Deliverable n°: 2.1

Report on Spain

February 2013

Author: **José Manuel Cuevas Castell**

(Instituto Tecnológico de la Construcción-AIDICO)

Spanish Regulative Framework

Supported by INTELLIGENT ENERGY EUROPE

Definition of Shallow Geothermal Energy[1]

In Spain, the Spanish Geothermal Technology Platform presented, in the document Vision for 2030 in Geothermal, a series of common accepted definitions which were based on the European Renewable Energy Directive (Directive 2009/28/EC). In this document, it is possible to differentiate the terms referred to Geothermal Energy as follow:

Geothermal Energy: Energy stored in the form of heat beneath the surface of solid Earth.
Shallow or very low-temperature Geothermal Resources: These resources consist of energy stored in the Earth or in groundwater at temperatures lower than 30ºC. The description and main characteristics of these resources are:

- The temperature of the resources usually match the average temperatures of the locations where they are tapped
- They use the geothermal energy stored in:
    - The shallow subsurface (normally less than 250 m with an average around 100m, including heat captured that is associated with construction elements in construction projects)
    - Groundwater – Including that originating from mining and drainage activities associated with civil construction works – which is not consumptive and is used exclusively for energy purposes.
- Thermal uses. Energetic supply to space ventilation, heating and cooling systems and/or processes with or without the use of a geothermal heat pump.
- The renewable energy can be captured in a very efficient manner given the thermal stability of the subsurface in contrast to ambient seasonal variations.

The definitions for the different types of geothermal resources have been presented by GEOPLAT, the Spanish Geothermal Technology Platform. This platform was the first European platform focused on the development and research on Geothermal Energy. During 2010, the platform presented the document “Vision for 2030”, which compile an extended overview of the general situation of the geothermal energy in Europe and, especially, in Spain. Detailed definitions of terms related to the geothermal energy were included in the document and were approved by the participants of this platform including the most relevant stakeholders and authorities.

1 Introduction

1.1 Current situation in your country

The current situation of the SGE systems in Spain is difficult to estimate due to the lack of official statistics regarding those systems. Nevertheless, several sectorial market analyses

indicate that the total shallow geothermal installed power should be higher than 15 MW, including the applications with heat pump. This data are mainly based on the subsidiary programs from the different regions. According to this number, it is estimated that the total number of installations in Spain could be around 1000 installation with an average of approx. 14-15 kW. The market in Spain is dominated by companies of consultancy and engineering offering total package that include the design and the installation of the systems

Designers are predominantly		x National	◯ Foreign
Installers are predominantly		x National	◯ Foreign
Technology providers are predominantly		◯ National	x Foreign
Designers are predominantly independent from installers		◯ Yes	x No
If no, specify:			
Designers' market is predominantly	◯ Local	x Regional	◯ National
Installers' market is predominantly	◯ Local	◯ Regional	x National

The coverage of the designers and installers in the Spanish market could be variable depending on the region as well as the size of the companies. In general, it could be stated that the designer market is mainly dominated by local or regional companies whereas the installer market is predominantly regional or national.

During the period 2006-2011, the construction market in Spain has passed two very different stages. The first stage contemplate the period between 2006-2008 where the construction of new buildings in Spain was extremely high, then, the second stage (from 2008) was marked by a significant decrease on the construction caused firstly by the global financial crisis and lately by the economics problems appeared in Europe related to the external debt of some European countries, and specially the bursting of the housing bubble in Spain.

During the first period, an important milestone occurred, causing an indirect increment of the market for SGE systems. This milestone is related to the entry into force of the Technical Building Code, and specially the document RITE (Regulation for H&C system in Building) where the specifications and requirements of the thermal installations were stated, even when the SGE are not explicitly mentioned. Those requirements are related to:

Welfare and Hygiene: Environmental thermal quality, Interior air quality and noise level
Energy efficiency: Coefficient of performance; H&C distribution, Regulation and control of equipment, consumption accounting, energy recovering, and use of renewable energies.
Safety and security of the systems.

The market of the SGE systems grew significantly during those years and the number of companies offering services was increased. It was mainly due to the elevated number of new buildings that appeared in the market. Nevertheless, the lack of a clear specification in those codes (RITE and CTE) to indicate that the SGE systems could be considered as possible solutions for reduce the energy demand in buildings associated to energy savings in H&C,

triggered the increment of alternative solutions which were clearly marked in the documents as the thermo-solar panels for hot water production. It is important to remark that in the Technical Code of Construction there are requirements related to renewable energies, exclusively for the production of hot water.

The introduction of the funding program GEOCASA by the IDAE (May, 2010) has permitted to create a new support scheme where the installations are financed by the program (Governmental support). Within the framework of this program, the certified companies (more than 20 companies are already recognized as certified companies for the program GEOCASA) can provide an integrated service to the final users.

Finally, the development of the new state plan for the renewable energies (2011-2020) will presumably cover the previous deficiencies related to the SGE systems. The new state plan have a specific chapter including the list of measurements needed to successfully achieve the objectives and challenges of the NREAP document.

During next years, it is important to remark that the current number of empty dwellings makes difficult the growth of the SGE market; on the other hand, the development of this technology respect to the other conventional technologies could trigger a significant increment not only because the GEOCASA program, but also because the new codes and official bulletins will contemplate the SGE as a renewable energy resource with own entity, according to the compromises of the public administrations.

The common procedure in Spain slightly depends on the regulative framework of the different Spanish regions (Comunidades Autónomas). It could be resumed in a general way as:

- Planning and design of the system according to the thermal demands of the building and the desired characteristics of the installation. Planning is done considering the results of the pertinent tests for unravel the suitability of the underground.

- Application for permits for drilling to the local mining department and eventually to the regional services for managing underground waters when the borehole is under the groundwater level or it is intended to install an open system. Sometimes, it is not necessary to apply for permission to the mining authorities, specially, in those case that the depth < 200 m. In other cases a study of Environmental impact may be required. It occurs frequently for large systems when several boreholes are planned and the depth of the boreholes is > 200 m.

The common protocol to develop a project includes the following aspects:

- Description of the systems and the foreseen installations including the dimensions of the boreholes, total occupied surface, grouting materials, typology of conductive fluid,…
- Utilization and purposes of use for the geothermal resource

- Generated wastes and managing of those waste including a detailed quantification
- Production of liquid wastes and ways of depuration
- If applied, atmospheric emissions and production of noise
- Risks and contingence measurements
- Detailed information related to the location and emplacement of the system
- UTM coordinates
- Current use of the surface. Description, if applied, of protected areas
- Cartography 1:50000 and 1:5000
- Other studied alternatives

Integration of the SGE system project into the general Request for regulating the building including the system as a potential system for energy savings (renewable energy system according to the European definition). The regulation of the thermal installations will be managed by the Technical Construction Code, which makes a direct reference to the RITE (Reglamento de Instalaciones térmicas en edificación). This document is used for the regulation of the thermal installations in buildings. The document compiles a series of requirements that should be achieved in order to fulfil the conditions of the installation.

In the RITE, several phases or steps are contemplated for the licensing of the installation. During the first phase, namely as Project phase, the requirements and objectives of the installation are described. Then, the main suitable installation is introduced and finally a document for justify that the decided installation fulfil the stated requirements is included.

During second phase, known as execution phase, the selected installation is placed into the building. After finishing the installation, the possible modifications respect to the previous phase, project phase, should be communicated to the authorities or public administrations (normally municipalities).

The third phase is called legalization phase that refers to the final inspection of the authorities. This inspection includes the documents and the real installation performed in the execution phase. If the installation is in concordance with the presented documentation, a favourable report is issued by the authorities. After the approval of the authorities, the final user is responsible of the use and maintenance of the installation and buildings.

When it is intended to obtain financial support according to the program GEOCASA, the project is presented by the Installer or designer (who should be staff of a certified company) to the public authority depending of the national agency for energy diversification (IDAE). In case that this support is obtained the company will be owner of the system for 10 years selling the energy to the final user with saving of 20 % respect to the conventional energy. After 10 years the property of the system is changed to the final user and the benefited company should return the initial funding to the IDAE.

1.2 Barriers

Groundreach pointed out that after making a research of all the legislations and standards in Spain, we can conclude that despite of the efforts of the Spanish Government promoting laws for the RES, there are no specific standards for the Ground Source Heat Pumps. Anyway, because of the born of new projects and companies in the last years, seems that the situation of lack of standards will change soon.
Moreover, the legislation for having permits for drilling is not uniform, having different criteria for every autonomous community (region) in Spain and making the market less attractive for the companies. This point should be regulated to facilitate the market penetration.

Classification of market barriers:

- Economic: General unknown of the national, regional or local schemes for funding the projects. Lack of knowledge about subsidiaries support and significant over cost in the initial investment respect to analogous well known solutions such as conventional heat pumps or biomass chillers.

- Organizational: The different schemes for promoting the SGE should be remarked to the stakeholders in order to correctly inform them about the possibilities of the technology. The subsidiaries should be announced in a way focused on different stakeholders to make more visible the options for the investment and promote the market, especially at the level of the final users.

- Information: It is highly probable that the general opinion including the potential stakeholders and the final users in Spain are not totally aware about the possibilities of the SGE for supplying thermal energy. Subsequently, an intensive effort should be done in order to clarify what are the main advantages of those systems and demonstrate the benefits of the technology. Information should be addressed to the different stakeholders in a comprehensive manner.

  The most common accepted solutions (solar panels, inverted heat pumps, biomass chillers, …) did this informative effort time ago by means of media campaign and news. Those campaigns demonstrate to the stakeholders the advantages of those solutions. We consider that something similar should be done to extend the market of the SGE.

- Legal/regulative barriers: In several documents and previous studies such as the documents of the Groundreach project, and studies about the situation of the SGE market in Spain (Energía Geotérmica, Análisis y Perspectiva and the Vision 2030), it was stated that the lack of a clear regulative framework and the different competences between regions make the Spanish market unattractive for the companies. For this reason, the main effort to overcome the current situation should consider the solution of the regulative framework in order to homogenize this framework in the different regions and make it in concordance with other European countries.

2 Review of existing documents (or in progress)/Tools to support SGE development

2.1 National level

- **Dedicated Web sites and GIS (general public)** **x Yes** ◯ **No**

GEOPLAT is the Spanish Technological Platform of the Geothermal energy with a lot of information and data about this technology. (www.geoplat.org)

IDAE web site has also information about the advantages and possibilities of the geothermal energy including information about financial support. (http://www.idae.es/index.php/id.421/relmenu.323/mod.pags/mem.detalle)

General information of the geological setting of Spain can be consulted in the website of the Geological survey (www.igme.es) . Moreover, information about wells are available under petition in different organism depending on the regional councils.

Finally the Unión Española de Geotermia is a professional association with information and training for promoting the geothermal energy. (http://www.googlenergy.com/community/

- **Support tools**

Geothermal operations inventories	◯ **Yes**	**x No**
Underground operations inventories	◯ **Yes**	**x No**
Geothermal resources evaluation	**x Yes**	◯ **No**

The Instituto Geologico y Minero de España prepared during the 80s several studies about the geothermal potential of Spain. Those studies were focused on the deep geothermal resources in order to develop future power plans to generate electricity. This research was abandoned during the 90s and not other major studies have been done since that moment. Regarding potential of shallow geothermal either with UTES or ATES there is a lack of evaluation in Spain.

Geothermal resources management	◯ **Yes**	**x No**
Water resources management	X **Yes**	◯ **No**

The management of the water resources in Spain is done by the different hydrological confederations which are related to the different hydrographical basins (main

rivers). Most of these organisms are directly related to the provincial deputations. These organisms control not only surface resources but also underground resources. Therefore, the obtaining of permissions for SGE affecting the underground table (like Open systems) is coordinated by those confederations and a permission is required for extraction the water as well as a different permission is required for injection of the water. In this case, the permission for injection of water is managed by the Industry department because recirculated waters are considered as industrial waters. In any case, the relation between these agencies and the geothermal energy is not clearly regulated in this moment.

- **Best practice (or technical) Guideline documentation** ◯ **Yes** **x No**

- **Training activities dedicated to SGE** **x Yes** ◯ **No**

The training activities dedicated to SGE in Spain have been done in the framework of the project GEOTRAINET. In that project, several courses were carried out in European countries and the Polytechnic University of Valencia prepared the courses for Spain. Other European projects such as QUALICERT and EU-CERT.EU has also contributed to the training of Spanish professionals.

Furthermore, some other organizations such as the Union Española de Geotermia, prepared from time to time short courses focused on specific points related to the SGE. Other professionals, professors, and researchers are often doing activities of training and dissemination of the Geothermal systems in order to increase the visibility of these solutions for H&C.

Nowadays, GEOPLAT is consulting to the stakeholders in order to set up a complete training program under the results of the project GEOTRAINET. The training program will contemplate a series of teachers as well as different centres of institutions to carry out the courses.

- **certification for professionals** x Yes x No

It is only required a certification for installers of thermal installations but not for professional related to the ground.

If yes, is it mandatory? ◯ Yes x No

It is mandatory for Installers of thermal installations,. The scheme for certification of professionals is defined in the RITE.

certification for organizations x Yes ◯No
If yes, is it mandatory? ◯ Yes x No

- The companies or industries related to the SGE sector may be certified in order to be recognized as authorized company, if they want to be included into the program GEOTCASA. The conditions and requirements for the authorization process are described in the BOE: "BOE Resolución 13 de mayo 2010. Convocatoria y Bases para la habilitación de empresas"

  According to the RITE, regional authorities have the power to grant companies with the certification for thermal installations (not only SGE but all the different solutions in the market)

- **Codes/Regulations** ◯ **Yes** **x No**

2.2 Local/Regional level

Valencia presented the SEAP document during 2009. In this document, which is attached to the report there is not mentions of the SGE system and the solutions that these systems may supply in the achievement of the energetic objectives. Nevertheless, it is pretended to be include in the future development of the plan for the renewable energy systems in the city which could be presumably presented during next year.

- **Dedicated Web sites *for information about Shallow Geothermal Energy***

There are not websites dedicated to this issue at this moment. Nevertheless, some local energy agencies from the different regions present in their websites some specific information about singular successful projects using SGE. As example the following link show the case of the AVEN.

http://www.aven.es/attachments/fichas/ficha49.zip

- **Support tools**

Geothermal operations inventories ◯ **Yes** **x No**

Underground operations inventories **x Yes** **No**

The urban city planning show a general inventory of the main public underground infrastructures of the city including the underground parking and the Metro layout. In those planning, SGE infrastructures have not been considered.

Geothermal resources evaluation ◯ **Yes** **x No**

Geothermal resources management ◯ **Yes** **x No**

Water resources management ◯ **Yes** **x No**

- **Best practice (or technical) Guideline documentation** **x Yes** ◯ **No**

The Region of Valencia (Comunidad Valencia) submitted through the Valencian Energy agency a document for the incorporation of renewable energy systems in buildings. In this document the SGE systems were contemplated as one of those renewable sources to be incorporated in the buildings.

For accessing to this document, please use the following link:

http://portales.gva.es/aven/servicios/ponencias/pdf/2C7_GUIA_EERR_L._Soto_IVE.pdf

If yes, do they include information about energy performances? ◯ **Yes** **x No**

- **Training activities dedicated to SGE** ◯ **Yes** **x No**

- **certification for professionals** x **Yes** x No

If, yes, is it mandatory? ◯ Yes x No

certification for organizations x Yes ◯ No
If yes, is it mandatory? x Yes ◯ No

Note that the certifications are granted by the local or regional authorities but during the procedure, national codes or Royal Decree are considered. The problem in Spain is that the competences related to the regulation procedure of buildings are transferred to the regional (Comunidades Autonomas) and local administrations. In this way, a person with the certification for installer from Madrid for instance should not be valid to install a system in other region. This person should firstly perform a different processed in that region.

- **Codes/regulations** ◯ **Yes** **x No**

3 Subsidies /Financial Incentives available

3.1 National level

At National level the main program for incentives and subsidies related to the SGE systems is the previously mentioned GEOTCASA program which was presented by the IDAE (Institute for the diversification of energetic saving). The conditions for receiving the subsidies are specified in the national bulletins.

For obtaining financial support to carry out the installation, the company should be confirmed as "recognized or certified" companies in the program. The company receive financial support to carry out the installation and the final user will pay to the company a monthly bill which should be 20 % cheaper that the bill based on conventional energy sources (electricity and gas). During the first 10 years, the company possess the ownership of the geothermal installation.

After 10 years the benefited company must pay back the amount of money that they received for the installation and the property of the installation is transferred to the final user. With this system, the benefits of the companies will depend on the efficiency of the installations in such a way that the most efficient installations will trigger a higher return to the company.

Moreover, the costs associated to the installations of renewable energy systems for air conditioning building are generally susceptible to be partially liberalized over the incoming taxes. It could differ in the different communities because the taxes management is partially transferred to the Autonomies.

3.2 City or regional level

Many of the Spanish autonomies have specific programs for subsidiaries support in the installation of SGE systems. Those subsidies depend generally from the Departments (Ministries) of Industry, Tourism and Energy and are managed by the local or regional energy agencies. The calls for applications and the total budgets vary yearly. It is difficult to specify the requirements and conditions of each call but in general it could be stated that the subsidies could be used to partially pay the costs related to the boreholes, pipelines, ground movements and auxiliary equipments, and not for heat pumps or interior apparatus for distributing the thermal energy (fan-coils, radiant floors, radiators, etc.).

Finally, when the SGE installation will be used to cover the requirements of the (RITE) (New houses and refurbishment buildings) regarding the installation of renewable energy systems, the subsidies could be used for financing the differences respect to those requirements. The enhancement of the installation with respect to the minimum requirements must be considered "significant enhancement".

In order to illustrate one of those subsidies in the Comunidad Valenciana, please follow the following link:

http://www.docv.gva.es/datos/2012/07/06/pdf/2012_6714.pdf

4 Insurance systems

In Spain, we have not found any obligatory insurance system for SGE. Insurance systems for covering possible damage to the environment or deficient operation of the systems are not required for the licensing process.

In general, all the agents involve in the construction sector posse their own insurance schemes for covering civil damage regarding to the buildings. In some way those insurance could occasionally cover any damage or unsatisfactory actuation related to the SGE installation.

Nevertheless, after the introduction of the GEOTCASA program, it is known that some companies contract private insurances in order to cover the operation of the systems for assuring that the benefits associated to the exploitation of the geothermal resources during the 10 first years is sufficient for producing the expected profit and pay back the installation to the IDAE.

5 Existing action plan

A significant number of medium-large size cities in Spain have already developed the SEAP. The cities that are committed in the project do not specifically mention the SGE systems as potential systems for fulfilling the requirements of energy saving and nearby 0 energy buildings

In any case, GEOPLAT in coordination with the IDAE and other institutions are doing efforts in order to incorporate directly the SGE for providing thermal energy to the buildings. The tool for the energetic labelling of buildings has recently incorporate the SGE systems as other possibility for covering thermal demands for buildings.

Legal obligation ◯ Yes x No

Volunteer	x Yes	◯ No

6 Legal framework and Cities Planning

6.1 Current legislation and permit procedures in relation to SGE

The regulation for SGE in Spain is in most of the cases generic (related to different energy resources, or natural resources) and based in regional normative. In general, it could be established that Mining departments, Environmental Departments and Industrial Departments are the organisms that provide the permissions for regulate SGE.

Nevertheless, it is not always clear if a SGE system need a type or permission or not and will basically depend on the regional regulations. For the realization of boreholes, it may be necessary to obtain permissions from the mining departments (water administrations could be also involved in cases of ATES), especially in those cases where the depth will be deeper than 200 m or several boreholes will be performed.

The environmental regulation refers mainly to the possibilities of thermal pollution of the aquifers, so in general an environmental impact study may be demanded by the administration to demonstrate that the geothermal project is not going to affect the underground parameters, especially in case that underground waters are used (ATES).

Finally, for the regulations of any type of thermal installation, it is necessary to follow the RITE which depends on the industry departments. In additions, other permits may be required by the local administrations to get the permissions for install underground infrastructures (according to the specifications that were introduced in chapter 2). Moreover, the energetic certification is required for new or refurbishment buildings including not only the envelope of the building but also the installations of the building. It permits to obtain a label of classification according to the former EPBD directive, which was transpose in Spain by means of the Royal Decree 47/2007. The public authorities in charge of implementing this normative produced a series of official tools that are known as CALENER program and documents. In the current versions of the program, geothermal heat pumps are not specifically introduced for the labelling. Nevertheless, a SGE could be introduced by means of using other recognized tools that could allow the modelling of a thermal installation, including SGE, in concordance with the CALENER.

Recently, several tools have been also recognized for existing buildings. SGE could be selected as available systems in one of these tools.

The official information related to the energetic certification procedure in Spain can be find in the next link.

http://www.minetur.gob.es/energia/desarrollo/EficienciaEnergetica/CertificacionEnergetica/DocumentosReconocidos/Paginas/documentosreconocidos.aspx

6.2 (Underground) Space planning

There is a lack of regulation concerning this aspect in Spain. Further research will be done to analysis the current framework.

Is there a will in your country to link urban planning closer with renewable energy plans?

◯ Yes x No

Are there specific considerations of renewable energy integration (i.e geothermal energy) into construction licences?

x Yes ◯ No

In the document DB-HE-4 of the Technical Code of Buildings, it is compiled the regulations concerning the energy savings of new and refurbishment buildings. It is basically affect the production of SHW in some administrative and public buildings. For governing the installation of thermal installations, the CTE refers to the RITE document where the regulations for installing SGE may be extracted according to a series of performance and safety objectives are marked. In some municipalities these considerations are also compiled in local bylaws.

Is there a regulation concerning interactions between thermal uses of the underground and other utilisations (such as constructions, use of water, …)?

◯ Yes x No

Is there a national/regional/local database of wells?

There is not a general database of wells in Spain. Some local agencies of water management depending on the hydrographical confederations or the Provincial Deputation have their own "local" database with regulated wells for water extraction in the own regions. Regulated wells are integrated as infrastructures and could be consulted in the Cadastral documents of the regions.

Are there public databases concerning all the uses of the underground?

◯ Yes x No

6.3 Integration of H&C systems in buildings

Do you have specific targets for integration of H&C systems (in parallel to development of renewable energy) concerning renovation/refurbishment of buildings?

x Yes ◯ No

It is not mandatory to install thermal installations but in case that thermal installations will be installed during a refurbishment of the building (considering important refurbishment), there are specific requirements. Those requirements are described in the RITE.

Do you have a specific regulation on H&C systems concerning new constructions?

x Yes ◯ No

The Document RITE, which affect to new buildings as well as to some of the refurbishment processes, is the document for regulating the thermal installations in buildings. The objectives, targets and requirements will depend on the characteristics of the desired installation. Nevertheless, there is not an obligation either in the CTE or RITE to install any type of renewable energy for H&C in the buildings.

The energetic certification must be also considered according to the previously introduced methods.

What are the intentions in the regulations and specific targets and how does it fit with geothermal energy development?

The intentions in the regulations and specific targets are basically compiled in the Documents CTE-DB-HE-4 and the RITE (which is the regulations based on the performance for thermal installations in buildings). Those documents does not mention the SGE, nevertheless those systems are indirectly included under the Other Energy Sources.

Are existing plants subject to periodic monitoring/report? ◯ **Yes** **x No**

Are existing plants subject to mandatory maintenance? ◯ **Yes** **x No**

According to the regulations maintenance is obliged. Nevertheless the final responsibility is assumed by the final user or owner of the installation and there is a lack of personnel in charge of checking out this maintenance, so this maintenance is done only in certain cases.

In some particular bylaws (scarce number of cases), the municipality requires a formal contract for maintenance (with a minimum duration) in order to regulate the use of the building.

Are operational performances (e.g. energy efficiency) guaranteed? ◯ **Yes** **x No**

There is not a specific requirement for guarantying the operational performance of the SGE. This aspect is sometime covered by the contract between the installer and the final user, but it is not under any regulation.

7 Additional Table

For Ground Water Heat Pump	Possible answer	Comments
Are there temperature thresholds?	Yes/No	
If yes:		
Please report the specific values	Technical thresholds	
	Relative values	
	(limit for heating/cooling)	
	Absolute values	
	(maximum/minimum temperature)	
	Technical thresholds	
	Relative values	
	(limit for heating/cooling)	
	Absolute values	
	(maximum/minimum temperature)	
Are the thresholds legally binding?	Yes/No; Level (state, city, etc.)	
Which are the relevant laws/ordinances?	Title, year	
What is the basis for these values?	Rule of thumb	
	Scientific studies	
	Something else	

If no:		
Is there a particular reason?	Yes/No; Explanation	The lack of a specific normative for SGE produces that there is not a threshold in water temperature.
Are regulations planned for the future?	Yes/No; Description	No references at this moment
Are there regulations referring to minimum distances?	Yes/No	Same explanation
If yes:		
Which are the relevant laws/ordinances?	Title, year, name of the law/ordinance	
What is the basis for these values?	Rule of thumb	
	Result of research	
	Something else	
If no:		
Is there a particular reason?	Yes/No; Explanation	
Are any regulations planed for the future?	Yes/No; Description	No references at this moment
Does your country have any other laws, ordinances or regulations concerning thermal groundwater use?	Yes/No	Yes, there is regulation for thermal underground waters referred to balnearies and Spa
If yes, which are the relevant laws or ordinances?	Title, year, comments	Mining activities-General regulations relative to the Mining Regime, Dec 1978. This normative describes in one of the point the geothermal resources (deep geothermal) in order to differenciate from thermal ground waters

For vertical heat exchangers	Possible answer	Comments
Are there distance thresholds? Minimum distance between 2 systems Minimum between two vertical heat exchangers	Yes/No Yes/No	T° of recharge or distance between 2 systems
If yes:		
Please report the specific values	Technical thresholds	
	Relative values	
	(limit for heating/cooling)	
	Absolute values	
	(maximum/minimum temperature)	
Are the thresholds legally binding?	Yes/No; Level (state, city, etc.)	
Which are the relevant laws/ordinances?	Title, year	
What is the basis for these values?	Rule of thumb	
	Scientific studies	
	Something else	
If no:		
Is there a particular reason?	Yes/No; Explanation	Lack of normative and regulation
Are any regulations planed for the future?	Yes/No; Description	No references at this moment
Are there regulations referring to minimum distances?	Yes/No	