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**CGS Europe project Cooperation**  
**with National, European and International bodies and initiatives**  
**(01/11/2010 – 30/09/2013)**

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in close collaboration with  
Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) and Institut Royal des Sciences Naturelles de  
Belgique (RBINS-GSB)

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\* **PU** = Public

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## 1 Introduction

The current note summarises the combined actions of three tasks (2.3, 2.4 and 2.5) which are all dedicated to cooperation, but on three distinct levels, namely:

- 1) National
- 2) European
- 3) International

This report summarises the actions undertaken for each task at National, European, and International level during the CGS Europe project (01/11/2010 – 30/09/2013), as well as the planning and priorities for upcoming actions following on from the CGS Europe project. Each section includes a brief summary of the objectives.

## 2 Partners of CGS Europe

The research institutes involved in CGS Europe are listed in Table 1.

**Table 1: CGS Europe partners**

Short name	Name	Country
GBA	Geologische Bundesanstalt	Austria
RBINS-GSB	Institut Royal Des Sciences Naturelles De Belgique	Belgium
SU	Sofiiski Universitet Sveti Kliment Ohridski	Bulgaria
UNIZG-RGNF	University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering	Croatia
CzGS	Ceska Geologicka Sluzba	Czech Republic
GEUS *	Geological Survey of Denmark and Iceland	Denmark
TTUGI	Tallinna Tehnikaulikool	Estonia
GTK	Geologian Tutkimuskeskus	Finland
BRGM	Bureau de Recherches Géologiques Et Minières	France
IFPEN *	IFP Energie Nouvelles	France
BGR	Bundesanstalt für Geowissenschaften und Rohstoffe	Germany
G-IGME	Ethniko Kentro Viosimis Kai Aeiforou Anaptyxis	Greece
MFGI (former ELGI)	Magyar Földtani és Geofizikai Intezet	Hungary
GSI	Department of Communications, Energy and Natural resources, Geological Survey of Ireland	Ireland
OGS *	Istituto Nazionale di Oceanografia e di Geofisica Sperimentale	Italy
URS *	Università di Roma “La Sapienza”	Italy
LEGMC	Latvijas Vides, Geologijas Un Meteorologijas Centrs SIA	Latvia
GTC	Gamtos tyrimų centras	Lithuania
TNO *	TNO – Netherlands Organisation for Applied Science	The Netherlands
NIVA *	Norwegian Institute for Water Research	Norway
IRIS *	International Research Institute of Stavanger	Norway
SINTEF *	SINTEF Petroleum Research	Norway
PGI-NRI	Panstwowy Instytut Geologiczny - Panstwowy Instytut Badawczy	Poland
LNEG	Laboratorio Nacional de Energia e Geologia I.P.	Portugal

GEOECOMAR	Institutul National De Cercetare-Dezvoltare Pentru Geologie Si Geoecologie Marina - GEOECOMAR	Romania
AGES	Association of Geophysicists and Environmentalists of Serbia	Serbia
SGUDS	Statny Geologicky Ustav Dionyza Stura	Slovakia
GEO-INZ	Geoinzeniring Druzba Za Geoloski Inzemiring Doo	Slovenia
S-IGME	Instituto Geológico y Minero de España	Spain
SGU	Sveriges Geologiska Undersökning	Sweden
METU-PAL	Middle East Technical University	Turkey
BGS *	British Geological Survey	United Kingdom
IMPERIAL *	Imperial College Consultants Ltd.	United Kingdom
HWU *	Institute of Petroleum Engineering, Heriot-Watt University	United Kingdom

\* Involved in the CGS Europe project as third party of the CO<sub>2</sub>GeoNet Association, which is a partner of the project.

### 3 Cooperation with National bodies and initiatives

#### 3.1 General approach

Interaction on a regular basis with National bodies and initiatives is important to facilitate the demonstration and industrial deployment of CO<sub>2</sub> storage as well as the implementation of the European Directive with its national transposition in each country. The outline of this task and proposed strategy were presented at the “Kick-off” meeting, November 30<sup>th</sup> 2010, Paris.

The broad strategy was, over the duration of the project:

General - CGS:

- Provide an up-to-date overview over the scientific state-of-play on CO<sub>2</sub> storage in the 28 European countries represented in CGS Europe.
- Use this overview as a basis for networking activities between individual CGS Members and national bodies/initiatives in each country.

Specific – CGS Europe Members:

- support national authorities/stakeholders in implementing CO<sub>2</sub> storage-related legislation, planning and decision-making;
- encourage “follower” countries to catch up;
- facilitate the establishment of bilateral or multilateral (scientific) collaborations.

#### 3.2 Completed and ongoing activities

##### 3.2.1 Database and report on Member States' networks, R&D programmes, national pilots and demonstrations concerning geological storage of CO<sub>2</sub>

A database of activities in member countries was established in 2011 and updated in spring 2012. This overview of CO<sub>2</sub> storage activities in the CGS Europe member states provides valuable background information on a European level for the CGS Europe member countries and is available on the members' part of the CGS Europe website. The database contains information on;

- Research & research funding (National funding agencies (including ministries) for national R&D

programmes related to CCS; major national research institutes/universities dealing with CO<sub>2</sub> storage; partners' previous experience with EU instruments for research funding/cooperation);

- Pilots and demos (National pilots and demonstrations concerning CO<sub>2</sub> storage);
- Member States' national networks on CCS/CO<sub>2</sub> storage.

The database was further updated in May 2013 and included as an Annex to the public report (D2.10) summarising the “State of play on CO<sub>2</sub> geological storage in CGS Europe partner countries” published on the CGS Europe [website](#) which used this database as a basis.

### 3.2.2 Focused in-house presentations and consultations

CGS Europe partners, in particular the participants from “follower” countries, have held numerous consultations/in-house presentations to support their national authorities/stakeholders in implementing CO<sub>2</sub> storage-related legislation, planning and decision-making. These have included, amongst other things, the following:

- regular or requested consultations with relevant ministries/departments on the transposition of the EC directive on CO<sub>2</sub> geological storage and/or the infringement proceedings (e.g., in Austria, Belgium, Bulgaria, Croatia, Czech Republic, Estonia, France, Greece, Hungary, Ireland, Latvia, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Sweden, The Netherlands).
- consultations with national regulators, policy makers, national or local authorities or/and industry on the local/regional possibilities for CO<sub>2</sub> storage and the importance of CCS for economy (e.g., in Belgium, Bulgaria, Croatia, Estonia, Germany, Hungary, Ireland, Norway, Portugal, Slovakia, Slovenia, Sweden, UK);
- periodic/regular interactions with national CCS networks (e.g. France, Poland, Spain);
- consultations with national governments and/or relevant committees on defining national R&D priorities (e.g., Czech Republic);
- periodic/regular interactions with national funding agencies (e.g., CLIMIT programme of Norway).

### 3.2.3 Discussion with national authorities/funding agencies to encourage bi- or multilateral (scientific) cooperation

A presentation entitled “Overview of the national research programmes and funding in CGS Europe countries” was given as an introduction to the CGS Europe Knowledge Sharing Workshop “National research programmes” in Venice on April 19<sup>th</sup> 2012 (available [here](#)). This introduction was part of the session on “National funding and national CGS research programmes in CGS Europe countries”. It was followed by presentations on national research programmes in France, Germany, The Netherlands, Norway and Finland by the respective programme’s representatives. Case studies were also presented by AGH University of Science and Technology as a partner of the Polish national network.

## 3.3 Future plans

Although the FP7 CGS Europe project is drawing to a close, many of the partners have joined the CO<sub>2</sub>GeoNet association in 2013. Therefore activities and cooperation initiated during this project will continue under the umbrella of the expanded CO<sub>2</sub>GeoNet association. An updated list of CO<sub>2</sub>GeoNet members is added in Appendix 1 at the end of this report. This cooperation and knowledge-sharing will allow future provision of a European perspective of the state of play on geological storage of CO<sub>2</sub> as a basis for further consultations/in-house presentations with national authorities/stakeholders. This activity is particularly important in “follower” countries.

## 4 Cooperation with European bodies and initiatives

### 4.1 General approach

A restricted team was in charge of interacting on a regular basis and establishing formal relationships, where relevant, with European bodies and initiatives including EC DGs Research/Energy/Climate Action, ETP-ZEP, EERA-CCS, EII-CCS (where applicable), CCS Demonstration Project Network, ECCSEL, CO<sub>2</sub>NET, EuroGeoSurveys, ENeRG, UNECE and other relevant bodies. An outline of this task and proposed strategy was presented at the “Kick – off” meeting, November 30th 2011, Paris.

The main activities within this task were to:

- Identify synergies between CGS Europe and ongoing European activities, and possible interdependencies between these activities
- Establish cooperation plans where possible
- Establish formal relationships where relevant
- Represent CGS Europe at certain key meetings

### 4.2 Completed activities

#### 4.2.1 Cooperation with ZEP

Establishing contacts with ZEP was a specific goal of the project. CGS Europe participants are represented in the ZEP Advisory Council (BRGM and IFPEN), in the Government Group (GeoEcoMar) and many CGS Europe partners are members of ZEP Task Forces (including the Government Group, Technology Task Force and Public Communication), securing a good liaison between ZEP and CGS Europe. Project partners attended the various ZEP meetings, but in 2012 CGS Europe also became directly involved in a key task force; the new Working Group of Storage Infrastructures which is officially seen as a joint initiative of ZEP’s Task Force Technology. This working group is co-chaired by CGS Europe and ZEP.

Several CGS Europe partners actively contributed to the preparation of the report “*Accelerating the demonstration of CO<sub>2</sub> geological storage in Europe*”, prepared by the new ZEP TFT WG Storage Pilots.

A ZEP-CGS Europe study on potential pilot projects in Europe was prepared by CGS Europe and ZEP with contributions from all CGS Europe members on national activities through response to a standardised questionnaire. This report was presented at the CO<sub>2</sub>GeoNet 8th Open Forum (presentation available [here](#)) and the full report “Opportunities for CO<sub>2</sub> storage pilots in Europe” will soon be made available through the CO<sub>2</sub>GeoNet website.

ZEP presented on their position on the future of CCS in Europe at the CO<sub>2</sub>GeoNet 8<sup>th</sup> Open Forum (presentation available [here](#)).

#### 4.2.2 Cooperation with EERA

As many partners of CGS Europe are also part of the EERA storage team this has ensured a joined-up approach to research on the future of geological storage research in Europe.

One of the partners of CGS Europe acted during 2011-2012 as reviser for EERA-CCS. Although this was not as a representative of CGS Europe, it did provide a sound basis for the conceptual note “Linking EERA-CCS and CGS Europe”.

### **4.2.3 Cooperation with CO<sub>2</sub>NET and ENeRG**

CGS Europe has maintained a close liaison with two important European networks:

- 1) CO<sub>2</sub>NET (Carbon Dioxide Knowledge Sharing Network), which finished at the end 2011. BRGM, BGS and CzGS were represented on the CO<sub>2</sub>NET Board.
- 2) ENeRG (European Network for Research in Geo-Energy). The liaison with ENeRG is secured by representation of many CGS Europe partners in the ENeRG Steering Committee. This close cooperation resulted, e.g., in the joint preparation of the CO<sub>2</sub>StoP project funded by DG Energy.

### **4.2.4 Interaction with DG Climate Action and DG Research and Innovation**

A positive relationship with DG Climate Action was maintained throughout the project. It is especially noteworthy that a member of DG Climate Action was on the CGS Europe Advisory Body. These relations were also used to ask DG Climate Action to give the Aspen report public status in order to use it as a reference document for CGS Europe's key reports. After contact with DG Climate, the valorisation of the Aspen report by CGS Europe's partners was welcomed, and the report was declared public by DG Climate Action on 26/06/2012.

DG Research and Innovation was the EU project officer responsible for overseeing the CGS Europe project. The Venice Open Forum was a privileged time for interaction. DG Research also invited a representative of CGS Europe to a meeting in Brussels with the Australian Government on 3 June 2013 for discussing future cooperation in Horizon 2020.

### **4.2.5 Cooperation with EGS.CO<sub>2</sub>**

The EuroGeoSurveys expert group on CO<sub>2</sub> Geological Storage, EGS.CO<sub>2</sub>, formally decided during its annual meeting on 12/10/2011 to be supportive of CGS Europe and to arrange their agenda in a complementary way. Both chair and vice-chair of EGS.CO<sub>2</sub> are members of CGS Europe, which ensured maximum efficiency by minimum overlap of activities.

### **4.2.6 Cooperation with EAGE**

CO<sub>2</sub>GeoNet as a partner of CGS Europe was organiser of a CGS Europe workshop at the European Association of Geoscientists and Engineers (EAGE) conference in Vienna in 2011 and co-organiser of the Sustainable Earth Sciences conference in Valencia in 2011. CO<sub>2</sub>GeoNet is also a co-organiser of the next EAGE Sustainable Earth Sciences conference to be held in Pau, France in October 2013. A CGS Europe paper on the state of play of CO<sub>2</sub> storage in Europe will be presented.

### **4.2.7 Cooperation with the CCS Demo Project Network**

One representative of CGS Europe was invited to attend the Advisory Forum of the CCS Demo Project Network. Next meeting will be held in October 2013.

## **4.3 Future plans**

Links with relevant European networks and bodies will be continued wherever possible through CO<sub>2</sub>GeoNet, for example, it has been proposed that an advisory board for CO<sub>2</sub>GeoNet will be formed and that members from the relevant EC DGs could be invited to participate in this body to provide steer for the Association. Future collaboration with EERA will be sought through CO<sub>2</sub>GeoNet, for example, EERA has invited CO<sub>2</sub>GeoNet to contribute to future workshops.

## 5 Cooperation with International bodies and initiatives

### 5.1 General approach

A restricted team was in charge of interacting and establishing formal relationships, where relevant, with International initiatives, such as IEAGHG, IEA, CSLF, Global CCS Institute, IPAC-CO<sub>2</sub>, UNESCO. An outline of this task and proposed strategy was presented at the “Kick – off” meeting, November 30th 2011, Paris.

The broad strategy was, over the duration of the project:

General - Organisational

- Initial focus: increase visibility of CGS Europe internationally;
- obtain endorsement of CGS Europe and increase relevance;
- establish links with international organisations and potential funding sources that will enable durability.

Specific – CGS & CGS Members

- Joint / parallel collaboration and interaction with other countries or international bodies;
- focus on leveraging what we do and increasing efficiency;
- enabling work that otherwise we could not undertake.

### 5.2 Completed and ongoing activities

#### 5.2.1 Cooperation with CSLF

Activities Undertaken:

- Formal application for endorsement of the CGS Europe project by the CSLF was submitted in August 2011. Unanimous agreement for endorsement was obtained.
- Brief discussions were held with the Chair of the CSLF Technical Committee, at the Venice Open Forum, but no collaboration actions were identified.
- Report on progress within CGS Europe project was supplied to CSLF as an update to their Strategic Plan Implementation report (SPIR).

CGS Europe is included as an endorsed project on the [CSLF website](#) as the collaborative aims of this project align with the priorities of the CSLF.

#### 5.2.2 Cooperation with GCCSI

Discussions were held at the Venice Open Forum regarding the openness of GCCSI to requests for funding from CGS Europe/CO<sub>2</sub>GeoNet. The first draft of a proposal for a project to map European carbon storage research projects was sent to GCCSI (Task 2.7 - External funding development) for consideration (this action was suggested in the 2012 Venice Open Forum and endorsed by the Advisory Board). Furthermore, in September 2012, upon request of GCCSI, CGS Europe partners provided information on the current status of CO<sub>2</sub> storage capacity assessments in their countries. This information served as input in the Global overview sub-chapter and map of the 'Regional capacity assessments' chapter in the GCCSI report 'The Global Status of CCS 2012', published in October 2012. In 2013 CO<sub>2</sub>GeoNet became a member of GCCSI.

#### 5.2.3 Interaction with UNFCCC

Enquiries were made regarding the admission requirements and procedures, following recommendations of the Advisory Board to seek affiliation. As CGS Europe is a project and the intention is that most partners of CGS Europe will become members of the CO<sub>2</sub>GeoNet Association, admission as an observer organisation of UNFCCC was applied for by the CO<sub>2</sub>GeoNet Association (February 2013).



#### **5.2.4 Interaction with IEAGHG**

- A IEAGHG delegate attended the Venice Open Forums in 2011 2012 and 2013 as a member of the Advisory Board. A short paper on the Open Forum outcomes was published in the IEAGHG newsletter Greenhouse Issues (Issue 106, June 2012).
- IEAGHG provided a teacher for the CGS Europe Spring School (Poland, March 2012)
- BGS was part of the IEAGHG Summer school field trip in July 2013. BGS staff members presented research at the Keyworth site and led short field excursions (this visit was coordinated by the Nottingham Centre for CCS)
- Participation in joint network meetings (e.g. several CGS Europe partners presented at Santa Fe, June 2012 including BGR who presented a Discussion Session ‘scene setting’ presentation based on attendees responses to a survey on R&D issues.
- CGS Europe partners presented and chaired sessions at the combined Monitoring Network and Environmental Research Network meeting in Canberra, Australia, August 2013 .
- The Geological Survey of Sweden will be an observer at the 44th IEAGHG ExCo meeting in Stockholm on October 2-3, 2013.

#### **5.2.5 Interaction with ISO TC 265**

CO<sub>2</sub>GeoNet Association (a partner of CGS Europe) has applied to ISO Technical Committee (TC) 265 “Carbon dioxide capture, transportation, and geological storage” for a ‘Category A Liaison Status’ in order to have involvement in discussion of ISO standards for Carbon dioxide Capture and Storage (letter dated 20 June 2013). If successful then CO<sub>2</sub>GeoNet will be required to make an “effective contribution to the work of the technical committee” through attendance at future meetings and contribution of their expertise to draft ISO documentation.

### **5.3 Future plans**

Future interaction with IEAGHG, collaboration with UNFCCC and participation in ISO Technical Committee 265 (if membership is granted) will be supported through the expanded CO<sub>2</sub>GeoNet association, with new members coming mainly from CGS Europe. CO<sub>2</sub>GeoNet is [recognised](#) by the CSLF and is member of GCCSI. CO<sub>2</sub>GeoNet is also discussing the possibility of a MoU with GCCSI on capacity building projects carried out with developing countries (Africa, Asia, South America) by GCCSI.

## 6 Appendix 1: CO<sub>2</sub>GeoNet members

### About CO<sub>2</sub>GeoNet

CO<sub>2</sub>GeoNet is the European scientific body on CO<sub>2</sub> geological storage. Founded by 13 public research institutes from 7 European countries, it brings together over 300 researchers with the multidisciplinary expertise needed to address all aspects of CO<sub>2</sub> storage. With activities encompassing joint research, training, scientific advice, information and communication, CO<sub>2</sub>GeoNet has a valuable and independent role to play in enabling the efficient and safe geological storage of CO<sub>2</sub>. CO<sub>2</sub>GeoNet was created in 2004 as a Network of Excellence supported by the EC FP6 programme for 5 years. In 2008, CO<sub>2</sub>GeoNet became a non-profit association under French law. As of 2013, the membership of CO<sub>2</sub>GeoNet is expanding thanks to the support of the FP7 CGS Europe project. More about CO<sub>2</sub>GeoNet at [www.co2geonet.eu](http://www.co2geonet.eu)

#### Founding Members of CO<sub>2</sub>GeoNet:

- GEUS (Denmark)
- BRGM (France)
- IFPEN (France)
- BGR (Germany)
- OGS (Italy)
- URS (Italy)
- TNO (Netherlands)
- IRIS (Norway)
- NIVA (Norway)
- SPR Sintef (Norway)
- BGS (UK)
- HWU (UK)
- IMPERIAL (UK)

#### New Members of CO<sub>2</sub>GeoNet:

- GBA (Austria)
- UNIZG-RGNF (Croatia)
- GFZ (Germany)
- GEOECOMAR (Romania)
- CIUDEN (Spain)
- METU-PAL (Turkey)
- RBINS-GSB (Belgium)
- CzGS (Czech Republic)
- MFGI (Hungary)
- GEO-INZ (Slovenia)
- S-IGME (Spain)

**CO<sub>2</sub>GeoNet** - 3 avenue Claude Guillemin, B.P. 36009, 45060 Orléans, France – Tel: +33 238 644655  
**Secretariat** - Borgo Grotta Gigante, 42/C, 34016 Sgonico (TS), Italy - Tel: +39 040 2140229  
[info@co2geonet.com](mailto:info@co2geonet.com)