Competent Authorities follow and are informed of developments in Best Available Techniques. Moreover, in Tuscany most of the interviewed Competent Authorities stated that they are informed by the Regional Coordination Technical Committee and/or by web consultation, while a little part of them said that they have never been informed about the development in Best Available Techniques.

In West Macedonia, representatives of Ministry of Environment Energy and Climate Change and various industrial sectors (as national representatives), participate actively in the Technical Work Groups (TWGs) for the development of the BAT, per sector of activity.

Also in Slovenia, the BREF and BAT information is provided through two channels: the organizational and the informational, meaning through the Information Exchange Forum (IEF) and technical working groups (TWGs). These latter have been organized in the year 2000 by the Chamber of Commerce and Industry of Slovenia. These groups consisting of experts from the industry. Within these groups information, knowledge and experience are exchanged. Working groups should study BREF documents, evaluate the compliance of existing technologies with BAT measures and monitor the implementation of the Directive within companies. Working groups organized many workshops where they exchanged experiences and knowledge. For the understanding of BREF documents, active cooperation and integration of companies is very important.

Slovenia is also included in information exchange on the EU level. Representatives of the industry are included in two technical working groups of the EIPPCB and a working group from the field of the food processing industry. The IEF has more possibilities of expression, such as cyclic consultations, exchange of data through the Internet portal, which offers rapid information, virtual libraries, BREF and BAT counseling at a distance and professional virtual discussions that are documented in virtual libraries and are publicly available.

Moreover, the Slovenia Competent Authority (ARSO), is informed about the developments through best available techniques on the JRC level (general level). The consulting body operates on the IEG level (first level) and consists of one ARSO official. Further, within TWGs (second level) there are as many ARSO officials as

determined by the BREF reference documents. They are informed about the activities, revisions etc. in BREF documents (organizing meetings in Seville –EIPPCB-)

Finally, in Valencia there are frequent meetings between the Ministry of Environment and the regional competent authorities.

The table below indicates the modalities through BREFs have been introduced in the national and local context in each region involved in the project.

INTRODUCTION OF BREFs IN THE NATIONAL AND LOCAL CONTEXT								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Translation of BREF in national language	X	X	X	X				4
National Guidelines	X	X		X	X	X	X	6
Regional Guidelines		X						1
Sector-based Plan	X							1

Table 4 Introduction of BREFs in the national and local context

2.1.2.3 The implementation of specific requirements of the IPPC Directive: the integrated approach

In Andalusia the integrated approach is characterized by the adoption of an environment administrative model for intervention which is based on coordination, simplicity and agility, and it's being carried out at three levels:

- ✓ One sole control authority (Department of Environment).
- ✓ One sole control procedure that develops the coordination mechanisms among the different authorities that granted the sectorial permits:
  - *Inter-administrative integration*: that which attempts to integrate environmental controls brought forth by the Central Government (discharge into interregional basins and permit for projects which are subject to Environmental Impact Studies) and by Local Governments (Municipal License).
  - *Intra-administrative integration*: that which only affects environmental control administered by the Autonomous Regions (permit for production and waste management, discharge into inland waters, dumping from ground to sea and permit on issues relating to emissions);
- ✓ A sole legal administrative permit (IPPC Permit) that unites under a single authority all agencies and environmental permits.

In Italy, the integrated approach, is provided by the decree that implemented the IPPC Directive[8]. This law plans the production of a Council of Ministers President decree that will regulate the permitting procedure in the case of involvement, for the same installation, of more than one Competent Authority (e.g. Minister and Province).

In Tuscany only two interviewed Competent Authorities have adopted the integrated approach.

As regards the coordination -relating to various aspects- between the Competent Authority and other environmental authorities, in Italy there is the "Meeting of Services"[9] tool that carries out this integration. In this meeting any administration has to substantiate its pertinent determination and could express its advise about permit application.

In Valencia, the integrated approach for the issue of the IEA is assured by several articles in IPPC legislation. The public administrations adjust their regional/interregional actions to the principles of mutual information, cooperation and collaboration. The integrated approach is carried out by the Integrated Environmental Analysis Commission, which is an organ composed by one representative from each administration/institution involved in the permitting procedure, and it is also the responsible for the environmental assessment of the IPPC activities.

In Slovenia the coordination of different competent authorities is not required, since only one single competent authority is involved in the procedure; but the integration within the Environmental Agency of RS (competent authority), among different competencies (air, water, waste, noise, BAT...) is achieved by the tools and measures of project management and team-work. The director appoints teams of experts and public officials (servants) who form ad-hoc teams which work on each single permit procedure and the authorization (permit) is a result of such teamwork. Therefore the integration is about integrating the regulatory demands on different aspects of environmental impact and pollution (prevention) in one procedure (permit) - the legal basis for such procedure (permit) is given by Environmental Protection Act[10].

Finally, in West Macedonia the integrated approach is being succeeded by the fact that two departments of the Ministry of Environment Energy and Climate Change are the only responsible authorities for the implementation and the grant of the IPPC permits.

This table-summary shows how the seven regions involved in the project implemented the integrated approach provided by the IPPC Directive.

[8] National legislative decree n. 59/05, article 18, point 6.
[9] "Meeting of public services" was provided by the article 14 of the national law n. 241/90. It consists in a formal meeting where participate all the public administrations involved in the permitting procedure.
[10] Article 74 of the Environmental Protection Act (ZVO-1).

HOW REGIONS IMPLEMENTED THE INTEGRATED APPROACH INDICATED BY THE IPPC DIRECTIVE?								
State	**Spain**		**Slovenia**	**Greece**	**Italy**			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Environment administrative model for the intervention based on coordination, simplicity and agility	X							1
Council of Ministers President decree					X	X	X	3
Regional and interregional coordination of public administrations. It is carried out by the Integrated Environmental Analysis Commission		X						1
Not necessary because there is only one CA			X					1
Succeeded thank to the existence of only two Competent Authorities for the IEA issue				X				1

Table 5 How regions implemented the integrated approach indicated by the IPPC Directive?

2.1.2.4 The implementation of specific requirements of the IPPC Directive: the requirements related to "stricter conditions"

As regards the requirements related to stricter conditions than those achievable by the use of BAT, in according with the article n. 10 of the 61/96 Directive, Andalusia, Valencia, West Macedonia, Sicily, Tuscany Regions states that when more rigorous conditions are applied than those which can be met using BAT, the IPPC Permit will include in its environmental conditions, further contingencies, regardless of other measures that can be adopted in order to respect the norms for Environmental quality.
Moreover, in the case of Tuscany the most interviewed Competent Authorities stated that they have never required "stricter conditions than those achievable by the use of the best available techniques".

A few of them stated that in rarely they required stricter conditions than national ELVs but not than European BREFs.

Also in the case of Valencia, these additional measures are being considered only in very few permits, although the regional law said that "The resolution of the integrated environmental authorization may include additional protective measures that the competent body consider suitable, including an environmental monitoring program, or other measures to comply with environmental quality standards, or when stricter conditions than those achievable by the use of the BAT must be necessary to comply these standards".

Slovenia states that some legal basis for "stricter conditions" are prescribed by some decrees (e.g. Environmental Protection Act, decree on activities and installations causing large-scale environmental pollution). Also other Slovenian decrees for some environmental aspects, in which are indicated limits and procedures, exist.

The following table includes the modalities through Competent Authorities requires in the permit additional measures when are necessary "stricter conditions than those achievable by the use of the best available techniques".

HOW COMPETENT AUTHORITY REQUIRES IN THE PERMIT ADDITIONAL MEASURES IN THE SITUATIONS THAT NEED "STRICTER CONDITIONS THAN THOSE ACHIEVABLE BY THE USE OF THE BEST AVAILABLE TECHNIQUES?								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
The IPPC Permit will include in its environmental conditions, further contingencies, regardless of other measures that can be adopted in order to respect the norms for Environmental quality	X	X		X		X	X	5
The resolution of the integrated environmental authorization may include additional protective measures that the competent body consider suitable, including an environmental monitoring program, or other measures to comply with environmental quality standards, or when stricter conditions than those achievable by the use of the BAT must be necessary to comply these standards		X						1
Legal basis for stricter conditions are prescribed by some decrees			X					1

Table 6 How Competent Authority requires in the permit additional measures in the situations that need "stricter conditions than those achievable by the use of Best Available Techniques"?

2.1.2.5 The modalities to assure the access to information and public participation in the permitting procedure

In all Regions the main modality to assure the access to information and public participation in the permitting procedure, is represented by the publication of some information (e.g. in newspaper, in bulletin, etc.).

In Italy, according the national decree that implemented the IPPC Directive[11], the Competent Authority identifies the offices where documents about proceedings are recorded, with the aim to make possible the public consultation. Moreover is indicated that the operator should publish an advertisement for the public in a

[11] Art. 5, point 6, 7, 15 of legislative decree n.59/2005.

provincial or regional or national newspaper. Anyone can have access to a copy of the IPPC issued permits and to any relating document in a public office defined by Competent Authorities. The competent authority shall make available to the public the data provided by the operator relating to emission controls required by integrated environmental authorization. The results of monitoring of emissions, required by permit conditions and held by the Competent Authority, should be available to the public. The legislative decree n. 195 adopted in August 19th 2005 –that implemented the European Directive 2003/4/CE- disciplines the access of the public to environmental information. The above-said decree on the one hand established terms, fundamental conditions and modalities for the exercise of the public access; on the other hand it guarantees that the environmental information is at public disposal and is spread. Moreover, when the enterprise receives the information –from the Competent Authority- about the proceedings beginning, the operator should provide to the publication of an announcement containing some indications about the plant on a provincial, or regional or national spread newspaper.

In Valencia the competent authority submits the IEA application along with the required documentation to public information procedure during a minimum period of 30 days, by publication in the Official Diary of Valencia Government, and in the City Hall bulletin board concerned, and its diffusion through their systems (notification to neighbours, record of submitted documentation in CA offices), except that data considered as confidential. It also publishes the resolution of the IEA at the end of the procedure, to which it is possible to make objections during the period of 30 days after. Also, in compliance with the principle of access to information relating to the environment, citizenship can consult the emissions of specific pollutants of IPPC installations in the PRTR and the content of the IEA issued; there are several training activities on IPPC matter.

In Andalusia the development of the procedure of information and public participation in the IEA, is jurisdiction of the Autonomous Communities, establishing, at national level, only the minimum period of public information (30 days) -as in the case of Valencia-. Once the competent body verifies the compatibility of the project with the environmental regulations, it makes available the IEA file for the consultation and formulation of related declarations to the public by including its advertisement in the Official Andalusia Government Bulletin (Oficial de la Junta de Andalucía) (for 45 days), and through personal notification to the immediate neighbors of the place where it is sited the activity (for 30 days). After these periods, the competent body will remit all allegations and comments received at the stage of public information to the requesting entity of the IEA, to the state body responsible for granting the concession of the maritime-terrestrial public domain and to the regional body responsible for granting the substantive permit, that can be declared within 15 days.

In West Macedonia before the approval of the environmental terms, the responsible Service of Environment of Ministry of Environment Energy and Climate Change or the Region in which has been submitted the study, transmits in ten days a copy to the Prefectural Council. Afterwards the Prefectural Council in five days proceeds in publication in at least one local newspaper and invites public (within 30 days) in order to be informed of the study and state his opinion and objections on the content of the study. At the same time the Prefectural Council proceeds in the suspension of copy of statement in the Table of Statements of the Prefecture.

In Slovenia the national legislation guarantees the access to information and public participation in the permitting procedure through many tools, as for example: IPPC portal on website; organization of trainings, seminars, workshops etc. for operators of installations; publication; organization of public debates and round tables; public presentation of the application form to issue the IEA.

The table below includes the main modalities adopted by each participating region to assure the access to information and public participation in the permitting procedure.

MAIN MODALITIES ADOPTED TO ASSURE THE ACCESS TO INFORMATION AND PUBLIC PARTICIPATION IN THE PERMITTING PROCEDURE								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Record of document in specific offices		X			X	X	X	4
Advertisement publication in newspaper/ other publication about IPPC matter				X	X	X	X	4
Publication of IEA and other documents in the Official Diary of Government and/or in City/Government bulletin	X	X						2
Publication of emissions of specific pollutants of IPPC installations in the Pollutant Release and Transfer Register		X						1
Personal notification to neighbors	X	X						2
Publication of statement in the Table of Statements of the Prefecture				X				1
IPPC portal on website		X	X					2
Training/ seminars/workshops for operators of installations and Public debates and round tables		X	X					2

Table 7 Main modalities adopted to assure the access to information and public participation in the permitting procedure

2.1.2.6 The strengths and weaknesses identified in the Legislative Analysis

❖ Strengths

One of the strength of the Legislative Analysis identified in both the Andalusia and Piedmont is represented by the introduction -through national laws that implemented the IPPC Directive- of a single environmental permit which brings together all the sector-based environmental permits.

In Piedmont for the CA, the IPPC implementation it has been a moment of reflection and readapting of own activities and the introduction of the company's monitoring and control plan is very important.

In the Tuscany a strength emerged by Legislative Analysis is the fact that the environment is perceived as global and unique system that makes possible an integrated vision on enterprises activities.

Another aspect of strength identified by Tuscany is the fact that enterprises, thanks to the IPPC Directive, are now more motivated to achieve a better work and activity also taking into account the environment preservation. Linked to this aspect the partners identify in the Andalusia a more adaptation and compliance of the installations affected by IPPC law to the applicable environment legislation.

The coordination among the competent authorities for the IEA issue is considered by West Macedonia, Sicily and Andalusia as a strength of the Legislative aspect of the IPPC Directive.

The application of "guideline" document for the drafting of the monitoring and control plan for installations subject to IEA in Sicily as reference document with the minimum information to be included into the Control and Monitoring Plan, is another strength considered by Sicily.

Valencia indicates as a strength the elaboration of regional BAT guides, which will help companies, consulting and Competent Authority in developing the IPPC companies into a more eco-efficient way.

❖ Weaknesses

Most of weaknesses emerged from Legislative Analysis of Regions, are represented most of all by some aspects linked to BREF and to BAT.

West Macedonia and Valencia identified the absence of a methodology for determining BAT, while the Andalusia states a widely disorientation by the enterprises or affected installation in the application of the BAT caused by a low know of characteristics and performance of the environmental technologies, and by the fact that information needed for the adoption of cleaner technology is in the hands of the manufacturers of these technologies, who have difficulty to publish general information for some reasons.

Also the insufficient application and implementation of BAT is an aspect highlighted both by Valencia and Slovenia (moreover the latter stated also the scarce implementation of the IPPC Directive).

Linked to the latter, also the fact the BREFs do not provide binding limits and minimal requirements to installation, is a weakness in the opinion of West Macedonia.

The Sicily identified in the absence of guideline -at regional level- for the BREFs application, like a weakness.

As regards BAT, the Tuscany considered a weakness the necessity –established by the national decree that implemented the IPPC Directive-to wait for BAT national guidelines before the issuing of permits. The delay of issue of these guidelines has generated a big delay also in the activation of the permitting procedures.

The Tuscan partner of the project also identified as a weakness the aspect (indicated by some local Competent Authorities) represented by the considerable difference between the IPPC Directive principles and the realities of the enterprises that should obtain the IEA permit. So often the law adaptation to the firms and to the different situations is very difficult.

Moreover, Tuscany states the fact that the enforcement field of the Directive not considers the complexity and the numerousness of the environmental aspects to manage, is a negative aspect emerged from the Legislative Analysis.

The scarce application of the “flexibility principle” provided by the Directive is considered a weakness identified in several Regions involved in the project like West Macedonia, Tuscany and others.

In order to indicate a synthesis of the strengths and weaknesses identified by all Regions, them are showed in the table below:

The tables below include the main strengths and weaknesses individuated by each regions through legislative analysis.

STRENGTHS OF THE LEGISLATIVE ANALYSIS								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Introduction of a single environment permit	X				X			2
Environment consideration as a global and unique integrated system							X	1
Motivation of enterprises to achieve a better work taking into account environment preservation							X	1
Enterprises' adaption to the applicable environment legislation	X							1
Coordination among Competent Authorities for the IEA issue	X			X		X		3
Guideline document for the drafting of the monitoring and control plan	X					X		2
Elaboration or regional BAT guides		X						1

Table 8 Strengths of the legislative analysis

WEAKNESSES OF THE LEGISLATIVE ANALYSIS								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Absence of a methodology for determining BAT		X		X				2
Ignorance and disorientation in the application of BAT	X							1
Insufficient application and implementation of BAT		X	X					2
BREFs do not provide binding limits and minimal requirements to installation				X				1
The Directive, its application field and some concepts are not more clear and explicit				X	X		X	3
Absence of guideline at regional level for the BREfs application						X		1
Delay in the BAT national guidelines issuing and also in the activation of the permitting procedures.							X	1
Considerable difference between the IPPC Directive principles and the realities of the installations.							X	1
The enforcement field of the Directive not considers the complexity and the numerousness of the environmental aspects to manage.							X	1

Table 9 Weaknesses of the legislative analysis

2.2 Administrative Analysis

2.2.1. Introduction

The *Administrative Analysis* aims at studying -in the several regions involved in the project- the permitting procedure for the granting of the permits.

The permitting procedure has been investigated from several point of view, as for example: the data and technical documents requested by the permitting procedure for the issuing of the permits, the number and the nature of the institutions involved, the differences between the procedure for the first issue and renewal of Authorizations, etc.

2.2.2 Results

2.2.2.1 The permitting procedure: contents of documents to submit, time foreseen for the issuing and institutions involved in the first issue for new and existing installations.

❖ **Contents of documents to submit**

In each region involved in the project, a series of documents, that must accompany the application for the permits issuing, are provided. The content and the object of these documents, are often similar among the seven regions involved in the project.

As regards **Andalusia**, as part of this documentation is the Compatibility Report and the urban planning, the result of the process of Environmental Impact Assessment, the Report on Admissibility of the Water discharges. Moreover, the owner of the installation should present some documents; here are indicated some of them: the application for IPPC Permit, the Application for Municipal License, the Certified Technical Requirements, a non Technical Summary and executive summary for public information, the Report from the Municipality awarding the project along with the urban plan, the Preliminary report on the condition of the soil, the Environmental Impact Study, the Certified documentation with respect to compliance with the requirements established by the applicable sector legislation and also other documents.

In **Tuscany**, some of technical elaborates that should be presented in order to obtain the permit, are: topographic estreat on opportune scale, extract of current municipal urban tool, layout of the installation on opportune scale, planimetry of the plant (air emissions), planimetry of the plant (water net), acoustic impact assessment, planimetry of temporary deposit/waste storage, non-technical summary.

In **Piedmont**, and in part also in **Valencia**, some documents requested are similar- in the content- as Tuscany. We can cite maps, technical report, plans (except from municipal zoning, floor plans of the complex, the points of supply of water and waste

water networks, storage areas of raw materials, substances and wastes, emission points to atmosphere and acoustics zoning), no technical summary, in the case of Piedmont. For Valencia we can cite the report of town planning compatibility, the documentation to obtain the water discharge authorization (if necessary), the non-technical summary of the project, the environmental impact report, the documentation to obtain the cultural heritage authorization (if necessary), the acoustic report, the documentation related with environmental risk legislation (if necessary), the healthy maintenance programmes for avoiding legionellosis (if necessary), the needed documentation by waste legislation, information and documentation required by national and regional legislation.

Sicily indicates that the content of technical documents to submit should contain some information provided by the legislative decree that implemented the IPPC Directive in Italy. Information are about: the installation, the type and scope of its activities; raw materials and auxiliary substances and energy used or produced by the installation; the sources of emissions; the status of the site of the plant; the nature and extent of emissions from the installation into each medium as well as identification of significant effects of emissions on the environment; the technology used and other techniques in use for preventing or reducing emissions from the installation; measures for the prevention and recovery of waste generated by the installation; the planned measures to monitor emissions into the environment and the activities of self-monitoring and planned monitoring by the Competent Authorities, any main alternatives studied by the operator, in outline; other measures planned to comply with the some principles indicated in the legislative decree that implemented the IPPC Directive in Italy.

Tuscany and Piedmont specifies that also some specific technical forms are requested. These forms regard some aspects as the plant identification, the previous plant authorizations and referring rules, the productive capacity, the raw materials and the intermediates, the emissions, containment systems, the waste, the energy in the case of Tuscany; and the energy, the industrial accidents, the plan improvements, the environmental remediation and others aspects, in the case of Piedmont. Moreover in the case of Piedmont, also other documents should be presented, and often it depends by the decisions of province in which the installation is. In fact there is a variability -about this aspect- in each province.

Also in **Slovenia** a series of forms are requested in order to obtain the permit. Here are indicated some of them: the application for the Integrated Environmental Authorization (IEA), data about the company, information about IPPC installations type, other installations type and their interconnectivity, review of relevant reference documents and executive acts, identification of buildings and installations, review of fuel tank installations and other warehouse capacity, raw and auxiliary materials, half products and products, water consumption, consumption of energy recovered from combustion of fuel or waste, characteristics of emissions, review of diffused/fugitive emissions in the air, levels of noise, review of waste for companies that remove/recover waste, etc.

In **West Macedonia**, first of all is realised an initially study called Pro-EIA where interested submits application to the responsible authority that is accompanied by file which contains 6 copies of the study with technical and administrative information.

In order to obtain more detailed information about content of documents to submit for IEA issue, it is possible consult *each Regional Analysis in the MED IPPC NET project site* (www.medippcnet.eu).

At the end of this paragraph a table summary is available with the indication of main documents to submit for permit issuing.

❖ Time foreseen for the issuing

As regards the time foreseen for the permitting procedure for the first issue for new and existing installations, in **Italy** this is established by the legislative decree 59/05. In particular, within 30 days from the application for permit receipt, the Competent Authority communicates to the operator, the date of proceeding beginning. Within 15 days from the communication receipt, the operator publics an announcement about plant's information. Moreover, within 15 days from the announcement publication, the interested parties can present observations. Then, if there is compliance with requirements of the decree 59/05, the Competent Authorities issue the permit within 150 days from the application for IEA presentation; or in the case of no-compliance it denies the permit. Moreover in consideration of particular/relevant environmental impacts, complexity and/or national interest of plant, specific agreements can be concluded. In this case, the term of 150 days is replaced with the term of 300 days.

In **Andalusia** the deadline for the IEA granting is 10 months from the submission of the application. After this period without having notified any special resolution, the application can be rejected. In this case, the proceedings under IEA shall not become the object neither of Municipal License nor substantive authorization.

In **Valencia**, the permitting procedure starts with public information phase. Then the Competent Authority asks for a sector-based report to the concerned competent administrations and institutions. After this, the Competent Authority calls the IPPC operator for an audience. Close to the end of the procedure, the Competent Authority carries out an environmental assessment of the IPPC activity which will take into account all factors involved with the activity. The procedure finishes through a resolution, containing all the constraints that the activity must comply for their exploitation, which is notified to the operator and published in the Official Diary of the Valencia Government. As in Andalusia, also in Valencia the maximum period for finishing the permitting procedure is 10 months. This deadline is valid for activities included in annex I of the regional law. For activities included in annex II of the regional law, the deadline is 8 months.

In **Slovenia** after the presentation of the necessary documents by the company, the Environmental Agency of the Republic of Slovenia calls, if necessary, for supplementing the application. After the achievement of supplementary documents, the Environmental Agency of the Republic of Slovenia realizes the preparation of consensus and the public presentation of the application. Then IEA is issued. As regards time of permitting procedure, for new issue it consists in 7 months; while for the existing installations the term of the permitting procedure is not determined.

In the case of **West Macedonia**, after the responsible authority judges that the file presented –see above- is complete, it transmits it within 10 days in the responsible for consultation authorities. The latter in the following 15 days can ask also for additional data and clarifications from the investor. The Competent Authority, within

5 days from the interval of 15 days, approves or not the Pro-EIA. The approval and the Pro-EIA are transmitted to the Prefectural Council so that the citizens can be informed and within 30 days it is possible to formulate opinions and objections regarding the project. So as to be granted with Environmental authorization, the investor submits application with file that is accompanied by 6 copies of EIA, that includes some information and the approval of Pro-EIA. In case the Competent Authority judges that the file is not complete, within 10 days can asks for additional supporting documents and data. After the Competent Authority judges that the file is complete, it transmits it within 10 days in the responsible for consultation authorities. The latter send their opinions within 35 days, while also the prefectural council sends his observations. The Competent Authority 15 days after the interval of 35 days approves or not the EIA. The approval with the EIA are transmitted in the Prefectural council so that the citizens can be informed. In case the file and the necessary reports and permits are complete, the authorisation in maximum of 90 days is being given. This interval can be given equal extension of other of 90 days of in difficult and peculiar cases.

At the end of this paragraph the table 11 summarizes times for the first IEA issuing for new and existing installations.

❖ Institutions involved in the first issue for new and existing installations

The institutions involved in the permitting procedure for the IEA issuing are, as in the case of the content and the object of the documents, more similar among the seven regions. Moreover, in most of them there are some institutions always participating and present in the permitting procedure and some institutions that are present only in some cases.

In **Tuscany** and in **Piedmont** the institutions involved in the permitting procedure are: the Municipality, the Local Health Authority and the Environmental Protection Regional Agency while the Regional Administration, the waters managers, the Basin Authority and the firemen are sometimes present. Moreover in both regions can be also present the sewers manager, the ATO[12], the Basin Authority[13], and, in the case of permit that should be issued to landfill, the superintendent. In the case of Piedmont, also bearers of collective interests can be present. In Tuscany, the opinions of the above-said institutions are generally not binding, but in the permitting procedure they seek to follow them. In Piedmont the opinions of the municipality and province are always binding, those of the regional administration is binding only for some sectors, while the opinions of the other institutions are not binding.

In **Sicily**, the opinion of the municipality, of the province, of the regional administration, of the local health authority, of the Provincial Committee for Environmental Protection (CPTA) and of the Ministry of Environment and Protection of territory (or in case of national IEA process, the Ministry of Environment) are binding. On the contrary for the following involved institutions the opinion is not binding: Regional Agencies for the Environmental Protection, Regional Agencies for

[12] The ATO is a control and address institution, competent for the management of water service, or sewerage or waste. It was created by national law n. 36/1994.
[13] The Basin Authority is an institution with the aim to safeguard the whole catchment basins. It was created by national law n. 183/1999.

waste and water, the waste management ATO, Departments responsible for water, air, etc.

In **Andalusia** the institutions participating in the permitting procedure are: the Municipality, the Regional Department of Environment, the State Environmental Body, the Water Basin Entity. Their opinions are binding.

In **Valencia**, the Environment, Water, Town Planning and Housing Department of the Valencia Government (EWTPH) has created the Integrated Environmental Analysis Commission, an organ composed by one representative from each administration/institution involved in the permitting procedure. The institutions and organisations that are always involved in this Commission are: the IPPC Service of EWTPH, the Waste Service of EWTPH, the Environmental impact Service of EWTPH, the Air Service of EWTPH, the Water Service of EWTPH, the Basin authority, the Clean Technologies Centre of EWTPH. This Commission is similar about its composition and activities to the Italian one (called "Meeting of Public Services"). As in the case of Tuscany also in Valencia there are some institutions and organisations that are sometimes involved: the Municipality, the Citizenship, the Civil Protection authority, the Cultural Heritage authority, the Animal health authority, the Public health authority, also bearers of collective interests. As in Andalusia, all the opinions are binding for the IEA, except the one from Clean Technologies Centre, whose opinion is for consulting.

As in the case of Tuscany and Valencia also for **West Macedonia** there are some institutions that are always involved in the permitting procedure and other that occasionally are present. The Special Service of Environment of Ministry of Environment Energy and Climate Change, the Direction of Planning of Ministry of Environment Energy and Climate Change, the Department of Environment of the Ministry of Environment Energy and Climate Change and the Region, the Department of Environment of the Prefecture, the Prefect and the Council for the information of public, belong to the first category. The Relative to the investment ministries, the Department of Forests of the Region, the Department of Waters of the Region, the Revenue of Antiquities, the Department of Agriculture of the Prefecture, the Department of Health of the Prefecture belong to the second one. The opinions of all institutions are binding but not defined by law, the competent authority has the final decision but in almost all the cases it takes under consideration all the remarks of the involved authorities.

In **Slovenia**, the unique institution involved in the permitting procedure is the Ministry of Environment and Spatial Planning, Environmental Agency of the Republic of Slovenia. Its opinion is binding.

At the end of this paragraph the table 12 indicates the main institutions involved in the permitting procedure.

MAIN DOCUMENTS TO SUBMIT FOR PERMIT ISSUING								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Information about external context (e.g condition of environment)	X	X	-	-	-	-	-	2
Layout of installations	-	X	X	X	X	X	X	6
Planimetry of environmental aspects	-	-	-	-	X	-	X	2
Technical description of environmental aspects (e.g. waste, air, etc.)	X	X	X	-	X	X	X	6
Specific impact assessment (e.g. acoustic impact assessment)	X	X	-	-	X	-	X	4
Any technical info	X	X	-	X	X	X	X	6
Information about previous authorisations and license	-	-	-	-	X	-	X	2

Table 10 Main documents to submit for permit issuing

TIMES FOR THE FIRST IEA ISSUING FOR NEW AND EXISTING INSTALLATIONS								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
From 5 to 10 months				X	X	X	X	4
7 months			X**					1
8 months		X*						1
10 months	X	X*						2

Table 11 Times for the first IEA issuing for new and existing installations

* Times depend by activity typology
** for new installations

MAIN INSTITUTIONS INVOLVED IN THE PERMITTING PROCEDURE								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
National institution	X		X	X	X*	X*	X*	6
Regional institution		X		X	X	X	X	5
Local institution	X	X			X	X	X	5
Specific public institution (e.g. basin authority)	X	X		X	X	X	X	6
Other technical public departments (e.g. fireman)	X	X		X	X		X	5
Public health and safety authority		X			X	X	X	4
Bearers of collective interests		X			X			2

Table 12 Main institutions involved in the permitting procedure

*In Italian regions the national institution is involved when Ministry is the Competent Authority for the IEA issue.

2.2.2.2 The permitting procedure in the cases of renewal of the permit and substantial changes

❖ Renewal of the permit

In **Andalusia**, the renewal of the permit should be requested 10 months before the expiration date of the validity of the IEA and if it expires and the competent body has not issued a specific resolution, it shall be estimated and, consequently, renewed under the same conditions. Therefore, the maximum resolution term will be of 10 months from the date of filing the renewal application.

Also in **Valencia**, the operator must apply for the renewal 10 months before finishing the duration of the IEA, for those activities included in annex I of the Law 2/2006; while for those included in annex II of the Law 2/2006 the time is 8 months before the expiration validity of IEA. After this period, if the Competent Authority has not granted the permit, the renewal is considered as approved. The technical and administrative documents to submit for renewal of Authorizations are not determined by the Competent Authority. It is not known yet the maximum expected period for the permitting procedure in the case of a renewal.

In **italian regions**, as provided by national decree n. 59/05, the operator should send a renewal application to the Competent Authority before 6 months from IEA expiration. The application should be accompanied by a report containing the information updating of the Application for permits. In the following 150 days the Competent Authority expresses its opinion after the convocation of "Meeting of

Public Services". The Competent Authority can allow temporary exception to specific law requirements if a modernization plan guarantees the respect of these requirements within the term of 6 months, and if the project carries out a pollution reduction.

In **Slovenia**, the technical and administrative procedure for the renewal of authorizations is the same as the first issuing of IEA. The company liable for IPPC has to submit a complete application with all supporting documents within 6 months prior to expiry of IEA. Then the Agency submits this application and proposes consensus to public presentation. After 30 days the IEA is granted. In the case of renewal of Authorizations the terms of the procedure are the same as the first issuing of IEA for new and existing installations, that is 7 months.

At the end of this paragraph a table-summary contains times within whom the operator should ask the renewal of the permit.

❖ Substantial changes

In **West Macedonia**, in case of substantial changes or in case of renewal of the authorization, the procedure is the same. The installation submits study with description of changes to the Competent Authority which decides within 30 days if is required again from the beginning approval of new IEA. The Competent Authority also re-examines and potentially it rehabilitates the terms of the authorization in cases where: there are essential changes in the BAT, the safety of installation requires application of other techniques, there are changes at the legislation, the marginal value of emissions should be reconsidered. In cases where it is created problems of pollution of environment from an installation, or if are observed repercussions in the environment that had not been forecasted at the authorization process, the Competent Authority can impose additional environmental terms, or modify the initial, independent from the category of the installation. The ascertainment of serious problems in the environment from the operation of one unit or activity, can be result by regular programmed controls, or charges from private individuals or some other institution. Revision of environmental terms is held obligatorily in the case of relocation, modernisation, extension or modification of existing installation or activity. The process that is followed in this case is similar with that of initial authorization process.

As regards substantial changes of the IEA, in **Andalusia** it will be reported by the owner of the installation to the competent body through the application model to modify the permit, indicating reasonably whether it's a substantial modification or not, and accompanied by the documents supporting the reasons given. The competent body, once checked the documentation provided by the owner, will decide the substantial nature or not of the modification within one month, after which it has not received any specific resolution, it may be understood as not substantial, in which case the owner of the installation may carry out the modification. If it is determined that the modification is substantial, the procedure for granting the new IEA is the same as if it were a new or existing installation, and the period, therefore, will also be 10 months from the date of filing the application model for modifications.

Also in **Valencia** the requested documentation by the permitting procedure in case of a substantial change is the same that for a new installation. The Competent

Authorities may consider the technical criteria to determine when it is a substantial change of a facility. These criteria may be supplemented by the Competent Authority, with the application of qualitative criteria arising from the circumstances of the amendment to these provisions. Similarly, application of these quantitative criteria may be made on a cumulative basis throughout the process of application of Integrated Environmental Authorization or authorizations for this sector, in the case of existing installations. It may consider, in any case that there is a substantial change when changes of the whole installation exceed the thresholds. Integrated Environmental Authorization is granted to the whole installation after a substantial change, and not only that the part changed. The time foreseen for the issuing a substantial change is the same that for a new IEA: maximum 10 months for activities included in annex I of the Law 2/2006, and 8 months for activities included in annex II of the Law 2/2006.

In **Piedmont, Sicily and Tuscany** it is necessary to present a new Application for permits accompanied by a report containing:

a) An update of the information identified with the Application for permits;
b) An update of the information of non-technical summary of data.

The term for the issuing is the same foreseen for the first IEA issuing for new and existing installations. As regards the time foreseen for the issuing in the case of substantial changes, the national decree n. 59/2005 indicates that the authority shall issue or deny IEA within 150 days of submission of demand.

In **Slovenia**, the operator of an installation must notify the ministry in writing about any changes in the operation of the installation. If the ministry concludes that the change is substantial, they notify the operator within 30 days and the operator must submit an application for the changed IEA in a certain time period. If the operator does not submit an application in the appointed time period, it is considered that they have withdrawn from the changes. If the operator does not get the notification from the ministry within 30 days, it is considered that this change does not affect the valid IEA. The operator of an installation can conduct the intended change in the operation. Time for the execution of the procedure in case of "substantial changes" is 4 months.

TIMES WITHIN WHOM THE OPERATOR SHOULD ASK THE RENEWAL OF THE PERMIT								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
6 Months Before Permit's Expiration			X	X	X	X	X	5
From 8 To 10 Months Before Permit's Expiration		X						1
10 Months Before Permit's Expiration	X							1

Table 13 Times within whom the operator should ask for the renewal of the permit

The table 14 indicates times needed in case of substantial changes.

TIMES NEEDED IN CASE OF SUBSTANTIAL CHANGES								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
4 Months			X					
5 Months				X	X	X	X	4
8 Months		X*						1
10 Months	X	X*						2

Table 14 Times needed in case of substantial changes

*Times depend from the activities typologies.

2.2.2.3 The simplifications in the permitting procedure for particular categories of enterprises and the amount of the public fares that the enterprises must pay for the administrative procedure.

❖ Simplifications in the permitting procedure

For the most of regions (Andalusia, Valencia, Tuscany, Piedmont and Sicily), the laws provided some simplifications in the permitting procedure for particular categories of enterprises.

In **Spain**, the royal decree 509/2007 provided simplification in the procedure for applying for an IPPC Permit for Farming Installations as referred to in category 9.3 of Law 16/2002 (epigraph 6.6 of Directive 96/61/EC), simplifying the documentation[14] to be included in the basic project that accompanies the request of IEA. Moreover, this decree allows for the possibility for Autonomous Regions to establish measures simplifying the mechanisms used to verify the fulfillment of the conditions established in the IPPC Permit in the facilities that use a Environmental Management System (as per the requirements established by International Standard UNE-EN ISO 14001 and/or Regulation EMAS).

In **Valencia** for the renewal of IEA, the regional decree 127/2006 establishes that, in the application, the owner will submit a certificate for the environmental assessment adequacy of the facility to all environmental legislation. This adequacy will be certified by an Environmental Quality Collaborating Entity. Due to EMAS register requires an assessment/audit for the fulfilment of environmental legislation every year, if an IPPC company is adhered to EMAS it is not necessary to submit the certificate mentioned for the renewal application. So, the facility or activity will be in accordance to current environmental constraints/legislation.

[14] Annex II of the Royal Decree 509/2007.

In **Piedmont, in Sicily and in Tuscany** some of the provided simplifications are indicated by the legislative decree n. 59/05:

- In the case of a plant that, at the moment of the IEA issuing, is registered according to the CE Regulation n. 1221/2009 (EMAS), the renewal of the IEA is fulfilled every eight years (usually the renewal of the IEA takes place every five years).
- If the registration according to the CE Regulation n. 1221/2009 (EMAS) is following to the authorization, the IEA renewal is carried out every eight years beginning from the first following renewal.
- In the case of a plant that, at the moment of the IEA issuing, is certified according to the Regulation UNI EN ISO 14001, the renewal of the IEA is fulfilled every six years. If the certification according to the Regulation UNI EN ISO 14001 is following to the authorization, the IEA renewal is carried out every six years beginning from the first following renewal.

According to the article 5 of the decree n. 59/05, if the information and the descriptions provided in according to the Regulation UNI EN ISO 14001, or the data provided for the registered sites according to the Regulation CE n. 1221/2009 (EMAS), as well as other information provided according to any other rules, follows one or more requirements requested in the IEA application, these can be used in order to the registration of the IEA application.

Also the Italian ministerial decree adopted in April 24th 2008 (decree about fares) provided other simplifications: one is that the installations that are registered according to the CE Regulation n. 1221/2009 (EMAS), obtain a fares reduction from 1000 to 8000 euro. Another one is that the installations that are certified according to the Regulation UNI EN ISO 14001, obtain a fares reduction from 500 to 5000 euro.

In **Slovenia and West Macedonia** there are any simplifications in the permitting procedure for particular categories of enterprises.

❖ Public fares

As regards fares that enterprises must pay for the administrative procedure, wide differences exist among the regions.

In the case of **Andalusia**, the amount of fares is between 1000 and 1500 euro (as provided by regional law 18/2003, art. 12). For installations pertaining to the sector 6.6 of the IPPC Directive, the applicable fee will be 50% of the ordinary amount (as also in case of control fees –see section about control and inspection system).

In **Valencia** the administrative procedure for obtaining the IEA is free for companies.

In **Piedmont, Sicily, and Tuscany**, the national ministerial decree -adopted in April 24th 2008- disciplines the accounting conditions and the fares to apply in connection with the preliminary inquires and the controls provided in the national decree n. 59/05. The decree indicates:

- Fares concerning the preliminary inquires about the issuing and the updating for the substantial changes of the permit, also following up the re-examination. There are different fares that depend on some elements (e.g.

the installation typology, the number of emission points/discharges and the number of pollutants issued by the activity, tons of waste). Some reduction of fares are provided by law;

- Fares concerning the preliminary inquires linked to the permit renewal. Also in this case the decree provides different fares that depend on some elements (e.g. the installation typology, the number of emission points/discharges and the number of pollutants issued by the activity, tons of waste). Some reduction of fares are provided by law;
- Fares concerning the preliminary inquires in case of non substantial changes also following up the re-examination.

In **Tuscany**, also a regional deliberation about fares has been emanated. The latter concerns the adaption and integrations of fares to apply for the realization of preliminary inquiries and controls by the provinces competence. This regional deliberation was integrated by another one that established to apply -until June 30th 2010- a 20% reduction of the fares established by the national ministerial decree adopted in April 24th 2008.

Also in **Piedmont** a regional deliberation has been emanated.

In the case of Piedmont and Tuscany the specific amounts of fares provided by laws are indicated in the Regional Analysis. For example in Tuscany, fares can be from 2.000 to 35.000 euro, as declared by Competent Authorities interviewee.

In **Slovenia**, the Administrative Fees Act establishes that enterprises must pay an administrative fee in the amount of 17,73 EUR. Moreover, the operator should also pay the costs of publication announced in the newspaper. The amount is € 1,214.4.

In **West Macedonia**, the fee is determined with common decisions of Minister of Finances and is escalated proportionally accordingly to installed power and activity or stocking faculty. The fee is doubled in the case where the authorisation is granted after decision of interruption of operation of activity. So, the law does not refer to specific amounts.

The following table summarizes main simplifications in the permitting procedure for particular categories of enterprises.

MAIN SIMPLIFICATIONS IN THE PERMITTING PROCEDURE FOR PARTICULAR CATEGORIES OF ENTERPRISES								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Any simplification			X	X				2
Simplification of documents to submit in order to obtain IEA for farming installations	X	X						2
Simplification about documents to submit for installations registered EMAS		X						1
Simplification in inspection control activities in facilities registered EMAS or certified ISO 14001	X	X						2
Longer validity of IEA enterprises registered EMAS or certified ISO 14001					X	X	X	3
Reduction of fares for enterprises registered EMAS or certified ISO 14001					X	X	X	3

Table 15 Main simplifications in the permitting procedure for particular categories of enterprises

The table-summary indicates fares that enterprises must pay for the administrative procedure.

FARES THAT ENTERPRISES MUST PAY FOR THE ADMINISTRATIVE PROCEDURE								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Any fare to pay		X						1
National law establishing fares			X		X	X	X	4
Regional law establishing fares	X				X		X	3
Law does not refer to specific amount				X				1
Some fare's reductions are provided by law	X				X	X	X	4

Table 16 Fares that enterprises must pay for the administrative procedure

2.2.2.4 The environmental assessment carried out during the permitting procedure and the application of the flexibility principle by the Competent Authority

❖ **Environmental assessment carried out during the permitting procedure**

The environmental assessment carried out in **Andalusia** entails a review by the Regional Government for Environment of Andalusia (Competent Auhtority in the IEA) of all documentation provided both by the owner of the installation and by other environmental authorities involved in the process (the city council would provide the compatibility report with the urban planning; the basin body would provide the discharge admissibility report; and the state environmental body, in case of the environmental impact assessment would be competence of the state, and not of the autonomous community. It would provide the results of the process of the environmental impact assessment, which is the study of the environmental impact. In the case that environmental impact assessment is competence of the autonomous region, the environmental impact assessment would be carried out by the regional government for environment of Andalusia itself and it would be totally integrated in the granting process of the IEA) and it is carried out during the whole permitting procedure of the IEA. If the reports provided by the city council, basin body and state environmental boby are unfavourable, independently of the moment in which they were emitted, but just in case they were received before the IEA granting, the government for environment could dictate a resolution stating ground finishing the procedure and filing the actions.

In **Valencia** with the information collected from the involved administrations/institutions reports, the IPPC Service elaborates a proposal of resolution for the IEA. This proposal is approved by the Integrated Environmental Analysis Commission. A series of technical, legal and administrative information should be considered during the environmental assessment. In fact, the assessment is a complex decision that must be taken by a multidisciplinary group. However, the Competent Authority does not have an objective methodology that assures that the collected information during the procedure and all the IPPC values are integrated in the assessment. The Clean Technologies Centre has developed a methodological proposal for the IPPC environmental assessment, based in AHP/ANP multi-criteria decision techniques. This methodology has not applied in a real IEA yet.

In **Piedmont, Sicliy, and Tuscany** the environmental evaluation is much the same. A series of document and information are considered in order to carry out a formal assessment. The Competent Authority verifies if the documents presented by firms correspond to the documents requested and if there are sufficient data. If necessary, integrations are requested. Then there is the beginning of the administrative proceeding; a technical evaluation and meetings among some institutions are carried out. Then there is the participation in the "Meeting of Public Services". The requirements established in the IEAs are also fixed taking into account the requirements of IEAs already issued, and all environmental aspects and items are considered. Moreover, Piedmont specifies that also Environmental Regional Protection Agency is presents and operative during this phase.

In **West Macedonia** the situation is different. All the installations in West Macedonia are subjected to EIA (Environmental Impact Assessment). The permitting procedure in order to obtain the IEA become simultaneous to the one finalized to obtain the EIA in case the enterprise is included in the Annex of directive 96/61, so that in order to obtain authorisation the enterprise must submit more data which are also necessary. The common supporting documents and the descriptions of the characteristics are only submitted one time in the process. Moreover, there are required also some additional data (e.g. suitable antipollution measures with use of BAT; choice of BAT; first and auxiliary substances and energy that is required and produced at the productive process; sources of emissions of installation; nature and quantity of emissions; the technology that aims in the prevention or in their reduction, etc.).

Slovenia only indicated that the environmental assessment is carried out during the permitting procedure.

❖ Application of the flexibility principle by the Competent Authority

As regards the "flexibility principle" provided by the IPPC Directive[15], in **Andalusia** the Environmental Prevention and Quality Directorate General of the Department of Environment of Andalusian Government in collaboration with the Andalusia Institute of Technology (IAT), have developed a Method of Calculation for setting Emissions Value Limits for each of the significant emissions produced by the facility included in the application of Law 16/2002[16] through the identification of the references, legal or technical, and takes into consideration the environmental behavior of the installations to study by means of its real emissions values, consumption and local environmental conditions. This action has the purpose of complying with legal requirements.

In **Sicily**, the emissions limit values, the parameters and the technical equivalent measures, are referred to BAT, taking into account also the technical characteristics of the installation, its geographical location and the local environmental conditions. The "flexibility principle" is taken into account for each permit procedure and depends on the local conditions and type of technology adopted.

In most of regions the "flexibility principle" is not applied or it is very difficult to be realized.

In **Valencia** for instance, the Competent Authority only inserts the requirements made by each sectorial report into the permit, and usually does not take into account the flexibility principle.

Also in **Piedmont**, the principle is not applied; the limits are those established by national legislation.

[15] The flexibility principle is provided by art.9, point 4 of the IPPC Directive 61/96 that indicates: "the emission limit values and the equivalent parameters and technical measures referred to in paragraph 3 shall be based on the best available techniques, without prescribing the use of any technique or specific technology, but taking into account the technical characteristics of the installation concerned, its geographical location and the local environmental conditions. In all circumstances, the conditions of the permit shall contain provisions on the minimization of long-distance or transboundary pollution and ensure a high level of protection for the environment as a whole".

[16] This Method of Calculating has been applied to different activities from included in Annex 1 of Law 16/2002, among them, Large Combustion Plants (epigraph 1.1 of Directive 96/61/EC), Manufacturers of Glass, Paper and Cardboard (epigraph 3.3 and 6.1 of Directive 96/61/ EC), Ferrous and non Ferrous Foundries (epigraphs 2.4 and 2.5 of Directive 96/61/ EC), and the Food Industry (epigraphs 6.4, 6.5 and 6.6 of Directive 96/61/ EC).

Also in **Slovenia and in West Macedonia** the "flexibility principle" is not applied. In West Macedonia, the emission limits value are determined through BAT and national environmental legislation.

In **Tuscany**, the most of the interviewee Competent Authorities stated that it is very difficult to realize it and for this reason they are not able to apply this principle. In fact the Competent Authorities often taking into account only national laws and ELVs established by these, as in the case of Piedmont. Only few Competent Authorities apply the flexibility principle.

In the following table-summary is indicated the application of the flexibility principle by Competent Authority in the seven participating regions.

THE APPLICATION OF THE FLEXIBILITY PRINCIPLE BY COMPETENT AUTHORITY								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Flexibility principle fully applied	X*					X		2
Flexibility principle partially applied		X	X	X	X		X	5

* The flexibility principle is fully applied thank to a specific methodology

Table 17 The application of the flexibility principle by Competent Authority

2.2.2.5 The number of permits issued by the Competent Authority and the duration of permits

In the following table are showed the number of permits issued the duration of permits, in each region.

NUMBER OF PERMITS ISSUED AND DURATION OF PERMITS							
State	Spain		Slovenia	Greece	Italy		
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
N. of permits issued	456	423[17]	113	Data not available	540	42	257*
Duration of permits	8 years		10 years	The duration is not predetermined by law. According to usual practice the duration is 5 years. In certain cases the duration is 1 or 3 years.	- Usually 5 years - 8 years for plants registered EMAS - 6 years for plants certified ISO 14001 7 years for electric energy production plants with power exceeding 300 MW		

*Data could be not updated due to the number of permits issued by national Competent Authority.

Table 18 Number of permits issued and duration of permits

[17] Number of permits dated on 1st September, 2010.

2.2.2.6 The updating of the permits

The **Andalusia** specified that, when the technical and scientific changes or their substantial changes in the existing environmental conditions justify applying new conditions in the IPPC Permit, and when it is economically feasible, the competent body[18] or the owner of the installations[19] can insist on changes to the permit the competent body shall determine the appropriateness of the information period, on opening up to a period of reviews, asking for reports and information in relation to the changes the entity is seeking. Before presenting the final resolution, a consultation period involving the interested parties that will take place over a period of fifteen days. The resolution for changes will be communicated to the interested parties, the Municipality where the installations are located, the administrative bodies that have produced related reports, and when necessary, to the substantive bodies. The resolution for modification in the environmental permit will be made public by including it in the Boletín Oficial de la Junta of Andalusia, as well as having the full contents published on the Department of Environment's website.

In any case, the IEA will be reviewed in terms of increase of the "production capacity", and/or when the pollution caused by the installation makes advisable the review of the ELV.

In **Valencia** the updating of the permit is provided by the regional decree through a procedure called "modificación de oficio" that means "change in trade". This procedure consists in an automatically IEA change without compensation, after hearing the concerned person, when specific circumstances happen. Also before the end of its term, the IEA can be also be revised and amended ex officio, without compensation, when advances on best available techniques allow a significant reduction of pollution without imposing excessive costs for the owner of the activity.

In **Tuscany**, most of the interviewee Competent Authorities stated that till today has never been necessary to request the updating of the permit conditions in the cases foreseen by the Directive. Only one Competent Authority stated that in the permit they indicate that the firm should consider the BAT updating. Moreover, for the Italian regions, the conditions according to the updating is necessary, are listed in the legislative decree n. 59/05.

West Macedonia specified that in cases where installations creates pollution problems for environment, or if are observed repercussions in the environment that had not been forecasted at the authorization process, the Competent Authority can impose additional environmental terms, or modify the initial, independent from the

[18] The IEA may be modified officially by the competent body in the following situations: a) The pollution produced by the facility allows for inspections of the limit values of the imposed emissions or new limits are adopted; b) When it is possible to significantly reduce emission without imposing excessive costs as a consequence of applying changes to the Best Available Technology; c) Security in the operating process or activity makes it necessary to use other technologies; d) The Water Basin Entity deems circumstances exist that justify revision or modification of the IPPC Permit relating to discharges into the interregional Public Water Basins that lie under state jurisdiction and when these requirement are made by the competent body in a binding report; e) When it is a sector legislation being applied to an installation (see the modification scheme of IEA of the question 2.2).

[19] The IPPC Permit can also be modified on the facility's insistence when a insubstantial modification is made or as a consequence of environmental good practices that will result in a reduction of emissions and effluent discharges or by generating authorized wastes (see the modification scheme of IEA of the question 2.2).

category of the installation. The ascertainment of serious problems in the environment from the operation of one unit or activity can be result of regular programmed controls, or charges from private individuals or some other institution. Revision of environmental terms is held obligatorily in the case of relocation, modernisation, extension or modification of existing installation or activity. The process that is followed in this case is similar with that of initial authorization process.

Finally, in **Slovenia** the procedure for the updating of the permit conditions is not yet defined in the Environmental Protection Act.

As regards the interpretation of the "production capacity", all regions states that the term is considered as "maximum productive capacity". Moreover in Italy this concept was established also by a document issued by the Environment Ministry -in July 13th 2004-.

The interpretation "per day" is different among regions. Only Slovenia considers this concept as days worked. The other regions (Andalusia, Valencia, Piedmont, Sicily, Tuscany and West Macedonia) consider it as workable days.

The following table summarizes the interpretation of "production capacity" and "per day" included in the Directive.

INTERPRETATION OF THE "PRODUCTION CAPACITY" AND "PER DAY" MENTIONED IN THE DIRECTIVE									
State		Spain		Slovenia	Greece	Italy			Total
Regions		Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
"Production capacity"	*Maximum productive capacity*	X	X	X	X	X	X	X	7
	Effective production of 1 year								-
"Per day"	*Day worked*			X					1
	Workable days	X	X		X	X	X	X	6

Table 19 Interpretation of the "production capacity" and "per day" mentioned in the Directive

2.2.2.7 The planning of the frequency of inspections and the sanctions system

❖ Planning of the frequency of inspections

In **Andalusia**, as regards the type of inspections, as much as the frequency, the methodology and the people responsible for the conducting the inspections, are defined in Annex "Control and Monitoring Plan" for the IPPC Permit:

- The activities included in *Control Plans* consist in operational control activities (for example, adequate maintenance of production equipment) and follow-up and measuring activities (for example, periodic measuring of air emissions). When it relates to operations control activities, the frequency is

determined by the Department of Environment in the IPPC Permit and depends on factors, such as type of activity, the associated environmental aspects, and the demands of the organisation itself have established as control within its operations. When it relates to follow-up and measuring activities, the frequency is imposed by the applicable sector legislation, for example, in the case of air emissions, based on the type of activity, it is included in either group A, B or C for which the measurements will be done at intervals of 2, 3 or 5 years respectively.

- The activities included in the *Monitoring Plans* will be done at the commencement of the concession of the IPPC Permit (up to six months) and periodically (during the six years IPPC Permit is valid). In this final scenario, the type and frequency of inspection, is determined by Department of Environment within the permit itself, and depends upon the characteristics of the installations (for example, in epigraph of Law 16/2002, of the techniques utilized in the process which is associated with the emissions source and/or the type of combustible utilized) and the type of environmental aspect to control (air emissions channelled or diffused, discharges coming form toilets, rain waters, coming from production, wastes hazardous or non hazardous).

In **Valencia**, according to the regional law, the Valencia Government may establish plans for environmental inspection in order to articulate, plan and streamline, the environmental inspections carried out in the region. These plans will be approved by the Spanish Ministry responsible for environment.

In **Tuscany** there is a wide difference about the frequency of inspections among different Competent Authorities: for instance the planned inspections are 1 or 2 during the IEA validity, or even are yearly or six-monthly, etc.

As in the case of Tuscany, also in **Piedmont** there are no clear criteria or official documents in order to plan inspection's frequency. Each Competent Authority takes autonomous decisions. The variability is for example from 1 inspection during IEA duration to 2.

In **Sicily** the planning of the frequency and the kind of inspections, takes into account the technical characteristics of the single installation, its geographical location and the local environmental conditions. In general, the Environmental Regional Protection Agency provides an annual inspection and some monitoring measures every two years.

The Inspectorate of the Republic of **Slovenia** for the Environment and Spatial Planning, conducts inspections twice a year. If the inspectors establish, that a law or other regulative act had been violated or that the installation or plant does not operate according to the permit, he has the right and the obligation to order that the irregularities should be eliminated, that some measures should be adopted, etc. If the person responsible for the burdening does not act according to the measures suggested by the inspectors, the latter can prohibit some operations and/or the use of specific substances. The inspector can order a control monitoring without previously notifying the person, obliged to ensure operational monitoring.

In **West Macedonia** controls are held in three cases: at the process of authorization, at the process of renewal or modification of authorisation; after charge, or in case of programmed inspections.

❖ Sanctions system

As regards sanctions, in **Andalusia** minor, serious and very serious infringements are statutorily established as regards the integrated environmental authorization, the quality of the atmospheric environment, the aquatic environment, the soil, the wastes, and as regards the quality label, varying the sanctions from a level to another and from a issue to another. The amount of the infringements as regards IEA are the following:

- the very seriously infringements will be sanctioned with a fine from 240,401 to 2,404,000 Euro;
- the seriously will be sanctioned with a fine from 24,051 to 240,400 Euro;
- the minor infringements will be sanctioned with a fine up to 24,050 Euro.

Regardless of sanctions imposed by the prosecutor's office, the authors or those responsible of committing the infraction will be obligated to repair any damages incurred.

If the offender does not comply with their obligations to restore the Environment despite having been required to do so by the sanctioning body, an execution by substitution will be ordered. Whenever it is impossible to determine the degree of participation of distinct parties that could prevented the infraction, the responsibility will be shared between them.

Also in **Valencia** –as in the case of Andalusia- the infringements are classified in very serious, serious or light. In particular, the infringements classified in the regional law as lights will be prescribed within one year, classified as serious in two years and classified as very serious in three years.

- In the case of *very serious infringements*, the fine is from 200.001 to 2.000.000 Euro. Moreover, other measures can be imposed (e.g. closure of all or part of the facility, temporary closure of all or part of the premises for a period not less than two years nor more than five, disqualification of the activity for a period not less than one year nor more than two, revocation of integrated environmental authorization, or its suspension for a period not less than one year nor more than five, etc).
- In the case of *serious infringements*, the fine is from 20.001 to 200.000 Euro. Also in this case, other measures can be imposed (e.g. temporary closure of all or part of the facilities for a maximum period of two years, disqualification of the activity for a maximum period of one year, revocation of integrated environmental authorization, or its suspension for a maximum period of one year).
- In the case of *minor infringements*, the fine is up to 20.000 Euro.

When the amount of the fine is lower than the obtained profit during the infringement, the penalty shall be increased at least by twice the amount by which the infringement has benefited, without, in any case not exceed the amount the maximum penalty under this law.

In the imposition of sanctions must keep proper alignment between the severity of the act constituting the infringement and the sanction imposed, especially considering a series of criteria for graduation of the penalty.

In the case of **Italian** regions, the national decree n. 59/2005 disciplines also the system of penal and administrative sanctions about the IPPC matter. The main sanctions are indicated below:

- The operator conducting an annex I activity without an integrated permit, or with a suspended or annulled integrated permit is subject to penal sanctions. In particularly he is punished with the arrest until one year or with an penalty from 2.500 to 26.000 euro;
- The operator who does not respect the permit dispositions or Competent Authority instructions is subject to penal sanctions;
- the operator conducting an annex I activity after a order to close the installation is subject to the arrest from 6 months to 2 years or to a penalty from 5.000 to 52.000 euro;
- The operator missing to notify to the Competent Authority the communication provided by the article 11, point 1 of the national legislative decree n. 59/05, is subject to a fine administrative sanction from 5.000 to 52.000 euro;
- The operator missing to notify to the Competent Authority and to the interested municipalities the emission monitoring data is subject to a fine administrative sanction from 2.500 to 11.000 euro;
- The operator missing to present -within the term established by the Competent Authority and for no justified reason- the integrated documentation provided by the article 5, point 13 of the national legislative decree n.59/05, is subject to a fine administrative sanction from 5.000 to 26.000 euro.

With regard to the installations of national competence, the sanctions are imposed by the prefect, while for the other installations the sanctions are imposed by the Competent Authority. Furthermore, Competent Authorities can adopt additional measures, according to the art. 11, point 9 of the 59/05 decree, in case of permit dispositions disrespect:

- A warn to the operator, defining a deadline to eliminate any disrespect;
- A warn to the operator suspending temporary the permit;
- The permit termination and the order to close the installation.

In **Slovenia**, the sanction in the case of infringement of Regulation or Rules consists in a fine to pay from 40.000 to 75.000 euro; in case the company does not have the permit, the fine to pay is from 75.000 to 160.000 euro the and prohibition for the operation of the installation.

In **West Macedonia**, the sanction system foresees administrative and legal penalties for those who offend the environmental laws.

As regards administrative sanctions, the article 4 of Law 3010/2002 provides that to individual causing any pollution or any other degrade of environment, or violate the provisions of relative legislation, ministerial, regional or prefectural provisions, is imposed as administrative ratification fine, 50 to 500.000 Euro.. The size of fine depends from the gravity of infringement, the frequency, the relapse, the style of overshooting of enacted limits of emissions and the violation of environmental terms. This administrative ratification is proportionally imposed by the Prefect, her General Secretary of Region, or from Minister.

Moreover, according to the article 30 of L 1650/1986, if an enterprise causes pollution or degrade of environment, is then imposed provisional pause of operation, until they be taken the suitable measures for the dissuasion of pollution. It is also likely imposed a final pause of operation of installation, in the case where the enterprise omits or denies to adopt the indicated measures or if the reception of this measures are unfeasible for the installation. The interruption is imposed with decision of the Prefect. In the case where from the type, the quantity of pollutants or the extent of degrade of environment, exists danger of death or serious body damage or ecological destruction, the Minister of Energy and Climate Change -in collaboration with the Minister responsible of the activity- is eligible to impose much bigger sanctions. The infringement is realised with action of body that imposed the prohibition. In every case it can be raised the prohibition, with decision of body that imposed it, in case the enterprise takes effective measures so that ceases the pollution of environment.

As regards legal sanctions, the article 28 of law 1650/1986 provides them in cases of not compliance with the terms of authorisation. Concretely, with imprisonment of 3 months up to 2 years is punished somebody which causes pollution or it downgrades the environment with action that violates the relative legislative provisions; which practises activity without the forecasted authorisation or it exceeds the limits of authorisation that have been granted to him and downgraded the environment.

If the above punishable action were taken place from negligence is imposed imprisonment up to one year.

In the case where the punishable action had as resulting from danger of death or serious body damage, then is imposed sentence of imprisonment of one year. In the case where befell serious body damage or death, is then imposed imprisonment until 10 years.

If the heavy body damage or death concerns infant, are imposed imprisonment of at least two years and money fine.

In the case the pollution or degrade of environment emanates from the activity of legal person, the court declares in charge with regard to the payment of money fine, the legal person.

The chairmen of administrative councils, the directing advisers of anonymous companies, the administrators of companies of limited responsibility, the chairman the administrative and supervisory council of cooperatives, as well as the individuals which practise the administration, are punished as perpetrators, independent by any chance penal responsibility other individual and the urban responsibility of legal person, provided that from intention or from negligence they did not observe their particular legal obligation to see to for the application of relative legislative provisions for the protection of environment.

The table-summary below indicates the sanction system in the seven participating regions.

SANCTION SYSTEMS						
Spain		Slovenia	Greece	Italy		
Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
- **Very seriously infringements** (sanctioned with a fine from 240,401 to 2,404,000 Euro); - **Seriously** infringements (sanctioned with a fine from 24,051 to 240,400 Euro); -**Minor infringements** (sanctioned with a fine up to 24,050 Euro).	- **Very seriously infringements** (sanctioned with a from 200.001 to 2.000.000 Euro); - **Seriously** infringements (sanctioned with a fine from 20,001 to 200,000 Euro); -**Minor infringements** (sanctioned with a fine up to 20,000 Euro).	- In case of **infringement of Regulation or Rules** fine to pay is from 40.000 to 75.000 euro; - In case the **company does not have the permit**, fine to pay is from 75.000 to 160.000 euro and the prohibition for the operation of the installation.	**Administrative fine** from 50 to 500.000 Euro; **Legal penalty: imprisonment** from 3 months to three years	**Administrative fine** from 2.500 to 52.000 Euro; Penal sanction: arrest until 2 years		

Table 20 Sanction systems

2.2.2.8 The activities carried out at regional or national level to assure a common approach and to include homogeneous contents in the permits

In **Spain**, at national level, periodic meetings are held with the Ministry of Environment and Rural and Marine Affairs in order to coordinate the different competent bodies dealing with Environmental Prevention and Control in the Autonomous Regions.

In **Andalusia**, at regional level, the Autonomous Region has produced a series of documents, as for example:

- Common Practices for conceding IPPC Permit (for example, IPPC Guidebooks for Municipalities).
- Methodology for Calculating the Emissions Value Limits and Guidebooks with the Reference Values and with a proposed Value Limit for Emissions as applied to said methodology in some sectors.
- Quality Control and Monitoring that define the follow-up and measuring of applicable environmental aspects in some sectors.
- Sector Studies that include the characterisation of the existing installations in Andalusia and technologies used, notwithstanding real values of significant emissions and consumption for some sectors.

The last three documents indicated, have been developed for some sectors, specifically those included in the scope of the MED-IPPC-NET study (manufacturing of ceramic products, large combustion plants, surface treatment, landfills and paper manufacturing).

Moreover, in Andalusia periodic meetings between Central Services and the Provincial Delegations of the Department of Environment are held.

In **Valencia**, other type of activity to assure a common approach consists in sector-based agreement among Valencia Competent Authority and some industrial associations for the determination of some environmental measures and emission limit values. There are also the regional BAT guidelines.

In **Italy**, at national level there is the IPPC Observatory, provided by national decree n.59/05. Among more tasks, its role about the homogenization not works very well. Only one of the interviewed Competent Authorities stated that Coordination tables between firms and the Competent Authority are in progress in order to assure also assistance and support to the firm that should obtain the permit.

In **Tuscany**, the regional law n. 61/2003 institutes the Coordination Technical Committee. This latter carries out a technical consultant task, with the aim to realize the comparison and the harmonization among competent offices and their reciprocal experiences.

Piedmont specifies that at national level there are the ISPRA guidelines. But they are not binding.

In **Sicily**, a common approach and homogeneous contents in the permits are guaranteed thanks to the facts that the IEA process in the region is under the responsibility of Service II SEA-IEA (Regional department of Territory and Environment), that ensure the participation of all Competent Authorities involved in the permitting procedure. Moreover, the institution of special Structure of ARPA Sicily ensures the application of an uniform and shared procedure in the nine Sicilian Province. Also the adoption of the reference document, with a minimum of information to be included into the Control and Monitoring Plan, represents both a support during the Environmental Regional Protection Agency's evaluation process and a guidelines for the drafting of each Control and Monitoring Plan by Plant's manager.

In **Slovenia**, all activities are carried out exclusively on the national level, as those of the Agency for the Environment and Spatial Planning to assure a common approach and to include homogeneous contents in the permits.

In **West Macedonia**, initiatives at national or regional level in order to assure a common approach and homogeneous content of the authorisations does not exist. There are ministerial newsletters and decisions with the indication of required elements and data that permits should include.

The following table includes activities carried out to assure a common approach and to include homogenous contents in the permits.

ACTIVITIES CARRIED OUT TO ASSURE A COMMON APPROACH AND TO INCLUDE HOMOGENOUS CONTENTS IN THE PERMITS								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Meetings	X	X					X	3
Documents/guidelines	X	X			X	X		4
Sector-based agreements		X						1
Regional coordination activity						X	X	2
Agency for the environment and spatial planning			X					1
Ministerial newsletters/decisions				X				1

Table 21 Activities carried out to assure a common approach and to include homogeneous contents in the permits

2.2.2.9 Competence, training, and awareness requirements of the government employees involved in the permits granting

- **Have training initiatives (or similar activities) been carried out for the public officers involved dealing with the issue of the Authorisations?**

The IPPC matter involved more persons. In addition to subjects that "write" the permit, all staff of the environment area could be involved in the permitting procedure because bearer of specific abilities related to single environmental aspect and therefore to a part of inserted requirements. In the second following table, the numbers of persons involved in the permitting procedure indicated by each region are considered, but these could have being object of a different interpretation by partners.

In **Andalusia**, prior to the adoption of the Law 16/2002, the Department of Environment began to train their staff, having been given 6 courses related to the IPPC Law until now.

Also in **Valencia**, some environmental courses have been carried out by the Valencia Institute for Public Administrations, and by Clean Technologies Centre, for the public officers involved dealing with the issue of the Authorisations.

In **Tuscany**, some public officers participated to training activities or to a meetings with enterprises and some of them are informed by the Coordination Technical Committee.

In **Sicily and Piedmont**, there have not been initiatives; but in the latter, there have been several conferences about initial experience gained.

In **Slovenia** training initiatives were carried out for the Slovene public officials in the years 2006/2007 under the project Twinning. The training was carried out by German officials. In 2008 a two-day seminar to follow up the content of IPPC Directive was organized.

In **West Macedonia**, educational initiatives under the form of seminar or training workshop, have not been realised. The training of employees took by internal meetings of the departments and by clarifying newsletters of ministries in issues that came up during the implementation by the Competent Authorities.

❖ Human resources involved in the permitting procedure

As regards the human resources involved in the permitting procedure, the number of persons varies among regions.

In the case of **Andalusia**, about 15 people, divided into the Headquarters and Provincial Offices of the Department of Environment, participate in the implementation and monitoring of the IPPC Directive.

In **Valencia** there are 18 technicians and 2 administrative persons involved in the permitting procedure, belonging to the IPPC Service.

In **Tuscany** the number of persons varies among Competent Authorities from 1 to 9 persons.

Also in **Piedmont** there are differences among Competent Authorities about the number of persons involved in the permitting procedure; they are about 80.

In **Sicily**, competent institutions and/or organisations involved in the permitting procedure are about 10, while the number of the competent officers/personal depends on kind of the specific activities and the typologies of installations.

In **Slovenia**, about 25 IPPC competent officials are involved in the permitting procedure.

In **West Macedonia**, do not exist personal that deal exclusively with the approval of IPPC permits. This competence belongs generally to all department. The two Competent Authorities are constituted by 1 supervisor and 10-15 individuals as personnel.

Taking into account the variable number of persons involved in the permit issue communicated by each region, we presume that partners given each one different interpretation to the question. For this reason data are not comparable.

The table below summarizes training initiatives carried out for public officers involved in the permitting procedure.

TRAINING INITIATIVES CARRIED OUT FOR PUBLIC OFFICERS INVOLVED IN THE PERMITTING PROCEDURE								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Training activities	X	X	X				X	4
Periodical meeting				X			X	2
Conferences/seminars			X		X	X		3

Table 22 Training initiatives carried out for public officers involved in the permitting procedure

2.2.2.10 The strengths and weaknesses identified in the Administrative Analysis

❖ Strengths

One strength identified in the Administrative Analysis in Valencia is the creation of the Integrated Environmental Analysis Commission; this organ is composed by one representative from each administration/institution involved in the permitting procedure.

Also for Tuscany the creation of the Coordination Technical Committee, an institution with an important harmonization task among different offices and Competent Authorities, is considered a strength.

The realization of the integrated focus characterized by the adoption of an environment administrative model for intervention, based on coordination, simplicity and agility, is a strength identified by Andalusia. Also for Sicily the integrated approach emerged as a strength from the Administrative aspect of the Analysis.

Piedmont highlighted that the IPPC Directive enables companies to reflect in the planning of future participations of environmental improvement.

Tuscany identified as a strength the new and different conception of environmental authorizations that the Directive caused both in the point of view of companies and public administration.

West Macedonia considers the existence of one single authority responsible for administrative issues as a strength, and also for Sicily the only one competent authority for the regional EIA process is a good thing.

The data collected from the activities lead from the companies in performance of the prescription of IEA, constitute for Piedmont an important data bank of information- often not equally detailed in the BREFs or in the national guidelines-.

Finally, the simplifications existing in the permitting procedure for livestock categories and companies with environmental management system, are considered a good thing for Valencia.

❖ Weaknesses

As regards weaknesses for all Regions a problem is represented by some delays in IEA issue, caused by more reasons. Delays depended from the late application of regulations (Slovenia), from the failure to meet deadlines of the IEA granting (West Macedonia and Andalusia), from the workload due to the necessity to IEAs issue (Piedmont), from the absence of deadline agenda for the permit issuing (Tuscany), from the lack of human resources in the Competent Authority organization, from the poor quality of the IPPC activity projects submitted by the operators, from the involved administrations and institutions in the permitting procedure that sometimes overpass the previewed period for elaborating their reports (Valencia), from the lack of authorities involved in the conference cycle (Sicily).

Another weakness identified both from Andalusia and West Macedonia, consists in the ignorance and/or disorientation at the time of filing the necessary technical and administrative documentation for the grant, renewal and/or modification of the IEA.

Linked to the above aspect, also the lack of preparation of the personal of Competent Authorities is a problem in the opinion of West Macedonia and Tuscany. There are not training activities and the number of persons that belonging to Competent Authorities is lack in. Moreover, there is lack of awareness about the work quantity that permitting procedure for IEA issue involved, or –in the opinion of Piedmont- some aspects (e.g. care to the best techniques available, the emanation of the national guidelines) had not the necessary technical support. Moreover, in some cases, in order to further reduce the times of permitting procedure, some Provinces in Piedmont have chosen, for some practical, not to convene the conference of the services, and to acquire the opinions of ARPA and Common.

Another weakness emerged from the opinion of Piedmont and Tuscany, is represented by the standardized documentation requested to the firms, that should obtain the permit and by the unique procedure that “denies” the possibility to carry out comparisons between analogous systems or to generalize on eventual common aspects, above all in that phase that previews to compare with the best available techniques.

Slovenia states that the method of permit issuing required an extensive adjustment of a number of existing regulations. This of course significantly influences the dynamics of permit issuing, because an immediate adjustment of administrative procedures has been necessary.

Moreover, also some aspects linked to fares represent a problem. Tuscany highlights the existence of doubt about fares decree interpretation and also the high costs for companies (as well as the Piedmont), while in Sicily there is not a Regional Law that transpose the National Decree about the amount of the public fares that the enterprises must pay for the cost of the administrative procedure.

Another problem emerged from the Administrative Analysis (in the opinion of Tuscany), is that in the territory of Competent Authorities, (and probably in the whole Italy), European ELVs are not applied. The ELVs usually required by CAs in the permits are those indicated by national law. In the opinion of one interviewee Competent Authority of Tuscany this is a negative aspect because all Member States

should follow the ELVs established at European level, also with the purpose to guarantee a major homogeneity among all countries and regions.

Another element not applied by Competent Authorities is the flexibility principle. This aspect is highlighted from Valencia. This happens because is very difficult to adopt it. For that reason the Competent Authority is not taking it into account. Besides this, a lot of technical, legal and administrative information is needed to take into consideration during the environmental assessment. Due to this reason, the assessment is a complex decision that must be taken by a multidisciplinary group. However, the Competent Authority does not have an objective methodology that assures that the collected information during the procedure and all the IPPC values are integrated in the assessment. The competent authority only inserts the requirements made by each sector-based report into the permit, and does not take into account the flexibility principle.

Moreover in Sicily there is an high number of installations, affected by IPPC, for which the procedure is on-going yet, while West Macedonia highlights a lack of data keeping.

Another weakness indicated by West Macedonia is that there are no exceptions or simplifications for enterprises certified according to EMAS or ISO 14001:04.

Finally, in Tuscany emerged that the incineration of hazardous waste is not an IPPC sector and, in the opinion of one Competent Authority, this is a weakness of the Directive because also this sector should be included in the IPPC matter.

Moreover the Directive, its application field and some concepts (e.g. the meaning of substantial changes) are not more clear and explicit for West Macedonia, Piedmont and Tuscany.

STRENGTHS OF THE ADMINISTRATIVE ANALYSIS								
State	**Spain**		**Slovenia**	**Greece**	**Italy**			**Total**
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Creation of Integrated Environmental Analysis Commission/ Coordination Technical Committee		X					X	2
Integrated approach of the Directive	X					X	X	3
One single Authority responsible for administrative issues				X		X		2
Data collected from the activities lead from the companies in performance of the prescription of IEA					X			1
Simplifications for livestock categories and companies with environmental management system		X						1

Table 23 Strengths of the administrative analysis

WEAKNESSES OF THE ADMINISTRATIVE ANALYSIS								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Delays in the IEA issue caused by various reasons	X	X	X	X	X	X	X	7
Disorientation at the time of filing the necessary technical and administrative documentation for the grant, renewal and/or modification of the IEA.	X			X				2
Lack of preparation of the personal of Competent Authorities, lack of awareness about the work quantity that permitting procedure for IEA issue involved, and lack of the necessary technical support				X	X		X	3
In some cases not convene the conference of the services					X			1
Documentation and permitting procedure don't take into account the peculiarities of the enterprises					X		X	2
The permitting procedure required extensive adjustment of a number of existing regulations			X					1
Too high fares for permitting procedure and not clear procedure to apply them					X		X	2
Absence of regional law about fares						X		1
Scarce application of the "flexibility principle"		X		X	X		X	4
High number of installations affected by IPPC, for which the procedure is on-going yet						X		1
No exceptions or simplifications for enterprises certified according to EMAS or ISO 14001:04				X				1
The incineration of hazardous waste is not an IPPC sector							X	1

Table 24 Weaknesses of the administrative analysis

2.3 Control and Inspection System Analysis

2.3.1 Introduction

The objective of the "*Control and Inspection System Analysis*" is to analyze how that System has been implemented in the regions involved. For this purpose, each partner collected some information about the nature and the role of the Competent Authorities that carry out the inspections and other relevant aspects about controls and inspections that should be carried out in the firms that obtained the permit.

2.3.2 Results

2.3.2.1 The Competent Authorities designated for the inspection and control procedures in the Region

The Competent Authorities for inspections and controls, are regional for the most regions, while are national in few cases.

In **Andalusia** the General Direction of Environmental Prevention and Quality of the Regional Government for Environment of Andalusia, is competent for the preparation of the different Sector Plans for Environmental Inspections. For the execution and development of these Plans, approximately 20 technical officials and Environment Agents of the Provincial Delegations of the Department of Environment are available, and may count on technical assistance from the Environmental Management Company, Ltd. (Empresa de Gestión Medioambiental, S.A., EGMASA) and, where appropriate, with Cooperating Bodies of the Department of Environment.

In **Valencia**, the Competent Authorities for the control and inspection system are: the IPPC Service -belonging to the Environment, Water, Town Planning and Housing Department of the Valencia Government-, and the Environmental Quality Collaborating Entities (EQCE) duly accredited and recognized in the IPPC field. Their technical competences are accredited by the Spanish Accreditation Entity, and they are registered in the Valencia Register of EQCE (managed by the Clean Technologies Center). Now, there are 10 accredited EQCE in Valencia. In most of the installations, the inspections are being carried out by the EQCE.

In **Italy**, the legislative decree n. 59/05 art. 11, point 3 indicates that the Agency for Environment Protection and Technical Services (ISPRA), for facilities under state jurisdiction; or the regional and provincial environmental protection agencies, are the Competent Authorities for controls and inspections. In fact in Italy there is a regional agency in each region (Environmental Protection Regional Agency), but in each province there is also a local department with control tasks. In this way the provincial departments guarantee the knowledge of local reality but at the same time there is the risk to have different approaches. This problem is proved by the different frequencies of controls existing among different provinces. At this purpose it is possible see this different control frequency in the Interregional section about Content of Authorizations.

In **Sicily** in case of landfills, the Competent Authority for the release of the permit (Service II SEA-IEA, Regional department of Territory and Environment), let ARPA together with Provinces make a testing visit to value the respect of the requirements of the permit.

In **West Macedonia and Slovenia** the situation is different from the previous regions. In the first region there are many Authorities that are involved in controls, in the second one the Control Authority is national.

In particular in **West Macedonia** the Competent Authorities that are responsible for the inspection procedure can be divided in:

- Those who inspect the enterprises during the permitting procedure.
- Those with role to inspect the keeping of the permits.

There are 4 authorities responsible for inspections:

1. Ministry of Environment, Energy and Climate Change,
2. Regional Department of Environment
3. Prefectural Department of Environment
4. Special Service of Environmental Inspectors.

The first 3 authorities realize inspections during the permitting procedure and do not have separate IPPC sector, their personnel is about 10-15 workers but with all the work of environmental departments and not only IPPC permits.

The Special Service of Environmental Inspectors has also do not have separate IPPC sector but its role is to make sure the permits conditions are carried out by the enterprises.

The Special Service of Environmental Inspectors is divided in 2 departments. The North Greece department, with 7 Inspectors, and the South Greece department, with 20 inspectors since it is included the most industrialized areas of Greece and Athens the Capital.

In **Slovenia** the inspections are carried out by the inspection service under the control program which is adopted for three years. The tasks of inspections are carried out by environmental inspectors. Supervision of compliance with issued measures can also be performed by environmental protection supervisors.

Inspection for the Environment is one of four internal organizational units of the Inspectorate of the Republic of Slovenia for the Environment and Spatial Planning (IRSOP). In order to effectively perform the functions of inspection and supervision on the total territory of the Republic of Slovenia, the Inspectorate for the Environment and Spatial Planning is divided in 8 regional units. These regional units are further divided into 17 inspection offices.

Along with inspectors and administrative personnel, regional units also employ supervisors. They are officials, who conduct specific acts of the procedure, according to the provisions of the Inspection Act and the General Administrative Procedure Act.

The number of all competent officials within the Control and Inspection System (IRSOP) is 140, while the number of supervisors is 21.

IPPC competent inspectors operate under the Inspection for the Environment and Nature, but also carry out other types of control.

The table-summary indicates the main Competent Authorities for the control and inspection procedure.

MAIN COMPETENT AUTHORITIES DESIGNATED FOR THE CONTROL AND INSPECTION PROCEDURE								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
National Competent Authorities	X		X	X				3
Regional Competent Authorities	X	X	-	X	X	X	X	6

Table 25 Main Competent Authorities designated for the control and inspection procedure

2.3.2.2 The amount of the public fares for the inspections

As regards the amount of public fares that enterprises should pay for the inspections, there are many differences among regions, as in the case of fees for permitting procedure (see the section about Administrative Analysis).

In **Andalusia** the inspections are subjected to taxes as scheduled in Law 18/2003 dated December 29. The latter law approves the applicable taxes and administrative measures. Calculation of this tax will depend upon the content of the audits as they are detailed for each specific case in the annex relative to the "Control and Monitoring Plans". The charge for the inspections, whether or not they involve sampling, is the following:

- Basic inspection without sampling: €.750.00
- Special inspection without sampling: €1,050.00.
- When it is found necessary to take samples and carry out analysis, the charge will be calculated using a specific formula.

No reduction exists for organizations that have been certified with an Environmental Management System (according the international UNE-EN ISO 14001 and/or EMAS), although in Law 18/2003 it is indicated that for installations for intensive rearing of poultry or pigs, as referred to in section 9.3 of annex 1 of Law 16/2002 (epigraph 6.6 of Directive 96/61/ EC), the applicable charge for inspections for the IPPC Permit will be 50 % of the fee.

In **Valencia** the inspections carried out by the IPPC officers are free for companies. The fares for the inspections carried out by the EQCE are, approximately: 400-500 € per permit; 800-850 €/day of inspection.

In **Tuscany, Piedmont and Sicily** the national ministerial decree adopted in April 24th 2008 disciplines also the accounting conditions and the fares to apply in relation to the controls. The decree identifies:

- fares concerning the activities that should be anyway carried out in each inspection. There are different fares that depend on some elements (e.g. the number of emission points/discharges and the number of pollutants issued by the activity, tons of waste).
- Fares concerning the inspections deriving from the possible programming of samples and analysis.

Any fares reduction is provided by the national decree for particular categories of enterprises.

In **Tuscany and Piedmont** also specific regional deliberations concerns the adaption and integrations of fares to apply for the realization of preliminary inquiries and controls by the provinces competence, have been adopted.

In **Slovenia** all inspection procedures are performed as official duty and not at the request of the parties. Therefore, public fares of the inspection procedure do not arise. The inspection procedures also are not subjected to administrative fees.

Also in **West Macedonia** the inspections that the authorites realize are fare free for the entrprises. Fares are only foreseen in case of penalties after the inspectiones and during the permitting procedure.

The table below indicates fares for inspections in the seven regions involved in the MED IPPC NET project.

FARES FOR INSPECTIONS								
State	**Spain**		**Slovenia**	**Greece**	**Italy**			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Fares are applied for controls and inspections	X	X*			X	X	X	5
Fares are not applied for controls and inspections		X**	X	X				3

Table 26 Fares for inspections

* in case the inspections are carried out by EQCE
** in case the inspections are carried out by IPPC officers

2.3.2.3 The on-site planned and carried out inspections

In **Andalusia** the type of inspection, as well as the frequency, methodology and the person responsible for the execution of the same, are defined in the Annex of the IPPC Permits titled "Control and Monitoring Plans". Independent of the aforementioned inspections, the Provincial Delegation of the Regional Government for Environment, within its territorial scope, can access the installations at any time and without notice, in order to carry out inspections they deem appropriate to verify compliance with the conditions imposed within the IPPC Permit.

The development of these inspection activities is regulated by the Sector Plans for Environmental Inspections are those that are imposed by the application of the specified environmental standard, and are aimed at verifying the adequacy in productive sectors regarding applicable environmental requirements and define the measures necessary to take to correct possible anomalies. Those Sector Plans encompass programming inspections to be carried out by the technical personnel of the Department of Environment throughout the course of the year and are published in the Boletín Oficial de la Junta de Andalucía (B.O.J.A.).

As of October 30, 2007, deadline for existing installations to adopt Law 16/2002, the following environmental audits were planned, executed and/or postponed in Andalusia:

- In year 2008 were planned 78 audits: 55 of them were executed and 23 postponed;
- In year 2009 (updated to 30 November 2009) were planned 233 audits: 157 of them were executed and 76 postponed.

In Andalusia installations for intensive rearing of poultry or pigs, as referred to in section 9.3 of Law 16/2002 (epigraph 6.6 of Directive 96/61/EC) are exempt of audits.

In **Valencia** the planned inspections during the validity of the permit are determined in the content of the permit, and its frequency depends by each parameter. The frequency requested to the installations for sending the periodical communication about the results of the monitoring plan to the Competent Authority is annual.

Prior to the starting of the activity, the operator must obtain the authorization of the initiation of activity by the Competent Authority (CA), without prejudice to the need for obtaining building permits that are required under municipal legislation. The operator has a maximum of three years for submit to the CA the start authorization application, which must be accompanied by specific documentation. Once this documentation is submitted, there will be a starting inspection carried out by an EQCE accredited in IPPC field. After that, the Competent Authority will issue the starting authorization.

In **Tuscany,** as regards planned inspections since there are many Competent Authorities for controls and inspections, there is a wide difference in the number of planned inspections among Provinces.

As regards carried out inspections data are not yet available.

In **Piedmont** in 2009 were planned about 250 inspections; those carried out are 352.

In **Sicily** until 2009 there were 26 start-up inspections during the administrative procedure and 25 inspections for monitoring measures.

In **Slovenia** the number of inspection carried out is:

- In year 2005:1040.
- In year 2006: 1237.
- In year 2007: 1568.
- In year 2008: 1403.
- For the year 2009 the number of inspections is not officially published.

In **West Macedonia** the IEA permit does not defines number of inspections during the validity period of the permit. The Special Service of Environmental Inspectors/ Department of North Greece, which is the body responsible for inspecting the installations after their permit approval, in the period 2006-2009 carried out 55 inspections in IPPC installations in North Greece. In the region of Western Macedonia during the same period carried out 4 inspections.

As indicated above, although in some cases data are not available, differences among regions about the number of inspections (both planned and carried out) clearly emerge. This difference together with one about fares that enterprises must pay, are the two main disparities among regions about the IPPC implementation.
In order to obtain more information about the number of inspections carried out by Competent Control Authority in each participating region, please consult the chapter of Enterprise side Analysis of the Interregional Analysis Report (point 2.5.2.7).

2.3.2.4 The most frequently non-compliances identified

The most non compliances identified during the inspections in the seven regions are indicated in the table below:

THE MOST FREQUENTLY NON-COMPLIANCES IDENTIFIED								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
Non compliance ELVs				X	X		X	3
Non regular data transmission	X			X	X		X	4
Non compliance with requirements contained in IEA	X	X	X	X	X	X		6
Dissimilarity from the management of measuring instruments (incorrect positioning, operation, calibration, maintenance of instruments)		X		X		X	X	4

Table 27 The most frequently non-compliances identified

In the most regions the main non-compliance emerged by controls is about requirements contained in the IEA, while the non conformity with ELVs has been indicated by a less number of regions.

2.3.2.5. The strengths and weaknesses identified in the Control and Inspection System analysis

❖ Strengths

In **West Macedonia** the control and inspection system is free from fares for the enterprises which saves them money for the implementation of the environmental terms reffered in the IEA.

As regards this aspect the **Andalusia** highlights the tax break in the corporation tax (break on the full quota of the 10% of investments allocated to environmental protection) to those installations that perform activities aimed at environmental protection, including the implementation of Management Systems Environmental according to international standard UNE-EN ISO 14001 and/or the EMAS Regulation.

Moreover, in **Andalusia** there is provision of subsidies for the purchase of equipment and the implementation and certification of Environmental Management Systems, according to the international standard UNE-EN ISO 14001 and/or the EMAS Regulation.

Another positive aspect identified both from **Andalusia and West Macedonia** is the existence of clear and detailed definition of the guidelines for operational and monitoring control and measurement of environmental aspects in the Control and Monitoring Plans of the IEA.

Also some aspects linked to the Competent Authorities that carry out control and inspections, are considered as strengths from some Regions. **Valencia** indicates as positive element the technical competence and the independence of the Environmental Quality Collaborating Entities, one of the Control competent authority in **Valencia**, while **Andalusia** identifies as a positive aspect the appointment of a specific service to carry out the monitoring and inspection activities defined in the Environmental Control and Monitoring Plans. Still about this aspect, Sicily considers a good element the existence of ARPA Provincial Department for each province.

Finally, some aspects of control are considered as a strengths for **Piedmont**: the punctual and systematic control of all environmental components; the easier find environmental data and information, the good level of self-monitoring. Also the existence of a single permit is better than more permits because it is possible harmonize all environmental actions.

❖ Weaknesses

As regards weaknesses for **Tuscany** the high costs that the enterprises should pay for any control and inspection during the IEA validity is the main weakness of the Control and inspection analysis. Also for **Valencia** the costs applied by one Competent Authority could be lower.

Another weakness highlights by **Tuscany** is represented by the large difference existing among the Competent Authorities about the number of the planned controls and inspections in the installations. Linked to this aspect, West Macedonia states that the permit does not clarify numbers and type of inspections.

For **Slovenia** the fact that new regulations demanded an adjustment of requirements, in some cases immediately, without prior terms, is a weakness. Some companies, which complied with the limit emission values at the time of the application, exceeded them later, due to the subsequent changes of the regulations and stricter requirements. To acquire a permit, they had to adjust to the changed requirements immediately. In some cases the noncompliance with new requirements was reason enough for the refusal of the permit. Also for **Piedmont** there is a problem linked with rules: the difficult to interpret and understand them.

Another weakness indicated both by **Andalusia and Slovenia** is represented by the non compliance with deadlines.

In **Slovenia** the issuing of environmental permits for plants/locations, which are a source of small or great risk for the environment due to their storing, and that use and production of dangerous substances and chemicals was delayed. The legislation did not regulate this issue and the companies are wondering, how the inspection authorities will react, especially for the installations, which do not qualify as the installations of the IPPC.

In **Andalusia** the difficult is in meeting the deadlines for implementing the control and inspection activities listed in the Control and Monitoring Plans of the Integrated Environmental Authorizations.

Another weakness is represented by two aspects linked to the emissin limits value. From one hand, **Sicily** states the non-compliance with the requirements contained in IEA; from the other hand Piedmont states that are different limits for the same installation kind. Moreover in **Piedmont** there are not homogeneous documents and forms between different Competent Authorities.

Another problem identified by **Sicily** is the dissimilarity from the management of measuring instruments

Finally for **West Macedonia** a problem is represented by the existence of no specialized personnel for IPPC permits and by a lack of persons and ispectors in control auhtorities. The latter is a weakness also indicated by **Piedmont**.

The tables below include the main strengths and weaknesses individuated by each regions through control and inspection system analysis.

STRENGTHS OF THE CONTROL AND INSPECTION SYSTEM ANALYSIS								
State	**Spain**		**Slovenia**	**Greece**	**Italy**			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
No fares for Control and inspection procedures				X				1
Tax break to those installations that perform activities aimed at environmental protection (also UNE-EN ISO 14001 and/or the EMAS)	X							1
Subsidies for the purchase of equipments and the implementation and certification ISO 14001 and/or the EMAS	X							1
Clear and detailed guidelines for operational and monitoring control	X			X				2
Technical competence and the independence of the Competent Authority		X						1
Appointment of a specific service to carry out the monitoring and inspection activities	X							1
Competent Authority located in each province						X		1
Punctual and systematic control of all environmental components, easier find environmental data and information of companies, good level of self-monitoring					X			1
permit that establishes all environmental control actions					X			1

Table 28 Strengths of the control and inspection system analysis

WEAKNESSES OF THE CONTROL AND INSPECTION SYSTEM ANALYSIS								
State	Spain		Slovenia	Greece	Italy			Total
Regions	Andalucía	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	
High fares for control and inspection procedures		X					X	2
Large difference existing among the several Competent Authorities about the number of the planned controls and inspections in the installations							X	1
The permit does not clarify numbers and type of inspections				X				1
Difficult to understand and interpret rules					X			1
Different problems caused by the non-compliance with deadlines	X		X					2
Non-compliance with the emission limit values contained in IEA						X		1
Different limits for the same IPPC sector					X			1
Not homogeneous documents and templates between different Competent Authorities					X			1
Dissimilarity from the management of measuring instruments						X		1
No specialized personnel for IPPC permits				X				1
Lack of persons and ispectors in control auhtorities				X	X			2

Table 29 Weaknesses of the control and inspection system analysis

2.4 Content of Authorizations Analysis

2.4.1 Introduction

The MED IPPC NET project idea is based on the concept of this part of Analysis. The partners, before initiating the project, met through the ordinary activities with the IPPC companies some differences in the IPPC permits. For example, in Spain, thank to the past activities of the Spanish partners, just before the MED IPPC NET was launched this aspect was identified as an opportunity to investigate and to carry out national projects with the IPPC Competent Authorities. In Italy where, as specified in the previous chapters for Tuscany and Piedmont, the Competent Authorities are the Provinces, these differences were easy to find, also in the same sector. If in some cases the differences in terms of requirements and Emission Limit values (ELVs) could be justified by the particular conditions according to the Flexibility Principle of the Directive in other cases these differences cannot be easily justified. For this reason this section of the Analysis has been defined the “core” of MED IPPC NET Analysis.

The Content of Authorisations Analysis intends to answer to the main questions set by the project: how was the IPPC Directive translated into the permits in 7 different European Regions? Are the differences in the permits relevant or not? Are the member Countries using the same approach in the issuing of the permits?

It is clear that these aspects are relevant not only from the point of view of the protection of Environment but also from that of competitiveness. In the next pages we outline the results of the Analysis that has examined 225 permits in the 7 regions involved, for about 35,1% of total permits issued in the territorial areas involved in the project.

2.4.2 Results

In the table below you can appreciate the relevance of the work carried out by the project partners, in terms of collection and analysis of IPPC permits.

SECTOR (IPPC code)	No. of installations affected by IPPC in the regions involved in the MED IPPC NET	Total No. of Authorisations issued in the regions involved in the MED IPPC NET	Number of Authorisations Analysed in the MED IPPC project	% of the analysed Authorisations respect to the Authorisations issued
Combustion plants (1.1)	99	91	46	**48,4%**
Ceramics (3.5)	374	276	63	**43,7%**
Landfills (5.4)	196	135	62	**22,1%**
Surface treatment of metals and plastic materials (2.6)	91	59	26	**40,7%**
Paper production (6.1)	65	55	28	**50,9%**
TOTAL	**825**	**616**	**225**	**35,1%**

Table 30 IPPC permits overview

The first two columns refer to the installation affected by IPPC and issued related to 6 regions involved in MED IPPC NET, because the same info was not available for Greece. Greece has those data available only for the whole country and not separately for the region of West Macedonia. As we can see below, the third column includes the permits examined by the Greek partner but naturally the percentage of the last column has been calculated without the 8 analysed permits and relates to the West Macedonia Region.

In the paper production sector the sample exceeds 50% of the population. Additionally, in the other IPPC sectors the high number of collected and analysed permits offers an achievement of a total rate of about 35% of all issued permits. For this reason we can consider the sample of the analysed permits highly representative from a statistical point of view.

This high number of permits has been collected thanks to numerous meetings and contacts with the Competent Authorities of the 7 regions involved. In the annexes of the seven Regional Analysis we specified the names of all companies owners of the analysed permits.

In the following table we outline the Authorizations collected in each region and each sector.

Regions	Number of analysed Authorizations					
	Combustion plants (1.1)	Ceramics (3.5)	Landfills (5.4)	Surface treatment of metals and plastic materials (2.6)	Paper production(6.1)	TOTAL
Andalusia	8	8	8	8	0	32
Valencia	4	8	7	8	0	27
Slovenia	7	8	1	8	O	24
West Macedonia	2	2	3	1	0	8
Piedmont	19	24	21	0	15	79
Sicily	1	0	6	1	0	8
Tuscany	5	13	16	0	13	47
TOTAL	46	63	62	26	28	225
Tot number of permits analysed by the project	225					

Table 31 Number of analysed Authorizations

Every partners has collected an high number of Authorisations. The methodology of the project aims at collecting at least 8 permits for each IPPC sector and each Competent Authorities in each Region. As specified in the previous paragraph (2.1.2.1) in two of the regions involved in the project (Tuscany and Piedmont) the Provinces are the Competent Authorities for issuing the permits, hence in this case the methodology requested to collect 8 Authorisations for each province, thus justifying the higher number of collected permits in these two regions.

In any case it is important to highlight the work carried out by Arpa Piemonte (partner from Piedmont Region) that has collected 79 permits, about 80% of the total permits issued in the Piedmont Region in the 4 sectors covered by the project.

About 60% of the sample is represented by permits from Italy, then follows the Spanish regions with about 27% of analysed permits.

In respect to the sectors to analyse the methodology envisages three fixed sectors: “combustion plants”, “ceramics”, “landfills”. All partners had to analyse these three sectors. For the fourth sector each partner was able to choose between “Surface treatment of metals and plastic materials” or “Paper production”. The partners from Tuscany and Piedmont chose the “paper production” sector due to its relevance in

the two regions, while the other partners selected the sector of “Surface treatment of metals and plastic materials”.

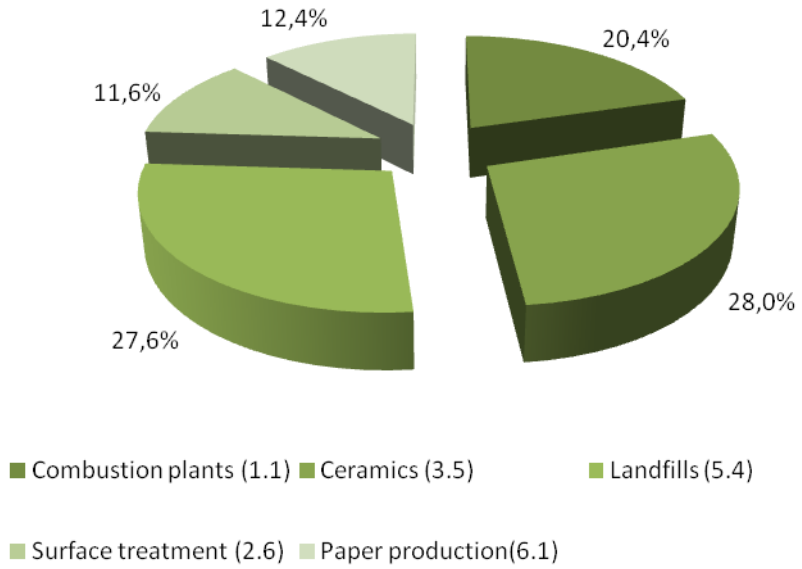

Figure 2 Percentage of permits analysed for each sector of the project.

Ceramics and landfills are the IPPC sectors most represented in the Analysis. The highest number of Authorisations of these two sectors has been collected in Tuscany and Piedmont for the reasons explained before. The three fixed sectors (combustion plants, ceramics, landfills) are fully represented by permits of each region, it means that at least 1 permit is collected in each region involved in the project.

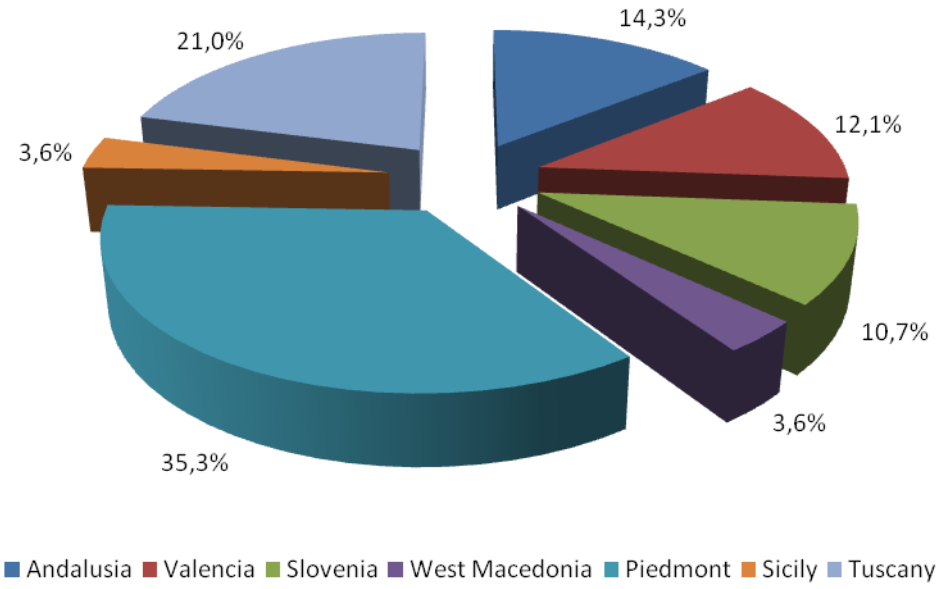

Figure 3 Percentage of permits analysed by regions

With 79 permits collected the Piedmont Region achieves a rate of 35,3% of the total Authorisations of the project. On the other hand, in Sicily and West Macedonia the issuing of permits has been delayed, therefore the sample to collect was not high as in the rest of the regions involved. Moreover, in West Macedonia the Competent Authority is at national level (Ministry of Environment) thus it has not been easy to collect the permits. In any case both regions are represented in the sample with the same rate (3,6%).

In the next paragraphs we examine the results obtained by the analysis of the permits. From a methodological point of view we should specify that:

- At the beginning of the paragraph you will find a figure with the aggregated data. In this figure all permits have been resumed in only one graphic.
- Following the first figure in many cases (when possible) we introduced a table to compare the data available in the 7 regions involved. The project partners have retained this table particularly important being the objective of this report to produce an "interregional" comparison among requirements, limits, conditions imposed in the permits in the different regions.
- Only in few cases we added a table comparing the different sectors analysed. In fact, in the opinion of the partners, the "inter-sectorial" comparison was not the main objective of the report, and for this reason it has been represented only in the cases where, in the opinion of the project partners, this further table could contribute to the discussion of the "interregional" results.

2.4.2.2 The references to the BAT included in the permits

Since the publication of the BAT Reference Documents (BREFs) the Directive was clear about the use of these documents in its implementation process. The BREFs do not impose Emissions Limit Values or specific techniques to adopt. They only intend to be an useful tool for the Competent Authorities (CAs) to implement the Directive together with other key aspects, such as for example the condition of the local environment around the authorized installation. The first aspect that partners investigated in the permits was the use and the references to the BAT specified in the permits.

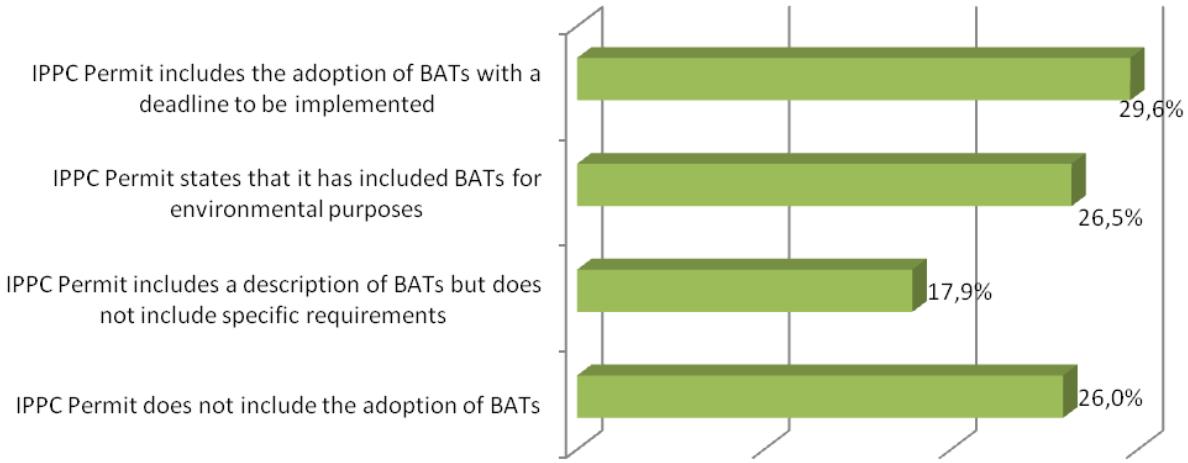

Figure 4 References to BAT included in the permits (aggregate data)

The permits examined show that about 29,6% use the BATs as mandatory specifying in the permit a deadline to adopt them. This specification seems a not correct use of the BREFs that, as told before, intends to be only a "reference" document and not a "mandatory" one. However, in some cases the CAs impose its adoption only after an accurate assessment of the environmental condition and of the feasibility of the BAT. In this case we can retain that the use of BREFs is carried out in the right manner. The second answer of the figure means that the permit describes the BAT as a suggestion to reach a specific environmental improvement. In the last two cases the permit does not impose nor suggest the adoption of BAT, but it merely specifies a description nor it does include its adoption.

In the following table we may notice the different use of the references to BAT applied by the regions involved.

Best Available Techniques (BAT)							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
IPPC Permit does not include the adoption of BATs	9,4%	92,6%	0,0%	37,5%	31,7%	0,0%	4,3%
IPPC Permit includes a description of BATs but does not include specific requirements	25%	7,4%	0,0%	37,5%	0,0%	0,0%	59,5%
IPPC Permit states that it has included BATs for environmental purposes	62,5%	0,0%	100%	25%	0,0%	85,7%	14,9%
IPPC Permit includes the adoption of BATs with a deadline to be implemented	3,1%	0,0%	0,0%	37,5%	68,3%	14,3%	21,3%

Table 32 References to BAT included in the permits (disaggregate data for regions)

Piedmont region has the highest rate about the imposition of a BAT in the permit. Valencia and Slovenia do not use this approach while Andalusia only in few cases. In the Italian regions we could appreciate a different approach at the same national level, while the approach of the two regions from Spain seems to be similar. Tuscany has the highest rate of existing description of the BAT in the Installation. This approach aims at drafting a formal description of technologies and techniques in a formal act in order to compare their eventual evolution in the future, when the permit will be updated. Valencia is the faster region in issuing permits but it does make references to the BAT, maybe because the info about it has been collected and archived among the documents of the permitting procedure without including them in the Authorisation.

In the following table we outline how the reference to the BAT has been included in the permits of the various sectors.

Best Available Techniques (BAT)					
	Combustion plants (1.1)	Ceramics (3.5)	Landfills (5.4)	Surface treatment of metals and plastic materials (2.6)	Paper production (6.1)
IPPC Permit does not include the adoption of BATs	34,8%	15,9%	18,3%	44%	34,5%
IPPC Permit includes a description of BATs but does not include specific requirements	8,7%	15,9%	30,0%	4%	24,1%
IPPC Permit states that it has included BATs for environmental purposes	37,0%	30,2%	15,0%	52%	3,4%
IPPC Permit includes the adoption of BATs with a deadline to be implemented	19,6%	38,1%	36,7%	0%	37,9%

Table 33 References to BAT included in the permits (disaggregate data for sectors)

The ceramic sector has the highest rate about the imposition of the BAT as mandatory, followed by the paper production sector. The hypothetical reasons could be technological or environmental. From the first point of view it may be that the CAs have judged the level of technological progress of the installations not sufficient. For this reason they decided to use the phase of IPPC implementation to increase the technological level of the companies. Secondly, it may be that the installations were located in areas with high environmental sensibility, as for example natural or residential areas.

2.4.2.3 The references to the Environmental Management Systems and to timed environmental improvement to achieve included in the permits

This paragraph aims to analyse other two aspects of the content of Authorisations: if the permit include a reference to the adoption of an Environmental Management System (for example according to the standard ISO14001 or EMAS Regulation), and if they require to achieve specific environmental improvements specifying for example precise environmental indicators to be achieved within a precise deadline.

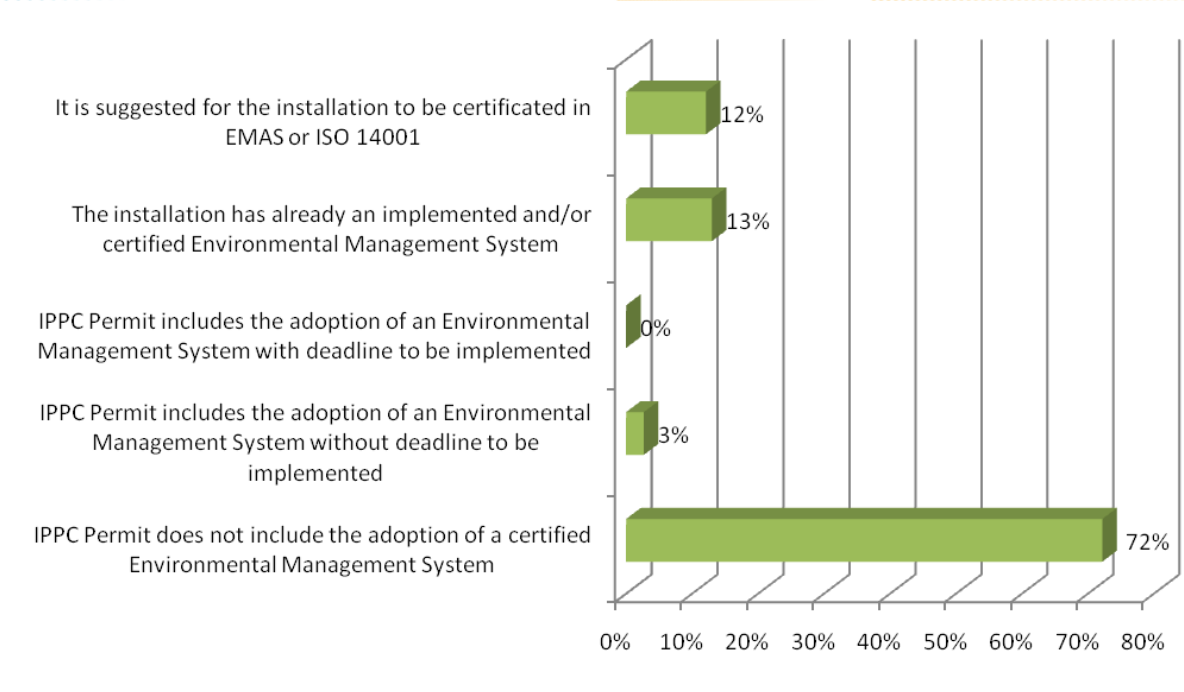

Figure 5 References to Environmental Management Systems (aggregate data)

The Environmental Management System (EMS) is considered in many EU documents as a "best practice" in the management of the environmental issues of a company. Nevertheless, in the main cases the permits analysed do not include a requirement about the adoption of an EMS. Only 3% of permits require the adoption of EMS while 25% of Authorisations suggest the implementation or describe if the company has or not just implemented it.

As we can see in the figure above there are not many differences in the permits analysed. For this reason we do not investigate these differences among the Regions involved but instead we precise that those regions requesting a mandatory adoption of an EMS (but without an implementation deadline) are West Macedonia (4 permits) and Andalusia (2 permits).

The second aspect investigated is connected with the presence of specific requirements on environmental improvements.

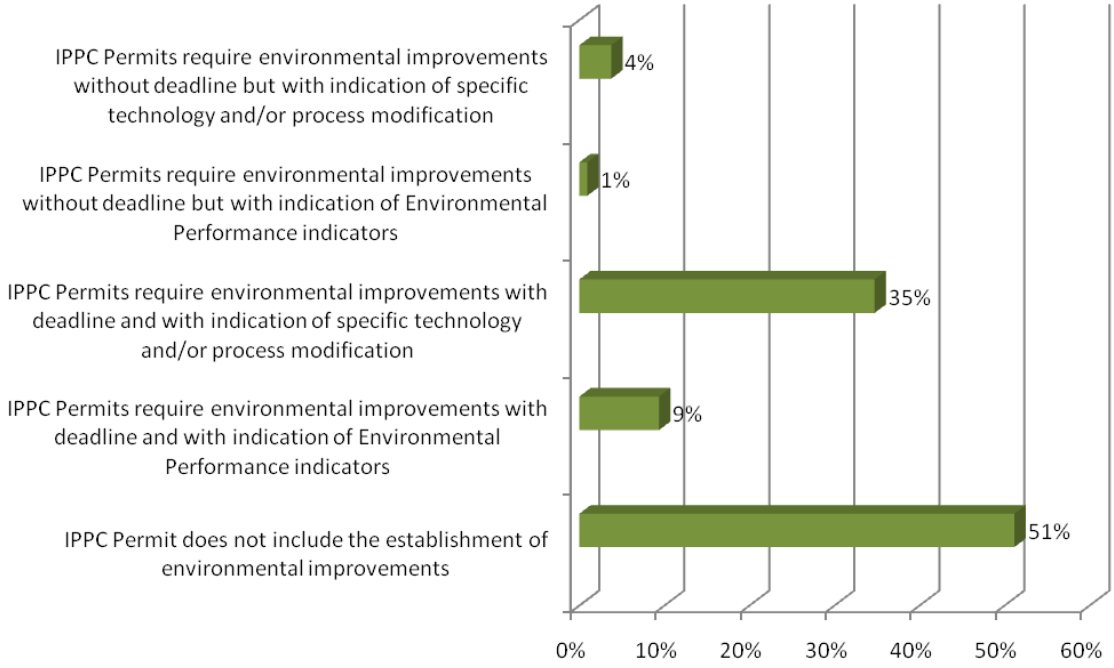

Figure 6 References to timed environmental improvement to achieve included in the permits (aggregate data)

About half of the analysed permits does not require environmental improvements. However, about 44% of permits require environmental improvements with a precise deadline to achieve them. Among these permits the CAs have clarified specific technology and/or process modifications in 35% of permits, while have imposed specific environmental performance indicators to be achieved in 9% of permits.

In the table below we outline the different approach of the regions involved.

Requirements about environmental improvements								
		Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
IPPC Permit does not include the establishment of environmental improvements		25%	41%	71%	0	48%	86%	80%
IPPC Permits require environmental improvements with deadline and	with indication of Environmental Performance indicators	0	21%	29%	38%	0	0%	5%
	with indication of specific technology and/or process modification	66%	31%	0	62%	44%	14%	16%
IPPC Permits require environmental improvements without deadline but	with indication of Environmental Performance indicators	0	7%	0	0	0	0%	0%
	with indication of specific technology and/or process modification	9%	0	0	0	8%	0%	0%

Table 34 References to environmental improvement to achieve included in the permits (disaggregate data for regions)

From an overall point of view we can highlight the high frequency of the presence of imposed environmental improvements with deadlines in the permits of Andalusia. Only in 1 permit each 4 analysed there are not references to this aspect. The Italian regions have the highest rate connected with the answer that envisages the absence of imposed environmental improvements. If in the Spanish regions we encountered the same approach about the inclusion of references to BAT as explained before, in this case we highlighted as in the permits of the two regions different requirements have been included. Andalusia has the highest rate about the imposition of environmental improvement connected with technology and process modification. Also West Macedonia and Piedmont when imposing a deadline to achieve environmental improvement seem to prefer the indication of technology and process modifications. Valencia, like Andalusia, shows a high rate in regards to the mandatory environmental improvements with a deadline, but has a balanced situation between the request of process modifications and achievement of precise performance indicators. Slovenia, as it happens in the Italian regions, in the main cases does not require specific environmental improvements for the permits, but when these are imposed it prefers a deadline connected with environmental performance indicators instead of technology and process modifications.

The approach of the imposition of timely environmental improvements could be connected with two aspects. Firstly, the CAs in issuing the permits are responsible also for the quality of the Environment of their territorial areas. Often, the European Directive (e.g. Water Directive) imposes a progressive improvement of the quality of the environment to achieve in some years after the publication of the legislative act. For this reason the CAs include in the permit a progressive reduction of the company emissions to comply with the objectives included in these Directives.

Another justification could be given by the progressive application of the Flexibility Principle of the Directive. As explained in the previous chapters of this report, with this principle the CAs could establish Emission Limit Values that take into account several conditions (e.g. available technologies, condition of the environment around the installation). This principle permit to the CAs to establish stricter limits than the values envisaged by national laws. Thus, the approach to require timely environmental improvements in a permit could be consider a way to decide new stricter limits at the end of the validity of the Authorisation in the updating and renewal issuing process.

2.4.2.4 The Emission Limit Values related to the emissions to air

In this paragraph we show the results connected with the Emission Limit Values (ELVs) related to the emission to air. The permits has been analysed in order to identify the ELVs but also the monitoring frequencies established by each CAs for each IPPC sector. Finally, in the last column we outline the number of permits that envisage the description of limits and monitoring frequency.

❖ Combustion Installations (epigraph 1.1)

The IPPC sectors related to the combustion installations have been separated in two parts: Electric power generation (1.1 a) and Cogeneration (1.1 b) in order to have a better comparison of data and information. Both tables contain the data of the process phase connected with the chimney, and most of all the fuel that is used in that phase. These info helps to have a clear interpretation of the data.

Electric power generation (1.1.a)								
	Phase	Fuel	ELV (mg/Nm^3)				Monitoring Frequency	Number of permits
			Dust	NOx	SOx	CO		
Andalusia	Steam turbine (conventional boiler)	Coal	50	500	400	50	Initially and every 2 years	2
		Biomass	50	650	200	1445		1
			50	300	200	250		1
	Heath boiler (WITHOUT post-combustion)	Natural Gas/Diesel (alternative fuel)	-	50	11,6	-	Every 1 or 2 years	2
			20	120	30	-		1
			-	60	11,6	-		1

Electric power generation (1.1.a)								
	Phase	Fuel	ELV (mg/Nm^3)				Monitoring Frequency	Number of permits
			Dust	NOx	SOx	CO		
			20	120	30	-		
			-	50	11,6	-		
			20	120	55,5	-		
Valencia	Combustion process	Natural Gas	-	50	11,6	-	In-continuous monitoring	2
	Combustion process	Natural Gas	-	75	11,6	-	In-continuous monitoring	1
	Combustion process	Diesel	20	120	55,5	-	In-continuous monitoring	1
	Heath boiler (WITHOUT post-combustion	Diesel	2	120	111	-	Continuous monitoring	1
Slovenia	Combustion process	Coal	100	600	1000	250	Continuous monitoring	1
		Heating gas oil	-	400	-	100		2
		Heating gas oil	-	200	850		Operational monitoring in 2010, then every third year	1
		Heating gas oil	-	400	-	100	Continuous monitoring	2
		Heating gas oil	-	250[20]	1700[21]	170[22]	Continuous monitoring	1
		Natural gas	-	300	-	100	Every third year	3
		Natural gas	5	200[23]	35[24]	100[25]	Every third year	1
West Macedonia	Steam turbine (conventional boiler)	Crude Oil	100	500	-	-	Continuous monitoring	1
	Gas Turbine	Diesel		120	-	-	Continuous monitoring	1
				400	-	-		1
				550	-	-		1
Piedmont	Steam turbine (conventional boiler)	Natural GAS	5	200	35	100	Continuous Monit (NOx and CO) Six monthly O_2 and NOx	1
	Heath boiler (WITHOUT post-combustion)	Natural Gas/ Diesel (alternative fuel)	5	50	35	30	Continuous Monit (NOx and CO) (Annual for Dust and SOx)	1
			-	50	-	30		1
			5	120	-	30		2

[20] This limit will become 200 mg/Nm^3 from 02/11/2014.
[21] This limit will become 850 mg/Nm^3 from 02/11/2014.
[22] This limit will become 80 mg/Nm^3 from 02/11/2014.
[23] This limit will become 110 mg/Nm^3 from 02/11/2014.
[24] This limit will become 10 mg/Nm^3 from 02/11/2014.
[25] This limit will become 80 mg/Nm^3 from 02/11/2014.

Electric power generation (1.1.a)								
	Phase	Fuel	ELV (mg/Nm^3)				Monitoring Frequency	Number of permits
			Dust	NOx	SOx	CO		
			5	150	35	100	Continuous Monit (CO) Six monthly other parameters	2
			5	150	-	100		1
			5	200	-	-		1
			-	250	-	30		1
			5	300	-	250		1
			5	450	5	300		2
		Natural Gas/ Diesel (alternative fuel)	5	200	35	100	Annual	1
		Natural Gas/ Diesel (alternative fuel)	5	250	5	300	Continuous Monit (CO) Six monthly other parameters	1
	Other emission points (Auxiliary boiler)	Natural Gas	5	120	35	100	Continuous Monit (NOx and CO) Annual (Dust and SOx)	1
	Other emission points (Bark boiler)	Natural Gas/waste	25	400	200	100	Continuous Monit (NOx and CO) Six monthly O2 and NOx	1
Sicily	Combustion process	Natural gas		250		30	Monthly	1
Tuscany	Heath boiler (WITHOUT post-combustion)	Natural Gas	-	200	-	150	Yearly	1
	Other emission points: Combustion plant	Natural Gas	5	50	35	40	Continuous/six-monthly for NOx and CO. Yearly for dust and SOx.	1

Table 35 Emission limit values related to emissions to air (sector 1.1- electric power generation)

Comparing the phases where natural gas is used we can observe that:

- For the parameter "dust" in many case the limit imposed is of 5 mg/Nm^3.
- In the phase of combustion process the limit referred to the parameter NO_X shows differences not only at interregional level but also at the regional one. In fact, taking as example the combustion process phase, we can observe how Valencia imposes a limit of 50 mg/Nm^3 in two permits and 75 mg/Nm^3 in another one. These regional differences are confirmed in Slovenia where in three permits the limit imposed is of 300 mg/Nm^3, while in another one 200 mg/Nm^3. Sicily imposes a limit of 250 mg/Nm^3. From an interregional point of view we note as the companies from Valencia are penalised by a stricter limit compared to the companies located in the other regions. The limit referring to the parameter SO_X and CO are not easily comparable due to the lack of data. In any case we would only highlight that for CO Sicily imposes a limit of

30 mg/Nm^3, while for the same parameter Slovenia imposes a limit of 100 mg/Nm^3.

- Taking as example the phase connected with the Heath Boiler (without post-combustion) we observe that the limit for dust is confirmed by the Region of Piedmont being at 5 mg/Nm^3, while in Andalusia and Tuscany this is not specified. In the same phase, for the parameter NO_X Andalusia imposes a limit of 50 mg/Nm^3 in three permits and of 60 mg/Nm^3 in another one. Piedmont has an high and faster variability and in each case the limits are higher than in Andalusia. In particular, the frequencies show the following limits: 50 mg/Nm^3 (2 permits), 120 (2), 150 (3), 200 (2), 250 (2), 300 (1), 450 (2). Tuscany imposes the limit of 200 mg/Nm^3 in one permit. Also in this case Spanish companies seems subject to stricter limits.

The info delivered by West Macedonia are not comparable with those in other regions because of the use of particular fuel in specific phases that is not specified by the other regions.

If from the tables and the specific comments above we could consider that Spanish companies of this specific sector penalised by stricter limits, the same statement cannot be made for the monitoring frequencies. When a regular monitoring is not imposed, and this
may depend on a specific requirement set by national laws for plants with high potentials, the frequencies penalise the Italian firms compared to the other regions. In particular, Andalusia requires a two-yearly monitoring or in one case yearly. Slovenia requires a three-yearly monitoring in all the permits that do not have continuous monitoring. In West Macedonia e Valencia partners have analysed permits that show in every cases a continuous monitoring. The stricter requirements are applied in Italy. In Piedmont in many cases there is a six-monthly monitoring requirement, while in Sicily and Tuscany in 2 permits the frequency is monthly.

Cogeneration (1.1.b)								
	Phase	Fuel	ELV (mg/Nm^3)				Monitoring Frequency	Number of permits
			Dust	NOx	SOx	CO		
Andalusia	Gas Turbine (WITHOUT post-combustion)	Natural Gas	5	50	10	-	Initially and every 2 years	1
Valencia	Recompression gas process	Natural Gas	-	75	11,6	-	Three-yearly	2
		Natural Gas	-	1000	200	625	Three-yearly	1
		Natural Gas	30	250	200	625	Five-yearly	1

Cogeneration (1.1.b)								
	Phase	Fuel	ELV (mg/Nm^3)				Monitoring Frequency	Number of permits
			Dust	NOx	SOx	CO		
Slovenia	Combustion process	Natural gas --- Heavy fuel oil	5 --- 50	300 --- 450	35 --- 1700	100 --- 175	Continuous monitoring (NO_x, SO_x, CO) Every 6 months (dust).	1
		Natural gas --- Heavy fuel oil	5 --- 50	200[26] --- 350[29]	35[27] --- 1700 30	100[28] --- 170[31]	Continuous monitoring	1
		Coal, Biomass	-	600	476	250	Continuous monitoring	3
		Natural gas --- Heating gas oil	-	100[32] --- 200[33]	- --- -	100 --- 100	Every 3 years.	1
		Natural gas	5	200	35	100	Continuous monitoring (NO_x, CO)	1
		Natural Gas --- Heating gas oil	5 --- 30	50 --- 120	35 --- 250	100 --- 175	Continuous monitoring	1
West Macedonia	Steam turbine	Crude Oil	100	600	1700	-	Continuous monitoring	1
	Other emission points (Combined cycle)	Natural Gas	-	75	-	-	Continuous monitoring	1
Piedmont	Heath boiler (WITHOUT post-combustion)	Natural Gas/ Diesel (alternative fuel)	5	35-450	5-35	30-300	Continuous monitoring (NOx and CO) Yearly (Dust and SOx)	6
	Other emission points (please specify)	Natural Gas/Waste	5-25	120-400	5-200	100-300	n.a.	2

[26] This limit will become 110 mg/Nm^3 from 02/11/2014.
[27] This limit will become 10 mg/Nm^3 from 02/11/2014.
[28] This limit will become 80 mg/Nm^3 from 02/11/2014.
[29] This limit will remain 350 mg/Nm^3 from 02/11/2014.
[30] This limit will become 1300 mg/Nm^3 from 02/11/2014.
[31] This limit will become 80 mg/Nm^3 from 02/11/2014.
[32] This limit will become 75 mg/Nm^3 from 01/01/2011.
[33] This limit will become 150 mg/Nm^3 from 01/01/2011.

Cogeneration (1.1.b)								
	Phase	Fuel	ELV (mg/Nm^3)				Monitoring Frequency	Number of permits
			Dust	NOx	SOx	CO		
Sicily	n.a	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tuscany	Gas turbine (without post-combustion)	Natural Gas	50-100	600	500	100	Yearly	1
	Other emission points: Chimney	-	30	200	-	30	Six-monthly Continuous monitoring for NOx and CO.	1
	Other emission points: Burner	Natural Gas	-	30	-	20	Continuous monitoring	1
	Other emission points: Chimney	-	1 daily	100 daily 120 hourly	3 daily	60 daily 70 hourly	Continuous monitoring	1

Table 36 Emission limit values related to emissions to air (sector 1.1- cogeneration)

The table related the cogeneration activity confirms what described for the Electric Power Generation. The Spanish region imposes stricter limits (see the limits for gas turbine phase in Andalusia and Tuscany) while the Italian regions require stricter conditions for the monitoring frequencies (when continuous monitoring is not applied). This last aspect reported in this table is confirmed also in the Region of Valencia (in the previous table there were only emission points with continuous monitoring), where in three permits a three-yearly frequency is imposed arriving up to a five-yearly frequency in 1 analysed permit.

The reason of the situation observed for this IPPC sector could be related to the application of the flexibility principle contained in the Directive, as exposed in the previous chapters of the report. In the Region where it is fully applied (e.g. Andalusia) the limits are lower, while in the other regions they are higher. This aspect is also connected with the next chapter where we will report about the opinion of enterprises related to the implementation of IPPC in their region. In fact, anticipating partially the results of the enquiry explained in the next chapter, we can observe that in Andalusia there is the highest percentage of companies that identify in the limit imposed by the IEA one of the main difficulties encountered in the implementation of Integrated Environmental Authorisation.

❖ Ceramics (epigraph 3.5)

For the Ceramic sector the project had more data. For this reason it has been possible to separate the data about ELVs and monitoring frequencies in 3 tables related to the main phases of the productive process: Mills, extruders Press and Mixer (all preliminary phases that origin dust); Dryer; Oven. In these last two phases the reader could find the data on used fuel. For this paragraph on interregional cases we have selected the same fuel (natural gas) to better compare the results. If you want to know the limits and monitoring frequencies related to other fuel please check the Regional Analysis Reports.

Ceramics (epigraph 3.5)								
Phase	Technology	Region	ELV (mg/Nm^3)				Monitoring Frequency	Number of permits
			Dust	NOx	SOx	CO		
Mills, Extruders, Press, Mixer, Dust remover	Sleeve filters, bag filters, humid filters/ destroyers	Andalusia	10	-	-	-	Initially and every 4 years	1
			20	-	-	-	Three-yearly or five-yearly	5
			150	-	-	-		1
			300	-	-	-		1
		Valencia	30	250	200	-	Yearly	1
			30	-	-	-	Three-yearly, Two-yearly or Yearly (depends by the mass flow)	8
		Slovenia	20	-	-	-	Three-yearly	4
		Piedmont	10	-	-	-	Yearly	5
		Tuscany	50	-	-	-	Yearly	7
			30	-	-	-	Yearly	2

Table 37 Emission limit values related to emissions to air (sector 3.5 -Mills, extruders, press, mixer, dust remover phase-)

The ELVs also in this case show differences. If we do not consider the 2 permits from Andalusia the limits seem to be similar. However, we would like to highlight how in Tuscany there are seven permits with the highest ELV 50 mg/Nm^3. Valencia, Slovenia and Piedmont present uniformity in the limit imposed. Piedmont has imposed the lowest limit with 10 mg/Nm^3. This table does not confirm very much what was observed for the combustion in installations sector. In both Spanish and Italian regions there are many differences. This time one of the Italian region (Piedmont) has the stricter condition from the limit point of view. Besides, this table confirms what described in the previous tables: the Italian regions impose the stricter conditions about monitoring frequencies. They impose every times a yearly frequency. Only Valencia in one case imposes the same frequency. In the other cases the frequency is three-yearly (Slovenia, Valencia, Andalusia) until an high frequency of five-yearly in some Andalusian permits.

One time more the variability of the ELVs imposed by Andalusia could be related with the full application of the Flexibility Principle.

Ceramics (epigraph 3.5)									
Phase	Technology	Region	Fuel	ELV (mg/Nm3)				Monitoring Frequency	Number of permits
				Dust	NOx	SOx	CO		
Dryer	Cyclone, sleeve filters	Andalusia	Natural Gas	20	-	260	-	Initially and every 4 years	2
				20	-	400	-		1
		Valencia	Natural Gas	30	250	200	-	Yearly	8
		Slovenia	Natural Gas	-	-	-	20	Three-yearly	3
		Piedmont	Natural Gas	20	150	150	150	Yearly	1
		Tuscany	Natural Gas	20	400	-	-	Six-monthly	1
				30	500	-	100	Yearly	2

Table 38 Emission limit values related to emissions to air (sector 3.5 – Dryer phase-)

In the case of dust emission of the dryer phase we observe that the differences showed for the mills phase have been reduced and the imposed ELVs are similar. We cannot confirm the same path for NO_X and SO_X. In both cases Piedmont confirms to be the region with the lowest imposed ELVs. The parameter CO has not a high comparability due to the lack of data. However, in this case Slovenia imposes a limit of 20 mg/Nm^3 that is stricter than the limits imposed by the Italian regions.

Once more the high differences in the monitoring frequencies are confirmed. Only Valencia imposes a monitoring frequency comparable with the ones imposed by the Italian regions. In Slovenia and Andalusia the frequencies are longer than in the other cases.

Ceramics (epigraph 3.5)									
Phase	Technology	Region	Fuel	ELV (mg/Nm3)				Monitoring Frequency	Number of permits
				Dust	NOx	SOx	CO		
Oven	Tunnel-oven, Hoffman Oven, Intermitt. oven	Andalusia	Natural Gas	20	-	260	-	Initially and every 4 years	1
				20	120	250	320	Three-yearly	1
				20	-	400	-		1
		Valencia	Natural Gas	30	250	200	-	Two-yearly or Yearly (depends by the mass flow)	8
		Slovenia	Natural Gas	20	500	500	20	Three-yearly	2
		Piedmont	Natural Gas	10	-	-	-	Three-yearly	1
				20	150	150	600	Yearly	1
		Tuscany	Natural Gas	30	500			Six-monthly	2
				30	500	-	100	Yearly	2
				30	500			Yearly	4
				50	500	-	-	Six-monthly	4
				30	500	-	100	Yearly for NOx and CO. Continuous for Dust.	1

Table 39 Emission limit values related to emissions to air (sector 3.5 -Oven phase-)

Also in the oven phase the ELVs related to dust do not show high differences. The only difference that we could highlight is the limit of 50 mg/Nm^3 imposed for four permits in Tuscany. In regards to NO_X emissions Andalusia imposes the lowest limit for one permit, while in the other 2 permits analysed the limit is not specified. For this parameter the high difference we can observe is in the limits imposed in Slovenia and Tuscany. These limits achieve the 500 mg/Nm^3, that are very high if compared with the ones in other regions. The monitoring of frequencies confirms

what described in the tables above about the stricter conditions applied in the Italian regions.

❖ Landfills (epigraph 5.4)

As we expected, the only phase that was comparable for the landfill sector is that on biogas burning. For this phase we include in the table also the data from West Macedonia and Sicily, as for the previous sectors we do not have comparable data available in their regional analysis.

Landfills (epigraph 5.4)							
Phase	Region	ELV (mg/Nm3)				Monitoring Frequency	Number of permits
		Dust	NOx	SOx	CO		
Biogas burning	Andalusia	-	650	300	1500	Initially and every 4 years	1
	Valencia	30	1000	200	625	Yearly	4
	West Macedonia	40	-	300	100	Yearly	3
	Slovenia	130	2000	-	-	Three-yearly	4
	Piedmont	10	450	-	500	Yearly	7
	Sicily	10	450	50	500	Monthly	6
	Tuscany	10	450	50	500	Monthly	1
		10	450	-	500	In continuous for CO. Six-monthly for Nox and Dust	1
		10	450	35	500	Yearly	1
		10	450	35	500	Not specified	1
		10	450	35	500	Six-monthly	1

Table 40 Emission limit values related to emissions to air (sector 5.4)

The Italian regions show the lowest ELVs as in some cases outlined in previous tables. However, in this sector the differences are really high. For the Dust parameter in all Italian regions a limit of 10 mg/Nm^3 is imposed. This uniformity in three different regions confirm that in the 3 Regions the Competent Authorities applied the Emission Limit Value of the national law. This limit is higher in Valencia and West Macedonia, while in Slovenia it achieves 130 mg/Nm^3. Similar situation can be observed for NO_X emissions. Only the landfills from Andalusia should respect a limit comparable to those envisaged in the Italian regions. The landfills from Valencia and Slovenia are advantaged by having a higher limit. For SO_X what emerges from the table is similar. The limits imposed in Valencia, Andalusia or West Macedonia are four or six times higher that the limits imposed in the Italian regions. For CO parameter West Macedonia shows the lowest limit.

In respect to monitoring frequencies only Slovenia and West Macedonia introduce a frequency comparable with the Italian ones.

What is described in this paragraph highlights some interesting issues from an interregional point of view. In the opinion of the project partners, the limits imposed and the monitoring frequencies relating to companies of the same sector have too high differences to be justified only through the different application of the IPPC Directive or the Flexibility Principle. The monitoring activities, or most of all the productive modifications need to respect the limit influence very much the competitiveness of companies in the same global market. This partially confirms the aim of the MED IPPC NET project and the need to find a way to conform the implementation of IPPC Directive in the Member States.

In this paragraph we cannot report the data about the sector of “surface treatment of plastic and metal materials” and “paper production” sector because the data contained in the regional Analysis were not comparable. In any case to verify limits and monitoring frequencies imposed in those sectors please download the Regional Analysis from the project website (www.medippcnet.eu).

2.4.2.5 Other requirements and conditions related to the management of the emissions to air

The partners analysed in the collected permits the ELVs and the monitoring frequencies, but also the other requirements and management conditions imposed in the Authorisation.

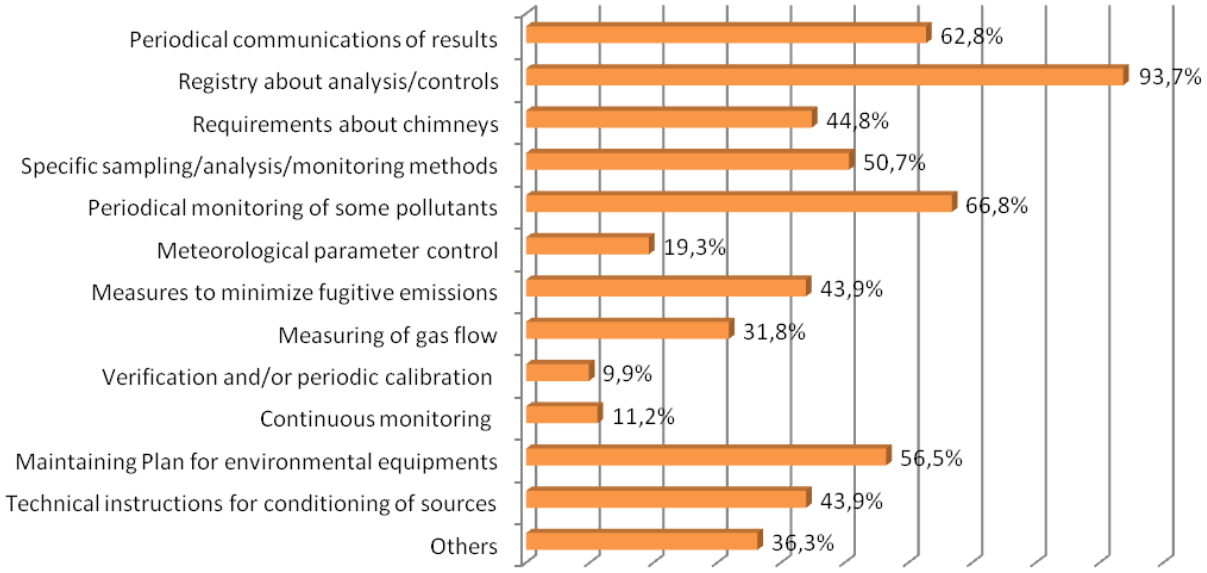

Figure 7 Other requirements and conditions related to the management of emissions to air (aggregate data)

The aggregate data shows that almost all permits of the seven regions involved require the compilation of registries with the indication of the results of chemical analysis and controls carried out by companies.

In the following table the frequencies of the same requirements are outlined for each Region.

Requirements about air emissions							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Technical instructions for conditioning of sources	46,9%	77,8%	66,7%	100,0%	25,3%	85,7%	25,5%
Maintaining Plan for environmental equipments	40,6%	25,9%	100,0%	0,0%	82,3%	0,0%	36,2%
Continuous monitoring	18,8%	3,7%	0,0%	100,0%	12,7%	0,0%	0,0%
Verification and/or periodic calibration	18,8%	0,0%	0,0%	100,0%	8,9%	14,3%	0,0%
Measuring of gas flow	9,4%	0,0%	62,5%	0,0%	58,2%	85,7%	2,1%
Measures to minimize fugitive emissions	40,6%	40,7%	100,0%	37,5%	27,8%	85,7%	29,8%
Meteorological parameter control	28,1%	0,0%	0,0%	100,0%	25,3%	85,7%	0,0%
Periodical monitoring of some pollutants	100,0%	22,2%	100,0%	100,0%	63,3%	100,0%	83,0%
Specific sampling/analysis/ monitoring methods	100,0%	7,4%	0,0%	100,0%	17,7%	100,0%	83,0%
Requirements about chimneys	0,0%	77,8%	0,0%	0,0%	32,9%	100,0%	74,5%
Registry about analysis/controls	67,2%	3,7%	100,0%	100,0%	50,0%	100,0%	59,6%
Periodical communications of results	0,0%	7,4%	0,0%	100,0%	88,6%	85,7%	72,3%
Other	46,9%	20,4%	0,0%	50%	24,1%	0,0%	38,3%

Table 41 Other requirements and conditions related to the management of emissions to air (disaggregate data for regions)

We can observe some peculiarity in the table. Firstly, the registries about analysis and control are foreseen in Valencia in only 3,7% of cases. The needs to control meteorological parameters is imposed in Sicily and West Macedonia but it is not frequent in other regions. In the Italian regions and in West Macedonia companies

must send to the Competent Authorities periodically the results of monitoring activities related to the emission to air. The need to verify and balance the instruments used in the monitoring activities is always required in the Greek permits, and in some case in the permits of Andalusia and Sicily. In the other cases this is not specified in the Authorisations.

The specification of the method for sampling and analyzing procedure shows high differences. The method is specified in every permits of Andalusia, West Macedonia and Sicily. In Tuscany it is indicated in 83% of permits. In the Slovenian permits the method is never specified, while in Valencia in only 7,4% of Authorisations.

The requirements about chimneys are all the technical instructions and standardized norms that could be indicated in the permits to rule how the chimneys must be built and managed. These requirements have an high relevance in Valencia, Sicily and Tuscany. The Competent Authorities from Andalusia, Slovenia and West Macedonia never specify them in the IPPC permits.

2.4.2.6 The Emission Limit Values related to water emissions

In this paragraph we report the results of the Analysis related to the ELVs connected with the emissions to water. In respect to the emission to air resume these ELVs are simpler because in this case we do not have to specify phases or fuels as in the other table.

The limits are summarized in two different table. The first one reports about the limits imposed to the Combustion Installations (1.1) in the case that the destination of the emissions is surface or coastal water. For the other sectors it has been analyzed the emissions that flow in surface water or sewer.

Close to the value within brackets is specified the number of Authorisations that provides the ELV.

Emission Limit Values related to industrial water emissions for combustion installations (1.1)					
Destination	Region	ELV (mg/l)			Number of permits
		COD	TSS	Sulphates	
Surface water	Andalusia	123	35	n.a.	3
		150	30	2000	1
	Valencia	n.a.	n.a.	n.a	-
	Slovenia	120	80	n.a.	3
	West Macedonia	n.a.	n.a.	n.a	-

Emission Limit Values related to industrial water emissions for combustion installations (1.1)					
Destination	Region	ELV (mg/l)			Number of permits
		COD	TSS	Sulphates	
	Piedmont	160	80	1000	2
	Sicily	160	80	1000	1
	Tuscany	160	80	1000	1
Coastal water	Andalusia	n.a.	300-400-500[34]	n.a.	1
		n.a.	8-11-14	n.a.	1
		n.a.	30-40-50	n.a.	1
	Valencia	125	35	-	1
		n.a.	35	n.a.	1
	Slovenia	150	150	n.a.	4
	West Macedonia	n.a.	40	n.a.	2
		150	40	n.a.	1
		180	40	n.a.	1
	Piedmont	n.a.	n.a.	n.a.	-
	Sicily	n.a.	n.a.	n.a.	-
	Tuscany	160	20	n.a.	1

Table 42 Emission limit values related to industrial water emissions (sector 1.1)
n.a.: data are not available[35]

The emissions flowing in surface water show a variability in the ELVs applied. Firstly, we can highlight how in Slovenia all the three permits investigated include the same limit. Also in the three Italian Regions the limits applied are the same, while in Andalusia the limits are the same for three permits but change for another one. Slovenia applies the lowest limit for COD (120 mg/l) among the regions involved while the Italian regions impose the highest one (160 mg/l). Similar results could be observed for TSS parameter, where the lowest limits are required in Andalusia while the Italian regions have still the highest value (80 mg/l), as the same limit imposed in Slovenia. In respect to the limit related to Sulphates we do not have enough data to compare them. In any case we can observe the same limit of 1000 mg/l applied in the Italian region while in one permit of Andalusia the value applied is 2000 mg/l.

For the emissions into coastal water we may observe particular results. Tuscany and West Macedonia have the highest limit of COD (160 and 180 mg/l) if compared with Valencia, but in the case of TSS the companies located in Tuscany must comply with the lowest limit (20mg/l).

[34] Values are referred to the monthly, daily and exact average respectively. For this reason ELVs in this case are not comparable with those of other regions.
[35] In some cases limits can be not available because permits not specifies them or for other reasons.

In the following table we observe limits for surface treatment of metals and plastic materials (sector 2.6).

Emission Limit Values related to industrial water emissions for surface treatment of metals and plastic materials (2.6)					
Destination	Region	ELV (mg/l)			Number of permits
		COD	TSS	Sulphates	
Surface water	Andalusia	n.a.[36]	n.a.	n.a.	-
	Valencia	125	60	400	1
	Slovenia	100	80[37]	3000	3
		500	80[38]	1900	1
		268[39]	80[40]	1187	1
	West Macedonia	n.a.[41]	n.a	n.a.	-
	Piedmont*	-	-	-	-
	Sicily	n.a.[42]	n.a.	n.a.	-
	Tuscany*	-	-	-	-
Sewer	Andalusia	n.a.	30	n.a.	1
		n.a.	35	n.a.	1
		1550	800	800	2
		160	30	800	1
		160	42,5	400	1
	Valencia	1000	500	n.a.	1
		n.a.	500	n.a.	1
	Slovenia	n.a.	80	600	2
		n.a.	350	n.a.	1
	West Macedonia	n.a.	n.a.	n.a.	-
	Piedmont*	-	-	-	-
	Sicily	n.a.[43]	n.a.	n.a.	-
	Tuscany*	-	-	-	-

Table 43 Emission limit values related to industrial water emissions (sector 2.6)

[36] Limits of installations that discharge into surface water are considered in the second part of the table (togheter with discharges to sewer).
[37] This limit will become 30 mg/Nm^3 from 01/01/2012.
[38] This limit will become 30 mg/Nm^3 from 01/01/2012.
[39] This limit will become 224 mg/Nm^3 from 01/01/2012
[40] This limit will become 30 mg/Nm^3 from 01/01/2012.
[41] No limits are set in the IEA. There are limits only for drinking water, swimming water and aquiculture.
[42] The surface treatment has no water emission because the installation adopts a closed-cycled system of treatment.
[43] The surface treatment has no water emission because the installation adopts a closed-cycled system of treatment.

n.a.: data are not available[44]
* these regions chosen the sector 6.1 for the project and not the 2.6.

The emissions flowing in surface water show a variability in the ELVs applied among regions.
Slovenia has three permits with same values and other two permits with different values (the only same value among all permits is for the TSS parameter -80 mg/l-).
It is important taking into account the wide difference existing among Slovenia and Valencia about the limit for Sulphates parameter: from 400 mg/l of Valencia to 3000 mg/l of Slovenia.
For some regions limits are not available for the reasons explained in the footnotes.
The emissions flowing in sewer show again differences among regions.
In Andalusia region two permits have same limits, while other four permits have difference values among them.

The table below indicated ELVs about industrial water for ceramic sector.

Emission Limit Values related to industrial water emissions for ceramics (3.5)					
Destination	Region	ELV (mg/l)			Number of permits
		COD	TSS	Sulphates	
Surface water	Andalusia	n.a.[45]	n.a.	n.a.	-
	Valencia	n.a.[46]	n.a.	n.a.	-
	Slovenia	120	80	1000	1
		150	80	n.a.	2
		120	80	n.a.	1
	West Macedonia	n.a.[47]	n.a.	n.a.	-
	Piedmont	160	80	1000	6
	Sicily	n.a.	n.a.	n.a.	-
	Tuscany	160	80	1000	4
Sewer	Andalusia	n.a.	n.a.	n.a.	-
	Valencia	n.a.[48]	n.a.	n.a.	-
	Slovenia	n.a.	100	900	1
		n.a.	300	-	1

[44] In some cases limits can be not available because permits not specifies them or for other reasons.
[45] For this type of installations only human waste water and/or rain waters are discharged.
[46] There are no ELV for the ceramics installations. All waste waters are reutilized or get out by authorized operator.
[47] Industrial emissions do not mean any significant problems when manufacturing ceramics as no industrial effluents are produced and no limits are set in the IEA.
[48] There are no ELV for the ceramics installations. All waste waters are reutilized or get out by authorized operator.

Emission Limit Values related to industrial water emissions for ceramics (3.5)					
Destination	Region	ELV (mg/l)			Number of permits
		COD	TSS	Sulphates	
	West Macedonia	n.a.[49]	n.a.	n.a.	-
	Piedmont	500	200	1000	3
		700	700	1000	1
	Sicily	n.a.	n.a.	n.a.	-
	Tuscany	500	200	1000	1

Table 44 Emission limit values related to industrial water emissions (sector 3.5)

In the case of emissions flowing for ceramics, emission limits value are more homogeneous among regions but also among permits of the same region, in the case of discharges in surface water. All permits about Piedmont and Tuscany have the same values. Moreover limits for TSS and Sulphates parameters are the same for Slovenia, Piedmont and Tuscany.

The following table shows limits about discharges for landfill sector.

Emission Limit Values related to industrial water emissions for landfills (5.4)					
Destination	Region	ELV (mg/l)			Number of permits
		COD	TSS	Sulphates	
Surface water	Andalusia	n.a.[50]	n.a.	n.a.	-
	Valencia	125	60	250	1**
	Slovenia	n.a.	n.a.	n.a.	-
	West Macedonia	125	25	250	3
	Piedmont	n.a.	n.a.	n.a.	-
	Sicily	160	80	1000	6
	Tuscany	160	80	1000	4
Sewer	Andalusia	n.a.	n.a.	n.a.	-

[49] Industrial emissions do not mean any significant problems when manufacturing ceramics as no industrial effluents are produced and no limits are set in the IEA.
[50] Industrial emissions from this epigraph are leaching waters, for which no ELV are established in their respective IPPC Permits.

Emission Limit Values related to industrial water emissions for landfills (5.4)					
Destination	Region	ELV (mg/l)			Number of permits
		COD	TSS	Sulphates	
	Valencia	n.a.	n.a.	n.a.	-
	Slovenia	n.a.	400	500	1
	West Macedonia	n.a.	n.a.	n.a.	-
	Piedmont	500	200	1000	3
		2000	1000	n.a.	2
	Sicily	500	200	1000	6
	Tuscany	3000	200	1000	1
		500	200	1000	1

Table 45 Emission limit values related to industrial water emissions (sector 5.4)

** In the rest of analyzed IEA the waste waters are reutilized or get out by authorized operator.

As in the case of ELVs for ceramics, also in the case of landfills, some regions have same limits (Italian regions, but also Valencia and West Macedonia for emissions flowing to surface water for COD and Sulphates parameters).

The table below indicates limits about industrial water emissions for paper production sector.

Emission Limit Values related to industrial water emissions for paper production (6.1)					
Destination	Region	ELV (mg/l)			Number of permits
		COD	TSS	Sulphates	
Surface water	Andalusia*	-	-	-	-
	Valencia*	-	-	-	-
	Slovenia*	-	-	-	-
	West Macedonia*	-	-	-	-
	Piedmont	160	80	1000	14
	Sicily*	-	-	-	-
	Tuscany	160	80	1000	6

Emission Limit Values related to industrial water emissions for paper production (6.1)					
Destination	Region	ELV (mg/l)			Number of permits
		COD	TSS	Sulphates	
Sewer	Andalusia*	-	-	-	-
	Valencia*	-	-	-	-
	Slovenia*	-	-	-	-
	West Macedonia*	-	-	-	-
	Piedmont	500	200	1000	1
	Sicily*	-	-	-	-
	Tuscany	500	200	1000	5

Table 46 Emission limit values related to industrial water emissions (sector 6.1)

* these regions chosen the sector 2.6 for the project and not the 6.1.

As regards emissions flowing for paper production, permits of Piedmont and Tuscany have the same limits.

The table below summarizes the ELVs in the four IPPC sectors analyzed (Ceramics -3.5-, Landfills -5.4-, Surface treatment of metals and plastic materials -2.6-, Paper production -6.1-) for which the destinations of industrial water emissions are the same (surface water and sewer), in order to compare limits among regions.

Emission Limit Values related to industrial water emissions for Ceramics (3.5), Landfills (5.4), Surface treatment of metals and plastic materials (2.6), Paper production(6.1) (with data of number of permits)						
Destination	Surface water			Sewer		
Pollutants (mg/l)	COD	TSS	Sulphates	COD	TSS	Sulphates
Andalusia	n.a.	n.a.	n.a.	160 (2) 1550 (2)	30 (2) 35 (1) 42,5 (1) 800 (2)	400 (1) 800 (3)
Valencia	125 (2)	60 (2)	250 (1) 400 (1)	1000 (1)	500 (2)	n.a.
Slovenia	100 (3) 120 (2) 150 (2) 500 (1)	80 (9)	3000 (3) 1900 (1) 1187 (1)	n.a.	80 (2) 100 (1) 400 (1) 300 (1)	600 (2) 900 (1) 500 (1)

Emission Limit Values related to industrial water emissions for Ceramics (3.5), Landfills (5.4), Surface treatment of metals and plastic materials (2.6), Paper production(6.1) (with data of number of permits)						
Destination	Surface water			Sewer		
Pollutants (mg/l)	COD	TSS	Sulphates	COD	TSS	Sulphates
	268 (1)				350 (1)	
West Macedonia	125 (3)	25 (3)	250 (3)			
Piedmont	160 (20)	80 (20)	1000 (20)	500 (7) 700 (1)	200 (7) 700 (1)	1000 (8)
Sicily	160 (6)	80 (6)	1000 (6)	500 (6)	200 (6)	1000 (6)
Tuscany	160 (14)	80 (14)	1000 (14)	500 (7) 3000 (1)	200 (8)	1000 (8)

n.a.: not available

Table 47 Emission limit values related to industrial water emissions for all sectors

About those emissions flowing in surface water, Slovenia presents an high variability in the limits imposed for COD. West Macedonia and Valencia have the same limit, lower than the limit required by the permits of the Italian Regions. For TSS the permits show a unique limit applied in each region. Slovenia and Italian regions have the highest one (80 mg/l), while West Macedonia applies the strictest one. The permits of West Macedonia confirm the lowest level also for the Sulphates with a value of 250 mg/l applied in three permits. The permits of companies from Slovenia include the highest limits for the same parameter achieving until a limit of 3000 mg/l imposed in three Authorisations.

For the water emissions in Sewer the limits change very much in the same region and among regions. One of the reasons could be related to the presence of a purification plant at the end of the industrial Sewer. Often, the company responsible of the management of the purification plant could decide the limits to be applied to companies that are connected to the sewerage. These limits are often decided by taking into account the characteristics of the purification plant and the number of connected companies. For this reason each Management Body of purification plant could apply different limits.

In the following table we outline the monitoring frequencies applied to water emissions in all the permits analysed. **In bracket is specified the number of permits.**

Emissions limit values: monitoring frequencies (with indications of number of permits)						
	Combustion plants (1.1)	Ceramics (3.5)	Landfills (5.4)	Surface treatment of metals and plastic materials (2.6)	Paper production (6.1)	
Andalusia	Daily (1) Monthly (2) Yearly (2) every 2 years (2)	n.a.	n.a.	Monthly (1) Six-monthly (1) Yearly (1) every 4 years (2)	n.a.	
Valencia	Monthly (2)	n.a.	n.a.	Monthly (2) Four-monthly (3)	n.a.	
Slovenia	Quarterly (3) Four-monthly (4)	Four-monthly (2) Yearly (4)	Three-monthly (1)	Three-monthly (5) Four-monthly (3)	n.a.	
West Macedonia	Six-monthly (4)	n.a.	Three-monthly (3)	n.a.	n.a.	
Piedmont	Yearly (8)	Three-monthly (9) Yearly (1)	Yearly (5)	n.a.	Yearly (14) Six-monthly (1)	
Sicily	Four-monthly (1)	n.a.	Three-monthly (6)	n.a.	n.a.	
Tuscany	Monthly (1) Yearly (2)	Four-monthly (1) Six-monthly (1) Yearly (2)	Monthly (1) Three-monthly (5)	n.a.	CODSST	Daily (3) Twice monthly (3) Monthly (4) Three-monthly (1)
					Sulp	Monthly (1) Three-monthly (1) Yearly (8)

Table 48 Emission limit values: monitoring frequencies

The monitoring of frequencies change a lot in the permits issued in Andalusia and related the two sectors where the data were available. In the same sectors of Andalusia the permits from the Region of Valencia region stricter monitoring conditions and every times with a monitoring frequencies lower than one year. In Slovenia too only four permits require a yearly monitoring frequency, the other 18 permits envisage a monitoring frequencies lower than one year. Similarly to Slovenia and Valencia also in the other regions the highest frequency is yearly, only in

Andalusia for two permits of 1.1 IPPC sector it is establishes every two years and every four years for other two companies that work in the field of surface treatment.

From a sectoral perspective landfills present the highest homogeneity. In Slovenia, West Macedonia and Tuscany the CAs require a monitoring each three months. The combustion plants are subject to a monitoring frequency that ranges from monthly (Andalusia, Valencia, Tuscany) up to every two years (Andalusia).

2.4.2.7 Other requirements and conditions related to the management of emissions to water

As done for the emission to air, also in the case of emissions to water the partners investigated the management requirements and conditions specified by the Authorisations.

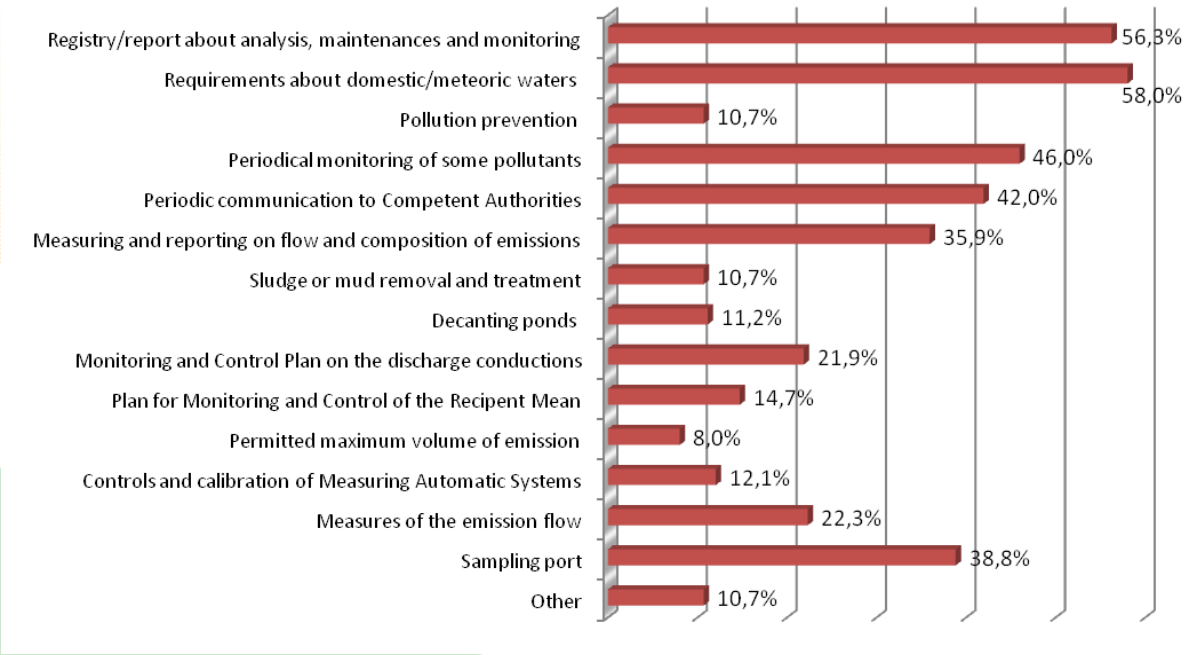

Figure 8 Other requirements and conditions related to the management of emissions to water (aggregate data)

Such as for emissions to air the requirements about the needs to record the activity of analysis and other monitoring activities in a registry achieve a high percentage. However, the highest rate is achieved by the requirements related to the collection and treatment of domestic and meteoric water. As in the case of emissions to air the aggregate data show a low rate for the requirements related to the verification and calibration of the measuring systems.

In the table below we can appreciate the contribute of each regions to the rate related to each requirements.

Requirements about emissions to water							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Sampling port	34,4%	3,7%	79,2%	0,0%	62,0%	100,0%	0,0%
Measures of emission flow	28,1%	0,0%	70,8%	0,0%	26,6%	0,0%	6,4%
Control and calibration of Measuring Automatic System	25,0%	0,0%	79,2%	0,0%	0,0%	0,0%	0,0%
Permitted maximum volume of emission	9,4%	3,7%	25,0%	0,0%	0,0%	85,7%	4,3%
Plan for Monitoring and Control of the Recipient Mean	12,5%	3,7%	79,2%	0,0%	3,8%	85,7%	0,0%
Monitoring and Control Plan on the discharge conduction	12,5%	77,8%	70,8%	0,0%	1,3%	0,0%	0,0%
Decanting ponds	6,3%	7,4%	16,7%	0,0%	21,5%	0,0%	0,0%
Sludge or mud removal and treatment	9,4%	11,1%	16,7%	0,0%	17,7%	0,0%	0,0%
Measuring and reporting on flow and composition of emission	43,8%	14,8%	100,0%	0,0%	31,6%	28,6%	0,0%
Periodic communication to Competent Authorities	0,0%	85,2%	0,0%	25,0%	53,2%	85,7%	53,2%
Periodical monitoring of some pollutants	50,0%	63,0%	0,0%	0,0%	39,2%	85,7%	70,2%
Pollution prevention	50,0%	7,4%	0,0%	0,0%	0,0%	85,7%	0,0%
Requirements about domestic/meteoric waters	50,0%	25,9%	0,0%	0,0%	100,0%	85,7%	46,8%
Registry/report about analysis, maintenances and monitoring	50,0%	7,4%	0,0%	0,0%	100,0%	85,7%	48,9%
Other	0,0%	0,0%	0,0%	0,0%	0,0%	85,7%	48,9%

Table 49 Other requirements and conditions related to the management of emissions to water (disaggregate data for regions)

The requirements about domestic and meteoric water are contained most of all in the permits of Andalusia and Italian regions. Slovenia, Sicily and Piedmont prescribe frequently conditions for the sampling ports. The permits issued in Slovenia often require conditions on the control and calibration of measuring systems, these conditions were not required for the monitoring system of air emission. The only requirement specified in the permits of West Macedonia is the periodical communication to the Competent Authorities.

After these first data about emission to air and emission to water in the next paragraphs we report the data and info related to other key environmental aspects contained in the permits: waste management, contamination of soil and groundwater, noise emissions, odours and energy consumption. For some of these aspects there are not Emission Limit Values to respect. For this reason the analysis investigates most of all the requirements included in the permits.

2.4.2.8 The requirements connected with waste management

In many Member States the IPPC Directive has introduced the possibility to formulate specific requirements to the companies as related to waste management. In fact, this environmental aspect in many countries was not subject to specific Authorisations because there were not precise limits connected with it (for example it does not exist a limit to waste production). For this reason, before implementing the IPPC Directive, the requirements and conditions for waste management were introduced only in the national and local laws that transferred the past Directives on Waste rather than in individual company permits.

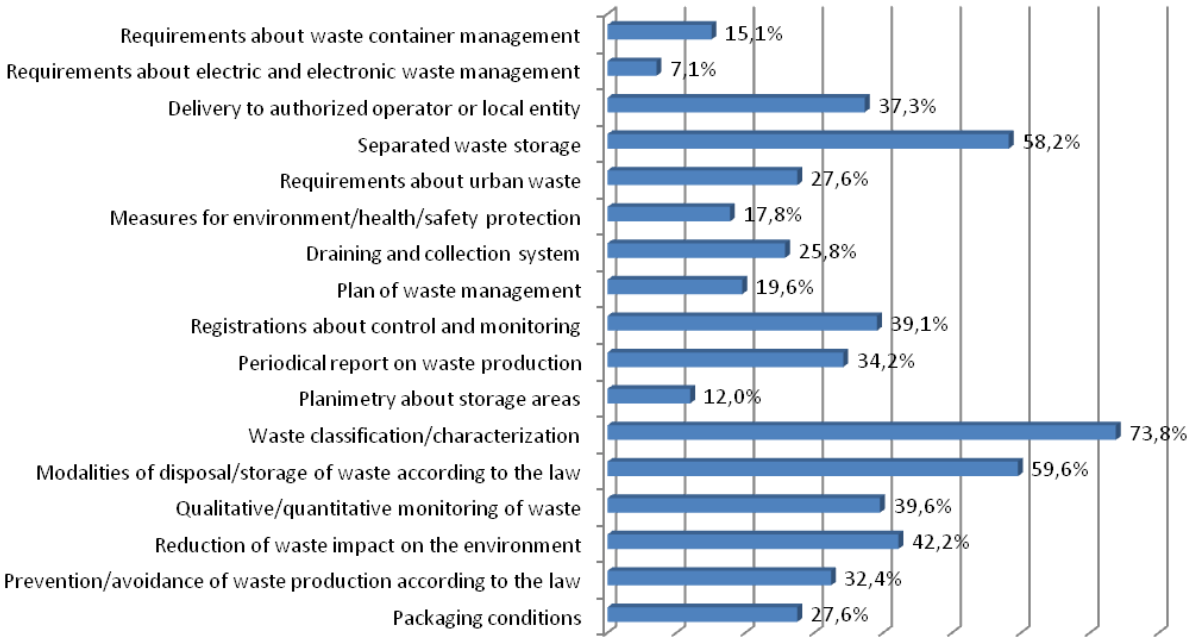

Figure 9 Requirements connected with waste management (aggregate data)

However, often the requirements enclosed in the permits are soundly connected with the conditions established by laws. For example, the needs to achieve a precise classification and characterization of waste is a requirement not introduced by the IPPC but in force from several years in the whole of the European Union. Also, the modalities to manage or separate waste storages are very frequent in the permits analysed but the company should comply with those requirements also before receiving the IPPC permit. Other requirements with a lower frequencies are more peculiar. For example, they include additional conditions for electric and electronic waste management, identify the interest of the CAs in this field as it increased in the last years with the publication of specific EU Directives.

Requirements about waste management							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Packaging conditions	0,0%	100,0%	100,0%	100,0%	0,0%	0,0%	6,4%
Prevention/avoidance of waste production according to the law	87,5%	25,9%	100,0%	0,0%	0,0%	75,0%	17,0%
Reduction of waste impact on the environment	87,5%	100,0%	100,0%	0,0%	0,0%	87,5%	19,1%
Qualitat/quantitative monitoring of waste	3,1%	100,0%	100,0%	100,0%	0,0%	75,0%	48,9%
Modalities of disposal/storage according to the law	12,5%	100,0%	100,0%	100,0%	78,5%	100,0%	2,1%
Waste classification/ characterization	0,0%	100,0%	100,0%	100,0%	100,0%	87,5%	44,7%
Planimetry about storage areas	0,0%	0,0%	0,0%	100,0%	7,6%	87,5%	12,8%
Periodical report on waste production	0,0%	100,0%	100,0%	100,0%	13,9%	87,5%	0,0%
Registrations about control and monitoring	15,6%	100,0%	100,0%	100,0%	16,5%	0,0%	23,4%

Requirements about waste management							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Plan of waste management	0,0%	3,7%	100,0%	100,0%	13,9%	0,0%	0,0%
Draining and collection system	3,1%	100,0%	0,0%	100,0%	11,4%	0,0%	27,7%
Measures for environment/health/safety protection	0,0%	100,0%	0,0%	100,0%	0,0%	0,0%	10,6%
Requirements about urban waste	87,5%	7,4%	100,0%	100,0%	0,0%	0,0%	0,0%
Separated waste storage	87,5%	100,0%	100,0%	0,0%	62,0%	0,0%	6,4%
Delivery to authorized operator or local entity	87,5%	100,0%	100,0%	62,5%	0,0%	0,0%	0,0%
Requirements about electric and electronic waste management	37,5%	14,8%	0,0%	0,0%	0,0%	0,0%	0,0%
Requirements about waste container management	31,3%	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%

Table 50 Requirements connected with waste management (disaggregate data for regions)

Permits analysed in West Macedonia, Slovenia and Valencia specify how companies mast package the waste. This requirement is not included in the permits of Andalusia, Sicily, Piedmont and Tuscany. Naturally it does not mean that in these regions are not in force conditions for waste packaging, but only that the CAs have preferred not to specify them in the Authorisations. For the same reason some requirements are very frequent in many regions such as, for example "Waste classification/characterization" and "Modalities of disposal/storage" that have a low frequency in Andalusia and Tuscany. It means that in these regions the CAs have retained sufficient the national laws that prescribe those conditions without repeating them in the IPPC permits. Another example of this approach is the requirement on the delivery to authorized operators. This requirement is often specified in Andalusia, Valencia, Slovenia and West Macedonia, while it is never specified in the Italian regions. In any case, in Italy all companies (not only those

acting within the scope of IPPC) must comply with this requirement and for this reason the CAs from Italy has decided not to repeat it in the permit.

The presence of requirements applied to the urban waste is not homogeneous. In the permits of Italian regions they are never mentioned. In Valencia only in 7,4% of permits. The remnant of regions involved achieve a higher percentage.

2.4.2.9 Requirements and conditions to protect from contamination of soil and groundwater

The requirement included in the permits and connected with the protection of contamination of soil and groundwater envisaging the highest possible frequency, includes measures related to the storage of chemicals. In many cases the permits require to dispose a containment basin for the storage or to make available spillage kit.

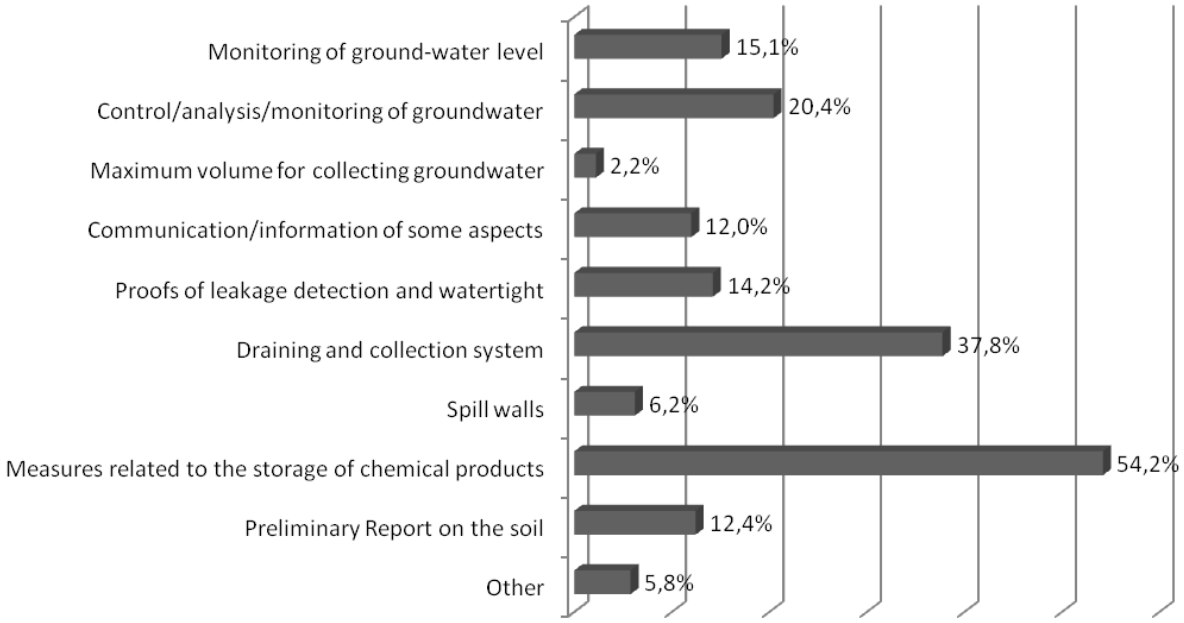

Figure 10 Requirements and conditions to protect from contamination of soil and groundwater (aggregate data)

The requirement about the monitoring of quality of groundwater is particularly significant being an expensive activity. This requirement naturally is imposed most of all to landfills.

Another relevant requirement is the measure related to the draining and collection system contained in 37,8% of permits.

In the following tables the same requirements are classified according to an interregional perspective.

Requirements about protection of contamination of soil and groundwater							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Preliminary Report on the soil	43,8%	0,0%	58,3%	0,0%	0,0%	0,0%	0,0%
Measures related to the storage of chemical products	37,5%	92,6%	100,0%	100,0%	54,4%	12,5%	19,1%
Spill walls	15,6%	3,7%	0,0%	100,0%	0,0%	0,0%	0,0%
Draining and collection system	15,6%	0,0%	100,0%	100,0%	54,4%	12,5%	8,5%
Proofs of leakage detection and watertight	12,5%	3,7%	100,0%	0,0%	5,1%	0,0%	0,0%
Communication/information of some aspects	0,0%	14,8%	100,0%	0,0%	0,0%	0,0%	6,4%
Control/analysis/monitoring of groundwater	3,1%	18,5%	0,0%	100,0%	25,3%	62,5%	14,9%
Monitoring of ground-water level	3,1%	0,0%	0,0%	100,0%	25,3%	0,0%	10,6%

Table 51 Requirements and conditions to protect from contamination of soil and groundwater (disaggregate data for regions)

The measures related to the monitoring of groundwater are mostly contained in the permits of Piedmont and West Macedonia. The needs to submit a preliminary report about the soil is a requirement requests only in Andalusia and Slovenia. The "measures related to the storage of chemical products" is the only requirement that has been identified in at least 1 permit of each region. The other requirements show at least one region without frequency.

2.4.2.10 Requirements, conditions, frequencies for noise emissions

This paragraph is arranged in two figures and four tables. Initially we report about the requirements and conditions related to noise emission. Firstly, with aggregate data and later with outline the frequencies of each region. Secondly, we investigate the monitoring of frequencies imposed to companies, analysing them by region and by some selected sectors.

The high frequency is connected with the necessity to comply with municipal and local plans. In some regions the limits are established at the local level by these Plan adopted by Municipalities.

Some requirements are connected with the principle of the "prevention of pollution" but they are not so frequent in the permits. An example is the condition related to the designing of equipment or the maintenance Plan, while other measures are related with actions "end of pipe", such as measures for acoustic isolation.

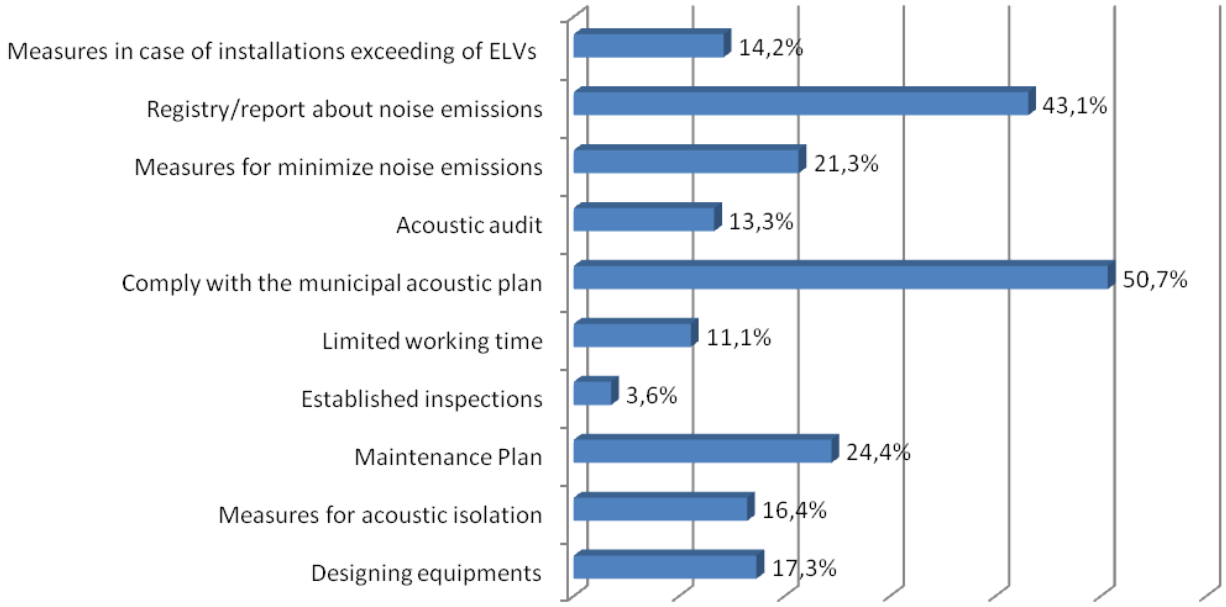

Figure 11 Requirements about noise emissions (aggregate data)

Others are management measures like Acoustic Audit, the registration of emissions level and the limited working time, that are generally prescribed to reduce noise emission in night time.

Requirements about noise emissions							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Designing equipments	40,6%	0,0%	66,7%	100,0%	2,5%	0,0%	0,0%
Measures for acoustic isolation	18,8%	0,0%	95,8%	87,5%	0,0%	12,5%	0,0%
Maintenance Plan	100,0%	0,0%	95,8%	0,0%	0,0%	0,0%	0,0%
Established inspections	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%
Limited working time	6,3%	0,0%	95,8%	0,0%	0,0%	0,0%	0,0%
Comply with the municipal acoustic plan	3,1%	0,0%	0,0%	100,0%	96,2%	0,0%	61,7%
Acoustic audit	0,0%	100,0%	0,0%	0,0%	36,7%	0,0%	2,1%
Measures for minimize noise emissions	21,9%	0,0%	95,8%	100,0%	2,5%	75,0%	4,3%
Registry/report about noise emissions	0,0%	100,0%	95,8%	0,0%	36,7%	0,0%	38,3%
Measures in case of installations exceeding of ELVs	0,0%	0,0%	95,8%	37,5%	0,0%	12,5%	10,6%

Table 52 Requirements about noise emissions (disaggregate data for regions)

The requirements applied in Valencia are two: the acoustic audit and the registration of the results of these activities. All permits contain these requirements. The registry is frequently prescribed also in Slovenia but the acoustic audit seems to be a tool adopted most of all in the Region of Valencia. All permits issued in Andalusia include a requirement about the Maintenance Plan as measure to reduce the noise emission through a preventive approach. Slovenia is a unique region that limits its working

time to reduce noise emissions in a high percentage of permits. In West Macedonia the permits describe the conditions to design the equipments, but also prescribe measures for acoustic isolation. Piedmont and Tuscany envisage that companies comply with the Municipal Acoustic Plan, being this the Plan that in Italy establishes the limits to respect. This requirement is not specified in the permits of Sicily, because in this region many Municipalities have not yet approved the Plan. The permits issued in Sicily include requirements connected with inspections as measure to reduce the emissions.

In the tables that follows we outline the monitoring frequencies imposed the companies.

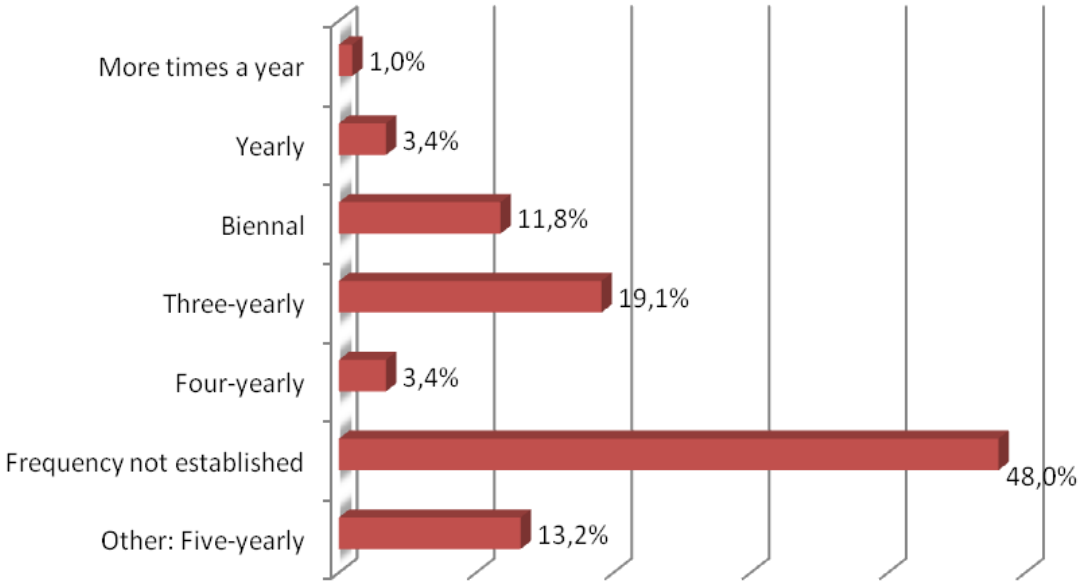

Figure 12 Monitoring frequencies of noise emissions (aggregate data)

Immediately we could observe a high variability of frequencies. Some permits contain the request to monitor the noise emissions more than one time each year, others require up to a five-yearly frequencies.

In the most frequent cases the periodicity is not established. In the following table we report about the frequencies imposed in each regions.

Monitoring frequencies of noise emissions (all IPPC sectors)							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
More times a year	0,0%	0,0%	0,0%	0,0%	2,5%	0,0%	0,0%
Yearly	0,0%	0,0%	0,0%	0,0%	8,9%	0,0%	10,6%
Two-yearly	35,29%	0,0%	0,0%	0,0%	11,4%	12,5%	17,1%
Three-yearly	0,0%	0,0%	100,0%	0,0%	3,8%	12,5%	23,4%
Four-yearly	29,41%	0,0%	0,0%	0,0%	2,5%	0,0%	0,0%
Frequency not established	35,29%	0,0%	0,0%	100,0%	70,9%	75,0%	46,8%
Other: Five-yearly	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	2,1%

Table 53 Monitoring frequencies of noise emissions (disaggregate data for regions)

The only region that requires a frequency more frequent than one year is Piedmont. On the other hand, Valencia and Tuscany are the only regions that require five-yearly frequencies. In the different regions we could observe a high variability, but in three regions the frequency is the same for all the analysed permits:

- in Valencia all the permits require a five-yearly frequency;
- in Slovenia all the permits require a three yearly-frequencies;
- in West Macedonia all the permits do not specify the frequency.

Andalusia and Italian regions change the frequencies. Andalusia requires two yearly or four-yearly frequencies, and in the 35,29 of permits it does not establish a frequency. The permits issued in Piedmont and Sicily often do not establish monitoring frequencies (about 70%), but when this is specified it ranges from yearly to three yearly. In almost half of the permits issued in Tuscany frequency is not established, while in the remnant of cases the three-yearly frequency is the most frequent.

In the following tables we investigate the monitoring frequencies established in several regions in two specific sectors: Ceramic and Landfill.

Monitoring frequencies of noise emissions (sector 3.5 ceramic production)							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
More times a year	0,0%	0,0%	0,0%	0,0%	0,0%	n.a.	0,0%
Yearly	0,0%	0,0%	0,0%	0,0%	0,0%	n.a.	15,4%
Biennial	0,0%	0,0%	0,0%	0,0%	12,5%	n.a.	15,4%
Three-yearly	0,0%	0,0%	100,0%	0,0%	0,0%	n.a.	0,0%
Four-yearly	50,0%	0,0%	0,0%	0,0%	0,0%	n.a.	0,0%
Frequency not established	50,0%	0,0%	0,0%	100,0%	87,5%	n.a.	61,5%
Other: Five-yearly	0,0%	100,0%	0,0%	0,0%	0,0%	n.a.	7,7%

Table 54 Monitoring frequencies of noise emissions (disaggregate data for regions -sector 3.5-)

Half of permits issued in Andalusia require a four-yearly monitoring frequency. Slovenia confirms the three-yearly frequencies. In Tuscany the 15% of permits require a yearly monitoring frequency and another 15% a biennial frequency. In Valencia all permits (100%) require a five yearly monitoring frequency.
From this table we can understand how the differences specified in the permits could influence the competitiveness. If we consider a cost ranging between 1.300 and 1.700 euro to assess the noise emissions we could calculate the higher costs that the ceramic companies from Tuscany have to pay compared to their sister companies in Andalusia and Slovenia. Considering a period of 5 years the cost that companies should pay to comply with the frequencies outlined above ranges:

- from 1.300 to 1.700 in Andalusia;
- from 1.300 to 1.700 in Slovenia;
- from 6.500 to 8.500 in Tuscany (considering the yearly frequency)

This simple exercise demonstrates how three companies of the same sector that compete in the same market are influenced by a different implementation of the Directive.

Monitoring frequencies of noise emissions (sector 5.4 landfills)							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
More times a year	0,0%	0,0%	0,0%	0,0%	15,4%	n.a.	0,0%
Yearly	0,0%	0,0%	0,0%	0,0%	53,8%	n.a.	6,3%
Biennial	0,0%	0,0%	0,0%	0,0%	7,7%	n.a.	25,0%
Three-yearly	0,0%	0,0%	100,0%	0,0%	23,1%	n.a.	12,5%
Four-yearly	0,0%	0,0%	0,0%	0,0%	0,0%	n.a.	0,0%
Frequency not established	100,0%	0,0%	0,0%	100,0%	0,0%	n.a.	56,3%
Other: Five-yearly	0,0%	100,0%	0,0%	0,0%	0,0%	n.a.	0,0%

Table 55 Monitoring frequencies of noise emissions (disaggregate data for regions -sector 5.4-)

Moreover, the permits of the landfill sector highlight some differences in the frequency established. In particular, the landfills located in Piedmont are penalised compared to the landfills located in Tuscany.

In this paragraph it has not been possible to compare the ELVs of noise emissions due to the lack of data. Specifically, in many cases these limits depend on the location of the installation (e.g. industrial, residential or natural area). In any case some info and data about ELVs of noise emissions in some regional analysis can be found (www.medippcnet.eu).

2.4.2.11 Requirements and conditions related to odour emissions and energy consumption

The last environmental aspects analysed are odour emissions and energy consumption. As we can notice from the figure, we investigated both aspects, but very rarely we found specific requirements related to odour emissions. Nevertheless, we should precise that in some permits these conditions are also included in the requirements related to the fugitive emissions that have been described in the paragraph of emissions to air.

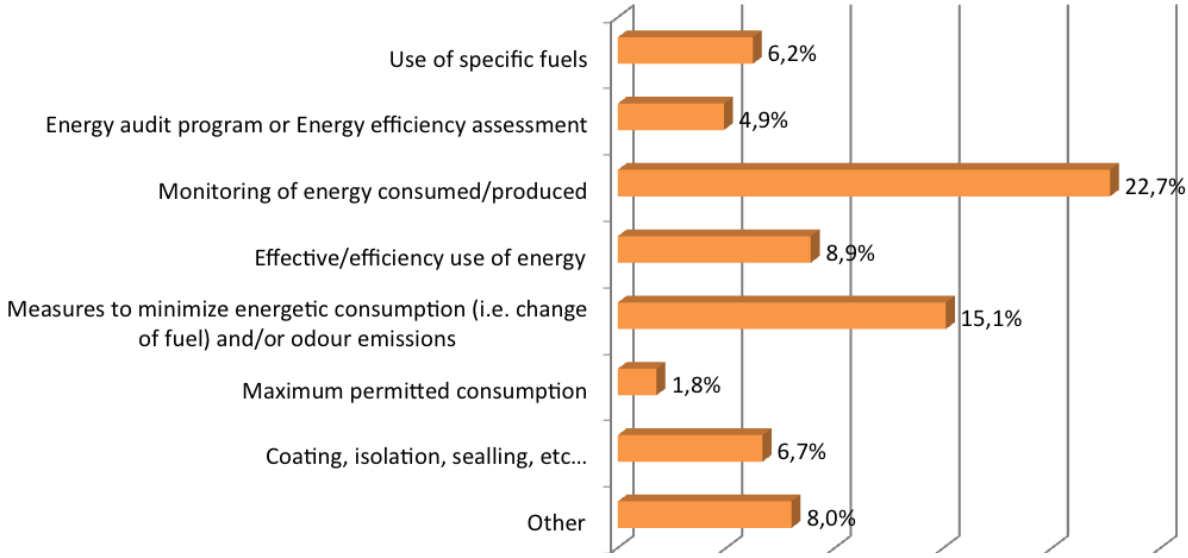

Figure 13 Requirements and conditions related to odour emissions and energy consumption (aggregate data)

The most frequent requirement is that of monitoring energy consumption, followed by some measures to reduce the use of energy and odour emissions. Only in West Macedonia there is a maximum permitted consumption of energy. This is unusual and may be connected with a specific fuel.

Requirements and conditions related to odour emissions and energy consumption							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Coating, isolation, sealing, etc.	0	0	0	0	18,99%	0	0
Maximum permitted consumption	0	0	0	50%	0	0	0
Measures to minimize energy consumption (i.e. change of fuel) and/or odour emissions	0	18,52%	0	37,5%	29,11%	12,5%	4,26%
Effective/efficiency use of energy	0	0	0	37,5%	12,66%	0	14,89%
Monitoring of energy consumed/produced	0	0	0	62,5%	36,71%	37,5%	29,79%
Energy audit program or Energy efficiency assessment	0	0	0	0	1,27%	0	21,28%
Use of specific fuels	0	7,41%	0	87,5%	5,06%	0	2,13%
Other	0	25,93%	0	0	0	50%	14,89%

Table 56 Requirements and conditions related to odour emissions and energy consumption (disaggregate data for regions)

In the permits issued in Andalusia and in Slovenia there were not any requirements connected to the energy consumption and odour emissions.

Tuscany and Piedmont show the highest variety of requirements while Valencia has a high rate in the class “other”. This class collects some requirements connected to the odour emissions. In particular, the permits issued in Valencia impose the issuing permits to landfills: studies about odour emissions, odour audits in case of troubles for neighbours and ELVs for odour.

2.4.2.12 Requirements and conditions to manage the abnormal and emergency conditions and in the cases of exceeding of the Emission Limit Value

In this paragraph we investigate the requirements in case of abnormal (e.g. not ordinary interruption of production) and emergency conditions. Many permits require to communicate these conditions to the relevant authorities, and to adopt in advance procedures to minimize the effect of the events in the environment.

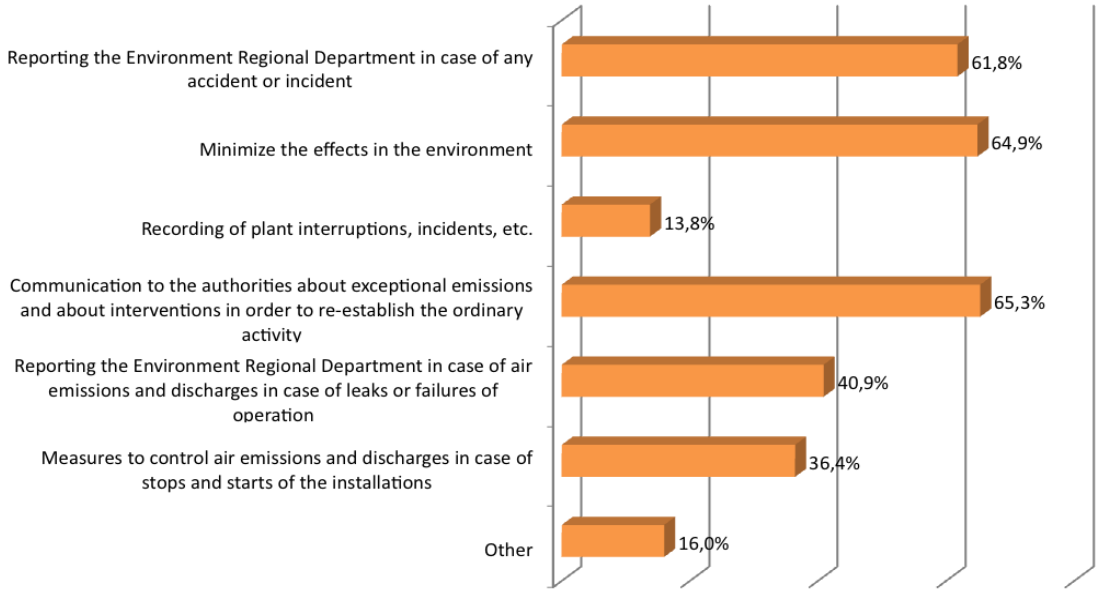

Figure 14 Requirements and conditions to manage the abnormal and emergency conditions (aggregate data)

In fewer cases the permits require to record the emergency or the abnormal condition. In the following table we report the data subdivided by region.

Requirements and conditions for the management of the abnormal and emergency conditions							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Measures to control air emissions and discharges in case of stops and starts of the installations	100%	0	100%	0	11,39%	100%	19,15%
Reporting to the Regional Department of Environment in case of air emissions and discharges in case of leaks or failures of operation	100%	100%	100%	100%	0	0	2,13%
Communication to the authorities about exceptional emissions and about interventions in order to re-establish the ordinary activity	100%	100%	0	100%	51,90%	100%	65,96%
Recording of plant interruptions, incidents, etc.	0	0	0	100%	10,13%	87,5%	17,02%
Minimize the effects in the environment	100%	100%	0	0	100%	100%	0
Reporting the Environment Regional Department in case of any accident or incident	100%	100%	100%	100%	49,37%	100%	2,13%
Other	0	44,44%	0	0	0	12,5%	23,4%

Table 57 Requirements and conditions to manage the abnormal and emergency conditions (disaggregate data for regions)

Only the permits issued in Slovenia do not require that companies communicate to the authorities about exceptional emissions and about interventions in order to re-establish the ordinary activity. Another requirement in almost each region is the Reporting to the Environment Regional Department in case of any accident or incident. Only in Tuscany (2,13%) this requirement is rare. The permits in the Region of Valencia specify the conditions to dismantle the IPPC installation, this reply has been introduced in the class “other”.

As for the emergency conditions, also in the case of exceeding of the Emission Limit Values companies should communicate to the Competent Authorities in the 65,3% of analysed permits.

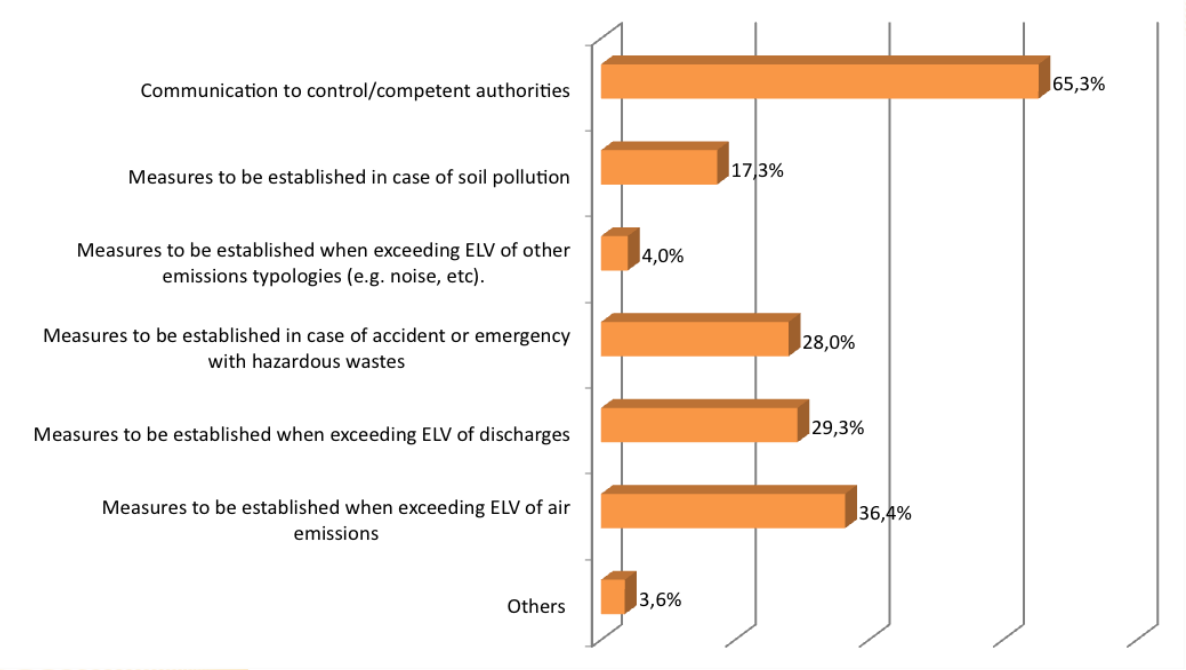

Figure 15 Requirements and conditions related to the cases of installations exceeding emission limit values (aggregate data)

Requirements related to the cases of installations exceeding the Emission Limit Values							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Measures to be established when exceeding ELV of air emissions	50%	0	100%	25%	32,91%	100%	12,77%
Measures to be established when exceeding ELV of discharges	75%	0	100%	0	13,92%	87,5%	0
Measures to be established in case of accident or emergency with hazardous wastes	100%	0	100%	87,5%	0	0	0
Measures to be established when exceeding ELV of other emissions typologies (e.g. noise, etc).	0	0	0	0	2,53%	75%	2,13%
Measures to be established in case of soil pollution	78,13%	0	0	0	17,72%	0	0
Communication to control/competent authorities	90,63%	100%	100%	100%	51,9%	100%	21,28%
Other	0	0	0	0	0	0	17,02%

Table 58 Requirements and conditions related to the cases of installations exceeding emission limit values (disaggregate data for regions)

In the permits issued in Valencia the only requirement is related to the communication to competent authorities. In Tuscany also permits require in few cases a procedure of communication. Other requirements are connected with the exceeding of ELVs of specific environmental aspects.

2.4.2.13 Any other requirements included in the permits analysed

In this last paragraph we report about the requirements included in the permits but not related to any environmental aspects analysed before. The data are exposed under a qualitative approach.

Any other requirements included in the permits analyzed							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Management requirements in case of close/dismantling of installations	X	X		X			
Competent Authorities should be assisted by firms during controls							X
Requirements about legionnaire control		X					
Requirements about water needs	X			X			
Requirements about prevention of electromagnetic radiations/requirements about light pollution prevention			X				
Requirements about environmental recovery and/or prevention of environmental risks	X	X		X	X		X
Documents should be keep in the firm							X
Compliance with environmental declaration	X	X					
Requirements about other aspects (e.g. asbestos covering)					X		X
Checking of IEA conditions before obtaining the start-up/initial authorization		X					

Any other requirements included in the permits analyzed							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Realization of some interventions/projects							X
Communication of some aspects/sending some documents to Competent Authority	X	X				X	X
Measures to prevent accidents	X	X		X			

Table 59 Any other requirements included in the analyzed permits

Only Andalusia and West Macedonia include requirements for the consumption of water, while Slovenia is the only one that imposes conditions for electromagnetic radiations and light pollution. Andalusia, Valencia and West Macedonia envisage condition for the dismantling phase. Valencia in some cases includes requirements related to the legionnaire control. Piedmont and Tuscany provide indications about the management of specific aspects, as for example the monitoring of asbestos covering.

2.4.2.14 The frequency requested to the installations to send the periodical communication about the results of the Monitoring Plan to the Competent Authority

Periodically each IPPC installations should send a report about the results of the Monitoring Plan and of the improvement achieved to the CAs . Usually, the frequency is yearly, but in few cases this period could change.

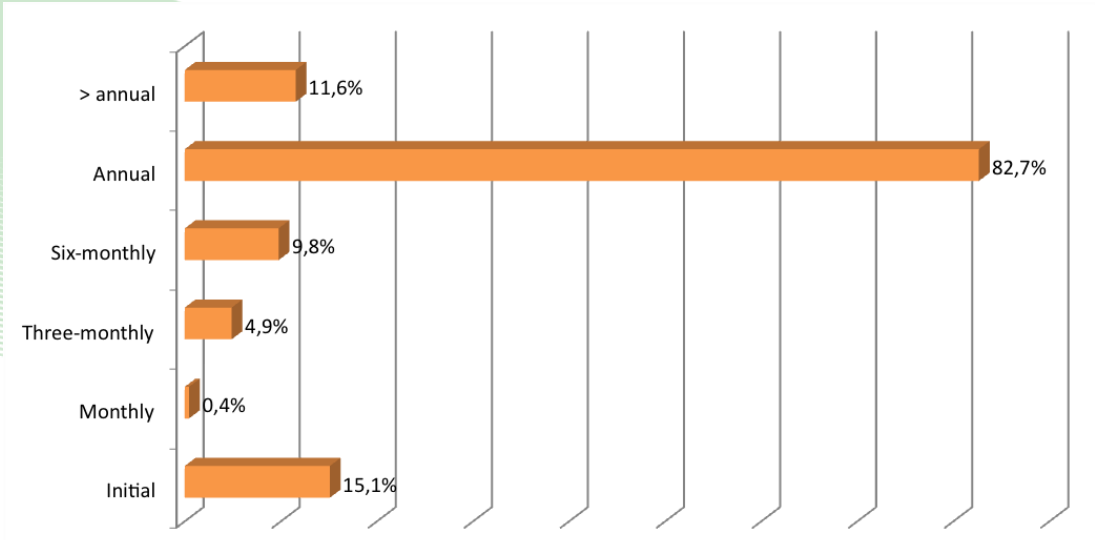

Figure 16 Frequency requested to the installation to send periodical Communications about results of the Monitoring Plan to the Competent Authority (aggregate data)

Periodical communication to the Competent Authority								
		Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Result of monitoring activities	Initial	100%	0	0	0	2,53%	0	0
	Monthly	0	0	0	0	0	12,5%	0
	Three-monthly	0	0	0	0	13,92%	0	0
	Six-monthly	0	0	0	25%	17,72%	62,5%	2,13%
	Annual	100%	100%	100%	100%	70,89%	25%	78,72%
	> annual	0	0	0	0	2,53%	0	0

Table 60 Frequency requested to the installation to send periodical Communications about results of the Monitoring Plan to the Competent Authority (disaggregate data for regions)

These reports are used by the CAs to verify the results of the monitoring activities but also to update the inventory of emissions. Only in Italian regions these reports are more frequent than one year

2.4.2.15 The number of pages of the several permits analysed

In this last paragraph we report about the number of pages of the several permits analysed. Naturally it is only an indication of the approach carried out by the Competent Authorities in the permitting procedure. Some of them issue the Authorisations including only requirement and conditions. Others deliver a document with a more descriptive approach and so with a higher number of pages.

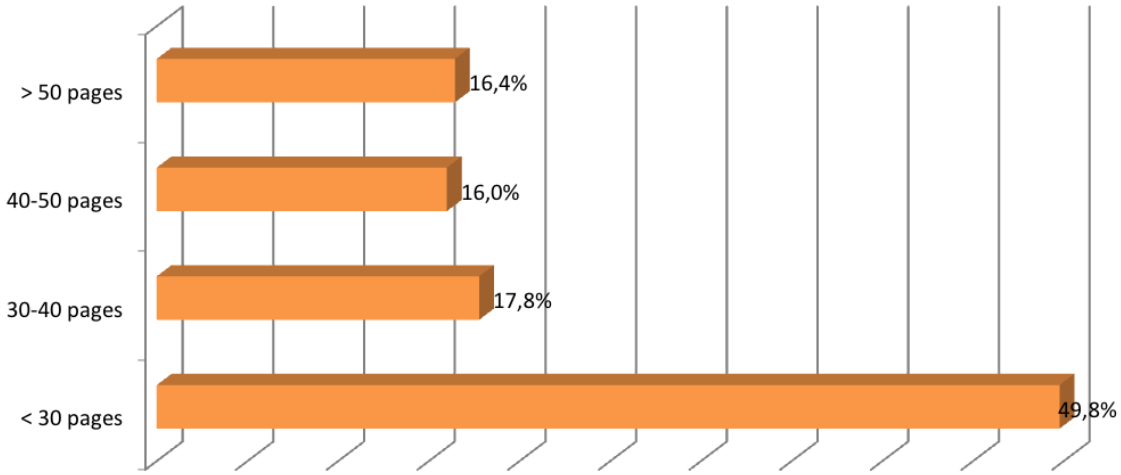

Figure 17 Number of pages of analyzed permits (aggregate data)

In about an half cases the permits contain less than 30 pages. The rest of permits are almost equally subdivided in the other three classes.

In the following table we outline the results for each region.

The number of pages of the several permits analyzed							
	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
< 30 pages	25%	100%	29,2%	62,5%	49,4%	12,5%	53,2%
30-40 pages	18,8%	0	16,7%	12,5%	20,2%	25%	23,4%
40-50 pages	15,6%	0	29,1%	25%	18,0%	0	14,9%
> 50 pages	40,6%	0	25%	0	11,4%	62,5%	8,5%

Table 61 Number of pages of analyzed permits (disaggregate data for regions)

Valencia is the region that adopt a synthetic approach. Every permits contain less than 30 pages. The CAs from Sicily and Andalusia issue many Authorisations with more than 50 pages. In Slovenia we could observe a high variability while in West Macedonia no one permits have more than 50 pages.

In the following table we can observe the same info from a sectoral point of view.

The number of pages of several permits analyzed					
	Combustion plants (1.1)	Ceramics (3.5)	Landfills (5.4)	Surface treatment of metals and plastic materials (2.6)	Paper production (6.1)
< 30 pages	41,3%	66,67%	38,71%	65,38%	35,71%
30-40 pages	21,74%	11,11%	19,35%	7,69%	32,14%
40-50 pages	21,74%	12,7%	11,29%	11,54%	28,57%
> 50 pages	15,22%	9,52%	30,65%	15,38%	3,57%

Table 62 Number of pages of analyzed permits (disaggregate data for sectors)

The IPPC sector 5.4 (Landfills) have the highest percentage of permits with more than 50 pages. It could be justified because some CAs include in the permit the condition to manage the plant in both situation, operative and post operative (after the closure of Landfill). Surface treatment and Ceramics are the sectors with the highest percentage of permits with less than 30 pages.

2.5 Enterprise side analysis

2.5.1. Introduction

The "*Enterprise-side analysis*" aims at identifying the effects of the Directive upon the installations subjected to the IPPC Directive itself. In this section, a sample of maximum 7 enterprises for each IPPC sector of the project for each region involved, has been collected. The data have been collected by way of anonymous questionnaires.

Since the project did not specify the modality to collect the questionnaires, these latter have been obtained through mail and telephone surveys, direct contact with enterprises, and collaboration with industrial associations.

The questionnaire template is available on MED IPPC NET web site (www.medippcnet.eu), as the results obtained in each region.

The collected information regards, for example, the data of the investments that the firm carried out to comply with the permit requirements, a judgment about the level of compliance with the permit requirements that the installation achieved thanks to the investments carried out, the main difficulties that the firms encountered in the procedure to be granted permits, the trend of the firm's environmental performance following the implementation of permit requirements.

A statistical appendix is available at the end of the document. The appendix contains all data collected by all partners through these questionnaires. The number of answers collected in some cases could not correspond to the total of enterprises of the sample: this because in some cases not all enterprises replied to the question or because in some cases an enterprise gave more than one reply to the same question.

The results are represented according to aggregate and disaggregate data. In the first case, the results obtained by all regions are summed and considered as total. In the second case can be two possibilities:

1. In the case where the replies to questionnaires are divided by sectors (it is the case of questions n. 1, 3, 5 of the questionnaire), two types of disaggregate data are represented:

    a) Disaggregate data by sectors.
    b) Disaggregate data by regions.

2. In the case where the replies are not divided by sectors (it is the case of questions n. 2, 4, 6 and 7 of the questionnaire) disaggregate data are referred to regions.

2.5.2 Results

The number of enterprises interviewed in the seven regions, for each IPPC sector of the project, is outlined in the table 63.

It is important remember that sectors selected for the project are:

- *1.1: Combustion installations with a rated thermal input exceeding 50 MW;*
- *3.5: Installations for the manufacture of ceramic products;*
- *5.4: Landfills receiving more than 10 tons per day or with a total capacity exceeding 25.000 tonnes;*

The last sector has been selected by the regions between:

- *2.6: Installations for surface treatment of metals and plastic materials;*
- *6.1: Industrial plants for the production of pulp from timber or other fibrous materials and paper and board with a production capacity exceeding 20 tonnes per day.*

Piedmont and Tuscany selected within the Content of Authorisations Analysis, the sector 6.1 related to the paper production, while the other regions selected the sector 2.6 related to surface treatment of plastic and metals.

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany	Total
1.1	7	4	4	6	8	1	3	**33**
2.6	6	7	7	2	-	1	-	**23**
3.5	6	7	6	0	6	0	7	**32**
5.4	7	7	4	0	5	5	7	**35**
6.1	-	-	-	-	2	-	7	**9**
Anonymous/ unclassifiable	0	0	0	0	5	0	0	**5**
Total	**26**	**25**	**21**	**8**	**26**	**7**	**24**	**137**

Table 63 Sample of questionnaires collected.

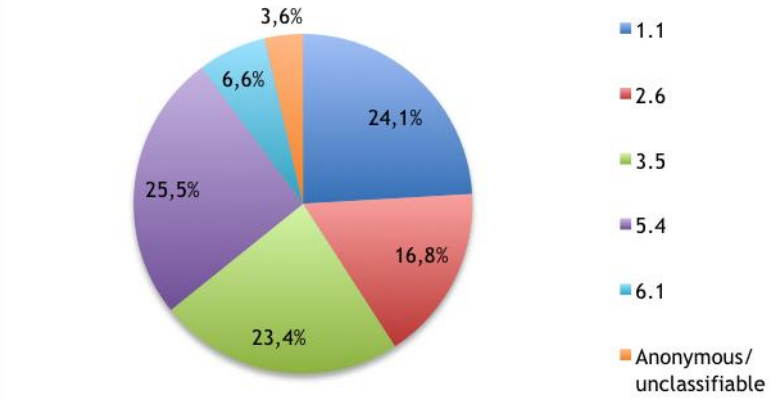

Figure 18 Sample of questionnaires collected by sectors - Aggregate data.

As showed in the figure 18, the project sector where partners have collected more questionnaires is the 5.4 (landfills), representing 25,5% of the whole sample. Sector 1.1 (combustion plants) follows along with a 24,1% of questionnaires, followed by sector 3.5 -ceramics- with a 23,4% of questionnaires, then by sector 2.6 - surface treatment of metals and plastic materials, and finally by sector 6.1 -paper- that collected the lower number of questionnaires (6,6%). For part of these questionnaires it is not possible identify the IPPC sector: therefore we have called it anonymous/not classifiable.

The total number of sample questionnaires is 137.

Additionally, figure 19 represents the number of collected questionnaires with a division by sectors and by regions.

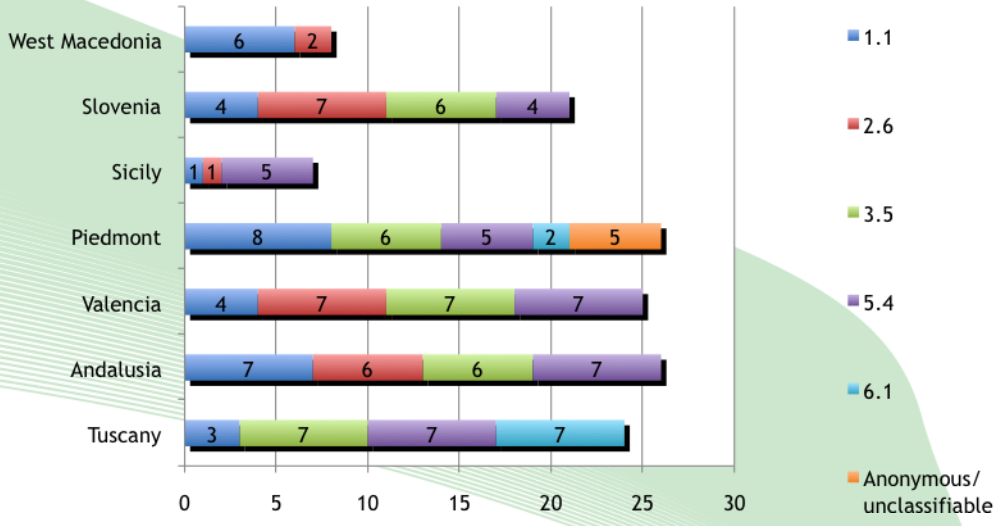

Figure 19 Sample of questionnaires collected by sectors and region - Disaggregate data.

As showed in figure 19, the Region of Andalusia has collected a total of 26 questionnaires, equally as Piedmont.

In Andalusia the number of questionnaires collected in sectors 1.1 and 5.4 is the same (7), as well as in the sectors 2.6 and 3.5 (6).

In the sector 1.1, the Region of Valencia has collected the lower number of questionnaires (4), while in the other three sectors the questionnaires collected are the same (7); amounting to 25.

Also in Tuscany, as in Valencia, sector 1.1 has the lower number of questionnaires (3), while for the other three sectors 7 are the questionnaires collected; for a total of 24.

In Piedmont the total number of questionnaires collected is 26, so subdivided: 8 for sector 1.1, 6 for sector 3.5, 5 for sector 5.4, 2 for sector 6.1 and 5 for the not classifiable sector.

Sicily has collected 1 questionnaire for sector 1.1 and 1 for sector 2.6. Any one questionnaire has been collected for sector 3.5, and 5 for sector 5.4.

The sector in which the Region of Slovenia has collected the majority of questionnaires is 2.6 (7), followed by sector 3.5 (6) at equal level with sectors 1.1 and 5.4 (2 questionnaires each). In total, Slovenia has collected 21 questionnaires.

The Region of West Macedonia collected a total of 8 questionnaires: 6 about sector 1.1 and 2 about sector 2.6.

2.5.2.1 Field where the company carried out the financial/economic investments to comply with IEA requirements

The fields in which enterprises carried out financial/economic investments in order to comply with permit requirements, are indicated in the figures below (figure 20 –aggregate data-; table 64 –disaggregate data by regions; table 65 disaggregate data by IPPC sector-).

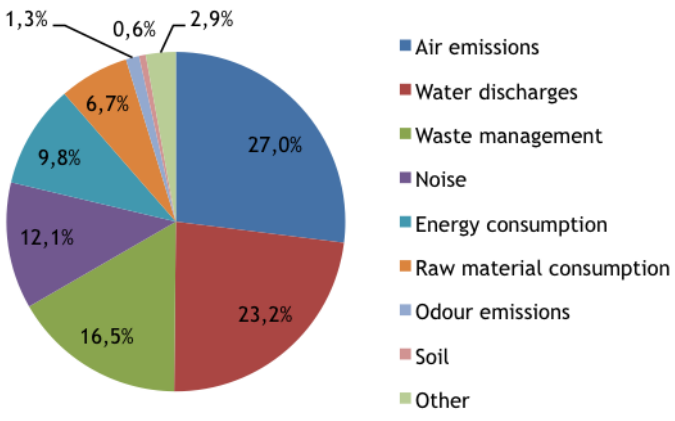

Figure 20 Fields of financial/economic investments carried out by enterprises to comply with IEA requirements - Aggregate data

The field in which the majority of enterprises have carried out investments in order to comply with IEA requirements is that of air emissions (27% of total collected answers), followed by field of water discharges (23,2%), waste management (16,5%), noise (12,1%), energy consumption (9,8%), raw material consumption (6,7%). The 2,9% of collected answers refers to investments about the field classified as "other". To this latter belongs –for example- water picked up and other aspects not classifiable in the previous ones.

A minor part of investments have been carried out in the field of odour emissions (1,3% of total collected answers) and soil (0,6%).

Results obtained by each region are indicated in the following table.

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Air emissions	25,0%	23,9%	29,3%	30,8%	29,5%	25,0%	29,7%
Water discharges	23,8%	20,9%	29,3%	7,7%	23,0%	33,3%	21,6%
Waste management	19,0%	17,9%	12,2%	7,7%	9,8%	33,3%	21,6%
Noise	13,1%	17,9%	7,3%	0	13,1%	0	10,8%
Energy consumption	8,3%	9,0%	9,8%	30,8%	14,8%	0	2,7%
Raw material consumption	8,3%	7,5%	9,8%	0	6,6%	0	2,7%
Odour emissions	0	1,5%	0	0	0	0	8,1%
Soil	0	1,5%	0	0	0	8,3%	0
Other	2,4%	0	2,4%	23,8%	3,3%	0,0%	2,7%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 64 Fields of financial/economic investments carried out by enterprises to comply with IEA requirements - disaggregate data for regions.

In most of regions – Andalusia, Valencia, Slovenia, West Macedonia, Piedmont, Tuscany- the main field where enterprises declared to carry out financial/economic investments in order to comply with IEA requirements is that of air emissions.

To this end we may presume that the enterprises interviewed had in these fields technological and managerial possibilities to improve.

In West Macedonia additionally to the field of air emissions that of energy consumption obtained financial/economic investments by many enterprises, too. This region is the unique one with an high percentage of answers belonging to the energy field: it could depend by the fact that this latter is highly linked with savings and that already before complying with IEA requirements, firms perceived this aspect as one in which to invest immediately in order to obtain savings.

In Sicily, the main sectors where enterprises carried out investments are water discharges and waste management (with a percentage of 33,3% each), followed by

air emissions field (25%) and soil (8,3%). In the other fields there have not been investments carried out by any enterprise.

The analysis of fields where investments have been carried out according to the enterprises, can be also examined for each IPPC sector (Tab. 65).

	1.1	2.6	3.5	5.4	6.1
Air emissions	27,9%	26,2%	29,5%	25,8%	21,4%
Water discharges	20,9%	31,1%	19,2%	22,6%	25,0%
Waste management	10,5%	16,4%	14,1%	29,0%	14,3%
Noise	14,0%	9,8%	14,1%	6,5%	17,9%
Energy consumption	11,6%	8,2%	14,1%	4,8%	7,1%
Raw material consumption	7,0%	8,2%	6,4%	3,2%	10,7%
Odour emissions	0	0	0	6,5%	0
Soil	2,3%	0	0	0	0
Other	5,8%	0	2,6%	1,6%	3,6%
Total	100%	100%	100%	100%	100%

Table 65 Fields of financial/economic investments carried out by enterprises to comply with IEA requirements - disaggregate data by sectors.

Additionally to air emissions also water discharges is a field in which many enterprises declared to carried out investments (see table 64).

In the table 65 it is evident the high percentage of answers belonging to this field of the IPPC sector 2.6. Only the enterprises of the landfill sector carried out investments in odour emissions field, but taking into account the type of activity according to the results expected. Although also in the others IPPC sectors investments in odour emissions could be carried out, since in this environmental field there are not emission limit values established by law, it is likely that investments are not considered a priority as those in the fields of air emissions and water discharges. For these last ones in fact, the investments realized could enable the firm to become comply with emission limits imposed by law.

In table 66 are outlined some investments - by enterprises- carried out in order to comply with IEA requirements.

Environmental aspect	Investments	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Waste	Storage area of waste	X	X					X
	Biodegradable waste				X			
	Pre-treatment of waste		X				X	

Environmental aspect	Investments	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Noise	Interventions to reduce noise emissions (e.g. soundproofing interventions)	X	X	X		X		X
	Investment related to noise emissions levels improvement	X						
Water	System for water collection (e.g. rainwater collection and treatment)	X	X	X			X	X
	Control/decrease of discharges	X	X	X		X		
	Discharges monitoring/recording	X						
	Closing of water cycle of activity		X					X
	Purification system	X	X	X		X		
Air emissions	Control of air emissions (e.g. abatement emissions)	X	X	X	X	X		X
	Biogas/leachete capture						X	
	Adjustment of emission sources	X						
	Continuous monitoring system	X	X	X		X		X
Energy	Improvement of consumption measurement system/pretreating system				X			

Environmental aspect	Investments	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
	Automatic system for sampling of fuels				X			
Environmental management system	System for data collection		X		X		X	
	Implementation of Environmental Management System (e.g. EMAS)		X	X				
	Improvement of management system						X	X
	Modification of technologies and/or method modernisation		X	X	X	X		

Table 66 Main investments carried out.

2.5.2.2 Thanks to the investments has the installation achieved the fully compliance with IEA relevant requirements?

The aggregate data about the question above regarding the compliance of the installation with the IEA requirements -obtained thanks to investments carried out- are indicated in the figure 21.

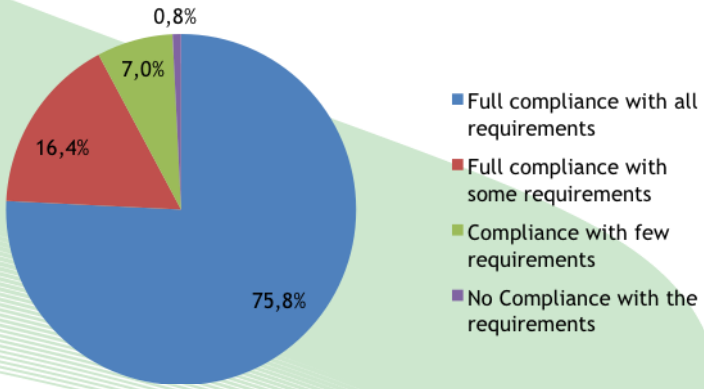

Figure 21 Installation compliance with IEA relevant requirements thanks to investments - Aggregate data.

Most of enterprises (75,8% of the total collected answers) stated that thanks to the investments carried out, the installation has obtained the full compliance with all IEA requirements.

The full compliance with some requirements has been obtained by a less number of enterprises (16,4% of collected answers).

7% of collected answers belong to the modality "compliance with few requirements", while only the 0,8% regards no compliance with IEA requirements.

As regards disaggregate analysis by region, the division of the four possible replies is showed in the table 67.

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Full compliance with all requirements	76,0%	59,1%	83,3%	12,5%	88,0%	100%	87,0%
Full compliance with some requirements	24,0%	36,4%	5,6%	25,0%	12,0%	0	4,3%
Compliance with few requirements	0	4,5%	5,6%	62,5%	0	0	8,7%
No Compliance with the requirements	0	0	5,6%	0	0	0	0
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 67 Installation compliance with IEA relevant requirements thanks to investments - disaggregate data.

In the Region of Andalusia 76% of enterprises replying stated their full compliance with all requirements of the IEA thanks to the investments realized, while the remaining part (24%) stated compliance with some requirements.

In Valencia a smaller number of enterprises achieved the full compliance with all requirements (59,1% of total collected answers). 36,4% of answers belongs to modality compliance with some requirements and 4,5% refers to compliance with a few ones.

In Slovenia most of enterprises achieved the full compliance with all requirements (more than 83% of total answers). The remaining part of collected answers is divided in equal parts in the other three modalities.

In West Macedonia most of enterprises stated the compliance with few requirements (62,5% of total answers), 25% of answers refers to compliance with some requirements, while only 12,5% is about the full compliance with all requirements.

In Piedmont the 88% of collected answers is concentrated in the modality full compliance with all requirements and 12% attains to compliance with some ones.
In Sicily all enterprises have obtained full compliance with all requirements.

In the Region of Tuscany, most of enterprises stated full compliance (87% of total collected answers), 8,7% of answers regards the compliance with only few requirements, while 4,3% to compliance with some requirements.

The answers of regions could have been falsified and altered by the hesitation to declare the no compliance with IEA requirements even if the questionnaires were anonymous.

2.5.2.3 Did the implementation of the IEA require an improvement in the organizational structure (e.g. more precise definition of roles and responsibilities)?

As regards the type of improvement of the organizational structure requested by the IEA implementation, in the questionnaire there are four possible replies.

The aggregate data obtained are showed in figure 22.

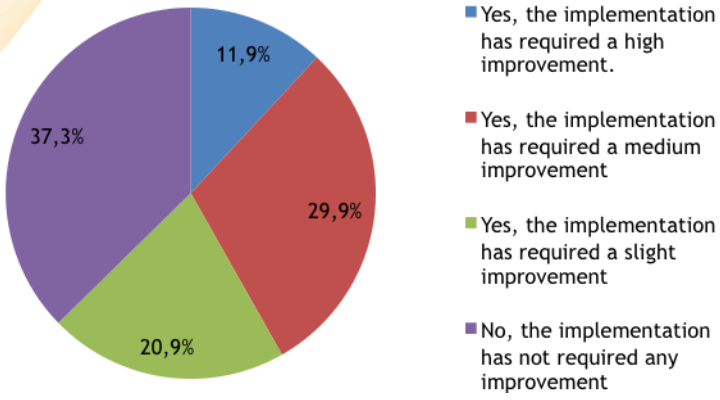

Figure 22 Did the implementation of the IEA require an improvement in the organizational structure? - Aggregate data.

Most of enterprises affirmed that the implementation of IEA did not require any improvement in the organizational structure (37,3% of total collected answers).

The implementation of IEA has requested a medium improvement in many cases (29,9% of collected answers), while a slight improvement in the organizational structure has been requested in the 20,9% of cases.

Finally, the request of an high degree of improvement, regards only a low number of enterprises (11,9% of collected answers).

The analysis of the disaggregate answers obtained in each regions is indicated in the table 68.

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Yes, the implementation required a high improvement.	11,5%	13,0%	20,0%	0	3,8%	0	20,8%
Yes, the implementation required a medium improvement	30,8%	8,7%	40,0%	12,5%	34,6%	42,9%	37,5%
Yes, the implementation required a slight improvement	19,2%	21,7%	5,0%	62,5%	23,1%	28,6%	16,7%
No, the implementation did not require any improvement	38,5%	56,5%	35,0%	25,0%	38,5%	28,6%	25,0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 68 Did the implementation of the IEA require an improvement in the organizational structure? - disaggregate data by regions.

In Andalusia most of enterprises (38,5% of total answers) stated that the implementation of IEA did not require any improvement in the organizational structure.

30,8% of collected answers show that the IEA implementation required a medium improvement, while a slight improvement has been necessary in 19,2% of cases.

The implementation of IEA has required a high improvement only in the 11,5% of cases.

In Valencia, for most of enterprises the implementation of IEA did not require any improvement (more than 56,5% of the collected answers). A slight improvement has been necessary in 21,7% of cases; a high improvement for 13% of answers, while a medium improvement for 8,7% one.

In West Macedonia, most of enterprises (62,5% of total answers) affirmed that the implementation of IEA has requested a slight improvement. For only 12,5% of total answers the improvement requested has been medium, while for any enterprise the improvement has been high. Part of enterprises stated also that the implementation of IEA did not require any improvement (25% of total answers).

In the Region of Tuscany, for most of interviewed enterprises (37,5% of total answers) the implementation of IEA has requested a medium improvement.

Any improvement has been necessary for 25% of enterprises replying, while for 20,8% a high improvement has been necessary and for 16,7% was necessary a slight one.

In Piedmont, as in the case of the Regions of Andalusia and Valencia, the most of enterprises replying (38,5% of total collected answers) affirmed that, for the implementation of IEA, no particular improvement has been necessary.

A medium improvement in the organizational structure has been necessary in 34,6% of cases, while a slight improvement has been necessary in about 23,1%, and a high improvement only in the 3,8% of cases.

In Sicily, as in Tuscany, most of enterprises (about 43% of total answers) stated that a medium improvement in the organizational structure has been requested. A slight improvement has been necessary in 28,6% of cases. In 28,6% of enterprises no improvement was necessary. In the implementation of IEA no enterprises have required a high improvement in the organizational structure.

Also in Slovenia, as in Tuscany and Sicily, for most of enterprises (40% of total answers) the implementation of IEA has requested a medium improvement in the organizational structure, while for 35% no improvement has been necessary.
A fewer number of enterprises affirmed that a high improvement has been necessary (20% of total answers). A lower part of enterprises stated that the implementation of IEA has required a slight improvement (5%).

The analysis of the improvement typology in the organizational structure, requested by the implementation of IEA, can be also carried out by taking into account IPPC sectors (figure 23).

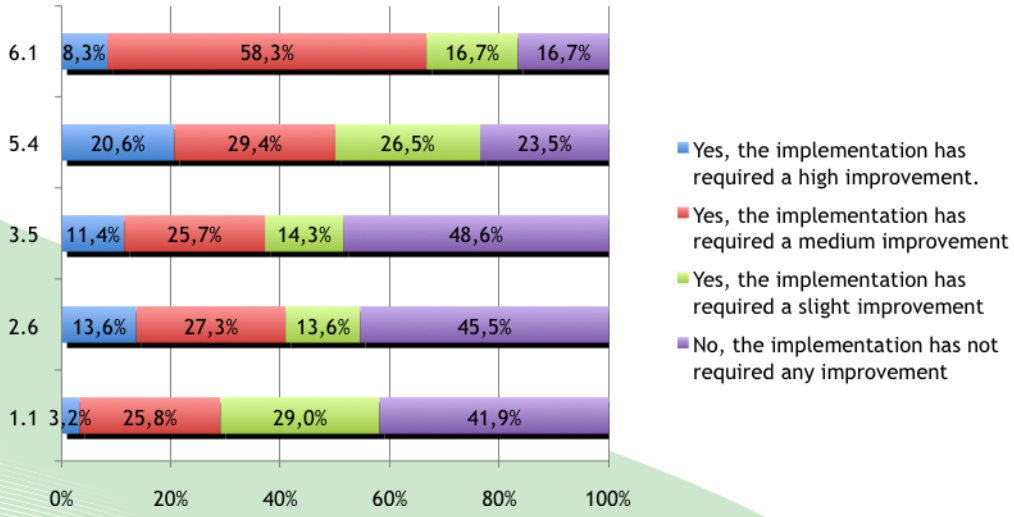

Figure 23 Did the implementation of the IEA require an improvement in the organizational structure? - disaggregate data by sectors.

As regards sector 1.1, most of enterprises belonging to it (41,9% of total answers), stated that any improvement in the organizational structure has been necessary for the implementation of IEA, while a medium improvement has been requested in 25,8% of cases. The improvement was high only for 3,2% of the enterprises involved, while 29% one affirmed that a slight improvement has been necessary.

Additionally, most of enterprises belonging to sector 2.6 (45,5% of total answers) stated that no improvement of the organizational structure has been necessary for the IEA implementation. A medium improvement has been required in 27,3% of cases, while for 13,6% of total answers the improvement has been slight and for another 13,6% has been high.

As in the previous two sectors also for 3.5, most of enterprises (48,6% of total answers) affirmed that any improvement in the organizational structure has been necessary. The improvement has been medium in the 25,7% of cases, while for 14,3% has been slight, and for 11,4% high.

Unlike sectors 1.1, 2.6 and 3.5, for most enterprises belonging to sector 5.4 (29,4% of total answers), a medium improvement has been necessary in the organizational structure for the IEA implementation. A slight improvement has been necessary in 26,5% of cases, while a high one for about 20%. No improvement has been necessary for 23,5% of the total enterprises involved.

Finally, in the case of sector 6.1, as for sector 5.4, most of enterprises (more than 58% of total answers) confirmed that a medium improvement has been necessary. In 16,7% of answers the improvement has been slight and for the same percentage no improvement has been requested. A high improvement has been necessary only in 8,3% of cases.

As regards the type of improvements in the organizational structure that regions identified through questionnaires, we quote some of them:

- Identification of specific responsibilities and professionalism. More clear definition of roles within companies;
- Training activities for company's personnel;
- Implementation of environmental management system (e.g. EMAS, ISO 14001);
- Communication and cooperation improvements.

2.5.2.4 Main difficulties encountered by companies in the procedure of obtaining of the IEA

The main difficulties declared by enterprises in the procedure for being granted the IEA are showed in figure 24.

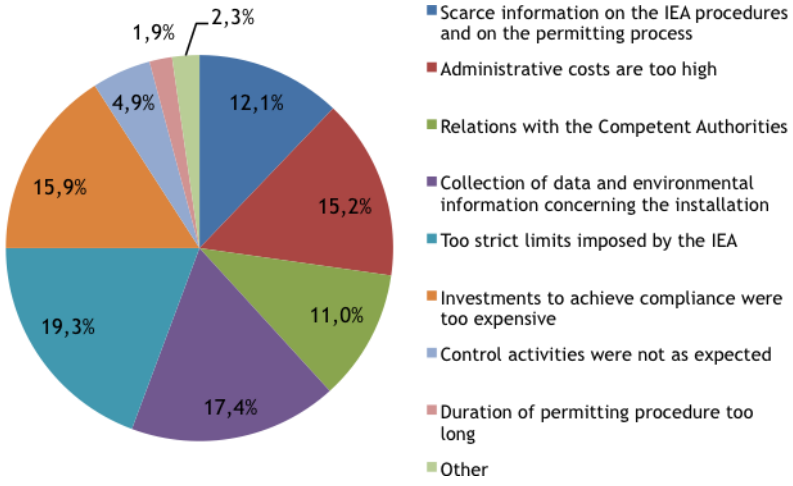

Figure 24 Main difficulties encountered by companies in the procedure of obtaining the IEA - Aggregate data.

The difficulty encountered by most of enterprises is represented by too strict limits imposed by the permit (19,3% of total collected answers).

This percentage in part contradicts what said in other Report sections about the flexibility principle (see the Administrative Analysis chapter), since about this aspect in fact most of regions declared to apply limits provided by law. Nevertheless, it is possible that firms considered also requirements and not only the permits.

If "administrative costs too high" and "investments to achieve compliance were too expensive" are considered together, the economic aspect reaches the highest percentage (31,1% of total answers) and it could be considered as a main difficulty perceived by enterprises that are often very sensible to the economic aspects of bureaucracy.

Besides, the collection of data and the environmental information concerning the installation is a difficulty perceived by many enterprises (17,4% of total collected answers).

Subsequently, there are difficulties about investments being too expensive to achieve compliance (15,9%), administrative costs too high (15,2% of total collected answers), scarce information about IEA procedures and on the permitting process (12,1%), and relations with Competent Authorities (11%).

In fewer cases difficulties are represented by control activities that were not as expected (4,9% of total collected answers), other difficulties with a percentage of 2,3% (e.g. evaluation criteria are too vague and changing), duration of permitting procedure too long (1,9%).

In the table 69 we outline the main difficulties encountered by companies in each region involved in the project.

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Scarce information on the IEA procedures and on the permitting process	10,1%	8,2%	19,5%	11,1%	10,0%	21,4%	11,9%
Administrative costs are too high	15,9%	22,4%	7,3%	0	15,0%	21,4%	14,3%
Relations with the Competent Authorities	4,3%	12,2%	4,9%	44,4%	2,5%	14,3%	26,2%
Collection of data and environmental information concerning the installation	7,2%	18,4%	31,7%	0	30,0%	0	16,7%
Too strict limits imposed by the IEA	31,9%	18,4%	14,6%	11,1%	7,5%	14,3%	19,0%
Investments to achieve compliance were too expensive	20,3%	10,2%	17,1%	33,3%	22,5%	14,3%	4,8%
Control activities were not as expected	4,3%	2,0%	2,4%	0	12,5%	7,1%	4,8%
Duration of permitting procedure too long	0	6,1%	0	0	0	7,1%	2,4%
Other	5,8%	2,0%	2,4%	0	0	0	0
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 69 Main difficulties encountered by companies in the procedure of obtaining the IEA - Disaggregate data.

In Andalusia the main difficulty for enterprises in the procedure of being granted IEA, consists in too strict limits imposed by the permit.

In Valencia, the main difficulty encountered by companies is represented by administrative costs too high (22,4% of total collected answers), even when the companies do not have to pay to the Competent Authority for the administrative procedure. Then there are those represented by collection of data and environmental information concerning the installation (18,4%), and too strict limits imposed by IEA (with the same percentage of the latter).

In Slovenia, collection of data and environmental information concerning the installation is a difficulty for most of enterprises (31,7% of total collected answers), followed by scarce information on the IEA procedures and on the permitting procedures (19,5%).

In West Macedonia one of the main difficulties encountered by companies is represented by their relations with Competent Authorities. This latter could be caused by the fact that in this region is the Ministry that issues permits, and this Authority could be less achievable by enterprises when requiring clarifications or collaboration. For this reason maybe the relations are more complex and tangled.

In Piedmont, as in Slovenia, the collection data and the environmental information concerning installation is the difficulty that concerns most of enterprises (30% of total collected answers).

In Sicily the scarce information on the IEA procedures and on the permitting process is one of the main difficulty declared by enterprises; probably the latter is attributable to the IEA system initial delay.

In the case of the Region of Tuscany, the main difficulty for enterprises consists in their relations with the Competent Authorities (more than 26% of total answers collected); followed by too strict limits imposed by IEA (19%).

2.5.2.5 What kind of effects did the costs to adapt the requirements of IEA produce on the competitiveness of the company?

This part of the Analysis aim to investigate the variety of effects that the costs to adapt to requirements of IEA produced on the company's competitiveness. Moreover, also the Content of Authorisations Analysis has the purpose to understand how different limits and requirements can weigh upon the firm and its competitiveness.

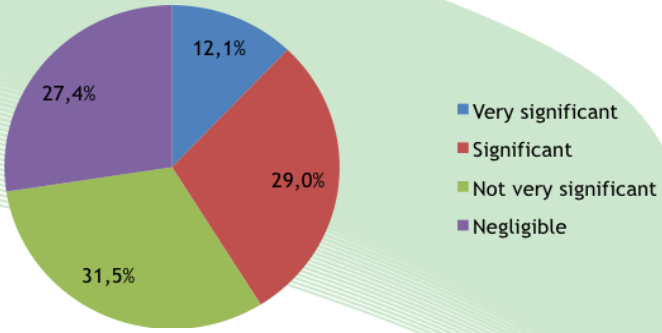

Figure 25 What kind of effects did the costs to adapt the requirements of IEA produce on the competitiveness of the company? - Aggregate data-.

The majority of enterprises in all regions, stated that the costs to adapt to the requirements of IEA produced not very significant effects on the competitiveness of the company (31,5% of total collected answers).

Significant effects have been produced for an important part of enterprises (29% of total collected answers); while negligible ones for 27,4% of them.
Very significant effects have been produced for fewer enterprises (12,1% of total collected answers).

The kind of effects obtained by company's competitiveness can be also analyzed taking into account each region (table 70).

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Very significant	7,7%	0	5,6%	62,5%	9,5%	14,3%	16,7%
Significant	46,2%	10,0%	44,4%	12,5%	28,6%	28,6%	20,8%
Not very significant	34,6%	15,0%	33,3%	25,0%	33,3%	42,9%	37,5%
Negligible	11,5%	75,0%	16,7%	0	28,6%	14,3%	25,0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 70 What kind of effects did the costs to adapt the requirements of IEA produce on the competitiveness of the company? - Disaggregate data by regions-.

In Andalusia, most of enterprises (more than 46% of total collected answers) stated that the costs to adapt the requirements of IEA, produced significant effects on the competitiveness of the company. Another group of enterprises affirmed that these costs produced not very significant effects (34,6% of total answers), while negligible effects have been produced in 11,5% of cases. Very significant effects have been produced in a fewer number of enterprises (7,7% of total answers).

In Valencia, the situation is completely different from that of Andalusia. In fact most of enterprises (75% of total answers) affirmed that these costs have produced negligible effects on the competitiveness of the company. A minor group (15% of total answers) refers to not very significant effects, and 10% to significant ones. No enterprise affirmed that the costs have produced very significant effects on the competitiveness.

In Slovenia, most of enterprises (more than 44,4% of total collected answers) affirmed that the costs to adapt to IEA requirements produced significant effects on the competitiveness of the company; while very significant effects have been produced in fewer cases (5,6%). For an important group of enterprises the effects have been not very significant (more than 33% of total answers), while 16,7% of cases are negligible.

In West Macedonia, most of enterprises (62,5% of total collected answers) stated that the costs to adapt to the requirements of IEA, produced very significant effects on the competitiveness of the company. The effects have been significant in 12,5% of cases and not very significant in 25% of them.

In Piedmont, most of enterprises (33,3% of total collected answers) affirmed that costs to adapt to IEA requirements have produced not very significant effects on the competitiveness of the company. The modalities about negligible and significant effects have collected 28,6% of answers each. Costs produced very significant effects in fewer cases (9,5% of total answers).

In Sicily, the majority of enterprises (about 43% of total answers) the costs to adapt to the requirements of IEA produced not very significant effects on the competitiveness of the company. Significant effects have been produced in 28,6% of cases, while very significant effects in 14,3%, as also in the negligible one.

In Tuscany, most of enterprises (37,5% of total answers) obtained not very significant effects on their competitiveness; while 25% of answers can be included in the modality "negligible" effects. Significant and very significant effects have occurred in fewer cases (20,8% and 16,7% of total answers).

Figure 26 shows the importance of the effects on the competitiveness of companies, produced by the costs to adapt to IEA requirements, within each IPPC sectors.

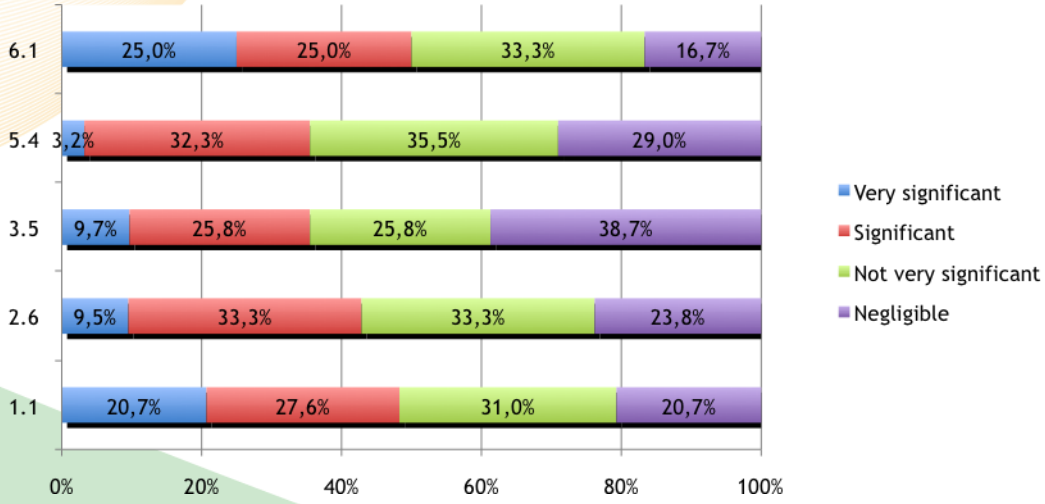

Figure 26 What kind of effects did the costs to adapt to the requirements of IEA produce on the competitiveness of the company? - Disaggregate data by sectors-.

For most of enterprises belonging to sector of activity 1.1, the costs to adapt to IEA requirements have produced not very significant effects on their competitiveness (31% of total collected answers), followed by significant effects (27,6%), and by negligible and very significant effects (20,7% of total answers each).

As regards enterprises of sector 2.6, most of them obtained significant effects –produced by the costs to adapt to IEA requirements- and not very significant ones on the competitiveness (about 33,3% of total answers each), followed by negligible effects (23,8%) and finally very significant ones (more than 9,5%).

Most of enterprises (38,7% of total collected answers) of sector 3.5 stated that the costs to adapt to IEA requirements have produced negligible effects on the competitiveness of the company, while the effects are not very significant /and

significant for a percentage of 25,8% each. The effects produced are very significant only in 9,7% of cases.

In sector 5.4 most of enterprises (35,5% of total answers) obtained not very significant effects on the competitiveness of company, while a 32,3% obtained significant ones. Negligible effects have been obtained in a percentage of 29% of answers, while a fewer group of enterprises stated that the costs to adapt to IEA requirements produced very significant effects on the competitiveness of company (3,2% of total answers).

In sector 6.1 most of enterprises (more than 33% of total answers) obtained not very significant effects on the competitiveness. Very significant and significant effects have obtained 25% of total answers each. A fewer enterprises obtained negligible effects (16,7% of total answers).

The negative effects obtained by enterprises are indicated in figure 27 (aggregate data).

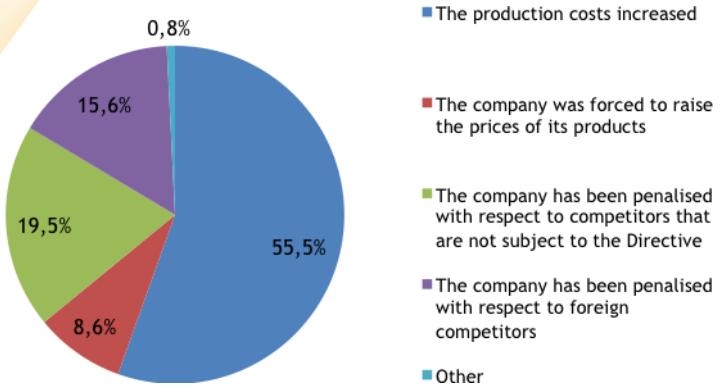

Figure 27 Negative effects -Aggregate data-.

The main negative effect produced by the costs to adapt to IEA requirements, is represented by the increase of production costs (55,5% of total collected answers); followed by the penalisation of company with respect to the competitors not subjected to the Directive (19,5%), and by the penalisation with respect to foreign competitors (15,6%). The negative effect consisting in an increase of product prices obtained 8,6% of the total answers.

Other negative effects have concerned companies (0,8% of total answers), e.g. the penalization of company with respect to domestic competitors not subjected to IPPC Directive.

It is possible to analyzed also the negative effects of enterprises taking into account each region (table 71).

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
The production costs increased	57,1%	72,7%	48,0%	70,0%	42,9%	71,4%	57,9%
The company was forced to raise the prices of its products	21,4%	0	12,0%	0	3,6%	14,3%	0
The company has been penalised with respect to competitors that are not subject to the Directive	17,9%	9,1%	24,0%	10,0%	25,0%	14,3%	21,1%
The company has been penalised with respect to foreign competitors	0	18,2%	16,0%	20,0%	28,6%	0	21,1%
Other	3,6%	0	0	0	0	0	0
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 71 Negative effects -Disaggregate data by regions-.

In all regions the main negative effect on the competitiveness of companies is the increase of production costs.

In Andalusia this latter obtained a percentage of 57,1% of the total collected answers. Furthermore, the second main negative effect is the fact that companies are forced to raise the prices of products (21,4%), followed by the penalization of companies with respect to competitors that are not subject to the Directive (about 18%), and by other negative effects (3,6% of total answers).

In Valencia, following the negative effect concerning the increase of production costs (72,7% of total answers), another important one for enterprises is represented by the company penalization with respect to foreign competitors (18,2%), followed by the penalization with respect to competitors that are not subject to the Directive (9,1%). In the case of Slovenia, the effect about the increase of production costs regards 48% of total answers. For many enterprises one negative effect is given by the company penalization with respect to competitors not subject to the Directive (24% of total answers); while the penalization with respect to foreign competitors concerns 16% of total answers. 12% of answers regards the fact that company was forced to raise prices of products.

In West Macedonia, the main negative effect for most enterprises is the increase of production costs (70% of total collected answers), followed by the company's penalisation with respect to foreign competitors (20%) and by the company's penalisation with respect to competitors that are not subject to the Directive (10%).

In Piedmont, subsequent to the main negative effect concerning the increase of production costs (about 43% of total answers), are those represented by the company penalization with respect to foreign competitors (28,6%), by the penalization with respect to competitors not subject to the Directive (25%) and finally by the fact that the company was obliged to increase prices of products (3,6%).

In Sicily the effect in the increase of production costs reached 71,4% of total answers. Moreover the company was also forced to raise prices of products (14,3% of total answers); the same percentage has been collected by the effect about the company penalization with respect to competitors not subject to the Directive.

In Tuscany, the effect of the increase in production costs reached 57,9% of total answers; followed by the company penalization with respect to competitors that are not subject to the Directive and with respect to foreign competitors (in both cases about 21% of total answers each).

	1.1	2.6	3.5	5.4	6.1
The production costs increased	82,1%	40,9%	44,7%	70,4%	23,1%
The company was obliged to raise the prices of its products	7,1%	9,1%	7,9%	14,8%	0
The company has been penalised with respect to competitors that are not subject to the Directive	3,6%	36,4%	21,1%	14,8%	30,8%
The company has been penalised with respect to foreign competitors	3,6%	13,6%	26,3%	0	46,2%
Other	3,6%	0	0	0	0
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Table 72 Negative effects -Disaggregate data by sectors-.

As regards the analysis of negative effects in each sector, this is clearly showed in table 72, that in all ones -excluded 6.1- outlines as main negative effects for enterprises the increase of production costs.

In sector 1.1 most enterprises perceived this latter effect (more than 82% of total answers), followed by the fact that companies were obliged to increase prices of products (7,1%). The other three negative effects reached the same percentages of answers (3,6% each).

In sector 2.6, following the main effect about the increase of production costs (40,9% of total answers), those about the company penalisation with respect to competitors not subject to Directive obtained 36,4% of total answers. The company's penalisation with respect to foreign competitors obtained 13,6% of answers, while a minor group of enterprises also identified the fact that companies are obliged to increase product prices (9,1% of total answers).

In sector 3.5 most enterprises perceived as main negative effect the increase of production costs (44,7% of total answers), followed by the company penalisation with respect to foreign competitors, with respect to competitors not subject to the Directive. The negative effect stressed by a lower number of enterprise is about the necessity to increase prices products (7,9% of total answers).

As regards to sector 5.4, following the main negative effect represented by the increase in productive costs (that collected over than 70% of total answers), less enterprises indicated also the penalisation of companies in respect to competitors that are not subject to the Directive and the increase of prices products.

Sector 6.1 is the single one in which most enterprises indicated as negative effect the company penalisation with respect to foreign competitors (more than 46% of total answers), followed by the penalisation with respect to competitors not subject to the Directive, and by the increase of production costs.

The positive effects produced by the adapting to IEA requirements, on the competitiveness of companies, are outlined in the figure 28 (aggregate data).

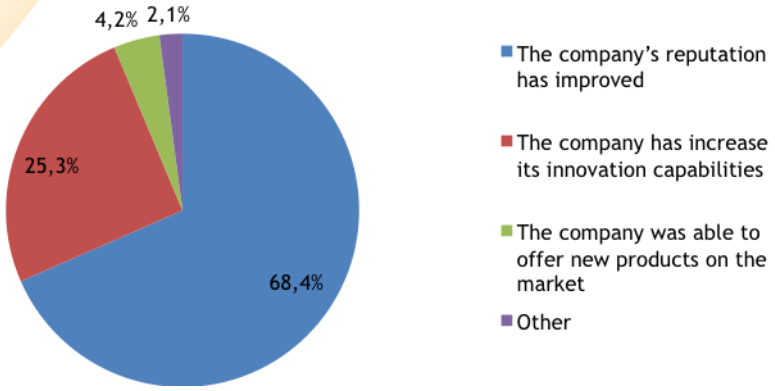

Figure 28 Positive effects -Aggregate data-.

Most enterprises stated that a positive effect is the improvement of company's reputation (68,4% of total collected answers). Maybe we may state that the reputation has improved towards those authorities whom have demonstrated a collaborative approach with enterprises on the permit issue.

The increase of innovation capabilities of companies is another positive effect on their degree of competitiveness (25,3% of total answers); probably this is due by the introduction and adoption of BAT.

The ability to offer new products on the market has reached 4,2% of total answers; while other positive effects have 2,1%. In this last percentage it is included security and healthiness and compliance with legal requirements.

The representation of positive effects taking into account regions, is outlined in the table 73.

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
The company's reputation has improved	72,0%	53,3%	76,2%	77,8%	81,8%	0,0%	63,6%
The company has increases its innovation capabilities	24,0%	33,3%	19,0%	11,1%	18,2%	66,7%	36,4%
The company was able to offer new products on the market	4,0%	0	4,8%	11,1%	0	33,3%	0
Other	0	13,3%	0	0	0	0	0
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 73 Positive effects -Disaggregate data by regions-.

In all regions, except Sicily, the main positive effect on the competitiveness achieved by enterprises is represented by the improvement of company's reputation.
In Andalusia, this latter has obtained 72% of total collected answers, followed by the effect about the increase in innovation capabilities (24%), and by the company's ability to offer new products on the market (4%).

As indicated above, also in Valencia the improvement of company's reputation is the main positive effect perceived by enterprises (53,3% of total answers). Then there are the increase in innovation capabilities (33,3%), and finally other positive effects (13,3%) as for example security, healthiness and compliance with legal requirements.

In Slovenia the situation is very similar to that in Andalusia. In fact, most of enterprises state as main positive effect, the improvement of reputation (more than 76% of total answers), followed by an increase of innovation capabilities (19%) and by the ability of enterprises to offer new products on the market (4,8%).

Also in West Macedonia for most enterprises the main positive effect is the improvement of company's reputation (77,8% of total answers). The effects represented by an increase of company's innovation capabilities and the ability to offer new products on the market reached 11,1% of answers each.

In Piedmont a large part of enterprises stated that the company reputation has improved (about 82% of total answers), while a minor group identified as positive effect the increase in innovation capabilities (about 18% of answers).

In Sicily the situation is completely different from other regions: most enterprises declared as positive effect the increase of innovation capabilities (about 67% of total answers), while the rest of answers (more than 33%) regards the effect represented by the ability of enterprises to offer new products on the market.

In Tuscany enterprises indicated only two typologies of positive effects: the improvement of company's reputation (63,6% of total answers) and the increase of innovation capabilities (36,4%).

The analysis of positive effects taking into account IPPC sectors, is outlined in the table 74.

	1.1	2.6	3.5	5.4	6.1
The company's reputation has improved	77,8%	63,2%	70,8%	55,0%	80,0%
The company has increase its innovation capabilities	14,8%	21,1%	25,0%	45,0%	20,0%
The company was able to offer new products on the market	0	10,5%	4,2%	0	0
Other	3,7%	5,3%	0	0	0
Total	**100%**	**100%**	**100%**	**100%**	**100%**

Table 74 Positive effects -Disaggregate data by sectors-.

In all IPPC sectors, the main positive effect of costs to adapt to IEA requirements produced on the competitiveness of enterprises is represented by the improvement of company's reputation.

Sector 6.1 is one with the highest percentage of answers belonging to this aspect (80% of total answers); while the remaining group (20%) are included in the effect about the increase of innovation capabilities of enterprises.

In sector 1.1 the percentage of answers referring to the increase of company's reputation is about 77,8%. In 14,8% of cases the positive effect is linked to the increase of innovation capabilities of enterprises, while for the 3,7% of them to other aspects.

In sector 2.6, the percentage of answers belonging to the effect caused by the improvement of company's reputation is higher than 63%. A group of enterprises indentified as a positive effect the increase of innovation capabilities (about 21% of total collected answers), while a minor group of them the ability of company to offer new products on the market (10,5% of total answers) or other positive effects (5,3%).

Moreover, most of enterprises belonging to activity 3.5, achieved as positive effect on competitiveness an improvement of reputation (about 71% of total answers collected). The effect about the increase of innovation capabilities has collected about the 25% of total answers, while the ability of companies to offer new products on the market reaches about 4% of them. The enterprises under activity 5.4 perceived only two typologies of positive effects: the improvement of company's reputation (55% of total answers) and the increase of company innovation capabilities (45%).

2.5.2.6 What was the trend of the company's environmental performance after the implementation of the IEA?

The trend of environmental performance of enterprises after the IEA implementation, is outlined in the following figures.

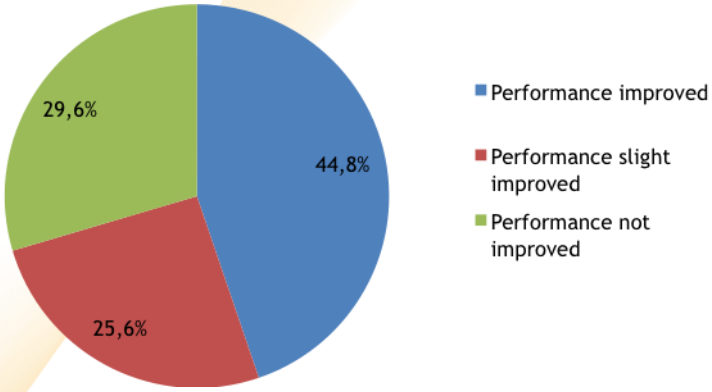

Figure 29 Trend of company's environmental performance after the IEA implementation -Aggregate data-.

For most of enterprises the environmental performance after the implementation of IEA has improved (44,8% of total answers). This result is very interesting because enterprises declared as the cost being the one of the main difficulties encountered in the procedure of IEA achievement (see question 2.5.2.4), and also they considered it as a negative effect -caused by adapting themselves to the IEA requirements- the production costs increase (see question 2.5.2.5). Nevertheless, enterprises consider the IEA an effective tool of environmental improvement.

If both percentages obtained by "performance improved" and "performance slight improved" are considered together, it is 70% the percentage of total collected answers that refer an improvement of the environmental performance after the IEA implementation.

For another group among them the performance did not improve (29,6% of answers), while for the least group it has slightly improved (25,6%).

The trend of environmental performance of enterprises could be also analysed with regard to each region (figure 30).

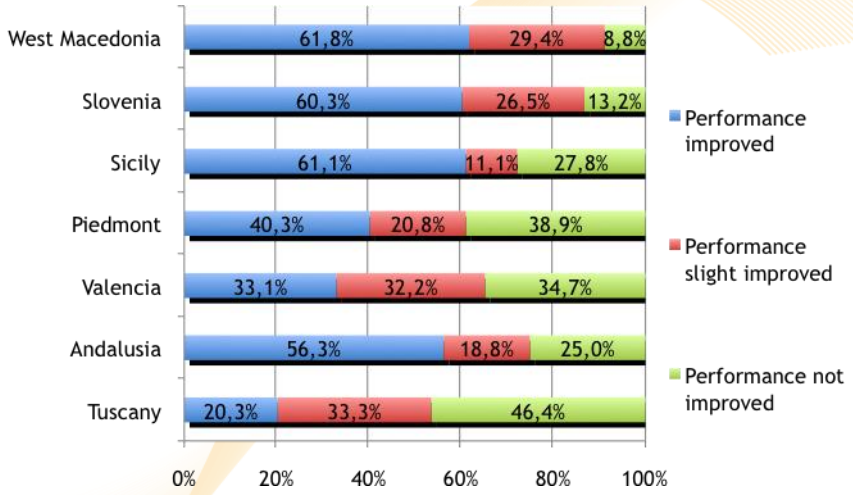

Figure 30 Trend of company's environmental performance after the IEA implementation - Disaggregate data-.

In Andalusia, Slovenia, West Macedonia, Piedmont and Sicily most enterprises stated that performance improved after IEA implementation; while in Tuscany and Valencia the majority affirmed that performance did not improve.

In particular, in Andalusia more than 56% of total answers is linked to the improvement of performance, 25% to no improvement at all and about 19% about a slight improvement. It is very interesting because in this region enterprises declared that limits are too strict (see question 2.5.2.4), but they also admit that environmental performances improved.

In Valencia most of enterprises did not achieve any performance improvement after IEA implementation (34,7% of total answers); few ones declared a slight improvement (more than 32% of answers) and the rest achieved some performance improvement (about 33%).

In Slovenia, as in Andalusia, most enterprises declared that their performance improved after the IEA implementation (more than 60% of total answers). The enterprises that achieved a slight improvement correspond to 26,5% of total answers, while those achieving no performance improvement to the 13,2%.

In West Macedonia the enterprises that stated that their performance improvement corresponds to the 61,8% of total answers, followed by the percentage of 29,4% linked to the slight improvement. A lower group of enterprises stated that performance did not improve (8,8% of total answers).

In Piedmont the percentage of answers referred to a performance improvement is higher than 40% of the total answers, the one linked to the lack of improvement is about 39% and those reporting of a slight improvement about 21%.

Sicily and Slovenia are the regions with the highest percentages of total answers about performance improvement after the IEA implementation. In Sicily the enterprises obtained a performance improvement after the IEA implementation correspond to more than 61% of total answers. A less part affirmed that performance

did not improved (about 28% of answers), and the smaller part that performance slight improved (11% of total answers).

In Tuscany the enterprises that achieved a performance improvement are the smaller part (only 20,3% of total answers), those achieving a slight improvement correspond to 33,3% of total answers, while those with no performance improvement are the majority (more than 46% of total answers).

In the following figures we outline the trends of environmental performance following the IEA implementation taking into account some environmental aspects.
Representations are referred both to aggregate and disaggregate data.

The data on the environmental aspects where the performance has improved, is outlined in the figure 31 (aggregate data).

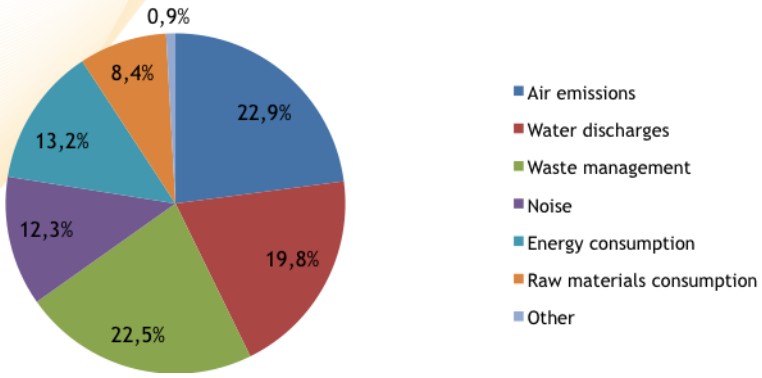

Figure 31 Improvement of environmental performance after the IEA implementation by environmental aspect -Aggregate data-.

The main environmental aspect for which environmental performance has improved after IEA implementation is the air emissions (22,9% of total answers each), followed by the waste management one (22,5%).
Then there is the field of water discharges (19,8% of total answers), followed by that of energy consumption (13,2%), noise (12,3%), raw material consumption (8,4%) and other environmental field not classifiable in the previous ones (e.g. water picked up, water consumption).

The improvement of environmental performance trend for environmental aspect, taking into account enterprises' replies in each region, is outlined in the following table.

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Air emissions	22,2%	25,6%	14,6%	33,3%	24,1%	18,2%	28,6%
Water discharges	16,7%	15,4%	26,8%	28,6%	20,7%	27,3%	7,1%
Waste management	19,4%	17,9%	26,8%	28,6%	20,7%	27,3%	28,6%
Noise	11,1%	25,6%	7,3%	0	13,8%	9,1%	14,3%
Energy consumption	16,7%	10,3%	12,2%	4,8%	20,7%	9,1%	7,1%
Raw materials consumption	13,9%	5,1%	9,8%	4,8%	0,0%	9,1%	7,1%
Other	0	0	2,4%	0	0	0	7,1%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 75 Improvement of environmental performance after the IEA implementation by environmental aspect -Disaggregate data-.

In some regions (Andalusia, Valencia, West Macedonia, Piedmont and Tuscany) most of enterprises obtained an improvement of environmental performance –after the IEA implementation- in the air emissions aspect.

In Andalusia the second main field in which enterprises obtained an improvement of their environmental performance is the waste management one (19,4% of total answers); followed by water discharges and energy consumption (with the same percentage of answers), raw materials consumption, and finally noise field (11,1% of answers).

In Valencia also noise is a sector where many enterprises obtained an improvement of their environmental performance (25,6% of total answers as in the case of air emissions field); followed by waste management, by waster discharges, energy consumption and finally raw materials consumption.

In Slovenia most of enterprises stated that in water discharges and waste management fields environmental performance improved (with the same percentages of total answers -26,8%-); followed by air emissions, by energy consumption, by raw material consumption, by noise and by other fields not included in the previous ones.

In West Macedonia the enterprises that obtained an environmental performance improvement in the air emissions field represent 33,3% of total answers. Water discharges and waste management obtained the same percentage of answers (28,6% each), followed by energy consumption and raw material consumption. No enterprise stated an environmental performance improvement in noise field.

In Piedmont, after the air emissions, are water discharges, waste management and energy consumptions the fields in which most enterprises obtained an environmental performance improvement (with the same percentage of answers -20,7% each-). Noise field obtained the 13,8% of total answers, while for raw material consumption one any enterprise stated that environmental performance has improved.

In Sicily the two main fields in which performance improved are water discharges and waste management (with the same percentage of answers -27,3%-), followed by air emissions one. Some enterprises affirmed that performance improved also for noise, energy consumption and raw material consumption fields (the percentage of answers is the same for the three environmental aspects -9,1%-).

In Tuscany the two main aspects where environmental performance improved are air emissions and waste management (with the same percentage of 28,6% of total answers), followed by noise. The other environmental aspects have all the same percentages of answers (7,1%).

The slight improvement of environmental performance obtained by each environmental aspect after the IEA implementation, is outlined in the figure 32.

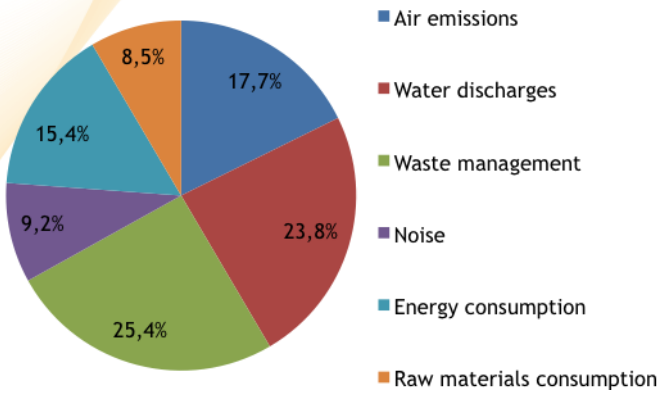

Figure 32 Slight improvement of environmental performance after the IEA implementation by environmental aspect -Aggregate data-.

The environmental aspect where most enterprises declare that environmental performance has slight improved is waste management (25,4% of total answers), followed by water discharges (23,8%), air emissions (17,7%), energy consumption (15,4%), noise (9,2%), and finally by raw material consumption (8,5%).

The data on the environmental aspects where the performance has slight improved -taking into account results obtained in each region- is outlined in the table 76.

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Air emissions	20,8%	13,2%	11,1%	10,0%	26,7%	50,0%	21,7%
Water discharges	25,0%	26,3%	22,2%	10,0%	20,0%	0	30,4%
Waste management	20,8%	26,3%	33,3%	20,0%	33,3%	0	21,7%
Noise	8,3%	5,3%	11,1%	0	13,3%	0	17,4%
Energy consumption	12,5%	15,8%	11,1%	60,0%	6,7%	50,0%	4,3%
Raw materials consumption	12,5%	13,2%	11,1%	0	0	0	4,3%

Total	100%	100%	100%	100%	100%	100%	100%

Table 76 Slight improvement of environmental performance after the IEA implementation by environmental aspect -Disaggregate data-.

In Andalusia most enterprises declared that a slight improvement in environmental performance after IEA implementation has been obtained in the water discharges aspect (25% of total answers), followed by waste management and air emissions, by energy consumption and raw material consumption and finally by noise.

In Valencia, the main two aspects in which environmental performance has slightly improved are water discharges and waste management (with the same percentage of 26,3% of total answers), followed by energy consumption, by raw material consumption and air emissions (with the same percentage of 13,2%), and finally by noise.

In Slovenia most enterprises stated that a slight performance improvement has been obtained in the waste management aspect (more than 33% of total answers), followed by water discharges, by air emissions, noise, energy consumption and raw materials consumption (these four last aspects obtained the same percentage of answers -11,1%-).
In West Macedonia is energy consumption the field in which most of enterprises obtained slight environmental performance improvement (60% of total answers), followed by waste management , air emissions and water discharges.

In Piedmont is waste management the aspect in which most of enterprises obtained a slight environmental performance improvement (more than 33% of total answers), followed by air emissions, water discharges, noise and energy consumption. Any enterprise affirmed a slight performance improvement for raw material consumption aspect.

In Sicily, the main two aspects in which environmental performance has slightly improved are air emissions and energy consumption. As regards other aspects, no enterprise said that a slight improved has occurred.

As in the case of Andalusia and Valencia, also in Tuscany the main aspect in which performance has slightly improved is represented by water discharges, followed by air emissions and waste management -with the same percentage of total answers- (21,7%), by noise and finally by energy consumption and raw material consumption (same percentage of answers -4,3%-).

The following figure shows the environmental aspects and the data of any performance improvement after IEA implementation.

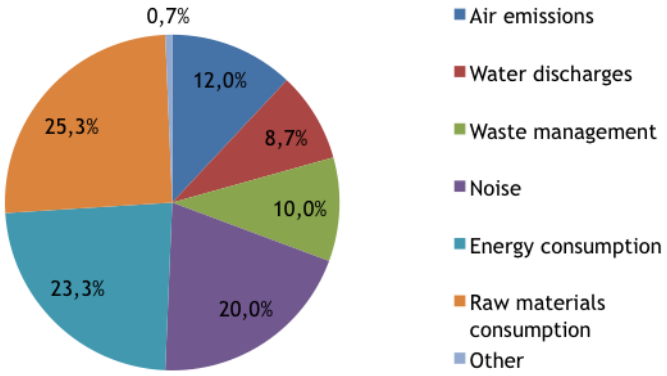

Figure 33 Any improvement of environmental performance after the IEA implementation by environmental aspect -Aggregate data-.

The main aspect for which environmental performance after the IEA implementation did not improve is represented by raw material consumption (25,3% of total answers), followed by energy consumption (23,3%), noise (20%), air emissions (12%), waste management (10%), water discharges (8,7%) and other aspects not included in the previous ones (0,7%), such as water consumption.

The analysis about environmental aspects for which environmental performance did not improve can be also carried out taking into account the results obtained in each region.

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Air emissions	9,4%	12,2%	22,2%	0	10,7%	20,0%	12,5%
Water discharges	3,1%	7,3%	0	0	10,7%	20,0%	15,6%
Waste management	9,4%	9,8%	0	0	10,7%	20,0%	12,5%
Noise	21,9%	19,5%	11,1%	66,7%	17,9%	20,0%	18,8%
Energy consumption	25,0%	26,8%	33,3%	0	21,4%	20,0%	18,8%
Raw materials consumption	31,3%	24,4%	33,3%	33,3%	28,6%	0	18,8%
Other	0	0	0	0	0	0	3,1%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 77 Any improvement of environmental performance after the IEA implementation by environmental aspect -Disaggregate data-.

In most regions noise, energy consumption and raw materials consumption are the main environmental aspects for which environmental performance after IEA implementation did not improve.

In Andalusia, for most enterprises is the raw materials consumption the aspect in which any improvement of performance has been obtained (more than 31% of total answers), followed by energy consumption (25%), noise (about 22%), waste management and air emissions, and finally water discharges.

In Valencia most enterprises stated that it is energy consumption the environmental aspect for which performance did not improve (about 27% of total answers), followed by raw material consumption, by noise, by air emissions, by waste management and finally, as in the case of Andalusia, by water discharges.

In Slovenia, most enterprises affirmed that any performance improvement has been obtained after IEA implementation for energy consumption and raw material consumption (more than 33% of total answers for each one); followed by air emissions (more than 22% of total answers) and noise.

In West Macedonia most enterprises stated that is noise the environmental aspect for which environmental performance is not improved (66,7% of total answers), followed by raw material consumption (33,33%).

Also in Tuscany the most enterprises affirmed that noise, energy consumption and raw materials consumption are the main environmental aspects for which environmental performance is not improved.

As in the cases of the Regions of Andalusia and Tuscany, also in Piedmont most of enterprises declared that the environmental performance after IEA implementation did not improve for raw material consumption (28,6% of total answers), followed by energy consumption, by noise, by air emissions, water discharges and waste management (this three latter having the same percentage of total answers 10,7%).

In Sicily air emissions, water discharges, waste management, noise and energy consumption aspects obtained all the same percentages of answers (20%).

2.5.2.7 How many inspections have been carried out by the competent control Authority (ies) since the issue of the IEA?

The number of inspections that have been carried out by the competent control authorities since the issue of the IEA, is indicated in the two figures below.

Most enterprises states that the number of inspections realized -since the issue of IEA- is one (24,2% of total answers), followed by two inspections (21,9%).

7,8% of the enterprises that have answered to this questions, said that the control authorities carried out three inspections on IEA issue; while 3,1% states that have received four inspections. 3,9% of total answers collected is referred to five inspections and that 14,1% to more than five.

In some cases the enterprises states that the control authorities have carried out six-monthly inspections (3,1% of total answers), or yearly inspections (2,3%).

It is important point out that a large percentage (20,83%) of the total answers states that no inspections have been realized on the IEA issue.

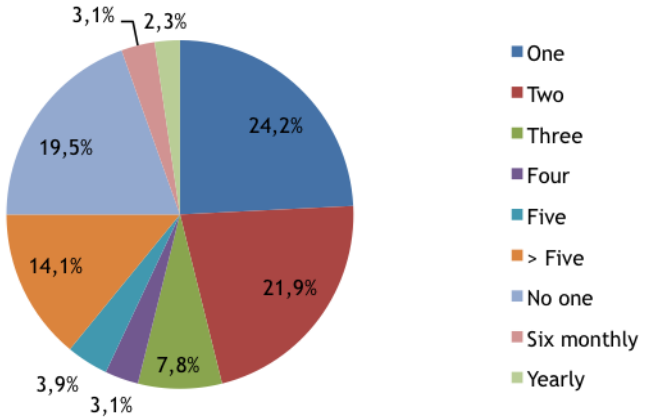

Figure 34 How many inspections have been carried out by the competent control authority since the issue of IEA? -Aggregate data-.

As regards the answers collected by each region, the representation of the results is indicated in the table 78.

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
One	53,8%	8,3%	14,3%	12,5%	23,8%	25,0%	20,8%
Two	30,8%	8,3%	28,6%	0	23,8%	50,0%	20,8%
Three	11,5%	4,2%	4,8%	12,5%	14,3%	0	4,2%
Four	0	0	4,8%	0	9,5%	0	4,2%
Five	0	0	9,5%	0	4,8%	0	8,3%
> Five	0	12,5%	4,8%	75,0%	23,8%	0	12,5%
No one	3,8%	66,7%	14,3%	0	0	25,0%	16,7%
Six monthly	0	0	4,8%	0	0	0	12,5%
Yearly	0	0	14,3%	0	0	0	0
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 78 How many inspections have been carried out by the competent control authority since the issue of IEA? -Disaggregate data-.

In Andalusia, most part of enterprises, stated that the control authority/ies has carried out one inspection on the IEA issue (about 54% of total answers), followed by two inspections (about 31%) and by three (11,5%). There is also a 3,8% of total of replies by enterprises stated that control authority/ies have not carried out any inspection.

It is important to observe that in Valencia, most of replies by enterprises stated that the control authority/ies have carried out no inspections (66,7% of total answers). 8,3% of enterprises stated they have received one inspection on the IEA issue, and another analogous percentage that has received two inspections by control authority/ies. A lower percentage of answers is concentrated in the modality "four" inspections, and finally 12,5% in the one regarding "more than 5" inspections on the IEA issue.

In Slovenia, most answers collected are concentrated in the modality "two" inspections (28,6%). 14,3% of replies by enterprises stated that control authority/ies

have realized one inspection on the IEA issue. The same percentage results in the case of yearly inspections and in the case of no inspections.
A lower number of enterprises stated that control authority/ies have carried out five inspections on the IEA issue (9,5%), three, four, more than five and six-monthly (in all cases the percentages are 4,8%).

In West Macedonia most enterprises (75% of total answers) stated that control authorities carried out more than five inspections. A lesser group declared that one and three inspections have been realized by authorities.

In the case of Piedmont answers are equally subdivided among one, two and more than five inspections, with a percentage of 23,8% for each. Lower percentages are concentred in the modality three inspections (14,3%), four ones (9,5%) and five ones (4,8%).

In Sicily, 50% of replies by enterprises stated control authority/ies have carried out two inspections on the IEA issue. The other 50% of answers is divided among the modality “one” inspection (25%) or “any” inspection (25%).

In Tuscany, most of replies by enterprises belongs to the first modality -“one” inspection- (20,8%) and to the second one -“two” inspections- (20,8%). The lower percentages of answers belong to the central modalities: three, four and five inspections, with 4,2% in the first two cases and 8,3% in the last one. 12,5% of replies by enterprises declared control authority/ies have carried out more than five inspections on the IEA issue, and the same percentage confirms inspections having a six-monthly frequency. There is also a consistent percentage of replies by enterprises that affirms that no one inspections on the IEA issue have been carried out.

2.5.2.8 Weaknesses and strengths in the implementation of the Directive and in the application of the IEAs at national/regional/local level, in the opinion of enterprises

Weaknesses and strengths emerged from enterprise's opinion are indicated below. We collected enterprise's answers and then grouped them as indicated below.

Figure 35 shows some weaknesses identified by enterprises.

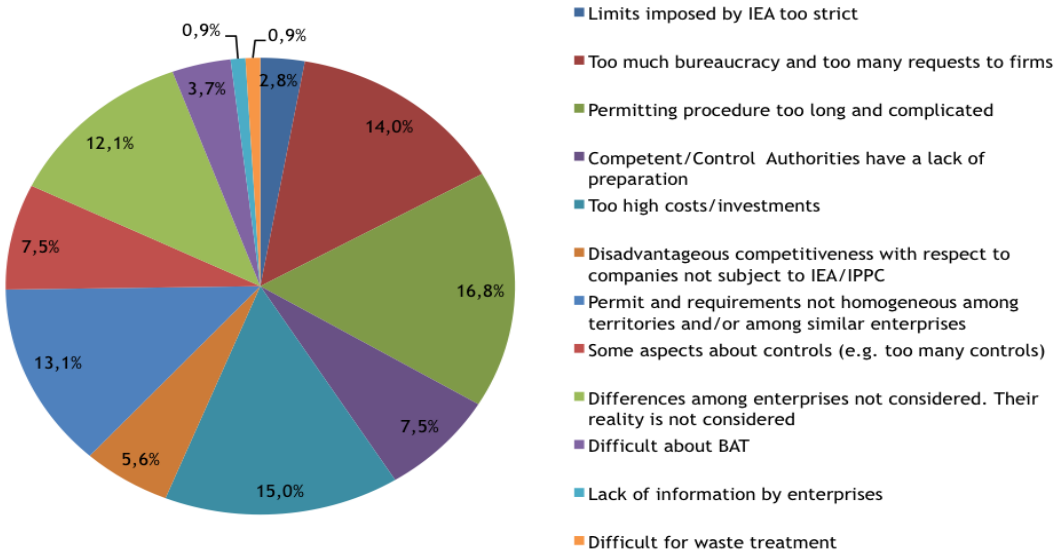

Figure 35 Main weaknesses according to enterprise's opinions. Aggregate data

The main weakness identified by most enterprises is represented by the permit release procedure being too long and complicated (16,8% of total answers), followed by too high costs and investments (15%).

Enterprises also declared that there is too much bureaucracy and too many requests to firms (14%) and also that permits and requirements are not homogenous among territories and/or among similar enterprises (13,1% of total answers). Another weakness is represented by differences among similar enterprises that are not taken into consideration, as also reality of firms.

Furthermore, some aspects about controls are perceived as weaknesses by companies (e.g. too much control, control system inefficient or not-existent, etc.), as the fact that Control and/or Competent Authorities have a lack of preparation and have not technical professionalism and knowledge. Also the lack of information of enterprises is perceived as a weakness.

Difficulties about Best Available Techniques and too strict limits imposed by IEA are also perceived by enterprises.

Some enterprises identified as weakness the disadvantageous competitiveness with respect to companies not subject to IEA.

A minor group of enterprises stated also as a weakness the difficulty encountered in the treatment of waste.

In the table 79 are indicated some weaknesses identified by enterprises of each region.

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Limits imposed by IEA too strict	X	X					X
Too much bureaucracy and too many requests to firms	X	X	X		X	X	X
Difficult for waste treatment				X			
Permitting procedure too long and complicated		X	X		X		X
Competent/Control Authorities have a lack of preparation	X						X
Too high costs/investments		X	X		X	X	X
Lack of information by enterprises				X			
Disadvantageous competitiveness with respect to companies not subject to IEA/IPPC		X	X				
Permit and requirements not homogeneous among territories and/or among similar enterprises	X	X	X		X		X
Some aspects about controls (e.g. too many controls)		X	X				X
Differences among enterprises. Their reality is not considered	X	X			X	X	X
Difficulties about BAT	X	X	X				

Table 79 Main weaknesses according to enterprise's opinions in each region.

The main strengths identified by enterprises are showed in figure 36.

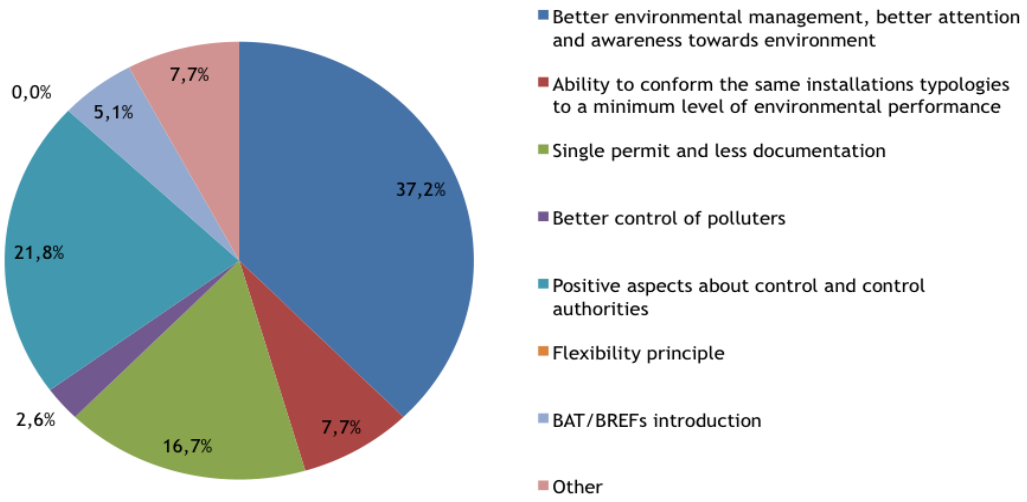

Figure 36 Main strengths according to enterprise's opinions. Aggregate data.

One of the main strengths perceived by enterprises is represented by the fact that the IPPC Directive and the implementation of IEA realized a better environmental management and a better attention and awareness towards environment (37,2% of total answers). Hence, some aspects about controls and Control Authorities are identified as strengths (21,8%). For example, these latter included relations with Control Authorities, control increase, etc.

The introduction of a single permit and less documentation is considered a strength in 16,7% of cases.

Another strength is that the IPPC Directive introduced the ability to conform the same installations typologies to a minimum level of environmental performance. Besides, other effects have been considered as strengths (e.g. better organization of firms, better imagine and relationship among firms and public authorities, etc.).

The introduction and/or the application of Best Available Techniques is also considered to be a strength introduced by IPPC (5,1% of total answers), as well as an improved control of polluters (2,6%).

In the following table, it is possible to know what strengths enterprises belonging to each region, have identified.

	Andalusia	Valencia	West Macedonia	Slovenia	Piedmont	Sicily	Tuscany
Better environmental management, better attention and awareness towards environment	X	X	X	X	X	X	X
Ability to conform the same installations typologies to a minimum level of environmental performance	X			X			X
Single permit and less documentation		X			X		X
Better control of polluters		X		X			
Positive aspects about control and control authorities	X			X	X		X
Flexibility principle			X				
BAT introduction and/or application		X	X		X		
Other	X			X	X		X

Table 80 Main strengths according to enterprise's opinions in each region.

2.5.2.9 Suggestions provided by enterprises to improve the implementation framework and procedure

Enterprises identified some suggestions that in their opinions could improve the implementation framework and procedure (figure 37 and table 81).

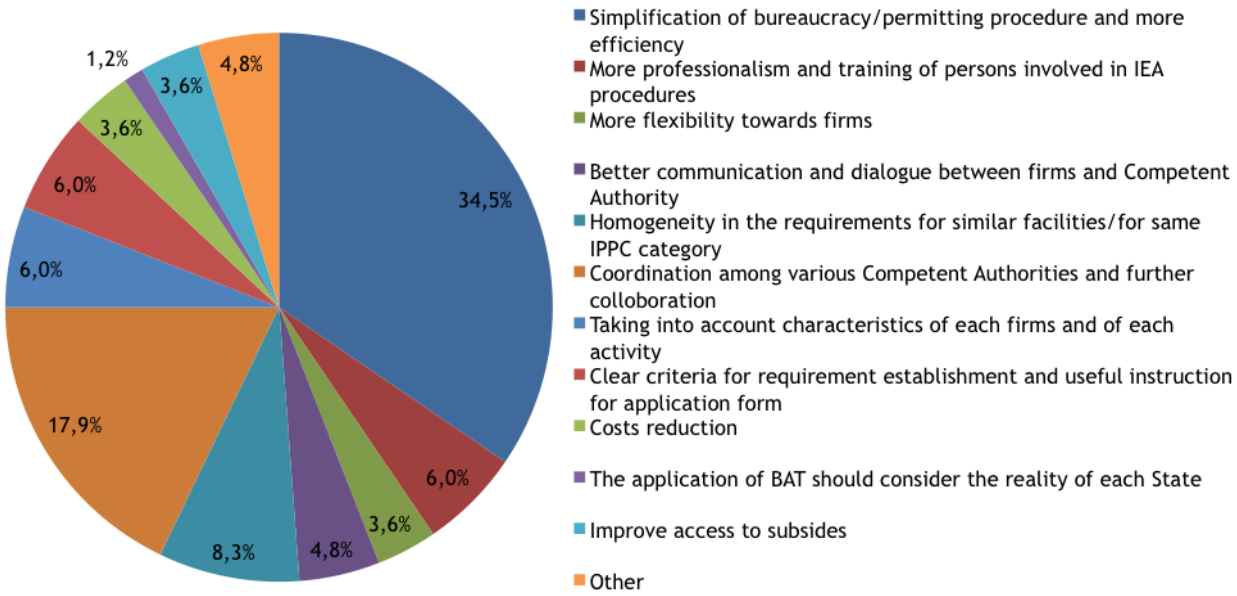

Figure 37 Main suggestions according to enterprise's opinions. Aggregate data.

One of the main suggestions identified by enterprises to improve the IPPC implementation framework and procedure, is the simplification of bureaucracy and permitting procedure, as well as the need of higher efficiency (34,9% of total answers), followed by coordination among better Competent Authorities, as also more collaboration among them (17,9%), by the necessity of homogeneity in the requirements for similar facilities and within the same IPPC category (8,3%).

Further, other suggestions have been indicated by enterprises: more professionalism and training of persons involved in IEA procedure, clear criteria to establish the requirements and useful instruction in the application form, all other aspects indicated in the figure 37.

Enterprises suggestions are also indicated in the table 81 subdivided by regions.

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Simplification of bureaucracy/permitting procedure and more efficiency		X	X	X	X		X
More professionalism and training of persons involved in IEA procedures							X
More flexibility towards firms		X		X			X
Better communication and dialogue between firms and Competent Authority	X			X			X
Homogeneity in the requirements for similar facilities/for same IPPC category	X	X			X		
Coordination among various Competent Authorities and further collaboration	X	X	X			X	
Taking into account characteristics of each firms and of each activity	X			X	X	X	X
Clear criteria for establishing the requirement and useful instruction for application form	X		X		X		X
Costs reduction							X
The application of BAT should consider the reality of each State				X			
Improve access to subsides	X	X			X		
Other		X		X	X		X

Table 81 Main suggestions for improve the implementation framework and procedure, according to enterprise's opinions in each region.

SECTION 3: CONCLUSIONS AND RECOMMENDATIONS

The questions to be answered with the MED IPPC NET Analysis were focused on how the IPPC Directive has been implemented within the Mediterranean space and if this implementation has been homogeneous and uniform in Member States, in particular in the seven regions involved in the project.

According to the European law, "the directive binds the Member State only about the results to obtain and leaves to its competence the way and the tools". Also according to the subsidiarity principle (art. 3 B Maastricht Treaty) the EU Directives can bring some differences in the implementation among the Member States. This Analysis aimed at investigating how the IPPC Directive has been implemented and if the differences are able to affect cost-related competitiveness of firms subjected to the IPPC Directive and located in different Member States.

We investigated differences about public fares, permitting procedure, contents of permits, control and inspection systems included in the national and local legislative framework of the involved regions, in order to identify methodologies and approaches to reduce these differences as a top priority for the next phases of the MED IPPC NET Project.

To this aim, the results obtained from the Analysis phase of the project have been elaborated and assessed.

As regards the institutional analysis (legislative, administrative, control and inspection and content of authorisations analysis), significant differences emerged according to the different regions. Among the most relevant issues, some concern the disparity about the typology of Competent Authority for the permit issue (national, regional or provincial Authority) and the choice of elaborating and publishing guidelines for supporting the application of the Directive. Quite significantly, almost all the investigated regional contexts benefited from some sort of national guidelines (sometimes sector-based), while in only very few cases the supporting guidelines were also drafted at the regional level or other kinds of tools were adopted to support the implementation phase (Andalusian Sectorial Reports).

The duration of the validity of the IPPC permit in the different regions is quite diverse too, as the Interregional Analysis emphasises. In addition to this, it has to be noted that in some of the investigated regional (national) contexts, variations in the permit validity are introduced to favour EMAS-registered or ISO 14001-certified companies. The whole picture concerning the permit duration suggests that the reported differences can cause very heterogeneous conditions that are faced by the companies operating in the investigated regions. This practically means that some companies can be subject to the constraints (and the costs) of renewing the permit more frequently than other similar companies operating in another region.

Also time foreseen for issuing the permit, as well as the type of simplifications in the permitting procedure provided for specific categories of enterprises, vary among the seven regions involved in the project. The time-issue is quite important as seen from the companies' competitiveness point of view, especially when it concerns the extension of the permit needed when a significant modification is implemented in the plant.

We should emphasise that most regions (and Countries) chose to enact some forms of simplifications to favour those companies that developed and certified an environmental management system. One of the suggestion emerging from this, that also relates to the duration of the permit as specified above, is to try and homogenise at least the favourable conditions granted to EMAS-registered companies, at the EU level.

The number of inspections carried out by Control Authorities in firms is very different among regions and in some cases also within the same region. For some regional contexts, such as Italy for example, this seems to be related more to the number of the IPPC-subjected companies that operate in a Province (the administrative level for the control planning) than to the real complexity or environmental impact of the company itself, or even the sector to which it belongs as a proxy of these two dimensions. This generates within the same regions some paradoxical situation in which two similar companies located in two different provinces have to face up to control activities (and, most of all, to the related costs[51]) with substantially different frequency (i.e.: intensity). It should be taken into account that this may represent a problem in terms of disparity of treatment among companies (both within and among the investigated regions).

Another important difference emerging from the analysis is represented by the costs that firms should pay in order to obtain the permit. As it happens with the control frequency, also costs are different for enterprises belonging to different regions, but also among enterprises of the same region that are subjected to different Competent Authorities for the permit issue. For this reason, some of the listed differences can cause sensible effects on firm's competitiveness.

In this case, in the qualitative part of the analysis, during some interviews and thanks to data collection, we were able to point out really considerable gaps between different regional contexts. Just as an example, we can consider that in Tuscany the average cost to be sustained by a company for issuing the first permit has reached up to roughly 35.000 Euros, whereas in Andalusia the same costs goes from a minimum of 750 Euros to a maximum of 1.500 and in Slovenia it averagely amounts to 1.300 Euros. It is self-evident that these gaps may cause relevant differences on the companies' budget devoted to environment-related expenses and, therefore, on their competitiveness. Moreover, we emphasise that these differences not always seem justified by the flexibility processes (e.g. the subsidiarity principle established by the Maastricht Treaty or the flexibility principle indicated by the IPPC Directive).
Other disparities among regions concern the monitoring frequencies of emissions (e.g. noise emissions) and the emission limit-values required by the permits. Also in this case these differences cause different economic effects on the firms.
Many indications on the approach followed by the different Competent Authorities were provided by the analysis of the permits. This also provided some insights on the differences among the investigated regions.

One of the most significant indications concerns the choice of valorising the concept of BATs and of including them in the permits. This outcome of the analysis is of utmost importance in the prospect of guaranteeing an homogeneous regulatory framework to the IPPC subject companies, located throughout the EU. In fact, there

[51] In Italy the companies must pay a specific administrative fee for the IPPC permitting procedure and control and inspection activities as established by the national decree of 24 April 2008.

is no univocal approach from the investigated CA, even within the same regions. On the opposite, we can find very dissimilar choices: in the Valencian Region there is no mention of the BATs in the permit, in Tuscany BATs are included but with no specific requirements, whereas the permits issued by the CAs in Piedmont very often include the adoption of a BAT as a requirement, but with a deadline to be implemented. The same disparities can be traced with regard to the use of Environmental Performance Indicators or the prescription of specific technologies "tailored" to the single company's processes, products or technologies in the permit. This very heterogeneous approach, even if allowed by the flexibility principle, fails in providing a common framework for the EU regions, heading towards common environmental objectives and guaranteeing fair and comparable conditions to companies located in the various regional contexts.

The same can be said with regard to the inclusion in the permits of environmental improvement actions by the company (identified only in 35% of the cases): this obviously generates disparities in the approach.

The detailed and in-depth analysis of the specific requirements concerning the different environmental aspects that are normally regulated in the permits, shows the same situation: a great distance between the approach chosen by the different CAs, especially as concerns the "typologies" of requirements, the limit values and the environmental parameters to be used as references for measuring compliance. As concerns, in particular, the limit values, it has to be emphasised that in some regional (national) contexts, such as the Italian regions, we can report a clear and strong tendency to adopt the thresholds foreseen by the national law, with no effort to apply the flexibility principle and, especially, to tailor the requirements of the permit to the local environmental and territorial context in which the company is located. We can say, with no doubt, that this is one of the most evident "missed opportunities" in the application of the IPPC Directive, that is compromising the "innovativeness" and potential effectiveness of this policy instrument.

The only aspect in which the different regional CAs seem to be close to each other is to neglect environmental management systems (or even an organisational – managerial set of indications) as requirements in the IEA.

Other interesting results emerged from the "enterprise side" analysis. One of these is that the main negative effect caused on company's competitiveness by complying with the IEA is the production costs increase, followed by the company's penalisation with respect to competitors that are not subjected to the IPPC Directive.

As we have seen in the "administrative" analysis, an important difference among enterprises is represented by the number of inspections carried out by control authorities since the permit issue. This is, obviously, definitely felt as a problem also by the companies: controls vary from no one to more than five. Also this aspect produces different effects on firm's competitiveness: for example the total costs (to be sustained by the inspected company) deriving from only one inspection are obviously much lower than costs produced by carrying out five or more inspections in the same validity period.

From the Analysis of all these aspects it is possible to specify some recommendations that can be useful to improve the IPPC implementation within Europe.

One of the most important is that the European Commission should promote national and regional actions concerning activities oriented to homogenise contents and approaches wherever there are many different Competent Authorities. It would be particularly useful to create a permanent forum with the task of monitoring and comparing the different implementation modalities of IPPC Directive and BATs, as it has been experimented within the MED IPPC NET project. In this way, it could be possible to provide timely feedbacks and suggestions to improve the whole system whenever these differences may cause excessive problems for some of member states or a failure achieving the Directive's goals.

In addition to this, in order to prevent disparities, a "standard model" for permits might be created at the EU level, to coordinate permit's contents among different Competent Authorities and Member States. This would enable to foster and support the correct and innovative adoption of many of the most neglected innovations brought by the IPPC Directive in environmental policy approach, such as: the use of BREFs as a real reference document for the drawing up of the permit, the introduction of a environmental improvement- oriented approach in issuing the permits, the use of Environmental Performance Indicators, the translation of the "flexibility approach" in requirements, the use of environmental management system either as requirements or as simplification conditions, etc.

Another recommendation could be the creation and promotion of more specific and in-depth competences by training the personnel of Competent and Control Authorities: the IPPC requires a holistic vision and wide qualification concerning many different environmental aspects that allows to have an integrated vision of environmental problems inside firms.

Also a stronger promotion of the "flexibility principle" of the Directive should be boosted and sustained by the European Commission, to encourage Competent Authorities and in general member states to apply it in the local context.

Statistical appendix

1. *Fields of financial/economic investments carried out by enterprises to comply with IEA requirements.*

Aggregate data, disaggregate data by regions and by sectors.

	Total
Air emissions	85
Water discharges	73
Waste management	52
Noise	38
Energy consumption	31
Raw material consumption	21
Odour emissions	4
Soil	2
Other	9
Total	315

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Air emissions	21	16	12	4	18	3	11
Water discharges	20	14	12	1	14	4	8
Waste management	16	12	5	1	6	4	8
Noise	11	12	3	0	8	0	4
Energy consumption	7	6	4	4	9	0	1
Raw material consumption	7	5	4	0	4	0	1
Odour emissions	0	1	0	0	0	0	3
Soil	0	1	0	0	0	1	0
Other	2	0	1	3	2	0	1
Total	**84**	**67**	**41**	**13**	**61**	**12**	**37**

	1.1	2.6	3.5	5.4	6.1
Air emissions	24	16	23	16	6
Water discharges	18	19	15	14	7
Waste management	9	10	11	18	4
Noise	12	6	11	4	5
Energy consumption	10	5	11	3	2
Raw material consumption	6	5	5	2	3
Odour emissions	0	0	0	4	0

	1.1	2.6	3.5	5.4	6.1
Soil	2	0	0	0	0
Other	5	0	2	1	1
Total	**86**	**61**	**78**	**62**	**28**

2. Thanks to the investments, has the installation achieved the full compliance with IEA relevant requirements?

Aggregate data, disaggregate data by regions.

	Total
Full compliance with all requirements	97
Full compliance with some requirements	21
Full compliance with few requirements	9
No compliance with the requirements	1
Total	**128**

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Full compliance with all requirements	19	13	15	1	22	7	20
Full compliance with some requirements	6	8	1	2	3	0	1
Full compliance with few requirements	0	1	1	5	0	0	2
No compliance with the requirements	0	0	1	0	0	0	0
Total	**25**	**22**	**18**	**8**	**25**	**7**	**23**

3. Did the implementation of the IEA require an improvement in the organizational structure (e.g. more precise definition of roles and responsibilities)?

Aggregate data, disaggregate data by regions and by sectors.

	Total
Yes, the implementation requested a high improvement.	16
Yes, the implementation requested a medium improvement	40
Yes, the implementation requested a slight improvement	28
No, the implementation did not require any improvement	50
Total	**134**

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Yes, the implementation requested a high improvement.	3	3	4	0	1	0	5
Yes, the implementation requested a medium improvement	8	2	8	1	9	3	9
Yes, the implementation requested a slight improvement	5	5	1	5	6	2	4
No, the implementation did not require any improvement	10	13	7	2	10	2	6
Total	**26**	**23**	**20**	**8**	**26**	**7**	**24**

	1.1	2.6	3.5	5.4	6.1
Yes, the implementation requested a high improvement.	1	3	4	7	1
Yes, the implementation requested a medium improvement	8	6	9	10	7
Yes, the implementation requested a slight improvement	9	3	5	9	2
No, the implementation did not require any improvement	13	10	17	8	2
Total	**31**	**22**	**35**	**34**	**12**

4. Main difficulties encountered by companies in the procedure to obtaining the IEA.

Aggregate data, disaggregate data by regions.

	Total
Scarce information on the IEA procedures and on the permitting process	32
Administrative costs are too high	40
Relations with the Competent Authorities	29
Collection of data and environmental information concerning the installation	46
Too strict limits imposed by the IEA	51
Investments to achieve compliance were too expensive	42
Control activities were not as expected	13
Duration of permitting procedure too long	5
Other	6
Total	**264**

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Scarce information on the IEA procedures and on the permitting process	7	4	8	1	4	3	5
Administrative costs are too high	11	11	3	0	6	3	6
Relations with the Competent Authorities	3	6	2	4	1	2	11
Collection of data and environmental information concerning the installation	5	9	13	0	12	0	7
Too strict limits imposed by the IEA	22	9	6	1	3	2	8
Investments to achieve compliance were too expensive	14	5	7	3	9	2	2
Control activities were not as expected	3	1	1	0	5	1	2
Duration of permitting procedure too long	0	3	0	0	0	1	1
Other	4	1	1	0	0	0	0
Total	**69**	**49**	**41**	**9**	**40**	**14**	**42**

5. What kind of effects did the costs to adopt to the requirements of the IEA produce on the competitiveness of the company?

Aggregate data, disaggregate data by regions and by sectors.

	Total
Very significant	15
Significant	36
Not very significant	39
Negligible	34
Total	**124**

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Very significant	2	0	1	5	2	1	4
Significant	12	2	8	1	6	2	5
Not very significant	9	3	6	2	7	3	9
Negligible	3	15	3	0	6	1	6
Total	**26**	**20**	**18**	**8**	**21**	**7**	**24**

	1.1	2.6	3.5	5.4	6.1
Very significant	6	2	3	1	3
Significant	8	7	8	10	3
Not very significant	9	7	8	11	4
Negligible	6	5	12	9	2
Total	**29**	**21**	**31**	**31**	**12**

6. What was the trend of the company's environmental performance after the implementation of IEA?

Aggregate data, disaggregate data by regions.

	Total
Performance improved	227
Performance slightly improved	130
Performance not improved	150
Total	507

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Performance improved	72	39	41	21	29	11	14
Performance slightly improved	24	38	18	10	15	2	23
Performance not improved	32	41	9	3	28	5	32
Total	**128**	**118**	**68**	**34**	**72**	**18**	**69**

Performance improved (Aggregate data, disaggregate data by regions)

	Total
Air emissions	52
Water discharges	45
Waste management	51
Noise	28
Energy consumption	30
Raw materials consumption	19
Other	2
Total	**227**

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Air emissions	16	10	6	7	7	2	4
Water discharges	12	6	11	6	6	3	1
Waste management	14	7	11	6	6	3	4
Noise	8	10	3	0	4	1	2
Energy consumption	12	4	5	1	6	1	1
Raw materials consumption	10	2	4	1	0	1	1
Other	0	0	1	0	0	0	1
Total	**72**	**39**	**41**	**21**	**29**	**11**	**14**

Performance slightly improved (Aggregate data, disaggregate data by regions)

	Total
Air emissions	23
Water discharges	31
Waste management	33
Noise	12
Energy consumption	20
Raw materials consumption	11
Total	**130**

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Air emissions	5	5	2	1	4	1	5
Water discharges	6	10	4	1	3	0	7
Waste management	5	10	6	2	5	0	5
Noise	2	2	2	0	2	0	4
Energy consumption	3	6	2	6	1	1	1
Raw materials consumption	3	5	2	0	0	0	1
Total	**24**	**38**	**18**	**10**	**15**	**2**	**23**

Performance did not improve (Aggregate data, disaggregate data by regions)

	Total
Air emissions	18
Water discharges	13
Waste management	15
Noise	30
Energy consumption	35
Raw materials consumption	38
Other	1
Total	**150**

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
Air emissions	3	5	2	0	3	1	4
Water discharges	1	3	0	0	3	1	5
Waste management	3	4	0	0	3	1	4
Noise	7	8	1	2	5	1	6
Energy consumption	8	11	3	0	6	1	6
Raw materials consumption	10	10	3	1	8	0	6
Other	0	0	0	0	0	0	1
Total	**32**	**41**	**9**	**3**	**28**	**5**	**32**

7. How many inspections have been carried out by the competent control Authority(ies) since the issue of the IEA?

Aggregate data, disaggregate data by region.

	Total
One	31
Two	28
Three	10
Four	4
Five	5
> Five	18
No one	25
Six monthly	4
Yearly	3
Total	**128**

	Andalusia	Valencia	Slovenia	West Macedonia	Piedmont	Sicily	Tuscany
One	14	2	3	1	5	1	5
Two	8	2	6	0	5	2	5
Three	3	1	1	1	3	0	1
Four	0	0	1	0	2	0	1
Five	0	0	2	0	1	0	2
> Five	0	3	1	6	5	0	3
No one	1	16	3	0	0	1	4
Six monthly	0	0	1	0	0	0	3
Yearly	0	0	3	0	0	0	0

8. *Weaknesses and strengths in the implementation of the Directive and in the application of the IEAs at national/regional/local level, in the opinion of enterprises.*

Aggregate data

Weaknesses

	Total
Limits imposed by IEA too strict	3
Too much bureaucracy and too many requests to firms	15
Permitting procedure too long and complicated	18
Competent/Control Authorities have a lack of preparation	8
Too high costs/investments	16
Disadvantageous competitiveness with respect to companies not subject to IEA/IPPC	6
Permit and requirements not homogeneous among territories and/or among similar enterprises	14
Some aspects about controls (e.g. too many controls)	8
Differences among enterprises are not considered. Their reality is not considered	13
Difficult about BAT	4
Lack of information by enterprises	1
Difficult for waste treatment	1
Total	**107**

Strengths

	Total
Better environmental management, better attention and awareness towards environment	29
Ability to conform the same installations typologies to a minimum level of environmental performance	6
Single permit and less documentation	13
Better control of polluters	2
Positive aspects about control and control authorities	17
Flexibility principle	1
BAT/BREFs introduction	4
Other	6
Total	**78**

9. *Suggestions provided by enterprises to improve the implementation framework and procedure*

Aggregate data

	Total
Simplification of bureaucracy/permitting procedure and more efficiency	29
More professionalism and training of persons involved in IEA procedures	5
More flexibility towards firms	3
Better communication and dialogue between firms and Competent Authority	4
Homogeneity in the requirements for similar facilities/for same IPPC category	7
Coordination among various Competent Authorities and further collaboration	15
Taking into account characteristics of each firms and of each activity	5
Clear criteria for requirement establishment and useful instruction for application form	5
Costs reduction	3
The application of BAT should consider the reality of each State	1
Improve access to subsides	3
Other	4
Total	**84**

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Websites:

- The aforementioned laws, regulations etc. are available from: http://www.uradni-list.si/
- The IPPC website is intended for IPPC installation operators and the general public (it allows installation operators to 1) access information in relation to the environmental protection permit and 2) communicate more efficiently in the administrative procedures: http://okolje.arso.gov.si/ippc/

West Macedonia

Legislation:

- Council Directive 96/61/EC, of 24 September 1996, concerning Integrated Prevention Pollution and Control.
- Council Directive 78/319/EC of 20 March 1978
- Council Directive 76/403/EC of 6 April 1976
- Greek Constitution (FEK 85A'/18-4-2001), Article 24
- Law 1650/1986 (OFFICIAL JOURNAL OF THE HELLENIC REPUBLIC 160/A/18-10-1986), for the protection of Environment.
- Law 3010/2002 (OFFICIAL JOURNAL OF THE HELLENIC REPUBLIC 91/A/25-4-2002), with whom the basic Environmental Greek Law (L.1650/1986) is amended in order to be assorted with the Directives 96/61/E.C. and 97/11/E.C.

- Common Ministerial Decision (CMD)15393/2332/2002 (OFFICIAL JOURNAL OF THE HELLENIC REPUBLIC 1022/B/5-8-2002), the activities of Annex 1 of directive are being categorized in relation with their impact towards the environment
- Common Ministerial Decision (CMD) 11014/703/Φ104/2003 (OFFICIAL JOURNAL OF THE HELLENIC REPUBLIC 332/B/20-3-2003) in implementation of L.3010/2002, completed the assortion with Directive 96/61/E.C, adjusts issues regarding environmental authorization procedure of activities included in Annex 1 of the directive.
- Act of Ministerial Cabinet 99/10.7.87 (OFFICIAL JOURNAL OF THE HELLENIC REPUBLIC 135/A/28.7.87) and Act of Ministerial Cabinet 25/18.3.88 (OFFICIAL JOURNAL OF THE HELLENIC REPUBLIC 53/A/22.3.88), Emission Limit Value
- Ministerial Decision 17252/20.9.92 (OFFICIAL JOURNAL OF THE HELLENIC REPUBLIC 395/B/19.6.92), maximum allowed limit of noise emissions

Technical documentation:

- Technical Guides and Best Available Techniques National Guides (http://www.minenv.gr/4/ypexode4/newpage6.htm).

Websites:

- European Commission's Directorate General for Environment (http://ec.europa.eu/environment/index_es.htm).
- Central Data Repository Eionet (http://cdr.eionet.europa.eu/)
- Ministry of Environment Energy and Climate Change (http://www.minenv.gr/4/ypexode4/index.htm)
- European IPPC Bureau http://eippcb.jrc.es/

Piedmont

Legislation:

- Legislative Decree 59/2005 and s.m.i. (changes and additions);
- Legislative Decree 152/2006 (Consolidated "environmental standards");
- Presidential Decree 90/2007 (reordering organizations working at the Environment Ministry)
- Decree Law 180/2007 converted into Law 243/2007 (differing terms from 30/10/2007 to 31/3/2008);
- Legislative Decree 4/2008 (Amendments to procedure for IEA, EIA, SEA);
- Ministerial Decree 31/1/2005 (Definition of guidelines for identifying and using best available techniques LGMTD);
- Ministerial Decree 24/4/2008 (Mode including accounting and rates applicable to permitting procedures and controls and inspections provided for by Legislative Decree no. 59/2005);
- Deliberation of the Regional Council July 29, 2002: The Region has confirmed in provinces the competent authority to grant, renewal and review IEA submitted to regional expertise.
- Deliberation of the Regional Council 22/12/2008 No. 85-10404 adapting national rates provided by DM 24/4/2008
- Legislative Decree36/2003 (for landfills)

Technical documentation:

- BREF 08/2003 General principles of monitoring;
- BREF 07/2007 Large Combustion Plants
- BREF 12/2001 Pulp and Paper Industry
- BREF 08/2006 Waste Treatments Industry
- BREF 02/2009 Energy Efficiency
- BREF 08/2007 Ceramic Manufacturing Industry
- Draft 2005 General Guide Lines for BAT applications
- Ministerial Guide Lines for Pulp and Paper
- Ministerial Guide Lines for Monitoring Systems
- Draft Ministerial Guide Lines for solid wastes
- Ministerial Guide Lines for Ceramic Products
- Draft Ministerial Guide Lines for power stations >50MW

Sicily

Legislation:

- Council Directive 2008/1/EC, of 15 January 2008, concerning Integrated Prevention Pollution and Control
- Council Directive 96/61/EC, of 24 September 1996, concerning Integrated Prevention Pollution and Control
- D. Lgs 4/2008 integration to D.Lgs 152/2006
- D. Lgs 152/2006 environmental matter law
- D. Lgs 59/2005 perfects the transposition of 96/61/EC
- National legislative decree n. 128 of June 29th 2010 concerning integration of National legislative decree n. 152 of April 3rd 2006
- D. Lgs 372/99 transposed the Directive 96/61/EC regarding the Integrated Pollution Prevention and Control in the Mediterranean
- Directive 1999/31/EC
- D.Lgs 36/2003 (that implemented 1999/31/CE Directive)
- Legislative Act 14 November 2005, clarifying the Legislative Decree No 59/2005
- National Decree (April 24th 2008)
- Guide Lines for BAT Application according to ministerial decrees:
  - DM 31 January 2005
  - DM 29 January 2007
  - DM 01 October 2008
- ARTA Sicily Decree 12/08/2004 (GURS 36/04) approving the procedures for IEA apply.

Technical documentation:

- Integrated Pollution Prevention and Control (IPPC) - Reference Document on the General Principles of Monitoring, EUROPEAN COMMISSION, July 2003
- Guidance on monitoring landfill gas surface emissions, ENVIRONMENT AGENCY, September 2004
- Guidelines for the drafting of the monitoring and control plan for installations subject to IEA (APAT, 2007)

- Guideline" document for the drafting of the monitoring and control plan for installations subject to IEA in Sicily - Reference document with the minimum information to be included into the PMC (May 2009-ARPA Sicily)
- Guidelines for the drafting of the Supervision and Control Plan of a landfill according to Article. 8, paragraph 1, point i Legislative Decree 36/2003
- Guide Lines for BAT Application (DM 31 January 2005; DM 29 January 2007;DM 01 October 2008)

Websites

- http://europa.eu/index_it.htm
- http://eippcb.jrc.es/index.html
- http://www.isprambiente.it/site/it-IT/
- http://www.minambiente.it/
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Tuscany

Legislation:

- Council Directive 96/61/EC, of 24 September 1996, concerning Integrated Prevention Pollution and Control.
- National legislative decree n. 372 of August 4th 1999 concerning Integrated Prevention Pollution and Control.
- National legislative decree n. 59 of February 18th 2005 concerning Integrated Prevention Pollution and Control.
- National legislative decree n. 128 of June 29th 2010 concerning integration of National legislative decree n. 152 of April 3rd 2006
- Regional deliberation n. 61 of December 22nd 2003 concerning Integrated Prevention Pollution and Control.
- Deliberation n. 841 of August 5th 2002 and following modifications and integrations (regional deliberation n. 38/03, regional deliberation n. 643/03, regional deliberation n. 1128/03) concerning deadlines for the presentation of IEA applications by operators.
- Deliberation n. 151 of February 23rd 2004 concerning the Coordination Technical Committee
- Decree n. 1285 of March 10th 2004 concerning the Coordination Technical Committee members appointment.
- Regional deliberation n. 229 of March 15th 2004 concerning the advances determination for preliminary inquiry charges regarding to the IEA application
- Ministerial decree adopted in April 24th 2008 concerning the accounting conditions and the fares to apply in relation to the preliminary inquires and the controls.
- Regional deliberation n. 495 of June 15th 2009 concerning the adaption and the integration of fares to apply.
- Regional deliberation n. 631 of July 20th 2009 that integrated the deliberation n. 495 adopted in June 15th 2009.
- Legislative decree n. 195 of August 19th 2005 concerning the access of the public to environmental information.

- Ministerial interpretative document of July 13th 2004 concerning Integrated Prevention Pollution and Control.
- National legislative decree n. 152 of April 3rd 2006 concerning rules in environmental matter.

Technical documentation:

- 1st, 2nd and 3rd Questionnaires of Italy on the implementation of the IPPC Directive 96/61/CE.
- Ministerial decree of January 31st 2005 concerning national guidelines to identify and use BAT for 1.3; 2.1; 2.2; 2.3; 2.4; 2.5 and 6.1 annex I activities of the 59/05 national decree.
- Ministerial decree of January 29th 2007 concerning national guidelines for 1.2; 3.3; 3.4; 3.5; 5.1; 5.2; 5.3; 6.4 a; 6.5 and 6.6 annex I activities of the 59/05 national decree.
- Ministerial decree of October 1st 2008 concerning national guidelines for 1.1; 2.6; 4.1; 4.2; 6.4 b and 6.4 c annex I activities of the 59/05 national decree.
- BREF documents (http://eippcb.jrc.es/reference/).

Websites:

- European Commission's Directorate General for Environment (http://ec.europa.eu/environment/index_it.htm).
- www.provincia.fi.it
- www.provincia.arezzo.it
- www.provincia.siena.it
- www.provincia.prato.it
- www.provincia.pistoia.it
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- www.provinica.livorno.it
- www.provincia.pisa.it
- www.empolese-valdelsa.it
- portale.provincia.ms.it